

- KEY NOTES:**
- (A) — SUPPLY DUCT FROM ROOF TO 2ND FLOOR CEILING — TRANSITION TO SMALLER DUCT SIZES AFTER SUPPLY BRANCH TAKE OFF, SEE CHART.
  - (B) — 14X10 TRANSFER GRILLE (FRONT SIDE ONLY) TO DRYER CLOSET FOR DRYER MAKE UP AIR. (GRILLE TO BE 75% FREE AREA)—UNLESS LOUVERED DOORS ARE PROVIDED.
  - (C) — TYPICAL HEAT PUMP CONDENSER DETAIL. SEE (1) M603
  - (D) — DWELLING UNIT GENERAL EXHAUST FAN TO BE SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR TO PROVIDE VENTING FROM FAN TO SIDEWALL TERMINATION. SEE (2) M602 (5) M602
  - (E) — SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE (2) M601 FOR GRILLE INSTALLATION, AND SEE (1) M602 FOR TYPICAL F/S INSTALLATION, AND CONTROLS.
  - (F) — X"Ø OUTSIDE AIR TO FAN COIL, PROVIDE WITH 2-POSITION DAMPER TO OPEN WHENEVER FAN COIL OPERATES. DAMPER TO BE A LOW LEAK CLASS 1 DAMPER.
  - (G) — 18X18 ACCESS FOR FIRE SMOKE DAMPER.
  - (H) — 4"Ø EXH 30 CFM TYPICAL BATHROOM. SEE (3) M602
  - (I) — 6X6 EXH 35 CFM TYPICAL KITCHEN. SEE (3) M602
  - (J) — TYPICAL DUCTED FAN COIL DETAIL. SEE (7) M602
  - (K) — REFRIGERANT LINES ROUTED FROM CONDENSERS IN PARKING GARAGE TO FAN COILS ON 1ST FLOOR.
  - (L) — FOR SIDEWALL EXHAUST PLENUM, SEE (5) M602
  - (M) — HORIZONTAL FIRE SMOKE DAMPER IN PT DECK. SEE (1) M602

**SHAFT DUCT SIZES**

FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
ATTIC	26 X 24	5000	NA	NA	RTU-1&2
7TH	26 X 24	5000	NA	NA	RTU-1&2
6TH	24 X 22	4285	NA	NA	RTU-1&2
5TH	24 X 22	3570	NA	NA	RTU-1&2
4TH	24 X 18	2855	NA	NA	RTU-1&2
3RD	24 X 18	2140	NA	NA	RTU-1&2
2ND	24 X 16	1425	NA	NA	RTU-1&2
1ST	24 X 14	715	NA	NA	RTU-1&2

**VENTILATION CALCULATIONS:**

ALL DWELLING UNITS ARE VENTILATED BY NATURAL VENTILATION WITH OPERABLE WINDOWS, BATHROOM EXHAUST FANS RUN CONTINUOUSLY (SIZED PER ASHRAE 62.2) AND MAKE UP AIR IS PROVIDED BY PTHP'S.

COMMON SPACES AND HALLWAYS ARE VENTILATED BY PACKAGED ROOF TOP UNITS SIZED TO EXCEED THE MINIMUM 0.06 CFM/SQ FT REQUIREMENT

SEE VENTILATION SCHEDULES FOR OTHER UNITS

**CITY OF PORTLAND SPECIAL NOTES:**

- ALL DWELLING UNIT HEAT AND FREEZE PROTECTION HEAT IS TO BE ELECTRIC RESISTANCE TYPE HEAT AND WILL BE SUPPLIED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. EQUIPMENT CUT SHEETS WILL BE A DEFERRED SUBMITTAL. SIZES SHOWN FOR REFERENCE ONLY.
- All "BATH FAN DUCTS", "DRYER VENTS" AND "KITCHEN HOOD DUCTS" ARE ALL ROUTED BELOW THE RATED FLOOR CEILING ASSEMBLY AND ARE LOCATED ABOVE NON RATED SOFFITS.
- SEE PLUMBING SHEETS FOR GAS PIPING LAYOUTS AND RISER DIAGRAM.

**SEQUENCE OF OPERATIONS CO & NO2 SENSORS:**

PROVIDE A COMBINATION ELECTROCHEMICAL CARBON MONOXIDE & NITROGEN DIOXIDE SENSOR (SYSTEM) TO OPERATE GEF-1 (VFD HIGH SPEED SETTING) WHENEVER SPACE CO & NO2 LEVELS RISE ABOVE SET POINT.

SYSTEM TO BE SET TO FAIL WITH THE FAN IN THE "HIGH SPEED" SETTING. SET SENSORS AT 60" AFF.

PROVIDE x SENSOR(S) AS SHOWN ON THE PLAN, AND WIRE TO A CENTRAL CONTROLLER TO OPERATE GEF-1 ON HIGH SPEED WHENEVER ANY SENSOR(S) CALLS FOR OPERATION.

SENSORS TO BE RATED FOR MIN 50' RADIUS

- GEF-1 TO OPERATE CONTINUOUSLY AT LOW SPEED VFD SET POINT
- RISING TRIP POINT — ENGAGE VFD HIGH SPEED WHEN CO LEVELS RISE ABOVE 35 PPM AND NO2 LEVELS RISE ABOVE 2.0 PPM.
- FALLING TRIP POINT — DISENGAGE VFD HIGH SPEED WHEN CO LEVELS DROP TO 15 PPM AND NO2 LEVELS DROP TO 1.0 PPM.
- PROVIDE WITH AUDIBLE ALARM WHEN CO LEVELS RISE ABOVE 50 PPM AND NO2 LEVELS RISE ABOVE 2.8 PPM.

**GARAGE EXHAUST CALCULATIONS:**

32,765 sq ft x 0.05 cfm/sq ft = 1638 CFM  
 32,765 sq ft x 0.75 cfm/sq ft = 24,574 CFM

ONE FAN (24,574 CFM) 2-SPEED VIA VFD

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 CONTACT: Mark Denyer

STAMP 12-6-19

REVISION NO. DATE

1	PLAN REVIEW #1	2-16-22
2	ASI 01	5-17-22
	ASI 02	6-13-22

KEY PLAN - (NTS)

**SUNSHINE DAIRY APARTMENTS**

801 NE 21ST AVE  
 PORTLAND, OR 97214

ISSUANCE  
 PERMIT SET

PROJECT NUMBER  
 1834

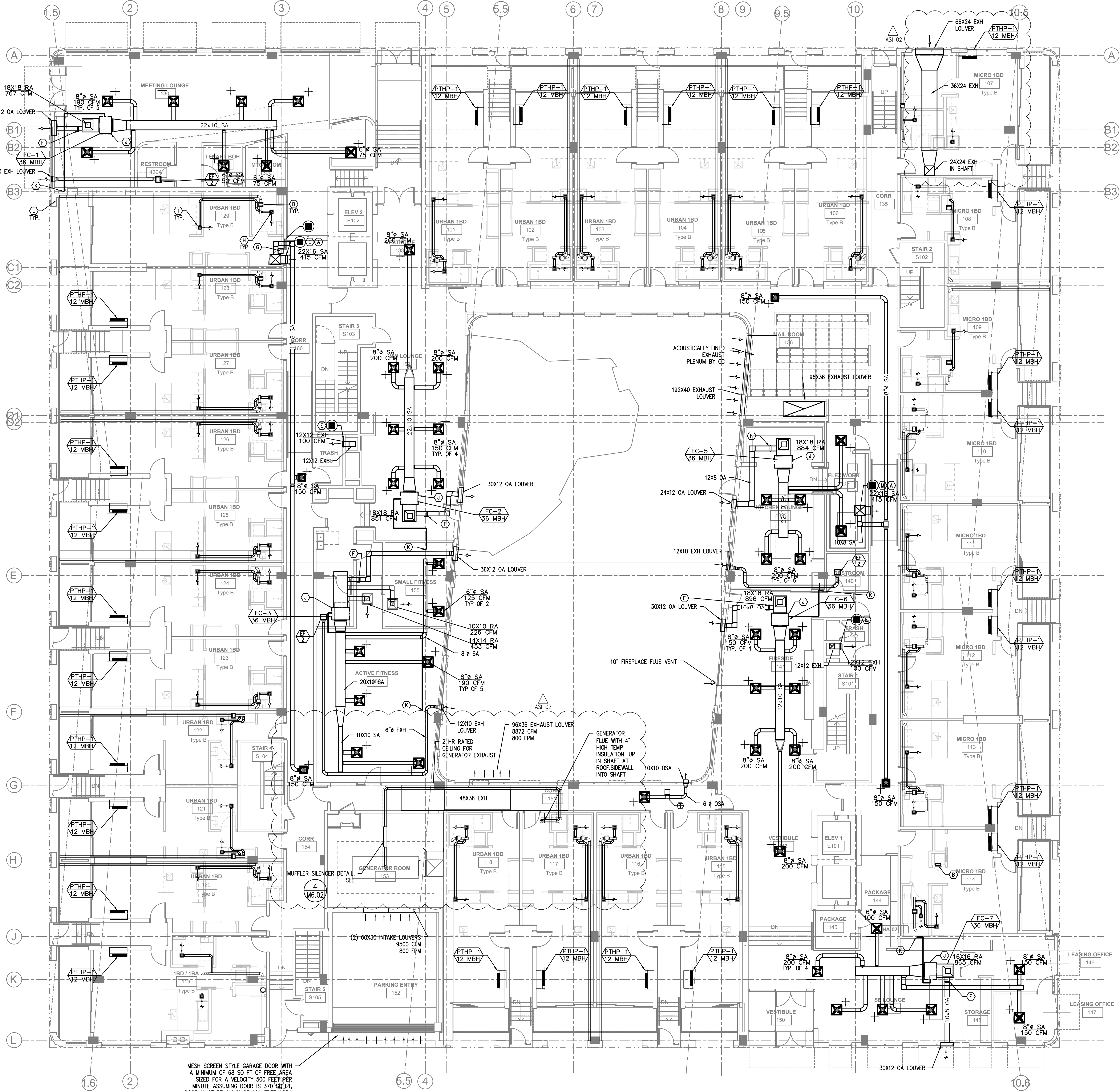
DATE  
 DECEMBER 6, 2019

SCALE  
 As indicated

DRAWING TITLE  
**BASEMENT PARKING - MECH**

SHEET NUMBER  
**M200**

**1** BASEMENT PARKING — MECH  
 SCALE: 1/8" = 1'-0"



- KEY NOTES:**
- (A) — SUPPLY DUCT FROM ROOF TO 2ND FLOOR CEILING — TRANSITION TO SMALLER DUCT SIZES AFTER SUPPLY BRANCH TAKE OFF. SEE CHART.
  - (B) — 14X10 TRANSFER GRILLE (FRONT SIDE ONLY) TO DRYER CLOSET FOR DRYER MAKE UP AIR. (GRILLE TO BE 75% FREE AREA)—UNLESS LOUVERED DOORS ARE PROVIDED.
  - (C) — TYPICAL HEAT PUMP CONDENSER DETAIL. SEE (1) M603
  - (D) — DWELLING UNIT GENERAL EXHAUST FAN TO BE SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR, MECHANICAL TO PROVIDE VENTING FROM FAN TO SIDEWALL TERMINATION. SEE (EF) (1) M602 (2) M602 (5) M602
  - (E) — SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE (2) M601 FOR GRILLE INSTALLATION, AND SEE (1) M602 FOR INSTALLATION, AND CONTROLS.
  - (F) — X" OUTSIDE AIR TO FAN COIL, PROVIDE WITH 2-POSITION DAMPER TO OPEN WHENEVER FAN COIL OPERATES. DAMPER TO BE A LOW LEAK CLASS 1 DAMPER.
  - (G) — 18X18 ACCESS FOR FIRE SMOKE DAMPER.
  - (H) — 4" EXH TYPICAL BATHROOM. SEE (3) M602
  - (I) — 6X6 EXH TYPICAL KITCHEN. SEE (3) M602
  - (J) — TYPICAL DUCTED FAN COIL DETAIL, SEE (7) M602
  - (K) — REFRIGERANT LINES ROUTED FROM CONDENSERS IN PARKING GARAGE TO FAN COILS ON 1ST FLOOR.
  - (L) — FOR SIDEWALL EXHAUST PLENUM, SEE (5) M602
  - (M) — HORIZONTAL FIRE SMOKE DAMPER IN PT DECK, SEE (1) M602

**SHAFT DUCT SIZES**

FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
ATTIC	26 X 24	5000	NA	NA	RTU-1&2
7TH	26 X 24	5000	NA	NA	RTU-1&2
6TH	24 X 22	4285	NA	NA	RTU-1&2
5TH	24 X 22	3570	NA	NA	RTU-1&2
4TH	24 X 18	2855	NA	NA	RTU-1&2
3RD	24 X 18	2140	NA	NA	RTU-1&2
2ND	24 X 16	1425	NA	NA	RTU-1&2
1ST	24 X 14	715	NA	NA	RTU-1&2

**VENTILATION CALCULATIONS:**

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SEE VENTILATION SCHEDULES FOR OTHER UNITS

MESH SCREEN STYLE GARAGE DOOR WITH A MINIMUM OF 68 SQ FT OF FREE AREA SIZED FOR A VELOCITY 500 FEET PER MINUTE ASSUMING DOOR IS 370 SQ FT. DOOR MUST BE A MIN OF 18% FREE AREA  
 34,074 CFM = GARAGE INTAKE + GENERATOR INTAKE

**1 FIRST FLOOR — MECH**  
 M201 SCALE: 1/8" = 1'-0"

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KEY PLAN - (NTS)

