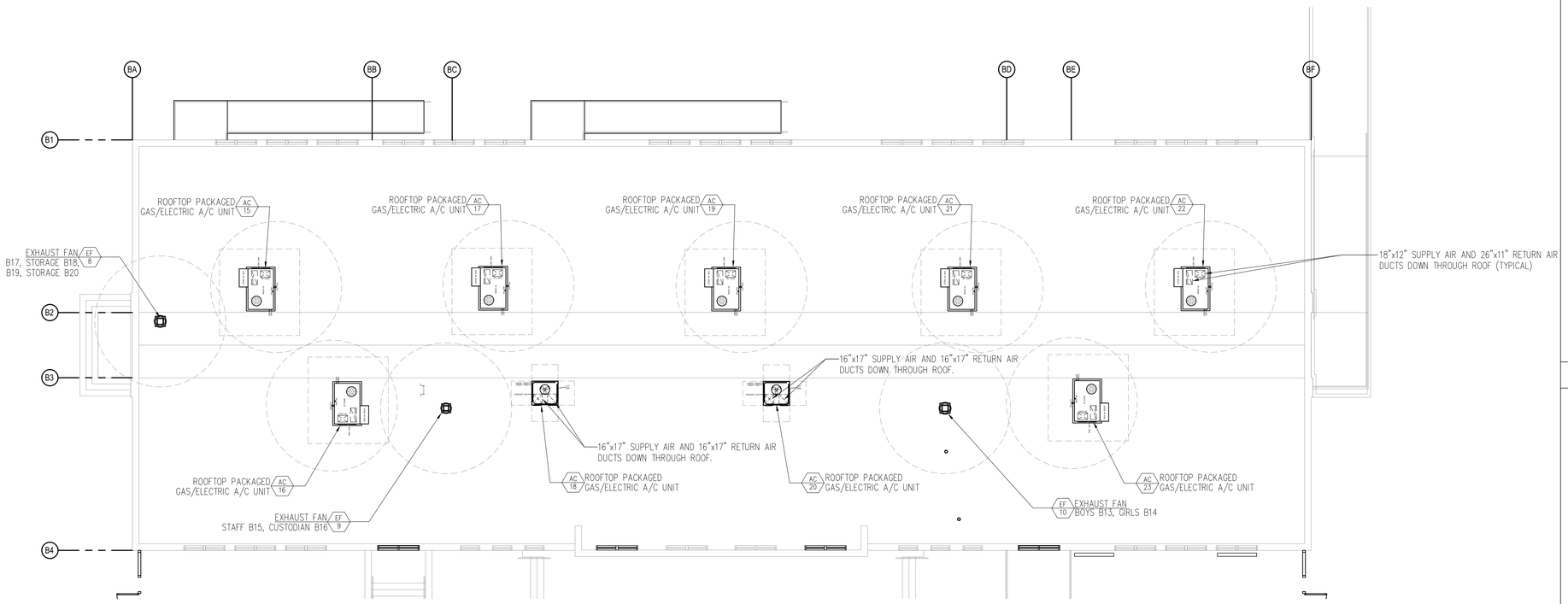
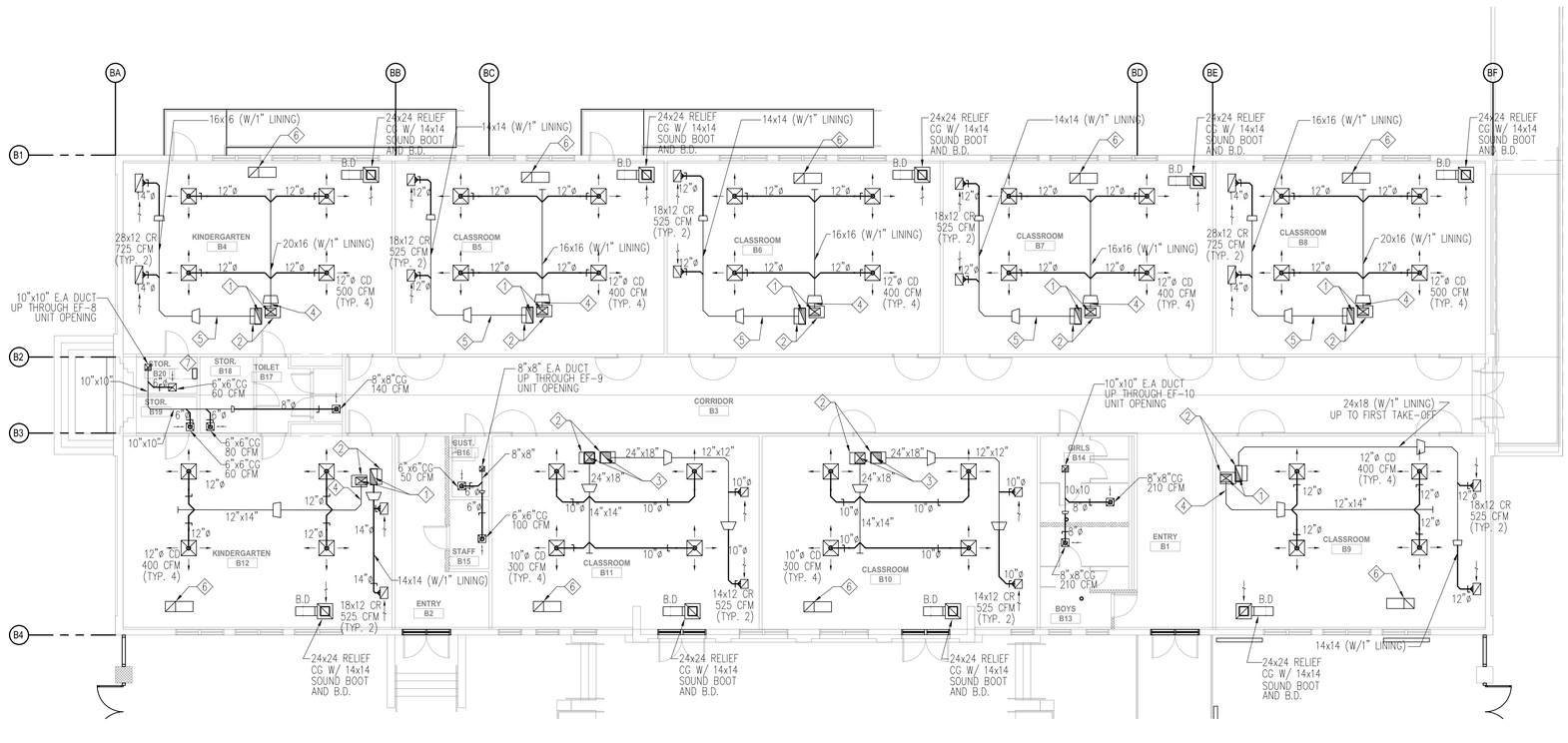


MECHANICAL NEW ROOF PLAN - BUILDING B

1/8" = 1'-0"

1



MECHANICAL NEW FLOOR PLAN - BUILDING B

1/8" = 1'-0"

1

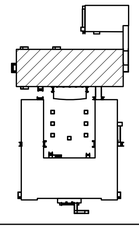
LEGEND

SHEET NOTES

KEYNOTES

1. 18"x12" SUPPLY AIR AND 26"x11" RETURN AIR DUCTS UP THROUGH ROOF.
2. 24"x18"x36" (WxHxL) DUCT SILENCER (DS-2), IAC MODEL LFM. SEE DETAIL #3/ M2.03 FOR ANCHORAGE.
3. 16"x17" S.A. AND RETURN AIR DUCTS UP THRU ROOF.
4. 24x18 SUPPLY DUCT (W/1" LINING) UP TO FIRST TAKE-OFF.
5. 24x18 RETURN DUCT (W/1" LINING) UP TO FIRST TAKE-OFF.
6. 16x16 DUCT W/ SOUND BOOT ABOVE CEILING.
7. RECOMMENDED MASTER CONTROL PANEL LOCATION. EXACT LOCATION SHALL BE DETERMINED BY CONTROL'S CONTRACTOR.

KEY PLAN



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DATE: 8/14/2019

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LICENSED ARCHITECT
JAVAN NABILI
NO. C24035
REN.: 7.31.21
STATE OF CALIFORNIA

INGLEWOOD UNIFIED SCHOOL DISTRICT

CORDOBA CORPORATION
SAN FRANCISCO • LOS ANGELES • SANTA ANA • SAN DIEGO

REGISTERED PROFESSIONAL ENGINEER
JAMES H. [illegible]
No. 26903
Renewal: 9/30/20
MECHANICAL
STATE OF CALIFORNIA

SOUND MITIGATION PROGRAM

OAK STREET ELEMENTARY SCHOOL

633 South Oak Street Inglewood, CA 90301

A PROJECT FOR: INGLEWOOD UNIFIED SCHOOL DISTRICT

PROJECT NUMBER: 10292

DRAWN:

CHECKED:

ISSUE/REVISION:

8/21/2018	30% - SCHEMATIC DESIGN
10/10/2018	50% CD SUBMITTAL
11/15/2018	100% CD - DSA SUBMITTAL
05/23/2019	DSA APPROVAL

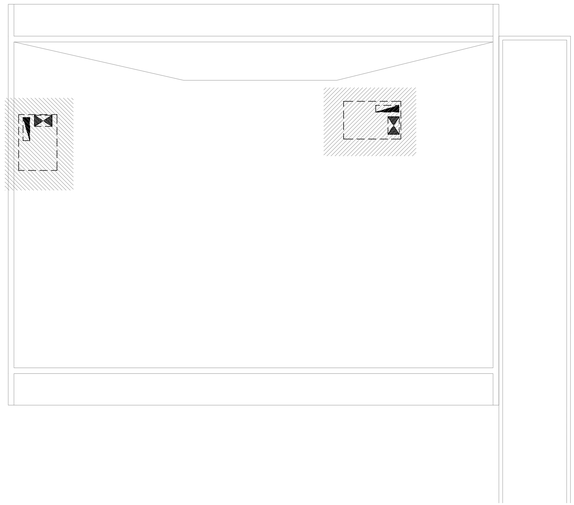
MECHANICAL NEW PLANS - BUILDING B

MB101

V:\36533.30 Oak Street Elementary School - LMA Sound Mitigation\2019-04-17

SCOPE OF WORK

1. DEMOLISH EXISTING ROOFTOP A/C UNITS AND ASSOCIATED ROOF CURB, TEMPORARY DISCONNECT ALL THE UTILITIES (GAS, CONDENSATE DRAIN, POWER, CONTROLS, ETC.) AND PROTECT THEM DURING CONSTRUCTION.
2. EXISTING ROOF OPENINGS SHALL BE PATCHED PER ARCH. INSTRUCTION.



MECHANICAL EXISTING ROOF PLAN - BUILDING C

1/8" = 1'-0"

1

SCOPE OF WORK

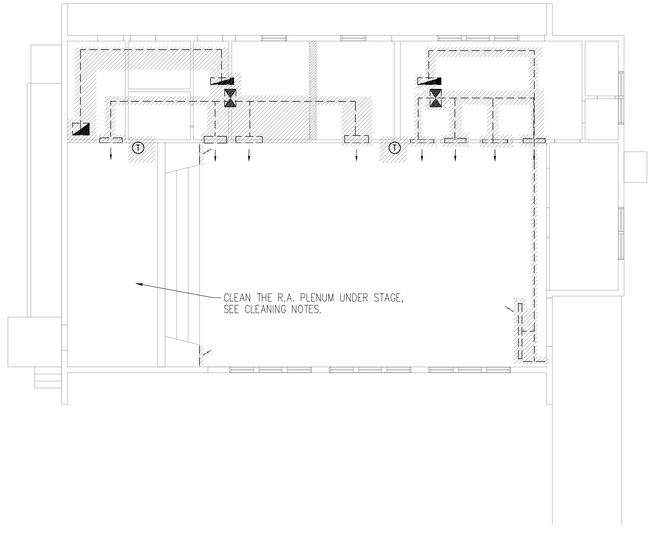
1. DEMOLISH EXISTING DUCTWORK, ASSOCIATED SUPPORTS, SUPPLY CEILING DIFFUSERS, RETURN GRILLES, CONTROLS (T-STATS AND ASSOCIATED WIRING).
2. EXISTING ROOF OPENINGS SHALL BE PATCHED PER ARCH. INSTRUCTION.

SHEET NOTES:

1. AIR DUCT CLEANING (APPLY TO PLENUM CLEANING UNDER THE STAGE ONLY)
   A. GENERAL: THE ENTIRE EXISTING DUCTWORK SYSTEM, PLENUMS, FRESH AIR LOUVERS, DAMPERS, ETC. TO BE THOROUGHLY CLEANED. THE AIR DUCT CLEANING CONTRACTOR SHALL BE A "CERTIFIED MEMBER" IN GOOD STANDING OF THE NATIONAL AIR DUCT CLEANERS ASSOCIATION, INC. (NADCA). THE CONTRACTOR SHALL BE LICENSED IN THE STATE OF CALIFORNIA. THIS LICENSE SHALL BE A C-61 SPECIALTY LICENSE IN THE D-64 DUCT CLEANING SUB-DIVISION.

   B. PROCEDURE:

   1. PRIOR TO ANY CLEANING, SHUT DOWN THE AIR HANDLING UNIT(S) THAT SERVE THE CLEANING AREAS. IF UNDER ANY CIRCUMSTANCES THAT THE UNIT(S) CANNOT BE SHUT DOWN COMPLETELY, CONTRACTOR SHALL ISOLATE THE AREA AND THE PARTIAL DUCTWORK IN THE AREA THAT REQUIRE TO BE CLEANED TO ENSURE NO CONTAMINANTS AND DEBRIS ARE EMITTED INTO OTHER OCCUPIED CONDITIONED AIR SPACES.



MECHANICAL EXISTING FLOOR PLAN - BUILDING C

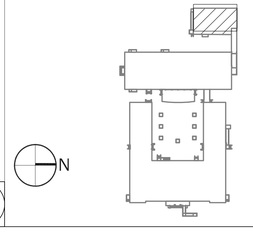
1

LEGEND

SHEET NOTES

KEYNOTES

KEY PLAN



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CORDOBA CORPORATION
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REGISTERED PROFESSIONAL ENGINEER
JAMES H. [illegible]
No. 26903
Renewal: 9/30/20
MECHANICAL
STATE OF CALIFORNIA

SOUND MITIGATION PROGRAM

OAK STREET ELEMENTARY SCHOOL

633 South Oak Street Inglewood, CA 90301

A PROJECT FOR:
INGLEWOOD UNIFIED SCHOOL DISTRICT

PROJECT NUMBER:
10292

DRAWN:

CHECKED:

ISSUE/REVISION:

