

RETAIL DESIGN & DELIVERY SUBMITTAL

MALL / PROPERTY NAME:	360 MALL Extension	BRAND:	L'ETO	UNIT NUMBER:	G-05
SUBMITTAL / TRANSMITTAL NO.:	004-1			SUBMITTAL DATE:	29/Dec/19

INVESTOR and/or AUTHORIZED REPRESENTATIVE	NAME of Investor / Authorized Representative	CONTACT No. of Investor / Authorized Representative	E-mail Address of Investor / Authorized Representative

CONTRACTOR'S AUTHORIZED REPRESENTATIVE	COMPANY NAME	NAME of Contractor's Project Manager	CONTACT No.	E-mail Address
	Global Identity	Eng hany	66651805	hany@global-id.net / kevork@global-id.net

ONE (1) SUBMITTAL / TRANSMITTAL for each SUBMITTAL TYPE

☐ NEW SUBMITTAL ☒ RE-SUBMITTAL ☐ OTHERS

ITEM NO.	DRAWING TITLE / DESCRIPTION	DRAWING NO.	REVISION NO.	NO. OF COPIES		RD&D ACTION		
	SUBMITTAL TYPE			ELECTRONIC (CD)	HARDCOPY (A3 ONLY)	CODE		COMMENTS / REMARKS
	CONCEPT DESIGN; ARCHITECTURAL & MEP DETAILED DESIGN; SIGNAGE; HOARDING; KFD/FIRE ALARM, FIRE FIGHTING, EMERGENCY & EXIT; AS BUILT; MATERIAL SAMPLE; SPECIFICATIONS; SURVEYS; INSURANCE, ETC.					A	APPROVED	
						B	APPROVED AS NOTED	
						X	REVISE & RESUBMIT	
1	HVAC LAYOUT	AC-01		1	1			
2	KITCHEN VENTILATION LAYOUT	AC-02		1	1			
3	HEAT LOAD CALCULATION	AC-03		1	1			
4	HEAT LOAD CALCULATION	AC-04		1	1			
5	HEAT LOAD CALCULATION	AC-05		1	1			
6	HEAT LOAD CALCULATION	AC-06		1	1			
7	HEAT LOAD CALCULATION	AC-07		1	1			



