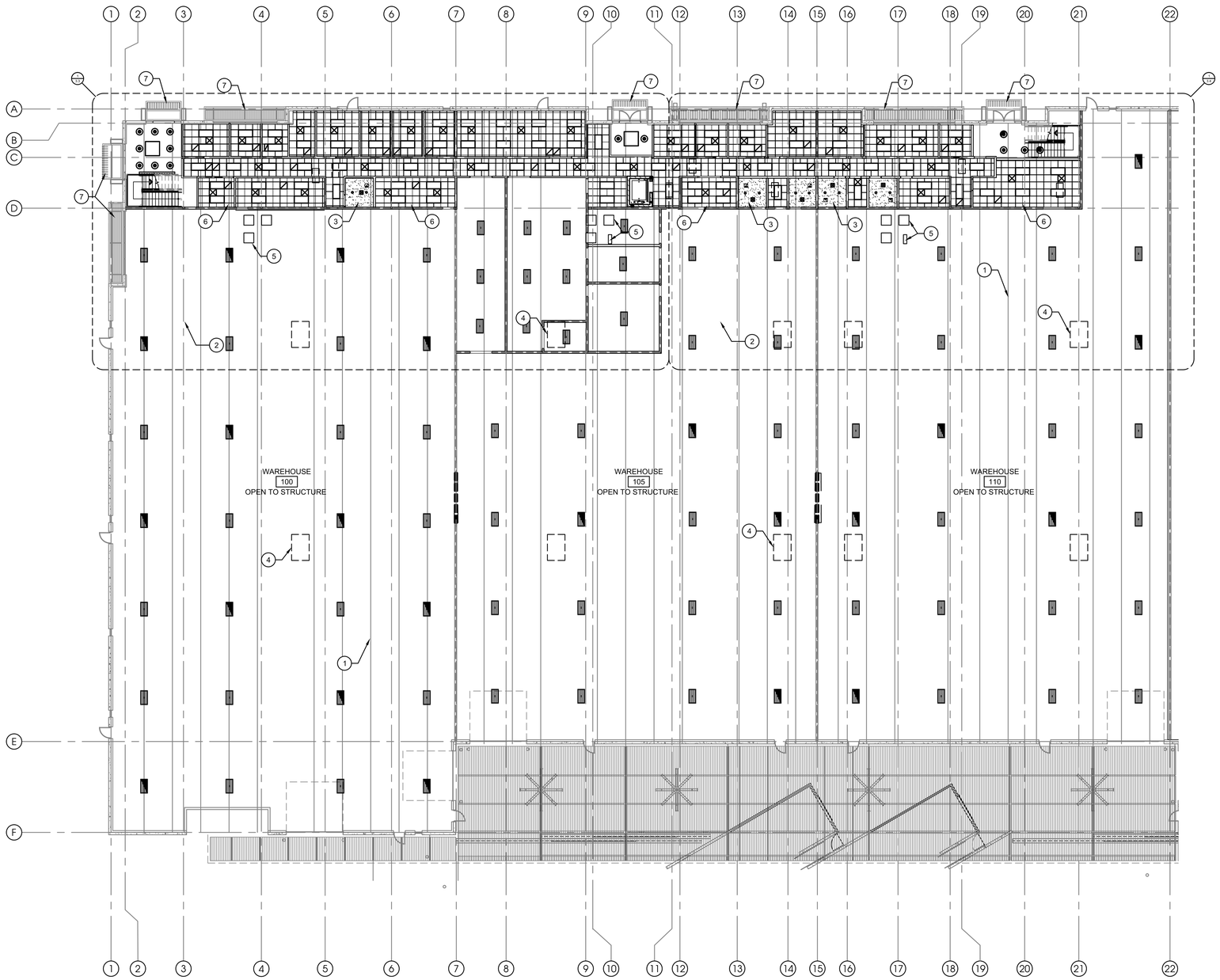


OVERALL REFLECTED CEILING PLAN - FIRST FLOOR
1/16" = 1'-0"

## GENERAL NOTES

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2. WEIGHT DISTRIBUTION AND CODE COMPLIANCE FOR ALL ROOF MOUNTED EQUIPMENT TO BE VERIFIED BY CONTRACTOR PRIOR TO ROUGH-IN.
3. FOR CEILING MOUNTED SMOKE DETECTORS SEE ELECTRICAL DRAWINGS.
4. ROUT CEILING PANELS AT CUT EDGES TO FIT LEVEL IN GRID.
5. AT ALL A/C SPACES, PROVIDE FIBER BATT THERMAL INSULATION WIRE TIED TO UNDERSIDE OF ROOF DECK. R-VALUE PER THERMAL INSULATION SCHEDULE (SHEET A0.2)
6. ALL CEILING/SOFFIT HEIGHTS ARE NOTED TO BE ABOVE FINISHED FLOOR.
7. COORDINATE FRAMING AT EXTERIOR SOFFIT AREAS WITH RECESSED DOWNLIGHTS, SPRINKLER HEADS AND VENTS.

## DRAWING LEGEND

- 2' X 2' SUSPENDED LAY-IN CEILING ARMSTRONG DUNE TEGULAR 9/16 WHITE
- 2' X '4 SUSPENDED LAY-IN CEILING ARMSTRONG DUNE SECOND LOOK TEGULAR 9/16 WHITE
- 5/8" GYP. BOARD CEILING
- ELECTRICAL SYMBOLS, REFER TO ELECTRICAL DRAWINGS
- MECHANICAL SYMBOLS, REFER TO MECHANICAL DRAWINGS
- HVAC UNIT, REFER TO MECHANICAL DRAWINGS

## SHEET KEYNOTES

1. EXISTING STEEL JOIST, TYP. - SEE STRUCTURAL DRAWINGS
2. EXISTING STEEL JOIST GIRDER - SEE STRUCTURAL DRAWINGS
3. NEW GYP. BD. CEILING - SEE REFLECTED CEILING AND DETAIL SHEETS
4. MECHANICAL UNIT ON ROOF, TYP. - SEE MECHANICAL DRAWINGS
5. ROOF CONDENSING UNIT - SEE MECHANICAL DRAWINGS
6. NEW CEILING TILE AND GRID
7. EXISTING CANOPY FRAMING TO REMAIN, TYP.

CAWLEY ARCHITECTS
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REGISTERED ARCHITECT
CERTIFICATE NO. 26784
PAUL F. DEVERS, JR.
Date Signed 07/19/2024
ARIZONA, U.S.A.

A TENANT IMPROVEMENT FOR
COLOSSEUM 3

8700 N. 91ST AVE.
SUITE 100-110
PEORIA
ARIZONA
85345

DATE
1ST CITY SUBMITTAL
07-19-2024

DRAWN BY: BC & RL

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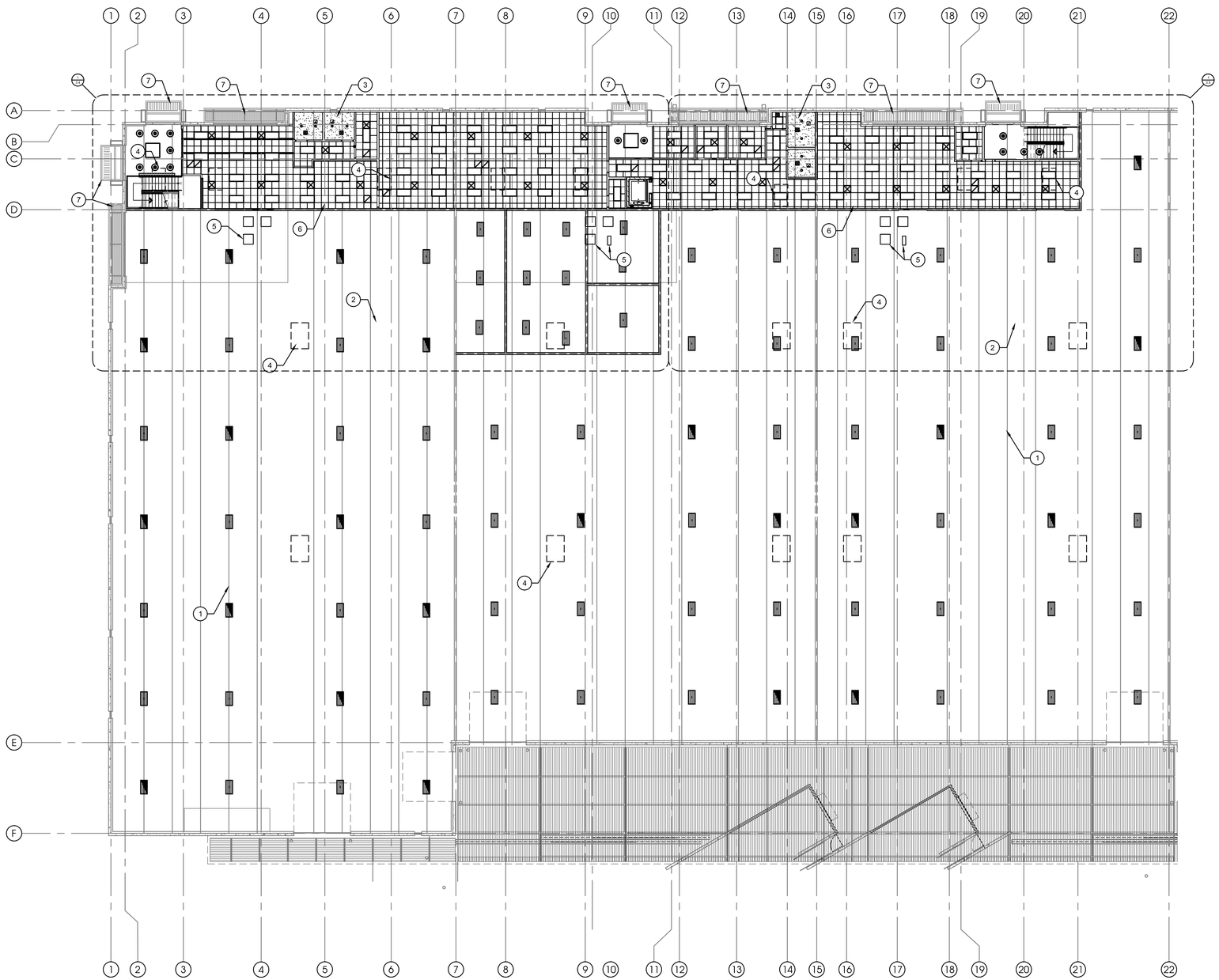
OVERALL REFLECTED CEILING PLAN