8/21/2018	30% - SCHEMATIC DESIGN
10/10/2018	50% CD SUBMITTAL
11/15/2018	100% CD - DSA SUBMITTAL
03/15/2019	DSA APPROVAL

MECHANICAL DEMOLITION PLANS - BUILDING C

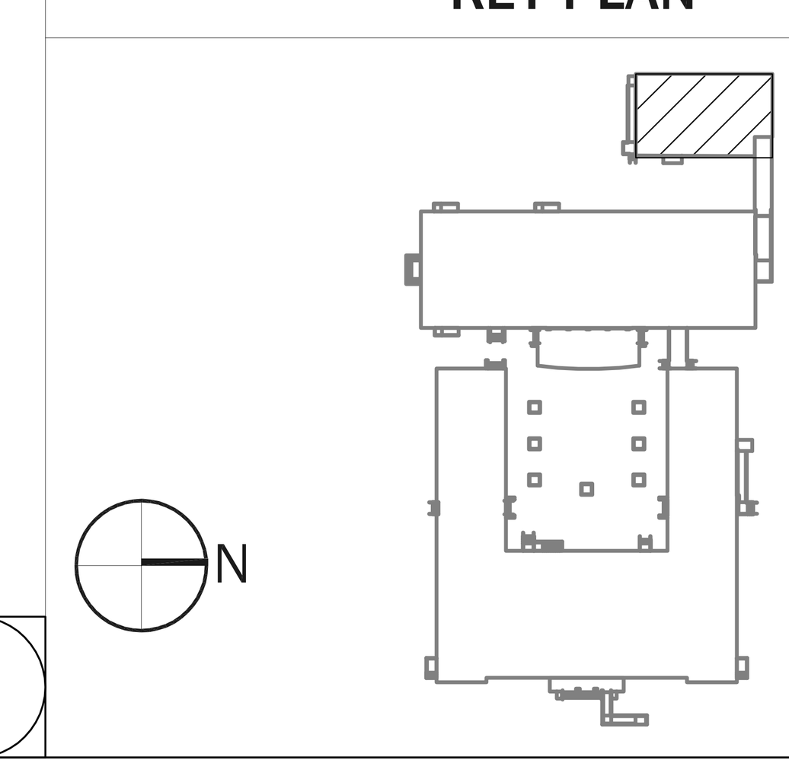
MCD101

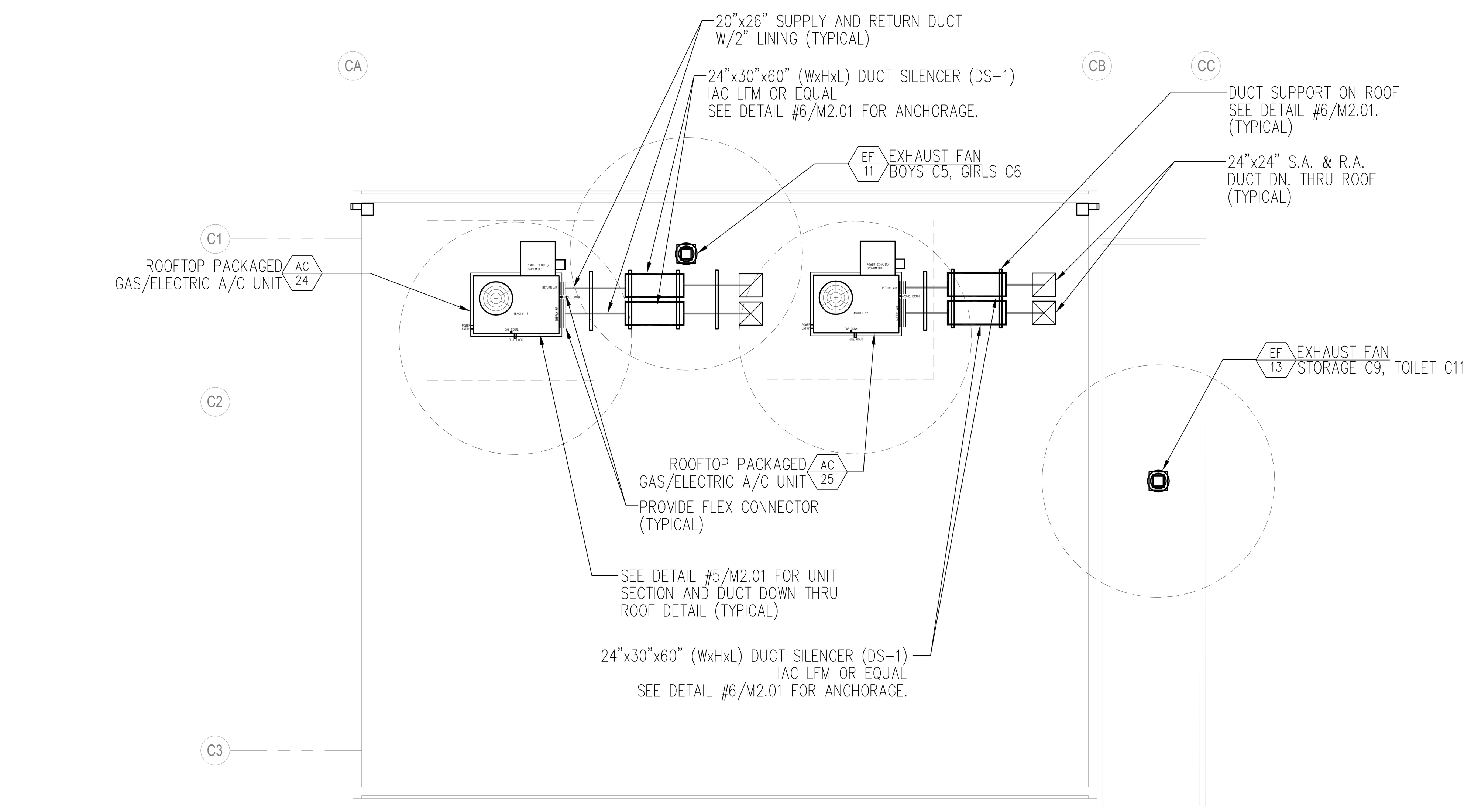
LEGEND

SHEET NOTES

KEYNOTES

KEY PLAN

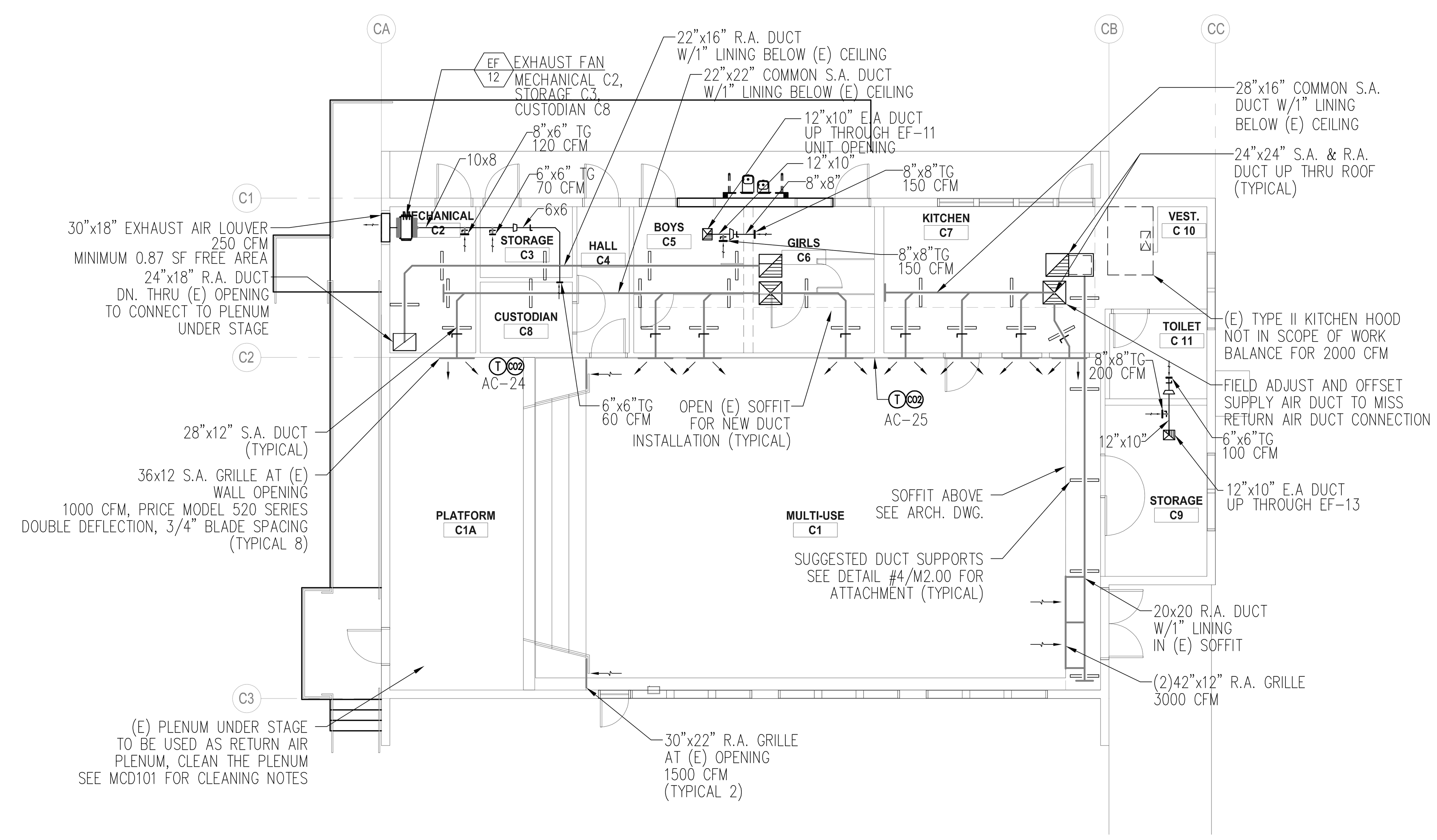




MECHANICAL NEW ROOF PLAN - BUILDING C

1/8" = 1'-0"

1



MECHANICAL NEW FLOOR PLAN - BUILDING C

1

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SOUND MITIGATION PROGRAM

OAK STREET ELEMENTARY SCHOOL

633 South Oak Street Inglewood, CA 90301

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INGLEWOOD UNIFIED SCHOOL DISTRICT

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A# 03-119485

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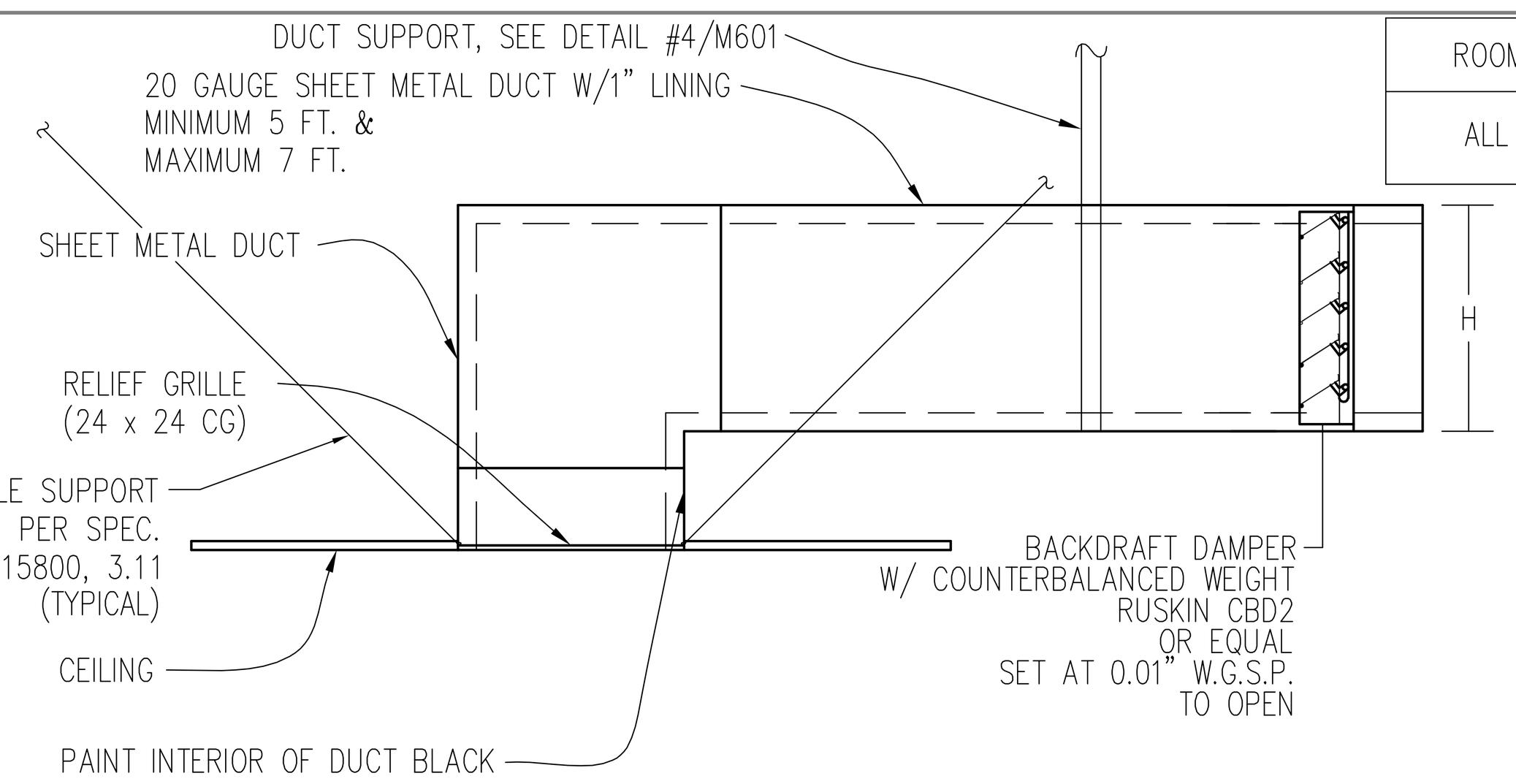
05/23/2019	DSA APPROVAL

MECHANICAL NEW PLANS - BUILDING C

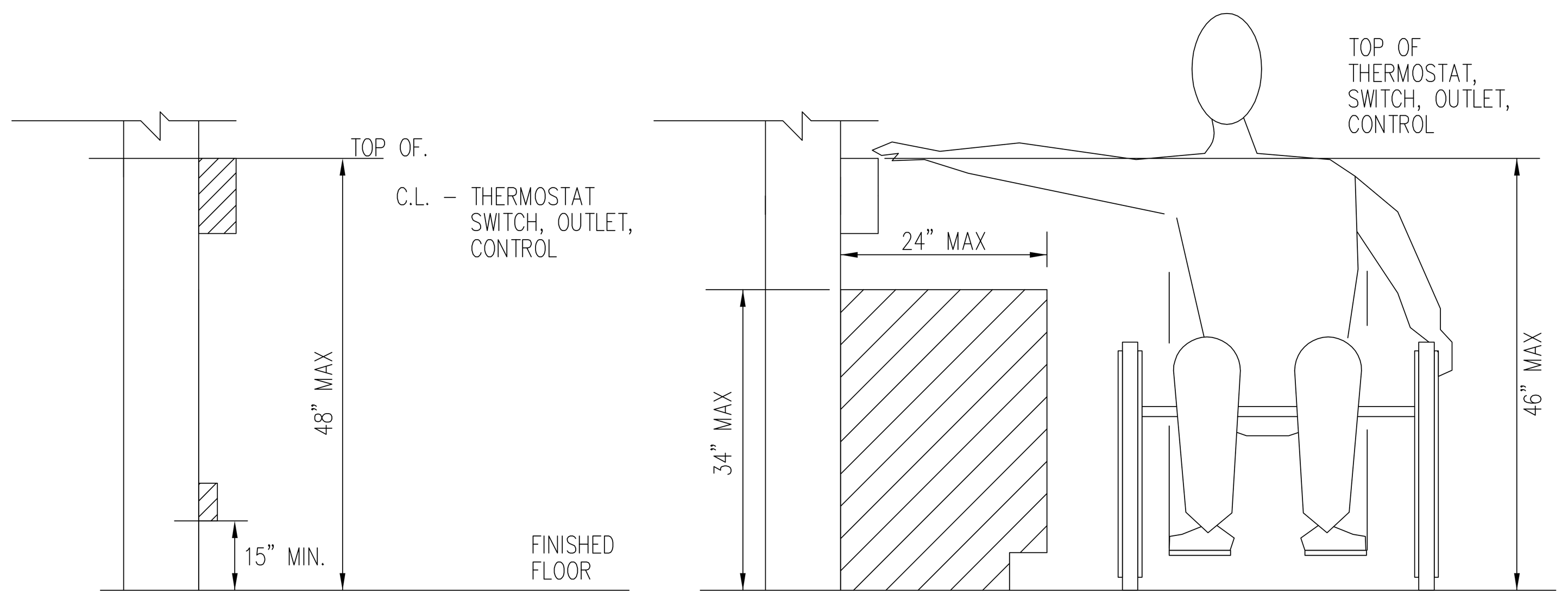
MC101



ROOM TYPE	W x H (IN)
ALL AREA	24x24

RELIEF/RETURN AIR BOOT

SCALE NONE — 5



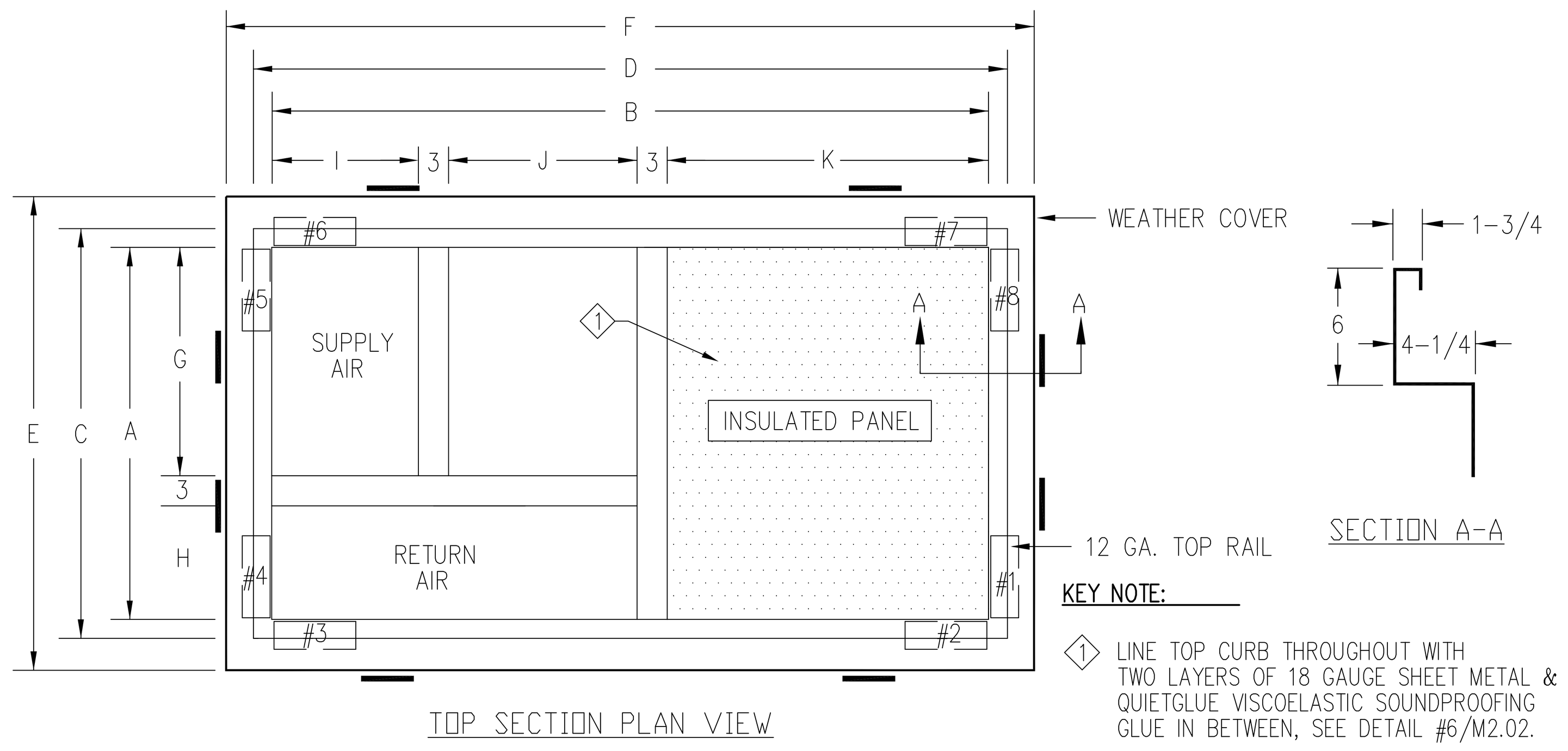
TYPICAL THERMOSTAT MOUNTING HEIGHT OVER OBSTRUCTION

SCALE NONE — 3

NOTES:

1) ▬ INDICATES SEISMIC TIE-DOWN PLATE. (2) REQUIRED PER SIDE, SEE DETAIL #5/M2.02.
2) #1 THRU #8 INDICATE ISOLATOR LOCATIONS. SEE BELOW.

