

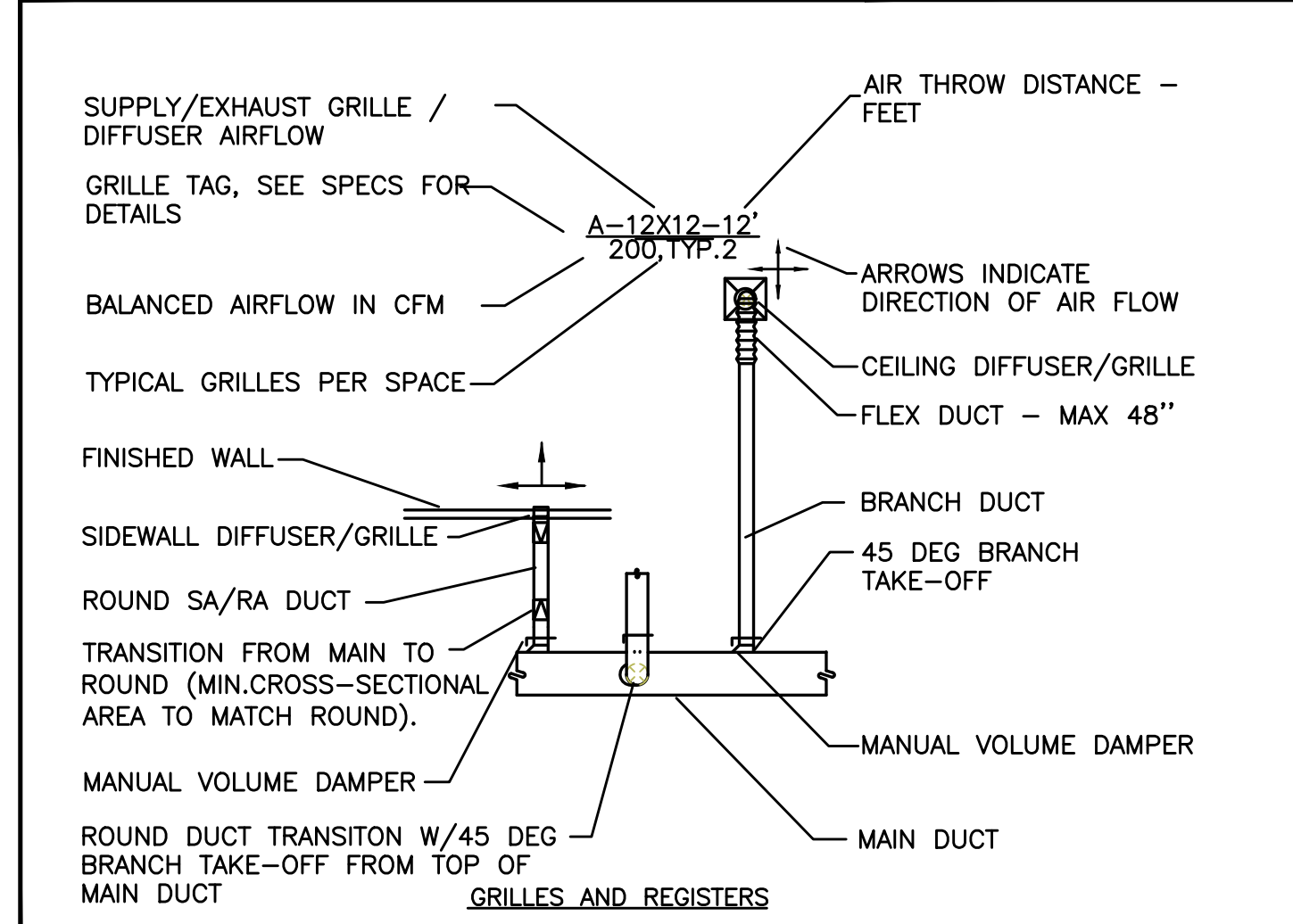
MECHANICAL LEGEND

MECHANICAL LEGEND symbols and definitions for air diffusers, dampers, ductwork, and other mechanical components.

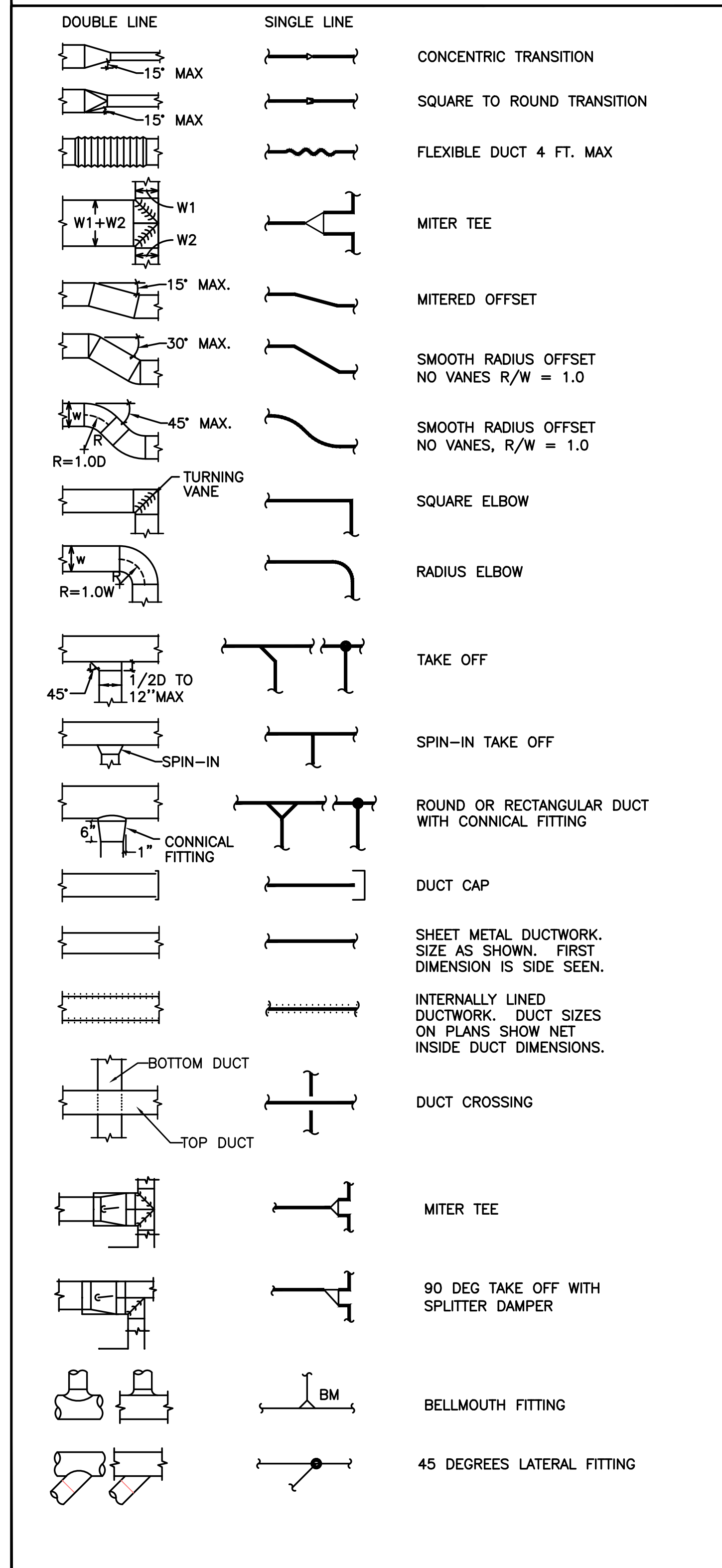
MECHANICAL GENERAL NOTES

- A. THE DRAWINGS ARE DIAGRAMMATIC. PROVIDE ALL MATERIAL (NEW AND UNDIMAGED) AND LABOR FOR A COMPLETE AND OPERABLE SYSTEM. VERIFY ALL BUILDING MEASUREMENTS DIMENSIONS AND EQUIPMENT LOCATIONS BEFORE PROCEEDING WITH ANY OF THE WORK.

AIR DISTRIBUTION DETAILS



AIR DISTRIBUTION DETAILS



SYSTEM COMMISSIONING-VERIFICATION AND TESTING REQUIREMENTS:

- ASHRAE 90.1-2019 REQUIREMENTS SECTION 4.2.5 THROUGH 4.2.5.3 THE OWNER OR GC SHALL PROCURE A COMMISSIONING PROVIDER THAT MEETS ONE OF THE FOLLOWING.

MECHANICAL SHEET INDEX

MECHANICAL SHEET INDEX listing sheets M0.01 through M0.02 and their corresponding building levels and descriptions.

ROOFTOP HVAC UNITS

ROOFTOP HVAC UNITS table with columns for Mark Number, System, Type, Discharge, Total CFM, etc.

ERV SCHEDULE

ERV SCHEDULE table with columns for Mark Number, System, CFM, ESP, In.W.C., etc.

EXHAUST FANS

EXHAUST FANS table with columns for Mark Number, Type, System, CFM, RPM, Tip Speed, etc.

INDOOR UNITS - SPLIT SYSTEM HEAT PUMP

INDOOR UNITS - SPLIT SYSTEM HEAT PUMP table with columns for Mark Number, Type, Cooling Capacity, Heating Capacity, etc.

OUTDOOR UNITS - SPLIT SYSTEM HEAT PUMP

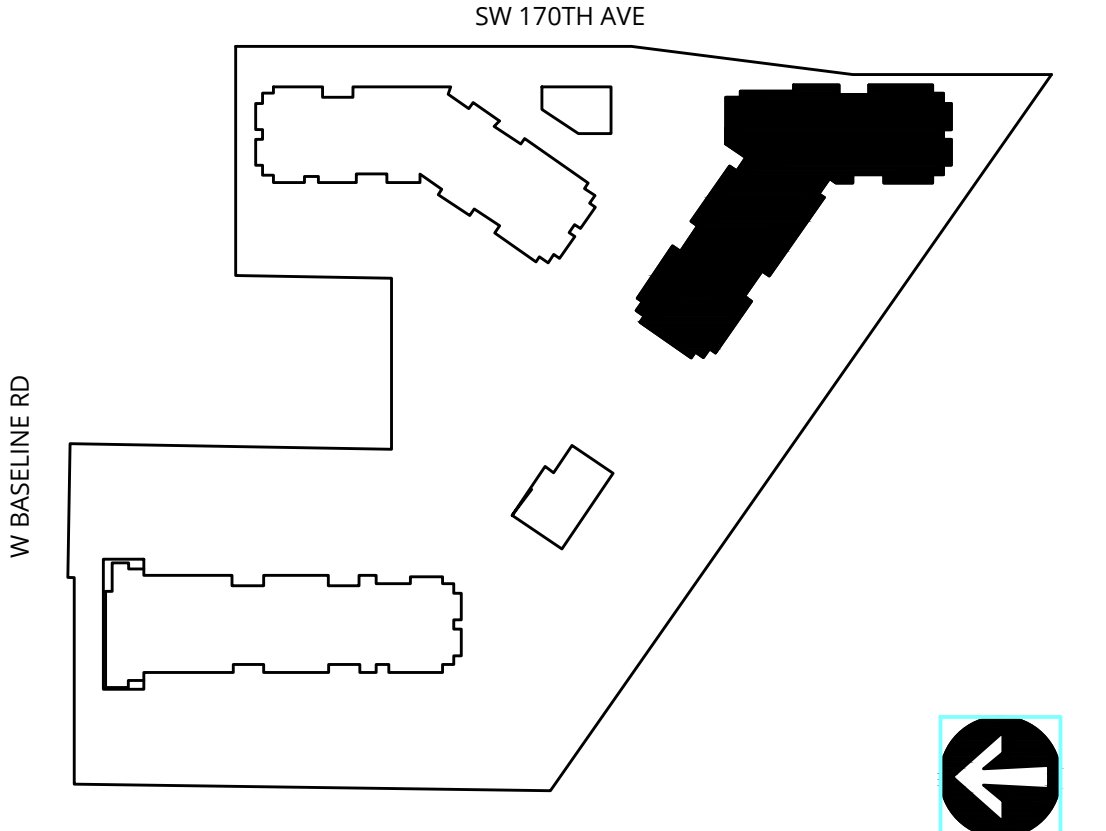
OUTDOOR UNITS - SPLIT SYSTEM HEAT PUMP table with columns for Mark Number, System, Type, Cooling Capacity, etc.

VENTILATION AIR SCHEDULE - LEVEL 1

VENTILATION AIR SCHEDULE - LEVEL 1 table with columns for Room Number, Area, Occupant, and various airflow rates.

VENTILATION AIR SCHEDULE - RTU-1

VENTILATION AIR SCHEDULE - RTU-1 table with columns for Room Number, Area, Occupant, and various airflow rates.



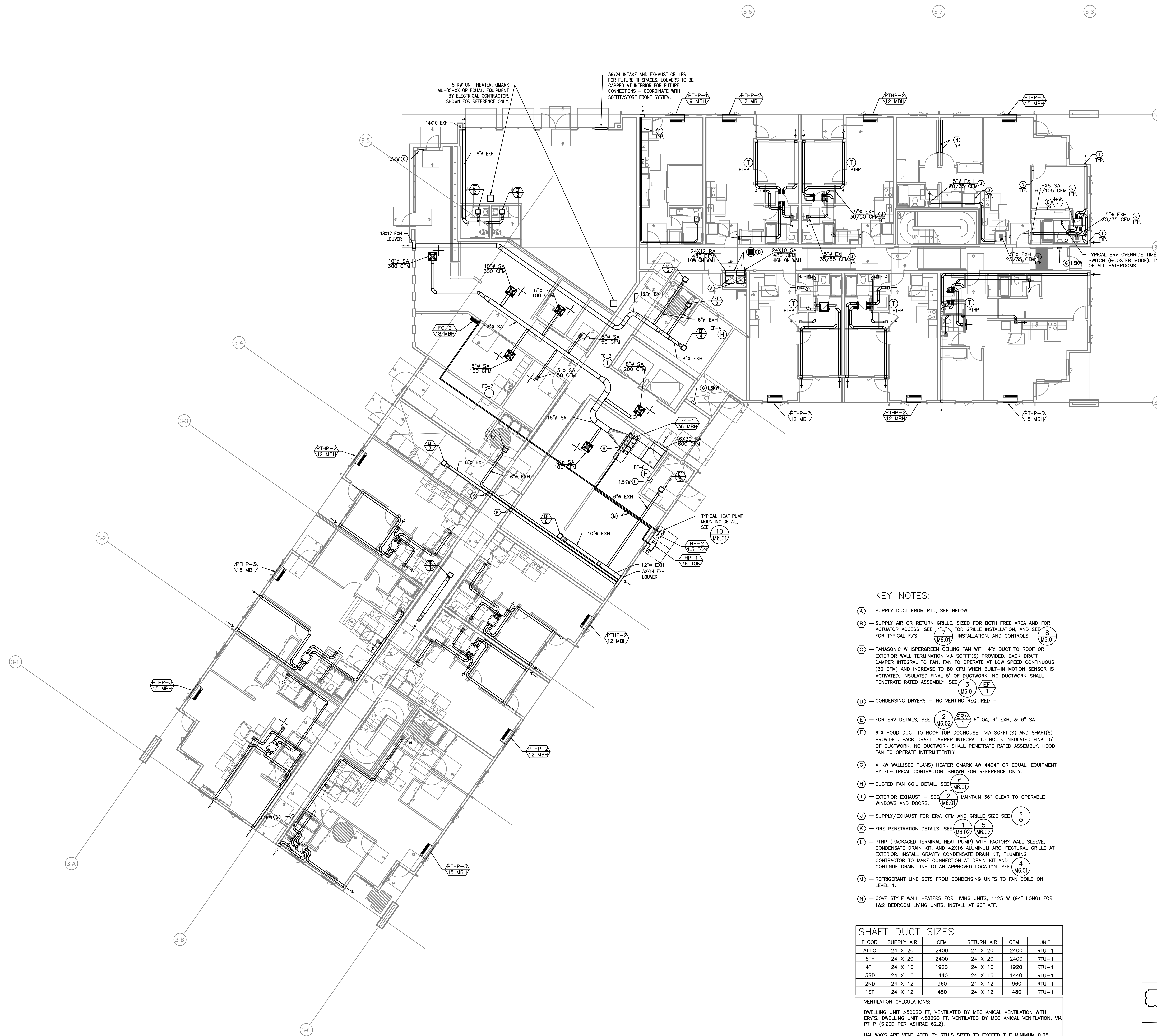
Ankrom Moisan logo and contact information including address, phone, and website.

JACOBS logo and contact information for consulting services.

MFI logo and contact information for mechanical and electrical design.

ELMONICA STATION APARTMENTS BUILDING 3 project information and permit set details.

MECHANICAL LEGENDS & SCHEDULES PERMIT SET project information and permit number.



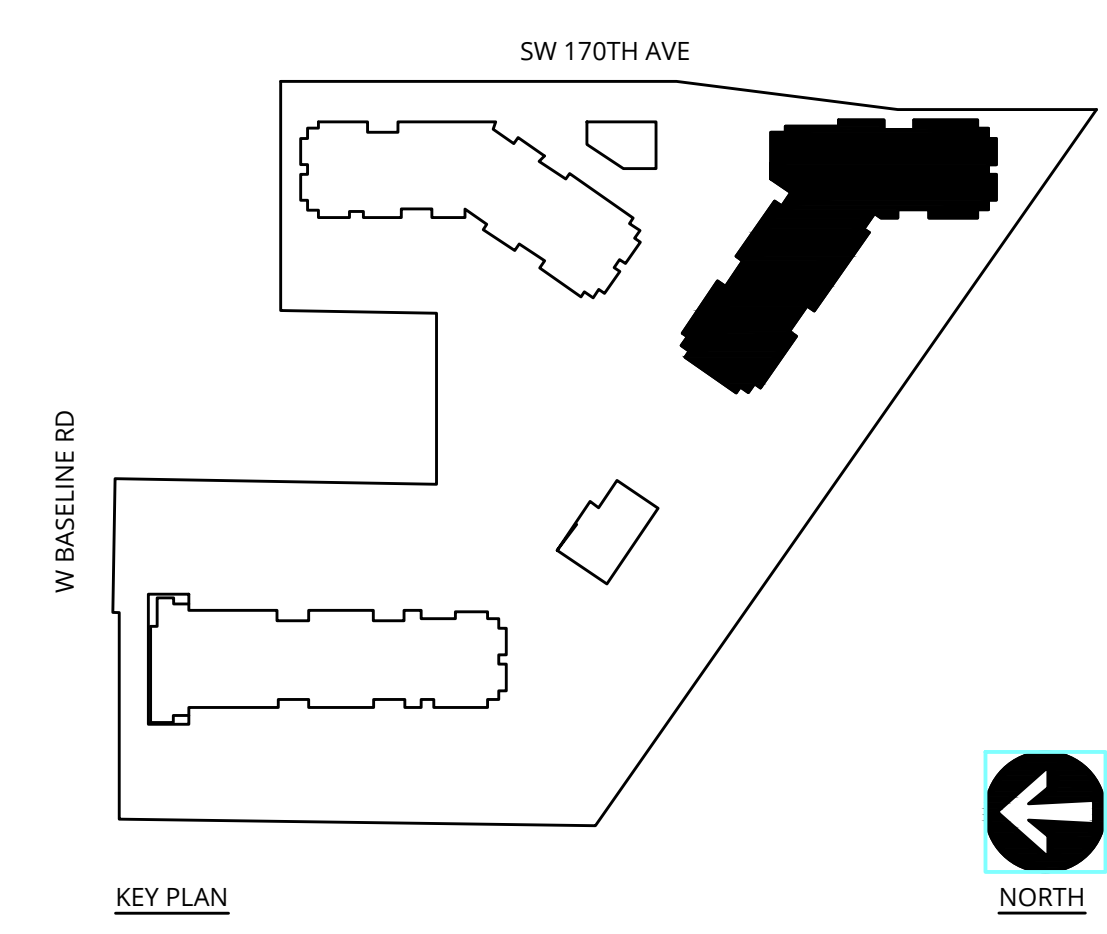
1 BUILDING 3 - LEVEL 1 - MECH PLAN  
 M2.01 SCALE: 1/8" = 1'-0"

- KEY NOTES:**
- (A) - SUPPLY DUCT FROM RTU, SEE BELOW
  - (B) - SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE (M6.01) FOR GRILLE INSTALLATION, AND SEE (M6.02) FOR TYPICAL F/S INSTALLATION, AND CONTROLS.
  - (C) - PANASONIC WHISPERGREEN CEILING FAN WITH 4" DUCT TO ROOF OR EXTERIOR WALL TERMINATION VIA SOFFIT(S) PROVIDED, BACK DRAFT DAMPER INTEGRAL TO FAN, FAN TO OPERATE AT LOW SPEED CONTINUOUS (30 CFM) AND INCREASE TO 80 CFM WHEN BUILT-IN MOTION SENSOR IS ACTIVATED. INSULATED FINAL 5' OF DUCTWORK. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. SEE (M6.01) (CF 1)
  - (D) - CONDENSING DRYERS - NO VENTING REQUIRED -
  - (E) - FOR ERV DETAILS, SEE (M6.02) (ERV 1) 6" OA, 6" EXH, & 6" SA
  - (F) - 6" HOOD DUCT TO ROOF TOP DOGHOUSE VIA SOFFIT(S) AND SHAFT(S) PROVIDED, BACK DRAFT DAMPER INTEGRAL TO HOOD. INSULATED FINAL 5' OF DUCTWORK. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. HOOD FAN TO OPERATE INTERMITTENTLY
  - (G) - X KW WALL(SEE PLANS) HEATER QMARK ANH4404F OR EQUAL, EQUIPMENT BY ELECTRICAL CONTRACTOR, SHOWN FOR REFERENCE ONLY.
  - (H) - DUCTED FAN COIL DETAIL, SEE (M6.01) (6)
  - (I) - EXTERIOR EXHAUST - SEE (M6.01) (2) MAINTAIN 36" CLEAR TO OPERABLE WINDOWS AND DOORS.
  - (J) - SUPPLY/EXHAUST FOR ERV, CFM AND GRILLE SIZE SEE (X) (XX)
  - (K) - FIRE PENETRATION DETAILS, SEE (M6.02) (1) (5) (M6.02)
  - (L) - PTHP (PACKAGED TERMINAL HEAT PUMP) WITH FACTORY WALL SLEEVE, CONDENSATE DRAIN KIT, AND 42X16 ALUMINUM ARCHITECTURAL GRILLE AT EXTERIOR. INSTALL GRAVITY CONDENSATE DRAIN KIT, PLUMBING CONTRACTOR TO MAKE CONNECTION AT DRAIN KIT AND CONTINUE DRAIN LINE TO AN APPROVED LOCATION. SEE (M6.01) (4)
  - (M) - REFRIGERANT LINE SETS FROM CONDENSING UNITS TO FAN COILS ON LEVEL 1.
  - (N) - COVE STYLE WALL HEATERS FOR LIVING UNITS, 1125 W (94" LONG) FOR 1&2 BEDROOM LIVING UNITS, INSTALL AT 90° AFF.

