

[illegible]

- REMARKS: MANUFACTURER TO PROVIDE THERMAL
EXPANSION VALVE, SOLENOID VALVE,
HEADER PRESSURE CONTROL AND 24 VOLT
- 2 STAGE COOLING/HEATING THERMOSTAT
CONTRACTOR TO PROVIDE (2) CHANGES OF
FILTRATION DURING INSTALLATION & START-UP.

[illegible]

1. INSTALL ALL FANS WITH VIBRATION ISOLATION SPRINGS & SEISMIC RESTRAINTS. PROVIDE APPROPRIATE PRICING FOR THESE FANS AND IT'S ELECTRICAL INTERLOCKS.
2. CONTRACTOR TO PROVIDE BACKDRAFT DAMPER AND INSTALL ALL CONTROL DEVICES, RELAYS, TRANSFORMERS, WIRING AND CONDUIT TO MAINTAIN EXISTING INTERLOCKS.
3. EXHAUST FAN SHALL HAVE INSULATED LOUVERS OR COVERS WHICH CLOSED WHEN THE FAN IS OFF. COVERD OR LOUVERS SHALL HAVE A MINIMUM INSULATION VALUE OF R-4.2.

4.506.1 BATHROOM EXHAUST FANS. MECHANICAL EXHAUST FANS WHICH EXHAUST DIRECTLY FROM BATHROOMS SHALL COMPLY WITH THE FOLLOWING

- 4.507.2 HEATING AND AIR-CONDITIONING SYSTEM DESIGN. HEATING AND AIR-CONDITIONING SYSTEMS SHALL BE SIZED, DESIGNED AND HAVE THEIR EQUIPMENT SELECTED USING THE FOLLOWING METHODS:

3. SELECT HEATING AND COOLING EQUIPMENT ACCORDING TO ACCA 36-S MANUAL S OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHODS.

4. AT THE TIME OF ROUGH INSTALLATION AND DURING STORAGE ON THE CONSTRUCTION SITE UNTIL FINAL START UP OF THE HEATING, COOLING AND VENTILATION EQUIPMENT , ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPERATIONS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCE AGENCY TO REDUCE THE AMOUNT OF DUCT, WATER AND DEBRIS WHICH MAY ENTER THE SYSTEM

CFM RANGE	ROUND DUCT DIAMETER OR EQUIVALENT RECTANGULAR DUCT	CFM RANGE	ROUND DUCT DIAMETER OR EQUIVALENT RECTANGULAR DUCT
0-110	6" OR 8"x4"	1400-1900	18" OR 24"x12"
101-180	8" OR 10"x6"	1900-2500	20" OR 24"x14"
181-270	10" OR 10"x8"	2500-3300	22" OR 32"x14"
271-400	10" OR 12"x8"	3300-4100	24" OR 36"x14"
401-600	12" OR 12"x10"	4100-5000	26" OR 40"x16"
601-900	14" OR 16"x10"	5000-6200	28" OR 48"x16"
901-1400	16" OR 18"x12"	6200-7500	30" OR 48"x18"

1. ISULATION MATERIAL SHALL MEET THE CALIFORNIA QUALITY STANDARD PER SECTION 110.8 ENERGY EFFICIENCY STANDARD.

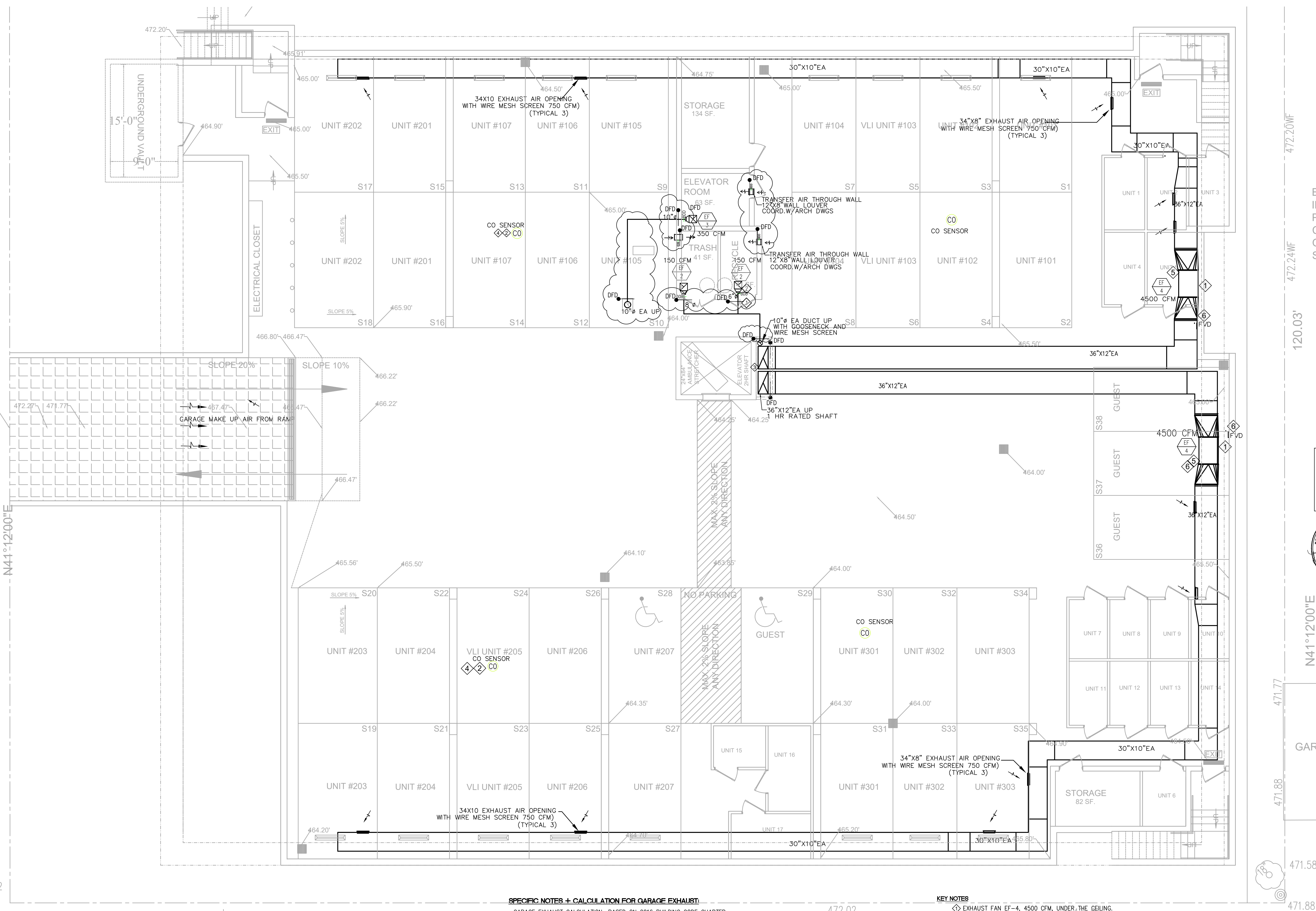
The diagram illustrates a Modbus network topology. At the top left, a 301C unit is connected to a 301RB unit via a red line labeled "Modbus Communication". The 301RB unit is also connected to a fan icon. Below the 301C unit, a red line labeled "Modbus Communication" branches out to three other units: a BAS unit, an EPaint unit, and an unlabeled unit. The connection to the unlabeled unit is labeled "Up to 3 x 32 units".

472.21TC
471.60FL
471.74EG

467.72

ONE-STORY BUILDING

SCALE: 3/16"=1'-0"



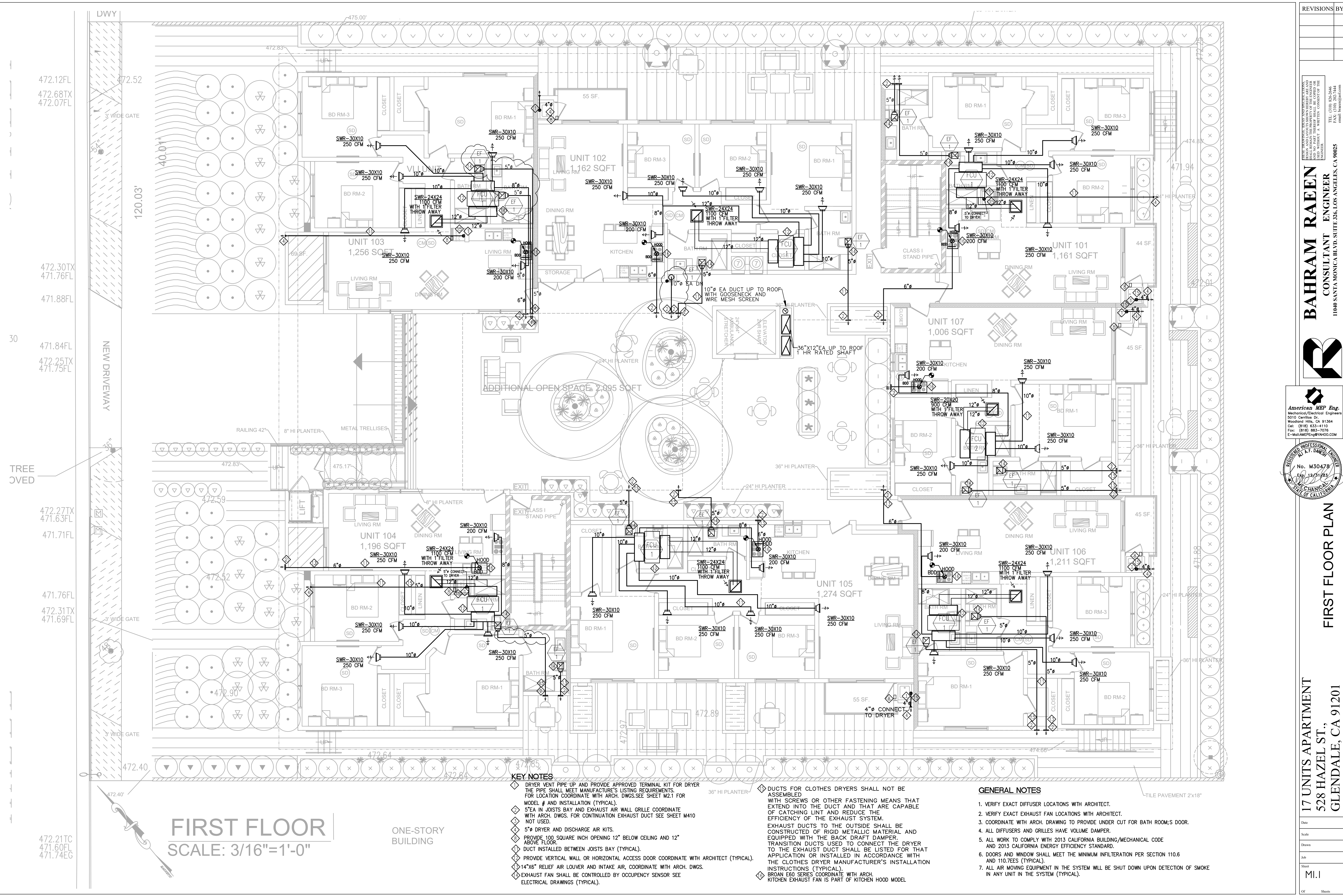
THE CARBON MONOXIDE DETECTION SYSTEM IS A DESIGN BUILD SYSTEM TO BE DESIGNED AND INSTALLED BY THE MECHANICAL CONTRACTOR.

THE SYSTEM SHALL INCLUDE MAINTENANCE FREE SOLID STATE ELECTRONIC CARBON MONOXIDE DETECTORS LOCATED STRATEGICALLY THROUGHOUT THE PARKING STRUCTURE. EACH DETECTOR SHALL COVER A MAXIMUM AREA OF 5000 SQ. FT. THE CONTINUOUS CARBON MONOXIDE DETECTION AND FAN CONTROL SYSTEM SHALL BE PROVIDED FOR MONITORING THE CARBON MONOXIDE LEVELS IN THE AREA SHOWN AND TO CONTROL THE EXHAUST FOR ENERGY CONSERVATION.

- ◆ EXHAUST FAN EF-4, 4500 CFM, UNDER, THE CEILING.
- ◆ PROVIDE 2 CARBON MONOXIDE DETECTOR EACH FOR 5000 SQUARE FEET OF FLOOR AREA. HONEYWELL E3PIONT MODEL 301WC0.
SEE CONTROL DIAGRAM ON SHEET NO.
- ◆ EXHAUST FAN EF-4, 4500 CFM, 36"x12"x2 UP TO THE ROOF.
- ◆ CO SENSOR AND CONTROL PANEL TO BE UL LISTED FOR THEIR SPECIFIC USE.
- ◆ INSTALL EXHAUST FAN CLOSE TO STRUCTURAL SLAB CEILING.
- ◆ 42" CLEARANCE IN FRONT OF VFD AND PROVIDE AND INSTALL BY ELECTRICAL CONTRACTOR