Project:24011

A3.1



OVERALL REFLECTED CEILING PLAN - MEZZANINE
1/16" = 1'-0"

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- 5/8" GYP. BOARD CEILING
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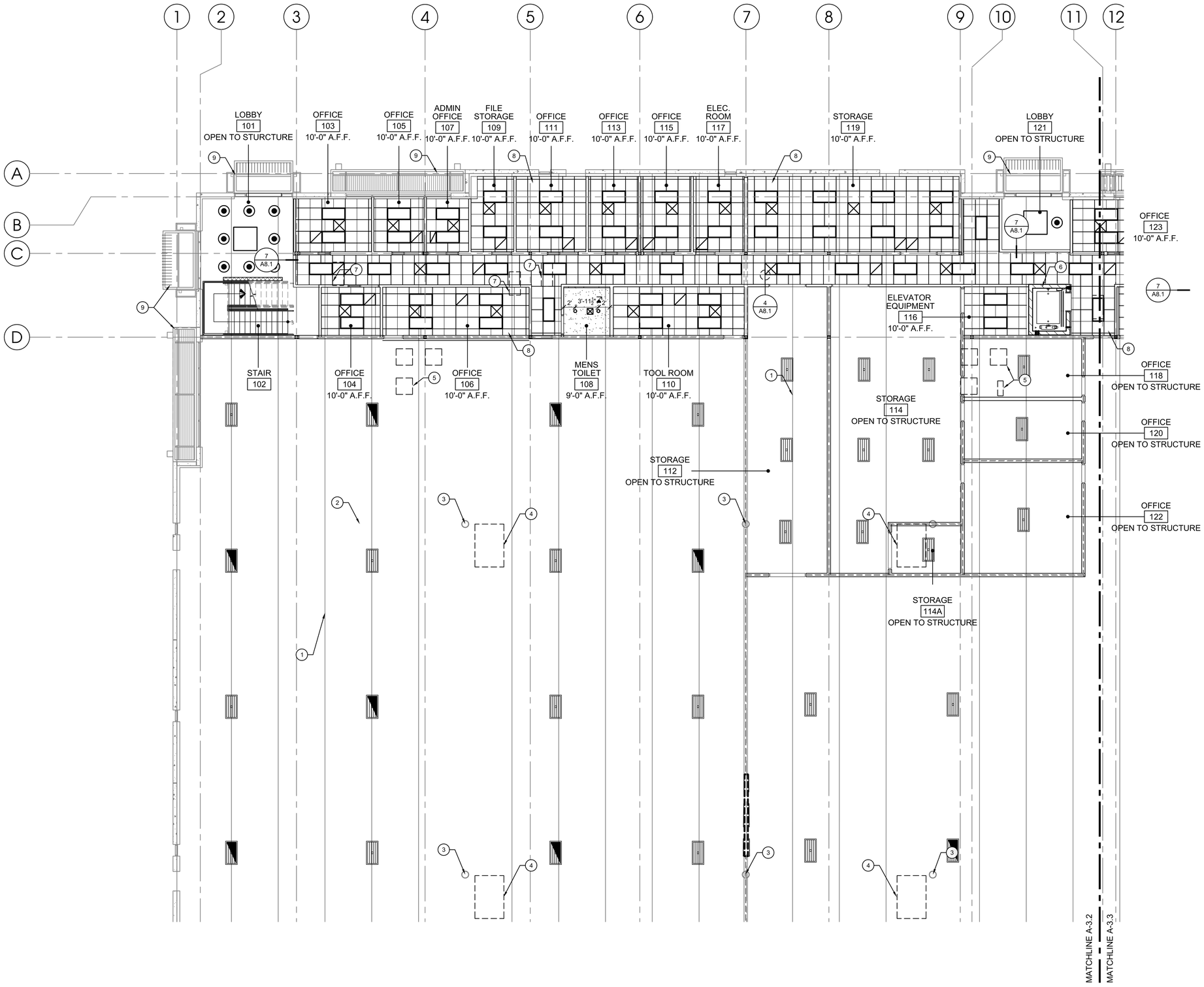
OVERALL REFLECTED CEILING PLAN - MEZZANINE

Project:24011

A3.2




## ENLARGED REFLECTED CEILING PLAN

1/8" = 1'-0"

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2. EXISTING STEEL JOIST GIRDER - SEE STRUCTURAL DRAWINGS
3. EXISTING STRUCTURAL COLUMN, TO REMAIN
4. MECHANICAL UNIT ON ROOF, TYP. - SEE MECHANICAL DRAWINGS
5. ROOF CONDENSING UNIT - SEE MECHANICAL DRAWINGS
6. ELEVATOR PENTHOUSE - SEE ELEVATOR SHEET AND STRUCTURAL DRAWINGS
7. AIR HANDLER - SEE MECHANICAL DRAWINGS
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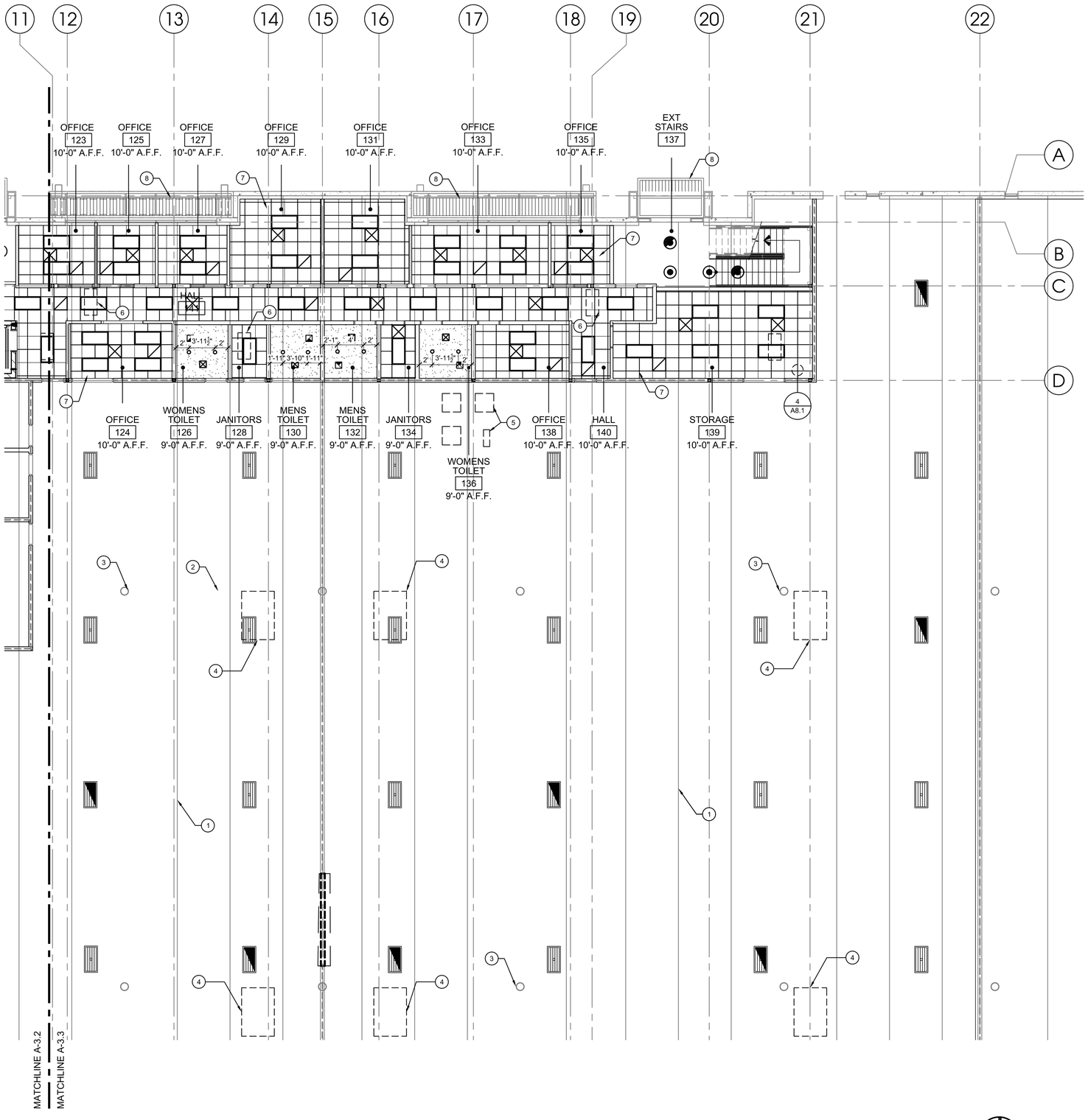
ENLARGED REFLECTED CEILING PLAN