**SHAFT DUCT SIZES**

FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
ATTIC	24 X 20	2400	24 X 20	2400	RTU-1
5TH	24 X 20	2400	24 X 20	2400	RTU-1
4TH	24 X 16	1920	24 X 16	1920	RTU-1
3RD	24 X 16	1440	24 X 16	1440	RTU-1
2ND	24 X 12	960	24 X 12	960	RTU-1
1ST	24 X 12	480	24 X 12	480	RTU-1

**VENTILATION CALCULATIONS:**  
 DWELLING UNIT >500SQ FT, VENTILATED BY MECHANICAL VENTILATION WITH ERV'S. DWELLING UNIT <500SQ FT, VENTILATED BY MECHANICAL VENTILATION, VIA PTHP (SIZED PER ASHRAE 62.2).  
 HALLWAYS ARE VENTILATED BY RTU'S SIZED TO EXCEED THE MINIMUM 0.06 CFM/SQ FT REQUIREMENT.  
 SEE VENTILATION SCHEDULES FOR OTHER UNITS.



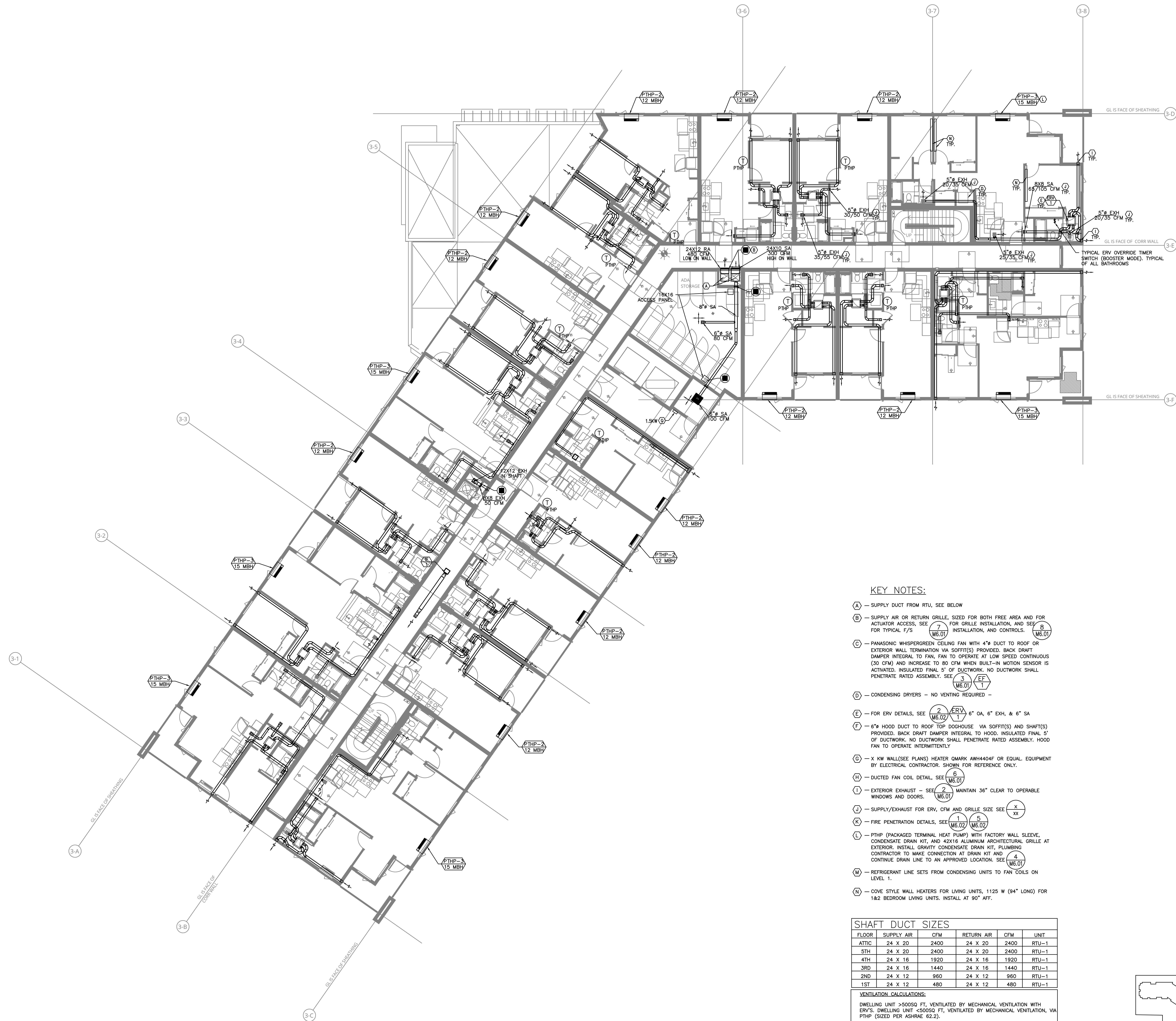
REVISION	DATE	REASON FOR ISSUE

MECHANICAL PLAN - LEVEL 1

PERMIT SET

DATE: 09/23/2022 PROJECT NUMBER: 215390

M2.01-3

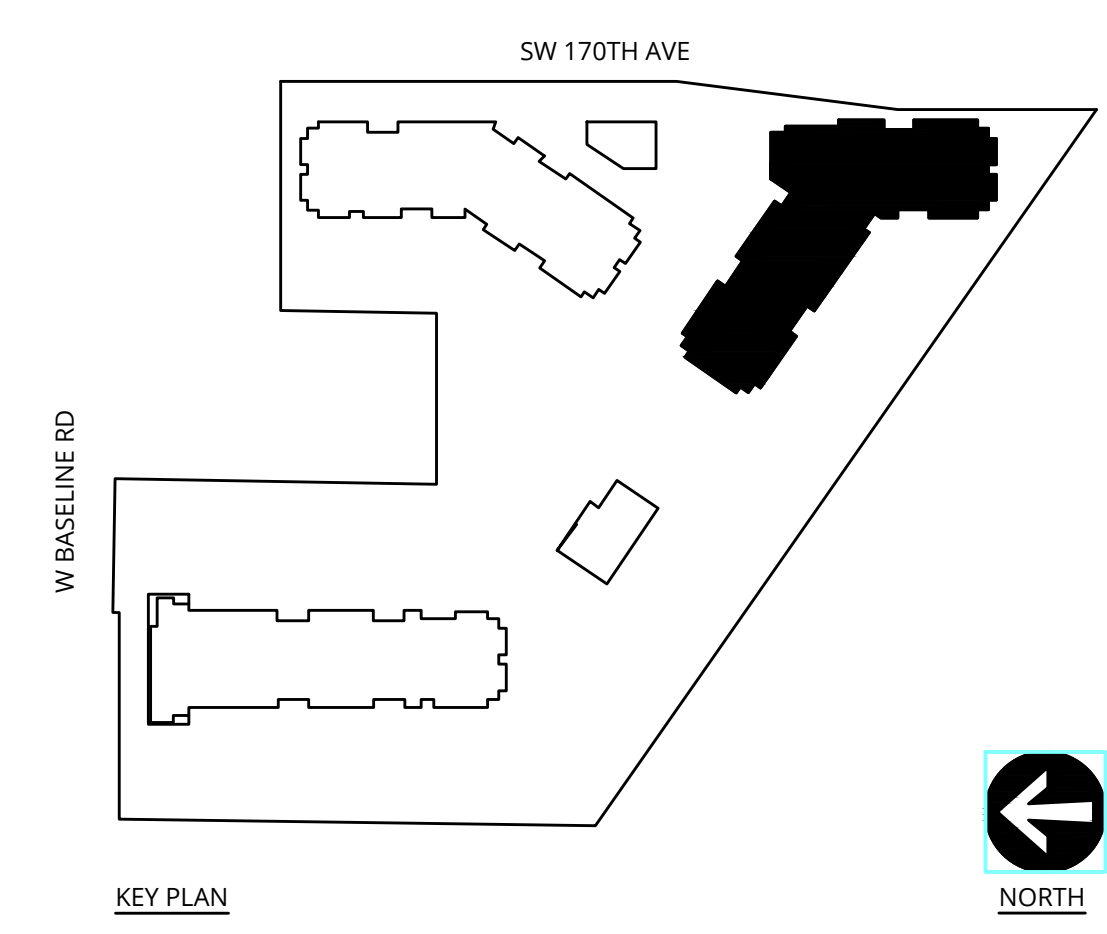


- KEY NOTES:**
- (A) — SUPPLY DUCT FROM RTU, SEE BELOW
  - (B) — SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE (M6.01) FOR GRILLE INSTALLATION, AND SEE (M6.01) FOR TYPICAL F/S INSTALLATION, AND CONTROLS.
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  - (H) — DUCTED FAN COIL DETAIL, SEE (M6.01) (6)
  - (I) — EXTERIOR EXHAUST — SEE (M6.01) (2) MAINTAIN 36" CLEAR TO OPERABLE WINDOWS AND DOORS.
  - (J) — SUPPLY/EXHAUST FOR ERV, CFM AND GRILLE SIZE SEE (X) (XX)
  - (K) — FIRE PENETRATION DETAILS, SEE (M6.02) (1) (5) (M6.02)
  - (L) — PTHP (PACKAGED TERMINAL HEAT PUMP) WITH FACTORY WALL SLEEVE, CONDENSATE DRAIN KIT, AND 42X16 ALUMINUM ARCHITECTURAL GRILLE AT EXTERIOR. INSTALL GRAVITY CONDENSATE DRAIN KIT, PLUMBING CONTRACTOR TO MAKE CONNECTION AT DRAIN KIT AND CONTINUE DRAIN LINE TO AN APPROVED LOCATION. SEE (M6.01) (2)
  - (M) — REFRIGERANT LINE SETS FROM CONDENSING UNITS TO FAN COILS ON LEVEL 1.
  - (N) — COVE STYLE WALL HEATERS FOR LIVING UNITS, 1125 W (94" LONG) FOR 1&2 BEDROOM LIVING UNITS. INSTALL AT 90" AFF.

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 HALLWAYS ARE VENTILATED BY RTU'S SIZED TO EXCEED THE MINIMUM 0.06 CFM/SQ FT REQUIREMENT.  
 SEE VENTILATION SCHEDULES FOR OTHER UNITS.