17 UNITS APARTMENT
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GLENDALE, CA 91201

Date
Scale
Drawn
Job
Sheet
MI.0
Of Sheets



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STATE OF CALIFORNIA

Exp. 12/31/23

No. M30478

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DATE

SCALE

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JOB

SHEET

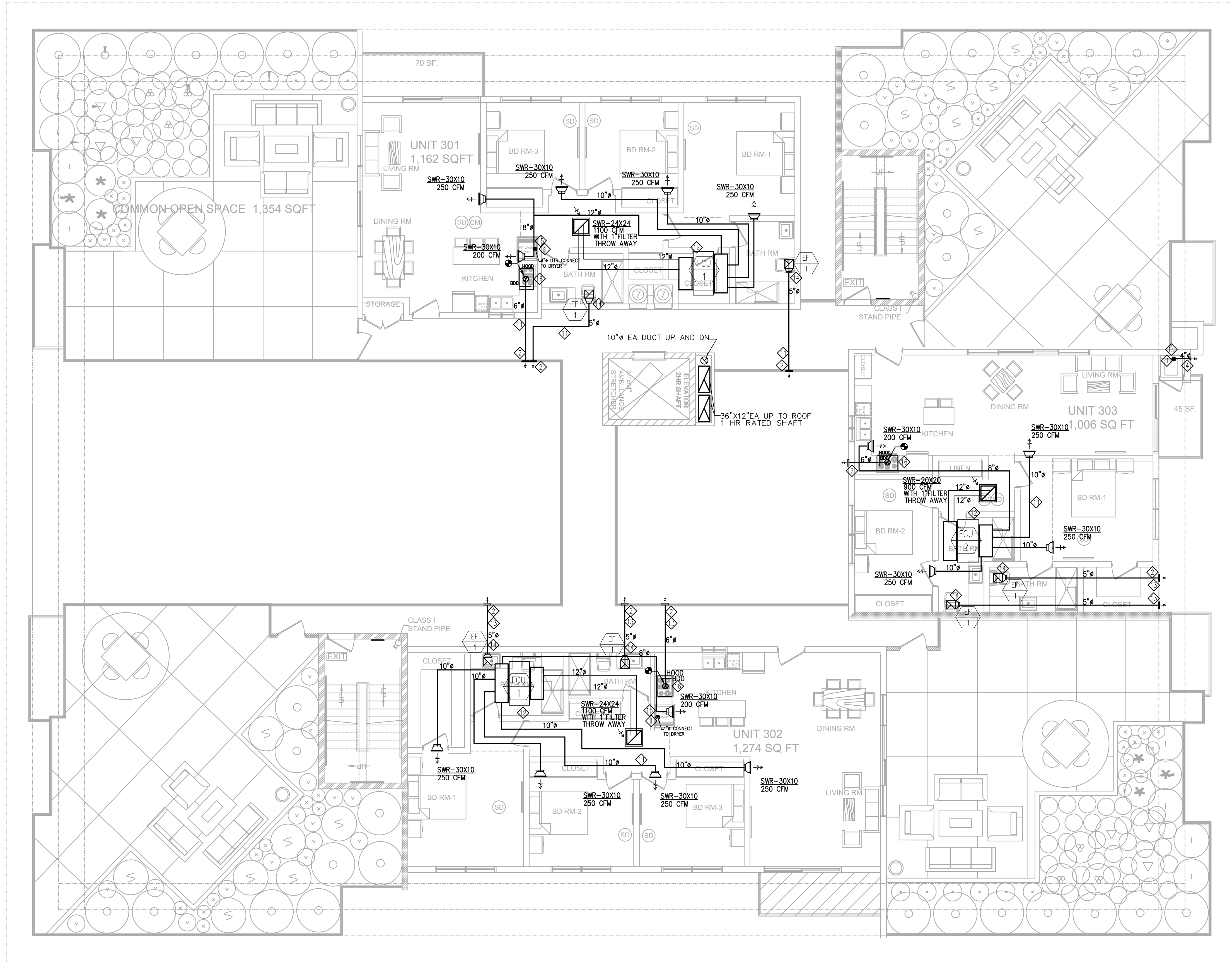
MI.1

OF

SHEETS

120.03'

40.01'



THIRD FLOOR

SCALE: 3/16"=1'-0"

KEY NOTES

- DRYER VENT PIPE UP AND PROVIDE APPROVED TERMINAL KIT FOR DRYER. THE PIPE SHALL MEET MANUFACTURE'S LISTING REQUIREMENTS. FOR LOCATION COORDINATE WITH ARCH. DWGS. SEE SHEET M2.1 FOR MODEL # AND INSTALLATION (TYPICAL).
- 6" EA IN JOISTS BAY AND EXHAUST AIR WALL GRILLE COORDINATE WITH ARCH. DWGS. FOR CONTINUATION EXHAUST DUCT SEE SHEET M4.10
- NOT USED.
- DRYER DISCHARGE AIR KITS.
- NOT USED.
- DUCT INSTALLED BETWEEN JOISTS BAY (TYPICAL).
- PROVIDE VERTICAL WALL OR HORIZONTAL ACCESS DOOR COORDINATE WITH ARCHITECT (TYPICAL).
- 14"x6" RELIEF AIR LOUVER AND INTAKE AIR, COORDINATE WITH ARCH. DWGS.
- EXHAUST FAN SHALL BE CONTROLLED BY OCCUPANCY SENSOR SEE ELECTRICAL DRAWINGS (TYPICAL).

- DUCTS FOR CLOTHES DRYERS SHALL NOT BE ASSEMBLED WITH SCREWS OR OTHER FASTENING MEANS THAT EXTEND INTO THE DUCT AND THAT ARE CAPABLE OF CATCHING LINT AND REDUCE THE EFFICIENCY OF THE EXHAUST SYSTEM. EXHAUST DUCTS TO THE OUTSIDE SHALL BE CONSTRUCTED OF RIGID METALLIC MATERIAL AND EQUIPPED WITH THE BACK DRAFT DAMPER. TRANSITION DUCTS USED TO CONNECT THE DRYER TO THE EXHAUST DUCT SHALL BE LISTED FOR THAT APPLICATION OR INSTALLED IN ACCORDANCE WITH THE CLOTHES DRYER MANUFACTURER'S INSTALLATION INSTRUCTIONS (TYPICAL).
- BROAN E60 SERIES COORDINATE WITH ARCH. KITCHEN EXHAUST FAN IS PART OF KITCHEN HOOD MODEL

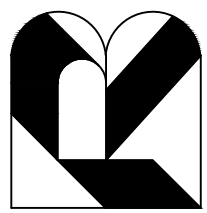
GENERAL NOTES

- VERIFY EXACT DIFFUSER LOCATIONS WITH ARCHITECT.
- VERIFY EXACT EXHAUST FAN LOCATIONS WITH ARCHITECT.
- COORDINATE WITH ARCH. DRAWING TO PROVIDE UNDER CUT FOR BATH ROOM'S DOOR.
- ALL DIFFUSERS AND GRILLES HAVE VOLUME DAMPER.
- ALL WORK TO COMPLY WITH 2013 CALIFORNIA BUILDING/MECHANICAL CODE AND 2013 CALIFORNIA ENERGY EFFICIENCY STANDARD.
- DOORS AND WINDOW SHALL MEET THE MINIMUM INFILTRATION PER SECTION 110.6 AND 110.7EES (TYPICAL).
- ALL AIR MOVING EQUIPMENT IN THE SYSTEM WILL BE SHUT DOWN UPON DETECTION OF SMOKE IN ANY UNIT IN THE SYSTEM (TYPICAL).

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3RD, 4TH OOR PLAN

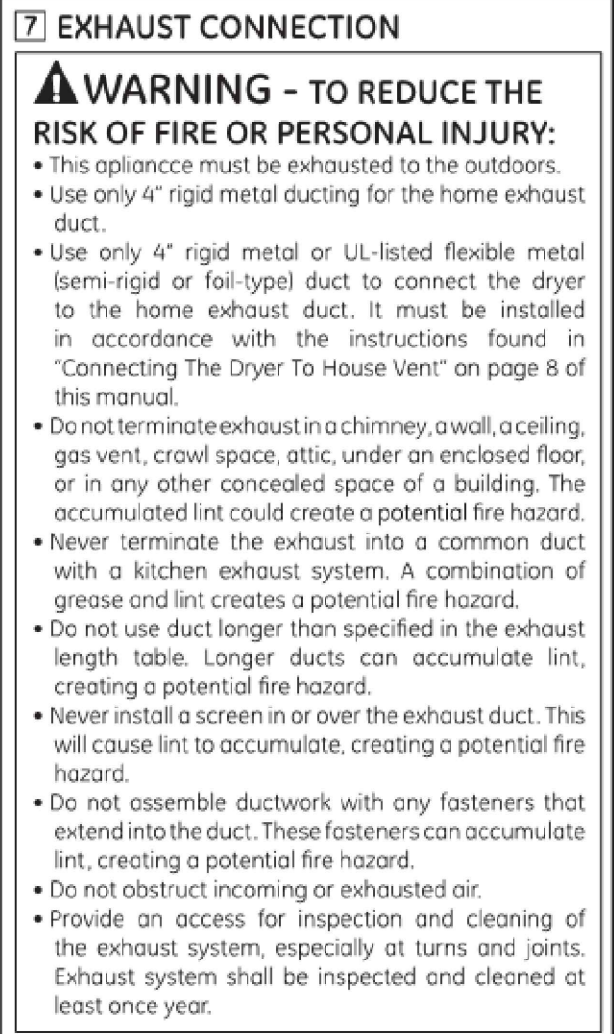
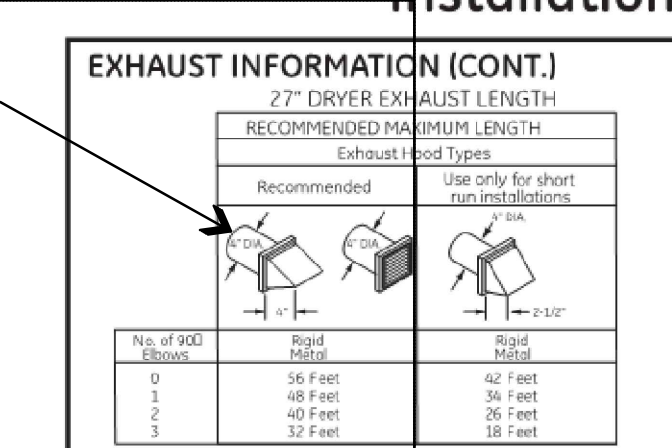
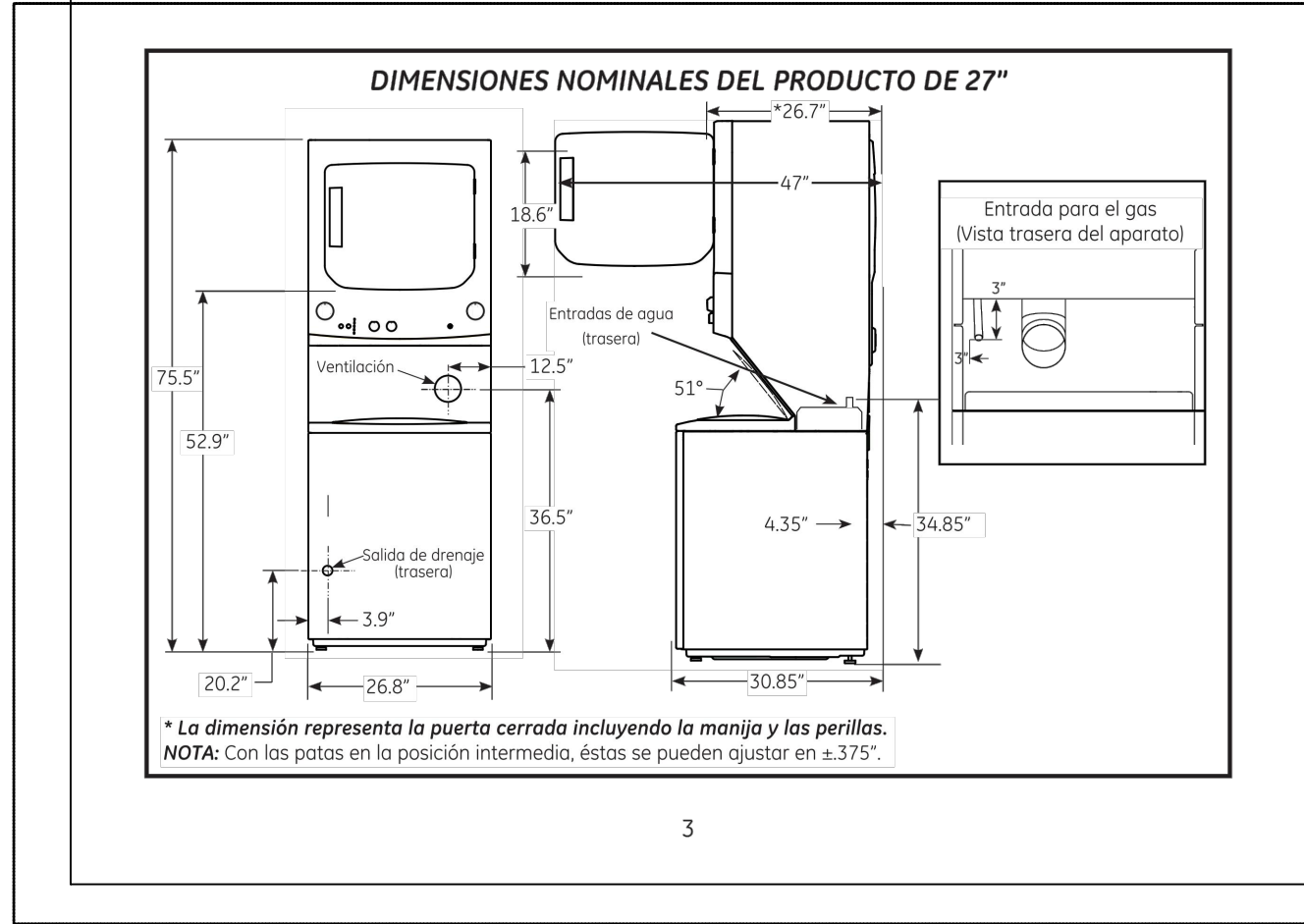
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Of: Sheets