TRUE NORTH PLAN NORTH

**SUNSHINE DAIRY APARTMENTS**

801 NE 21ST AVE  
 PORTLAND, OR 97214

ISSUANCE PERMIT SET

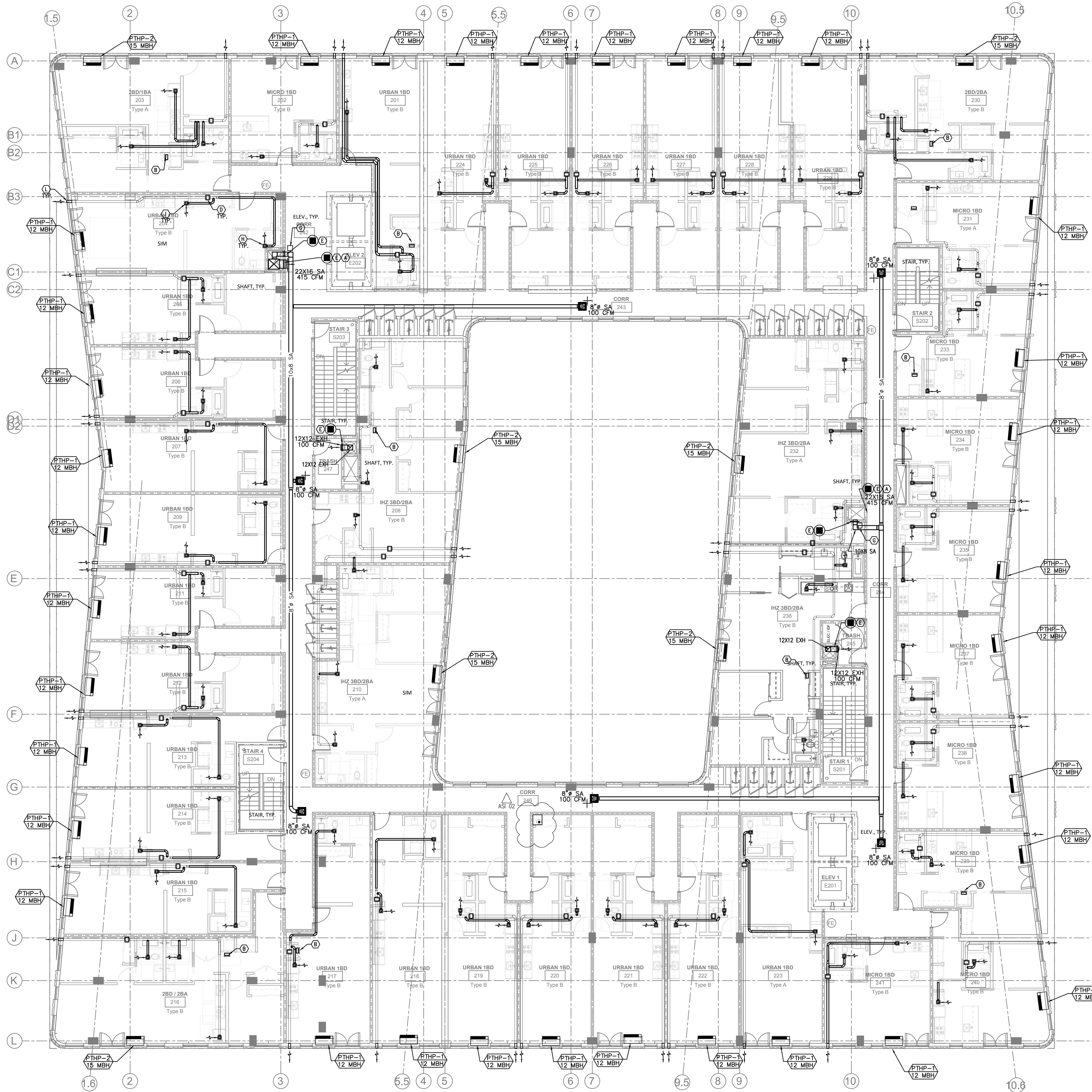
PROJECT NUMBER 1834

DATE DECEMBER 6, 2019

SCALE As indicated

DRAWING TITLE **FIRST FLOOR - MECH**

SHEET NUMBER **M201**



- KEY NOTES:**
- (A) — SUPPLY DUCT FROM ROOF TO 2ND FLOOR CEILING — TRANSITION TO SMALLER DUCT SIZES AFTER SUPPLY BRANCH TAKE OFF. SEE CHART.
  - (B) — 14X10 TRANSFER GRILLE (FRONT SIDE ONLY) TO DRYER CLOSET FOR DRYER MAKE UP AIR. (GRILLE TO BE 75% FREE AREA)—UNLESS LOUVERED DOORS ARE PROVIDED.
  - (C) — TYPICAL HEAT PUMP CONDENSER DETAIL. SEE (1) M603
  - (D) — DWELLING UNIT GENERAL EXHAUST FAN TO BE SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR, MECHANICAL TO PROVIDE VENTING FROM FAN TO SIDEWALL TERMINATION. SEE (EF 1) M602 (2) M602 (5) M602
  - (E) — SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE (2) M601 FOR GRILLE INSTALLATION, AND SEE (1) M602 FOR INSTALLATION, AND CONTROLS.
  - (F) — X"Ø OUTSIDE AIR TO FAN COIL, PROVIDE WITH 2-POSITION DAMPER TO OPEN WHENEVER FAN COIL OPERATES. DAMPER TO BE A LOW LEAK CLASS 1 DAMPER.
  - (G) — 18X18 ACCESS FOR FIRE SMOKE DAMPER.
  - (H) — 4"Ø EXH 30 CFM TYPICAL BATHROOM. SEE (3) M602
  - (I) — 6X6 EXH 35 CFM TYPICAL KITCHEN. SEE (3) M602
  - (J) — TYPICAL DUCTED FAN COIL DETAIL. SEE (7) M602
  - (K) — REFRIGERANT LINES ROUTED FROM CONDENSERS IN PARKING GARAGE TO FAN COILS ON 1ST FLOOR.
  - (L) — FOR SIDEWALL EXHAUST PLENUM, SEE (5) M602
  - (M) — HORIZONTAL FIRE SMOKE DAMPER IN PT DECK, SEE (1) M602

**SHAFT DUCT SIZES**

FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
ATTIC	26 X 24	5000	NA	NA	RTU-1&2
7TH	26 X 24	5000	NA	NA	RTU-1&2
6TH	24 X 22	4285	NA	NA	RTU-1&2
5TH	24 X 22	3570	NA	NA	RTU-1&2
4TH	24 X 18	2855	NA	NA	RTU-1&2
3RD	24 X 18	2140	NA	NA	RTU-1&2
2ND	24 X 16	1425	NA	NA	RTU-1&2
1ST	24 X 14	715	NA	NA	RTU-1&2

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SEE VENTILATION SCHEDULES FOR OTHER UNITS

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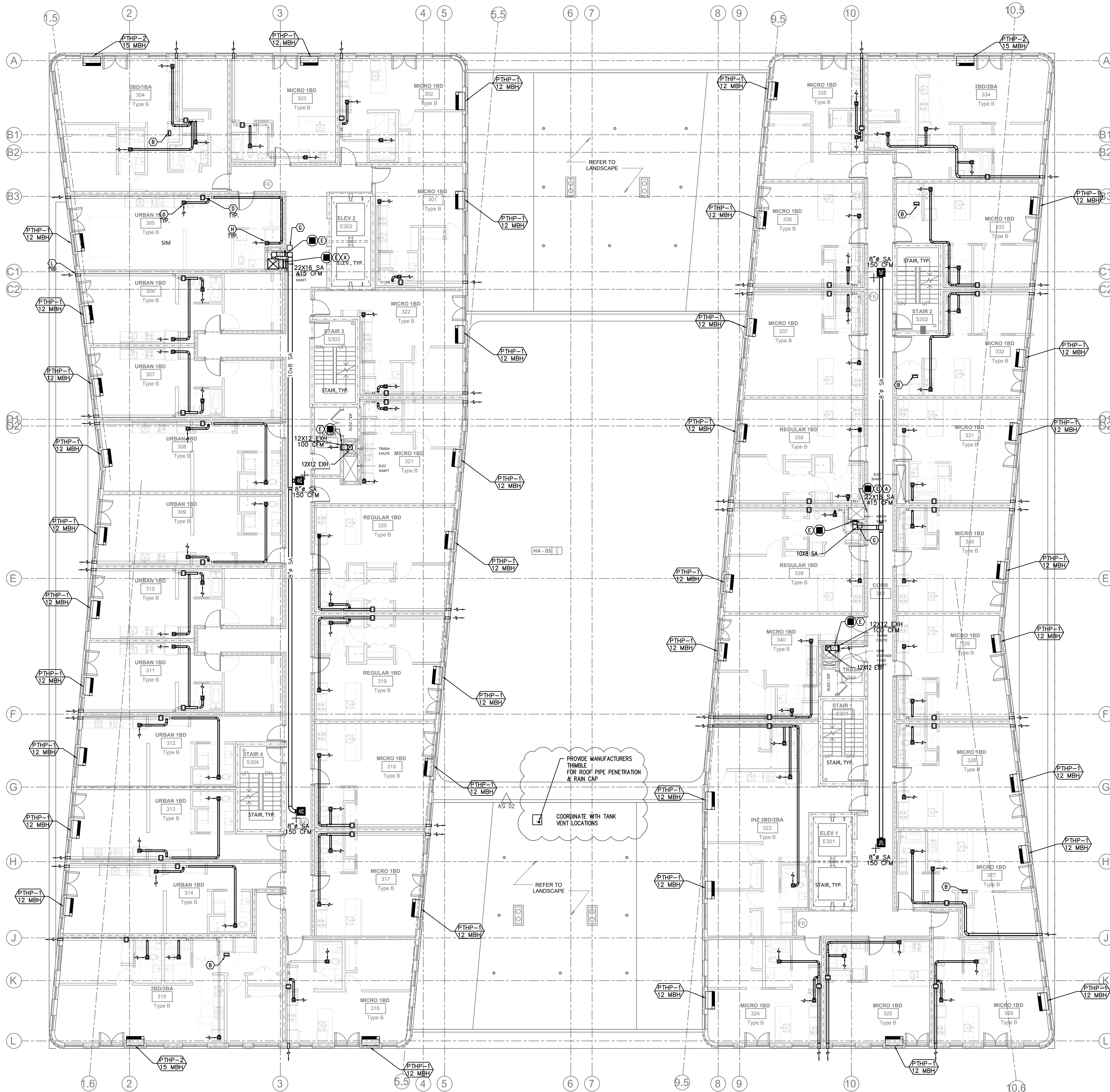
KEY PLAN - (NTS)

TRUE PLAN NORTH  
**SUNSHINE DAIRY APARTMENTS**

801 NE 21ST AVE  
 PORTLAND, OR 97214  
 ISSUANCE PERMIT SET  
 PROJECT NUMBER 1834  
 DATE DECEMBER 6, 2019  
 SCALE As indicated  
 DRAWING TITLE SECOND FLOOR - MECH

SHEET NUMBER  
**M202**

1 SECOND FLOOR — MECH  
 M202 SCALE: 1/8" = 1'-0"



- KEY NOTES:**
- (A) — SUPPLY DUCT FROM ROOF TO 2ND FLOOR CEILING — TRANSITION TO SMALLER DUCT SIZES AFTER SUPPLY BRANCH TAKE OFF. SEE CHART.
  - (B) — 14X10 TRANSFER GRILLE (FRONT SIDE ONLY) TO DRYER CLOSET FOR DRYER MAKE UP AIR. (GRILLE TO BE 75% FREE AREA)—UNLESS LOUVERED DOORS ARE PROVIDED.
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  - (E) — SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE (2) M601 FOR GRILLE INSTALLATION, AND SEE (1) M602 FOR INSTALLATION, AND CONTROLS.
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  - (G) — 18X18 ACCESS FOR FIRE SMOKE DAMPER.
  - (H) — 4"Ø EXH 30 CFM TYPICAL BATHROOM. SEE (3) M602
  - (I) — 6X6 EXH 35 CFM TYPICAL KITCHEN. SEE (3) M602
  - (J) — TYPICAL DUCTED FAN COIL DETAIL. SEE (7) M602
  - (K) — REFRIGERANT LINES ROUTED FROM CONDENSERS IN PARKING GARAGE TO FAN COILS ON 1ST FLOOR.
  - (L) — FOR SIDEWALL EXHAUST PLENUM, SEE (5) M602
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**SHAFT DUCT SIZES**

FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
ATTIC	26 X 24	5000	NA	NA	RTU-1&2
7TH	26 X 24	5000	NA	NA	RTU-1&2
6TH	24 X 22	4285	NA	NA	RTU-1&2
5TH	24 X 22	3570	NA	NA	RTU-1&2
4TH	24 X 18	2855	NA	NA	RTU-1&2
3RD	24 X 18	2140	NA	NA	RTU-1&2
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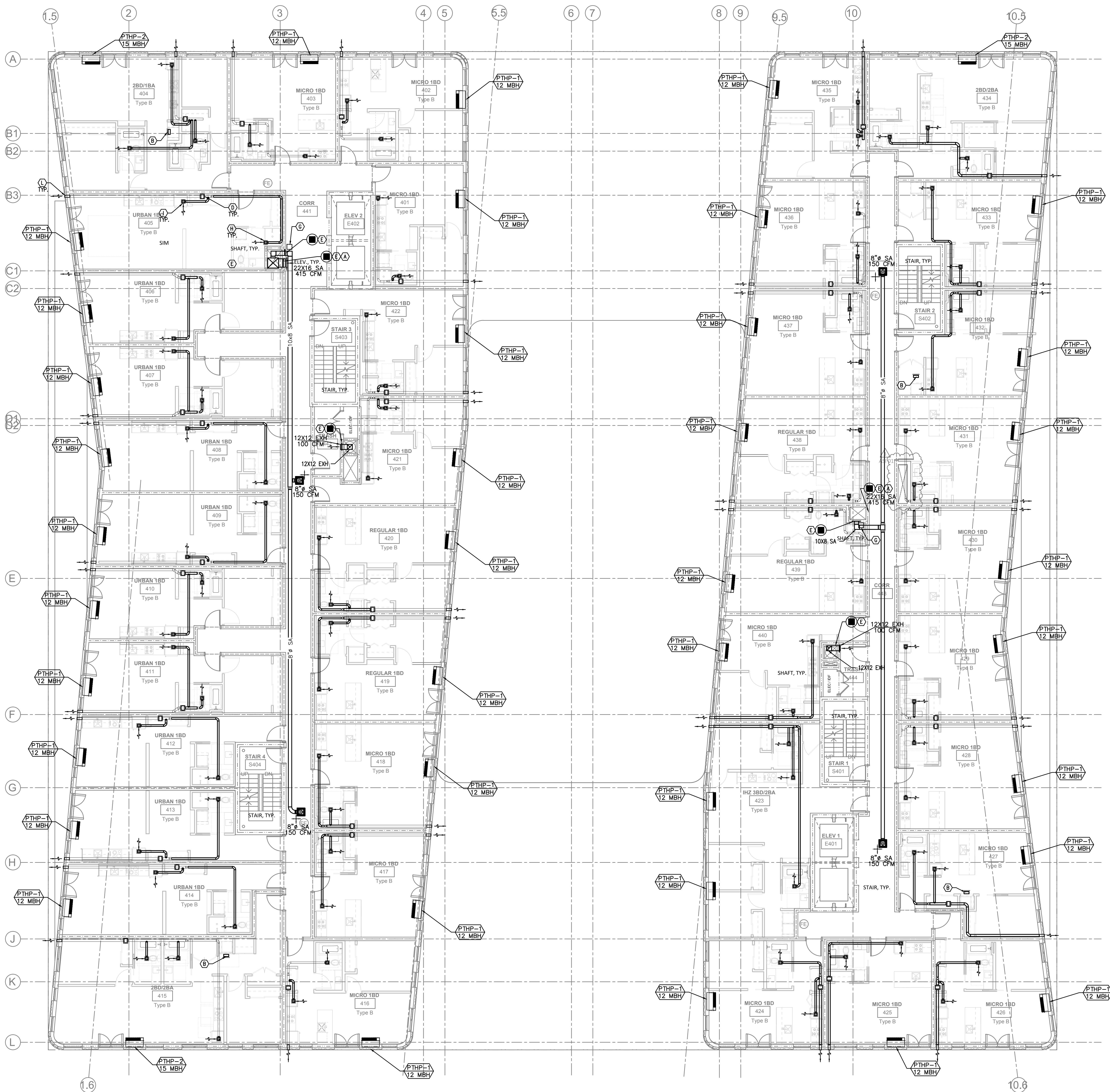
KEY PLAN - (NTS)

TRUE PLAN NORTH  
**SUNSHINE DAIRY APARTMENTS**

801 NE 21ST AVE  
 PORTLAND, OR 97214  
 ISSUANCE PERMIT SET  
 PROJECT NUMBER 1834  
 DATE DECEMBER 6, 2019  
 SCALE As indicated  
 DRAWING TITLE  
**THIRD FLOOR - MECH**

SHEET NUMBER  
**M203**

1 THIRD FLOOR - MECH  
 M203 SCALE: 1/8" = 1'-0"



- KEY NOTES:**
- (A) — SUPPLY DUCT FROM ROOF TO 2ND FLOOR CEILING — TRANSITION TO SMALLER DUCT SIZES AFTER SUPPLY BRANCH TAKE OFF. SEE CHART.
  - (B) — 14X10 TRANSFER GRILLE (FRONT SIDE ONLY) TO DRYER CLOSET FOR DRYER MAKE UP AIR. (GRILLE TO BE 75% FREE AREA)—UNLESS LOUVERED DOORS ARE PROVIDED.
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  - (G) — 18X18 ACCESS FOR FIRE SMOKE DAMPER.
  - (H) — 4"Ø EXH 30 CFM TYPICAL BATHROOM. SEE (3) M602
  - (I) — 6X6 EXH 35 CFM TYPICAL KITCHEN. SEE (3) M602
  - (J) — TYPICAL DUCTED FAN COIL DETAIL. SEE (7) M602
  - (K) — REFRIGERANT LINES ROUTED FROM CONDENSERS IN PARKING GARAGE TO FAN COILS ON 1ST FLOOR.
  - (L) — FOR SIDEWALL EXHAUST PLENUM, SEE (5) M602
  - (M) — HORIZONTAL FIRE SMOKE DAMPER IN PT DECK, SEE (1) M602

**SHAFT DUCT SIZES**

FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
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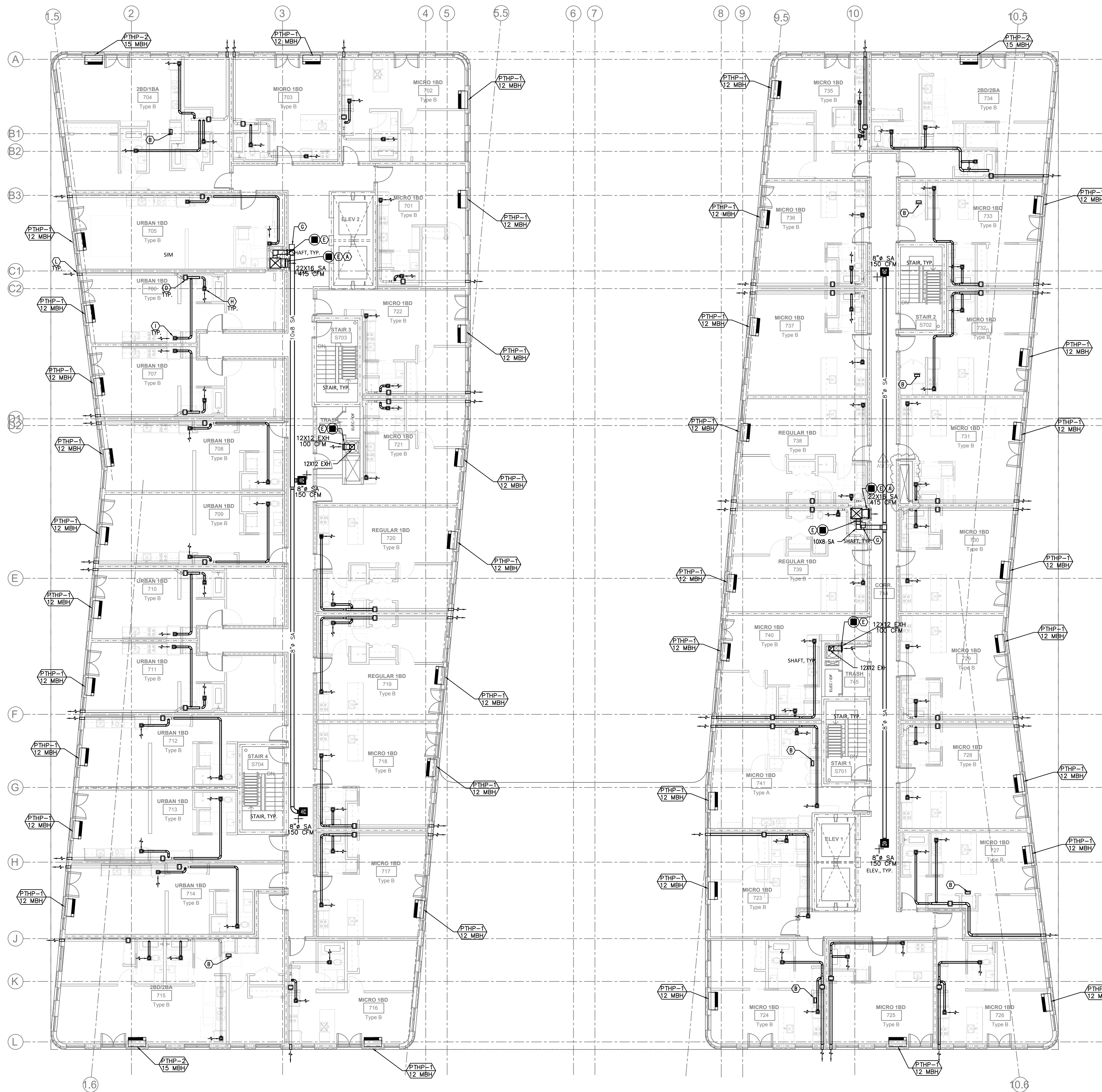
KEY PLAN - (NTS)

TRUE NORTH PLAN NORTH  
**SUNSHINE DAIRY APARTMENTS**

801 NE 21ST AVE  
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 PROJECT NUMBER 1834  
 DATE DECEMBER 6, 2019  
 SCALE As indicated  
 DRAWING TITLE  
**FOURTH TO SIXTH FLOOR - MECH**

SHEET NUMBER  
**M204**

1 FOURTH TO SIXTH FLOOR — MECH  
 M204 SCALE: 1/8" = 1'-0"



- KEY NOTES:**
- (A) — SUPPLY DUCT FROM ROOF TO 2ND FLOOR CEILING — TRANSITION TO SMALLER DUCT SIZES AFTER SUPPLY BRANCH TAKE OFF. SEE CHART.
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1ST	24 X 14	715	NA	NA	RTU-1&2

**VENTILATION CALCULATIONS:**

ALL DWELLING UNITS ARE VENTILATED BY NATURAL VENTILATION WITH OPERABLE WINDOWS, BATHROOM EXHAUST FANS RUN CONTINUOUSLY (SIZED PER ASHRAE 62.2) AND MAKE UP AIR IS PROVIDED BY PTHP'S.

COMMON SPACES AND HALLWAYS ARE VENTILATED BY PACKAGED ROOF TOP UNITS SIZED TO EXCEED THE MINIMUM 0.06 CFM/SQ FT REQUIREMENT

SEE VENTILATION SCHEDULES FOR OTHER UNITS

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STAMP 12-6-19

REVISION NO. DATE

1	PLAN REVIEW #1	2-16-22
2	ASI 01	5-17-22
	ASI 02	6-13-22

KEY PLAN - (NTS)