Project:24011

A3.3

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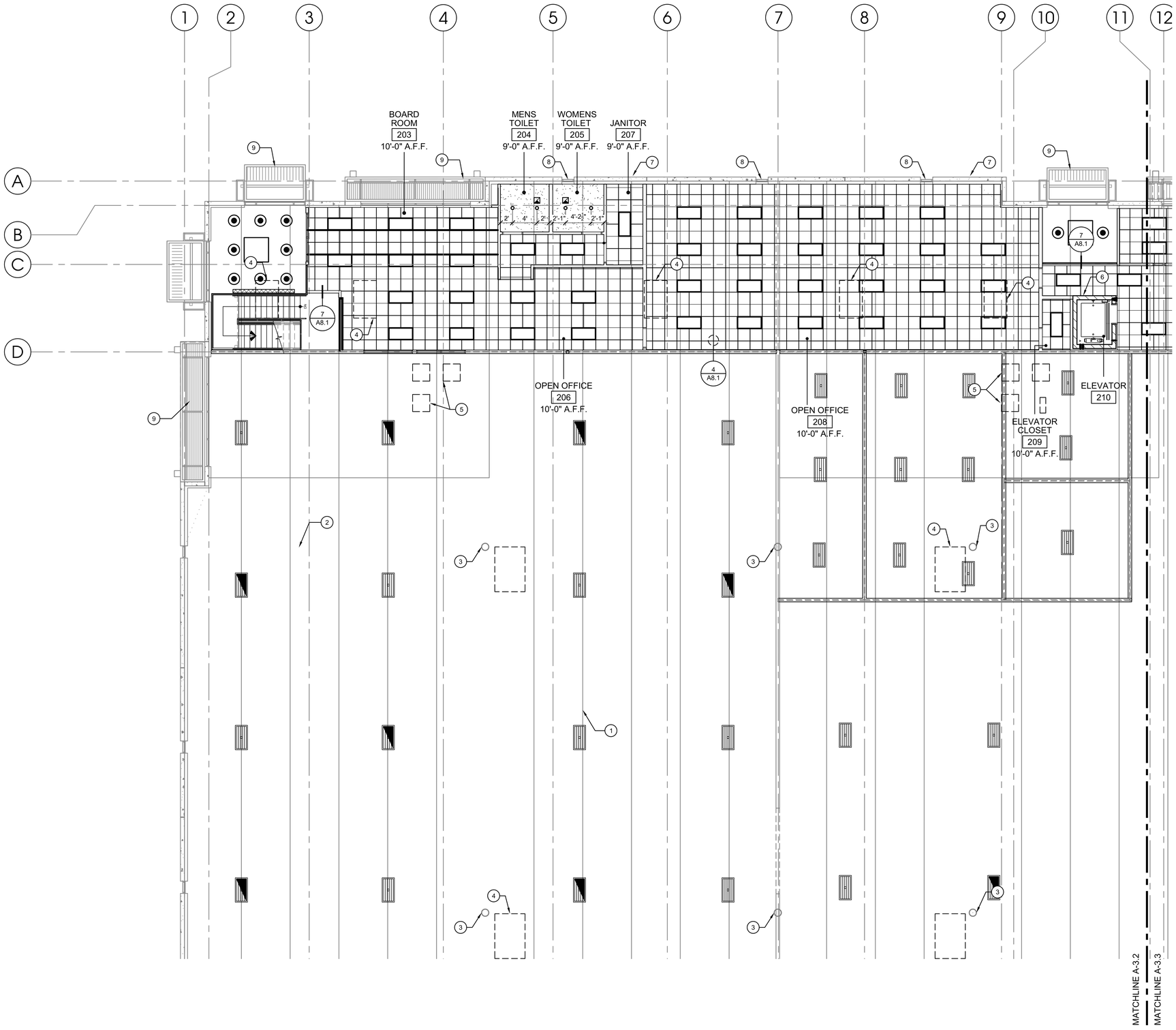
A3.4




## ENLARGED REFLECTED CEILING PLAN - MEZZAINE

1/8" = 1'-0"

## GENERAL NOTES

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- HVAC UNIT, REFER TO MECHANICAL DRAWINGS

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2. EXISTING STEEL JOIST GIRDER - SEE STRUCTURAL DRAWINGS
3. EXISTING STRUCTURAL COLUMN, TO REMAIN
4. MECHANICAL UNIT ON ROOF, TYP. - SEE MECHANICAL DRAWINGS
5. ROOF CONDENSING UNIT - SEE MECHANICAL DRAWINGS
6. ELEVATOR PENTHOUSE - SEE ELEVATOR SHEET AND STRUCTURAL DRAWINGS
7. EXISTING ROOF DRAIN LEADERS, TYP. - G.C. TO VERIFY LOCATION
8. CLERESTORY WINDOW SYSTEM - SEE WINDOW ELEVATIONS
9. EXISTING CANOPY FRAMING TO REMAIN, TYP.

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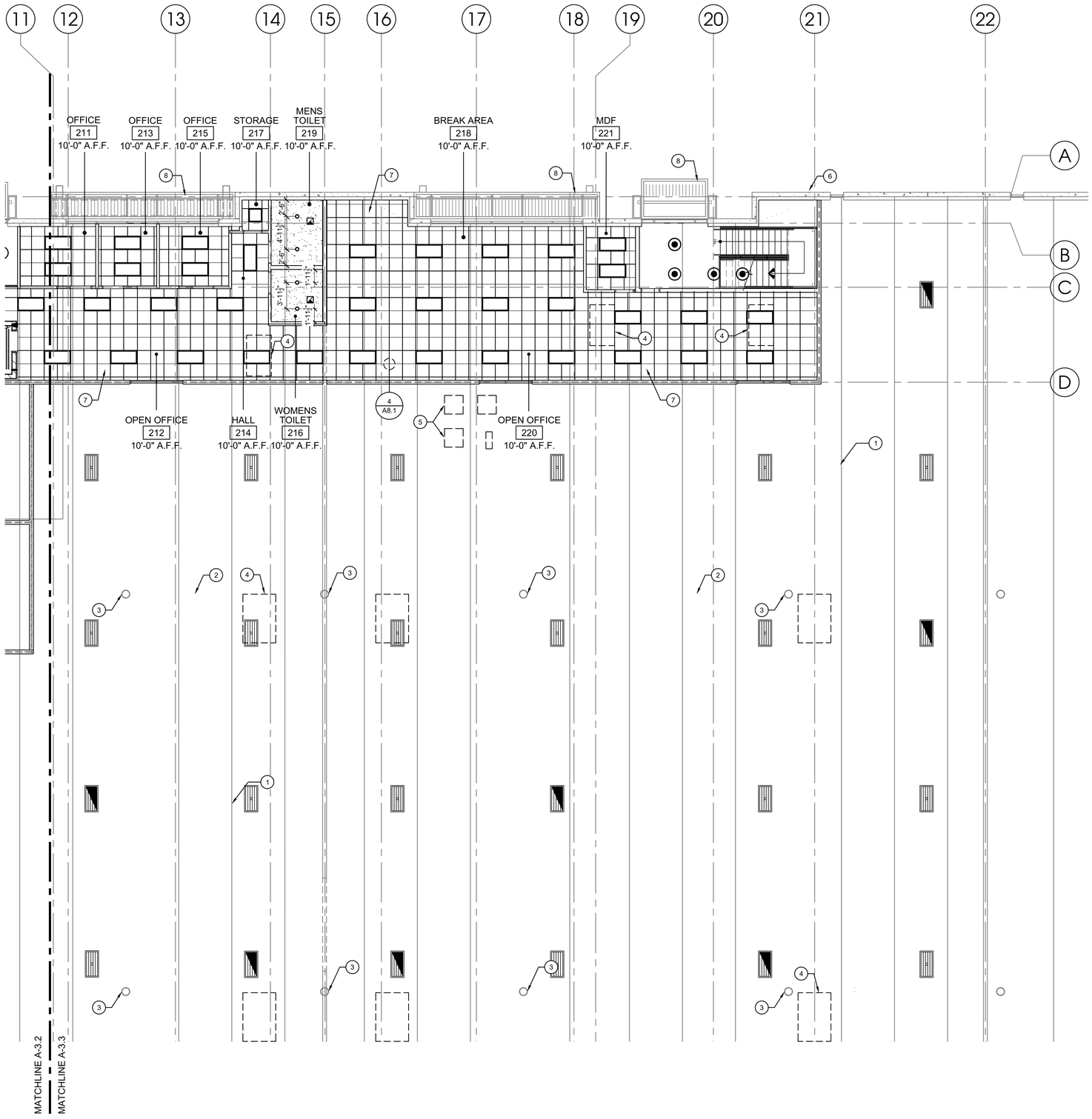
ENLARGED REFLECTED CEILING PLAN - MEZZANINE

