NOTES:

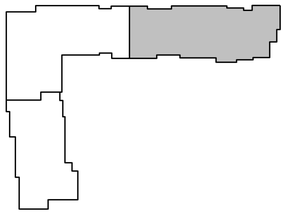
1. ALL ⊗ ARE TYPE "A2" UNLESS NOTED OTHERWISE.
2. ALL STAIR LIGHTS ARE TYPE "A" UNLESS NOTED OTHERWISE.
3. ALL ⊗ ARE TYPE "X1" UNLESS NOTED OTHERWISE.
4. ALL ⊗ ARE TYPE "X2" UNLESS NOTED OTHERWISE.
5. ALL ⊗ ARE TYPE "X5" UNLESS NOTED OTHERWISE.
6. ALL ▬ STAIR LIGHTS ARE TYPE "P" U.N.O.
7. CONNECT FIRE/SMOKE DAMPERS SHOWN ON MECHANICAL PLANS TO 120V. AND FIRE ALARM RELAY TO SHUT UPON SMOKE DETECTION IN CORRIDORS.
8. SEE UNIT PLANS FOR FURTHER WORK.
9. LIGHTS AT APT. ENTRY DOORS CONNECT TO APT. HOT CIRCUIT.
10. ALL AHU'S HAVE AUTO DAMPER/THERMOSTAT SYSTEM TO WIRE. SEE HVAC PLANS.
11. EXIT SIGNS SHALL BE READILY VISIBLE TO OCCUPANTS.
12. EXTERIOR LIGHTING TO BE ROUTED THRU PHOTOCELL.
13. "DP-1" DENOTES DISTRIBUTION PANEL.

LEGEND:

(1) TO LIGHTING CONTROL PANEL.

1 **BLDG 2-C, PARTIAL THIRD FLOOR PLAN**
1/8"=1'-0"
ELECTRICAL

NORTH



KEY PLAN
NO SCALE

NORTH

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LSA PROJECT NO. 2104008

STATE OF MISSOURI
RICHARD R. BEARDMORE
NUMBER
PROFESSIONAL ENGINEER
7-15-21

ARCHITECT
STRUCTURAL ENGINEER
CIVIL ENGINEER
GENERAL CONTRACTOR
MECHANICAL ENGINEER
PLUMBING ENGINEER
ELECTRICAL ENGINEER

TR¡ ARCHITECTS
STRUCTURAL
CIVIL
GENERAL CONTRACTOR
ENGINEER
PLUMBING
ELECTRICAL

Together Development

The Signature at West Pryor

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DATE: 7.15.2021

REVISIONS 0

DWG BY CAD/RRB

TR¡ PROJECT NO. 20-001

SHEET NO.

E121

BLDG 2-C, PARTIAL THIRD FLOOR PLAN - ELECTRICAL

NOTES:

1. ALL ⊙ ARE TYPE "A2" UNLESS NOTED OTHERWISE.
2. ALL STAIR LIGHTS ARE TYPE "A" UNLESS NOTED OTHERWISE.
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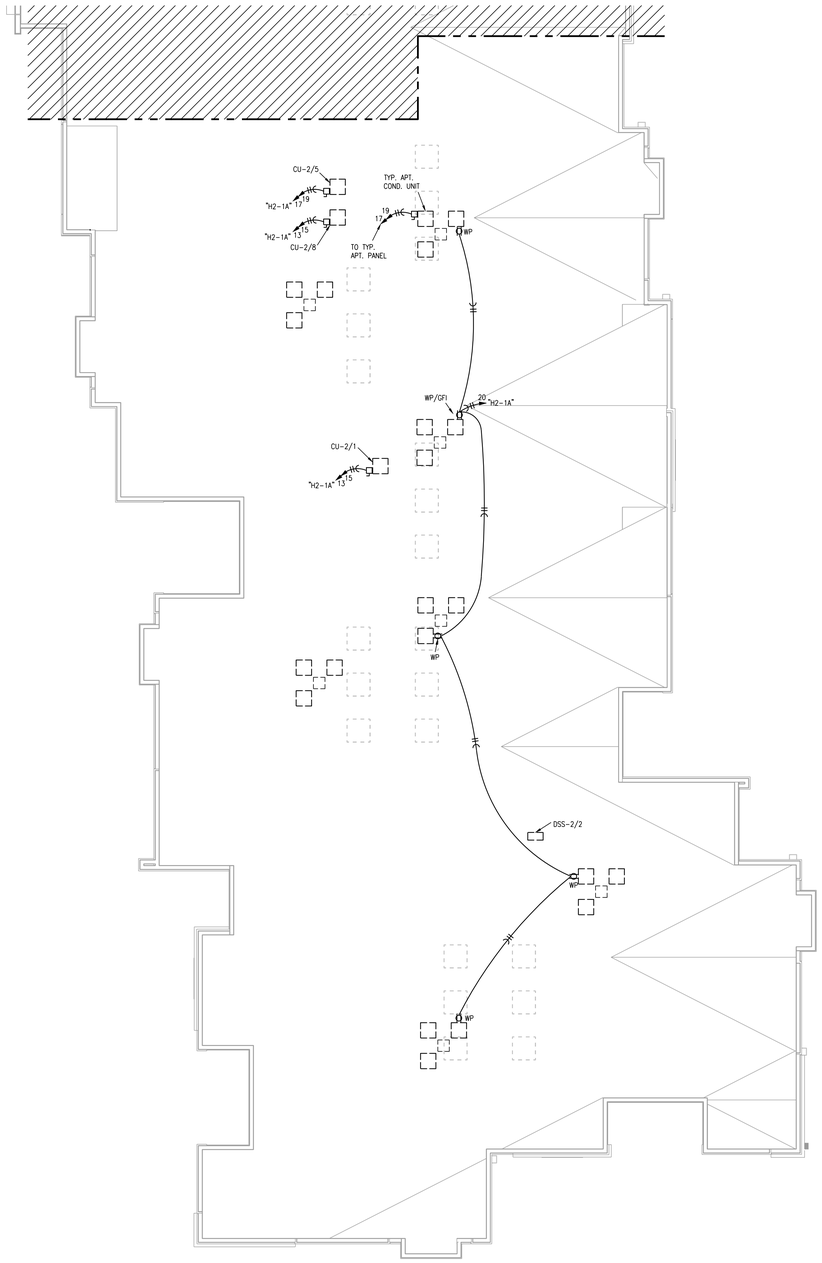
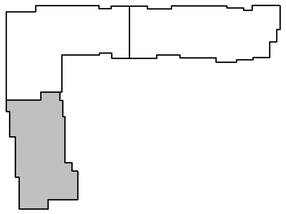
LEGEND:

(1) TO LIGHTING CONTROL PANEL.



1 **BLDG 2-A, PARTIAL ROOF PLAN**
1/8"=1'-0"
ELECTRICAL

NORTH



KEY PLAN
NO SCALE

NORTH

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ELECTRICAL

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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

E122

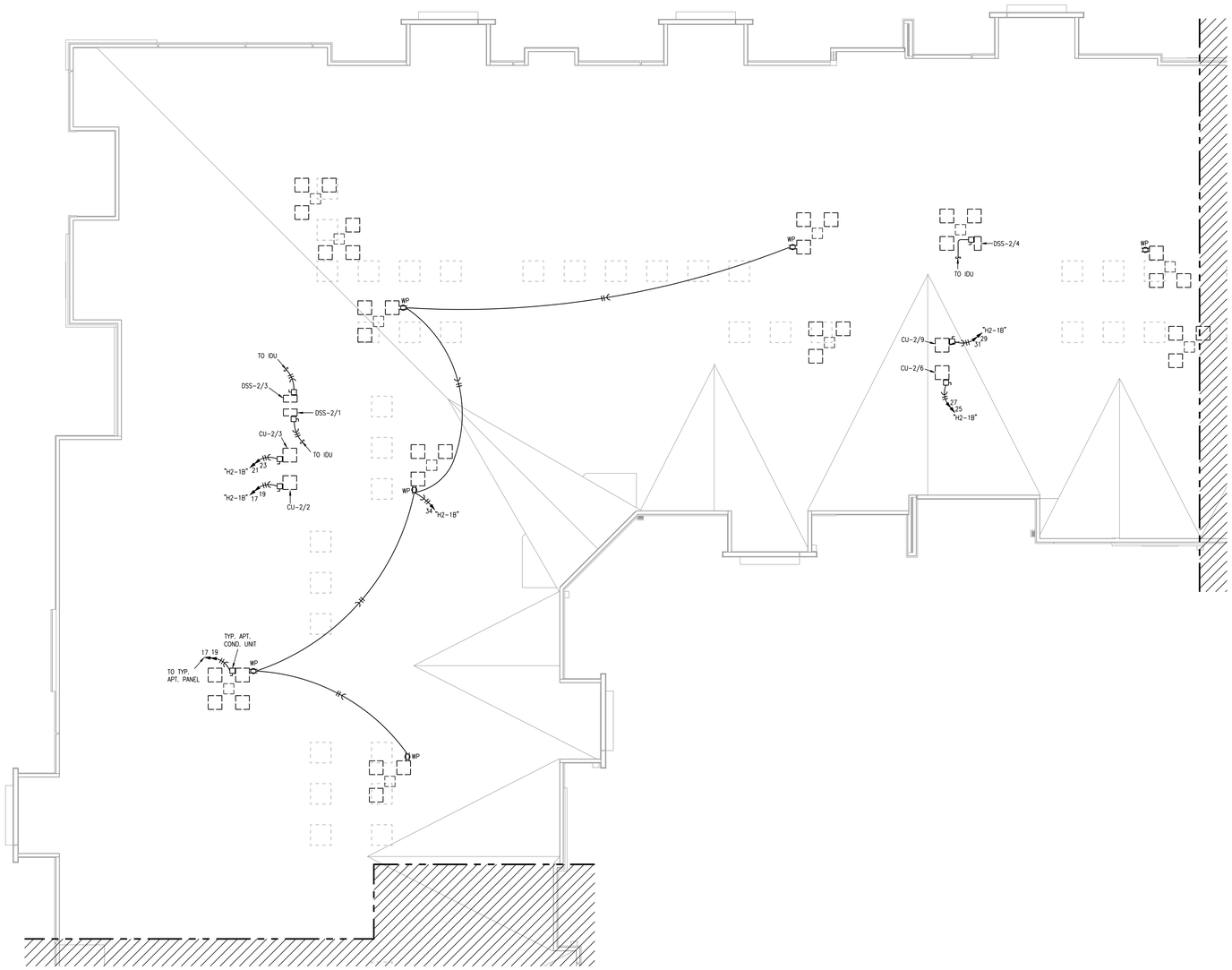
BLDG 2-A, PARTIAL ROOF PLAN - ELECTRICAL

NOTES:

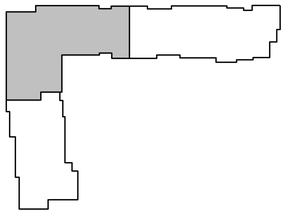
1. ALL ⊙ ARE TYPE "A2" UNLESS NOTED OTHERWISE.
2. ALL STAIR LIGHTS ARE TYPE "A" UNLESS NOTED OTHERWISE.
3. ALL ⊗ ARE TYPE "X1" UNLESS NOTED OTHERWISE.
4. ALL ⊗ ARE TYPE "X2" UNLESS NOTED OTHERWISE.
5. ALL ⊗ ARE TYPE "X5" UNLESS NOTED OTHERWISE.
6. ALL ▬ STAIR LIGHTS ARE TYPE "P" U.N.O.
7. CONNECT FIRE/SMOKE DAMPERS SHOWN ON MECHANICAL PLANS TO 120V. AND FIRE ALARM RELAY TO SHUT UPON SMOKE DETECTION IN CORRIDORS.
8. SEE UNIT PLANS FOR FURTHER WORK.
9. LIGHTS AT APT. ENTRY DOORS CONNECT TO APT. HOT CIRCUIT.
10. ALL AHU'S HAVE AUTO DAMPER/THERMOSTAT SYSTEM TO WIRE. SEE HVAC PLANS.
11. EXIT SIGNS SHALL BE READILY VISIBLE TO OCCUPANTS.
12. EXTERIOR LIGHTING TO BE ROUTED THRU PHOTOCELL.
13. "DP-1" DENOTES DISTRIBUTION PANEL.

LEGEND:

(1) TO LIGHTING CONTROL PANEL.



1 **BLDG 2-B, PARTIAL ROOF PLAN**
1/8"=1'-0"
ELECTRICAL
NORTH



KEY PLAN
NO SCALE
NORTH

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DATE: 7.15.2021

REVISIONS 1

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

E123

BLDG 2-B, PARTIAL ROOF PLAN - ELECTRICAL

NOTES:

1. ALL ⊙ ARE TYPE "A2" UNLESS NOTED OTHERWISE.
2. ALL STAIR LIGHTS ARE TYPE "A" UNLESS NOTED OTHERWISE.
3. ALL ⊙ ARE TYPE "X1" UNLESS NOTED OTHERWISE.
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5. ALL ⊙ ARE TYPE "X5" UNLESS NOTED OTHERWISE.
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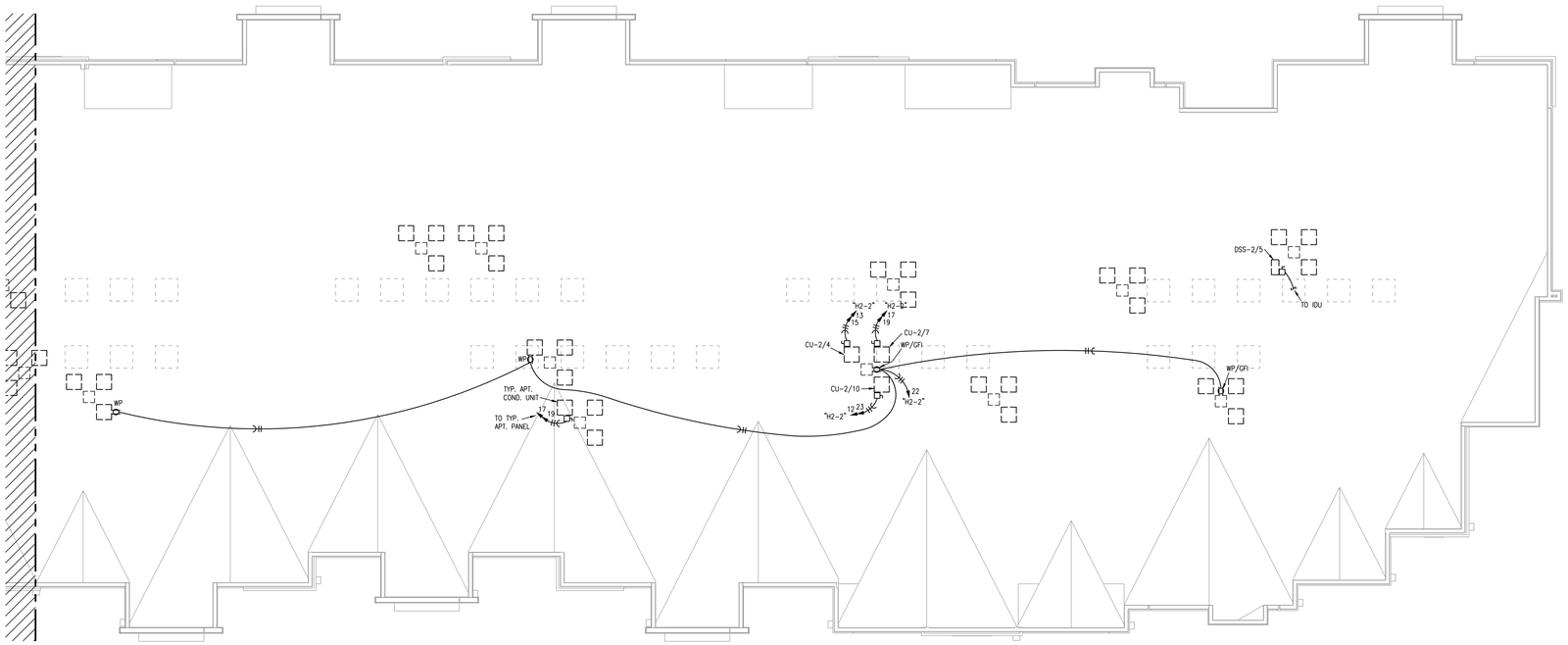
13. "DP-1" DENOTES DISTRIBUTION PANEL.

LEGEND:

(1) TO LIGHTING CONTROL PANEL.

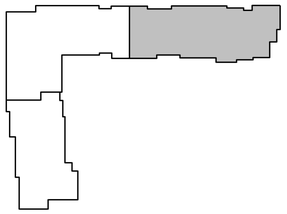


1 BLDG 2-C, PARTIAL ROOF PLAN

1/8"=1'-0"

ELECTRICAL

NORTH



KEY PLAN

NO SCALE

NORTH

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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR¡ PROJECT NO. 20-001

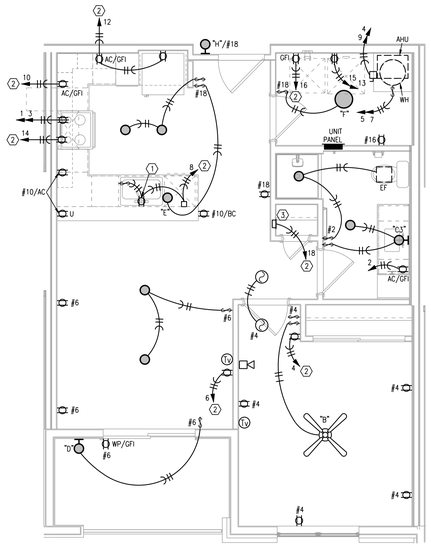
SHEET NO.

E124

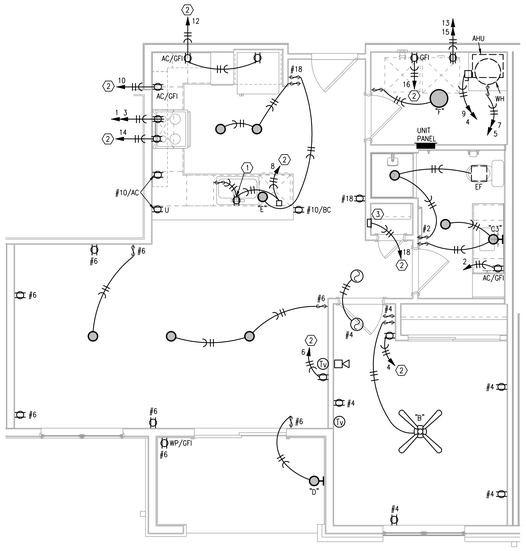
BLDG 2-C, PARTIAL ROOF PLAN - ELECTRICAL

NOTES:

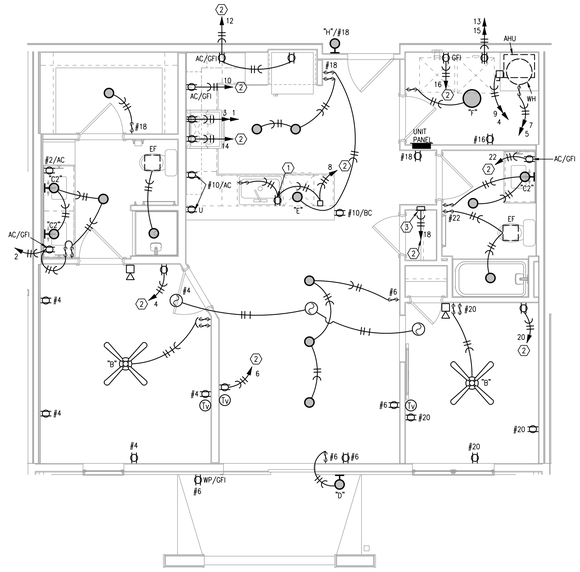
SEE INTERIORS CEILING PLANS FOR LIGHTING PLACEMENT.