TRUE PLAN NORTH

**SUNSHINE DAIRY APARTMENTS**

801 NE 21ST AVE  
 PORTLAND, OR 97214

ISSUANCE PERMIT SET

PROJECT NUMBER 1834

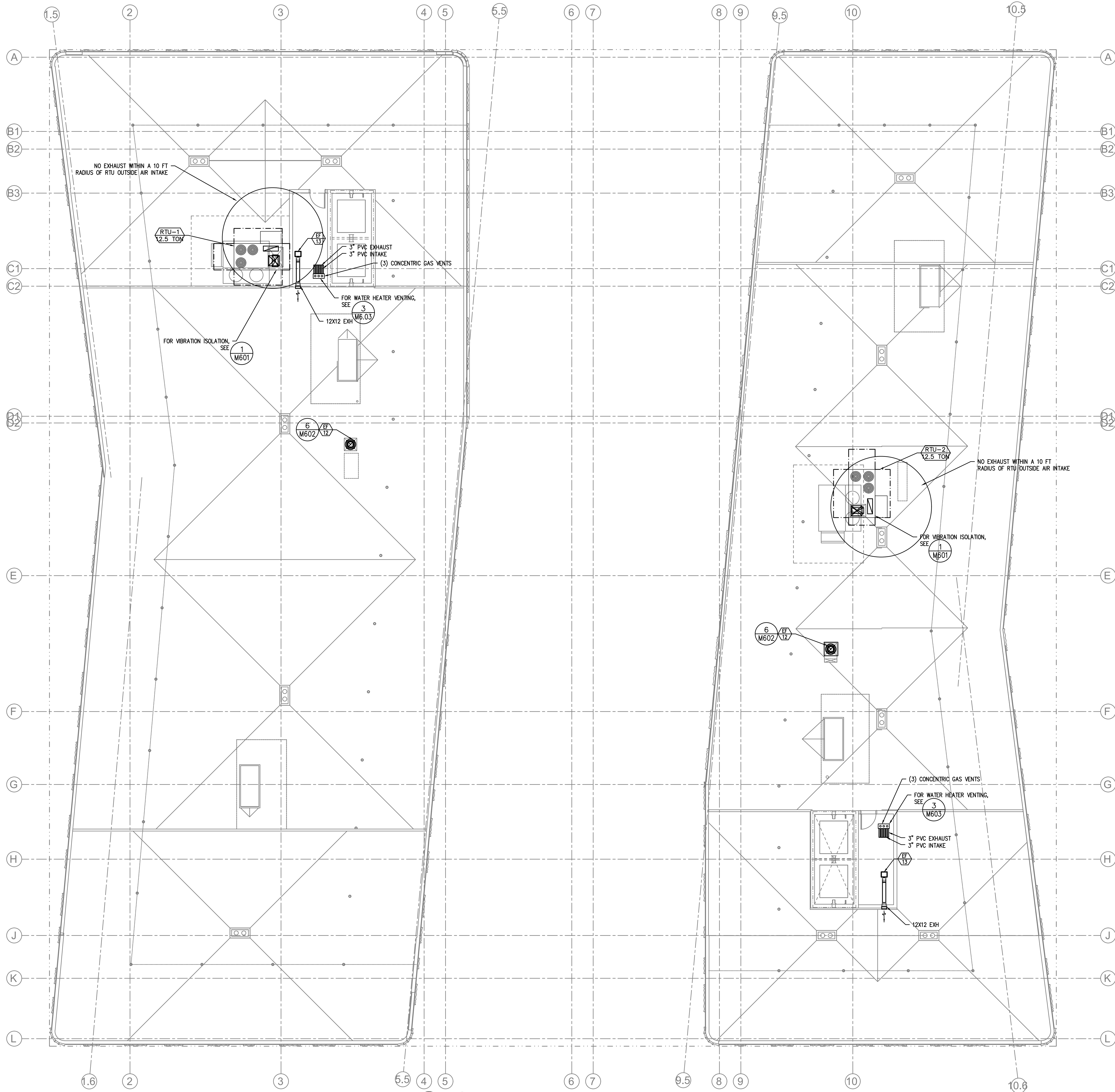
DATE DECEMBER 6, 2019

SCALE As indicated

DRAWING TITLE SEVENTH FLOOR - MECH

1 SEVENTH FLOOR — MECH  
 M205 SCALE: 1/8" = 1'-0"

SHEET NUMBER  
**M205**



**KEY NOTES:**

- (A) — SUPPLY DUCT FROM ROOF TO 2ND FLOOR CEILING — TRANSITION TO SMALLER DUCT SIZES AFTER SUPPLY BRANCH TAKE OFF. SEE CHART.
- (B) — 14X10 TRANSFER GRILLE (FRONT SIDE ONLY) TO DRYER CLOSET FOR DRYER MAKE UP AIR. (GRILLE TO BE 75% FREE AREA)—UNLESS LOUVERED DOORS ARE PROVIDED.
- (C) — TYPICAL HEAT PUMP CONDENSER DETAIL. SEE (1) M603
- (D) — DWELLING UNIT GENERAL EXHAUST FAN TO BE SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR, MECHANICAL TO PROVIDE VENTING FROM FAN TO SIDEWALL TERMINATION. SEE (EF 1) M602/ (2) M602/ (5) M602
- (E) — SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE (2) M601 FOR GRILLE INSTALLATION, AND SEE (1) M602 FOR TYPICAL F/S INSTALLATION, AND CONTROLS.
- (F) — X"Ø OUTSIDE AIR TO FAN COIL. PROVIDE WITH 2-POSITION DAMPER TO OPEN WHENEVER FAN COIL OPERATES. DAMPER TO BE A LOW LEAK CLASS 1 DAMPER.
- (G) — 18X18 ACCESS FOR FIRE SMOKE DAMPER.
- (H) — 4"Ø EXH 30 CFM TYPICAL BATHROOM. SEE (3) M602
- (I) — 6X6 EXH 35 CFM TYPICAL KITCHEN. SEE (3) M602
- (J) — TYPICAL DUCTED FAN COIL DETAIL. SEE (7) M602
- (K) — REFRIGERANT LINES ROUTED FROM CONDENSERS IN PARKING GARAGE TO FAN COILS ON 1ST FLOOR.
- (L) — FOR SIDEWALL EXHAUST PLENUM. SEE (5) M602
- (M) — HORIZONTAL FIRE SMOKE DAMPER IN PT DECK. SEE (1) M602

**SHAFT DUCT SIZES**

FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
ATTIC	26 X 24	5000	NA	NA	RTU-1&2
7TH	26 X 24	5000	NA	NA	RTU-1&2
6TH	24 X 22	4285	NA	NA	RTU-1&2
5TH	24 X 22	3570	NA	NA	RTU-1&2
4TH	24 X 18	2855	NA	NA	RTU-1&2
3RD	24 X 18	2140	NA	NA	RTU-1&2
2ND	24 X 16	1425	NA	NA	RTU-1&2
1ST	24 X 14	715	NA	NA	RTU-1&2

**VENTILATION CALCULATIONS:**

ALL DWELLING UNITS ARE VENTILATED BY NATURAL VENTILATION WITH OPERABLE WINDOWS, BATHROOM EXHAUST FANS RUN CONTINUOUSLY (SIZED PER ASHRAE 62.2) AND MAKE UP AIR IS PROVIDED BY PTHP'S.

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SEE VENTILATION SCHEDULES FOR OTHER UNITS

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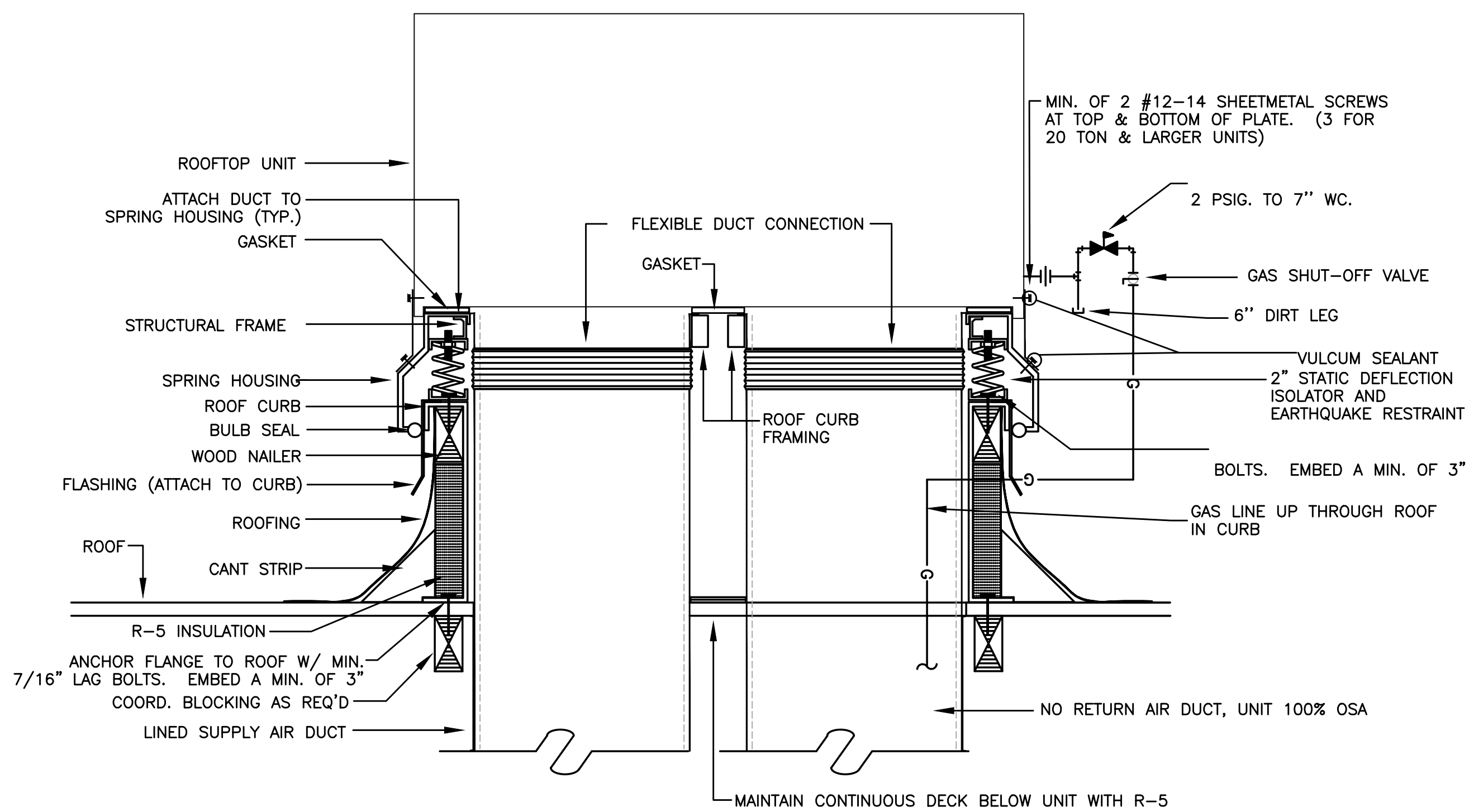
TRUE NORTH PLAN NORTH  
**SUNSHINE DAIRY APARTMENTS**

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ISSUANCE PERMIT SET  
PROJECT NUMBER 1834  
DATE DECEMBER 6, 2019  
SCALE As indicated  
DRAWING TITLE **ROOF - MECH**