Project:24011

A3.5

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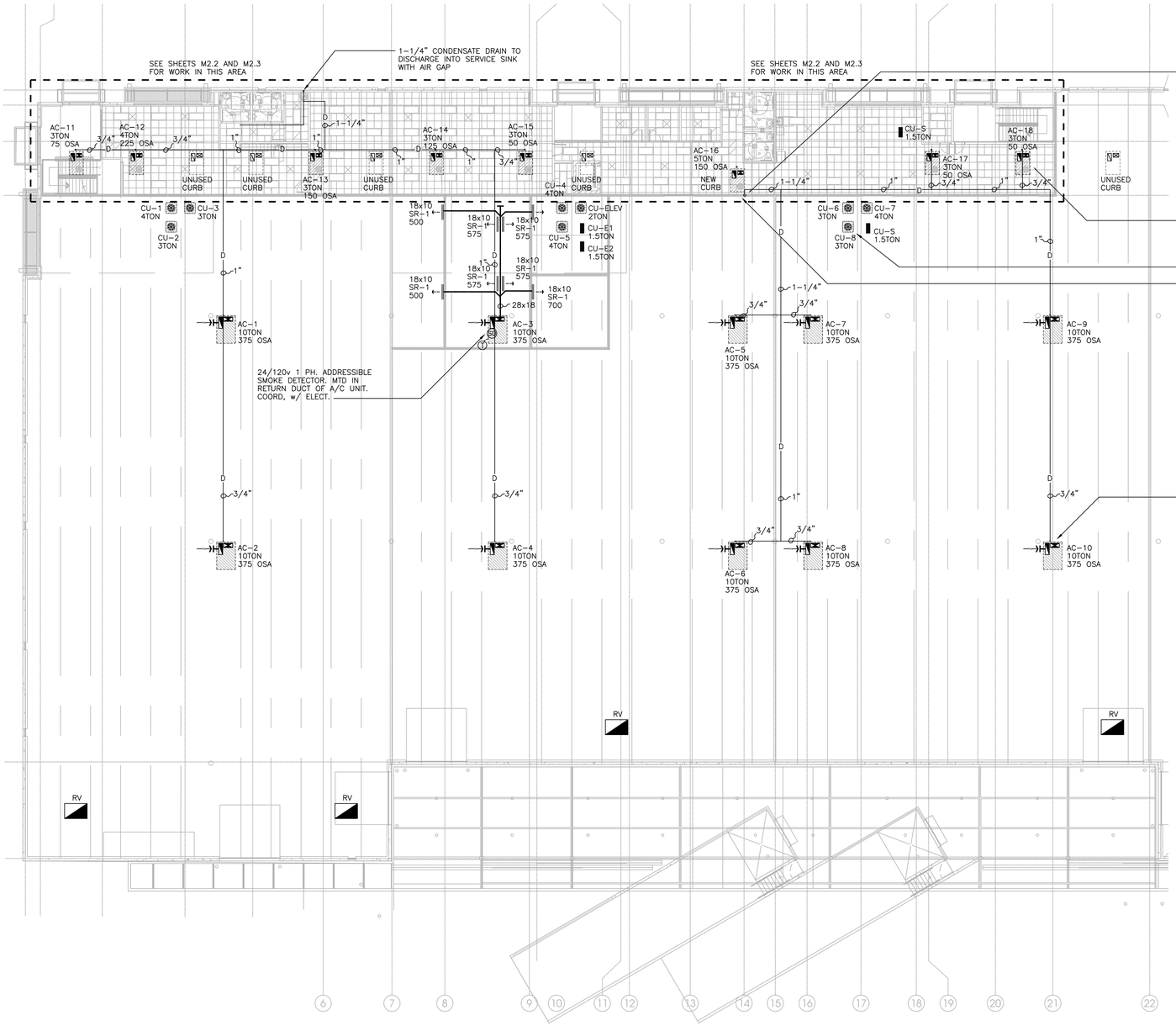
Project:24011

A3.6




1-1/4" CONDENSATE DRAIN TO DROP TO FIRST FLOOR AND DISCHARGE TO SERVICE SINK IN JANITOR'S ROOM, SEPARATE FROM AIR HANDLER DISCHARGE

EXISTING A/C UNIT CURBS OVER OFFICES THAT ARE BEING UTILIZED IN THIS TI ARE TO BE PROVIDED WITH FULL INTERNAL INSULATION FOR SOUND REDUCTION

A/C UNIT LOCATED ON EXISTING CURB ON ROOF WITH FULL SIZE SUPPLY AND RETURN DUCTS AND 3/4" CONDENSATE DRAIN DOWN THROUGH ROOF (TYPICAL OF ALL A/C UNITS EXCEPT FOR AC-16)

CONDENSING UNIT MOUNTED ON ROOF. (TYPICAL)

PROVIDE AC-16 WITH NEW CURB

MECHANICAL CONTRACTOR TO PROVIDE ENGRAVED NAMEPLATE FOR EACH CONDENSING UNIT AND AIR HANDLER TO WHICH IT CORRESPONDS.

MECHANICAL CONTRACTOR TO COORDINATE EXACT ROUTING OF REFRIGERANT PIPING WITHIN SPACE.

10 TON UNIT LOCATED ON EXISTING CURB, WITH FULL SIZE SUPPLY/RETURN DUCTS THROUGH ROOF. RETURN TO TERMINATE BELOW ROOF DECK WITH ELBOW AND SCREENED OPENING. SUPPLY TO TRANSITION TO 24x24 AND TERMINATE AT 24' A.F.F. PROVIDE (4)16x16 SR-1 SUPPLY REGISTERS AT BOTTOM OF DUCT, ONE ON EACH SIDE, EACH BALANCED TO 1000 CFM (TYPICAL OF 10 TON UNITS)

10 TON UNITS DO NOT REQUIRE DUCT SMOKE DETECTORS. THEY SERVE A SINGLE OPEN SPACE AND ARE INCAPABLE OF SPREADING SMOKE BEYOND THE SPACE IT IS GENERATED IN, PER 2018 IMC 606.2 EXCEPTION (EXCEPT AC-3)

## OVERALL MECHANICAL PLAN

1/16"=1'-0"

NORTH


7227 N. 16th Street, Suite 200, Phoenix, AZ 85020
Job No: 20220
Consulting Engineers
Phone (602) 943-6608
Fax (602) 943-6181
Web: MechDesigns.com



CAWLEY ARCHITECTS
730 N. 52nd St. Ste. 203
Phoenix, Arizona 85008
P 602.393.5060
CawleyArchitects.com


Registered Professional Engineer (Civil) 51627 MATTHEW M. MOERTL Date Signed 7/19/24 ARIZONA, U.S.A.

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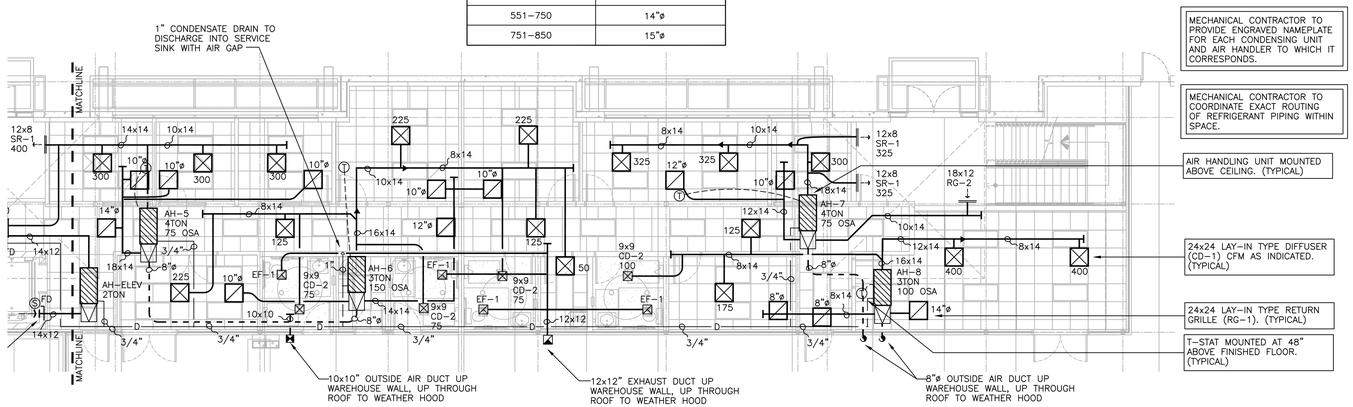
OVERALL MECHANICAL PLAN

Project:24011P

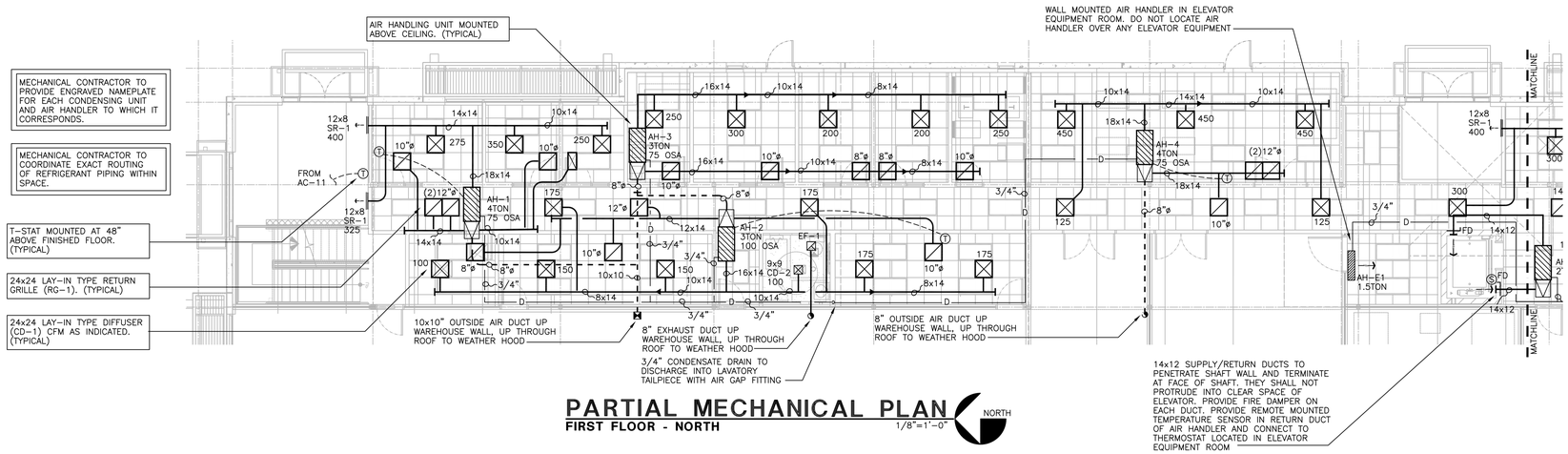
M2.1

| DIFFUSER NECK SCHEDULE | |
|---|---|
| CFM | NECK SIZE |
| 0–75 | 6"ø |
| 76–200 | 8"ø |
| 201–350 | 10"ø |
| 351–550 | 12"ø |
| 551–750 | 14"ø |
| 751–850 | 15"ø |




## PARTIAL MECHANICAL PLAN
**FIRST FLOOR - SOUTH**

1/8"=1'-0" NORTH




## PARTIAL MECHANICAL PLAN
**FIRST FLOOR - NORTH**

1/8"=1'-0" NORTH


CAWLEY ARCHITECTS
730 N. 52nd St. Ste. 203
Phoenix, Arizona 85008
P 602.393.5060
CawleyArchitects.com


Registered Professional Engineer (Mechanical) 51627 MATTHEW M. MOERTL Date Signed 7/19/24 ARIZONA, U.S.A.