MARK	MAKE	TYPE	SIZE	VIC-EQ WT.
---	CARRIER	48HCD	12	370 #

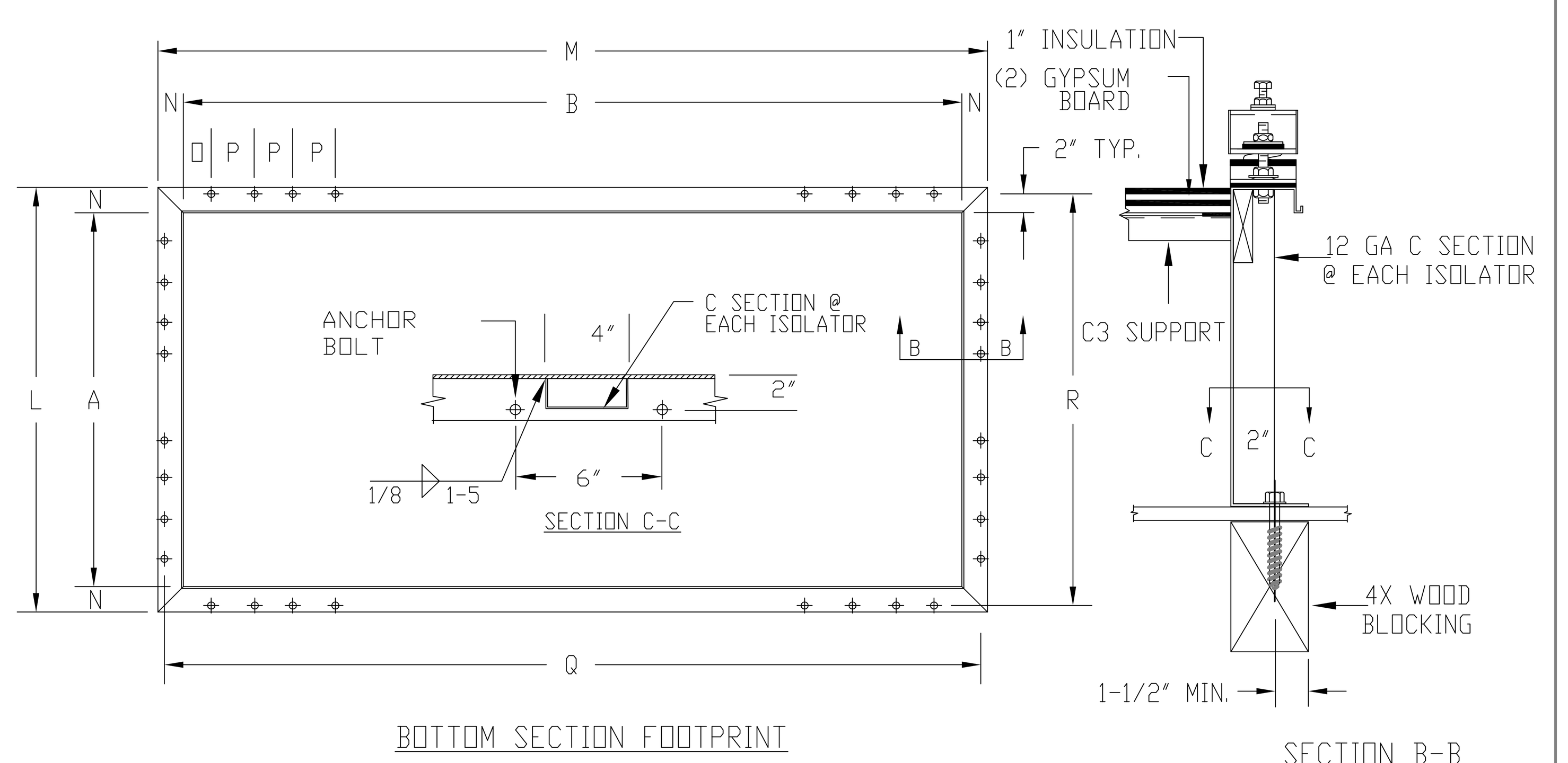


TOP SECTION PLAN VIEW

KEY NOTE:

(1) LINE TOP CURB THROUGHOUT WITH TWO LAYERS OF 18 GAUGE SHEET METAL & QUIETGLUE VISCOELASTIC SOUNDPROOFING GLUE IN BETWEEN, SEE DETAIL #6/M2.02.

A	B	C	D	E	F	G	H	I	J	K
50"	78-1/4	53-1/2	81-3/4	58-1/2	86-3/4	31-3/8	15-3/8	16-1/16	21-3/8	34-13/16
L	M	N	O	P	Q	R				
56"	84-1/4	3	3	6	82-1/4	54				



BOTTOM SECTION FOOTPRINT

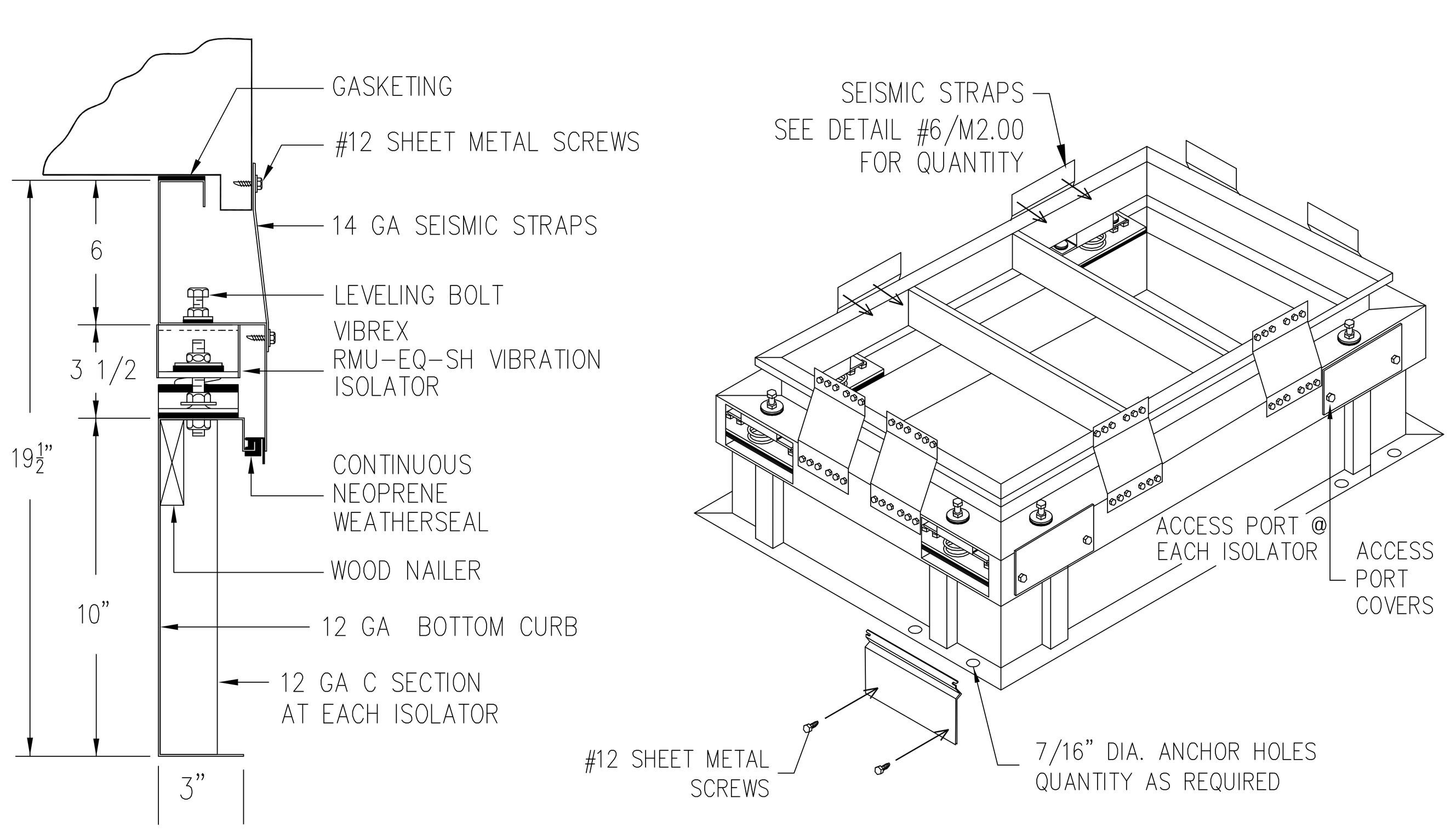
SECTION B-B

NOTES:

1. Q & R DIMENSIONS ARE CENTERLINES OF ANCHOR HOLES IN CURB BOTTOM FLANGE.
2. FOR ANCHORAGE, USE 3/8" DIA. LAG BOLT MIN. 3" PENETRATION IN MIN. 4 X 4 DOUGLAS FIR WOOD.

CURB TOP RAIL FOR CARRIER 48HCD12

SCALE NONE — 6



NOTES:

1. FOR ANCHOR REQUIREMENTS AND DETAILS OF ISOLATORS AND SEISMIC STRAPS, SEE DETAIL #5/M2.02.
2. SUBMITTED ROOF CURBS ARE LEVEL. PITCHED ROOF CURBS ARE AVAILABLE UPON REQUEST TO MATCH ROOF SLOPE.
3. SEE DETAIL #6/M2.02 FOR ACOUSTICAL INSULATION PANEL INFORMATION.

VIBRATION ISOLATOR CURB FOR CARRIER 48HCD12

SCALE NONE — 7

TABLE 4-2
MINIMUM HANGER SIZES FOR ROUND DUCT

Dia.	Maximum Spacing	Wire Dia.	Rod	Strap
10" dn	12'	One 12 ga.	1/4"	1" × 22 ga.
11-18"	12'	Two 12 ga. or One 8 ga.	1/4"	1" × 22 ga.
19-24"	12'	Two 10 ga.	1/4"	1" × 22 ga.
25-36"	12'	Two 8 ga.	3/8"	1" × 20 ga.
37-50"	12'	⟶	Two 3/8"	Two 1" × 20 ga.
51-60"	12'	⟶	Two 3/8"	Two 1" × 18 ga.
61-84"	12'	⟶	Two 3/8"	Two 1" × 16 ga.

NOTES:

1. Straps are galvanized steel; rods are uncoated or galvanized steel; wire is black annealed, bright basic or galvanized steel. All are alternatives.
2. See Figure 4-4 for lower supports.
3. See Figures 4-2 and 4-3 for upper attachments.
4. Table allows for conventional wall thickness, and joint systems plus one lb/sf of insulation weight. If heavier ducts are to be installed, adjust hanger sizes to be within their load limits; see allowable loads with Table 4-1.
5. Designers: For industrial grade supports, including saddles, single point trapeze loads, longer spans and flanged joint loads, see SMACNA's Round Industrial Duct Construction Standards.
6. See Figures 3-9 and 3-10 for flexible duct supports.

NOTE:

REFER TO LATEST SMACNA HVAC DUCT CONSTRUCTION STANDARDS FOR ADDITIONAL INFORMATION.

TABLE 4-1
RECTANGULAR DUCT HANGERS
MINIMUM SIZE

MAXIMUM HALF OF DUCT PERIMETER	Pair at 10 ft. Spacing		Pair at 8 ft. Spacing		Pair at 5 ft. Spacing		Pair at 4 ft. Spacing	
	STRAP	WIRE / ROD	STRAP	WIRE / ROD	STRAP	WIRE / ROD	STRAP	WIRE / ROD
$\frac{P}{2} = 30''$	1" × 22 ga.	10 ga. (.135")	1" × 22 ga.	10 ga. (.135")	1" × 22 ga.	12 ga. (.106")	1" × 22 ga.	12 ga. (.106")
$\frac{P}{2} = 72''$	1" × 18 ga.	3/8"	1" × 20 ga.	1/4"	1" × 22 ga.	1/4"	1" × 22 ga.	1/4"
$\frac{P}{2} = 96''$	1" × 16 ga.	3/8"	1" × 18 ga.	3/8"	1" × 20 ga.	3/8"	1" × 22 ga.	1/4"
$\frac{P}{2} = 120''$	1½" × 16 ga.	1/2"	1" × 16 ga.	3/8"	1" × 18 ga.	3/8"	1" × 20 ga.	1/4"
$\frac{P}{2} = 168''$	1½" × 16 ga.	1/2"	1½" × 16 ga.	1/2"	1" × 16 ga.	3/8"	1" × 18 ga.	3/8"
$\frac{P}{2} = 192''$	—	1/2"	1½" × 16 ga.	1/2"	1" × 16 ga.	3/8"	1" × 16 ga.	3/8"
$\frac{P}{2} = 193''$ up	SPECIAL ANALYSIS REQUIRED							

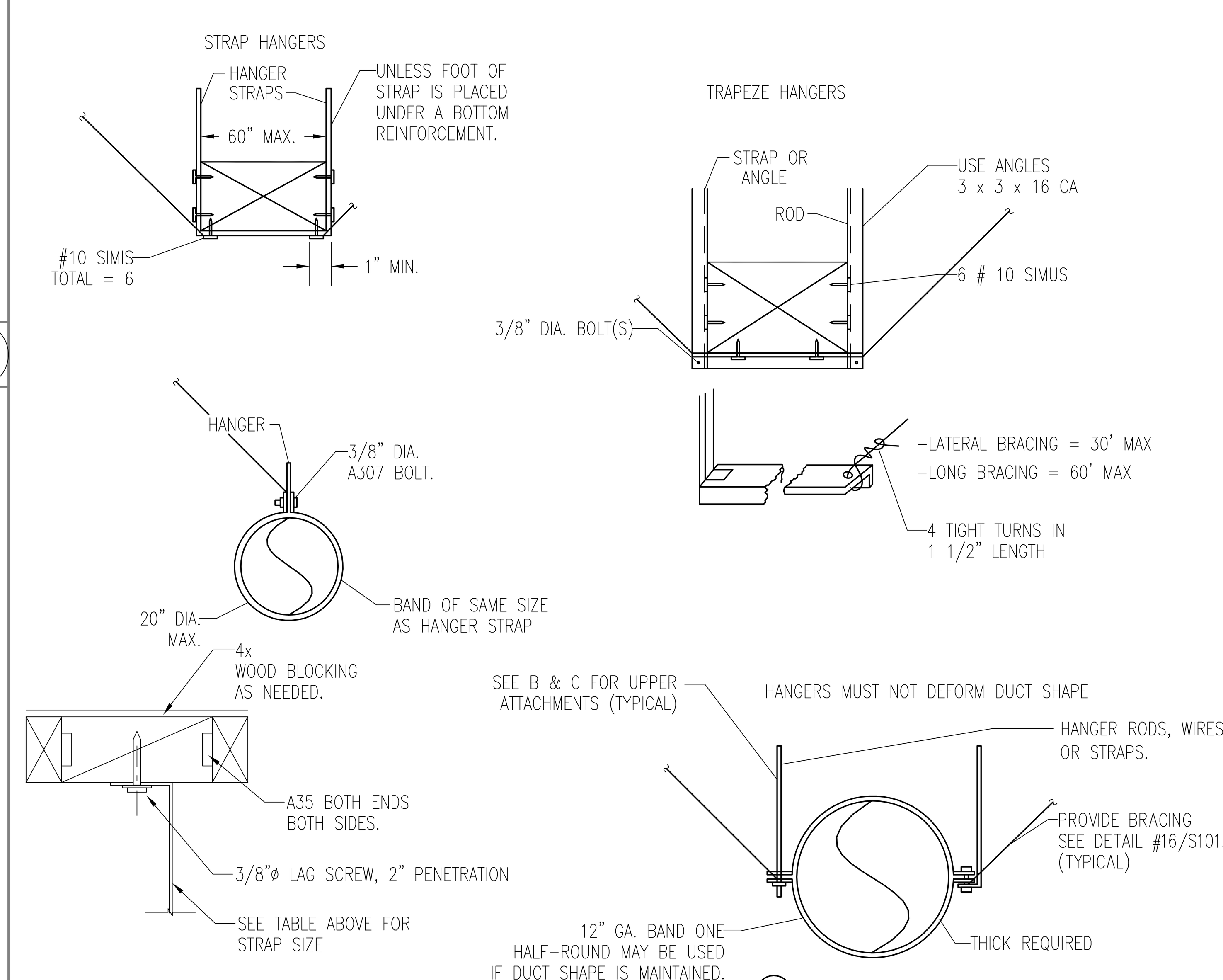
WHEN STRAPS ARE LAP JOINED USE THESE MINIMUM FASTENERS:

1" × 18, 20, 22 ga.—two #10 or one 1/4" bolt
1" × 16 ga.—two 1/4" dia.
1" × 16 ga.—two 3/8" dia.
Place fasteners in series, not side by side.

SINGLE HANGER MAXIMUM ALLOWABLE LOAD	
STRAP	WIRE OR ROD (Dia.)
1" × 22 ga.— 260 lbs.	0.106"—80 lbs.
1" × 20 ga.— 320 lbs.	0.135"—120 lbs.
1" × 18 ga.— 420 lbs.	0.162"—160 lbs.
1" × 16 ga.— 700 lbs.	1/4"—270 lbs.
1½" × 16 ga.—1100 lbs.	3/8"—680 lbs.
	1/2"—1250 lbs.
	5/8"—2000 lbs.
	3/4"—3000 lbs.

NOTES:

1. Dimensions other than guage are in inches.
2. Tables allow for duct weight, 1 lb. /sf insulation weight and normal reinforcement and trapeze weight, but no external loads!
3. For custom design of hangers, designers may consult SMACNA's rectangular industrial duct standards, the AISI Cold Formed Steel Design Manual and the AISC Steel Construction Manual.
4. Straps are galvanized steel; other materials are uncoated steel.
5. Allowable loads for P/2 assume that ducts are 16 ga. maximum, except that when maximum duct dimension (w) is over 60" then P/2 maximum is 1.25 w.
6. For upper attachments, see "A"
7. 12, 10 or 8 ga, wire is steel of black annealed, bright basic or galvanized type.