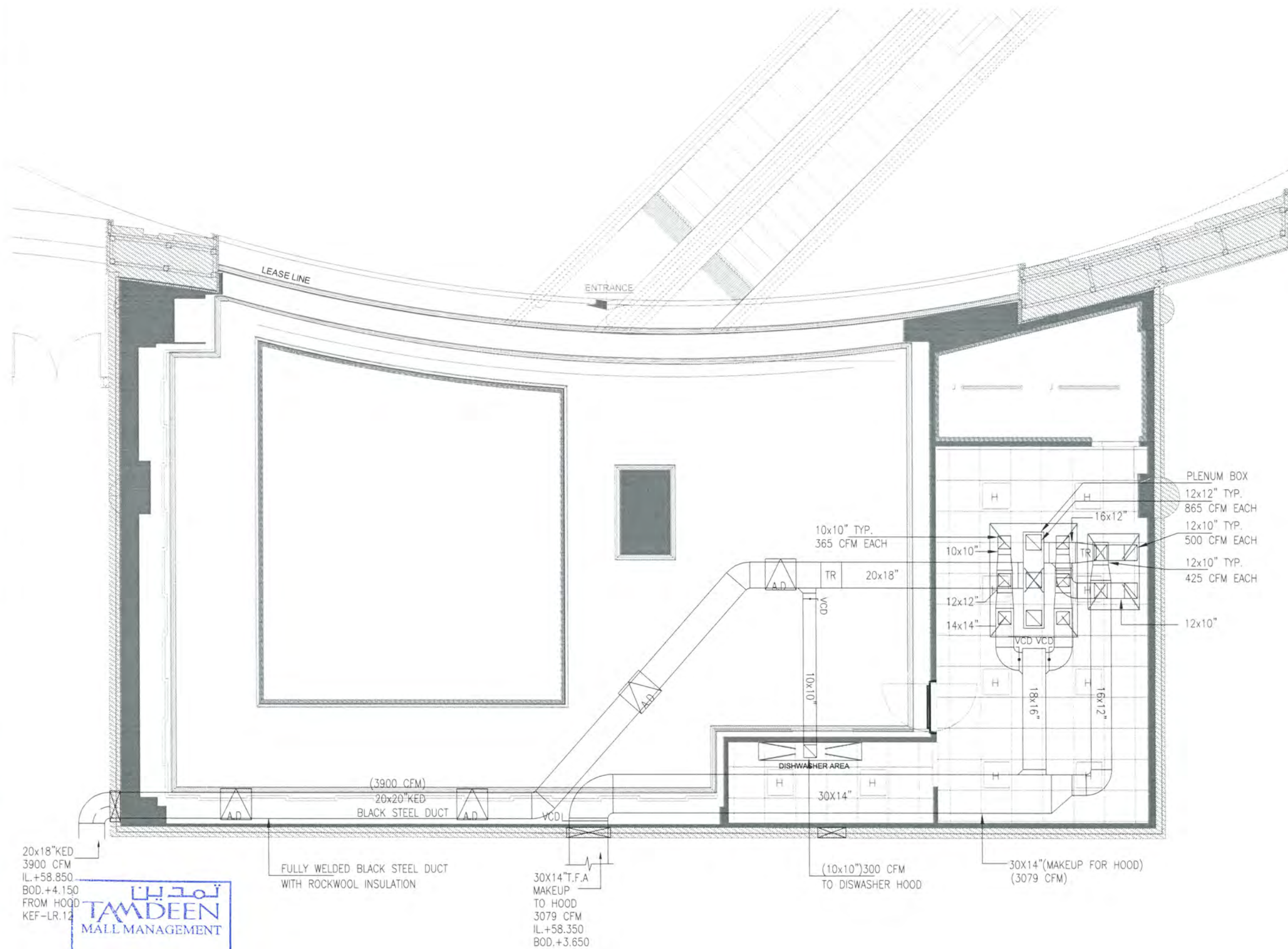
RETAIL DESIGN & DELIVERY					Investor / Contractor	
Received By:	MEP Engineer	Sr. MEP Manager	Project Manager / Asst. Project Manager	Deputy General Manager and/or General Manager	Name:	Eng hany
					Tel. No.:	66651805
					Date:	29/Dec/19
Name/Signature/Date					I hereby certify that the above submitted Items have been reviewed in detail and are correct in the strict conformance with the contract requirement except as otherwise stated.	
					Authorized Signature / Date	

NOTE: DOCUMENTS & DRAWING SUBMITTAL(S) MUST BE SUBMITTED AT 360 MALL EXPANSION - CENTER MANAGEMENT OFFICE FROM 8:00AM TO 3:30PM (SUNDAY TO THURSDAY). SUBMITTAL(S) AFTER 3:30PM WILL BE STAMPED THE NEXT WORKING DAY'S DATE.

• ALL DRAWING SUBMITTALS MUST BE IN: A) A3 SIZE PAPER; B) COLOR; C) SOFTCOPY ON CD WHICH INCLUDES AUTOCAD DRAWINGS (DWG) & ADOBE (PDF) FILES.

• IF NEEDED, Project Managers / Asst. PM MAY REQUEST DRAWINGS IN OTHER PAPER SIZE OTHER THAN A3.

• OTHER DOCUMENTS SUCH AS INSURANCE(Original), CERTIFICATIONS, LETTERS, CATALOGUES, SPECIFICATIONS, ETC. SHOULD BE SUBMITTED ONLY IN A4 or A3 PAPER SIZE TOGETHER WITH SOFTCOPY ON CD.