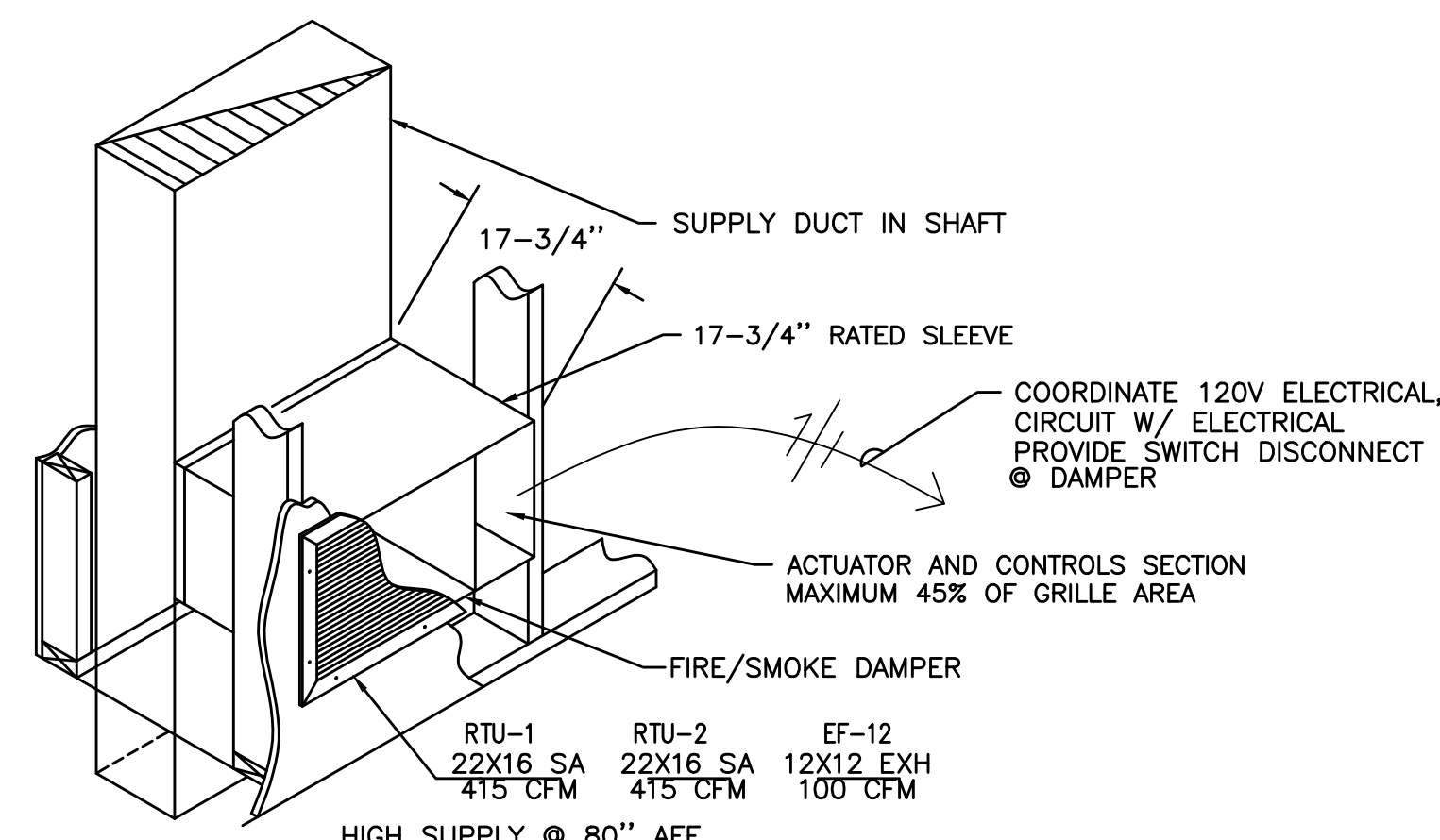
SHEET NUMBER  
**M206**



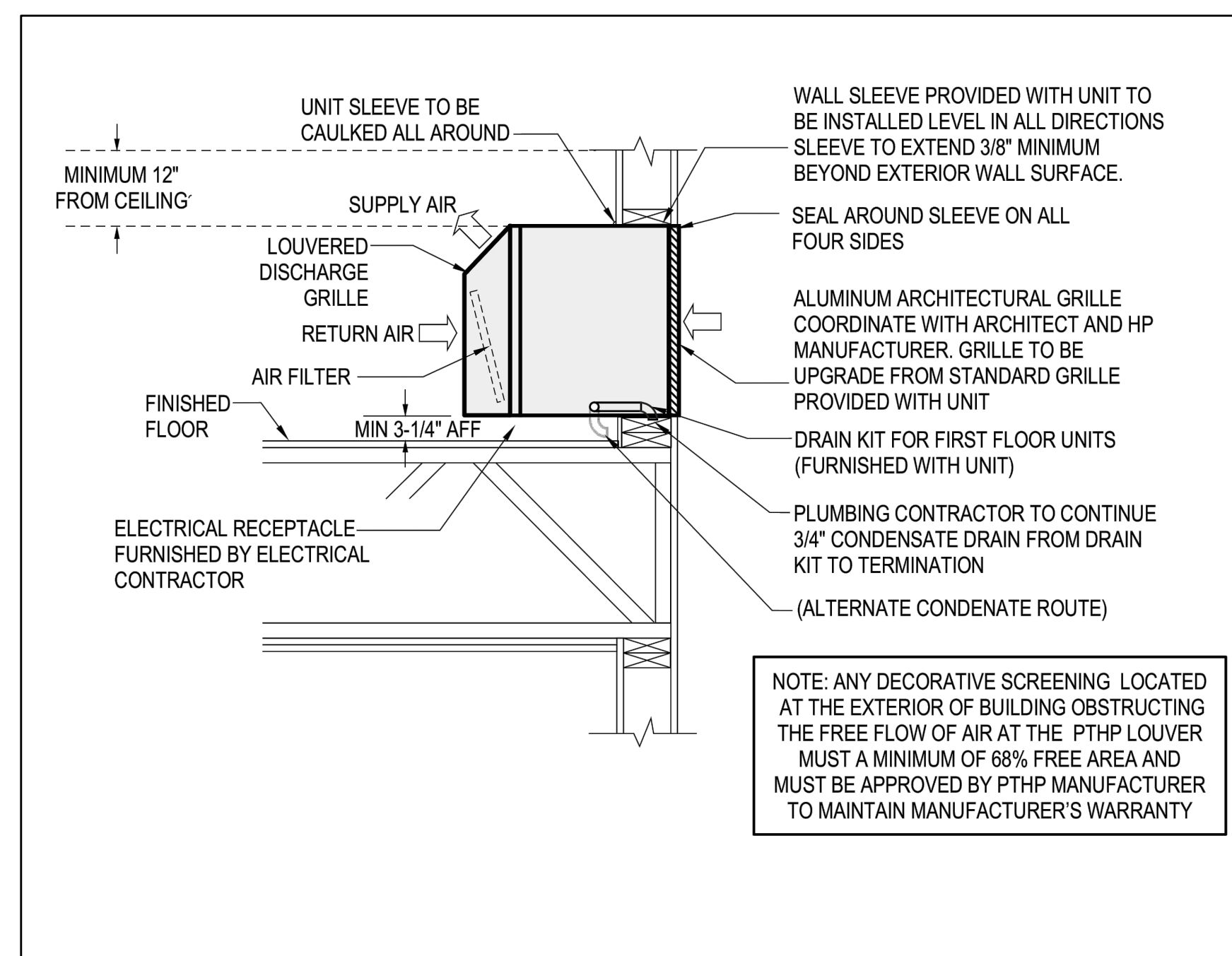




1 ROOF TOP UNIT W/ VIBRATION ISOLATION CURB  
M601 SCALE: DETAIL



2 HIGH SUPPLY W/ FIRE/SMOKE DAMPER  
M601 SCALE: DETAIL



3 PTHP AT EXTERIOR WALL  
M601 NOT TO SCALE

VENTILATION AIR SCHEDULE - FC-1

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS
	Az		Pz	Rp	Ra	Vbz	Ez	Voz	Vpz	Zp		Evz		
STORAGE	68	0	0	0	0.12	8	0.8	10	50	0.20	0	1.14	10.58	FC-1
MTG ROOM	74	5	1	5	0.06	9	0.8	12	75	0.16	0	1.19	12.24	FC-1
MTG ROOM	74	5	1	5	0.06	9	0.8	12	75	0.16	0	1.19	12.24	FC-1
RETAIL 130	1310	15	20	7.5	0.12	307	0.8	384	1000	0.38	767	0.96	398.27	FC-1
<b>TOTAL</b>	<b>1526</b>		<b>22</b>			<b>334</b>		<b>418</b>	<b>1200</b>		<b>767</b>	<b>0</b>	<b>433</b>	
<b>CORRECTED TOTAL OUTDOOR AIR FLOW RATE</b>										<b>433</b>	<b>CFM</b>	<b>Corrected OSA Fractio</b>	<b>Zs =</b>	<b>0.36</b>

VENTILATION AIR SCHEDULE - FC-2

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS
	Az		Pz	Rp	Ra	Vbz	Ez	Voz	Vpz	Zp		Evz		
VESTIBULE 133	233	0	0	0	0.06	14	0.8	17	200	0.09	0	1.19	18.17	FC-2
NW LOUNGE 157	871	30	27	7.5	0.06	255	0.8	318	1000	0.32	851	0.96	331.21	FC-2
<b>TOTAL</b>	<b>1104</b>		<b>27</b>			<b>269</b>		<b>336</b>	<b>1200</b>		<b>851</b>	<b>0</b>	<b>349</b>	
<b>CORRECTED TOTAL OUTDOOR AIR FLOW RATE</b>										<b>349</b>	<b>CFM</b>	<b>Corrected OSA Fractio</b>	<b>Zs =</b>	<b>0.29</b>

VENTILATION AIR SCHEDULE - FC-3

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS
	Az		Pz	Rp	Ra	Vbz	Ez	Voz	Vpz	Zp		Evz		
ACTIVE FITNESS 154	830	10	9	20	0.06	230	0.8	287	900	0.32	453	1.00	288.40	FC-3
SMALL FITNESS 153	213	10	3	20	0.06	73	0.8	91	300	0.30	226	1.01	91.34	FC-3
<b>TOTAL</b>	<b>1043</b>		<b>12</b>			<b>303</b>		<b>378</b>	<b>1200</b>		<b>679</b>	<b>0</b>	<b>380</b>	
<b>CORRECTED TOTAL OUTDOOR AIR FLOW RATE</b>										<b>380</b>	<b>CFM</b>	<b>Corrected OSA Fractio</b>	<b>Zs =</b>	<b>0.32</b>

VENTILATION AIR SCHEDULE - FC-4

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS
	Az		Pz	Rp	Ra	Vbz	Ez	Voz	Vpz	Zp		Evz		
MOVIE ROOM 136	312	50	16	7.5	0.06	139	0.8	173	600	0.29	427	1.00	173.40	FC-4
<b>TOTAL</b>	<b>312</b>		<b>16</b>			<b>139</b>		<b>173</b>	<b>600</b>		<b>427</b>	<b>0</b>	<b>173</b>	
<b>CORRECTED TOTAL OUTDOOR AIR FLOW RATE</b>										<b>173</b>	<b>CFM</b>	<b>Corrected OSA Fractio</b>	<b>Zs =</b>	<b>0.29</b>

VENTILATION AIR SCHEDULE - FC-5

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS
	Az		Pz	Rp	Ra	Vbz	Ez	Voz	Vpz	Zp		Evz		
KITCHEN LOUNGE 139	573	70	20	7.5	0.18	253	0.8	316	1200	0.26	884	1.00	316.43	FC-5
<b>TOTAL</b>	<b>573</b>		<b>20</b>			<b>253</b>		<b>316</b>	<b>1200</b>		<b>884</b>	<b>0</b>	<b>316</b>	
<b>CORRECTED TOTAL OUTDOOR AIR FLOW RATE</b>										<b>316</b>	<b>CFM</b>	<b>Corrected OSA Fractio</b>	<b>Zs =</b>	<b>0.26</b>

VENTILATION AIR SCHEDULE - FC-6

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS
	Az		Pz	Rp	Ra	Vbz	Ez	Voz	Vpz	Zp		Evz		
Correctional Facility														
VESTIBULE 143	302	0	0	0	0.06	18	0.8	23	200	0.11	0	1.13	23.27	FC-6
FIRESIDE 141	783	30	23	7.5	0.06	218	0.8	273	1000	0.27	896	0.97	280.31	FC-6
<b>TOTAL</b>	<b>1085</b>		<b>23</b>			<b>236</b>		<b>296</b>	<b>1200</b>		<b>896</b>	<b>0</b>	<b>304</b>	
<b>CORRECTED TOTAL OUTDOOR AIR FLOW RATE</b>										<b>304</b>	<b>CFM</b>	<b>Corrected OSA Fractio</b>	<b>Zs =</b>	<b>0.25</b>

VENTILATION AIR SCHEDULE - FC-7

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/P)	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS
	Az		Pz	Rp	Ra	Vbz	Ez	Voz	Vpz	Zp		Evz		
SE LOUNGE 149	720	30	22	7.5	0.06	208	0.8	260	800	0.33	865	0.94	277.98	FC-7
PACKAGE 144	130	0	0	0	0.12	16	0.8	20	100	0.20	0	1.07	20.83	FC-7
LEASING OFFICE 146	160	5	1	5	0.06	15	0.8	18	150	0.12	0	1.14	19.49	FC-7
LEASING OFFICE 147	128	5	1	5	0.06	13	0.8	16	150	0.11	0	1.16	16.93	FC-7
<b>TOTAL</b>	<b>1138</b>		<b>24</b>			<b>251</b>		<b>314</b>	<b>1200</b>		<b>865</b>	<b>0</b>	<b>335</b>	
<b>CORRECTED TOTAL OUTDOOR AIR FLOW RATE</b>										<b>335</b>	<b>CFM</b>	<b>Corrected OSA Fractio</b>	<b>Zs =</b>	<b>0.28</b>

ARCHITECTS

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SCALE

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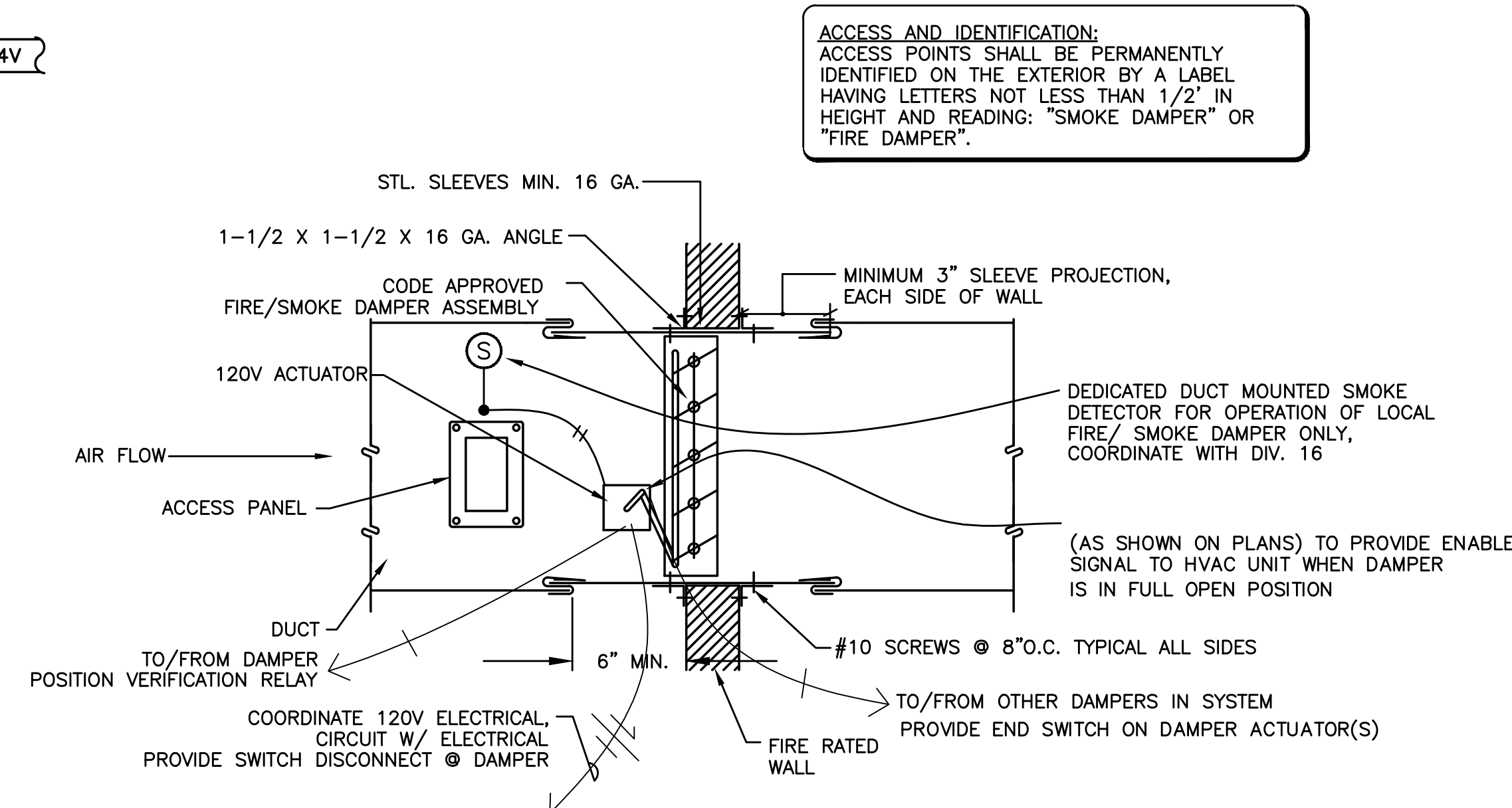
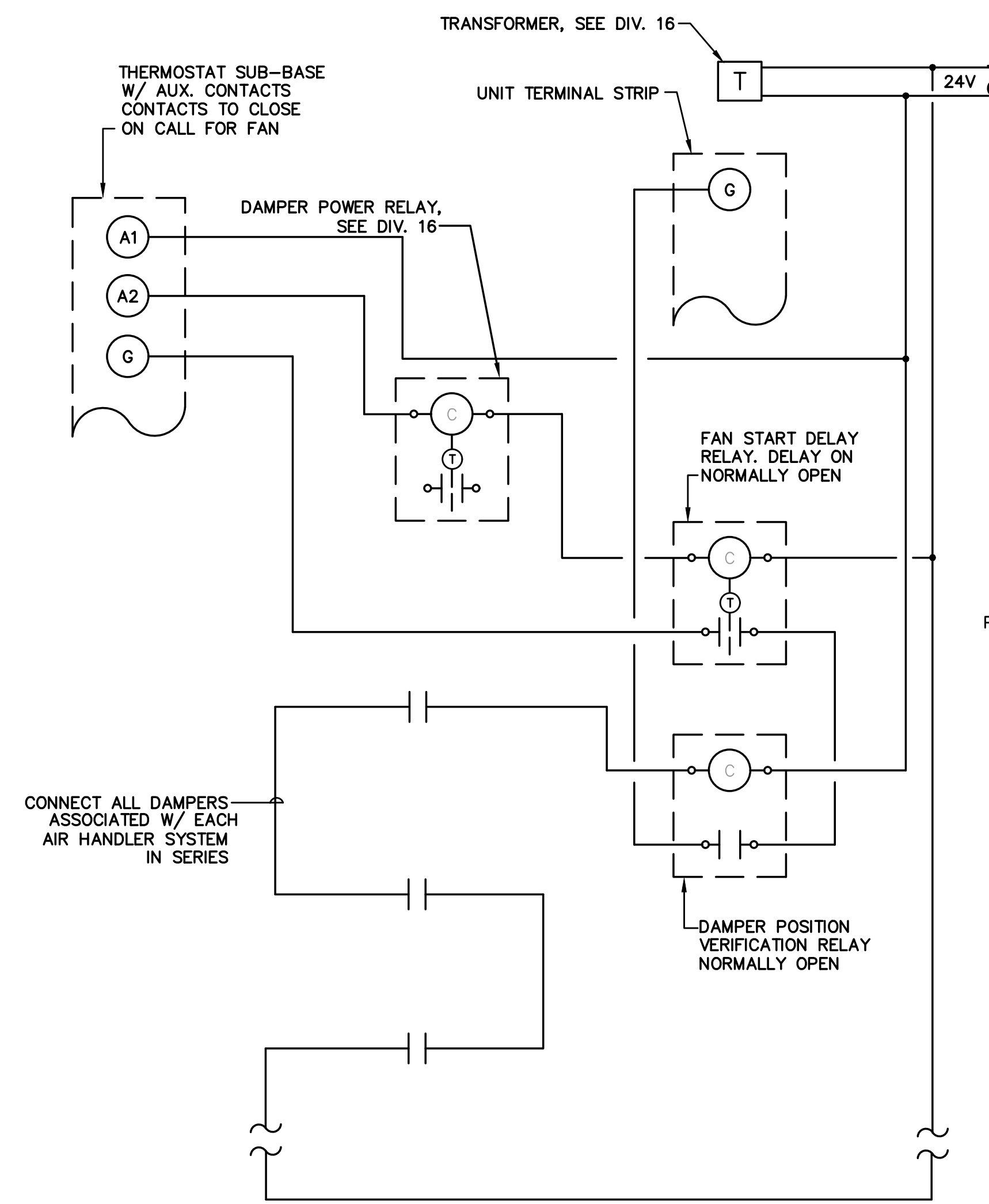
DRAWING TITLE