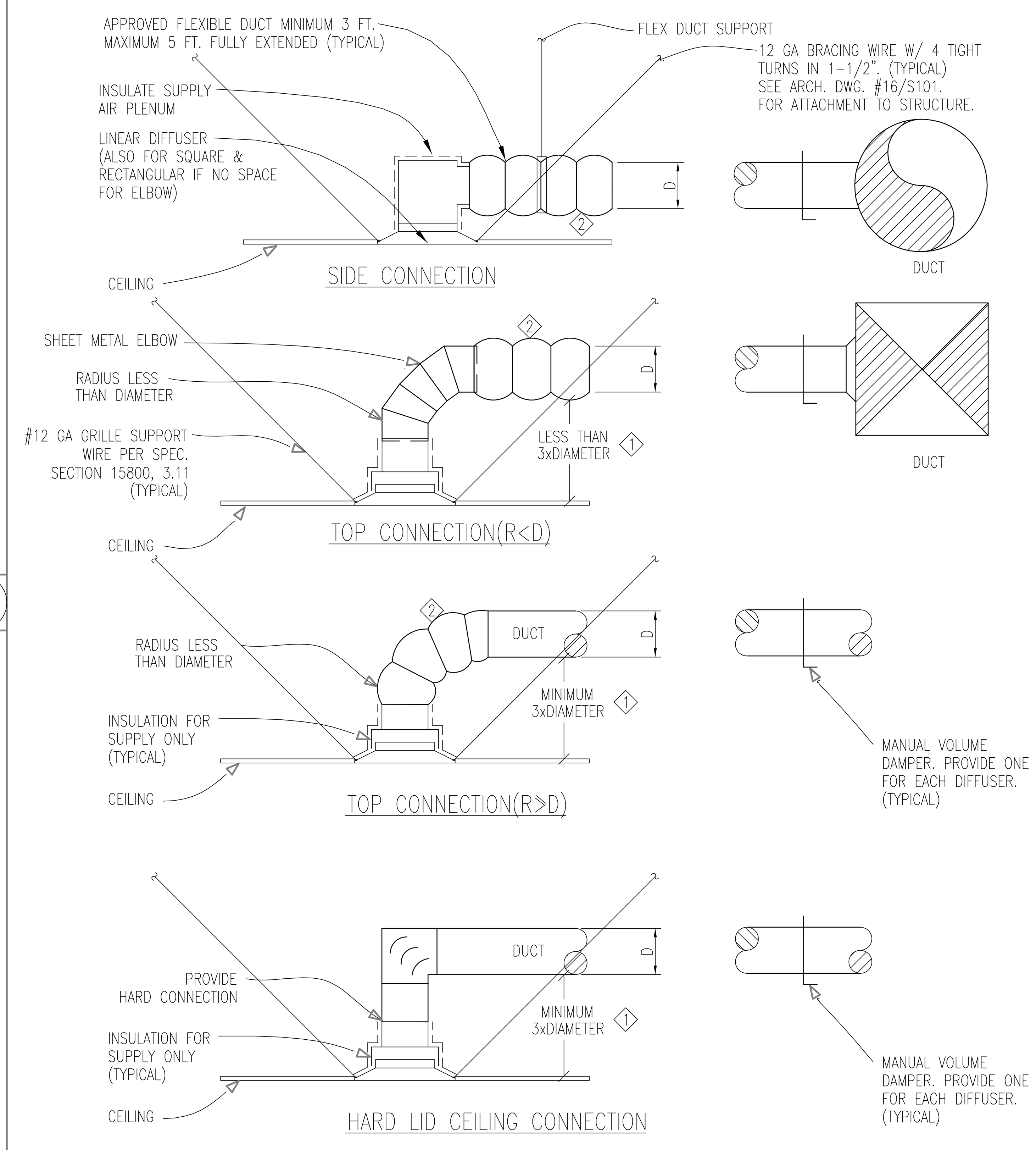


(A) UPPER ATTACHMENT TO WOOD

(B) LOWER SUPPORTS

TYPICAL DUCT SUPPORT DETAIL

SCALE NONE — 4



NOTE:

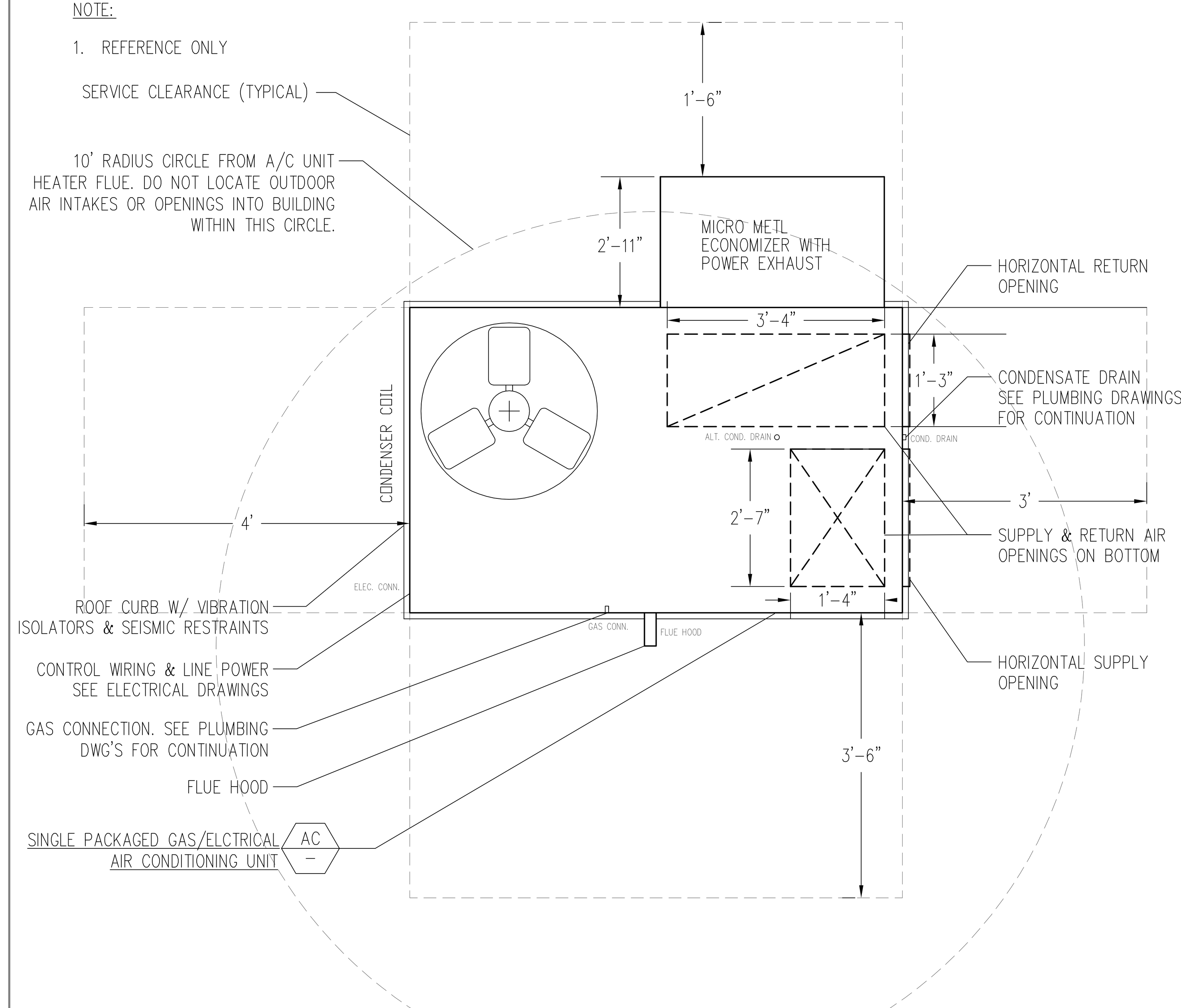
- D = DIAMETER
- (1) DUE TO STRINGENT ACOUSTICAL STANDARDS STRICT ADHERENCE TO THESE DETAILS IS REQUIRED.
- (2) CASCO SILENT FLEX II OR EQUAL, PROVIDE FOR DUCT CONNECT ABOVE T-BAR CEILING ONLY.

CEILING AIR INLET/OUTLET CONNECTION DETAIL

SCALE NONE — 1

NOTE:

1. REFERENCE ONLY



SHEET NOTE:

THE EQUIPMENT & CURB DETAILS AND ANCHORAGE ONLY APPLIES TO SPECIFIED CARRIER UNITS. FOR ANY OTHER MANUFACTURER'S UNITS AS SUBSTITUTION, CONTRACTOR IS RESPONSIBLE TO PROVIDE STRUCTURAL CALCULATIONS, COORDINATION SHOP DRAWINGS PER SPECIFICATION 013300 SUBMITTAL PROCEDURES & 013113 PROJECT COORDINATION.

TYPICAL DIMENSIONS & LAYOUT FOR CARRIER 48LCD12

SCALE NONE — 2

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A PROJECT FOR: INGLEWOOD UNIFIED SCHOOL DISTRICT

PROJECT NUMBER: 10292

DRAWN: N.W, S.W.L, S.N
CHECKED: J.S, N.W

ISSUE/REVISION:

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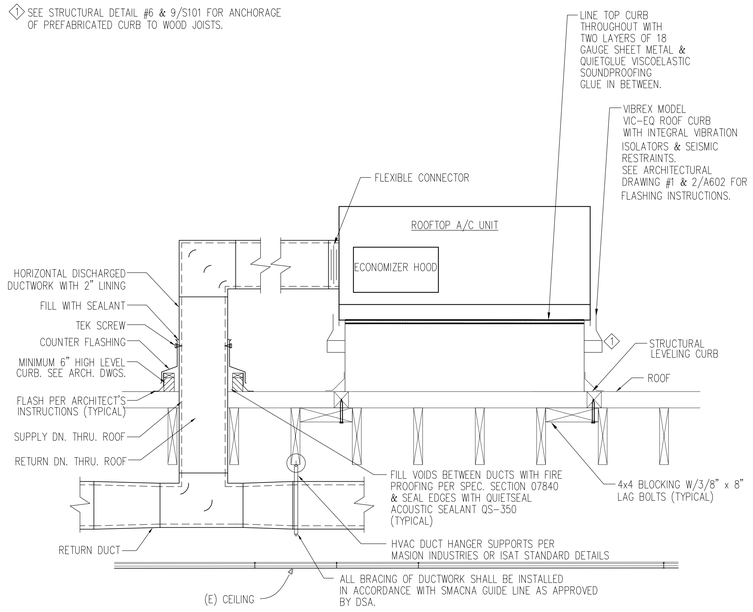
10/10/2018	50% CD SUBMITTAL
11/15/2018	100% CD - DSA SUBMITTAL
03/15/2019	DSA APPROVAL

DETAILS

M2.00

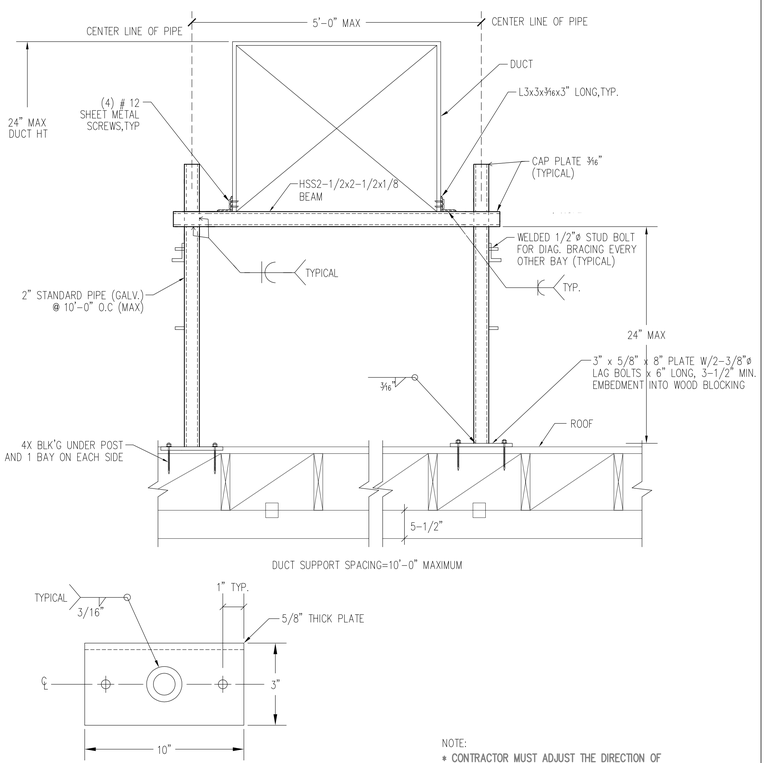
KEY NOTES:

1. SEE STRUCTURAL DETAIL #6 & 9/S101 FOR ANCHORAGE OF PREFABRICATED CURB TO WOOD JOISTS.



HORIZONTAL DISCHARGE A/C UNIT SECTION (WOOD FRAMED ROOF)

SCALE: NONE — 5

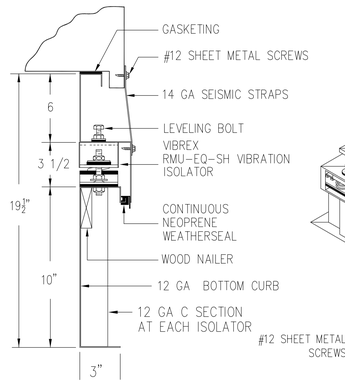


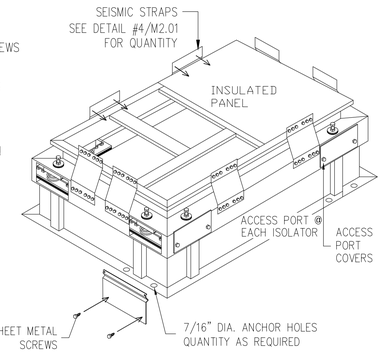
BASE PLATE (PLAN VIEW)

NOTE:
* CONTRACTOR MUST ADJUST THE DIRECTION OF BASE PLATE TO SUIT FIELD JOIST CONDITION.
* ALL STEEL AND CONNECTIONS TO BE HOT DIPPED GALVANIZED

TYPICAL DUCT SUPPORT FOR WOOD FRAMED ROOF

SCALE: NONE — 6





NOTES:
1. FOR ANCHOR REQUIREMENTS AND DETAILS OF ISOLATORS AND SEISMIC STRAPS, SEE DETAIL #5/M2.02.
2. SUBMITTED ROOF CURBS ARE LEVEL. PITCHED ROOF CURBS ARE AVAILABLE UPON REQUEST TO MATCH ROOF SLOPE.
3. SEE DETAIL #6/M2.02 FOR ACOUSTICAL INSULATION PANEL INFORMATION.

VIBRATION ISOLATOR CURB FOR CARRIER 48HC04-06

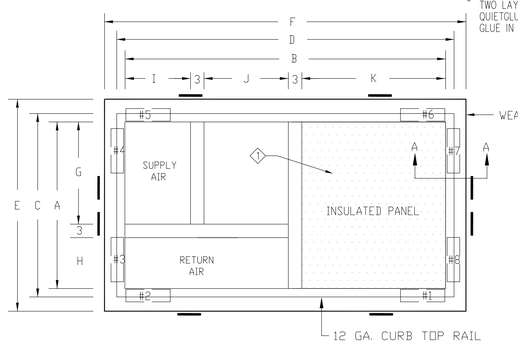
SCALE: NONE — 3

NOTES:
1) ▬ INDICATES SEISMIC TIE-DOWN PLATE. (2) REQUIRED PER SIDE, SEE DETAIL #5/M2.02.
2) #1 THRU #8 INDICATE ISOLATOR LOCATIONS. SEE DETAIL BELOW.

MARK	MAKE	TYPE	SIZE	CURB WT.
--	CARRIER	48HC	04-06	310 #

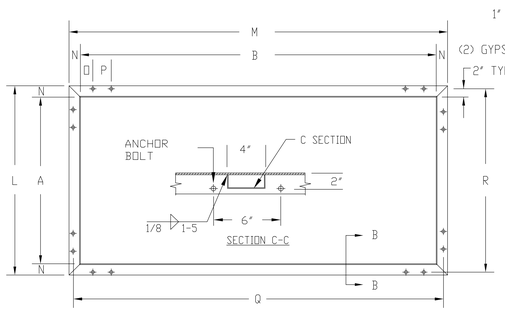
KEY NOTE:

1. LINE TOP CURB THROUGHOUT WITH TWO LAYERS OF 18 GAUGE SHEET METAL & QUIETGLUE VISCOELASTIC SOUNDPROOFING GLUE IN BETWEEN, SEE DETAIL #6/M2.02.

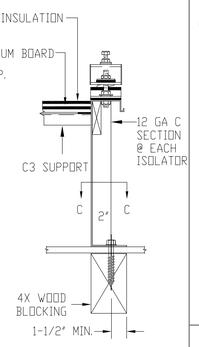


TOP SECTION PLAN VIEW

A	B	C	D	E	F	G	H	I	J	K
36-15/16	67-1/8	40-7/16	70-5/8	45-7/16	75-5/8	20-1/4	13-11/16	13-7/8	15-3/16	32-1/16
				L	M	N	O	P	Q	R
				42-15/16	73-1/8	3	3	6	71-1/8	40-15/16



BOTTOM SECTION FOOTPRINT



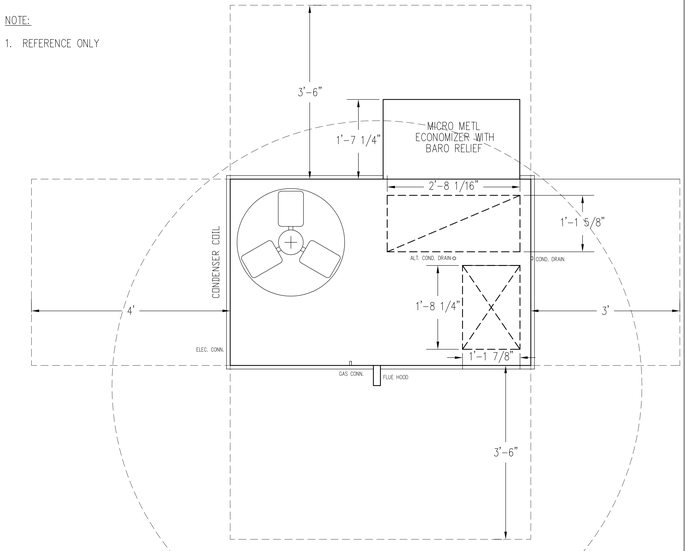
SECTION B-B

NOTES:
1. FOR ANCHORAGE, USE 3/8" DIA. LAG BOLT MIN. 3" PENETRATION IN MIN. 4 X 4 DOUGLAS FIR WOOD.
2. Q & R DIMENSIONS ARE CENTERLINES OF ANCHOR HOLES IN CURB BOTTOM FLANGE.