**1 BUILDING 3 — LEVEL 2 — MECH PLAN**  
 M2.02 SCALE: 1/8" = 1'-0"

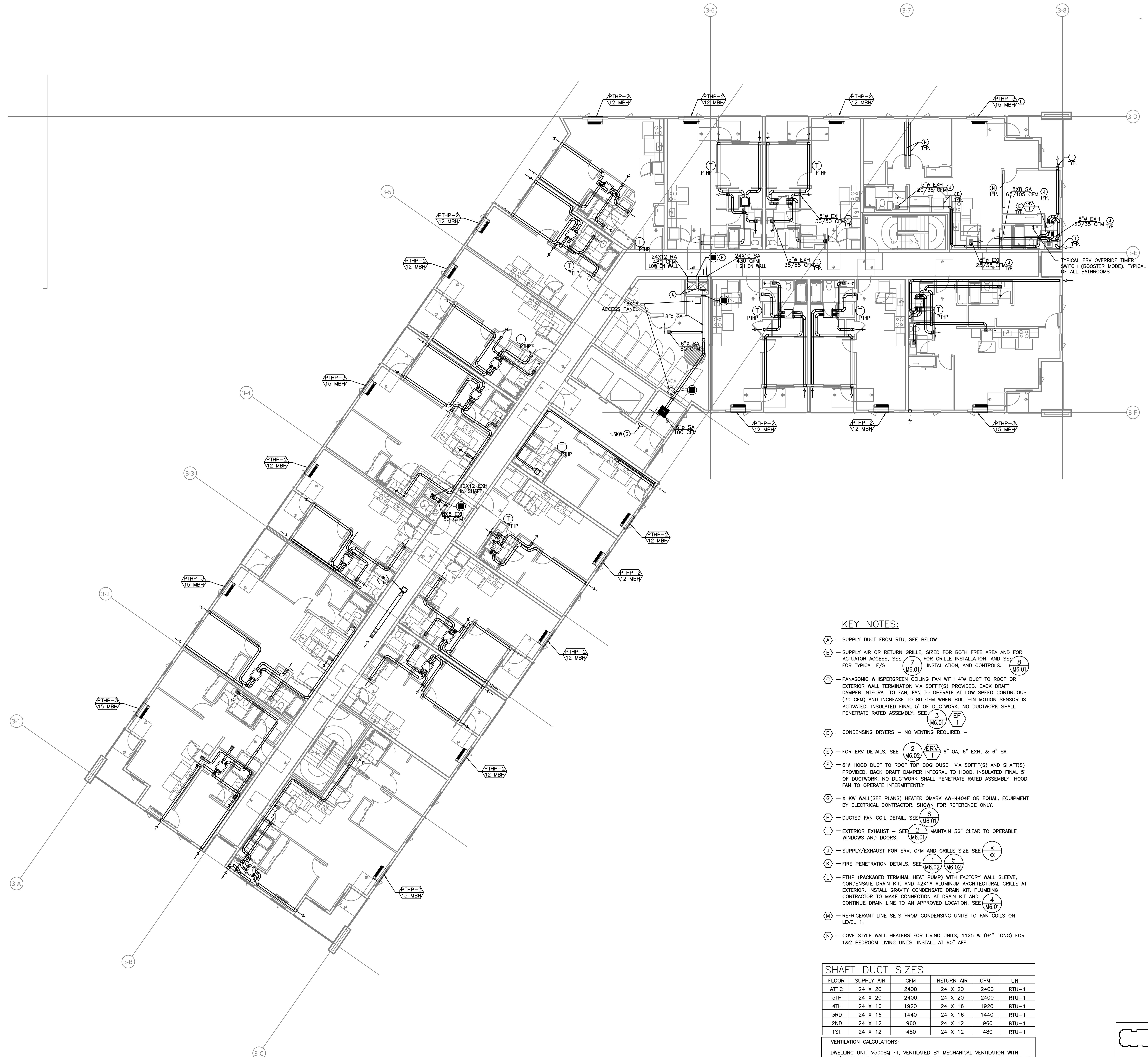
REVISION	DATE	REASON FOR ISSUE

**MECHANICAL PLAN - LEVEL 2**

**PERMIT SET**

DATE: 09/23/2022 PROJECT NUMBER: 215390

**M2.02-3**

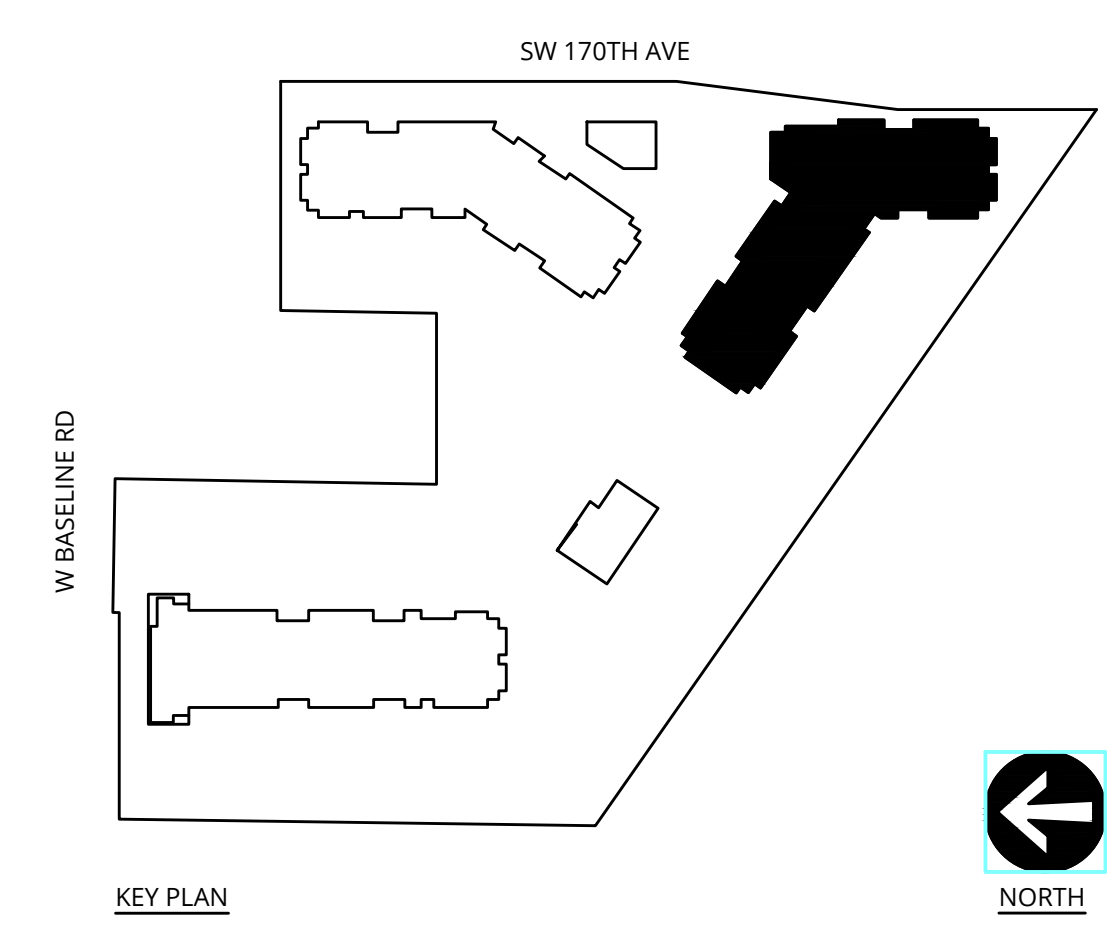


- KEY NOTES:**
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  - (B) - SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE (M6.01) FOR GRILLE INSTALLATION, AND SEE (M6.02) FOR TYPICAL F/S INSTALLATION, AND CONTROLS.
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  - (J) - SUPPLY/EXHAUST FOR ERV, CFM AND GRILLE SIZE SEE (M6.01) (M6.02) (M6.03) (M6.04) (M6.05) (M6.06) (M6.07) (M6.08) (M6.09) (M6.10) (M6.11) (M6.12) (M6.13) (M6.14) (M6.15) (M6.16) (M6.17) (M6.18) (M6.19) (M6.20) (M6.21) (M6.22) (M6.23) (M6.24) (M6.25) (M6.26) (M6.27) (M6.28) (M6.29) (M6.30) (M6.31) (M6.32) (M6.33) (M6.34) (M6.35) (M6.36) (M6.37) (M6.38) (M6.39) (M6.40) (M6.41) (M6.42) (M6.43) (M6.44) (M6.45) (M6.46) (M6.47) (M6.48) (M6.49) (M6.50) (M6.51) (M6.52) (M6.53) (M6.54) (M6.55) (M6.56) (M6.57) (M6.58) (M6.59) (M6.60) (M6.61) (M6.62) (M6.63) (M6.64) (M6.65) (M6.66) (M6.67) (M6.68) (M6.69) (M6.70) (M6.71) (M6.72) (M6.73) (M6.74) (M6.75) (M6.76) (M6.77) (M6.78) (M6.79) (M6.80) (M6.81) (M6.82) (M6.83) (M6.84) (M6.85) (M6.86) (M6.87) (M6.88) (M6.89) (M6.90) (M6.91) (M6.92) (M6.93) (M6.94) (M6.95) (M6.96) (M6.97) (M6.98) (M6.99) (M6.100)
  - (K) - FIRE PENETRATION DETAILS, SEE (M6.01) (M6.02) (M6.03) (M6.04) (M6.05) (M6.06) (M6.07) (M6.08) (M6.09) (M6.10) (M6.11) (M6.12) (M6.13) (M6.14) (M6.15) (M6.16) (M6.17) (M6.18) (M6.19) (M6.20) (M6.21) (M6.22) (M6.23) (M6.24) (M6.25) (M6.26) (M6.27) (M6.28) (M6.29) (M6.30) (M6.31) (M6.32) (M6.33) (M6.34) (M6.35) (M6.36) (M6.37) (M6.38) (M6.39) (M6.40) (M6.41) (M6.42) (M6.43) (M6.44) (M6.45) (M6.46) (M6.47) (M6.48) (M6.49) (M6.50) (M6.51) (M6.52) (M6.53) (M6.54) (M6.55) (M6.56) (M6.57) (M6.58) (M6.59) (M6.60) (M6.61) (M6.62) (M6.63) (M6.64) (M6.65) (M6.66) (M6.67) (M6.68) (M6.69) (M6.70) (M6.71) (M6.72) (M6.73) (M6.74) (M6.75) (M6.76) (M6.77) (M6.78) (M6.79) (M6.80) (M6.81) (M6.82) (M6.83) (M6.84) (M6.85) (M6.86) (M6.87) (M6.88) (M6.89) (M6.90) (M6.91) (M6.92) (M6.93) (M6.94) (M6.95) (M6.96) (M6.97) (M6.98) (M6.99) (M6.100)
  - (L) - PTHP (PACKAGED TERMINAL HEAT PUMP) WITH FACTORY WALL SLEEVE, CONDENSATE DRAIN KIT, AND 42X16 ALUMINUM ARCHITECTURAL GRILLE AT EXTERIOR. INSTALL GRAVITY CONDENSATE DRAIN KIT, PLUMBING CONTRACTOR TO MAKE CONNECTION AT DRAIN KIT AND CONTINUE DRAIN LINE TO AN APPROVED LOCATION. SEE (M6.01) (M6.02) (M6.03) (M6.04) (M6.05) (M6.06) (M6.07) (M6.08) (M6.09) (M6.10) (M6.11) (M6.12) (M6.13) (M6.14) (M6.15) (M6.16) (M6.17) (M6.18) (M6.19) (M6.20) (M6.21) (M6.22) (M6.23) (M6.24) (M6.25) (M6.26) (M6.27) (M6.28) (M6.29) (M6.30) (M6.31) (M6.32) (M6.33) (M6.34) (M6.35) (M6.36) (M6.37) (M6.38) (M6.39) (M6.40) (M6.41) (M6.42) (M6.43) (M6.44) (M6.45) (M6.46) (M6.47) (M6.48) (M6.49) (M6.50) (M6.51) (M6.52) (M6.53) (M6.54) (M6.55) (M6.56) (M6.57) (M6.58) (M6.59) (M6.60) (M6.61) (M6.62) (M6.63) (M6.64) (M6.65) (M6.66) (M6.67) (M6.68) (M6.69) (M6.70) (M6.71) (M6.72) (M6.73) (M6.74) (M6.75) (M6.76) (M6.77) (M6.78) (M6.79) (M6.80) (M6.81) (M6.82) (M6.83) (M6.84) (M6.85) (M6.86) (M6.87) (M6.88) (M6.89) (M6.90) (M6.91) (M6.92) (M6.93) (M6.94) (M6.95) (M6.96) (M6.97) (M6.98) (M6.99) (M6.100)
  - (M) - REFRIGERANT LINE SETS FROM CONDENSING UNITS TO FAN COILS ON LEVEL 1.
  - (N) - COVE STYLE WALL HEATERS FOR LIVING UNITS, 1125 W (94" LONG) FOR 1&2 BEDROOM LIVING UNITS. INSTALL AT 90" AFF.

**SHAFT DUCT SIZES**

FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
ATTIC	24 X 20	2400	24 X 20	2400	RTU-1
5TH	24 X 20	2400	24 X 20	2400	RTU-1
4TH	24 X 16	1920	24 X 16	1920	RTU-1
3RD	24 X 16	1440	24 X 16	1440	RTU-1
2ND	24 X 12	960	24 X 12	960	RTU-1
1ST	24 X 12	480	24 X 12	480	RTU-1

**VENTILATION CALCULATIONS:**  
 DWELLING UNIT >5000 SQ FT, VENTILATED BY MECHANICAL VENTILATION WITH ERV'S. DWELLING UNIT <5000 SQ FT, VENTILATED BY MECHANICAL VENTILATION, VIA PTHP (SIZED PER ASHRAE 62.2).  
 HALLWAYS ARE VENTILATED BY RTU'S SIZED TO EXCEED THE MINIMUM 0.06 CFM/SQ FT REQUIREMENT.  
 SEE VENTILATION SCHEDULES FOR OTHER UNITS.



**1 BUILDING 3 - LEVEL 3 - MECH PLAN**  
 M2.03 SCALE: 1/8" = 1'-0"

09-07-22  
 54,607  
 09-07-22  
 EXPIRES: 31DEC23

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**ELMONICA STATION APARTMENTS BUILDING 3**  
 SW 170TH AND W BASELINE  
 REMBOLD PROPERTIES

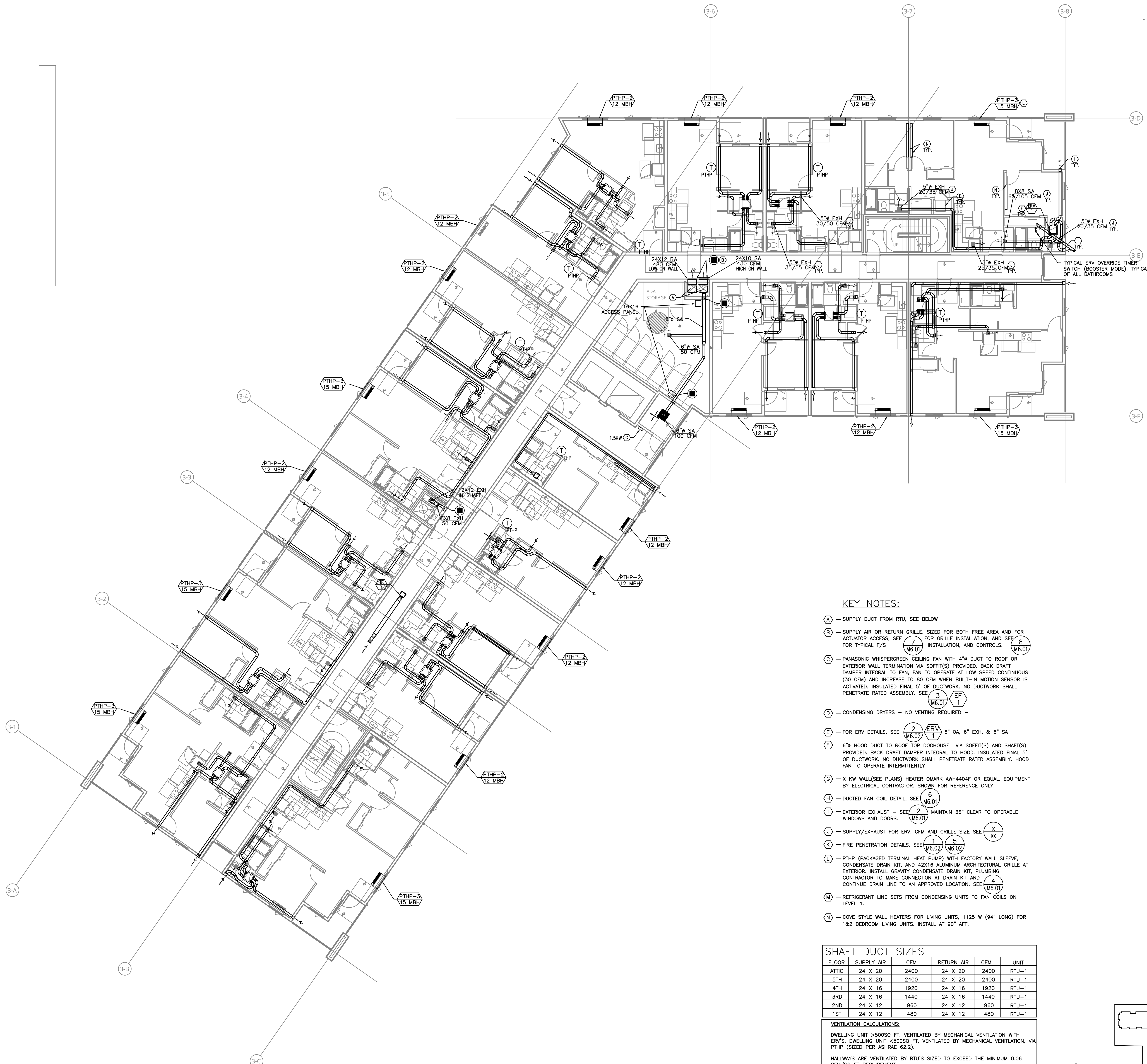
REVISION	DATE	REASON FOR ISSUE

**MECHANICAL PLAN - LEVEL 3**

**PERMIT SET**

DATE: 09/23/2022 PROJECT NUMBER: 215390

**M2.03-3**

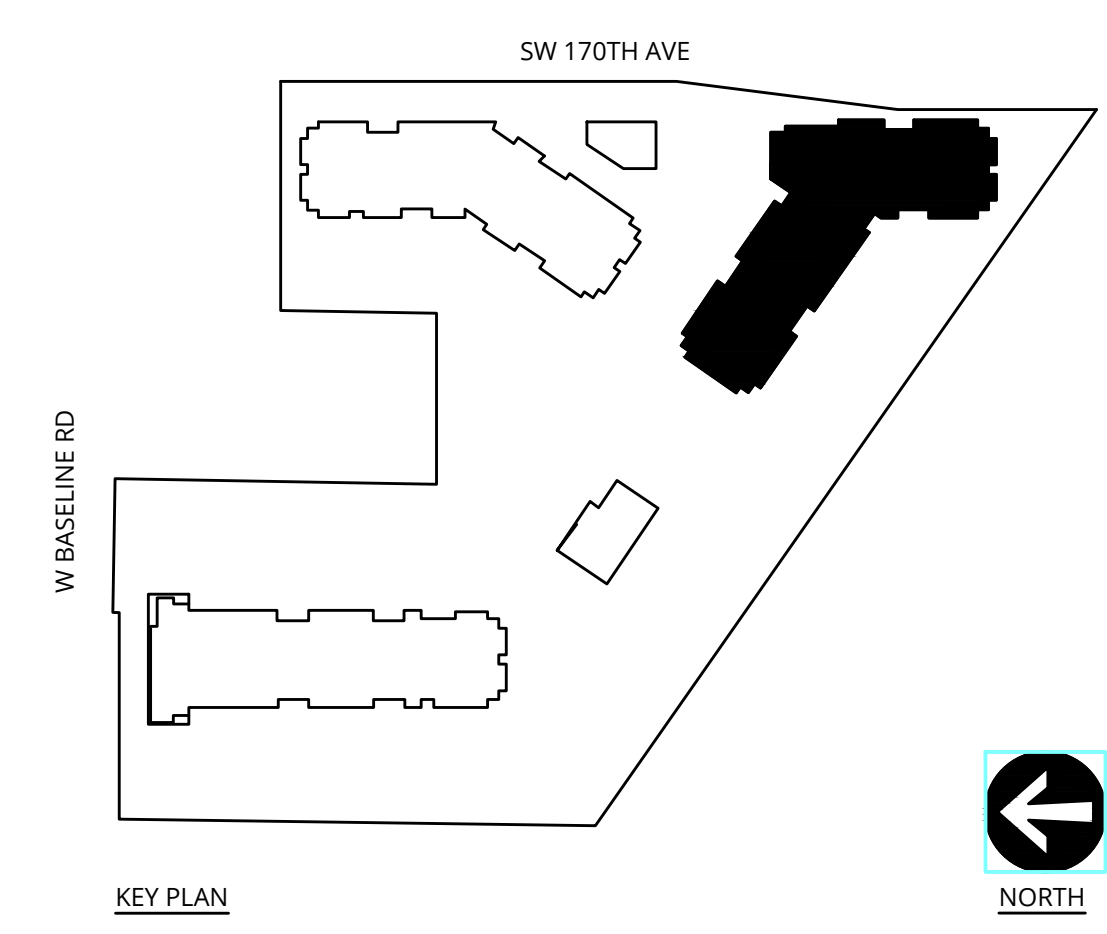


- KEY NOTES:**
- (A) - SUPPLY DUCT FROM RTU, SEE BELOW
  - (B) - SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE (7) FOR GRILLE INSTALLATION, AND SEE (8) FOR TYPICAL F/S INSTALLATION, AND CONTROLS.
  - (C) - PANASONIC WHISPERGREEN CEILING FAN WITH 4" DUCT TO ROOF OR EXTERIOR WALL TERMINATION VIA SOFFIT(S) PROVIDED. BACK DRAFT DAMPER INTEGRAL TO FAN, FAN TO OPERATE AT LOW SPEED CONTINUOUS (30 CFM) AND INCREASE TO 80 CFM WHEN BUILT-IN MOTION SENSOR IS ACTIVATED. INSULATED FINAL 5' OF DUCTWORK. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. SEE (3) (EF) (1)
  - (D) - CONDENSING DRYERS - NO VENTING REQUIRED -
  - (E) - FOR ERV DETAILS, SEE (2) (ERV) (1) 6" OA, 6" EXH, & 6" SA
  - (F) - 6" HOOD DUCT TO ROOF TOP DOGHOUSE VIA SOFFIT(S) AND SHAFT(S) PROVIDED. BACK DRAFT DAMPER INTEGRAL TO HOOD. INSULATED FINAL 5' OF DUCTWORK. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. HOOD FAN TO OPERATE INTERMITTENTLY.
  - (G) - X KW WALL(SEE PLANS) HEATER QMARK AWH4404F OR EQUAL. EQUIPMENT BY ELECTRICAL CONTRACTOR. SHOWN FOR REFERENCE ONLY.
  - (H) - DUCTED FAN COIL DETAIL, SEE (6) (M6.01)
  - (I) - EXTERIOR EXHAUST - SEE (2) (M6.01) MAINTAIN 36" CLEAR TO OPERABLE WINDOWS AND DOORS.
  - (J) - SUPPLY/EXHAUST FOR ERV, CFM AND GRILLE SIZE SEE (X) (XX)
  - (K) - FIRE PENETRATION DETAILS, SEE (1) (M6.02) (5) (M6.02)
  - (L) - PTHP (PACKAGED TERMINAL HEAT PUMP) WITH FACTORY WALL SLEEVE, CONDENSATE DRAIN KIT, AND 42X16 ALUMINUM ARCHITECTURAL GRILLE AT EXTERIOR. INSTALL GRAVITY CONDENSATE DRAIN KIT. PLUMBING CONTRACTOR TO MAKE CONNECTION AT DRAIN KIT AND CONTINUE DRAIN LINE TO AN APPROVED LOCATION. SEE (4) (M6.01)
  - (M) - REFRIGERANT LINE SETS FROM CONDENSING UNITS TO FAN COILS ON LEVEL 1.
  - (N) - COVE STYLE WALL HEATERS FOR LIVING UNITS, 1125 W (94" LONG) FOR 1&2 BEDROOM LIVING UNITS. INSTALL AT 90" AFF.