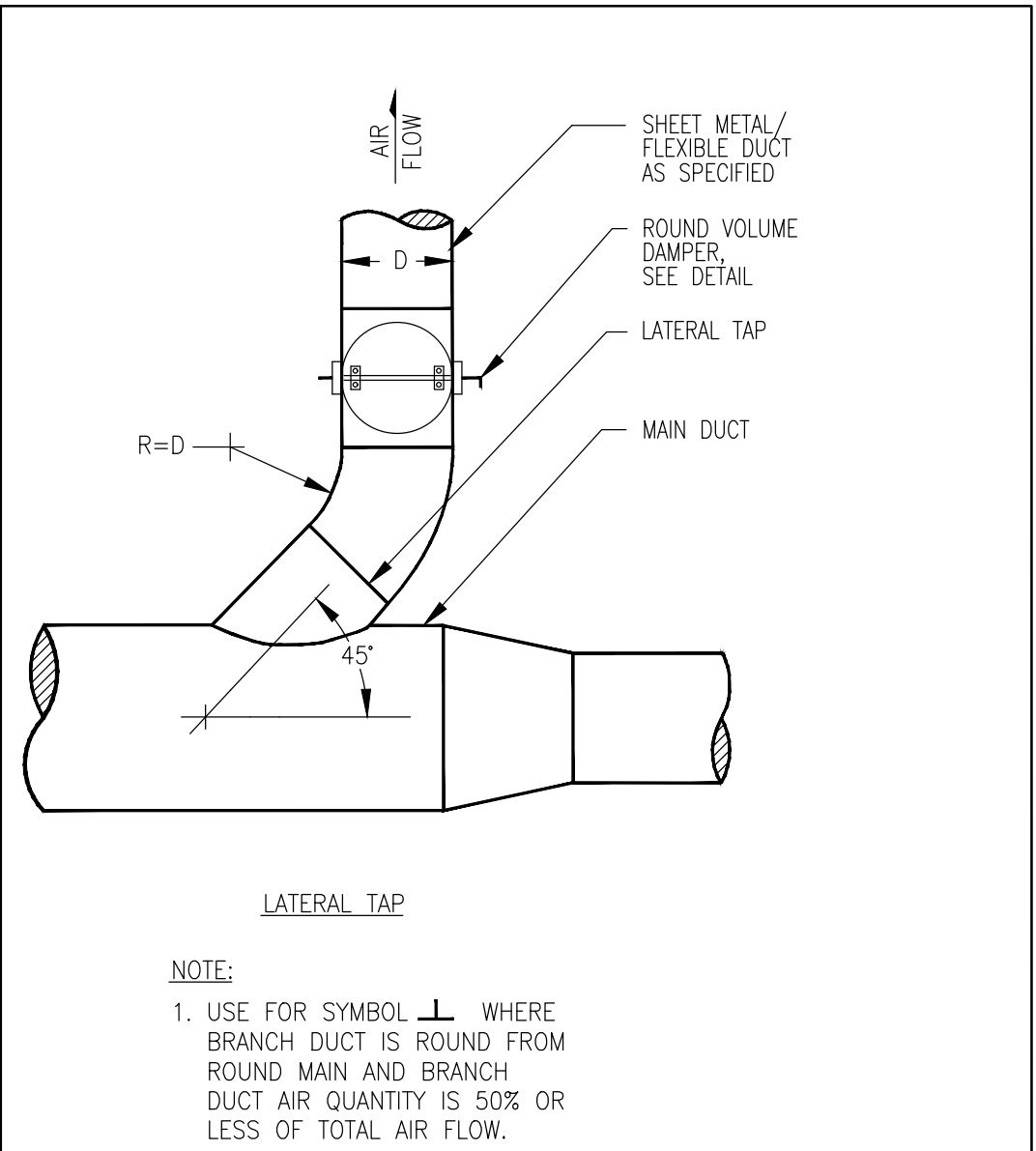
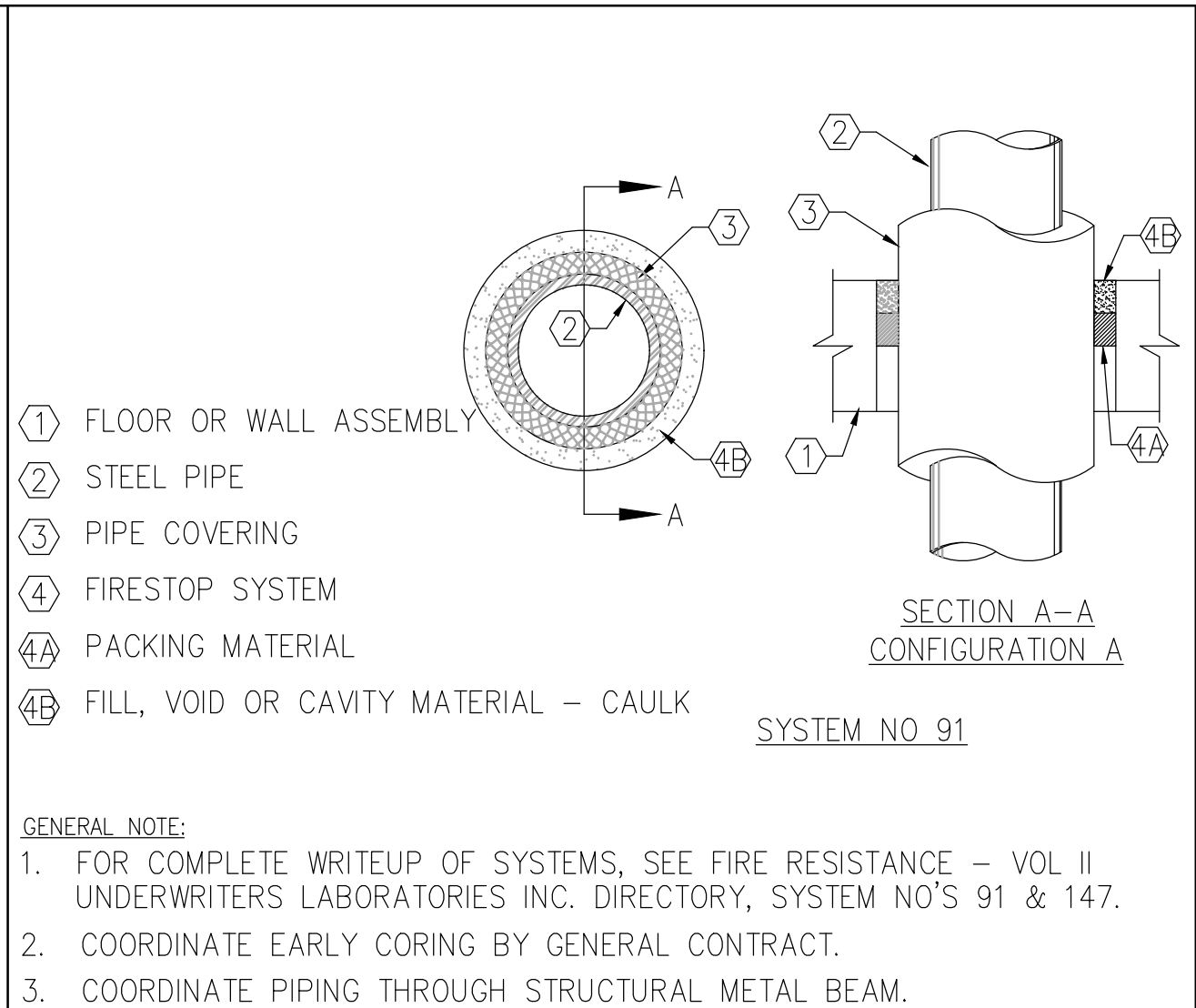
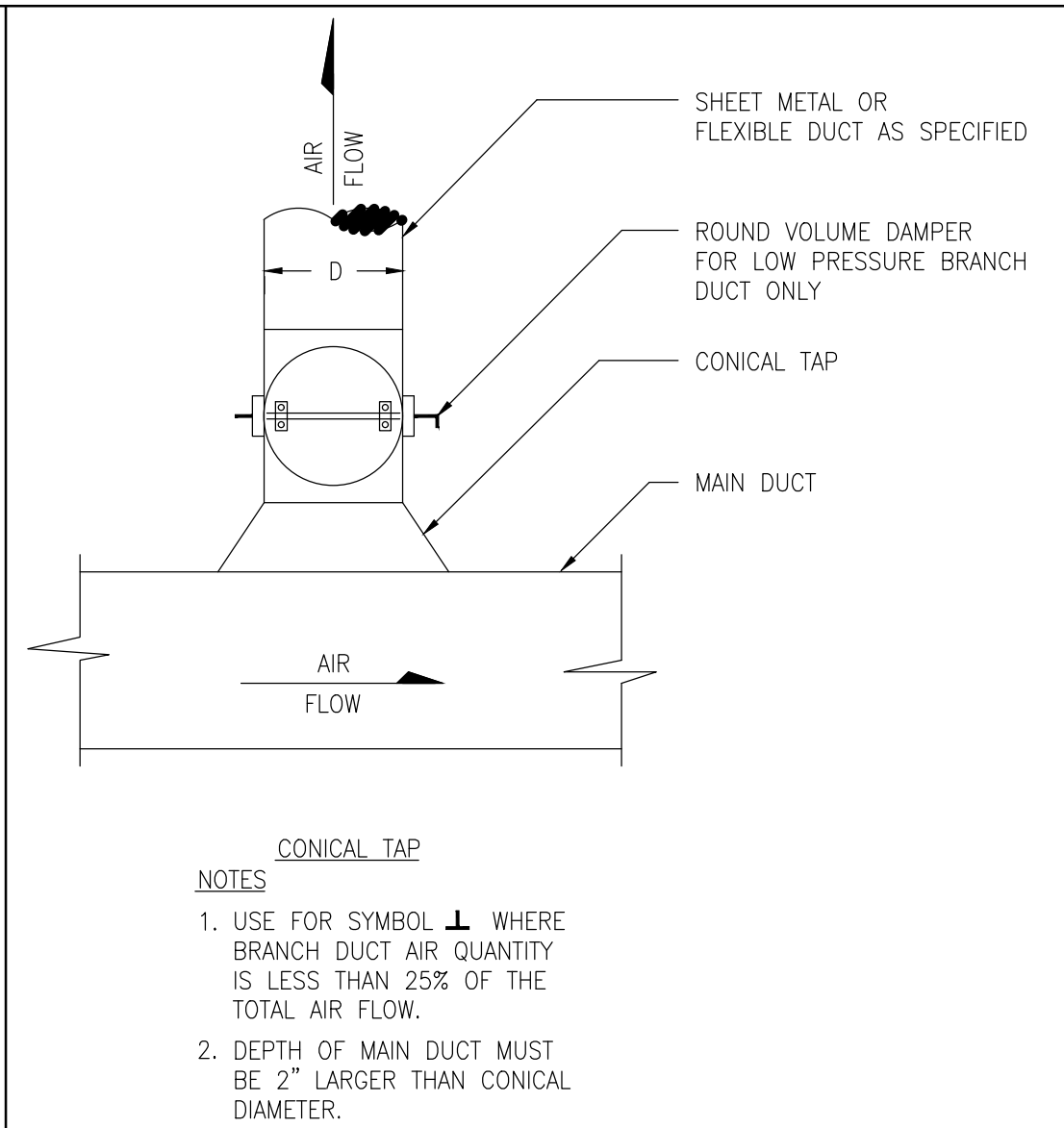
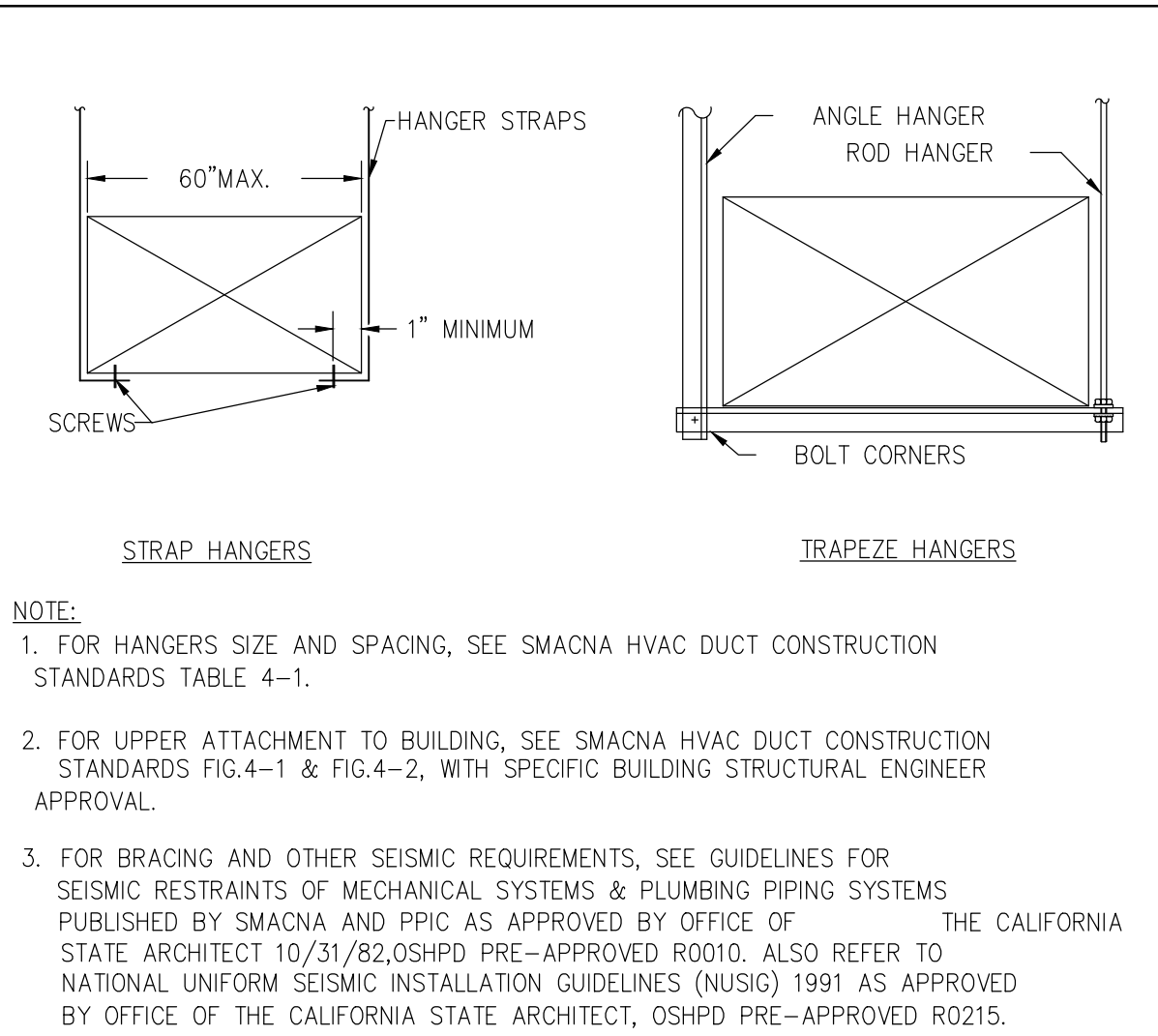
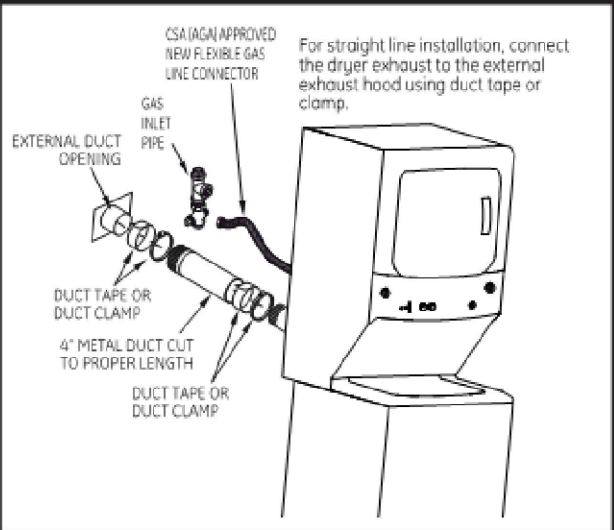


