REV NO.	DATE	JO/EWO	DESCRIPTION	ENGG	CERT	PMT	OPRNS
A	03/26/23	2221090	ISSUED FOR 90% SUBMITTAL	FJ	ARB	MSY	AMH
00	05/07/2023	2221090	ISSUED FOR IFC SUBMITTAL	FJ	ARB	MSY	AMH

DISCIPLINE ENGINEER: SCEC — DATE: 05/07/23

PROJECT ENGINEER: FJ — DATE: 05/07/23

CERTIFIED: ARB — DATE: 05/07/23

CONSTRUCTION AGENCY: MSY — DATE: 05/07/23

OPERATIONS: AMH — DATE: 07/07/23

EDSD VERIFICATION — CONTROL NUMBER: ____ BY: ____ DATE: ____

REVISION CERTIFICATION — THIS INDICATES THAT REV. NO. 00 OF THIS DRAWING IS COVERED, FOR ALL APPROVAL/CERTIFICATION REQUIREMENTS, BY DRAWING COMPLETION CERTIFICATE (DCC) NO. ____

SAUDI ARABIAN OIL COMPANY

أرامكو السعودية
saudi aramco

COMMUNITY & PUBLIC PROJECTS DEPARTMENT
HOME OWNERSHIP & INFRASTRUCTURE PROJECTS DIVISION

BI-2221090

SPECIAL NEEDS SCHOOL
SPECIAL NEEDS CENTER – PHASE I

MECHANICAL CALCULATIONS - HVAC

ISSUED FOR CONSTRUCTION

MAY 2023

Prepared by:

شركة الاتحاد الهندسي السعودية
للإستشارات الهندسية (خطيب وعلمي)
Saudi Consolidated Engineering Company
for Engineering Consultancy (Khatib & Alami)

MECHANICAL CALCULATIONS - HVAC	DWG.TYPE	PLANT NO.	INDEX	DRAWING NO.	SHT.NO.	REV.NO.
SPECIAL NEEDS SCHOOL	DOC	915	K	HE-032755	1 of 649	00
SPECIAL NEEDS CENTER – PHASE I						
AL-HASA — SAUDI ARABIA		BI / JO:	BI-2221090			

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Weather condition (1) & (2)

Design Weather Parameters & MSHGs

Al Hasa -SNG 03/12/2023

SCEC 02:03PM

Design Parameters:

City Name	**Hofuf**	
Location	**Saudi Arabia**	
Latitude	**25.0**	Deg.
Longitude	**49.0**	Deg.
Elevation	**160.0**	m
Summer Design Dry-Bulb	**46.0**	°C
Summer Coincident Wet-Bulb	**24.0**	°C
Summer Daily Range	**16.0**	K
Winter Design Dry-Bulb	**5.0**	°C
Winter Design Wet-Bulb	**4.8**	°C
Atmospheric Clearness Number	**1.00**	
Average Ground Reflectance	**0.20**	
Soil Conductivity	**1.385**	W/(m K)
Local Time Zone (GMT +/- N hours)	**-3.0**	hours
Consider Daylight Savings Time	**No**	
Simulation Weather Data	**N/A**	
Current Data is	**User Modified**	
Design Cooling Months	**January to December**	

Design Day Maximum Solar Heat Gains

(The MSHG values are expressed in W/m²)

Month	**N**	**NNE**	**NE**	**ENE**	**E**	**ESE**	**SE**	**SSE**	**S**
January	84.0	84.0	123.5	397.6	595.6	752.5	799.0	765.1	725.8
February	94.4	94.4	246.0	515.3	689.3	770.6	770.2	681.8	617.5
March	105.3	139.0	375.7	605.7	736.6	753.9	678.4	538.9	448.2
April	115.5	278.8	497.6	643.8	713.8	675.7	536.5	350.4	249.2
May	132.9	375.3	560.9	660.9	681.3	602.9	432.6	224.0	152.8
June	171.3	407.2	573.6	663.1	664.4	568.1	383.1	179.8	137.6
July	139.3	371.1	545.2	657.2	672.6	588.5	415.4	214.9	152.2
August	120.6	276.6	475.1	630.4	692.0	649.9	514.6	335.1	242.1
September	108.4	131.2	372.0	565.0	698.1	725.6	647.1	519.9	437.0
October	96.1	96.1	252.1	477.3	667.9	755.5	736.4	655.4	595.9
November	84.4	84.4	126.6	382.9	606.5	732.0	787.9	751.9	711.3
December	78.9	78.9	78.9	347.2	565.1	725.5	799.4	785.0	753.7
Month	**SSW**	**SW**	**WSW**	**W**	**WNW**	**NW**	**NNW**	**HOR**	**Mult**
January	764.1	796.0	755.3	597.2	394.4	128.0	84.0	662.3	1.00
February	681.8	770.2	770.2	689.6	515.3	245.5	94.4	773.7	1.00
March	541.2	681.6	741.7	733.2	610.9	390.8	134.3	860.2	1.00
April	354.2	543.7	661.7	714.4	659.6	504.9	261.1	887.2	1.00
May	226.0	433.6	592.6	686.8	677.5	566.4	366.6	886.3	1.00
June	183.0	382.3	562.5	669.1	676.0	582.1	399.9	879.1	1.00
July	218.2	418.1	583.3	674.3	664.6	556.3	361.2	874.7	1.00
August	340.6	523.0	636.6	689.1	638.3	492.3	261.5	868.1	1.00
September	525.3	653.1	723.7	684.5	571.0	379.8	123.1	828.0	1.00
October	655.3	736.3	755.5	667.8	477.1	252.2	96.1	750.0	1.00
November	750.1	785.9	737.7	606.5	376.5	131.3	84.4	650.8	1.00
December	776.9	793.3	731.9	574.0	318.1	92.5	78.9	610.2	1.00

Mult. = User-defined solar multiplier factor.

Design Weather Parameters & MSHGs

Al Hasa -SNG 03/12/2023

SCEC 02:03PM

Design Parameters:

City Name	**Hofuf**	
Location	**Saudi Arabia**	
Latitude	**25.0**	Deg.
Longitude	**49.0**	Deg.
Elevation	**160.0**	m
Summer Design Dry-Bulb	**38.0**	°C
Summer Coincident Wet-Bulb	**28.0**	°C
Summer Daily Range	**16.0**	K
Winter Design Dry-Bulb	**5.0**	°C
Winter Design Wet-Bulb	**4.8**	°C
Atmospheric Clearness Number	**1.00**	
Average Ground Reflectance	**0.20**	
Soil Conductivity	**1.385**	W/(m K)
Local Time Zone (GMT +/- N hours)	**-3.0**	hours
Consider Daylight Savings Time	**No**	
Simulation Weather Data	**N/A**	
Current Data is	**User Modified**	
Design Cooling Months	**January to December**	

Design Day Maximum Solar Heat Gains

(The MSHG values are expressed in W/m²)

Month	**N**	**NNE**	**NE**	**ENE**	**E**	**ESE**	**SE**	**SSE**	**S**
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September	108.4	131.2	372.0	565.0	698.1	725.6	647.1	519.9	437.0
October	96.1	96.1	252.1	477.3	667.9	755.5	736.4	655.4	595.9
November	84.4	84.4	126.6	382.9	606.5	732.0	787.9	751.9	711.3
December	78.9	78.9	78.9	347.2	565.1	725.5	799.4	785.0	753.7
Month	**SSW**	**SW**	**WSW**	**W**	**WNW**	**NW**	**NNW**	**HOR**	**Mult**
January	764.1	796.0	755.3	597.2	394.4	128.0	84.0	662.3	1.00
February	681.8	770.2	770.2	689.6	515.3	245.5	94.4	773.7	1.00
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November	750.1	785.9	737.7	606.5	376.5	131.3	84.4	650.8	1.00
December	776.9	793.3	731.9	574.0	318.1	92.5	78.9	610.2	1.00

Mult. = User-defined solar multiplier factor.

U-Value data (Wall, Roof, Window)

Wall Constructions

Al Hasa -SNG 03/12/2023

SCEC 02:32PM

Wall-1

Wall Details

Outside Surface Color ..... **Medium**

Absorptivity **0.675**

Overall U-Value ..... **0.272** W/(m²·K)

Wall Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0.000	0.0	0.00	0.12064	0.0
16mm gypsum board	15.875	800.9	1.09	0.09863	12.7
Air space	200.000	0.0	0.00	0.16026	0.0
RSI-3.522	89.000	8.0	0.84	3.13458	0.7
180mm HW pre cast	180.000	2242.6	0.84	0.10400	403.7
Outside surface resistance	0.000	0.0	0.00	0.05864	0.0
Totals	**484.875**	**-**		**3.67674**	**417.1**

Wall-2

Wall Details

Outside Surface Color ..... **Medium**

Absorptivity **0.675**

Overall U-Value ..... **0.280** W/(m²·K)

Wall Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0.000	0.0	0.00	0.12064	0.0
16mm gypsum board	15.875	800.9	1.09	0.09863	12.7
Air space	200.000	0.0	0.00	0.16026	0.0
RSI-3.522	89.000	8.0	0.84	3.13458	0.7
Metal Cladding	0.853	7833.0	0.50	0.00002	6.7
Outside surface resistance	0.000	0.0	0.00	0.05864	0.0
Totals	**305.728**	**-**		**3.57276**	**20.1**

Roof Constructions

Al Hasa -SNG 03/12/2023

SCEC 02:39PM

Roof

Roof Details

Outside Surface Color ..... **Medium**

Absorptivity **0.675**

Overall U-Value ..... **0.251** W/(m²·K)

Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0.000	0.0	0.00	0.12064	0.0
203mm HW concrete	203.200	2242.6	0.84	0.11741	455.7
RSI-3.522	100.000	8.0	0.84	3.52200	0.8
16mm gypsum board	15.875	800.9	1.09	0.09863	12.7
PVC membrane	0.000	0.0	0.00	0.07000	0.0
Outside surface resistance	0.000	0.0	0.00	0.05864	0.0
Totals	**319.075**	**-**		**3.98731**	**469.2**

Window 1x1

Window Details:

Detailed Input	**No**	
Height	**1.00**	m
Width	**1.00**	m
Overall U-Value	**1.700**	W/(m²·K)
Overall Shade Coefficient	**0.280**	

Girls special need school building

SPACE INPUT

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G001-Vestibule

1. General Details:

Floor Area ..... **12.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
WSW	22.3	14	0	0

3.1. Construction Types for Exposure WSW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **12.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G002A-Assesment room

1. General Details:

Floor Area	**12.1**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**OFFICE: Office space**	
OA Requirement 1	**2.5**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**6.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Electricity**	

2.4. People:

Occupancy	**5.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**12.1**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G002B-Screen&Intervi

1. General Details:

Floor Area ..... **19.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **EDUCATION: Daycare sickroom**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.90** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	14.8	3	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **19.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G002C-Nurse visiting

1. General Details:

Floor Area ..... **19.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **EDUCATION: Daycare sickroom**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.90** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **6.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	17.5	3	0	0
S	14.6	3	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **19.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **23.7** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G002D-Speech therapy

1. General Details:

Floor Area ..... **19.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Reception area**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **12.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	13.2	3	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **19.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G002E-Meeting room

1. General Details:

Floor Area ..... **48.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Conference/meeting**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **14.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	42.1	5	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **48.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G002-Reception

1. General Details:

Floor Area ..... **33.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **9.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.0** Watts
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	28.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **33.4** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **13.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G005A-Observers room

1. General Details:

Floor Area	**19.7**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**OFFICE: Office space**	
OA Requirement 1	**2.5**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**6.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Electricity**	

2.4. People:

Occupancy	**6.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**19.7**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G005B-Assesment room

1. General Details:

Floor Area	**12.1**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**OFFICE: Office space**	
OA Requirement 1	**2.5**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**10.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Electricity**	

2.4. People:

Occupancy	**5.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**12.1**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G005-Child observati

1. General Details:

Floor Area ..... **42.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **10.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	36.6	5	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **42.1** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G006A-Group room

1. General Details:

Floor Area ..... **17.8** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **4.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **6.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **17.8** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **19.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G006-Occup therapy

1. General Details:

Floor Area ..... **54.3** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **14.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	36.0	5	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **54.3** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **12.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G007A-Janitor room

1. General Details:

Floor Area ..... **7.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **MISCELLANEOUS: Telephone closet**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **4.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	11.0	0	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **7.7** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G007-Vestibule

1. General Details:

Floor Area ..... **16.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	22.3	14	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	16.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **16.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G008A-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **4.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G008B-One:One room

1. General Details:

Floor Area ..... **14.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	19.5	4	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **14.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G008-Class room

1. General Details:

Floor Area ..... **66.3** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	36.3	12	0	0
W	33.6	0	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure W

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **66.3** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.3** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G009A-Store

1. General Details:

Floor Area ..... **4.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **4.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G009-Class room

1. General Details:

Floor Area ..... **61.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	38.2	12	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **61.7** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G010B-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **4.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G010C-Group room

1. General Details:

Floor Area ..... **14.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	19.4	3	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **14.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G010-Class room

1. General Details:

Floor Area ..... **61.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	35.5	9	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **61.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.9** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G011B-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **4.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.3** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G011-Class room

1. General Details:

Floor Area ..... **64.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	38.0	12	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **64.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **4.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G012-Dining

1. General Details:

Floor Area ..... **156.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **FOOD AND BEVERAGE SERVICE: Restaurant dining room**
OA Requirement 1 ..... **3.8** L/s/person
OA Requirement 2 ..... **0.90** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **3.20** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **82.0** People
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	32.3	12	1	0
S	34.6	5	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**
2nd Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **156.4** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G013-Kitchen

1. General Details:

Floor Area ..... **69.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **FOOD AND BEVERAGE SERVICE: Kitchen (cooking)**
OA Requirement 1 ..... **3.8** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **1000.0** Watts
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **10.0** People
Activity Level ..... **Medium Work**
Sensible ..... **86.5** W/person
Latent ..... **133.3** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNE	58.8	3	0	0
E	26.5	0	0	0

3.1. Construction Types for Exposure NNE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure E

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **69.4** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G014-Kitchen storage

1. General Details:

Floor Area ..... **24.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **3.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **500.0** Watts
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNE	22.7	0	0	0

3.1. Construction Types for Exposure NNE

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **24.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G015A-Storage

1. General Details:

Floor Area ..... **29.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	16.7	1	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **29.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G015B-Fitness room

1. General Details:

Floor Area ..... **48.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **SPORTS: Health club/weight room**
OA Requirement 1 ..... **10.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **14.0** People
Activity Level ..... **Athletics**
Sensible ..... **208.1** W/person
Latent ..... **319.4** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	32.8	7	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **48.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **17.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G015-Multipurp room

1. General Details:

Floor Area ..... **240.5** m²
Avg. Ceiling Height ..... **10.2** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **EDUCATION: Multiuse assembly**
OA Requirement 1 ..... **3.8** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **170.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	139.0	27	0	1
ENE	166.0	54	0	0
SSE	150.4	27	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**
Door Type ..... **Single door**

3.2. Construction Types for Exposure ENE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.3. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	240.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **240.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G016A-Store

1. General Details:

Floor Area ..... **4.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **4.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G016B-One:One room

1. General Details:

Floor Area ..... **14.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	18.3	4	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **14.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G016-Class room

1. General Details:

Floor Area ..... **66.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	37.9	12	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **63.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G017A-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **4.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G017-Class room

1. General Details:

Floor Area ..... **63.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	37.9	12	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **63.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G018B-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **4.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G018C-Group room

1. General Details:

Floor Area ..... **13.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	18.1	3	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **13.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G019B-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **4.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G019-Class room

1. General Details:

Floor Area ..... **68.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	37.9	12	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **68.7** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **15.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G019D-Class room

1. General Details:

Floor Area ..... **65.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	37.8	12	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **65.1** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G020-Tech support

1. General Details:

Floor Area	**8.7**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**OFFICE: Office space**	
OA Requirement 1	**2.5**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**8.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Electricity**	

2.4. People:

Occupancy	**2.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**8.7**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**15.4**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**23.9**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G021-FTR

1. General Details:

Floor Area ..... **23.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **16000.0** Watts
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	15.9	0	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **23.4** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **66.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **12.9** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G022-Reception

1. General Details:

Floor Area ..... **44.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **9.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.0** Watts
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	28.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **44.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G024-Office

1. General Details:

Floor Area ..... **10.8** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
WSW	13.1	2	0	0

3.1. Construction Types for Exposure WSW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	10.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **10.8** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **15.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G025-Conference

1. General Details:

Floor Area ..... **17.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Conference/meeting**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **9.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **10.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	17.5	2	0	0
WSW	15.4	2	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure WSW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	17.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **17.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **15.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G026-Asst principal

1. General Details:

Floor Area ..... **16.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **9.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	18.7	4	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	16.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **16.1** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G027-Principal

1. General Details:

Floor Area ..... **16.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	20.6	2	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **16.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G028-Office

1. General Details:

Floor Area ..... **10.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **16.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
WSW	9.6	2	0	0

3.1. Construction Types for Exposure WSW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **10.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G030A-VFD Room

1. General Details:

Floor Area	**9.9**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**10.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**5000.0**	Watts
Schedule	**Electricity**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Seated at Rest**	
Sensible	**67.4**	W/person
Latent	**35.2**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**9.9**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**43.5**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**23.9**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G030-Electrical room

1. General Details:

Floor Area	**25.7**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Free Hanging**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**6000.0**	Watts
Schedule	**Electricity**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Seated at Rest**	
Sensible	**67.4**	W/person
Latent	**35.2**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**25.7**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**23.0**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**38.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

Partition Type	**Wall Partition**	
Area	**42.4**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**23.9**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G032-Toilet

1. General Details:

Floor Area ..... **14.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **MISCELLANEOUS: Telephone closet**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **14.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **5.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G033-Toilet

1. General Details:

Floor Area ..... **25.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **MISCELLANEOUS: Telephone closet**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNE	22.7	0	0	0

3.1. Construction Types for Exposure NNE

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **25.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G034-W-Chair Store

1. General Details:

Floor Area ..... **8.8** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **1.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **8.8** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **16.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **12.3** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G035A-Calming room

1. General Details:

Floor Area ..... **6.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	8.1	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **6.4** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G035B-Jan closet

1. General Details:

Floor Area ..... **4.3** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **4.3** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G035-Elec room

1. General Details:

Floor Area	**11.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Free Hanging**	
Wattage	**6.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**1050.0**	Watts
Schedule	**Electricity**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Seated at Rest**	
Sensible	**67.4**	W/person
Latent	**35.2**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**11.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**17.4**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**38.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

Partition Type	**Wall Partition**	
Area	**49.0**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**23.9**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G036B-Dark room

1. General Details:

Floor Area ..... **11.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **12.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **2.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	11.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **11.7** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G036C-Soft room

1. General Details:

Floor Area ..... **13.9** m²
Avg. Ceiling Height ..... **5.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **10.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	21.4	21	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-2**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	13.9	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **13.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G036D-White room

1. General Details:

Floor Area ..... **7.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **11.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **2.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	7.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **7.1** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G036-Physical playro

1. General Details:

Floor Area ..... **46.8** m²
Avg. Ceiling Height ..... **5.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **10.0** People
Activity Level ..... **Medium Work**
Sensible ..... **86.5** W/person
Latent ..... **133.3** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	37.4	37	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-2**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	46.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **46.8** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **21.7** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G037-FTR

1. General Details:

Floor Area ..... **11.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **6000.0** Watts
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	13.0	0	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
S	13.0	0	0

4.1. Construction Types for Exposure S

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **11.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **13.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **12.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G037-Jan closet

1. General Details:

Floor Area ..... **4.8** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **4.8** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G038-Water

1. General Details:

Floor Area ..... **29.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **1.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	19.2	0	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **29.7** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G042-Calming room

1. General Details:

Floor Area	**8.3**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**EDUCATION: Classroom (age 9 plus)**	
OA Requirement 1	**5.0**	L/s/person
OA Requirement 2	**0.60**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**4.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Electricity**	

2.4. People:

Occupancy	**4.0**	People
Activity Level	**Seated at Rest**	
Sensible	**67.4**	W/person
Latent	**35.2**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**8.3**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**16.0**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**38.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

Partition Type	**Wall Partition**	
Area	**12.3**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G101-Reading room

1. General Details:

Floor Area ..... **129.8** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **43.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	12.7	1	0	0
W	42.1	7	0	0
S	60.4	6	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-2**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure W

Wall Type **Wall-2**
1st Window Type ..... **Window 1x1**

3.3. Construction Types for Exposure S

Wall Type **Wall-2**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	129.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Unconditioned Space**
Floor Area ..... **129.8** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Unconditioned Space Max Temp. ..... **23.9** °C
Ambient at Space Max Temp. ..... **35.0** °C
Unconditioned Space Min Temp. ..... **23.9** °C
Ambient at Space Min Temp. ..... **12.8** °C

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G102-Staff workroom

1. General Details:

Floor Area ..... **107.4** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **20.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	54.7	4	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	107.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G103-Corridor

1. General Details:

Floor Area ..... **122.4** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	50.4	4	0	0
E	50.6	5	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-2**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure E

Wall Type **Wall-2**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	122.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **33.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G103-Staff lounge

1. General Details:

Floor Area ..... **38.3** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Breakroom**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **13.0** People
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	26.1	2	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	38.3	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **23.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G104-Assistive tech

1. General Details:

Floor Area ..... **29.8** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **6.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	25.2	2	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	29.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G105-Class room

1. General Details:

Floor Area ..... **67.0** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **27.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	35.2	4	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	67.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **2.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G105-Group room

1. General Details:

Floor Area ..... **17.4** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **4.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **6.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	17.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **20.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G106A-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G106B-Group room

1. General Details:

Floor Area ..... **16.1** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	19.6	3	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	16.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G106-Class room

1. General Details:

Floor Area ..... **70.6** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	36.8	10	0	0
W	31.0	0	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure W

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	70.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G107A-Store

1. General Details:

Floor Area ..... **4.5** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G107B-Hygiene room

1. General Details:

Floor Area ..... **10.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **MISCELLANEOUS: Telephone closet**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	10.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G107-Class room

1. General Details:

Floor Area ..... **64.1** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	39.0	10	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	64.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G108B-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G108-Class room

1. General Details:

Floor Area ..... **62.9** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	36.2	7	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	62.9	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G108C-One:One room

1. General Details:

Floor Area ..... **15.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	19.7	3	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	15.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G109B-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G109-Class room

1. General Details:

Floor Area ..... **66.8** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	41.0	10	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	66.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **5.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G110-Class room

1. General Details:

Floor Area ..... **78.1** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **27.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	42.6	4	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	78.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G111-Speech therapy

1. General Details:

Floor Area ..... **48.3** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **6.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	24.9	4	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	48.3	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G112-FTR

1. General Details:

Floor Area ..... **11.5** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **6000.0** Watts
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	11.8	0	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	11.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **17.7** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **31.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G113A-Bathroom

1. General Details:

Floor Area ..... **12.1** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **MISCELLANEOUS: Telephone closet**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNE	17.5	5	0	0

3.1. Construction Types for Exposure NNE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	12.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **4.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G113B-Bedroom

1. General Details:

Floor Area ..... **28.9** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **HOTEL / MOTEL / RESORT / DORM: Bedroom/living room**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **6.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	28.5	0	0	0
NNE	19.8	5	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**

3.2. Construction Types for Exposure NNE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	28.9	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G113C-Kitchen living

1. General Details:

Floor Area ..... **68.5** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **FOOD AND BEVERAGE SERVICE: Kitchen (cooking)**
OA Requirement 1 ..... **3.8** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **9.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **1300.0** Watts
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	35.4	4	0	0
E	32.7	11	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	68.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G113-Life skills

1. General Details:

Floor Area ..... **25.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **11.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **10.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	25.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **20.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G114B-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G114-Class room

1. General Details:

Floor Area ..... **70.4** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	38.4	10	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	70.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.9** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G114C-One:One room

1. General Details:

Floor Area ..... **14.8** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	18.6	3	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	14.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G115B-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G115C-Calming room

1. General Details:

Floor Area ..... **7.3** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	8.0	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	7.3	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G115-Class room

1. General Details:

Floor Area ..... **67.5** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	38.5	10	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	67.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.9** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **16.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G115D-Jan closet

1. General Details:

Floor Area ..... **4.8** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G116A-Store

1. General Details:

Floor Area ..... **4.5** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G116B-Group room

1. General Details:

Floor Area ..... **15.7** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	18.6	3	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	15.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G116-Class room

1. General Details:

Floor Area ..... **69.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	38.4	10	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	69.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G117A-Store

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Ceiling Partition**
Area ..... **10.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G117B-Hygiene room

1. General Details:

Floor Area ..... **10.0** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **MISCELLANEOUS: Telephone closet**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	10.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G117-Class room

1. General Details:

Floor Area ..... **65.8** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	38.4	10	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	65.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G131-Janitor room

1. General Details:

Floor Area ..... **8.1** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **MISCELLANEOUS: Telephone closet**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	10.5	0	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	8.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **11.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G132-Electrical room

1. General Details:

Floor Area ..... **4.8** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **1050.0** Watts
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.7** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **32.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G133-FTR

1. General Details:

Floor Area ..... **11.7** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **6000.0** Watts
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	11.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **61.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G134A-Corridor

1. General Details:

Floor Area ..... **47.1** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	47.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **14.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G134-Staff toilet

1. General Details:

Floor Area ..... **8.3** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **MISCELLANEOUS: Telephone closet**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **4.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	8.3	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **16.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **12.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G135-Toilet

1. General Details:

Floor Area ..... **14.5** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **MISCELLANEOUS: Telephone closet**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	14.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **5.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G136A-Jan closet

1. General Details:

Floor Area ..... **5.5** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	5.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G136-Toilet

1. General Details:

Floor Area ..... **28.1** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **MISCELLANEOUS: Telephone closet**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNE	17.3	0	0	0

3.1. Construction Types for Exposure NNE

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	28.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G137-Store

1. General Details:

Floor Area ..... **16.1** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **GENERAL: Occupiable storage room (liq/gel)**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **4.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNE	22.1	5	0	0

3.1. Construction Types for Exposure NNE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	16.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **21.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G138A-Calming room

1. General Details:

Floor Area ..... **12.0** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNE	16.8	0	0	0

3.1. Construction Types for Exposure NNE

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	12.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **16.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **32.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G138B-Voc class room

1. General Details:

Floor Area ..... **66.0** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **27.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	35.6	4	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	66.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G138-Elec room

1. General Details:

Floor Area ..... **12.7** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **950.0** Watts
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	12.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **18.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **32.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G139-Food classroom

1. General Details:

Floor Area ..... **100.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **EDUCATION: Science laboratory**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.90** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **27.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	49.6	1	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	100.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **17.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G140-Store room

1. General Details:

Floor Area ..... **40.7** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	37.0	2	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	40.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G141-Snack area

1. General Details:

Floor Area ..... **70.9** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **FOOD AND BEVERAGE SERVICE: Cafeteria/fast food dining**
OA Requirement 1 ..... **3.8** L/s/person
OA Requirement 2 ..... **0.90** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **500.0** Watts
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **30.0** People
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	38.2	10	0	0
WSW	34.1	3	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure WSW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	70.9	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G142A-Store

1. General Details:

Floor Area ..... **9.5** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **3.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	9.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G142B-Store

1. General Details:

Floor Area ..... **10.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **OFFICE: Occupiable storage room for dry materials**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **3.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	9.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-G142-Staff training

1. General Details:

Floor Area ..... **55.5** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **EDUCATION: Lecture classroom**
OA Requirement 1 ..... **3.8** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Electricity**

2.4. People:

Occupancy ..... **12.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	18.0	5	0	0
S	19.9	0	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-2**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure S

Wall Type **Wall-2**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	55.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC001A-Corridor

1. General Details:

Floor Area	**52.5**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**GENERAL: Corridor**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Sedentary Work**	
Sensible	**82.1**	W/person
Latent	**79.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**52.5**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**14.7**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**38.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC001-Corridor

1. General Details:

Floor Area ..... **84.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	53.7	12	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **84.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **16.3** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **19.3** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC001-Corridor/Lobby

1. General Details:

Floor Area	**187.0**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**OFFICE: Main entry lobby**	
OA Requirement 1	**2.5**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**10.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Sedentary Work**	
Sensible	**82.1**	W/person
Latent	**79.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**187.0**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**26.7**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

Partition Type	**Wall Partition**	
Area	**11.8**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**38.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC002-Corridor

1. General Details:

Floor Area	**76.9**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**GENERAL: Corridor**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Sedentary Work**	
Sensible	**82.1**	W/person
Latent	**79.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**76.9**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**16.1**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

Partition Type	**Wall Partition**	
Area	**20.6**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC003A-Corridor

1. General Details:

Floor Area	**63.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**GENERAL: Corridor**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Sedentary Work**	
Sensible	**82.1**	W/person
Latent	**79.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**63.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**11.4**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

Partition Type	**Wall Partition**	
Area	**4.3**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**38.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC003B-Corridor

1. General Details:

Floor Area	**63.5**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**GENERAL: Corridor**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Sedentary Work**	
Sensible	**82.1**	W/person
Latent	**79.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**63.5**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

(No partition data).

7.2. 2nd Partition Details:

Partition Type	**Wall Partition**	
Area	**24.7**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**38.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC003-Corridor

1. General Details:

Floor Area ..... **132.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	51.5	30	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-2**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	7.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **132.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **30.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC004-Corridor

1. General Details:

Floor Area	**80.4**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**GENERAL: Corridor**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2013**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Sedentary Work**	
Sensible	**82.1**	W/person
Latent	**79.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**80.4**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**15.6**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**38.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

Partition Type	**Wall Partition**	
Area	**15.9**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**38.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC101B-Corridor

1. General Details:

Floor Area ..... **122.9** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	122.9	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **6.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **15.3** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC101-Corridor

1. General Details:

Floor Area ..... **46.6** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	52.7	10	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	46.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **19.7** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **16.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC102-Corridor

1. General Details:

Floor Area ..... **78.4** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	78.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **17.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC103-Corridor

1. General Details:

Floor Area ..... **81.5** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	81.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **32.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GC104C-Corridor

1. General Details:

Floor Area ..... **81.2** m²
Avg. Ceiling Height ..... **5.0** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.0** Watts
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	81.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **15.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GS1-0-Stair

1. General Details:

Floor Area ..... **36.3** m²
Avg. Ceiling Height ..... **13.5** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	122.9	0	0	1
W	53.4	0	0	0
S	27.4	0	0	0
E	11.9	0	0	1

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
Door Type ..... **Double Door**

3.2. Construction Types for Exposure W

Wall Type **Wall-1**

3.3. Construction Types for Exposure S

Wall Type **Wall-1**

3.4. Construction Types for Exposure E

Wall Type **Wall-1**
Door Type ..... **Single door**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	36.3	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **36.3** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GS2-0-Stair

1. General Details:

Floor Area ..... **35.5** m²
Avg. Ceiling Height ..... **13.5** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	56.0	0	0	1

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
Door Type ..... **Double Door**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	35.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **35.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

Al Hasa -SNG 03/12/2023

SCEC 02:46PM

SNG-GS3-0-Stair

1. General Details:

Floor Area ..... **34.6** m²
Avg. Ceiling Height ..... **13.5** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2013**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	55.1	0	0	1

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
Door Type ..... **Double Door**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	34.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **Roof**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **34.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **16.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **38.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

System input

AHU-07 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name **AHU-07**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **23**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Cycled or Staged Capacity - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: SNG-G009,008B-Class/1:1	
SNG-G009-Class room	x1
SNG-G008B-One:One room	x1
SNG-G009A-Store	x1
Zone 2: SNG-G008-Class room	
SNG-G008-Class room	x1
SNG-G008A-Store	x1
Zone 3: SNG-GC002-Corridor	
SNG-GC002-Corridor	x1
Zone 4: SNG-G011-Class room	
SNG-G011-Class room	x1
SNG-G011B-Store	x1
Zone 5: SNG-G010,010C-Class/Grp	
SNG-G010C-Group room	x1
SNG-G010-Class room	x1
SNG-G010B-Store	x1
Zone 6: SNG-G032-Toilet	
SNG-G032-Toilet	x1

Zone 7: SNG-GC001-Corridor	
SNG-GC001-Corridor	x1
Zone 8: SNG-G034-W-Chair store	
SNG-G034-W-Chair Store	x1
Zone 9: SNG-G042-Calming room	
SNG-G042-Calming room	x1
Zone 10: SNG-G038-Water	
SNG-G038-Water	x1
Zone 11: SNG-G005-Child observati	
SNG-G005-Child observati	x1
Zone 12: SNG-G005A-Observers room	
SNG-G005A-Observers room	x1
Zone 13: SNG-G106B,107-Grp/Class	
SNG-G107-Class room	x1
SNG-G106B-Group room	x1
SNG-G107A-Store	x1
Zone 14: SNG-G106-Class room	
SNG-G106-Class room	x1
SNG-G106A-Store	x1
Zone 15: SNG-G109-Class room	
SNG-G109-Class room	x1
SNG-G109B-Store	x1
Zone 16: SNG-G108,108C-Class/1:1	
SNG-G108-Class room	x1
SNG-G108C-One:One room	x1
SNG-G108B-Store	x1
Zone 17: SNG-GC101,G142B-Corr/Sto	
SNG-GC101-Corridor	x1
SNG-G142B-Store	x1
Zone 18: SNG-G135-Toilet	
SNG-G135-Toilet	x1
Zone 19: SNG-G134-Staff toilet	
SNG-G134-Staff toilet	x1
Zone 20: SNG-G105,G105-Class/Grp	
SNG-G105-Class room	x1
SNG-G105-Group room	x1
Zone 21: SNG-G104-Assistive tech	
SNG-G104-Assistive tech	x1
Zone 22: SNG-G111-Speech therapy	
SNG-G111-Speech therapy	x1
Zone 23: SNG-GC102-Corridor	
SNG-GC102-Corridor	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
2	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
3	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
4	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
5	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
6	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
7	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
8	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
9	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
10	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
11	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0

AHU-07 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
12	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
13	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
14	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
15	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
16	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
17	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
18	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
19	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
20	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
21	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
22	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
23	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
2	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
3	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
4	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
5	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
6	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
7	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
8	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
9	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
10	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
11	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
12	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
13	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
14	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
15	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
16	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
17	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
18	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
19	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
20	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
21	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
22	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
23	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **13.0** °C
Supply Fan Airflow ..... **4260.7** L/s
Ventilation Airflow ..... **2181.1** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
1	338.7	-	5.0	-
2	291.8	-	4.1	-
3	81.8	-	-	-
4	341.3	-	4.1	-
5	375.8	-	4.9	-
6	21.2	-	-	-
7	186.6	-	-	-
8	72.6	-	-	-
9	98.6	-	0.8	-
10	22.6	-	-	-
11	168.5	-	2.5	-
12	60.6	-	0.7	-
13	331.5	-	5.0	-
14	291.4	-	4.2	-
15	346.4	-	4.1	-
16	377.5	-	5.0	-

AHU-07 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
17	174.5	-	-	-
18	22.5	-	-	-
19	71.5	-	-	-
20	405.3	-	7.0	-
21	105.2	-	1.6	-
22	145.2	-	1.9	
23	65.2	-	-	

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Estimated Maximum Load ..... **141.9** kW
Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

AHU-08 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name **AHU-08**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **6**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Constant Temperature - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: SNG-G013-Kitchen	
SNG-G013-Kitchen	x1
Zone 2: SNG-G012-Dining	
SNG-G012-Dining	x1
Zone 3: SNG-GC003B-Corridor	
SNG-GC003B-Corridor	x1
Zone 4: SNG-G014-Kitchen storage	
SNG-G014-Kitchen storage	x1
Zone 5: SNG-G033-Toilet	
SNG-G033-Toilet	x1
Zone 6: SNG-G035-Elec room	
SNG-G035-Elec room	x1

Thermostats and Zone Data:

AHU-08 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
2	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
3	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
4	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
5	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
6	22.0	22.0	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
2	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
3	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
4	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
5	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
6	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **13.0** °C
Supply Fan Airflow ..... **1504.2** L/s
Ventilation Airflow ..... **783.9** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
1	258.3	-	2.6	-

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
2	817.7	-	14.7	-
3	103.7	-	-	-
4	58.3	-	-	-
5	18.7	-	-	
6	215.7	-	-	

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Estimated Maximum Load ..... **51.9** kW
Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

AHU-09 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name **AHU-09**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **17**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Constant Temperature - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: SNG-G019,018C-Class/Grp	
SNG-G019-Class room	x1
SNG-G018C-Group room	x1
SNG-G019B-Store	x1
Zone 2: SNG-G019D-Class room	
SNG-G019D-Class room	x1
SNG-G018B-Store	x1
Zone 3: SNG-G017-Class room	
SNG-G017-Class room	x1
SNG-G017A-Store	x1
Zone 4: SNG-G016,016B-Class/1:1	
SNG-G016-Class room	x1
SNG-G016B-One:One room	x1
SNG-G016A-Store	x1
Zone 5: SNG-G035A-Calming room	
SNG-G035A-Calming room	x1
Zone 6: SNG-GC004-Corridor	

SNG-GC004-Corridor	x1
Zone 7: SNG-GC003-Corridor	
SNG-GC003-Corridor	x1
Zone 8: SNG-G036-Physical room	
SNG-G036-Physical playro	x1
Zone 9: SNG-G036B,036D-Dark/Whit	
SNG-G036B-Dark room	x1
SNG-G036D-White room	x1
Zone 10: SNG-G036C-Soft room	
SNG-G036C-Soft room	x1
Zone 11: SNG-G114-Class room	
SNG-G114-Class room	x1
SNG-G114B-Store	x1
Zone 12: SNG-G115,114C-Class/1:1	
SNG-G114C-One:One room	x1
SNG-G115-Class room	x1
SNG-G115B-Store	x1
Zone 13: SNG-GC104C-Corridor	
SNG-GC104C-Corridor	x1
Zone 14: SNG-G117-Class room	
SNG-G117-Class room	x1
SNG-G117A-Store	x1
Zone 15: SNG-G116B,116-Grp/Class	
SNG-G116B-Group room	x1
SNG-G116-Class room	x1
SNG-G116A-Store	x1
Zone 16: SNG-G115C-Calming room	
SNG-G115C-Calming room	x1
Zone 17: SNG-G103-Corridor	
SNG-G103-Corridor	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
2	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
3	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
4	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
5	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
6	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
7	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
8	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
9	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
10	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
11	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
12	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
13	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
14	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
15	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
16	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
17	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
2	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
3	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
4	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
5	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
6	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
7	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
8	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
9	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
10	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
11	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
12	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
13	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
14	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
15	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
16	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
17	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **13.0** °C
Supply Fan Airflow ..... **4540.0** L/s
Ventilation Airflow ..... **2032.3** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

AHU-09 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
1	408.1	-	5.1	-
2	293.9	-	4.1	-
3	328.2	-	4.1	-
4	416.6	-	5.1	-
5	63.7	-	0.8	-
6	131.9	-	-	-
7	416.7	-	-	-
8	499.3	-	3.9	-
9	55.3	-	1.0	-
10	265.8	-	2.1	-
11	313.2	-	4.2	-
12	414.0	-	5.1	-
13	65.1	-	-	-
14	309.1	-	4.1	-
15	391.4	-	5.1	-
16	37.5	-	0.8	
17	305.6	-	-	

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Estimated Maximum Load ..... **142.5** kW
Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

AHU-10 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name **AHU-10**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **27**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Constant Temperature - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: SNG-G006,006A,-Thera/Grp	
SNG-G006-Occup therapy	x1
SNG-G006A-Group room	x1
Zone 2: SNG-G030-Electrical room	
SNG-G030-Electrical room	x1
Zone 3: SNG-GC001A-Corridor	
SNG-GC001A-Corridor	x1
Zone 4: SNG-G002A,005B-Asses	
SNG-G005B-Assesment room	x1
SNG-G002A-Assesment room	x1
Zone 5: SNG-G002E-Meeting room	
SNG-G002E-Meeting room	x1
Zone 6: SNG-G002D-Speech therapy	
SNG-G002D-Speech therapy	x1
Zone 7: SNG-G030A-VFD Room	
SNG-G030A-VFD Room	x1
Zone 8: SNG-G002B-Screen&Intervi	

SNG-G002B-Screen&Intervi	x1
Zone 9: SNG-G002C-Nurse visiting	
SNG-G002C-Nurse visiting	x1
Zone 10: SNG-G007,007A-Vestib/Jan	
SNG-G007-Vestibule	x1
SNG-G007A-Janitor room	x1
Zone 11: SNG-GC001-Corridor/Lobby	
SNG-GC001-Corridor/Lobby	x1
Zone 12: SNG-G001-Vesitbule	
SNG-G001-Vestibule	x1
Zone 13: SNG-G024,028-Office	
SNG-G024-Office	x1
SNG-G028-Office	x1
Zone 14: SNG-G022,020-Recep/Tech	
SNG-G022-Reception	x1
SNG-G020-Tech support	x1
Zone 15: SNG-G025-Conference	
SNG-G025-Conference	x1
Zone 16: SNG-G026-Asst principal	
SNG-G026-Asst principal	x1
Zone 17: SNG-G027-Principal	
SNG-G027-Principal	x1
Zone 18: SNG-G110-Class room	
SNG-G110-Class room	x1
Zone 19: SNG-G102-Staff workroom	
SNG-G102-Staff workroom	x1
Zone 20: SNG-G103-Staff lounge	
SNG-G103-Staff lounge	x1
Zone 21: SNG-G132-Electrical room	
SNG-G132-Electrical room	x1
Zone 22: SNG-G134A-Corridor	
SNG-G134A-Corridor	x1
Zone 23: SNG-G101-Reading room	
SNG-G101-Reading room	x1
Zone 24: SNG-G101B,G131,G142A-Cor	
SNG-GC101B-Corridor	x1
SNG-G131-Janitor room	x1
SNG-G142A-Store	x1
Zone 25: SNG-G142-Staff training	
SNG-G142-Staff training	x1
Zone 26: SNG-G002-Reception	
SNG-G002-Reception	x1
Zone 27: SNG-G141-Snack area	
SNG-G141-Snack area	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
2	23.9	23.9	21.1	18.3	0.83	100	0.0	0.0
3	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
4	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
5	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
6	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
7	23.9	23.9	21.1	18.3	0.83	100	0.0	0.0
8	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
9	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0

AHU-10 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
10	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
11	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
12	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
13	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
14	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
15	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
16	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
17	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
18	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
19	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
20	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
21	23.9	23.9	21.1	18.3	0.83	100	0.0	0.0
22	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
23	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
24	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
25	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
26	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
27	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
2	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
3	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
4	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
5	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
6	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
7	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
8	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
9	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
10	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
11	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
12	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
13	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
14	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
15	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
16	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
17	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
18	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
19	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
20	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
21	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
22	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
23	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
24	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
25	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
26	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
27	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **13.0** °C
Supply Fan Airflow ..... **5581.9** L/s
Ventilation Airflow ..... **2261.7** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
1	321.3	-	4.7	-
2	594.4	-	-	-
3	67.8	-	-	-
4	93.4	-	1.1	-
5	206.3	-	1.6	-

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
6	129.4	-	1.2	-
7	432.4	-	-	-
8	81.3	-	1.2	-
9	142.3	-	1.6	-
10	141.5	-	-	-
11	184.6	-	-	-
12	131.2	-	-	-
13	110.4	-	0.9	-
14	126.5	-	1.0	-
15	142.3	-	1.1	-
16	84.5	-	0.7	-
17	68.9	-	0.5	-
18	345.9	-	5.9	-
19	344.1	-	2.7	-
20	239.6	-	1.9	-
21	92.4	-	-	-
22	71.5	-	-	-
23	603.4	-	9.5	-
24	145.7	-	-	-
25	219.0	-	2.0	-
26	117.4	-	-	
27	429.2	-	5.8	

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Estimated Maximum Load ..... **168.4** kW
Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

AHU-11 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name **AHU-11**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **6**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Constant Temperature - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: SNG-G139-Food classroom	
SNG-G139-Food classroom	x1
Zone 2: SNG-G015-Multipurp room	
SNG-G015-Multipurp room	x1
Zone 3: SNG-G140-Store room	
SNG-G140-Store room	x1
Zone 4: SNG-G015A-Storage	
SNG-G015A-Storage	x1
Zone 5: SNG-G015B-Fitness room	
SNG-G015B-Fitness room	x1
Zone 6: SNG-GC003A-Corridor	
SNG-GC003A-Corridor	x1

Thermostats and Zone Data:

AHU-11 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
2	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
3	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
4	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
5	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
6	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
2	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
3	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
4	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
5	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
6	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **13.0** °C
Supply Fan Airflow ..... **3228.4** L/s
Ventilation Airflow ..... **1415.3** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
1	401.8	-	7.3	-

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
2	2206.7	-	23.4	-
3	49.7	-	-	-
4	29.9	-	-	-
5	425.2	-	5.0	
6	55.2	-	-	

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Estimated Maximum Load ..... **102.7** kW
Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

AHU-12 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name **AHU-12**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **9**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Constant Temperature - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: SNG-GC103-Corridor	
SNG-GC103-Corridor	x1
Zone 2: SNG-G138B-Voc class room	
SNG-G138B-Voc class room	x1
Zone 3: SNG-G113C-Kitchen living	
SNG-G113C-Kitchen living	x1
Zone 4: SNG-G113B-Bedroom	
SNG-G113B-Bedroom	x1
Zone 5: SNG-G113-Life skills	
SNG-G113-Life skills	x1
Zone 6: SNG-G138A-Calming room	
SNG-G138A-Calming room	x1
Zone 7: SNG-G137,G113A-Store/Bat	
SNG-G137-Store	x1
SNG-G113A-Bathroom	x1
Zone 8: SNG-G136-Toilet	
SNG-G136-Toilet	x1

Zone 9: SNG-G138-Elec room	
SNG-G138-Elec room	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
2	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
3	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
4	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
5	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
6	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
7	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
8	23.9	26.7	21.1	18.3	0.83	100	0.0	0.0
9	22.0	22.0	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
2	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
3	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
4	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
5	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
6	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
7	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
8	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
9	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **13.0** °C
Supply Fan Airflow ..... **1637.5** L/s
Ventilation Airflow ..... **663.6** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
1	143.7	-	-	-
2	318.2	-	5.7	-
3	387.4	-	3.4	-
4	124.9	-	1.0	-
5	162.9	-	2.1	-
6	94.9	-	0.9	-
7	164.5	-	-	-
8	21.6	-	-	
9	204.7	-	-	

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Estimated Maximum Load ..... **48.4** kW
Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

FCU-01 Stair GS1-0 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name ..... **FCU-01 Stair GS1-0**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: SNG-GS1-0-Stair	
SNG-GS1-0-Stair	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	23.9	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:

Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:

Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **Sum of Space OA Airflows**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	Not Used	-	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **0** %
Cooling Latent ..... **0** %
Heating ..... **0** %

FCU-01 Stair GS1-0 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	158.6	-	-	10.9

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	1.8	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU-02 Stair GS2-0 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name ..... **FCU-02 Stair GS2-0**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: SNG-GS2-0-Stair	
SNG-GS2-0-Stair	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	23.9	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:

Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:

Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **Sum of Space OA Airflows**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	Not Used	-	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **0** %
Cooling Latent ..... **0** %
Heating ..... **0** %

FCU-02 Stair GS2-0 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	72.9	-	-	10.7

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	1.0	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU-03 Stair GS3-0 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name ..... **FCU-03 Stair GS3-0**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: SNG-GS3-0-Stair	
SNG-GS3-0-Stair	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	23.9	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:

Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:

Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **Sum of Space OA Airflows**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	Not Used	-	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **0** %
Cooling Latent ..... **0** %
Heating ..... **0** %

FCU-03 Stair GS3-0 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	119.6	-	-	10.4

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	1.5	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU-04 FTR G-021 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name ..... **FCU-04 FTR G-021**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: SNG-G021-FTR	
SNG-G021-FTR	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	22.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:

Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:

Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **Sum of Space OA Airflows**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	Not Used	-	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **0** %
Cooling Latent ..... **0** %
Heating ..... **0** %

FCU-04 FTR G-021 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	1874.0	-	-	7.0

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	16.9	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU-05 FTR G-037 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name ..... **FCU-05 FTR G-037**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: SNG-G037-FTR	
SNG-G037-FTR	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	22.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:

Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:

Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **Sum of Space OA Airflows**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	Not Used	-	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

FCU-05 FTR G-037 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	781.9	-	-	3.4

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	7.0	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU-06 FTR G-112 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name ..... **FCU-06 FTR G-112**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: SNG-G112-FTR	
SNG-G112-FTR	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	22.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:

Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:

Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **Sum of Space OA Airflows**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	Not Used	-	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **0** %
Cooling Latent ..... **0** %
Heating ..... **0** %

FCU-06 FTR G-112 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	723.7	-	-	3.5

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	6.5	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU-07 FTR G-133 Input Data

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:04PM

1. General Details:

Air System Name ..... **FCU-07 FTR G-133**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: SNG-G133-FTR	
SNG-G133-FTR	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	22.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **Fan/Thermostat Schedule**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:

Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:

Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **Sum of Space OA Airflows**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	Not Used	-	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **14.4** °C

Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K

Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **0** %

Cooling Latent ..... **0** %

Heating ..... **0** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**

Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	724.2	-	-	3.5

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	6.5	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

System output

Condition (1)

Air System Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name	**AHU-07**		Number of zones	**23**	
Equipment Class	**PKG ROOF**		Floor Area	**1216.4**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**141.9**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**118.9**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Jul 1500	**4061**	L/s	Entering DB / WB	**36.4 / 20.9**	°C
Max block L/s at Jul 1700	**4261**	L/s	Leaving DB / WB	**11.7 / 10.4**	°C
Sum of peak zone L/s	**4532**	L/s	Coil ADP	**8.9**	°C
Sensible heat ratio	**0.838**		Bypass Factor	**0.100**	
L/(s kW)	**28.6**		Resulting RH	**44**	%
m²/kW	**8.6**		Design supply temp.	**13.0**	°C
W/m²	**116.7**		Zone T-stat Check	**23 of 23**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1700	**4261**	L/s	Fan motor BHP	**10.74**	BHP
Standard L/s	**4180**	L/s	Fan motor kW	**8.52**	kW
Actual max L/(s·m²)	**3.50**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**2181**	L/s	L/s/person	**10.05**	L/s/person
L/(s·m²)	**1.79**	L/(s·m²)			