**SHAFT DUCT SIZES**

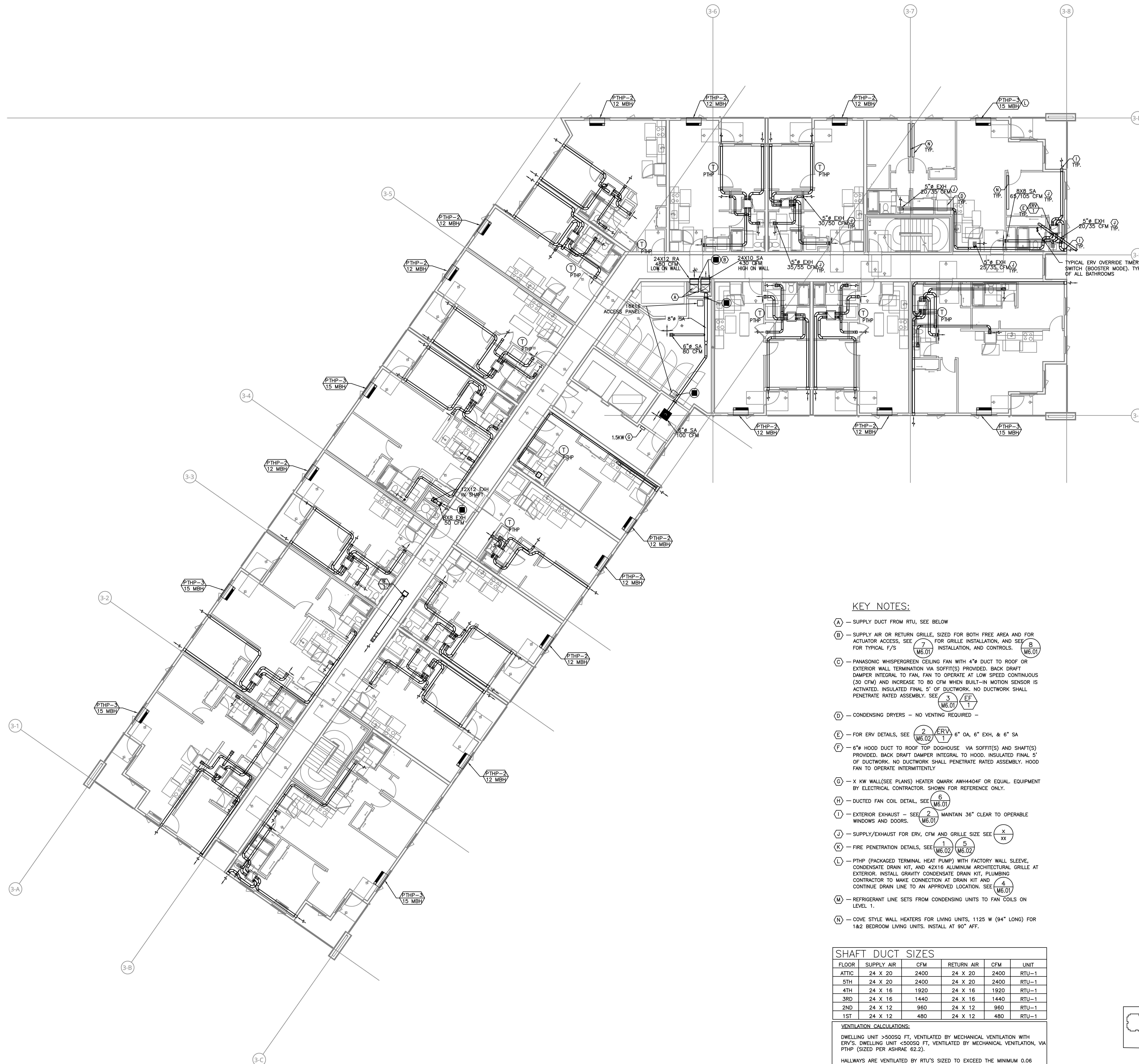
FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
ATTIC	24 X 20	2400	24 X 20	2400	RTU-1
5TH	24 X 20	2400	24 X 20	2400	RTU-1
4TH	24 X 16	1920	24 X 16	1920	RTU-1
3RD	24 X 16	1440	24 X 16	1440	RTU-1
2ND	24 X 12	960	24 X 12	960	RTU-1
1ST	24 X 12	480	24 X 12	480	RTU-1

**VENTILATION CALCULATIONS:**  
 DWELLING UNIT >500SQ FT, VENTILATED BY MECHANICAL VENTILATION WITH ERV'S. DWELLING UNIT <500SQ FT, VENTILATED BY MECHANICAL VENTILATION, VIA PTHP (SIZED PER ASHRAE 62.2).  
 HALLWAYS ARE VENTILATED BY RTU'S SIZED TO EXCEED THE MINIMUM 0.06 CFM/SQ FT REQUIREMENT.  
 SEE VENTILATION SCHEDULES FOR OTHER UNITS.



**1 BUILDING 3 - LEVEL 4 - MECH PLAN**  
 M2.04 SCALE: 1/8" = 1'-0"

REVISION	DATE	REASON FOR ISSUE

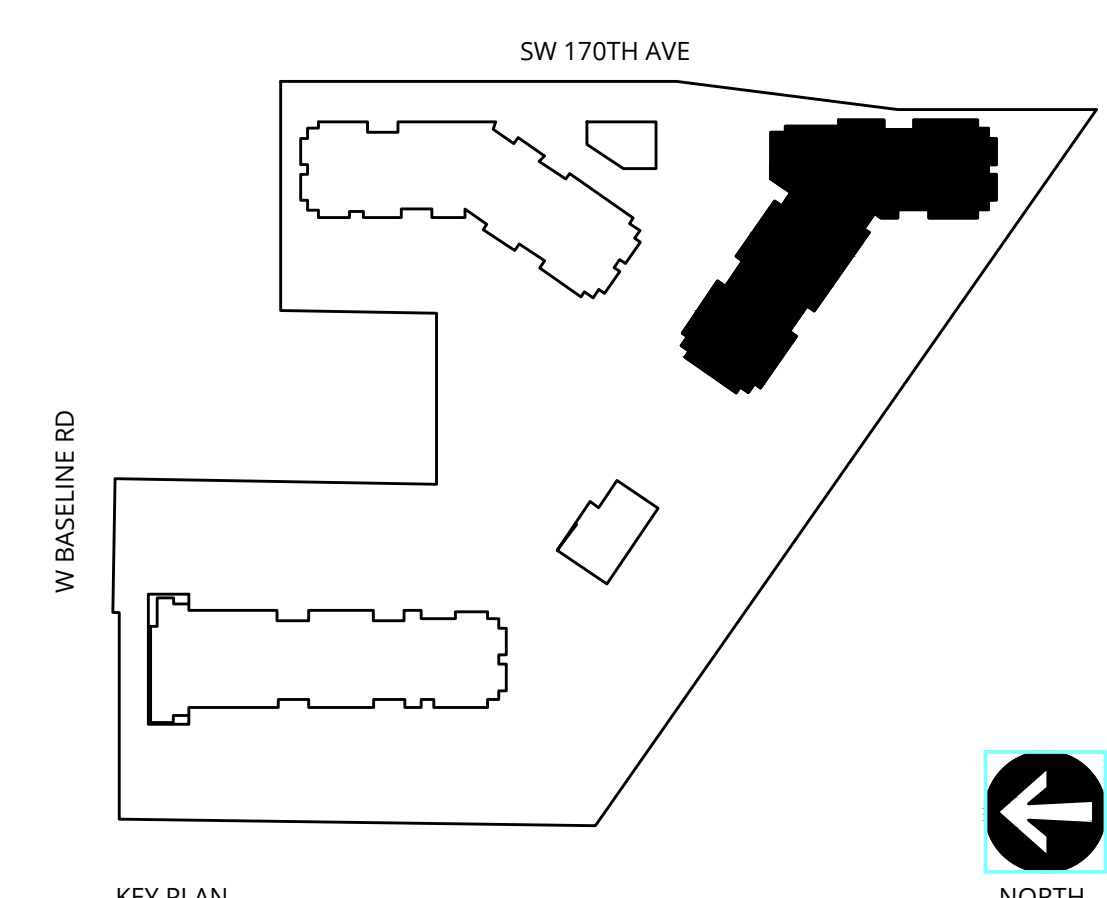


- KEY NOTES:**
- (A) — SUPPLY DUCT FROM RTU, SEE BELOW
  - (B) — SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE (7) FOR GRILLE INSTALLATION, AND SEE (8) FOR TYPICAL F/S INSTALLATION, AND CONTROLS.
  - (C) — PANASONIC WHISPERGREEN CEILING FAN WITH 4" DUCT TO ROOF OR EXTERIOR WALL TERMINATION VIA SOFFIT(S) PROVIDED. BACK DRAFT DAMPER INTEGRAL TO FAN, FAN TO OPERATE AT LOW SPEED CONTINUOUS (30 CFM) AND INCREASE TO 80 CFM WHEN BUILT-IN MOTION SENSOR IS ACTIVATED. INSULATED FINAL 5' OF DUCTWORK. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. SEE (3) (EF) (1)
  - (D) — CONDENSING DRYERS — NO VENTING REQUIRED —
  - (E) — FOR ERV DETAILS, SEE (2) (ERV) (1) 6" OA, 6" EXH, & 6" SA
  - (F) — 6" HOOD DUCT TO ROOF TOP DOGHOUSE VIA SOFFIT(S) AND SHAFT(S) PROVIDED. BACK DRAFT DAMPER INTEGRAL TO HOOD. INSULATED FINAL 5' OF DUCTWORK. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. HOOD FAN TO OPERATE INTERMITTENTLY
  - (G) — X KW WALL(SEE PLANS) HEATER QMARK AWH4404F OR EQUAL. EQUIPMENT BY ELECTRICAL CONTRACTOR, SHOWN FOR REFERENCE ONLY.
  - (H) — DUCTED FAN COIL DETAIL, SEE (6) (M6.01)
  - (I) — EXTERIOR EXHAUST — SEE (2) (M6.01) MAINTAIN 36" CLEAR TO OPERABLE WINDOWS AND DOORS.
  - (J) — SUPPLY/EXHAUST FOR ERV, CFM AND GRILLE SIZE SEE (X) (xx)
  - (K) — FIRE PENETRATION DETAILS, SEE (1) (5) (M6.02) (M6.01)
  - (L) — PTHP (PACKAGED TERMINAL HEAT PUMP) WITH FACTORY WALL SLEEVE, CONDENSATE DRAIN KIT, AND 42X16 ALUMINUM ARCHITECTURAL GRILLE AT EXTERIOR. INSTALL GRAVITY CONDENSATE DRAIN KIT, PLUMBING CONTRACTOR TO MAKE CONNECTION AT DRAIN KIT AND CONTINUE DRAIN LINE TO AN APPROVED LOCATION. SEE (4) (M6.01)
  - (M) — REFRIGERANT LINE SETS FROM CONDENSING UNITS TO FAN COILS ON LEVEL 1.
  - (N) — COVE STYLE WALL HEATERS FOR LIVING UNITS, 1125 W (94" LONG) FOR 1&2 BEDROOM LIVING UNITS. INSTALL AT 90° AFF.

**SHAFT DUCT SIZES**

FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
ATTIC	24 X 20	2400	24 X 20	2400	RTU-1
5TH	24 X 20	2400	24 X 20	2400	RTU-1
4TH	24 X 16	1920	24 X 16	1920	RTU-1
3RD	24 X 16	1440	24 X 16	1440	RTU-1
2ND	24 X 12	960	24 X 12	960	RTU-1
1ST	24 X 12	480	24 X 12	480	RTU-1

**VENTILATION CALCULATIONS:**  
 DWELLING UNIT >500SQ FT, VENTILATED BY MECHANICAL VENTILATION WITH ERV'S. DWELLING UNIT <500SQ FT, VENTILATED BY MECHANICAL VENTILATION, VIA PTHP (SIZED PER ASHRAE 62.2).  
 HALLWAYS ARE VENTILATED BY RTU'S SIZED TO EXCEED THE MINIMUM 0.06 CFM/SQ FT REQUIREMENT.  
 SEE VENTILATION SCHEDULES FOR OTHER UNITS.



**1 BUILDING 3 — LEVEL 5 — MECH PLAN**  
 SCALE: 1/8" = 1'-0"

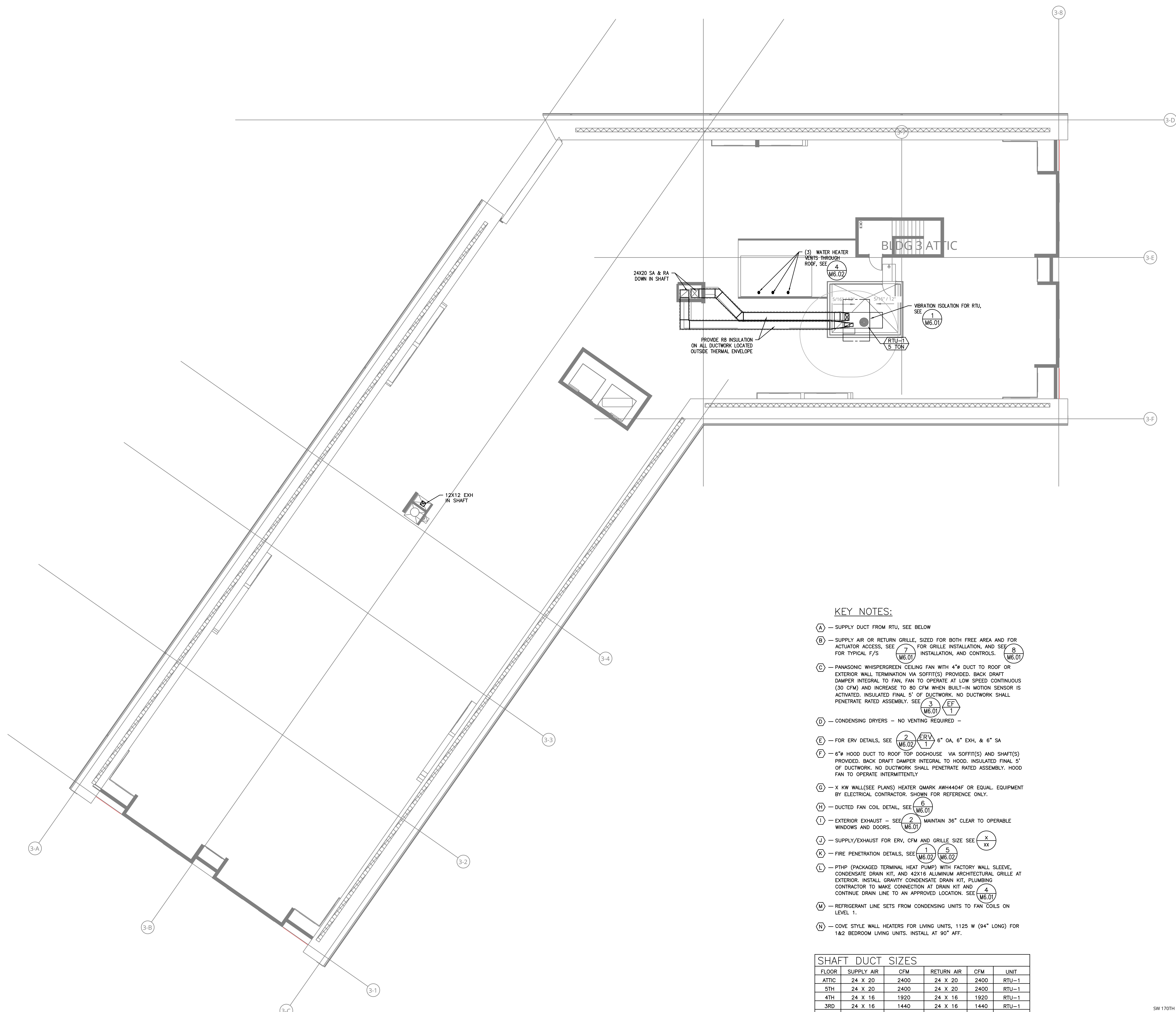
REVISION	DATE	REASON FOR ISSUE

**MECHANICAL PLAN - LEVEL 5**

**PERMIT SET**

DATE: 09/23/2022 PROJECT NUMBER: 215390

**M2.05-3**

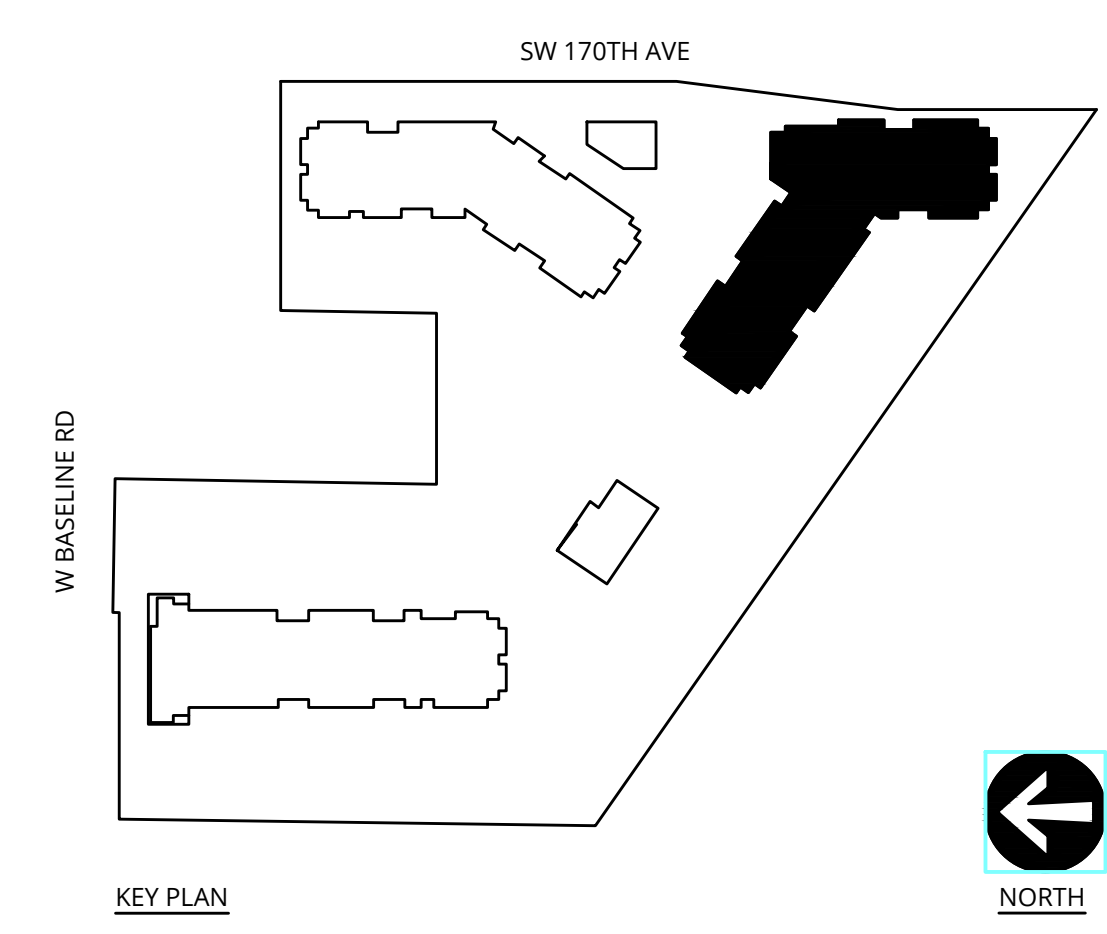


- KEY NOTES:**
- (A) - SUPPLY DUCT FROM RTU, SEE BELOW
  - (B) - SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE 7 (M6.01) FOR GRILLE INSTALLATION, AND SEE 8 (M6.01) FOR TYPICAL F/S INSTALLATION, AND CONTROLS.
  - (C) - PANASONIC WHISPERGREEN CEILING FAN WITH 4" DUCT TO ROOF OR EXTERIOR WALL TERMINATION VIA SOFFIT(S) PROVIDED. BACK DRAFT DAMPER INTEGRAL TO FAN, FAN TO OPERATE AT LOW SPEED CONTINUOUS (30 CFM) AND INCREASE TO 80 CFM WHEN BUILT-IN MOTION SENSOR IS ACTIVATED. INSULATED FINAL 5' OF DUCTWORK. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. SEE 3 (M6.01) / EF 1
  - (D) - CONDENSING DRYERS - NO VENTING REQUIRED -
  - (E) - FOR ERV DETAILS, SEE 2 (M6.02) / ERV 1 6" OA, 6" EXH, & 6" SA
  - (F) - 6" HOOD DUCT TO ROOF TOP DOGHOUSE VIA SOFFIT(S) AND SHAFT(S) PROVIDED. BACK DRAFT DAMPER INTEGRAL TO HOOD. INSULATED FINAL 5' OF DUCTWORK. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. HOOD FAN TO OPERATE INTERMITTENTLY
  - (G) - X KW WALL(SEE PLANS) HEATER QMRR AH4404F OR EQUAL EQUIPMENT BY ELECTRICAL CONTRACTOR. SHOWN FOR REFERENCE ONLY.
  - (H) - DUCTED FAN COIL DETAIL, SEE 6 (M6.01)
  - (I) - EXTERIOR EXHAUST - SEE 2 (M6.01) MAINTAIN 36" CLEAR TO OPERABLE WINDOWS AND DOORS.
  - (J) - SUPPLY/EXHAUST FOR ERV, CFM AND GRILLE SIZE SEE X / XX
  - (K) - FIRE PENETRATION DETAILS, SEE 1 (M6.02) / 5 (M6.02)
  - (L) - PTHP (PACKAGED TERMINAL HEAT PUMP) WITH FACTORY WALL SLEEVE, CONDENSATE DRAIN KIT, AND 42X16 ALUMINUM ARCHITECTURAL GRILLE AT EXTERIOR. INSTALL GRAVITY CONDENSATE DRAIN KIT, PLUMBING CONTRACTOR TO MAKE CONNECTION AT DRAIN KIT AND CONTINUE DRAIN LINE TO AN APPROVED LOCATION. SEE 4 (M6.01)
  - (M) - REFRIGERANT LINE SETS FROM CONDENSING UNITS TO FAN COILS ON LEVEL 1.
  - (N) - COVE STYLE WALL HEATERS FOR LIVING UNITS, 1125 W (94" LONG) FOR 1&2 BEDROOM LIVING UNITS. INSTALL AT 90" AFF.