A TENANT IMPROVEMENT FOR
COLOSSEUM 3

8700 N. 91ST AVE.
SUITE 100-110
PEORIA
ARIZONA
85345

DATE
1ST CITY SUBMITTAL
07-19-2024

DRAWN BY: MMM


OWNERSHIP OF DOCUMENTS:
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ENLARGED MECHANICAL PLANS - FIRST FLOOR

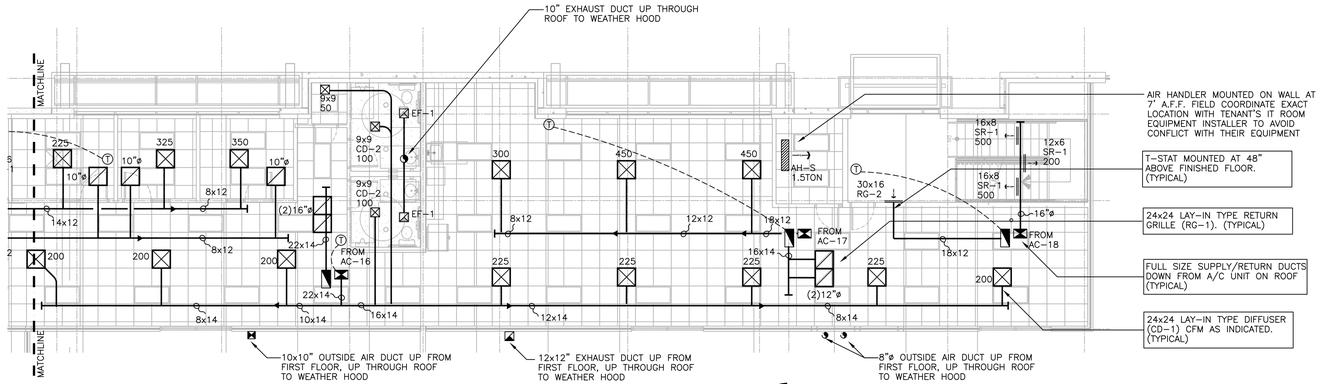

MECHANICAL DESIGNS INC.
7227 N. 16th Street, Suite 200, Phoenix, AZ 85020
Job No: 20220
Consulting Engineers
Phone (602) 943-6608
Fax (602) 943-6181
Web: MechDesigns.com


Project:24011P

M2.2

## DIFFUSER NECK SCHEDULE

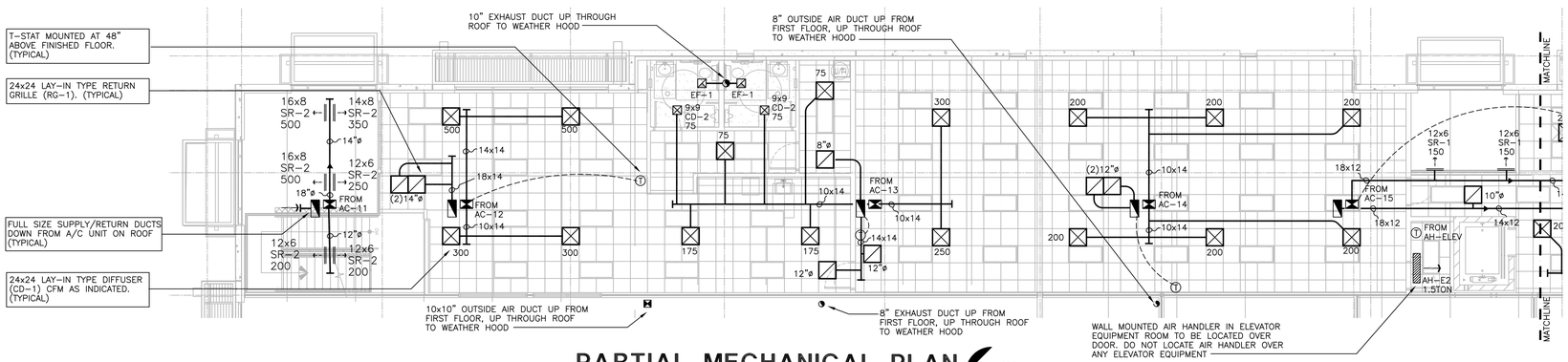
| CFM | NECK SIZE |
|---|---|
| 0–75 | 6"ø |
| 76–200 | 8"ø |
| 201–350 | 10"ø |
| 351–550 | 12"ø |
| 551–750 | 14"ø |
| 751–850 | 15"ø |




## PARTIAL MECHANICAL PLAN
**SECOND FLOOR - SOUTH**

1/8"=1'-0"

NORTH




## PARTIAL MECHANICAL PLAN
**SECOND FLOOR - NORTH**

1/8"=1'-0"

NORTH


CAWLEY ARCHITECTS
730 N. 52nd St. Ste. 203
Phoenix, Arizona 85008
P 602.393.5060
CawleyArchitects.com


Registered Professional Engineer (Civil) 51627 MATTHEW M. MOERTL Date Signed 7/19/24 ARIZONA, U.S.A.

A TENANT IMPROVEMENT FOR
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8700 N. 91ST AVE.
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PEORIA
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DATE
1ST CITY SUBMITTAL
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ENLARGED MECHANICAL PLANS - SECOND FLOOR


MECHANICAL DESIGNS INC
7227 N. 16th Street, Suite 200, Phoenix, AZ 85020
Job No. 20220
Consulting Engineers
Phone (602) 943-6608
Fax (602) 943-6181
Web: MechDesigns.com


Project:24011P

M2.3

# 2018 IECC COMPLIANCE REPORT - MECHANICAL

## MECHANICAL SYSTEMS LIST AND REQUIREMENTS

**ROOFTOP PACKAGE HEAT PUMP**

| TONNAGE | COOLING CAPACITY | HEATING CAPACITY | ECONOMIZER? | COOLING EFFICIENCY REQ/PROV | HEATING EFFICIENCY REQ/PROV |
|---|---|---|---|---|---|
| 3.0 | 36 kBTU/HR | 36 kBTU/HR | NO | 14.0 SEER REQ/14.3 SEER PROV | 7.7 HSPF REQ/7.7 HSPF PROV |
| 4.0 | 48 kBTU/HR | 48 kBTU/HR | NO | 14.0 SEER REQ/14.3 SEER PROV | 7.7 HSPF REQ/7.7 HSPF PROV |
| 4.0 | 53 kBTU/HR | 60 kBTU/HR | NO | 14.0 SEER REQ/14.3 SEER PROV | 7.7 HSPF REQ/7.7 HSPF PROV |
| 10.0 | 120 kBTU/HR | 120 kBTU/HR | YES | 11.0 EER REQ/12.0 EER PROV | 3.3 COP REQ/3.3 COP PROV |

[X] INTEGRATED AIR ECONOMIZER IS REQUIRED FOR INDIVIDUAL COOLING SYSTEMS AND ALLOWS MODULATION OF OUTDOOR AIR AND RETURN AIR DAMPERS TO PROVIDE UP TO 100% OF THE DESIGN SUPPLY AIR QUANTITY AS OUTDOOR AIR FOR COOLING. ALL AIR ECONOMIZERS SHALL BE CAPABLE OF AUTOMATICALLY REDUCING OUTDOOR AIR INTAKE TO THE DESIGN MINIMUM OUTDOOR AIR QUANTITY WHEN OUTDOOR AIR INTAKE WILL NO LONGER REDUCE COOLING ENERGY USAGE.

[ ] AIR ECONOMIZER DAMPERS CAN BE SEQUENCED WITH THE COOLING EQUIPMENT AND NOT CONTROLLED EXCLUSIVELY BY MIXED AIR TEMPERATURE
*EXCEPTION(S):*
[X] SYSTEM CONTROLLED FROM SPACE TEMPERATURE (SUCH AS SINGLE-ZONE SYSTEMS)

[X] COOLING SYSTEM PROVIDES A MEANS TO RELIEVE EXCESS OUTDOOR AIR DURING ECONOMIZER OPERATION (BAROMETRIC DAMPER OR POWER EXHAUST)

**SPLIT SYSTEM HEAT PUMP**

| TONNAGE | COOLING CAPACITY | HEATING CAPACITY | ECONOMIZER? | COOLING EFFICIENCY REQ/PROV | HEATING EFFICIENCY REQ/PROV |
|---|---|---|---|---|---|
| 1.5 | 18 kBTU/HR | 18 kBTU/HR | NO | 14.0 SEER REQ/20.0 SEER PROV | 7.7 HSPF REQ/7.7 HSPF PROV |
| 2.0 | 24 kBTU/HR | 24 kBTU/HR | NO | 14.0 SEER REQ/14.0 SEER PROV | 7.7 HSPF REQ/7.7 HSPF PROV |
| 3.0 | 36 kBTU/HR | 36 kBTU/HR | NO | 14.0 SEER REQ/14.0 SEER PROV | 7.7 HSPF REQ/7.7 HSPF PROV |
| 4.0 | 48 kBTU/HR | 48 kBTU/HR | NO | 14.0 SEER REQ/14.0 SEER PROV | 7.7 HSPF REQ/7.7 HSPF PROV |
| 5.0 | 53 kBTU/HR | 60 kBTU/HR | NO | 14.0 SEER REQ/14.0 SEER PROV | 7.7 HSPF REQ/7.7 HSPF PROV |

## GENERIC REQUIREMENTS

[X] PLANT EQUIPMENT AND SYSTEM CAPACITY NO GREATER THAN NEEDED TO MEET LOADS
*EXCEPTION(S):*
[ ] STANDBY EQUIPMENT AUTOMATICALLY OFF WHEN PRIMARY SYSTEM IS OPERATING
[ ] MULTIPLE UNITS CONTROLLED TO SEQUENCE OPERATION AS A FUNCTION OF LOAD

