

## GENERAL NOTES

- REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ALL EQUIPMENT LOCATIONS, DIMENSIONS, AND OTHER REQUIREMENTS.
- WEIGHT DISTRIBUTION AND CODE COMPLIANCE FOR ALL ROOF MOUNTED EQUIPMENT TO BE VERIFIED BY CONTRACTOR PRIOR TO ROUGH-IN.
- FOR CEILING MOUNTED SMOKE DETECTORS SEE ELECTRICAL DRAWINGS.
- ROUT CEILING PANELS AT CUT EDGES TO FIT LEVEL IN GRID.
- 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)
- ALL CEILING/SOFFIT HEIGHTS ARE NOTED TO BE ABOVE FINISHED FLOOR.
- 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

A TENANT IMPROVEMENT FOR  
COLOSSEUM 3  
  
8700 N. 91ST AVE.  
SUITE 100-110  
PEORIA  
ARIZONA  
85345

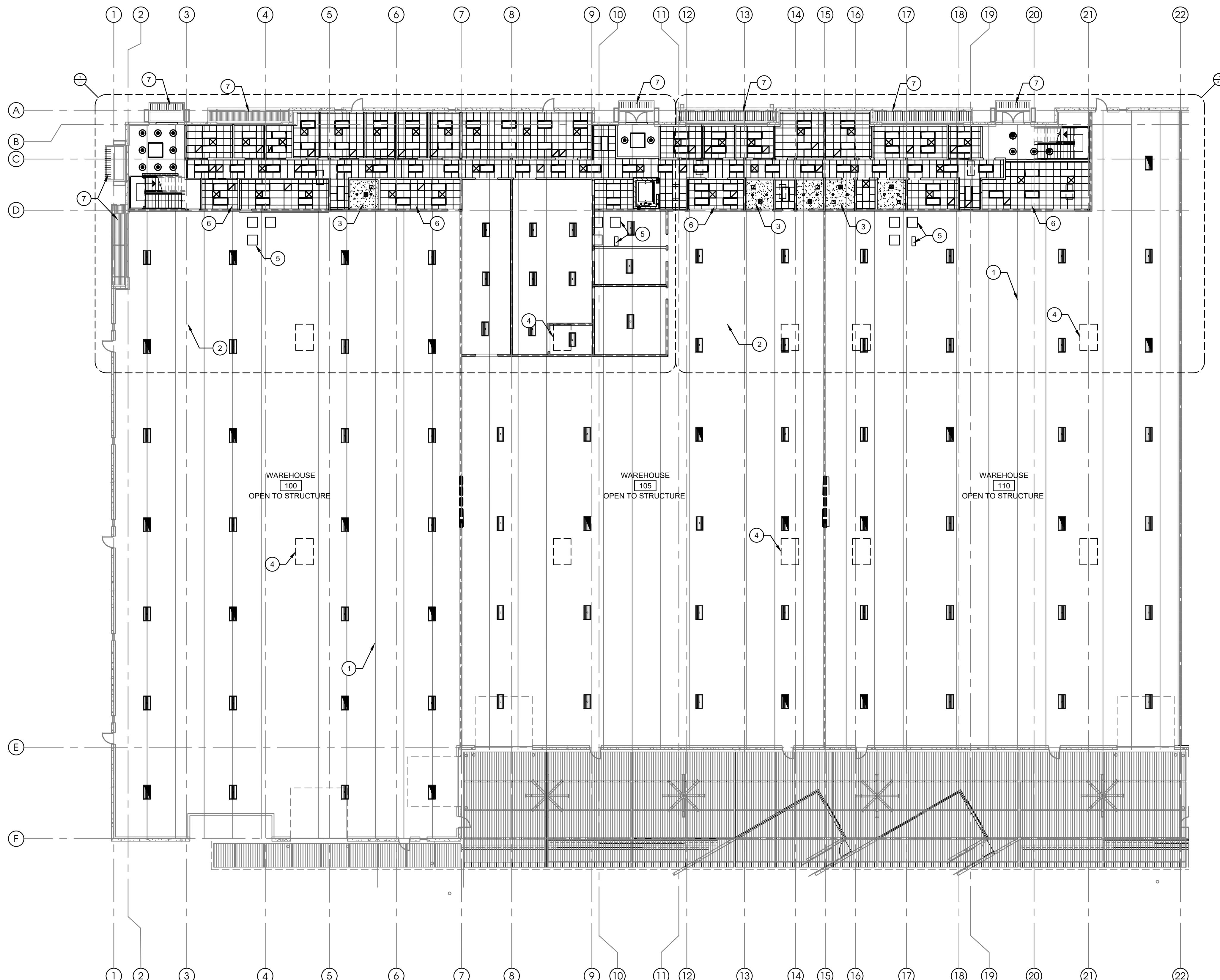
DATE  
1ST CITY SUBMITTAL  
07-19-2024

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OVERALL REFLECTED  
CEILING PLAN