CURB TOP RAIL FOR CARRIER 48HC04-06

SCALE: NONE — 4

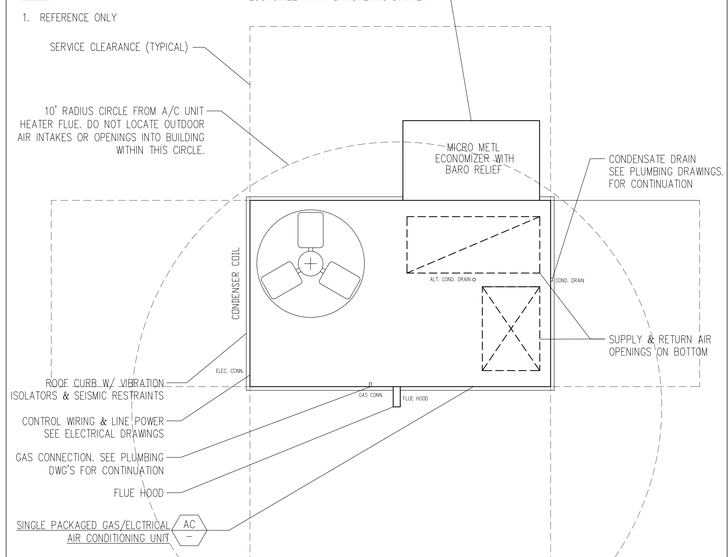
NOTE:
1. REFERENCE ONLY



TYPICAL DIMENSIONS FOR CARRIER 48HC04-06

SCALE: NONE — 1

NOTE:
1. REFERENCE ONLY



TYPICAL LAYOUT FOR CARRIER 48HC04-06

SCALE: NONE — 2

SHEET NOTE:
THE EQUIPMENT & CURB DETAILS AND ANCHORAGE ONLY APPLIES TO SPECIFIED CARRIER UNITS. FOR ANY OTHER MANUFACTURER'S UNITS AS SUBSTITUTION, CONTRACTOR IS RESPONSIBLE TO PROVIDE STRUCTURAL CALCULATIONS, COORDINATION SHOP DRAWINGS PER SPECIFICATION 013300 SUBMITTAL PROCEDURES & 013113 PROJECT COORDINATION.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 03-119485 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 8/14/2019

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LICENSED ARCHITECT
JAVAN NABILI
NO. C24035
REN.: 7.31.21
STATE OF CALIFORNIA

INGLEWOOD UNIFIED SCHOOL DISTRICT

CORDOBA CORPORATION
SAN FRANCISCO • LOS ANGELES • SANTA ANA • SAN DIEGO

REGISTERED PROFESSIONAL ENGINEER
JAMES H. [illegible]
No. 26903
Renewal: 9/30/20
MECHANICAL
STATE OF CALIFORNIA

SOUND MITIGATION PROGRAM

OAK STREET ELEMENTARY SCHOOL
633 South Oak Street Inglewood, CA 90301

A PROJECT FOR:
INGLEWOOD UNIFIED SCHOOL DISTRICT

PROJECT NUMBER: 10292

DRAWN:	N.W, S.W.L, S.N
CHECKED:	J.S, N.W

ISSUE/REVISION:

8/21/2018	30% - SCHEMATIC DESIGN
10/10/2018	50% CD SUBMITTAL
11/15/2018	100% CD - DSA SUBMITTAL
03/15/2019	DSA APPROVAL

DETAILS

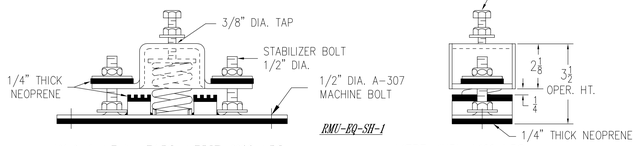
M2.01

REGISTERED PROFESSIONAL ENGINEER
TORADOR Q. HEDLAND
No. C36571
Exp. 6-30-04
CIVIL
STATE OF CALIFORNIA

APPROVED
Fixed Equipment Anchorage
Office of Statewide Health Planning and Development
OPA- 0098 May 1, 2003
**** Valid for 3 Years Maximum ****
Bill Staehlin (916) 324-9106

NOTES:
1) ALL DIMENSIONS IN INCHES
2) SPRING DEFLECTION = 2"

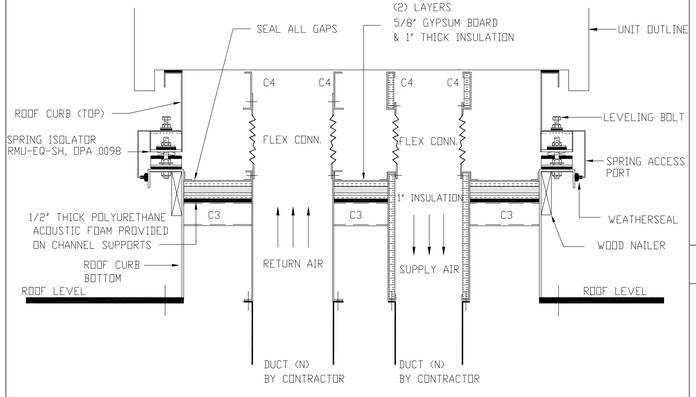
ISOLATORS ARE O.S.H.P.D. PRE-APPROVED No. OPA-0098



MAX. ALLOW. LOADS: HORIZ: 1100 LBS VERT. (UP): 1400 LBS

DETAIL 5A

VIBRATION ISOLATOR & SEISMIC TIE-DOWN PLATE DETAILS — SCALE NONE — 5



ACOUSTIC ROOF CURB SECTION WITH DUCT COLLAR — SCALE NONE — 6

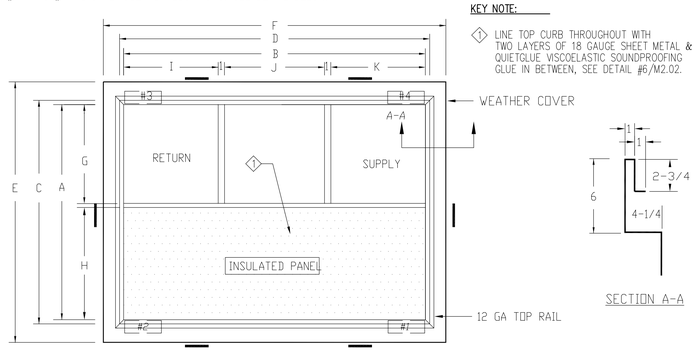
(NOT USED)

— — SCALE NONE — 7

NOTES:
1) ▬ INDICATES SEISMIC STRAPS
(1) REQUIRED PER SHORT SIDE, SEE DETAIL #5/M2.02.
(2) REQUIRED PER LONG SIDE, SEE DETAIL #5/M2.02.
2) #1 THRU #4 INDICATE ISOLATOR LOCATIONS. SEE DETAIL BELOW.

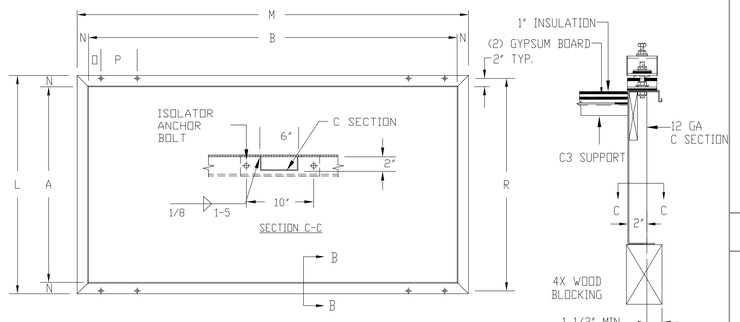
MARK	MAKE	TYPE	SIZE	VIC-EQ WT.
---	CARRIER	48VL	24, 30	210 #

KEY NOTE:
① LINE TOP CURB THROUGHOUT WITH TWO LAYERS OF 18 GAUGE SHEET METAL & QUIETGLUE VISCOELASTIC SOUNDPROOFING GLUE IN BETWEEN, SEE DETAIL #6/M2.02.



TOP SECTION PLAN VIEW

A	B	C	D	E	F	G	H	I	J	K
28-5/8	44-1/8	30-5/8	46-1/8	37-1/8	52-5/8	16-7/8	10-3/4	11-3/4	18-5/8	11-3/4
				L	M	N	O	P	Q	R
				34-5/8	50-1/8	3	3	6	48-1/8	32-5/8

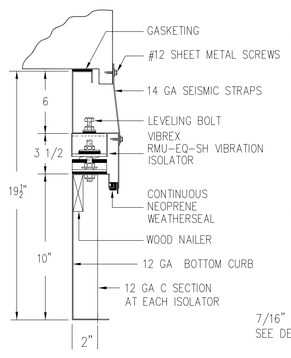


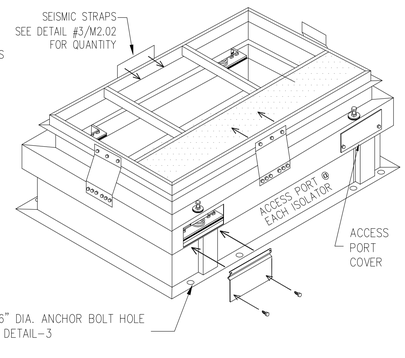
BOTTOM SECTION FOOTPRINT

SECTION B-B

NOTES:
1. R DIMENSIONS ARE CENTERLINES OF ANCHOR HOLES IN CURB BOTTOM FLANGE.
2. FOR ANCHORAGE, USE 3/8" DIA. LAG BOLT MIN. 3" PENETRATION IN MIN. 4 X 4 DOUGLAS FIR WOOD.

CURB TOP RAIL FOR CARRIER 48VLC24 & 48VLC30 UNITS — SCALE NONE — 3

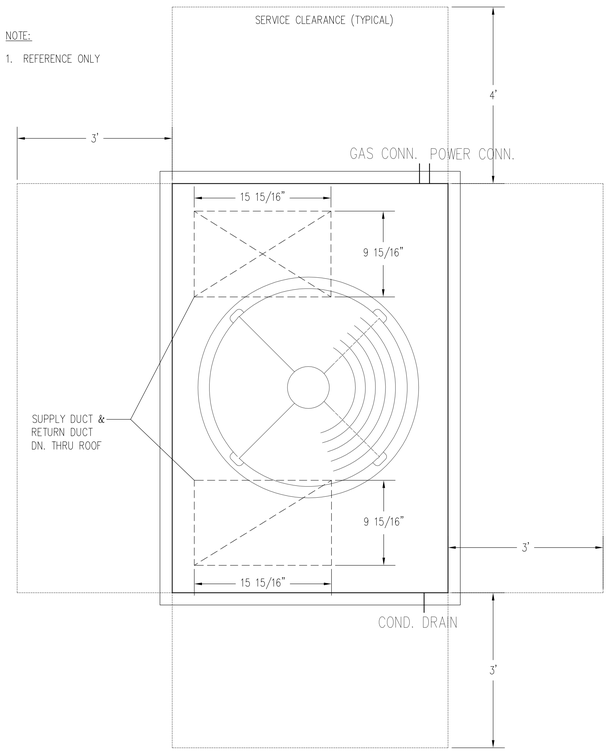




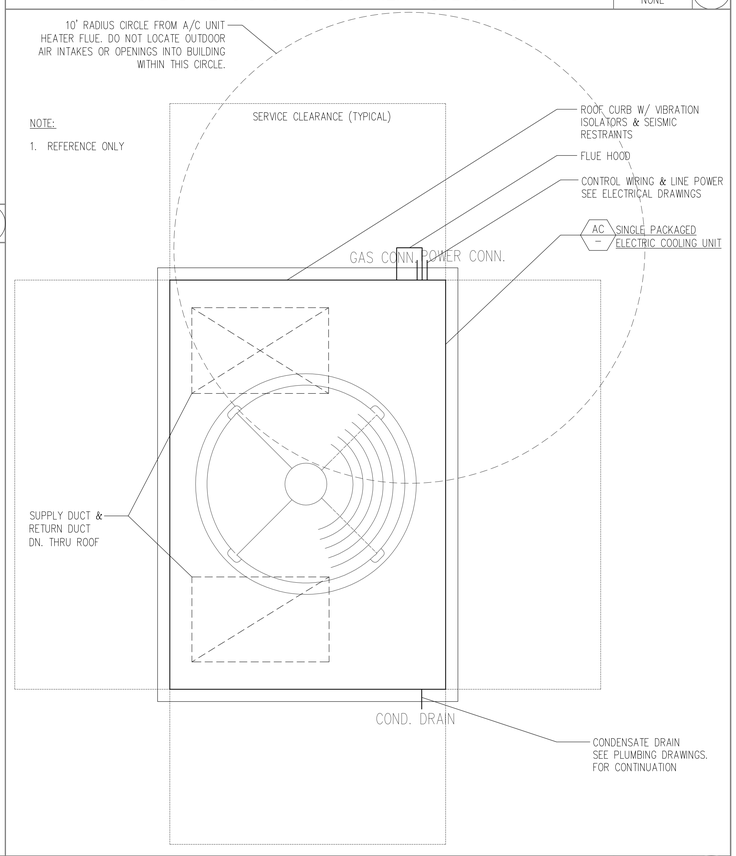
NOTES:
1. FOR ANCHOR REQUIREMENTS AND DETAILS OF ISOLATORS AND SEISMIC STRAPS, SEE DETAIL #5/M2.02.
2. SUBMITTED ROOF CURBS ARE LEVEL. PITCHED ROOF CURBS ARE AVAILABLE UPON REQUEST TO MATCH ROOF SLOPE.
3. SEE DETAIL #6/M2.02 FOR ACOUSTICAL INSULATION PANEL INFORMATION.

VIBRATION ISOLATOR CURB FOR CARRIER 48VLC24 & 48VLC30 UNITS — SCALE NONE — 4

NOTE:
1. REFERENCE ONLY



TYPICAL DIMENSIONS FOR CARRIER 48VL UNITS — SCALE NONE — 1



TYPICAL LAYOUT FOR CARRIER 48VL UNITS — SCALE NONE — 2

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DIV. OF THE STATE ARCHITECT
APP. 03-119485 INC:
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03/15/2019	DSA APPROVAL

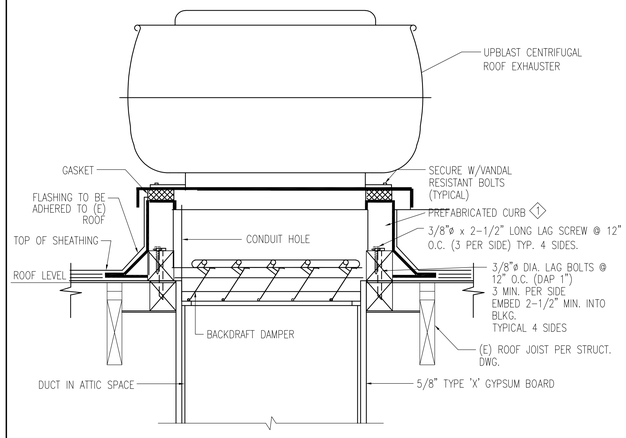
DETAILS

M2.02

NOTE:

- SEE ARCH. DWG. FOR FLASHING & COUNTERFLASHING DETAILS

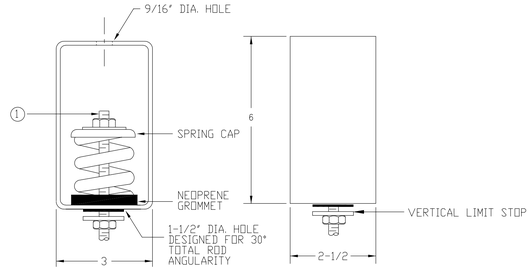
1 CONTRACTOR IS RESPONSIBLE TO FIELD MEASURE THE ROOF SLOPE AND ORDER THE TAPERED PITCHED CURB FROM MANUFACTURE.



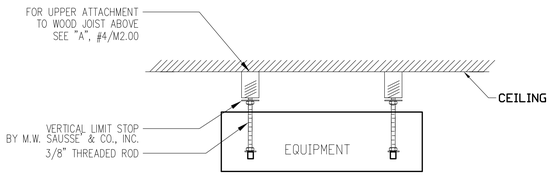
ROOF EXHAUSTER ON WOOD FRAME ROOF

SCALE NONE — 5

NOTE: 1 3/8" DIA. ROD AND HARDWARE BY CONTRACTOR



VIBREX TYPE **RMXA-1C-VLS**

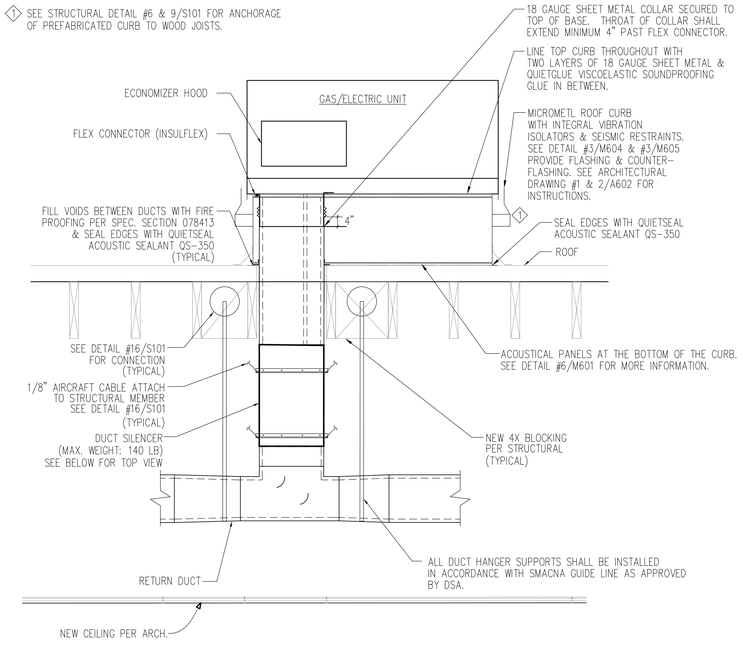


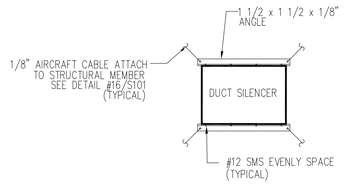
VIBRATION ISOLATORS FOR INLINE FAN

SCALE NONE — 6

KEY NOTES:

1 SEE STRUCTURAL DETAIL #6 & 9/S101 FOR ANCHORAGE OF PREFABRICATED CURB TO WOOD JOISTS.

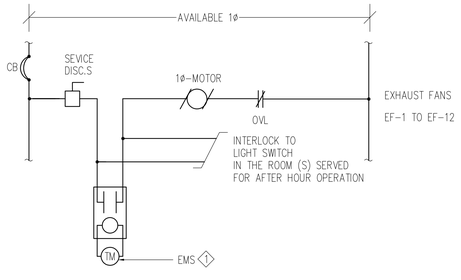




DUCT SILENCER TOP VIEW

TYPICAL DOWN DISCHARGE A/C UNIT SECTION

SCALE NONE — 3



KEY NOTE:

1 PROGRAM THRU EMS TO TURN ON THE EXHAUST FAN 1 HOUR BEFORE ADJACENT SPACE IS OCCUPIED.

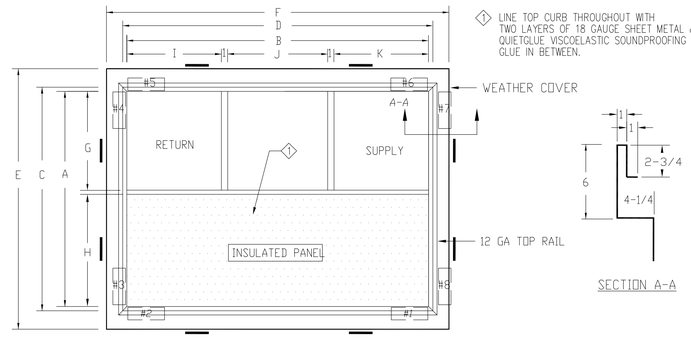
EXHAUST FAN CONTROL

SCALE NONE — 4

NOTES:

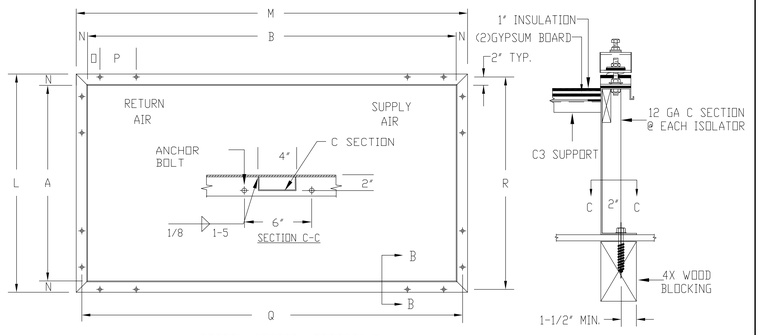
1) — INDICATES SEISMIC STRAPS (2) REQUIRED PER SIDE, SEE DETAIL #5/M2.02.
2) #1 THRU #8 INDICATE ISOLATOR LOCATIONS, SEE DETAIL BELOW.