**SHAFT DUCT SIZES**

FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
ATTIC	24 X 20	2400	24 X 20	2400	RTU-1
5TH	24 X 20	2400	24 X 20	2400	RTU-1
4TH	24 X 16	1920	24 X 16	1920	RTU-1
3RD	24 X 16	1440	24 X 16	1440	RTU-1
2ND	24 X 12	960	24 X 12	960	RTU-1
1ST	24 X 12	480	24 X 12	480	RTU-1

**VENTILATION CALCULATIONS:**  
 DWELLING UNIT >5000 SQ FT, VENTILATED BY MECHANICAL VENTILATION WITH ERV'S. DWELLING UNIT <5000 SQ FT, VENTILATED BY MECHANICAL VENTILATION, VIA PTHP (SIZED PER ASHRAE 62.2).  
 HALLWAYS ARE VENTILATED BY RTU'S SIZED TO EXCEED THE MINIMUM 0.06 CFM/SQ FT REQUIREMENT.  
 SEE VENTILATION SCHEDULES FOR OTHER UNITS.



**1 BUILDING 3 - ATTIC - MECH PLAN**  
 SCALE: 1/8" = 1'-0"

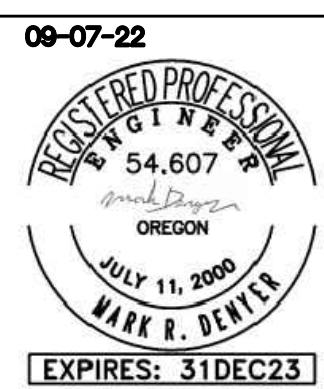
REVISION	DATE	REASON FOR ISSUE

**MECHANICAL PLAN - ATTIC LEVEL**

**PERMIT SET**

DATE: 09/23/2022 PROJECT NUMBER: 215390

**M2.06-3**



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ELMONICA STATION APARTMENTS BUILDING 3  
 SW 170TH AND W BASELINE  
 REMBOLD PROPERTIES

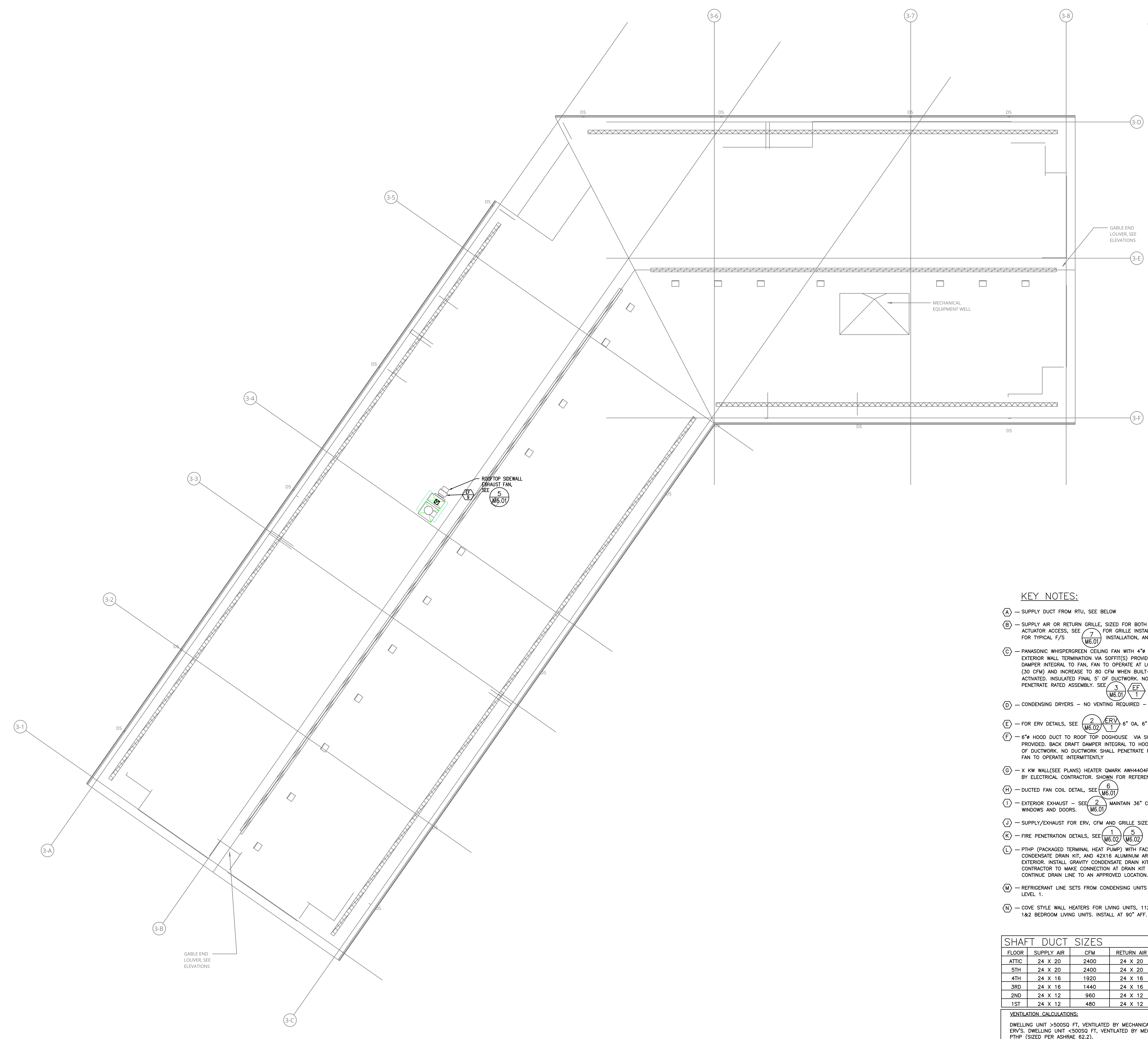
REVISION	DATE	REASON FOR ISSUE

MECHANICAL ROOF PLAN

PERMIT SET

DATE: 09/23/2022 PROJECT NUMBER: 215390

M2.07-3



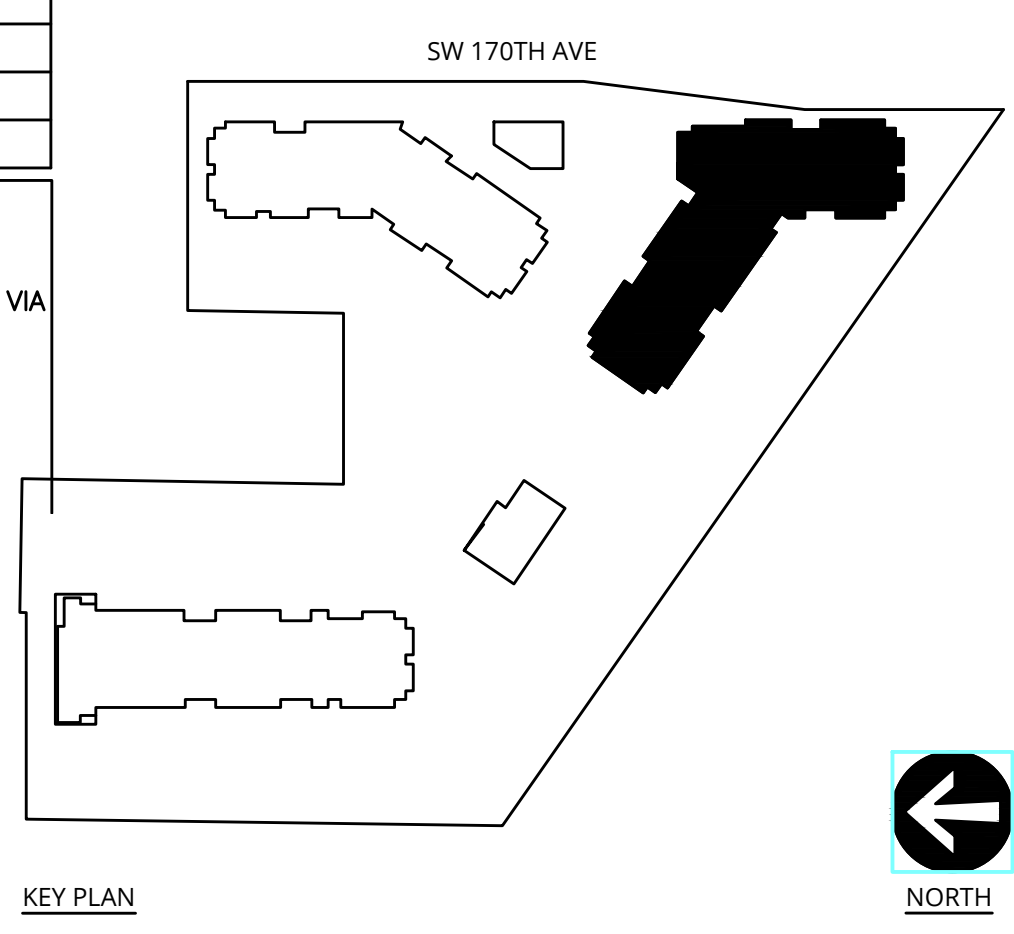
**KEY NOTES:**

- (A) — SUPPLY DUCT FROM RTU, SEE BELOW
- (B) — SUPPLY AIR OR RETURN GRILLE, SIZED FOR BOTH FREE AREA AND FOR ACTUATOR ACCESS, SEE (7) FOR GRILLE INSTALLATION, AND SEE (8) FOR TYPICAL F/S (7) FOR GRILLE INSTALLATION, AND CONTROLS. (8) (M6.01)
- (C) — PANASONIC WHISPERGREEN CEILING FAN WITH 4" DUCT TO ROOF OR EXTERIOR WALL TERMINATION VIA SOFFIT(S) PROVIDED, BACK DRAFT DAMPER INTEGRAL TO FAN, FAN TO OPERATE AT LOW SPEED CONTINUOUS (30 CFM) AND INCREASE TO 80 CFM WHEN BUILT-IN MOTION SENSOR IS ACTIVATED. INSULATED FINAL 5' OF DUCTWORK. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. SEE (3) (M6.01) (EF) (1)
- (D) — CONDENSING DRYERS — NO VENTING REQUIRED —
- (E) — FOR ERV DETAILS, SEE (2) (ERV) (1) 6" OA, 6" EXH, & 6" SA (2) (M6.02)
- (F) — 6" HOOD DUCT TO ROOF TOP DOGHOUSE VIA SOFFIT(S) AND SHAFT(S) PROVIDED, BACK DRAFT DAMPER INTEGRAL TO HOOD, INSULATED FINAL 5' OF DUCTWORK. NO DUCTWORK SHALL PENETRATE RATED ASSEMBLY. HOOD FAN TO OPERATE INTERMITTENTLY.
- (G) — X KW WALL(SEE PLANS) HEATER QMARK AWH4404F OR EQUAL EQUIPMENT BY ELECTRICAL CONTRACTOR. SHOWN FOR REFERENCE ONLY.
- (H) — DUCTED FAN COIL, SEE (6) (M6.01)
- (I) — EXTERIOR EXHAUST — SEE (2) MAINTAIN 36" CLEAR TO OPERABLE WINDOWS AND DOORS. (2) (M6.01)
- (J) — SUPPLY/EXHAUST FOR ERV, CFM AND GRILLE SIZE SEE (X) (XX)
- (K) — FIRE PENETRATION DETAILS, SEE (1) (6) (M6.02) (5) (M6.02)
- (L) — PTHP (PACKAGED TERMINAL HEAT PUMP) WITH FACTORY WALL SLEEVE, CONDENSATE DRAIN KIT, AND 42X16 ALUMINUM ARCHITECTURAL GRILLE AT EXTERIOR. INSTALL GRAVITY CONDENSATE DRAIN KIT, PLUMBING CONTRACTOR TO MAKE CONNECTION AT DRAIN KIT AND CONTINUE DRAIN LINE TO AN APPROVED LOCATION, SEE (4) (M6.01)
- (M) — REFRIGERANT LINE SETS FROM CONDENSING UNITS TO FAN COILS ON LEVEL 1.
- (N) — COVE STYLE WALL HEATERS FOR LIVING UNITS, 1125 W (94" LONG) FOR 1&2 BEDROOM LIVING UNITS. INSTALL AT 90° AFF.

**SHAFT DUCT SIZES**

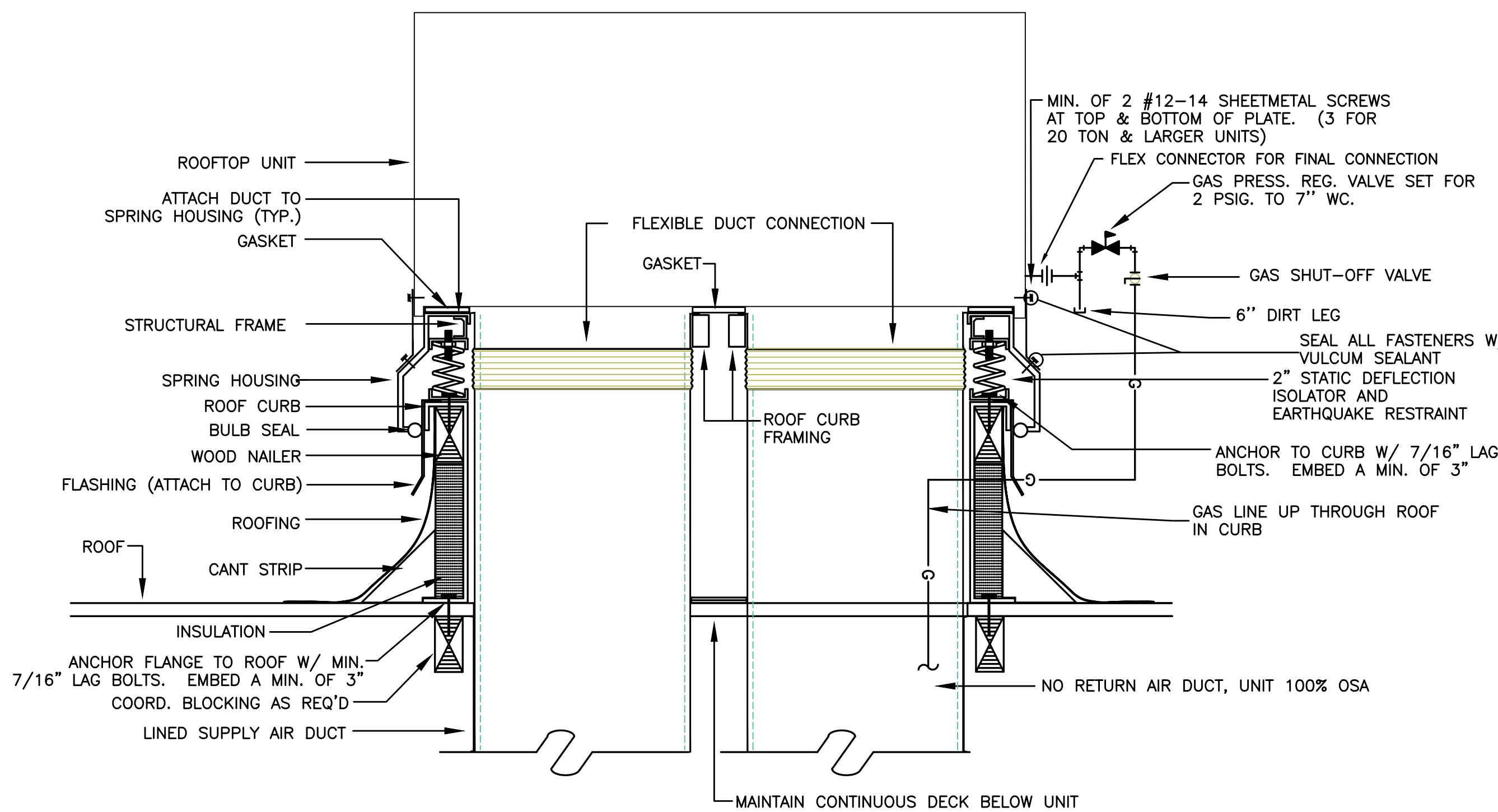
FLOOR	SUPPLY AIR	CFM	RETURN AIR	CFM	UNIT
ATTIC	24 X 20	2400	24 X 20	2400	RTU-1
5TH	24 X 20	2400	24 X 20	2400	RTU-1
4TH	24 X 16	1920	24 X 16	1920	RTU-1
3RD	24 X 16	1440	24 X 16	1440	RTU-1
2ND	24 X 12	960	24 X 12	960	RTU-1
1ST	24 X 12	480	24 X 12	480	RTU-1

**VENTILATION CALCULATIONS:**  
 DWELLING UNIT >500SQ FT, VENTILATED BY MECHANICAL VENTILATION WITH ERV'S. DWELLING UNIT <500SQ FT, VENTILATED BY MECHANICAL VENTILATION, VIA PTHP (SIZED PER ASHRAE 62.2).  
 HALLWAYS ARE VENTILATED BY RTU'S SIZED TO EXCEED THE MINIMUM 0.06 CFM/SQ FT REQUIREMENT.