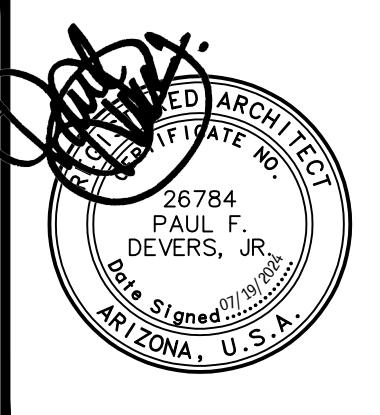
Project:24011  
A3.1



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

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## DRAWING LEGEND

	2' X 2' SUSPENDED LAY-IN CEILING ARMSTRONG DUNE REGULAR 9/16 WHITE
	2' X 4' SUSPENDED LAY-IN CEILING ARMSTRONG DUNE SECOND LOOK REGULAR 9/16 WHITE
	5/8" GYP. BOARD CEILING
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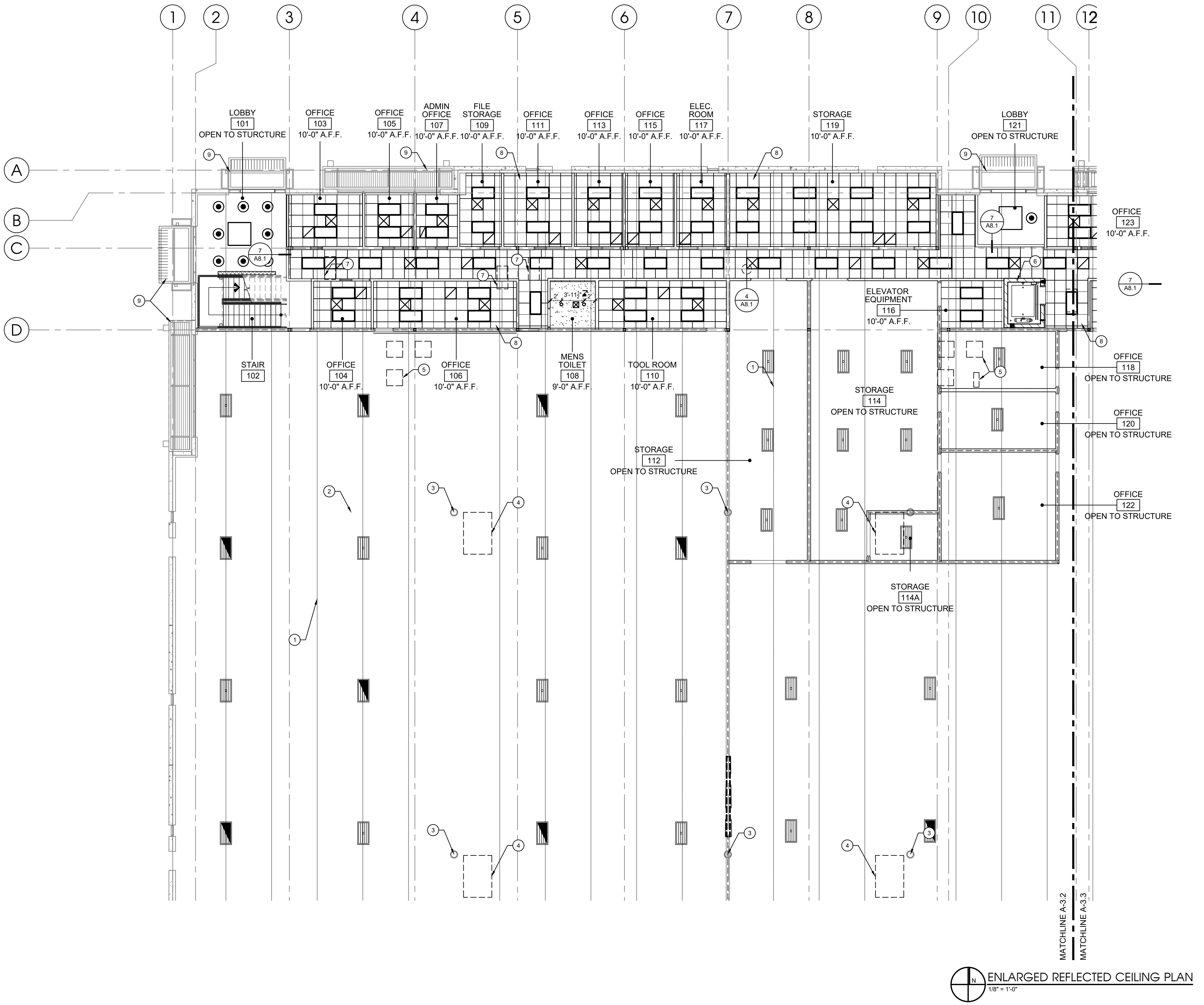
OVERALL REFLECTED  
CEILING PLAN - MEZZANINE