NOTES:

CLIENT:

PROJECT: L'ETO @ 360 MALL, EXTENSION

L'ETO
CAFFE'

CONTRACTOR:



NO	DESCRIPTION	DATE	REMARKS
SHOP DRAWING			
DRAWING TITLE:- KITCHEN VENTILATION LAYOUT			
PROJECT:- L'ETO @ 360 MALL, EXTENSION			
DRAWN BY:- Praveen		DESIGNED BY:-	
DATE:- 29-12-2019		PROJECT IN CHARGE	
DWG NO:- AC-02		PROJECT NO:-	
SCALE:- NTS		REV:-	



Project Name: LETO(REV 01) 12/28/2019
Prepared by: f 09:02PM

Air System Sizing Summary for AHU-RESTAURANT

Air System Information

Air System Name AHU-RESTAURANT
Equipment Class CW AHU
Air System Type SZCAV

Number of zones 1
Floor Area 1684.6 ft²
Location Kuwait City, Kuwait

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated

Zone CFM Sizing Peak zone sensible load
Space CFM Sizing Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load 5.3 Tons
Total coil load 63.6 MBH
Sensible coil load 58.0 MBH
Coil CFM at Jan 0800 2605 CFM
Max block CFM 2605 CFM
Sum of peak zone CFM 2605 CFM
Sensible heat ratio 0.911
CFM/Ton 491.2
ft³/Ton 317.6
BTU/(hr-ft³) 37.8
Water flow @ 10.0 °F rise 12.74 gpm

Load occurs at Jan 0800
OA DB / WB 67.4 / 42.1 °F
Entering DB / WB 75.3 / 62.0 °F
Leaving DB / WB 54.6 / 53.3 °F
Coil ADP 52.3 °F
Bypass Factor 0.100
Resulting RH 47 %
Design supply temp. 57.2 °F
Zone T-stat Check 0 of 1 OK
Max zone temperature deviation 0.0 °F

Central Heating Coil Sizing Data

No central heating coil loads occurred during this calculation.

Supply Fan Sizing Data

Actual max CFM 2605 CFM
Standard CFM 2588 CFM
Actual max CFM/ft² 1.55 CFM/ft²

Fan motor BHP 2.52 BHP
Fan motor kW 2.00 kW

Outdoor Ventilation Air Data

Design airflow CFM 0 CFM
CFM/ft² 0.00 CFM/ft²

CFM/person 0.00 CFM/person



Project Name: LETO(REV 01) 12/28/2019
Prepared by: f 09:02PM

Zone Sizing Summary for AHU-RESTAURANT

Air System Information

Air System Name AHU-RESTAURANT
Equipment Class CW AHU
Air System Type SZCAV

Number of zones 1
Floor Area 1684.6 ft²
Location Kuwait City, Kuwait

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated

Zone CFM Sizing Peak zone sensible load
Space CFM Sizing Individual peak space loads

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/ft ²	Reheat Coil Load (MBH)	Reheat Coil Water gpm @ 20.0 °F	Zone Htg Unit Coil Load (MBH)	Zone Htg Unit Water gpm @ 20.0 °F	Mixing Box Fan Airflow (CFM)
AHU-RESTAURANT	2605	2605	1.55	0.0	0.00	0.0	0.00	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft ²)
AHU-RESTAURANT	50.3	Jan 2300	0.0	1684.6

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft ²)	Space CFM/ft ²
AHU-RESTAURANT							
RESTAURANT	1	50.3	Jan 2300	2605	0.0	1684.6	1.55

NOTES:

CLIENT

PROJECT L'ETO @ 360 MALL, EXTENSION

L'ETO
CAFFE'

CONTRACTOR :



NO	DESCRIPTION	DATE	REMARKS
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SHOP DRAWING

DRAWING TITLE:-

HEAT LOAD CALCULATION

PROJECT:-

L'ETO @ 360 MALL, EXTENSION

DRAWN BY:-

Praveen

DESIGNED BY:-

DATE:-

29-12-2019

PROJECT IN CHARGE

DWG NO:-

AC-03

PROJECT NO:-

SCALE:-

NTS

REV:-

LETO(REV 01)
f

Space Input Data

12/28/2019
09:03PM

RESTAURANT

1. General Details:
Floor Area 1684.6 ft²
Avg. Ceiling Height 9.8 ft
Building Weight 70.0 lb/ft²
1.1. OA Ventilation Requirements:
Space Usage User-Defined
OA Requirement 1 0.0 CFM/person
OA Requirement 2 0.0 CFM/ft²
Space Usage Defaults ASHRAE Std 62.1-2007
2. Internals:
2.1. Overhead Lighting:
Fixture Type Recessed (Unvented)
Wattage 0.93 W/ft²
Ballast Multiplier 1.08
Schedule LIGHTING SCHEDULE
2.2. Task Lighting:
Wattage 0.00 W/ft²
Schedule None
2.3. Electrical Equipment:
Wattage 8750.0 Watts
Schedule ELECTRICAL EQUIP SCH
3. Walls, Windows, Doors:
(No Wall, Window, Door data).
4. Roofs, Skylights:
(No Roof or Skylight data).
5. Infiltration:
Design Cooling 0.00 CFM
Design Heating 0.00 CFM
Energy Analysis 0.00 CFM
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).