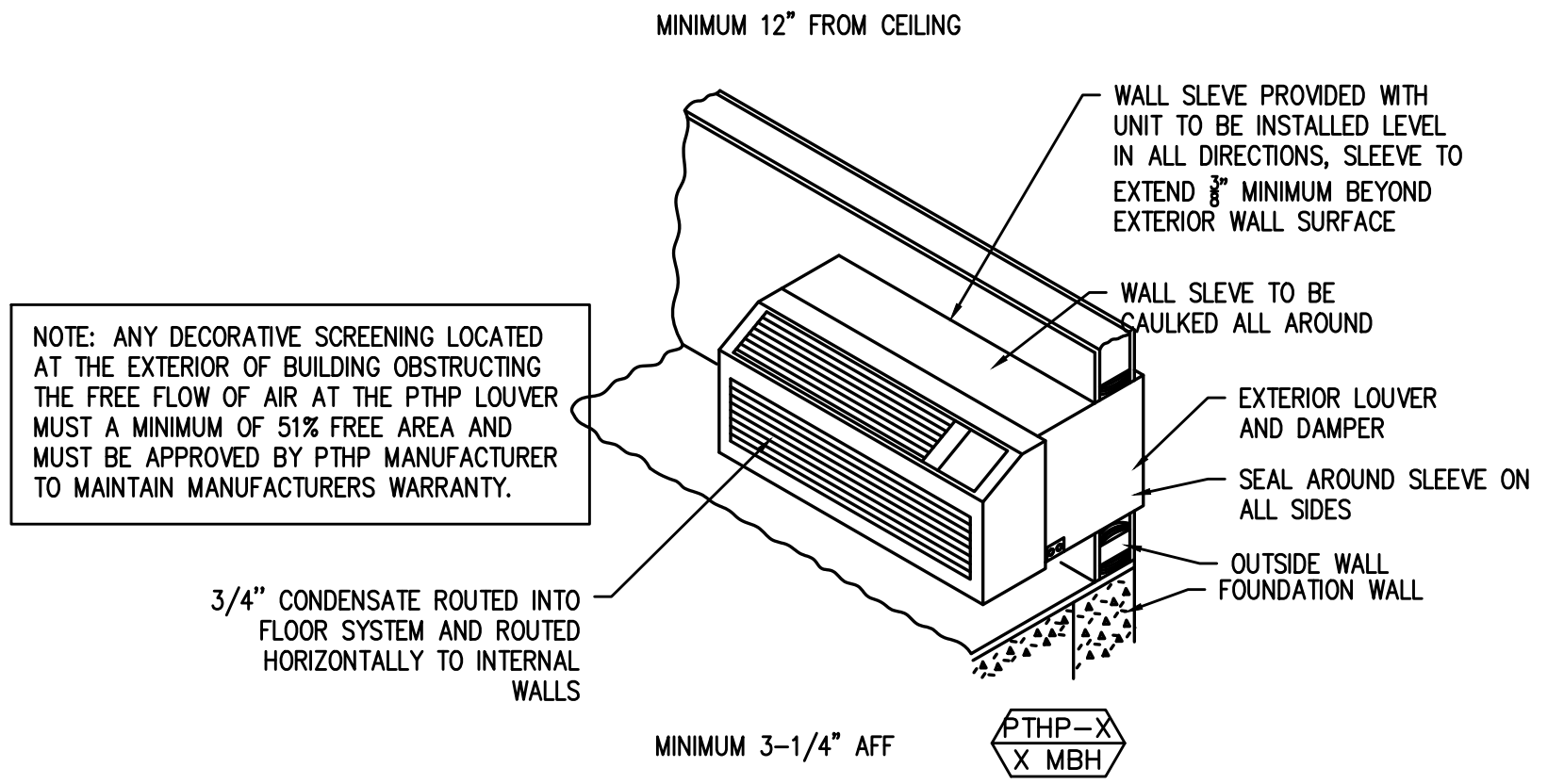


1 BUILDING 3 — ROOF — MECH PLAN  
 M2.07 SCALE: 1/8" = 1'-0"





1 ROOF TOP UNIT W/ VIBRATION ISOLATION CURB  
M6.01 SCALE: DETAIL



4 TYPICAL PTHP DETAIL  
M6.01 NOT TO SCALE

**GREENHECK** **ESU-153**

**Thinline Louver**  
**Thinline Blade**

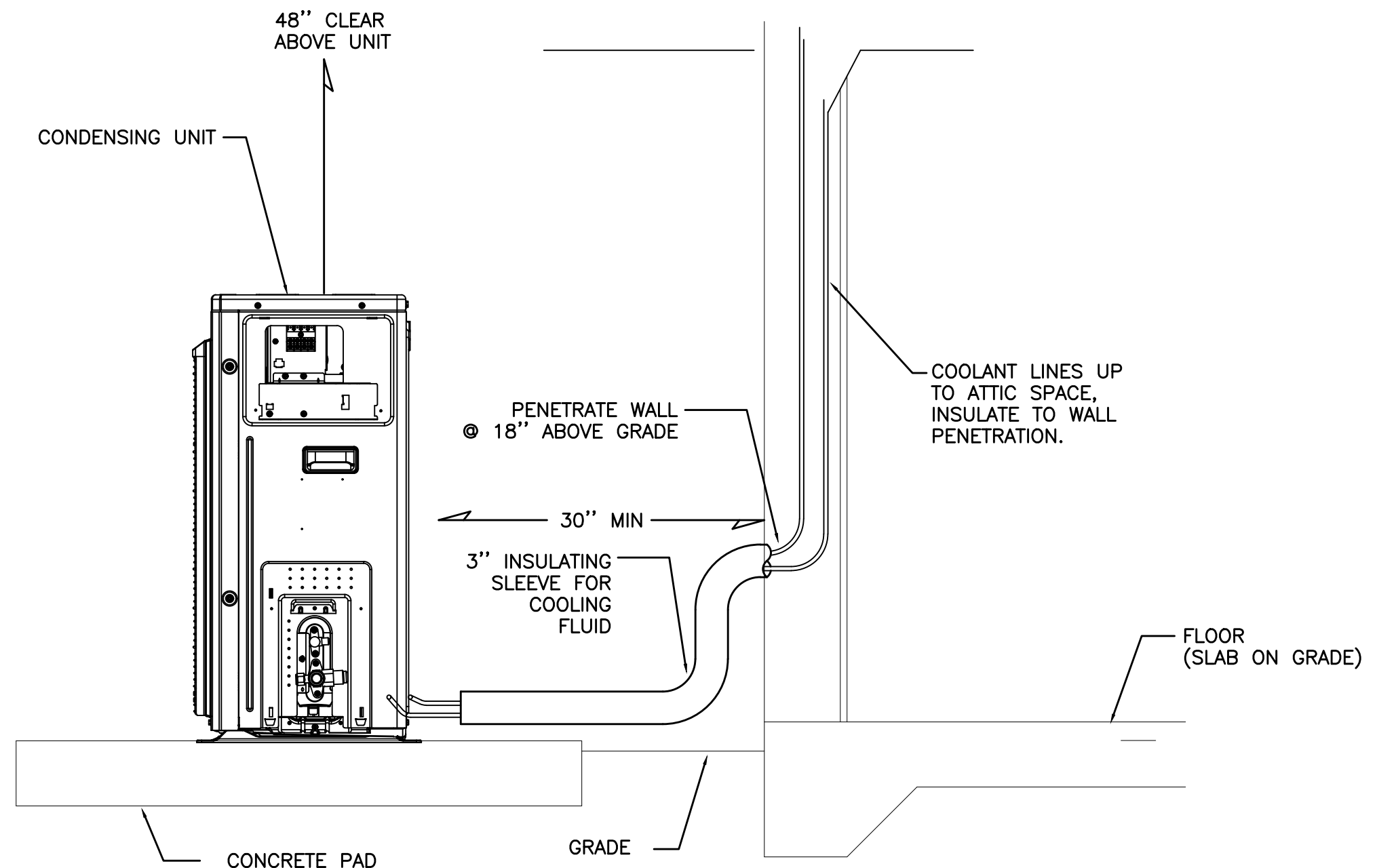
**Application and Design**  
ESU-153 is a thinline stationary louver commonly used for interior or exterior applications where high free area and low airflow resistance is required. The narrow depth makes this product ideal for installation into curtainwalls, windows, or as air conditioning grilles.

**Standard Construction**  
Frame . . . . . Heavy gauge aluminum, 1 1/2 in. x 0.083 in. nominal wall thickness  
Blades . . . . . Thinline style, heavy gauge aluminum, 0.050 in. nominal wall thickness, positioned at 30° angles on approximately 1/4 in. centers  
Construction . . . . . Mechanically fastened  
Birdscreen . . . . . 3/4 in. x 0.051 flattened expanded aluminum in removable frame, inside mount (rear)  
Finish . . . . . Mill  
Minimum Size . . . . . 13 1/2 in. W x 10 in. H (without flange)  
13 1/2 in. W x 12 in. H (with flange)  
Maximum Single Section Size . . . . . 96 in. W x 48 in. H

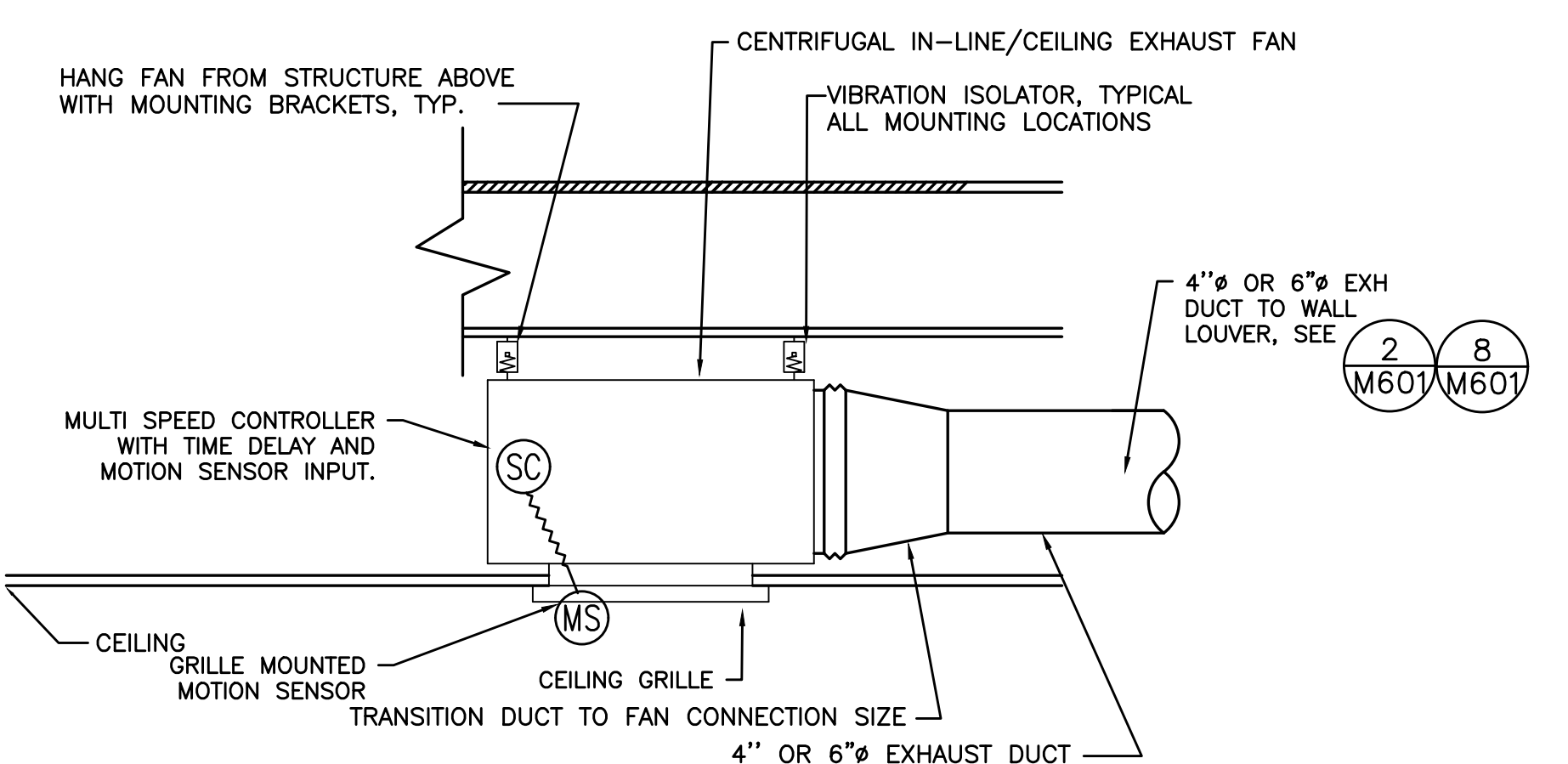
**Options (at additional cost)**

- A variety of bird and insect screens
- Anchor brackets
- Extended sill
- Flanged frame
- Glassing adaptor
- Mechanically fastened
- A variety of architectural finishes including:
  - Korner paint
  - Enamel enamel paint
  - Clear anodize
  - Integral color anodize

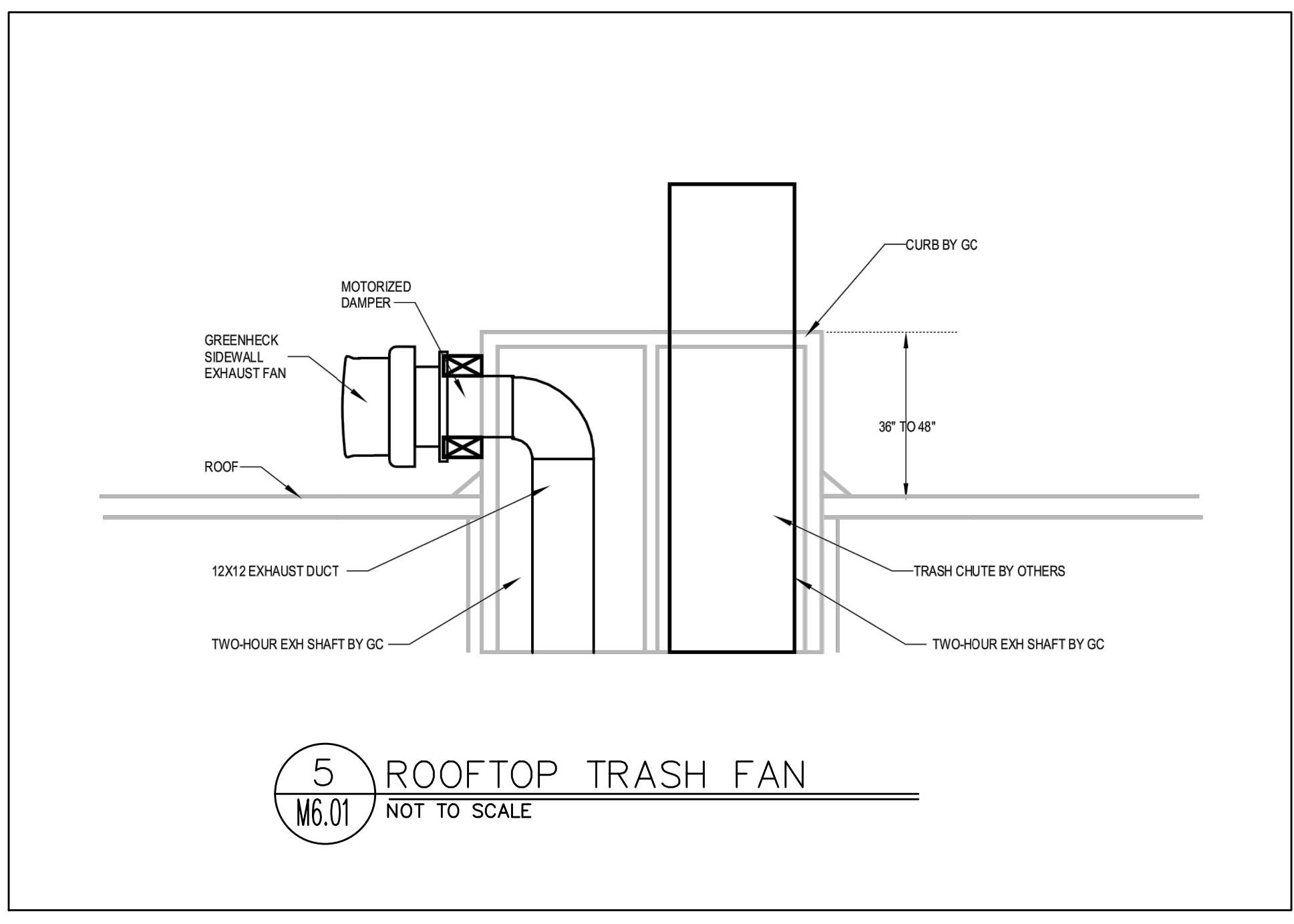
2 SIDEWALL EXHAUST TERMINATION  
M6.01 NOT TO SCALE



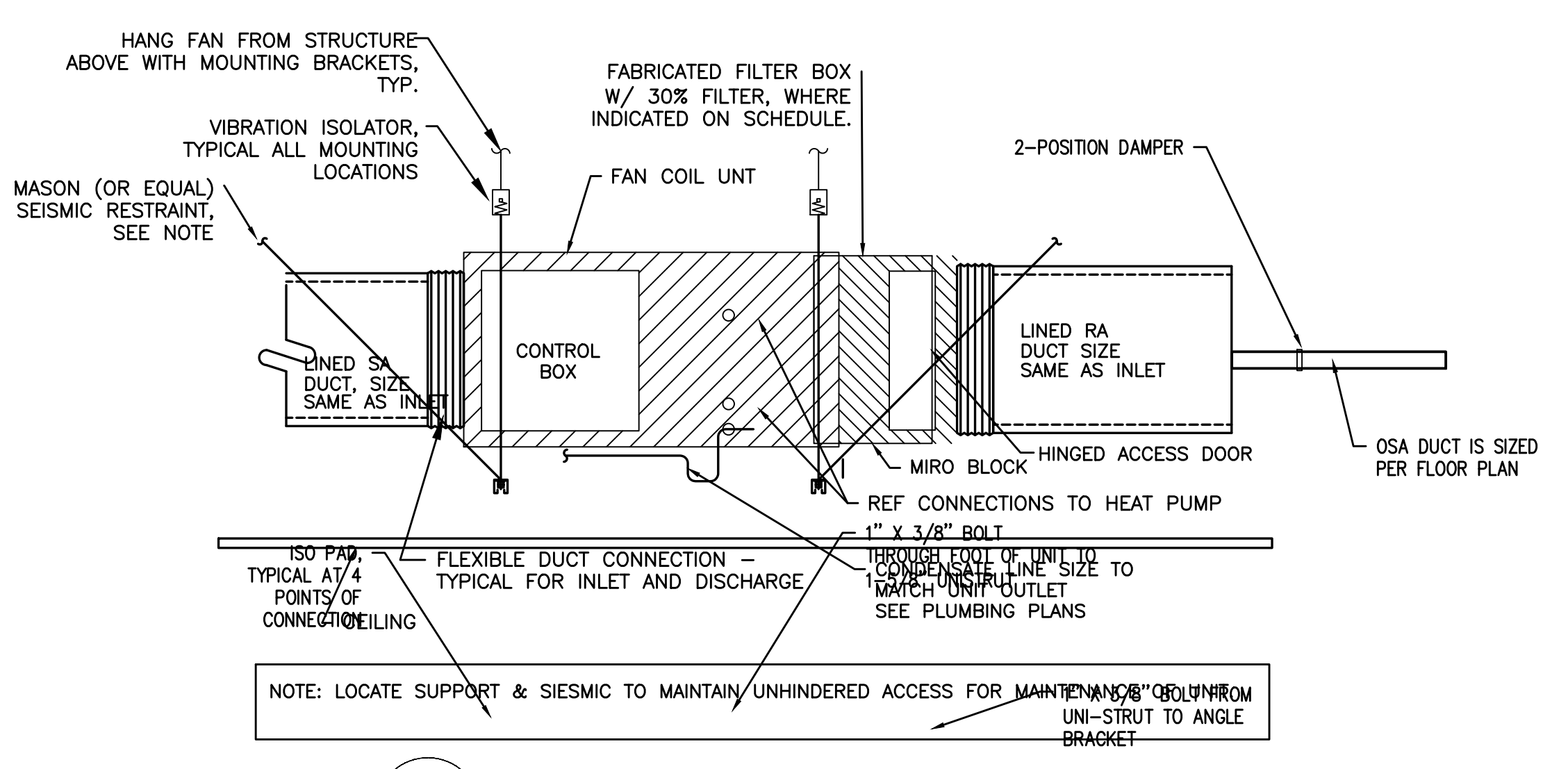
10 TYP. CONDENSER INSTALLATION  
M6.01 DETAIL