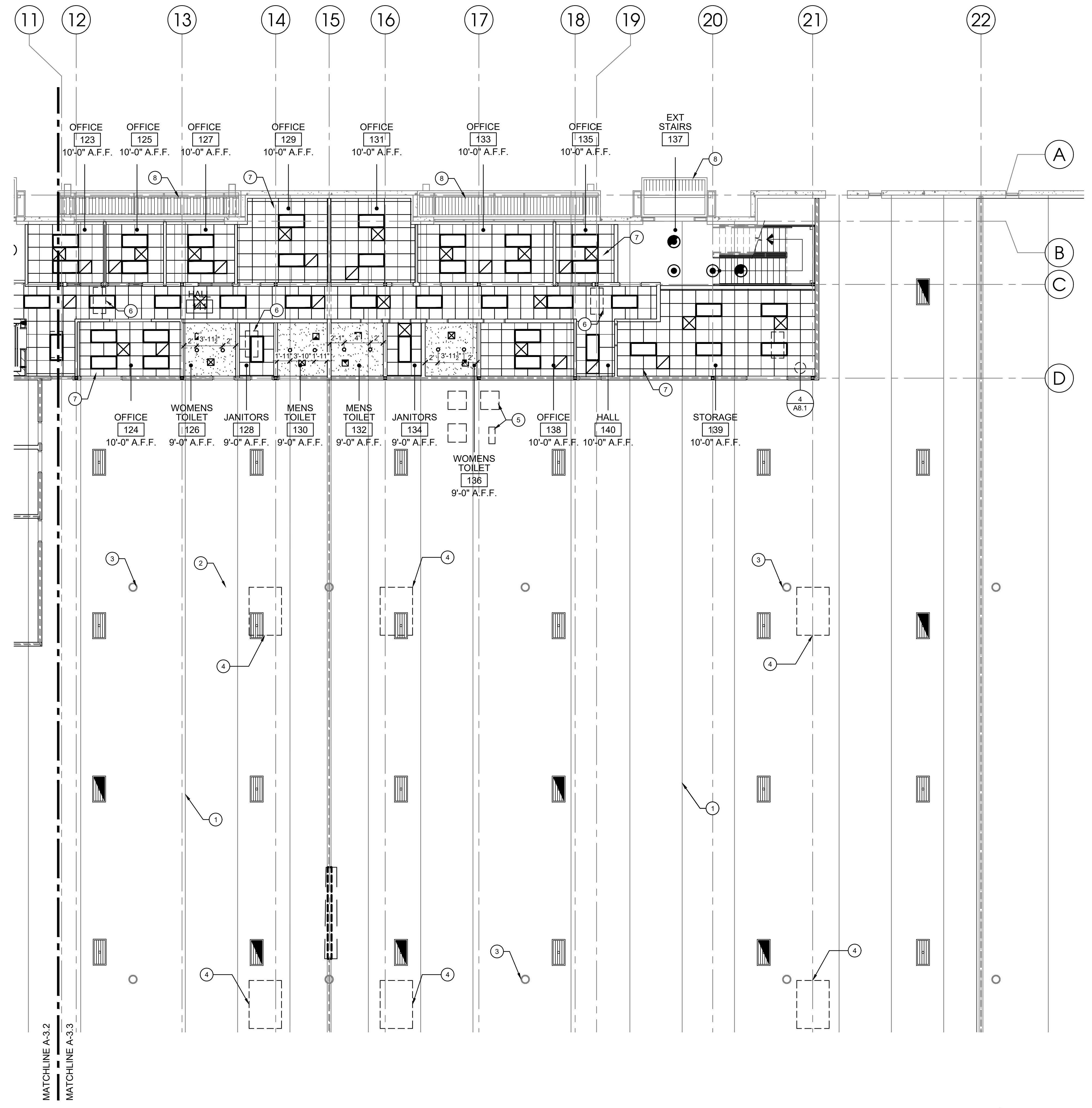
Project:24011

A3.2



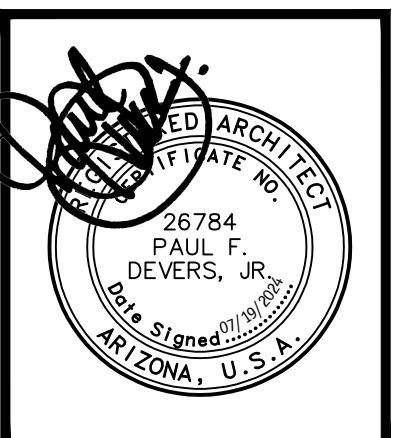
OVERALL REFLECTED CEILING PLAN - MEZZANINE  
1/16" = 1'-0"





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ENLARGED REFLECTED  
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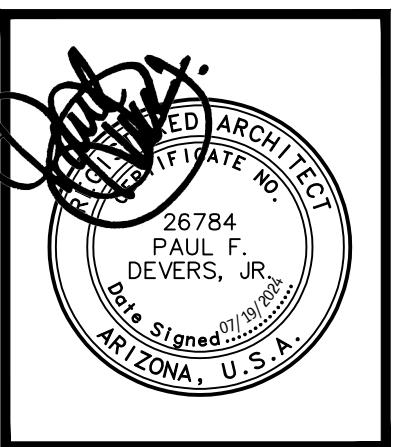
ENLARGED REFLECTED CEILING PLAN  
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Project:24011  
A3.4



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#### SHEET KEYNOTES

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

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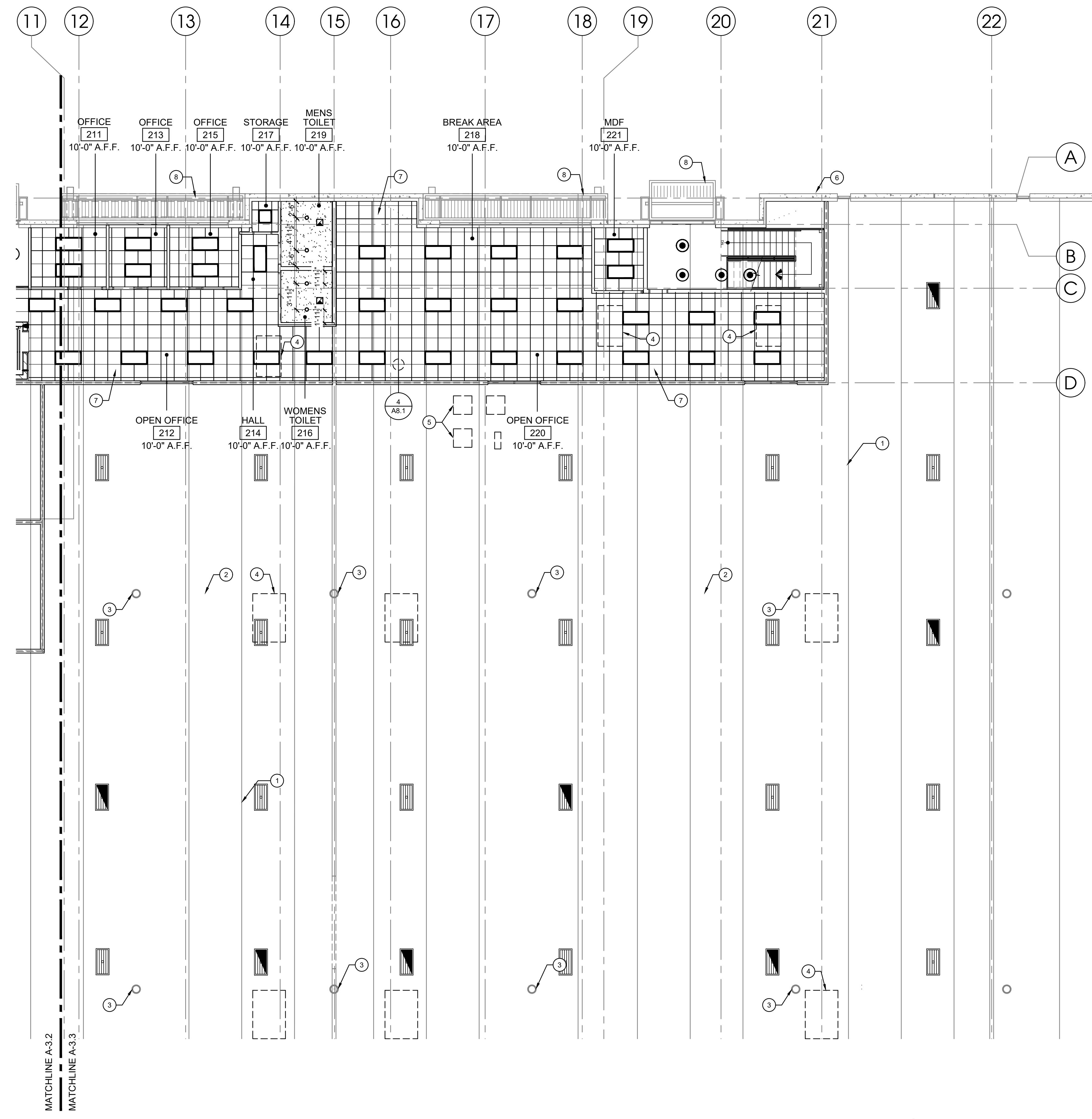
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ENLARGED REFLECTED  
CEILING PLAN - MEZZANINE