2.4. People:
Occupancy 44.0 People
Activity Level Seated at Rest
Sensible 230.0 BTU/hr/person
Latent 120.1 BTU/hr/person
Schedule PEOPLE SCHEDULE
2.5. Miscellaneous Loads:
Sensible 0 BTU/hr
Schedule None
Latent 0 BTU/hr
Schedule None

Project Name: LETO(REV 01)
Prepared by: f

Air System Sizing Summary for AHU-KITCHEN

12/28/2019
09:02PM

Air System Information
Air System Name AHU-KITCHEN
Equipment Class CW AHU
Air System Type SZCAV
Number of zones 1
Floor Area 612.5 ft²
Location Kuwait City, Kuwait
Sizing Calculation Information
Calculation Months Jan to Dec
Sizing Data Calculated
Zone CFM Sizing Peak zone sensible load
Space CFM Sizing Individual peak space loads
Central Cooling Coil Sizing Data
Total coil load 10.8 Tons
Total coil load 129.5 MBH
Sensible coil load 90.5 MBH
Coil CFM at Jan 0100 3630 CFM
Max block CFM 3630 CFM
Sum of peak zone CFM 3630 CFM
Sensible heat ratio 0.699
CFM/Ton 336.3
ft³/Ton 56.7
BTU/(hr·ft²) 211.5
Water flow @ 10.0 °F rise 25.92 gpm
Load occurs at Jan 0100
OA DB / WB 66.7 / 41.8 °F
Entering DB / WB 82.5 / 69.3 °F
Leaving DB / WB 59.3 / 58.1 °F
Coil ADP 56.7 °F
Bypass Factor 0.100
Resulting RH 52 %
Design supply temp. 60.8 °F
Zone T-stat Check 0 of 1 OK
Max zone temperature deviation 0.0 °F
Central Heating Coil Sizing Data
No central heating coil loads occurred during this calculation.
Supply Fan Sizing Data
Actual max CFM 3630 CFM
Standard CFM 3606 CFM
Actual max CFM/ft² 5.93 CFM/ft²
Fan motor BHP 1.89 BHP
Fan motor kW 1.50 kW
Outdoor Ventilation Air Data
Design airflow CFM 0 CFM
CFM/ft² 0.00 CFM/ft²
CFM/person 0.00 CFM/person

NOTES

CLIENT

PROJECT: LETO @ 360 MALL , EXTENSION

L'ETO
CAFFE'

CONTRACTOR



NO	DESCRIPTION	DATE	REMARKS
SHOP DRAWING			
DRAWING TITLE - HEAT LOAD CALCULATION			
PROJECT - LETO @ 360 MALL , EXTENSION			
DRAWN BY - Praveen		DESIGNED BY -	
DATE - 29-12-2019		PROJECT IN CHARGE	
DWG NO - AC-05		PROJECT NO -	
SCALE - NTS		REV -	

Air System Information

Air System Name AHU-KITCHEN
Equipment Class CW AHU
Air System Type SZCAV
Number of zones 1
Floor Area 612.5 ft²
Location Kuwait City, Kuwait

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated
Zone CFM Sizing Peak zone sensible load
Space CFM Sizing Individual peak space loads

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/ft ²	Reheat Coil Load (MBH)	Reheat Coil Water gpm @ 20.0 °F	Zone Htg Unit Coil Load (MBH)	Zone Htg Unit Water gpm @ 20.0 °F	Mixing Box Fan Airflow (CFM)
AHU-KITCHEN	3630	3630	5.93	0.0	0.00	0.0	0.00	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft ²)
AHU-KITCHEN	84.1	Jan 2300	0.0	612.5