[X] MINIMUM ONE TEMPERATE CONTROL DEVICE PER SYSTEM

[ ] MINIMUM ONE HUMIDITY CONTROL DEVICE PER INSTALLED HUMIDIFICATION/DEHUMIDIFICATION SYSTEM

[X] LOAD CALCULATIONS PER ASHRAE/ACCA STANDARD 183

[X] AUTOMATIC CONTROLS: SETBACK TO 55°F (HEAT) AND 85°F (COOL)/7-DAY CLOCK/2-HR OCCUPANT OVERRIDE/10-HR BACKUP
*EXCEPTION(S):*
[ ] CONTINUOUSLY OPERATING ZONES
[ ] 2 KW DEMAND OR LESS (SUBMIT CALCULATIONS)

[X] AUTOMATIC START CONTROLS THAT CAN AUTOMATICALLY ADJUST THE DAILY START TIME OF THE HVAC SYSTEM ARE PROVIDED FOR EACH SYSTEM

[X] OUTSIDE AIR SOURCE FOR VENTILATION; SYSTEM CAPABLE OF REDUCING OSA TO REQUIRED MINIMUM

[X] R-6 SUPPLY/RETURN AIR DUCT INSULATION IN UNCONDITIONED SPACES
R-8 SUPPLY/RETURN DUCT INSULATION OUTSIDE THE BUILDING
R-8 INSULATION BETWEEN DUCTS AND THE BUILDING EXTERIOR WHERE DUCTS ARE PART OF THE BUILDING ASSEMBLY
*EXCEPTION(S):*
[ ] DUCTS LOCATED WITHIN EQUIPMENT
[ ] DUCTS WITH INTERIOR AND EXTERIOR TEMPERATURE DIFFERENCE NOT EXCEEDING 15°F (I.E. EXPOSED DUCTWORK)

[X] DUCTS SEALED - LONGITUDINAL SEAMS ON RIGID DUCTS/TRANSVERSE SEAMS ON ALL DUCTS/UL 181A OR 181B TAPES AND MASTICS

[ ] OPERATION AND MAINTENANCE MANUAL PROVIDED TO BUILDING OWNER (WILL BE PROVIDED BY CONTRACTOR)

[ ] DEMAND CONTROL VENTILATION (DCV) PRESENT FOR HIGH DESIGN OCCUPANCY AREAS (>25 PERSON PER 1000 SQ.FT. IN SPACES >500 SQ.FT.) AND SERVED BY SYSTEMS WITH ANY ONE OF:
1) AN AIR SIDE ECONOMIZER
2) AUTOMATIC MODULATING CONTROL OF THE OUTDOOR AIR DAMPER
3) A DESIGN OUTDOOR AIRFLOW GREATER THAN 3000 CFM
*EXCEPTION(S):*
[ ] SYSTEMS WITH HEAT RECOVERY
[ ] MULTIPLE-ZONE SYSTEMS WITHOUT DDC OF INDIVIDUAL ZONES COMMUNICATING WITH A CENTRAL CONTROL PANEL
[X] SYSTEMS WITH A DESIGN OUTDOOR AIRFLOW LESS THAN 1200 CFM
[ ] SPACES WHERE THE SUPPLY AIRFLOW RATE MINUS ANY MAKEUP OR OUTGOING TRANSFER AIR REQUIREMENT IS LESS THAN 1200 CFM
[ ] VENTILATION FOR PROCESS LOADS ONLY

[ ] AUTOMATIC CONTROLS FOR FREEZE PROTECTION SYSTEMS PRESENT

[ ] EACH FAN SYSTEM HAS AN ENERGY RECOVERY SYSTEM WHEN ONE OF THE FOLLOWING CONDITIONS ARE MET:
50% ≥ POA < 60% AND DAF ≥ 26000 CFM
60% ≥ POA < 60% AND DAF ≥ 12000 CFM
70% ≥ POA AND DAF ≥ 5000 CFM
WHERE POA = PERCENT OUTDOOR AIR AT FULL DESIGN AIRFLOW RATE AND DAF = DESIGN SUPPLY AIRFLOW RATE
*EXCEPTION(S):*
[ ] LABORATORY FUME HOOD SYSTEMS WITH A TOTAL EXHAUST RATE ≤ 5000 CFM
[ ] SYSTEMS SERVING SPACES THAT ARE NOT COOLED AND HEATED TO < 60°F
[ ] SYSTEMS WITH MORE THAN 60% OF THE OUTDOOR HEATING ENERGY PROVIDED FROM SITE-RECOVERED OR SITE SOLAR ENERGY
[ ] SYSTEMS EXHAUSTING TOXIC, FLAMMABLE, PAINT OR CORROSIVE FUMES OR DUST
[ ] SYSTEMS REQUIRING DEHUMIDIFICATION WITH COOLING COIL ENERGY RECOVERY IN SERIES WITH THE COOLING COIL
[ ] SYSTEMS EXPECTED TO OPERATE < 20 HOURS PER WEEK WHEN OUTDOOR AIR PERCENTAGE ≥ 30%
[ ] WHERE THE LARGEST EXHAUST SOURCE IS LESS THAN 75% OF THE DESIGN OUTDOOR AIRFLOW

[ ] MECHANICAL SYSTEMS SHALL MEET COMMISSIONING AND COMPLETION REQUIREMENTS IN SECTION C408.2

## COMPLIANCE STATEMENT:

THE PROPOSED MECHANICAL DESIGN REPRESENTED IN THIS DOCUMENT IS CONSISTENT WITH THE BUILDING PLANS, SPECIFICATIONS AND OTHER CALCULATIONS SUBMITTED WITH THIS PERMIT APPLICATION. THE PROPOSED MECHANICAL SYSTEMS HAVE BEEN DESIGNED TO MEET THE 2018 IECC AND TO COMPLY WITH THE MANDATORY REQUIREMENTS IN THE REQUIREMENTS CHECKLIST.

| MATT MOERTL | Matt Moertl | 7/19/24 |
|---|---|---|
| NAME - TITLE | SIGNATURE | DATE |

## POST CONSTRUCTION COMPLIANCE STATEMENT

[ ] HVAC RECORD DRAWINGS OF THE ACTUAL INSTALLATION, SYSTEM CAPACITIES, CALIBRATION INFORMATION AND PERFORMANCE DATA FOR EACH PIECE OF EQUIPMENT PROVIDED TO THE OWNER
[ ] HVAC OPERATION AND MAINTENANCE DOCUMENTS FOR ALL MECHANICAL EQUIPMENT AND SYSTEM PROVIDED TO THE OWNER BY THE MECHANICAL CONTRACTOR
[ ] WRITTEN HVAC BALANCING AND OPERATIONS REPORT PROVIDED TO THE OWNER

THE ABOVE POST CONSTRUCTION REQUIREMENTS HAVE BEEN COMPLETED

PRINCIPAL MECHANICAL DESIGNER  SIGNATURE  DATE

# DIFFUSER, REGISTER AND GRILLE SCHEDULE

| MARK | DESCRIPTION | MANUFAC | MODEL # | MATERIAL | FRAME | FACE | DAMPER | FINISH |
|---|---|---|---|---|---|---|---|---|
| CD-1 | CEILING DIFFUSER | PRICE | SCD | STEEL | LAY-IN | SQUARE BLADE | ND | WHITE |
| CD-2 | CEILING DIFFUSER | PRICE | SMD | STEEL | SURFACE | SQUARE BLADE | DBD | WHITE |
| SR-1 | SUPPLY REGISTER | PRICE | 620 | ALUM | SURFACE | DBL DEFLECT | DBD | WHITE |
| SR-2 | SPIRAL DUCT GRILLE | PRICE | SDGE | ALUM | SURFACE | DBL DEFLECT | DBD | MILL/NOTE 3 |
| RG-1 | RETURN GRILLE | PRICE | 530 | STEEL | LAY-IN | BAR TYPE | ND | WHITE |
| RG-2 | RETURN GRILLE | PRICE | 630 | ALUM | SURFACE | BAR TYPE | ND | MILL/NOTE 3 |
| RG-3 | SPIRAL DUCT RETURN | PRICE | SDGR | ALUM | SURFACE | BAR TYPE | ND | MILL/NOTE 3 |

NOTES:
1) ALL BLOW PATTERN ARE FOUR WAY UNLESS NOTED OTHERWISE.
2) CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR COORDINATION OF ALL CEILING FRAMES.
3) COORDINATE PAINTING OF AIR DISTRIBUTION WITH ARCHITECT AND GENERAL CONTRACTOR.

# OUTSIDE AIR CALCULATION

**PER 2018 I.M.C. SECTION 403.3 AND TABLE 403.3.1.1**
**SUITE 115**

OFFICE/BREAK AREA:
Rp = 5 CFM/PERSON
Pz = 5 PEOPLE/1000 SQ. FT. = 55.1 PEOPLE
Ra = 0.06 CFM/SQ. FT.
Az = 1109 SQ. FT.
V = RP x PZ + RA x AZ = 937 CFM OSA REQUIRED
Ez = 0.8
937 / 0.8 (ZONE EFFECTIVENESS) = 1171 CFM OF OUTSIDE AIR IS REQUIRED.

CONFERENCE:
Rp = 5 CFM/PERSON
Pz = 50 PEOPLE/1000 SQ. FT. = 34.4 PEOPLE
Ra = 0.06 CFM/SQ. FT.
Az = 689 SQ. FT.
V = RP x PZ + RA x AZ = 214 CFM OSA REQUIRED
Ez = 0.8
214 / 0.8 (ZONE EFFECTIVENESS) = 267 CFM OF OUTSIDE AIR IS REQUIRED.

LOBBY:
Rp = 5 CFM/PERSON
Pz = 10 PEOPLE/1000 SQ. FT. = 10.4 PEOPLE
Ra = 0.06 CFM/SQ. FT.
Az = 1040 SQ. FT.
V = RP x PZ + RA x AZ = 114 CFM OSA REQUIRED
Ez = 0.8
114 / 0.8 (ZONE EFFECTIVENESS) = 143 CFM OF OUTSIDE AIR IS REQUIRED.