MATCHLINE A-3.2  
MATCHLINE A-3.3

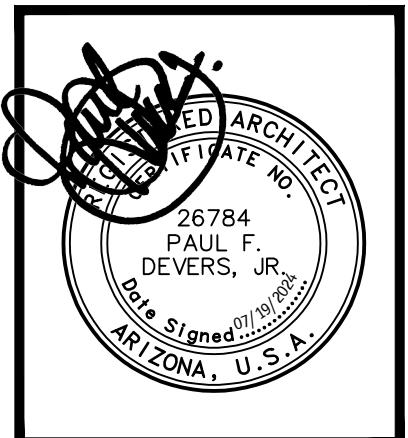
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Project:24011  
A3.5



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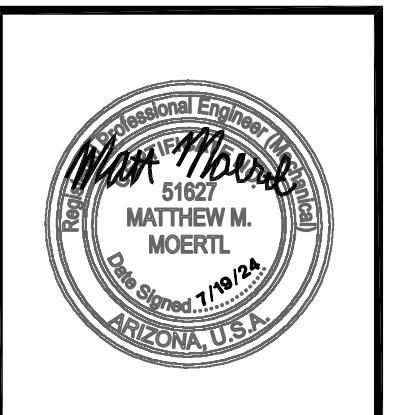
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ENLARGED REFLECTED  
CEILING PLAN - MEZZANINE

730 N. 52nd St. Ste. 203  
Phoenix, Arizona 85008  
P 602.393.5060



# A TENANT IMPROVEMENT FOR **COLOSSEUM 3**

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

**DATE**  

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**1ST CITY SUBMITTAL**  
**07-19-2024**

DRAWN BY: MMM

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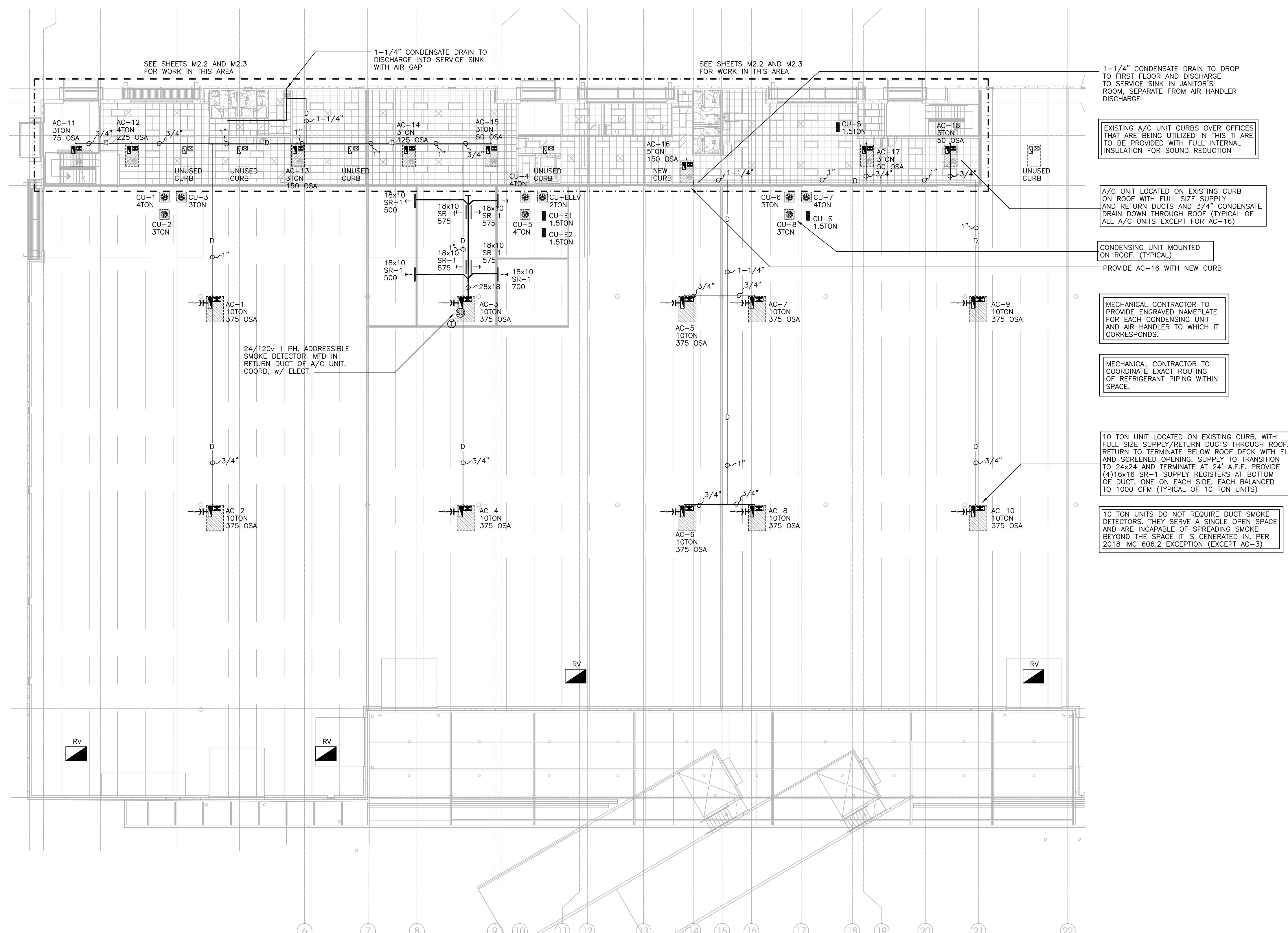
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## OVERALL MECHANICAL PLAN