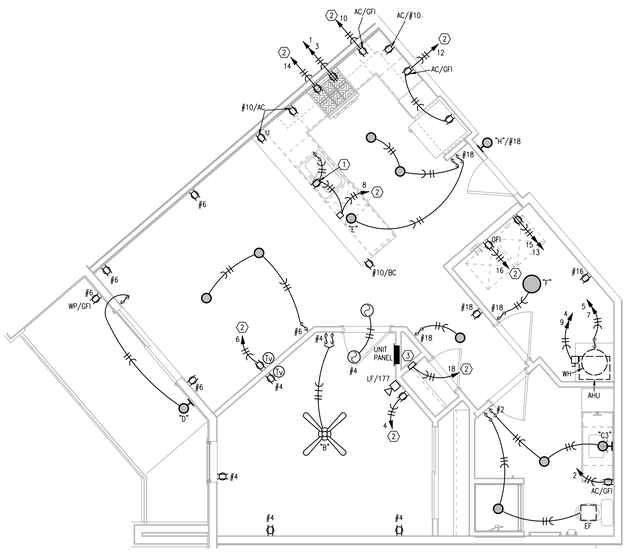
1 **TYPICAL UNIT PLAN - A1**
1/4"=1'-0" (UNITS A1-1, A1-2 SIMILAR) ELECTRICAL



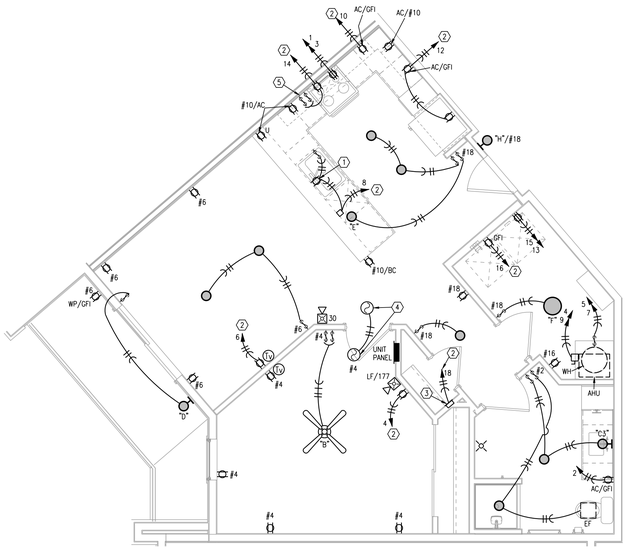
2 **TYPICAL UNIT PLAN - A2**
1/4"=1'-0" ELECTRICAL



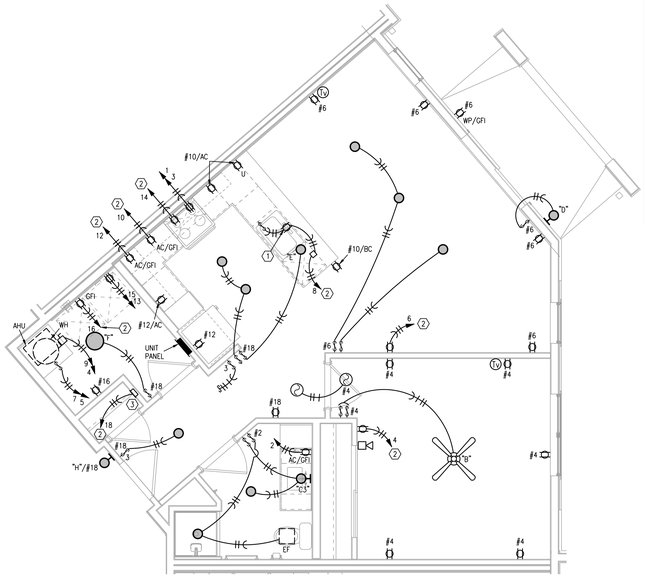
3 **TYPICAL UNIT PLAN - A3**
1/4"=1'-0" ELECTRICAL



4 **TYPICAL UNIT PLAN - A4**
1/4"=1'-0" ELECTRICAL



5 **TYPICAL UNIT PLAN - A4 TYPE A**
1/4"=1'-0" ELECTRICAL



6 **TYPICAL UNIT PLAN - A5**
1/4"=1'-0" ELECTRICAL

NOTES:

1. ENTRY FIXTURE IN HALLWAYS ARE WIRED TO UNIT CIRCUIT. MOUNT AT 72"AFF, VERIFY WITH ARCHITECT.
2. CEILING FAN SWITCHES PROVIDED WITH FAN. CONTROL LIGHT AND FAN SEPARATELY. INTENDED FOR SINGLE GANG BOX.
3. CENTER ISLAND/PENINSULA PENDANT LIGHTS OVER BASE BACK WALL AND CENTERED EQUALLY LEFT TO RIGHT OVER SINK. THESE ARE SEPARATELY SWITCHED.
4. GENERALLY CENTER LIGHT ON WINDOWS, DOOR, HALLWAYS, SINKS, OVER TUBS, ETC. VERIFY ALL LOCATIONS IN EACH UNIT DIMENSIONALLY WITH ARCHITECT, INTERIOR DESIGNER AND OWNER. MOUNT SWITCHES CLOSE TO DOORS OR WALL CORNERS.
5. THERMOSTATS HAVE LOW VOLTAGE WIRE BACK TO AHU. CONDENSING UNITS HAVE LOW VOLTAGE WIRE BACK TO AHU.
6. (2) = 120V. SMOKE ALARM WITH BATTERY BACK-UP AND AUXILIARY CONTACT SO ALL SOUND TOGETHER.
7. ALL ARC-FAULT CIRCUIT BREAKERS SHALL BE COMPATIBLE WITH CEILING FANS, COMPACT AND STANDARD FLUORESCENT LAMPS/FIXTURES AND OTHER ELECTRONIC DEVICES.
8. PROVIDE PROTECTION AT ELECTRICAL BOXES AT RATED CEILING MEMBRANES PER IBC 712.4.1.2(2). BOXES TO BE LISTED FOR RATED MEMBRANES, NOT EXCEED 16 SQUARE INCHES, NOT COMBINE FOR MORE THAN 100 SQUARE INCHES IN 100 SQUARE FEET AND ANNULAR SPACE NOT EXCEED 1/8".
9. FIRE ALARM HORN/STROBE CIRCUITS SHALL BE SIZED TO ACCEPT BEDROOM HORN/STROBES IN FUTURE INCLUDING WIRING AND PANEL CAPACITY.
10. ALL RANGES SERVED BY (3) #8 & (1) #10 AND 50A. RECEPTACLE.
11. ALL WATER HEATERS SERVED BY (3) #10
12. ALL WASHERS AND REFRIGERATORS HAVE RECEPTACLES AT 48".
13. SEE HVAC SCHEDULE AND SHOP DRAWINGS FOR AHU AND HEAT PUMP CIRCUITS.
14. ALL DRYERS SERVED BY (4) #10 AND 30A. RECEPTACLE.
15. BELOW COUNTER RECEPTACLES AND PLATES SHALL MATCH THE BASE CABINETS WHERE THEY ARE MOUNTED (BROWN, WHITE, ETC.) VERIFY WITH ARCHITECT.
16. EXTERIOR RECEPTACLES SHALL BE ARLINGTON #DBVM1C RECESSED TYPE.
17. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONS & SCHEDULE.
18. MOUNT TOP BREAKER IN UNIT PANELS AT 48".

LEGEND:

1. SWITCHED GFI RECEPTACLE FOR GARBAGE DISPOSER CONTINUE CIRCUIT TO DISHWASHER.
2. PROVIDE ARC-FAULT CIRCUIT BREAKER IN PANEL.
3. TELE/TV DEMARK FLUSH BOX. PROVIDE WITH DUPLEX OUTLET. PROVIDE 1" CONDUIT FROM BOX TO ABOVE CEILING AND OUT TO CEILING IN THE HALLWAY. SEE DETAILS.
4. SMOKE ALARM TO HAVE STROBES.
5. CONNECT RANGE HOOD TO TWO SWITCHES ABOVE COUNTER TO CONTROL LIGHT AND FAN.

ELECTRICAL SYMBOLS LEGEND;

- DUPLEX RECEPTACLE.
- 120/240V. RECEPTACLE. 30A. FOR DRYER, 50A. FOR RANGE.
- SW RECEPTACLE HALF SWITCHED.
- U USB CHARGING COMB. RECEPTACLE.
- DATA OUTLET.
- TV COMBINATION CATV/DATA OUTLET.
- AC ABOVE COUNTER
- BC BELOW COUNTER
- LOW FREQUENCY HORN
- TYPE "A" FIXTURE

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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR¡ PROJECT NO. 20-001

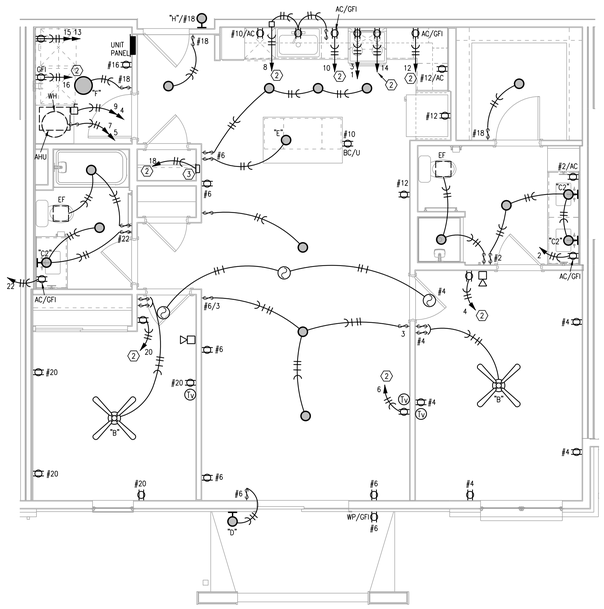
SHEET NO.

E201

TYPICAL UNIT PLANS - ELECTRICAL

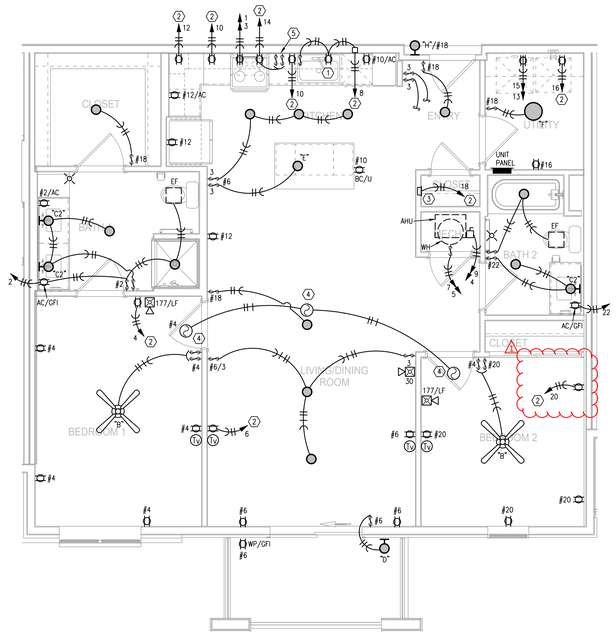
NOTES:

SEE INTERIORS CEILING PLANS FOR LIGHTING PLACEMENT.



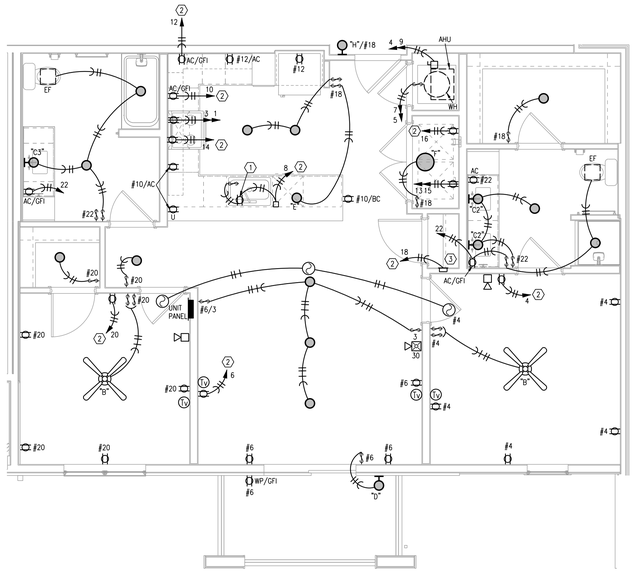
1 TYPICAL UNIT PLAN - B1

1/4"=1'-0" (UNITS B1-1, B1-2, B1-3 SIMILAR) ELECTRICAL



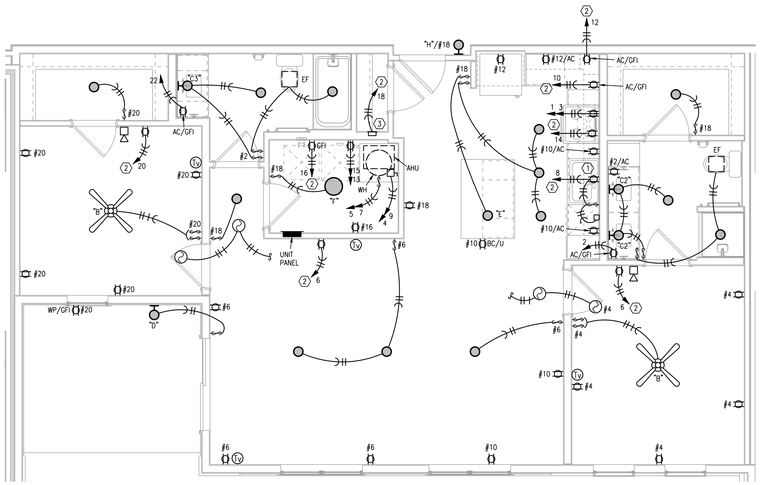
2 TYPICAL UNIT PLAN - B1 TYPE A

1/4"=1'-0" ELECTRICAL



3 TYPICAL UNIT PLAN - B2

1/4"=1'-0" (UNITS B2-TYPE A SIMILAR) ELECTRICAL



4 TYPICAL UNIT PLAN - B3

1/4"=1'-0" (UNIT B3-1 SIMILAR) ELECTRICAL

NOTES:

1. ENTRY FIXTURE IN HALLWAYS ARE WIRED TO UNIT CIRCUIT. MOUNT AT 72"AFF, VERIFY WITH ARCHITECT.
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3. CENTER ISLAND/PENINSULA PENDANT LIGHTS OVER BASE BACK WALL AND CENTERED EQUALLY LEFT TO RIGHT OVER SINK. THESE ARE SEPARATELY SWITCHED.
4. GENERALLY CENTER LIGHT ON WINDOWS, DOOR, HALLWAYS, SINKS, OVER TUBS, ETC. VERIFY ALL LOCATIONS IN EACH UNIT DIMENSIONALLY WITH ARCHITECT, INTERIOR DESIGNER AND OWNER. MOUNT SWITCHES CLOSE TO DOORS OR WALL CORNERS.
5. THERMOSTATS HAVE LOW VOLTAGE WIRE BACK TO AHU. CONDENSING UNITS HAVE LOW VOLTAGE WIRE BACK TO AHU.
6. (2) = 120V. SMOKE ALARM WITH BATTERY BACK-UP AND AUXILIARY CONTACT SO ALL SOUND TOGETHER.
7. ALL ARC-FAULT CIRCUIT BREAKERS SHALL BE COMPATIBLE WITH CEILING FANS, COMPACT AND STANDARD FLUORESCENT LAMPS/FIXTURES AND OTHER ELECTRONIC DEVICES.
8. PROVIDE PROTECTION AT ELECTRICAL BOXES AT RATED CEILING MEMBRANES PER IBC 712.4.1.2(2). BOXES TO BE LISTED FOR RATED MEMBRANES, NOT EXCEED 16 SQUARE INCHES, NOT COMBINE FOR MORE THAN 100 SQUARE INCHES IN 100 SQUARE FEET AND ANNULAR SPACE NOT EXCEED 1/8".
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ELECTRICAL SYMBOLS LEGEND;

- DUPLEX RECEPTACLE.
- 120/240V. RECEPTACLE. 30A. FOR DRYER, 50A. FOR RANGE.
- SW RECEPTACLE HALF SWITCHED.
- U USB CHARGING COMB. RECEPTACLE.
- DATA OUTLET.
- TV COMBINATION CATV/DATA OUTLET.
- AC ABOVE COUNTER
- BC BELOW COUNTER
- LOW FREQUENCY HORN
- TYPE "A" FIXTURE

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LSA PROJECT NO. 2104008

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DATE: 7.15.2021

REVISIONS 1

1 PERMIT REVIEW COMMENTS 08-17-21

DWG BY CAD/RRB

TR.i PROJECT NO. 20-001

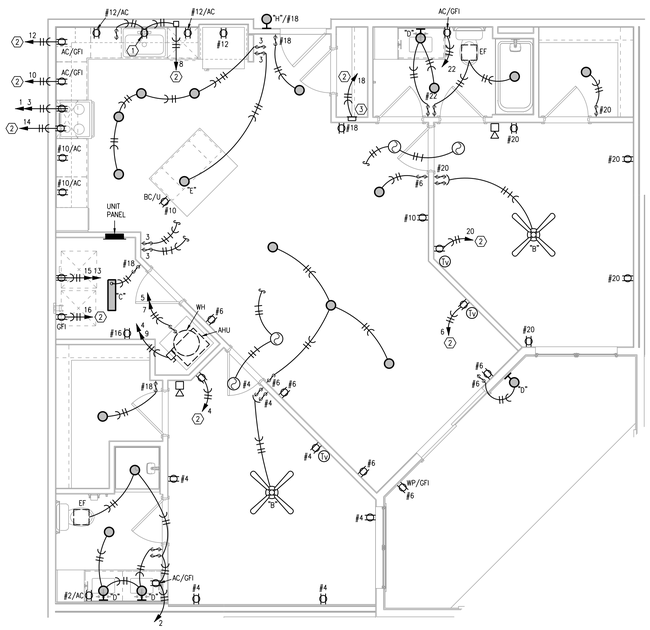
SHEET NO.

E202

TYPICAL UNIT PLANS - ELECTRICAL

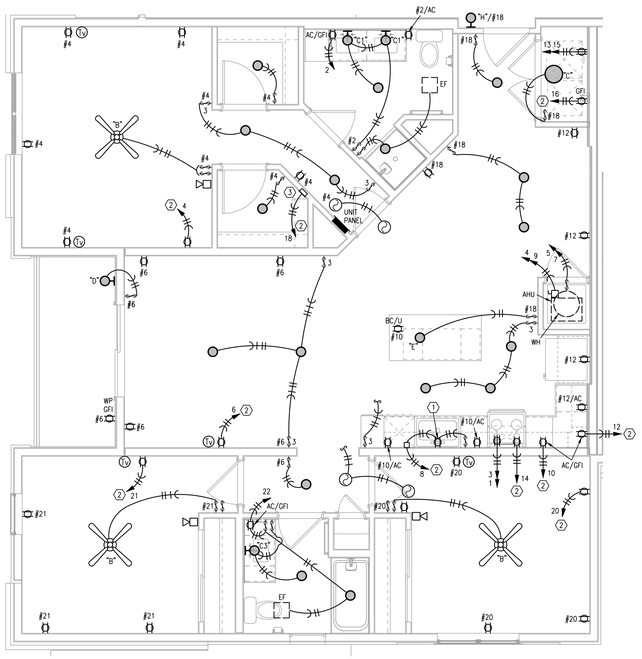
NOTES:

SEE INTERIORS CEILING PLANS FOR LIGHTING PLACEMENT.



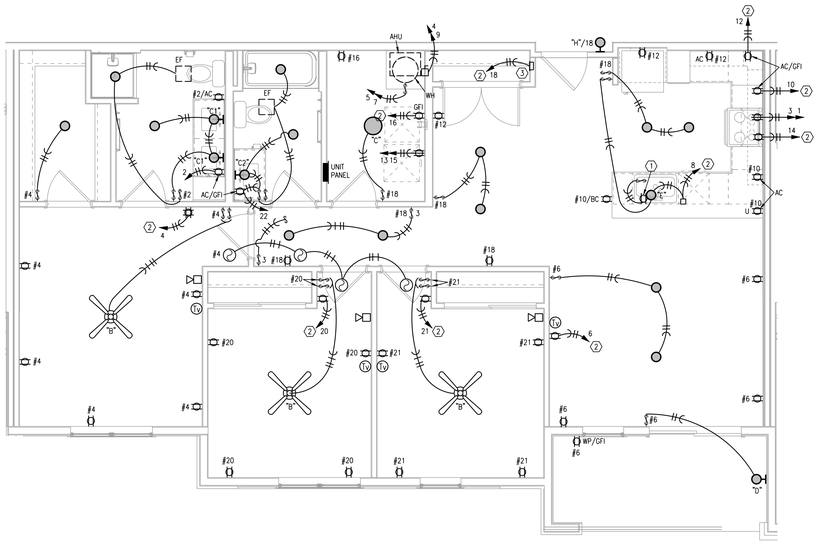
1 TYPICAL UNIT PLAN - B4

1/4"=1'-0" ELECTRICAL



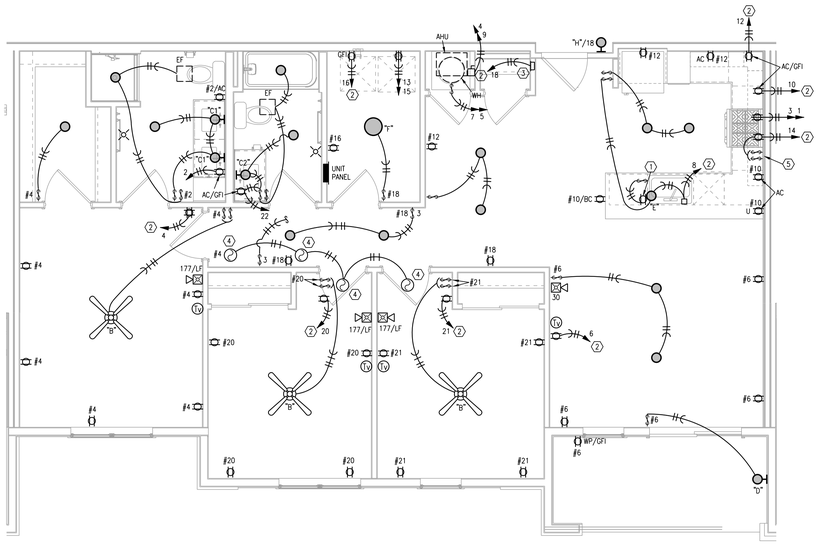
2 TYPICAL UNIT PLAN - C1

1/4"=1'-0" (UNIT C1-1 SIMILAR) ELECTRICAL



3 TYPICAL UNIT PLAN - C2

1/4"=1'-0" (UNIT C2-1 SIMILAR) ELECTRICAL



4 TYPICAL UNIT PLAN - C2 TYPE A

1/4"=1'-0" ELECTRICAL

NOTES:

1. ENTRY FIXTURE IN HALLWAYS ARE WIRED TO UNIT CIRCUIT. MOUNT AT 72"AFF, VERIFY WITH ARCHITECT.
2. CEILING FAN SWITCHES PROVIDED WITH FAN. CONTROL LIGHT AND FAN SEPARATELY. INTENDED FOR SINGLE GANG BOX.
3. CENTER ISLAND/PENINSULA PENDANT LIGHTS OVER BASE BACK WALL AND CENTERED EQUALLY LEFT TO RIGHT OVER SINK. THESE ARE SEPARATELY SWITCHED.
4. GENERALLY CENTER LIGHT ON WINDOWS, DOOR, HALLWAYS, SINKS, OVER TUBS, ETC. VERIFY ALL LOCATIONS IN EACH UNIT DIMENSIONALLY WITH ARCHITECT, INTERIOR DESIGNER AND OWNER. MOUNT SWITCHES CLOSE TO DOORS OR WALL CORNERS.
5. THERMOSTATS HAVE LOW VOLTAGE WIRE BACK TO AHU. CONDENSING UNITS HAVE LOW VOLTAGE WIRE BACK TO AHU.
6. (S) = 120V. SMOKE ALARM WITH BATTERY BACK-UP AND AUXILIARY CONTACT SO ALL SOUND TOGETHER.
7. ALL ARC-FAULT CIRCUIT BREAKERS SHALL BE COMPATIBLE WITH CEILING FANS, COMPACT AND STANDARD FLUORESCENT LAMPS/FIXTURES AND OTHER ELECTRONIC DEVICES.
8. PROVIDE PROTECTION AT ELECTRICAL BOXES AT RATED CEILING MEMBRANES PER IBC 712.4.1.2(2). BOXES TO BE LISTED FOR RATED MEMBRANES, NOT EXCEED 16 SQUARE INCHES, NOT COMBINE FOR MORE THAN 100 SQUARE INCHES IN 100 SQUARE FEET AND ANNULAR SPACE NOT EXCEED 1/8".
9. FIRE ALARM HORN/STROBE CIRCUITS SHALL BE SIZED TO ACCEPT BEDROOM HORN/STROBES IN FUTURE INCLUDING WIRING AND PANEL CAPACITY.
10. ALL RANGES SERVED BY (3) #8 & (1) #10 AND 50A. RECEPTACLE.
11. ALL WATER HEATERS SERVED BY (3) #10
12. ALL WASHERS AND REFRIGERATORS HAVE RECEPTACLES AT 48".
13. SEE HVAC SCHEDULE AND SHOP DRAWINGS FOR AHU AND HEAT PUMP CIRCUITS.
14. ALL DRYERS SERVED BY (4) #10 AND 30A. RECEPTACLE.
15. BELOW COUNTER RECEPTACLES AND PLATES SHALL MATCH THE BASE CABINETS WHERE THEY ARE MOUNTED (BROWN, WHITE, ETC.) VERIFY WITH ARCHITECT.
16. EXTERIOR RECEPTACLES SHALL BE ARLINGTON #DBVM1C RECESSED TYPE.
17. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONS & SCHEDULE.
18. MOUNT TOP BREAKER IN UNIT PANELS AT 48".