Zone Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name **AHU-07**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **23**
Floor Area ..... **1216.4** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-G009,008B-Class/1:1	339	190	4.18	5.0	-	0.0	-	0
SNG-G008-Class room	292	158	4.14	4.1	-	0.0	-	0
SNG-GC002-Corridor	82	25	1.06	0.0	-	0.0	-	0
SNG-G011-Class room	341	156	5.00	4.1	-	0.0	-	0
SNG-G010,010C-Class/Grp	376	189	4.74	4.9	-	0.0	-	0
SNG-G032-Toilet	21	6	1.45	0.0	-	0.0	-	0
SNG-GC001-Corridor	187	56	2.22	0.0	-	0.0	-	0
SNG-G034-W-Chair store	73	22	8.25	0.0	-	0.0	-	0
SNG-G042-Calming room	99	31	11.88	0.8	-	0.0	-	0
SNG-G038-Water	23	9	0.76	0.0	-	0.0	-	0
SNG-G005-Child observati	169	94	4.00	2.5	-	0.0	-	0
SNG-G005A-Observers room	61	26	3.08	0.7	-	0.0	-	0
SNG-G106B,107-Grp/Class	331	193	3.91	5.0	-	0.0	-	0
SNG-G106-Class room	291	161	3.90	4.2	-	0.0	-	0
SNG-G109-Class room	346	158	4.88	4.1	-	0.0	-	0
SNG-G108,108C-Class/1:1	378	191	4.59	5.0	-	0.0	-	0
SNG-GC101,G142B-Corr/Sto	174	52	3.07	0.0	-	0.0	-	0
SNG-G135-Toilet	23	7	1.55	0.0	-	0.0	-	0
SNG-G134-Staff toilet	72	21	8.62	0.0	-	0.0	-	0
SNG-G105,G105-Class/Grp	405	270	4.80	7.0	-	0.0	-	0
SNG-G104-Assistive tech	105	60	3.53	1.6	-	0.0	-	0
SNG-G111-Speech therapy	145	74	3.01	1.9	-	0.0	-	0
SNG-GC102-Corridor	65	24	0.83	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G009,008B-Class/1:1	4.4	Jun 1700	0.7	81.1
SNG-G008-Class room	3.8	Jun 1700	0.6	70.5
SNG-GC002-Corridor	1.1	Jul 1500	0.0	76.9
SNG-G011-Class room	4.4	Nov 1900	0.5	68.2
SNG-G010,010C-Class/Grp	4.8	Nov 1900	0.6	79.2
SNG-G032-Toilet	0.3	Jul 1500	0.0	14.6
SNG-GC001-Corridor	2.4	Jun 1600	0.6	84.0
SNG-G034-W-Chair store	0.9	Jul 1500	0.0	8.8
SNG-G042-Calming room	1.3	Jul 1500	0.0	8.3
SNG-G038-Water	0.3	Jul 0200	0.1	29.7
SNG-G005-Child observati	2.2	Jul 2300	0.3	42.1
SNG-G005A-Observers room	0.8	Jan 2300	0.0	19.7
SNG-G106B,107-Grp/Class	4.3	Jun 2300	1.0	84.7

Zone Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G106-Class room	3.8	Jun 2300	0.9	74.8
SNG-G109-Class room	4.5	Oct 1900	0.8	71.0
SNG-G108,108C-Class/1:1	4.9	Oct 1900	0.9	82.3
SNG-GC101,G142B-Corr/Sto	2.3	Jun 1700	0.8	56.8
SNG-G135-Toilet	0.3	Jul 1500	0.1	14.5
SNG-G134-Staff toilet	0.9	Jul 1500	0.0	8.3
SNG-G105,G105-Class/Grp	5.2	Jul 1600	0.6	84.4
SNG-G104-Assistive tech	1.4	Jul 2300	0.3	29.8
SNG-G111-Speech therapy	1.9	Jul 2300	0.4	48.3
SNG-GC102-Corridor	0.8	Jul 1600	0.3	78.4

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G009,008B-Class/1:1							
SNG-G009-Class room	1	3.5	Jun 1700	271	0.5	61.7	4.39
SNG-G008B-One:One room	1	0.9	Jun 1800	66	0.2	14.9	4.45
SNG-G009A-Store	1	0.0	Jan 2300	2	0.0	4.5	0.38
SNG-G008-Class room							
SNG-G008-Class room	1	3.7	Jun 1700	290	0.6	66.3	4.37
SNG-G008A-Store	1	0.0	Jan 2300	2	0.0	4.2	0.42
SNG-GC002-Corridor							
SNG-GC002-Corridor	1	1.1	Jul 1500	82	0.0	76.9	1.06
SNG-G011-Class room							
SNG-G011-Class room	1	4.4	Nov 1900	340	0.5	64.0	5.31
SNG-G011B-Store	1	0.0	Jan 2300	2	0.0	4.2	0.42
SNG-G010,010C-Class/Grp							
SNG-G010C-Group room	1	1.0	Nov 2000	76	0.2	14.0	5.45
SNG-G010-Class room	1	3.8	Nov 1900	298	0.4	61.0	4.89
SNG-G010B-Store	1	0.0	Jan 2300	2	0.0	4.2	0.42
SNG-G032-Toilet							
SNG-G032-Toilet	1	0.3	Jul 1500	21	0.0	14.6	1.45
SNG-GC001-Corridor							
SNG-GC001-Corridor	1	2.4	Jun 1600	187	0.6	84.0	2.22
SNG-G034-W-Chair store							
SNG-G034-W-Chair Store	1	0.9	Jul 1500	73	0.0	8.8	8.25
SNG-G042-Calming room							
SNG-G042-Calming room	1	1.3	Jul 1500	99	0.0	8.3	11.88
SNG-G038-Water							
SNG-G038-Water	1	0.3	Jul 0200	23	0.1	29.7	0.76
SNG-G005-Child observati							
SNG-G005-Child observati	1	2.2	Jul 2300	169	0.3	42.1	4.00
SNG-G005A-Observers room							
SNG-G005A-Observers room	1	0.8	Jan 2300	61	0.0	19.7	3.08
SNG-G106B,107-Grp/Class							
SNG-G107-Class room	1	3.4	Jun 1800	263	0.7	64.1	4.11
SNG-G106B-Group room	1	0.9	Jun 2300	66	0.2	16.1	4.10
SNG-G107A-Store	1	0.0	Jul 0100	2	0.0	4.5	0.53
SNG-G106-Class room							
SNG-G106-Class room	1	3.7	Jun 2300	289	0.9	70.6	4.09
SNG-G106A-Store	1	0.0	Jul 0100	2	0.0	4.2	0.59
SNG-G109-Class room							
SNG-G109-Class room	1	4.3	Oct 1900	333	0.7	66.8	4.99
SNG-G109B-Store	1	0.2	Jul 1500	16	0.0	4.2	3.92
SNG-G108,108C-Class/1:1							
SNG-G108-Class room	1	3.7	Oct 1900	287	0.6	62.9	4.56

Zone Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G108C-One:One room	1	1.0	Nov 2000	79	0.2	15.2	5.19
SNG-G108B-Store	1	0.2	Jul 1500	16	0.0	4.2	3.92
SNG-GC101,G142B-Corr/Sto							
SNG-GC101-Corridor	1	2.2	Jun 1700	171	0.7	46.6	3.68
SNG-G142B-Store	1	0.0	Jul 0100	3	0.0	10.2	0.33
SNG-G135-Toilet							
SNG-G135-Toilet	1	0.3	Jul 1500	23	0.1	14.5	1.55
SNG-G134-Staff toilet							
SNG-G134-Staff toilet	1	0.9	Jul 1500	72	0.0	8.3	8.62
SNG-G105,G105-Class/Grp							
SNG-G105-Class room	1	4.1	Jul 1600	319	0.6	67.0	4.77
SNG-G105-Group room	1	1.1	Jul 1500	86	0.1	17.4	4.94
SNG-G104-Assistive tech							
SNG-G104-Assistive tech	1	1.4	Jul 2300	105	0.3	29.8	3.53
SNG-G111-Speech therapy							
SNG-G111-Speech therapy	1	1.9	Jul 2300	145	0.4	48.3	3.01
SNG-GC102-Corridor							
SNG-GC102-Corridor	1	0.8	Jul 1600	65	0.3	78.4	0.83

Ventilation Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **1661** L/s
System Ventilation Efficiency (Ev) **0.761**
Outdoor Air Intake (Vot) ..... **2181** L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
SNG-G009,008B-Class/1:1										
SNG-G009-Class room	1	153	61.7	0.60	17.0	5.00	0.8	**153**	*122*	0.761
SNG-G008B-One:One room	1	36	14.9	0.60	4.0	5.00	0.8	**36**	*29*	0.761
SNG-G009A-Store	1	2	4.5	0.30	0.0	2.50	0.8	**2**	*1*	0.761
SNG-G008-Class room										
SNG-G008-Class room	1	156	66.3	0.60	17.0	5.00	0.8	**156**	*125*	0.761
SNG-G008A-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.761
SNG-GC002-Corridor										
SNG-GC002-Corridor	1	25	76.9	0.30	0.0	0.00	1.0	**23**	*23*	0.821
SNG-G011-Class room										
SNG-G011-Class room	1	154	64.0	0.60	17.0	5.00	0.8	**154**	*123*	0.761
SNG-G011B-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.761
SNG-G010,010C-Class/Grp										
SNG-G010C-Group room	1	36	14.0	0.60	4.0	5.00	0.8	**36**	*28*	0.761
SNG-G010-Class room	1	152	61.0	0.60	17.0	5.00	0.8	**152**	*122*	0.761
SNG-G010B-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.761
SNG-G032-Toilet										
SNG-G032-Toilet	1	6	14.6	0.00	0.0	0.00	1.0	**0**	*0*	1.761
SNG-GC001-Corridor										
SNG-GC001-Corridor	1	56	84.0	0.30	0.0	0.00	1.0	**25**	*25*	1.311
SNG-G034-W-Chair store										
SNG-G034-W-Chair Store	1	22	8.8	0.30	0.0	2.50	1.0	**3**	*3*	1.640
SNG-G042-Calming room										
SNG-G042-Calming room	1	31	8.3	0.60	4.0	5.00	0.8	**31**	*25*	0.761
SNG-G038-Water										
SNG-G038-Water	1	9	29.7	0.30	0.0	2.50	1.0	**9**	*9*	0.761
SNG-G005-Child observati										
SNG-G005-Child observati	1	94	42.1	0.60	10.0	5.00	0.8	**94**	*75*	0.761
SNG-G005A-Observers room										
SNG-G005A-Observers room	1	26	19.7	0.30	6.0	2.50	0.8	**26**	*21*	0.761
SNG-G106B,107-Grp/Class										
SNG-G107-Class room	1	154	64.1	0.60	17.0	5.00	0.8	**154**	*123*	0.761
SNG-G106B-Group room	1	37	16.1	0.60	4.0	5.00	0.8	**37**	*30*	0.761
SNG-G107A-Store	1	2	4.5	0.30	0.0	2.50	0.8	**2**	*1*	0.761
SNG-G106-Class room										
SNG-G106-Class room	1	159	70.6	0.60	17.0	5.00	0.8	**159**	*127*	0.761

SNG-G106A-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.761
SNG-G109-Class room										
SNG-G109-Class room	1	156	66.8	0.60	17.0	5.00	0.8	**156**	*125*	0.761
SNG-G109B-Store	1	5	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.442
SNG-G108,108C-Class/1:1										
SNG-G108-Class room	1	153	62.9	0.60	17.0	5.00	0.8	**153**	*123*	0.761
SNG-G108C-One:One room	1	36	15.2	0.60	4.0	5.00	0.8	**36**	*29*	0.761
SNG-G108B-Store	1	5	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.442
SNG-GC101,G142B-Corr/Sto										
SNG-GC101-Corridor	1	51	46.6	0.30	0.0	0.00	1.0	**14**	*14*	1.490
SNG-G142B-Store	1	3	10.2	0.30	0.0	2.50	1.0	**3**	*3*	0.761
SNG-G135-Toilet										
SNG-G135-Toilet	1	7	14.5	0.00	0.0	0.00	1.0	**0**	*0*	1.761
SNG-G134-Staff toilet										
SNG-G134-Staff toilet	1	21	8.3	0.00	0.0	0.00	1.0	**0**	*0*	1.761
SNG-G105,G105-Class/Grp										
SNG-G105-Class room	1	219	67.0	0.60	27.0	5.00	0.8	**219**	*175*	0.761
SNG-G105-Group room	1	51	17.4	0.60	6.0	5.00	0.8	**51**	*40*	0.761
SNG-G104-Assistive tech										
SNG-G104-Assistive tech	1	60	29.8	0.60	6.0	5.00	0.8	**60**	*48*	0.761
SNG-G111-Speech therapy										
SNG-G111-Speech therapy	1	74	48.3	0.60	6.0	5.00	0.8	**74**	*59*	0.761
SNG-GC102-Corridor										
SNG-GC102-Corridor	1	24	78.4	0.30	0.0	0.00	1.0	**24**	*24*	0.761
Totals (incl. Space Multipliers)		**2181**							**1661**	**0.761**

Air System Sizing Summary for AHU-08

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name	**AHU-08**		Number of zones	**6**	
Equipment Class	**PKG ROOF**		Floor Area	**350.1**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**51.9**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**41.8**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Jul 1500	**1377**	L/s	Entering DB / WB	**36.7 / 21.2**	°C
Max block L/s at Jul 1600	**1504**	L/s	Leaving DB / WB	**11.1 / 9.8**	°C
Sum of peak zone L/s	**1518**	L/s	Coil ADP	**8.2**	°C
Sensible heat ratio	**0.804**		Bypass Factor	**0.100**	
L/(s kW)	**26.5**		Resulting RH	**49**	%
m²/kW	**6.7**		Design supply temp.	**13.0**	°C
W/m²	**148.4**		Zone T-stat Check	**6 of 6**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1600	**1504**	L/s	Fan motor BHP	**3.79**	BHP
Standard L/s	**1476**	L/s	Fan motor kW	**3.01**	kW
Actual max L/(s·m²)	**4.30**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**784**	L/s	L/s/person	**8.52**	L/s/person
L/(s·m²)	**2.24**	L/(s·m²)			

Zone Sizing Summary for AHU-08

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name **AHU-08**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **6**
Floor Area ..... **350.1** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-G013-Kitchen	258	100	3.72	2.6	-	0.0	-	0
SNG-G012-Dining	818	565	5.23	14.7	-	0.0	-	0
SNG-GC003B-Corridor	104	31	1.63	0.0	-	0.0	-	0
SNG-G014-Kitchen storage	58	17	2.37	0.0	-	0.0	-	0
SNG-G033-Toilet	19	6	0.75	0.0	-	0.0	-	0
SNG-G035-Elec room	216	65	19.26	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G013-Kitchen	3.3	Jun 2000	0.5	69.4
SNG-G012-Dining	10.5	Aug 1500	0.8	156.4
SNG-GC003B-Corridor	1.3	Jul 1500	0.0	63.5
SNG-G014-Kitchen storage	0.8	Jun 2100	0.1	24.6
SNG-G033-Toilet	0.2	Jun 2100	0.1	25.0
SNG-G035-Elec room	2.3	Jul 1500	0.0	11.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G013-Kitchen							
SNG-G013-Kitchen	1	3.3	Jun 2000	258	0.5	69.4	3.72
SNG-G012-Dining							
SNG-G012-Dining	1	10.5	Aug 1500	818	0.8	156.4	5.23
SNG-GC003B-Corridor							
SNG-GC003B-Corridor	1	1.3	Jul 1500	104	0.0	63.5	1.63
SNG-G014-Kitchen storage							
SNG-G014-Kitchen storage	1	0.8	Jun 2100	58	0.1	24.6	2.37
SNG-G033-Toilet							
SNG-G033-Toilet	1	0.2	Jun 2100	19	0.1	25.0	0.75
SNG-G035-Elec room							
SNG-G035-Elec room	1	2.3	Jul 1500	216	0.0	11.2	19.26

Ventilation Sizing Summary for AHU-08

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **558** L/s
System Ventilation Efficiency (Ev) **0.712**
Outdoor Air Intake (Vot) ..... **784** L/s

2. Space Ventilation Analysis

		Minimum Supply Air (L/s)	Space Floor Area (m²)	Area Outdoor Air Rate (L/(s·m²))	Time Averaged Occupancy (Occupants)	People Outdoor Air Rate (L/s/person)	Air Distribution Effectiveness	Space Outdoor Air (L/s)	Breathing Zone Outdoor Air (L/s)	Space Ventilation Efficiency
Zone Name / Space Name	**Mult.**	**(Vpz)**	**(Az)**	**(Ra)**	**(Pz)**	**(Rp)**	**(Ez)**	**(Voz)**	**(Vbz)**	**(Evz)**
SNG-G013-Kitchen										
SNG-G013-Kitchen	1	100	69.4	0.60	10.0	3.80	0.8	**100**	*80*	0.712
SNG-G012-Dining										
SNG-G012-Dining	1	565	156.4	0.90	82.0	3.80	0.8	**565**	*452*	0.712
SNG-GC003B-Corridor										
SNG-GC003B-Corridor	1	31	63.5	0.30	0.0	0.00	1.0	**19**	*19*	1.100
SNG-G014-Kitchen storage										
SNG-G014-Kitchen storage	1	17	24.6	0.30	0.0	2.50	1.0	**7**	*7*	1.291
SNG-G033-Toilet										
SNG-G033-Toilet	1	6	25.0	0.00	0.0	0.00	1.0	**0**	*0*	1.712
SNG-G035-Elec room										
SNG-G035-Elec room	1	65	11.2	0.00	0.0	0.00	1.0	**0**	*0*	1.712
Totals (incl. Space Multipliers)		**784**							**558**	**0.712**

Air System Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name	**AHU-09**		Number of zones	**17**	
Equipment Class	**PKG ROOF**		Floor Area	**1139.8**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**142.5**	kW	Load occurs at	**Aug 1500**	
Sensible coil load	**119.4**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Aug 1500	**4147**	L/s	Entering DB / WB	**35.4 / 20.4**	°C
Max block L/s at Aug 1600	**4540**	L/s	Leaving DB / WB	**11.1 / 9.8**	°C
Sum of peak zone L/s	**4861**	L/s	Coil ADP	**8.4**	°C
Sensible heat ratio	**0.837**		Bypass Factor	**0.100**	
L/(s kW)	**29.1**		Resulting RH	**42**	%
m²/kW	**8.0**		Design supply temp.	**13.0**	°C
W/m²	**125.0**		Zone T-stat Check	**17 of 17**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Aug 1600	**4540**	L/s	Fan motor BHP	**11.45**	BHP
Standard L/s	**4455**	L/s	Fan motor kW	**9.08**	kW
Actual max L/(s·m²)	**3.98**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**2032**	L/s	L/s/person	**11.05**	L/s/person
L/(s·m²)	**1.78**	L/(s·m²)			

Zone Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name **AHU-09**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **17**
Floor Area ..... **1139.8** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-G019,018C-Class/Grp	408	195	4.72	5.1	-	0.0	-	0
SNG-G019D-Class room	294	157	4.24	4.1	-	0.0	-	0
SNG-G017-Class room	328	156	4.82	4.1	-	0.0	-	0
SNG-G016,016B-Class/1:1	417	194	4.84	5.1	-	0.0	-	0
SNG-G035A-Calming room	64	30	9.95	0.8	-	0.0	-	0
SNG-GC004-Corridor	132	40	1.64	0.0	-	0.0	-	0
SNG-GC003-Corridor	417	125	3.15	0.0	-	0.0	-	0
SNG-G036-Physical room	499	150	10.67	3.9	-	0.0	-	0
SNG-G036B,036D-Dark/Whit	55	39	2.94	1.0	-	0.0	-	0
SNG-G036C-Soft room	266	80	19.12	2.1	-	0.0	-	0
SNG-G114-Class room	313	161	4.20	4.2	-	0.0	-	0
SNG-G115,114C-Class/1:1	414	195	4.79	5.1	-	0.0	-	0
SNG-GC104C-Corridor	65	24	0.80	0.0	-	0.0	-	0
SNG-G117-Class room	309	157	4.42	4.1	-	0.0	-	0
SNG-G116B,116-Grp/Class	391	197	4.38	5.1	-	0.0	-	0
SNG-G115C-Calming room	37	30	5.14	0.8	-	0.0	-	0
SNG-G103-Corridor	306	92	2.50	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G019,018C-Class/Grp	5.3	Jun 2300	0.6	86.5
SNG-G019D-Class room	3.8	Jun 2300	0.5	69.3
SNG-G017-Class room	4.2	Nov 1800	0.5	68.1
SNG-G016,016B-Class/1:1	5.4	Nov 1800	0.7	86.0
SNG-G035A-Calming room	0.8	Jul 1500	0.0	6.4
SNG-GC004-Corridor	1.7	Jul 1500	0.0	80.4
SNG-GC003-Corridor	5.4	Aug 2200	1.0	132.2
SNG-G036-Physical room	6.4	Jul 1500	1.3	46.8
SNG-G036B,036D-Dark/Whit	0.7	Jul 0100	0.1	18.8
SNG-G036C-Soft room	3.4	Jul 1500	0.7	13.9
SNG-G114-Class room	4.0	Jun 2300	0.8	74.6
SNG-G115,114C-Class/1:1	5.3	Jun 2300	1.0	86.5
SNG-GC104C-Corridor	0.8	Jul 1600	0.4	81.2
SNG-G117-Class room	4.0	Nov 1800	0.7	70.0
SNG-G116B,116-Grp/Class	5.0	Nov 1800	1.0	89.4
SNG-G115C-Calming room	0.5	Jun 0100	0.1	7.3
SNG-G103-Corridor	3.9	Jul 1500	1.3	122.4

Zone Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G019,018C-Class/Grp							
SNG-G019-Class room	1	4.3	Jun 2300	331	0.5	68.7	4.82
SNG-G018C-Group room	1	0.8	Jun 2300	65	0.2	13.6	4.79
SNG-G019B-Store	1	0.2	Jul 1500	16	0.0	4.2	3.70
SNG-G019D-Class room							
SNG-G019D-Class room	1	3.6	Jun 2300	282	0.5	65.1	4.33
SNG-G018B-Store	1	0.2	Jul 1500	16	0.0	4.2	3.70
SNG-G017-Class room							
SNG-G017-Class room	1	4.2	Nov 1800	326	0.5	63.9	5.11
SNG-G017A-Store	1	0.0	Jan 2300	2	0.0	4.2	0.42
SNG-G016,016B-Class/1:1							
SNG-G016-Class room	1	4.3	Nov 1800	331	0.5	66.9	4.95
SNG-G016B-One:One room	1	1.1	Nov 1800	84	0.2	14.6	5.76
SNG-G016A-Store	1	0.0	Jan 2300	2	0.0	4.5	0.38
SNG-G035A-Calming room							
SNG-G035A-Calming room	1	0.8	Jul 1500	64	0.0	6.4	9.95
SNG-GC004-Corridor							
SNG-GC004-Corridor	1	1.7	Jul 1500	132	0.0	80.4	1.64
SNG-GC003-Corridor							
SNG-GC003-Corridor	1	5.4	Aug 2200	417	1.0	132.2	3.15
SNG-G036-Physical room							
SNG-G036-Physical playro	1	6.4	Jul 1500	499	1.3	46.8	10.67
SNG-G036B,036D-Dark/Whit							
SNG-G036B-Dark room	1	0.4	Jul 0100	32	0.1	11.7	2.72
SNG-G036D-White room	1	0.3	Jul 0100	23	0.0	7.1	3.30
SNG-G036C-Soft room							
SNG-G036C-Soft room	1	3.4	Jul 1500	266	0.7	13.9	19.12
SNG-G114-Class room							
SNG-G114-Class room	1	3.9	Jun 2300	301	0.8	70.4	4.27
SNG-G114B-Store	1	0.2	Jul 1500	16	0.0	4.2	3.89
SNG-G115,114C-Class/1:1							
SNG-G114C-One:One room	1	0.9	Jun 2300	69	0.2	14.8	4.68
SNG-G115-Class room	1	4.3	Jun 2300	332	0.7	67.5	4.92
SNG-G115B-Store	1	0.2	Jul 1500	16	0.0	4.2	3.89
SNG-GC104C-Corridor							
SNG-GC104C-Corridor	1	0.8	Jul 1600	65	0.4	81.2	0.80
SNG-G117-Class room							
SNG-G117-Class room	1	4.0	Nov 1800	307	0.7	65.8	4.67
SNG-G117A-Store	1	0.0	Jul 0100	2	0.0	4.2	0.59
SNG-G116B,116-Grp/Class							
SNG-G116B-Group room	1	1.0	Oct 1800	78	0.2	15.7	4.94
SNG-G116-Class room	1	4.0	Nov 1800	312	0.7	69.2	4.51
SNG-G116A-Store	1	0.0	Jul 0100	2	0.0	4.5	0.53
SNG-G115C-Calming room							
SNG-G115C-Calming room	1	0.5	Jun 0100	37	0.1	7.3	5.14
SNG-G103-Corridor							
SNG-G103-Corridor	1	3.9	Jul 1500	306	1.3	122.4	2.50

Ventilation Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **1469** L/s
System Ventilation Efficiency (Ev) **0.723**
Outdoor Air Intake (Vot) ..... **2032** L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
SNG-G019,018C-Class/Grp										
SNG-G019-Class room	1	158	68.7	0.60	17.0	5.00	0.8	**158**	*126*	0.723
SNG-G018C-Group room	1	35	13.6	0.60	4.0	5.00	0.8	**35**	*28*	0.723
SNG-G019B-Store	1	5	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.385
SNG-G019D-Class room										
SNG-G019D-Class room	1	155	65.1	0.60	17.0	5.00	0.8	**155**	*124*	0.723
SNG-G018B-Store	1	5	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.385
SNG-G017-Class room										
SNG-G017-Class room	1	154	63.9	0.60	17.0	5.00	0.8	**154**	*123*	0.723
SNG-G017A-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.723
SNG-G016,016B-Class/1:1										
SNG-G016-Class room	1	156	66.9	0.60	17.0	5.00	0.8	**156**	*125*	0.723
SNG-G016B-One:One room	1	36	14.6	0.60	4.0	5.00	0.8	**36**	*29*	0.723
SNG-G016A-Store	1	2	4.5	0.30	0.0	2.50	0.8	**2**	*1*	0.723
SNG-G035A-Calming room										
SNG-G035A-Calming room	1	30	6.4	0.60	4.0	5.00	0.8	**30**	*24*	0.723
SNG-GC004-Corridor										
SNG-GC004-Corridor	1	40	80.4	0.30	0.0	0.00	1.0	**24**	*24*	1.113
SNG-GC003-Corridor										
SNG-GC003-Corridor	1	125	132.2	0.30	0.0	0.00	1.0	**40**	*40*	1.405
SNG-G036-Physical room										
SNG-G036-Physical playro	1	150	46.8	0.60	10.0	5.00	0.8	**98**	*78*	1.071
SNG-G036B,036D-Dark/Whit										
SNG-G036B-Dark room	1	21	11.7	0.60	2.0	5.00	0.8	**21**	*17*	0.723
SNG-G036D-White room	1	18	7.1	0.60	2.0	5.00	0.8	**18**	*14*	0.723
SNG-G036C-Soft room										
SNG-G036C-Soft room	1	80	13.9	0.60	10.0	5.00	0.8	**73**	*58*	0.808
SNG-G114-Class room										
SNG-G114-Class room	1	159	70.4	0.60	17.0	5.00	0.8	**159**	*127*	0.723
SNG-G114B-Store	1	5	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.401
SNG-G115,114C-Class/1:1										
SNG-G114C-One:One room	1	36	14.8	0.60	4.0	5.00	0.8	**36**	*29*	0.723
SNG-G115-Class room	1	157	67.5	0.60	17.0	5.00	0.8	**157**	*126*	0.723
SNG-G115B-Store	1	5	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.401
SNG-GC104C-Corridor										
SNG-GC104C-Corridor	1	24	81.2	0.30	0.0	0.00	1.0	**24**	*24*	0.723

Ventilation Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

SNG-G117-Class room										
SNG-G117-Class room	1	156	65.8	0.60	17.0	5.00	0.8	**156**	*124*	0.723
SNG-G117A-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.723
SNG-G116B,116-Grp/Class										
SNG-G116B-Group room	1	37	15.7	0.60	4.0	5.00	0.8	**37**	*29*	0.723
SNG-G116-Class room	1	158	69.2	0.60	17.0	5.00	0.8	**158**	*127*	0.723
SNG-G116A-Store	1	2	4.5	0.30	0.0	2.50	0.8	**2**	*1*	0.723
SNG-G115C-Calming room										
SNG-G115C-Calming room	1	30	7.3	0.60	4.0	5.00	0.8	**30**	*24*	0.723
SNG-G103-Corridor										
SNG-G103-Corridor	1	92	122.4	0.30	0.0	0.00	1.0	**37**	*37*	1.322
Totals (incl. Space Multipliers)		**2032**							**1469**	**0.723**

Air System Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name	**AHU-10**		Number of zones	**27**	
Equipment Class	**PKG ROOF**		Floor Area	**1345.6**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**168.4**	kW	Load occurs at	**Aug 1500**	
Sensible coil load	**140.8**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Aug 1500	**5092**	L/s	Entering DB / WB	**34.4 / 20.1**	°C
Max block L/s at Aug 2100	**5582**	L/s	Leaving DB / WB	**11.1 / 9.9**	°C
Sum of peak zone L/s	**5842**	L/s	Coil ADP	**8.5**	°C
Sensible heat ratio	**0.836**		Bypass Factor	**0.100**	
L/(s kW)	**30.2**		Resulting RH	**43**	%
m²/kW	**8.0**		Design supply temp.	**13.0**	°C
W/m²	**125.2**		Zone T-stat Check	**27 of 27**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Aug 2100	**5582**	L/s	Fan motor BHP	**14.07**	BHP
Standard L/s	**5477**	L/s	Fan motor kW	**11.16**	kW
Actual max L/(s·m²)	**4.15**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**2262**	L/s	L/s/person	**9.38**	L/s/person
L/(s·m²)	**1.68**	L/(s·m²)			

Zone Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name **AHU-10**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **27**
Floor Area ..... **1345.6** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-G006,006A,-Thera/Grp	321	179	4.46	4.7	-	0.0	-	0
SNG-G030-Electrical room	594	178	23.13	0.0	-	0.0	-	0
SNG-GC001A-Corridor	68	20	1.29	0.0	-	0.0	-	0
SNG-G002A,005B-Asses	93	40	3.86	1.1	-	0.0	-	0
SNG-G002E-Meeting room	206	62	4.25	1.6	-	0.0	-	0
SNG-G002D-Speech therapy	129	45	6.81	1.2	-	0.0	-	0
SNG-G030A-VFD Room	432	130	43.68	0.0	-	0.0	-	0
SNG-G002B-Screen&Intervi	81	47	4.08	1.2	-	0.0	-	0
SNG-G002C-Nurse visiting	142	60	7.15	1.6	-	0.0	-	0
SNG-G007,007A-Vestib/Jan	142	42	5.92	0.0	-	0.0	-	0
SNG-GC001-Corridor/Lobby	185	56	0.99	0.0	-	0.0	-	0
SNG-G001-Vesitbule	131	39	10.93	0.0	-	0.0	-	0
SNG-G024,028-Office	110	33	5.18	0.9	-	0.0	-	0
SNG-G022,020-Recep/Tech	126	39	2.36	1.0	-	0.0	-	0
SNG-G025-Conference	142	43	8.27	1.1	-	0.0	-	0
SNG-G026-Asst principal	85	25	5.25	0.7	-	0.0	-	0
SNG-G027-Principal	69	21	4.08	0.5	-	0.0	-	0
SNG-G110-Class room	346	227	4.43	5.9	-	0.0	-	0
SNG-G102-Staff workroom	344	103	3.20	2.7	-	0.0	-	0
SNG-G103-Staff lounge	240	72	6.26	1.9	-	0.0	-	0
SNG-G132-Electrical room	92	28	19.25	0.0	-	0.0	-	0
SNG-G134A-Corridor	72	21	1.52	0.0	-	0.0	-	0
SNG-G101-Reading room	603	366	4.65	9.5	-	0.0	-	0
SNG-G101B,G131,G142A-Cor	146	44	1.04	0.0	-	0.0	-	0
SNG-G142-Staff training	219	78	3.95	2.0	-	0.0	-	0
SNG-G002-Reception	117	35	3.52	0.0	-	0.0	-	0
SNG-G141-Snack area	429	222	6.05	5.8	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G006,006A,-Thera/Grp	4.1	Jul 1600	0.3	72.1
SNG-G030-Electrical room	7.7	Jul 1500	0.0	25.7
SNG-GC001A-Corridor	0.9	Jul 1500	0.0	52.5
SNG-G002A,005B-Asses	1.2	Jan 2300	0.0	24.2
SNG-G002E-Meeting room	2.7	Jul 2300	0.3	48.6
SNG-G002D-Speech therapy	1.7	Jul 2300	0.1	19.0
SNG-G030A-VFD Room	5.6	Jan 2300	0.0	9.9
SNG-G002B-Screen&Intervi	1.0	Jul 2300	0.1	19.9
SNG-G002C-Nurse visiting	1.8	Oct 2100	0.3	19.9
SNG-G007,007A-Vestib/Jan	1.8	Jul 1500	0.6	23.9

Zone Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-GC001-Corridor/Lobby	2.4	Jul 1500	0.0	187.0
SNG-G001-Vesitbule	1.7	Sep 2200	0.5	12.0
SNG-G024,028-Office	1.4	Sep 2200	0.3	21.3
SNG-G022,020-Recep/Tech	1.6	Jul 1600	0.1	53.6
SNG-G025-Conference	1.8	Sep 2100	0.3	17.2
SNG-G026-Asst principal	1.1	Nov 1800	0.3	16.1
SNG-G027-Principal	0.9	Oct 1800	0.1	16.9
SNG-G110-Class room	4.5	Jul 2300	0.7	78.1
SNG-G102-Staff workroom	4.4	Jul 2300	0.8	107.4
SNG-G103-Staff lounge	3.1	Jul 1600	0.3	38.3
SNG-G132-Electrical room	1.2	Jul 0100	0.0	4.8
SNG-G134A-Corridor	0.9	Jul 1500	0.2	47.1
SNG-G101-Reading room	7.8	Oct 2100	1.5	129.8
SNG-G101B,G131,G142A-Cor	1.9	Jul 1600	0.7	140.5
SNG-G142-Staff training	2.8	Oct 1700	0.6	55.5
SNG-G002-Reception	1.5	Jul 1500	0.1	33.4
SNG-G141-Snack area	5.5	Oct 1900	1.0	70.9

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G006,006A,-Thera/Grp							
SNG-G006-Occup therapy	1	3.1	Jul 1600	238	0.3	54.3	4.39
SNG-G006A-Group room	1	1.1	Jul 1500	83	0.0	17.8	4.66
SNG-G030-Electrical room							
SNG-G030-Electrical room	1	7.7	Jul 1500	594	0.0	25.7	23.13
SNG-GC001A-Corridor							
SNG-GC001A-Corridor	1	0.9	Jul 1500	68	0.0	52.5	1.29
SNG-G002A,005B-Asses							
SNG-G005B-Assesment room	1	0.6	Jan 2300	48	0.0	12.1	3.98
SNG-G002A-Assesment room	1	0.6	Jan 2300	45	0.0	12.1	3.74
SNG-G002E-Meeting room							
SNG-G002E-Meeting room	1	2.7	Jul 2300	206	0.3	48.6	4.25
SNG-G002D-Speech therapy							
SNG-G002D-Speech therapy	1	1.7	Jul 2300	129	0.1	19.0	6.81
SNG-G030A-VFD Room							
SNG-G030A-VFD Room	1	5.6	Jan 2300	432	0.0	9.9	43.68
SNG-G002B-Screen&Intervi							
SNG-G002B-Screen&Intervi	1	1.0	Jul 2300	81	0.1	19.9	4.08
SNG-G002C-Nurse visiting							
SNG-G002C-Nurse visiting	1	1.8	Oct 2100	142	0.3	19.9	7.15
SNG-G007,007A-Vestib/Jan							
SNG-G007-Vestibule	1	1.7	Jul 1500	135	0.5	16.2	8.35
SNG-G007A-Janitor room	1	0.1	Jul 2100	8	0.1	7.7	1.07
SNG-GC001-Corridor/Lobby							
SNG-GC001-Corridor/Lobby	1	2.4	Jul 1500	185	0.0	187.0	0.99
SNG-G001-Vesitbule							
SNG-G001-Vestibule	1	1.7	Sep 2200	131	0.5	12.0	10.93
SNG-G024,028-Office							
SNG-G024-Office	1	0.6	Aug 2200	46	0.2	10.8	4.28
SNG-G028-Office	1	0.8	Sep 2200	65	0.1	10.5	6.18
SNG-G022,020-Recep/Tech							
SNG-G022-Reception	1	1.3	Jul 1600	103	0.1	44.9	2.29
SNG-G020-Tech support	1	0.3	Jan 2300	24	0.0	8.7	2.74
SNG-G025-Conference							
SNG-G025-Conference	1	1.8	Sep 2100	142	0.3	17.2	8.27

Zone Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G026-Asst principal							
SNG-G026-Asst principal	1	1.1	Nov 1800	85	0.3	16.1	5.25
SNG-G027-Principal							
SNG-G027-Principal	1	0.9	Oct 1800	69	0.1	16.9	4.08
SNG-G110-Class room							
SNG-G110-Class room	1	4.5	Jul 2300	346	0.7	78.1	4.43
SNG-G102-Staff workroom							
SNG-G102-Staff workroom	1	4.4	Jul 2300	344	0.8	107.4	3.20
SNG-G103-Staff lounge							
SNG-G103-Staff lounge	1	3.1	Jul 1600	240	0.3	38.3	6.26
SNG-G132-Electrical room							
SNG-G132-Electrical room	1	1.2	Jul 0100	92	0.0	4.8	19.25
SNG-G134A-Corridor							
SNG-G134A-Corridor	1	0.9	Jul 1500	72	0.2	47.1	1.52
SNG-G101-Reading room							
SNG-G101-Reading room	1	7.8	Oct 2100	603	1.5	129.8	4.65
SNG-G101B,G131,G142A-Cor							
SNG-GC101B-Corridor	1	1.7	Jul 1600	133	0.5	122.9	1.08
SNG-G131-Janitor room	1	0.1	Jul 2100	11	0.1	8.1	1.39
SNG-G142A-Store	1	0.0	Jul 0100	3	0.0	9.5	0.35
SNG-G142-Staff training							
SNG-G142-Staff training	1	2.8	Oct 1700	219	0.6	55.5	3.95
SNG-G002-Reception							
SNG-G002-Reception	1	1.5	Jul 1500	117	0.1	33.4	3.52
SNG-G141-Snack area							
SNG-G141-Snack area	1	5.5	Oct 1900	429	1.0	70.9	6.05

Ventilation Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **1456** L/s
System Ventilation Efficiency (Ev) **0.644**
Outdoor Air Intake (Vot) ..... **2262** L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
SNG-G006,006A,-Thera/Grp										
SNG-G006-Occup therapy	1	128	54.3	0.60	14.0	5.00	0.8	**128**	*103*	0.644
SNG-G006A-Group room	1	51	17.8	0.60	6.0	5.00	0.8	**51**	*41*	0.644
SNG-G030-Electrical room										
SNG-G030-Electrical room	1	178	25.7	0.00	0.0	0.00	1.0	**0**	*0*	1.644
SNG-GC001A-Corridor										
SNG-GC001A-Corridor	1	20	52.5	0.30	0.0	0.00	1.0	**16**	*16*	0.870
SNG-G002A,005B-Asses										
SNG-G005B-Assesment room	1	20	12.1	0.30	5.0	2.50	0.8	**20**	*16*	0.644
SNG-G002A-Assesment room	1	20	12.1	0.30	5.0	2.50	0.8	**20**	*16*	0.644
SNG-G002E-Meeting room										
SNG-G002E-Meeting room	1	62	48.6	0.30	14.0	2.50	0.8	**62**	*50*	0.644
SNG-G002D-Speech therapy										
SNG-G002D-Speech therapy	1	45	19.0	0.30	12.0	2.50	0.8	**45**	*36*	0.644
SNG-G030A-VFD Room										
SNG-G030A-VFD Room	1	130	9.9	0.00	0.0	0.00	1.0	**0**	*0*	1.644
SNG-G002B-Screen&Intervi										
SNG-G002B-Screen&Intervi	1	47	19.9	0.90	4.0	5.00	0.8	**47**	*38*	0.644
SNG-G002C-Nurse visiting										
SNG-G002C-Nurse visiting	1	60	19.9	0.90	6.0	5.00	0.8	**60**	*48*	0.644
SNG-G007,007A-Vestib/Jan										
SNG-G007-Vestibule	1	41	16.2	0.30	0.0	0.00	1.0	**5**	*5*	1.524
SNG-G007A-Janitor room	1	2	7.7	0.00	0.0	0.00	1.0	**0**	*0*	1.644
SNG-GC001-Corridor/Lobby										
SNG-GC001-Corridor/Lobby	1	56	187.0	0.30	0.0	2.50	1.0	**56**	*56*	0.644
SNG-G001-Vesitbule										
SNG-G001-Vestibule	1	39	12.0	0.30	0.0	0.00	1.0	**4**	*4*	1.552
SNG-G024,028-Office										
SNG-G024-Office	1	14	10.8	0.30	0.0	2.50	0.8	**4**	*3*	1.351
SNG-G028-Office	1	19	10.5	0.30	4.0	2.50	0.8	**16**	*13*	0.799
SNG-G022,020-Recep/Tech										
SNG-G022-Reception	1	31	44.9	0.30	4.0	2.50	0.8	**29**	*23*	0.691
SNG-G020-Tech support	1	10	8.7	0.30	2.0	2.50	0.8	**10**	*8*	0.644
SNG-G025-Conference										
SNG-G025-Conference	1	43	17.2	0.30	10.0	2.50	0.8	**38**	*30*	0.761
SNG-G026-Asst principal										

Ventilation Sizing Summary for AHU-10

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SNG-G026-Asst principal	1	25	16.1	0.30	3.0	2.50	0.8	**15**	*12*	1.036
SNG-G027-Principal										
SNG-G027-Principal	1	21	16.9	0.30	3.0	2.50	0.8	**16**	*13*	0.884
SNG-G110-Class room										
SNG-G110-Class room	1	227	78.1	0.60	27.0	5.00	0.8	**227**	*182*	0.644
SNG-G102-Staff workroom										
SNG-G102-Staff workroom	1	103	107.4	0.30	20.0	2.50	0.8	**103**	*82*	0.648
SNG-G103-Staff lounge										
SNG-G103-Staff lounge	1	72	38.3	0.60	13.0	2.50	0.8	**69**	*55*	0.679
SNG-G132-Electrical room										
SNG-G132-Electrical room	1	28	4.8	0.00	0.0	0.00	1.0	**0**	*0*	1.644
SNG-G134A-Corridor										
SNG-G134A-Corridor	1	21	47.1	0.30	0.0	0.00	1.0	**14**	*14*	0.985
SNG-G101-Reading room										
SNG-G101-Reading room	1	366	129.8	0.60	43.0	5.00	0.8	**366**	*293*	0.644
SNG-G101B,G131,G142A-Cor										
SNG-GC101B-Corridor	1	40	122.9	0.30	0.0	0.00	1.0	**37**	*37*	0.721
SNG-G131-Janitor room	1	3	8.1	0.00	0.0	0.00	1.0	**0**	*0*	1.644
SNG-G142A-Store	1	3	9.5	0.30	0.0	2.50	1.0	**3**	*3*	0.644
SNG-G142-Staff training										
SNG-G142-Staff training	1	78	55.5	0.30	12.0	3.80	0.8	**78**	*62*	0.644
SNG-G002-Reception										
SNG-G002-Reception	1	35	33.4	0.30	4.0	2.50	1.0	**20**	*20*	1.075
SNG-G141-Snack area										
SNG-G141-Snack area	1	222	70.9	0.90	30.0	3.80	0.8	**222**	*178*	0.644
Totals (incl. Space Multipliers)		**2262**							**1456**	**0.644**

Air System Sizing Summary for AHU-11

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name	**AHU-11**		Number of zones	**6**	
Equipment Class	**PKG ROOF**		Floor Area	**522.5**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**102.7**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**84.2**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Jul 1500	**2973**	L/s	Entering DB / WB	**35.0 / 20.5**	°C
Max block L/s at Jul 1600	**3228**	L/s	Leaving DB / WB	**11.1 / 9.9**	°C
Sum of peak zone L/s	**3267**	L/s	Coil ADP	**8.4**	°C
Sensible heat ratio	**0.820**		Bypass Factor	**0.100**	
L/(s kW)	**28.9**		Resulting RH	**45**	%
m²/kW	**5.1**		Design supply temp.	**13.0**	°C
W/m²	**196.6**		Zone T-stat Check	**6 of 6**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1600	**3228**	L/s	Fan motor BHP	**8.14**	BHP
Standard L/s	**3168**	L/s	Fan motor kW	**6.46**	kW
Actual max L/(s·m²)	**6.18**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**1415**	L/s	L/s/person	**6.71**	L/s/person
L/(s·m²)	**2.71**	L/(s·m²)			

Zone Sizing Summary for AHU-11

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name **AHU-11**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **6**
Floor Area ..... **522.5** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-G139-Food classroom	402	281	4.01	7.3	-	0.0	-	0
SNG-G015-Multipurp room	2207	898	9.18	23.4	-	0.0	-	0
SNG-G140-Store room	50	15	1.22	0.0	-	0.0	-	0
SNG-G015A-Storage	30	9	1.03	0.0	-	0.0	-	0
SNG-G015B-Fitness room	425	193	8.70	5.0	-	0.0	-	0
SNG-GC003A-Corridor	55	19	0.87	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G139-Food classroom	5.2	Aug 1800	0.7	100.2
SNG-G015-Multipurp room	28.5	Jul 1600	6.0	240.5
SNG-G140-Store room	0.6	Jun 2300	0.4	40.7
SNG-G015A-Storage	0.4	Oct 1900	0.1	29.0
SNG-G015B-Fitness room	5.5	Oct 1700	0.3	48.9
SNG-GC003A-Corridor	0.7	Jul 1500	0.0	63.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G139-Food classroom							
SNG-G139-Food classroom	1	5.2	Aug 1800	402	0.7	100.2	4.01
SNG-G015-Multipurp room							
SNG-G015-Multipurp room	1	28.5	Jul 1600	2207	6.0	240.5	9.18
SNG-G140-Store room							
SNG-G140-Store room	1	0.6	Jun 2300	50	0.4	40.7	1.22
SNG-G015A-Storage							
SNG-G015A-Storage	1	0.4	Oct 1900	30	0.1	29.0	1.03
SNG-G015B-Fitness room							
SNG-G015B-Fitness room	1	5.5	Oct 1700	425	0.3	48.9	8.70
SNG-GC003A-Corridor							
SNG-GC003A-Corridor	1	0.7	Jul 1500	55	0.0	63.2	0.87

Ventilation Sizing Summary for AHU-11

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **1138** L/s
System Ventilation Efficiency (Ev) **0.804**
Outdoor Air Intake (Vot) ..... **1415** L/s

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
SNG-G139-Food classroom										
SNG-G139-Food classroom	1	281	100.2	0.90	27.0	5.00	0.8	**281**	*225*	0.804
SNG-G015-Multipurp room										
SNG-G015-Multipurp room	1	898	240.5	0.30	170.0	3.80	0.8	**898**	*718*	0.804
SNG-G140-Store room										
SNG-G140-Store room	1	15	40.7	0.30	0.0	2.50	1.0	**12**	*12*	0.985
SNG-G015A-Storage										
SNG-G015A-Storage	1	9	29.0	0.30	0.0	2.50	1.0	**9**	*9*	0.834
SNG-G015B-Fitness room										
SNG-G015B-Fitness room	1	193	48.9	0.30	14.0	10.00	0.8	**193**	*155*	0.804
SNG-GC003A-Corridor										
SNG-GC003A-Corridor	1	19	63.2	0.30	0.0	0.00	1.0	**19**	*19*	0.804
Totals (incl. Space Multipliers)		**1415**							**1138**	**0.804**

Air System Sizing Summary for AHU-12

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name	**AHU-12**		Number of zones	**9**	
Equipment Class	**PKG ROOF**		Floor Area	**351.1**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**48.4**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**41.1**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Jul 1500	**1486**	L/s	Entering DB / WB	**34.4 / 19.9**	°C
Max block L/s at Jul 1600	**1638**	L/s	Leaving DB / WB	**11.1 / 9.8**	°C
Sum of peak zone L/s	**1673**	L/s	Coil ADP	**8.5**	°C
Sensible heat ratio	**0.850**		Bypass Factor	**0.100**	
L/(s kW)	**30.7**		Resulting RH	**41**	%
m²/kW	**7.3**		Design supply temp.	**13.0**	°C
W/m²	**137.7**		Zone T-stat Check	**9 of 9**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1600	**1638**	L/s	Fan motor BHP	**4.13**	BHP
Standard L/s	**1607**	L/s	Fan motor kW	**3.28**	kW
Actual max L/(s·m²)	**4.66**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**664**	L/s	L/s/person	**10.37**	L/s/person
L/(s·m²)	**1.89**	L/(s·m²)			