Project:24

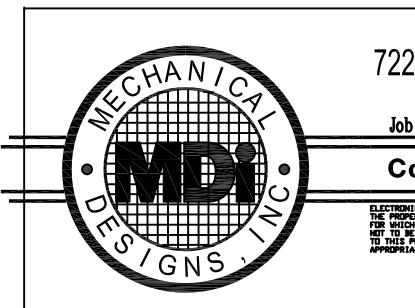


# OVERALL MECHANICAL PLAN

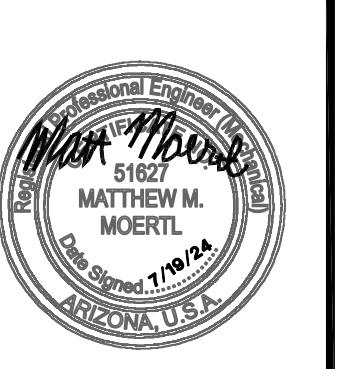


1/16"=1'-0"

**PLAN** 1/16"=1'-0" NORTH

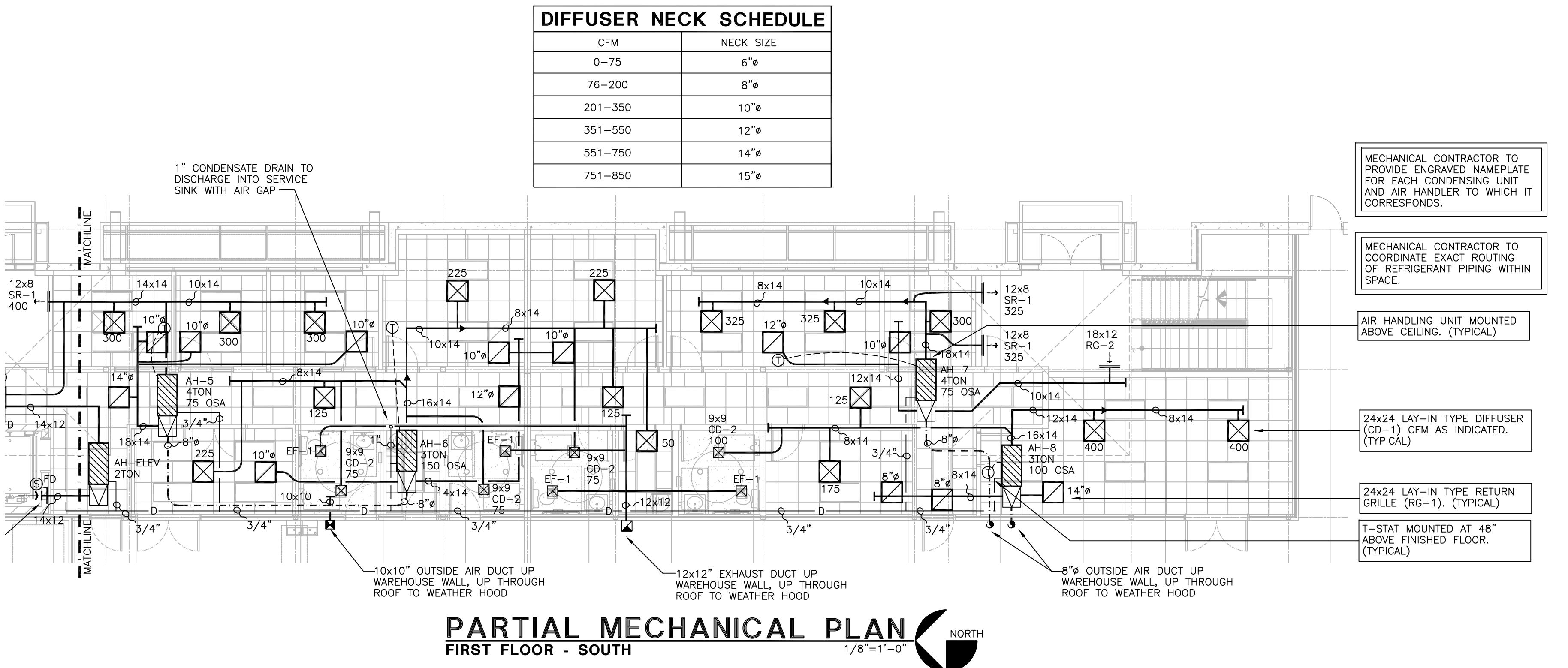


7 N. 16th Street, Suite 200, Phoenix, AZ 85020  
No: 20220 Phone (602) 943-6608  
**consulting Engineers** Fax (602) 943-6181  