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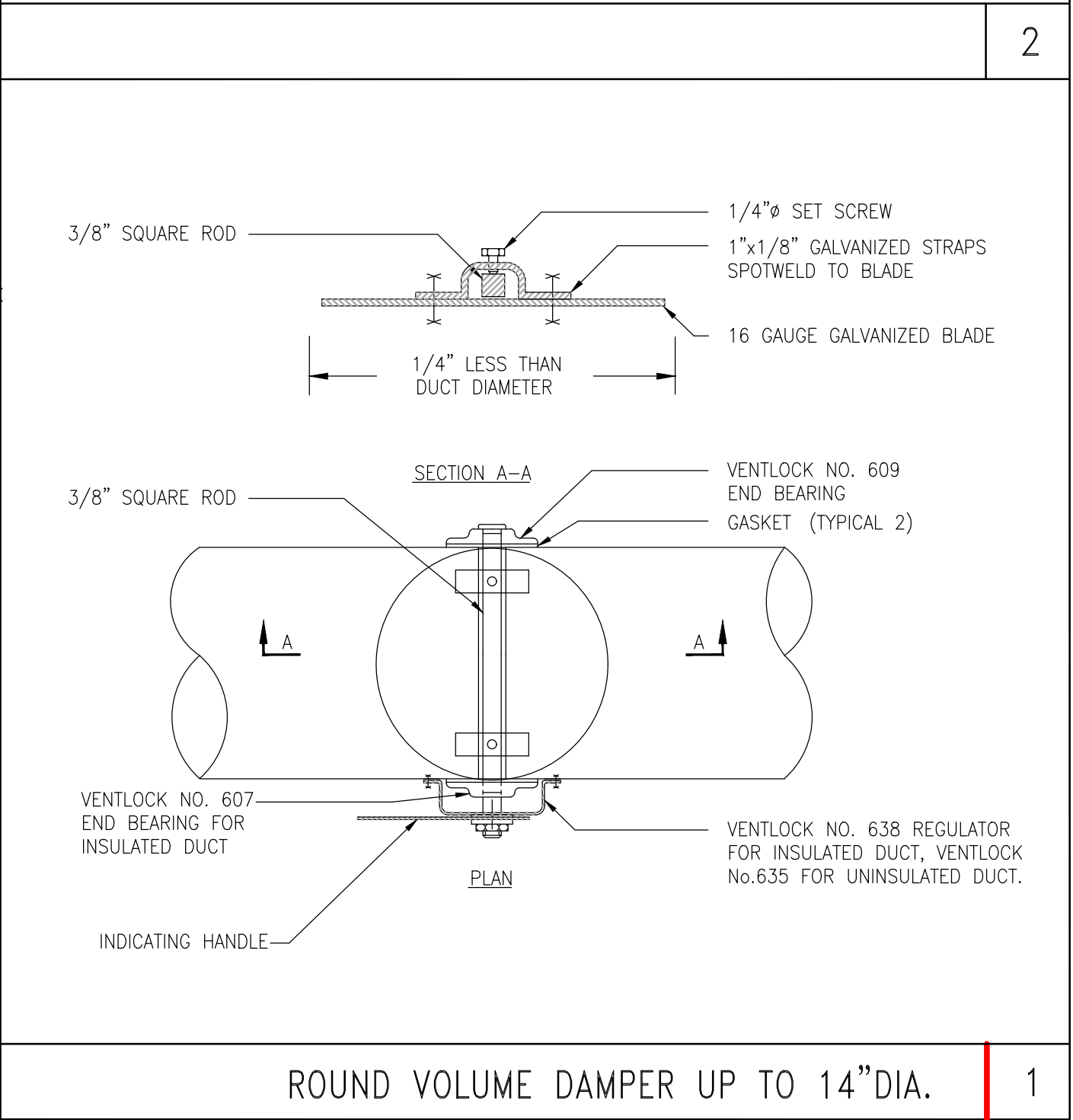
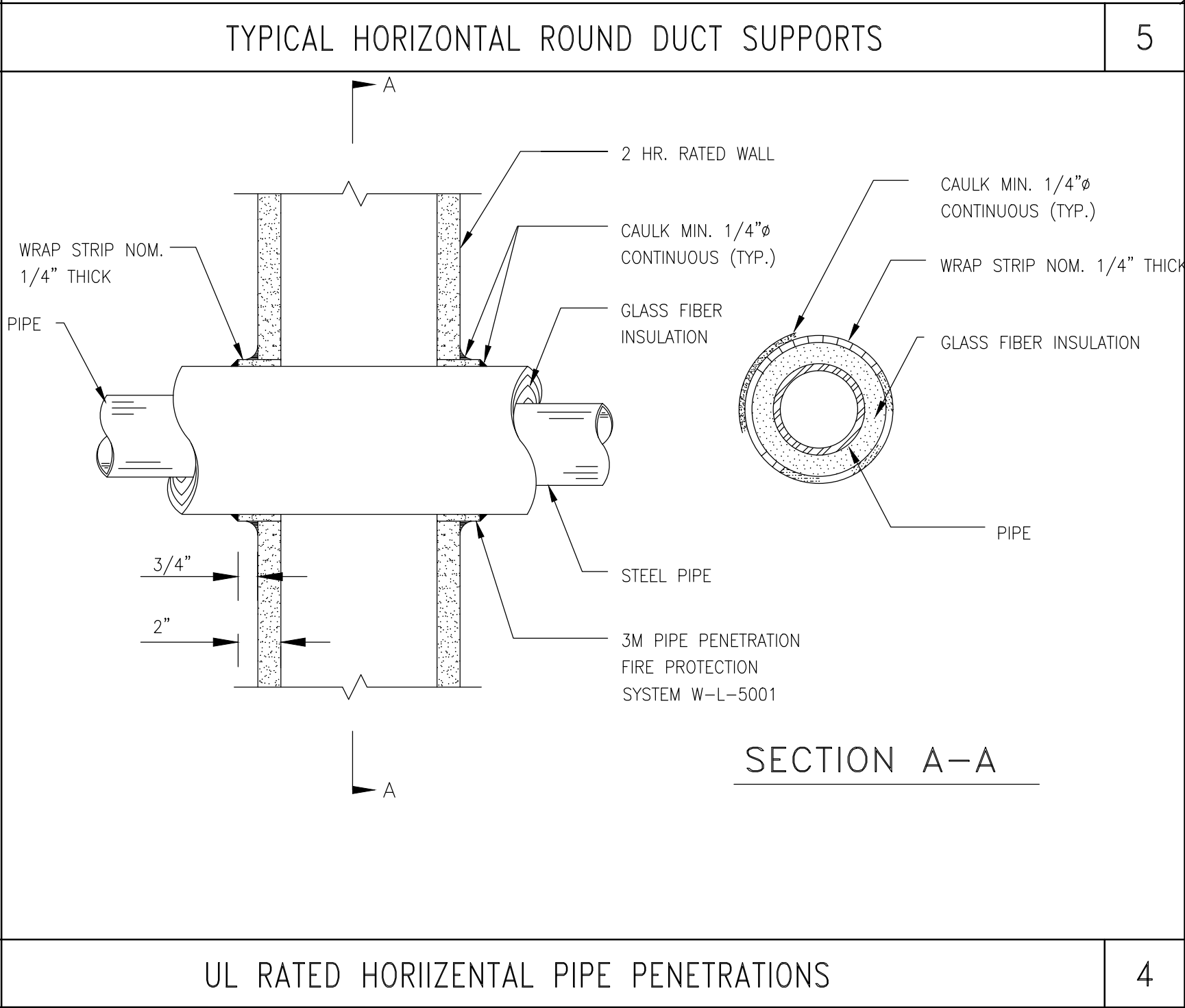
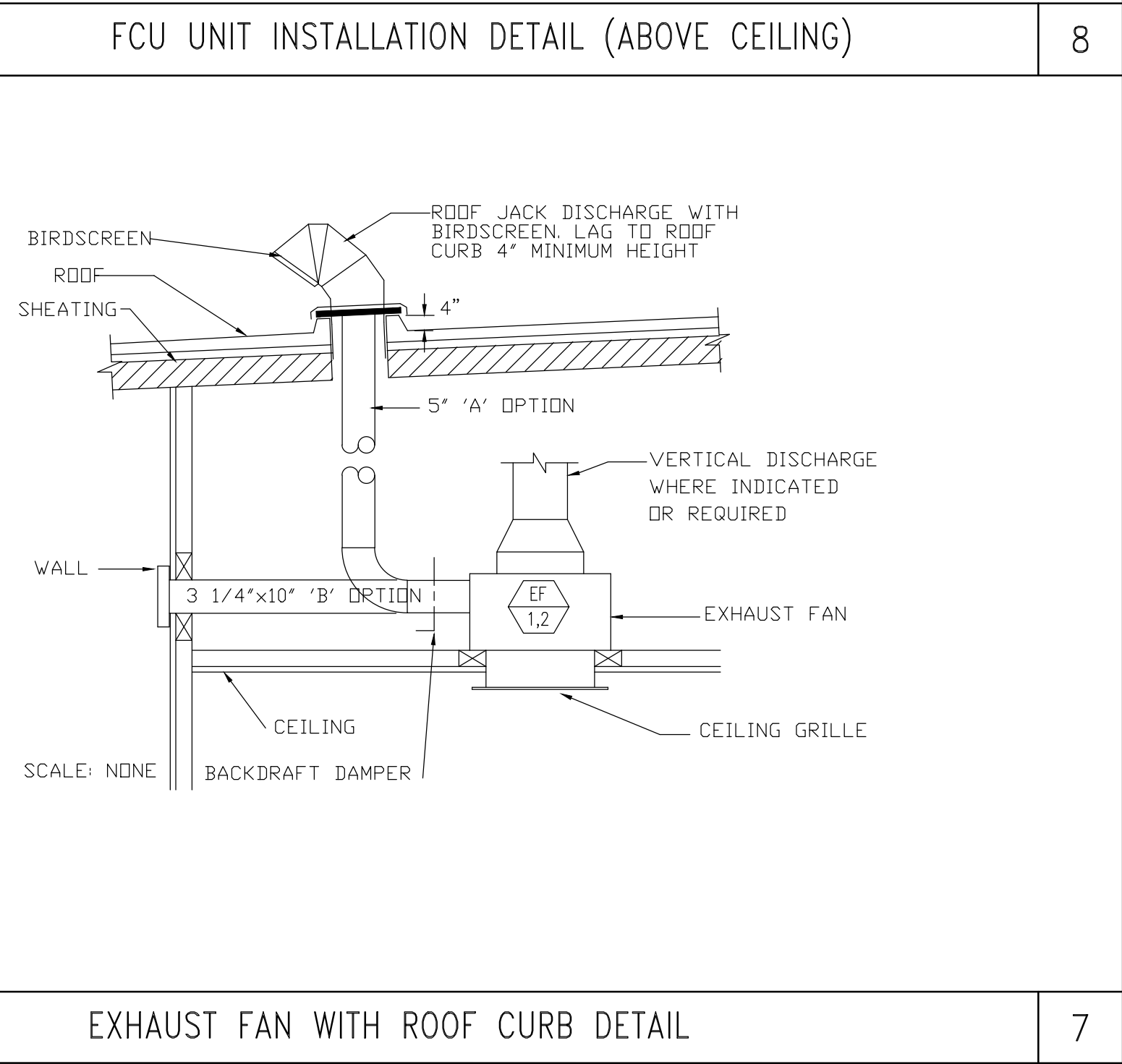
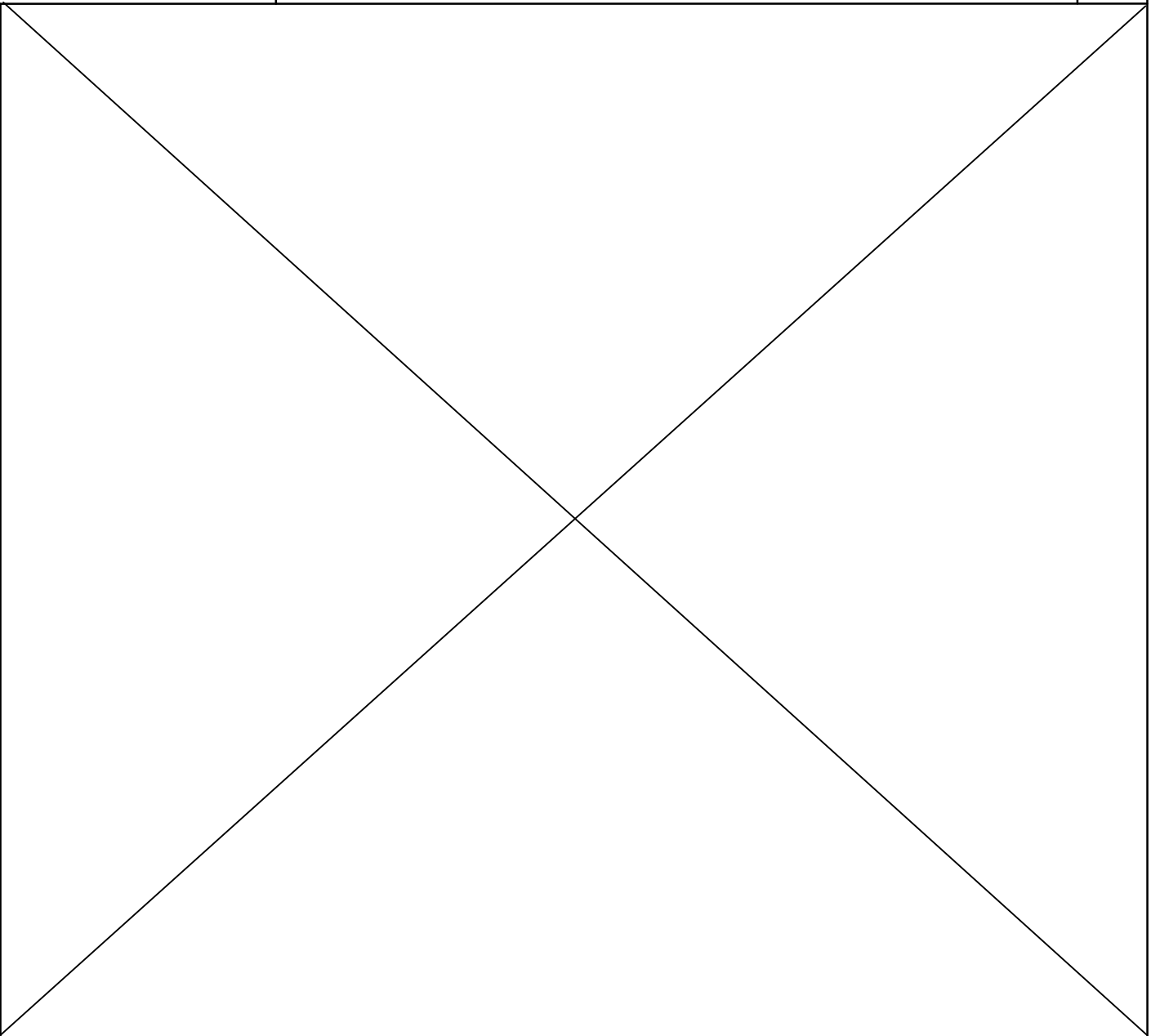
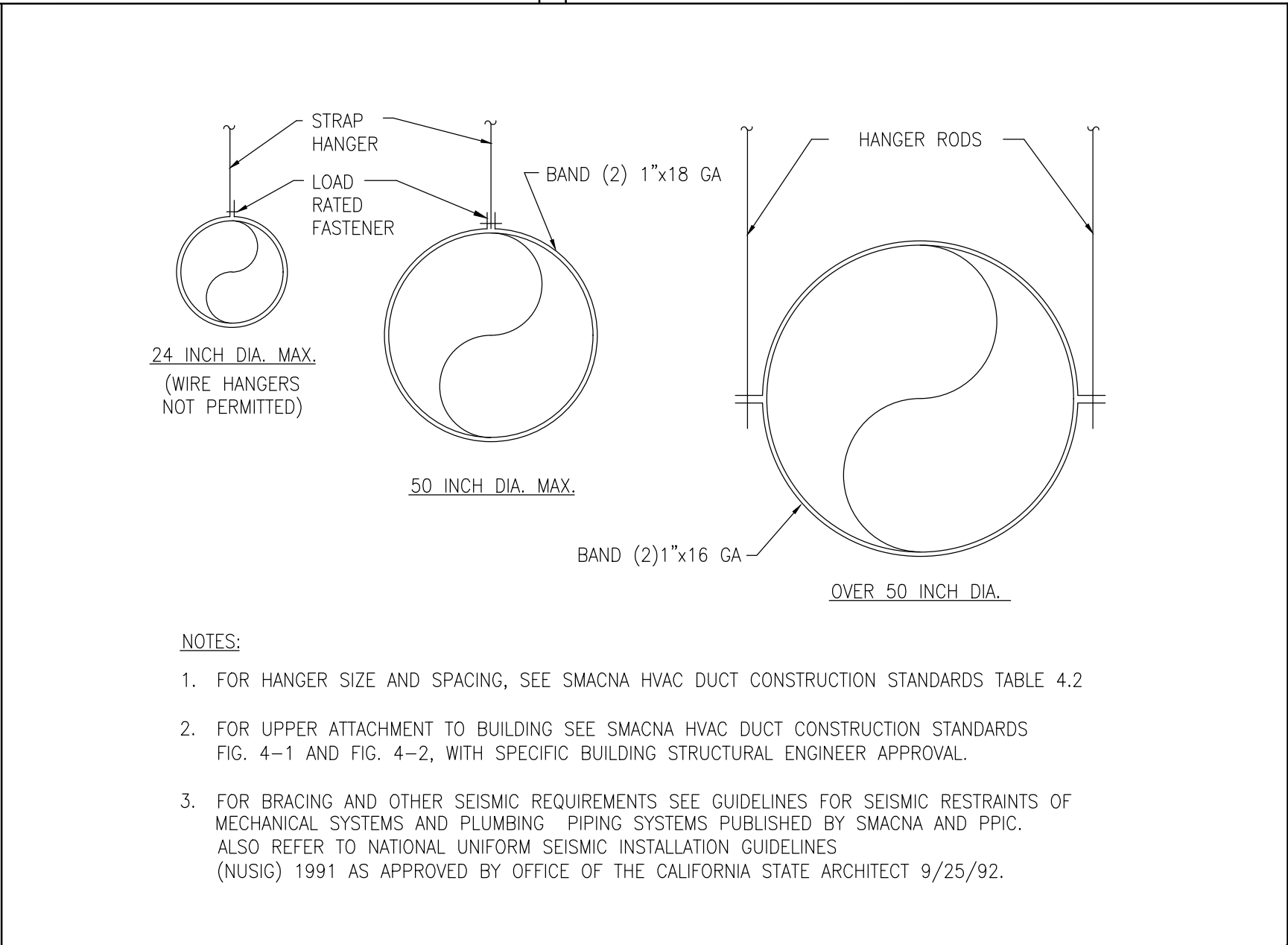
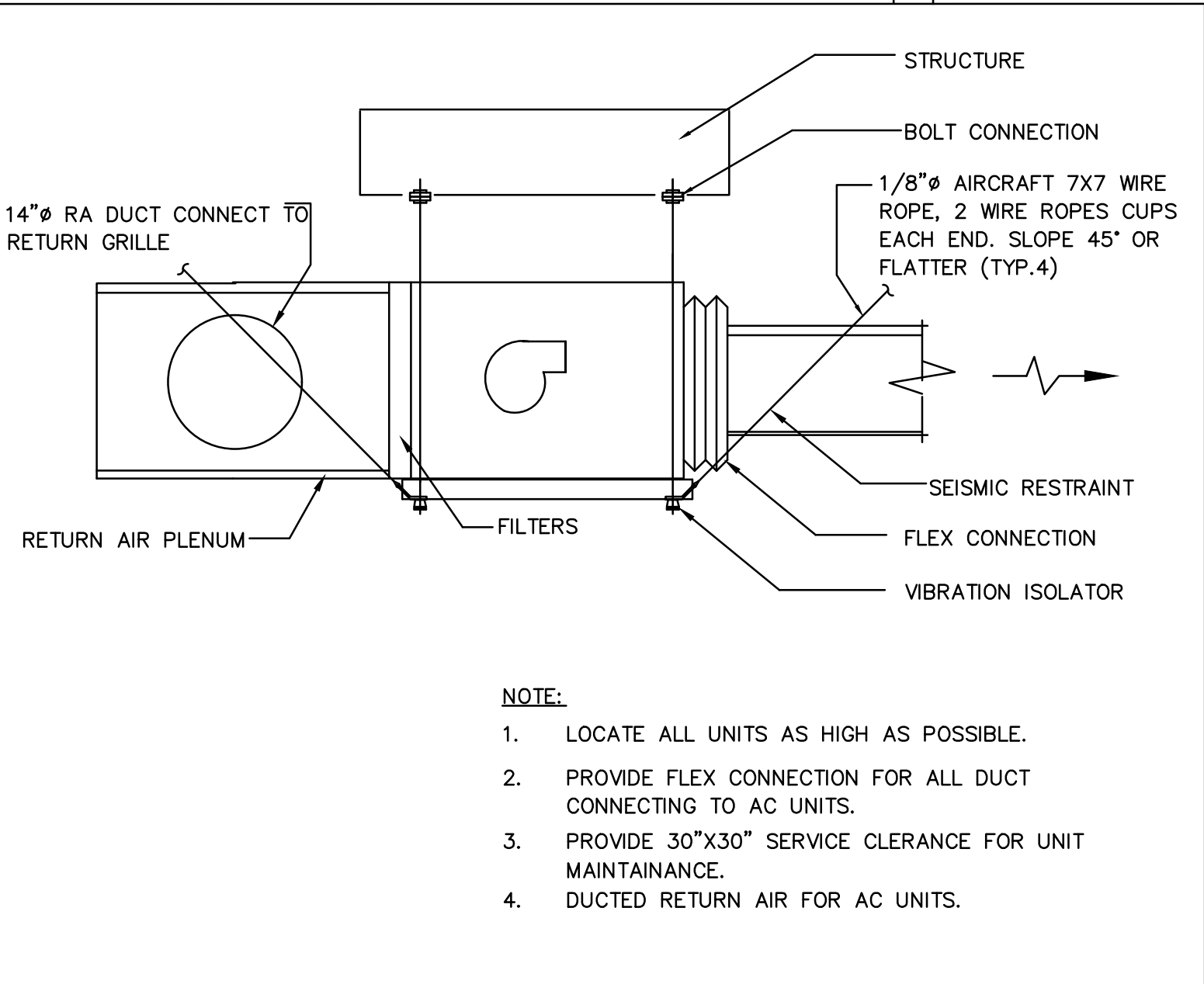
GE, MODEL GUD27ESSJWW