MARK	MAKE	TYPE	SIZE	CURB WT.
---	CARRIER	48VL	42	255 #



TOP SECTION PLAN VIEW

A	B	C	D	E	F	G	H	I	J	K
40-1/4	44-1/8	42-1/4	46-1/8	48-3/4	52-5/8	16-7/8	22-3/8	16-1/4	9-5/8	16-1/4
				L	M	N	O	P	Q	R
				46-1/4	50-1/8	3	3	6	48-1/8	44-1/4



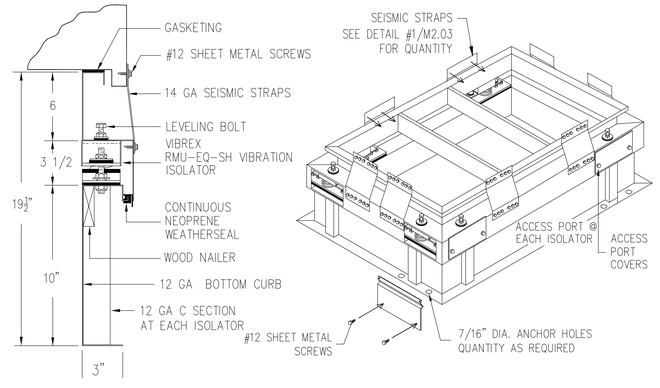
BOTTOM SECTION FOOTPRINT

NOTES:

1. Q & R DIMENSIONS ARE CENTERLINES OF ANCHOR HOLES IN CURB BOTTOM FLANGE.
2. FOR ANCHORAGE, USE 3/8" DIA. LAG BOLT MIN. 3" PENETRATION IN MIN. 4 X 4 DOUGLAS FIR WOOD.

CURB TOP RAIL FOR CARRIER 48VLC42 UNITS

SCALE NONE — 1



NOTES:

1. FOR ANCHOR REQUIREMENTS AND DETAILS OF ISOLATORS AND SEISMIC STRAPS, SEE DETAIL #5/M2.02.
2. SUBMITTED ROOF CURBS ARE LEVEL. PITCHED ROOF CURBS ARE AVAILABLE UPON REQUEST TO MATCH ROOF SLOPE.
3. NOT FOR CONSTRUCTION, ALL DIMENSIONS REQUIRE FINAL REVIEW AT COMMENCEMENT OF PROJECT

VIBRATION ISOLATOR CURB FOR CARRIER 48VLC42 UNITS

SCALE NONE — 2

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP. 03-119485 INC:
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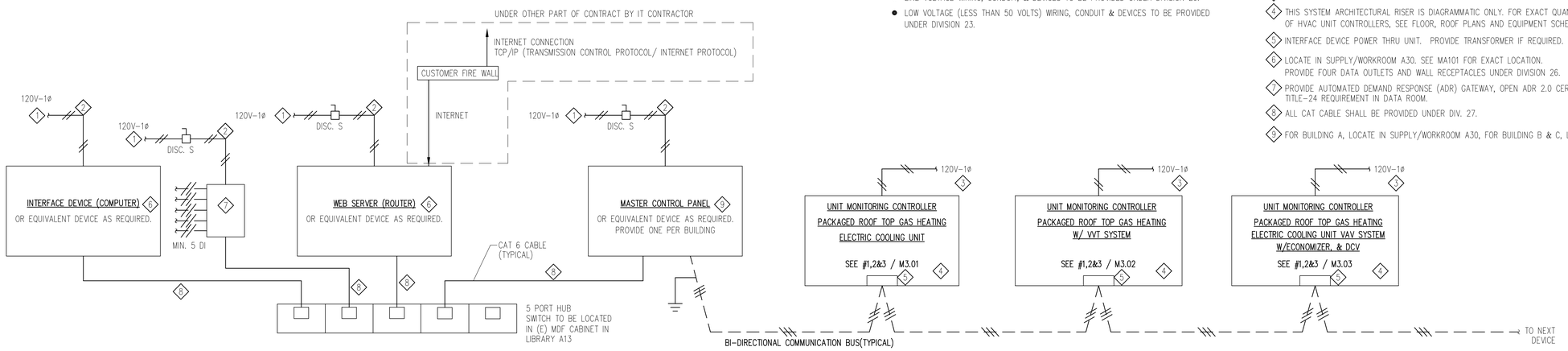
10/10/2018	50% CD SUBMITTAL
11/15/2018	100% CD - DSA SUBMITTAL
05/23/2019	DSA APPROVAL

DETAILS & CONTROL

M2.03



GENERAL NOTES:

- SEE CONTROL LEGEND FOR DISTRIBUTION OF WORK BETWEEN TRADES.
- LINE VOLTAGE WIRING, CONDUIT, & DEVICES TO BE PROVIDED UNDER DIVISION 26.
- LOW VOLTAGE (LESS THAN 50 VOLTS) WIRING, CONDUIT & DEVICES TO BE PROVIDED UNDER DIVISION 23.

KEY NOTE:

1. FROM DEDICATED CONTROL POWER CIRCUIT UNDER DIVISION 26 WITH SURGE PROTECTION & LINE NOISE REDUCTION.
2. PROVIDE POWER CONNECTION TO THE EQUIPMENT.
3. POWERED THRU UNIT.
4. THIS SYSTEM ARCHITECTURAL RISER IS DIAGRAMMATIC ONLY. FOR EXACT QUANTITIES OF HVAC UNIT CONTROLLERS, SEE FLOOR, ROOF PLANS AND EQUIPMENT SCHEDULES.
5. INTERFACE DEVICE POWER THRU UNIT. PROVIDE TRANSFORMER IF REQUIRED.
6. LOCATE IN SUPPLY/WORKROOM A30. SEE MA101 FOR EXACT LOCATION. PROVIDE FOUR DATA OUTLETS AND WALL RECEPTACLES UNDER DIVISION 26.
7. PROVIDE AUTOMATED DEMAND RESPONSE (ADR) GATEWAY, OPEN ADR 2.0 CERTIFIED PER CURRENT TITLE–24 REQUIREMENT IN DATA ROOM.
8. ALL CAT CABLE SHALL BE PROVIDED UNDER DIV. 27.
9. FOR BUILDING A, LOCATE IN SUPPLY/WORKROOM A30, FOR BUILDING B & C, LOCATE IN STORAGE B20

ENERGY MANAGEMENT SYSTEM ARCHITECTURE

SCALE NONE — 1

HVAC CONTROLS SUMMARY

GENERAL	WIRING AND CONDUIT FOR ELECTRICAL SYSTEMS ABOVE 50 VOLTS SHALL BE PROVIDED BY THE ELECTRICAL SYSTEM INSTALLER. WIRING AND CONDUIT FOR ELECTRICAL SYSTEMS THAT ARE 50 VOLTS OR LESS SHALL BE PROVIDED BY THE CONTROL SYSTEM INSTALLER. THE CONTROL SYSTEM SHALL BE DESIGNED, INSTALLED AND ADJUSTED BY THE CONTROLS SYSTEM INSTALLER TO PERFORM THE SEQUENCE OF OPERATIONS INDICATED ON THE DRAWINGS. THE CONTROL DIAGRAMS ARE FOR REFERENCE ONLY. THE SEQUENCE OF OPERATION OF INDUSTRY STANDARD EQUIPMENT SHALL BE INDUSTRY STANDARD AS SET BY THE MANUFACTURER UNLESS NOTED OTHERWISE.		
LOCATION	SYSTEM DESCRIPTION	COMPONENTS	SEQUENCE OF OPERATION
CLASSROOM BUILDING (A & B)			
FIRST FLOOR CLASSROOMS	ROOFTOP PACKAGED GAS HEATING ELECTRIC COOLING UNIT	ROOFTOP PACKAGED GAS/ ELECTRIC UNITS, ECONOMIZERS	SEE SHEET M3.01 FOR CONTROLS ◇
FIRST FLOOR ADMINISTRATION OFFICE AREA	ROOFTOP PACKAGED GAS HEATING ELECTRIC COOLING UNIT	ROOFTOP PACKAGED GAS/ ELECTRIC UNITS, VVT SYSTEM	SEE SHEET M3.02 FOR CONTROLS ◇
MULTIPURPOSE BUILDING			
MULTIPURPOSE AREA	ROOFTOP PACKAGED GAS HEATING ELECTRIC COOLING UNIT W/ POWER EXHAUST & VARIABLE SPEED SUPPLY AIR FAN	ROOFTOP PACKAGED GAS/ ELECTRIC UNITS, ECONOMIZERS, POWER EXHAUSTS & VARIABLE SPEED SUPPLY AIR FAN	SEE SHEET M3.03 FOR CONTROLS ◇
KITCHEN AREA	ROOFTOP PACKAGED GAS HEATING ELECTRIC COOLING UNIT	ROOFTOP PACKAGED GAS/ ELECTRIC UNITS	SEE SHEET M3.03 FOR CONTROLS ◇

KEY NOTE:

◇ PROGRAMMABLE CONTROLLER CAPABLE OF STAND ALONE OPERATION WITH MANUFACTURER'S STANDARD SEQUENCE. INPUT DEVICE SHALL BE INTERFACED WITH EMS FOR OP/START/STOP REMOTE SET POINT CONTROLS, ALARM PROCESSING AND SERVICE SCHEDULING.

EMS SYSTEM REQUIREMENTS

* THE BUILDNG ENERGY MANAGEMENT AND CONTROL SYSTEM SHALL BE PROVIDED WITH THE FOLLOWING CAPABILITIES:

1. OPTIMAL START / STOP FOR EACH HVAC UNIT, FAN
2. REMOTE SET POINT ADJUSTMENT
3. STATUS REPORTING FOR EACH HVAC UNIT, FAN
4. ALARM PROCESSING
5. AUTOMATED FAULT DETECTION AND DIAGNOSTICS (FDD)
6. DEMAND LIMITING THROUGH A DEMAND METER PROVIDED BY ELECTRICAL
7. AUTOMATED DEMAND MANAGEMENT FUNCTION THROUGH THIRD PARTY AUTOMATIC DEMAND RESPONSE (ADR) SIGNAL WHICH ARE CAPABLE OF THE FOLLOWING: (LEED v4: DEMAND RESPONSE & CHPS 2014 EE 5.2.1)
   A. STORING PRE–PROGRAMMED DEMAND MANAGEMENT CONTROL STRATEGIES FOR SPECIFIC CONTROLLED EQUIPMENT AND/OR SYSTEMS THAT WILL IN A SAFE AND CONTROLLED MANNER, INCREASE OR DECREASE ELECTRICAL DEMAND WHEN TRIGGERED.
   B. STORE PRE–CONDITIONS FOR TRIGGERING AND RELEASING DISCRETE DEMAND CONTROL STRATEGIES, SUCH AS APPROACHING USER DEFINED DEMAND THRESHOLDS, APPLICABLE ELECTRICITY PRICING POINTS, ETC.
   C. RESPOND TO EXTERNAL SIGNALS AS TRIGGERS FOR IMPLEMENTING AND RELEASING DEMAND MANAGEMENT CONTROL STRATEGIES SUCH AS CONTRACTED DEMAND RESPONSE EVENT. THE FACILITY SHALL EITHER DEMONSTRATE COMPLIANCE WITH OPEN ADR 2.0 OR DEMONSTRATE SIMILAR FUNCTIONALITY VIA AUTOMATED TRIGGERS USING OTHER COMMUNICATIONS PROTOCOLS.
   D. SUPPORT AUTOMATED NOTIFICATION OF A DEMAND RESPONSE EVENT SCHEDULED, THRESHOLD MET, STRATEGIES SCHEDULED FOR TRIGGERING, STRATEGIES EXECUTED AND STRATEGIES RELEASED TO NORMAL CONTROL.
   E. ALLOW FOR REMOTE ACCESS OPT OUT OR CANCELLATION OF ANY DEMAND CONTROL STRATEGY SCHEDULED OR CURRENTLY IN FORCE.
   F. ALLOW FOR REMOTE ACCES USER TRIGGERING OF ANY DEMAND CONTROL STRATEGY NOT CURRENTLY IN FORCE AS WELL AS SCHEDULING TRIGGERING ANY DEMAND CONTROL STRATEGY FOR FUTURE TRIGGERING AND RELEASE.
   G. LOAD SHEDDING THROUGH AN INTERNET SIGNAL FROM THE UTILITY PROVIDER BY INCREASING THE COOLING SET POINT BY 1°F WITH EACH SUCCESSIVE SIGNAL UP TO 5 SIGNAL STEPS.
8. RUNTIME LOGGING FOR EACH HVAC UNIT, FAN
9. MAINTENANCE SCHEDULING FOR EACH HVAC, FAN
10. MAINTENANCE VERIFICATION FOR EACH HVAC, FAN
11. TRENDING OF ALL SENSOR READINGS FOR EACH HVAC UNIT, FAN
12. WEB ACCESSIBLE FROM WORKSTATION OR REMOTE WEB SERVER FOR USER INTERFACE OF ALL THE ABOVE FUNCTIONS
13. INTERACTIVE GRAPHICAL INTERFACES SHALL BE PROVIDED FOR THE FOLLOWINGS:
   A. ARCHITECTURAL FLOOR PLANS INDICATING THE LOCATION OF EACH HVAC UNIT, INTELLIGENT CONTROL DEVICE, CONTROLLED DEVICE (TERMINAL, DAMPER, VALVE), SENSOR (TEMPERATURE, HUMIDITY, CO, CO2, PRESSURE), FAN OR SYMBOLS THAT WILL LEAD TO UNIT OR SYSTEM SCHEMATIC DRAWINGS.
   B. SCHEMATIC DRAWINGS OF EACH HVAC UNIT OR SYSTEM THAT INDICATES THE STATUS / POSITION / READING OF EACH CONTROLLED DEVICE (TERMINAL, DAMPER, VALVE), SENSOR (TEMPERATURE, HUMIDITY, CO, CO2, PRESSURE), FAN ASSOCIATED WITH EACH UNIT OR SYSTEM WHERE REMOTE SET POINT ADJUSTMENT OR READING OF DIAGNOSTIC / ALARM TRIGERRING SENSORS IS REQUIRED.
14. UNOCCUPIED SCHEDULE FOR THE FOLLOWING: (CHPS 2014 EE 5.1)
   A. SETBACK TEMPERATURE CONTROL SO THAT UNITS CAN HEAT DURING UNOCCUPIED MODES. SETBACK TEMPERATURE SETTINGS SHALL BE NO HIGHER THAN 60°F.
   B. SCHEDULED CONTROL OF ALL VENTILATION OUTDOOR AIR FANS, EXHAUST FANS AND OUTDOOR AIR DAMPERS TO TURN OFF AND CLOSE DURING UNOCCUPIED PERIODS.
   C. LOCAL OVERRIDE TO OCCUPIED MODE WITH TIMER OF NO MORE THAN FOUR HOURS. REVERT BACK TO NORMAL OPERATION SCHEDULE AFTER NO MORE THAN FOUR HOURS OF LOCAL OVERRIDE.
15. A METER DATA ACQUISITION AND STORAGE SYSTEM FOR ALL ELECTRICAL POWER USED WITHIN THE BUILDING. (CHPS 2014 EE5.2.2)
   A. DATA FROM SYSTEM SHALL AT A MINIMUM RECORD AND STORE EVERY ONE MINUTE.
   B. DATA FROM SYSTEM SHALL BE AVAILABLE TO OPERATOR WITHIN ONE HOUR OF THE TIME THE ENERGY WAS CONSUMED.
   C. SYSTEM TO INCLUDE A USER INTERFACE TO TREND AND ANALYZE STORED DATA.

* DEVICES SUCH AS PROGRAMMABLE CONTROLLERS OR PREPROGRAMMED APPLICATION SPECIFIC CONTROLLERS ARE DEFINED AS INTELLIGENT CONTROL DEVICES:

1. ALL INTELLIGENT CONTROL DEVICES SHALL BE INSTALLED AND ADJUSTED BY THE OEM OR CERTIFIED AUTHORIZED INSTALLERS ONLY.
2. ALL INTELLIGENT CONTROL DEVICES SHALL BE PROVIDED WITH COMPATIBLE INPUT AND OUTPUT DEVICES TO PERFORM THE SEQUENCE OF OPERATION AS INDICATED ON THE BID DOCUMENTS AS A MINIMUM.
3. THE SEQUENCE OF OPERATION OF INTELLIGENT CONTROL DEVICES THAT ARE PROVIDED BY THE MANUFACTURER OF THE CONTROLLED HVAC EQUIPMENT MAY BE THE MANUFACTURER'S STANDARD.
4. THE INTERCOMMUNICATION DEVICES BETWEEN THE INTELLIGENT CONTROL DEVICES SHALL BE COMPATIBLE WITH ALL THE INTELLIGENT CONTROL DEVICES THROUGHT THE ENTIRE SYSTEM NETWORK.
5. ALL INTELLIGENT CONTROL DEVICES SHALL BE PROVIDED WITH NON–VOLATILE MEMORY THAT WILL RETAIN THE LAST SET POINT.
6. ALL INTELLIGENT CONTROL DEVICES SHALL BE PROVIDED WITH TRANSFORMERS, SURGE PROTECTION AND BACKUP POWER AS REQUIRED FOR PROPER FUNCTIONING AND PROTECTION OF THE SYSTEM.
7. ALL INTELLIGENT CONTROL DEVICES THAT ARE NOT INSTALLED INSIDE A UNIT SHALL BE INSTALLED IN A NEMA CABINET THAT IS APPROPRIATE FOR THE INSTALLED LOCATION. NEMA 12 FOR INDOOR; NEMA 3R FOR OUTDOOR.
8. ALL INTELLIGENT CONTROLLERS SHALL BE CAPABLE OF STANDALONE OPERATION WHEN COMMUNICATION WITH THE FRONT END OF PRECEDING / SUBSEQUENT DEVICE IS LOST.