Zone Sizing Summary for AHU-12

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name **AHU-12**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **9**
Floor Area ..... **351.1** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-GC103-Corridor	144	43	1.76	0.0	-	0.0	-	0
SNG-G138B-Voc class room	318	218	4.82	5.7	-	0.0	-	0
SNG-G113C-Kitchen living	387	132	5.66	3.4	-	0.0	-	0
SNG-G113B-Bedroom	125	37	4.32	1.0	-	0.0	-	0
SNG-G113-Life skills	163	81	6.46	2.1	-	0.0	-	0
SNG-G138A-Calming room	95	34	7.91	0.9	-	0.0	-	0
SNG-G137,G113A-Store/Bat	165	49	5.83	0.0	-	0.0	-	0
SNG-G136-Toilet	22	6	0.77	0.0	-	0.0	-	0
SNG-G138-Elec room	205	61	16.12	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-GC103-Corridor	1.9	Jul 1500	0.4	81.5
SNG-G138B-Voc class room	4.1	Oct 2000	0.6	66.0
SNG-G113C-Kitchen living	5.0	Aug 1600	1.0	68.5
SNG-G113B-Bedroom	1.6	Jun 1900	0.5	28.9
SNG-G113-Life skills	2.1	Jul 1500	0.1	25.2
SNG-G138A-Calming room	1.2	Jul 2200	0.1	12.0
SNG-G137,G113A-Store/Bat	2.1	Jun 1500	0.6	28.2
SNG-G136-Toilet	0.3	Jul 2300	0.2	28.1
SNG-G138-Elec room	2.2	Jul 1500	0.1	12.7

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-GC103-Corridor							
SNG-GC103-Corridor	1	1.9	Jul 1500	144	0.4	81.5	1.76
SNG-G138B-Voc class room							
SNG-G138B-Voc class room	1	4.1	Oct 2000	318	0.6	66.0	4.82
SNG-G113C-Kitchen living							
SNG-G113C-Kitchen living	1	5.0	Aug 1600	387	1.0	68.5	5.66
SNG-G113B-Bedroom							
SNG-G113B-Bedroom	1	1.6	Jun 1900	125	0.5	28.9	4.32
SNG-G113-Life skills							
SNG-G113-Life skills	1	2.1	Jul 1500	163	0.1	25.2	6.46
SNG-G138A-Calming room							
SNG-G138A-Calming room	1	1.2	Jul 2200	95	0.1	12.0	7.91
SNG-G137,G113A-Store/Bat							

Zone Sizing Summary for AHU-12

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G137-Store	1	1.4	Jun 1500	109	0.3	16.1	6.79
SNG-G113A-Bathroom	1	0.7	Jun 1500	55	0.3	12.1	4.56
SNG-G136-Toilet							
SNG-G136-Toilet	1	0.3	Jul 2300	22	0.2	28.1	0.77
SNG-G138-Elec room							
SNG-G138-Elec room	1	2.2	Jul 1500	205	0.1	12.7	16.12

Ventilation Sizing Summary for AHU-12

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **430** L/s
System Ventilation Efficiency (Ev) **0.649**
Outdoor Air Intake (Vot) ..... **664** L/s

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
SNG-GC103-Corridor										
SNG-GC103-Corridor	1	43	81.5	0.30	0.0	0.00	1.0	**24**	*24*	1.081
SNG-G138B-Voc class room										
SNG-G138B-Voc class room	1	218	66.0	0.60	27.0	5.00	0.8	**218**	*175*	0.649
SNG-G113C-Kitchen living										
SNG-G113C-Kitchen living	1	132	68.5	0.60	17.0	3.80	0.8	**132**	*106*	0.649
SNG-G113B-Bedroom										
SNG-G113B-Bedroom	1	37	28.9	0.30	6.0	2.50	0.8	**30**	*24*	0.859
SNG-G113-Life skills										
SNG-G113-Life skills	1	81	25.2	0.60	10.0	5.00	0.8	**81**	*65*	0.649
SNG-G138A-Calming room										
SNG-G138A-Calming room	1	34	12.0	0.60	4.0	5.00	0.8	**34**	*27*	0.649
SNG-G137,G113A-Store/Bat										
SNG-G137-Store	1	33	16.1	0.60	0.0	2.50	1.0	**10**	*10*	1.354
SNG-G113A-Bathroom	1	17	12.1	0.00	0.0	0.00	1.0	**0**	*0*	1.649
SNG-G136-Toilet										
SNG-G136-Toilet	1	6	28.1	0.00	0.0	0.00	1.0	**0**	*0*	1.649
SNG-G138-Elec room										
SNG-G138-Elec room	1	61	12.7	0.00	0.0	0.00	1.0	**0**	*0*	1.649
Totals (incl. Space Multipliers)		**664**							**430**	**0.649**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-01 Stair GS1-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-01 Stair GS1-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **36.3** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-01 Stair GS1-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-01 Stair GS1-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **36.3** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-GS1-0-Stair	1.8	1.8	25.1 / 18.0	15.3 / 14.5	-	Jul 0000	4.37

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-GS1-0-Stair	1.3	19.6 / 26.8	-	159	0.000	0.000	11

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-GS1-0-Stair	1.8	Jul 0100	1.2	36.3

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-GS1-0-Stair							
SNG-GS1-0-Stair	1	1.8	Jul 0100	159	1.2	36.3	4.37

Ventilation Sizing Summary for FCU-01 Stair GS1-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-GS1-0-Stair

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-GS1-0-Stair									
SNG-GS1-0-Stair	1	36.3	0.0	158.6	0.00	0.30	0.0	0.0	10.9
Totals (incl. Space Multipliers)				**158.6**					**10.9**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-02 Stair GS2-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-02 Stair GS2-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **35.5** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-02 Stair GS2-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-02 Stair GS2-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **35.5** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-GS2-0-Stair	1.0	1.0	27.5 / 18.6	16.0 / 14.7	-	Jul 1700	2.05

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-GS2-0-Stair	0.6	18.5 / 25.8	-	73	0.000	0.000	11

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-GS2-0-Stair	0.8	Jul 0000	0.4	35.5

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-GS2-0-Stair							
SNG-GS2-0-Stair	1	0.8	Jul 0000	73	0.4	35.5	2.05

Ventilation Sizing Summary for FCU-02 Stair GS2-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-GS2-0-Stair

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-GS2-0-Stair									
SNG-GS2-0-Stair	1	35.5	0.0	72.9	0.00	0.30	0.0	0.0	10.7
Totals (incl. Space Multipliers)				**72.9**					**10.7**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-03 Stair GS3-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-03 Stair GS3-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **34.6** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-03 Stair GS3-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-03 Stair GS3-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **34.6** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-GS3-0-Stair	1.5	1.5	26.3 / 18.2	15.5 / 14.5	-	Aug 1700	3.46

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-GS3-0-Stair	0.6	19.5 / 23.9	-	120	0.000	0.000	10

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-GS3-0-Stair	1.3	Aug 1800	0.4	34.6

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-GS3-0-Stair							
SNG-GS3-0-Stair	1	1.3	Aug 1800	120	0.4	34.6	3.46

Ventilation Sizing Summary for FCU-03 Stair GS3-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-GS3-0-Stair

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-GS3-0-Stair									
SNG-GS3-0-Stair	1	34.6	0.0	119.6	0.00	0.30	0.0	0.0	10.4
Totals (incl. Space Multipliers)				**119.6**					**10.4**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-04 FTR G-021

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-04 FTR G-021**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **23.4** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-04 FTR G-021

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-04 FTR G-021**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **23.4** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-G021-FTR	16.9	16.9	22.5 / 15.7	14.9 / 12.8	-	Aug 1500	80.09

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-G021-FTR	0.2	21.1 / 21.2	-	1874	0.000	0.000	7

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G021-FTR	16.8	Oct 2200	0.1	23.4

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G021-FTR							
SNG-G021-FTR	1	16.8	Oct 2200	1874	0.1	23.4	80.09

Ventilation Sizing Summary for FCU-04 FTR G-021

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-G021-FTR

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-G021-FTR									
SNG-G021-FTR	1	23.4	0.0	1874.0	0.00	0.30	0.0	0.0	7.0
Totals (incl. Space Multipliers)				**1874.0**					**7.0**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-05 FTR G-037

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-05 FTR G-037**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **11.2** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-05 FTR G-037

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-05 FTR G-037**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **11.2** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-G037-FTR	7.0	7.0	22.5 / 15.9	14.9 / 13.0	-	Aug 1700	69.81

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-G037-FTR	0.2	21.1 / 21.3	-	782	0.000	0.000	3

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G037-FTR	7.0	Oct 2300	0.1	11.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G037-FTR							
SNG-G037-FTR	1	7.0	Oct 2300	782	0.1	11.2	69.81

Ventilation Sizing Summary for FCU-05 FTR G-037

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-G037-FTR

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-G037-FTR									
SNG-G037-FTR	1	11.2	0.0	781.9	0.00	0.30	0.0	0.0	3.4
Totals (incl. Space Multipliers)				**781.9**					**3.4**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-06 FTR G-112

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-06 FTR G-112**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **11.5** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-06 FTR G-112

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-06 FTR G-112**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **11.5** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-G112-FTR	6.5	6.5	22.5 / 16.0	14.9 / 13.2	-	Aug 2000	62.93

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-G112-FTR	0.2	21.2 / 21.4	-	724	0.000	0.000	3

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G112-FTR	6.5	Aug 0000	0.1	11.5

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G112-FTR							
SNG-G112-FTR	1	6.5	Aug 0000	724	0.1	11.5	62.93

Ventilation Sizing Summary for FCU-06 FTR G-112

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-G112-FTR

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-G112-FTR									
SNG-G112-FTR	1	11.5	0.0	723.7	0.00	0.30	0.0	0.0	3.5
Totals (incl. Space Multipliers)				**723.7**					**3.5**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-07 FTR G-133

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-07 FTR G-133**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **11.7** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-07 FTR G-133

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

Air System Information

Air System Name ..... **FCU-07 FTR G-133**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **11.7** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-G133-FTR	6.5	6.5	22.6 / 15.9	15.0 / 13.1	-	Jul 1300	61.90

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-G133-FTR	0.1	21.1 / 21.2	-	724	0.000	0.000	4

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G133-FTR	6.5	Jul 0100	0.0	11.7

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G133-FTR							
SNG-G133-FTR	1	6.5	Jul 0100	724	0.0	11.7	61.90

Ventilation Sizing Summary for FCU-07 FTR G-133

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:08PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-G133-FTR

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-G133-FTR									
SNG-G133-FTR	1	11.7	0.0	724.2	0.00	0.30	0.0	0.0	3.5
Totals (incl. Space Multipliers)				**724.2**					**3.5**

System output

Condition (2)

Air System Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name	**AHU-07**		Number of zones	**23**	
Equipment Class	**PKG ROOF**		Floor Area	**1216.4**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**170.3**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**90.1**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Jul 1500	**3607**	L/s	Entering DB / WB	**32.8 / 24.3**	°C
Max block L/s at Jul 1700	**3794**	L/s	Leaving DB / WB	**11.7 / 11.2**	°C
Sum of peak zone L/s	**4103**	L/s	Coil ADP	**9.3**	°C
Sensible heat ratio	**0.529**		Bypass Factor	**0.100**	
L/(s kW)	**21.2**		Resulting RH	**50**	%
m²/kW	**7.1**		Design supply temp.	**13.0**	°C
W/m²	**140.0**		Zone T-stat Check	**23 of 23**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1700	**3794**	L/s	Fan motor BHP	**9.57**	BHP
Standard L/s	**3723**	L/s	Fan motor kW	**7.59**	kW
Actual max L/(s·m²)	**3.12**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**2139**	L/s	L/s/person	**9.86**	L/s/person
L/(s·m²)	**1.76**	L/(s·m²)			

Zone Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name **AHU-07**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **23**
Floor Area ..... **1216.4** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-G009,008B-Class/1:1	309	190	3.81	5.0	-	0.0	-	0
SNG-G008-Class room	264	158	3.75	4.1	-	0.0	-	0
SNG-GC002-Corridor	69	23	0.89	0.0	-	0.0	-	0
SNG-G011-Class room	324	156	4.76	4.1	-	0.0	-	0
SNG-G010,010C-Class/Grp	359	189	4.54	4.9	-	0.0	-	0
SNG-G032-Toilet	17	5	1.16	0.0	-	0.0	-	0
SNG-GC001-Corridor	143	43	1.71	0.0	-	0.0	-	0
SNG-G034-W-Chair store	55	17	6.26	0.0	-	0.0	-	0
SNG-G042-Calming room	81	31	9.77	0.8	-	0.0	-	0
SNG-G038-Water	19	9	0.64	0.0	-	0.0	-	0
SNG-G005-Child observati	157	94	3.73	2.5	-	0.0	-	0
SNG-G005A-Observers room	61	26	3.08	0.7	-	0.0	-	0
SNG-G106B,107-Grp/Class	304	193	3.58	5.0	-	0.0	-	0
SNG-G106-Class room	265	161	3.55	4.2	-	0.0	-	0
SNG-G109-Class room	322	158	4.54	4.1	-	0.0	-	0
SNG-G108,108C-Class/1:1	355	191	4.32	5.0	-	0.0	-	0
SNG-GC101,G142B-Corr/Sto	134	40	2.37	0.0	-	0.0	-	0
SNG-G135-Toilet	18	5	1.22	0.0	-	0.0	-	0
SNG-G134-Staff toilet	53	16	6.39	0.0	-	0.0	-	0
SNG-G105,G105-Class/Grp	383	270	4.54	7.0	-	0.0	-	0
SNG-G104-Assistive tech	97	60	3.26	1.6	-	0.0	-	0
SNG-G111-Speech therapy	134	74	2.78	1.9	-	0.0	-	0
SNG-GC102-Corridor	55	24	0.70	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G009,008B-Class/1:1	4.0	Jun 1700	0.7	81.1
SNG-G008-Class room	3.4	Jun 1700	0.6	70.5
SNG-GC002-Corridor	0.9	Jul 1500	0.0	76.9
SNG-G011-Class room	4.2	Nov 1900	0.5	68.2
SNG-G010,010C-Class/Grp	4.6	Nov 1900	0.6	79.2
SNG-G032-Toilet	0.2	Jul 1500	0.0	14.6
SNG-GC001-Corridor	1.8	Jun 1600	0.6	84.0
SNG-G034-W-Chair store	0.7	Jul 1500	0.0	8.8
SNG-G042-Calming room	1.0	Jul 1500	0.0	8.3
SNG-G038-Water	0.2	Jul 0200	0.1	29.7
SNG-G005-Child observati	2.0	Jul 2300	0.3	42.1
SNG-G005A-Observers room	0.8	Jan 2300	0.0	19.7
SNG-G106B,107-Grp/Class	3.9	Jun 2300	1.0	84.7

Zone Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G106-Class room	3.4	Jun 2300	0.9	74.8
SNG-G109-Class room	4.2	Nov 1900	0.8	71.0
SNG-G108,108C-Class/1:1	4.6	Nov 2000	0.9	82.3
SNG-GC101,G142B-Corr/Sto	1.7	Jul 1700	0.8	56.8
SNG-G135-Toilet	0.2	Jul 1500	0.1	14.5
SNG-G134-Staff toilet	0.7	Jul 1500	0.0	8.3
SNG-G105,G105-Class/Grp	4.9	Jul 1600	0.6	84.4
SNG-G104-Assistive tech	1.3	Jul 2300	0.3	29.8
SNG-G111-Speech therapy	1.7	Jul 2300	0.4	48.3
SNG-GC102-Corridor	0.7	Jul 1600	0.3	78.4

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G009,008B-Class/1:1							
SNG-G009-Class room	1	3.2	Jun 1700	249	0.5	61.7	4.03
SNG-G008B-One:One room	1	0.8	Jun 1800	59	0.2	14.9	3.95
SNG-G009A-Store	1	0.0	Jan 2300	2	0.0	4.5	0.38
SNG-G008-Class room							
SNG-G008-Class room	1	3.4	Jun 1700	262	0.6	66.3	3.96
SNG-G008A-Store	1	0.0	Jan 2300	2	0.0	4.2	0.42
SNG-GC002-Corridor							
SNG-GC002-Corridor	1	0.9	Jul 1500	69	0.0	76.9	0.89
SNG-G011-Class room							
SNG-G011-Class room	1	4.2	Nov 1900	323	0.5	64.0	5.04
SNG-G011B-Store	1	0.0	Jan 2300	2	0.0	4.2	0.42
SNG-G010,010C-Class/Grp							
SNG-G010C-Group room	1	0.9	Nov 2000	72	0.2	14.0	5.15
SNG-G010-Class room	1	3.7	Nov 1900	286	0.4	61.0	4.68
SNG-G010B-Store	1	0.0	Jan 2300	2	0.0	4.2	0.42
SNG-G032-Toilet							
SNG-G032-Toilet	1	0.2	Jul 1500	17	0.0	14.6	1.16
SNG-GC001-Corridor							
SNG-GC001-Corridor	1	1.8	Jun 1600	143	0.6	84.0	1.71
SNG-G034-W-Chair store							
SNG-G034-W-Chair Store	1	0.7	Jul 1500	55	0.0	8.8	6.26
SNG-G042-Calming room							
SNG-G042-Calming room	1	1.0	Jul 1500	81	0.0	8.3	9.77
SNG-G038-Water							
SNG-G038-Water	1	0.2	Jul 0200	19	0.1	29.7	0.64
SNG-G005-Child observati							
SNG-G005-Child observati	1	2.0	Jul 2300	157	0.3	42.1	3.73
SNG-G005A-Observers room							
SNG-G005A-Observers room	1	0.8	Jan 2300	61	0.0	19.7	3.08
SNG-G106B,107-Grp/Class							
SNG-G107-Class room	1	3.1	Jun 1800	243	0.7	64.1	3.79
SNG-G106B-Group room	1	0.8	Jun 2300	59	0.2	16.1	3.64
SNG-G107A-Store	1	0.0	Jul 0100	2	0.0	4.5	0.48
SNG-G106-Class room							
SNG-G106-Class room	1	3.4	Jun 2300	263	0.9	70.6	3.73
SNG-G106A-Store	1	0.0	Jul 0100	2	0.0	4.2	0.54
SNG-G109-Class room							
SNG-G109-Class room	1	4.0	Nov 1900	314	0.7	66.8	4.70
SNG-G109B-Store	1	0.2	Jul 1500	12	0.0	4.2	2.98
SNG-G108,108C-Class/1:1							
SNG-G108-Class room	1	3.5	Nov 2000	273	0.6	62.9	4.35

Zone Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G108C-One:One room	1	1.0	Nov 2000	74	0.2	15.2	4.87
SNG-G108B-Store	1	0.2	Jul 1500	12	0.0	4.2	2.98
SNG-GC101,G142B-Corr/Sto							
SNG-GC101-Corridor	1	1.7	Jul 1700	132	0.7	46.6	2.83
SNG-G142B-Store	1	0.0	Jul 0100	3	0.0	10.2	0.30
SNG-G135-Toilet							
SNG-G135-Toilet	1	0.2	Jul 1500	18	0.1	14.5	1.22
SNG-G134-Staff toilet							
SNG-G134-Staff toilet	1	0.7	Jul 1500	53	0.0	8.3	6.39
SNG-G105,G105-Class/Grp							
SNG-G105-Class room	1	3.9	Jul 1600	306	0.6	67.0	4.56
SNG-G105-Group room	1	1.0	Jul 1500	78	0.1	17.4	4.46
SNG-G104-Assistive tech							
SNG-G104-Assistive tech	1	1.3	Jul 2300	97	0.3	29.8	3.26
SNG-G111-Speech therapy							
SNG-G111-Speech therapy	1	1.7	Jul 2300	134	0.4	48.3	2.78
SNG-GC102-Corridor							
SNG-GC102-Corridor	1	0.7	Jul 1600	55	0.3	78.4	0.70

Ventilation Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

1. Summary

Ventilation Sizing Method	**ASHRAE Std 62.1-2013**	
Design Condition	**Minimum flow (heating)**	
Occupant Diversity (D)	**1.000**	
Uncorrected Outdoor Air Intake (Vou)	**1661**	L/s
System Ventilation Efficiency (Ev)	**0.777**	
Outdoor Air Intake (Vot)	**2139**	L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-07

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
SNG-G009,008B-Class/1:1										
SNG-G009-Class room	1	153	61.7	0.60	17.0	5.00	0.8	**153**	*122*	0.777
SNG-G008B-One:One room	1	36	14.9	0.60	4.0	5.00	0.8	**36**	*29*	0.777
SNG-G009A-Store	1	2	4.5	0.30	0.0	2.50	0.8	**2**	*1*	0.777
SNG-G008-Class room										
SNG-G008-Class room	1	156	66.3	0.60	17.0	5.00	0.8	**156**	*125*	0.777
SNG-G008A-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.777
SNG-GC002-Corridor										
SNG-GC002-Corridor	1	23	76.9	0.30	0.0	0.00	1.0	**23**	*23*	0.777
SNG-G011-Class room										
SNG-G011-Class room	1	154	64.0	0.60	17.0	5.00	0.8	**154**	*123*	0.777
SNG-G011B-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.777
SNG-G010,010C-Class/Grp										
SNG-G010C-Group room	1	36	14.0	0.60	4.0	5.00	0.8	**36**	*28*	0.777
SNG-G010-Class room	1	152	61.0	0.60	17.0	5.00	0.8	**152**	*122*	0.777
SNG-G010B-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.777
SNG-G032-Toilet										
SNG-G032-Toilet	1	5	14.6	0.00	0.0	0.00	1.0	**0**	*0*	1.777
SNG-GC001-Corridor										
SNG-GC001-Corridor	1	43	84.0	0.30	0.0	0.00	1.0	**25**	*25*	1.190
SNG-G034-W-Chair store										
SNG-G034-W-Chair Store	1	17	8.8	0.30	0.0	2.50	1.0	**3**	*3*	1.617
SNG-G042-Calming room										
SNG-G042-Calming room	1	31	8.3	0.60	4.0	5.00	0.8	**31**	*25*	0.777
SNG-G038-Water										
SNG-G038-Water	1	9	29.7	0.30	0.0	2.50	1.0	**9**	*9*	0.777
SNG-G005-Child observati										
SNG-G005-Child observati	1	94	42.1	0.60	10.0	5.00	0.8	**94**	*75*	0.777
SNG-G005A-Observers room										
SNG-G005A-Observers room	1	26	19.7	0.30	6.0	2.50	0.8	**26**	*21*	0.777
SNG-G106B,107-Grp/Class										
SNG-G107-Class room	1	154	64.1	0.60	17.0	5.00	0.8	**154**	*123*	0.777
SNG-G106B-Group room	1	37	16.1	0.60	4.0	5.00	0.8	**37**	*30*	0.777
SNG-G107A-Store	1	2	4.5	0.30	0.0	2.50	0.8	**2**	*1*	0.777
SNG-G106-Class room										
SNG-G106-Class room	1	159	70.6	0.60	17.0	5.00	0.8	**159**	*127*	0.777

SNG-G106A-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.777
SNG-G109-Class room										
SNG-G109-Class room	1	156	66.8	0.60	17.0	5.00	0.8	**156**	*125*	0.777
SNG-G109B-Store	1	4	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.356
SNG-G108,108C-Class/1:1										
SNG-G108-Class room	1	153	62.9	0.60	17.0	5.00	0.8	**153**	*123*	0.777
SNG-G108C-One:One room	1	36	15.2	0.60	4.0	5.00	0.8	**36**	*29*	0.777
SNG-G108B-Store	1	4	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.356
SNG-GC101,G142B-Corr/Sto										
SNG-GC101-Corridor	1	40	46.6	0.30	0.0	0.00	1.0	**14**	*14*	1.423
SNG-G142B-Store	1	3	10.2	0.30	0.0	2.50	1.0	**3**	*3*	0.777
SNG-G135-Toilet										
SNG-G135-Toilet	1	5	14.5	0.00	0.0	0.00	1.0	**0**	*0*	1.777
SNG-G134-Staff toilet										
SNG-G134-Staff toilet	1	16	8.3	0.00	0.0	0.00	1.0	**0**	*0*	1.777
SNG-G105,G105-Class/Grp										
SNG-G105-Class room	1	219	67.0	0.60	27.0	5.00	0.8	**219**	*175*	0.777
SNG-G105-Group room	1	51	17.4	0.60	6.0	5.00	0.8	**51**	*40*	0.777
SNG-G104-Assistive tech										
SNG-G104-Assistive tech	1	60	29.8	0.60	6.0	5.00	0.8	**60**	*48*	0.777
SNG-G111-Speech therapy										
SNG-G111-Speech therapy	1	74	48.3	0.60	6.0	5.00	0.8	**74**	*59*	0.777
SNG-GC102-Corridor										
SNG-GC102-Corridor	1	24	78.4	0.30	0.0	0.00	1.0	**24**	*24*	0.777
Totals (incl. Space Multipliers)		**2139**							**1661**	**0.777**

Air System Sizing Summary for AHU-08

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name	**AHU-08**		Number of zones	**6**	
Equipment Class	**PKG ROOF**		Floor Area	**350.1**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**63.5**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**32.7**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Jul 1500	**1286**	L/s	Entering DB / WB	**32.5 / 24.4**	°C
Max block L/s at Jul 1600	**1407**	L/s	Leaving DB / WB	**11.1 / 10.7**	°C
Sum of peak zone L/s	**1421**	L/s	Coil ADP	**8.7**	°C
Sensible heat ratio	**0.515**		Bypass Factor	**0.100**	
L/(s kW)	**20.3**		Resulting RH	**54**	%
m²/kW	**5.5**		Design supply temp.	**13.0**	°C
W/m²	**181.3**		Zone T-stat Check	**6 of 6**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1600	**1407**	L/s	Fan motor BHP	**3.55**	BHP
Standard L/s	**1380**	L/s	Fan motor kW	**2.81**	kW
Actual max L/(s·m²)	**4.02**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**770**	L/s	L/s/person	**8.37**	L/s/person
L/(s·m²)	**2.20**	L/(s·m²)			

Zone Sizing Summary for AHU-08

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name **AHU-08**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **6**
Floor Area ..... **350.1** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-G013-Kitchen	240	100	3.45	2.6	-	0.0	-	0
SNG-G012-Dining	789	565	5.04	14.7	-	0.0	-	0
SNG-GC003B-Corridor	83	25	1.31	0.0	-	0.0	-	0
SNG-G014-Kitchen storage	54	16	2.20	0.0	-	0.0	-	0
SNG-G033-Toilet	15	4	0.58	0.0	-	0.0	-	0
SNG-G035-Elec room	198	60	17.71	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G013-Kitchen	3.1	Jun 2000	0.5	69.4
SNG-G012-Dining	10.2	Sep 1600	0.8	156.4
SNG-GC003B-Corridor	1.1	Jul 1500	0.0	63.5
SNG-G014-Kitchen storage	0.7	Jun 2100	0.1	24.6
SNG-G033-Toilet	0.2	Jun 2100	0.1	25.0
SNG-G035-Elec room	2.1	Jul 1500	0.0	11.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G013-Kitchen							
SNG-G013-Kitchen	1	3.1	Jun 2000	240	0.5	69.4	3.45
SNG-G012-Dining							
SNG-G012-Dining	1	10.2	Sep 1600	789	0.8	156.4	5.04
SNG-GC003B-Corridor							
SNG-GC003B-Corridor	1	1.1	Jul 1500	83	0.0	63.5	1.31
SNG-G014-Kitchen storage							
SNG-G014-Kitchen storage	1	0.7	Jun 2100	54	0.1	24.6	2.20
SNG-G033-Toilet							
SNG-G033-Toilet	1	0.2	Jun 2100	15	0.1	25.0	0.58
SNG-G035-Elec room							
SNG-G035-Elec room	1	2.1	Jul 1500	198	0.0	11.2	17.71

Ventilation Sizing Summary for AHU-08

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **558** L/s
System Ventilation Efficiency (Ev) **0.725**
Outdoor Air Intake (Vot) ..... **770** L/s

2. Space Ventilation Analysis

		Minimum Supply Air (L/s)	Space Floor Area (m²)	Area Outdoor Air Rate (L/(s·m²))	Time Averaged Occupancy (Occupants)	People Outdoor Air Rate (L/s/person)	Air Distribution Effectiveness	Space Outdoor Air (L/s)	Breathing Zone Outdoor Air (L/s)	Space Ventilation Efficiency
Zone Name / Space Name	**Mult.**	**(Vpz)**	**(Az)**	**(Ra)**	**(Pz)**	**(Rp)**	**(Ez)**	**(Voz)**	**(Vbz)**	**(Evz)**
SNG-G013-Kitchen										
SNG-G013-Kitchen	1	100	69.4	0.60	10.0	3.80	0.8	**100**	*80*	0.725
SNG-G012-Dining										
SNG-G012-Dining	1	565	156.4	0.90	82.0	3.80	0.8	**565**	*452*	0.725
SNG-GC003B-Corridor										
SNG-GC003B-Corridor	1	25	63.5	0.30	0.0	0.00	1.0	**19**	*19*	0.963
SNG-G014-Kitchen storage										
SNG-G014-Kitchen storage	1	16	24.6	0.30	0.0	2.50	1.0	**7**	*7*	1.270
SNG-G033-Toilet										
SNG-G033-Toilet	1	4	25.0	0.00	0.0	0.00	1.0	**0**	*0*	1.725
SNG-G035-Elec room										
SNG-G035-Elec room	1	60	11.2	0.00	0.0	0.00	1.0	**0**	*0*	1.725
Totals (incl. Space Multipliers)		**770**							**558**	**0.725**

Air System Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name	**AHU-09**		Number of zones	**17**	
Equipment Class	**PKG ROOF**		Floor Area	**1139.8**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**166.6**	kW	Load occurs at	**Aug 1500**	
Sensible coil load	**90.8**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Aug 1500	**3669**	L/s	Entering DB / WB	**31.9 / 23.5**	°C
Max block L/s at Aug 1600	**4029**	L/s	Leaving DB / WB	**11.1 / 10.6**	°C
Sum of peak zone L/s	**4382**	L/s	Coil ADP	**8.7**	°C
Sensible heat ratio	**0.545**		Bypass Factor	**0.100**	
L/(s kW)	**22.0**		Resulting RH	**47**	%
m²/kW	**6.8**		Design supply temp.	**13.0**	°C
W/m²	**146.2**		Zone T-stat Check	**17 of 17**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Aug 1600	**4029**	L/s	Fan motor BHP	**10.16**	BHP
Standard L/s	**3953**	L/s	Fan motor kW	**8.06**	kW
Actual max L/(s·m²)	**3.54**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**1958**	L/s	L/s/person	**10.64**	L/s/person
L/(s·m²)	**1.72**	L/(s·m²)			

Zone Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name **AHU-09**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **17**
Floor Area ..... **1139.8** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-G019,018C-Class/Grp	364	195	4.20	5.1	-	0.0	-	0
SNG-G019D-Class room	272	157	3.92	4.1	-	0.0	-	0
SNG-G017-Class room	314	156	4.61	4.1	-	0.0	-	0
SNG-G016,016B-Class/1:1	398	194	4.62	5.1	-	0.0	-	0
SNG-G035A-Calming room	54	30	8.49	0.8	-	0.0	-	0
SNG-GC004-Corridor	106	32	1.32	0.0	-	0.0	-	0
SNG-GC003-Corridor	348	104	2.63	0.0	-	0.0	-	0
SNG-G036-Physical room	446	134	9.53	3.5	-	0.0	-	0
SNG-G036B,036D-Dark/Whit	54	39	2.89	1.0	-	0.0	-	0
SNG-G036C-Soft room	241	73	17.31	1.9	-	0.0	-	0
SNG-G114-Class room	285	161	3.82	4.2	-	0.0	-	0
SNG-G115,114C-Class/1:1	366	195	4.23	5.1	-	0.0	-	0
SNG-GC104C-Corridor	55	24	0.68	0.0	-	0.0	-	0
SNG-G117-Class room	296	157	4.23	4.1	-	0.0	-	0
SNG-G116B,116-Grp/Class	373	197	4.17	5.1	-	0.0	-	0
SNG-G115C-Calming room	36	30	4.88	0.8	-	0.0	-	0
SNG-G103-Corridor	244	73	1.99	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G019,018C-Class/Grp	4.7	Jun 2300	0.6	86.5
SNG-G019D-Class room	3.5	Jun 2300	0.5	69.3
SNG-G017-Class room	4.0	Nov 1800	0.5	68.1
SNG-G016,016B-Class/1:1	5.1	Nov 1800	0.7	86.0
SNG-G035A-Calming room	0.7	Jul 1500	0.0	6.4
SNG-GC004-Corridor	1.4	Jul 1500	0.0	80.4
SNG-GC003-Corridor	4.5	Aug 2200	1.0	132.2
SNG-G036-Physical room	5.8	Jul 1500	1.3	46.8
SNG-G036B,036D-Dark/Whit	0.7	Jul 0100	0.1	18.8
SNG-G036C-Soft room	3.1	Jul 1500	0.7	13.9
SNG-G114-Class room	3.7	Jun 2300	0.8	74.6
SNG-G115,114C-Class/1:1	4.7	Jun 2300	1.0	86.5
SNG-GC104C-Corridor	0.7	Jul 1600	0.4	81.2
SNG-G117-Class room	3.8	Nov 1800	0.7	70.0
SNG-G116B,116-Grp/Class	4.8	Nov 1800	1.0	89.4
SNG-G115C-Calming room	0.5	Jun 0100	0.1	7.3
SNG-G103-Corridor	3.1	Jul 1500	1.3	122.4

Zone Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G019,018C-Class/Grp							
SNG-G019-Class room	1	3.8	Jun 2300	297	0.5	68.7	4.32
SNG-G018C-Group room	1	0.8	Jun 2300	59	0.2	13.6	4.33
SNG-G019B-Store	1	0.2	Jul 1500	12	0.0	4.2	2.84
SNG-G019D-Class room							
SNG-G019D-Class room	1	3.4	Jun 2300	263	0.5	65.1	4.05
SNG-G018B-Store	1	0.2	Jul 1500	12	0.0	4.2	2.84
SNG-G017-Class room							
SNG-G017-Class room	1	4.0	Nov 1800	312	0.5	63.9	4.89
SNG-G017A-Store	1	0.0	Jan 2300	2	0.0	4.2	0.42
SNG-G016,016B-Class/1:1							
SNG-G016-Class room	1	4.1	Nov 1800	317	0.5	66.9	4.73
SNG-G016B-One:One room	1	1.0	Nov 1800	79	0.2	14.6	5.43
SNG-G016A-Store	1	0.0	Jan 2300	2	0.0	4.5	0.38
SNG-G035A-Calming room							
SNG-G035A-Calming room	1	0.7	Jul 1500	54	0.0	6.4	8.49
SNG-GC004-Corridor							
SNG-GC004-Corridor	1	1.4	Jul 1500	106	0.0	80.4	1.32
SNG-GC003-Corridor							
SNG-GC003-Corridor	1	4.5	Aug 2200	348	1.0	132.2	2.63
SNG-G036-Physical room							
SNG-G036-Physical playro	1	5.8	Jul 1500	446	1.3	46.8	9.53
SNG-G036B,036D-Dark/Whit							
SNG-G036B-Dark room	1	0.4	Jul 0100	31	0.1	11.7	2.67
SNG-G036D-White room	1	0.3	Jul 0100	23	0.0	7.1	3.25
SNG-G036C-Soft room							
SNG-G036C-Soft room	1	3.1	Jul 1500	241	0.7	13.9	17.31
SNG-G114-Class room							
SNG-G114-Class room	1	3.6	Jun 2300	277	0.8	70.4	3.93
SNG-G114B-Store	1	0.2	Jul 1500	12	0.0	4.2	2.95
SNG-G115,114C-Class/1:1							
SNG-G114C-One:One room	1	0.8	Jun 2300	62	0.2	14.8	4.19
SNG-G115-Class room	1	3.8	Jun 2300	295	0.7	67.5	4.37
SNG-G115B-Store	1	0.2	Jul 1500	12	0.0	4.2	2.95
SNG-GC104C-Corridor							
SNG-GC104C-Corridor	1	0.7	Jul 1600	55	0.4	81.2	0.68
SNG-G117-Class room							
SNG-G117-Class room	1	3.8	Nov 1800	294	0.7	65.8	4.47
SNG-G117A-Store	1	0.0	Jul 0100	2	0.0	4.2	0.54
SNG-G116B,116-Grp/Class							
SNG-G116B-Group room	1	0.9	Nov 1800	73	0.2	15.7	4.62
SNG-G116-Class room	1	3.9	Nov 1800	299	0.7	69.2	4.32
SNG-G116A-Store	1	0.0	Jul 0100	2	0.0	4.5	0.48
SNG-G115C-Calming room							
SNG-G115C-Calming room	1	0.5	Jun 0100	36	0.1	7.3	4.88
SNG-G103-Corridor							
SNG-G103-Corridor	1	3.1	Jul 1500	244	1.3	122.4	1.99

Ventilation Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **1469** L/s
System Ventilation Efficiency (Ev) **0.750**
Outdoor Air Intake (Vot) ..... **1958** L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
SNG-G019,018C-Class/Grp										
SNG-G019-Class room	1	158	68.7	0.60	17.0	5.00	0.8	**158**	*126*	0.750
SNG-G018C-Group room	1	35	13.6	0.60	4.0	5.00	0.8	**35**	*28*	0.750
SNG-G019B-Store	1	4	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.309
SNG-G019D-Class room										
SNG-G019D-Class room	1	155	65.1	0.60	17.0	5.00	0.8	**155**	*124*	0.750
SNG-G018B-Store	1	4	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.309
SNG-G017-Class room										
SNG-G017-Class room	1	154	63.9	0.60	17.0	5.00	0.8	**154**	*123*	0.750
SNG-G017A-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.750
SNG-G016,016B-Class/1:1										
SNG-G016-Class room	1	156	66.9	0.60	17.0	5.00	0.8	**156**	*125*	0.750
SNG-G016B-One:One room	1	36	14.6	0.60	4.0	5.00	0.8	**36**	*29*	0.750
SNG-G016A-Store	1	2	4.5	0.30	0.0	2.50	0.8	**2**	*1*	0.750
SNG-G035A-Calming room										
SNG-G035A-Calming room	1	30	6.4	0.60	4.0	5.00	0.8	**30**	*24*	0.750
SNG-GC004-Corridor										
SNG-GC004-Corridor	1	32	80.4	0.30	0.0	0.00	1.0	**24**	*24*	0.992
SNG-GC003-Corridor										
SNG-GC003-Corridor	1	104	132.2	0.30	0.0	0.00	1.0	**40**	*40*	1.370
SNG-G036-Physical room										
SNG-G036-Physical playro	1	134	46.8	0.60	10.0	5.00	0.8	**98**	*78*	1.021
SNG-G036B,036D-Dark/Whit										
SNG-G036B-Dark room	1	21	11.7	0.60	2.0	5.00	0.8	**21**	*17*	0.750
SNG-G036D-White room	1	18	7.1	0.60	2.0	5.00	0.8	**18**	*14*	0.750
SNG-G036C-Soft room										
SNG-G036C-Soft room	1	73	13.9	0.60	10.0	5.00	0.8	**73**	*58*	0.750
SNG-G114-Class room										
SNG-G114-Class room	1	159	70.4	0.60	17.0	5.00	0.8	**159**	*127*	0.750
SNG-G114B-Store	1	4	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.327
SNG-G115,114C-Class/1:1										
SNG-G114C-One:One room	1	36	14.8	0.60	4.0	5.00	0.8	**36**	*29*	0.750
SNG-G115-Class room	1	157	67.5	0.60	17.0	5.00	0.8	**157**	*126*	0.750
SNG-G115B-Store	1	4	4.2	0.30	0.0	2.50	0.8	**2**	*1*	1.327
SNG-GC104C-Corridor										
SNG-GC104C-Corridor	1	24	81.2	0.30	0.0	0.00	1.0	**24**	*24*	0.750

Ventilation Sizing Summary for AHU-09

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

SNG-G117-Class room										
SNG-G117-Class room	1	156	65.8	0.60	17.0	5.00	0.8	**156**	*124*	0.750
SNG-G117A-Store	1	2	4.2	0.30	0.0	2.50	0.8	**2**	*1*	0.750
SNG-G116B,116-Grp/Class										
SNG-G116B-Group room	1	37	15.7	0.60	4.0	5.00	0.8	**37**	*29*	0.750
SNG-G116-Class room	1	158	69.2	0.60	17.0	5.00	0.8	**158**	*127*	0.750
SNG-G116A-Store	1	2	4.5	0.30	0.0	2.50	0.8	**2**	*1*	0.750
SNG-G115C-Calming room										
SNG-G115C-Calming room	1	30	7.3	0.60	4.0	5.00	0.8	**30**	*24*	0.750
SNG-G103-Corridor										
SNG-G103-Corridor	1	73	122.4	0.30	0.0	0.00	1.0	**37**	*37*	1.248
Totals (incl. Space Multipliers)		**1958**							**1469**	**0.750**

Air System Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name	**AHU-10**		Number of zones	**27**	
Equipment Class	**PKG ROOF**		Floor Area	**1345.6**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**199.8**	kW	Load occurs at	**Aug 1500**	
Sensible coil load	**111.7**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Aug 1500	**4701**	L/s	Entering DB / WB	**31.1 / 22.8**	°C
Max block L/s at Sep 2100	**5176**	L/s	Leaving DB / WB	**11.1 / 10.6**	°C
Sum of peak zone L/s	**5450**	L/s	Coil ADP	**8.8**	°C
Sensible heat ratio	**0.559**		Bypass Factor	**0.100**	
L/(s kW)	**23.5**		Resulting RH	**47**	%
m²/kW	**6.7**		Design supply temp.	**13.0**	°C
W/m²	**148.5**		Zone T-stat Check	**27 of 27**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Sep 2100	**5176**	L/s	Fan motor BHP	**13.05**	BHP
Standard L/s	**5078**	L/s	Fan motor kW	**10.35**	kW
Actual max L/(s·m²)	**3.85**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**2213**	L/s	L/s/person	**9.18**	L/s/person
L/(s·m²)	**1.64**	L/(s·m²)			

Zone Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name **AHU-10**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **27**
Floor Area ..... **1345.6** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-G006,006A,-Thera/Grp	298	179	4.14	4.7	-	0.0	-	0
SNG-G030-Electrical room	575	173	22.39	0.0	-	0.0	-	0
SNG-GC001A-Corridor	56	17	1.06	0.0	-	0.0	-	0
SNG-G002A,005B-Asses	93	40	3.86	1.1	-	0.0	-	0
SNG-G002E-Meeting room	194	62	3.98	1.6	-	0.0	-	0
SNG-G002D-Speech therapy	124	45	6.53	1.2	-	0.0	-	0
SNG-G030A-VFD Room	432	130	43.68	0.0	-	0.0	-	0
SNG-G002B-Screen&Intervi	76	47	3.80	1.2	-	0.0	-	0
SNG-G002C-Nurse visiting	125	60	6.29	1.6	-	0.0	-	0
SNG-G007,007A-Vestib/Jan	121	36	5.06	0.0	-	0.0	-	0
SNG-GC001-Corridor/Lobby	165	56	0.88	0.0	-	0.0	-	0
SNG-G001-Vesitbule	114	34	9.53	0.0	-	0.0	-	0
SNG-G024,028-Office	97	29	4.56	0.8	-	0.0	-	0
SNG-G022,020-Recep/Tech	122	39	2.27	1.0	-	0.0	-	0
SNG-G025-Conference	127	38	7.41	1.0	-	0.0	-	0
SNG-G026-Asst principal	79	24	4.92	0.6	-	0.0	-	0
SNG-G027-Principal	65	19	3.84	0.5	-	0.0	-	0
SNG-G110-Class room	330	227	4.23	5.9	-	0.0	-	0
SNG-G102-Staff workroom	325	103	3.02	2.7	-	0.0	-	0
SNG-G103-Staff lounge	212	69	5.53	1.8	-	0.0	-	0
SNG-G132-Electrical room	92	28	19.19	0.0	-	0.0	-	0
SNG-G134A-Corridor	57	17	1.21	0.0	-	0.0	-	0
SNG-G101-Reading room	567	366	4.37	9.5	-	0.0	-	0
SNG-G101B,G131,G142A-Cor	119	40	0.85	0.0	-	0.0	-	0
SNG-G142-Staff training	208	78	3.75	2.0	-	0.0	-	0
SNG-G002-Reception	105	31	3.13	0.0	-	0.0	-	0
SNG-G141-Snack area	407	222	5.74	5.8	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G006,006A,-Thera/Grp	3.8	Jul 1600	0.3	72.1
SNG-G030-Electrical room	7.4	Jul 1500	0.0	25.7
SNG-GC001A-Corridor	0.7	Jul 1500	0.0	52.5
SNG-G002A,005B-Asses	1.2	Jan 2300	0.0	24.2
SNG-G002E-Meeting room	2.5	Jul 2300	0.3	48.6
SNG-G002D-Speech therapy	1.6	Jul 2300	0.1	19.0
SNG-G030A-VFD Room	5.6	Jan 2300	0.0	9.9
SNG-G002B-Screen&Intervi	1.0	Jul 2300	0.1	19.9
SNG-G002C-Nurse visiting	1.6	Oct 2100	0.3	19.9
SNG-G007,007A-Vestib/Jan	1.6	Jul 1500	0.6	23.9

Zone Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-GC001-Corridor/Lobby	2.1	Jul 1500	0.0	187.0
SNG-G001-Vesitbule	1.5	Sep 2200	0.5	12.0
SNG-G024,028-Office	1.3	Sep 2200	0.3	21.3
SNG-G022,020-Recep/Tech	1.6	Jul 1600	0.1	53.6
SNG-G025-Conference	1.6	Oct 2000	0.3	17.2
SNG-G026-Asst principal	1.0	Nov 1800	0.3	16.1
SNG-G027-Principal	0.8	Nov 1900	0.1	16.9
SNG-G110-Class room	4.3	Jul 2300	0.7	78.1
SNG-G102-Staff workroom	4.2	Jul 2300	0.8	107.4
SNG-G103-Staff lounge	2.7	Jul 1600	0.3	38.3
SNG-G132-Electrical room	1.2	Jul 0100	0.0	4.8
SNG-G134A-Corridor	0.7	Jul 1500	0.2	47.1
SNG-G101-Reading room	7.3	Oct 2100	1.5	129.8
SNG-G101B,G131,G142A-Cor	1.5	Jul 1600	0.7	140.5
SNG-G142-Staff training	2.7	Nov 1800	0.6	55.5
SNG-G002-Reception	1.3	Jul 1500	0.1	33.4
SNG-G141-Snack area	5.2	Nov 1900	1.0	70.9

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G006,006A,-Thera/Grp							
SNG-G006-Occup therapy	1	2.9	Jul 1600	222	0.3	54.3	4.10
SNG-G006A-Group room	1	1.0	Jul 1500	76	0.0	17.8	4.26
SNG-G030-Electrical room							
SNG-G030-Electrical room	1	7.4	Jul 1500	575	0.0	25.7	22.39
SNG-GC001A-Corridor							
SNG-GC001A-Corridor	1	0.7	Jul 1500	56	0.0	52.5	1.06
SNG-G002A,005B-Asses							
SNG-G005B-Assesment room	1	0.6	Jan 2300	48	0.0	12.1	3.98
SNG-G002A-Assesment room	1	0.6	Jan 2300	45	0.0	12.1	3.74
SNG-G002E-Meeting room							
SNG-G002E-Meeting room	1	2.5	Jul 2300	194	0.3	48.6	3.98
SNG-G002D-Speech therapy							
SNG-G002D-Speech therapy	1	1.6	Jul 2300	124	0.1	19.0	6.53
SNG-G030A-VFD Room							
SNG-G030A-VFD Room	1	5.6	Jan 2300	432	0.0	9.9	43.68
SNG-G002B-Screen&Intervi							
SNG-G002B-Screen&Intervi	1	1.0	Jul 2300	76	0.1	19.9	3.80
SNG-G002C-Nurse visiting							
SNG-G002C-Nurse visiting	1	1.6	Oct 2100	125	0.3	19.9	6.29
SNG-G007,007A-Vestib/Jan							
SNG-G007-Vestibule	1	1.5	Jul 1500	117	0.5	16.2	7.20
SNG-G007A-Janitor room	1	0.1	Jul 2100	6	0.1	7.7	0.81
SNG-GC001-Corridor/Lobby							
SNG-GC001-Corridor/Lobby	1	2.1	Jul 1500	165	0.0	187.0	0.88
SNG-G001-Vesitbule							
SNG-G001-Vestibule	1	1.5	Sep 2200	114	0.5	12.0	9.53
SNG-G024,028-Office							
SNG-G024-Office	1	0.5	Aug 2200	36	0.2	10.8	3.32
SNG-G028-Office	1	0.8	Sep 2200	61	0.1	10.5	5.84
SNG-G022,020-Recep/Tech							
SNG-G022-Reception	1	1.3	Jul 1600	98	0.1	44.9	2.18
SNG-G020-Tech support	1	0.3	Jan 2300	24	0.0	8.7	2.74
SNG-G025-Conference							
SNG-G025-Conference	1	1.6	Oct 2000	127	0.3	17.2	7.41