THIS DRYER COMES READY FOR REAR EXHAUSTING. IF SPACE IS LIMITED, USE THE INSTRUCTIONS IN SECTION 9 TO EXHAUST DIRECTLY FROM THE SIDES OR BOTTOM OF THE CABINET.



TYPICAL HORIZONTAL RECTANGULAR DUCT SUPPORTS	9	CIRCULAR DUCT CONICAL TAP W/ VOLUME DAMPER	6	UL RATED VERTICAL PIPE PENETRATIONS		DUCT LATERAL TAP W/ VOLUME DAMPER	3
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REVISIONS BY

DATE

SCALE

DRAWN

JOB

SHEET

M2.1

OF SHEETS

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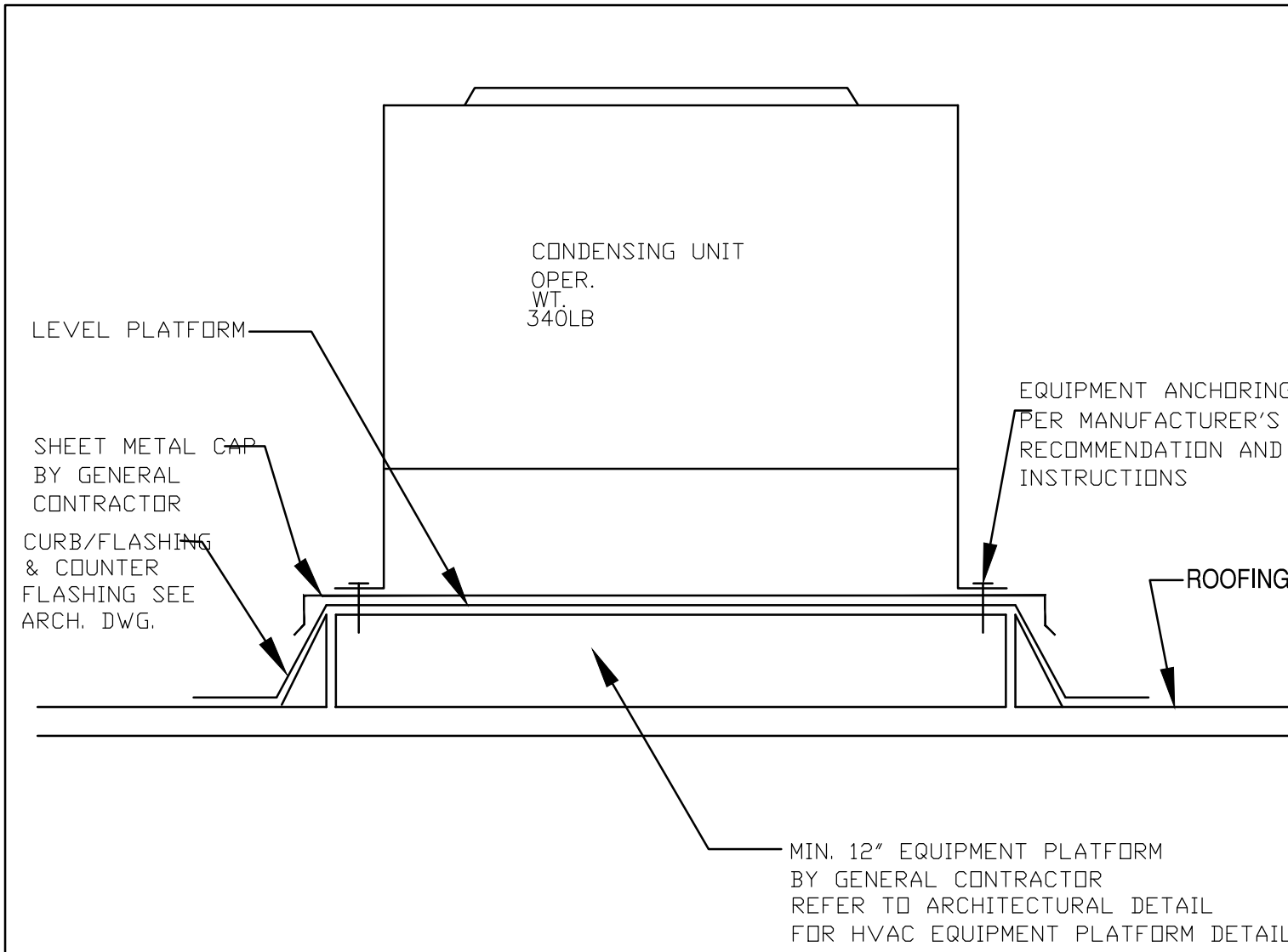
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DETAILS

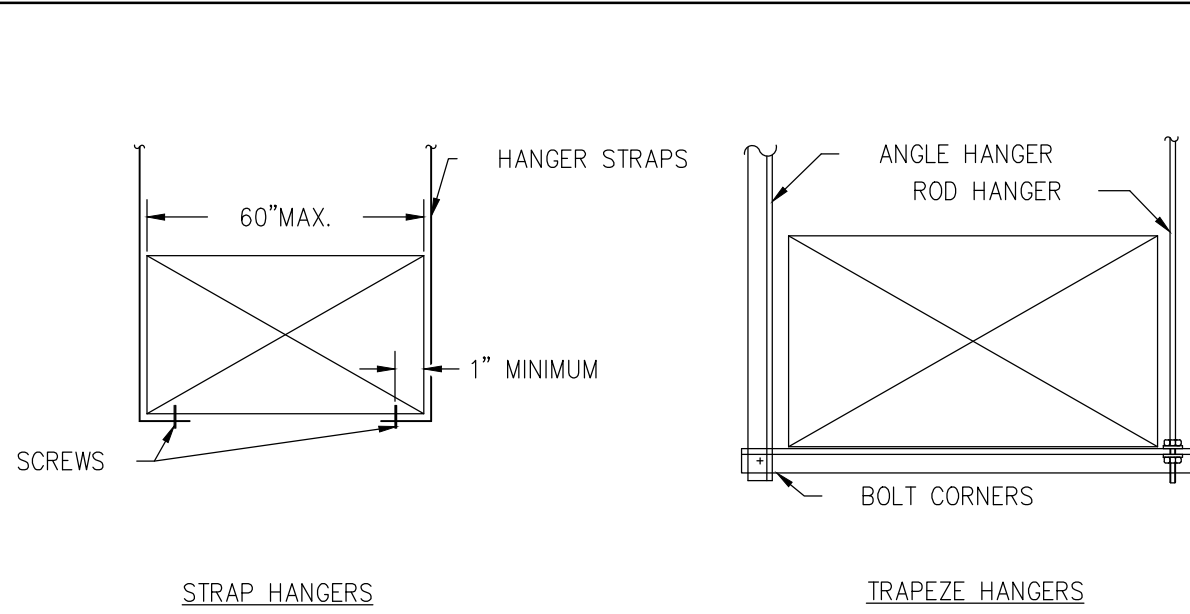
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TYPICAL DETAIL FOR EQUIPMENT ABOVE PLATFORM