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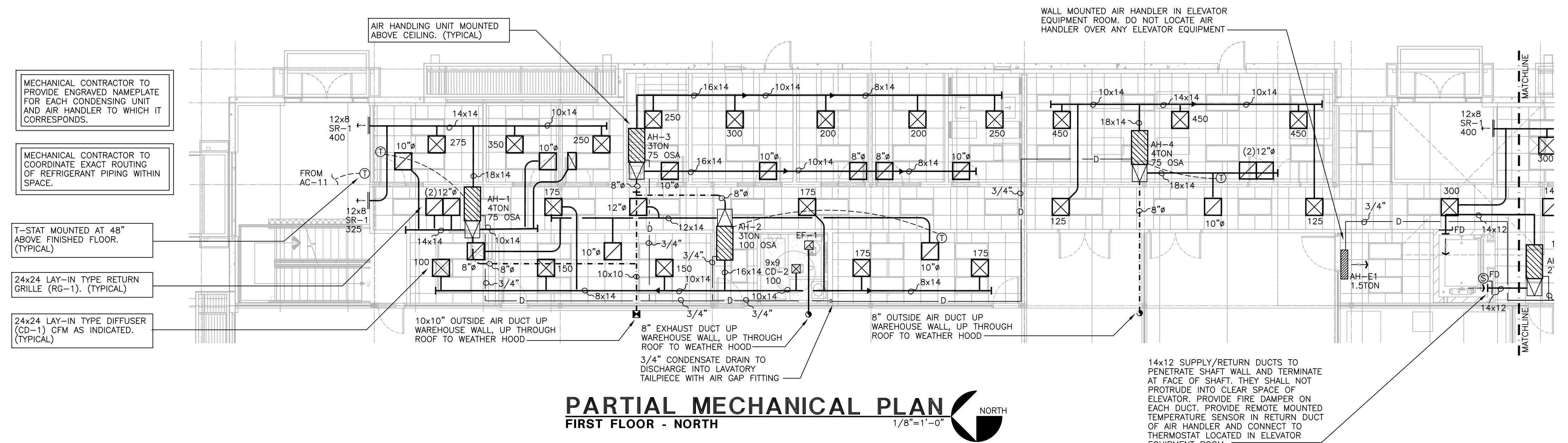


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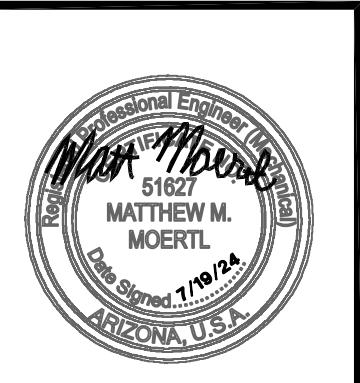


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ENLARGED MECHANICAL PLANS - FIRST FLOOR

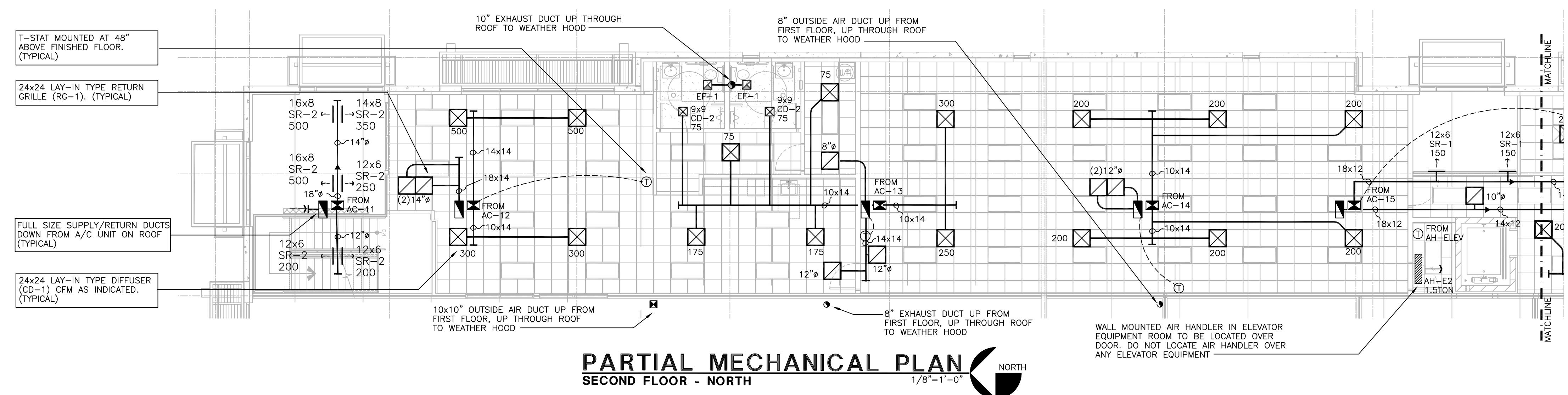
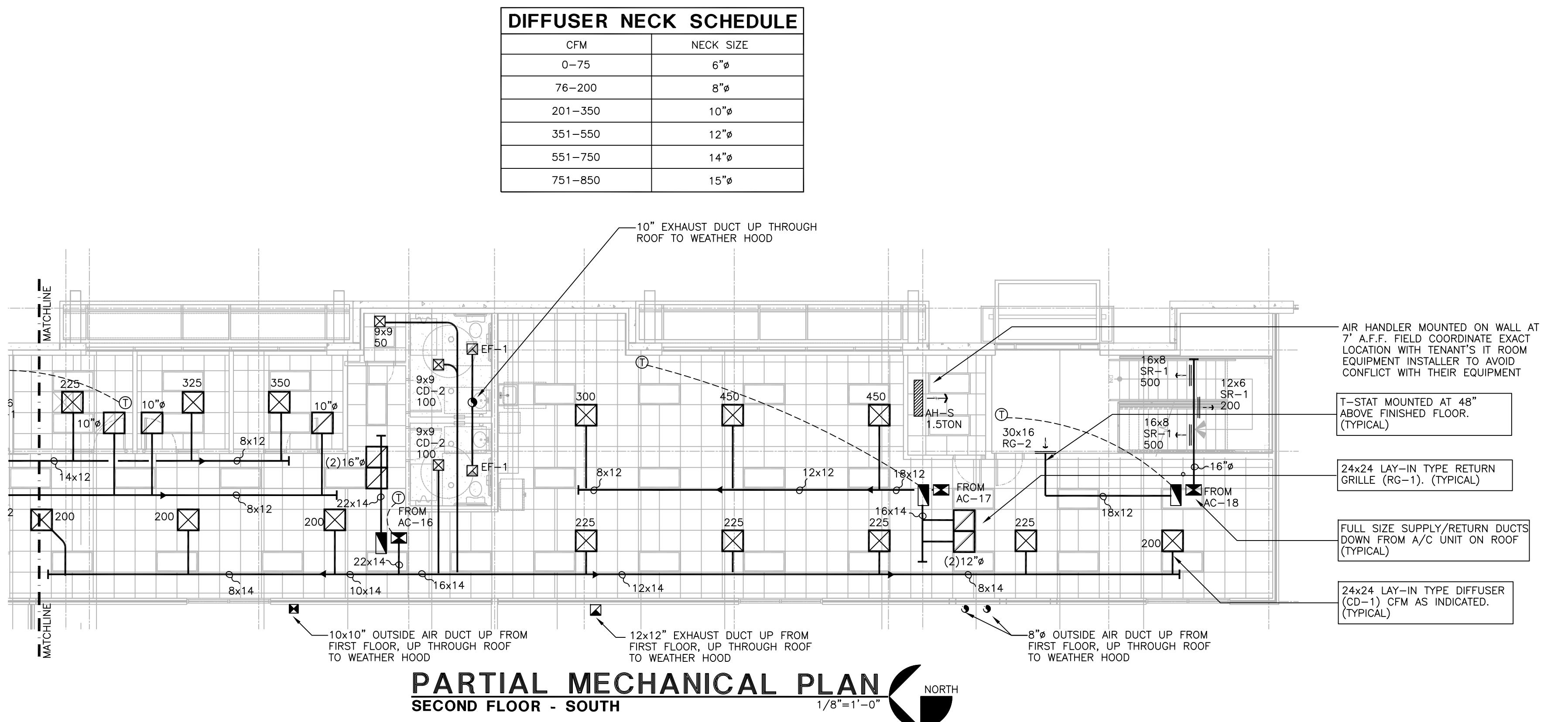
Project:24011P  
M2.2