LEGEND:

1. SWITCHED GFI RECEPTACLE FOR GARBAGE DISPOSER CONTINUE CIRCUIT TO DISHWASHER.
2. PROVIDE ARC-FAULT CIRCUIT BREAKER IN PANEL.
3. TELE/TV DEMARK FLUSH BOX. PROVIDE WITH DUPLEX OUTLET. PROVIDE 1" CONDUIT FROM BOX TO ABOVE CEILING AND OUT TO CEILING IN THE HALLWAY. SEE DETAILS.
4. SMOKE ALARM TO HAVE STROBES.
5. CONNECT RANGE HOOD TO TWO SWITCHES ABOVE COUNTER TO CONTROL LIGHT AND FAN.

ELECTRICAL SYMBOLS LEGEND;

- DUPLEX RECEPTACLE.
- 120/240V. RECEPTACLE. 30A. FOR DRYER, 50A. FOR RANGE.
- SW RECEPTACLE HALF SWITCHED.
- U USB CHARGING COMB. RECEPTACLE.
- DATA OUTLET.
- TV COMBINATION CATV/DATA OUTLET.
- AC ABOVE COUNTER
- BC BELOW COUNTER
- LOW FREQUENCY HORN
- TYPE "A" FIXTURE

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LSA PROJECT NO. 2104008

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REVISIONS 2

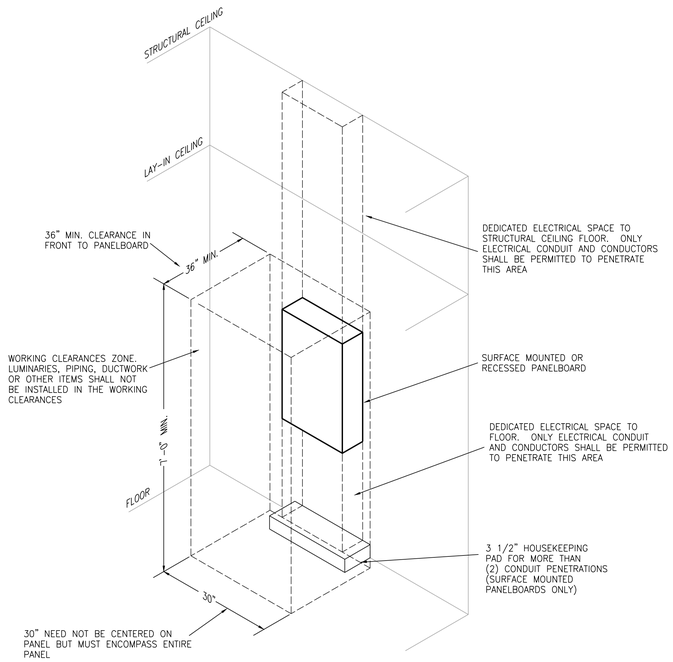
DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

E203

TYPICAL UNIT PLANS - ELECTRICAL



NOTE:

COORDINATE ALL WORK WITH OTHER TRADES. MAINTAIN ALL OTHER NEC CLEARANCES AND REQUIREMENTS.

1 TYPICAL PANELBOARD INSTALLATION DETAIL
NO SCALE

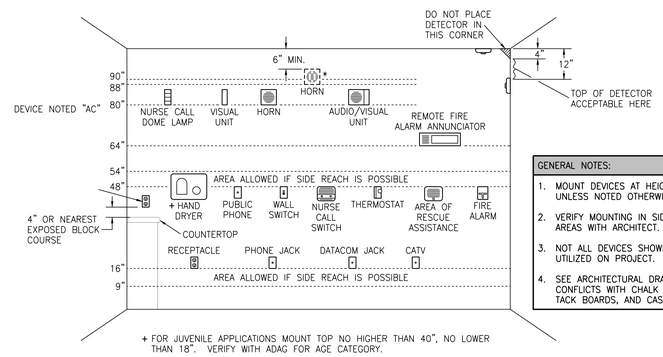
SECURITY SYMBOLS LEGEND	
ACC	ACCESS CONTROL SERVER
ACM	ACCESS CONTROL WORK STATION
	CAMERA WITH AUTO IRIS
	CAMERA WITH FIXED IRIS
CR ??	CARD READER
CCVE	CCVE PANEL
CCVE M	CCVE MASTER PANEL
DP	DOOR POSITION CONTACT
D	DURESS SWITCH
ES	ELECTRIC STRIKE
GB	GLASS BREAK DETECTOR
ISC	INTELLIGENT SYSTEM CONTROLLER
KBRD	KEY BOARD
KP	KEY PAD
ML	MAG LOCK
MD	CAMERA WITH MOTION DETECTOR
M	MONITOR
MD	MOTION DETECTOR
PTZ	PAN, TILT, ZOOM CAMERA
PB RQ	PUSH BUTTON REQUEST TO EXIT
RX	AUTO REQUEST TO EXIT
PB RQ	PUSHBAR REQUEST TO EXIT
RIC	RELAY INTERFACE CABINET

* ALL SYMBOLS SHOWN ABOVE MAY NOT APPEAR ON PLANS

ELECTRICAL SYMBOLS LEGEND

	CONDUIT CONCEALED IN CEILING OR WALL	"A"	LIGHT FIXTURE AND TYPE
	CONDUIT CONCEALED IN FLOOR SLAB		FLUORESCENT LIGHT FIXTURE
	EXPOSED CONDUIT		EMERGENCY LIGHT FIXTURE WITH BATTERY PACK
	HOMERUN – ARROW INDICATES CKT., LINES INDICATE WIRES		EXIT LIGHT (CEILING OR WALL MOUNTED)
	GROUND WIRE		FLUSH PANELBOARD
	GROUNDING ROD		SURFACE PANELBOARD
	SINGLE RECEPTACLE		DISTRIBUTION PANEL OR SWITCHBOARD
	DUPLEX RECEPTACLE (20 AMP UNLESS NOTED)		A/V (WALL MOUNTED) 24 VDC
U	USB CHARGING RECEPTACLE		STROBE
	FOURPLEX RECEPTACLE		FLOW DETECTOR/SWITCH
	208 OR 240 VOLT RECEPTACLE (20 AMP UNLESS NOTED)		TAMPER DETECTOR
	TELE/DATA OUTLET *		ADDRESSABLE MANUAL PULL STATION
	PUSHBUTTON		SMOKE DETECTOR
	MOTOR		HEAT DETECTOR
	FUSIBLE SWITCH (BUSSMAN SSU)		ELECTRIC DOOR HOLDER ON FIRE ALARM
	DISCONNECT SWITCH (D.S.)	FS	FIRE/SMOKE DAMPER
	COMBINATION MOTOR STARTER (CMS)	FCP	FIRE ALARM CONTROL PANEL
	RELAY	FAA	FIRE ALARM ANNUNCIATOR PANEL
	JUNCTION BOX	ARA	AREA RESCUE CALL STATION
	THERMOSTAT ELECTRIC	AC	DEVICE LOCATED ABOVE COUNTER
	SWITCH – SINGLE POLE	AFF	ABOVE FINISHED FLOOR
3, 4	3-WAY, 4-WAY	D	DIMMER
	COMBINATION TV AND DATA OUTLET	EDF	ELECTRIC DRINKING FOUNTAIN
		GFI	GROUND FAULT INTERRUPTER
		NL	NIGHTLIGHT FIXTURE, WIRED HOT
		WP	WEATHERPROOF

NOTES: ALL SYMBOLS SHOWN ABOVE MAY NOT APPEAR ON PLANS. REFER TO MECHANICAL SYMBOLS LEGEND FOR MECHANICAL SYMBOLS THAT MAY BE SHOWN ON ELECTRICAL PLANS. * 4x4 BACKBOX WITH SINGLE GANG PLASTER RING AND A 1" CONDUIT TO ABOVE ACCESSIBLE CEILING.



+ FOR JUVENILE APPLICATIONS MOUNT TOP NO HIGHER THAN 40", NO LOWER THAN 18". VERIFY WITH ADAG FOR AGE CATEGORY.

GENERAL NOTES:

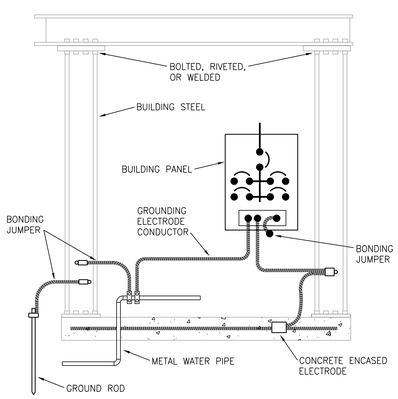
1. MOUNT DEVICES AT HEIGHT INDICATED UNLESS NOTED OTHERWISE ON PLANS.
2. VERIFY MOUNTING IN SIDE REACH AREAS WITH ARCHITECT.
3. NOT ALL DEVICES SHOWN MAY BE UTILIZED ON PROJECT.
4. SEE ARCHITECTURAL DRAWINGS FOR CONFLICTS WITH CHALK BOARDS, TACK BOARDS, AND CASEWORK.

DEVICE MOUNTING NOTES:

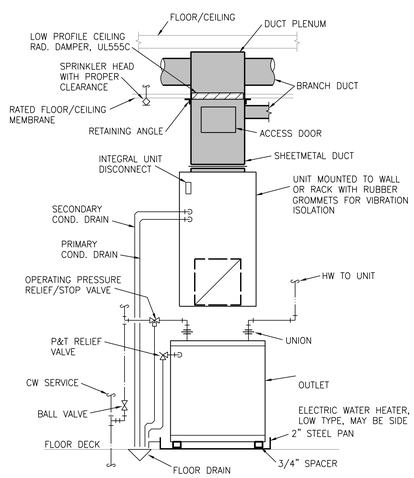
1. VISUAL UNIT
   DEVICE BOTTOM 80" ABOVE HIGHEST FLOOR LEVEL OR TOP 6" BELOW CEILING; WHICHEVER IS LOWER.
2. AUDIO UNIT
   DEVICE BOTTOM 80" ABOVE HIGHEST FLOOR LEVEL OR TOP 6" BELOW CEILING; WHICHEVER IS LOWER.
   * TOP OF UNIT NOT LESS THAN 90" ABOVE FLOOR AND NOT LESS THAN 6" BELOW CEILING (NFPA) (BOTTOM AT 88" WITH BLOCK COURSES). MOUNT AT NFPA HEIGHT ONLY IF REQUIRED BY LOCAL AHJ.
3. AUDIO/VISUAL UNIT
   DEVICE BOTTOM 80" ABOVE HIGHEST FLOOR LEVEL OR TOP 6" BELOW CEILING; WHICHEVER IS LOWER.
4. PULL STATION
   HIGHEST OPERABLE PART SHALL NOT BE MORE THAN 48" ABOVE THE FLOOR (FRONT APPROACH).

ELECTRICAL DEVICE MOUNTING HEIGHTS SHALL CONFORM TO THE LATEST EDITION OF THE ADA STANDARDS FOR ACCESSIBLE DESIGN.

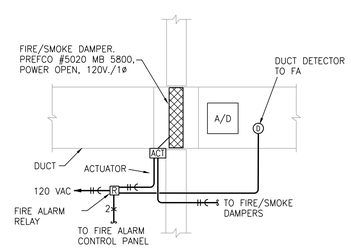
2 ELECTRICAL DEVICE MOUNTING HEIGHTS
NO SCALE



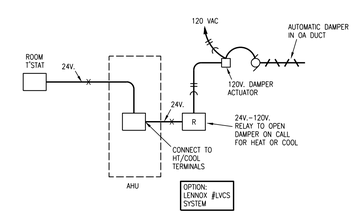
3 GROUNDING ELECTRODE SYSTEM DETAIL
NO SCALE



4 MECHANICAL CLOSET DETAIL
NO SCALE



5 FIRE/SMOKE DAMPER DETAIL
NO SCALE



6 OUTSIDE AIR DAMPER CONTROL SCHEMATIC
NO SCALE (TYP. FOR CORRIDOR UNITS)

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DATE: 7.15.2021

REVISIONS 1

DWG BY CAD/RRB

TR;i PROJECT NO. 20-001

SHEET NO.

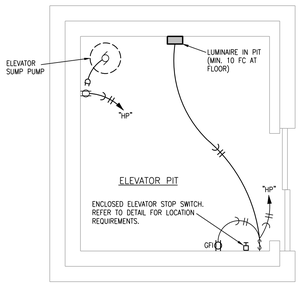
E301

ELECTRICAL DETAILS

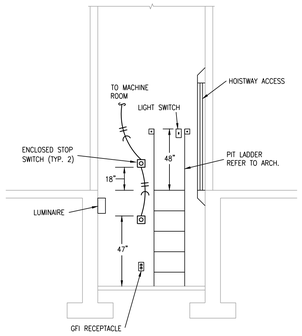
DETECTOR OPERATION:
(1) RECALL TO DESIGNATED LEVEL.
(2) RECALL TO ALTERNATE LEVEL.

SYSTEM SEQUENCE:
UPON DETECTION OF SMOKE IN ELEVATOR LOBBIES, MACHINE ROOM, TOP OF HOISTWAY OR BOTTOM OF HOISTWAY, ELEVATOR RECALL CONTROLS SHALL BE ACTIVATED.

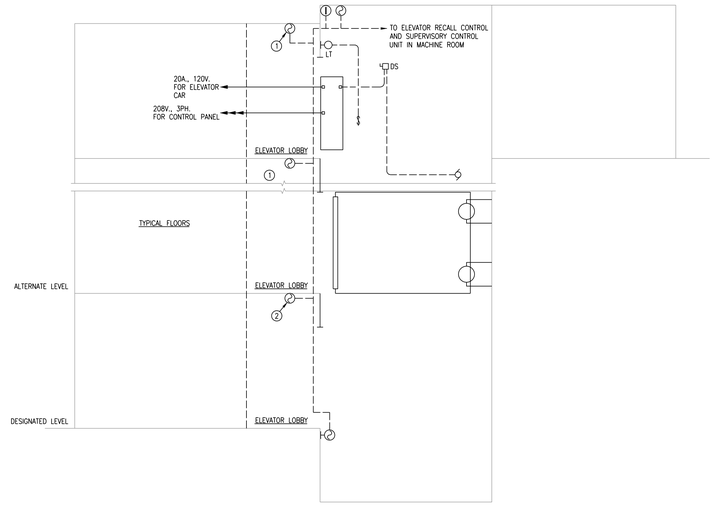
SYMBOLS LEGEND:	
(1)	HEAT DETECTOR
(2)	SMOKE DETECTOR
	SPRINKLER



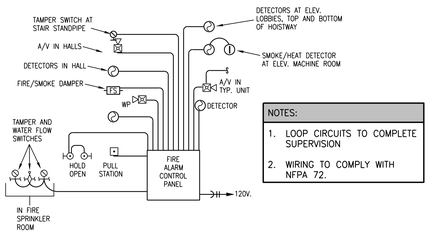
1 ELEVATOR PIT ELECTRICAL DETAIL
NO SCALE



2 ELEVATOR PIT DETAIL
NO SCALE

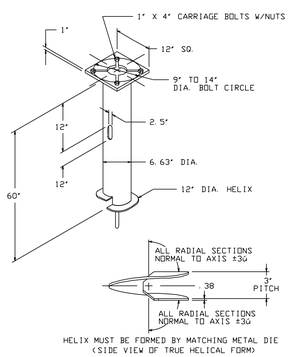


3 ELECTRIC ELEVATOR FIRE PROTECTION SYSTEM OPERATION DETAIL
NO SCALE



NOTES:
1. LOOP CIRCUITS TO COMPLETE SUPERVISION
2. WIRING TO COMPLY WITH NFPA 72.

1 FIRE ALARM RISER DIAGRAM
NO SCALE



-NOTES-

1. FINISH: HOT DIP GALVANIZE PER ASTM-A153 (LATEST REVISION).
2. BASEPLATE TO BE PERPENDICULAR TO SHAFT AXIS (±1Ø) AND HOLE CENTERLINE CONCENTRIC (±.188) TO SHAFT AXIS.
3. STENCIL MIN. 1/2 IN. LETTERS MANUFACTURER'S NUMBER AFTER GALVANIZING.
4. PILOT POINT AND SHAFT AXES TO BE CONCENTRIC (±.125 FIM) AND IN LINE (±1Ø).
5. FLAME CUT SLOT PERPENDICULAR TO THE BASEPLATE.
6. PREHEAT, TUMBLEBLAST, HANDGRIND, AND CLEAN BASEPLATE, HELIX, AND PILOT POINT ON ALL WELDED AREAS.
7. FLAMECUT IRREGULARITIES PERMISSIBLE: (1) VALLEYS NOT TO EXCEED 3/32IN. BELOW NOMINAL SURFACE LEVEL, (2) PEAKS OR SURFACE IRREGULARITIES TO EXTEND UP TO 1/8IN. ABOVE NOMINAL SURFACE LEVEL OR INTERSECTING NOMINAL SURFACE.
8. MANUFACTURER TO HAVE IN EFFECT INDUSTRY RECOGNIZED WRITTEN QUALITY CONTROL FOR ALL MATERIALS AND MANUFACTURING PROCESSES.
9. ALL MATERIAL IS TO BE NEW, UNUSED AND MILL TRACEABLE MEETING THE FOLLOWING SPECIFICATIONS:

   BASEPLATE: ASTM A36-(LATEST REVISION) HOT ROLLED STEEL PLATE. (CONFORM TO AASHTO TECH. BUL. #27Ø)

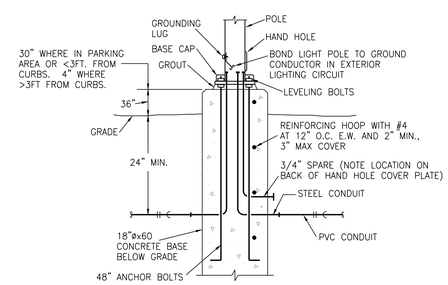
   SHAFT: STEEL PIPE PILES, SEAMLESS OR STRAIGHT WELDED, GRADE-2 PER ASTM A252. ALT. MATERIAL: STEEL PIPE TYPE E OR S, GRADE-B PER ASTM A53

   HELIX: ASTM A635 (LATEST REVISION) HOT ROLLED STEEL.

   PILOT POINT: ASTM A575 (LATEST REVISION) STEEL BAR.

   BOLTS: CARR BOLT PER ANSI B-18.2.1,SAE J429 GRADE-5.
10. BASEPLATE IS PERMANENTLY STAMPED WITH MANUFACTURER'S IDENTIFICATION "ABC" IN 1/2" LETTERS AND DATE CODE IN 1/4" LETTERS.

5 LIGHT POLE FOUNDATION
NO SCALE CAT. NO. C11242NG4VP



6 LIGHTING POLE BASE DETAIL
NO SCALE

LT-POLE6

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DATE: 7.15.2021

REVISIONS 1

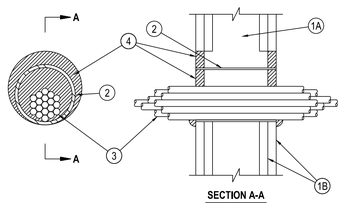
DWG BY CAD/RRB

TR;i PROJECT NO. 20-001

SHEET NO.

E302

ELECTRICAL DETAILS



SECTION A-A

NOTES AND LEGENDS:

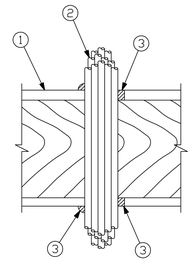
1. 1. Wall Assembly – The 1 or 2 fire–rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 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* – Nom 5/8 in. (16 mm) thick gypsum board, with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 5–1/2 in. (138 mm) when sleeve (Item 2) is employed. Max diam of opening is 4 in. (102 mm) when sleeve (Item 2) is not employed. The F Rating of the firestop system is equal to the fire rating of the wall assembly.

   Metallic Sleeve – (Optional) – Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT) or Schedule 5 (or heavier) steel pipe or min 0.016 in. thick (0.41 mm, NZo. 28 ga) galv steel sleeve installed flush with wall surfaces. The annular space between steel sleeve and periphery of opening shall be min 0 in. (0 mm, point contact) to max 1 in. (25mm). When Schedule 5 steel pipe or EMT is used, sleeve may extend up to 18 in. (457 mm) beyond the wall surfaces.
2. Cables – Aggregate cross–sectional area of cable in opening to be max 45 percent of the cross–sectional area of the opening. The annular space between the cable bundle and the periphery of the opening to be min 0 in. (0 mm, point contact) to max 1 in. (25 mm) Cables to be rigidly supported on both sides of the wall assembly. Any combination of the following types and sizes of copper conductor cables may be used:
3. A. Max 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and jacket.
   B. Max 25 pair No. 24 AWG telephone cable with PVC insulation and jacket.
   C. Type RG/U coaxial cable with polyethylene (PE) insulation and PVC jacket having a max outside diameter of ½ in. (13 mm).
   D. Multiple fiber optical communication cable jacketed with PVC and having a max OD of 5/8 in. (16 mm).
   E. Through Penetrating Products*– Max three copper conductor No. 8 AWG . Metal–Clad Cable+.
   AFC CABLE SYSTEMS INC
   F. Max 3/C (with ground)(or smaller) No. 8 AWG copper conductor cable with PVC insulation and jacketing.
   G. Max 3/4 in. (19 mm) diam copper ground cable with or without a PVC jacket.
   H. Fire Resistive Cables* – Max 1–1/4 in. (32 mm) diam single conductor or multi conductor Type MI cable. A min 1/8 in. (3 mm) separation shall be maintained between MI cables and any other types of cable.
4. Through Penetrating Product* – Any cables, Metal–Clad Cable+ or Armored Cable+ currently Classified under the Through Penetrating Products category. See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.

   Fill, Void or Cavity Material*– Sealant or Putty – Fill material applied within the annulus, flush with each end of the steel sleeve or wall surface. Fill material installed symmetrically on both sides of the wall. A min 5/8 in. (16 mm) thickness of sealant is required for the 1 or 2 hr F Rating . An additional 1/2 in. (13 mm) diam bead of fill material shall be applied around the perimeter of sleeve on both sides of the wall when sleeve extends beyond surface of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CP601S, CP606, FS–One Sealants or CP618 Putty
   *Bearing the UL Classification Mark
   +Bearing the UL Listing Mark

1 FIRE RATED PENETRATION DETAIL

NO SCALE SYSTEM WL-3065



NOTES AND LEGENDS:

1. 1. Floor–Ceiling Assembly – The 1 hr fire–rated solid or trussed lumber joist floor–ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor–Ceiling Designs in the UL Fire Resistance Directory. The general construction features of the floor–ceiling assembly are summarized below:
   A. Flooring System – Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor–Ceiling Design. Max diam of opening shall be 3 in.
   B. Wood Joists* – Nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.
1A. C. Gypsum Board* – Nom 4 ft wide by 5/8 in. thick as specified in the individual Floor–Ceiling Design. Gypsum board secured to wood joists or furring channels as specified in the individual Floor–Ceiling Design.