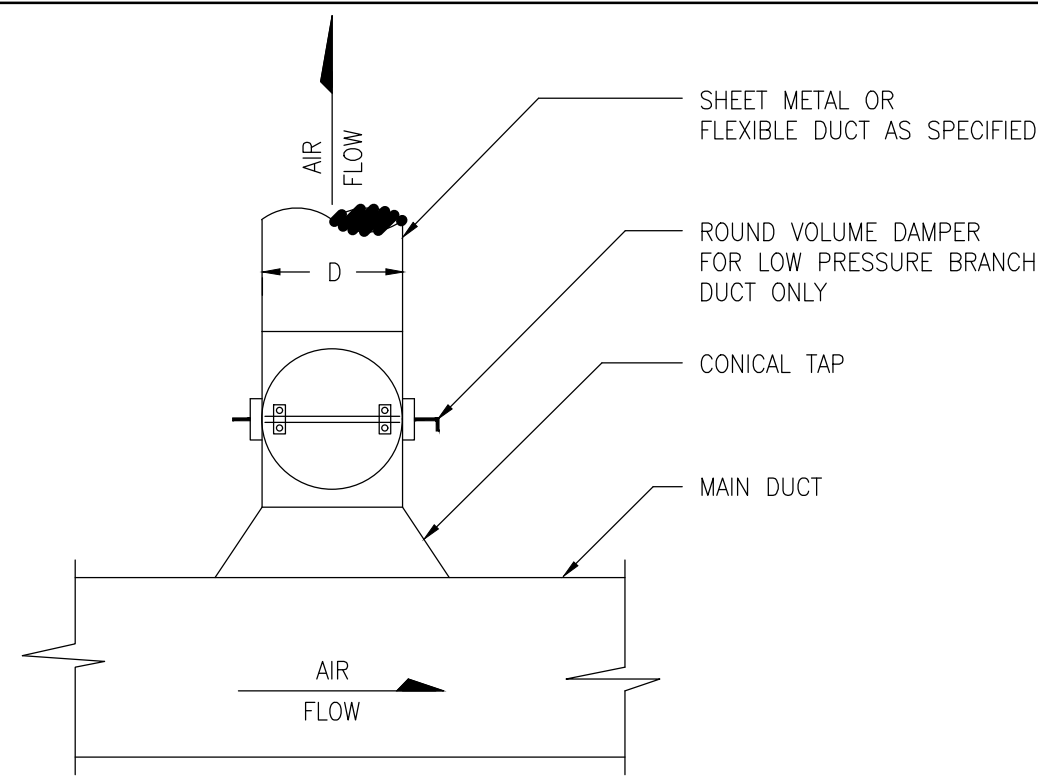
10



- NOTE:
1. FOR HANGERS SIZE AND SPACING, SEE SMACNA HVAC DUCT CONSTRUCTION STANDARDS TABLE 4-1.
 2. FOR UPPER ATTACHMENT TO BUILDING, SEE SMACNA HVAC DUCT CONSTRUCTION STANDARDS FIG.4-1 & FIG.4-2, WITH SPECIFIC BUILDING STRUCTURAL ENGINEER APPROVAL.
 3. FOR BRACING AND OTHER SEISMIC REQUIREMENTS, SEE GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS & PLUMBING PIPING SYSTEMS PUBLISHED BY SMACNA AND PPIC AS APPROVED BY OFFICE OF THE CALIFORNIA STATE ARCHITECT 10/31/82, OSHPD PRE-APPROVED R0010. ALSO REFER TO NATIONAL UNIFORM SEISMIC INSTALLATION GUIDELINES (NUSIG) 1991 AS APPROVED BY OFFICE OF THE CALIFORNIA STATE ARCHITECT, OSHPD PRE-APPROVED R0215.

TYPICAL HORIZONTAL RECTANGULAR DUCT SUPPORTS

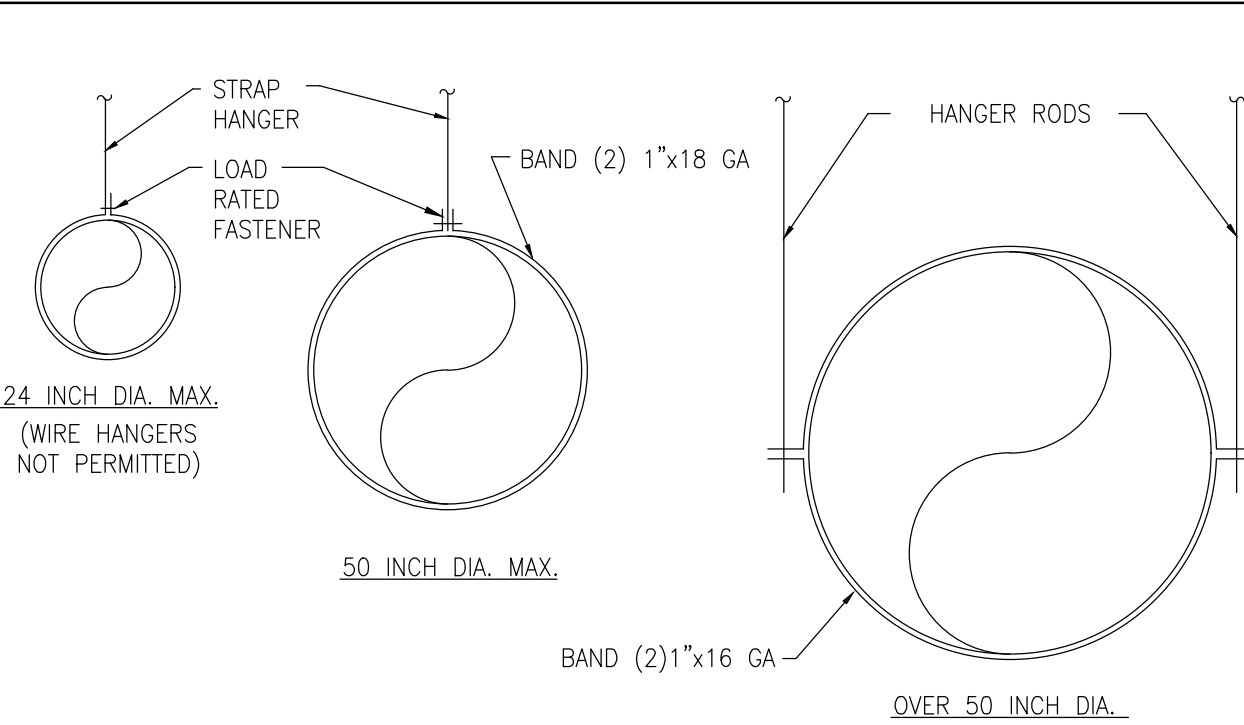
9



- CONICAL TAP
NOTES
1. USE FOR SYMBOL $\perp$ WHERE BRANCH DUCT AIR QUANTITY IS LESS THAN 25% OF THE TOTAL AIR FLOW.
 2. DEPTH OF MAIN DUCT MUST BE 2" LARGER THAN CONICAL DIAMETER.

CIRCULAR DUCT CONICAL TAP W/ VOLUME DAMPER

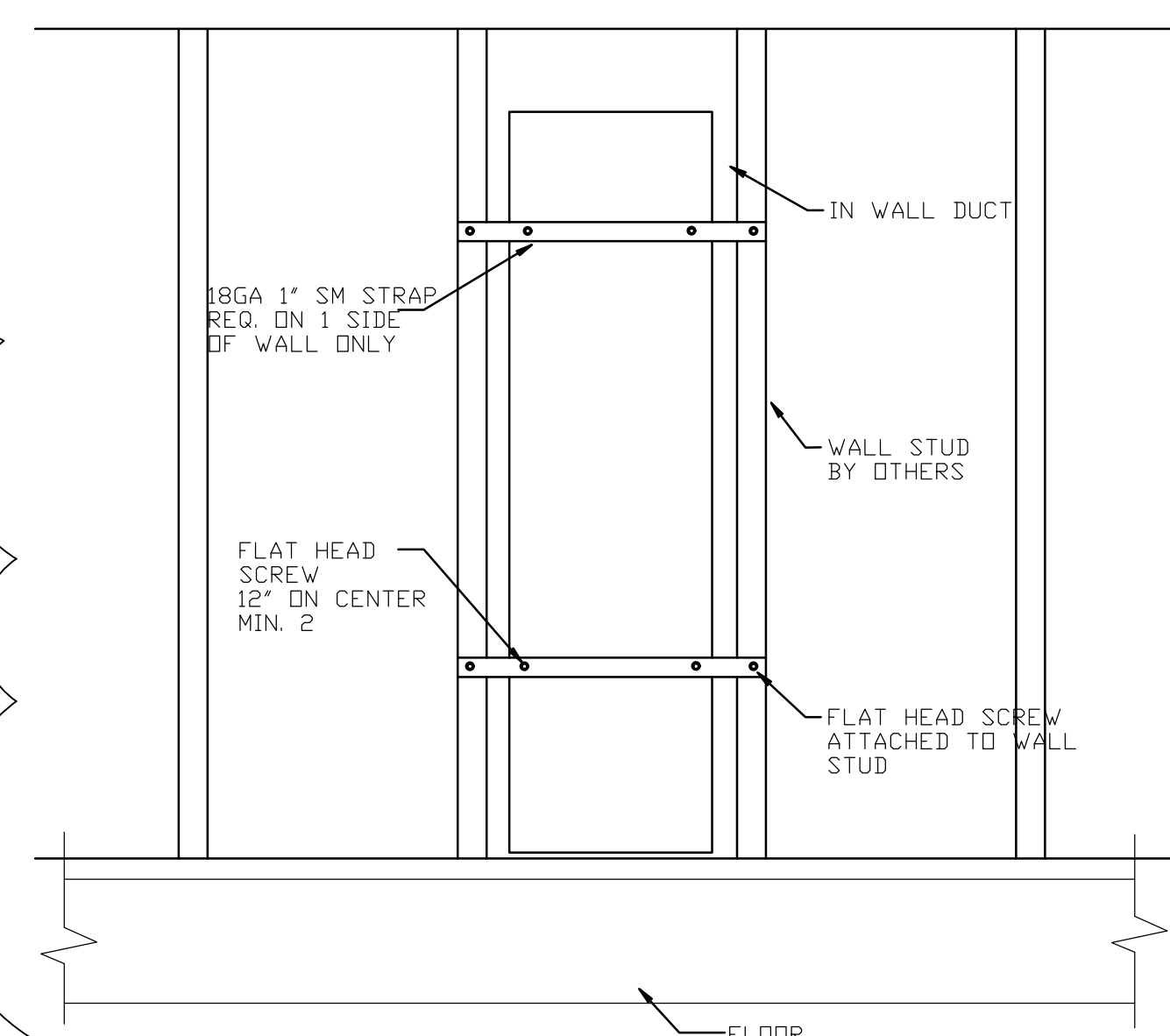
6



- NOTES:
1. FOR HANGER SIZE AND SPACING, SEE SMACNA HVAC DUCT CONSTRUCTION STANDARDS TABLE 4.2
 2. FOR UPPER ATTACHMENT TO BUILDING SEE SMACNA HVAC DUCT CONSTRUCTION STANDARDS FIG. 4-1 AND FIG. 4-2, WITH SPECIFIC BUILDING STRUCTURAL ENGINEER APPROVAL.
 3. FOR BRACING AND OTHER SEISMIC REQUIREMENTS SEE GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS PUBLISHED BY SMACNA AND PPIC. ALSO REFER TO NATIONAL UNIFORM SEISMIC INSTALLATION GUIDELINES (NUSIG) 1991 AS APPROVED BY OFFICE OF THE CALIFORNIA STATE ARCHITECT 9/25/92.