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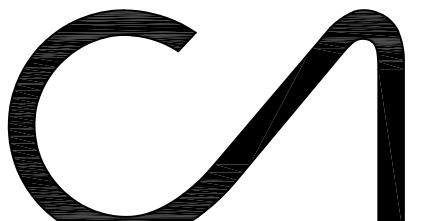
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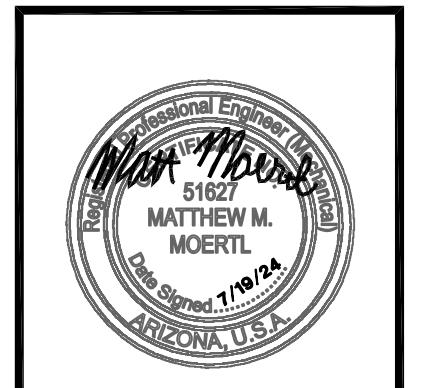
Project:24011P

M2.3



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CawleyArchitects.com



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MECHANICAL NOTES

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M3.1  
7227 N. 16th Street, Suite 200, Phoenix, AZ 85020  
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Consulting Engineers  
Fax (602) 943-6181  
Web: MechDesigns.com

**2018 IECC COMPLIANCE REPORT - MECHANICAL**

#### MECHANICAL SYSTEMS LIST AND REQUIREMENTS

ROOFTOP PACKAGE HEAT PUMP		HEATING CAPACITY		ECONOMIZER?		COOLING EFFICIENCY REQ/PROV		HEATING EFFICIENCY REQ/PROV	
TONNAGE	KBTU/HR	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 SEER REQ/12.0 SEER PROV	3.3 COP REQ/3.3 COP PROV				

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):

SYSTEM CONTROLLED FROM SPACE TEMPERATURE (SUCH AS SINGLE-ZONE SYSTEMS)

COOLING SYSTEM PROVIDES A MEANS TO EXHAUSE EXCESS OUTDOOR AIR DURING ECONOMIZER OPERATION (BAROMETRIC DAMPER OR POWER EXHAUST)

SPLIT SYSTEM HEAT PUMP		HEATING CAPACITY		ECONOMIZER?		COOLING EFFICIENCY REQ/PROV		HEATING EFFICIENCY REQ/PROV	
TONNAGE	KBTU/HR	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

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

MINIMUM ONE TEMPERATE CONTROL DEVICE PER SYSTEM

MINIMUM ONE HUMIDITY CONTROL DEVICE PER INSTALLED HUMIDIFICATION/DEHUMIDIFICATION SYSTEM

LOAD CALCULATIONS PER ASHRAE/ACCA STANDARD 183

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)

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

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

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)

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) PROVIDED 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 LISTED OUTDOOR AIRFLOW GREATER THAN 3000 CFM

EXCEPTION(S):

SYSTEMS WITH HEAT RECOVERY

MULTIPLE-ZONE SYSTEMS WITHOUT DOC OF INDIVIDUAL ZONES COMMUNICATING WITH A CENTRAL CONTROL PANEL

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 < 60% 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 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** *[Signature]* 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	NO	WHITE
CD-2	CEILING DIFFUSER	PRICE	SMD	STEEL	SQUARE	BLADE	DBD	WHITE
SR-2	SPIRAL DUCT DIFFUSER	PRICE	SDGE	ALUM	SURFACE	DBL DEFLECT	DBD	MILL/NOTE 3
RG-1	RETURN GRILLE	PRICE	S30	STEEL	LAY-IN	BAR TYPE	NO	WHITE
RG-2	RETURN GRILLE	PRICE	S60	ALUM	SURFACE	BAR TYPE	NO	MILL/NOTE 3
RG-3	SPIRAL DUCT RETURN	PRICE	SDGR	ALUM	SURFACE	BAR TYPE	NO	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 4073 AND TABLE 4073.1I

**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 SEER/2.3 COP

AH-1 AIR HANDLER NDM 550 CFM/1 MCA TOSHIBA #RAV-SM12KRTP-UL/40 LBS.