   Chase Wall – (Optional, Not Shown) – The through penetrants (Item 2) may be routed through a 1 hr fire rated single, double or staggered wood stud/gypsum board chase wall. Depth of chase wall stud cavity to be min 1/2 in. greater than diameter of opening cut in sole and top plates to accommodate the through penetrant (Item 2). The hase wall shall be constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
2. A. Studs – Nom 2 by 4 in., 2 by 6 in. or double nom 2 by 4 in. lumber studs.
   B. Sole Plate – Nom 2 by 4 in., 2 by 6 in. or parallel 2 by 4 in. lumber plates, tightly butted. Max diam of opening is 3 in.
   C. Top Plate – The double top plate shall consist of two nom 2 by 4 in., two nom 2 by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Max diam of opening is 3 in.
   D. Gypsum Board* – Thickness, type, number of layers and fasteners shall be as specified in the individual Wall and Partition Design.

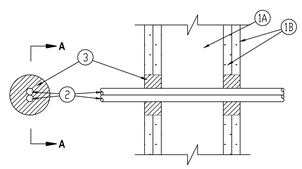
   Cables – Aggregate cross–sectional area of cable in opening to be max 50 percent of the cross–sectional area of the opening. The annular space between the cable bundle and the periphery of the opening to be min 0 in. (point contact) to max 1 in. Cables to be rigidly supported on both sides of the floor–ceiling assembly. Any combination of the following
3. types and sizes of copper conductor cables may be used.
   A. Max 150 pair No. 24 AWG telephone cable with PVC insulation and jacket.
   B. Max 2/C No. 10 with ground Type NM nonmetallic sheathed (Romex) cable with PVC insulation and jacket.
   C. Max 3/C with ground 2/0 AWG aluminum SER cable with PVC insulation and jacket.
   D. Max 3/C No. 10 AWG copper conductor steel clad cable.
   E. Max 24 fiber optic cable.
   F. RG 59U coaxial cable.
   G. CAT 5 data cable.

   Fill, Void or Cavity Materials*–Sealant – Min 3/4 in. thickness of sealant applied within the annulus flush with the top surface of the floor or sole plate and min 5/8 in. thickness of sealant applied within the annulus flush with the bottom surface of gypsum board or lower top plate. A min 1/2 in. diameter bead of sealant applied at the cable bundle/subflooring or sole plate interface and the cable bundle/gypsum board or top plate interface at point contact locations.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC – CP 606 Flexible Firestop Sealant

   *Bearing the UL Classification Mark

2 FIRE RATED PENETRATION DETAIL

NO SCALE SYSTEM FC-3074



SECTION A-A

NOTES AND LEGENDS:

1. Wall Assembly -- The fire–rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 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 nom 2 by 4 in lumber spaced 16 in. OC. Steel studs to be min 2–1/2 in. wide and spaced max 24 in. OC.

   B. Gypsum Board* -- 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 3 in. The hourly F rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T Rating of the firestop system is 1/4 and 3/4 hr for 1 and 2 hr rated wall assemblies, respectively.

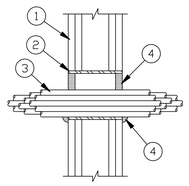
2. Cables -- Max two 3/C with ground No. 2/0 AWG aluminum or copper Type SER cable with polyvinylchloride (PVC) insulation. Cable to be rigidly supported on both sides of wall assembly. The annular space between the cables and the periphery of opening shall be min 1/2 in. to max 1–1/2 in.

3. Fill, Void or Cavity Material* -- Sealant -- Installed to completely fill the annular space between the cables and gypsum wallboard on both sides of wall.

   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC -- FS–One Sealant

3 FIRE STOP DETAIL

NO SCALE SYSTEM W-L-3071



NOTES AND LEGENDS:

1. Wall Assembly -- The 1 or 2 hr fire–rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified if the individual U300 or U400 Series Wall and Partition Designs in the Fire Resistance Directory and shall include the following construction features:

   A. Studs -- Wall framing shall consist of either wood studs or channel shaped steel studs. Wood studs to consist of 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2–1/2 in. wide, fabricated from min 25 MSG galvanized steel, spaced max 24 in. OC.

   B. Gypsum Board* -- Nom 5/8 in. thick with square or tapered edges. The gypsum board type, number of layers and sheet orientation shall be as specified in the individual Wall and Partition Design Number. Max diameter of opening is 4 in. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Non–Metallic Sleeve -- Nom 4 in. diam (or smaller) Schedule 40 solid or cellular core polyvinyl chloride (PVC) pipe friction fit into wall flush with both surfaces of wall.

3. Cables -- Aggregate cross–sectional area of cable in opening to be max 45 percent of the cross–sectional area of the opening. The annular space between the cable bundle and the periphery of the opening to be min 0 in. (point contact) to max 1–3/8 in. Cables to be rigidly supported on both sides of the wall assembly. Any combination of the following types and sizes of copper conductor cables may be used:
   A. Max 500 KCMIL power cable.
   B. Max 100 pair No. 24 AWG telephone cable with PVC insulation and jacket.
   C. Type RG /U coaxial cable with polyethylene (PE) insulation and PVC jacket and having a max OD of ½ in.
   D. Max 3/C No. 8 AWG steel clad cable.
   E. Max 3/C No. 8 AWG (with ground) with PVC insulation and jacket.
   F. Multiple fiber optical communication cable with PVC jacket with a max OD of 3/8 in.
   G. Max 3/4 in diam copper ground cable with PVC jacket.

4. Fill, Void or Cavity Material* – Putty -- Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point contact location between cables/sleeve, a min ½ in. diam bead of fill material shall be applied at the cable /sleeve interface.

   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC -- CP618 Putty Stick.

   *Bearing the UL Classification Mark

4 FIRE STOP DETAIL

NO SCALE SYSTEM W-L-3213

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PLUMBING ENGINEER
ELECTRICAL ENGINEER

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PLUMBING
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Tegethoff DEVELOPMENT

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DATE: 7.15.2021

REVISIONS 1

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

E303

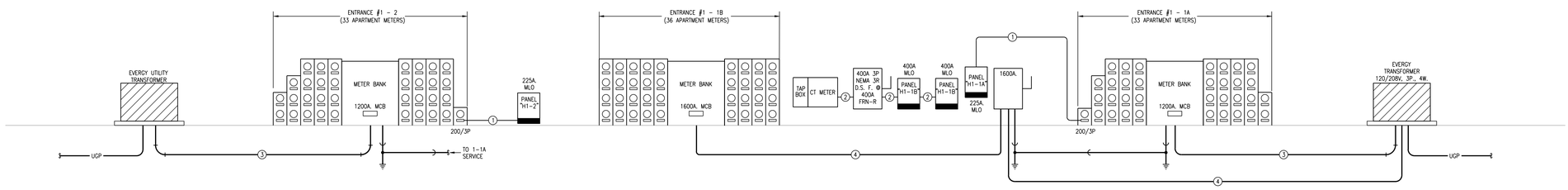
ELECTRICAL DETAILS

FEEDER SCHEDULE - ALUMINUM AA8000						
MARK	OCP	SETS	NO. COND.	SIZE	SIZE GRD	CONDUIT
		1	1		3/0 CU	
1	225 A	1	4	300 KCMIL	#2	3
2	400 A	2	4	#4/0	#1	2
3	1200 A	4	4	500 KCMIL		3
4	1600 A	5	4	600 KCMIL		4
5	100 A	1	4	#1/0	#4	1.5

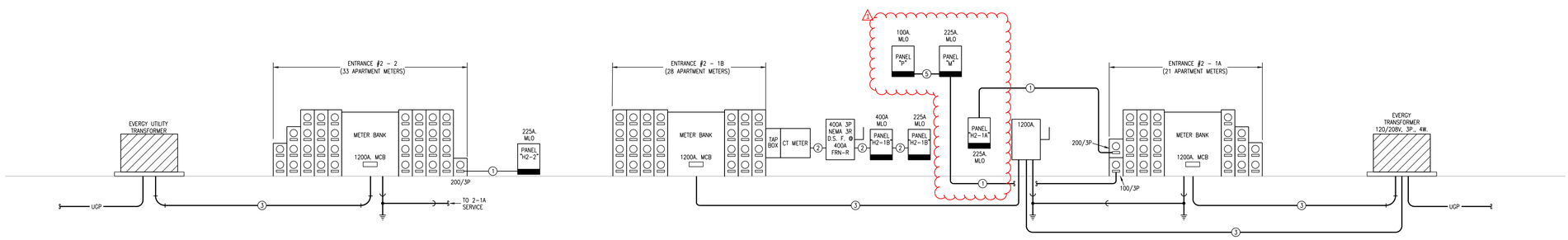
TYPICAL APARTMENT FEEDERS BASED ON ALUM SE TYPE CABLE		
MAIN BREAKER	SIZE COND.	MAX LENGTH (FT)
100A.	2-2-2-6	100
100A.	2-2-2-6	100
100A.	1-1-1-4	125
100A.	0-0-0-4	155
110A.	1-1-1-4	115
110A.	0-0-0-4	140
110A.	2/0-2/0-2/0-3	180
125A.	0-0-0-4	125
125A.	2/0-2/0-2/0-3	155
125A.	3/0-3/0-3/0-3	200

NOTES:
1. SEE NEC TABLE 310.15 (B)(7)

NOTE: ALL GEAR TO BE 65 KAC SERIES RATED. KAIC TO BE VERIFIED WHEN POWER COMPANY DESIGN IS COMPLETE. ALL GEAR TO HAVE PERMANENT VISUAL PLAQUES NOTING DISCONNECT POINTS ON FOR EACH BUILDING.



BUILDING NO. 1
ELECTRICAL DISTRIBUTION RISER DIAGRAM
1 NO SCALE



BUILDING NO. 2
ELECTRICAL DISTRIBUTION RISER DIAGRAM
2 NO SCALE

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LSA PROJECT NO. 2104008

STATE OF MISSOURI
RICHARD R. BEARDMORE
NUMBER
PROFESSIONAL ENGINEER
8-17-21

ARCHITECT
STRUCTURAL ENGINEER
CIVIL ENGINEER
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PLUMBING ENGINEER
ELECTRICAL ENGINEER

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DATE: 7.15.2021

REVISIONS
1 PERMIT REVIEW COMMENTS 08-17-21

DWG BY CAD/RRB
TR,i PROJECT NO. 20-001
SHEET NO.
E304
ELECTRICAL DISTRIBUTION RISER DIAGRAMS

Multi-Family Building Load Analysis

Building: 1-1A, 1-1B

Unit Quantity	Unit Type	Connected Load - VA	Total KVA
15	A1	31460	471.9
5	A2, A4, A5	31870	159.4
0	A3	32170	0.0
24	B1, B2	33070	793.7
15	B3, B4	33025	495.4
7	C1	35600	249.2
3	C2	35240	105.7

Total Building KVA	2275.2
Total Units	69
Diversity per NEC Table 230.84	0.23
Diversified KVA	523.3
Amps @ 208 V Three Phase	1454
House Load - Amps	300
Total Demand - Amps	1754

Multi-Family Building Load Analysis

Building: 1-1A

Unit Quantity	Unit Type	Connected Load - VA	Total KVA
6	A1	31460	188.8
	A2, A4, A5	31870	0.0
	A3	32170	0.0
12	B1, B2	33070	396.8
3	B3, B4	33025	99.1
6	C1	35600	213.6
	C2	35240	

Total Building KVA	898.3
Total Units	27
Diversity per NEC Table 230.84	0.34
Diversified KVA	305.4
Amps @ 208 V Three Phase	848
House Load - Amps	150
Total Demand - Amps	998

Multi-Family Building Load Analysis

Building: 1-1B

Unit Quantity	Unit Type	Connected Load - VA	Total KVA
9	A1	31460	283.1
5	A2, A4, A5	31870	159.4
	A3	32170	0.0
12	B1, B2	33070	396.8
12	B3, B4	33025	396.3
1	C1	35600	35.6
3	C2	35240	105.72

Total Building KVA	1377.0
Total Units	42
Diversity per NEC Table 230.84	0.26
Diversified KVA	358.0
Amps @ 208 V Three Phase	994
House Load - Amps	350
Total Demand - Amps	1344

Multi-Family Building Load Analysis

Building: 1-2

Unit Quantity	Unit Type	Connected Load - VA	Total KVA
18	A1	31460	566.3
6	A2, A4, A5	31870	191.2
	A3	32170	0.0
	B1, B2	33070	0.0
3	B3, B4	33025	99.1
6	C1	35600	213.6
	C2	35240	

Total Building KVA	1070.2
Total Units	33
Diversity per NEC Table 230.84	0.31
Diversified KVA	331.8
Amps @ 208 V Three Phase	922
House Load - Amps	150
Total Demand - Amps	1072

Multi-Family Building Load Analysis

Building: 2-1A, B

Unit Quantity	Unit Type	Connected Load - VA	Total KVA
12	A1	31460	377.5
0	A2, A4, A5	31870	0.0
3	A3	32170	96.5
34	B1, B2	33070	1124.4
3	B3, B4	33025	99.1
3	C1	35600	106.8
6	C2	35240	211.4

Total Building KVA	2015.7
Total Units	61
Diversity per NEC Table 230.84	0.24
Diversified KVA	483.8
Amps @ 208 V Three Phase	1344
House Load - Amps	300
Total Demand - Amps	1644

Multi-Family Building Load Analysis

Building: 2-1A

Unit Quantity	Unit Type	Connected Load - VA	Total KVA
6	A1	31460	188.8
	A2, A4, A5	31870	0.0
	A3	32170	0.0
3	B1, B2	33070	99.2
	B3, B4	33025	0.0
6	C1	35600	213.6
6	C2	35240	211.4

Total Building KVA	713.0
Total Units	21
Diversity per NEC Table 230.84	0.37
Diversified KVA	263.8
Amps @ 208 V Three Phase	733
House Load - Amps	150
Total Demand - Amps	883

Multi-Family Building Load Analysis

Building: 2-1 B

Unit Quantity	Unit Type	Connected Load - VA	Total KVA
3	A1	31460	94.4
	A2, A4, A5	31870	0.0
	A3	32170	0.0
19	B1, B2	33070	628.3
3	B3, B4	33025	99.1
3	C1	35600	106.8
	C2	35240	

Total Building KVA	928.6
Total Units	28
Diversity per NEC Table 230.84	0.33
Diversified KVA	306.4
Amps @ 208 V Three Phase	851
House Load - Amps	300
Total Demand - Amps	1151

Multi-Family Building Load Analysis

Building: 2-2

Unit Quantity	Unit Type	Connected Load - VA	Total KVA
9	A1	31460	283.1
	A2, A4, A5	31870	0.0
3	A3	32170	96.5
15	B1, B2	33070	496.1
	B3, B4	33025	0.0
	C1	35600	0.0
6	C2	35240	211.4

Total Building KVA	1087.1
Total Units	33
Diversity per NEC Table 230.84	0.31
Diversified KVA	337.0
Amps @ 208 V Three Phase	936
House Load - Amps	150
Total Demand - Amps	1086

Unit Load Calculation

Unit: A1	VA
630 square feet at 3 VA per sq. ft.	1890
2 small appliance circuits	3000
Range	8000
Microwave	1000
Washer	1500
Dryer	4400
Water Heater	4500
Dishwasher	740
Disposer	850
Total general load	25880
NEC 220-84 Calculation	
First 10 KVA at 100%	10000
Remainder at 40%	6352
Heater Load 5600 65%	3640
Total load	19992
Load for unit service Amp @ 208 volt/1	96
Connected Load	31480

Unit Load Calculation

Unit: A2, A4, A5	VA
760 square feet at 3 VA per sq. ft.	2280
2 small appliance circuits	3000
Range	8000
Microwave	1000
Washer	1500
Dryer	4400
Water Heater	4500
Dishwasher	740
Disposer	850
Total general load	26270
NEC 220-84 Calculation	
First 10 KVA at 100%	10000
Remainder at 40%	6508
Heater Load 5600 65%	3640
Total load	20148
Load for unit service Amp @ 208 volt/1	97
Connected Load	31870

Unit Load Calculation

Unit: A3	VA
860 square feet at 3 VA per sq. ft.	2580
2 small appliance circuits	3000
Range	8000
Microwave	1000
Washer	1500
Dryer	4400
Water Heater	4500
Dishwasher	740
Disposer	850
Total general load	26570
NEC 220-84 Calculation	
First 10 KVA at 100%	10000
Remainder at 40%	6628
Heater Load 5600 65%	3640
Total load	20268
Load for unit service Amp @ 208 volt/1	97
Connected Load	32170

Unit Load Calculation

Unit: B1, B2	VA
1160 square feet at 3 VA per sq. ft.	3480
2 small appliance circuits	3000
Range	8000
Microwave	1000
Washer	1500
Dryer	4400
Water Heater	4500
Dishwasher	740
Disposer	850
Total general load	27470
NEC 220-84 Calculation	
First 10 KVA at 100%	10000
Remainder at 40%	6988
Heater Load 5600 65%	3640
Total load	20628
Load for unit service Amp @ 208 volt/1	99
Connected Load	33070

Unit Load Calculation

Unit: B3, B4	VA
1145 square feet at 3 VA per sq. ft.	3435
2 small appliance circuits	3000
Range	8000
Microwave	1000
Washer	1500
Dryer	4400
Water Heater	4500
Dishwasher	740
Disposer	850
Total general load	27425
NEC 220-84 Calculation	
First 10 KVA at 100%	10000
Remainder at 40%	6970
Heater Load 5600 65%	3640
Total load	20610
Load for unit service Amp @ 208 volt/1	99
Connected Load	33025

Unit Load Calculation

Unit: C1	VA
1370 square feet at 3 VA per sq. ft.	4110
2 small appliance circuits	3000
Range	8000
Microwave	1000
Washer	1500
Dryer	4400
Water Heater	4500
Dishwasher	740
Disposer	850
Total general load	28100
NEC 220-84 Calculation	
First 10 KVA at 100%	10000
Remainder at 40%	7240
Heater Load 7500 65%	4875
Total load	22115
Load for unit service Amp @ 208 volt/1	106
Connected Load	35600

Unit Load Calculation

Unit: C2	VA
1250 square feet at 3 VA per sq. ft.	3750
2 small appliance circuits	3000
Range	8000
Microwave	1000
Washer	1500
Dryer	4400
Water Heater	4500
Dishwasher	740
Disposer	850
Total general load	27740
NEC 220-84 Calculation	
First 10 KVA at 100%	10000
Remainder at 40%	7096
Heater Load 7500 65%	4875
Total load	21971
Load for unit service Amp @ 208 volt/1	106
Connected Load	35240

ELECTRICAL PANEL SCHEDULE

PANEL: A1, A2, A4 | POLES: 18 | MOUNTING: FLUSH
BUS: 125A | MAINS: MLO | VOLTAGE: 120/240 | PHASE/WIRE: 1 Ph 3 Wire | KAIC:10K

CIRCUIT NUMBERS	DESCRIPTION	AMPS	POLES	QUANTITY
1, 3	RANGE	40	2	1
5, 7, 13, 15	WATER HEATER, DRY ER	30	2	2
9, 11	AHU	40	2	1
17, 19	CONDENSING UNIT	25	2	1
2	LIGHTS AND RECEPTACLES	20	1	1
4 THRU 18 EVEN	ARC FAULT LIGHTS AND RECEPTACLES	20	1	8
20	SPARE	20	1	1

ELECTRICAL PANEL SCHEDULE

PANEL: A3 | POLES: 24 | MOUNTING: FLUSH
BUS: 125A | MAINS: MLO | VOLTAGE: 120/240 | PHASE/WIRE: 1 Ph 3 Wire | KAIC:10K

CIRCUIT NUMBERS	DESCRIPTION	AMPS	POLES	QUANTITY
1, 3	RANGE	40	2	1
5, 7, 13, 15	WATER HEATER, DRY ER	30	2	2
9, 11	AHU	40	2	1
17, 19	CONDENSING UNIT	25	2	1
2, 22	LIGHTS AND RECEPTACLES	20	1	2
4 THRU 20 EVEN	ARC FAULT LIGHTS AND RECEPTACLES	20	1	9
21	SPARE	20	1	1

ELECTRICAL PANEL SCHEDULE

PANEL: A5 | POLES: 24 | MOUNTING: FLUSH
BUS: 125A | MAINS: MLO | VOLTAGE: 120/240 | PHASE/WIRE: 1 Ph 3 Wire | KAIC:10K

CIRCUIT NUMBERS	DESCRIPTION	AMPS	POLES	QUANTITY
1, 3	RANGE	40	2	1
5, 7, 13, 15	WATER HEATER, DRY ER	30	2	2
9, 11	AHU	40	2	1
17, 19	CONDENSING UNIT	25	2	1
2	LIGHTS AND RECEPTACLES	20	1	1
4 THRU 18 EVEN	ARC FAULT LIGHTS AND RECEPTACLES	20	1	8
21	SPARE	20	1	1

ELECTRICAL PANEL SCHEDULE

PANEL: ALL B UNITS | POLES: 24 | MOUNTING: FLUSH
BUS: 125A | MAINS: MLO | VOLTAGE: 120/240 | PHASE/WIRE: 1 Ph 3 Wire | KAIC:10K

CIRCUIT NUMBERS	DESCRIPTION	AMPS	POLES	QUANTITY
1, 3	RANGE	40	2	1
5, 7, 13, 15	WATER HEATER, DRY ER	30	2	2
9, 11	AHU	40	2	1
17, 19	CONDENSING UNIT	25	2	1
2, 22	LIGHTS AND RECEPTACLES	20	1	2
4 THRU 20 EVEN	ARC FAULT LIGHTS AND RECEPTACLES	20	1	9
21	SPARE	20	1	1

ELECTRICAL PANEL SCHEDULE

PANEL: C1, C2 | POLES: 24 | MOUNTING: FLUSH
BUS: 125A | MAINS: MLO | VOLTAGE: 120/240 | PHASE/WIRE: 1 Ph 3 Wire | KAIC:10K

CIRCUIT NUMBERS	DESCRIPTION	AMPS	POLES	QUANTITY
1, 3	RANGE	40	2	1
5, 7, 13, 15	WATER HEATER, DRY ER	30	2	2
9, 11	AHU	60	2	1
17, 19	CONDENSING UNIT	30	2	1
2, 22	LIGHTS AND RECEPTACLES	20	1	2
4 THRU 20 EVEN, 21	ARC FAULT LIGHTS AND RECEPTACLES	20	1	10
22	SPARE	20	1	1