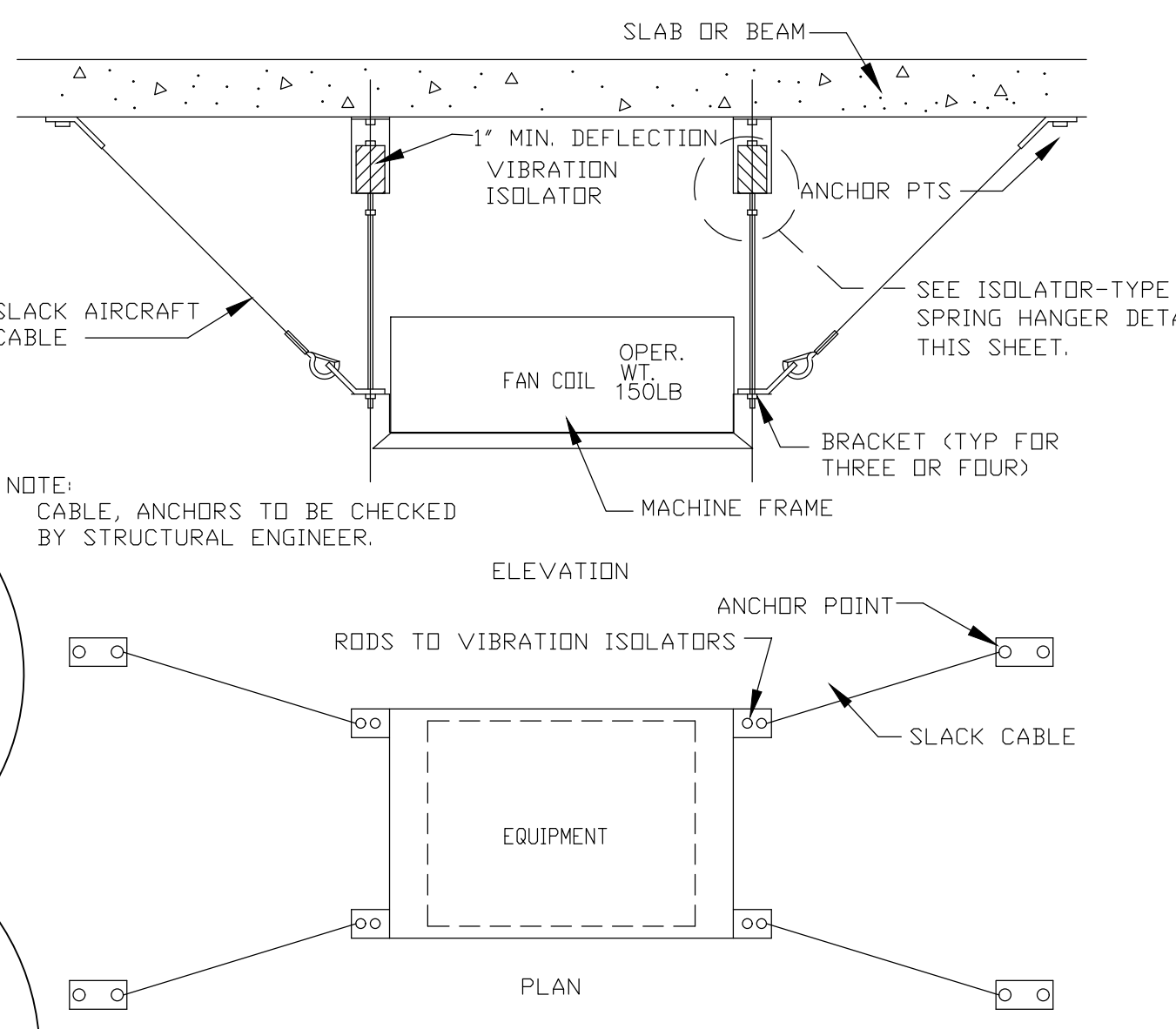
TYPICAL HORIZONTAL ROUND DUCT SUPPORTS

3



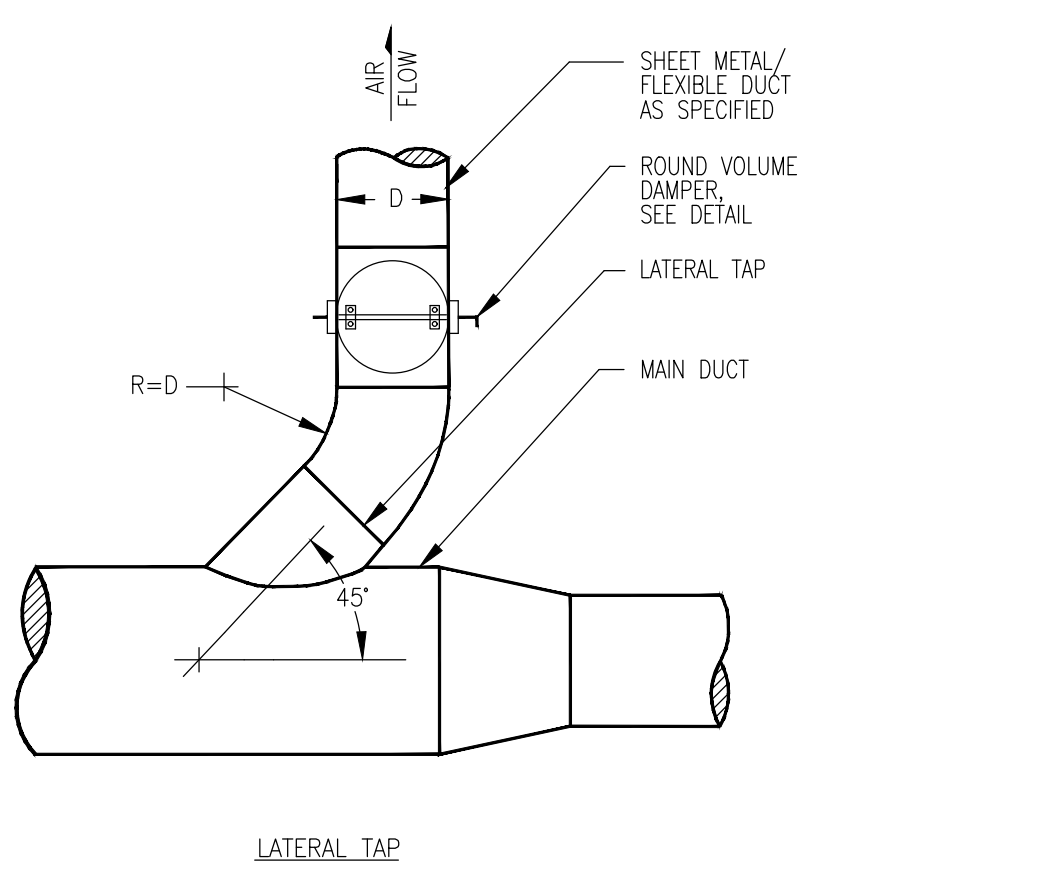
IN-WALL DUCT SUPPORT

11



DIRECTIONAL RESTRAINT DETAIL (SUSPENDED EQUIPMENT)

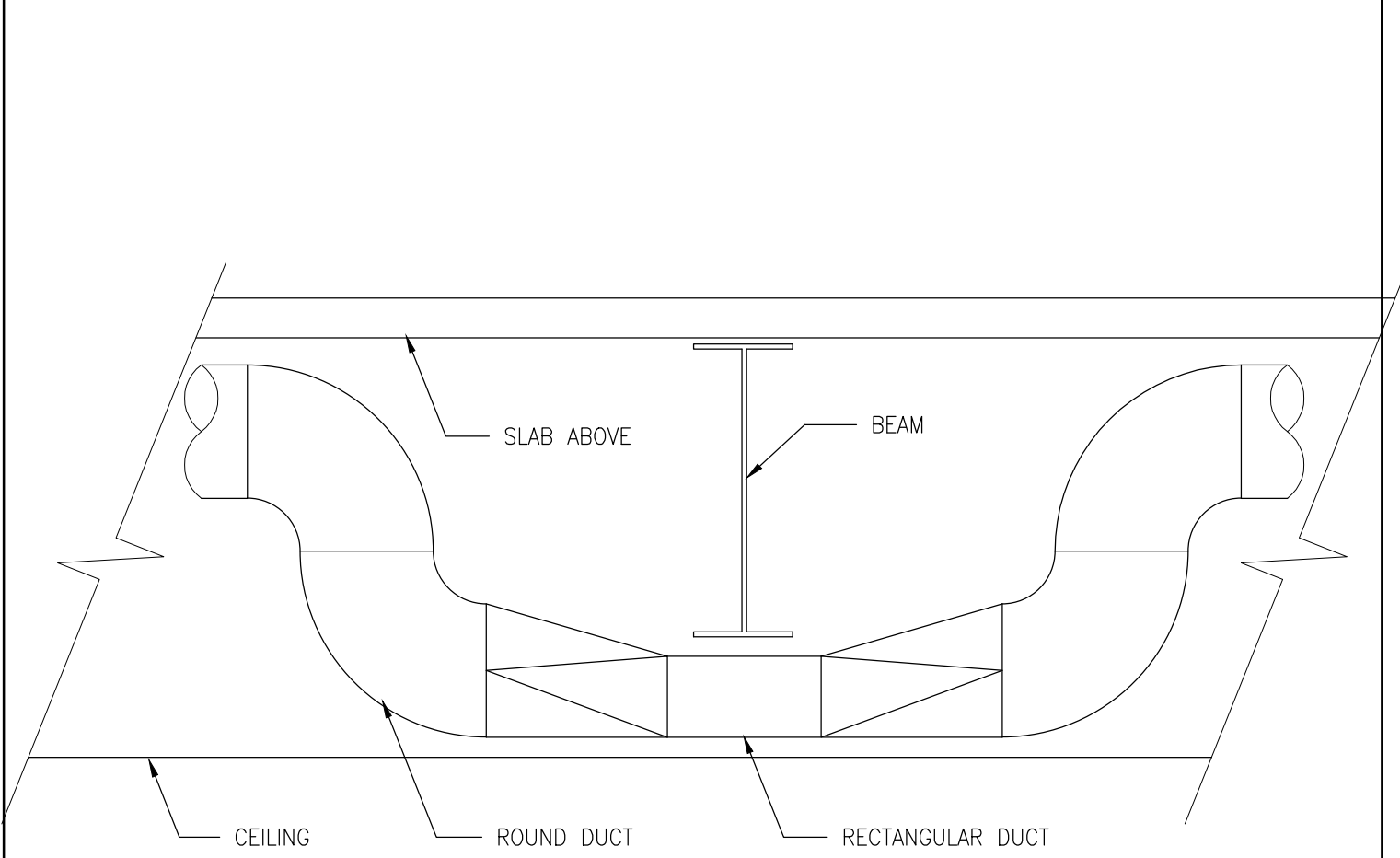
8



- LATERAL TAP
NOTE:
1. USE FOR SYMBOL $\perp$ WHERE BRANCH DUCT IS ROUND FROM ROUND MAIN AND BRANCH DUCT AIR QUANTITY IS 50% OR LESS OF TOTAL AIR FLOW.