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft ²)	Space CFM/ft ²
AHU-KITCHEN							
KITCHEN	1	84.1	Jan 2300	3630	0.0	612.5	5.93



Air System Design Load Summary for AHU-KITCHEN

	DESIGN COOLING			DESIGN HEATING		
	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
COOLING DATA AT Jan 0100						
COOLING OA DB / WB 66.7 °F / 41.8 °F						
HEATING DATA AT DES HTG						
HEATING OA DB / WB 40.1 °F / 35.6 °F						
ZONE LOADS						
Window & Skylight Solar Loads	0 ft ²	0	-	0 ft ²	-	-
Wall Transmission	0 ft ²	0	-	0 ft ²	0	-
Roof Transmission	0 ft ²	0	-	0 ft ²	0	-
Window Transmission	0 ft ²	0	-	0 ft ²	0	-
Skylight Transmission	0 ft ²	0	-	0 ft ²	0	-
Door Loads	0 ft ²	0	-	0 ft ²	0	-
Floor Transmission	0 ft ²	0	-	0 ft ²	0	-
Partitions	0 ft ²	0	-	0 ft ²	0	-
Ceiling	0 ft ²	0	-	0 ft ²	0	-
Overhead Lighting	615 W	2097	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	14	4132	6368	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	70253	30126	-	0	0
Safety Factor	10% / 7%	7648	2555	0%	0	0
>> Total Zone Loads	-	84129	39048	-	0	0
Zone Conditioning	-	84523	39048	-	0	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Return Fan Load	3630 CFM	0	-	3630 CFM	0	-
Ventilation Load	0 CFM	0	0	0 CFM	0	0
Supply Fan Load	3630 CFM	5118	-	3630 CFM	-5118	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	1%	841	-	1%	0	-
>> Total System Loads	-	90482	39048	-	-5118	0
Central Cooling Coil	-	90482	39053	-	-5118	0
Central Heating Coil	-	0	-	-	0	-
>> Total Conditioning	-	90482	39053	-	-5118	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

NOTES:

CLIENT:

PROJECT: L'ETO @ 360 MALL, EXTENSION

L'ETO
CAFFE'

CONTRACTOR:



NO DESCRIPTION DATE REMARKS

SHOP DRAWING

DRAWING TITLE:-

HEAT LOAD CALCULATION

PROJECT:-

L'ETO @ 360 MALL, EXTENSION

DRAWN BY:-

Praveen

DESIGNED BY:-

DATE:-

29-12-2019

PROJECT IN CHARGE

DWG NO:-

AC-06

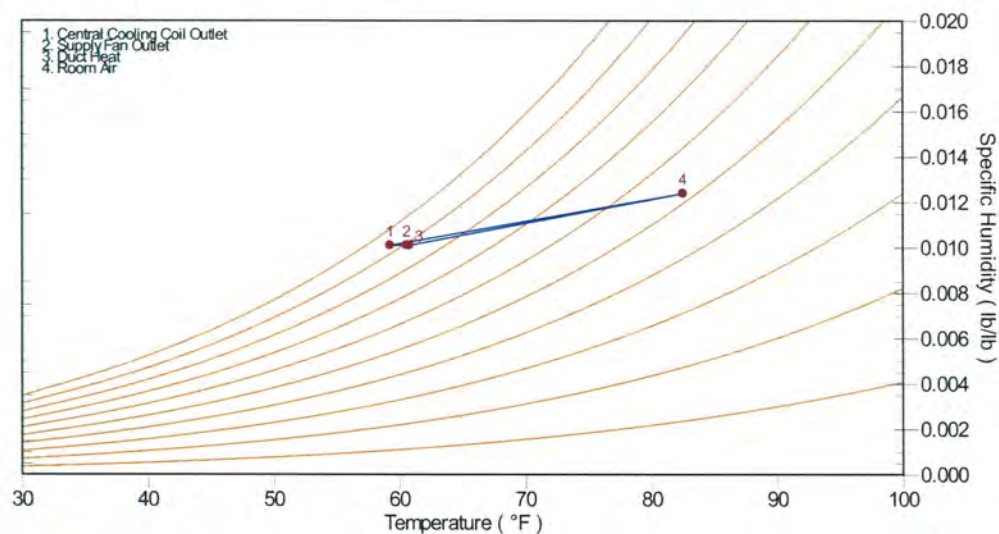
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SCALE:-