Zone Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G026-Asst principal							
SNG-G026-Asst principal	1	1.0	Nov 1800	79	0.3	16.1	4.92
SNG-G027-Principal							
SNG-G027-Principal	1	0.8	Nov 1900	65	0.1	16.9	3.84
SNG-G110-Class room							
SNG-G110-Class room	1	4.3	Jul 2300	330	0.7	78.1	4.23
SNG-G102-Staff workroom							
SNG-G102-Staff workroom	1	4.2	Jul 2300	325	0.8	107.4	3.02
SNG-G103-Staff lounge							
SNG-G103-Staff lounge	1	2.7	Jul 1600	212	0.3	38.3	5.53
SNG-G132-Electrical room							
SNG-G132-Electrical room	1	1.2	Jul 0100	92	0.0	4.8	19.19
SNG-G134A-Corridor							
SNG-G134A-Corridor	1	0.7	Jul 1500	57	0.2	47.1	1.21
SNG-G101-Reading room							
SNG-G101-Reading room	1	7.3	Oct 2100	567	1.5	129.8	4.37
SNG-G101B,G131,G142A-Cor							
SNG-GC101B-Corridor	1	1.4	Jul 1600	109	0.5	122.9	0.89
SNG-G131-Janitor room	1	0.1	Jul 2100	9	0.1	8.1	1.10
SNG-G142A-Store	1	0.0	Jul 0100	3	0.0	9.5	0.30
SNG-G142-Staff training							
SNG-G142-Staff training	1	2.7	Nov 1800	208	0.6	55.5	3.75
SNG-G002-Reception							
SNG-G002-Reception	1	1.3	Jul 1500	105	0.1	33.4	3.13
SNG-G141-Snack area							
SNG-G141-Snack area	1	5.2	Nov 1900	407	1.0	70.9	5.74

Ventilation Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **1456** L/s
System Ventilation Efficiency (Ev) **0.658**
Outdoor Air Intake (Vot) ..... **2213** L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-10

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
SNG-G006,006A,-Thera/Grp										
SNG-G006-Occup therapy	1	128	54.3	0.60	14.0	5.00	0.8	**128**	*103*	0.658
SNG-G006A-Group room	1	51	17.8	0.60	6.0	5.00	0.8	**51**	*41*	0.658
SNG-G030-Electrical room										
SNG-G030-Electrical room	1	173	25.7	0.00	0.0	0.00	1.0	**0**	*0*	1.658
SNG-GC001A-Corridor										
SNG-GC001A-Corridor	1	17	52.5	0.30	0.0	0.00	1.0	**16**	*16*	0.716
SNG-G002A,005B-Asses										
SNG-G005B-Assesment room	1	20	12.1	0.30	5.0	2.50	0.8	**20**	*16*	0.658
SNG-G002A-Assesment room	1	20	12.1	0.30	5.0	2.50	0.8	**20**	*16*	0.658
SNG-G002E-Meeting room										
SNG-G002E-Meeting room	1	62	48.6	0.30	14.0	2.50	0.8	**62**	*50*	0.658
SNG-G002D-Speech therapy										
SNG-G002D-Speech therapy	1	45	19.0	0.30	12.0	2.50	0.8	**45**	*36*	0.658
SNG-G030A-VFD Room										
SNG-G030A-VFD Room	1	130	9.9	0.00	0.0	0.00	1.0	**0**	*0*	1.658
SNG-G002B-Screen&Intervi										
SNG-G002B-Screen&Intervi	1	47	19.9	0.90	4.0	5.00	0.8	**47**	*38*	0.658
SNG-G002C-Nurse visiting										
SNG-G002C-Nurse visiting	1	60	19.9	0.90	6.0	5.00	0.8	**60**	*48*	0.658
SNG-G007,007A-Vestib/Jan										
SNG-G007-Vestibule	1	35	16.2	0.30	0.0	0.00	1.0	**5**	*5*	1.519
SNG-G007A-Janitor room	1	2	7.7	0.00	0.0	0.00	1.0	**0**	*0*	1.658
SNG-GC001-Corridor/Lobby										
SNG-GC001-Corridor/Lobby	1	56	187.0	0.30	0.0	2.50	1.0	**56**	*56*	0.658
SNG-G001-Vesitbule										
SNG-G001-Vestibule	1	34	12.0	0.30	0.0	0.00	1.0	**4**	*4*	1.553
SNG-G024,028-Office										
SNG-G024-Office	1	11	10.8	0.30	0.0	2.50	0.8	**4**	*3*	1.281
SNG-G028-Office	1	18	10.5	0.30	4.0	2.50	0.8	**16**	*13*	0.765
SNG-G022,020-Recep/Tech										
SNG-G022-Reception	1	29	44.9	0.30	4.0	2.50	0.8	**29**	*23*	0.659
SNG-G020-Tech support	1	10	8.7	0.30	2.0	2.50	0.8	**10**	*8*	0.658
SNG-G025-Conference										
SNG-G025-Conference	1	38	17.2	0.30	10.0	2.50	0.8	**38**	*30*	0.672
SNG-G026-Asst principal										

SNG-G026-Asst principal	1	24	16.1	0.30	3.0	2.50	0.8	**15**	*12*	1.009
SNG-G027-Principal										
SNG-G027-Principal	1	19	16.9	0.30	3.0	2.50	0.8	**16**	*13*	0.850
SNG-G110-Class room										
SNG-G110-Class room	1	227	78.1	0.60	27.0	5.00	0.8	**227**	*182*	0.658
SNG-G102-Staff workroom										
SNG-G102-Staff workroom	1	103	107.4	0.30	20.0	2.50	0.8	**103**	*82*	0.658
SNG-G103-Staff lounge										
SNG-G103-Staff lounge	1	69	38.3	0.60	13.0	2.50	0.8	**69**	*55*	0.658
SNG-G132-Electrical room										
SNG-G132-Electrical room	1	28	4.8	0.00	0.0	0.00	1.0	**0**	*0*	1.658
SNG-G134A-Corridor										
SNG-G134A-Corridor	1	17	47.1	0.30	0.0	0.00	1.0	**14**	*14*	0.831
SNG-G101-Reading room										
SNG-G101-Reading room	1	366	129.8	0.60	43.0	5.00	0.8	**366**	*293*	0.658
SNG-G101B,G131,G142A-Cor										
SNG-GC101B-Corridor	1	37	122.9	0.30	0.0	0.00	1.0	**37**	*37*	0.658
SNG-G131-Janitor room	1	3	8.1	0.00	0.0	0.00	1.0	**0**	*0*	1.658
SNG-G142A-Store	1	3	9.5	0.30	0.0	2.50	1.0	**3**	*3*	0.658
SNG-G142-Staff training										
SNG-G142-Staff training	1	78	55.5	0.30	12.0	3.80	0.8	**78**	*62*	0.658
SNG-G002-Reception										
SNG-G002-Reception	1	31	33.4	0.30	4.0	2.50	1.0	**20**	*20*	1.020
SNG-G141-Snack area										
SNG-G141-Snack area	1	222	70.9	0.90	30.0	3.80	0.8	**222**	*178*	0.658
Totals (incl. Space Multipliers)		**2213**							**1456**	**0.658**

Air System Sizing Summary for AHU-11

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name	**AHU-11**		Number of zones	**6**	
Equipment Class	**PKG ROOF**		Floor Area	**522.5**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**122.9**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**66.1**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Jul 1500	**2700**	L/s	Entering DB / WB	**31.7 / 23.5**	°C
Max block L/s at Jul 1600	**2936**	L/s	Leaving DB / WB	**11.1 / 10.7**	°C
Sum of peak zone L/s	**2980**	L/s	Coil ADP	**8.8**	°C
Sensible heat ratio	**0.538**		Bypass Factor	**0.100**	
L/(s kW)	**22.0**		Resulting RH	**50**	%
m²/kW	**4.3**		Design supply temp.	**13.0**	°C
W/m²	**235.2**		Zone T-stat Check	**6 of 6**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1600	**2936**	L/s	Fan motor BHP	**7.40**	BHP
Standard L/s	**2881**	L/s	Fan motor kW	**5.87**	kW
Actual max L/(s·m²)	**5.62**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**1412**	L/s	L/s/person	**6.69**	L/s/person
L/(s·m²)	**2.70**	L/(s·m²)			

Zone Sizing Summary for AHU-11

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name **AHU-11**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **6**
Floor Area ..... **522.5** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-G139-Food classroom	372	281	3.72	7.3	-	0.0	-	0
SNG-G015-Multipurp room	2003	898	8.33	23.4	-	0.0	-	0
SNG-G140-Store room	39	12	0.95	0.0	-	0.0	-	0
SNG-G015A-Storage	27	9	0.92	0.0	-	0.0	-	0
SNG-G015B-Fitness room	402	193	8.21	5.0	-	0.0	-	0
SNG-GC003A-Corridor	48	19	0.75	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G139-Food classroom	4.8	Aug 1800	0.7	100.2
SNG-G015-Multipurp room	25.8	Jul 1600	6.0	240.5
SNG-G140-Store room	0.5	Jun 2300	0.4	40.7
SNG-G015A-Storage	0.3	Nov 1900	0.1	29.0
SNG-G015B-Fitness room	5.2	Oct 1700	0.3	48.9
SNG-GC003A-Corridor	0.6	Jul 1500	0.0	63.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G139-Food classroom							
SNG-G139-Food classroom	1	4.8	Aug 1800	372	0.7	100.2	3.72
SNG-G015-Multipurp room							
SNG-G015-Multipurp room	1	25.8	Jul 1600	2003	6.0	240.5	8.33
SNG-G140-Store room							
SNG-G140-Store room	1	0.5	Jun 2300	39	0.4	40.7	0.95
SNG-G015A-Storage							
SNG-G015A-Storage	1	0.3	Nov 1900	27	0.1	29.0	0.92
SNG-G015B-Fitness room							
SNG-G015B-Fitness room	1	5.2	Oct 1700	402	0.3	48.9	8.21
SNG-GC003A-Corridor							
SNG-GC003A-Corridor	1	0.6	Jul 1500	48	0.0	63.2	0.75

Ventilation Sizing Summary for AHU-11

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **1138** L/s
System Ventilation Efficiency (Ev) **0.806**
Outdoor Air Intake (Vot) ..... **1412** L/s

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
SNG-G139-Food classroom										
SNG-G139-Food classroom	1	281	100.2	0.90	27.0	5.00	0.8	**281**	*225*	0.806
SNG-G015-Multipurp room										
SNG-G015-Multipurp room	1	898	240.5	0.30	170.0	3.80	0.8	**898**	*718*	0.806
SNG-G140-Store room										
SNG-G140-Store room	1	12	40.7	0.30	0.0	2.50	1.0	**12**	*12*	0.806
SNG-G015A-Storage										
SNG-G015A-Storage	1	9	29.0	0.30	0.0	2.50	1.0	**9**	*9*	0.806
SNG-G015B-Fitness room										
SNG-G015B-Fitness room	1	193	48.9	0.30	14.0	10.00	0.8	**193**	*155*	0.806
SNG-GC003A-Corridor										
SNG-GC003A-Corridor	1	19	63.2	0.30	0.0	0.00	1.0	**19**	*19*	0.806
Totals (incl. Space Multipliers)		**1412**							**1138**	**0.806**

Air System Sizing Summary for AHU-12

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name	**AHU-12**		Number of zones	**9**	
Equipment Class	**PKG ROOF**		Floor Area	**351.1**	m²
Air System Type	**VAV**		Location	**Hofuf, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**55.6**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**31.3**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Jul 1500	**1312**	L/s	Entering DB / WB	**31.2 / 22.8**	°C
Max block L/s at Jul 1600	**1452**	L/s	Leaving DB / WB	**11.1 / 10.6**	°C
Sum of peak zone L/s	**1490**	L/s	Coil ADP	**8.8**	°C
Sensible heat ratio	**0.563**		Bypass Factor	**0.100**	
L/(s kW)	**23.6**		Resulting RH	**46**	%
m²/kW	**6.3**		Design supply temp.	**13.0**	°C
W/m²	**158.3**		Zone T-stat Check	**9 of 9**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1600	**1452**	L/s	Fan motor BHP	**3.66**	BHP
Standard L/s	**1425**	L/s	Fan motor kW	**2.90**	kW
Actual max L/(s·m²)	**4.14**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**631**	L/s	L/s/person	**9.85**	L/s/person
L/(s·m²)	**1.80**	L/(s·m²)			

Zone Sizing Summary for AHU-12

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name **AHU-12**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **9**
Floor Area ..... **351.1** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
SNG-GC103-Corridor	113	34	1.39	0.0	-	0.0	-	0
SNG-G138B-Voc class room	308	218	4.67	5.7	-	0.0	-	0
SNG-G113C-Kitchen living	357	132	5.21	3.4	-	0.0	-	0
SNG-G113B-Bedroom	110	33	3.79	0.9	-	0.0	-	0
SNG-G113-Life skills	145	81	5.74	2.1	-	0.0	-	0
SNG-G138A-Calming room	87	34	7.23	0.9	-	0.0	-	0
SNG-G137,G113A-Store/Bat	125	37	4.42	0.0	-	0.0	-	0
SNG-G136-Toilet	17	5	0.60	0.0	-	0.0	-	0
SNG-G138-Elec room	185	56	14.58	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-GC103-Corridor	1.5	Jul 1500	0.4	81.5
SNG-G138B-Voc class room	4.0	Nov 2000	0.6	66.0
SNG-G113C-Kitchen living	4.6	Aug 1600	1.0	68.5
SNG-G113B-Bedroom	1.4	Jun 1900	0.5	28.9
SNG-G113-Life skills	1.9	Jul 1500	0.1	25.2
SNG-G138A-Calming room	1.1	Jul 1800	0.1	12.0
SNG-G137,G113A-Store/Bat	1.6	Jun 1500	0.6	28.2
SNG-G136-Toilet	0.2	Jul 2300	0.2	28.1
SNG-G138-Elec room	2.0	Jul 1500	0.1	12.7

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-GC103-Corridor							
SNG-GC103-Corridor	1	1.5	Jul 1500	113	0.4	81.5	1.39
SNG-G138B-Voc class room							
SNG-G138B-Voc class room	1	4.0	Nov 2000	308	0.6	66.0	4.67
SNG-G113C-Kitchen living							
SNG-G113C-Kitchen living	1	4.6	Aug 1600	357	1.0	68.5	5.21
SNG-G113B-Bedroom							
SNG-G113B-Bedroom	1	1.4	Jun 1900	110	0.5	28.9	3.79
SNG-G113-Life skills							
SNG-G113-Life skills	1	1.9	Jul 1500	145	0.1	25.2	5.74
SNG-G138A-Calming room							
SNG-G138A-Calming room	1	1.1	Jul 1800	87	0.1	12.0	7.23
SNG-G137,G113A-Store/Bat							

Zone Sizing Summary for AHU-12

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G137-Store	1	1.1	Jun 1500	82	0.3	16.1	5.08
SNG-G113A-Bathroom	1	0.6	Jun 1500	43	0.3	12.1	3.54
SNG-G136-Toilet							
SNG-G136-Toilet	1	0.2	Jul 2300	17	0.2	28.1	0.60
SNG-G138-Elec room							
SNG-G138-Elec room	1	2.0	Jul 1500	185	0.1	12.7	14.58

Ventilation Sizing Summary for AHU-12

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2013**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **430** L/s
System Ventilation Efficiency (Ev) **0.683**
Outdoor Air Intake (Vot) ..... **631** L/s

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
SNG-GC103-Corridor										
SNG-GC103-Corridor	1	34	81.5	0.30	0.0	0.00	1.0	**24**	*24*	0.962
SNG-G138B-Voc class room										
SNG-G138B-Voc class room	1	218	66.0	0.60	27.0	5.00	0.8	**218**	*175*	0.683
SNG-G113C-Kitchen living										
SNG-G113C-Kitchen living	1	132	68.5	0.60	17.0	3.80	0.8	**132**	*106*	0.683
SNG-G113B-Bedroom										
SNG-G113B-Bedroom	1	33	28.9	0.30	6.0	2.50	0.8	**30**	*24*	0.783
SNG-G113-Life skills										
SNG-G113-Life skills	1	81	25.2	0.60	10.0	5.00	0.8	**81**	*65*	0.683
SNG-G138A-Calming room										
SNG-G138A-Calming room	1	34	12.0	0.60	4.0	5.00	0.8	**34**	*27*	0.683
SNG-G137,G113A-Store/Bat										
SNG-G137-Store	1	25	16.1	0.60	0.0	2.50	1.0	**10**	*10*	1.289
SNG-G113A-Bathroom	1	13	12.1	0.00	0.0	0.00	1.0	**0**	*0*	1.683
SNG-G136-Toilet										
SNG-G136-Toilet	1	5	28.1	0.00	0.0	0.00	1.0	**0**	*0*	1.683
SNG-G138-Elec room										
SNG-G138-Elec room	1	56	12.7	0.00	0.0	0.00	1.0	**0**	*0*	1.683
Totals (incl. Space Multipliers)		**631**							**430**	**0.683**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-01 Stair GS1-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-01 Stair GS1-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **36.3** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-01 Stair GS1-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-01 Stair GS1-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **36.3** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-GS1-0-Stair	1.4	1.1	24.8 / 19.1	15.8 / 15.2	-	Jul 2200	2.92

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-GS1-0-Stair	1.3	18.9 / 29.4	-	106	0.000	0.000	11

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-GS1-0-Stair	1.2	Jul 0100	1.2	36.3

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-GS1-0-Stair							
SNG-GS1-0-Stair	1	1.2	Jul 0100	106	1.2	36.3	2.92

Ventilation Sizing Summary for FCU-01 Stair GS1-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-GS1-0-Stair

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-GS1-0-Stair									
SNG-GS1-0-Stair	1	36.3	0.0	105.9	0.00	0.30	0.0	0.0	10.9
Totals (incl. Space Multipliers)				**105.9**					**10.9**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-02 Stair GS2-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-02 Stair GS2-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **35.5** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-02 Stair GS2-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-02 Stair GS2-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **35.5** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-GS2-0-Stair	0.9	0.6	26.6 / 20.6	16.4 / 15.9	-	Jul 1800	1.50

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-GS2-0-Stair	0.6	17.6 / 27.5	-	53	0.000	0.000	11

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-GS2-0-Stair	0.6	Jul 0000	0.4	35.5

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-GS2-0-Stair							
SNG-GS2-0-Stair	1	0.6	Jul 0000	53	0.4	35.5	1.50

Ventilation Sizing Summary for FCU-02 Stair GS2-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-GS2-0-Stair

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-GS2-0-Stair									
SNG-GS2-0-Stair	1	35.5	0.0	53.1	0.00	0.30	0.0	0.0	10.7
Totals (incl. Space Multipliers)				**53.1**					**10.7**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-03 Stair GS3-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-03 Stair GS3-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **34.6** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-03 Stair GS3-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-03 Stair GS3-0**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **34.6** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-GS3-0-Stair	1.3	1.1	26.1 / 19.6	15.7 / 15.1	-	Aug 1600	2.49

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-GS3-0-Stair	0.6	19.0 / 25.1	-	86	0.000	0.000	10

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-GS3-0-Stair	1.0	Aug 1800	0.4	34.6

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-GS3-0-Stair							
SNG-GS3-0-Stair	1	1.0	Aug 1800	86	0.4	34.6	2.49

Ventilation Sizing Summary for FCU-03 Stair GS3-0

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-GS3-0-Stair

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-GS3-0-Stair									
SNG-GS3-0-Stair	1	34.6	0.0	86.0	0.00	0.30	0.0	0.0	10.4
Totals (incl. Space Multipliers)				**86.0**					**10.4**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-04 FTR G-021

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-04 FTR G-021**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **23.4** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-04 FTR G-021

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-04 FTR G-021**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **23.4** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-G021-FTR	17.0	16.8	22.5 / 17.1	14.9 / 14.4	-	Jul 1600	79.95

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-G021-FTR	0.3	21.3 / 21.5	-	1871	0.000	0.000	7

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G021-FTR	16.7	Oct 2200	0.1	23.4

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G021-FTR							
SNG-G021-FTR	1	16.7	Oct 2200	1871	0.1	23.4	79.95

Ventilation Sizing Summary for FCU-04 FTR G-021

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-G021-FTR

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-G021-FTR									
SNG-G021-FTR	1	23.4	0.0	1870.7	0.00	0.30	0.0	0.0	7.0
Totals (incl. Space Multipliers)				**1870.7**					**7.0**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-05 FTR G-037

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-05 FTR G-037**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **11.2** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-05 FTR G-037

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-05 FTR G-037**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **11.2** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-G037-FTR	7.0	6.9	22.5 / 17.2	14.9 / 14.4	-	Jul 1600	69.31

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-G037-FTR	0.2	21.0 / 21.2	-	776	0.000	0.000	3

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G037-FTR	6.9	Oct 2300	0.1	11.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G037-FTR							
SNG-G037-FTR	1	6.9	Oct 2300	776	0.1	11.2	69.31

Ventilation Sizing Summary for FCU-05 FTR G-037

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-G037-FTR

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-G037-FTR									
SNG-G037-FTR	1	11.2	0.0	776.2	0.00	0.30	0.0	0.0	3.4
Totals (incl. Space Multipliers)				**776.2**					**3.4**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-06 FTR G-112

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-06 FTR G-112**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **11.5** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-06 FTR G-112

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:19PM

Air System Information

Air System Name ..... **FCU-06 FTR G-112**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **11.5** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-G112-FTR	6.5	6.4	22.4 / 17.1	14.9 / 14.4	-	Jul 1500	62.48

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-G112-FTR	0.3	21.5 / 21.8	-	719	0.000	0.000	3

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G112-FTR	6.4	Sep 0000	0.1	11.5

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G112-FTR							
SNG-G112-FTR	1	6.4	Sep 0000	719	0.1	11.5	62.48

Ventilation Sizing Summary for FCU-06 FTR G-112

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:20PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-G112-FTR

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-G112-FTR									
SNG-G112-FTR	1	11.5	0.0	718.5	0.00	0.30	0.0	0.0	3.5
Totals (incl. Space Multipliers)				**718.5**					**3.5**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU-07 FTR G-133

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:20PM

Air System Information

Air System Name ..... **FCU-07 FTR G-133**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **11.7** m²
Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU-07 FTR G-133

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:20PM

Air System Information

Air System Name ..... **FCU-07 FTR G-133**

Equipment Class ..... **TERM**

Air System Type ..... **SPLT-FC**

Number of zones **1**

Floor Area ..... **11.7** m²

Location ..... **Hofuf, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**

Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**

Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
SNG-G133-FTR	6.5	6.4	22.5 / 17.2	15.0 / 14.5	-	Jul 1900	61.67

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
SNG-G133-FTR	0.1	21.0 / 21.2	-	722	0.000	0.000	4

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
SNG-G133-FTR	6.5	Jul 0100	0.0	11.7

Zone Sizing Summary for FCU-07 FTR G-133

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:20PM

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNG-G133-FTR							
SNG-G133-FTR	1	6.5	Jul 0100	722	0.0	11.7	61.67

Ventilation Sizing Summary for FCU-07 FTR G-133

Project Name: Al Hasa -SNG-Updated 04/10/2023

Prepared by: scec 02:20PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: SNG-G133-FTR

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
SNG-G133-FTR									
SNG-G133-FTR	1	11.7	0.0	721.6	0.00	0.30	0.0	0.0	3.5
Totals (incl. Space Multipliers)				**721.6**					**3.5**

Static pressure calculation

SAUDI CONSOLIDATED ENGINEERING COMPANY
KHATIB & ALAMI

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Detail:	Static Pressure Calculations	Checked By:	T.Z	Date:	27-Feb-23

1- Equipment Name AHU-07

Location ROOF

a Supply Duct

Total Duct Length	(m)	54.1
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	43.28
Fittings Friction Loss	Pa	34.624
	Subtotal (Duct+Fittings)	**77.904**
Safety (10%)		26.790
Supply Duct Static Pressure Loss (Pa)		**294.694**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Outlet	1	15	15
Flexible Duct	1	15	15
Volume Damper	1	15	15
Electric Duct Heater	1	50	50
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper	1	25	25
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**190**

b Return Duct

Total Duct Length	(m)	14.2
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	11.36
Fittings Friction Loss	Pa	9.088
	Subtotal (Duct+Fittings)	**20.448**
Safety (10%)		12.795
Return Duct Static Pressure Loss (Pa)		**140.743**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Inlet	0	15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	12.5	12.5
Volume Damper	1	25	25
Fire Damper	1	25	25
Fire/Smoke Damper	1	25	25
Sound Attenuator	0	75	0
Motorized Volume Damper	0	25	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**107.5**

c Fresh Air Duct

Total Duct Length	(m)	2
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	1.6
Fittings Friction Loss	Pa	1.280
	Subtotal (Duct+Fittings)	**2.880**
Safety (10%)		5.288
Fresh Air Duct Static Pressure Loss (Pa)		**58.168**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	0	15	0
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	0	25	0
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**50**

External Static Pressure (higher of supply+return or supply+fresh)	**435 Pa**
Considered	**500 Pa**

SAUDI CONSOLIDATED ENGINEERING COMPANY
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1- Equipment Name AHU-08

Location ROOF

a Supply Duct

Total Duct Length	(m)	37.9
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	30.32
Fittings Friction Loss	Pa	24.256
	Subtotal (Duct+Fittings)	**54.576**
Safety (10%)		19.458
Supply Duct Static Pressure Loss (Pa)		**214.034**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Outlet	1	15	15
Flexible Duct	0	15	0
Volume Damper	2	15	30
Electric Duct Heater	0	50	0
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper	1	25	25
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**140**

b Return Duct

Total Duct Length	(m)	17.7
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	14.16
Fittings Friction Loss	Pa	11.328
	Subtotal (Duct+Fittings)	**25.488**
Safety (10%)		13.299
Return Duct Static Pressure Loss (Pa)		**146.287**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Inlet	0	15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	12.5	12.5
Volume Damper	1	25	25
Fire Damper	1	25	25
Fire/Smoke Damper	1	25	25
Sound Attenuator	0	75	0
Motorized Volume Damper	0	25	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**107.5**

c Fresh Air Duct

Total Duct Length	(m)	3.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	2.64
Fittings Friction Loss	Pa	2.112
	Subtotal (Duct+Fittings)	**4.752**
Safety (10%)		5.475
Fresh Air Duct Static Pressure Loss (Pa)		**60.227**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	0	15	0
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	0	25	0
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**50**

External Static Pressure (higher of supply+return or supply+fresh)	**360 Pa**
Considered	**500 Pa**

SAUDI CONSOLIDATED ENGINEERING COMPANY
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1- Equipment Name AHU-09

Location ROOF

a Supply Duct

Total Duct Length	(m)	57.1
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	45.68
Fittings Friction Loss	Pa	36.544
	Subtotal (Duct+Fittings)	**82.224**
Safety (10%)		27.222
Supply Duct Static Pressure Loss (Pa)		**299.446**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Outlet	1	15	15
Flexible Duct	1	15	15
Volume Damper	1	15	15
Electric Duct Heater	1	50	50
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper	1	25	25
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**190**

b Return Duct

Total Duct Length	(m)	15.8
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	12.64
Fittings Friction Loss	Pa	10.112
	Subtotal (Duct+Fittings)	**22.752**
Safety (10%)		13.025
Return Duct Static Pressure Loss (Pa)		**143.277**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Inlet	0	15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	12.5	12.5
Volume Damper	1	25	25
Fire Damper	1	25	25
Fire/Smoke Damper	1	25	25
Sound Attenuator	0	75	0
Motorized Volume Damper	0	25	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**107.5**

c Fresh Air Duct

Total Duct Length	(m)	3.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	2.64
Fittings Friction Loss	Pa	2.112
	Subtotal (Duct+Fittings)	**4.752**
Safety (10%)		5.475
Fresh Air Duct Static Pressure Loss (Pa)		**60.227**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	0	15	0
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	0	25	0
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**50**

External Static Pressure (higher of supply+return or supply+fresh)	**443 Pa**
Considered	**500 Pa**

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1- Equipment Name AHU-10

Location ROOF

a Supply Duct

Total Duct Length	(m)	49.2
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	39.36
Fittings Friction Loss	Pa	31.488
	Subtotal (Duct+Fittings)	**70.848**
Safety (10%)		26.085
Supply Duct Static Pressure Loss (Pa)		**286.933**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Flexible Duct	1	15	15
Volume Damper	1	15	15
Electric Duct Heater	1	50	50
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper	1	25	25
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**190**

b Return Duct

Total Duct Length	(m)	16
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	12.8
Fittings Friction Loss	Pa	10.240
	Subtotal (Duct+Fittings)	**23.040**
Safety (10%)		13.054
Return Duct Static Pressure Loss (Pa)		**143.594**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Inlet	0	15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	12.5	12.5
Volume Damper	1	25	25
Fire Damper	1	25	25
Fire/Smoke Damper	1	25	25
Sound Attenuator	0	75	0
Motorized Volume Damper	0	25	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**107.5**

c Fresh Air Duct

Total Duct Length	(m)	3.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	2.64
Fittings Friction Loss	Pa	2.112
	Subtotal (Duct+Fittings)	**4.752**
Safety (10%)		6.975
Fresh Air Duct Static Pressure Loss (Pa)		**76.727**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	1	15	15
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	0	25	0
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**65**

External Static Pressure (higher of supply+return or supply+fresh)	**431 Pa**
Considered	**500 Pa**

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1- Equipment Name AHU-11

Location ROOF

a Supply Duct

Total Duct Length	(m)	52.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	41.84
Fittings Friction Loss	Pa	33.472
	Subtotal (Duct+Fittings)	**75.312**
Safety (10%)		26.531
Supply Duct Static Pressure Loss (Pa)		**291.843**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Outlet	1	15	15
Flexible Duct	1	15	15
Volume Damper	1	15	15
Electric Duct Heater	1	50	50
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper	1	25	25
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**190**

b Return Duct

Total Duct Length	(m)	28.9
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	23.12
Fittings Friction Loss	Pa	18.496
	Subtotal (Duct+Fittings)	**41.616**
Safety (10%)		14.912
Return Duct Static Pressure Loss (Pa)		**164.028**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Inlet	0	15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	12.5	12.5
Volume Damper	1	25	25
Fire Damper	1	25	25
Fire/Smoke Damper	1	25	25
Sound Attenuator	0	75	0
Motorized Volume Damper	0	25	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**107.5**

c Fresh Air Duct

Total Duct Length	(m)	3.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	2.64
Fittings Friction Loss	Pa	2.112
	Subtotal (Duct+Fittings)	**4.752**
Safety (10%)		6.975
Fresh Air Duct Static Pressure Loss (Pa)		**76.727**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	1	15	15
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	0	25	0
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**65**

External Static Pressure (higher of supply+return or supply+fresh)	**456 Pa**
Considered	**500 Pa**

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1- Equipment Name AHU-12

Location ROOF

a Supply Duct

Total Duct Length	(m)	30.7
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	24.56
Fittings Friction Loss	Pa	19.648
	Subtotal (Duct+Fittings)	**44.208**
Safety (10%)		23.421
Supply Duct Static Pressure Loss (Pa)		**257.629**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Flexible Duct	1	15	15
Volume Damper	1	15	15
Electric Duct Heater	1	50	50
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper	1	25	25
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**190**

b Return Duct

Total Duct Length	(m)	8.1
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	6.48
Fittings Friction Loss	Pa	5.184
	Subtotal (Duct+Fittings)	**11.664**
Safety (10%)		11.916
Return Duct Static Pressure Loss (Pa)		**131.080**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Inlet	0	15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	12.5	12.5
Volume Damper	1	25	25
Fire Damper	1	25	25
Fire/Smoke Damper	1	25	25
Sound Attenuator	0	75	0
Motorized Volume Damper	0	25	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**107.5**

c Fresh Air Duct

Total Duct Length	(m)	3.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	2.64
Fittings Friction Loss	Pa	2.112
	Subtotal (Duct+Fittings)	**4.752**
Safety (10%)		5.475
Fresh Air Duct Static Pressure Loss (Pa)		**60.227**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	0	15	0
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	0	25	0
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**50**

External Static Pressure (higher of supply+return or supply+fresh)	**389 Pa**
Considered	**500 Pa**

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Equipment Name EF-SNG-01

Location Science/Food Class room

Total Duct Length	(m)	9.9
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	6.435
Fittings Friction Loss	Pa	5.148
Subtotal (Duct+Fittings)		**11.583**
Safety (10%)		9.6583
Total Static Pressure Loss (Pa)		**106**
Considered		**125**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name EF-SNG-02

Location Science/Food Class room

Total Duct Length	(m)	9.9
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	6.435
Fittings Friction Loss	Pa	5.148
Subtotal (Duct+Fittings)		**11.583**
Safety (10%)		9.6583
Total Static Pressure Loss (Pa)		**106**
Considered		**125**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name EF-SNG-03

Location Kitchen Living

Total Duct Length	(m)	9.9
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	6.435
Fittings Friction Loss	Pa	5.148
Subtotal (Duct+Fittings)		**11.583**
Safety (10%)		9.6583
Total Static Pressure Loss (Pa)		**106**
Considered		**125**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNG-04	
Location	Toilets	
Total Duct Length	(m)	52.5
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	34.125
Fittings Friction Loss	Pa	27.3
Subtotal (Duct+Fittings)		**61.425**
Safety (10%)		17.6425
Total Static Pressure Loss (Pa)		**194**
Considered		**200**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	1	15	15
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	1	15	15
Subtotal (Accessories Friction Loss)			**115**

Equipment Name	EF-SNG-05	
Location	Toilets	
Total Duct Length	(m)	31.6
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	20.54
Fittings Friction Loss	Pa	16.432
Subtotal (Duct+Fittings)		**36.972**
Safety (10%)		15.1972
Total Static Pressure Loss (Pa)		**167**
Considered		**200**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	1	15	15
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	1	15	15
Subtotal (Accessories Friction Loss)			**115**

Equipment Name	EF-SNG-06	
Location	Toilets	
Total Duct Length	(m)	45.6
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	29.64
Fittings Friction Loss	Pa	23.712
Subtotal (Duct+Fittings)		**53.352**
Safety (10%)		16.8352
Total Static Pressure Loss (Pa)		**185**
Considered		**200**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	1	15	15
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	1	15	15
Subtotal (Accessories Friction Loss)			**115**

Equipment Name	EF-SNG-07	
Location	AHU-SNG-12	
Total Duct Length	(m)	10.3
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	6.695
Fittings Friction Loss	Pa	5.356
Subtotal (Duct+Fittings)		**12.051**
Safety (10%)		9.7051
Total Static Pressure Loss (Pa)		**107**
Considered		**125**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNG-08	
Location	AHU-SNG-08	
Total Duct Length	(m)	5.5
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	3.575
Fittings Friction Loss	Pa	2.86
Subtotal (Duct+Fittings)		**6.435**
Safety (10%)		9.1435
Total Static Pressure Loss (Pa)		**101**
Considered		**125**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNG-09	
Location	AHU-SNG-07	
Total Duct Length	(m)	4.7
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	3.055
Fittings Friction Loss	Pa	2.444
Subtotal (Duct+Fittings)		**5.499**
Safety (10%)		9.0499
Total Static Pressure Loss (Pa)		**100**
Considered		**125**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNG-10	
Location	AHU-SNG-10	
Total Duct Length	(m)	3.5
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	2.275
Fittings Friction Loss	Pa	1.82
Subtotal (Duct+Fittings)		**4.095**
Safety (10%)		8.9095
Total Static Pressure Loss (Pa)		**98**
Considered		**100**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNG-11	
Location	AHU-SNG-09	
Total Duct Length	(m)	4.5
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	2.925
Fittings Friction Loss	Pa	2.34
Subtotal (Duct+Fittings)		**5.265**
Safety (10%)		9.0265
Total Static Pressure Loss (Pa)		**99**
Considered		**100**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNG-12	
Location	AHU-SNG-11	
Total Duct Length	(m)	10.1
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	6.565
Fittings Friction Loss	Pa	5.252
Subtotal (Duct+Fittings)		**11.817**
Safety (10%)		9.6817
Total Static Pressure Loss (Pa)		**106**
Considered		**125**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	**EF-SNG-13**	
Location	Kitchen/Kitchen storage	
Total Duct Length	(m)	20
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	13
Fittings Friction Loss	Pa	10.4
Subtotal (Duct+Fittings)		**23.4**
Safety (10%)		10.84
Total Static Pressure Loss (Pa)		**119**
Considered		**125**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Boys special need school building

SPACE INPUT

Guard House

1. General Details:

Floor Area ..... **14.2** m²
Avg. Ceiling Height ..... **3.5** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **35.0** L/s
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	17.2	3	0	0
W	10.2	4	0	0
S	17.2	3	0	0
E	10.2	0	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.3. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.4. Construction Types for Exposure E

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	14.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**14.2**	m^2
Total Floor U-Value	**0.568**	$W/(m^2 \cdot K)$
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	$(m^2 \cdot K)/W$

7. Partitions:

(No partition data).

SNB-B001-DINNING

1. General Details:

Floor Area ..... **170.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **FOOD AND BEVERAGE SERVICE: Cafeteria/fast food dining**
OA Requirement 1 ..... **3.8** L/s/person
OA Requirement 2 ..... **0.90** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **3.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **100.0** People
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
WSW	52.0	12	0	0
S	21.9	7	0	0

3.1. Construction Types for Exposure WSW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **170.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **13.9** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **33.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

SNB-B002 KITCHEN

1. General Details:

Floor Area ..... **34.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage **FOOD AND BEVERAGE SERVICE: Kitchen (cooking)**
OA Requirement 1 ..... **3.8** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **17.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **1000.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	34.1	7	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **34.1** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **24.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B002A KITCHEN STORE

1. General Details:

Floor Area ..... **17.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **13.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **500.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	21.8	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **17.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B003 TOILET

1. General Details:

Floor Area ..... **30.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	18.7	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **30.7** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B003A ABLUTION

1. General Details:

Floor Area	**16.1**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**4.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Sedentary Work**	
Sensible	**82.1**	W/person
Latent	**79.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**16.1**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

SNB-B003B JANITOR

1. General Details:

Floor Area ..... **16.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **4.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	20.5	4	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **16.1** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B004 CLASSROOM 1

1. General Details:

Floor Area ..... **64.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	39.3	13	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **64.4** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B004A STORE

1. General Details:

Floor Area	**4.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**4.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**11.1**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

SNB-B004B GROUP ROOM

1. General Details:

Floor Area ..... **14.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	23.1	4	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **14.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B005 CLASSROOM 2

1. General Details:

Floor Area ..... **64.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	39.6	13	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **64.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B005A STORE

1. General Details:

Floor Area	**4.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**4.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**11.1**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**35.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

SNB-B006 CLASSROOM 4

1. General Details:

Floor Area ..... **63.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	38.8	13	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **63.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **22.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B006A STORE

1. General Details:

Floor Area	**4.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**4.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**11.1**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

SNB-B006B GROUP ROOM

1. General Details:

Floor Area ..... **14.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	23.1	4	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **14.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B007 CLASSROOM 3

1. General Details:

Floor Area ..... **64.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	39.8	13	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **64.7** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B007A STORE

1. General Details:

Floor Area	**4.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**4.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**11.1**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**46.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

SNB-B007B HYGIENE

1. General Details:

Floor Area	**10.6**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**5.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Sedentary Work**	
Sensible	**82.1**	W/person
Latent	**79.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**10.6**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

SNB-B008A PARTENTS WAITI

1. General Details:

Floor Area	**72.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**EDUCATION: Classroom (age 9 plus)**	
OA Requirement 1	**5.0**	L/s/person
OA Requirement 2	**0.60**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**8.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Equipment**	

2.4. People:

Occupancy	**8.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**72.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

SNB-B009 CALMING ROOM

1. General Details:

Floor Area ..... **9.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **2.0** People
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	18.6	2	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	9.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **9.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B010 GROUP ROOM

1. General Details:

Floor Area ..... **18.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	18.0	0	0	0
ENE	12.9	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**

3.2. Construction Types for Exposure ENE

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **18.4** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B011 LAUNDRY

1. General Details:

Floor Area ..... **22.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **1000.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	19.6	0	0	0
WSW	14.4	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**

3.2. Construction Types for Exposure WSW

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	22.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **22.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B012 BUILDING MAINT

1. General Details:

Floor Area ..... **29.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	25.8	2	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	29.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **29.7** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B012A FTR

1. General Details:

Floor Area ..... **13.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.0** Watts
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **6000.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	17.7	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	13.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **13.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **43.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **26.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **17.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

SNB-B014 SHIPPING RECEIV

1. General Details:

Floor Area ..... **15.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **13.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	14.2	2	0	0
ENE	26.7	4	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure ENE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	15.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **15.7** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details: **(No partition data).**

SNB-B015 GARBAGE

1. General Details:

Floor Area ..... **22.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **9.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	24.9	0	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	22.9	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **22.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B016 OFFICE SUPPLIES

1. General Details:

Floor Area ..... **17.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **17.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	19.5	2	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	17.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **17.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **15.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **21.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

SNB-B017 THERAPY

1. General Details:

Floor Area ..... **15.8** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **13.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.00** m²/person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	18.9	4	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	15.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **15.8** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **16.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B018 Store

1. General Details:

Floor Area ..... **10.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **2.47** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Athletics**
Sensible ..... **208.1** W/person
Latent ..... **319.4** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	10.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **10.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B019 PHYSIOTHERAPY

1. General Details:

Floor Area ..... **46.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage .. **SPORTS: Health club/aerobics room**
OA Requirement 1 ..... **10.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **9.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **6.0** People
Activity Level ..... **Athletics**
Sensible ..... **208.1** W/person
Latent ..... **319.4** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	46.9	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **46.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **15.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B020 ELEC. RM

1. General Details:

Floor Area ..... **14.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **4200.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	20.4	0	0	0
ESE	6.4	0	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**

3.2. Construction Types for Exposure ESE

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **14.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B022 WATER

1. General Details:

Floor Area ..... **26.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	20.3	0	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **26.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B022A VFD

1. General Details:

Floor Area	**9.8**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**16.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**5000.0**	Watts
Schedule	**Equipment**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Sedentary Work**	
Sensible	**82.1**	W/person
Latent	**79.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**9.8**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

SNB-B023A WHITE ROOM

1. General Details:

Floor Area	**12.4**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**2.5**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**6.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Equipment**	

2.4. People:

Occupancy	**3.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**12.4**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**23.1**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

SNB-B023B SOFT ROOM

1. General Details:

Floor Area ..... **17.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.10** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	21.7	7	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **17.1** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **18.3** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B023C DARK ROOM

1. General Details:

Floor Area ..... **18.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	16.9	7	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **18.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B024 CLASSROOM 9

1. General Details:

Floor Area ..... **65.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	36.5	6	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **65.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B024A GROUP ROOM

1. General Details:

Floor Area	**11.6**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**EDUCATION: Classroom (age 9 plus)**	
OA Requirement 1	**5.0**	L/s/person
OA Requirement 2	**0.60**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**6.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Equipment**	

2.4. People:

Occupancy	**3.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**11.6**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

SNB-B025 CLASSROOM 10

1. General Details:

Floor Area ..... **82.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	32.9	3	0	0
E	57.2	7	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **82.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **39.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B026 Speech THERAPY

1. General Details:

Floor Area ..... **19.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **11.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **5.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	25.9	7	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **19.4** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **30.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B027 JAN. CLOSET

1. General Details:

Floor Area	**7.4**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**14.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Sedentary Work**	
Sensible	**82.1**	W/person
Latent	**79.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**7.4**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**13.4**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**35.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B028 ELEC. RM

1. General Details:

Floor Area ..... **6.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **9.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **1500.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	8.0	0	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **6.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B030 CLASSROOM 6

1. General Details:

Floor Area ..... **58.3** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	36.1	13	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **58.3** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **28.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B030A STORE

1. General Details:

Floor Area	**4.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**4.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**11.2**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

SNB-B031 CLASSROOM 8

1. General Details:

Floor Area ..... **64.8** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	40.2	6	0	0
E	39.4	6	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **64.8** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B031A STORE

1. General Details:

Floor Area	**4.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**4.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**11.2**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B031B GROUP ROOM

1. General Details:

Floor Area ..... **14.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	23.1	4	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **14.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B032 CLASSROOM 7

1. General Details:

Floor Area ..... **65.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	40.2	6	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **65.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B032A STORE

1. General Details:

Floor Area	**4.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**4.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**11.2**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B032B HYGIENE

1. General Details:

Floor Area	**10.1**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**5.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Sedentary Work**	
Sensible	**82.1**	W/person
Latent	**79.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**10.1**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

SNB-B033 CLASSROOM 5

1. General Details:

Floor Area ..... **67.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	41.9	13	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **67.4** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B033A STORE

1. General Details:

Floor Area	**4.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**7.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**4.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**11.1**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

SNB-B033C GROUP ROOM

1. General Details:

Floor Area ..... **13.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	23.1	4	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **13.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B034 INTERVIEW

1. General Details:

Floor Area	**15.6**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**OFFICE: Office space**	
OA Requirement 1	**2.5**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**8.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Equipment**	

2.4. People:

Occupancy	**3.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**15.6**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

SNB-B036 RECP&WAITING

1. General Details:

Floor Area ..... **51.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **5.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	23.6	7	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **51.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.3** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **12.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

SNB-B036A THERAPY

1. General Details:

Floor Area ..... **17.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **12.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	16.8	3	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **17.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **16.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B036B NURSE

1. General Details:

Floor Area ..... **18.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	27.9	3	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **18.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **24.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B037 ASSESSMENT

1. General Details:

Floor Area ..... **29.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **4.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	32.9	7	0	0
S	21.2	7	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **29.4** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B037A ASSESSMENT

1. General Details:

Floor Area ..... **11.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	12.3	3	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **11.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **13.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

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scec 12:10PM

SNB-B038,B008 RECP&CORR

1. General Details:

Floor Area	**92.2**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**OFFICE: Office space**	
OA Requirement 1	**2.5**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**8.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Equipment**	

2.4. People:

Occupancy	**9.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**92.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**9.3**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

Partition Type	**Wall Partition**	
Area	**30.1**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**35.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

SNB-B038A PROGRAM MANAGE

1. General Details:

Floor Area ..... **17.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **5.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	20.1	4	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **17.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B038B EXE DIRECTOR

1. General Details:

Floor Area ..... **18.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **9.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **5.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	22.5	4	0	0
W	16.0	2	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **18.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **13.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B038C CONF. ROOM

1. General Details:

Floor Area ..... **36.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **12.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	29.8	2	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **36.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **13.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B038F TECH SUPPORT

1. General Details:

Floor Area	**21.0**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**OFFICE: Office space**	
OA Requirement 1	**2.5**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**12.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Equipment**	

2.4. People:

Occupancy	**3.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**21.0**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B038G PRINCIPAL

1. General Details:

Floor Area	**17.1**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**10.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Equipment**	

2.4. People:

Occupancy	**5.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**17.1**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

SNB-B038H SECRETARY

1. General Details:

Floor Area	**11.4**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.00**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**10.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**10.00**	W/m²
Schedule	**Equipment**	

2.4. People:

Occupancy	**2.0**	People
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**People**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**11.4**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B039 MTR

1. General Details:

Floor Area	**26.9**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**User-Defined**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**8.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**16000.0**	Watts
Schedule	**Equipment**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**26.9**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**126.0**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**26.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B040 WHEEL CHAIR

1. General Details:

Floor Area ..... **15.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **2.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	13.4	0	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **15.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

SNB-B101 READING ROOM

1. General Details:

Floor Area ..... **158.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **53.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	50.8	4	0	0
W	76.4	6	0	0
S	23.7	1	0	0
NNW	20.7	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.3. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.4. Construction Types for Exposure NNW

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	158.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**

(No additional input required for this floor type).

7. Partitions:

(No partition data).

SNB-B101 READINGCORRIDOR

1. General Details:

Floor Area ..... **67.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
ENE	42.5	0	0	0
NNW	6.0	0	0	0

3.1. Construction Types for Exposure ENE

Wall Type **Wall-1**

3.2. Construction Types for Exposure NNW

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	67.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

SNB-B101A TRAINING ROOM

1. General Details:

Floor Area ..... **54.8** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **23.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	54.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

SNB-B101B FTR

1. General Details:

Floor Area ..... **9.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **4000.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	9.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **42.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **26.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **15.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

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scec 12:10PM

SNB-B101C ASSESSMENT

1. General Details:

Floor Area ..... **9.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	9.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **13.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B101D ASSESSMENT

1. General Details:

Floor Area ..... **9.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	9.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **13.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B101E TEACHING STORE

1. General Details:
Floor Area ..... **24.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:
Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.10** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:
Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:
Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:
Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:
Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	21.4	0	0	0
E	10.4	0	0	0

3.1. Construction Types for Exposure N
Wall Type **Wall-1**

3.2. Construction Types for Exposure E
Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	24.7	0	0

4.1. Construction Types for Exposure H
Roof Type ..... **ROOF**

5. Infiltration:
Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:
(No partition data).

Space Input Data

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scec 12:10PM

SNB-B102A&B LIFE SKILLS

1. General Details:

Floor Area ..... **98.8** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **13.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **20.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	57.0	10	0	0
WSW	40.7	3	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure WSW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	98.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **39.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

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scec 12:10PM

SNB-B102C HALL

1. General Details:

Floor Area ..... **19.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	12.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **17.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B102D BATHROOM

1. General Details:

Floor Area ..... **8.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **4.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	8.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **2.7** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B102E BEDROOM

1. General Details:
Floor Area ..... **34.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:
Space Usage ..... **User-Defined**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:
Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:
Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:
Occupancy ..... **5.0** People
Activity Level ..... **Seated at Rest**
Sensible ..... **67.4** W/person
Latent ..... **35.2** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:
Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
WSW	28.0	0	0	0

3.1. Construction Types for Exposure WSW
Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	34.5	0	0

4.1. Construction Types for Exposure H
Roof Type ..... **ROOF**

5. Infiltration:
Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:
(No partition data).

SNB-B102F LAUNDRY

1. General Details:

Floor Area ..... **6.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **1000.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	6.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **10.9** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B103 TOILET.