Common Space Luminaire Schedule

MARK	DESCRIPTION	MFGR	MODEL	MOUNTING	FINISH	LAMPS	NOTES
A	DISK LIGHT	MAXIM	57690WTWT-CHIP 5"	recessed	white	12W LED	
A2	Stair Puck	Liton	LOMPD5R	jbrsurface	white	ELV Dimming (120V)	
B	FAN/LIGHT	FANIMATION	FPS8533MW - KWARTET	surface	white		
C1	24" RAIL	MAXIM	52102	surface	satin nickel		
C2	30" RAIL	MAXIM	52103SN	surface	satin nickel		
C3	36" RAIL	MAXIM	52104	surface	satin nickel		
D	OUTDOOR SCONCE/PATIO	MAXIM	54350ABZ - Avenue	wall	bronze		
E	PENDANT	ET2	E20085-BK - ABYSS	pendant	black		
F	GLOBE	ACCESS LIGHTING	49960LEDD-WH/ACR - COMO	surface	white		
H	Entry Door Sconce	by others		wall			
J	Wall wash	Progress	P563000-020-30K	wall	black	12W LED	
L	Strip	Lithonia	MNSL-L46 1LL MVOLT 40k	surface	white	20W 4000K LED	W/ BATTERY
L1	Decorative Globe 1	Matteo	X8311BKOP	surface			
L2	Disk 1	Maxim	57690 WTWT	recessed			
L3	Decorative Pendant 1	Maxim	COCOON 12190WTPC	pendant			
L4	Linear 1	Access Lighting	24891LEDD-MWH/ACR	surface			
L5	Sconce	Matteo	W83010BKOP 40" AFF	wall			
L6	Linear 2	Matteo	C81704BKOP	surface			
L7	Decorative Globe 1	Matteo	C8311BKOP	surface			
L8	Disk 2	Matteo	C79611AL	recessed			
X1	Exit	Royal Pacific	RXL-5-RW	surface	white/red	1.5W LED	remote capable
X2	Exit w/heads	Royal Pacific	RXEL39 - RW	surface	white/red	1.5W LED	
X3	Remote Head	Lithonia	ELA-LED	surface	std	1W LED	
X4	Weatherproof Exit	Lithonia	WLTE W 1 R	surface	std	1W LED	
X5	Dual-Head Emergency	Lithonia	ELM4L	surface	std	640 lumen	

ELECTRICAL PANEL SCHEDULE

PANEL: M | LOCATION: | MOUNTING: SURFACE
BUS: 225 A | MAINS: MLO | VOLTAGE: 120/208 | PHASE/WIRE: 3/4 | KAIC: 10

DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	POLE	WIRE		WIRE	POLE	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION
DRYER	2200			30		8	1	2	12	20	50			LTG
		2200			2P	8	3	4	12	20		500		LTG
DRYER			2200	30		8	5	6	12	20				RECEPT
	2200				2P	8	7	8	12	20	500			WASHER
WH-M		2200		30		8	9	10	12	20		500		WASHER
			2200		2P	8	11	12	12	20			1000	RECEPT
EUH-D	1000			20		12	13	14	12	20	1000			RECEPT
EUH-D		1000		20		12	15	16	12	20		400		RECEPT
AHU-MAINT			5930	70		6	17	18	12	20			400	RECEPT
	5930			2P		6	19	20	12	20	400			RECEPT
CU-MAINT		2200		45		8	21	22	12	20		800		RECEPT
			2200	2P		8	23	24	12	20			400	RECEPT
EUH-B	4370			60		6	25	26	12	20	200			RECEPT
		4370		2P		6	27	28	12	20		400		RECEPT
RECEPT			400	20	12	29	30	12	20				400	RECEPT
						31	32	12	20		500			MOTOR
						33	34	12	20			400		RECEPT
						35	36	12	20				400	RECEPT
PANEL P	4000					37	38	12	20		400			RECEPT
		1950				39	40	12	20			400		RECEPT
			1750			41	42		20				400	RECEPT
CONNECTED LOAD-WATTS	22750	17320	17680								FEEDER LOAD-WATTS			
CONNECTED LOAD-AMPS	190	144	147								FEEDER LOAD-AMPS			
CONTINUOUS LOAD											FEEDER WIRE			
RECEPTACLES											FEEDER OCP			
NON-CONTINUOUS LOAD														
OTHER DIVERSIFIED LOAD				@	0.5									

ELECTRICAL PANEL SCHEDULE

PANEL: P | LOCATION: | MOUNTING: SURFACE
BUS: 100 A | MAINS: MLO | VOLTAGE: 120/208 | PHASE/WIRE: 3/4 | KAIC: 10

DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	POLE	WIRE		WIRE	POLE	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION
POOL STARTER	1750			35		8	1	2	12	20	500			POOL HEATER
VERIFY HP		1750			2P	8	3	4	12	20		200		RECEPTACLES
POOL STARTER			1750	35		8	5	6						
VERIFY HP	1750				2P	8	7	8						
							9	10						
							11	12						
							13	14						
							15	16						
							17	18						
							19	20						
							21	22						
							23	24						
CONNECTED LOAD-WATTS	4000	1950	1750								FEEDER LOAD-WATTS			
CONNECTED LOAD-AMPS	33	16	15								FEEDER LOAD-AMPS			
CONTINUOUS LOAD											FEEDER WIRE			
RECEPTACLES											FEEDER OCP			
NON-CONTINUOUS LOAD														
OTHER DIVERSIFIED LOAD				@	0.5									

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REVISIONS 1

1 PERMIT REVIEW COMMENTS 08-17-21

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

E305

ELECTRICAL SCHEDULES

BUILDING 1 PANELS

ELECTRICAL PANEL SCHEDULE

PANEL: H1-2 | LOCATION: | MOUNTING: SURFACE
BUS: 225 A | MAINS: MLO | VOLTAGE: 120/208 | PHASE/WIRE: 3/4 | KAIC: 10

DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	WIRE	POLE	WIRE	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION
AHU-1/1	4160			50	8	1 2	12	20	500			POWER/LTG
		4160		2P	8	3 4	12	20		200		IDF
AHU-1/6			4160	50	8	5 6	12	20			400	LTG
	4160			2P	8	7 8	12	20	800			POWER
AHU-1/9		4160		50	8	9 10	12	20		600		POWER
			4160	2P	8	11 12	12	20			400	POWER/LTG
CU-1/1	1460			25	10	13 14	12	20	600			POWER
		1460		2P	10	15 16	12	20		200		IDF
CU-1/6			1460	25	10	17 18	12	20			400	LTG
	1460			2P	10	19 20	12	20	400			LTG
CU-1/9		1460		25	10	21 22	12	20		800		POWER
			1460	2P	10	23 24	10	25			1350	DSS-1/3
EUH-A	1250			20	12	25 26	10	2P	1350			
		1250		2P	12	27 28	12	20		500		LTG
EUH-A			1250	20	12	29 30	10	20			1520	WH-1/3
	1250			2P	12	31 32						
EUH-A		1250		20	12	33 34						
			1250	2P	12	35 36						
DSS-1/2	1350			25	10	37 38						
		1350		2P	10	39 40						
						41 42						
CONNECTED LOAD-WATTS	18740	17390	17610						FEEDER LOAD-WATTS			
CONNECTED LOAD-AMPS	156	145	148						FEEDER LOAD-AMPS			
CONTINUOUS LOAD									FEEDER WIRE			
RECEPTACLES									FEEDER OCP			
NON-CONTINUOUS LOAD												
OTHER DIVERSIFIED LOAD				@ 0.5								

ELECTRICAL PANEL SCHEDULE

PANEL: H1-1B | LOCATION: | MOUNTING: SURFACE
BUS: 400 A | MAINS: MLO | VOLTAGE: 120/208 | PHASE/WIRE: 3/4 | KAIC: 10

DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	WIRE	POLE	WIRE	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION
AHU-1/2	5930			70	6	1 2	12	20	1250			EUH-A
		5930		2P	6	3 4	12	2P		1250		
AHU-1/3			5930	70	6	5 6	10	25			1350	DSS-1/4
	5930			2P	6	7 8	10	2P	1350			
AHU-1/4		4160		50	8	9 10	10	25		1250		EUH-A
			4160	2P	8	11 12	10	2P			1250	
AHU-1/7	4160			50	8	13 14	12	20	600			POWER
		4160		2P	8	15 16	12	20		600		POWER
AHU-1/10			4160	50	8	17 18	12	20			400	LTG
	4160			2P	8	19 20	12	20	250			FACP (HILO)
CU-1/2		2740		50	8	21 22	12	20		400		MDF
			2740	2P	8	23 24	12	20			400	MDF
CU-1/3	2740			50	8	25 26	12	20	400			POWER
	M	2740		2P	8	27 28	12	20		400		POWER
CU-1/4			1460	25	10	29 30	12	20			400	LTG
	1460			2P	10	31 32	12	20	500			ELEV SUMP PUMP
CU-1/7		1460		25	10	33 34	12	20		250		ELEV PIT
			1460	2P	10	35 36	12	20			400	LTG
CU-1/10	1460			25	10	37 38	12	20	400			LTG
		1460		2P	10	39 40	12	20		400		LTG
DSS-1/1			1350	25	10	41 42	12	20			600	POWER
	1350			2P	10	43 44	12	20	600			POWER
EUH-A		1250		20	12	45 46	12	20		500		ELEVATOR CAB
			1250	2P	12	47 48	12	20			250	ELEV TOP
EUH-A	1250			20	12	49 50	6	60	4800			ELEVATOR
		1250		2P	12	51 52	6			4800		
						53 54	6	3P			4800	
CONNECTED LOAD-WATTS	48750	45110	41170						FEEDER LOAD-WATTS			
CONNECTED LOAD-AMPS	406	376	343						FEEDER LOAD-AMPS			
CONTINUOUS LOAD									FEEDER WIRE			
RECEPTACLES									FEEDER OCP			400 A
NON-CONTINUOUS LOAD												
OTHER DIVERSIFIED LOAD				@ 0.5								

ELECTRICAL PANEL SCHEDULE

PANEL: H1-1B | LOCATION: | MOUNTING: SURFACE
BUS: 400 A | MAINS: MLO | VOLTAGE: 120/208 | PHASE/WIRE: 3/4 | KAIC: 10

DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	WIRE	POLE	WIRE	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION
AHU-1/2	5930			70	6	1 2	12	20	1250			EUH-A
		5930		2P	6	3 4	12	2P		1250		
AHU-1/3			5930	70	6	5 6	10	25			1350	DSS-1/4
	5930			2P	6	7 8	10	2P	1350			
AHU-1/4		4160		50	8	9 10	10	25		1250		EUH-A
			4160	2P	8	11 12	10	2P			1250	
AHU-1/7	4160			50	8	13 14	12	20	600			POWER
		4160		2P	8	15 16	12	20		600		POWER
AHU-1/10			4160	50	8	17 18	12	20			400	LTG
	4160			2P	8	19 20	12	20	250			FACP (HILO)
CU-1/2		2740		50	8	21 22	12	20		400		MDF
			2740	2P	8	23 24	12	20			400	MDF
CU-1/3	2740			50	8	25 26	12	20	400			POWER
	M	2740		2P	8	27 28	12	20		400		POWER
CU-1/4			1460	25	10	29 30	12	20			400	LTG
	1460			2P	10	31 32	12	20	500			ELEV SUMP PUMP
CU-1/7		1460		25	10	33 34	12	20		250		ELEV PIT
			1460	2P	10	35 36	12	20			400	LTG
CU-1/10	1460			25	10	37 38	12	20	400			LTG
		1460		2P	10	39 40	12	20		400		LTG
DSS-1/1			1350	25	10	41 42	12	20			600	POWER
	1350			2P	10	43 44	12	20	600			POWER
EUH-A		1250		20	12	45 46	12	20		500		ELEVATOR CAB
			1250	2P	12	47 48	12	20			250	ELEV TOP
EUH-A	1250			20	12	49 50	6	60	4800			ELEVATOR
		1250		2P	12	51 52	6			4800		
						53 54	6	3P			4800	
CONNECTED LOAD-WATTS	48750	45110	41170						FEEDER LOAD-WATTS			
CONNECTED LOAD-AMPS	406	376	343						FEEDER LOAD-AMPS			
CONTINUOUS LOAD									FEEDER WIRE			
RECEPTACLES									FEEDER OCP			400 A
NON-CONTINUOUS LOAD												
OTHER DIVERSIFIED LOAD				@ 0.5								

BUILDING 2 PANELS

ELECTRICAL PANEL SCHEDULE

PANEL: H1-1A | LOCATION: | MOUNTING: SURFACE
BUS: 225 A | MAINS: MLO | VOLTAGE: 120/208 | PHASE/WIRE: 3/4 | KAIC: 10

DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	WIRE	POLE	WIRE	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION
AHU-1/5	4160			50	8	1 2	12	20	600			POWER
		4160		2P	8	3 4	12	20		600		POWER
AHU-1/8			4160	50	8	5 6	12	20			400	LTG
	4160			2P	8	7 8	12	20	400			IDF
AHU-1/11		4160		50	8	9 10	12	20		400		IDF
			4160	2P	8	11 12	12	20			600	POWER
CU-1/5	1460			25	10	13 14	12	20	250			LTG
		1460		2P	10	15 16	12	20		600		POWER
CU-1/8			1460	25	10	17 18	12	20			200	LTG
	1460			2P	10	19 20	12	20	600			POWER
CU-1/11		1460		25	10	21 22	12	20		400		LTG
			1460	2P	10	23 24	12	20			400	LTG
EUH-A	1250			20	12	25 26						
		1250		2P	12	27 28						
EUH-A			1250	20	12	29 30						
	1250			2P	12	31 32						
DSS-1/5		1350		25	10	33 34						
			1350	2P	10	35 36						SPACE
						37 38						SPACE
						39 40						SPACE
						41 42						SPACE
CONNECTED LOAD-WATTS	15590	15840	15440						FEEDER LOAD-WATTS			
CONNECTED LOAD-AMPS	130	132	129						FEEDER LOAD-AMPS			
CONTINUOUS LOAD									FEEDER WIRE			
RECEPTACLES									FEEDER OCP			
NON-CONTINUOUS LOAD												
OTHER DIVERSIFIED LOAD				@ 0.5								

ELECTRICAL PANEL SCHEDULE

PANEL: H2-2 | LOCATION: | MOUNTING: SURFACE
BUS: 225 A | MAINS: MLO | VOLTAGE: 120/208 | PHASE/WIRE: 3/4 | KAIC: 10

DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	WIRE	POLE	WIRE	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION
AHU-2/4	4160			50	8	1 2	12	20	600			POWER
		4160		2P	8	3 4	12	20		600		POWER
AHU-2/7			4160	50	8	5 6	12	20			250	POWER/LTG
	4160			2P	8	7 8	12	20	600			POWER
AHU-2/10		4160		50	8	9 10	12	20		600		POWER
			4160	2P	8	11 12	12	20			600	POWER
CU-2/4	1460			25	10	13 14	12	20	500			LTG
		1460		2P	10	15 16	12	20		500		LTG
CU-2/7			1460	25	10	17 18	12	20			500	LTG
	1460			2P	10	19 20	12	20	500			LTG
CU-2/10		1460		25	10	21 22	12	20		800		POWER
			1460	2P	10	23 24	12	20			500	LTG
DSS-2/5	1350			25	10	25 26	12	20	200			IT
		1350		2P	10	27 28	12	20		200		IT
EUH-A			1250	20	12	29 30						
	1250			2P	12	31 32						
EUH-B		4368		60	8	33 34						
			4368	2P	8	35 36						
						37 38						
						39 40						
						41 42						
CONNECTED LOAD-WATTS	16240	19658	18708						FEEDER LOAD-WATTS			
CONNECTED LOAD-AMPS	135	164	156						FEEDER LOAD-AMPS			
CONTINUOUS LOAD									FEEDER WIRE			
RECEPTACLES									FEEDER OCP			
NON-CONTINUOUS LOAD												
OTHER DIVERSIFIED LOAD				@ 0.5								

ELECTRICAL PANEL SCHEDULE

PANEL: H2-1B | LOCATION: | MOUNTING: SURFACE
BUS: 400 A | MAINS: MLO | VOLTAGE: 120/208 | PHASE/WIRE: 3/4 | KAIC: 10

DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	WIRE	POLE	WIRE	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION
AHU-2/2	5720			70	6	1 2	12	20	1250			EUH-A
		5720		2P	6	3 4	12	2P		1250		
AHU-2/3			5930	70	6	5 6	12	20			250	ELEVATOR PIT
	5930			2P	6	7 8	12	20	500			ELEVATOR SUMP PUMP
AHU-2/6		4160		50	8	9 10	12	20		500		FCP (HILO)
			4160	2P	8	11 12	12	20			400	MDF
AHU-2/9	4160			50	8	13 14	12	20	400			MDF
		4160		2P	8	15 16	12	20		400		MDF
CU-2/2			2200	45	8	17 18	12	20			600	POWER
	2200			2P	8	19 20	12	20	600			POWER
CU-2/3		2735		50	8	21 22	12	20		600		POWER
			2735	2P	8	23 24	12	20			500	LTG
CU-2/6	1460			25	10	25 26	12	20	500			LTG
		1460		2P	10	27 28	12	20		500		LTG
CU-2/9			1460	25	10	29 30	12	20			500	LTG
	1460			2P	10	31 32	12	20	500			LTG
DSS-2/1		1350		25	10	33 34	12	20		1000		POWER
			1350	2P	10	35 36	12	20			500	LTG
DSS-2/3	1350			25	10	37 38						
		1350		2P	10	39 40						
DSS-2/4			1350	25	10	41 42						
	1350			2P	10	43 44						
EUH-A		1250		20	12	45 46	12	20		500		ELEVATOR CAB
			1250	2P	12	47 48	12	20			500	ELEVATOR HOISTWAY
EUH-A	1250			20	12	49 50	6	60	4800			ELEVATOR
		1250		2P	12	51 52	6			4800		
						53 54	6	3P			4800	
CONNECTED LOAD-WATTS	38530	36335	31535						FEEDER LOAD-WATTS			
CONNECTED LOAD-AMPS	321	303	263						FEEDER LOAD-AMPS			
CONTINUOUS LOAD									FEEDER WIRE			
RECEPTACLES									FEEDER OCP			400 A
NON-CONTINUOUS LOAD												
OTHER DIVERSIFIED LOAD				@ 0.5								

ELECTRICAL PANEL SCHEDULE

PANEL: H2-1B | LOCATION: | MOUNTING: SURFACE
BUS: 400 A | MAINS: MLO | VOLTAGE: 120/208 | PHASE/WIRE: 3/4 | KAIC: 10

DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	WIRE	POLE	WIRE	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION
AHU-2/2	5720			70	6	1 2	12	20	1250			EUH-A
		5720		2P	6	3 4	12	2P		1250		
AHU-2/3			5930	70	6	5 6	12	20			250	ELEVATOR PIT
	5930			2P	6	7 8	12	20	500			ELEVATOR SUMP PUMP
AHU-2/6		4160		50	8	9 10	12	20		500		FCP (HILO)
			4160	2P	8	11 12	12	20			400	MDF
AHU-2/9	4160			50	8	13 14	12	20	400			MDF
		4160		2P	8	15 16	12	20		400		MDF
CU-2/2			2200	45	8	17 18	12	20			600	POWER
	2200			2P	8	19 20	12	20	600			POWER
CU-2/3		2735		50	8	21 22	12	20		600		POWER
			2735	2P	8	23 24	12	20			500	LTG
CU-2/6	1460			25	10	25 26	12	20	500			LTG
		1460		2P	10	27 28	12	20		500		LTG
CU-2/9			1460	25	10	29 30	12	20			500	LTG
	1460			2P	10	31 32	12	20	500			LTG
DSS-2/1		1350		25	10	33 34	12	20		1000		POWER
			1350	2P	10	35 36	12	20			500	LTG
DSS-2/3	1350			25	10	37 38						
		1350		2P	10	39 40						
DSS-2/4			1350	25	10	41 42						
	1350			2P	10	43 44						
EUH-A		1250		20	12	45 46	12	20		500		ELEVATOR CAB
			1250	2P	12	47 48	12	20			500	ELEVATOR HOISTWAY
EUH-A	1250			20	12	49 50	6	60	4800			ELEVATOR
		1250		2P	12	51 52	6			4800		
						53 54	6	3P			4800	
CONNECTED LOAD-WATTS	38530	36335	31535						FEEDER LOAD-WATTS			
CONNECTED LOAD-AMPS	321	303	263						FEEDER LOAD-AMPS			
CONTINUOUS LOAD									FEEDER WIRE			
RECEPTACLES									FEEDER OCP			400 A
NON-CONTINUOUS LOAD												
OTHER DIVERSIFIED LOAD				@ 0.5								

ELECTRICAL PANEL SCHEDULE

PANEL: H2-1B | LOCATION: | MOUNTING: SURFACE
BUS: 225 A | MAINS: MLO | VOLTAGE: 120/208 | PHASE/WIRE: 3/4 | KAIC: 10

DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	WIRE	POLE	WIRE	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION
EUH-A	1250			20	12	55 56			500			LIGHTING
		1250		2P	12	57 58				500		LIGHTING
EUH-C			850	20	12	59 60					600	POWER
EUH-C	850			20	12	61 62			600			POWER
WH-2/4		1560		25	10	63 64				400		POWER
						65 66					400	POWER
						67 68			800			POWER
						69 70				400		POWER
						71 72					800	POWER
						73 74			500			POWER
						75 76				400		POWER
						77 78					400	POWER
						79 80			600			POWER
						81 82				400		POWER
						83 84						
						85 86						
						87 88						
						89 90						
						91 92						
						93 94						
						95 96						
CONNECTED LOAD-WATTS	5100	4910	3050						FEEDER LOAD-WATTS			
CONNECTED LOAD-AMPS	43	41	25						FEEDER LOAD-AMPS			
CONTINUOUS LOAD									FEEDER WIRE			
RECEPTACLES									FEEDER OCP			
NON-CONTINUOUS LOAD												
OTHER DIVERSIFIED LOAD				@ 0.5								

ELECTRICAL PANEL SCHEDULE

PANEL: H2-1A | LOCATION: | MOUNTING: SURFACE
BUS: 225 A | MAINS: MLO | VOLTAGE: 120/208 | PHASE/WIRE: 3/4 | KAIC: 10

DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	WIRE	POLE	WIRE	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION
AHU-2/1	4160			50	8	1 2	12	20	600			POWER
		4160		2P	8	3 4	12	20		600		POWER
AHU-2/5			4160	50	8	5 6	12	20			200	IDF
	4160			2P	8	7 8	12	20	200			IDF
AHU-2/8		4160		50	8	9 10	12	20		600		POWER
			4160	2P	8	11 12	12	20			400	LTG
CU-2/1	1460			25	10	13 14	12	20	500			LTG
		1460		2P	10	15 16	12	20		500		LTG
CU-2/5			1460	25	10	17 18	12	20			500	LTG
	1460			2P	10	19 20	12	20	600			POWER
CU-2/8		1460		25	10	21 22	10	25		1560		WH-2/1
			1460	2P	10	23 24	10	25			1560	WH-2/2
EUH-A	1250			20	12	25 26	12	20	500			LTG
		1250		2P	12	27 28						
EUH-A			1250	20	12	29 30						
	1250			2P	12	31 32						
DSS-2/2		1350		25	10	33 34						
			1350	2P	10	35 36						
						37 38						
						39 40						SPACE
						41 42						SPACE
CONNECTED LOAD-WATTS	16140	17100	16500						FEEDER LOAD-WATTS			
CONNECTED LOAD-AMPS	135	143	138						FEEDER LOAD-AMPS			
CONTINUOUS LOAD									FEEDER WIRE			
RECEPTACLES									FEEDER OCP			
NON-CONTINUOUS LOAD												
OTHER DIVERSIFIED LOAD				@ 0.5								

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LSA PROJECT NO. 2104008

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7-15-21

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CIVIL ENGINEER
GENERAL CONTRACTOR
MECHANICAL ENGINEER
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ELECTRICAL ENGINEER

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DATE: 7.15.2021

REVISIONS

DWG BY CAD/RRB

TR.i PROJECT NO. 20-001

SHEET NO.