HVAC CONTROLS SUMMARY

SCALE NONE — 2

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APP. 03-119485 INC:
REVIEWED FOR
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DATE: 8/14/2019

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NO. C24035
REN: 7.31.21
STATE OF CALIFORNIA

INGLEWOOD UNIFIED SCHOOL DISTRICT

CORDOBA CORPORATION
SAN FRANCISCO • LOS ANGELES • SANTA ANA • SAN DIEGO

REGISTERED PROFESSIONAL ENGINEER
JAMES H. [illegible]
No. 26903
Renewal: 9/30/20
MECHANICAL
STATE OF CALIFORNIA

SOUND MITIGATION PROGRAM

OAK STREET ELEMENTARY SCHOOL
633 South Oak Street Inglewood, CA 90301

A PROJECT FOR:
INGLEWOOD UNIFIED SCHOOL DISTRICT

PROJECT NUMBER:
10292

DRAWN:	N.W, S.W.L, S.N
CHECKED:	J.S, N.W

ISSUE/REVISION:

8/21/2018	30% - SCHEMATIC DESIGN
10/10/2018	50% CD SUBMITTAL
11/15/2018	100% CD - DSA SUBMITTAL
03/15/2019	DSA APPROVAL

CONTROLS

M3.00

SEQUENCE OF OPERATION

FUNCTION	INPUT	CONDITION	ACTION	REMARK
ENABLE	EMS			
ON	EMS	OWNER SCHEDULE OR BY MANUAL OVERRIDE	ENABLE A/C UNIT	
OFF	EMS	OWNER SCHEDULE OR BY MANUAL OVERRIDE	OFF	
COOLING	SPACE AIR TEMP. SENSOR	IF SPACE AIR TEMP. > SET PT (75℉ DEFAULT),	SUPPLY FAN ON, ENABLE COMPRESSOR AND CONDENSER TO CYCLE ON/OFF AND MODULATE.	
HEATING	SPACE AIR TEMP. SENSOR	IF SPACE AIR TEMP. < SET PT (70℉ DEFAULT) & O.A DAMPER AT MINIMUM POSITION	COMPRESSOR DISABLE, CONDENSER DISABLE, SUPPLY FAN ON ENABLE FURNACE TO MODULATE AND CYCLE ON AND OFF	
ECONOMIZER	RETURN AIR TEMP. & HUMIDITY SENSORS, OUTDOOR AIR TEMP. & HUMIDITY SENSORS SPACE AIR TEMP. SENSOR	IF O.A ENTHALPY > R.A ENTHALPY	MODULATE O.A DAMPER TO CLOSE TO MINIMUM POSITION AND R.A DAMPER TO OPEN FURTHER TO MAINTAIN SPACE AIR TEMP. SET POINT OF 75℉.	FOR AC-24 & AC-25 ONLY.
		IF O.A ENTHALPY < R.A ENTHALPY	O.A DAMPER 100% OPENED, R.A DAMPER 100% CLOSED	
		IF O.A ENTHALPY < R.A ENTHALPY IF SPACE AIR TEMP < SET POINT	MODULATE O.A AND R.A DAMPERS TO MAINTAIN SPACE AIR TEMPERATURE SET POINT OF 75℉	
FIRE	TOTAL COVERAGE SMOKE DETECTION SYSTEM	SMOKE DETECTION	A/C UNIT AND ALL ASSOCIATED FANS (SUPPLY) OFF.	FOR AC-24 & AC-25 ONLY.
SAFETY	EMS	INOPERATION OF ANY FAN OR COMPRESSOR, LOW EVAPORATOR PRESSURE, HIGH CONDENSER PRESSURE, FREEZESTAT, GAS VALVE, HIGH-TEMPERATURE LIMIT, INDUCED-DRAFT MOTOR SPEED, FLAME ROLLOUT	SHUT DOWN AND ALARM	
MAINTENANCE	EMS	CLOGGED FILTER	ALARM	
		MANUFACTURER REQUIRED OR RECOMMENDED ALARMS	ALARM	
		MANUFACTURER RECOMMENDED SCHEDULE	REMIND MAINTENANCE PERSON & RECORD COMPLETION.	

NOTES:

* SUFFICIENT TIME DELAY SHALL BE PROVIDED BETWEEN EACH CONTROL STEP TO PREVENT RAPID CYCLING OF EQUIPMENT.

SEQUENCE OF OPERATION

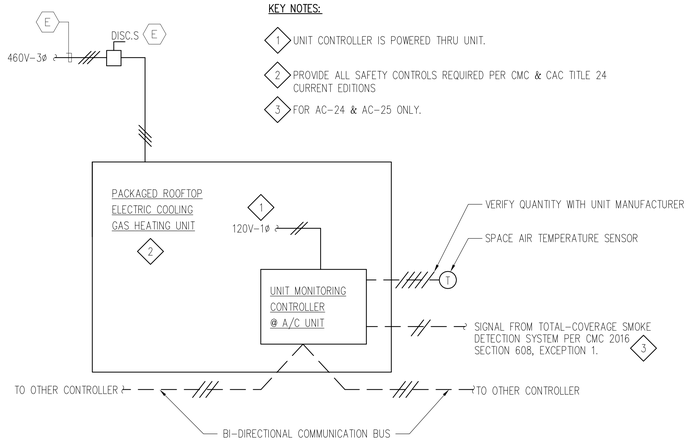
SCALE NONE | 3

GENERAL NOTES:

- SEE CONTROL LEGEND AND SPECIFICATIONS FOR PROPOSED DISTRIBUTION OF WORK BETWEEN TRADES. FINAL DETERMINATION BY CONTRACTOR.
- LINE VOLTAGE WIRING, CONDUIT, & DEVICES TO BE PROVIDED UNDER DIVISION 26.
- LOW VOLTAGE (LESS THAN 50 VOLTS) WIRING, CONDUIT & DEVICES TO BE PROVIDED UNDER DIVISION 23.

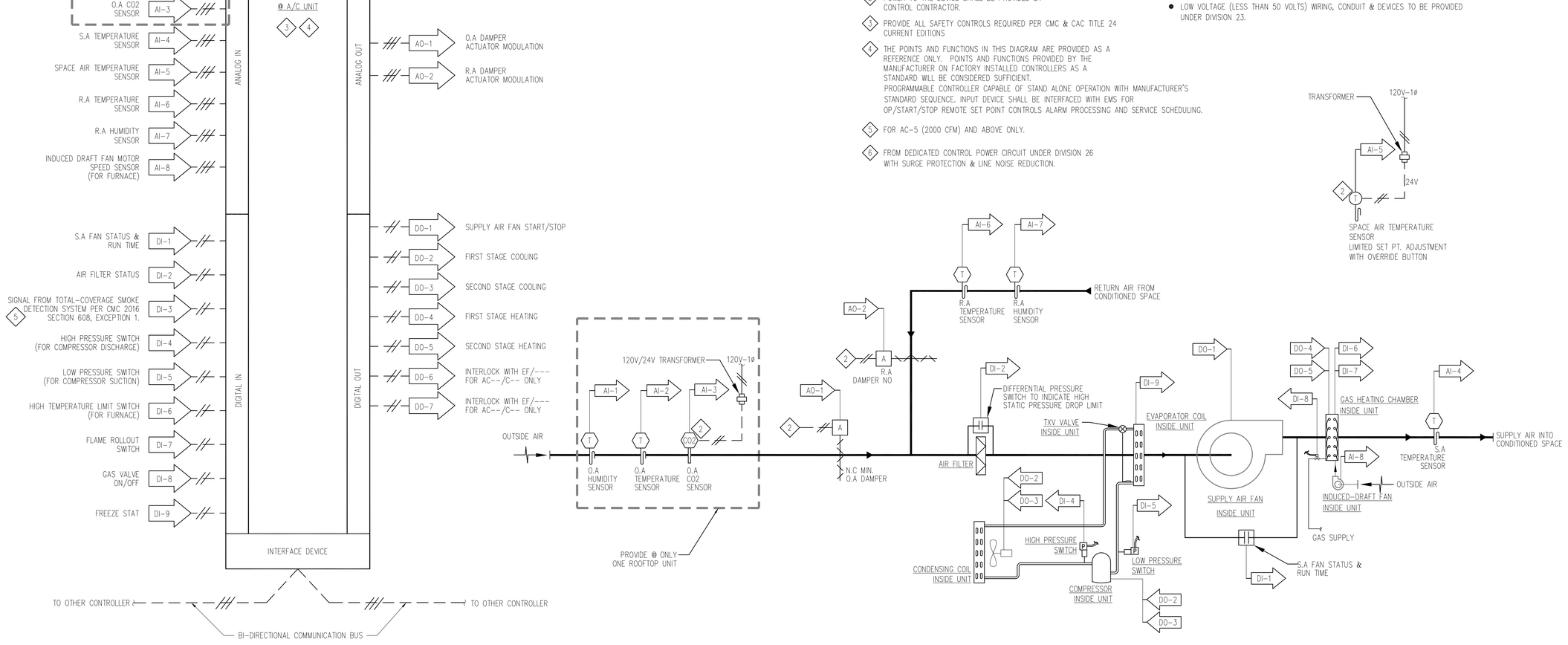
KEY NOTES:

1. UNIT CONTROLLER IS POWERED THRU UNIT.
2. PROVIDE ALL SAFETY CONTROLS REQUIRED PER CMC & CAC TITLE 24 CURRENT EDITIONS
3. FOR AC-24 & AC-25 ONLY.



CONTROLS AND POWER WIRING SCHEMATIC

SCALE NONE | 2



KEY NOTES:

1. UNIT CONTROLLER IS POWERED THRU UNIT.
2. POWER TO THE DEVICE SHALL BE PROVIDED BY CONTROL CONTRACTOR.
3. PROVIDE ALL SAFETY CONTROLS REQUIRED PER CMC & CAC TITLE 24 CURRENT EDITIONS
4. THE POINTS AND FUNCTIONS IN THIS DIAGRAM ARE PROVIDED AS A REFERENCE ONLY. POINTS AND FUNCTIONS PROVIDED BY THE MANUFACTURER ON FACTORY INSTALLED CONTROLLERS AS A STANDARD WILL BE CONSIDERED SUFFICIENT. PROGRAMMABLE CONTROLLER CAPABLE OF STAND ALONE OPERATION WITH MANUFACTURER'S STANDARD SEQUENCE. INPUT DEVICE SHALL BE INTERFACED WITH EMS FOR OP/START/STOP REMOTE SET POINT CONTROLS ALARM PROCESSING AND SERVICE SCHEDULING.
5. FOR AC-5 (2000 CFM) AND ABOVE ONLY.
6. FROM DEDICATED CONTROL POWER CIRCUIT UNDER DIVISION 26 WITH SURGE PROTECTION & LINE NOISE REDUCTION.

GENERAL NOTES:

- SEE CONTROL LEGEND AND SPECIFICATAONS FOR PROPOSED DISTRIBUTION OF WORK BETWEEN TRADES. FINAL DETERMINATION BY CONTRACTOR.
- LINE VOLTAGE WIRING, CONDUIT & DEVICES TO BE PROVIDED UNDER DIVISION 26.
- LOW VOLTAGE (LESS THAN 50 VOLTS) WIRING, CONDUIT & DEVICES TO BE PROVIDED UNDER DIVISION 23.

CONTROLS AND INSTRUMENTATION FOR PACKAGED ROOFTOP ELECTRIC COOLING GAS HEATING UNIT WITHOUT POWER EXHAUST

SCALE NONE | 1

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No. 26903
Renewal: 9/30/20
MECHANICAL
STATE OF CALIFORNIA

SOUND MITIGATION PROGRAM

OAK STREET ELEMENTARY SCHOOL
633 South Oak Street Inglewood, CA 90301

A PROJECT FOR:
INGLEWOOD UNIFIED SCHOOL DISTRICT

PROJECT NUMBER: 10292

DRAWN: N.W, S.W.L, S.N
CHECKED: J.S, N.W

ISSUE/REVISION:

8/21/2018	30% - SCHEMATIC DESIGN
10/10/2018	50% CD SUBMITTAL
11/15/2018	100% CD - DSA SUBMITTAL
03/15/2019	DSA APPROVAL

CONTROLS

M3.01

X:\083000 - Oak Street Elementary School - LAB\ Sound Mitigation\2019-04-17

SEQUENCE OF OPERATION

FUNCTION	INPUT	CONDITION	ACTION	REMARK
ENABLE	EMS			
ON	EMS	OWNER SCHEDULE OR BY MANUAL OVERRIDE	ON	
OFF	EMS	OWNER SCHEDULE OR BY MANUAL OVERRIDE	OFF	
COOLING	S.A TEMP. SENSOR, SPACE AIR TEMP. SENSOR	IF SPACE AIR TEMP. > SET PT (75°F DEFAULT),	SUPPLY FAN ON, ENABLE COMPRESSOR AND CONDENSER TO CYCLE ON/OFF AND MODULATE	ESTABLISH THE ZONE WITH THE GREATEST DEMAND AS THE REFERENCE ZONE. THE BYPASS CONTROLLER SHALL PRE-POSITION ITS DAMPER TO THE MAXIMUM OPEN POSITION PRIOR TO SYSTEM START-UP. THE BYPASS CONTROLLER SHALL REGULATE PRESSURE FROM MINIMUM SYSTEM PRESSURE DURING START-UP TO MAXIMUM SYSTEM PRESSURE DURING NORMAL OPERATING CONDITIONS. THE BYPASS CONTROLLER SHALL MONITOR S.A TEMP.. DURING CHANGEOVER MODE, THE BYPASS CONTROLLER SHALL OPEN THE BYPASS DAMPERS TO PRE-CONDITION THE S.A IF IT IS NEEDED BY THE REFERENCE ZONE.
			MAINTAIN THE S.A TEMP AT SET PT (55° DEFAULT)	
			RETURN AIR AND OUTSIDE AIR DAMPERS SHALL BE IN SUCH POSITION THAT THE MINIMUM OUTSIDE AIR REQUIREMENTS ARE MET WITHOUT UNDUE PRESSURIZATION OF THE CONDITIONED SPACE.	
			SPACE TEMPERATURE IN A ZONE SHALL BE CONTROLLED BY VARYING THE SUPPLY AIR QUANTITY THROUGH A VARIABLE AIR VOLUME TERMINAL.	
HEATING	SPACE AIR TEMP. SENSOR	IF SPACE AIR TEMP. < SET PT (70°F DEFAULT)	COMPRESSOR OFF, CONDENSER FAN OFF, SUPPLY FAN ON	
FIRE	TOTAL COVERAGE SMOKE DETECTION SYSTEM	SMOKE DETECTION	A/C UNIT AND ALL ASSOCIATED FANS (SUPPLY, RELIEF, EXHAUST) OFF.	
SAFETY	EMS	INOPERATION OF ANY FAN OR COMPRESSOR, LOW EVAPORATOR PRESSURE, HIGH CONDENSER PRESSURE, FREEZESTAT	SHUT DOWN AND ALARM	
MAINTENANCE	EMS	CLOGGED FILTER	ALARM	
		MANUFACTURER REQUIRED OR RECOMMENDED ALARMS	ALARM	
		MANUFACTURER RECOMMENDED SCHEDULE	REMIND MAINTENANCE PERSON & RECORD COMPLETION.	

NOTES:

- SUFFICIENT TIME DELAY SHALL BE PROVIDED BETWEEN EACH CONTROL STEP TO PREVENT RAPID CYCLING OF EQUIPMENT.

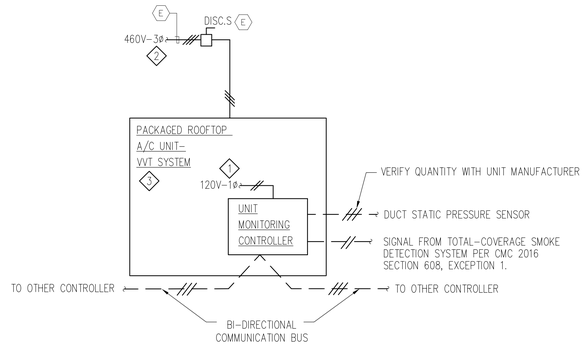
SEQUENCE OF OPERATION — SCALE NONE — 3

KEY NOTES:

1. UNIT CONTROLLER IS POWERED THRU UNIT.
2. FROM DEDICATED CONTROL POWER CIRCUIT BY ELECTRICAL CONTRACTOR WITH SURGE PROTECTION & LINE NOISE REDUCTION.
3. PROVIDE ALL SAFETY CONTROLS REQUIRED PER CMC & CAC TITLE 24 CURRENT EDITIONS

GENERAL NOTES:

- SEE CONTROL LEGEND FOR DISTRIBUTION OF WORK BETWEEN TRADES.
- LINE VOLTAGE WIRING, CONDUIT, & DEVICES TO BE PROVIDED UNDER DIVISION 26.
- LOW VOLTAGE (LESS THAN 50 VOLTS) WIRING, CONDUIT & DEVICES TO BE PROVIDED UNDER DIVISION 23.