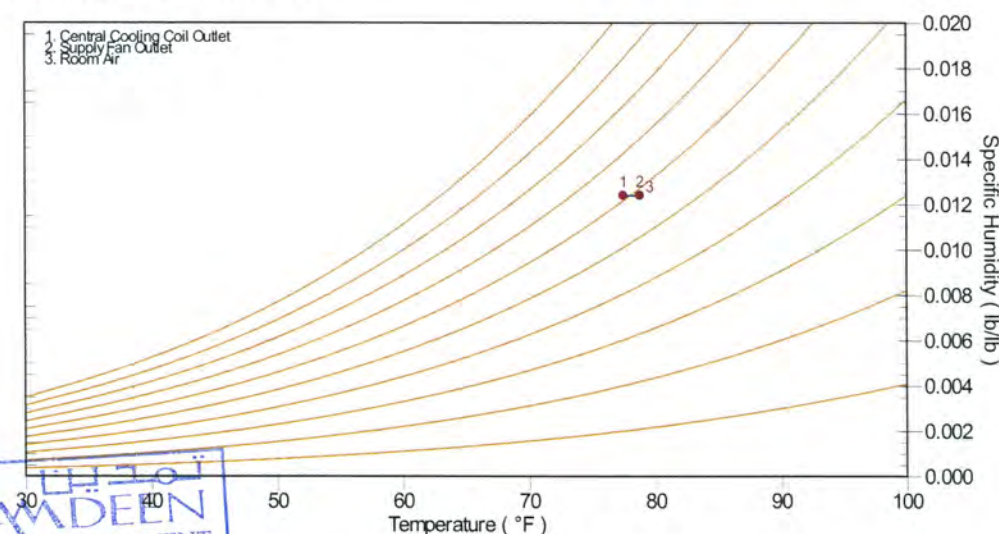
NTS

REV:-

Location: Kuwait City, Kuwait
Altitude: 180.0 ft.
Data for: January DESIGN COOLING DAY, 0100



Location: Kuwait City, Kuwait
Altitude: 180.0 ft.
Data for: WINTER DESIGN HEATING



KITCHEN

1. General Details:

Floor Area 612.5 ft²
Avg. Ceiling Height 9.8 ft
Building Weight 70.0 lb/ft²

1.1. OA Ventilation Requirements:

Space Usage User-Defined
OA Requirement 1 0.0 CFM/person
OA Requirement 2 0.00 CFM/ft²
Space Usage Defaults ASHRAE Std 62.1-2007

2. Internals:

2.1. Overhead Lighting:

Fixture Type Recessed (Unvented)
Wattage 0.93 W/ft²
Ballast Multiplier 1.08
Schedule LIGHTING SCHEDULE

2.2. Task Lighting:

Wattage 0.00 W/ft²
Schedule None

2.3. Electrical Equipment:

Wattage 0.0 Watts
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 CFM
Design Heating 0.00 CFM
Energy Analysis 0.00 CFM
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).

2.4. People:

Occupancy 14.0 People
Activity Level Medium Work
Sensible 295.2 BTU/hr/person
Latent 454.8 BTU/hr/person
Schedule PEOPLE SCHEDULE

2.5. Miscellaneous Loads:

Sensible 70253 BTU/hr
Schedule MISC SCHEDULE
Latent 30126 BTU/hr
Schedule MISC SCHEDULE

NOTES:

CLIENT

PROJECT L'ETO @ 360 MALL , EXTENSION

L'ETO
CAFFE'

CONTRACTOR :



NO	DESCRIPTION	DATE	REMARKS
SHOP DRAWING			
DRAWING TITLE:- HEAT LOAD CALCULATION			
PROJECT:- L'ETO @ 360 MALL , EXTENSION			
DRAWN BY:- Praveen		DESIGNED BY:-	
DATE:- 29-12-2019		PROJECT IN CHARGE	
DWG NO:- AC-07		PROJECT NO:-	
SCALE:- NTS		REV:-	