1581 TOTAL CFM OF OUTSIDE AIR IS REQUIRED.
1600 CFM OF OUTSIDE AIR IS PROVIDED.

WAREHOUSE:
Rp = N/A
Pz = N/A
Ra = 0.06 CFM/SQ. FT.
Az = 48340 SQ. FT.
V = 0.06 x 17400 = 2900 CFM OSA
Ez = 0.8
2900 / 0.8 (ZONE EFFECTIVENESS) = 3626 CFM OF OUTSIDE AIR IS REQUIRED.
3750 CFM OF OUTSIDE AIR IS PROVIDED.

# MECHANICAL EQUIPMENT SCHEDULE

**A/C SYSTEM - WALL MOUNTED A/C MINI-SPLIT SYSTEM HEAT PUMP**

1.5 TON - 13.8 MBH SENS COOL @ 80/67/115; MINIMUM 23.8 SEER2/3.4 COP

AH-1 AIR HANDLER — NOM 550 CFM/1 MCA — TOSHIBA #RAV-SM182KRTP-UL/40 LBS.

CU-1 CONDENSING UNIT — 208V-1PH/14 MCA/ 15 RECC. FUSE SIZE — 25 MOCP/TOSHIBA #RAV-SP182AT2P-UL/125 LBS.

1. PROVIDE WITH LITTLE GIANT VCMA15 CONDENSATE PUMP 1/50HP, 50 GPH @ 5FT HEAD/115V 1PH/1 AMPS/4.4 LBS.
2. PROVIDE WITH LOW AMBIENT CONTROLS.
3. INDOOR UNIT POWERED BY OUTDOOR UNIT.
4. PROVIDE WITH #RBC-AMS54E-UL WIRED PROGRAMMABLE CONTROLLER.

**A/C SYSTEM - SPLIT SYSTEM HEAT PUMP W/NO AUX HEAT**

2 TON - 16.0 MBH SENS COOL @ 80/67/115; MINIMUM 14.0 SEER

AIR HANDLER — NOM 800 CFM @ 0.5" ESP/2.8 FLA/208V-1PH/ 3.5 MCA/15 MOCP/CARRIER FX4DNF025/125 LBS.

CONDENSING UNIT — 10.9 RLA COMPR/0.6 FLA FAN/208V-1PH/14.2 MCA/ 25 MOCP/CARRIER 25HCE424/200 LBS.

3 TON - 24.0 MBH SENS COOL @ 80/67/105; MINIMUM 14.0 SEER

AIR HANDLER — NOM 1200 CFM @ 0.5" ESP/4.1 FLA/208V-1PH/ 5.1 MCA/15 MOCP/CARRIER FX4DNF037/160 LBS.

CONDENSING UNIT — 3.85 RLA COMPR/0.6 FLA FAN/460V-3PH/5.4 MCA/ 15 MOCP/CARRIER 25HCE436/215 LBS.

4 TON - 32.0 MBH SENS COOL @ 80/67/115; MINIMUM 14.0 SEER

AIR HANDLER — NOM 1600 CFM @ 0.5" ESP/6.0 FLA/208V-1PH/ 7.5 MCA/15 MOCP/CARRIER FX4DNF061/200 LBS.

CONDENSING UNIT — 6.0 RLA COMPR/0.77 FLA FAN/460V-3PH/8.3 MCA/ 15 MOCP/CARRIER 25HCE448/260 LBS.

5 TON - 40.0 MBH SENS COOL @ 80/67/115; MINIMUM 14.0 SEER

AIR HANDLER — NOM 1900 CFM @ 0.5" ESP/6.0 FLA/208V-1PH/ 7.5 MCA/15 MOCP/CARRIER FX4DNF061/200 LBS.

CONDENSING UNIT — 7.75 RLA COMPR/0.77 FLA FAN/460V-3PH/10.5 MCA/ 15 MOCP/CARRIER 25HCE460/295 LBS.

NOTES:
1. PROVIDE AIR HANDLERS WITH FACTORY-INSTALLED TXV'S.
2. PROVIDE AIR HANDLERS WITH SECONDARY DRAIN PAN AND CONDENSATE CUT-OFF SWITCH.

**A/C SYSTEM - ROOFTOP PACKAGE HEAT PUMP**

3 TON: NOM 1200 CFM @ 0.5" ESP; 24.0 MBH SENS COOL @ 80/67/115; 5.8 RLA COMPR; 0.8 FLA ODF; 1.2 FLA IDF; 460V-3PH; 10 MCA; 15 MOCP; CARRIER 50FCQA04; MINIMUM 14.3 SEER; 8.2 HSPF HEIGHT: 33-3/8" + 8" CURB = 41-3/8" / 610 LBS.

4 TON: NOM 1600 CFM @ 0.5" ESP; 33.3 MBH SENS COOL @ 80/67/115; 6.2 RLA COMPR; 0.8 FLA ODF; 1.5 FLA IDF; 460V-3PH; 11 MCA; 15 MOCP; CARRIER 50FCQA05; MINIMUM 14.3 SEER; 8.2 HSPF HEIGHT: 33-3/8" + 8" CURB = 41-3/8" / 610 LBS.

5 TON: NOM 2000 CFM @ 0.5" ESP; 43.0 MBH SENS COOL @ 80/67/115; 7.8 RLA COMPR; 0.8 FLA ODF; 1.9 FLA IDF; 460V-3PH; 13 MCA; 20 MOCP; CARRIER 50FCQA06; MINIMUM 14.3 SEER; 8.2 HSPF HEIGHT: 41-3/8" + 8" CURB = 49-3/8" / 710 LBS.

10 TON: NOM 4000 CFM @ 6" ESP; 80.8 MBH SENS COOL @ 80/67/115; (2)7.7 RLA COMPR; 7.4 FLA ODF; (2)3 FLA IDF; 460V-3PH; 28 MCA; 30 MOCP; CARRIER 50FCQ12; MINIMUM 11.0 EER; 1250 LBS. HEIGHT: 49-3/8" + 8" CURB = 57-3/8"

NOTES:
1. UNITS TO BE INSTALLED ON EXISTING A/C CURBS (EXCEPT AC-16)
2. PROVIDE 25% MANUAL OSA INTAKE, ECO BLUE VANE AXIAL FAN WITH DIRECT DRIVE ECM MOTOR. (3-5 TON UNITS)
3. PROVIDE 2" FILTER RACK FOR ALL UNITS.
4. PROVIDE FACTORY INSTALLED MODULATING ECONOMIZER SECTION WITH BAROMETRIC RELIEF ON ALL 10 TON UNITS

**RELIEF VENTS (FOR POSITIVE PRESSURE RELIEF DURING A/C UNIT ECONOMIZER OPERATION)**

RV — UNITED METAL PRODUCTS #GV4872/12000 CFM @ 500 FPM/ROOF OPENING 48"x72"/ 220 LBS/PROVIDE COMPLETE WITH BAROMETRIC DAMPER AND ROOF CURB

NOTES:
1. PROVIDE WITH BIRD SCREEN.
2. FREE AREA OF HOOD MUST BE EQUAL OR GREATER THAN FREE AREA OF THROAT .

**EXHAUST FANS**

EF-1 — CEILING MOUNTED CENTRIFUGAL/150 CFM @ .25" ESP/1.3 AMP MOTOR/120V SINGLE PHASE/GREENHECK #SP-A190 w/ 8" DUCT AND BACKDRAFT DAMPER/FAN TO BE INTERLOCKED WITH LIGHTS IN RESTROOM. SEE ELECTRICAL DRAWINGS FOR INTERLOCK.

# MECHANICAL NOTES

(ALL WORK DONE TO BE IN COMPLIANCE WITH 2018 INTERNATIONAL MECHANICAL CODE, 2018 IECC AND LOCAL AMENDMENTS).

**GENERAL**
1) BUILDING IS EXISTING SINGLE STORY WITH NEW SECOND FLOOR PORTION
2) FURNISH ALL LABOR, MATERIALS, TOOLS EQUIPMENT, FEES, PERMITS, CERTIFICATE OF INSPECTION, ETC. NECESSARY OR REASONABLY REQUIRED FOR THE COMPLETE INSTALLATION OF ALL AIR CONDITIONING WORK. THE WORK SHALL BE IN STRICT ACCORDANCE WITH THE ASHRAE GUIDE, AND ALL LOCAL AND STATE CODES, ORDINANCES AND REGULATIONS.
3) COORDINATE ALL MECHANICAL WORK WITH ARCHITECT AND OTHER TRADES PRIOR TO WORK.
4) ALL OUTSIDE AIR INTAKES SHALL BE MINIMUM 10 FEET FROM ANY EXHAUST OR PLUMBING VENTS - COORDINATE WITH PLUMBING CONTRACTOR.
5) EXHAUST DUCTS MUST TERMINATE 10 FEET HORIZONTALLY FROM OR 3 FEET ABOVE ALL AIR INTAKES.
6) SUBMITTALS SHALL BE PROVIDED FOR ALL MECHANICAL EQUIPMENT.
7) CONTRACTOR SHALL VERIFY SCALE OF DRAWINGS WITH ARCHITECTURAL DRAWINGS BEFORE SUBMITTING ANY BID.