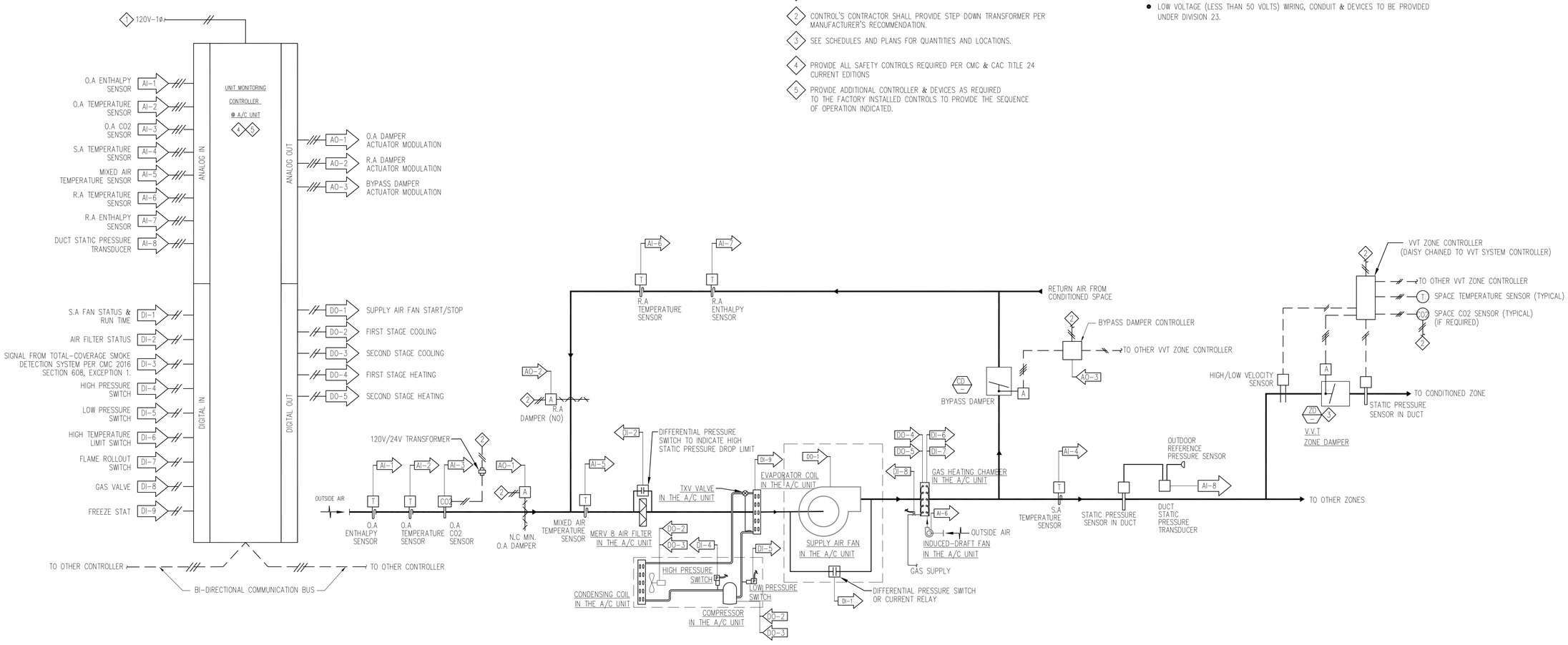
CONTROLS AND POWER WIRING SCHEMATIC — SCALE NONE — 2

KEY NOTES:

1. UNIT CONTROLLER IS POWERED THRU UNIT.
2. CONTROL'S CONTRACTOR SHALL PROVIDE STEP DOWN TRANSFORMER PER MANUFACTURER'S RECOMMENDATION.
3. SEE SCHEDULES AND PLANS FOR QUANTITIES AND LOCATIONS.
4. PROVIDE ALL SAFETY CONTROLS REQUIRED PER CMC & CAC TITLE 24 CURRENT EDITIONS
5. PROVIDE ADDITIONAL CONTROLLER & DEVICES AS REQUIRED TO THE FACTORY INSTALLED CONTROLS TO PROVIDE THE SEQUENCE OF OPERATION INDICATED.

GENERAL NOTES:

- SEE CONTROL LEGEND AND SPECIFICATIONS FOR DISTRIBUTION OF WORK BETWEEN TRADES.
- LINE VOLTAGE WIRING, CONDUIT & DEVICES TO BE PROVIDED UNDER DIVISION 26.
- LOW VOLTAGE (LESS THAN 50 VOLTS) WIRING, CONDUIT & DEVICES TO BE PROVIDED UNDER DIVISION 23.



CONTROLS AND INSTRUMENTATION FOR PACKAGED ROOFTOP GAS HEATING ELECTRIC COOLING UNIT-VARIABLE VOLUME AND TEMPERATURE SYSTEM — SCALE NONE — 1

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No. 26903
Renewal: 9/30/20
CHATSWORTH, STATE OF CALIFORNIA

INGLEWOOD UNIFIED SCHOOL DISTRICT

CORDOBA CORPORATION
SAN FRANCISCO • LOS ANGELES • SANTA ANA • SAN DIEGO

SOUND MITIGATION PROGRAM

OAK STREET ELEMENTARY SCHOOL

633 South Oak Street Inglewood, CA 90301

A PROJECT FOR: INGLEWOOD UNIFIED SCHOOL DISTRICT

PROJECT NUMBER: 10292

DRAWN:	N.W, S.W.L, S.N
CHECKED:	J.S, N.W

ISSUE/REVISION:

8/21/2018	30% - SCHEMATIC DESIGN
10/10/2018	50% CD SUBMITTAL
11/15/2018	100% CD - DSA SUBMITTAL
03/15/2019	DSA APPROVAL

CONTROLS

M3.02

SEQUENCE OF OPERATION

FUNCTION	INPUT	CONDITION	ACTION	REMARK
ENABLE	EMS			
ON	EMS	OWNER SCHEDULE OR BY MANUAL OVERRIDE	ENABLE A/C UNIT ENABLE POWER EXHAUST FAN AND TO BE MODULATED BY SPACE PRESSURE.	
OFF	EMS	OWNER SCHEDULE OR BY MANUAL OVERRIDE	OFF	
COOLING	SPACE AIR TEMP. SENSOR	IF SPACE AIR TEMP. > SET PT (75℉ DEFAULT),	SUPPLY FAN ON, ENABLE COMPRESSOR AND CONDENSER TO CYCLE ON/OFF AND MODULATE.	
HEATING	SPACE AIR TEMP. SENSOR	IF SPACE AIR TEMP. < SET PT (70℉ DEFAULT) & O.A DAMPER AT MINIMUM POSITION	COMPRESSOR DISABLE, CONDENSER DISABLE, SUPPLY FAN ON, ENABLE FURNACE TO CYCLE ON/OFF AND MODULATE.	
ECONOMIZER	RETURN AIR TEMP. & HUMIDITY SENSORS, OUTDOOR AIR TEMP. & HUMIDITY SENSORS	IF O.A ENTHALPY > R.A ENTHALPY	MODULATE O.A DAMPER TO CLOSE TO MINIMUM POSITION AND R.A DAMPER TO OPEN FURTHER TO MAINTAIN SPACE AIR TEMPERATURE SET POINT OF 75℉.	
		IF O.A ENTHALPY < R.A ENTHALPY	O.A DAMPER 100% OPENED, R.A DAMPER 100% CLOSED	
	RETURN AIR TEMP. & HUMIDITY SENSORS, OUTDOOR AIR TEMP. & HUMIDITY SENSORS SPACE AIR TEMP. SENSOR	IF O.A ENTHALPY < R.A ENTHALPY IF SPACE AIR TEMP < SET POINT	MODULATE O.A AND R.A DAMPERS TO MAINTAIN SPACE AIR TEMPERATURE SET POINT OF 75℉	
DCV	SPACE CO2 SENSOR	IF SPACE CO2 LEVEL > SET POINT (APPROXIMATE 1000 PPM DEFAULT)	MODULATE O.A DAMPER TO OPEN AND R.A DAMPER TO CLOSE FURTHER TO MAINTAIN SET POINT.	
		IF SPACE CO2 LEVEL < SET POINT (APPROXIMATE 1000 PPM DEFAULT)	MODULATE O.A DAMPER TO CLOSE FURTHER AND R.A DAMPER TO OPEN FURTHER TO MAINTAIN SET POINT.	
SPACE PRESSURE	DIFFERENTIAL PRESSURE SENSOR	IF SPACE PRESSURE > SET POINT (0.075" W.G. DEFAULT)	RELIEF FAN ON, MODULATE TO MAINTAIN SET POINT	
FIRE	TOTAL COVERAGE SMOKE DETECTION SYSTEM,	SMOKE DETECTION	A/C UNIT AND ALL ASSOCIATED FANS (SUPPLY, RELIEF, EXHAUST) OFF.	
SAFETY	EMS	INOPERATION OF ANY FAN OR COMPRESSOR, LOW EVAPORATOR PRESSURE, HIGH CONDENSER PRESSURE, FREEZESTAT, GAS VALVE, HIGH-TEMPERATURE LIMIT, INDUCED-DRAFT MOTOR SPEED, FLAME ROLLOUT	SHUT DOWN AND ALARM	
MAINTENANCE	EMS	CLOGGED FILTER	ALARM	
		MANUFACTURER REQUIRED OR RECOMMENDED ALARMS	ALARM	
		MANUFACTURER RECOMMENDED SCHEDULE	REMIND MAINTENANCE PERSON & RECORD COMPLETION.	

NOTES:

* SUFFICIENT TIME DELAY SHALL BE PROVIDED BETWEEN EACH CONTROL STEP TO PREVENT RAPID CYCLING OF EQUIPMENT.

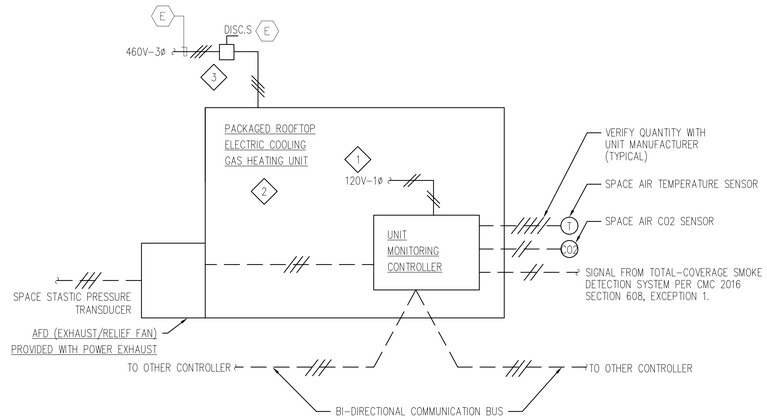
SEQUENCE OF OPERATION — SCALE: NONE — 3

GENERAL NOTES:

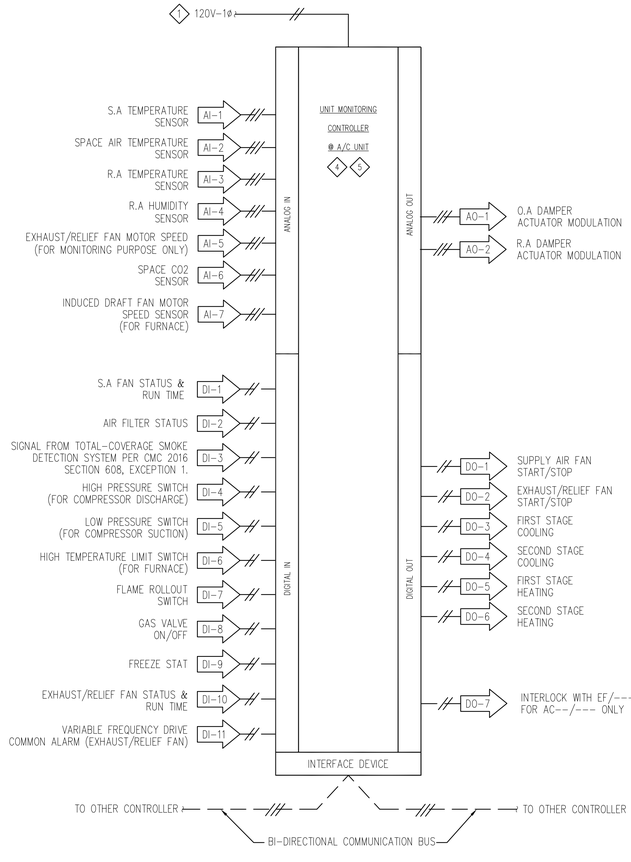
- SEE CONTROL LEGEND AND SPECIFICATIONS FOR PROPOSED DISTRIBUTION OF WORK BETWEEN TRADES. FINAL DETERMINATION BY CONTRACTOR.
- LINE VOLTAGE WIRING, CONDUIT, & DEVICES TO BE PROVIDED UNDER DIVISION 26.
- LOW VOLTAGE (LESS THAN 50 VOLTS) WIRING, CONDUIT & DEVICES TO BE PROVIDED UNDER DIVISION 23.

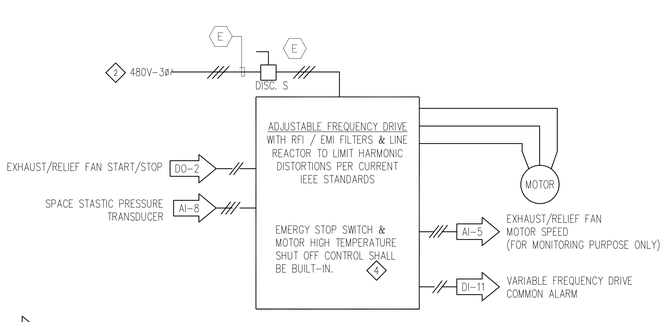
KEY NOTES:

1. UNIT CONTROLLER IS POWERED THRU UNIT.
2. PROVIDE ALL SAFETY CONTROLS REQUIRED PER CMC & CAC TITLE 24 CURRENT EDITIONS
3. PROVIDE DOUBLE LUG ON LOAD SIDE OF FUSED DISCONNECT AND TAP CONDUCTOR FOR POWER EXHAUST UNIT.



CONTROLS AND POWER WIRING SCHEMATIC — SCALE: NONE — 2





TYPICAL WIRING FOR ADJUSTABLE FREQUENCY DRIVE PROVIDED WITH POWER EXHAUST

GENERAL NOTES:

- SEE CONTROL LEGEND AND SPECIFICATIONS FOR PROPOSED DISTRIBUTION OF WORK BETWEEN TRADES. FINAL DETERMINATION BY CONTRACTOR.
- LINE VOLTAGE WIRING, CONDUIT & DEVICES TO BE PROVIDED UNDER DIVISION 26.
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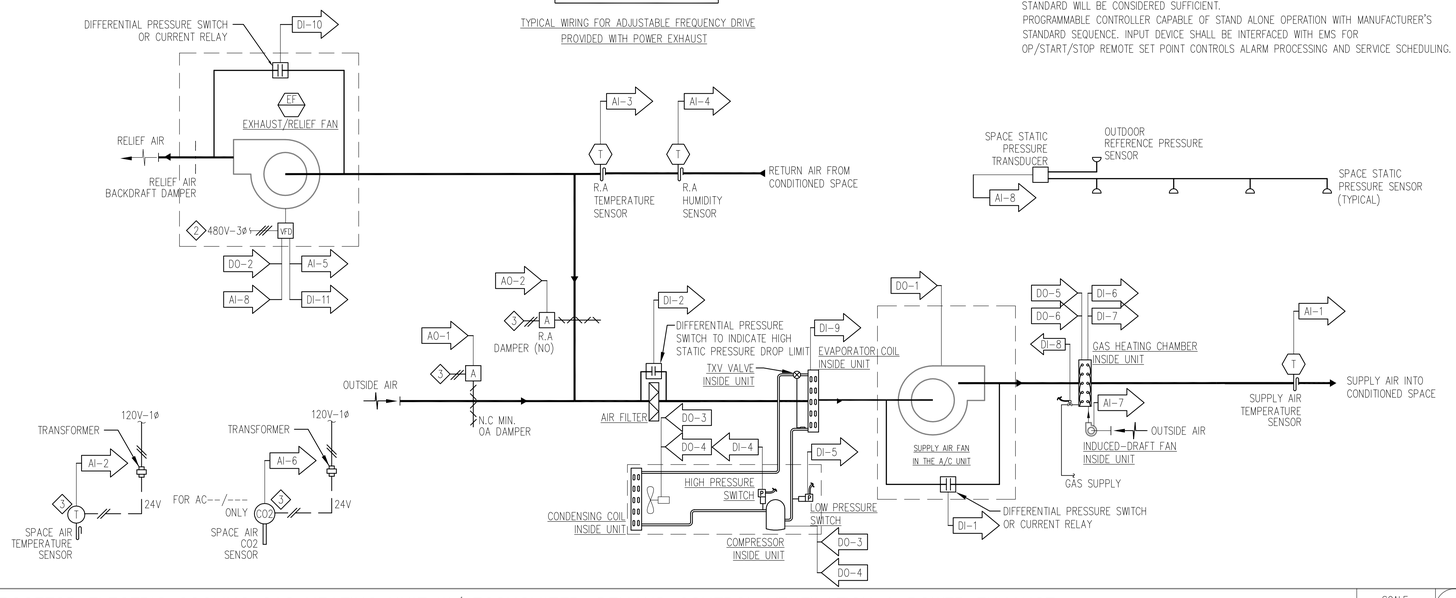
KEY NOTES:

1. UNIT CONTROLLER IS POWERED THRU UNIT.
2. FROM DEDICATED CONTROL POWER CIRCUIT BY ELECTRICAL CONTRACTOR WITH SURGE PROTECTION & LINE NOISE REDUCTION.
3. POWER TO THE DEVICE SHALL BE PROVIDED BY CONTROL CONTRACTOR.
4. PROVIDE ALL SAFETY CONTROLS REQUIRED PER CMC & CAC TITLE 24 CURRENT EDITIONS
5. THE POINTS AND FUNCTIONS IN THIS DIAGRAM ARE PROVIDED AS A REFERENCE ONLY. POINTS AND FUNCTIONS PROVIDED BY THE MANUFACTURER ON FACTORY INSTALLED CONTROLLERS AS A STANDARD WILL BE CONSIDERED SUFFICIENT. PROGRAMMABLE CONTROLLER CAPABLE OF STAND ALONE OPERATION WITH MANUFACTURER'S STANDARD SEQUENCE. INPUT DEVICE SHALL BE INTERFACED WITH EMS FOR OP/START/STOP REMOTE SET POINT CONTROLS ALARM PROCESSING AND SERVICE SCHEDULING.



CONTROLS AND INSTRUMENTATION FOR PACKAGED ROOFTOP ELECTRIC COOLING GAS HEATING UNIT W/ ECONOMIZER, DEMAND CONTROL VENTILATION & POWER EXHAUST — SCALE: NONE — 1

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CHECKED: J.S, N.W

ISSUE/REVISION:

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