1. General Details:

Floor Area ..... **31.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	18.7	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	31.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

SNB-B103A STORE

1. General Details:

Floor Area ..... **12.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **4.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	12.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B104 CLASSROOM 11

1. General Details:

Floor Area ..... **66.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	39.3	10	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	66.9	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B104A STORE

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **11.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B105 CLASSROOM 12

1. General Details:

Floor Area ..... **66.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	39.6	10	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	66.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **23.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B105A STORE

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **11.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B105B GROUP

1. General Details:

Floor Area ..... **15.3** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	23.1	3	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	15.3	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B106 CLASSROOM 13

1. General Details:

Floor Area ..... **67.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	39.8	10	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	67.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B106A STORE

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **11.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B106B GROUP

1. General Details:

Floor Area ..... **16.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	23.1	3	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	16.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B107 CLASSROOM 14

1. General Details:

Floor Area ..... **66.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	37.4	10	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	66.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B107A STORE

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **11.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B107B HYGIENE

1. General Details:

Floor Area ..... **10.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	10.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

SNB-B108 ELEC. ROOM

1. General Details:

Floor Area ..... **5.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **19.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **1000.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	5.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **4.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

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scec 12:10PM

SNB-B108A CALMING ROOM

1. General Details:

Floor Area ..... **7.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **2.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	7.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

SNB-B109 STAFF LOUNGE

1. General Details:
Floor Area ..... **36.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:
Space Usage ..... **GENERAL: Break room**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:
Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:
Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:
Occupancy ..... **13.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:
Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	11.9	3	0	0

3.1. Construction Types for Exposure E
Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	36.6	0	0

4.1. Construction Types for Exposure H
Roof Type ..... **ROOF**

5. Infiltration:
Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... **Floor Above Unconditioned Space**
Floor Area ..... **16.5** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Unconditioned Space Max Temp. ..... **46.0** °C
Ambient at Space Max Temp. ..... **46.0** °C
Unconditioned Space Min Temp. ..... **23.9** °C
Ambient at Space Min Temp. ..... **12.8** °C

7. Partitions:

7.1. 1st Partition Details:
Partition Type ..... **Wall Partition**
Area ..... **7.3** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:
Partition Type ..... **Wall Partition**
Area ..... **16.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

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SNB-B110 ADMIN OFFICE

1. General Details:

Floor Area ..... **25.3** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **5.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	21.6	3	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	25.3	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

SNB-B111 FTR

1. General Details:

Floor Area ..... **8.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **4000.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	8.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **55.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **26.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B112A-ADMIN OFFICE

1. General Details:

Floor Area ..... **60.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **OFFICE: Office space**
OA Requirement 1 ..... **2.5** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **16.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	31.0	3	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	60.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Unconditioned Space**
Floor Area ..... **60.0** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Unconditioned Space Max Temp. ..... **46.0** °C
Ambient at Space Max Temp. ..... **46.0** °C
Unconditioned Space Min Temp. ..... **23.9** °C
Ambient at Space Min Temp. ..... **12.8** °C

7. Partitions:

(No partition data).

Space Input Data

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scec 12:10PM

SNB-B112B-THERAPIST ROOM

1. General Details:

Floor Area ..... **66.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage .. **SPORTS: Health club/aerobics room**
OA Requirement 1 ..... **10.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **16.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	35.4	5	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	66.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Unconditioned Space**
Floor Area ..... **66.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Unconditioned Space Max Temp. ..... **46.0** °C
Ambient at Space Max Temp. ..... **46.0** °C
Unconditioned Space Min Temp. ..... **23.9** °C
Ambient at Space Min Temp. ..... **12.8** °C

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B113-MUSIC&VOCTN

1. General Details:

Floor Area ..... **69.8** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	38.1	10	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	69.8	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B114-OCCUPATIONAL TH

1. General Details:

Floor Area ..... **34.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **12.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	34.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **34.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B115-SCIENCE/FOOD

1. General Details:

Floor Area ..... **67.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	37.6	5	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	67.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

SNB-B116 CLASSROOM 19

1. General Details:

Floor Area ..... **70.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	39.4	5	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	70.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

SNB-B116A GROUP ROOM

1. General Details:

Floor Area ..... **25.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **8.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	34.4	0	0	0
E	17.2	5	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**

3.2. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	25.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **17.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B117 CLASSROOM 18

1. General Details:

Floor Area ..... **69.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	41.7	10	0	0
E	37.4	5	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	69.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

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scec 12:10PM

SNB-B117A STORE

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **11.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **23.9** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B117B HYGIENE

1. General Details:

Floor Area ..... **10.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	10.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

SNB-B118 CLASSROOM 17

1. General Details:

Floor Area ..... **68.0** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	40.2	10	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	68.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

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scec 12:10PM

SNB-B118A STORE

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **11.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

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SNB-B118B GROUP

1. General Details:

Floor Area ..... **16.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	23.1	3	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	16.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

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SNB-B119 CLASSROOM 16

1. General Details:

Floor Area ..... **60.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	32.7	10	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	60.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **28.7** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B119A STORE

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **11.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B120 CLASSROOM 15

1. General Details:

Floor Area ..... **71.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **17.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	43.8	10	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	71.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **9.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B120A STORE

1. General Details:

Floor Area ..... **4.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **11.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B120C-GROUP ROOM

1. General Details:

Floor Area ..... **15.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage . **EDUCATION: Classroom (age 9 plus)**
OA Requirement 1 ..... **5.0** L/s/person
OA Requirement 2 ..... **0.60** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	23.1	3	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	15.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B121 MULTIPURPOSE

1. General Details:

Floor Area ..... **274.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **EDUCATION: Multiuse assembly**
OA Requirement 1 ..... **3.8** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **10.00** W/m²
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **230.0** People
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	140.9	14	0	0
S	110.4	15	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	274.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B126 MPR STORE+LOBBY

1. General Details:

Floor Area ..... **73.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	33.9	0	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	73.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **92.7** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B126B STORE

1. General Details:

Floor Area ..... **22.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	49.5	0	0	0
E	9.4	0	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**

3.2. Construction Types for Exposure E

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	22.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

SNB-B127 ELEC. ROOM

1. General Details:

Floor Area ..... **6.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **1500.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	7.7	0	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	6.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-B129 TOILET

1. General Details:

Floor Area ..... **17.5** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **439.4** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	17.5	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **2.7** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-B155 FTR

1. General Details:

Floor Area ..... **10.2** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **6000.0** Watts
Schedule ..... **Equipment**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	16.3	0	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	10.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **45.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **26.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-BC001 CORRIDOR

1. General Details:

Floor Area	**99.6**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**GENERAL: Corridor**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**8.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**99.6**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**39.3**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

Partition Type	**Wall Partition**	
Area	**33.2**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**35.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-BC002 CORRIDOR

1. General Details:

Floor Area	**78.1**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**GENERAL: Corridor**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**5.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**78.1**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**45.4**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

SNB-BC003 CORRIDOR

1. General Details:
Floor Area ..... **119.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:
Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:
Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:
Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:
Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:
Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	14.7	0	0	0

3.1. Construction Types for Exposure NNW
Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	27.6	0	0

4.1. Construction Types for Exposure H
Roof Type ..... **ROOF**

5. Infiltration:
Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... **Slab Floor On Grade**
Floor Area ..... **119.7** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:
Partition Type ..... **Wall Partition**
Area ..... **30.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:
Partition Type ..... **Wall Partition**
Area ..... **19.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

SNB-BC004 CORRIDOR

1. General Details:

Floor Area ..... **172.8** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **12.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	52.8	9	0	0
W	84.9	31	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **172.8** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **103.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **46.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **28.9** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

SNB-BC004A VESTIBULE

1. General Details:

Floor Area ..... **20.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **5.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SSE	14.2	2	0	0
ENE	33.5	0	0	0

3.1. Construction Types for Exposure SSE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure ENE

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	20.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **20.7** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **21.1** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details: **(No partition data).**

Space Input Data

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SNB-BC005 CORRIDOR

1. General Details:

Floor Area	**81.9**	m²
Avg. Ceiling Height	**4.9**	m
Building Weight	**341.8**	kg/m²

1.1. OA Ventilation Requirements:

Space Usage	**GENERAL: Corridor**	
OA Requirement 1	**0.0**	L/s/person
OA Requirement 2	**0.30**	L/(s·m²)
Space Usage Defaults	**ASHRAE Std 62.1-2016**	

2. Internals:

2.1. Overhead Lighting:

Fixture Type	**Recessed (Unvented)**	
Wattage	**6.00**	W/m²
Ballast Multiplier	**1.00**	
Schedule	**Lighting**	

2.2. Task Lighting:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.3. Electrical Equipment:

Wattage	**0.00**	W/m²
Schedule	**None**	

2.4. People:

Occupancy	**0.0**	Person
Activity Level	**Office Work**	
Sensible	**71.8**	W/person
Latent	**60.1**	W/person
Schedule	**None**	

2.5. Miscellaneous Loads:

Sensible	**0**	W
Schedule	**None**	
Latent	**0**	W
Schedule	**None**	

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	**0.00**	L/s
Design Heating	**0.00**	L/s
Energy Analysis	**0.00**	L/s

Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**81.9**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**48.2**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

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SNB-BC006,BE001 ENTRY

1. General Details:

Floor Area ..... **153.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	54.6	33	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **153.9** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **47.2** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

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SNB-BC007 CORRIDOR

1. General Details:

Floor Area ..... **32.3** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	32.3	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **32.3** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **16.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **40.0** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

SNB-BC101 CORRIDOR

1. General Details:

Floor Area ..... **188.7** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
ENE	51.3	3	0	0

3.1. Construction Types for Exposure ENE

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	188.7	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **42.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **32.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

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SNB-BC101A CORRIDOR

1. General Details:

Floor Area ..... **90.8** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	122.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **21.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

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SNB-BC102 CORRIDOR

1. General Details:

Floor Area ..... **78.1** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **7.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	78.1	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **45.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

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SNB-BC103 CORRIDOR

1. General Details:

Floor Area ..... **134.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	51.1	10	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	134.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **52.9** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **15.4** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

SNB-BC103b CORRIDOR

1. General Details:

Floor Area ..... **99.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	50.7	10	0	0
ENE	25.3	0	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure ENE

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	99.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **37.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **22.5** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-BC104 CORRIDOR

1. General Details:

Floor Area ..... **82.9** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

(No Wall, Window, Door data).

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	82.9	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **49.7** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition data).

SNB-BS001 STAIRS

1. General Details:
Floor Area ..... **36.3** m²
Avg. Ceiling Height ..... **2.7** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:
Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:
Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:
Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:
Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:
Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	41.4	0	0	0

3.1. Construction Types for Exposure NNW
Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	36.3	0	0

4.1. Construction Types for Exposure H
Roof Type ..... **ROOF**

5. Infiltration:
Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... **Slab Floor On Grade**
Floor Area ..... **36.3** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:
Partition Type ..... **Wall Partition**
Area ..... **80.8** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **30.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:
(No partition data).

SNB-BS002 STAIRS

1. General Details:

Floor Area ..... **34.4** m²
Avg. Ceiling Height ..... **2.7** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	57.9	0	0	0
N	123.0	0	0	0
S	41.0	0	0	0
W	19.3	0	0	0

3.1. Construction Types for Exposure E

Wall Type **Wall-1**

3.2. Construction Types for Exposure N

Wall Type **Wall-1**

3.3. Construction Types for Exposure S

Wall Type **Wall-1**

3.4. Construction Types for Exposure W

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	34.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**34.4**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type	**Wall Partition**	
Area	**41.1**	m²
U-Value	**2.839**	W/(m²·K)
Uncondit. Space Max Temp	**30.0**	°C
Ambient at Space Max Temp	**35.0**	°C
Uncondit. Space Min Temp	**23.9**	°C
Ambient at Space Min Temp	**12.8**	°C

7.2. 2nd Partition Details:

(No partition data).

SNB-BS003 STAIRS

1. General Details:

Floor Area ..... **35.2** m²
Avg. Ceiling Height ..... **2.7** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **8.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	40.0	0	0	0

3.1. Construction Types for Exposure S

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	35.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **35.2** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-BS108 JANITOR

1. General Details:

Floor Area ..... **19.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **6.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NNW	20.2	0	0	0

3.1. Construction Types for Exposure NNW

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	19.6	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-BS123 STORAGE

1. General Details:

Floor Area ..... **4.4** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **11.30** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
ENE	12.5	0	0	0

3.1. Construction Types for Exposure ENE

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	4.4	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Floor Above Conditioned Space**
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

AL HASA SN BOYS SCHOOL 04/13/2023

scec 12:10PM

SNB-MAIN ENTRY

1. General Details:

Floor Area ..... **42.6** m²
Avg. Ceiling Height ..... **4.9** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **GENERAL: Corridor**
OA Requirement 1 ..... **0.0** L/s/person
OA Requirement 2 ..... **0.30** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **4.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **0.0** Person
Activity Level ..... **Office Work**
Sensible ..... **71.8** W/person
Latent ..... **60.1** W/person
Schedule ..... **None**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	44.6	28	0	0

3.1. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type ..... **Slab Floor On Grade**
Floor Area ..... **42.6** m²
Total Floor U-Value ..... **0.568** W/(m²·K)
Exposed Perimeter ..... **0.0** m
Edge Insulation R-Value ..... **0.00** (m²·K)/W

7. Partitions:

7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**
Area ..... **8.6** m²
U-Value ..... **2.839** W/(m²·K)
Uncondit. Space Max Temp ..... **35.0** °C
Ambient at Space Max Temp ..... **35.0** °C
Uncondit. Space Min Temp ..... **23.9** °C
Ambient at Space Min Temp ..... **12.8** °C

7.2. 2nd Partition Details:

(No partition dat

SYSTEM INPUT

AHU-01 Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name **AHU-01**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **14**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Constant Temperature - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: B003,B007B,BC001,BC002	
SNB-B003A ABLUTION	x1
SNB-B003B JANITOR	x1
SNB-B003 TOILET	x1
SNB-B007B HYGIENE	x1
SNB-BC001 CORRIDOR	x1
SNB-BC002 CORRIDOR	x1
Zone 2: B-004 CLASSROOM 1,GROUP	
SNB-B004 CLASSROOM 1	x1
SNB-B004A STORE	x1
SNB-B004B GROUP ROOM	x1
Zone 3: B-005 CLASSROOM 2	
SNB-B005A STORE	x1
SNB-B005 CLASSROOM 2	x1
Zone 4: B-007 CLASSROOM 3,GROUP	
SNB-B007 CLASSROOM 3	x1
SNB-B007A STORE	x1
SNB-B006B GROUP ROOM	x1
Zone 5: B-006 CLASSROOM 4	

SNB-B006A STORE	x1
SNB-B006 CLASSROOM 4	x1
Zone 6: B-102A&B LIFE SKILLS	
SNB-B102A&B LIFE SKILLS	x1
Zone 7: B102C,B102D HALL,BATH,LD	
SNB-B102C HALL	x1
SNB-B102D BATHROOM	x1
SNB-B102F LAUNDRY	x1
Zone 8: BS108,B103,B103A TOILET,	
SNB-BS108 JANITOR	x1
SNB-B103A STORE	x1
SNB-B103 TOILET.	x1
Zone 9: BC-101 CORRIDOR	
SNB-BC101 CORRIDOR	x1
Zone 10: B101C,B101D ASSESSMENT	
SNB-B101C ASSESSMENT	x1
SNB-B101D ASSESSMENT	x1
Zone 11: B101A TRAINING ROOM	
SNB-B101A TRAINING ROOM	x1
Zone 12: B101 READING ROOM	
SNB-B101 READING ROOM	x1
Zone 13: B102E BEDROOM	
SNB-B102E BEDROOM	x1
Zone 14: B101 READING CORRIDOR	
SNB-B101 READINGCORRIDOR	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
2	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
3	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
4	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
5	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
6	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
7	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
8	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
9	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
10	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
11	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
12	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
13	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
14	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
2	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
3	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C

AHU-01 Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
4	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
5	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
6	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
7	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
8	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
9	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
10	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
11	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
12	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
13	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
14	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **13.0** °C
Supply Fan Airflow ..... **4004.3** L/s
Ventilation Airflow ..... **1890.0** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
1	330.9	-	-	-
2	388.1	-	4.9	-
3	330.5	-	4.1	-
4	412.8	-	4.9	-
5	345.0	-	4.1	-
6	473.1	-	5.3	-
7	158.3	-	-	-
8	48.0	-	-	-
9	290.3	-	-	-
10	130.7	-	1.0	-

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
11	217.0	-	4.9	-
12	690.3	-	11.9	-
13	61.5	-	0.8	
14	129.9	-	-	

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

AHU-02 Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name **AHU-02**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **22**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Constant Temperature - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: B032 CLASSROOM 7, GROUP	
SNB-B032 CLASSROOM 7	x1
SNB-B032A STORE	x1
SNB-B031B GROUP ROOM	x1
Zone 2: B033 CLASSROOM 5,GROUP	
SNB-B033 CLASSROOM 5	x1
SNB-B033A STORE	x1
SNB-B033C GROUP ROOM	x1
Zone 3: B030 CLASSROOM 6	
SNB-B030 CLASSROOM 6	x1
SNB-B030A STORE	x1
Zone 4: B031 CLASSROOM 8	
SNB-B031 CLASSROOM 8	x1
SNB-B031A STORE	x1
Zone 5: BC005,B032B COR,HYG	
SNB-BC005 CORRIDOR	x1
SNB-B032B HYGIENE	x1
Zone 6: BC004,B028,B027,B022	
SNB-BC004 CORRIDOR	x1
SNB-B027 JAN. CLOSET	x1

SNB-B028 ELEC. RM	x1
SNB-B022 WATER	x1
Zone 7: B025 CLASSROOM 10	
SNB-B025 CLASSROOM 10	x1
Zone 8: B024 CLASSROOM 9	
SNB-B024 CLASSROOM 9	x1
Zone 9: B022A VFD	
SNB-B022A VFD	x1
Zone 10: B024A,B023C GROUP,DARK	
SNB-B024A GROUP ROOM	x1
SNB-B023C DARK ROOM	x1
Zone 11: B023A,B023B WHITE,SOFT	
SNB-B023A WHITE ROOM	x1
SNB-B023B SOFT ROOM	x1
Zone 12: B026 THERAPY	
SNB-B026 Speech THERAPY	x1
Zone 13: BC103,B129,127 TOI,CR,EL	
SNB-B129 TOILET	x1
SNB-BC103 CORRIDOR	x1
SNB-B127 ELEC. ROOM	x1
Zone 14: B116A GROUP ROOM	
SNB-B116A GROUP ROOM	x1
Zone 15: B116 CLASSROOM 19	
SNB-B116 CLASSROOM 19	x1
Zone 16: B114 OCC. THERAPY	
SNB-B114-OCCUPATIONAL TH	x1
Zone 17: B115 SCIENCE/FOOD	
SNB-B115-SCIENCE/FOOD	x1
Zone 18: B112 THERAPY	
SNB-B112B-THERAPIST ROOM	x1
Zone 19: B112 ADMIN OFFICE	
SNB-B112A-ADMIN OFFICE	x1
Zone 20: B113 MUSIC&VOCATN	
SNB-B113-MUSIC&VOCTN	x1
Zone 21: B109 STAF LOUNGE	
SNB-B109 STAFF LOUNGE	x1
Zone 22: B110 ADMIN OFFICE	
SNB-B110 ADMIN OFFICE	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
2	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
3	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
4	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
5	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
6	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
7	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
8	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
9	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
10	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
11	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
12	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
13	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
14	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
15	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0

AHU-02 Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
16	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
17	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
18	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
19	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
20	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
21	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
22	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
2	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
3	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
4	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
5	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
6	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
7	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
8	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
9	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
10	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
11	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
12	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
13	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
14	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
15	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
16	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
17	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
18	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
19	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
20	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
21	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
22	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **13.0** °C
Supply Fan Airflow ..... **5885.5** L/s
Ventilation Airflow ..... **2666.6** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
1	353.6	-	4.9	-
2	335.7	-	4.9	-
3	293.1	-	4.0	-
4	309.2	-	4.1	-
5	94.1	-	-	-
6	808.6	-	-	-
7	326.6	-	4.5	-
8	237.3	-	4.1	-
9	424.1	-	-	-
10	124.9	-	1.2	-
11	175.0	-	1.4	-
12	129.5	-	1.2	-
13	390.4	-	-	-
14	146.6	-	1.8	-
15	245.3	-	4.2	-
16	119.8	-	1.2	-
17	240.5	-	4.2	-
18	283.5	-	6.0	-
19	252.8	-	2.0	-
20	272.2	-	4.2	-
21	206.3	-	1.6	
22	87.3	-	0.7	

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

AHU-03 Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name **AHU-03**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **21**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Constant Temperature - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: B036,B036A WAITING,THRPY	
SNB-B036 RECP&WAITING	x1
SNB-B036A THERAPY	x1
Zone 2: B036B NURSE	
SNB-B036B NURSE	x1
Zone 3: B037A ASSESSMENT	
SNB-B037A ASSESSMENT	x1
Zone 4: B037 ASSESSMENT	
SNB-B037 ASSESSMENT	x1
Zone 5: B038C CONF	
SNB-B038C CONF. ROOM	x1
Zone 6: B038D PROGRAM MANAGER	
SNB-B038A PROGRAM MANAGE	x1
Zone 7: B038B EXECUTVIE DIRECTOR	
SNB-B038B EXE DIRECTOR	x1
Zone 8: B008,B035 RCP,COR	
SNB-B038,B008 RECP&CORR	x1
Zone 9: B038F TECH SUPPORT	
SNB-B038F TECH SUPPORT	x1
Zone 10: BC006,BE001,B040 COR,STR	

SNB-BC006,BE001 ENTRY	x1
SNB-B040 WHEEL CHAIR	x1
Zone 11: B0034 EXECUTIVE	
SNB-B034 INTERVIEW	x1
Zone 12: B-118 CLASSROOM 17,GROUP	
SNB-B118 CLASSROOM 17	x1
SNB-B118A STORE	x1
SNB-B118B GROUP	x1
Zone 13: B-117 CLASSROOM 18	
SNB-B117 CLASSROOM 18	x1
SNB-B117A STORE	x1
Zone 14: B-120 CLASSROOM 15,GROUP	
SNB-B120A STORE	x1
SNB-B120 CLASSROOM 15	x1
SNB-B120C-GROUP ROOM	x1
Zone 15: B-119 CLASSROOM 16	
SNB-B119 CLASSROOM 16	x1
SNB-B119A STORE	x1
Zone 16: B117B,BC104 HYG,COR	
SNB-B117B HYGIENE	x1
SNB-BC104 CORRIDOR	x1
Zone 17: BC101A,B101E COR,STR	
SNB-BC101A CORRIDOR	x1
SNB-B101E TEACHING STORE	x1
Zone 18: B008A PARENTS WAITING	
SNB-B008A PARTENTS WAITI	x1
Zone 19: B008,B038E ENTRY	
SNB-MAIN ENTRY	x1
Zone 20: B-038G PRINCIPAL	
SNB-B038G PRINCIPAL	x1
Zone 21: B-038H SECRETARY	
SNB-B038H SECRETARY	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
2	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
3	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
4	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
5	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
6	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
7	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
8	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
9	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
10	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
11	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
12	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
13	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
14	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
15	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
16	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
17	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
18	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
19	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
20	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
21	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
2	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
3	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
4	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
5	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
6	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
7	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
8	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
9	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
10	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
11	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
12	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
13	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
14	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
15	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
16	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
17	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
18	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
19	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
20	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
21	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):
System Sizing Data:
Sizing Data:
Hydronic Sizing Specifications:
Chilled Water Delta-T ..... **5.6** K

Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

AHU-04 Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name **AHU-04**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **15**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Constant Temperature - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: B009 CALMING	
SNB-B009 CALMING ROOM	x1
Zone 2: BC003,B020 COR,ELEC	
SNB-BC003 CORRIDOR	x1
SNB-B020 ELEC. RM	x1
Zone 3: B019 PHYSIO	
SNB-B019 PHYSIOTHERAPY	x1
Zone 4: B011,B12,B18,BC007,BC4A	
SNB-B011 LAUNDRY	x1
SNB-B012 BUILDING MAINT	x1
SNB-BC007 CORRIDOR	x1
SNB-BC004A VESTIBULE	x1
SNB-B018 Store	x1
Zone 5: B017 THERAPY	
SNB-B017 THERAPY	x1
Zone 6: B016 OFFICE SUPPLY	
SNB-B016 OFFICE SUPPLIES	x1
Zone 7: B108,BS123,BC103B EL,CR,	
SNB-BC103b CORRIDOR	x1
SNB-BS123 STORAGE	x1

SNB-B108 ELEC. ROOM	x1
Zone 8: B105 CLASSROOM 12	
SNB-B105 CLASSROOM 12	x1
SNB-B105A STORE	x1
Zone 9: B107 CLASSROOM 14	
SNB-B107A STORE	x1
SNB-B107 CLASSROOM 14	x1
Zone 10: B104,105B CLASS 11,GROUP	
SNB-B104 CLASSROOM 11	x1
SNB-B104A STORE	x1
SNB-B105B GROUP	x1
Zone 11: B106 CLASSROOM 13,GROUP	
SNB-B106 CLASSROOM 13	x1
SNB-B106A STORE	x1
SNB-B106B GROUP	x1
Zone 12: B014 SHIPPING RECEVING	
SNB-B014 SHIPPING RECEIV	x1
Zone 13: BC102,B107B COR,HYG	
SNB-BC102 CORRIDOR	x1
SNB-B107B HYGIENE	x1
Zone 14: B010 GROUP ROOM	
SNB-B010 GROUP ROOM	x1
Zone 15: B108A CALMING	
SNB-B108A CALMING ROOM	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
2	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
3	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
4	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
5	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
6	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
7	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
8	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
9	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
10	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
11	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
12	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
13	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
14	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
15	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
2	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
3	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C

AHU-04 Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
4	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
5	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
6	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
7	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
8	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
9	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
10	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
11	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
12	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
13	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
14	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
15	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **13.0** °C
Supply Fan Airflow ..... **3226.9** L/s
Ventilation Airflow ..... **1368.6** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
1	41.9	-	0.5	-
2	511.8	-	-	-
3	191.8	-	2.5	-
4	377.8	-	-	-
5	105.7	-	1.2	-
6	98.8	-	0.8	-
7	311.0	-	-	-
8	310.8	-	4.1	-

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
9	302.1	-	4.1	-
10	339.0	-	4.9	-
11	355.1	-	5.0	-
12	109.0	-	-	-
13	103.5	-	-	-
14	49.3	-	0.9	
15	20.8	-	0.5	

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

AHU-05 Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name **AHU-05**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **3**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Constant Temperature - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: B001 DINNING	
SNB-B001-DINNING	x1
Zone 2: B002 KITCHEN	
SNB-B002 KITCHEN	x1
Zone 3: B002A KITCHEN STORAGE	
SNB-B002A KITCHEN STORE	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
2	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
3	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

AHU-05 Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
2	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
3	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **13.0** °C
Supply Fan Airflow ..... **1361.0** L/s
Ventilation Airflow ..... **748.8** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
1	1078.0	-	17.7	-
2	211.3	-	1.7	
3	61.5	-	-	

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

AHU-06 Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name **AHU-06**
Equipment Type ..... **Packaged Rooftop Units**
Air System Type ..... **VAV**
Number of zones **3**

2. Ventilation System Components:

Ventilation Air Data:

Airflow Control ..... **Constant Ventilation Airflow**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Unocc. Damper Position ..... **Closed**
Damper Leak Rate ..... **0** %
Outdoor Air CO2 Level ..... **400** ppm

Central Cooling Data:

Supply Air Temperature ..... **13.0** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**
Capacity Control ..... **Constant Temperature - Fan On**

Supply Fan Data:

Fan Type ..... **Forward Curved**
Configuration ..... **Draw-thru**
Fan Performance ..... **1200** Pa
Overall Efficiency ..... **60** %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... **2** %
Duct Leakage ..... **3** %

Return Duct or Plenum Data:

Return Air Via ..... **Return Air Plenum**
Wall Heat Gain to Plenum ..... **0** %
Roof Heat Gain to Plenum ..... **70** %
Lighting Heat Gain to Plenum ..... **30** %

3. Zone Components:

Space Assignments:

Zone 1: B121 MULTIPURPOSE	
SNB-B121 MULTIPURPOSE	x1
Zone 2: B126 ELEV LOBBY&MPR STR	
SNB-B126 MPR STORE+LOBBY	x1
Zone 3: B126B STORE	
SNB-B126B STORE	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)	Diversity Factor (%)	Direct Exhaust Airflow (L/s)	Direct Exhaust Fan (kW)
1	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
2	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0
3	24.0	26.7	21.1	18.3	0.83	100	0.0	0.0

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

AHU-06 Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

Supply Terminals Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	VAV box with reheat	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	35.0 °C
2	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-
3	VAV box (no reheat)	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	30 %	-	-	-

Reheat Coil Source ..... **Electric Resistance**
Reheat Coil Schedule ..... **JFMAMJJASOND**

Zone Heating Units:

Zone Unit Heat Source ..... **Electric Resistance**
Zone Heating Unit Schedule ..... **JFMAMJJASOND**

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **13.0** °C
Supply Fan Airflow ..... **2317.4** L/s
Ventilation Airflow ..... **1289.5** L/s

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Peak zone sensible load**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	- -
1	1954.4	-	31.7	-
2	282.2	-	-	
3	31.3	-	-	

5. Equipment Data

Central Cooling Unit - Air-Cooled DX

Design OAT ..... **35.0** °C
Equipment Sizing ..... **Auto-Sized**
Capacity Oversizing Factor ..... **0** %
ARI Performance Rating ..... **3.224** EER
Conventional Cutoff OAT ..... **12.8** °C
Low Temperature Operation ..... **Used**
Low Temperature Cutoff OAT ..... **-17.8** °C

FCU B012A FTR Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name ..... **FCU B012A FTR**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: B012A FTR	
SNB-B012A FTR	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	22.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:

Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:

Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **0** %
Cooling Latent ..... **0** %
Heating ..... **0** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	801.6	-	-	5.1

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	n/a	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU B015 GARBAGE Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name ..... **FCU B015 GARBAGE**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: B015 GARBAGE	
SNB-B015 GARBAGE	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	23.9	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:
Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:
Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:
Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:
Cooling Sensible ..... **0** %
Cooling Latent ..... **0** %
Heating ..... **0** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	54.8	-	-	0.0

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	n/a	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU B039 MTR Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name ..... **FCU B039 MTR**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: B039 MTR	
SNB-B039 MTR	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	22.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:

Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:

Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	2125.0	-	-	10.1

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	n/a	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU B101B FTR Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name ..... **FCU B101B FTR**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: B101B FTR	
SNB-B101B FTR	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	22.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:
Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:
Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:
Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:
Cooling Sensible ..... **0** %
Cooling Latent ..... **0** %
Heating ..... **0** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	540.3	-	-	3.5

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	n/a	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU B111 FTR Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name ..... **FCU B111 FTR**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: B111 FTR	
SNB-B111 FTR	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	22.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:
Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:
Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:
Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:
Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	569.4	-	-	3.2

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	n/a	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU B155 FTR Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name ..... **FCU B155 FTR**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: B155 FTR	
SNB-B155 FTR	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	22.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:
Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:
Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:
Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:
Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	807.6	-	-	0.0

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	n/a	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU BS1 STAIRS Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:14PM

1. General Details:

Air System Name ..... **FCU BS1 STAIRS**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: BS-001 STAIRS	
SNB-BS001 STAIRS	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	24.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:
Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:
Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:
Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:
Cooling Sensible ..... **0** %
Cooling Latent ..... **0** %
Heating ..... **0** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	160.4	-	-	0.0

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	n/a	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU BS2 STAIRS Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:15PM

1. General Details:

Air System Name ..... **FCU BS2 STAIRS**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: BS-002 STAIRS	
SNB-BS002 STAIRS	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	24.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:

Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:

Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:

Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:

Cooling Sensible ..... **0** %
Cooling Latent ..... **0** %
Heating ..... **0** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	161.2	-	-	0.0

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	n/a	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

FCU BS3 STAIRS Input Data

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:15PM

1. General Details:

Air System Name ..... **FCU BS3 STAIRS**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: BS-003 STAIRS	
SNB-BS003 STAIRS	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	24.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:
Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:
Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	ASHRAE 62.1	<auto>	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:
Cooling Supply Temperature ..... **14.4** °C
Heating Supply Temperature ..... **35.0** °C

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:
Cooling Sensible ..... **0** %
Cooling Latent ..... **0** %
Heating ..... **0** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

Zone	Supply Airflow (L/s)	Zone Htg Unit (kW)	Reheat Coil (kW)	Ventilation (L/s)
1	49.9	-	-	0.0

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
1	n/a	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

System output condition (1)

Air System Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name	**AHU-01**		Number of zones	**14**	
Equipment Class	**PKG ROOF**		Floor Area	**1270.6**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**130.5**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**109.9**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Jul 1500	**3623**	L/s	Entering DB / WB	**36.2 / 20.7**	°C
Max block L/s at Jul 1600	**4004**	L/s	Leaving DB / WB	**11.1 / 9.8**	°C
Sum of peak zone L/s	**4130**	L/s	Coil ADP	**8.3**	°C
Sensible heat ratio	**0.842**		Bypass Factor	**0.100**	
L/(s kW)	**27.8**		Resulting RH	**42**	%
m²/kW	**9.7**		Design supply temp.	**13.0**	°C
W/m²	**102.7**		Zone T-stat Check	**14 of 14**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1600	**4004**	L/s	Fan motor BHP	**10.10**	BHP
Standard L/s	**3996**	L/s	Fan motor kW	**8.01**	kW
Actual max L/(s·m²)	**3.15**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**1890**	L/s	L/s/person	**10.44**	L/s/person
L/(s·m²)	**1.49**	L/(s·m²)			

Zone Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name **AHU-01**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **14**
Floor Area ..... **1270.6** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B003,B007B,BC001,BC002	331	99	1.32	0.0	-	0.0	-	0
B-004 CLASSROOM 1,GROUP	388	184	4.70	4.9	-	0.0	-	0
B-005 CLASSROOM 2	330	155	4.81	4.1	-	0.0	-	0
B-007 CLASSROOM 3,GROUP	413	185	4.93	4.9	-	0.0	-	0
B-006 CLASSROOM 4	345	154	5.09	4.1	-	0.0	-	0
B-102A&B LIFE SKILLS	473	199	4.79	5.3	-	0.0	-	0
B102C,B102D HALL,BATH,LD	158	47	4.73	0.0	-	0.0	-	0
BS108,B103,B103A TOILET,	48	14	0.76	0.0	-	0.0	-	0
BC-101 CORRIDOR	290	87	1.54	0.0	-	0.0	-	0
B101C,B101D ASSESSMENT	131	39	7.18	1.0	-	0.0	-	0
B101A TRAINING ROOM	217	185	3.96	4.9	-	0.0	-	0
B101 READING ROOM	690	450	4.37	11.9	-	0.0	-	0
B102E BEDROOM	61	29	1.78	0.8	-	0.0	-	0
B101 READING CORRIDOR	130	39	1.94	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B003,B007B,BC001,BC002	4.4	Jun 1700	0.3	251.2
B-004 CLASSROOM 1,GROUP	5.1	Jun 1600	0.7	82.6
B-005 CLASSROOM 2	4.4	Jun 1600	0.5	68.7
B-007 CLASSROOM 3,GROUP	5.5	Nov 1200	0.7	83.8
B-006 CLASSROOM 4	4.6	Oct 1200	0.5	67.8
B-102A&B LIFE SKILLS	6.3	Jun 1600	1.2	98.8
B102C,B102D HALL,BATH,LD	2.1	Jul 2100	0.1	33.5
BS108,B103,B103A TOILET,	0.6	Jun 2000	0.5	63.0
BC-101 CORRIDOR	3.8	Jul 1700	1.2	188.7
B101C,B101D ASSESSMENT	1.7	Jul 2200	0.1	18.2
B101A TRAINING ROOM	2.9	Jul 1900	0.2	54.8
B101 READING ROOM	9.1	Jul 1700	1.8	158.0
B102E BEDROOM	0.8	Aug 2000	0.3	34.5
B101 READING CORRIDOR	1.7	Jul 1900	0.5	67.0

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B003,B007B,BC001,BC002							
SNB-B003A ABLUTION	1	0.0	Jan 2300	4	0.0	16.1	0.23

Zone Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNB-B003B JANITOR	1	0.5	Jun 1600	37	0.2	16.1	2.32
SNB-B003 TOILET	1	0.2	Jun 2000	18	0.1	30.7	0.59
SNB-B007B HYGIENE	1	0.0	Jan 2300	3	0.0	10.6	0.29
SNB-BC001 CORRIDOR	1	2.5	Jul 2200	186	0.0	99.6	1.87
SNB-BC002 CORRIDOR	1	1.1	Jul 2200	86	0.0	78.1	1.10
B-004 CLASSROOM 1,GROUP							
SNB-B004 CLASSROOM 1	1	4.0	Jun 1600	303	0.5	64.4	4.70
SNB-B004A STORE	1	0.2	Jul 2200	17	0.0	4.2	4.09
SNB-B004B GROUP ROOM	1	0.9	Jun 1600	68	0.2	14.0	4.87
B-005 CLASSROOM 2							
SNB-B005A STORE	1	0.4	Jul 1500	28	0.0	4.2	6.66
SNB-B005 CLASSROOM 2	1	4.0	Jun 1600	303	0.5	64.5	4.70
B-007 CLASSROOM 3,GROUP							
SNB-B007 CLASSROOM 3	1	4.3	Nov 1200	326	0.5	64.7	5.04
SNB-B007A STORE	1	0.2	Jul 1500	16	0.0	4.2	3.81
SNB-B006B GROUP ROOM	1	1.0	Nov 1300	76	0.2	14.9	5.09
B-006 CLASSROOM 4							
SNB-B006A STORE	1	0.2	Jul 1500	16	0.0	4.2	3.82
SNB-B006 CLASSROOM 4	1	4.4	Oct 1200	332	0.5	63.6	5.23
B-102A&B LIFE SKILLS							
SNB-B102A&B LIFE SKILLS	1	6.3	Jun 1600	473	1.2	98.8	4.79
B102C,B102D HALL,BATH,LD							
SNB-B102C HALL	1	0.4	Jul 2100	34	0.1	19.0	1.78
SNB-B102D BATHROOM	1	0.1	Jul 2000	10	0.0	8.1	1.25
SNB-B102F LAUNDRY	1	1.5	Jul 2200	114	0.0	6.4	17.89
BS108,B103,B103A TOILET,							
SNB-BS108 JANITOR	1	0.3	Jun 2000	20	0.2	19.6	1.02
SNB-B103A STORE	1	0.1	Jul 1900	5	0.1	12.0	0.40
SNB-B103 TOILET.	1	0.3	Jun 2000	23	0.2	31.4	0.74
BC-101 CORRIDOR							
SNB-BC101 CORRIDOR	1	3.8	Jul 1700	290	1.2	188.7	1.54
B101C,B101D ASSESSMENT							
SNB-B101C ASSESSMENT	1	0.9	Jul 2200	65	0.0	9.1	7.18
SNB-B101D ASSESSMENT	1	0.9	Jul 2200	65	0.0	9.1	7.18
B101A TRAINING ROOM							
SNB-B101A TRAINING ROOM	1	2.9	Jul 1900	217	0.2	54.8	3.96
B101 READING ROOM							
SNB-B101 READING ROOM	1	9.1	Jul 1700	690	1.8	158.0	4.37
B102E BEDROOM							
SNB-B102E BEDROOM	1	0.8	Aug 2000	61	0.3	34.5	1.78
B101 READING CORRIDOR							
SNB-B101 READINGCORRIDOR	1	1.7	Jul 1900	130	0.5	67.0	1.94

Ventilation Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method	**ASHRAE Std 62.1-2016**	
Design Condition	**Minimum flow (heating)**	
Occupant Diversity (D)	**1.000**	
Uncorrected Outdoor Air Intake (Vou)	**1388**	L/s
System Ventilation Efficiency (Ev)	**0.734**	
Outdoor Air Intake (Vot)	**1890**	L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B003,B007B,BC001,BC002										
SNB-B003A ABLUTION	1	1	16.1	0.00	0.0	0.00	1.0	**0**	*0*	1.734
SNB-B003B JANITOR	1	11	16.1	0.00	0.0	0.00	1.0	**0**	*0*	1.734
SNB-B003 TOILET	1	5	30.7	0.00	0.0	0.00	1.0	**0**	*0*	1.734
SNB-B007B HYGIENE	1	1	10.6	0.00	0.0	0.00	1.0	**0**	*0*	1.734
SNB-BC001 CORRIDOR	1	56	99.6	0.30	0.0	0.00	1.0	**30**	*30*	1.199
SNB-BC002 CORRIDOR	1	26	78.1	0.30	0.0	0.00	1.0	**23**	*23*	0.826
B-004 CLASSROOM 1,GROUP										
SNB-B004 CLASSROOM 1	1	155	64.4	0.60	17.0	5.00	0.8	**155**	*124*	0.734
SNB-B004A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.734
SNB-B004B GROUP ROOM	1	29	14.0	0.60	3.0	5.00	0.8	**29**	*23*	0.734
B-005 CLASSROOM 2										
SNB-B005A STORE	1	8	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.734
SNB-B005 CLASSROOM 2	1	155	64.5	0.60	17.0	5.00	0.8	**155**	*124*	0.734
B-007 CLASSROOM 3,GROUP										
SNB-B007 CLASSROOM 3	1	155	64.7	0.60	17.0	5.00	0.8	**155**	*124*	0.734
SNB-B007A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.734
SNB-B006B GROUP ROOM	1	30	14.9	0.60	3.0	5.00	0.8	**30**	*24*	0.734
B-006 CLASSROOM 4										
SNB-B006A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.734
SNB-B006 CLASSROOM 4	1	154	63.6	0.60	17.0	5.00	0.8	**154**	*123*	0.734
B-102A&B LIFE SKILLS										
SNB-B102A&B LIFE SKILLS	1	199	98.8	0.60	20.0	5.00	0.8	**199**	*159*	0.734
B102C,B102D HALL,BATH,LD										
SNB-B102C HALL	1	10	19.0	0.30	0.0	0.00	1.0	**6**	*6*	1.171
SNB-B102D BATHROOM	1	3	8.1	0.00	0.0	0.00	1.0	**0**	*0*	1.734
SNB-B102F LAUNDRY	1	34	6.4	0.00	0.0	0.00	1.0	**0**	*0*	1.734
BS108,B103,B103A TOILET,										
SNB-BS108 JANITOR	1	6	19.6	0.00	0.0	0.00	1.0	**0**	*0*	1.734
SNB-B103A STORE	1	1	12.0	0.00	0.0	0.00	1.0	**0**	*0*	1.734
SNB-B103 TOILET.	1	7	31.4	0.00	0.0	0.00	1.0	**0**	*0*	1.734
BC-101 CORRIDOR										
SNB-BC101 CORRIDOR	1	87	188.7	0.30	0.0	0.00	1.0	**57**	*57*	1.084
B101C,B101D ASSESSMENT										
SNB-B101C ASSESSMENT	1	20	9.1	0.30	3.0	2.50	0.8	**13**	*10*	1.082
SNB-B101D ASSESSMENT	1	20	9.1	0.30	3.0	2.50	0.8	**13**	*10*	1.082

Ventilation Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

B101A TRAINING ROOM										
SNB-B101A TRAINING ROOM	1	185	54.8	0.60	23.0	5.00	0.8	**185**	*148*	0.734
B101 READING ROOM										
SNB-B101 READING ROOM	1	450	158.0	0.60	53.0	5.00	0.8	**450**	*360*	0.734
B102E BEDROOM										
SNB-B102E BEDROOM	1	29	34.5	0.30	5.0	2.50	0.8	**29**	*23*	0.734
B101 READING CORRIDOR										
SNB-B101 READINGCORRIDOR	1	39	67.0	0.30	0.0	0.00	1.0	**20**	*20*	1.219
Totals (incl. Space Multipliers)		**1890**							**1388**	**0.734**

Air System Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name	**AHU-02**		Number of zones	**22**	
Equipment Class	**PKG ROOF**		Floor Area	**1458.5**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**197.5**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**167.8**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Jul 1500	**5830**	L/s	Entering DB / WB	**35.0 / 20.2**	°C
Max block L/s at Jul 1600	**6398**	L/s	Leaving DB / WB	**11.1 / 9.9**	°C
Sum of peak zone L/s	**6543**	L/s	Coil ADP	**8.4**	°C
Sensible heat ratio	**0.850**		Bypass Factor	**0.100**	
L/(s kW)	**29.5**		Resulting RH	**41**	%
m²/kW	**7.4**		Design supply temp.	**13.0**	°C
W/m²	**135.4**		Zone T-stat Check	**22 of 22**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1600	**6398**	L/s	Fan motor BHP	**16.13**	BHP
Standard L/s	**6385**	L/s	Fan motor kW	**12.80**	kW
Actual max L/(s·m²)	**4.39**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**2736**	L/s	L/s/person	**11.45**	L/s/person
L/(s·m²)	**1.88**	L/(s·m²)			

Zone Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name **AHU-02**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **22**
Floor Area ..... **1458.5** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B032 CLASSROOM 7, GROUP	372	185	4.40	4.9	-	0.0	-	0
B033 CLASSROOM 5,GROUP	366	186	4.28	4.9	-	0.0	-	0
B030 CLASSROOM 6	316	150	5.05	4.0	-	0.0	-	0
B031 CLASSROOM 8	334	155	4.83	4.1	-	0.0	-	0
BC005,B032B COR,HYG	99	30	1.07	0.0	-	0.0	-	0
BC004,B028,B027,B022	920	276	4.32	0.0	-	0.0	-	0
B025 CLASSROOM 10	366	168	4.43	4.5	-	0.0	-	0
B024 CLASSROOM 9	250	155	3.81	4.1	-	0.0	-	0
B022A VFD	424	127	43.28	0.0	-	0.0	-	0
B024A,B023C GROUP,DARK	135	47	4.46	1.2	-	0.0	-	0
B023A,B023B WHITE,SOFT	192	57	6.49	1.5	-	0.0	-	0
B026 THERAPY	144	46	7.42	1.2	-	0.0	-	0
BC103,B129,127 TOI,CR,EL	425	127	2.68	0.0	-	0.0	-	0
B116A GROUP ROOM	164	69	6.37	1.8	-	0.0	-	0
B116 CLASSROOM 19	261	159	3.71	4.2	-	0.0	-	0
B114 OCC. THERAPY	125	45	3.60	1.2	-	0.0	-	0
B115 SCIENCE/FOOD	255	157	3.79	4.2	-	0.0	-	0
B112 THERAPY	315	225	4.73	6.0	-	0.0	-	0
B112 ADMIN OFFICE	279	84	4.65	2.2	-	0.0	-	0
B113 MUSIC&VOCATN	292	159	4.18	4.2	-	0.0	-	0
B109 STAF LOUNGE	221	66	6.04	1.8	-	0.0	-	0
B110 ADMIN OFFICE	95	29	3.77	0.8	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B032 CLASSROOM 7, GROUP	4.9	Nov 1400	0.6	84.6
B033 CLASSROOM 5,GROUP	4.8	Jun 1600	0.7	85.5
B030 CLASSROOM 6	4.2	Jun 1600	0.5	62.5
B031 CLASSROOM 8	4.4	Oct 1400	0.7	69.0
BC005,B032B COR,HYG	1.3	Jul 2200	0.0	92.0
BC004,B028,B027,B022	12.2	Aug 1600	1.8	213.0
B025 CLASSROOM 10	4.8	Aug 1500	0.7	82.6
B024 CLASSROOM 9	3.3	Jul 0900	0.3	65.5
B022A VFD	5.6	Jan 2300	0.0	9.8
B024A,B023C GROUP,DARK	1.8	Jul 0900	0.3	30.2
B023A,B023B WHITE,SOFT	2.5	Jul 0900	0.3	29.5
B026 THERAPY	1.9	Jun 1600	0.3	19.4
BC103,B129,127 TOI,CR,EL	5.6	Oct 1400	1.2	158.6
B116A GROUP ROOM	2.2	Aug 1500	0.5	25.7
B116 CLASSROOM 19	3.5	Jul 1500	0.6	70.2

Zone Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B114 OCC. THERAPY	1.7	Jul 2000	0.2	34.7
B115 SCIENCE/FOOD	3.4	Jul 1500	0.6	67.4
B112 THERAPY	4.2	Jul 1600	0.6	66.6
B112 ADMIN OFFICE	3.7	Jul 1600	0.5	60.0
B113 MUSIC&VOCATN	3.9	Jul 0900	0.7	69.8
B109 STAF LOUNGE	2.9	Jul 1500	0.3	36.6
B110 ADMIN OFFICE	1.3	Jul 1400	0.3	25.3

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B032 CLASSROOM 7, GROUP							
SNB-B032 CLASSROOM 7	1	3.7	Nov 1400	276	0.3	65.5	4.21
SNB-B032A STORE	1	0.2	Jul 2200	17	0.0	4.2	4.13
SNB-B031B GROUP ROOM	1	1.1	Nov 1400	80	0.2	14.9	5.39
B033 CLASSROOM 5,GROUP							
SNB-B033 CLASSROOM 5	1	3.8	Jun 1600	287	0.5	67.4	4.26
SNB-B033A STORE	1	0.2	Jul 2200	17	0.0	4.2	4.09
SNB-B033C GROUP ROOM	1	0.8	Jun 1600	61	0.2	13.9	4.41
B030 CLASSROOM 6							
SNB-B030 CLASSROOM 6	1	4.0	Jun 1600	299	0.5	58.3	5.12
SNB-B030A STORE	1	0.2	Jul 2200	17	0.0	4.2	4.13
B031 CLASSROOM 8							
SNB-B031 CLASSROOM 8	1	4.2	Oct 1400	317	0.7	64.8	4.89
SNB-B031A STORE	1	0.2	Jul 2200	17	0.0	4.2	4.13
BC005,B032B COR,HYG							
SNB-BC005 CORRIDOR	1	1.3	Jul 2200	96	0.0	81.9	1.17
SNB-B032B HYGIENE	1	0.0	Jan 2300	3	0.0	10.1	0.29
BC004,B028,B027,B022							
SNB-BC004 CORRIDOR	1	9.3	Aug 1600	701	1.7	172.8	4.06
SNB-B027 JAN. CLOSET	1	0.5	Jul 2200	40	0.0	7.4	5.44
SNB-B028 ELEC. RM	1	1.8	Oct 1800	132	0.0	6.6	20.02
SNB-B022 WATER	1	0.6	Jul 1900	47	0.1	26.2	1.81
B025 CLASSROOM 10							
SNB-B025 CLASSROOM 10	1	4.8	Aug 1500	366	0.7	82.6	4.43
B024 CLASSROOM 9							
SNB-B024 CLASSROOM 9	1	3.3	Jul 0900	250	0.3	65.5	3.81
B022A VFD							
SNB-B022A VFD	1	5.6	Jan 2300	424	0.0	9.8	43.28
B024A,B023C GROUP,DARK							
SNB-B024A GROUP ROOM	1	0.4	Jan 2300	32	0.0	11.6	2.72
SNB-B023C DARK ROOM	1	1.4	Jul 0900	103	0.3	18.6	5.54
B023A,B023B WHITE,SOFT							
SNB-B023A WHITE ROOM	1	0.9	Jul 2200	65	0.0	12.4	5.22
SNB-B023B SOFT ROOM	1	1.7	Jul 0900	128	0.3	17.1	7.47
B026 THERAPY							
SNB-B026 Speech THERAPY	1	1.9	Jun 1600	144	0.3	19.4	7.42
BC103,B129,127 TOI,CR,EL							
SNB-B129 TOILET	1	0.3	Jul 2000	20	0.1	17.5	1.14
SNB-BC103 CORRIDOR	1	3.6	Oct 1400	274	1.1	134.6	2.04
SNB-B127 ELEC. ROOM	1	1.8	Sep 1900	133	0.1	6.5	20.48
B116A GROUP ROOM							
SNB-B116A GROUP ROOM	1	2.2	Aug 1500	164	0.5	25.7	6.37
B116 CLASSROOM 19							
SNB-B116 CLASSROOM 19	1	3.5	Jul 1500	261	0.6	70.2	3.71
B114 OCC. THERAPY							