E306

ELECTRICAL SCHEDULES

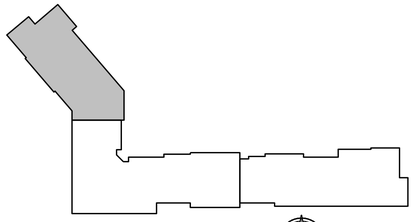
NOTES:

1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
2. SEE THE ARCHITECTURAL, LIGHTING AND STRUCTURAL DRAWINGS FOR CLEARANCES.
3. MAINTAIN 3 FEET CLEARANCE FROM EXHAUST DUCTS TO BUILDING OPENINGS AND 10 FEET TO AIR INTAKES.
4. ROUTE NO DUCTS OVER ELECTRICAL EQUIPMENT.
5. FLEXIBLE DUCT LENGTHS SHALL NOT EXCEED 8 FEET AND SHALL BE AS STRAIGHT AS POSSIBLE AND NOT KINKED AT DIFFUSER OR TAKE-OFF.

LEGEND:

1. OUTSIDE AIR CONTROL AND BALANCING DAMPER.
2. DUCT WITH CRD AT RATED MEMBRANE.
3. ROUTE COND. TO LAV TAILPIECE OR WASHER BOX.
4. 16x8 TYPE 'E' GRILLES, ONE HIGH, ONE LOW FOR RA PATH IN STUD SPACE. LINE SPACE WITH METAL.

1 **BLDG 1-A, PARTIAL FIRST FLOOR PLAN**
1/8"=1'-0"
HVAC
NORTH



KEY PLAN
NO SCALE
NORTH

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RICHARD R. BEARDMORE
NUMBER
PROFESSIONAL ENGINEER
7-15-21

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STRUCTURAL ENGINEER	STRUCTURAL
CIVIL ENGINEER	CIVIL
GENERAL CONTRACTOR	GENERAL CONTRACTOR
MECHANICAL ENGINEER	ENGINEER
PLUMBING ENGINEER	PLUMBING
ELECTRICAL ENGINEER	ELECTRICAL

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DATE: 7.15.2021

REVISIONS 1

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TR¡ PROJECT NO. 20-001

SHEET NO.

M101

BLDG 1-A, PARTIAL FIRST FLOOR PLAN - HVAC

NOTES:

1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
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LEGEND:

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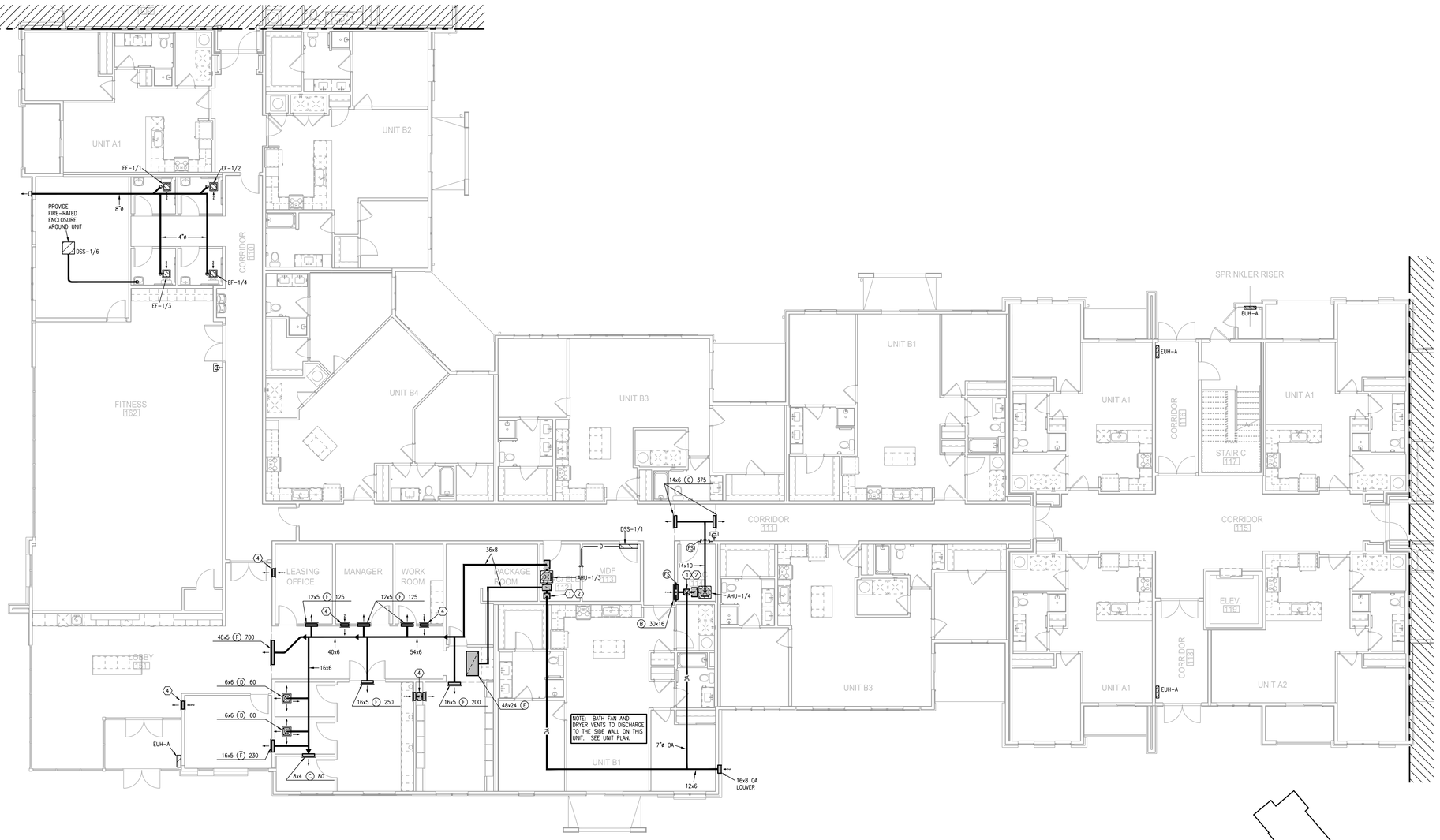
2. DUCT WITH CRD AT RATED MEMBRANE.
3. ROUTE COND. TO LAV TAILPIECE OR WASHER BOX.
4. 16x8 TYPE 'E' GRILLES, ONE HIGH, ONE LOW FOR RA PATH IN STUD SPACE. LINE SPACE WITH METAL.

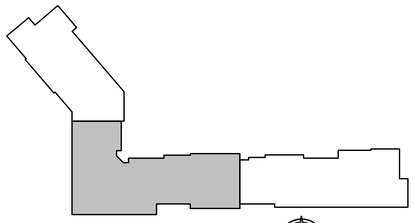


1 BLDG 1-B, PARTIAL FIRST FLOOR PLAN

1/8" = 1'-0"

HVAC

NORTH



KEY PLAN

NO SCALE

NORTH

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7-15-21

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CIVIL ENGINEER
GENERAL CONTRACTOR
MECHANICAL ENGINEER
PLUMBING ENGINEER
ELECTRICAL ENGINEER

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DATE: 7.15.2021

REVISIONS 1 2

DWG BY CAD/RRB

TR;i PROJECT NO. 20-001

SHEET NO.

M102

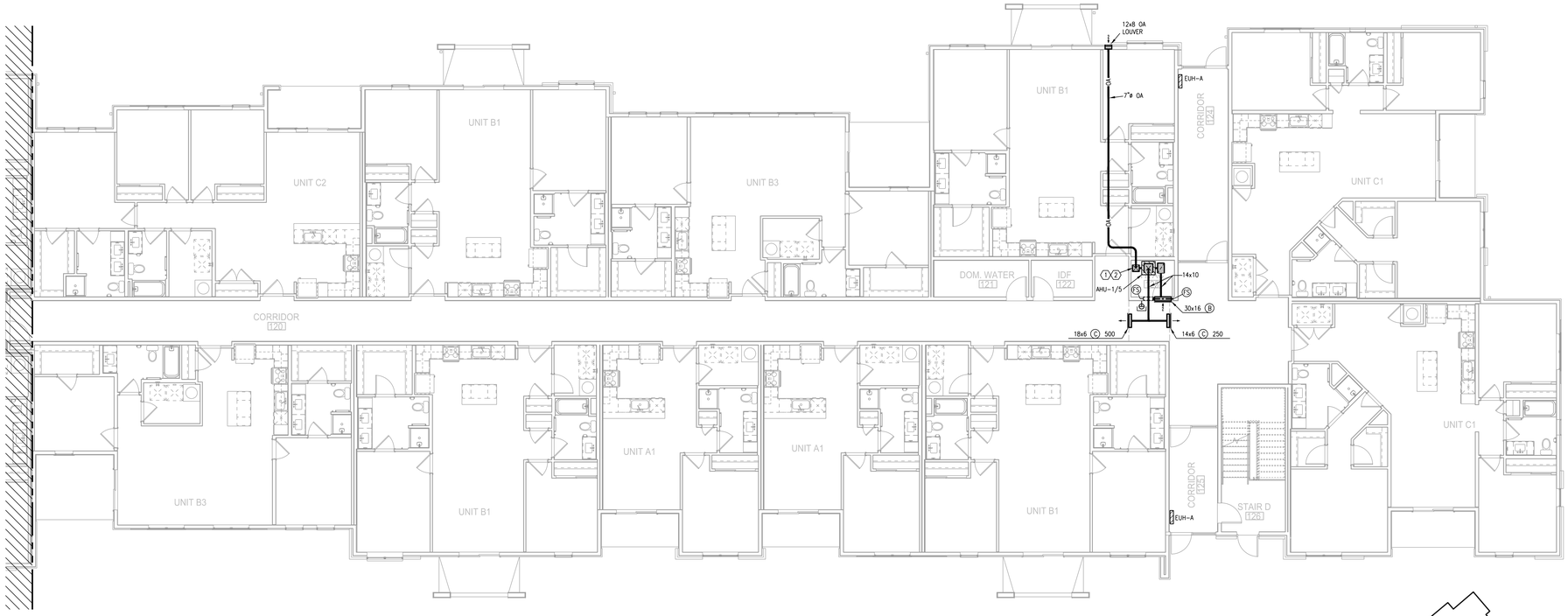
BLDG 1-B, PARTIAL FIRST FLOOR PLAN - HVAC

NOTES:

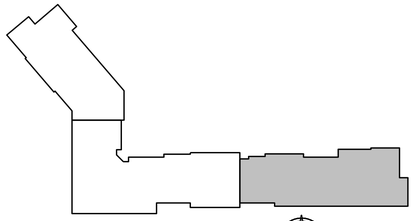
1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
2. SEE THE ARCHITECTURAL, LIGHTING AND STRUCTURAL DRAWINGS FOR CLEARANCES.
3. MAINTAIN 3 FEET CLEARANCE FROM EXHAUST DUCTS TO BUILDING OPENINGS AND 10 FEET TO AIR INTAKES.
4. ROUTE NO DUCTS OVER ELECTRICAL EQUIPMENT.
5. FLEXIBLE DUCT LENGTHS SHALL NOT EXCEED 8 FEET AND SHALL BE AS STRAIGHT AS POSSIBLE AND NOT KINKED AT DIFFUSER OR TAKE-OFF.

LEGEND:

1. OUTSIDE AIR CONTROL AND BALANCING DAMPER.
2. DUCT WITH CRD AT RATED MEMBRANE.
3. ROUTE COND. TO LAV TAILPIECE OR WASHER BOX.
4. 16x8 TYPE 'E' GRILLES, ONE HIGH, ONE LOW FOR RA PATH IN STUD SPACE. LINE SPACE WITH METAL.



1 **BLDG 1-C, PARTIAL FIRST FLOOR PLAN**
1/8"=1'-0"
HVAC
NORTH



KEY PLAN
NO SCALE
NORTH

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ELECTRICAL ENGINEER

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REVISIONS 2

DWG BY CAD/RRB

TR¡ PROJECT NO. 20-001

SHEET NO.

M103

BLDG 1-C, PARTIAL FIRST FLOOR PLAN - HVAC

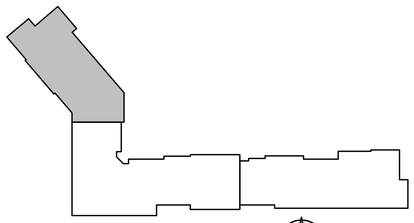
NOTES:

1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
2. SEE THE ARCHITECTURAL, LIGHTING AND STRUCTURAL DRAWINGS FOR CLEARANCES.
3. MAINTAIN 3 FEET CLEARANCE FROM EXHAUST DUCTS TO BUILDING OPENINGS AND 10 FEET TO AIR INTAKES.
4. ROUTE NO DUCTS OVER ELECTRICAL EQUIPMENT.
5. FLEXIBLE DUCT LENGTHS SHALL NOT EXCEED 8 FEET AND SHALL BE AS STRAIGHT AS POSSIBLE AND NOT KINKED AT DIFFUSER OR TAKE-OFF.

LEGEND:

1. OUTSIDE AIR CONTROL AND BALANCING DAMPER.
2. DUCT WITH CRD AT RATED MEMBRANE.
3. ROUTE COND. TO LAV TAILPIECE OR WASHER BOX.
4. 16x8 TYPE 'E' GRILLES, ONE HIGH, ONE LOW FOR RA PATH IN STUD SPACE. LINE SPACE WITH METAL.

1 **BLDG 1-A, PARTIAL SECOND FLOOR PLAN**
1/8"=1'-0"
HVAC
NORTH



KEY PLAN
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MECHANICAL ENGINEER
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ELECTRICAL ENGINEER

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REVISIONS 2

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M104

BLDG 1-A, PARTIAL SECOND FLOOR PLAN - HVAC

NOTES:

1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
2. SEE THE ARCHITECTURAL, LIGHTING AND STRUCTURAL DRAWINGS FOR CLEARANCES.
3. MAINTAIN 3 FEET CLEARANCE FROM EXHAUST DUCTS TO BUILDING OPENINGS AND 10 FEET TO AIR INTAKES.
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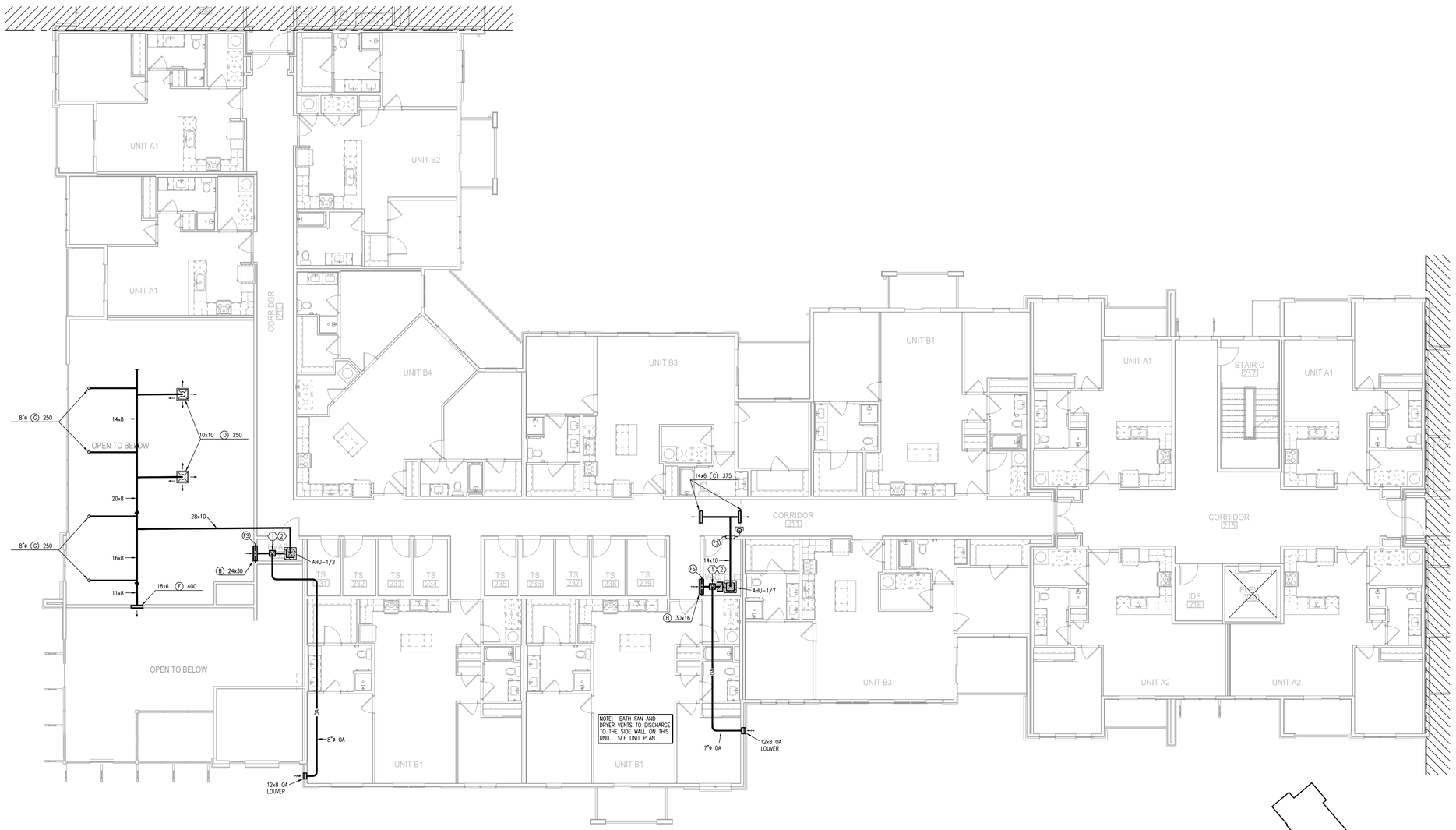
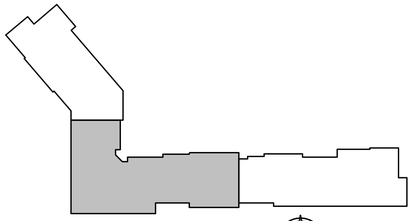
LEGEND:

1. OUTSIDE AIR CONTROL AND BALANCING DAMPER.
2. DUCT WITH CRD AT RATED MEMBRANE.
3. ROUTE COND. TO LAV TAILPIECE OR WASHER BOX.
4. 16x8 TYPE 'E' GRILLES, ONE HIGH, ONE LOW FOR RA PATH IN STUD SPACE. LINE SPACE WITH METAL.



1 **BLDG 1-B, PARTIAL SECOND FLOOR PLAN**
1/8"=1'-0"
HVAC
NORTH



KEY PLAN
NO SCALE
NORTH

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REVISIONS 1 2

DWG BY CAD/RRB

TR¡ PROJECT NO. 20-001

SHEET NO.

M105

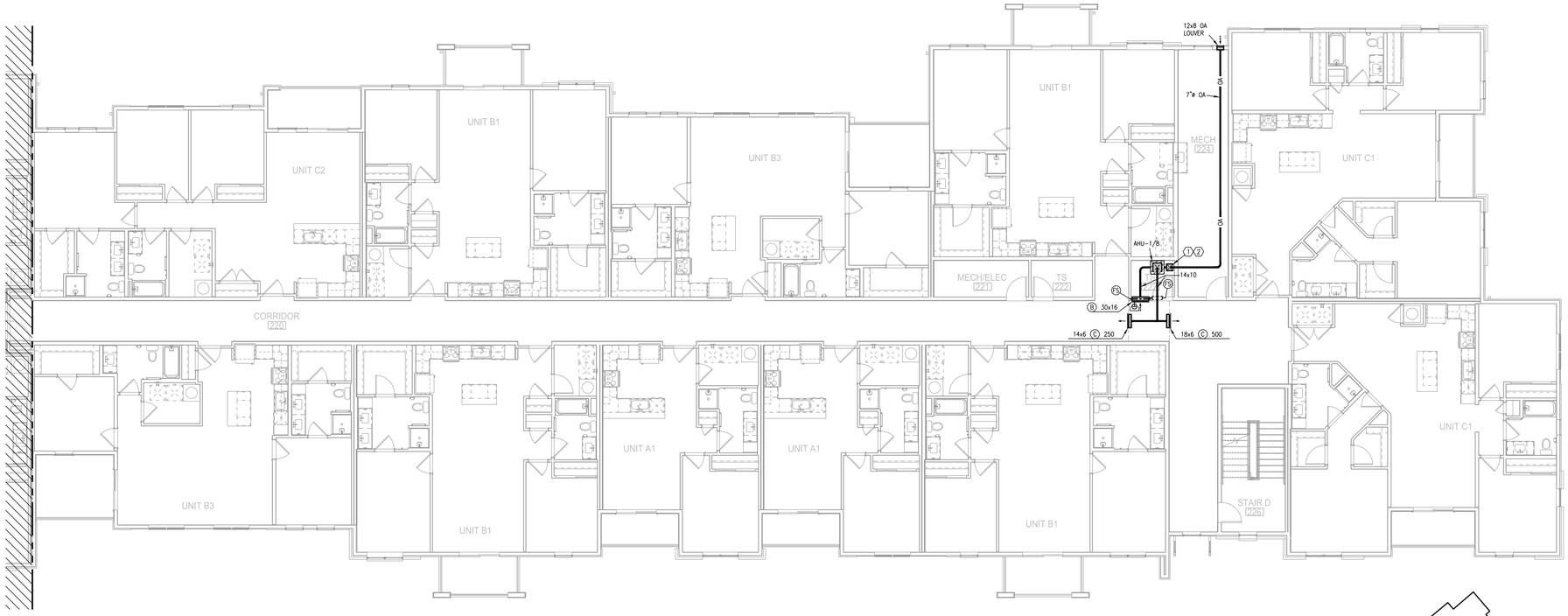
BLDG 1-B, PARTIAL SECOND FLOOR PLAN - HVAC

NOTES:

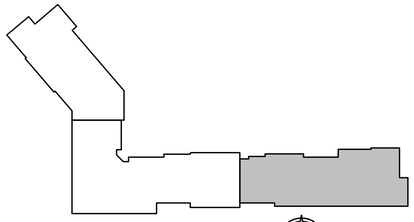
1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
2. SEE THE ARCHITECTURAL, LIGHTING AND STRUCTURAL DRAWINGS FOR CLEARANCES.
3. MAINTAIN 3 FEET CLEARANCE FROM EXHAUST DUCTS TO BUILDING OPENINGS AND 10 FEET TO AIR INTAKES.
4. ROUTE NO DUCTS OVER ELECTRICAL EQUIPMENT.
5. FLEXIBLE DUCT LENGTHS SHALL NOT EXCEED 8 FEET AND SHALL BE AS STRAIGHT AS POSSIBLE AND NOT KINKED AT DIFFUSER OR TAKE-OFF.