MECHANICAL SCHEDULES

- DETAILS

SHEET NUMBER

**M601**



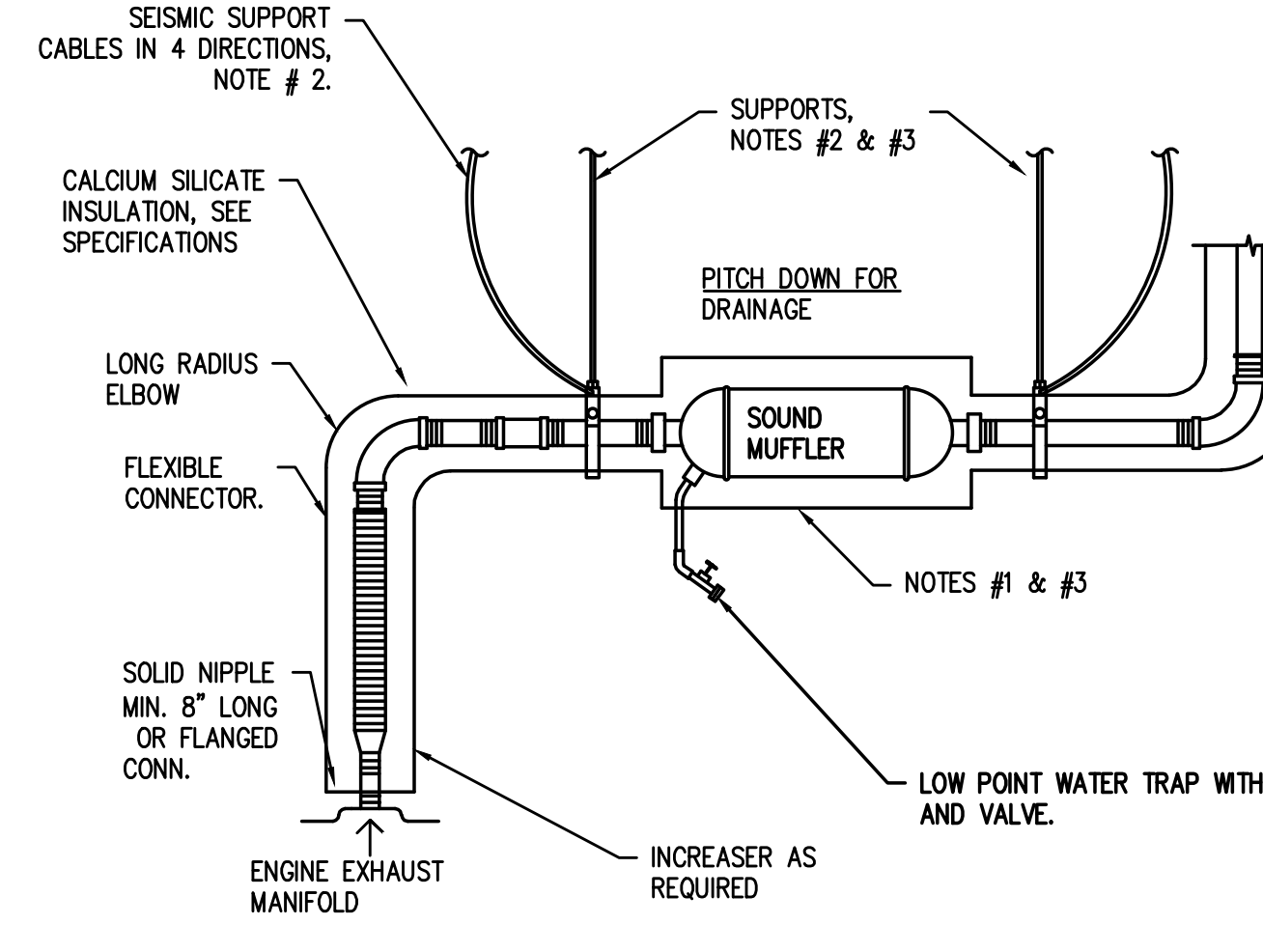
**1 FIRE/SMOKE DAMPER W/SMOKE DETECTOR**  
M602 NOT TO SCALE

**NOTE:**

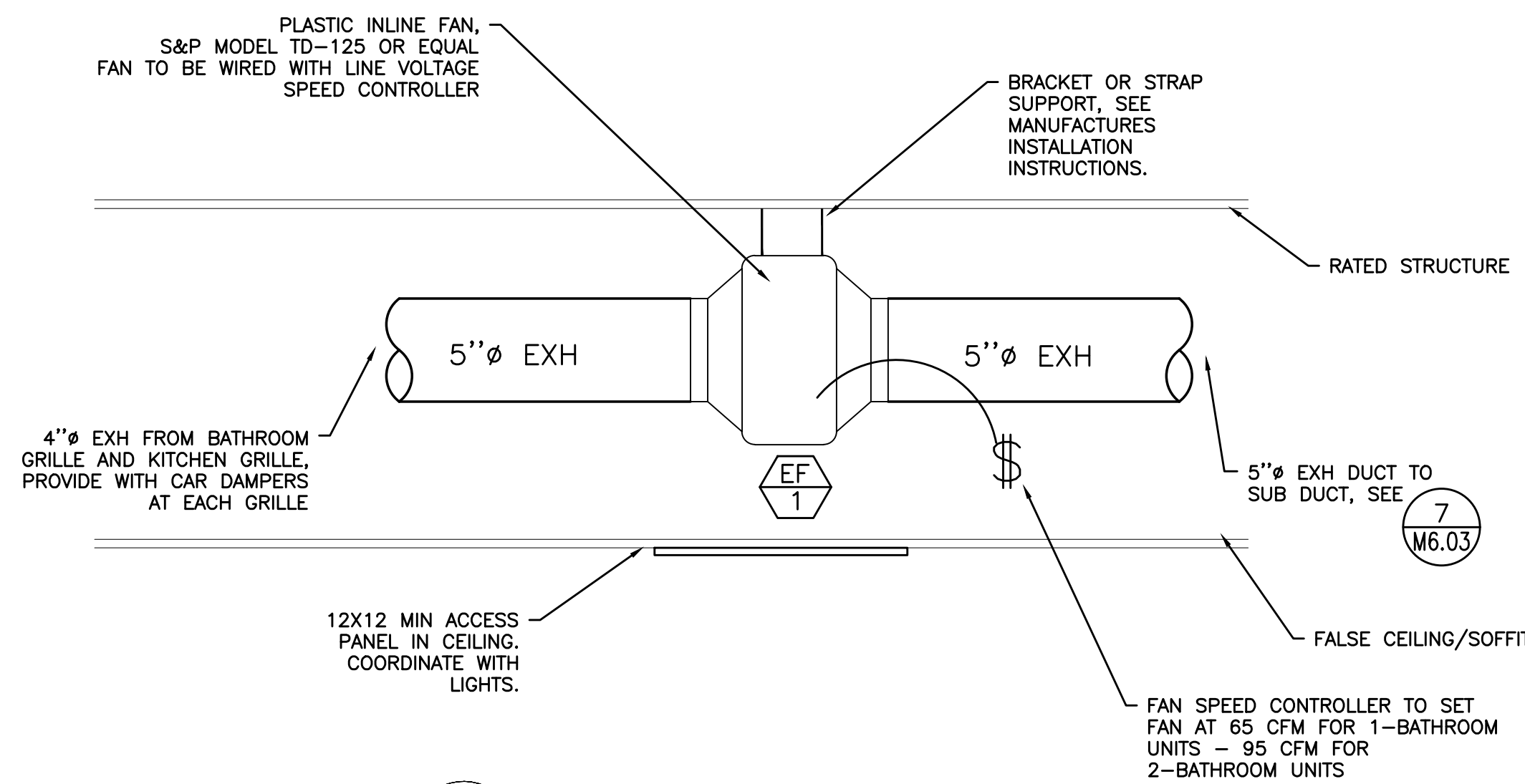
PROVIDE ALL REQUIRED CONTROL WIRING TO ACCOMPLISH:  
**FIRE/SMOKE DAMPER** - FIRE/SMOKE DAMPER TO CLOSE UPON ACTIVATION OF LOCAL SMOKE DETECTOR  
**EXHAUST DUCTS/FANS** - FIRE/SMOKE DAMPER TO CLOSE UPON SHUTDOWN OF ASSOCIATED EXHAUST FAN.  
**SUPPLY OR RETURN DUCTS/FANS** - FIRE/SMOKE DAMPER TO CLOSE UPON SHUTDOWN OF ASSOCIATED AIR HANDLING UNIT.

**GENERAL NOTES:**

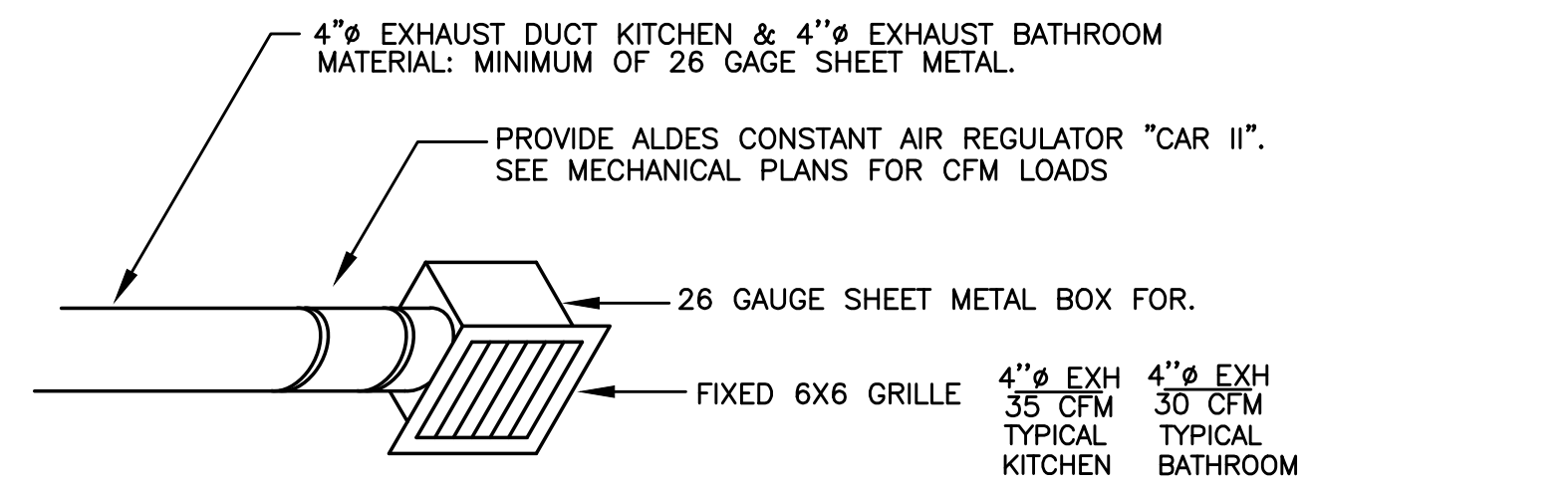
PROVIDE ACCESS IN CEILING OR WALL FOR DAMPER AND SMOKE DETECTOR  
 SEE ELECTRICAL DRAWINGS FOR WIRING INSTALLATION