Zone Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNB-B114-OCCUPATIONAL TH	1	1.7	Jul 2000	125	0.2	34.7	3.60
B115 SCIENCE/FOOD							
SNB-B115-SCIENCE/FOOD	1	3.4	Jul 1500	255	0.6	67.4	3.79
B112 THERAPY							
SNB-B112B-THERAPIST ROOM	1	4.2	Jul 1600	315	0.6	66.6	4.73
B112 ADMIN OFFICE							
SNB-B112A-ADMIN OFFICE	1	3.7	Jul 1600	279	0.5	60.0	4.65
B113 MUSIC&VOCATN							
SNB-B113-MUSIC&VOCTN	1	3.9	Jul 0900	292	0.7	69.8	4.18
B109 STAF LOUNGE							
SNB-B109 STAFF LOUNGE	1	2.9	Jul 1500	221	0.3	36.6	6.04
B110 ADMIN OFFICE							
SNB-B110 ADMIN OFFICE	1	1.3	Jul 1400	95	0.3	25.3	3.77

Ventilation Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method	**ASHRAE Std 62.1-2016**	
Design Condition	**Minimum flow (heating)**	
Occupant Diversity (D)	**1.000**	
Uncorrected Outdoor Air Intake (Vou)	**1789**	L/s
System Ventilation Efficiency (Ev)	**0.654**	
Outdoor Air Intake (Vot)	**2736**	L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B032 CLASSROOM 7, GROUP										
SNB-B032 CLASSROOM 7	1	155	65.5	0.60	17.0	5.00	0.8	**155**	*124*	0.654
SNB-B032A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.654
SNB-B031B GROUP ROOM	1	30	14.9	0.60	3.0	5.00	0.8	**30**	*24*	0.654
B033 CLASSROOM 5,GROUP										
SNB-B033 CLASSROOM 5	1	157	67.4	0.60	17.0	5.00	0.8	**157**	*125*	0.654
SNB-B033A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.654
SNB-B033C GROUP ROOM	1	29	13.9	0.60	3.0	5.00	0.8	**29**	*23*	0.654
B030 CLASSROOM 6										
SNB-B030 CLASSROOM 6	1	150	58.3	0.60	17.0	5.00	0.8	**150**	*120*	0.654
SNB-B030A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.654
B031 CLASSROOM 8										
SNB-B031 CLASSROOM 8	1	155	64.8	0.60	17.0	5.00	0.8	**155**	*124*	0.654
SNB-B031A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.654
BC005,B032B COR,HYG										
SNB-BC005 CORRIDOR	1	29	81.9	0.30	0.0	0.00	1.0	**25**	*25*	0.799
SNB-B032B HYGIENE	1	1	10.1	0.00	0.0	0.00	1.0	**0**	*0*	1.654
BC004,B028,B027,B022										
SNB-BC004 CORRIDOR	1	210	172.8	0.30	0.0	0.00	1.0	**52**	*52*	1.408
SNB-B027 JAN. CLOSET	1	12	7.4	0.00	0.0	0.00	1.0	**0**	*0*	1.654
SNB-B028 ELEC. RM	1	40	6.6	0.00	0.0	0.00	1.0	**0**	*0*	1.654
SNB-B022 WATER	1	14	26.2	0.00	0.0	0.00	1.0	**0**	*0*	1.654
B025 CLASSROOM 10										
SNB-B025 CLASSROOM 10	1	168	82.6	0.60	17.0	5.00	0.8	**168**	*135*	0.654
B024 CLASSROOM 9										
SNB-B024 CLASSROOM 9	1	155	65.5	0.60	17.0	5.00	0.8	**155**	*124*	0.654
B022A VFD										
SNB-B022A VFD	1	127	9.8	0.00	0.0	0.00	1.0	**0**	*0*	1.654
B024A,B023C GROUP,DARK										
SNB-B024A GROUP ROOM	1	27	11.6	0.60	3.0	5.00	0.8	**27**	*22*	0.654
SNB-B023C DARK ROOM	1	31	18.6	0.30	4.0	2.50	0.8	**19**	*16*	1.024
B023A,B023B WHITE,SOFT										
SNB-B023A WHITE ROOM	1	19	12.4	0.30	3.0	2.50	0.8	**14**	*11*	0.932
SNB-B023B SOFT ROOM	1	38	17.1	0.30	4.0	2.50	0.8	**19**	*15*	1.161
B026 THERAPY										
SNB-B026 Speech THERAPY	1	46	19.4	0.60	5.0	5.00	0.8	**46**	*37*	0.654

Ventilation Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

BC103,B129,127 TOI,CR,EL										
SNB-B129 TOILET	1	6	17.5	0.00	0.0	0.00	1.0	**0**	*0*	1.654
SNB-BC103 CORRIDOR	1	82	134.6	0.30	0.0	0.00	1.0	**40**	*40*	1.163
SNB-B127 ELEC. ROOM	1	40	6.5	0.00	0.0	0.00	1.0	**0**	*0*	1.654
B116A GROUP ROOM										
SNB-B116A GROUP ROOM	1	69	25.7	0.60	8.0	5.00	0.8	**69**	*55*	0.654
B116 CLASSROOM 19										
SNB-B116 CLASSROOM 19	1	159	70.2	0.60	17.0	5.00	0.8	**159**	*127*	0.654
B114 OCC. THERAPY										
SNB-B114-OCCUPATIONAL TH	1	45	34.7	0.60	3.0	5.00	0.8	**45**	*36*	0.654
B115 SCIENCE/FOOD										
SNB-B115-SCIENCE/FOOD	1	157	67.4	0.60	17.0	5.00	0.8	**157**	*125*	0.654
B112 THERAPY										
SNB-B112B-THERAPIST ROOM	1	225	66.6	0.30	16.0	10.00	0.8	**225**	*180*	0.654
B112 ADMIN OFFICE										
SNB-B112A-ADMIN OFFICE	1	84	60.0	0.30	16.0	2.50	0.8	**73**	*58*	0.789
B113 MUSIC&VOCATN										
SNB-B113-MUSIC&VOCTN	1	159	69.8	0.60	17.0	5.00	0.8	**159**	*127*	0.654
B109 STAF LOUNGE										
SNB-B109 STAFF LOUNGE	1	66	36.6	0.30	13.0	2.50	0.8	**54**	*43*	0.834
B110 ADMIN OFFICE										
SNB-B110 ADMIN OFFICE	1	29	25.3	0.30	5.0	2.50	0.8	**25**	*20*	0.776
Totals (incl. Space Multipliers)		**2736**							**1789**	**0.654**

Air System Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name	**AHU-03**		Number of zones	**21**	
Equipment Class	**PKG ROOF**		Floor Area	**1167.2**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**120.4**	kW	Load occurs at	**Aug 1500**	
Sensible coil load	**102.8**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Aug 1500	**3678**	L/s	Entering DB / WB	**34.3 / 20.0**	°C
Max block L/s at Sep 1500	**4038**	L/s	Leaving DB / WB	**11.1 / 9.9**	°C
Sum of peak zone L/s	**4260**	L/s	Coil ADP	**8.5**	°C
Sensible heat ratio	**0.854**		Bypass Factor	**0.100**	
L/(s kW)	**30.5**		Resulting RH	**41**	%
m²/kW	**9.7**		Design supply temp.	**13.0**	°C
W/m²	**103.2**		Zone T-stat Check	**21 of 21**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Sep 1500	**4038**	L/s	Fan motor BHP	**10.18**	BHP
Standard L/s	**4029**	L/s	Fan motor kW	**8.08**	kW
Actual max L/(s·m²)	**3.46**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**1583**	L/s	L/s/person	**10.99**	L/s/person
L/(s·m²)	**1.36**	L/(s·m²)			

Zone Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name **AHU-03**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **21**
Floor Area ..... **1167.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B036,B036A WAITING,THRPY	328	98	4.70	2.6	-	0.0	-	0
B036B NURSE	109	33	5.90	0.9	-	0.0	-	0
B037A ASSESSMENT	82	25	7.31	0.7	-	0.0	-	0
B037 ASSESSMENT	192	58	6.52	1.5	-	0.0	-	0
B038C CONF	167	51	4.57	1.4	-	0.0	-	0
B038D PROGRAM MANAGER	81	24	4.62	0.6	-	0.0	-	0
B038B EXECUTVIE DIRECTOR	125	37	6.94	1.0	-	0.0	-	0
B008,B035 RCP,COR	263	79	2.85	2.1	-	0.0	-	0
B038F TECH SUPPORT	50	17	2.38	0.5	-	0.0	-	0
BC006,BE001,B040 COR,STR	462	139	2.74	0.0	-	0.0	-	0
B0034 EXECUTIVE	38	15	2.44	0.4	-	0.0	-	0
B-118 CLASSROOM 17,GROUP	396	188	4.48	5.0	-	0.0	-	0
B-117 CLASSROOM 18	360	158	4.91	4.2	-	0.0	-	0
B-120 CLASSROOM 15,GROUP	368	190	4.07	5.0	-	0.0	-	0
B-119 CLASSROOM 16	313	152	4.84	4.0	-	0.0	-	0
B117B,BC104 HYG,COR	116	35	1.25	0.0	-	0.0	-	0
BC101A,B101E COR,STR	160	48	1.38	0.0	-	0.0	-	0
B008A PARENTS WAITING	141	104	1.96	2.8	-	0.0	-	0
B008,B038E ENTRY	300	90	7.03	0.0	-	0.0	-	0
B-038G PRINCIPAL	54	16	3.15	0.4	-	0.0	-	0
B-038H SECRETARY	28	8	2.46	0.2	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B036,B036A WAITING,THRPY	4.3	Nov 1400	0.4	69.8
B036B NURSE	1.4	Oct 1400	0.2	18.5
B037A ASSESSMENT	1.1	Nov 1400	0.1	11.2
B037 ASSESSMENT	2.5	Oct 1500	0.6	29.4
B038C CONF	2.2	Jul 1600	0.2	36.6
B038D PROGRAM MANAGER	1.1	Jun 1600	0.2	17.6
B038B EXECUTVIE DIRECTOR	1.7	Jun 1600	0.3	18.0
B008,B035 RCP,COR	3.5	Jul 2200	0.0	92.2
B038F TECH SUPPORT	0.7	Jan 2300	0.0	21.0
BC006,BE001,B040 COR,STR	6.1	Jul 0900	1.2	168.9
B0034 EXECUTIVE	0.5	Jan 2300	0.0	15.6
B-118 CLASSROOM 17,GROUP	5.2	Nov 1400	1.0	88.3
B-117 CLASSROOM 18	4.8	Oct 1400	1.1	73.2
B-120 CLASSROOM 15,GROUP	4.9	Jun 1700	1.1	90.5
B-119 CLASSROOM 16	4.1	Jun 1600	0.7	64.6
B117B,BC104 HYG,COR	1.5	Jul 2000	0.4	93.0

Zone Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
BC101A,B101E COR,STR	2.1	Jul 2000	0.8	115.5
B008A PARENTS WAITING	1.9	Jan 2300	0.0	72.2
B008,B038E ENTRY	4.0	Jul 1600	0.9	42.6
B-038G PRINCIPAL	0.7	Jan 2300	0.0	17.1
B-038H SECRETARY	0.4	Jan 2300	0.0	11.4

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B036,B036A WAITING,THRPY							
SNB-B036 RECP&WAITING	1	2.8	Nov 1400	210	0.3	51.9	4.04
SNB-B036A THERAPY	1	1.6	Oct 1400	119	0.2	17.9	6.64
B036B NURSE							
SNB-B036B NURSE	1	1.4	Oct 1400	109	0.2	18.5	5.90
B037A ASSESSMENT							
SNB-B037A ASSESSMENT	1	1.1	Nov 1400	82	0.1	11.2	7.31
B037 ASSESSMENT							
SNB-B037 ASSESSMENT	1	2.5	Oct 1500	192	0.6	29.4	6.52
B038C CONF							
SNB-B038C CONF. ROOM	1	2.2	Jul 1600	167	0.2	36.6	4.57
B038D PROGRAM MANAGER							
SNB-B038A PROGRAM MANAGE	1	1.1	Jun 1600	81	0.2	17.6	4.62
B038B EXECUTVIE DIRECTOR							
SNB-B038B EXE DIRECTOR	1	1.7	Jun 1600	125	0.3	18.0	6.94
B008,B035 RCP,COR							
SNB-B038,B008 RECP&CORR	1	3.5	Jul 2200	263	0.0	92.2	2.85
B038F TECH SUPPORT							
SNB-B038F TECH SUPPORT	1	0.7	Jan 2300	50	0.0	21.0	2.38
BC006,BE001,B040 COR,STR							
SNB-BC006,BE001 ENTRY	1	6.1	Jul 0900	457	1.1	153.9	2.97
SNB-B040 WHEEL CHAIR	1	0.1	Oct 1800	9	0.1	15.0	0.59
B0034 EXECUTIVE							
SNB-B034 INTERVIEW	1	0.5	Jan 2300	38	0.0	15.6	2.44
B-118 CLASSROOM 17,GROUP							
SNB-B118 CLASSROOM 17	1	4.2	Nov 1400	320	0.7	68.0	4.71
SNB-B118A STORE	1	0.2	Jul 2200	18	0.0	4.2	4.25
SNB-B118B GROUP	1	0.8	Nov 1400	60	0.3	16.1	3.72
B-117 CLASSROOM 18							
SNB-B117 CLASSROOM 18	1	4.7	Oct 1400	358	1.1	69.0	5.19
SNB-B117A STORE	1	0.0	Jul 1900	2	0.0	4.2	0.50
B-120 CLASSROOM 15,GROUP							
SNB-B120A STORE	1	0.2	Jul 2200	18	0.0	4.2	4.25
SNB-B120 CLASSROOM 15	1	3.8	Jun 1700	290	0.8	71.2	4.07
SNB-B120C-GROUP ROOM	1	0.8	Jun 1700	60	0.3	15.1	4.00
B-119 CLASSROOM 16							
SNB-B119 CLASSROOM 16	1	3.9	Jun 1600	295	0.7	60.4	4.89
SNB-B119A STORE	1	0.2	Jul 2200	18	0.0	4.2	4.25
B117B,BC104 HYG,COR							
SNB-B117B HYGIENE	1	0.1	Jul 1900	5	0.0	10.1	0.45
SNB-BC104 CORRIDOR	1	1.5	Jul 2000	112	0.4	82.9	1.35
BC101A,B101E COR,STR							
SNB-BC101A CORRIDOR	1	1.5	Jul 2000	112	0.5	90.8	1.23
SNB-B101E TEACHING STORE	1	0.6	Jul 2000	48	0.3	24.7	1.94
B008A PARENTS WAITING							
SNB-B008A PARTENTS WAITI	1	1.9	Jan 2300	141	0.0	72.2	1.96
B008,B038E ENTRY							

Zone Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNB-MAIN ENTRY	1	4.0	Jul 1600	300	0.9	42.6	7.03
B-038G PRINCIPAL							
SNB-B038G PRINCIPAL	1	0.7	Jan 2300	54	0.0	17.1	3.15
B-038H SECRETARY							
SNB-B038H SECRETARY	1	0.4	Jan 2300	28	0.0	11.4	2.46

Ventilation Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method	**ASHRAE Std 62.1-2016**	
Design Condition	**Minimum flow (heating)**	
Occupant Diversity (D)	**1.000**	
Uncorrected Outdoor Air Intake (Vou)	**994**	L/s
System Ventilation Efficiency (Ev)	**0.628**	
Outdoor Air Intake (Vot)	**1583**	L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B036,B036A WAITING,THRPY										
SNB-B036 RECP&WAITING	1	63	51.9	0.30	5.0	2.50	0.8	**35**	*28*	1.070
SNB-B036A THERAPY	1	36	17.9	0.60	3.0	5.00	0.8	**32**	*26*	0.725
B036B NURSE										
SNB-B036B NURSE	1	33	18.5	0.30	3.0	2.50	0.8	**16**	*13*	1.130
B037A ASSESSMENT										
SNB-B037A ASSESSMENT	1	25	11.2	0.30	3.0	2.50	0.8	**14**	*11*	1.075
B037 ASSESSMENT										
SNB-B037 ASSESSMENT	1	58	29.4	0.30	4.0	2.50	0.8	**24**	*19*	1.219
B038C CONF										
SNB-B038C CONF. ROOM	1	51	36.6	0.30	12.0	2.50	0.8	**51**	*41*	0.628
B038D PROGRAM MANAGER										
SNB-B038A PROGRAM MANAGE	1	24	17.6	0.30	5.0	2.50	0.8	**22**	*18*	0.716
B038B EXECUTVIE DIRECTOR										
SNB-B038B EXE DIRECTOR	1	37	18.0	0.30	5.0	2.50	0.8	**22**	*18*	1.031
B008,B035 RCP,COR										
SNB-B038,B008 RECP&CORR	1	79	92.2	0.30	9.0	2.50	0.8	**63**	*50*	0.833
B038F TECH SUPPORT										
SNB-B038F TECH SUPPORT	1	17	21.0	0.30	3.0	2.50	0.8	**17**	*14*	0.628
BC006,BE001,B040 COR,STR										
SNB-BC006,BE001 ENTRY	1	137	153.9	0.30	0.0	0.00	1.0	**46**	*46*	1.291
SNB-B040 WHEEL CHAIR	1	3	15.0	0.00	0.0	0.00	1.0	**0**	*0*	1.628
B0034 EXECUTIVE										
SNB-B034 INTERVIEW	1	15	15.6	0.30	3.0	2.50	0.8	**15**	*12*	0.628
B-118 CLASSROOM 17,GROUP										
SNB-B118 CLASSROOM 17	1	157	68.0	0.60	17.0	5.00	0.8	**157**	*126*	0.628
SNB-B118A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.628
SNB-B118B GROUP	1	31	16.1	0.60	3.0	5.00	0.8	**31**	*25*	0.628
B-117 CLASSROOM 18										
SNB-B117 CLASSROOM 18	1	158	69.0	0.60	17.0	5.00	0.8	**158**	*126*	0.628
SNB-B117A STORE	1	1	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.628
B-120 CLASSROOM 15,GROUP										
SNB-B120A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.628
SNB-B120 CLASSROOM 15	1	160	71.2	0.60	17.0	5.00	0.8	**160**	*128*	0.628
SNB-B120C-GROUP ROOM	1	30	15.1	0.60	3.0	5.00	0.8	**30**	*24*	0.628
B-119 CLASSROOM 16										

Ventilation Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

SNB-B119 CLASSROOM 16	1	152	60.4	0.60	17.0	5.00	0.8	**152**	*121*	0.628
SNB-B119A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.628
B117B,BC104 HYG,COR										
SNB-B117B HYGIENE	1	1	10.1	0.00	0.0	0.00	1.0	**0**	*0*	1.628
SNB-BC104 CORRIDOR	1	33	82.9	0.30	0.0	0.00	1.0	**25**	*25*	0.885
BC101A,B101E COR,STR										
SNB-BC101A CORRIDOR	1	34	90.8	0.30	0.0	0.00	1.0	**27**	*27*	0.816
SNB-B101E TEACHING STORE	1	14	24.7	0.00	0.0	0.00	1.0	**0**	*0*	1.628
B008A PARENTS WAITING										
SNB-B008A PARTENTS WAITI	1	104	72.2	0.60	8.0	5.00	0.8	**104**	*83*	0.628
B008,B038E ENTRY										
SNB-MAIN ENTRY	1	90	42.6	0.30	0.0	0.00	1.0	**13**	*13*	1.485
B-038G PRINCIPAL										
SNB-B038G PRINCIPAL	1	16	17.1	0.00	5.0	0.00	0.8	**0**	*0*	1.628
B-038H SECRETARY										
SNB-B038H SECRETARY	1	8	11.4	0.00	2.0	0.00	0.8	**0**	*0*	1.628
Totals (incl. Space Multipliers)		**1583**							**994**	**0.628**

Air System Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name	**AHU-04**		Number of zones	**15**	
Equipment Class	**PKG ROOF**		Floor Area	**894.6**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**105.7**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**90.2**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Jul 1500	**3165**	L/s	Entering DB / WB	**34.7 / 20.1**	°C
Max block L/s at Jul 1600	**3495**	L/s	Leaving DB / WB	**11.1 / 9.9**	°C
Sum of peak zone L/s	**3594**	L/s	Coil ADP	**8.5**	°C
Sensible heat ratio	**0.853**		Bypass Factor	**0.100**	
L/(s kW)	**29.9**		Resulting RH	**41**	%
m²/kW	**8.5**		Design supply temp.	**13.0**	°C
W/m²	**118.2**		Zone T-stat Check	**15 of 15**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1600	**3495**	L/s	Fan motor BHP	**8.81**	BHP
Standard L/s	**3488**	L/s	Fan motor kW	**6.99**	kW
Actual max L/(s·m²)	**3.91**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**1410**	L/s	L/s/person	**14.35**	L/s/person
L/(s·m²)	**1.58**	L/(s·m²)			

Zone Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name **AHU-04**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **15**
Floor Area ..... **894.6** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B009 CALMING	48	20	5.01	0.5	-	0.0	-	0
BC003,B020 COR,ELEC	530	159	3.94	0.0	-	0.0	-	0
B019 PHYSIO	196	93	4.17	2.5	-	0.0	-	0
B011,B12,B18,BC007,BC4A	418	125	3.61	0.0	-	0.0	-	0
B017 THERAPY	116	45	7.31	1.2	-	0.0	-	0
B016 OFFICE SUPPLY	108	33	6.16	0.9	-	0.0	-	0
B108,BS123,BC103B EL,CR,	350	105	3.20	0.0	-	0.0	-	0
B105 CLASSROOM 12	334	156	4.72	4.1	-	0.0	-	0
B107 CLASSROOM 14	322	156	4.59	4.1	-	0.0	-	0
B104,105B CLASS 11,GROUP	369	187	4.27	4.9	-	0.0	-	0
B106 CLASSROOM 13,GROUP	382	187	4.37	5.0	-	0.0	-	0
B014 SHIPPING RECEVING	125	37	7.93	0.0	-	0.0	-	0
BC102,B107B COR,HYG	113	34	1.27	0.0	-	0.0	-	0
B010 GROUP ROOM	55	33	2.98	0.9	-	0.0	-	0
B108A CALMING	21	18	2.94	0.5	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B009 CALMING	0.6	Jun 1700	0.2	9.5
BC003,B020 COR,ELEC	7.0	Aug 2000	0.3	134.6
B019 PHYSIO	2.6	Jul 2000	0.2	46.9
B011,B12,B18,BC007,BC4A	5.5	Jul 1900	1.1	115.8
B017 THERAPY	1.5	Jul 0900	0.3	15.8
B016 OFFICE SUPPLY	1.4	Oct 1300	0.2	17.6
B108,BS123,BC103B EL,CR,	4.6	Jun 1700	1.2	109.4
B105 CLASSROOM 12	4.4	Jun 1600	0.8	70.9
B107 CLASSROOM 14	4.3	Oct 1200	0.7	70.3
B104,105B CLASS 11,GROUP	4.9	Jun 1600	1.0	86.4
B106 CLASSROOM 13,GROUP	5.1	Oct 1200	1.0	87.3
B014 SHIPPING RECEVING	1.7	Jun 1600	0.4	15.7
BC102,B107B COR,HYG	1.5	Jul 2000	0.4	88.8
B010 GROUP ROOM	0.7	Jul 2000	0.1	18.4
B108A CALMING	0.3	Jul 1900	0.0	7.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B009 CALMING							

Zone Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNB-B009 CALMING ROOM	1	0.6	Jun 1700	48	0.2	9.5	5.01
BC003,B020 COR,ELEC							
SNB-BC003 CORRIDOR	1	1.8	Jul 2100	139	0.2	119.7	1.16
SNB-B020 ELEC. RM	1	5.2	Sep 1900	392	0.1	14.9	26.34
B019 PHYSIO							
SNB-B019 PHYSIOTHERAPY	1	2.6	Jul 2000	196	0.2	46.9	4.17
B011,B12,B18,BC007,BC4A							
SNB-B011 LAUNDRY	1	1.5	Jul 2000	114	0.3	22.6	5.02
SNB-B012 BUILDING MAINT	1	0.9	Jun 1700	70	0.3	29.7	2.35
SNB-BC007 CORRIDOR	1	1.9	Jul 2200	142	0.1	32.3	4.38
SNB-BC004A VESTIBULE	1	1.3	Aug 1600	94	0.4	20.7	4.56
SNB-B018 Store	1	0.0	Jul 1900	3	0.0	10.5	0.31
B017 THERAPY							
SNB-B017 THERAPY	1	1.5	Jul 0900	116	0.3	15.8	7.31
B016 OFFICE SUPPLY							
SNB-B016 OFFICE SUPPLIES	1	1.4	Oct 1300	108	0.2	17.6	6.16
B108,BS123,BC103B EL,CR,							
SNB-BC103b CORRIDOR	1	3.2	Jun 1700	238	1.1	99.6	2.39
SNB-BS123 STORAGE	1	0.1	Jul 1900	10	0.1	4.4	2.26
SNB-B108 ELEC. ROOM	1	1.4	Jul 2100	102	0.0	5.4	18.91
B105 CLASSROOM 12							
SNB-B105 CLASSROOM 12	1	4.2	Jun 1600	317	0.7	66.7	4.75
SNB-B105A STORE	1	0.2	Jul 2200	18	0.0	4.2	4.25
B107 CLASSROOM 14							
SNB-B107A STORE	1	0.2	Jul 2200	18	0.0	4.2	4.25
SNB-B107 CLASSROOM 14	1	4.1	Oct 1200	306	0.7	66.1	4.62
B104,105B CLASS 11,GROUP							
SNB-B104 CLASSROOM 11	1	4.0	Jun 1600	298	0.7	66.9	4.46
SNB-B104A STORE	1	0.2	Jul 2200	18	0.0	4.2	4.25
SNB-B105B GROUP	1	0.7	Jun 1700	53	0.3	15.3	3.46
B106 CLASSROOM 13,GROUP							
SNB-B106 CLASSROOM 13	1	4.1	Oct 1200	308	0.7	67.0	4.60
SNB-B106A STORE	1	0.2	Jul 2200	18	0.0	4.2	4.25
SNB-B106B GROUP	1	0.8	Oct 1200	57	0.3	16.1	3.53
B014 SHIPPING RECEVING							
SNB-B014 SHIPPING RECEIV	1	1.7	Jun 1600	125	0.4	15.7	7.93
BC102,B107B COR,HYG							
SNB-BC102 CORRIDOR	1	1.4	Jul 2000	108	0.3	78.1	1.38
SNB-B107B HYGIENE	1	0.1	Jul 1900	5	0.0	10.7	0.45
B010 GROUP ROOM							
SNB-B010 GROUP ROOM	1	0.7	Jul 2000	55	0.1	18.4	2.98
B108A CALMING							
SNB-B108A CALMING ROOM	1	0.3	Jul 1900	21	0.0	7.2	2.94

Ventilation Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **845** L/s
System Ventilation Efficiency (Ev) **0.599**
Outdoor Air Intake (Vot) ..... **1410** L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B009 CALMING										
SNB-B009 CALMING ROOM	1	20	9.5	0.60	2.0	5.00	0.8	**20**	*16*	0.599
BC003,B020 COR,ELEC										
SNB-BC003 CORRIDOR	1	42	119.7	0.30	0.0	0.00	1.0	**36**	*36*	0.735
SNB-B020 ELEC. RM	1	118	14.9	0.00	0.0	0.00	1.0	**0**	*0*	1.599
B019 PHYSIO										
SNB-B019 PHYSIOTHERAPY	1	93	46.9	0.30	6.0	10.00	0.8	**93**	*74*	0.599
B011,B12,B18,BC007,BC4A										
SNB-B011 LAUNDRY	1	34	22.6	0.00	0.0	0.00	1.0	**0**	*0*	1.599
SNB-B012 BUILDING MAINT	1	21	29.7	0.00	0.0	0.00	1.0	**0**	*0*	1.599
SNB-BC007 CORRIDOR	1	42	32.3	0.30	0.0	0.00	1.0	**10**	*10*	1.371
SNB-BC004A VESTIBULE	1	28	20.7	0.30	0.0	0.00	1.0	**6**	*6*	1.380
SNB-B018 Store	1	1	10.5	0.00	0.0	0.00	1.0	**0**	*0*	1.599
B017 THERAPY										
SNB-B017 THERAPY	1	45	15.8	0.60	5.3	5.00	0.8	**45**	*36*	0.599
B016 OFFICE SUPPLY										
SNB-B016 OFFICE SUPPLIES	1	33	17.6	0.30	3.0	2.50	0.8	**16**	*13*	1.108
B108,BS123,BC103B EL,CR,										
SNB-BC103b CORRIDOR	1	71	99.6	0.30	0.0	0.00	1.0	**30**	*30*	1.181
SNB-BS123 STORAGE	1	3	4.4	0.00	0.0	0.00	1.0	**0**	*0*	1.599
SNB-B108 ELEC. ROOM	1	31	5.4	0.00	0.0	0.00	1.0	**0**	*0*	1.599
B105 CLASSROOM 12										
SNB-B105 CLASSROOM 12	1	156	66.7	0.60	17.0	5.00	0.8	**156**	*125*	0.599
SNB-B105A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.599
B107 CLASSROOM 14										
SNB-B107A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.599
SNB-B107 CLASSROOM 14	1	156	66.1	0.60	17.0	5.00	0.8	**156**	*125*	0.599
B104,105B CLASS 11,GROUP										
SNB-B104 CLASSROOM 11	1	156	66.9	0.60	17.0	5.00	0.8	**156**	*125*	0.599
SNB-B104A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.599
SNB-B105B GROUP	1	30	15.3	0.60	3.0	5.00	0.8	**30**	*24*	0.599
B106 CLASSROOM 13,GROUP										
SNB-B106 CLASSROOM 13	1	157	67.0	0.60	17.0	5.00	0.8	**157**	*125*	0.599
SNB-B106A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.599
SNB-B106B GROUP	1	31	16.1	0.60	3.0	5.00	0.8	**31**	*25*	0.599
B014 SHIPPING RECEVING										

Ventilation Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

SNB-B014 SHIPPING RECEIV	1	37	15.7	0.30	3.0	2.50	1.0	**12**	*12*	1.273
BC102,B107B COR,HYG										
SNB-BC102 CORRIDOR	1	32	78.1	0.30	0.0	0.00	1.0	**23**	*23*	0.875
SNB-B107B HYGIENE	1	1	10.7	0.00	0.0	0.00	1.0	**0**	*0*	1.599
B010 GROUP ROOM										
SNB-B010 GROUP ROOM	1	33	18.4	0.60	3.0	5.00	0.8	**33**	*26*	0.599
B108A CALMING										
SNB-B108A CALMING ROOM	1	18	7.2	0.60	2.0	5.00	0.8	**18**	*14*	0.599
Totals (incl. Space Multipliers)		**1410**							**845**	**0.599**

Air System Sizing Summary for AHU-05

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name	**AHU-05**		Number of zones	**3**	
Equipment Class	**PKG ROOF**		Floor Area	**222.2**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**50.9**	kW	Load occurs at	**Aug 1500**	
Sensible coil load	**41.1**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Aug 1500	**1331**	L/s	Entering DB / WB	**36.7 / 21.3**	°C
Max block L/s at Aug 1600	**1446**	L/s	Leaving DB / WB	**11.1 / 9.8**	°C
Sum of peak zone L/s	**1469**	L/s	Coil ADP	**8.2**	°C
Sensible heat ratio	**0.808**		Bypass Factor	**0.100**	
L/(s kW)	**26.1**		Resulting RH	**49**	%
m²/kW	**4.4**		Design supply temp.	**13.0**	°C
W/m²	**229.2**		Zone T-stat Check	**3 of 3**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Aug 1600	**1446**	L/s	Fan motor BHP	**3.64**	BHP
Standard L/s	**1443**	L/s	Fan motor kW	**2.89**	kW
Actual max L/(s·m²)	**6.51**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**756**	L/s	L/s/person	**7.27**	L/s/person
L/(s·m²)	**3.40**	L/(s·m²)			

Zone Sizing Summary for AHU-05

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name **AHU-05**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **3**
Floor Area ..... **222.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B001 DINNING	1127	667	6.60	17.7	-	0.0	-	0
B002 KITCHEN	232	70	6.82	1.8	-	0.0	-	0
B002A KITCHEN STORAGE	65	20	3.74	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B001 DINNING	14.9	Oct 1500	0.8	170.6
B002 KITCHEN	3.1	Jun 1600	0.3	34.1
B002A KITCHEN STORAGE	0.9	Jun 2000	0.1	17.5

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B001 DINNING							
SNB-B001-DINNING	1	14.9	Oct 1500	1127	0.8	170.6	6.60
B002 KITCHEN							
SNB-B002 KITCHEN	1	3.1	Jun 1600	232	0.3	34.1	6.82
B002A KITCHEN STORAGE							
SNB-B002A KITCHEN STORE	1	0.9	Jun 2000	65	0.1	17.5	3.74

Ventilation Sizing Summary for AHU-05

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **569** L/s
System Ventilation Efficiency (Ev) **0.753**
Outdoor Air Intake (Vot) ..... **756** L/s

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B001 DINNING										
SNB-B001-DINNING	1	667	170.6	0.90	100.0	3.80	0.8	**667**	*534*	0.753
B002 KITCHEN										
SNB-B002 KITCHEN	1	70	34.1	0.60	4.0	3.80	0.8	**45**	*36*	1.114
B002A KITCHEN STORAGE										
SNB-B002A KITCHEN STORE	1	20	17.5	0.00	0.0	0.00	1.0	**0**	*0*	1.753
Totals (incl. Space Multipliers)		**756**							**569**	**0.753**

Air System Sizing Summary for AHU-06

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name	**AHU-06**		Number of zones	**3**	
Equipment Class	**PKG ROOF**		Floor Area	**370.2**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**87.2**	kW	Load occurs at	**Aug 1500**	
Sensible coil load	**70.6**	kW	OA DB / WB	**46.0 / 24.0**	°C
Coil L/s at Aug 1500	**2244**	L/s	Entering DB / WB	**37.2 / 21.5**	°C
Max block L/s at Sep 1600	**2440**	L/s	Leaving DB / WB	**11.1 / 9.8**	°C
Sum of peak zone L/s	**2452**	L/s	Coil ADP	**8.2**	°C
Sensible heat ratio	**0.810**		Bypass Factor	**0.100**	
L/(s kW)	**25.7**		Resulting RH	**49**	%
m²/kW	**4.2**		Design supply temp.	**13.0**	°C
W/m²	**235.7**		Zone T-stat Check	**3 of 3**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Sep 1600	**2440**	L/s	Fan motor BHP	**6.15**	BHP
Standard L/s	**2435**	L/s	Fan motor kW	**4.88**	kW
Actual max L/(s·m²)	**6.59**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**1300**	L/s	L/s/person	**5.65**	L/s/person
L/(s·m²)	**3.51**	L/(s·m²)			

Zone Sizing Summary for AHU-06

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name **AHU-06**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **3**
Floor Area ..... **370.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B121 MULTIPURPOSE	2028	1195	7.39	31.7	-	0.0	-	0
B126 ELEV LOBBY&MPR STR	308	92	4.22	0.0	-	0.0	-	0
B126B STORE	42	13	1.86	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B121 MULTIPURPOSE	26.9	Oct 1500	3.2	274.6
B126 ELEV LOBBY&MPR STR	4.1	Jul 2000	0.5	73.1
B126B STORE	0.6	Sep 1900	0.4	22.5

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B121 MULTIPURPOSE							
SNB-B121 MULTIPURPOSE	1	26.9	Oct 1500	2028	3.2	274.6	7.39
B126 ELEV LOBBY&MPR STR							
SNB-B126 MPR STORE+LOBBY	1	4.1	Jul 2000	308	0.5	73.1	4.22
B126B STORE							
SNB-B126B STORE	1	0.6	Sep 1900	42	0.4	22.5	1.86

Ventilation Sizing Summary for AHU-06

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **978** L/s
System Ventilation Efficiency (Ev) **0.752**
Outdoor Air Intake (Vot) ..... **1300** L/s

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B121 MULTIPURPOSE										
SNB-B121 MULTIPURPOSE	1	1195	274.6	0.30	230.0	3.80	0.8	**1195**	*956*	0.752
B126 ELEV LOBBY&MPR STR										
SNB-B126 MPR STORE+LOBBY	1	92	73.1	0.30	0.0	0.00	1.0	**22**	*22*	1.515
B126B STORE										
SNB-B126B STORE	1	13	22.5	0.00	0.0	0.00	1.0	**0**	*0*	1.752
Totals (incl. Space Multipliers)		**1300**							**978**	**0.752**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B012A FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B012A FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **13.5** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B012A FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B012A FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **13.5** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B012A FTR	7.5	7.5	22.6 / 16.2	15.0 / 13.3	-	Jul 1600	60.43

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B012A FTR	0.2	21.0 / 21.3	-	816	0.000	0.000	5

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B012A FTR	7.4	Jul 2000	0.1	13.5

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B012A FTR							
SNB-B012A FTR	1	7.4	Jul 2000	816	0.1	13.5	60.43

Ventilation Sizing Summary for FCU B012A FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Heating operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B012A FTR	5		1.000	5
System Total				**5**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B012A FTR

		Supply Air (L/s)	Space Floor Area (m²)	Area Outdoor Air Rate (L/(s·m²))	Time Averaged Occupancy (Occupants)	People Outdoor Air Rate (L/s/person)	Air Distribution Effectiveness	Space Outdoor Air (L/s)	Breathing Zone Outdoor Air (L/s)	Space Ventilation Efficiency
Zone Name / Space Name	**Mult.**	**(Vpz)**	**(Az)**	**(Ra)**	**(Pz)**	**(Rp)**	**(Ez)**	**(Voz)**	**(Vbz)**	**(Evz)**
B012A FTR										
SNB-B012A FTR	1	816	13.5	0.30	0.0	0.00	0.8	**5**	*4*	1.000
Totals (incl. Space Multipliers)		**816**							**4**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B015 GARBAGE

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B015 GARBAGE**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **22.9** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B015 GARBAGE

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B015 GARBAGE**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **22.9** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B015 GARBAGE	0.7	0.7	24.5 / 8.0	15.1 / 3.2	-	Jul 1900	2.78

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B015 GARBAGE	0.2	20.9 / 23.2	-	64	0.000	0.000	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B015 GARBAGE	0.7	Aug 1900	0.2	22.9

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B015 GARBAGE							
SNB-B015 GARBAGE	1	0.7	Aug 1900	64	0.2	22.9	2.78

Ventilation Sizing Summary for FCU B015 GARBAGE

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Cooling operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B015 GARBAGE	0		1.000	0
System Total				**0**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B015 GARBAGE

Zone Name / Space Name	Mult.	Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B015 GARBAGE										
SNB-B015 GARBAGE	1	64	22.9	0.00	0.0	0.00	1.0	**0**	*0*	1.000
Totals (incl. Space Multipliers)		**64**							**0**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B039 MTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B039 MTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **26.9** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B039 MTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B039 MTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **26.9** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B039 MTR	19.4	19.4	22.9 / 16.0	15.3 / 13.1	-	Jul 1600	79.22

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B039 MTR	0.2	21.0 / 21.1	-	2131	0.000	0.000	10

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B039 MTR	19.4	Jul 2200	0.0	26.9

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B039 MTR							
SNB-B039 MTR	1	19.4	Jul 2200	2131	0.0	26.9	79.22

Ventilation Sizing Summary for FCU B039 MTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Heating operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B039 MTR	10		1.000	10
System Total				**10**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B039 MTR

		Supply Air (L/s)	Space Floor Area (m²)	Area Outdoor Air Rate (L/(s·m²))	Time Averaged Occupancy (Occupants)	People Outdoor Air Rate (L/s/person)	Air Distribution Effectiveness	Space Outdoor Air (L/s)	Breathing Zone Outdoor Air (L/s)	Space Ventilation Efficiency
Zone Name / Space Name	**Mult.**	**(Vpz)**	**(Az)**	**(Ra)**	**(Pz)**	**(Rp)**	**(Ez)**	**(Voz)**	**(Vbz)**	**(Evz)**
B039 MTR										
SNB-B039 MTR	1	2131	26.9	0.30	0.0	0.00	0.8	**10**	*8*	1.000
Totals (incl. Space Multipliers)		**2131**							**8**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B101B FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B101B FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **9.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B101B FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B101B FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **9.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B101B FTR	4.9	4.9	23.1 / 16.4	15.7 / 13.6	-	Jul 1600	59.38

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B101B FTR	0.2	21.4 / 21.7	-	546	0.000	0.000	3

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B101B FTR	5.0	Jul 2000	0.0	9.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B101B FTR							
SNB-B101B FTR	1	5.0	Jul 2000	546	0.0	9.2	59.38

Ventilation Sizing Summary for FCU B101B FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Heating operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B101B FTR	3		1.000	3
System Total				**3**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B101B FTR

		Supply Air (L/s)	Space Floor Area (m²)	Area Outdoor Air Rate (L/(s·m²))	Time Averaged Occupancy (Occupants)	People Outdoor Air Rate (L/s/person)	Air Distribution Effectiveness	Space Outdoor Air (L/s)	Breathing Zone Outdoor Air (L/s)	Space Ventilation Efficiency
Zone Name / Space Name	**Mult.**	**(Vpz)**	**(Az)**	**(Ra)**	**(Pz)**	**(Rp)**	**(Ez)**	**(Voz)**	**(Vbz)**	**(Evz)**
B101B FTR										
SNB-B101B FTR	1	546	9.2	0.30	0.0	0.00	0.8	**3**	*3*	1.000
Totals (incl. Space Multipliers)		**546**							**3**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B111 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B111 FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **8.4** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B111 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B111 FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **8.4** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B111 FTR	5.2	5.2	22.8 / 16.1	15.3 / 13.3	-	Jul 1500	68.37

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B111 FTR	0.1	21.1 / 21.2	-	574	0.000	0.000	3

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B111 FTR	5.2	Jul 2000	0.0	8.4

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B111 FTR							
SNB-B111 FTR	1	5.2	Jul 2000	574	0.0	8.4	68.37

Ventilation Sizing Summary for FCU B111 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Heating operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B111 FTR	3		1.000	3
System Total				**3**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B111 FTR

		Supply Air (L/s)	Space Floor Area (m²)	Area Outdoor Air Rate (L/(s·m²))	Time Averaged Occupancy (Occupants)	People Outdoor Air Rate (L/s/person)	Air Distribution Effectiveness	Space Outdoor Air (L/s)	Breathing Zone Outdoor Air (L/s)	Space Ventilation Efficiency
Zone Name / Space Name	**Mult.**	**(Vpz)**	**(Az)**	**(Ra)**	**(Pz)**	**(Rp)**	**(Ez)**	**(Voz)**	**(Vbz)**	**(Evz)**
B111 FTR										
SNB-B111 FTR	1	574	8.4	0.30	0.0	0.00	0.8	**3**	*3*	1.000
Totals (incl. Space Multipliers)		**574**							**3**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B155 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B155 FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **10.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B155 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU B155 FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **10.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B155 FTR	7.3	7.3	22.8 / 7.2	15.3 / 3.4	-	Aug 1900	80.07

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B155 FTR	0.1	21.2 / 21.3	-	817	0.000	0.000	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B155 FTR	7.4	Aug 2000	0.1	10.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B155 FTR							
SNB-B155 FTR	1	7.4	Aug 2000	817	0.1	10.2	80.07

Ventilation Sizing Summary for FCU B155 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Cooling operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B155 FTR	0		1.000	0
System Total				**0**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B155 FTR

		Supply Air (L/s)	Space Floor Area (m²)	Area Outdoor Air Rate (L/(s·m²))	Time Averaged Occupancy (Occupants)	People Outdoor Air Rate (L/s/person)	Air Distribution Effectiveness	Space Outdoor Air (L/s)	Breathing Zone Outdoor Air (L/s)	Space Ventilation Efficiency
Zone Name / Space Name	**Mult.**	**(Vpz)**	**(Az)**	**(Ra)**	**(Pz)**	**(Rp)**	**(Ez)**	**(Voz)**	**(Vbz)**	**(Evz)**
B155 FTR										
SNB-B155 FTR	1	817	10.2	0.00	0.0	0.00	1.0	**0**	*0*	1.000
Totals (incl. Space Multipliers)		**817**							**0**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU BS1 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU BS1 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **36.3** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU BS1 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU BS1 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **36.3** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
BS-001 STAIRS	2.0	2.0	24.6 / 8.1	15.8 / 3.6	-	Jun 1700	5.09

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
BS-001 STAIRS	0.4	21.1 / 22.7	-	185	0.000	0.000	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
BS-001 STAIRS	2.1	Jul 2000	0.3	36.3

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
BS-001 STAIRS							
SNB-BS001 STAIRS	1	2.1	Jul 2000	185	0.3	36.3	5.09

Ventilation Sizing Summary for FCU BS1 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Cooling operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
BS-001 STAIRS	0		1.000	0
System Total				**0**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: BS-001 STAIRS

		Supply Air (L/s)	Space Floor Area (m²)	Area Outdoor Air Rate (L/(s·m²))	Time Averaged Occupancy (Occupants)	People Outdoor Air Rate (L/s/person)	Air Distribution Effectiveness	Space Outdoor Air (L/s)	Breathing Zone Outdoor Air (L/s)	Space Ventilation Efficiency
Zone Name / Space Name	**Mult.**	**(Vpz)**	**(Az)**	**(Ra)**	**(Pz)**	**(Rp)**	**(Ez)**	**(Voz)**	**(Vbz)**	**(Evz)**
BS-001 STAIRS										
SNB-BS001 STAIRS	1	185	36.3	0.00	0.0	0.00	1.0	**0**	*0*	1.000
Totals (incl. Space Multipliers)		**185**							**0**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU BS2 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU BS2 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **34.4** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU BS2 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU BS2 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **34.4** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
BS-002 STAIRS	2.4	2.4	24.6 / 8.1	15.5 / 3.4	-	Jul 2000	6.42

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
BS-002 STAIRS	1.2	21.0 / 25.4	-	221	0.000	0.000	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
BS-002 STAIRS	2.5	Jul 2000	1.2	34.4

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
BS-002 STAIRS							
SNB-BS002 STAIRS	1	2.5	Jul 2000	221	1.2	34.4	6.42

Ventilation Sizing Summary for FCU BS2 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Cooling operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
BS-002 STAIRS	0		1.000	0
System Total				**0**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: BS-002 STAIRS

		Supply Air (L/s)	Space Floor Area (m²)	Area Outdoor Air Rate (L/(s·m²))	Time Averaged Occupancy (Occupants)	People Outdoor Air Rate (L/s/person)	Air Distribution Effectiveness	Space Outdoor Air (L/s)	Breathing Zone Outdoor Air (L/s)	Space Ventilation Efficiency
Zone Name / Space Name	**Mult.**	**(Vpz)**	**(Az)**	**(Ra)**	**(Pz)**	**(Rp)**	**(Ez)**	**(Voz)**	**(Vbz)**	**(Evz)**
BS-002 STAIRS										
SNB-BS002 STAIRS	1	221	34.4	0.00	0.0	0.00	1.0	**0**	*0*	1.000
Totals (incl. Space Multipliers)		**221**							**0**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU BS3 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU BS3 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **35.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU BS3 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:20PM

Air System Information

Air System Name ..... **FCU BS3 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **35.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
BS-003 STAIRS	0.7	0.7	24.7 / 8.1	15.4 / 3.4	-	Aug 2300	1.79

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
BS-003 STAIRS	0.3	20.8 / 24.6	-	63	0.000	0.000	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
BS-003 STAIRS	0.7	Aug 1900	0.3	35.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
BS-003 STAIRS							
SNB-BS003 STAIRS	1	0.7	Aug 1900	63	0.3	35.2	1.79

Ventilation Sizing Summary for FCU BS3 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:21PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Cooling operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
BS-003 STAIRS	0		1.000	0
System Total				**0**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: BS-003 STAIRS