LEGEND:

1. OUTSIDE AIR CONTROL AND BALANCING DAMPER.
2. DUCT WITH CRD AT RATED MEMBRANE.
3. ROUTE COND. TO LAV TAILPIECE OR WASHER BOX.
4. 16x8 TYPE 'E' GRILLES, ONE HIGH, ONE LOW FOR RA PATH IN STUD SPACE. LINE SPACE WITH METAL.



1 **BLDG 1-C, PARTIAL SECOND FLOOR PLAN**
1/8"=1'-0"
HVAC
NORTH



KEY PLAN
NO SCALE
NORTH

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STATE OF MISSOURI
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7-15-21

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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR¡ PROJECT NO. 20-001

SHEET NO.

M106

BLDG 1-C, PARTIAL SECOND FLOOR PLAN - HVAC

NOTES:

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3. MAINTAIN 3 FEET CLEARANCE FROM EXHAUST DUCTS TO BUILDING OPENINGS AND 10 FEET TO AIR INTAKES.
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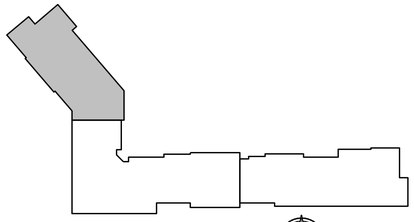
LEGEND:

1. OUTSIDE AIR CONTROL AND BALANCING DAMPER.
2. DUCT WITH CRD AT RATED MEMBRANE.
3. ROUTE COND. TO LAV TAILPIECE OR WASHER BOX.
4. 16x8 TYPE 'E' GRILLES, ONE HIGH, ONE LOW FOR RA PATH IN STUD SPACE. LINE SPACE WITH METAL.

1 **BLDG 1-A, PARTIAL THIRD FLOOR PLAN**
1/8"=1'-0"
HVAC
NORTH



KEY PLAN
NO SCALE
NORTH

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LSA PROJECT NO. 2104008

STATE OF MISSOURI
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CIVIL ENGINEER
GENERAL CONTRACTOR
MECHANICAL ENGINEER
PLUMBING ENGINEER
ELECTRICAL ENGINEER

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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR¡ PROJECT NO. 20-001

SHEET NO.

M107

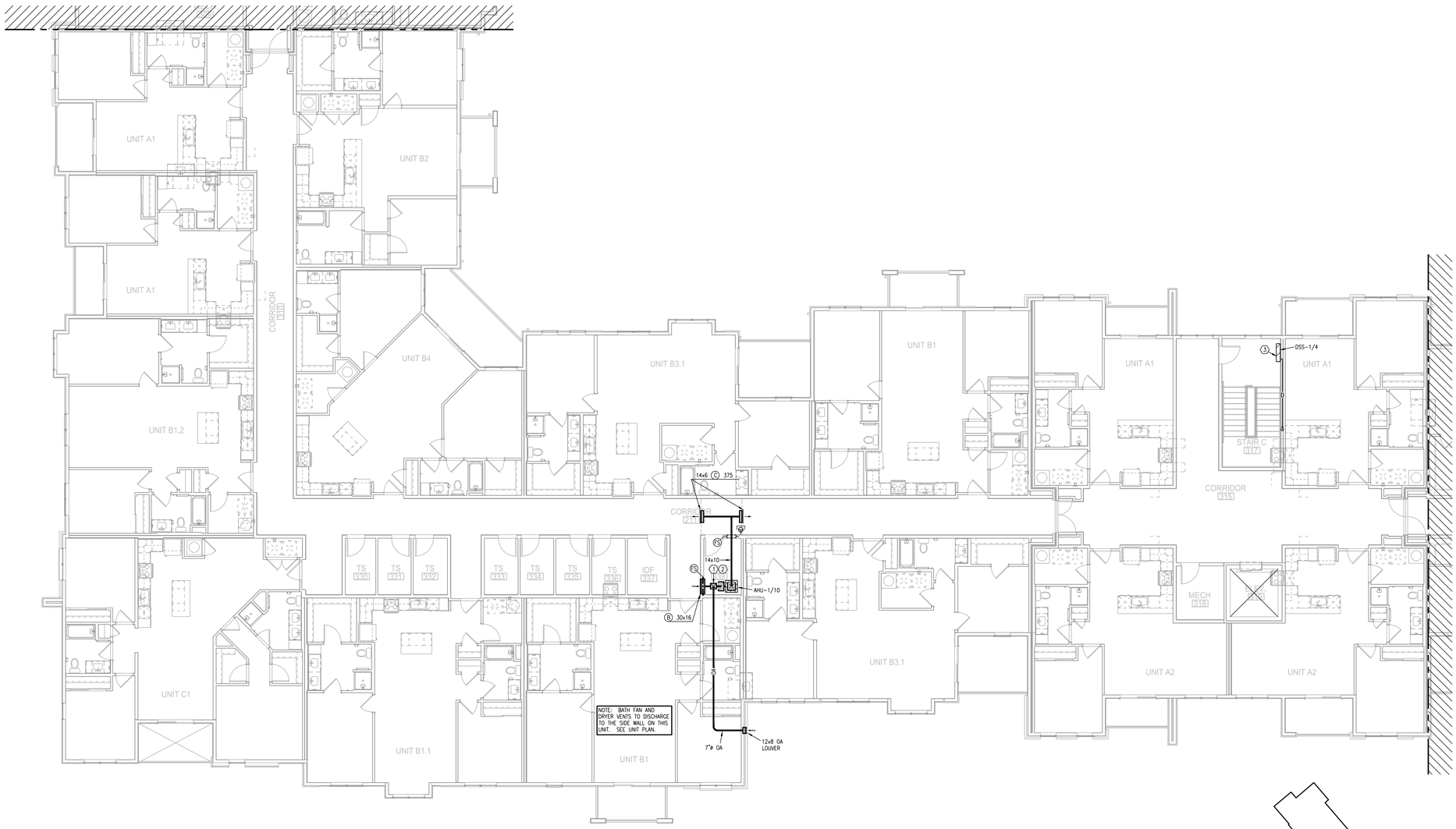
BLDG 1-A, PARTIAL THIRD FLOOR PLAN - HVAC

NOTES:

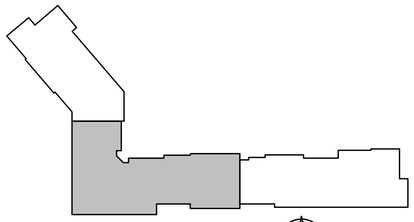
1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
2. SEE THE ARCHITECTURAL, LIGHTING AND STRUCTURAL DRAWINGS FOR CLEARANCES.
3. MAINTAIN 3 FEET CLEARANCE FROM EXHAUST DUCTS TO BUILDING OPENINGS AND 10 FEET TO AIR INTAKES.
4. ROUTE NO DUCTS OVER ELECTRICAL EQUIPMENT.
5. FLEXIBLE DUCT LENGTHS SHALL NOT EXCEED 8 FEET AND SHALL BE AS STRAIGHT AS POSSIBLE AND NOT KINKED AT DIFFUSER OR TAKE-OFF.

LEGEND:

1. OUTSIDE AIR CONTROL AND BALANCING DAMPER.
2. DUCT WITH CRD AT RATED MEMBRANE.
3. ROUTE COND. TO LAV TAILPIECE OR WASHER BOX.
4. 16x8 TYPE 'E' GRILLES, ONE HIGH, ONE LOW FOR RA PATH IN STUD SPACE. LINE SPACE WITH METAL.



1 **BLDG 1-B, PARTIAL THIRD FLOOR PLAN**
1/8"=1'-0"
HVAC
NORTH



KEY PLAN
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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M108

BLDG 1-B, PARTIAL THIRD FLOOR PLAN - HVAC

NOTES:

1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
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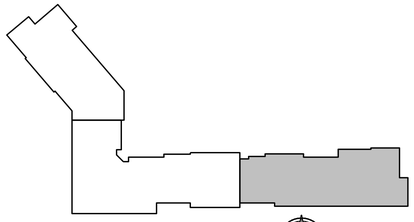
1 BLDG 1-C, PARTIAL THIRD FLOOR PLAN

1/8"=1'-0"

HVAC

NORTH



KEY PLAN

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REVISIONS 2

DWG BY CAD/RRB

TR¡ PROJECT NO. 20-001

SHEET NO.

M109

BLDG 1-C, PARTIAL THIRD FLOOR PLAN - HVAC

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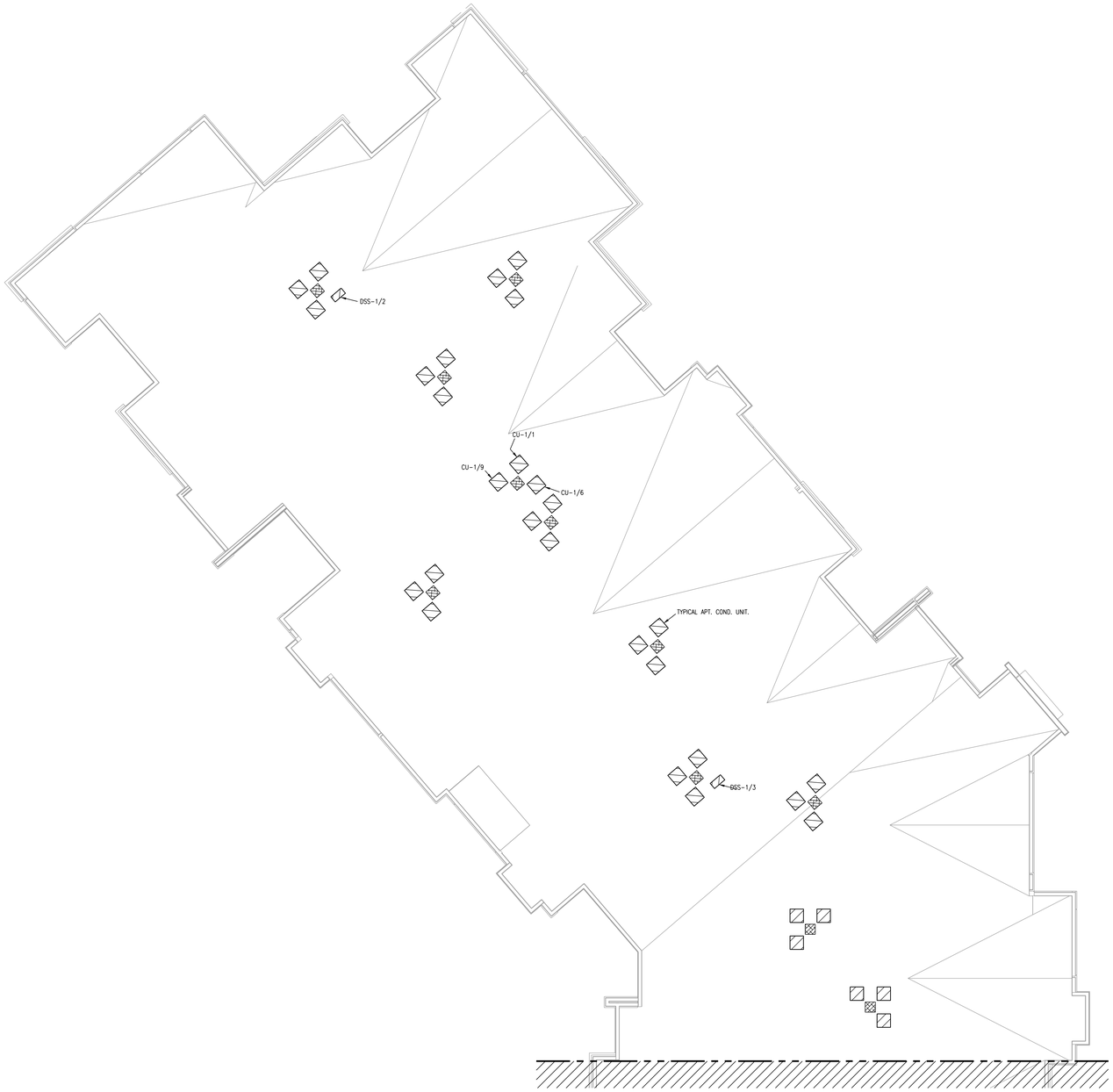
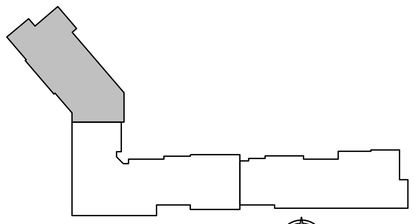


1 **BLDG 1-A, PARTIAL ROOF PLAN**
1/8"=1'-0"
HVAC
NORTH



KEY PLAN
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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M110

BLDG 1-A, PARTIAL ROOF PLAN - HVAC

NOTES:

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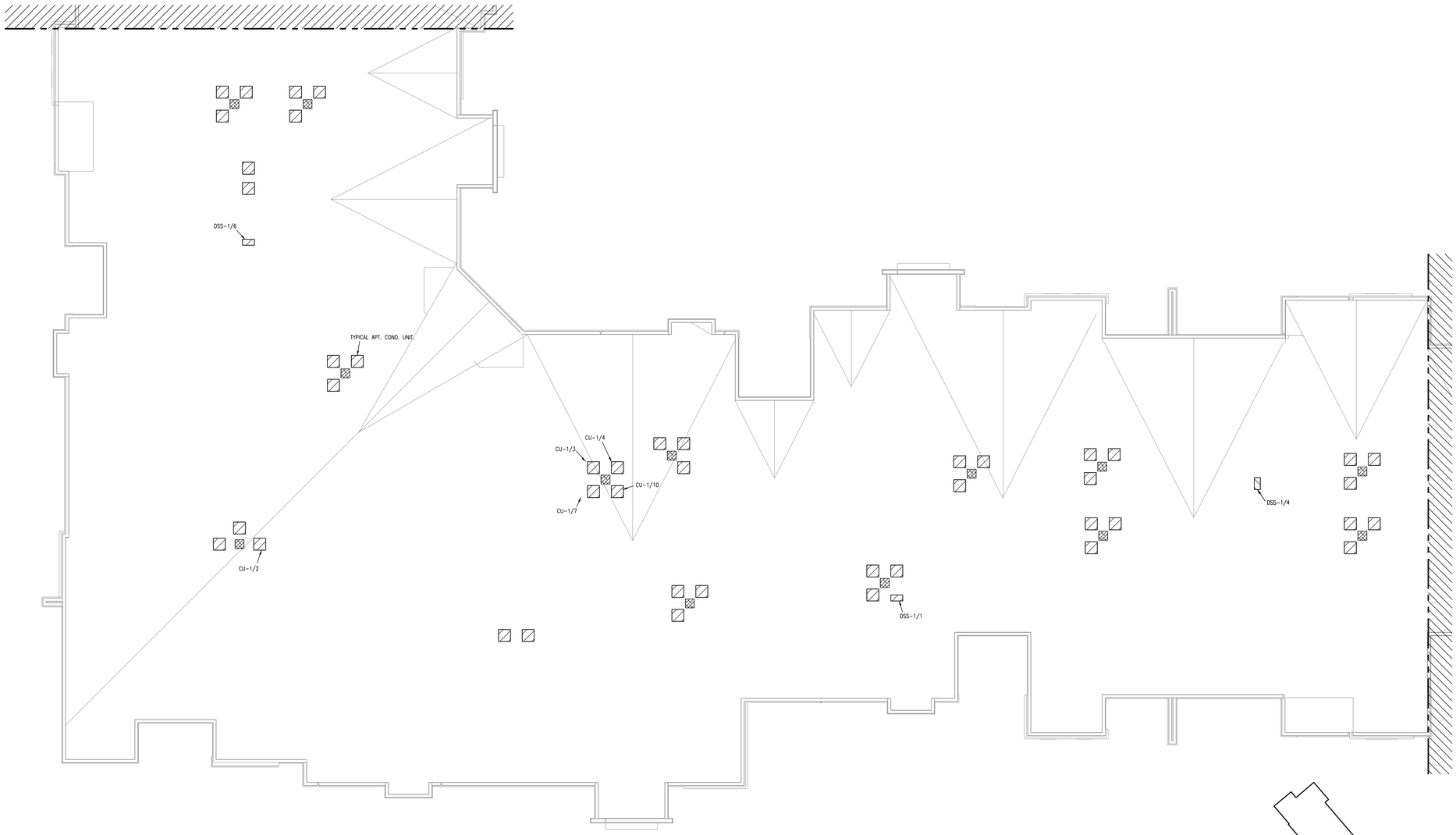
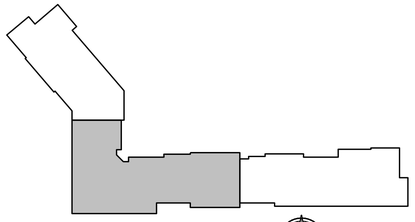


1 **BLDG 1-B, PARTIAL ROOF PLAN**
1/8"=1'-0"
HVAC

NORTH



KEY PLAN
NO SCALE

NORTH

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DATE: 7.15.2021

REVISIONS 4

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M111

BLDG 1-B, PARTIAL ROOF PLAN - HVAC

NOTES:

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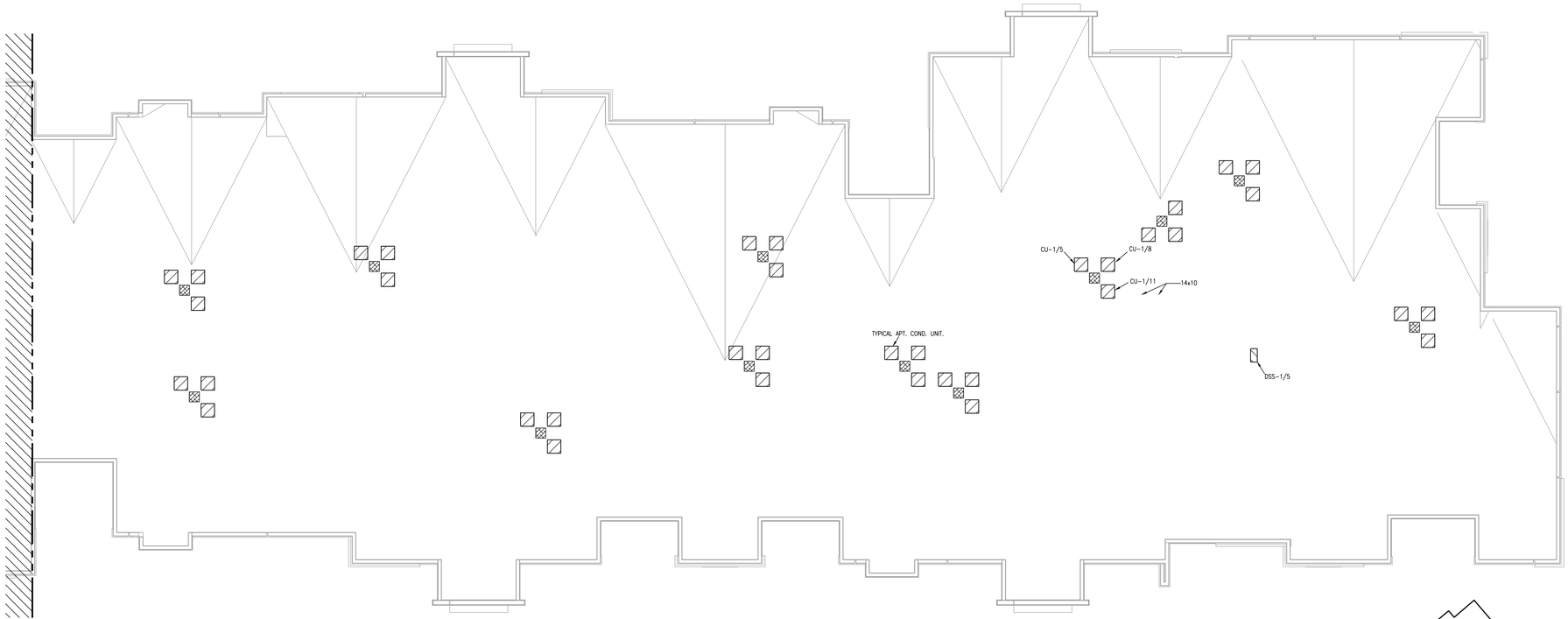
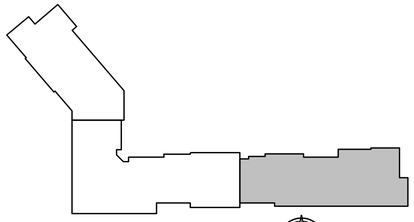


1 **BLDG 1-C, PARTIAL ROOF PLAN**
1/8"=1'-0"
HVAC

NORTH



KEY PLAN
NO SCALE

NORTH

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DATE: 7.15.2021

REVISIONS 1

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M112

BLDG 1-C, PARTIAL ROOF PLAN - HVAC

NOTES:

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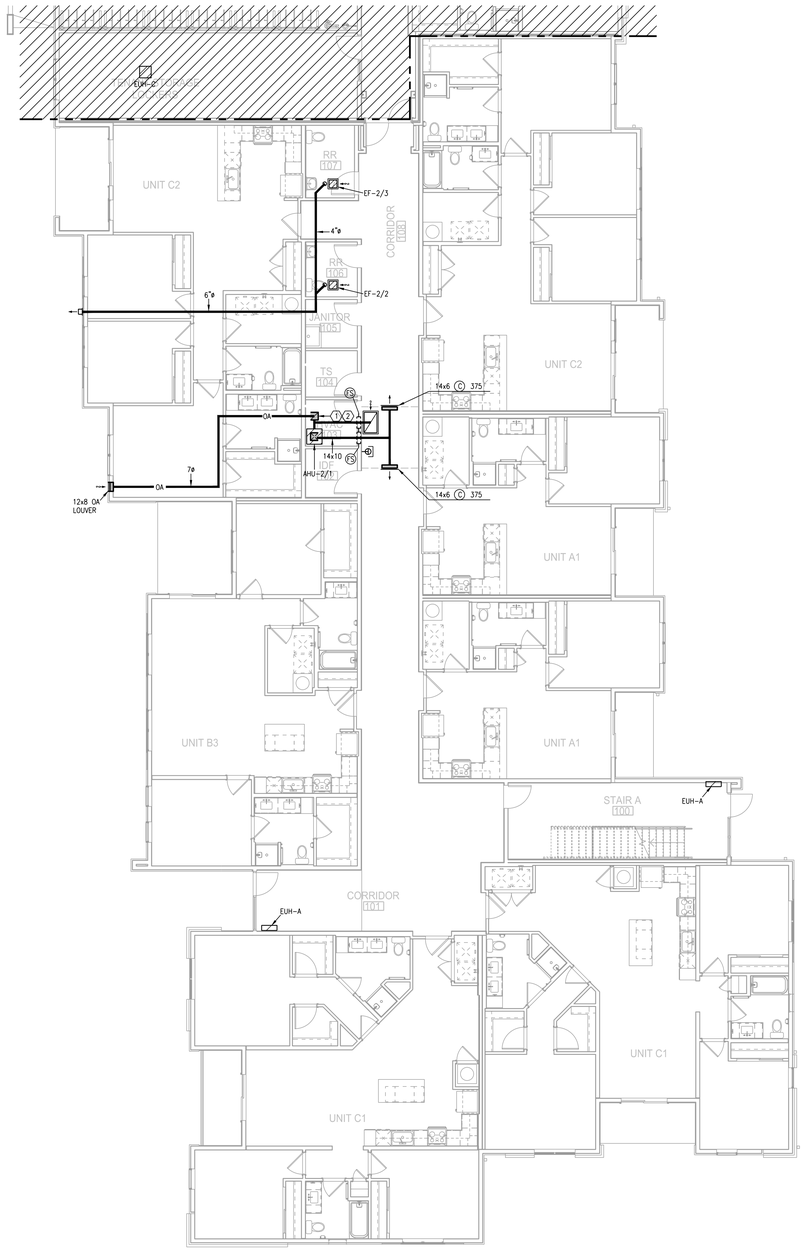
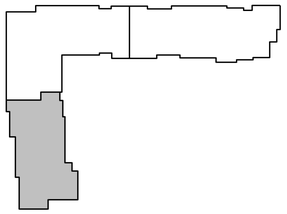