**EQUIPMENT**
1) MECHANICAL CONTRACTOR TO VERIFY AND COORDINATE AVAILABLE VOLTAGE WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.
2) ALL MECHANICAL EQUIPMENT LOCATION TO COMPLY WITH THE 2018 I. M. C.
3) SET A/C UNITS TO OUTSIDE AIR QUANTITIES AS SPECIFIED ON FLOOR PLAN.
4) ALL HVAC EQUIPMENT (A/C UNITS, EXHAUST FANS, ETC.) SHALL BE U.L. LISTED.
5) ALL MOTORS SHALL BE INHERENTLY THERMALLY PROTECTED.
6) CONTRACTOR SHALL MOUNT ALL MECHANICAL EQUIPMENT LEVEL IN CONFORMANCE WITH MANUFACTURER'S INSTRUCTIONS, MAINTAINING ALL MINIMUM RECOMMENDED CLEARANCES.
7) PROVIDE ONE SET OF FARR 30-30 THROWAWAY FILTERS AND ONE SET OF FINAL FILTERS, FRAMES, MOUNTING HARDWARE AND ACCESSORIES. PROVIDE ONE SET OF THROWAWAY FILTERS FOR USE DURING THE CONSTRUCTION PERIOD. REMOVE THE FIRST SET OF THROWAWAY FILTERS AFTER THE CONSTRUCTION PERIOD AND INSTALL THE SECOND SET OF FINAL FILTERS (PRIOR TO BALANCING THE SYSTEM).

**DUCTWORK**
1) PROVIDE BALANCING DAMPERS AT ALL BRANCH CONNECTIONS.
2) THE MAXIMUM LENGTH OF ANY FLEX DUCT SHALL NOT EXCEED 8 FEET.
3) ALL BRANCH CONNECTIONS SHALL BE A MINIMUM OF 2 FEET AWAY FROM ANY ELBOW.
4) ALL DUCTS SHALL BE GALVANIZED SHEET METAL. ALL NEW DUCTWORK TO BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH ASHRAE GUIDELINES, THE LATEST SMACNA STANDARDS, THE 2018 I.E.C.C. AND CHAPTER 6 OF THE 2018 INTERNATIONAL MECHANICAL CODE FOR LOW PRESSURE DESIGN.
5) ALL FLEX DUCTS SHALL BE THERMAFLEX TYPE KM MIN R-6 VALUE OR APPROVED EQUAL CONFORMING TO UL 181, NFBA 90A AND 90B.
6) MECHANICAL CONTRACTOR SHALL VERIFY THAT ALL DUCTWORK WILL FIT WHERE INDICATED WITHOUT INTERFERENCES.
7) DUCTS SHALL CONFORM TO DIMENSIONS ON THE DRAWINGS UNLESS LOCATION OF STRUCTURAL MEMBERS PROHIBIT. IN CASE OF A CHANGE IN DIMENSIONS, CROSS SECTIONAL AREAS SHALL BE MAINTAINED.
8) ALL DUCTS SHALL BE SUBSTANTIALLY SUPPORTED WITH HANGERS TO THE STRUCTURE. PLACING SUPPORTS NOT OVER 8 FEET APART ALONG THE LENGTH OF THE DUCT. SHEET METAL SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:
UP TO 12" WIDTH — 26 GAUGE STEEL
13" TO 30" WIDTH — 24 GAUGE STEEL
9) EXHAUST DUCTS SHALL BE MINIMUM 26 GAUGE GALVANIZED STEEL - SEE MECH EQUIPMENT SCHEDULE OR FLOOR PLAN FOR SIZE & TERMINATION POINT.
10) ALL "FACTORY MADE" DUCT MUST BE CLASS "0" OR CLASS "1".
11) PROVIDE FULL RADIUS ELBOWS, TURNING VANES, AND SPLITTER DAMPERS IN BRANCHES AND EXTRACTORS WHERE APPLICABLE.
12) DUCT SIZES SHOWN ARE "CLEAR INSIDE" DIMENSIONS.
13) **ALL SUPPLY AND RETURN DUCTS LOCATED IN UNCONDITIONED SPACES SHALL HAVE A MINIMUM OF R-6 INSULATION. ALL SUPPLY AND RETURN DUCTS LOCATED OUTSIDE THE BUILDING SHALL HAVE A MINIMUM OF OF R-8 INSULATION IN ACCORDANCE WITH THE 2018 I.E.C.C. C403.2.7.**
14) ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK, SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLU-EMBEDD-FABRIC SYSTEMS OR TAPES. TAPES AND MASTICS USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND SHALL BE MARKED 181A-P FOR PRESSURE SENSITIVE TAPE. TAPES AND MASTICS USED TO SEAL FLEXIBLE AIR AIR DUCT AND FLEXIBLE CONNECTORS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED 181B-FX FOR PRESSURE SENSITIVE TAPE OR 181M FOR MASTIC. DUCT CONNECTION TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. UNLISTED DUCT TAPE IS NOT PERMITTED AS SEALANT ON ANY METAL DUCTS.

**EXPOSED DUCTWORK**
1) EXPOSED DUCTS AND FITTINGS SHALL BE ROUND SPIRAL LOCK SEAM GALVANIZED SHEET METAL.
2) DUCTS SHALL BE SINGLE WALL ACOUSTICALLY LINED FACTORY FABRICATED DUCT AND FACTORY FABRICATED FITTINGS AS MANUFACTURED BY MCGILL AIRFLOW OR APPROVED.
3) **ALL DUCTWORK SHALL BE ACOUSTICALLY LINED THE FULL LENGTH OF THE DUCT, SUPPLY AND RETURN. (THIS SHALL NOT BE OMITTED)**
4) ALL DIMENSIONS FOR LINED DUCTWORK ARE TO THE INSIDE OF THE LINER.
5) ACOUSTICAL DUCT LINER SHALL BE 1 INCH THICK 3 LB DENSITY, EPA REGISTERED ANTIMICROBIAL EROSION-RESISTANT AIR SIDE COATING.

**OUTLETS**
1) THE MECHANICAL CONTRACTOR SHALL COORDINATE EXACT DIFFUSER AND GRILLE LOCATIONS WITH ELECTRICAL CONTRACTOR AND ALL OTHER TRADES AND ALSO COORDINATE SPACE AVAILABILITY FOR DUCTWORK ABOVE RECESSED LIGHTING TO AVOID RELOCATING DUCTWORK AT THE MECHANICAL CONTRACTORS EXPENSE.
2) ALL AIR DISTRIBUTION DEVICES IN LAY-IN CEILINGS SHALL BE SUPPORTED IN COMPLIANCE WITH SECTION 2.3.1.3 OF NFPA 90A & 2018 INTERNATIONAL BUILDING CODE.

**CONTROLS**
1) THERMOSTATS SHALL BE AUTOMATIC SETBACK TO 55°(HEAT) AND 85°(COOL); 7-DAY PROGRAMMABLE, 2-HOUR OCCUPANT OVERRIDE, 10 HOUR BACKUP.
2) CONTRACTOR AND OWNER TO COORDINATE EXACT T-STAT LOCATIONS.

**PIPING**
1) HANGERS AND SUPPORTS:
CLEVIS HANGERS ADJUSTABLE HEIGHT, MAXIMUM 10'C., 3/8" ROD UP TO 5" PIPE, 5/8" ROD FOR 6" AND LARGER. WHERE EXTRA HANGER SUPPORTS ARE REQUIRED, THEY SHALL BE PROVIDED BY CONTRACTOR. TRAPEZE HANGERS WITH ROLLERS MAY BE USED FOR MULTIPLE LINES OR WHERE SPACE IS LIMITED.
2) DRAINS
1) FURNISH AND INSTALL ALL CONDENSATE DRAINS. DRAINS SHALL BE TYPE M, COPPER WITH WROUGHT COPPER FITTINGS AND 95-5 SILVER SOLDER.
2) SLOPE CONDENSATE DRAINS AT 1/8" PER FOOT TOWARDS DISCHARGE LOCATION.
3) FULLY INSULATE ALL CONDENSATE DRAINS WITH MINIMUM 0.5" ARMAFLEX OR EQUAL

**INSULATION (CONCEALED DUCTWORK)**
1) ALL INSULATION, MATERIAL, COVERINGS, ADHESIVES, VAPOR-BARRIERS AND TAPES SHALL CONFORM TO NFPA '90A, FLAME SPREAD CLASSIFICATION NOT TO EXCEED 25 AND SMOKE DEVELOPMENT NOT TO EXCEED 50.
2) PROVIDE 1/2" LINER IN SUPPLY AND RETURN DUCTWORK OF AIR CONDITIONING SYSTEMS WITHIN 15 FEET OF AHU OR A/C UNIT.
3) INSULATE ALL SHEET METAL DUCTWORK FOR AIR CONDITIONING SYSTEMS WITH A MINIMUM VALUE OF R-6, 3/4 LB. DENSITY EXTERIOR INSULATION, WITH FSK JACKET AND VAPOR BARRIER WITHIN THE BUILDING ENVELOPE AND R-8 OUTSIDE OF BUILDING ENVELOPE.

**TESTING**
1) TEST AND BALANCE ALL AIR SYSTEMS PER AABC OR NEBB LATEST STANDARDS. SUBMIT REPORT TO ENGINEER WITHIN 10 DAYS OF COMPLETING TEST AND BALANCE.
2) COPY OF THE AIR BALANCE REPORT SHALL BE PROVIDED TO THE MECHANICAL INSPECTOR FOR FINAL APPROVAL. REPORT SHALL BE SEALED AND WET SIGNED.

**COMMISSIONING**
1) ALL HVAC SYSTEMS SHALL BE COMMISSIONED BY A THIRD PARTY COMMISSIONING AGENT PER 2018 IECC.
2) THE COMMISSIONING AGENT SHALL PROVIDE A COMMISSIONING PLAN PRIOR TO ANY CONSTRUCTION AND SUBMIT TO CITY OF PEORIA FOR REVIEW AND ACCEPTANCE.


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Registered Professional Engineer (Civil) 51627 MATTHEW M. MOERTL Date Signed 7/19/24 ARIZONA, U.S.A.

A TENANT IMPROVEMENT FOR
COLOSSEUM 3

8700 N. 91ST AVE.
SUITE 100-110
PEORIA
ARIZONA
85345

| DATE |
|---|
| 1ST CITY SUBMITTAL 07-19-2024 |

DRAWN BY: MMM


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MECHANICAL NOTES

Project:24011P

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