3 CEILING EXHAUST FAN  
M6.01 SCALE: DETAIL

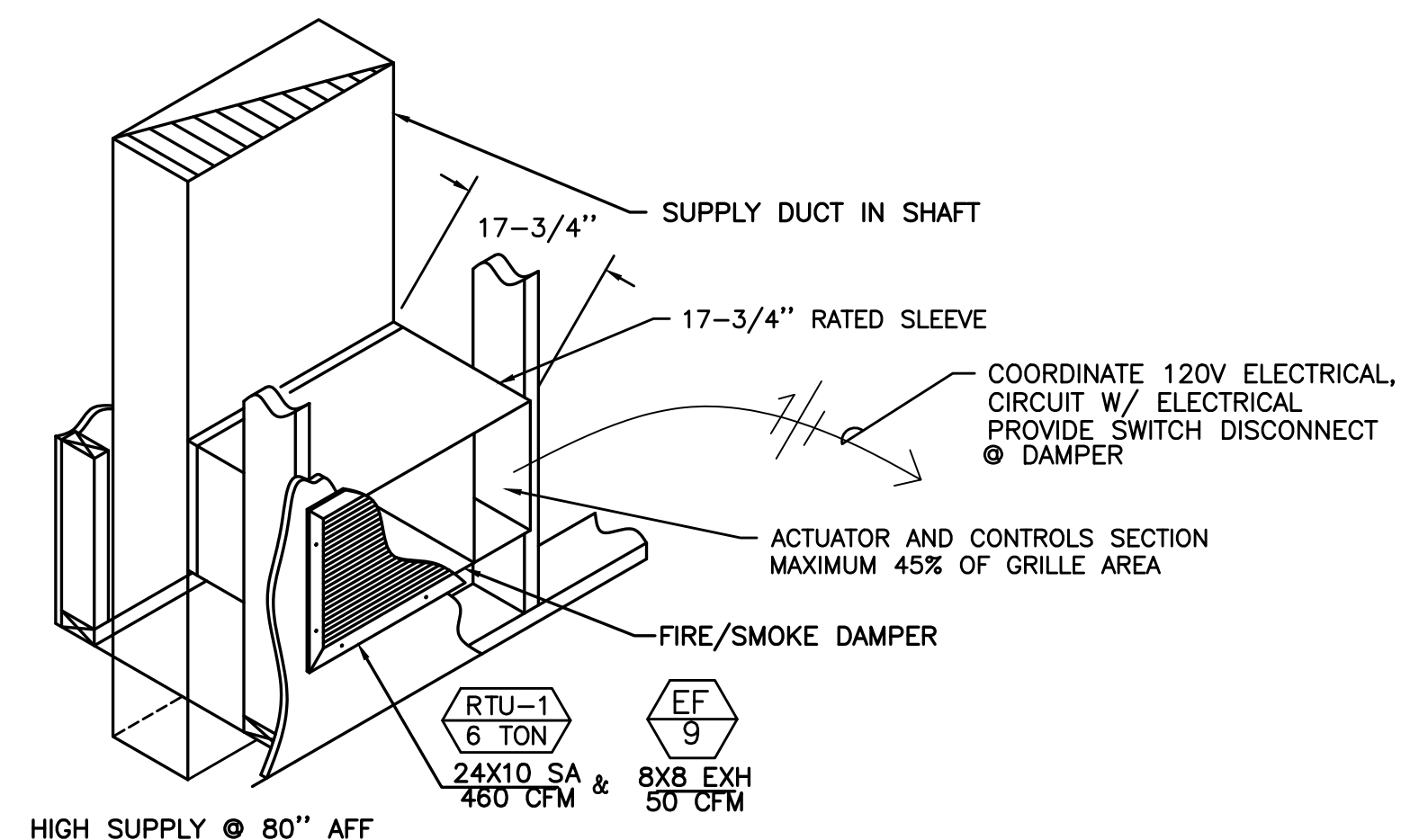


5 ROOFTOP TRASH FAN  
M6.01 NOT TO SCALE

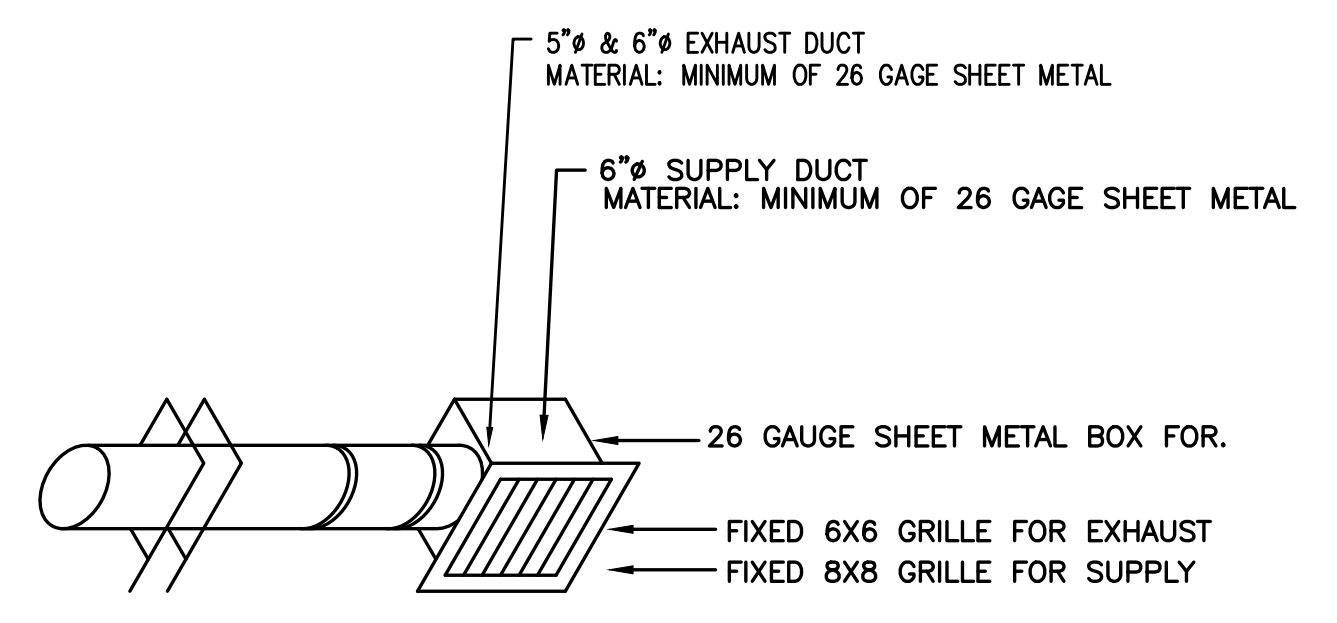


6 DUCTED FAN COIL  
M6.01 SCALE: DETAIL

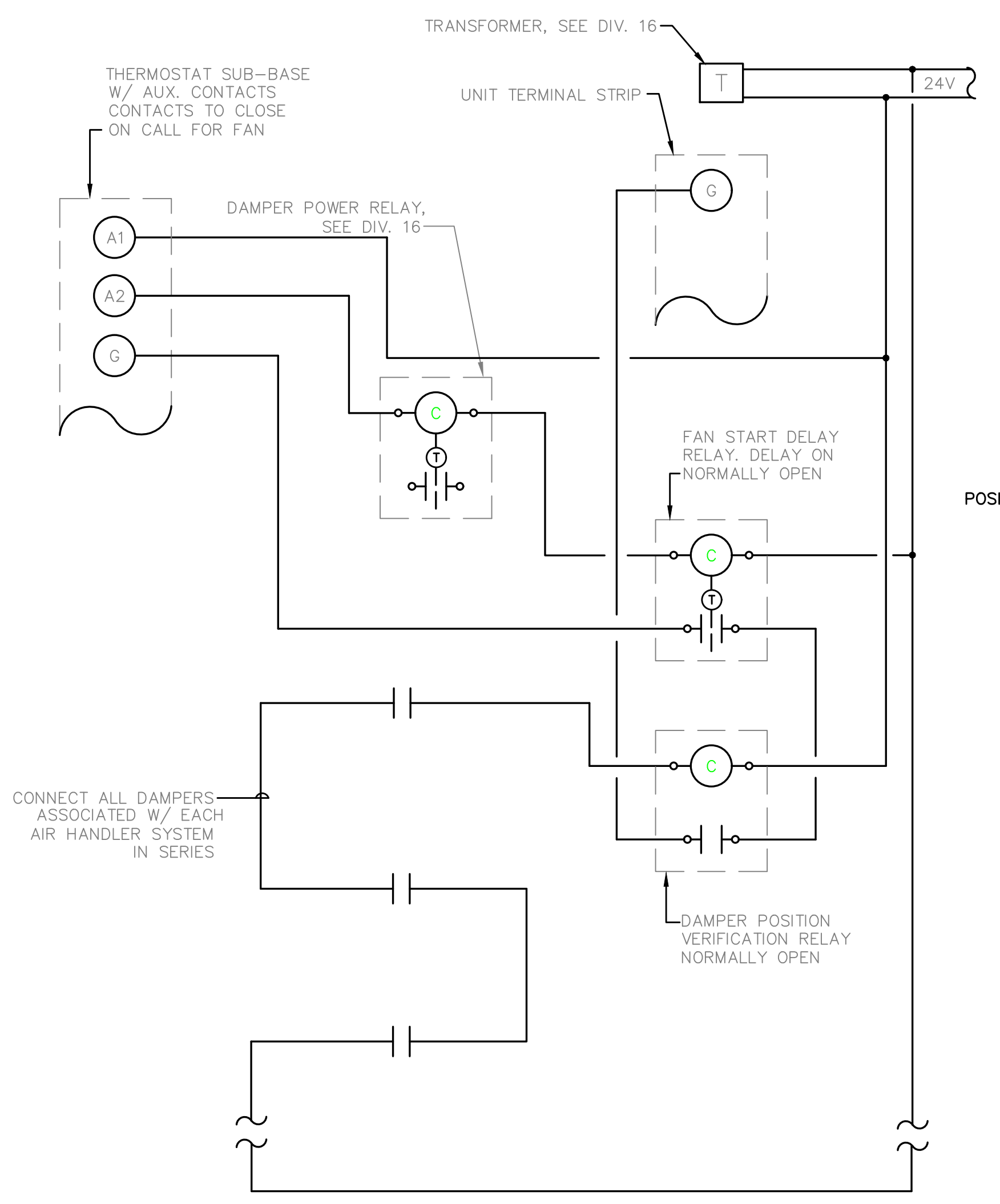
2 BATHROOM UNITS		KITCHEN	
BATHROOM(S)	SUPPLY	BATHROOM(S)	SUPPLY
6x8 EXH 20/35 CFM	6x8 EXH 20/35 CFM	6x8 SA 65/105 CFM	6x8 EXH 25/40 CFM
1 BATHROOM UNITS		KITCHEN	
BATHROOM(S)	SUPPLY	BATHROOM(S)	SUPPLY
6x8 EXH 30/50 CFM	6x8 SA 65/105 CFM	6x8 EXH 35/55 CFM	



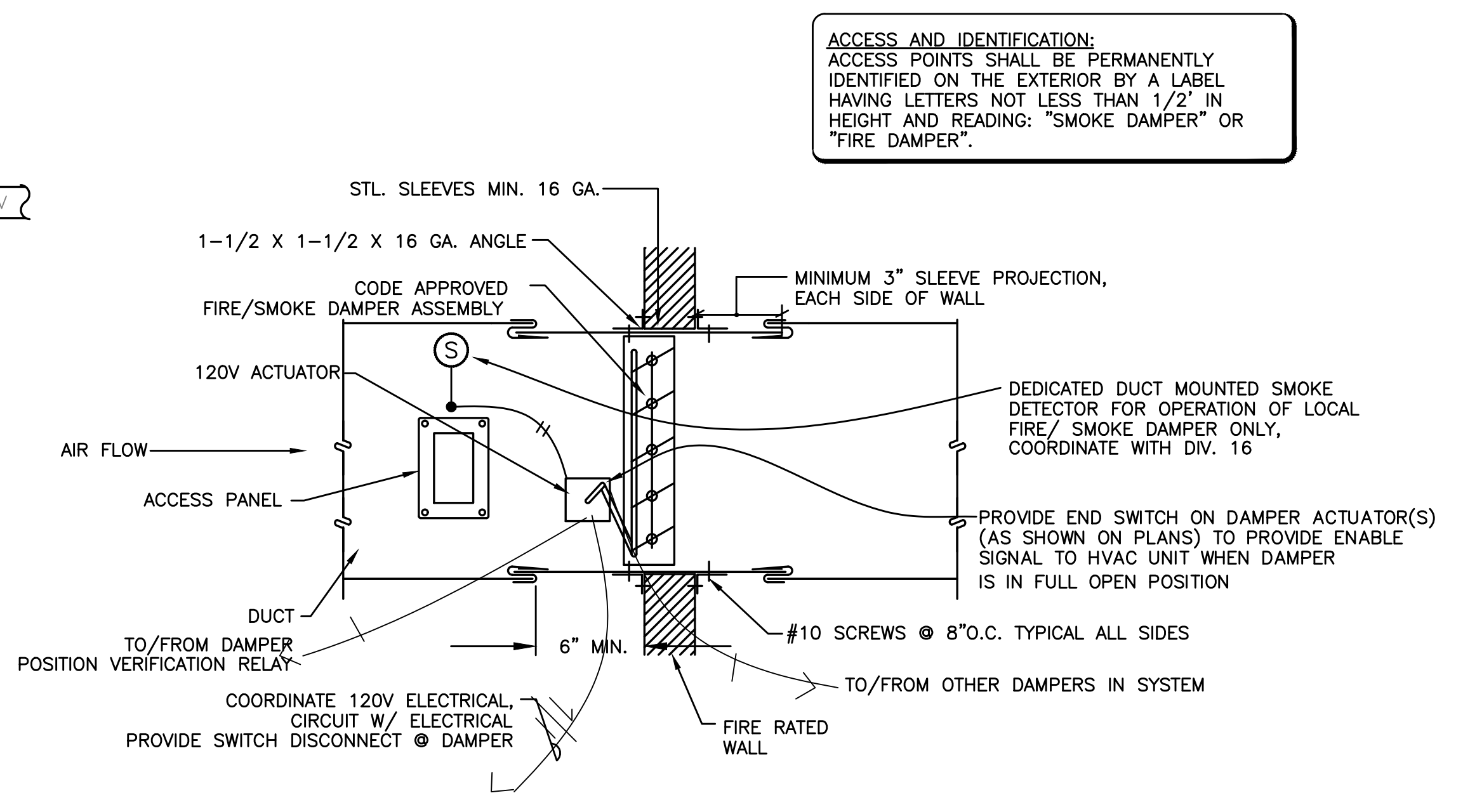
7 HIGH SUPPLY W/ FIRE/SMOKE DAMPER  
M6.01 SCALE: DETAIL



9 CEILING SUPPLY/EXHAUST - DWELLING UNITS  
M6.01 NOT TO SCALE

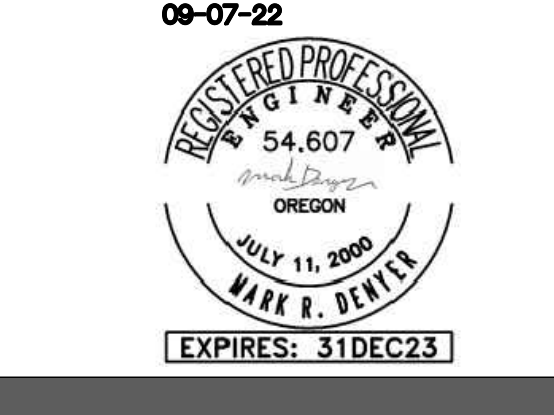
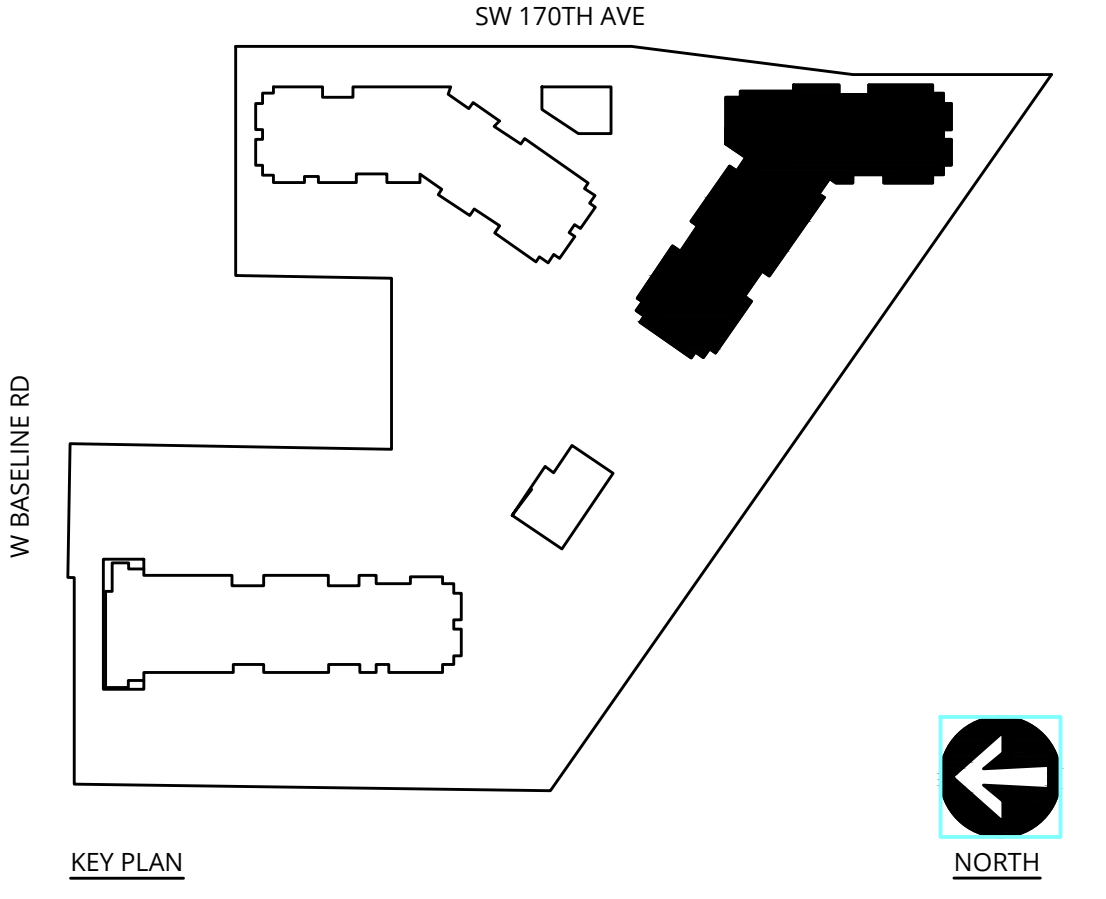


8 FIRE/SMOKE DAMPER W/SMOKE DETECTOR  
M6.01 NOT TO SCALE



**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.



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ELMONICA STATION APARTMENTS BUILDING 3  
SW 170TH AND W BASELINE

REVISION	DATE	REASON FOR ISSUE

MECHANICAL DETAILS

PERMIT SET

DATE: 09/23/2022 PROJECT NUMBER: 215390

M6.01-3

**System No. WL-7018**

ANSUL1479 (ASTM E814) CANULC 3115

F Rating — 2 Hr F Rating — 2 Hr  
 T Rating — 1-1/2 Hr FT Rating — 1-1/2 Hr  
 T Rating — 1-1/2 Hr FTH Rating — 1-1/2 Hr

**1. Wall Assembly** — The 2 hr fire-rated gypsum wallboard/steel wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, U400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

**A. Studs** — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.

**B. Gypsum Board** — Two layers of 5/8 in. (16 mm) thick gypsum wallboard as specified in the individual Wall and Partition Design No. Max. dim of opening is 9 in. (229 mm).

**2. Metallic Sleeve** — Cylindrical sleeve fabricated from min 0.018 in. (0.46 mm) thick (No. 28 gauge) galv steel sheet steel and having a min 2 in. (51 mm) lap along the longitudinal seam. Length of sleeve to be 18 in. (457 mm) less than thickness of wall. Sleeve to be installed by pulling the sleeve metal to a diam smaller than the through opening, inserting the coil through the opening and releasing the coil to let it uncoil against the circular cutouts in the gypsum wallboard layers.

Reproduced by Hilti, Inc. Courtesy of Underwriters Laboratories, Inc. January 27, 2015

**Hilti Firestop Systems**

**System No. WL-7018**

3. Steel Duct — Nom 6 in. (152 mm) diam (or smaller) No. 28 gauge (or heavier) galv steel duct to be installed concentrically within the firestop system. Duct to be rigidly supported on both sides of the wall assembly.

4. Pipe Covering — Nom 1 in. (25 mm) thick hollow cylindrical heavy density (3.5 pcf or 56 kg/m<sup>3</sup>) glass fiber units jacketed on the outside with an self-sealing jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with duct tape supplied with the product. The annular space between the insulated pipe and the steel sleeve shall be min 0 in. (point contact) to max 1 in. (25 mm).

5. Fire Stop Sealant — Sealant — Min 1/4 in. (32 mm) depth of sealant applied within the annulus, flush with each surface of the wall assembly. At the point contact location between insulated pipe and wall, a min 1/2 in. (13 mm) diam bead of sealant shall be applied on both surfaces of wall, lapsing 1/4 in. (6 mm) beyond the periphery of the opening.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

\*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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**Hilti Firestop Systems**

**1 FIRE PENETRATION DETAIL — 5" OR 6" DUCTS**

**BROAN**

**BROAN® ERVS100**  
Part no. ERVS100S  
65-105 CFM (0.4 in. wg.)

**Product balancing**  
The ERVS100 is equipped with 2 high static pressure blowers and is factory balanced. Once installed, the ERVS100 will remain balanced (within a 1% total difference between the exhaust and supply airflow) when the static pressure difference between the exhaust and the supply remains below 0.2 in. wg.

**Filters**  
- 2 washable filters, 20 PPI  
- MERV 8 optional filters, part V21030.

**Defrosting system**  
Unit performs a negative defrost during 10 minutes every 20 minutes when outdoor temperature is below 14°F, and 10 minutes every 10 minutes below -4°F.