		Supply Air (L/s)	Space Floor Area (m²)	Area Outdoor Air Rate (L/(s·m²))	Time Averaged Occupancy (Occupants)	People Outdoor Air Rate (L/s/person)	Air Distribution Effectiveness	Space Outdoor Air (L/s)	Breathing Zone Outdoor Air (L/s)	Space Ventilation Efficiency
Zone Name / Space Name	**Mult.**	**(Vpz)**	**(Az)**	**(Ra)**	**(Pz)**	**(Rp)**	**(Ez)**	**(Voz)**	**(Vbz)**	**(Evz)**
BS-003 STAIRS										
SNB-BS003 STAIRS	1	63	35.2	0.00	0.0	0.00	1.0	**0**	*0*	1.000
Totals (incl. Space Multipliers)		**63**							**0**	**1.000**

System output condition (2)

Air System Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name	**AHU-01**		Number of zones	**14**	
Equipment Class	**PKG ROOF**		Floor Area	**1270.6**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**156.5**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**85.3**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Jul 1500	**3303**	L/s	Entering DB / WB	**32.5 / 23.9**	°C
Max block L/s at Jul 1600	**3683**	L/s	Leaving DB / WB	**11.1 / 10.7**	°C
Sum of peak zone L/s	**3829**	L/s	Coil ADP	**8.7**	°C
Sensible heat ratio	**0.545**		Bypass Factor	**0.100**	
L/(s kW)	**21.1**		Resulting RH	**47**	%
m²/kW	**8.1**		Design supply temp.	**13.0**	°C
W/m²	**123.1**		Zone T-stat Check	**14 of 14**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1600	**3683**	L/s	Fan motor BHP	**9.29**	BHP
Standard L/s	**3676**	L/s	Fan motor kW	**7.37**	kW
Actual max L/(s·m²)	**2.90**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**1859**	L/s	L/s/person	**10.27**	L/s/person
L/(s·m²)	**1.46**	L/(s·m²)			

Zone Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name **AHU-01**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **14**
Floor Area ..... **1270.6** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B003,B007B,BC001,BC002	307	92	1.22	0.0	-	0.0	-	0
B-004 CLASSROOM 1,GROUP	356	184	4.31	4.9	-	0.0	-	0
B-005 CLASSROOM 2	301	155	4.38	4.1	-	0.0	-	0
B-007 CLASSROOM 3,GROUP	390	185	4.65	4.9	-	0.0	-	0
B-006 CLASSROOM 4	323	154	4.77	4.1	-	0.0	-	0
B-102A&B LIFE SKILLS	434	199	4.40	5.3	-	0.0	-	0
B102C,B102D HALL,BATH,LD	153	46	4.56	0.0	-	0.0	-	0
BS108,B103,B103A TOILET,	38	11	0.60	0.0	-	0.0	-	0
BC-101 CORRIDOR	260	78	1.38	0.0	-	0.0	-	0
B101C,B101D ASSESSMENT	125	38	6.87	1.0	-	0.0	-	0
B101A TRAINING ROOM	214	185	3.91	4.9	-	0.0	-	0
B101 READING ROOM	641	450	4.06	11.9	-	0.0	-	0
B102E BEDROOM	55	29	1.59	0.8	-	0.0	-	0
B101 READING CORRIDOR	118	35	1.76	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B003,B007B,BC001,BC002	4.1	Jun 1700	0.3	251.2
B-004 CLASSROOM 1,GROUP	4.7	Jun 1600	0.7	82.6
B-005 CLASSROOM 2	4.0	Jun 1600	0.5	68.7
B-007 CLASSROOM 3,GROUP	5.2	Nov 1300	0.7	83.8
B-006 CLASSROOM 4	4.3	Nov 1300	0.5	67.8
B-102A&B LIFE SKILLS	5.8	Jun 1600	1.2	98.8
B102C,B102D HALL,BATH,LD	2.0	Jul 1700	0.1	33.5
BS108,B103,B103A TOILET,	0.5	Jun 2000	0.5	63.0
BC-101 CORRIDOR	3.4	Jul 1700	1.2	188.7
B101C,B101D ASSESSMENT	1.7	Jul 1700	0.1	18.2
B101A TRAINING ROOM	2.8	Jul 1900	0.2	54.8
B101 READING ROOM	8.5	Jul 1700	1.8	158.0
B102E BEDROOM	0.7	Aug 2000	0.3	34.5
B101 READING CORRIDOR	1.6	Jul 1900	0.5	67.0

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B003,B007B,BC001,BC002							
SNB-B003A ABLUTION	1	0.0	Jan 2300	4	0.0	16.1	0.23

Zone Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNB-B003B JANITOR	1	0.4	Jun 1600	30	0.2	16.1	1.86
SNB-B003 TOILET	1	0.2	Jun 2000	15	0.1	30.7	0.48
SNB-B007B HYGIENE	1	0.0	Jan 2300	3	0.0	10.6	0.29
SNB-BC001 CORRIDOR	1	2.3	Jul 1700	176	0.0	99.6	1.77
SNB-BC002 CORRIDOR	1	1.1	Jul 1700	82	0.0	78.1	1.05
B-004 CLASSROOM 1,GROUP							
SNB-B004 CLASSROOM 1	1	3.7	Jun 1600	280	0.5	64.4	4.35
SNB-B004A STORE	1	0.2	Jul 1700	16	0.0	4.2	3.84
SNB-B004B GROUP ROOM	1	0.8	Jun 1600	60	0.2	14.0	4.31
B-005 CLASSROOM 2							
SNB-B005A STORE	1	0.3	Jul 1500	21	0.0	4.2	4.99
SNB-B005 CLASSROOM 2	1	3.7	Jun 1600	280	0.5	64.5	4.35
B-007 CLASSROOM 3,GROUP							
SNB-B007 CLASSROOM 3	1	4.1	Nov 1200	311	0.5	64.7	4.80
SNB-B007A STORE	1	0.2	Jul 1500	12	0.0	4.2	2.90
SNB-B006B GROUP ROOM	1	0.9	Nov 1300	71	0.2	14.9	4.74
B-006 CLASSROOM 4							
SNB-B006A STORE	1	0.2	Jul 1500	12	0.0	4.2	2.90
SNB-B006 CLASSROOM 4	1	4.2	Nov 1200	314	0.5	63.6	4.94
B-102A&B LIFE SKILLS							
SNB-B102A&B LIFE SKILLS	1	5.8	Jun 1600	434	1.2	98.8	4.40
B102C,B102D HALL,BATH,LD							
SNB-B102C HALL	1	0.4	Jul 1700	31	0.1	19.0	1.65
SNB-B102D BATHROOM	1	0.1	Jul 1700	9	0.0	8.1	1.13
SNB-B102F LAUNDRY	1	1.5	Jul 1700	112	0.0	6.4	17.54
BS108,B103,B103A TOILET,							
SNB-BS108 JANITOR	1	0.2	Jun 2000	15	0.2	19.6	0.78
SNB-B103A STORE	1	0.1	Jul 1900	4	0.1	12.0	0.35
SNB-B103 TOILET.	1	0.2	Jun 2000	18	0.2	31.4	0.59
BC-101 CORRIDOR							
SNB-BC101 CORRIDOR	1	3.4	Jul 1700	260	1.2	188.7	1.38
B101C,B101D ASSESSMENT							
SNB-B101C ASSESSMENT	1	0.8	Jul 1700	63	0.0	9.1	6.87
SNB-B101D ASSESSMENT	1	0.8	Jul 1700	63	0.0	9.1	6.87
B101A TRAINING ROOM							
SNB-B101A TRAINING ROOM	1	2.8	Jul 1900	214	0.2	54.8	3.91
B101 READING ROOM							
SNB-B101 READING ROOM	1	8.5	Jul 1700	641	1.8	158.0	4.06
B102E BEDROOM							
SNB-B102E BEDROOM	1	0.7	Aug 2000	55	0.3	34.5	1.59
B101 READING CORRIDOR							
SNB-B101 READINGCORRIDOR	1	1.6	Jul 1900	118	0.5	67.0	1.76

Ventilation Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method	**ASHRAE Std 62.1-2016**	
Design Condition	**Minimum flow (heating)**	
Occupant Diversity (D)	**1.000**	
Uncorrected Outdoor Air Intake (Vou)	**1388**	L/s
System Ventilation Efficiency (Ev)	**0.747**	
Outdoor Air Intake (Vot)	**1859**	L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B003,B007B,BC001,BC002										
SNB-B003A ABLUTION	1	1	16.1	0.00	0.0	0.00	1.0	**0**	*0*	1.747
SNB-B003B JANITOR	1	9	16.1	0.00	0.0	0.00	1.0	**0**	*0*	1.747
SNB-B003 TOILET	1	4	30.7	0.00	0.0	0.00	1.0	**0**	*0*	1.747
SNB-B007B HYGIENE	1	1	10.6	0.00	0.0	0.00	1.0	**0**	*0*	1.747
SNB-BC001 CORRIDOR	1	53	99.6	0.30	0.0	0.00	1.0	**30**	*30*	1.182
SNB-BC002 CORRIDOR	1	24	78.1	0.30	0.0	0.00	1.0	**23**	*23*	0.790
B-004 CLASSROOM 1,GROUP										
SNB-B004 CLASSROOM 1	1	155	64.4	0.60	17.0	5.00	0.8	**155**	*124*	0.747
SNB-B004A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.747
SNB-B004B GROUP ROOM	1	29	14.0	0.60	3.0	5.00	0.8	**29**	*23*	0.747
B-005 CLASSROOM 2										
SNB-B005A STORE	1	6	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.747
SNB-B005 CLASSROOM 2	1	155	64.5	0.60	17.0	5.00	0.8	**155**	*124*	0.747
B-007 CLASSROOM 3,GROUP										
SNB-B007 CLASSROOM 3	1	155	64.7	0.60	17.0	5.00	0.8	**155**	*124*	0.747
SNB-B007A STORE	1	4	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.747
SNB-B006B GROUP ROOM	1	30	14.9	0.60	3.0	5.00	0.8	**30**	*24*	0.747
B-006 CLASSROOM 4										
SNB-B006A STORE	1	4	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.747
SNB-B006 CLASSROOM 4	1	154	63.6	0.60	17.0	5.00	0.8	**154**	*123*	0.747
B-102A&B LIFE SKILLS										
SNB-B102A&B LIFE SKILLS	1	199	98.8	0.60	20.0	5.00	0.8	**199**	*159*	0.747
B102C,B102D HALL,BATH,LD										
SNB-B102C HALL	1	9	19.0	0.30	0.0	0.00	1.0	**6**	*6*	1.142
SNB-B102D BATHROOM	1	3	8.1	0.00	0.0	0.00	1.0	**0**	*0*	1.747
SNB-B102F LAUNDRY	1	34	6.4	0.00	0.0	0.00	1.0	**0**	*0*	1.747
BS108,B103,B103A TOILET,										
SNB-BS108 JANITOR	1	5	19.6	0.00	0.0	0.00	1.0	**0**	*0*	1.747
SNB-B103A STORE	1	1	12.0	0.00	0.0	0.00	1.0	**0**	*0*	1.747
SNB-B103 TOILET.	1	6	31.4	0.00	0.0	0.00	1.0	**0**	*0*	1.747
BC-101 CORRIDOR										
SNB-BC101 CORRIDOR	1	78	188.7	0.30	0.0	0.00	1.0	**57**	*57*	1.020
B101C,B101D ASSESSMENT										
SNB-B101C ASSESSMENT	1	19	9.1	0.30	3.0	2.50	0.8	**13**	*10*	1.065
SNB-B101D ASSESSMENT	1	19	9.1	0.30	3.0	2.50	0.8	**13**	*10*	1.065

Ventilation Sizing Summary for AHU-01

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

B101A TRAINING ROOM										
SNB-B101A TRAINING ROOM	1	185	54.8	0.60	23.0	5.00	0.8	**185**	*148*	0.747
B101 READING ROOM										
SNB-B101 READING ROOM	1	450	158.0	0.60	53.0	5.00	0.8	**450**	*360*	0.747
B102E BEDROOM										
SNB-B102E BEDROOM	1	29	34.5	0.30	5.0	2.50	0.8	**29**	*23*	0.747
B101 READING CORRIDOR										
SNB-B101 READINGCORRIDOR	1	35	67.0	0.30	0.0	0.00	1.0	**20**	*20*	1.178
Totals (incl. Space Multipliers)		**1859**							**1388**	**0.747**

Air System Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name	**AHU-02**		Number of zones	**22**	
Equipment Class	**PKG ROOF**		Floor Area	**1458.5**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**234.5**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**131.7**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Jul 1500	**5329**	L/s	Entering DB / WB	**31.6 / 23.1**	°C
Max block L/s at Jul 1600	**5885**	L/s	Leaving DB / WB	**11.1 / 10.6**	°C
Sum of peak zone L/s	**6038**	L/s	Coil ADP	**8.8**	°C
Sensible heat ratio	**0.561**		Bypass Factor	**0.100**	
L/(s kW)	**22.7**		Resulting RH	**46**	%
m²/kW	**6.2**		Design supply temp.	**13.0**	°C
W/m²	**160.8**		Zone T-stat Check	**22 of 22**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1600	**5885**	L/s	Fan motor BHP	**14.84**	BHP
Standard L/s	**5874**	L/s	Fan motor kW	**11.77**	kW
Actual max L/(s·m²)	**4.04**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**2667**	L/s	L/s/person	**11.16**	L/s/person
L/(s·m²)	**1.83**	L/(s·m²)			

Zone Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name **AHU-02**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **22**
Floor Area ..... **1458.5** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B032 CLASSROOM 7, GROUP	354	185	4.18	4.9	-	0.0	-	0
B033 CLASSROOM 5,GROUP	336	186	3.93	4.9	-	0.0	-	0
B030 CLASSROOM 6	293	150	4.69	4.0	-	0.0	-	0
B031 CLASSROOM 8	309	155	4.48	4.1	-	0.0	-	0
BC005,B032B COR,HYG	94	28	1.02	0.0	-	0.0	-	0
BC004,B028,B027,B022	809	243	3.80	0.0	-	0.0	-	0
B025 CLASSROOM 10	327	168	3.95	4.5	-	0.0	-	0
B024 CLASSROOM 9	237	155	3.62	4.1	-	0.0	-	0
B022A VFD	424	127	43.28	0.0	-	0.0	-	0
B024A,B023C GROUP,DARK	125	47	4.14	1.2	-	0.0	-	0
B023A,B023B WHITE,SOFT	175	53	5.93	1.4	-	0.0	-	0
B026 THERAPY	130	46	6.68	1.2	-	0.0	-	0
BC103,B129,127 TOI,CR,EL	390	117	2.46	0.0	-	0.0	-	0
B116A GROUP ROOM	147	69	5.70	1.8	-	0.0	-	0
B116 CLASSROOM 19	245	159	3.49	4.2	-	0.0	-	0
B114 OCC. THERAPY	120	45	3.45	1.2	-	0.0	-	0
B115 SCIENCE/FOOD	241	157	3.57	4.2	-	0.0	-	0
B112 THERAPY	284	225	4.26	6.0	-	0.0	-	0
B112 ADMIN OFFICE	253	76	4.21	2.0	-	0.0	-	0
B113 MUSIC&VOCATN	272	159	3.90	4.2	-	0.0	-	0
B109 STAF LOUNGE	206	62	5.64	1.6	-	0.0	-	0
B110 ADMIN OFFICE	87	26	3.45	0.7	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B032 CLASSROOM 7, GROUP	4.7	Nov 1400	0.6	84.6
B033 CLASSROOM 5,GROUP	4.4	Jun 1600	0.7	85.5
B030 CLASSROOM 6	3.9	Jun 1600	0.5	62.5
B031 CLASSROOM 8	4.1	Oct 1400	0.7	69.0
BC005,B032B COR,HYG	1.2	Jul 1700	0.0	92.0
BC004,B028,B027,B022	10.7	Aug 1600	1.8	213.0
B025 CLASSROOM 10	4.3	Sep 1500	0.7	82.6
B024 CLASSROOM 9	3.1	Jul 0900	0.3	65.5
B022A VFD	5.6	Jan 2300	0.0	9.8
B024A,B023C GROUP,DARK	1.7	Jul 0900	0.3	30.2
B023A,B023B WHITE,SOFT	2.3	Jul 1400	0.3	29.5
B026 THERAPY	1.7	Jun 1600	0.3	19.4
BC103,B129,127 TOI,CR,EL	5.2	Oct 1500	1.2	158.6
B116A GROUP ROOM	1.9	Aug 1500	0.5	25.7
B116 CLASSROOM 19	3.3	Jul 1500	0.6	70.2

Zone Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B114 OCC. THERAPY	1.6	Jul 1700	0.2	34.7
B115 SCIENCE/FOOD	3.2	Jul 1500	0.6	67.4
B112 THERAPY	3.8	Jul 1600	0.6	66.6
B112 ADMIN OFFICE	3.4	Jul 1600	0.5	60.0
B113 MUSIC&VOCATN	3.6	Jul 0900	0.7	69.8
B109 STAF LOUNGE	2.7	Jul 1500	0.3	36.6
B110 ADMIN OFFICE	1.2	Jul 1400	0.3	25.3

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B032 CLASSROOM 7, GROUP							
SNB-B032 CLASSROOM 7	1	3.5	Nov 1400	265	0.3	65.5	4.05
SNB-B032A STORE	1	0.2	Jul 1700	16	0.0	4.2	3.87
SNB-B031B GROUP ROOM	1	1.0	Nov 1400	75	0.2	14.9	5.04
B033 CLASSROOM 5,GROUP							
SNB-B033 CLASSROOM 5	1	3.5	Jun 1600	266	0.5	67.4	3.95
SNB-B033A STORE	1	0.2	Jul 1700	16	0.0	4.2	3.84
SNB-B033C GROUP ROOM	1	0.7	Jun 1600	53	0.2	13.9	3.84
B030 CLASSROOM 6							
SNB-B030 CLASSROOM 6	1	3.7	Jun 1600	277	0.5	58.3	4.75
SNB-B030A STORE	1	0.2	Jul 1700	16	0.0	4.2	3.87
B031 CLASSROOM 8							
SNB-B031 CLASSROOM 8	1	3.9	Oct 1400	294	0.7	64.8	4.54
SNB-B031A STORE	1	0.2	Jul 1700	16	0.0	4.2	3.87
BC005,B032B COR,HYG							
SNB-BC005 CORRIDOR	1	1.2	Jul 1700	91	0.0	81.9	1.11
SNB-B032B HYGIENE	1	0.0	Jan 2300	3	0.0	10.1	0.29
BC004,B028,B027,B022							
SNB-BC004 CORRIDOR	1	7.9	Aug 1600	598	1.7	172.8	3.46
SNB-B027 JAN. CLOSET	1	0.5	Jul 1700	38	0.0	7.4	5.13
SNB-B028 ELEC. RM	1	1.7	Oct 1800	131	0.0	6.6	19.84
SNB-B022 WATER	1	0.6	Jul 1900	44	0.1	26.2	1.67
B025 CLASSROOM 10							
SNB-B025 CLASSROOM 10	1	4.3	Sep 1500	327	0.7	82.6	3.95
B024 CLASSROOM 9							
SNB-B024 CLASSROOM 9	1	3.1	Jul 0900	237	0.3	65.5	3.62
B022A VFD							
SNB-B022A VFD	1	5.6	Jan 2300	424	0.0	9.8	43.28
B024A,B023C GROUP,DARK							
SNB-B024A GROUP ROOM	1	0.4	Jan 2300	32	0.0	11.6	2.72
SNB-B023C DARK ROOM	1	1.2	Jul 0900	93	0.3	18.6	5.02
B023A,B023B WHITE,SOFT							
SNB-B023A WHITE ROOM	1	0.8	Jul 1700	62	0.0	12.4	5.04
SNB-B023B SOFT ROOM	1	1.5	Jul 1400	113	0.3	17.1	6.62
B026 THERAPY							
SNB-B026 Speech THERAPY	1	1.7	Jun 1600	130	0.3	19.4	6.68
BC103,B129,127 TOI,CR,EL							
SNB-B129 TOILET	1	0.2	Jul 1800	18	0.1	17.5	1.06
SNB-BC103 CORRIDOR	1	3.2	Oct 1400	242	1.1	134.6	1.80
SNB-B127 ELEC. ROOM	1	1.7	Oct 1800	132	0.1	6.5	20.24
B116A GROUP ROOM							
SNB-B116A GROUP ROOM	1	1.9	Aug 1500	147	0.5	25.7	5.70
B116 CLASSROOM 19							
SNB-B116 CLASSROOM 19	1	3.3	Jul 1500	245	0.6	70.2	3.49
B114 OCC. THERAPY							

Zone Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNB-B114-OCCUPATIONAL TH	1	1.6	Jul 1700	120	0.2	34.7	3.45
B115 SCIENCE/FOOD							
SNB-B115-SCIENCE/FOOD	1	3.2	Jul 1500	241	0.6	67.4	3.57
B112 THERAPY							
SNB-B112B-THERAPIST ROOM	1	3.8	Jul 1600	284	0.6	66.6	4.26
B112 ADMIN OFFICE							
SNB-B112A-ADMIN OFFICE	1	3.4	Jul 1600	253	0.5	60.0	4.21
B113 MUSIC&VOCATN							
SNB-B113-MUSIC&VOCTN	1	3.6	Jul 0900	272	0.7	69.8	3.90
B109 STAF LOUNGE							
SNB-B109 STAFF LOUNGE	1	2.7	Jul 1500	206	0.3	36.6	5.64
B110 ADMIN OFFICE							
SNB-B110 ADMIN OFFICE	1	1.2	Jul 1400	87	0.3	25.3	3.45

Ventilation Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method	**ASHRAE Std 62.1-2016**	
Design Condition	**Minimum flow (heating)**	
Occupant Diversity (D)	**1.000**	
Uncorrected Outdoor Air Intake (Vou)	**1789**	L/s
System Ventilation Efficiency (Ev)	**0.671**	
Outdoor Air Intake (Vot)	**2667**	L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B032 CLASSROOM 7, GROUP										
SNB-B032 CLASSROOM 7	1	155	65.5	0.60	17.0	5.00	0.8	**155**	*124*	0.671
SNB-B032A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.671
SNB-B031B GROUP ROOM	1	30	14.9	0.60	3.0	5.00	0.8	**30**	*24*	0.671
B033 CLASSROOM 5,GROUP										
SNB-B033 CLASSROOM 5	1	157	67.4	0.60	17.0	5.00	0.8	**157**	*125*	0.671
SNB-B033A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.671
SNB-B033C GROUP ROOM	1	29	13.9	0.60	3.0	5.00	0.8	**29**	*23*	0.671
B030 CLASSROOM 6										
SNB-B030 CLASSROOM 6	1	150	58.3	0.60	17.0	5.00	0.8	**150**	*120*	0.671
SNB-B030A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.671
B031 CLASSROOM 8										
SNB-B031 CLASSROOM 8	1	155	64.8	0.60	17.0	5.00	0.8	**155**	*124*	0.671
SNB-B031A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.671
BC005,B032B COR,HYG										
SNB-BC005 CORRIDOR	1	27	81.9	0.30	0.0	0.00	1.0	**25**	*25*	0.772
SNB-B032B HYGIENE	1	1	10.1	0.00	0.0	0.00	1.0	**0**	*0*	1.671
BC004,B028,B027,B022										
SNB-BC004 CORRIDOR	1	179	172.8	0.30	0.0	0.00	1.0	**52**	*52*	1.382
SNB-B027 JAN. CLOSET	1	11	7.4	0.00	0.0	0.00	1.0	**0**	*0*	1.671
SNB-B028 ELEC. RM	1	39	6.6	0.00	0.0	0.00	1.0	**0**	*0*	1.671
SNB-B022 WATER	1	13	26.2	0.00	0.0	0.00	1.0	**0**	*0*	1.671
B025 CLASSROOM 10										
SNB-B025 CLASSROOM 10	1	168	82.6	0.60	17.0	5.00	0.8	**168**	*135*	0.671
B024 CLASSROOM 9										
SNB-B024 CLASSROOM 9	1	155	65.5	0.60	17.0	5.00	0.8	**155**	*124*	0.671
B022A VFD										
SNB-B022A VFD	1	127	9.8	0.00	0.0	0.00	1.0	**0**	*0*	1.671
B024A,B023C GROUP,DARK										
SNB-B024A GROUP ROOM	1	27	11.6	0.60	3.0	5.00	0.8	**27**	*22*	0.671
SNB-B023C DARK ROOM	1	28	18.6	0.30	4.0	2.50	0.8	**19**	*16*	0.976
B023A,B023B WHITE,SOFT										
SNB-B023A WHITE ROOM	1	19	12.4	0.30	3.0	2.50	0.8	**14**	*11*	0.923
SNB-B023B SOFT ROOM	1	34	17.1	0.30	4.0	2.50	0.8	**19**	*15*	1.114
B026 THERAPY										
SNB-B026 Speech THERAPY	1	46	19.4	0.60	5.0	5.00	0.8	**46**	*37*	0.671

Ventilation Sizing Summary for AHU-02

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

BC103,B129,127 TOI,CR,EL										
SNB-B129 TOILET	1	6	17.5	0.00	0.0	0.00	1.0	**0**	*0*	1.671
SNB-BC103 CORRIDOR	1	73	134.6	0.30	0.0	0.00	1.0	**40**	*40*	1.116
SNB-B127 ELEC. ROOM	1	39	6.5	0.00	0.0	0.00	1.0	**0**	*0*	1.671
B116A GROUP ROOM										
SNB-B116A GROUP ROOM	1	69	25.7	0.60	8.0	5.00	0.8	**69**	*55*	0.671
B116 CLASSROOM 19										
SNB-B116 CLASSROOM 19	1	159	70.2	0.60	17.0	5.00	0.8	**159**	*127*	0.671
B114 OCC. THERAPY										
SNB-B114-OCCUPATIONAL TH	1	45	34.7	0.60	3.0	5.00	0.8	**45**	*36*	0.671
B115 SCIENCE/FOOD										
SNB-B115-SCIENCE/FOOD	1	157	67.4	0.60	17.0	5.00	0.8	**157**	*125*	0.671
B112 THERAPY										
SNB-B112B-THERAPIST ROOM	1	225	66.6	0.30	16.0	10.00	0.8	**225**	*180*	0.671
B112 ADMIN OFFICE										
SNB-B112A-ADMIN OFFICE	1	76	60.0	0.30	16.0	2.50	0.8	**73**	*58*	0.715
B113 MUSIC&VOCATN										
SNB-B113-MUSIC&VOCTN	1	159	69.8	0.60	17.0	5.00	0.8	**159**	*127*	0.671
B109 STAF LOUNGE										
SNB-B109 STAFF LOUNGE	1	62	36.6	0.30	13.0	2.50	0.8	**54**	*43*	0.793
B110 ADMIN OFFICE										
SNB-B110 ADMIN OFFICE	1	26	25.3	0.30	5.0	2.50	0.8	**25**	*20*	0.713
Totals (incl. Space Multipliers)		**2667**							**1789**	**0.671**

Air System Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name	**AHU-03**		Number of zones	**21**	
Equipment Class	**PKG ROOF**		Floor Area	**1167.2**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**139.7**	kW	Load occurs at	**Aug 1500**	
Sensible coil load	**80.4**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Aug 1500	**3333**	L/s	Entering DB / WB	**31.1 / 22.6**	°C
Max block L/s at Sep 1500	**3707**	L/s	Leaving DB / WB	**11.1 / 10.6**	°C
Sum of peak zone L/s	**3915**	L/s	Coil ADP	**8.9**	°C
Sensible heat ratio	**0.575**		Bypass Factor	**0.100**	
L/(s kW)	**23.9**		Resulting RH	**45**	%
m²/kW	**8.4**		Design supply temp.	**13.0**	°C
W/m²	**119.7**		Zone T-stat Check	**21 of 21**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Sep 1500	**3707**	L/s	Fan motor BHP	**9.35**	BHP
Standard L/s	**3700**	L/s	Fan motor kW	**7.41**	kW
Actual max L/(s·m²)	**3.18**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**1517**	L/s	L/s/person	**10.53**	L/s/person
L/(s·m²)	**1.30**	L/(s·m²)			

Zone Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name **AHU-03**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **21**
Floor Area ..... **1167.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B036,B036A WAITING,THRPY	304	91	4.36	2.4	-	0.0	-	0
B036B NURSE	100	30	5.38	0.8	-	0.0	-	0
B037A ASSESSMENT	75	23	6.74	0.6	-	0.0	-	0
B037 ASSESSMENT	172	52	5.85	1.4	-	0.0	-	0
B038C CONF	155	51	4.25	1.4	-	0.0	-	0
B038D PROGRAM MANAGER	74	22	4.20	0.6	-	0.0	-	0
B038B EXECUTVIE DIRECTOR	111	33	6.16	0.9	-	0.0	-	0
B008,B035 RCP,COR	257	77	2.79	2.0	-	0.0	-	0
B038F TECH SUPPORT	50	17	2.38	0.5	-	0.0	-	0
BC006,BE001,B040 COR,STR	395	119	2.34	0.0	-	0.0	-	0
B0034 EXECUTIVE	38	15	2.44	0.4	-	0.0	-	0
B-118 CLASSROOM 17,GROUP	373	188	4.22	5.0	-	0.0	-	0
B-117 CLASSROOM 18	331	158	4.52	4.2	-	0.0	-	0
B-120 CLASSROOM 15,GROUP	337	190	3.72	5.0	-	0.0	-	0
B-119 CLASSROOM 16	290	152	4.49	4.0	-	0.0	-	0
B117B,BC104 HYG,COR	106	32	1.14	0.0	-	0.0	-	0
BC101A,B101E COR,STR	142	43	1.23	0.0	-	0.0	-	0
B008A PARENTS WAITING	141	104	1.96	2.8	-	0.0	-	0
B008,B038E ENTRY	263	79	6.18	0.0	-	0.0	-	0
B-038G PRINCIPAL	54	16	3.15	0.4	-	0.0	-	0
B-038H SECRETARY	28	8	2.46	0.2	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B036,B036A WAITING,THRPY	4.0	Oct 1400	0.4	69.8
B036B NURSE	1.3	Oct 1500	0.2	18.5
B037A ASSESSMENT	1.0	Nov 1400	0.1	11.2
B037 ASSESSMENT	2.3	Oct 1500	0.6	29.4
B038C CONF	2.1	Jul 1600	0.2	36.6
B038D PROGRAM MANAGER	1.0	Jun 1600	0.2	17.6
B038B EXECUTVIE DIRECTOR	1.5	Jun 1600	0.3	18.0
B008,B035 RCP,COR	3.4	Jul 1700	0.0	92.2
B038F TECH SUPPORT	0.7	Jan 2300	0.0	21.0
BC006,BE001,B040 COR,STR	5.2	Jul 1400	1.2	168.9
B0034 EXECUTIVE	0.5	Jan 2300	0.0	15.6
B-118 CLASSROOM 17,GROUP	4.9	Nov 1400	1.0	88.3
B-117 CLASSROOM 18	4.4	Oct 1400	1.1	73.2
B-120 CLASSROOM 15,GROUP	4.5	Jun 1700	1.1	90.5
B-119 CLASSROOM 16	3.8	Jun 1700	0.7	64.6
B117B,BC104 HYG,COR	1.4	Jul 1700	0.4	93.0

Zone Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
BC101A,B101E COR,STR	1.9	Jul 1800	0.8	115.5
B008A PARENTS WAITING	1.9	Jan 2300	0.0	72.2
B008,B038E ENTRY	3.5	Jul 1600	0.9	42.6
B-038G PRINCIPAL	0.7	Jan 2300	0.0	17.1
B-038H SECRETARY	0.4	Jan 2300	0.0	11.4

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B036,B036A WAITING,THRPY							
SNB-B036 RECP&WAITING	1	2.6	Nov 1400	196	0.3	51.9	3.77
SNB-B036A THERAPY	1	1.5	Oct 1400	110	0.2	17.9	6.15
B036B NURSE							
SNB-B036B NURSE	1	1.3	Oct 1500	100	0.2	18.5	5.38
B037A ASSESSMENT							
SNB-B037A ASSESSMENT	1	1.0	Nov 1400	75	0.1	11.2	6.74
B037 ASSESSMENT							
SNB-B037 ASSESSMENT	1	2.3	Oct 1500	172	0.6	29.4	5.85
B038C CONF							
SNB-B038C CONF. ROOM	1	2.1	Jul 1600	155	0.2	36.6	4.25
B038D PROGRAM MANAGER							
SNB-B038A PROGRAM MANAGE	1	1.0	Jun 1600	74	0.2	17.6	4.20
B038B EXECUTVIE DIRECTOR							
SNB-B038B EXE DIRECTOR	1	1.5	Jun 1600	111	0.3	18.0	6.16
B008,B035 RCP,COR							
SNB-B038,B008 RECP&CORR	1	3.4	Jul 1700	257	0.0	92.2	2.79
B038F TECH SUPPORT							
SNB-B038F TECH SUPPORT	1	0.7	Jan 2300	50	0.0	21.0	2.38
BC006,BE001,B040 COR,STR							
SNB-BC006,BE001 ENTRY	1	5.2	Jul 1400	391	1.1	153.9	2.54
SNB-B040 WHEEL CHAIR	1	0.1	Oct 1800	7	0.1	15.0	0.45
B0034 EXECUTIVE							
SNB-B034 INTERVIEW	1	0.5	Jan 2300	38	0.0	15.6	2.44
B-118 CLASSROOM 17,GROUP							
SNB-B118 CLASSROOM 17	1	4.0	Nov 1400	305	0.7	68.0	4.48
SNB-B118A STORE	1	0.2	Jul 1700	17	0.0	4.2	3.94
SNB-B118B GROUP	1	0.7	Nov 1400	55	0.3	16.1	3.40
B-117 CLASSROOM 18							
SNB-B117 CLASSROOM 18	1	4.4	Oct 1400	329	1.1	69.0	4.78
SNB-B117A STORE	1	0.0	Jul 1900	2	0.0	4.2	0.45
B-120 CLASSROOM 15,GROUP							
SNB-B120A STORE	1	0.2	Jul 1700	17	0.0	4.2	3.95
SNB-B120 CLASSROOM 15	1	3.6	Jun 1700	268	0.8	71.2	3.76
SNB-B120C-GROUP ROOM	1	0.7	Jun 1700	53	0.3	15.1	3.48
B-119 CLASSROOM 16							
SNB-B119 CLASSROOM 16	1	3.6	Jun 1600	274	0.7	60.4	4.53
SNB-B119A STORE	1	0.2	Jul 1700	17	0.0	4.2	3.94
B117B,BC104 HYG,COR							
SNB-B117B HYGIENE	1	0.1	Jul 1900	4	0.0	10.1	0.40
SNB-BC104 CORRIDOR	1	1.4	Jul 1700	102	0.4	82.9	1.23
BC101A,B101E COR,STR							
SNB-BC101A CORRIDOR	1	1.3	Jul 1800	101	0.5	90.8	1.12
SNB-B101E TEACHING STORE	1	0.5	Jul 2000	41	0.3	24.7	1.66
B008A PARENTS WAITING							
SNB-B008A PARTENTS WAITI	1	1.9	Jan 2300	141	0.0	72.2	1.96
B008,B038E ENTRY							

Zone Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNB-MAIN ENTRY	1	3.5	Jul 1600	263	0.9	42.6	6.18
B-038G PRINCIPAL							
SNB-B038G PRINCIPAL	1	0.7	Jan 2300	54	0.0	17.1	3.15
B-038H SECRETARY							
SNB-B038H SECRETARY	1	0.4	Jan 2300	28	0.0	11.4	2.46

Ventilation Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method	**ASHRAE Std 62.1-2016**	
Design Condition	**Minimum flow (heating)**	
Occupant Diversity (D)	**1.000**	
Uncorrected Outdoor Air Intake (Vou)	**994**	L/s
System Ventilation Efficiency (Ev)	**0.655**	
Outdoor Air Intake (Vot)	**1517**	L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B036,B036A WAITING,THRPY										
SNB-B036 RECP&WAITING	1	59	51.9	0.30	5.0	2.50	0.8	**35**	*28*	1.057
SNB-B036A THERAPY	1	33	17.9	0.60	3.0	5.00	0.8	**32**	*26*	0.681
B036B NURSE										
SNB-B036B NURSE	1	30	18.5	0.30	3.0	2.50	0.8	**16**	*13*	1.109
B037A ASSESSMENT										
SNB-B037A ASSESSMENT	1	23	11.2	0.30	3.0	2.50	0.8	**14**	*11*	1.055
B037 ASSESSMENT										
SNB-B037 ASSESSMENT	1	52	29.4	0.30	4.0	2.50	0.8	**24**	*19*	1.199
B038C CONF										
SNB-B038C CONF. ROOM	1	51	36.6	0.30	12.0	2.50	0.8	**51**	*41*	0.655
B038D PROGRAM MANAGER										
SNB-B038A PROGRAM MANAGE	1	22	17.6	0.30	5.0	2.50	0.8	**22**	*18*	0.655
B038B EXECUTVIE DIRECTOR										
SNB-B038B EXE DIRECTOR	1	33	18.0	0.30	5.0	2.50	0.8	**22**	*18*	0.983
B008,B035 RCP,COR										
SNB-B038,B008 RECP&CORR	1	77	92.2	0.30	9.0	2.50	0.8	**63**	*50*	0.841
B038F TECH SUPPORT										
SNB-B038F TECH SUPPORT	1	17	21.0	0.30	3.0	2.50	0.8	**17**	*14*	0.655
BC006,BE001,B040 COR,STR										
SNB-BC006,BE001 ENTRY	1	117	153.9	0.30	0.0	0.00	1.0	**46**	*46*	1.262
SNB-B040 WHEEL CHAIR	1	2	15.0	0.00	0.0	0.00	1.0	**0**	*0*	1.655
B0034 EXECUTIVE										
SNB-B034 INTERVIEW	1	15	15.6	0.30	3.0	2.50	0.8	**15**	*12*	0.655
B-118 CLASSROOM 17,GROUP										
SNB-B118 CLASSROOM 17	1	157	68.0	0.60	17.0	5.00	0.8	**157**	*126*	0.655
SNB-B118A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.655
SNB-B118B GROUP	1	31	16.1	0.60	3.0	5.00	0.8	**31**	*25*	0.655
B-117 CLASSROOM 18										
SNB-B117 CLASSROOM 18	1	158	69.0	0.60	17.0	5.00	0.8	**158**	*126*	0.655
SNB-B117A STORE	1	1	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.655
B-120 CLASSROOM 15,GROUP										
SNB-B120A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.655
SNB-B120 CLASSROOM 15	1	160	71.2	0.60	17.0	5.00	0.8	**160**	*128*	0.655
SNB-B120C-GROUP ROOM	1	30	15.1	0.60	3.0	5.00	0.8	**30**	*24*	0.655
B-119 CLASSROOM 16										

Ventilation Sizing Summary for AHU-03

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

SNB-B119 CLASSROOM 16	1	152	60.4	0.60	17.0	5.00	0.8	**152**	*121*	0.655
SNB-B119A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.655
B117B,BC104 HYG,COR										
SNB-B117B HYGIENE	1	1	10.1	0.00	0.0	0.00	1.0	**0**	*0*	1.655
SNB-BC104 CORRIDOR	1	31	82.9	0.30	0.0	0.00	1.0	**25**	*25*	0.845
BC101A,B101E COR,STR										
SNB-BC101A CORRIDOR	1	30	90.8	0.30	0.0	0.00	1.0	**27**	*27*	0.760
SNB-B101E TEACHING STORE	1	12	24.7	0.00	0.0	0.00	1.0	**0**	*0*	1.655
B008A PARENTS WAITING										
SNB-B008A PARTENTS WAITI	1	104	72.2	0.60	8.0	5.00	0.8	**104**	*83*	0.655
B008,B038E ENTRY										
SNB-MAIN ENTRY	1	79	42.6	0.30	0.0	0.00	1.0	**13**	*13*	1.493
B-038G PRINCIPAL										
SNB-B038G PRINCIPAL	1	16	17.1	0.00	5.0	0.00	0.8	**0**	*0*	1.655
B-038H SECRETARY										
SNB-B038H SECRETARY	1	8	11.4	0.00	2.0	0.00	0.8	**0**	*0*	1.655
Totals (incl. Space Multipliers)		**1517**							**994**	**0.655**

Air System Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name	**AHU-04**		Number of zones	**15**	
Equipment Class	**PKG ROOF**		Floor Area	**894.6**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**124.0**	kW	Load occurs at	**Jul 1500**	
Sensible coil load	**70.8**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Jul 1500	**2891**	L/s	Entering DB / WB	**31.4 / 22.8**	°C
Max block L/s at Jul 1700	**3227**	L/s	Leaving DB / WB	**11.1 / 10.6**	°C
Sum of peak zone L/s	**3328**	L/s	Coil ADP	**8.8**	°C
Sensible heat ratio	**0.571**		Bypass Factor	**0.100**	
L/(s kW)	**23.3**		Resulting RH	**45**	%
m²/kW	**7.2**		Design supply temp.	**13.0**	°C
W/m²	**138.6**		Zone T-stat Check	**15 of 15**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Jul 1700	**3227**	L/s	Fan motor BHP	**8.14**	BHP
Standard L/s	**3221**	L/s	Fan motor kW	**6.45**	kW
Actual max L/(s·m²)	**3.61**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**1369**	L/s	L/s/person	**13.93**	L/s/person
L/(s·m²)	**1.53**	L/(s·m²)			

Zone Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name **AHU-04**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **15**
Floor Area ..... **894.6** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B009 CALMING	42	20	4.41	0.5	-	0.0	-	0
BC003,B020 COR,ELEC	512	154	3.80	0.0	-	0.0	-	0
B019 PHYSIO	192	93	4.09	2.5	-	0.0	-	0
B011,B12,B18,BC007,BC4A	378	113	3.26	0.0	-	0.0	-	0
B017 THERAPY	106	45	6.69	1.2	-	0.0	-	0
B016 OFFICE SUPPLY	99	30	5.61	0.8	-	0.0	-	0
B108,BS123,BC103B EL,CR,	311	93	2.84	0.0	-	0.0	-	0
B105 CLASSROOM 12	311	156	4.38	4.1	-	0.0	-	0
B107 CLASSROOM 14	302	156	4.30	4.1	-	0.0	-	0
B104,105B CLASS 11,GROUP	339	187	3.92	4.9	-	0.0	-	0
B106 CLASSROOM 13,GROUP	355	187	4.07	5.0	-	0.0	-	0
B014 SHIPPING RECEVING	109	33	6.94	0.0	-	0.0	-	0
BC102,B107B COR,HYG	103	31	1.17	0.0	-	0.0	-	0
B010 GROUP ROOM	49	33	2.68	0.9	-	0.0	-	0
B108A CALMING	21	18	2.89	0.5	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B009 CALMING	0.6	Jun 1700	0.2	9.5
BC003,B020 COR,ELEC	6.8	Aug 1800	0.3	134.6
B019 PHYSIO	2.5	Jul 1800	0.2	46.9
B011,B12,B18,BC007,BC4A	5.0	Jul 1700	1.1	115.8
B017 THERAPY	1.4	Jul 1400	0.3	15.8
B016 OFFICE SUPPLY	1.3	Oct 1500	0.2	17.6
B108,BS123,BC103B EL,CR,	4.1	Jun 1700	1.2	109.4
B105 CLASSROOM 12	4.1	Jun 1600	0.8	70.9
B107 CLASSROOM 14	4.0	Nov 1300	0.7	70.3
B104,105B CLASS 11,GROUP	4.5	Jun 1600	1.0	86.4
B106 CLASSROOM 13,GROUP	4.7	Nov 1300	1.0	87.3
B014 SHIPPING RECEVING	1.4	Jun 1600	0.4	15.7
BC102,B107B COR,HYG	1.4	Jul 1700	0.4	88.8
B010 GROUP ROOM	0.7	Jul 2000	0.1	18.4
B108A CALMING	0.3	Jul 1900	0.0	7.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B009 CALMING							

Zone Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
SNB-B009 CALMING ROOM	1	0.6	Jun 1700	42	0.2	9.5	4.41
BC003,B020 COR,ELEC							
SNB-BC003 CORRIDOR	1	1.7	Jul 1800	127	0.2	119.7	1.06
SNB-B020 ELEC. RM	1	5.1	Sep 1700	386	0.1	14.9	25.91
B019 PHYSIO							
SNB-B019 PHYSIOTHERAPY	1	2.5	Jul 1800	192	0.2	46.9	4.09
B011,B12,B18,BC007,BC4A							
SNB-B011 LAUNDRY	1	1.4	Jul 2000	106	0.3	22.6	4.70
SNB-B012 BUILDING MAINT	1	0.8	Jun 1700	62	0.3	29.7	2.08
SNB-BC007 CORRIDOR	1	1.7	Jul 1700	131	0.1	32.3	4.06
SNB-BC004A VESTIBULE	1	1.1	Aug 1700	79	0.4	20.7	3.84
SNB-B018 Store	1	0.0	Jul 1900	3	0.0	10.5	0.26
B017 THERAPY							
SNB-B017 THERAPY	1	1.4	Jul 1400	106	0.3	15.8	6.69
B016 OFFICE SUPPLY							
SNB-B016 OFFICE SUPPLIES	1	1.3	Oct 1500	99	0.2	17.6	5.61
B108,BS123,BC103B EL,CR,							
SNB-BC103b CORRIDOR	1	2.7	Jun 1700	203	1.1	99.6	2.04
SNB-BS123 STORAGE	1	0.1	Jul 1900	7	0.1	4.4	1.70
SNB-B108 ELEC. ROOM	1	1.3	Jul 1700	101	0.0	5.4	18.70
B105 CLASSROOM 12							
SNB-B105 CLASSROOM 12	1	3.9	Jun 1600	294	0.7	66.7	4.41
SNB-B105A STORE	1	0.2	Jul 1700	17	0.0	4.2	3.94
B107 CLASSROOM 14							
SNB-B107A STORE	1	0.2	Jul 1700	17	0.0	4.2	3.94
SNB-B107 CLASSROOM 14	1	3.8	Nov 1300	290	0.7	66.1	4.38
B104,105B CLASS 11,GROUP							
SNB-B104 CLASSROOM 11	1	3.7	Jun 1600	278	0.7	66.9	4.15
SNB-B104A STORE	1	0.2	Jul 1700	17	0.0	4.2	3.94
SNB-B105B GROUP	1	0.6	Jun 1700	45	0.3	15.3	2.95
B106 CLASSROOM 13,GROUP							
SNB-B106 CLASSROOM 13	1	3.9	Nov 1300	291	0.7	67.0	4.35
SNB-B106A STORE	1	0.2	Jul 1700	17	0.0	4.2	3.94
SNB-B106B GROUP	1	0.7	Nov 1300	51	0.3	16.1	3.18
B014 SHIPPING RECEVING							
SNB-B014 SHIPPING RECEIV	1	1.4	Jun 1600	109	0.4	15.7	6.94
BC102,B107B COR,HYG							
SNB-BC102 CORRIDOR	1	1.3	Jul 1700	99	0.3	78.1	1.27
SNB-B107B HYGIENE	1	0.1	Jul 1900	4	0.0	10.7	0.40
B010 GROUP ROOM							
SNB-B010 GROUP ROOM	1	0.7	Jul 2000	49	0.1	18.4	2.68
B108A CALMING							
SNB-B108A CALMING ROOM	1	0.3	Jul 1900	21	0.0	7.2	2.89

Ventilation Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **845** L/s
System Ventilation Efficiency (Ev) **0.617**
Outdoor Air Intake (Vot) ..... **1369** L/s

2. Space Ventilation Analysis

Ventilation Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B009 CALMING										
SNB-B009 CALMING ROOM	1	20	9.5	0.60	2.0	5.00	0.8	**20**	*16*	0.617
BC003,B020 COR,ELEC										
SNB-BC003 CORRIDOR	1	38	119.7	0.30	0.0	0.00	1.0	**36**	*36*	0.677
SNB-B020 ELEC. RM	1	116	14.9	0.00	0.0	0.00	1.0	**0**	*0*	1.617
B019 PHYSIO										
SNB-B019 PHYSIOTHERAPY	1	93	46.9	0.30	6.0	10.00	0.8	**93**	*74*	0.617
B011,B12,B18,BC007,BC4A										
SNB-B011 LAUNDRY	1	32	22.6	0.00	0.0	0.00	1.0	**0**	*0*	1.617
SNB-B012 BUILDING MAINT	1	19	29.7	0.00	0.0	0.00	1.0	**0**	*0*	1.617
SNB-BC007 CORRIDOR	1	39	32.3	0.30	0.0	0.00	1.0	**10**	*10*	1.371
SNB-BC004A VESTIBULE	1	24	20.7	0.30	0.0	0.00	1.0	**6**	*6*	1.357
SNB-B018 Store	1	1	10.5	0.00	0.0	0.00	1.0	**0**	*0*	1.617
B017 THERAPY										
SNB-B017 THERAPY	1	45	15.8	0.60	5.3	5.00	0.8	**45**	*36*	0.617
B016 OFFICE SUPPLY										
SNB-B016 OFFICE SUPPLIES	1	30	17.6	0.30	3.0	2.50	0.8	**16**	*13*	1.078
B108,BS123,BC103B EL,CR,										
SNB-BC103b CORRIDOR	1	61	99.6	0.30	0.0	0.00	1.0	**30**	*30*	1.126
SNB-BS123 STORAGE	1	2	4.4	0.00	0.0	0.00	1.0	**0**	*0*	1.617
SNB-B108 ELEC. ROOM	1	30	5.4	0.00	0.0	0.00	1.0	**0**	*0*	1.617
B105 CLASSROOM 12										
SNB-B105 CLASSROOM 12	1	156	66.7	0.60	17.0	5.00	0.8	**156**	*125*	0.617
SNB-B105A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.617
B107 CLASSROOM 14										
SNB-B107A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.617
SNB-B107 CLASSROOM 14	1	156	66.1	0.60	17.0	5.00	0.8	**156**	*125*	0.617
B104,105B CLASS 11,GROUP										
SNB-B104 CLASSROOM 11	1	156	66.9	0.60	17.0	5.00	0.8	**156**	*125*	0.617
SNB-B104A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.617
SNB-B105B GROUP	1	30	15.3	0.60	3.0	5.00	0.8	**30**	*24*	0.617
B106 CLASSROOM 13,GROUP										
SNB-B106 CLASSROOM 13	1	157	67.0	0.60	17.0	5.00	0.8	**157**	*125*	0.617
SNB-B106A STORE	1	5	4.2	0.00	0.0	0.00	0.8	**0**	*0*	1.617
SNB-B106B GROUP	1	31	16.1	0.60	3.0	5.00	0.8	**31**	*25*	0.617
B014 SHIPPING RECEVING										