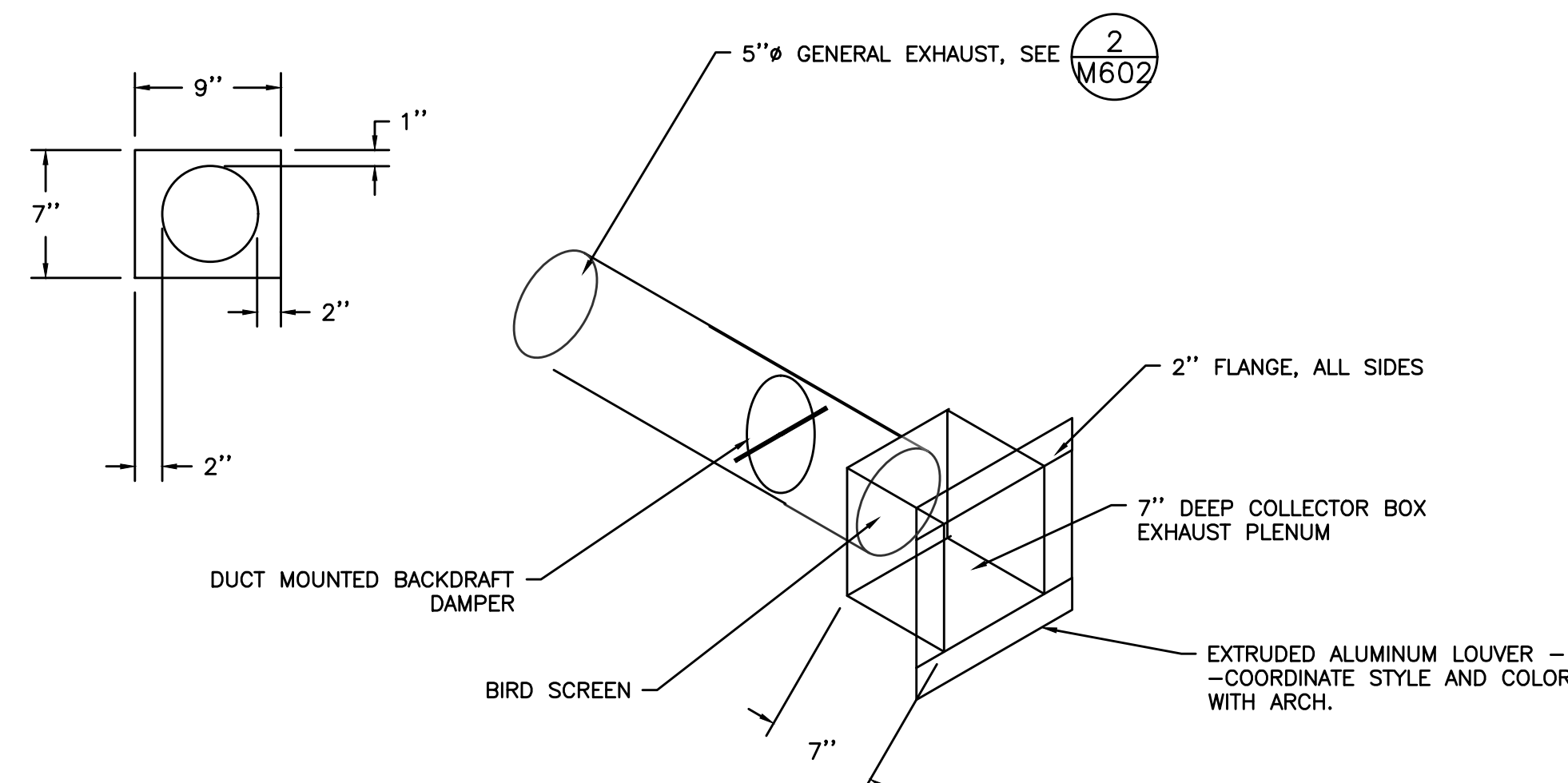
**4 GENERATOR ENGINE EXHAUST**  
M602 SCALE: DETAIL



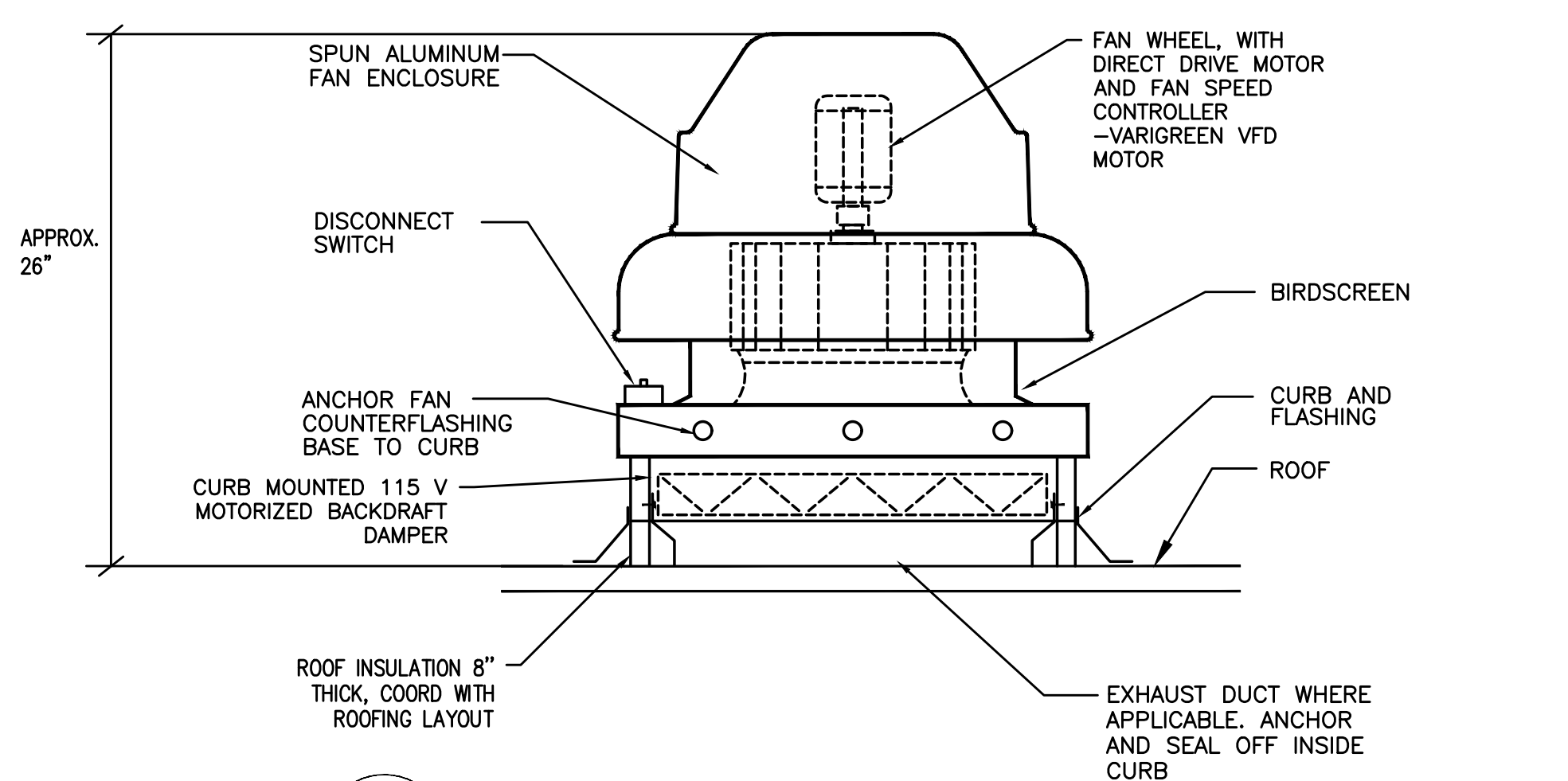
**2 IN-LINE EXHAUST FAN**  
M602 SCALE: DETAIL