**Energy Recovery Core**  
Material: Polymerted paper  
Type: Cross flow  
Warranty: 5 years

**Options**

- Broan VTYK1 Tandem transition (requires an additional backdraft damper, not included)
- Broan VB20W 20-minute push-button control\*
- Broan 69W Single-Function Control, White (Dry contact standby switch)
- Broan 69W Single-Function Control, White (Dry contact standby switch)
- Broan 63M Black exhaust roof cap 6" with backdraft damper and bird screen
- Broan 641 Aluminum exhaust wall cap 6" with backdraft damper and bird screen
- Broan 641A Aluminum exhaust wall cap 6" with bird screen
- Broan CVL6 motor inlet grille 6"
- Broan CVL6 mounting sleeve for inlet grille CVG6
- Broan CVL6S sleeve with 6" backdraft damper

**Requirements and standards**

- Complies with the UL 181 requirements regulating the installation of Energy Recovery Ventilators.
- HV certified.
- Airflow and energy recovery performance tested in accordance with CSA C439 standard.

**REPAIRS AND MAINTENANCE**  
All parts requiring maintenance can be removed in less than 5 minutes allowing easy access for repairs. The PSC motors are permanently lubricated.

**WARRANTY**  
The BROAN® ERVS100 is protected by a 5-year warranty on parts only. The energy recovery core is covered by a 5-year warranty, with the original proof of purchase.

**Noise level**  
0.4 sone @ 105 cfm at grille with 5' of flexible ducting (tested in accordance with ISO 5136 and HVAC 915).

**Specifications**  
Model: Broan ERVS100  
Part number: ERVS100S  
Total assembled weight including packaging: 40 lb.  
Insulated round ports: 6" diameter  
Built-in magnetic backdraft damper to close outdoor fresh air supply when the unit is turned off  
Energy recovery core:  
Type: cross-flow  
Media membrane: Polymerted paper with aluminum  
Core filters: 2 washable filters 20 PPI  
Optional MERV 8 filter kit, part no. V21030  
Housing material: galvanized steel 22 ga  
Door and door frame material: White pre-painted steel 20 ga  
Insulation material: Molded Expanded polystyrene, UL certified for Energy recovery ventilators requirements  
Supply and exhaust blower motors:  
PSC motors  
Protection type: Thermally protected  
Lock rotor electronic detection stops unit if motors failed  
Installation brackets included with the unit, allow attic, flush to ceiling and under-celling installations. Unit must be installed with the door facing upward or downward. No vertical installation allowed.

**Unit electrical characteristics**  
Power cord: 2ft with 3-prong plug  
Volts: Frequency: Amperes: Watts  
120 60 Hz 0.9 103  
Low voltage connections for optional controls energized by unit

**Dimensions**

**ANAKROM MOISAN**

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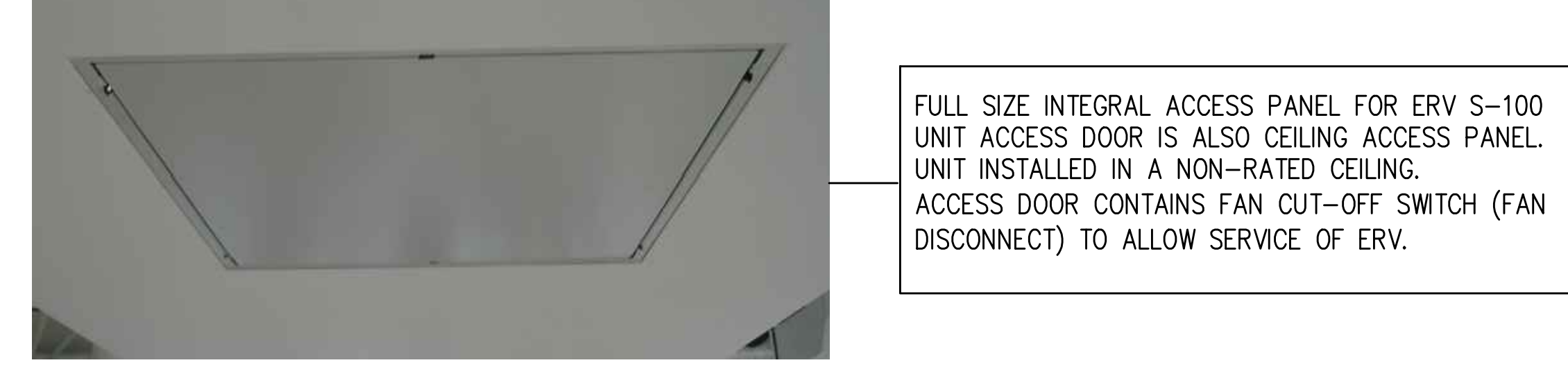
**JACOBS**

Consulting Engineers  
3007 S.E. 5th St.  
Portland, OR 97214  
PH: (503) 231-0549  
FAX: (503) 231-0077  
WWW.JACOBS-ENG.COM  
CONTACT: MATT ALTRY

**EQUIPMENT CAPACITY VERIFICATION**

THE ERV IS RATED FOR 105 CFM AT 0.4" OF STATIC — DESIGN CONDITION OF WORST CASE UNIT IS 0.372"(HIGH SPEED) & 0.216" (LOW SPEED). MINIMUM REQUIRED VENTILATION FOR THE TWO BEDROOM UNIT IS 60 CFM AND A ONE BEDROOM IS 45 CFM.

MINIMUM EXH CFM FOR A 1 BATHROOM UNIT IS 45 CFM AND A TWO BATHROOM UNIT IS 65 CFM. THE ERV FOR ALL UNITS WILL OPERATE AT 65 CFM CONTINUOUS AND BOOST TO 105 CFM WITH WALL SWITCH (20 MINUTE TIMER).



**2 ERV SUBMITTAL/DETAILS**

**Combining with an AHU**  
Recommended configurations:  
Option 1 - When the distribution of fresh air from the ERV is connected to the return of an AHU (such as in the image below, on the left), static pressure where the fresh air from the ERV enters the AHU return ducting must be below 0.15 in.wg. to ensure proper functioning of the built-in fresh air damper. If return duct static pressure exceeds the 0.15 in.wg. threshold, an indirect connection combined with a supplemental return grille or "T" connection with the conditioned space should be used. See the User and Installer guide for more details.

**Energy performance ERVS100**

Supply Temperature	Net Air Flow	Power Consumed	Sensible Recovery Efficiency	Adjusted Sensible Efficiency	Apparent Sensible Efficiency	Latent Recovery Moisture Transfer	Total Recovery Efficiency	Adjusted Total Recovery Efficiency
°F	CFM	Watts	%	%	%	%	%	%
Cooling	95	64	46	64	62	45	48	51
	95	106	103	64	55	35	38	41
Heating	32	64	46	64	66	71	51	47
	32	106	103	57	63	67	42	47

\*Does not certified by AHJ. NOTE: All specifications are subject to change without notice.

**Mode and RH Adjustable Controls Location**

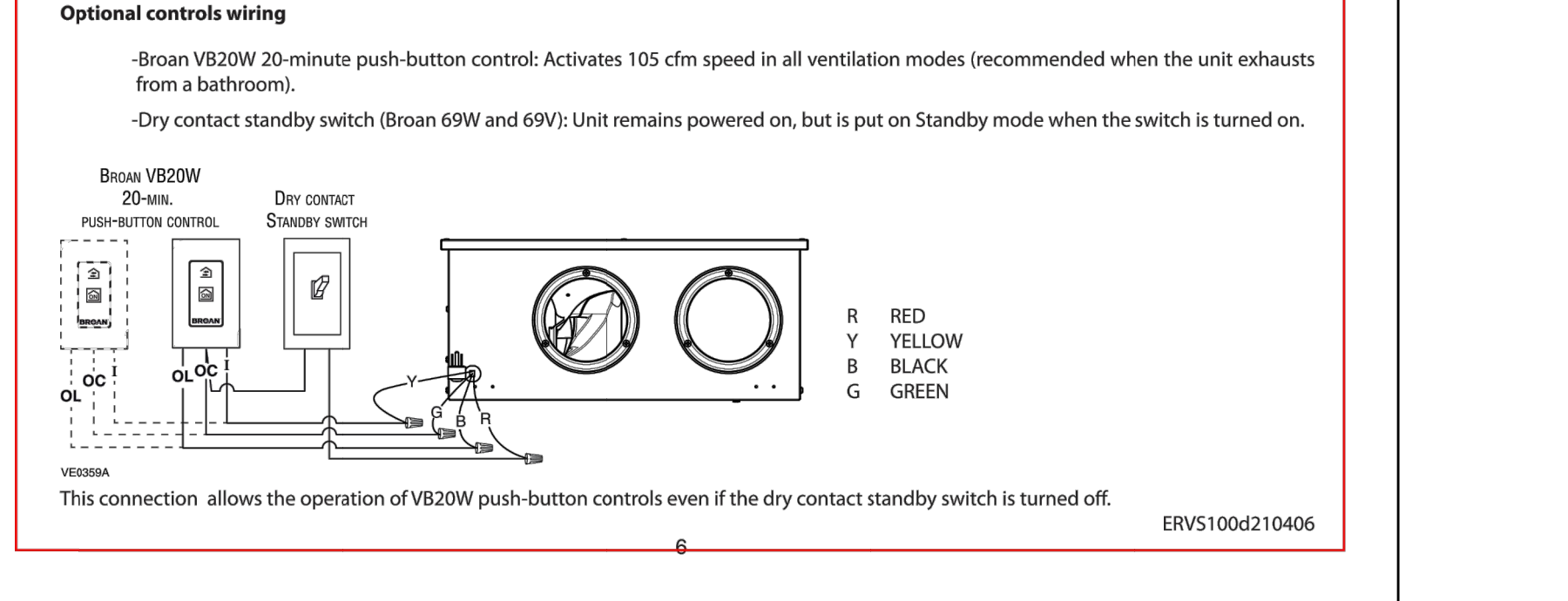
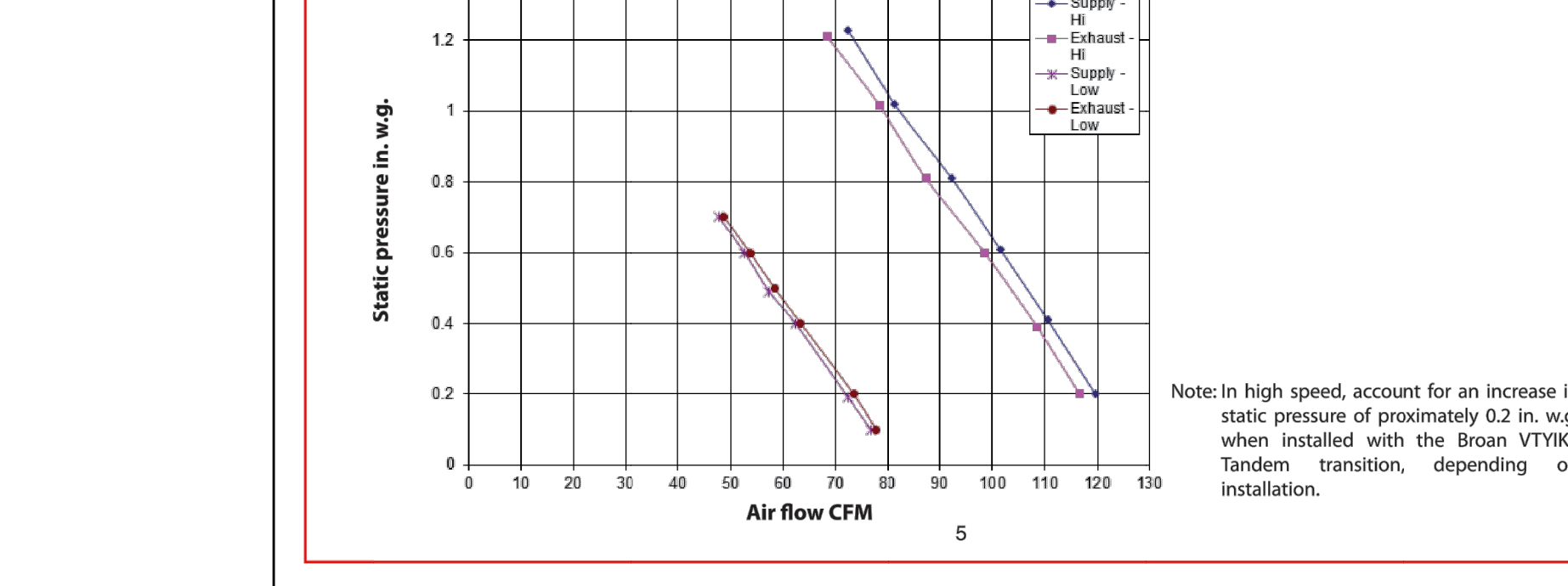
**Control Ventilation modes**

Position	Mode	Description
INT	Intermittent	Unit works 20 minutes per hour in low speed by the VB20W 20-minute push-button control, if applicable.
1	Low Speed	Unit runs at 65 cfm. Unit can be activated in high speed by the VB20W 20-minute push-button control, if applicable.
2	High Speed	Unit runs at 105 cfm. Unit can be activated in high speed by the VB20W 20-minute push-button control, if applicable.

**Relative humidity limit**  
The ERVS100 monitors the outdoor air conditions (temperature and humidity) every 10 minutes with a built-in sensor. When the outdoor conditions are above the set limits, the unit will limit the ventilation to 10 minutes per hour and come back to its previous setting when the conditions get back to the set limit. The accepted RH limit varies in function of the outdoor conditions and can be adjusted to 4 different positions:

Position	Description	Outdoor temp. < 73°F	Outdoor temp. ≥ 73°F
OFF	Relative humidity limit is deactivated.	-	-
+	Higher relative humidity limit.	Up to 60%	Up to 80%**
N	Factory set relative humidity limit.	Up to 55%	Up to 75%**
-	Lower relative humidity limit.	Up to 50%	Up to 70%**

\* The RH limit of distributed air is calculated at 75°F.  
\*\* When the outdoor temperature is equal or above 73°F, the maximum relative humidity level accepted is higher considering that the air conditioning will partly dehumidify the incoming fresh air after it is distributed and mixed with the conditioned indoor air.



**WhisperGreenSelect**

**Specification Submittal Data / Panasonic Ventilation Fan**

**Description**  
Customize ventilation fan shall be low noise ceiling mount rated for continuous use. Fan shall be ENERGY STAR rated and certified for the home ventilating module (HVM). Manufactured by Underwriters Laboratories and conform to both UL and cUL safety standards.

**Motor/Blower**

- Enclosed DC brushless motor technology rated for continuous run.
- Fan ventilation rate shall be manually adjustable to 50-110 CFM.
- Power options shall be 120VAC and 240VAC.
- Fan shall be UL listed for bathroom enclosure when used with a GFCI protected circuit and needs to be tested using 200VAC.
- Fan equipped with a thermal cutoff fan.
- Permanent permanent lubricated, life-span motor.

**Mounting**

- Full proof integrated stainless steel ceiling, 10 gauge galvanized sheet metal.
- Integrated in 4" or 6" diameter duct adaptor.
- Built-in motor fan provides housing for accessories through integral air fan barrier and assist with the decrease in leakage in the building envelope during door opening.
- Built-in condensation sensor.
- Anti-vibration and dampens vibration bracket up to 24".

**Options**

- Attractive design using Plug 'N Play™ module.
- Alternative directly to housing with bracket springs.
- Includes motion sensor cap for use as a cover when the motion sensor Plug 'N Play™ module has not been selected.

**Warranty**  
DC Motor: 5 Years from original purchase date.  
DC Motor: 5 Years from original purchase date.

**Architectural Specifications**  
Customized ventilation fan shall be ceiling mount, ENERGY STAR™ rated type with multi-speed control (E: 50-110 CFM in 10 CFM increments) that shall be built with a high quality backdraft damper and activated by wall remote. Motor Sensor Plug 'N Play™ module or Condensation Sensor Plug 'N Play™ module. Features a built-in speed selector. Select from 50-110 CFM and no. 28 gauge (or heavier) galvanized sheet metal with 1/8" and 6/16" (0.15716) inches of 0.25 in. gage ENERGY STAR™ rated with efficiency of no less than 0.51 (51.0%) at 105 CFM and 0.1 in. gage (0.254 in.) at 105 CFM. The motor shall automatically increase when the fan sensor detects moisture to maintain constant CFM. Power rating shall be 120V/60Hz. Duct diameter shall be no less than 4". Includes an integrated, dual 4" or 6" duct adaptor. Plug 'N Play™ module provides a built-in additional feature. Select from Condensation Sensor, LED Night Light and LED Light Sensor. Fan shall be UL listed. Based for bathroom enclosure when used with a GFCI protected circuit. Fan can be tested to comply with AHJ-ACI 02.2, LEED, ENERGY STAR, VAP, EPA/Cast, California Title 24 and California Code.

**DC Motor Technology**  
When fan sensor detects moisture, its speed is automatically increased to ensure that the desired CFM is not compromised, which allows the fan to perform at peak.

For complete installation instructions visit [usa.panasonic.com/ventilators](http://usa.panasonic.com/ventilators)

**Model**    **Quantity**    **Comments**

**Project:**  
Location:  
Architect:  
Engineer:  
Contractor:  
Submitted by:  
Date:

**Panasonic Eco Solutions Company of North America**  
New Product Division  
Two Riverfront Plaza  
Irvine, CA 92714  
[usa.panasonic.com/ventilators](http://usa.panasonic.com/ventilators)

**Most Efficient 2016**

**Panasonic**

**WhisperGreenSelect**

**Plug 'N Play™ Modules**

Plug 'N Play™ modules provide up to two additional features (multi-speed is already built-in to FV-05-11VKS1). Select from Motion Sensor, Condensation Sensor and LED Night Light.

**FV-VS15VK1: Multi-Speed with Time Delay - N/A for this Fan, already built-in.**  
Allow you to select the proper CFM settings to satisfy ASHRAE 62.2 continuous ventilation requirements. The fan runs continuously at a set lower level (50, 60, 70, 80 CFM), in 10 CFM increments, then decreases to a maximum level of operation (95, 110 CFM) when the wall switch is turned on, or when the motion sensor or Condensation Sensor module is activated. A High/Low delay timer returns the fan to the pre-set CFM level after a period of time set by the user.

**FV-MSVK1: Motion Sensor**  
Automatically activates when someone enters the room. Once the settings have been applied, the fan becomes truly automatic. This module also activates a 20 minute delay timer for the fan.

**FV-CSVK1: Condensation Sensor**  
Helps control bathroom condensation to prevent mold and mildew. Sensor technology detects relative humidity and temperature to activate low speed, automatically turning the fan on to control humidity. Built-in Relative Humidity (RH) sensitivity adjustment enables fine tuning for most conditions and for satisfying California requirements. When the condensation sensor is used in conjunction with multi-speed functionality, the fan will kick up to high speed when the condensation sensor detects moisture in the room. This module also activates a 20 minute delay timer for the fan.

**FV-NLVK1: LED Night Light**  
A photo-cell automatically turns on the 1" watt LED night light when darkness is sensed in the room. High/Low brightness switch enables you to tune the photo-cell to work in conjunction with the darkness level of your bathroom. This module also activates an automatic 20 minute delay timer for the fan.

Fan Configuration	Model	Supply Temp. (°F)	Net Air Flow (CFM)	Power Consumed (Watts)	Sensible Recovery Efficiency (%)	Adjusted Sensible Efficiency (%)	Apparent Sensible Efficiency (%)	Latent Recovery Moisture Transfer (%)	Total Recovery Efficiency (%)	Adjusted Total Recovery Efficiency (%)
Staircase 1/2 inch duct	ST	95	64	46	64	62	45	48	51	51
Staircase 1/2 inch duct	ST	32	64	46	64	66	71	51	47	47
Staircase 1/2 inch duct	ST	95	106	103	57	63	67	42	47	47
Staircase 1/2 inch duct	ST	32	106	103	57	63	67	42	47	47

UL-Installed Performance

**3 BATH FAN SUBMITTAL**

NOT TO SCALE

**4 CONCENTRIC GAS VENT**

DETAIL

**ELMONICA STATION APARTMENTS BUILDING 3**  
SW 170TH AND W BASELINE

REMBOLD PROPERTIES

MECHANICAL DETAILS

PERMIT SET

DATE: 09/23/2022    PROJECT NUMBER: 215390

**M6.02-3**