CU-1 CONDENSING UNIT 208V-1PH/14 MCA/ 15 RECC. FUSE SIZE 25 MDP/CARRIER TOSHIBA #RAV-SP12A2TP-UL/125 LBS.

1. PROVIDE WITH LITTLE GIANT VCMA15 CONDENSATE PUMP 1750HP, 50 GPH @ 5' FT HEAD/115V 1PH/ 4.4 LBS.

2. PROVIDE WITH LOW AMBIENT CONTROLS.

3. INDOOR UNIT POWERED BY OUTDOOR UNIT.

4. PROVIDE WITH #RBC-AMS54-EU 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 NDM 800 CFM @ 0.5° ESP/2.8 FLA/208V-1PH/ 3.5 MCA/15 MDP/CARRIER FX4INF025/125 LBS.

CONDENSING UNIT 10.9 RLA COMPRESSOR/0.6 FLA FAN/208V-1PH/14.2 MCA/ 25 MDP/CARRIER 25HCE42/200 LBS.

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

AIR HANDLER NDM 1200 CFM @ 0.5° ESP/4.1 FLA/208V-1PH/ 7.5 MCA/15 MDP/CARRIER FX4INF037/160 LBS.

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

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

AIR HANDLER NDM 1600 CFM @ 0.5° ESP/6.0 FLA/208V-1PH/ 7.5 MCA/15 MDP/CARRIER FX4DNV049/190 LBS.

CONDENSING UNIT 6.0 RLA COMPRESSOR/0.77 FLA FAN/460V-3PH/8.3 MCA/ 15 MDP/CARRIER 25HCE448/265 LBS.

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

AIR HANDLER NDM 1900 CFM @ 0.5° ESP/6.0 FLA/208V-1PH/ 7.5 MCA/15 MDP/CARRIER FX4DNF061/200 LBS.

CONDENSING UNIT 7.75 RLA COMPRESSOR/0.77 FLA FAN/460V-3PH/10.5 MCA/ 15 MDP/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: NDM 1200 CFM @ 0.5° ESP/24.0 MBH SENS COOL @ 80/67/115; 5.8 RLA COMPRESSOR/0.8 FLA DBF/1.2 FLA IDF/460V-3PH/ 10 MCA/ 15 MDP/CARRIER SOFCQ040; MINIMUM 14.3 SEER; 8.2 HPF HEIGHT: 33-3/8" + 8" CURB = 41-3/8" / 610 LBS.

4 TON: NDM 1600 CFM @ 0.5° ESP/33.3 MBH SENS COOL @ 80/67/115; 6.2 RLA COMPRESSOR/0.8 FLA DBF/1.2 FLA IDF/460V-3PH/ 12 MCA/ 15 MDP/CARRIER SOFCQ040S; MINIMUM 14.3 SEER; 8.2 HPF HEIGHT: 33-3/8" + 8" CURB = 41-3/8" / 610 LBS.

5 TON: NDM 2000 CFM @ 0.5° ESP/43.0 MBH SENS COOL @ 80/67/115; 7.8 RLA COMPRESSOR/0.8 FLA DBF/1.5 FLA IDF/460V-3PH/ 13 MCA/ 20 MDP/CARRIER SOFCQ040; MINIMUM 14.3 SEER; 8.2 HPF HEIGHT: 41-3/8" + 8" CURB = 49-3/8" / 710 LBS.

10 TON: NDM 4000 CFM @ 0.6° ESP/80.8 MBH SENS COOL @ 80/67/115; (2) 12 RLA COMPRESSOR/0.8 FLA DBF/1.5 FLA IDF/460V-3PH/ 24 MCA/ 20 MDP/CARRIER SOFCQ040; 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 DSA 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 #WV4872/12000 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/GREENNECK #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) LISTEN TO LABOR, MATERIALS, TOOL EQUIPMENT, FEES, PERMITS, CERTIFICATE OF INSPECTION, AND NECESSARY OR REASONABLE REQUIREMENTS FOR THE CONSTRUCTION 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.

**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 THERMO-ARMALFLEX KM MIN R-6 VALUE OR APPROVED EQUAL CONFORMING TO UL 1811 NFPA 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 PROBLEMS IN CASE OF A CHANGE IN DIMENSIONS, CROSS SECTIONAL AREA 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 "O" OR CLASS "1".
- 11) PROVIDE FULL RADIUS ELBOWS, TURNING VAVES, AND SPLITTER DAMPERS IN BRANCHES AND EXTRACTORS WHERE APPLICABLE.
- 12) DUCT SIZES SHOWN ARE "CLEAR INSIDE" DIMENSIONS.
- 13) ALL AIR RETURN DUCTS IN UNLISTED SPACES SHALL HAVE A MINIMUM OF R-6 INSULATION. ALL SUPPLY AND RETURN DUCTS LOCATED IN THE BUILDING SHALL HAVE A MINIMUM 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 TO THE DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUMBING-PIPE-SEALING SYSTEMS, TAPE, AND MASKING TAPE. TAPE AND MASKING TAPE SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 1811 AND SHALL BE MARKED 181A-P FOR PRESSURE SENSITIVE TAPE, AND TAPE AND MASTICS USED TO SEAL FLEXIBLE AIR AIR DUCT AND FLEXIBLE CONNECTORS SHALL COMPLY WITH UL 1811 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