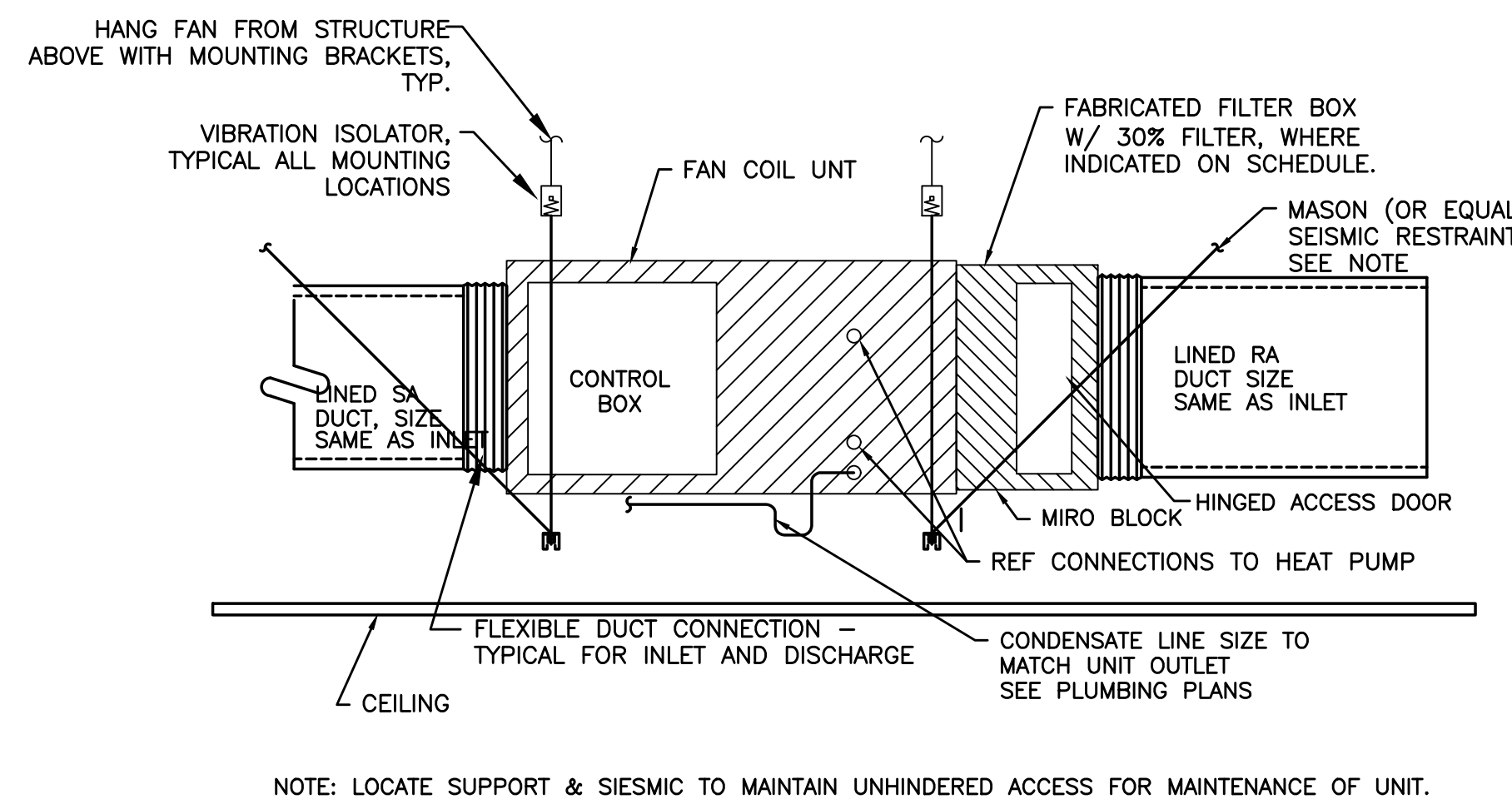
**3 CONSTANT AIR REGULATOR (CAR) - CEILING**  
M602 NOT TO SCALE



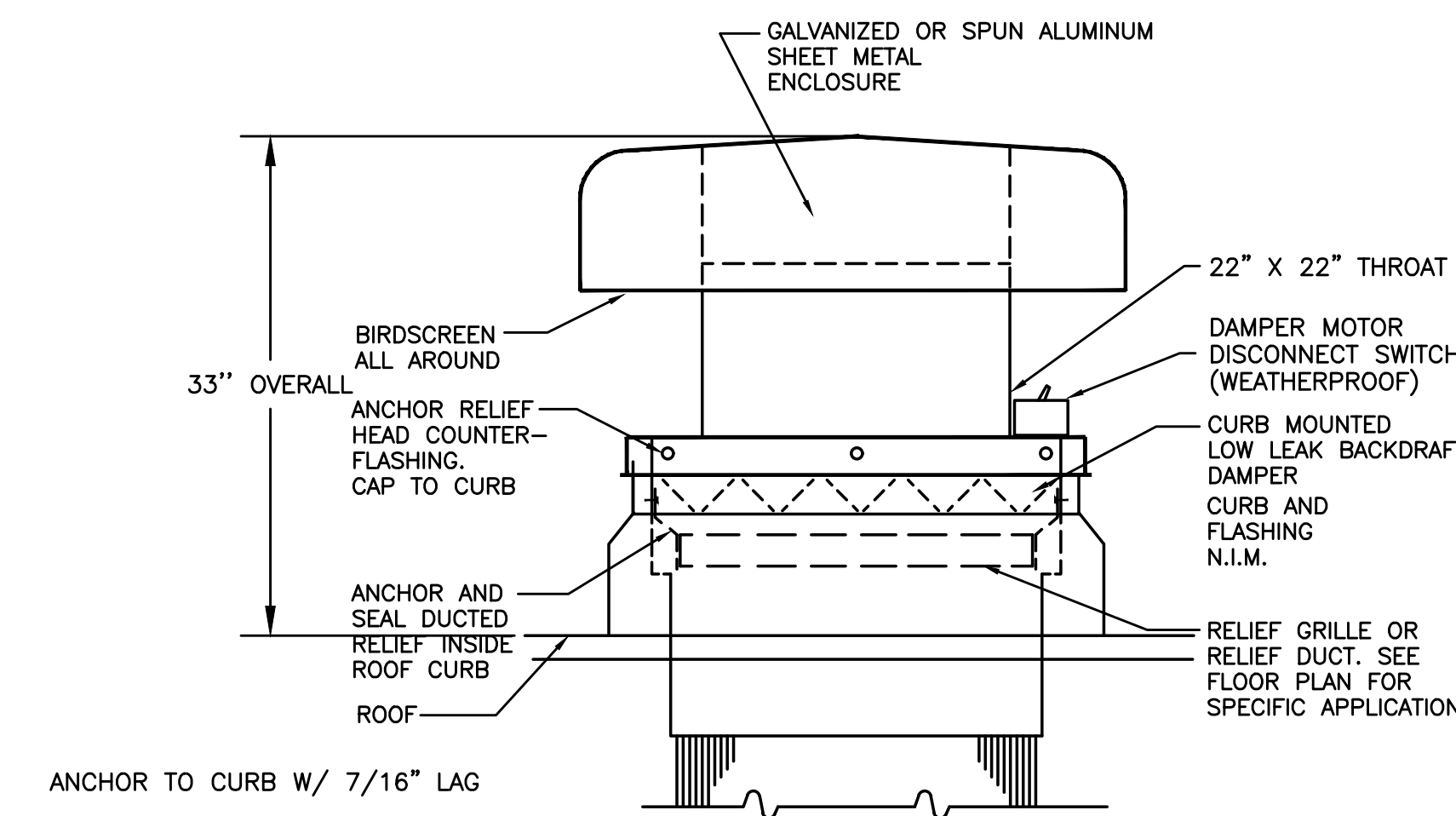
**5 SIDE WALL DWELLING UNIT VENTING**  
M602 NOT TO SCALE



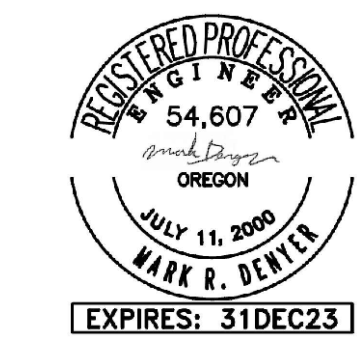
**6 ROOF EXHAUST FAN**  
M602 DETAIL



**7 DUCTED FAN COIL**  
M602 SCALE: DETAIL

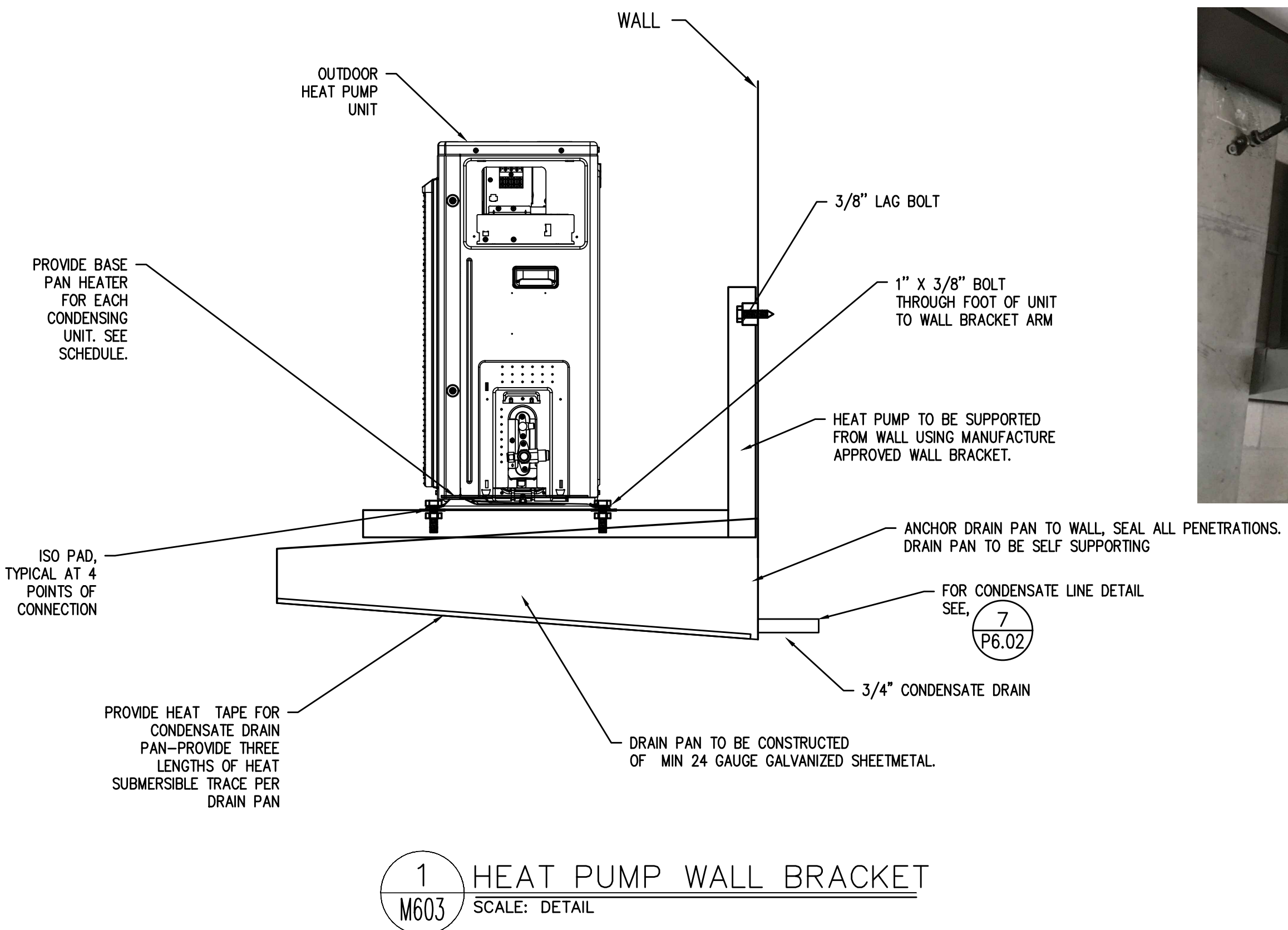


**8 ELEVATOR SHAFT RELIEF VENT**  
M602 SCALE: DETAIL

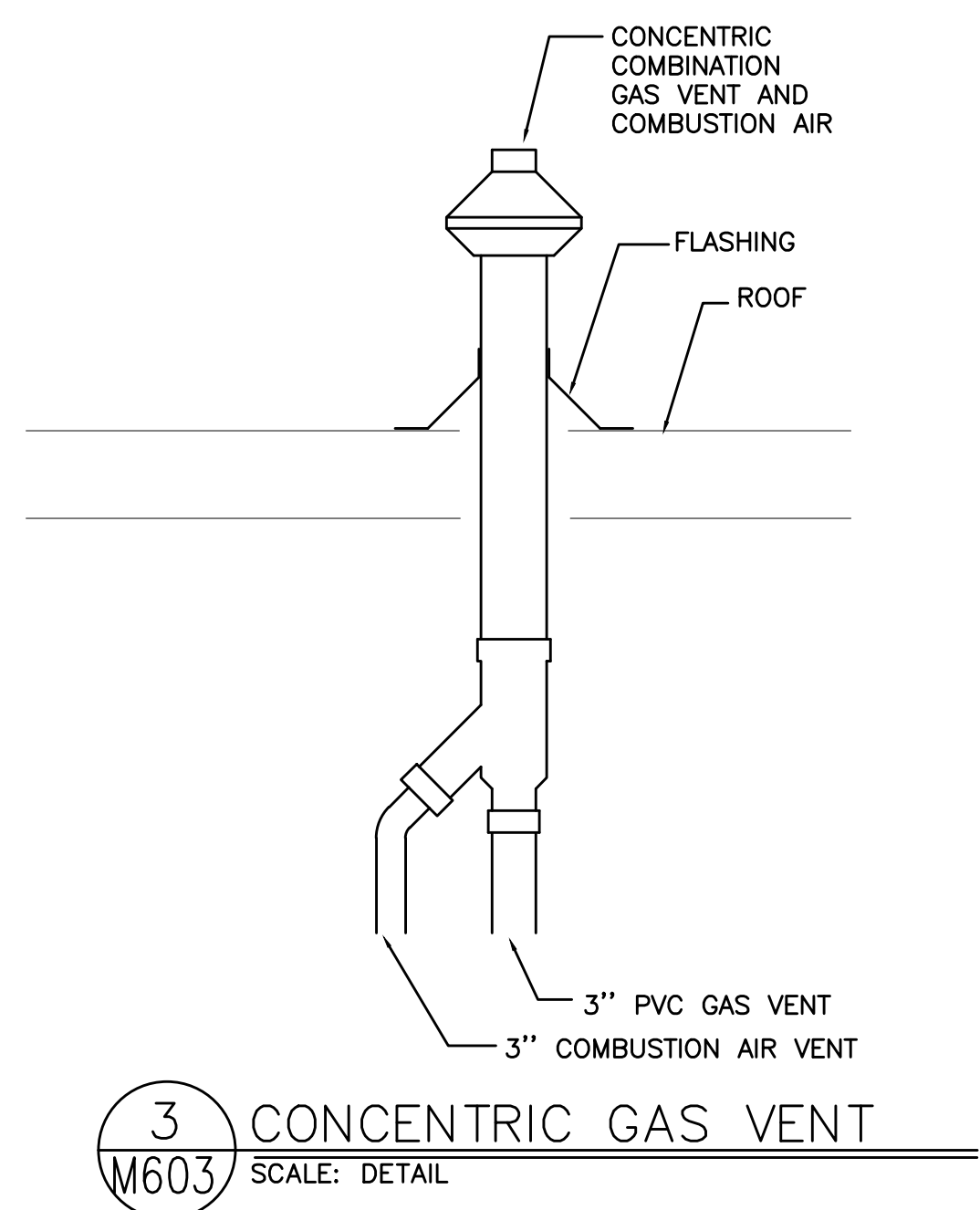


1	PLAN REVIEW #1	2-16-22
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1 HEAT PUMP WALL BRACKET  
M603 SCALE: DETAIL



3 CONCENTRIC GAS VENT  
M603 SCALE: DETAIL



ASI 02

**ALLEGRO INDUSTRIES**

**SPECIFICATIONS**

Product Description: **VENTILATION BLOWER, HIGH OUTPUT**  
Part Number: **9516**  
Style: **AXIAL FAN 16" (40.6 cm)**

**GENERAL DESCRIPTION:**  
Our 16" (40.6 cm) High Output blower offers a high-powered motor for applications requiring a maximum amount of output. Certified to CSA Standard C22.2 No.113.

**CONSTRUCTION:**

- Complete unit epoxy powder coated in "safety orange"
- Interchangeable flange for intake/exhaust side mounting
- 18-gauge cold rolled steel housing
- Bolted motor mount construction
- Integrated carrying handles
- Steel/chrome plated grill
- Equipped with four rubber feet

**MOTOR:**

HP: 2 HP  
Certifications: UL Recognized, CSA Certified  
Voltage/Hz: 115/230V AC, 60 Hz, Single Phase  
RPM: 3450  
Current Draw: 21/10.5A  
Cord: 25' (7.62 m) 12/3 AWG, SJOOW-A Neoprene 300V medium duty  
Plug: NEMA 5-30P or NEMA 6-30P (Twist Lock type)

**FAN:**

- Glass reinforced polypropylene (PPG) three blade fan with aluminum hub
- Moving fan mounted 1 5/8" (4.12 cm) from grill for safety, grill gap-5-16" (0.79 cm)

**DUCTING: (Optional)**

- Retractable, non-collapsible design
- Single-ply, PVC coated, vinyl and polyester materials, temperature resistant up to 180° F (82.22° C)
- Yellow color with black weather-strip and integrated nylon straps
- Class 1 hard drawn spring steel wire helix that meets ASTM 227 specs

**BLOWER DIMENSIONS:**

Length	Width	Height	Weight
18" (45.7 cm)	18" (45.7 cm)	19" (48.2 cm)	74 lbs. (33.4 kg)

**FLOW RATES: (CFM calculated using 15' (4.57 m) of 16" (40.6 cm) ducting)**

Free Air	One 90° Bend	Two 90° Bends
5500 (9311.55 m <sup>3</sup> /hr)	4950 (8410.1 m <sup>3</sup> /hr)	4400 CFM (7475.64 m <sup>3</sup> /hr)

1300 Shiloh Church Road Piedmont, SC 29673 864-846-8740 800-622-3530 FAX: 800-362-7231 [www.allegrosafety.com](http://www.allegrosafety.com)  
Rev I 10-29-19

4 SMOKE PURGE FAN SUBMITTAL  
M603 SCALE: DETAIL

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**HACKER**

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