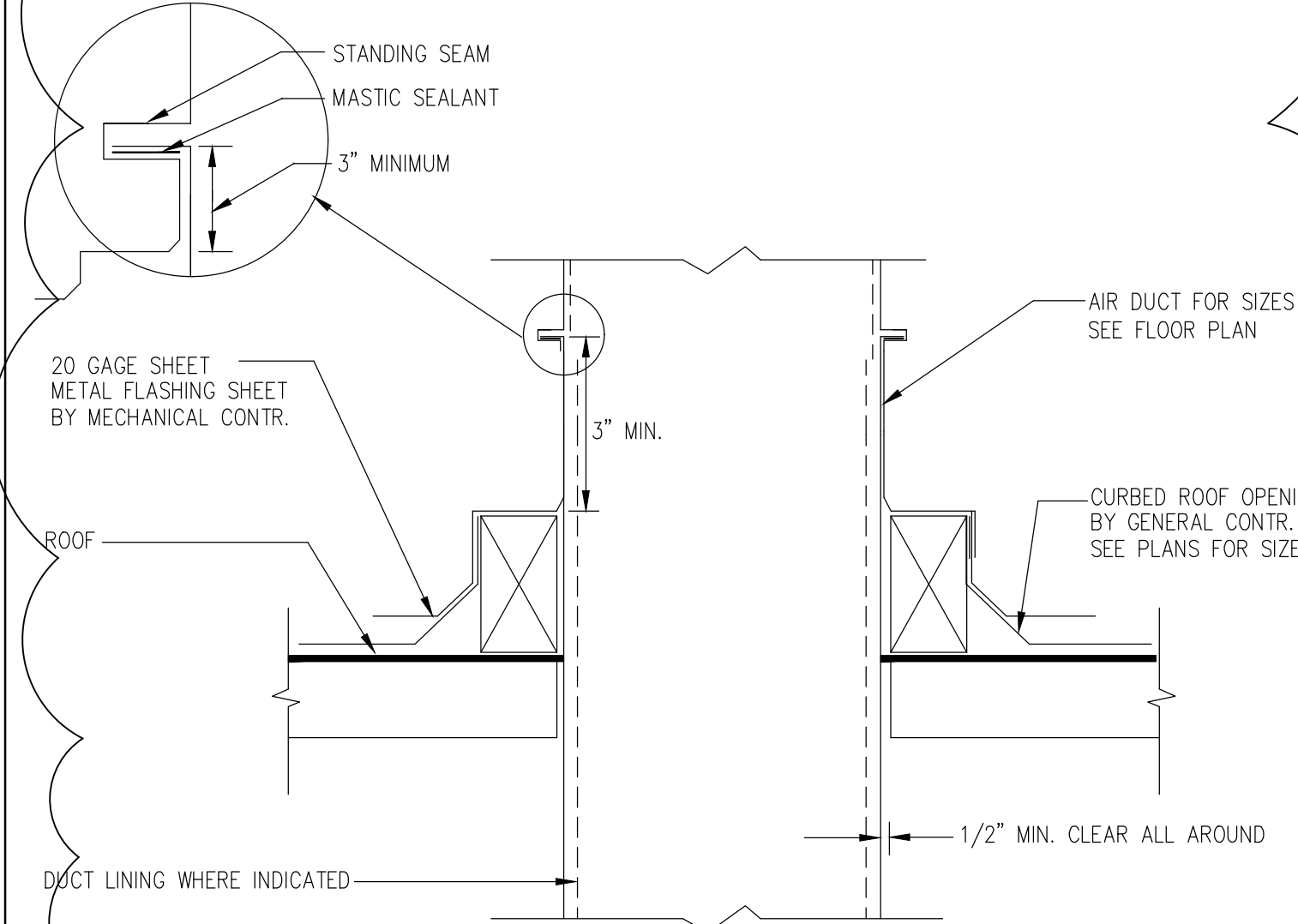
CIRCULAR DUCT LATERAL TAP W/ VOLUME DAMPER

5

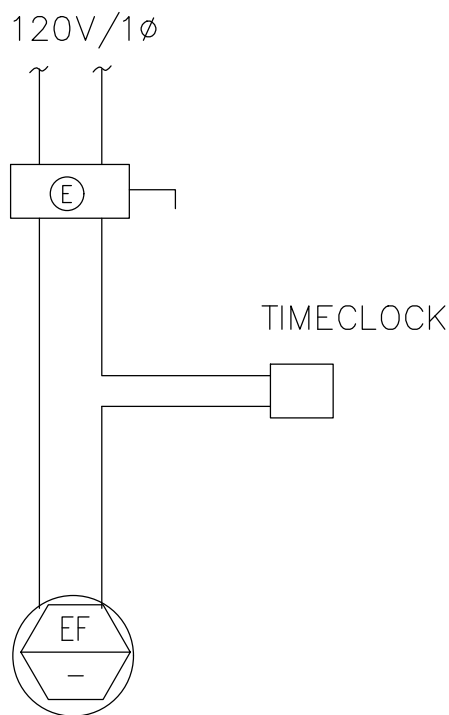


TYPICAL DUCT UNDER BEAM DETAIL

2

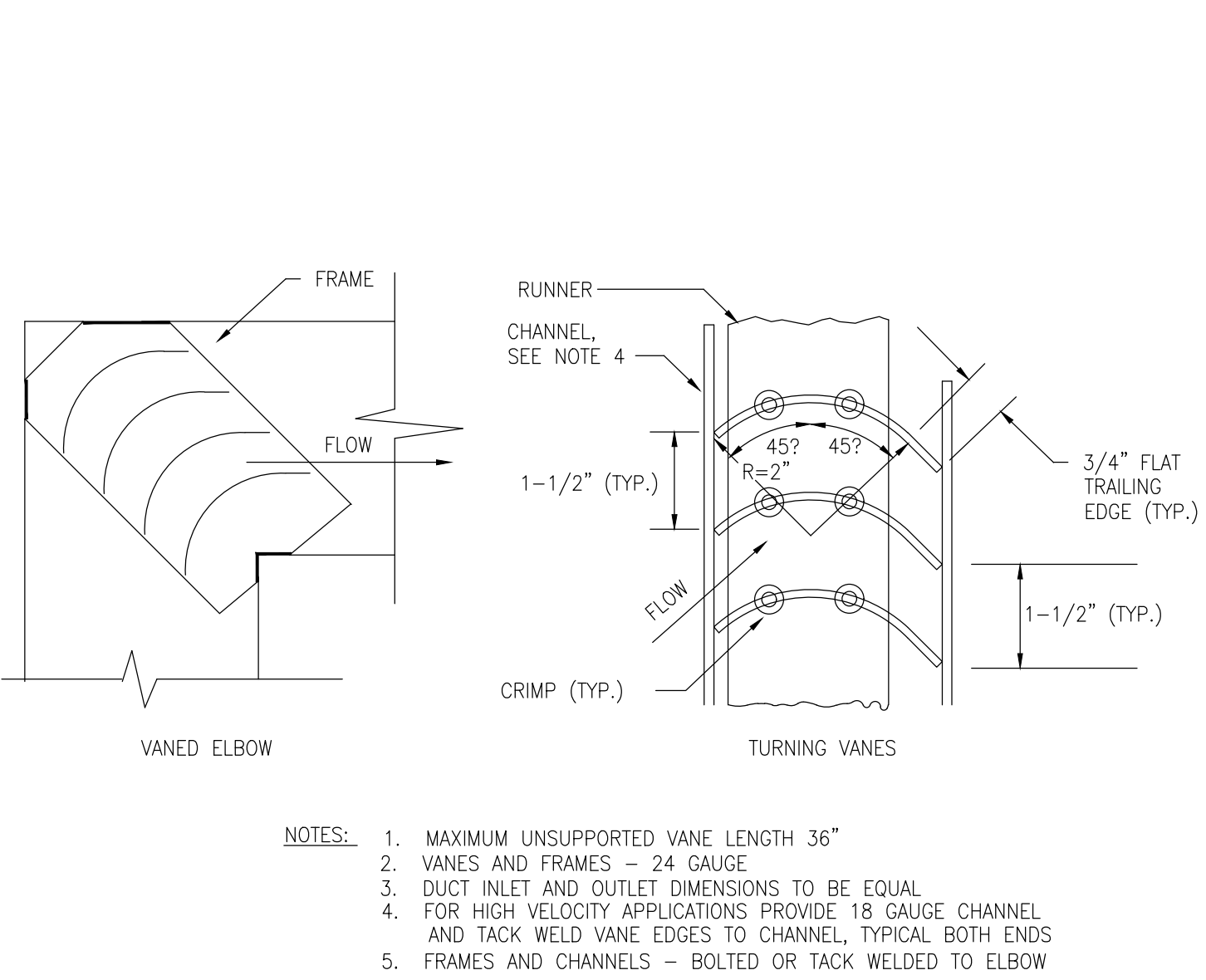


DUCT THRU ROOF AND FLOOR



VENTILATION EXHAUST FAN

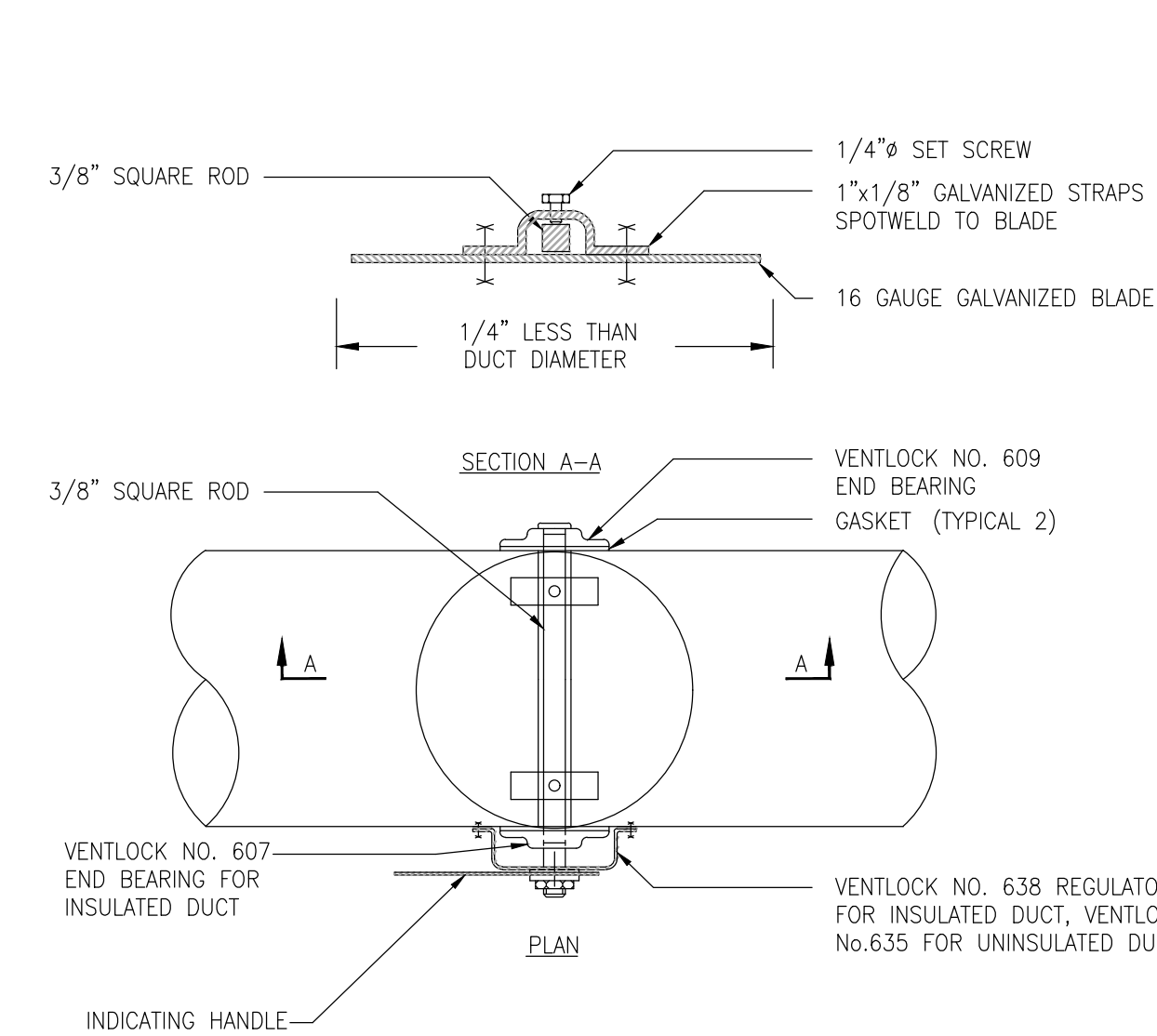
7



- NOTES:
1. MAXIMUM UNSUPPORTED VANE LENGTH 36"
 2. VANES AND FRAMES - 24 GAUGE
 3. DUCT INLET AND OUTLET DIMENSIONS TO BE EQUAL
 4. FOR HIGH VELOCITY APPLICATIONS PROVIDE 18 GAUGE CHANNEL AND TACK WELD VANE EDGES TO CHANNEL, TYPICAL BOTH ENDS
 5. FRAMES AND CHANNELS - BOLTED OR TACK WELDED TO ELBOW

SINGLE-THICKNESS TURNING VANES FOR SQUARE ELBOW

4



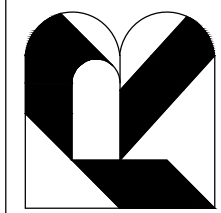
ROUND VOLUME DAMPER UP TO 14" DIA.

1

REVISIONS BY

PLEASE DRAWING, DESIGN AND SPECIFICATIONS TO BE IN ACCORDANCE WITH THE PROJECT'S REQUIREMENTS AND TO BE IN ACCORDANCE WITH THE PROJECT'S REQUIREMENTS AND TO BE IN ACCORDANCE WITH THE PROJECT'S REQUIREMENTS.

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DETAILS

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Date: _____
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Job: _____
Sheet: **M2.2**
Of _____ Sheets

CERTIFICATE OF COMPLIANCE
Project Name: 528 Hazel
Calculation Description: Title 24 Analysis
SPAC CONDITIONING SYSTEMS
HVAC - HEAT PUMPS
HERS VERIFICATION

CERTIFICATE OF COMPLIANCE
Project Name: 528 Hazel
Calculation Description: Title 24 Analysis
DOCUMENTATION AUTHORITY'S DECLARATION STATEMENT
RESPONSIBLE PERSON'S DECLARATION STATEMENT
Digitally signed by CA CERTS. This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.

2019 Low-Rise Residential Mandatory Measures Summary
Interior Switches and Controls. An energy management control system (EMCS) may be used to comply with control requirements if it provides functionality of the specified controls according to § 110.0.
Interior Switches and Controls. A multi-line programmable controller may be used to comply with dimmer requirements in § 150.0(a) if it provides the functionality of a dimmer according to § 110.0, and complies with all other applicable requirements in § 150.0(c).

CERTIFICATE OF COMPLIANCE
Project Name: 528 Hazel
Calculation Description: Title 24 Analysis
HVAC HEAT PUMPS - HERS VERIFICATION
HERS VERIFICATION

RESIDENTIAL MEASURES SUMMARY
Project Name: 528 Hazel
Calculation Date/Time: 2022-05-28T10:58:50-07:00
INSULATION
FENESTRATION
HVAC SYSTEMS
HVAC DISTRIBUTION
WATER HEATING

2019 Low-Rise Residential Mandatory Measures Summary
HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY
HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)
COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)

CERTIFICATE OF COMPLIANCE
Project Name: 528 Hazel
Calculation Description: Title 24 Analysis
HVAC DISTRIBUTION - HERS VERIFICATION
HERS VERIFICATION

2019 Low-Rise Residential Mandatory Measures Summary
NOTE: Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective addenda for more information. Exceptions may apply.
Building Envelope Measures:
Air Leakage: Manufacture, installation, exterior doors, and exterior door gaskets must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-68, ASTM E283 or AMCA 238/A 239M-2011.

2019 Low-Rise Residential Mandatory Measures Summary
HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY
HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)
COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)

CERTIFICATE OF COMPLIANCE
Project Name: 528 Hazel
Calculation Description: Title 24 Analysis
IAQ (INDOOR AIR QUALITY) FANS
HERS VERIFICATION

2019 Low-Rise Residential Mandatory Measures Summary
Requirements for Ventilation and Indoor Air Quality:
Requirements for Ventilation and Indoor Air Quality. All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality for Residential Buildings subject to the amendments specified in § 150.0(c).
Single Family Detached Dwelling Units. Single family detached dwelling units, and attached dwelling units and sharing corridors or floors with other dwelling units, occupant garages, or common areas shall have mechanical ventilation airflow provided at rates determined by ASHRAE 62.2 Sections 4.1.1 and 4.1.2, and as specified in § 150.0(c)(1).

2019 Low-Rise Residential Mandatory Measures Summary
HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY
HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)
COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)

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T-24
17 UNITS APARTMENT, 528 HAZEL ST., GLENDALE, CA 91201

CERTIFICATE OF COMPLIANCE Project Name: 528 Hazel Calculation Description: Title 24 Analysis CF1R-PRF-01E Project Name: 528 Hazel Calculation Date/Time: 2022-05-28T10:58:50-07:00 Input File Name: 526 Hazel St-Low-Rise-final.rbd19x (Page 1 of 17) GENERAL INFORMATION <table> <tr><td>01</td><td>Project Name</td><td>528 Hazel</td></tr> <tr><td>02</td><td>Run Title</td><td>Title 24 Analysis</td></tr> <tr><td>03</td><td>Project Location</td><td>528 Hazel St</td></tr> <tr><td>04</td><td>City</td><td>Glendale</td></tr> <tr><td>05</td><td>Standards Version</td><td>2019</td></tr> <tr><td>06</td><td>Zip code</td><td>91201</td></tr> <tr><td>07</td><td>Software Version</td><td>EnergyPro 8.1</td></tr> <tr><td>08</td><td>Climate Zone</td><td>9</td></tr> <tr><td>09</td><td>Front Orientation (deg/ Cardinal)</td><td>270</td></tr> <tr><td>10</td><td>Building Type</td><td>Multifamily</td></tr> <tr><td>11</td><td>Number of Dwellings</td><td>25</td></tr> <tr><td>12</td><td>Project Scope</td><td>New/Construction</td></tr> <tr><td>13</td><td>Number of New Units</td><td>48</td></tr> <tr><td>14</td><td>Number of Existing Units</td><td>3</td></tr> <tr><td>15</td><td>Additional Cond. 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Floor Area (ft²)</td><td>15970</td></tr> <tr><td>18</td><td>Fenestration Average U-Factor</td><td>0.3</td></tr> <tr><td>19</td><td>Glasing Percentage (%)</td><td>14.69%</td></tr> <tr><td>20</td><td>ADU Bedroom Count</td><td>n/a</td></tr> <tr><td>21</td><td>ADU Conditioned Floor Area</td><td>n/a</td></tr> <tr><td>22</td><td>Is Natural Gas Available?</td><td>Yes</td></tr> </table> VALID ONLY FOR NEW PERMIT APPLICATIONS THROUGH DECEMBER 31, 2021 COMPLIANCE RESULTS <table> <tr><td>01</td><td>Building Complies with Computer Performance</td></tr> <tr><td>02</td><td>This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.</td></tr> <tr><td>03</td><td>This building incorporates one or more special features shown below</td></tr> </table> Registration Number: 222-PV10106020A-000-000-000000-0000 Registration Date/Time: 2022-05-28 11:07:54 HERS Provider: CalCERTS Inc. CA Building Energy Efficiency Standards - 2019 Residential Compliance Report Version: 2019.1.108 Schema Version: rev 20200101	01	Project Name	528 Hazel	02	Run Title	Title 24 Analysis	03	Project Location	528 Hazel St	04	City	Glendale	05	Standards Version	2019	06	Zip code	91201	07	Software Version	EnergyPro 8.1	08	Climate Zone	9	09	Front Orientation (deg/ Cardinal)	270	10	Building Type	Multifamily	11	Number of Dwellings	25	12	Project Scope	New/Construction	13	Number of New Units	48	14	Number of Existing Units	3	15	Additional Cond. Floor Area (ft²)	n/a	16	Existing Cond. Floor Area (ft²)	n/a	17	Total Cond. Floor Area (ft²)	15970	18	Fenestration Average U-Factor	0.3	19	Glasing Percentage (%)	14.69%	20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a	22	Is Natural Gas Available?	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Registered C236s and C236s are required to be completed in the HERS Registry Building-level Verifications: - Indoor air quality ventilation - Cooling System Verifications: - Minimum Airflow - Verified EER - Verified SEER - Fan Efficiency Watts/CFM - Heating System Verifications: - Verified HSPF - Verified heat pump rated heating capacity - HVAC Distribution System: Verification - Duct leakage testing - Ducts located entirely in conditioned space confirmed by duct leakage testing - Domestic Hot Water System Verifications: - None -- BUILDING - FEATURES INFORMATION <table> <tr><th>01</th><th>02</th><th>03</th><th>04</th><th>05</th><th>06</th><th>07</th></tr> <tr><th>Project Name</th><th>Conditioned Floor Area (ft²)</th><th>Number of Dwelling Units</th><th>Number of Bedrooms</th><th>Number of Zones</th><th>Number of Ventilation Cooling Systems</th><th>Number of Water Heating Systems</th></tr> <tr><td>528 Hazel</td><td>19970</td><td>17</td><td>24</td><td>3</td><td>0</td><td>17</td></tr> </table> Registration Number: 222-PV10106020A-000-000-000000-0000 Registration Date/Time: 2022-05-28 11:07:54 HERS Provider: CalCERTS Inc. 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