Ventilation Sizing Summary for AHU-04

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

SNB-B014 SHIPPING RECEIV	1	33	15.7	0.30	3.0	2.50	1.0	**12**	*12*	1.244
BC102,B107B COR,HYG										
SNB-BC102 CORRIDOR	1	30	78.1	0.30	0.0	0.00	1.0	**23**	*23*	0.830
SNB-B107B HYGIENE	1	1	10.7	0.00	0.0	0.00	1.0	**0**	*0*	1.617
B010 GROUP ROOM										
SNB-B010 GROUP ROOM	1	33	18.4	0.60	3.0	5.00	0.8	**33**	*26*	0.617
B108A CALMING										
SNB-B108A CALMING ROOM	1	18	7.2	0.60	2.0	5.00	0.8	**18**	*14*	0.617
Totals (incl. Space Multipliers)		**1369**							**845**	**0.617**

Air System Sizing Summary for AHU-05

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name	**AHU-05**		Number of zones	**3**	
Equipment Class	**PKG ROOF**		Floor Area	**222.2**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**62.5**	kW	Load occurs at	**Aug 1500**	
Sensible coil load	**32.5**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Aug 1500	**1253**	L/s	Entering DB / WB	**32.6 / 24.5**	°C
Max block L/s at Aug 1600	**1361**	L/s	Leaving DB / WB	**11.1 / 10.8**	°C
Sum of peak zone L/s	**1393**	L/s	Coil ADP	**8.7**	°C
Sensible heat ratio	**0.519**		Bypass Factor	**0.100**	
L/(s kW)	**20.1**		Resulting RH	**54**	%
m²/kW	**3.6**		Design supply temp.	**13.0**	°C
W/m²	**281.2**		Zone T-stat Check	**3 of 3**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Aug 1600	**1361**	L/s	Fan motor BHP	**3.43**	BHP
Standard L/s	**1358**	L/s	Fan motor kW	**2.72**	kW
Actual max L/(s·m²)	**6.12**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**749**	L/s	L/s/person	**7.20**	L/s/person
L/(s·m²)	**3.37**	L/(s·m²)			

Zone Sizing Summary for AHU-05

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name **AHU-05**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **3**
Floor Area ..... **222.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B001 DINNING	1078	667	6.32	17.7	-	0.0	-	0
B002 KITCHEN	211	63	6.20	1.7	-	0.0	-	0
B002A KITCHEN STORAGE	61	18	3.51	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B001 DINNING	14.3	Oct 1500	0.8	170.6
B002 KITCHEN	2.8	Jun 1600	0.3	34.1
B002A KITCHEN STORAGE	0.8	Jun 2000	0.1	17.5

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B001 DINNING							
SNB-B001-DINNING	1	14.3	Oct 1500	1078	0.8	170.6	6.32
B002 KITCHEN							
SNB-B002 KITCHEN	1	2.8	Jun 1600	211	0.3	34.1	6.20
B002A KITCHEN STORAGE							
SNB-B002A KITCHEN STORE	1	0.8	Jun 2000	61	0.1	17.5	3.51

Ventilation Sizing Summary for AHU-05

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **569** L/s
System Ventilation Efficiency (Ev) **0.760**
Outdoor Air Intake (Vot) ..... **749** L/s

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B001 DINNING										
SNB-B001-DINNING	1	667	170.6	0.90	100.0	3.80	0.8	**667**	*534*	0.760
B002 KITCHEN										
SNB-B002 KITCHEN	1	63	34.1	0.60	4.0	3.80	0.8	**45**	*36*	1.057
B002A KITCHEN STORAGE										
SNB-B002A KITCHEN STORE	1	18	17.5	0.00	0.0	0.00	1.0	**0**	*0*	1.760
Totals (incl. Space Multipliers)		**749**							**569**	**0.760**

Air System Sizing Summary for AHU-06

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name	**AHU-06**		Number of zones	**3**	
Equipment Class	**PKG ROOF**		Floor Area	**370.2**	m²
Air System Type	**VAV**		Location	**Hofuf Cond1, Saudi Arabia**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone L/s Sizing	**Peak zone sensible load**
Sizing Data	**Calculated**	Space L/s Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**107.1**	kW	Load occurs at	**Aug 1500**	
Sensible coil load	**55.7**	kW	OA DB / WB	**38.0 / 28.0**	°C
Coil L/s at Aug 1500	**2121**	L/s	Entering DB / WB	**32.9 / 24.6**	°C
Max block L/s at Sep 1600	**2317**	L/s	Leaving DB / WB	**11.1 / 10.7**	°C
Sum of peak zone L/s	**2338**	L/s	Coil ADP	**8.7**	°C
Sensible heat ratio	**0.520**		Bypass Factor	**0.100**	
L/(s kW)	**19.8**		Resulting RH	**54**	%
m²/kW	**3.5**		Design supply temp.	**13.0**	°C
W/m²	**289.2**		Zone T-stat Check	**3 of 3**	OK
Water flow @ 5.6 K rise	**N/A**		Max zone temperature deviation	**0.0**	K

Supply Fan Sizing Data

Actual max L/s at Sep 1600	**2317**	L/s	Fan motor BHP	**5.84**	BHP
Standard L/s	**2313**	L/s	Fan motor kW	**4.63**	kW
Actual max L/(s·m²)	**6.26**	L/(s·m²)	Fan static	**1200**	Pa

Outdoor Ventilation Air Data

Design airflow L/s	**1290**	L/s	L/s/person	**5.61**	L/s/person
L/(s·m²)	**3.48**	L/(s·m²)			

Zone Sizing Summary for AHU-06

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name **AHU-06**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **3**
Floor Area ..... **370.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Peak zone sensible load**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
B121 MULTIPURPOSE	1954	1195	7.12	31.7	-	0.0	-	0
B126 ELEV LOBBY&MPR STR	282	85	3.86	0.0	-	0.0	-	0
B126B STORE	31	9	1.39	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B121 MULTIPURPOSE	25.9	Oct 1500	3.2	274.6
B126 ELEV LOBBY&MPR STR	3.7	Jul 1700	0.5	73.1
B126B STORE	0.4	Oct 1800	0.4	22.5

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B121 MULTIPURPOSE							
SNB-B121 MULTIPURPOSE	1	25.9	Oct 1500	1954	3.2	274.6	7.12
B126 ELEV LOBBY&MPR STR							
SNB-B126 MPR STORE+LOBBY	1	3.7	Jul 1700	282	0.5	73.1	3.86
B126B STORE							
SNB-B126B STORE	1	0.4	Oct 1800	31	0.4	22.5	1.39

Ventilation Sizing Summary for AHU-06

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Minimum flow (heating)**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **978** L/s
System Ventilation Efficiency (Ev) **0.759**
Outdoor Air Intake (Vot) ..... **1290** L/s

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Minimum Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B121 MULTIPURPOSE										
SNB-B121 MULTIPURPOSE	1	1195	274.6	0.30	230.0	3.80	0.8	**1195**	*956*	0.759
B126 ELEV LOBBY&MPR STR										
SNB-B126 MPR STORE+LOBBY	1	85	73.1	0.30	0.0	0.00	1.0	**22**	*22*	1.500
B126B STORE										
SNB-B126B STORE	1	9	22.5	0.00	0.0	0.00	1.0	**0**	*0*	1.759
Totals (incl. Space Multipliers)		**1290**							**978**	**0.759**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B012A FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B012A FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **13.5** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B012A FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B012A FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **13.5** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B012A FTR	7.5	7.3	22.6 / 17.2	15.0 / 14.4	-	Jul 1600	59.38

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B012A FTR	0.3	21.2 / 21.5	-	802	0.000	0.000	5

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B012A FTR	7.3	Jul 1800	0.1	13.5

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B012A FTR							
SNB-B012A FTR	1	7.3	Jul 1800	802	0.1	13.5	59.38

Ventilation Sizing Summary for FCU B012A FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Heating operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B012A FTR	5		1.000	5
System Total				**5**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B012A FTR

Zone Name / Space Name	Mult.	Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B012A FTR										
SNB-B012A FTR	1	802	13.5	0.30	0.0	0.00	0.8	**5**	*4*	1.000
Totals (incl. Space Multipliers)		**802**							**4**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B015 GARBAGE

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B015 GARBAGE**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **22.9** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B015 GARBAGE

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B015 GARBAGE**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **22.9** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B015 GARBAGE	0.6	0.6	24.6 / 8.0	15.1 / 3.3	-	Aug 2100	2.39

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B015 GARBAGE	0.2	21.0 / 24.4	-	55	0.000	0.000	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B015 GARBAGE	0.6	Aug 1900	0.2	22.9

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B015 GARBAGE							
SNB-B015 GARBAGE	1	0.6	Aug 1900	55	0.2	22.9	2.39

Ventilation Sizing Summary for FCU B015 GARBAGE

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Cooling operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B015 GARBAGE	0		1.000	0
System Total				**0**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B015 GARBAGE

Zone Name / Space Name	Mult.	Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B015 GARBAGE										
SNB-B015 GARBAGE	1	55	22.9	0.00	0.0	0.00	1.0	**0**	*0*	1.000
Totals (incl. Space Multipliers)		**55**							**0**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B039 MTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B039 MTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **26.9** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B039 MTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B039 MTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **26.9** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B039 MTR	19.6	19.3	22.6 / 17.3	15.0 / 14.5	-	Sep 1300	79.00

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B039 MTR	0.2	21.0 / 21.1	-	2125	0.000	0.000	10

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B039 MTR	19.3	Jul 1700	0.0	26.9

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B039 MTR							
SNB-B039 MTR	1	19.3	Jul 1700	2125	0.0	26.9	79.00

Ventilation Sizing Summary for FCU B039 MTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Heating operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B039 MTR	10		1.000	10
System Total				**10**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B039 MTR

Zone Name / Space Name	Mult.	Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B039 MTR										
SNB-B039 MTR	1	2125	26.9	0.30	0.0	0.00	0.8	**10**	*8*	1.000
Totals (incl. Space Multipliers)		**2125**							**8**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B101B FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B101B FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **9.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B101B FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B101B FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **9.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B101B FTR	4.9	4.8	23.1 / 17.9	15.7 / 15.2	-	Jul 1600	58.72

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B101B FTR	0.1	21.2 / 21.4	-	540	0.000	0.000	3

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B101B FTR	4.9	Jul 1700	0.0	9.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B101B FTR							
SNB-B101B FTR	1	4.9	Jul 1700	540	0.0	9.2	58.72

Ventilation Sizing Summary for FCU B101B FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Heating operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B101B FTR	3		1.000	3
System Total				**3**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B101B FTR

Zone Name / Space Name	Mult.	Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B101B FTR										
SNB-B101B FTR	1	540	9.2	0.30	0.0	0.00	0.8	**3**	3	1.000
Totals (incl. Space Multipliers)		**540**							**3**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B111 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B111 FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **8.4** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B111 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B111 FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **8.4** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B111 FTR	5.2	5.1	23.0 / 17.7	15.6 / 15.1	-	Jul 1600	67.79

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B111 FTR	0.1	21.2 / 21.4	-	569	0.000	0.000	3

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B111 FTR	5.2	Jul 1700	0.0	8.4

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B111 FTR							
SNB-B111 FTR	1	5.2	Jul 1700	569	0.0	8.4	67.79

Ventilation Sizing Summary for FCU B111 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Heating operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B111 FTR	3		1.000	3
System Total				**3**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B111 FTR

Zone Name / Space Name	Mult.	Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B111 FTR										
SNB-B111 FTR	1	569	8.4	0.30	0.0	0.00	0.8	**3**	3	1.000
Totals (incl. Space Multipliers)		**569**							**3**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU B155 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B155 FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **10.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU B155 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU B155 FTR**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **10.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
B155 FTR	7.3	7.3	22.5 / 7.0	15.0 / 3.2	-	Oct 1400	79.18

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
B155 FTR	0.1	21.1 / 21.2	-	808	0.000	0.000	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
B155 FTR	7.4	Sep 1700	0.1	10.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
B155 FTR							
SNB-B155 FTR	1	7.4	Sep 1700	808	0.1	10.2	79.18

Ventilation Sizing Summary for FCU B155 FTR

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Cooling operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
B155 FTR	0		1.000	0
System Total				**0**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: B155 FTR

Zone Name / Space Name	Mult.	Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
B155 FTR										
SNB-B155 FTR	1	808	10.2	0.00	0.0	0.00	1.0	**0**	*0*	1.000
Totals (incl. Space Multipliers)		**808**							**0**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU BS1 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU BS1 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **36.3** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU BS1 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU BS1 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **36.3** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
BS-001 STAIRS	1.7	1.7	24.6 / 8.1	15.9 / 3.7	-	Jun 1700	4.42

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
BS-001 STAIRS	0.3	21.0 / 22.6	-	160	0.000	0.000	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
BS-001 STAIRS	1.8	Jul 1800	0.3	36.3

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
BS-001 STAIRS							
SNB-BS001 STAIRS	1	1.8	Jul 1800	160	0.3	36.3	4.42

Ventilation Sizing Summary for FCU BS1 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Cooling operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
BS-001 STAIRS	0		1.000	0
System Total				**0**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: BS-001 STAIRS

Zone Name / Space Name	Mult.	Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
BS-001 STAIRS										
SNB-BS001 STAIRS	1	160	36.3	0.00	0.0	0.00	1.0	**0**	*0*	1.000
Totals (incl. Space Multipliers)		**160**							**0**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU BS2 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU BS2 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **34.4** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU BS2 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU BS2 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **34.4** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
BS-002 STAIRS	1.7	1.7	24.6 / 8.1	15.8 / 3.7	-	Aug 1900	4.68

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
BS-002 STAIRS	1.2	20.8 / 26.9	-	161	0.000	0.000	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
BS-002 STAIRS	1.9	Jul 1800	1.2	34.4

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
BS-002 STAIRS							
SNB-BS002 STAIRS	1	1.9	Jul 1800	161	1.2	34.4	4.68

Ventilation Sizing Summary for FCU BS2 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Cooling operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
BS-002 STAIRS	0		1.000	0
System Total				**0**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: BS-002 STAIRS

Zone Name / Space Name	Mult.	Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
BS-002 STAIRS										
SNB-BS002 STAIRS	1	161	34.4	0.00	0.0	0.00	1.0	**0**	*0*	1.000
Totals (incl. Space Multipliers)		**161**							**0**	**1.000**

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU BS3 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU BS3 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **35.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU BS3 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

Air System Information

Air System Name ..... **FCU BS3 STAIRS**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **35.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
BS-003 STAIRS	0.5	0.5	24.7 / 8.1	15.5 / 3.5	-	Sep 1900	1.42

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
BS-003 STAIRS	0.3	20.9 / 26.4	-	50	0.000	0.000	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
BS-003 STAIRS	0.6	Sep 1900	0.3	35.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
BS-003 STAIRS							
SNB-BS003 STAIRS	1	0.6	Sep 1900	50	0.3	35.2	1.42

Ventilation Sizing Summary for FCU BS3 STAIRS

Project Name: AL HASA SN BOYS SCHOOL 04/13/2023

Prepared by: scec 12:33PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Cooling operation**

Zone Name	Zone Outdoor Airflow (L/s)	Uncorrected Outdoor Air Intake (L/s)	Ventilation Efficiency	Outdoor Air Intake (L/s)
	(Voz)	(Vou)	(Ev)	(Vot)
BS-003 STAIRS	0		1.000	0
System Total				**0**

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: BS-003 STAIRS

Zone Name / Space Name	Mult.	Supply Air (L/s) (Vpz)	Space Floor Area (m²) (Az)	Area Outdoor Air Rate (L/(s·m²)) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (L/s/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (L/s) (Voz)	Breathing Zone Outdoor Air (L/s) (Vbz)	Space Ventilation Efficiency (Evz)
BS-003 STAIRS										
SNB-BS003 STAIRS	1	50	35.2	0.00	0.0	0.00	1.0	**0**	*0*	1.000
Totals (incl. Space Multipliers)		**50**							**0**	**1.000**

Static pressure calculation

SAUDI CONSOLIDATED ENGINEERING COMPANY
KHATIB & ALAMI

Project:	23.001 Al Hasa SN Schools	Project No.:	KH23001	Page:	1 of 1
Subject:	Boys building	Prepared By:	M.M	Date:	27-Feb-23
Detail:	Static Pressure Calculations	Checked By:	T.Z	Date:	27-Feb-23

1- Equipment Name AHU-01

Location ROOF

a Supply Duct

Total Duct Length	(m)	62.9
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	50.32
Fittings Friction Loss	Pa	40.256
	Subtotal (Duct+Fittings)	**90.576**
Safety (10%)		25.558
Supply Duct Static Pressure Loss (Pa)		**281.134**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Flexible Duct	1	15	15
Volume Damper	1	15	15
Electric Duct Heater	1	50	50
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper	0	25	0
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**165**

b Return Duct

Total Duct Length	(m)	22.9
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	18.32
Fittings Friction Loss	Pa	14.656
	Subtotal (Duct+Fittings)	**32.976**
Safety (10%)		16.548
Return Duct Static Pressure Loss (Pa)		**182.024**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Inlet		15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	12.5	12.5
Volume Damper	1	25	25
Fire Damper	1	25	25
Fire/Smoke Damper	1	25	25
Sound Attenuator	0	75	0
Motorized Volume Damper	1	25	25
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**132.5**

c Fresh Air Duct

Total Duct Length	(m)	3.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	2.64
Fittings Friction Loss	Pa	2.112
	Subtotal (Duct+Fittings)	**4.752**
Safety (10%)		7.975
Fresh Air Duct Static Pressure Loss (Pa)		**87.727**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	0	15	0
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	1	25	25
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**75**

External Static Pressure (higher of supply+return or supply+fresh)	**463 Pa**
Considered	**500 Pa**

SAUDI CONSOLIDATED ENGINEERING COMPANY
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Subject:	Boys building	Prepared By:	M.M	Date:	27-Feb-23
Detail:	Static Pressure Calculations	Checked By:	T.Z	Date:	27-Feb-23

1- Equipment Name AHU-02

Location ROOF

a Supply Duct

Total Duct Length	(m)	62.4
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	49.92
Fittings Friction Loss	Pa	39.936
	Subtotal (Duct+Fittings)	**89.856**
Safety (10%)		25.486
Supply Duct Static Pressure Loss (Pa)		**280.342**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Flexible Duct	1	15	15
Volume Damper	1	15	15
Electric Duct Heater	1	50	50
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper		25	0
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**165**

b Return Duct

Total Duct Length	(m)	19.4
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	15.52
Fittings Friction Loss	Pa	12.416
	Subtotal (Duct+Fittings)	**27.936**
Safety (10%)		13.544
Return Duct Static Pressure Loss (Pa)		**148.980**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Inlet		15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	12.5	12.5
Volume Damper	1	25	25
Fire Damper		25	0
Fire/Smoke Damper	1	25	25
Sound Attenuator	0	75	0
Motorized Volume Damper	1	25	25
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**107.5**

c Fresh Air Duct

Total Duct Length	(m)	3.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	2.64
Fittings Friction Loss	Pa	2.112
	Subtotal (Duct+Fittings)	**4.752**
Safety (10%)		7.975
Fresh Air Duct Static Pressure Loss (Pa)		**87.727**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	0	15	0
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	1	25	25
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**75**

External Static Pressure (higher of supply+return or supply+fresh)	**429 Pa**
Considered	**500 Pa**

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Detail:	Static Pressure Calculations	Checked By:	T.Z	Date:	27-Feb-23

1- Equipment Name AHU-03

Location ROOF

a Supply Duct

Total Duct Length	(m)	62.9
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	50.32
Fittings Friction Loss	Pa	40.256
	Subtotal (Duct+Fittings)	**90.576**
Safety (10%)		27.058
Supply Duct Static Pressure Loss (Pa)		**297.634**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Outlet	1	15	15
Flexible Duct	1	15	15
Volume Damper	2	15	30
Electric Duct Heater	1	50	50
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper	0	25	0
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**180**

b Return Duct

Total Duct Length	(m)	20.9
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	16.72
Fittings Friction Loss	Pa	13.376
	Subtotal (Duct+Fittings)	**30.096**
Safety (10%)		16.510
Return Duct Static Pressure Loss (Pa)		**181.606**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Inlet		15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	15	15
Volume Damper	1	25	25
Fire Damper	1	25	25
Fire/Smoke Damper	1	25	25
Sound Attenuator	0	75	0
Motorized Volume Damper	1	25	25
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**135**

c Fresh Air Duct

Total Duct Length	(m)	3.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	2.64
Fittings Friction Loss	Pa	2.112
	Subtotal (Duct+Fittings)	**4.752**
Safety (10%)		7.975
Fresh Air Duct Static Pressure Loss (Pa)		**87.727**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	0	15	0
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	1	25	25
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**75**

External Static Pressure (higher of supply+return or supply+fresh)	**479 Pa**
Considered	**500 Pa**

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Detail:	Static Pressure Calculations	Checked By:	T.Z	Date:	27-Feb-23

1- Equipment Name **AHU-04**

Location **ROOF**

a Supply Duct

Total Duct Length	(m)	64.2
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	51.36
Fittings Friction Loss	Pa	41.088
	Subtotal (Duct+Fittings)	**92.448**
Safety (10%)		28.245
Supply Duct Static Pressure Loss (Pa)		**310.693**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Outlet	1	15	15
Flexible Duct	1	15	15
Volume Damper	1	15	15
Electric Duct Heater	1	50	50
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper	1	25	25
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**190**

b Return Duct

Total Duct Length	(m)	20.8
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	16.64
Fittings Friction Loss	Pa	13.312
	Subtotal (Duct+Fittings)	**29.952**
Safety (10%)		16.245
Return Duct Static Pressure Loss (Pa)		**178.697**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Inlet	0	15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	12.5	12.5
Volume Damper	1	25	25
Fire Damper	1	25	25
Fire/Smoke Damper	1	25	25
Sound Attenuator	0	75	0
Motorized Volume Damper	1	25	25
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**132.5**

c Fresh Air Duct

Total Duct Length	(m)	3.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	2.64
Fittings Friction Loss	Pa	2.112
	Subtotal (Duct+Fittings)	**4.752**
Safety (10%)		7.975
Fresh Air Duct Static Pressure Loss (Pa)		**87.727**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	0	15	0
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	1	25	25
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**75**

External Static Pressure (higher of supply+return or supply+fresh)	**489 Pa**
Considered	**500 Pa**

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Subject:	Boys building	Prepared By:	M.M	Date:	27-Feb-23
Detail:	Static Pressure Calculations	Checked By:	T.Z	Date:	27-Feb-23

1- Equipment Name AHU-05

Location ROOF

a Supply Duct

Total Duct Length	(m)	32.6
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	26.08
Fittings Friction Loss	Pa	20.864
	Subtotal (Duct+Fittings)	**46.944**
Safety (10%)		21.194
Supply Duct Static Pressure Loss (Pa)		**233.138**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Flexible Duct	1	15	15
Volume Damper	1	15	15
Electric Duct Heater	1	50	50
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper	0	25	0
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**165**

b Return Duct

Total Duct Length	(m)	20.4
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	16.32
Fittings Friction Loss	Pa	13.056
	Subtotal (Duct+Fittings)	**29.376**
Safety (10%)		13.688
Return Duct Static Pressure Loss (Pa)		**150.564**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Inlet	0	15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	12.5	12.5
Volume Damper	1	25	25
Fire Damper		25	0
Fire/Smoke Damper	1	25	25
Sound Attenuator	0	75	0
Motorized Volume Damper	1	25	25
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**107.5**

c Fresh Air Duct

Total Duct Length	(m)	3.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	2.64
Fittings Friction Loss	Pa	2.112
	Subtotal (Duct+Fittings)	**4.752**
Safety (10%)		7.975
Fresh Air Duct Static Pressure Loss (Pa)		**87.727**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	0	15	0
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	1	25	25
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**75**

External Static Pressure (higher of supply+return or supply+fresh)	**384 Pa**
Considered	**500 Pa**

SAUDI CONSOLIDATED ENGINEERING COMPANY
KHATIB & ALAMI

Project:	23.001 Al Hasa SN Schools	Project No.:	KH23001	Page:	1 of 1
Subject:	Boys building	Prepared By:	M.M	Date:	27-Feb-23
Detail:	Static Pressure Calculations	Checked By:	T.Z	Date:	27-Feb-23

1- Equipment Name **AHU-06**

Location **ROOF**

a Supply Duct

Total Duct Length	(m)	36
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	28.8
Fittings Friction Loss	Pa	23.04
	Subtotal (Duct+Fittings)	**51.84**
Safety (10%)		24.184
Supply Duct Static Pressure Loss (Pa)		**266.024**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Outlet	1	15	15
Flexible Duct	0	15	0
Volume Damper	2	15	30
Electric Duct Heater	1	50	50
VAV Box	1	25	25
Fire/Smoke Damper	1	25	25
Fire Damper	1	25	25
Motorized Volume Damper	0	25	0
Sound Attenuator	0	75	0
Back Draft Damper	0	30	0
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**190**

b Return Duct

Total Duct Length	(m)	14.5
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	11.6
Fittings Friction Loss	Pa	9.280
	Subtotal (Duct+Fittings)	**20.880**
Safety (10%)		10.338
Return Duct Static Pressure Loss (Pa)		**113.718**

Accessories Frition Loss	**Qty (Nos)**	**Friction Loss(Pa)**	**Total Friction Loss(Pa)**
Air Inlet	0	15	0
Flexible Duct	0	15	0
Return Air Opening (BMO)	1	12.5	12.5
Volume Damper	1	25	25
Fire Damper	0	25	0
Fire/Smoke Damper	0	25	0
Sound Attenuator	0	75	0
Motorized Volume Damper	1	25	25
Flexible Connection	1	20	20
Subtotal (Accessories Friction Loss)			**82.5**

c Fresh Air Duct

Total Duct Length	(m)	3.3
Friction Rate	(Pa/m)	0.8
Duct Friction Loss	Pa	2.64
Fittings Friction Loss	Pa	2.112
	Subtotal (Duct+Fittings)	**4.752**
Safety (10%)		7.975
Fresh Air Duct Static Pressure Loss (Pa)		**87.727**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Volume Damper	0	15	0
Flexible Connection	0	15	0
Inertial Filter	0	160	0
Motorized Volume Damper	1	25	25
Sand Trap Louver	1	50	50
Subtotal (Accessories Friction Loss)			**75**

External Static Pressure (higher of supply+return or supply+fresh)	**380 Pa**
Considered	**500 Pa**

SAUDI CONSOLIDATED ENGINEERING COMPANY

KHATIB & ALAMI

Project	23.001 Al Hasa SN Schools	KH23001	Page	1 of 1
Subject	Boys building		Date	27-Feb-23
Detail	Static Pressure Calculations		Date	27-Feb-23

Equipment Name EF-SNB-01

Location GARBAGE

Total Duct Length	(m)	2
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	1.3
Fittings Friction Loss	Pa	1.04
Subtotal (Duct+Fittings)		**2.34**
Safety (10%)		8.734
Total Static Pressure Loss (Pa)		**96**
Considered		**100**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name EF-SNB-02

Location LAUNDRAY GROUND FLOOR

Total Duct Length	(m)	2
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	1.3
Fittings Friction Loss	Pa	1.04
Subtotal (Duct+Fittings)		**2.34**
Safety (10%)		8.734
Total Static Pressure Loss (Pa)		**96**
Considered		**100**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name EF-SNB-03

Location KITCHEN/LIFE SKILLS

Total Duct Length	(m)	2
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	1.3
Fittings Friction Loss	Pa	1.04
Subtotal (Duct+Fittings)		**2.34**
Safety (10%)		8.734
Total Static Pressure Loss (Pa)		**96**
Considered		**100**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	25	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNB-04	
Location	Toilets	
Total Duct Length	(m)	32.5
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	21.125
Fittings Friction Loss	Pa	16.9
Subtotal (Duct+Fittings)		**38.025**
Safety (10%)		18.3025
Total Static Pressure Loss (Pa)		**201**
Considered		**225**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	1	15	15
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	3	15	45
Subtotal (Accessories Friction Loss)			**145**

Equipment Name	EF-SNB-05A	
Location	Toilets	
Total Duct Length	(m)	40
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	26
Fittings Friction Loss	Pa	20.8
Subtotal (Duct+Fittings)		**46.8**
Safety (10%)		19.18
Total Static Pressure Loss (Pa)		**211**
Considered		**225**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	1	15	15
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	3	15	45
Subtotal (Accessories Friction Loss)			**145**

Equipment Name	EF-SNB-05B	
Location	Toilets	
Total Duct Length	(m)	32
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	20.8
Fittings Friction Loss	Pa	16.64
Subtotal (Duct+Fittings)		**37.44**
Safety (10%)		18.244
Total Static Pressure Loss (Pa)		**201**
Considered		**225**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	1	15	15
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	3	15	45
Subtotal (Accessories Friction Loss)			**145**

Equipment Name	EF-SNB-06	
Location	Toilets	
Total Duct Length	(m)	37.4
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	24.31
Fittings Friction Loss	Pa	19.448
Subtotal (Duct+Fittings)		**43.758**
Safety (10%)		15.8758
Total Static Pressure Loss (Pa)		**175**
Considered		**200**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	1	15	15
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	1	15	15
Subtotal (Accessories Friction Loss)			**115**

Equipment Name	EF-SNB-07	
Location	AHU-SNB-06	
Total Duct Length	(m)	5.5
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	3.575
Fittings Friction Loss	Pa	2.86
Subtotal (Duct+Fittings)		**6.435**
Safety (10%)		9.1435
Total Static Pressure Loss (Pa)		**101**
Considered		**100**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNB-08	
Location	AHU-SNB-02	
Total Duct Length	(m)	3.6
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	2.34
Fittings Friction Loss	Pa	1.872
Subtotal (Duct+Fittings)		**4.212**
Safety (10%)		8.9212
Total Static Pressure Loss (Pa)		**98**
Considered		**100**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNB-09	
Location	AHU-SNB-03	
Total Duct Length	(m)	4.3
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	2.795
Fittings Friction Loss	Pa	2.236
Subtotal (Duct+Fittings)		**5.031**
Safety (10%)		9.0031
Total Static Pressure Loss (Pa)		**99**
Considered		**100**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNB-10	
Location	AHU-SNB-04	
Total Duct Length	(m)	3.4
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	2.21
Fittings Friction Loss	Pa	1.768
Subtotal (Duct+Fittings)		**3.978**
Safety (10%)		8.8978
Total Static Pressure Loss (Pa)		**98**
Considered		**100**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNB-11	
Location	AHU-SNB-05	
Total Duct Length	(m)	3.9
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	2.535
Fittings Friction Loss	Pa	2.028
Subtotal (Duct+Fittings)		**4.563**
Safety (10%)		8.9563
Total Static Pressure Loss (Pa)		**99**
Considered		**100**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNB-12	
Location	AHU-SNB-01	
Total Duct Length	(m)	7.7
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	5.005
Fittings Friction Loss	Pa	4.004
Subtotal (Duct+Fittings)		**9.009**
Safety (10%)		9.4009
Total Static Pressure Loss (Pa)		**103**
Considered		**125**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNB-13	
Location	LAUNDRY FIRST FLOOR	
Total Duct Length	(m)	4
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	2.6
Fittings Friction Loss	Pa	2.08
Subtotal (Duct+Fittings)		**4.68**
Safety (10%)		8.968
Total Static Pressure Loss (Pa)		**99**
Considered		**100**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	EF-SNB-14	
Location	Kitchen/Kitchen storage	
Total Duct Length	(m)	20
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	13
Fittings Friction Loss	Pa	10.4
Subtotal (Duct+Fittings)		**23.4**
Safety (10%)		10.84
Total Static Pressure Loss (Pa)		**119**
Considered		**125**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Equipment Name	**EF-SNB-15**	
Location	Science/Food classroom	
Total Duct Length	(m)	19
Friction Rate	(Pa)	0.65
Duct Friction Loss	Pa	12.35
Fittings Friction Loss	Pa	9.88
Subtotal (Duct+Fittings)		**22.23**
Safety (10%)		10.723
Total Static Pressure Loss (Pa)		**118**
Considered		**125**

Accessories Frition Loss	Qty (Nos)	Friction Loss(Pa)	Total Friction Loss(Pa)
Air Outlet	1	15	15
Fire smoke damper	0	15	0
Exhaust Air Louver	1	25	25
Exhaust Inlet	1	20	20
Exhaust Outlet	0	12.5	0
Flexible Connections	0	12.5	0
Flexible Duct	1	25	25
Volume Damper	0	15	0
Subtotal (Accessories Friction Loss)			**85**

Guard House

Space input

Guard House

1. General Details:

Floor Area ..... **14.2** m²
Avg. Ceiling Height ..... **3.5** m
Building Weight ..... **341.8** kg/m²

1.1. OA Ventilation Requirements:

Space Usage ..... **User-Defined**
OA Requirement 1 ..... **35.0** L/s
OA Requirement 2 ..... **0.00** L/(s·m²)
Space Usage Defaults ..... **ASHRAE Std 62.1-2016**

2. Internals:

2.1. Overhead Lighting:

Fixture Type ..... **Recessed (Unvented)**
Wattage ..... **10.00** W/m²
Ballast Multiplier **1.00**
Schedule ..... **Lighting**

2.2. Task Lighting:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.3. Electrical Equipment:

Wattage ..... **0.00** W/m²
Schedule ..... **None**

2.4. People:

Occupancy ..... **3.0** People
Activity Level ..... **Sedentary Work**
Sensible ..... **82.1** W/person
Latent ..... **79.1** W/person
Schedule ..... **People**

2.5. Miscellaneous Loads:

Sensible ..... **0** W
Schedule ..... **None**
Latent ..... **0** W
Schedule ..... **None**

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	17.2	3	0	0
W	10.2	4	0	0
S	17.2	3	0	0
E	10.2	0	0	0

3.1. Construction Types for Exposure N

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.2. Construction Types for Exposure W

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.3. Construction Types for Exposure S

Wall Type **Wall-1**
1st Window Type ..... **Window 1x1**

3.4. Construction Types for Exposure E

Wall Type **Wall-1**

4. Roofs, Skylights:

Exp.	Roof Gross Area (m²)	Roof Slope (deg.)	Skylight Qty.
H	14.2	0	0

4.1. Construction Types for Exposure H

Roof Type ..... **ROOF**

5. Infiltration:

Design Cooling ..... **0.00** L/s
Design Heating ..... **0.00** L/s
Energy Analysis ..... **0.00** L/s
Infiltration occurs only when the fan is off.

6. Floors:

Type	**Slab Floor On Grade**	
Floor Area	**14.2**	m²
Total Floor U-Value	**0.568**	W/(m²·K)
Exposed Perimeter	**0.0**	m
Edge Insulation R-Value	**0.00**	(m²·K)/W

7. Partitions:

(No partition data).

System input

1. General Details:

Air System Name ..... **FCU GUARD HOUSE**
Equipment Type ..... **Terminal Units**
Air System Type ..... **Split DX Fan Coil**
Number of zones **1**
Ventilation ..... **Direct Ventilation**

2. Dedicated Outdoor Air System Components:

(Dedicated Outdoor Air System not used: no inputs)

3. Zone Components:

Space Assignments:

Zone 1: GAURD HOUSE	
Guard House	x1

Thermostats and Zone Data:

Zone	Cooling T-Stat Occ. (°C)	Cooling T-Stat Unocc. (°C)	Heating T-Stat Occ. (°C)	Heating T-Stat Unocc. (°C)	T-Stat Throttling Range (°C)
1	23.0	26.7	21.1	18.3	0.83

Thermostat Schedule ..... **TH**
Unoccupied Cooling is ..... **Available**

Common Terminal Unit Data:

Cooling Coil:
Design Supply Temp. ..... **14.4** °C
Coil Bypass Factor **0.100**
Cooling Source ..... **Air-Cooled DX**
Schedule ..... **JFMAMJJASOND**

Heating Coil:
Design Supply Temp. ..... **35.0** °C
Heating Source ..... **Electric Resistance**
Schedule ..... **JFMAMJJASOND**

Fan Control ..... **Fan On**
Ventilation Sizing Method ..... **Sum of Space OA Airflows**

Terminal Units Data:

Zone	Terminal Type	Air Distribution	Air Distribution Effectiveness Specification	Air Distribution Effectiveness	Minimum Airflow	Fan Performance	Fan Efficiency	Design Supply Temp.
1	Fan coil	Ceiling supply / ceiling return	Not Used	-	0.00 L/s/person	0 Pa	50 %	-

4. Sizing Data (Computer-Generated):

System Sizing Data:

Sizing Data:

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... **5.6** K
Hot Water Delta-T ..... **11.1** K

Safety Factors:
Cooling Sensible ..... **10** %
Cooling Latent ..... **10** %
Heating ..... **10** %

Zone Sizing Data:

Zone Airflow Sizing Method ..... **Sum of space airflow rates**
Space Airflow Sizing Method ..... **Individual peak space loads**

5. Equipment Data

Terminal Cooling Units - Air-Cooled DX

Zone	Estimated Maximum Load (kW)	Design OAT (°C)	Equipment Sizing	Gross Cooling Capacity (kW)	Capacity Oversizing Factor (%)	Compressor + OD Fan Power (kW)	ARI Performance Rating	Units	Conventional Cutoff OAT (°C)
All	n/a	35.0	Auto-Sized	-	0	-	3.224	EER	-17.8

System output condition (1)

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU GUARD HOUSE

Project Name: AL HASA SN BOYS SCHOOL 03/16/2023
Prepared by: scec 07:23AM

Air System Information

Air System Name ..... **FCU GUARD HOUSE**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **14.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU GUARD HOUSE

Project Name: AL HASA SN BOYS SCHOOL 03/16/2023
Prepared by: scec 07:23AM

Air System Information

Air System Name ..... **FCU GUARD HOUSE**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **14.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
GAURD HOUSE	2.7	2.5	28.5 / 19.4	15.5 / 14.6	-	Aug 1500	11.38

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
GAURD HOUSE	1.2	17.4 / 23.5	-	162	0.000	0.000	35

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
GAURD HOUSE	1.7	Jul 1600	0.6	14.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
GAURD HOUSE							
Guard House	1	1.7	Jul 1600	162	0.6	14.2	11.38

Ventilation Sizing Summary for FCU GUARD HOUSE

Project Name: AL HASA SN BOYS SCHOOL 03/16/2023
Prepared by: scec 07:28AM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: GAURD HOUSE

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
GAURD HOUSE									
Guard House	1	14.2	3.0	161.6	0.00	0.00	35.0	0.0	35.0
Totals (incl. Space Multipliers)				**161.6**					**35.0**

System output condition (2)

Dedicated Outdoor Air System (DOAS) Sizing Summary for FCU GUARD HOUSE

Project Name: AL HASA SN BOYS SCHOOL 03/16/2023
Prepared by: scec 07:28AM

Air System Information

Air System Name ..... **FCU GUARD HOUSE**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **14.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for FCU GUARD HOUSE

Project Name: AL HASA SN BOYS SCHOOL 03/16/2023
Prepared by: scec 07:28AM

Air System Information

Air System Name ..... **FCU GUARD HOUSE**
Equipment Class ..... **TERM**
Air System Type ..... **SPLT-FC**

Number of zones **1**
Floor Area ..... **14.2** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5.6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
GAURD HOUSE	3.1	1.9	27.2 / 21.3	15.5 / 15.0	-	Jun 1600	9.41

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11.1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
GAURD HOUSE	1.2	16.7 / 24.3	-	134	0.000	0.000	35

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
GAURD HOUSE	1.4	Jul 1600	0.6	14.2

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
GAURD HOUSE							
Guard House	1	1.4	Jul 1600	134	0.6	14.2	9.41

Ventilation Sizing Summary for FCU GUARD HOUSE

Project Name: AL HASA SN BOYS SCHOOL 03/16/2023
Prepared by: scec 07:28AM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: GAURD HOUSE

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
GAURD HOUSE									
Guard House	1	14.2	3.0	133.6	0.00	0.00	35.0	0.0	35.0
Totals (incl. Space Multipliers)				**133.6**					**35.0**

Pump house

HVAC Calculations

SAUDI CONSOLIDATED ENGINEERING
KHATIB & ALAMI

Project: KH23.001-Al-HASA Schools	Project No: KH23.001		
Subject : HVAC CALCULATIONS	Prepared by: Y.A	Date:	13-Mar-23
BUILDING NAME : PUMP HOUSE	Checked by: T.Z	Date:	13-Mar-23

Summer Design DB Temp. =	46	°C
Mean Coincident WB Temp.=	24	°C

EXHAUST CALCULATIONS:

Ventilation Rate for room heat removal is:

Q = room heat / (temp. room- temp outside)(air density x spec. heat)

Q: ventilation rate, cu.m/s

Room Heat :

	Qty.	HP	Heat Gain, KW/HP	Total Heat Gain, KW
Fire Pump (Electric)	2	125	0.075	18.75

From HAP Calculation:

Pump Room Sensible load =	20.1	KW
Allowed Room Temp, tr =	49	°C
Outside air Temp., to =	46	°C
Ventilation Rate, Q =	5982	LPS
Exhaust Fan	2	Unit
Exhaust Fans (cap.)	3000	LPS

From Table 1, p.25.2 ASHRAE 2007
& NFPA 20, Room Temp. = 49°C (max.)

Use: 6000 LPS

Table 1 Design Criteria for Fuel-Fired Power Plant

Building/Area	Design Outdoor Cooling/ Heating Dry-Bulb[a]	Indoor Temperature, °C Maximum	Indoor Temperature, °C Minimum	Relative Humidity, %	Room Ventilation Rate, ach*	Filtration Efficiency, %	Pressur-ization	Redundancy[b]	Noise Criterion
Steam Turbine Area									
Suboperating level	0.4%/99.6%	Design outdoor + 6	7	None	30	None	None	Multiplicity	Background
Above operating floor	0.4%/99.6%	Design outdoor + 6	7	None	10	None	None	Multiplicity	Background
Combustion Turbine Area	0.4%/99.6%	Design outdoor + 5	7	None	20	None	None	Multiplicity	Background
Steam Generator Area									
Below burner elevation	0.4%/99.6%	Design outdoor + 6	7	None	30	None	None	Multiplicity	Background
Above operating floor	0.4%/99.6%	Design outdoor + 6	7	None	15	None	None	Multiplicity	Background
Air-Conditioned Areas[d]									
Control rooms and control equipment rooms containing instruments and electronics	Extreme (see text)	24 ± 1	22 ± 1	30 to 65	ASHRAE *Std.* 62.1	85 to 90 (see text)	Positive	100%	NC-40[c]
Offices	1%/99%	26	21	30 to 65	ASHRAE *Std.* 62.1	ASHRAE *Std.* 62.1	Positive	None	See text
Laboratories	1%/99%	26	21	30 to 65	ASHRAE *Std.* 62.1	High	Positive	None	See text
Locker rooms and toilets	1%/99%	26	21	None	ASHRAE *Std.* 62.1	ASHRAE *Std.* 62.1	Negative	None	See text
Shops (not air-conditioned)	1%/99%	Design outdoor + 6	18	None	15	None	None	None	85 dBA
Mechanical Equipment									
Pumps, large power	0.4%/99.6%	Design outdoor + 6	7	None	30	None	None	Multiplicity	Background
Valve stations, miscellaneous	0.4%/99.6%	Design outdoor + 6	7	None	15	None	None	None	85 dBA
Elevator machine rooms	0.4%/99.6%	32	7	None	None	Low	Positive	None	85 dBA
Fire pump area	0.4%/99.6%	NFPA *Std.* 20	NFPA *Std.* 20	None	NFPA *Std.* 20	None	None	None	85 dBA
Diesel generator area	0.4%/99.6%	Design outdoor + 6	7	None	30	None	None	None	Background
Electrical Equipment[d]									
Enclosed transformer equipment areas	0.4%/99.6%	Design outdoor + 6	7	None	60	Low	Positive	100%	85 dBA
Critical equipment	Extreme (see text)	Design outdoor + 6	7	None	30	None	None	100%	85 dBA
Miscellaneous electrical equipment	0.4%/99.6%	Design outdoor + 6	7	None	20	None	None	Multiplicity	85 dBA
Water Treatment									
Chlorine equipment rooms									
When temporarily occupied	0.4%/99.6%	Design outdoor + 6	None	None	60	None	Negative	None	85 dBA
When unoccupied	0.4%/99.6%	Design outdoor + 6	16	None	15	None	Negative	None	85 dBA
Chemical treatment	0.4%/99.6%	Design outdoor + 6	16	None	10	None	None	None	85 dBA
Battery Rooms	0.4%/99.6%	25	25	None	As required for hydrogen dilution	None	Negative or neutral	50%	85 dBA

*Listed numbers are for estimating purposes only. When heat gain data are available, use Equation (1) to calculate required ventilation rate.

[a]See Chapter 28 of the 2005 *ASHRAE Handbook—Fundamentals* for design dry-bulb temperature data corresponding to given annual cumulative frequency of occurrence and specific geographic location of plant.

[b]Multiplicity indicates that the HVAC system should have multiple units.

[c]See Figure 6 in Chapter 7 of the 2005 *ASHRAE Handbook—Fundamentals* for noise criterion curves.

[d]See ASHRAE Research Project RP-1104 (White 2003) for heat release values.

of the pressure regulator, a pressure regulator, and an indicating manual shutoff valve or a spring-loaded check valve.

11.2.8.6.3 The indicating manual shutoff valves shall have permanent labeling with minimum ½ in. (12.7 mm) text that indicates the following: For the valve in the heat exchanger water supply bypass, "Normal/Closed" for the normal closed position when the controller is in the automatic position and "Emergency/Open" for manual operation or when the engine is overheating.

11.3.2* Ventilation.

11.3.2.1 Ventilation shall be provided for the following functions:

(1) To control the maximum temperature to 120°F (49°C) at the combustion air cleaner inlet with engine running at rated load
(2) To supply air for engine combustion
(3) To remove any hazardous vapors

(4) To supply and exhaust air as necessary for radiator cooling of the engine when required

11.3.2.2 The ventilation system components shall be coordinated with the engine operation.

11.4.1.3 Fuel Supply Tank Capacity.

11.4.1.3.1* Fuel supply tank(s) shall have a capacity at least equal to 1 gal per hp (5.07 L per kW), plus 5 percent volume for expansion and 5 percent volume for sump.

HAP CALCULATION

Air System Sizing Summary for Pump House Fan

Project Name: AL HASA SN BOYS SCHOOL13-3-2023 — 03/13/2023
Prepared by: SCEC — 04:11PM

Air System Information

Air System Name	Pump House Fan	Number of zones	1	
Equipment Class	SPLT AHU	Floor Area	135.0	m²
Air System Type	SZCAV	Location	Hofuf Cond1, Saudi Arabia	

Sizing Calculation Information

Calculation Months	Jan to Dec	Zone L/s Sizing	Sum of space airflow rates
Sizing Data	Calculated	Space L/s Sizing	Individual peak space loads

Supply Fan Sizing Data

Actual max L/s	1562	L/s	Fan motor BHP	0.82	BHP
Standard L/s	1559	L/s	Fan motor kW	0.65	kW
Actual max L/(s·m²)	11.57	L/(s·m²)	Fan static	250	Pa

Outdoor Ventilation Air Data

Design airflow L/s	0	L/s	L/s/person	0.00	L/s/person
L/(s·m²)	0.00	L/(s·m²)			

Zone Sizing Summary for Pump House Fan

Project Name: AL HASA SN BOYS SCHOOL13-3-2023 — 03/13/2023
Prepared by: SCEC — 04:11PM

Air System Information

Air System Name ..... **Pump House Fan**
Equipment Class ..... **SPLT AHU**
Air System Type ..... **SZCAV**

Number of zones **1**
Floor Area ..... **135.0** m²
Location ..... **Hofuf Cond1, Saudi Arabia**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone L/s Sizing ..... **Sum of space airflow rates**
Space L/s Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11.1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11.1 K	Mixing Box Fan Airflow (L/s)
Pump Room	1515	1515	11.22	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
Pump Room	20.1	Jul 1900	2.0	135.0

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
Pump Room							
Pump House	1	20.1	Jul 1900	1515	2.0	135.0	11.22

SAUDI CONSOLIDATED ENGINEERING
KHATIB & ALAMI

Project: KH23.001-Al-HASA Schools	Project No: KH23.001		
Subject : HVAC CALCULATIONS	Prepared by: Y.A	Date:	13-Mar-23
BUILDING NAME : PUMP HOUSE	Checked by: T.Z	Date:	13-Mar-23

Zone Design Load Summary for Pump House Fan

Project Name: AL HASA SN BOYS SCHOOL13-3-2023 — 03/13/2023
Prepared by: SCEC — 04:11PM

Pump Room	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 40.6 °C / 22.5 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 5.0 °C / 4.8 °C		
	OCCUPIED T-STAT 46.0 °C			OCCUPIED T-STAT 21.1 °C		
ZONE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m²	0	-	0 m²	-	-
Wall Transmission	272 m²	-58	-	272 m²	1191	-
Roof Transmission	135 m²	141	-	135 m²	545	-
Window Transmission	0 m²	0	-	0 m²	0	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	10 m²	-102	-	10 m²	274	-
Floor Transmission	135 m²	0	-	135 m²	0	-
Partitions	0 m²	0	-	0 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	1350 W	1350	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	18750 W	18749	-	0	0	-
People	0	0	0	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	20079	0	-	2010	0