1 **BLDG 2-A, PARTIAL FIRST FLOOR PLAN**
1/8"=1'-0"
HVAC
NORTH



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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M113

BLDG 2-A, PARTIAL FIRST FLOOR PLAN - HVAC

NOTES:

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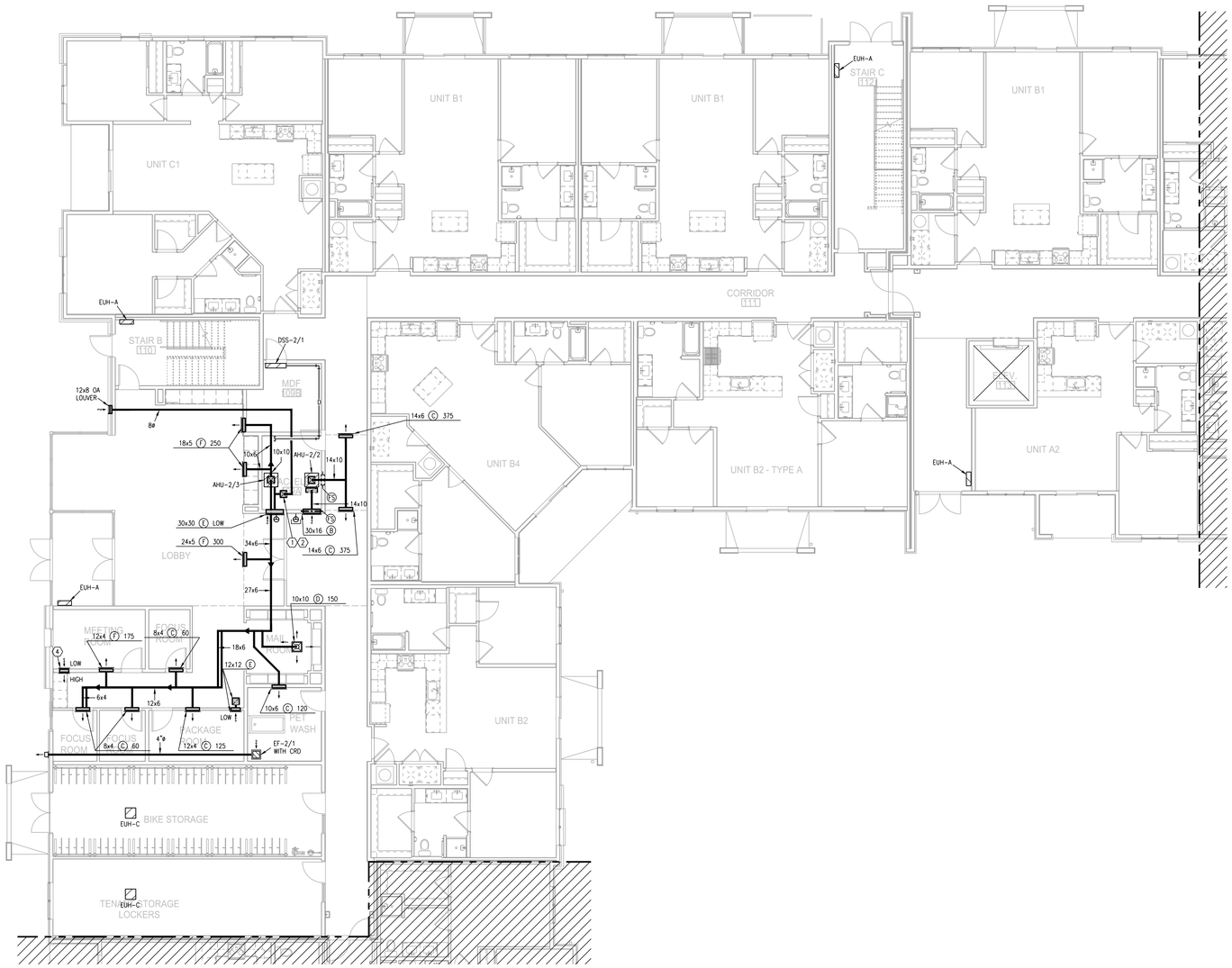
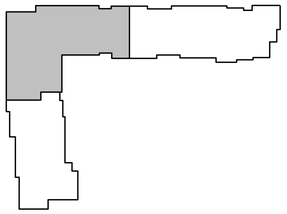


1 **BLDG 2-B, PARTIAL FIRST FLOOR PLAN**
1/8"=1'-0"
HVAC
NORTH



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DATE: 7.15.2021

REVISIONS 1 2

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M114

BLDG 2-B, PARTIAL FIRST FLOOR PLAN - HVAC

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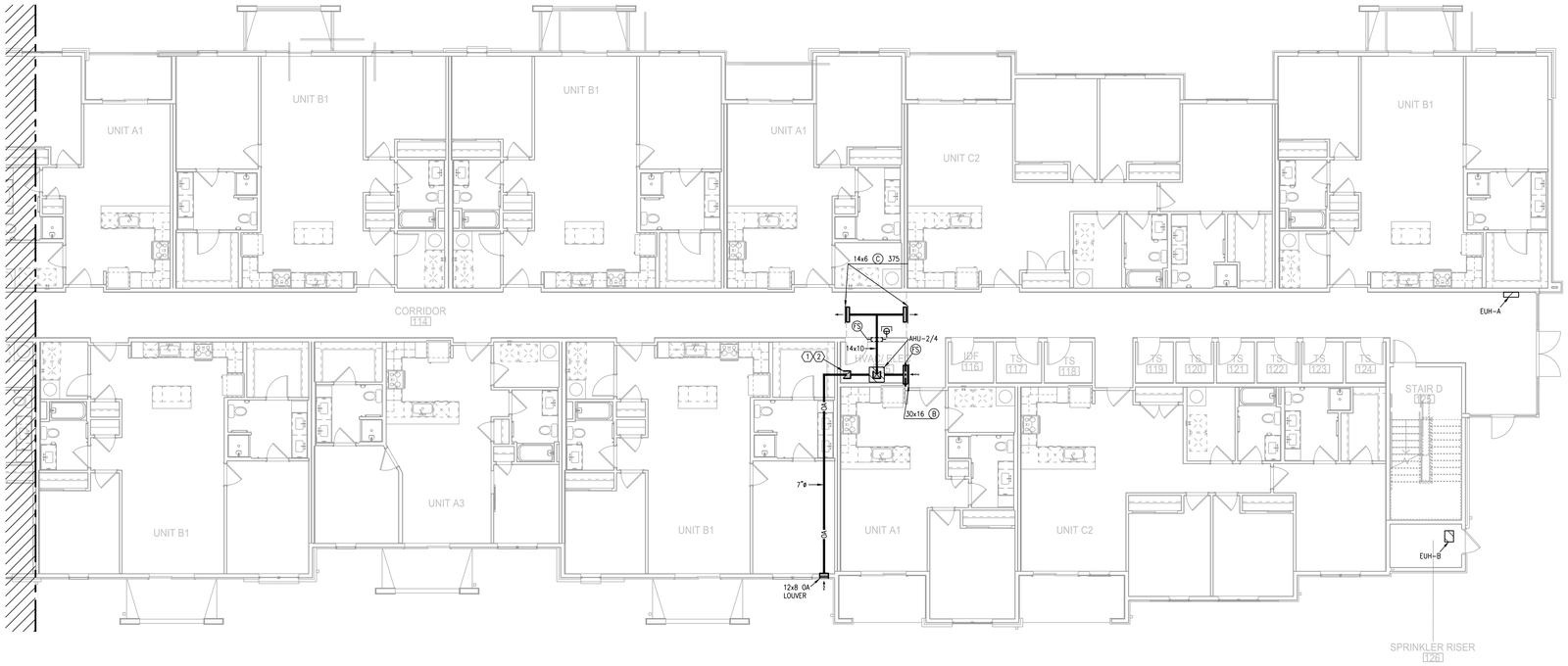
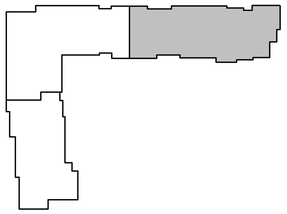


1 **BLDG 2-C, PARTIAL FIRST FLOOR PLAN**
1/8"=1'-0"
HVAC

NORTH



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ELECTRICAL ENGINEER

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GENERAL CONTRACTOR
ENGINEER
PLUMBING
ELECTRICAL

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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR¡ PROJECT NO. 20-001

SHEET NO.

M115

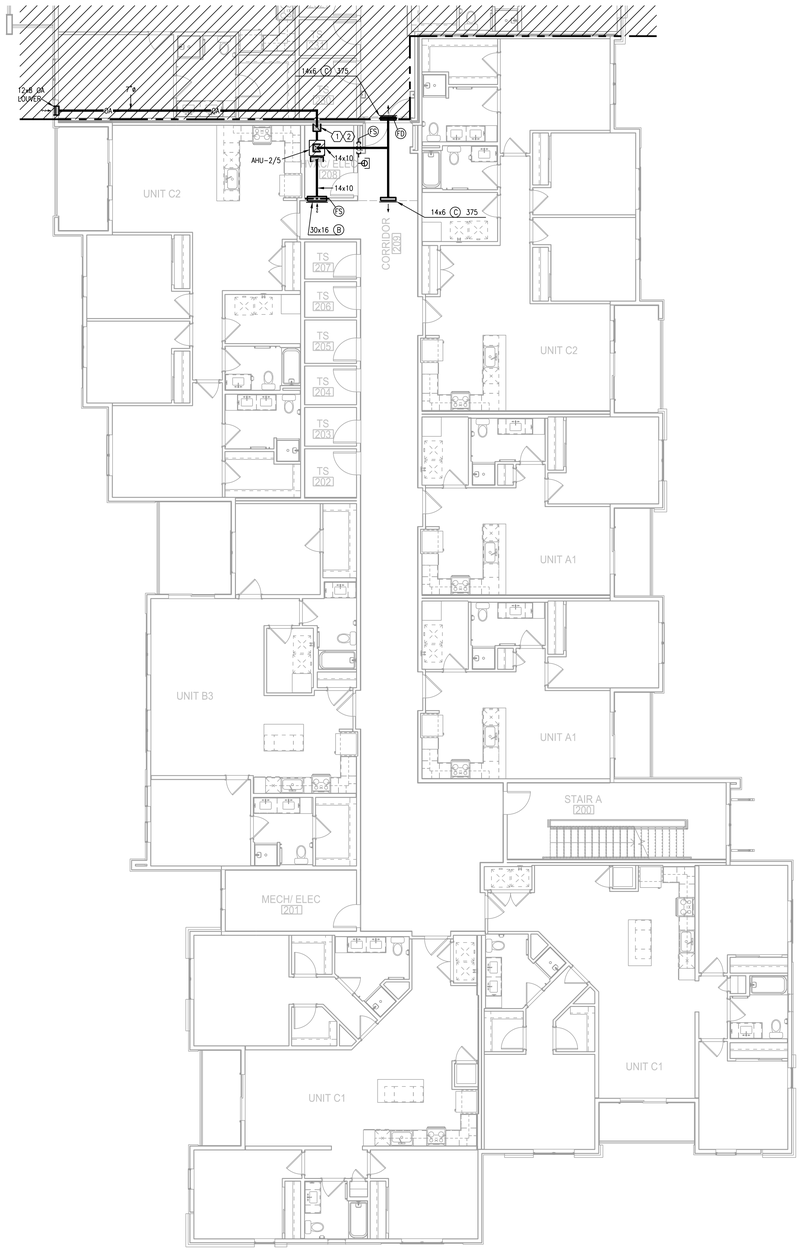
BLDG 2-C, PARTIAL FIRST FLOOR PLAN - HVAC

NOTES:

1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
2. SEE THE ARCHITECTURAL, LIGHTING AND STRUCTURAL DRAWINGS FOR CLEARANCES.
3. MAINTAIN 3 FEET CLEARANCE FROM EXHAUST DUCTS TO BUILDING OPENINGS AND 10 FEET TO AIR INTAKES.
4. ROUTE NO DUCTS OVER ELECTRICAL EQUIPMENT.
5. FLEXIBLE DUCT LENGTHS SHALL NOT EXCEED 8 FEET AND SHALL BE AS STRAIGHT AS POSSIBLE AND NOT KINKED AT DIFFUSER OR TAKE-OFF.

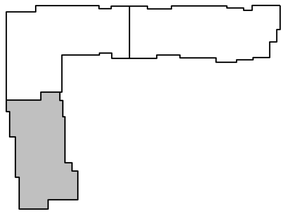
LEGEND:

1. OUTSIDE AIR CONTROL AND BALANCING DAMPER.
2. DUCT WITH CRD AT RATED MEMBRANE.
3. ROUTE COND. TO LAV TAILPIECE OR WASHER BOX.
4. 16x8 TYPE 'E' GRILLES, ONE HIGH, ONE LOW FOR RA PATH IN STUD SPACE. LINE SPACE WITH METAL.



1 **BLDG 2-A, PARTIAL SECOND FLOOR PLAN**
1/8"=1'-0"
HVAC

NORTH



KEY PLAN
NO SCALE

NORTH

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LSA PROJECT NO. 2104008

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GENERAL CONTRACTOR
MECHANICAL ENGINEER
PLUMBING ENGINEER
ELECTRICAL ENGINEER

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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR¡ PROJECT NO. 20-001

SHEET NO.

M116

BLDG 2-A, PARTIAL SECOND FLOOR PLAN - HVAC

NOTES:

1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
2. SEE THE ARCHITECTURAL, LIGHTING AND STRUCTURAL DRAWINGS FOR CLEARANCES.
3. MAINTAIN 3 FEET CLEARANCE FROM EXHAUST DUCTS TO BUILDING OPENINGS AND 10 FEET TO AIR INTAKES.
4. ROUTE NO DUCTS OVER ELECTRICAL EQUIPMENT.
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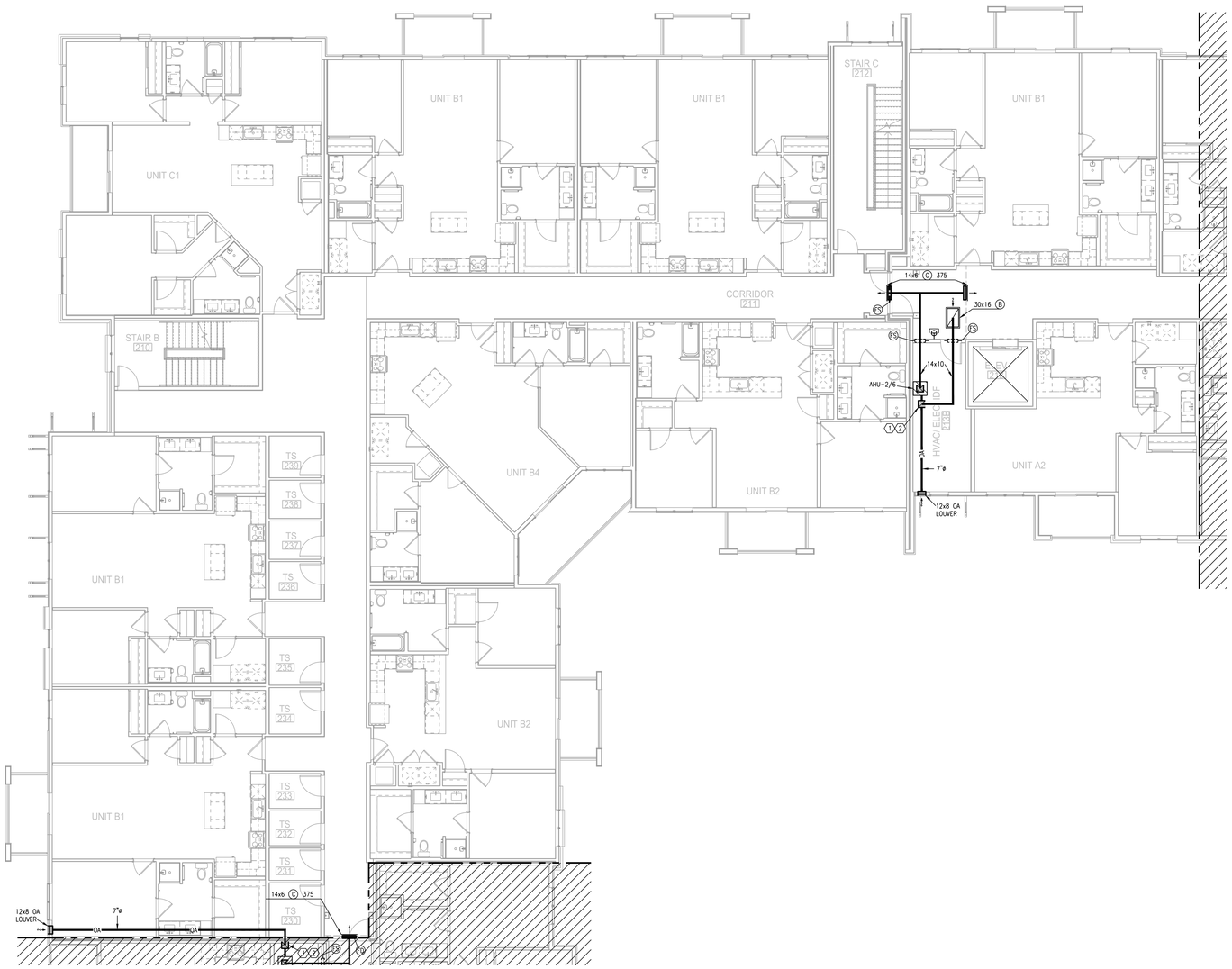
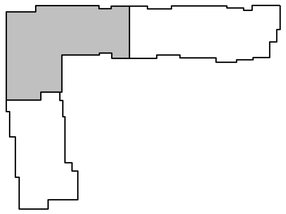


1 **BLDG 2-B, PARTIAL SECOND FLOOR PLAN - HVAC**
1/8"=1'-0"

NORTH



KEY PLAN
NO SCALE

NORTH

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GENERAL CONTRACTOR
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DATE: 7.15.2021

REVISIONS 4

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M117

BLDG 2-B, PARTIAL SECOND FLOOR PLAN - HVAC

NOTES:

1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
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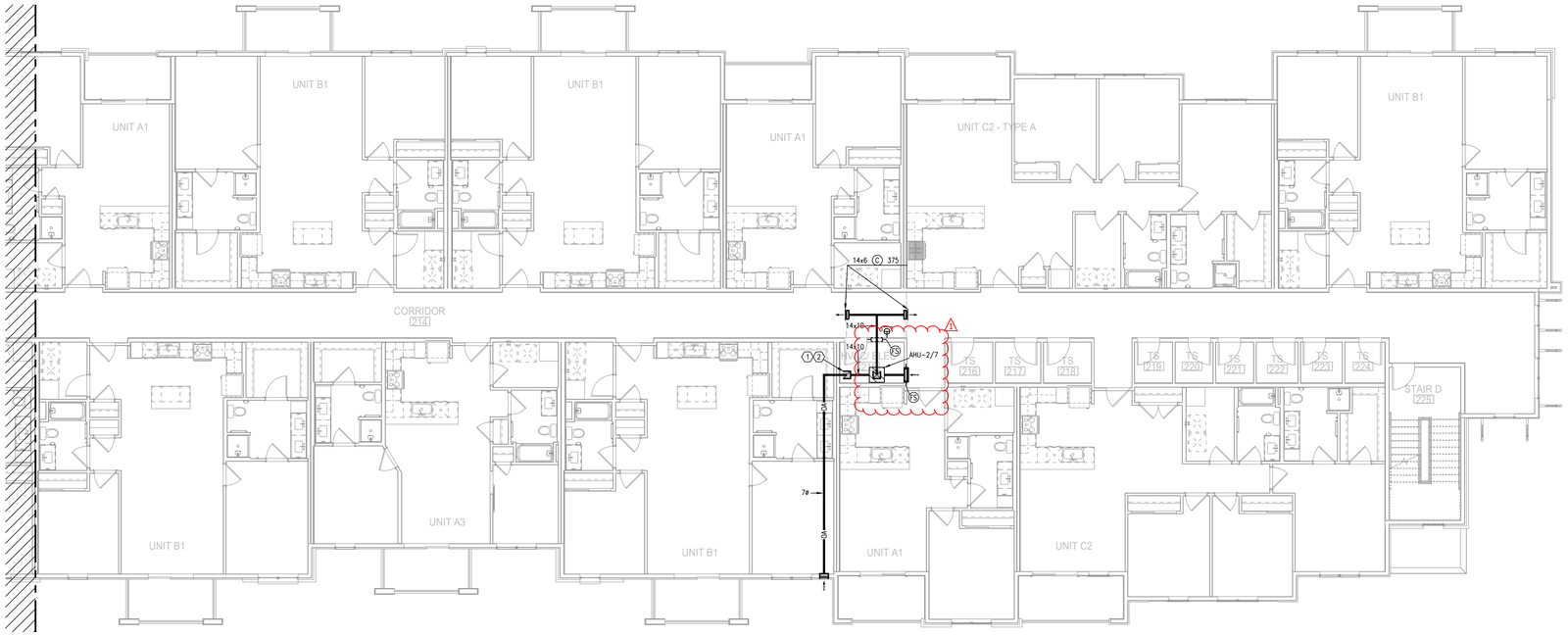
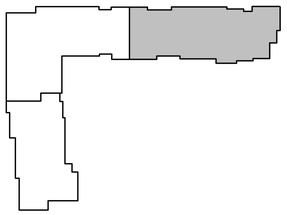


1 **BLDG 2-C, PARTIAL SECOND FLOOR PLAN**
1/8"=1'-0"
HVAC

NORTH



KEY PLAN
NO SCALE

NORTH

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ELECTRICAL ENGINEER

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DATE: 7.15.2021

REVISIONS 2

2 PERMIT REVIEW COMMENTS 08-17-21

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M118

BLDG 2-C, PARTIAL SECOND FLOOR PLAN - HVAC

NOTES:

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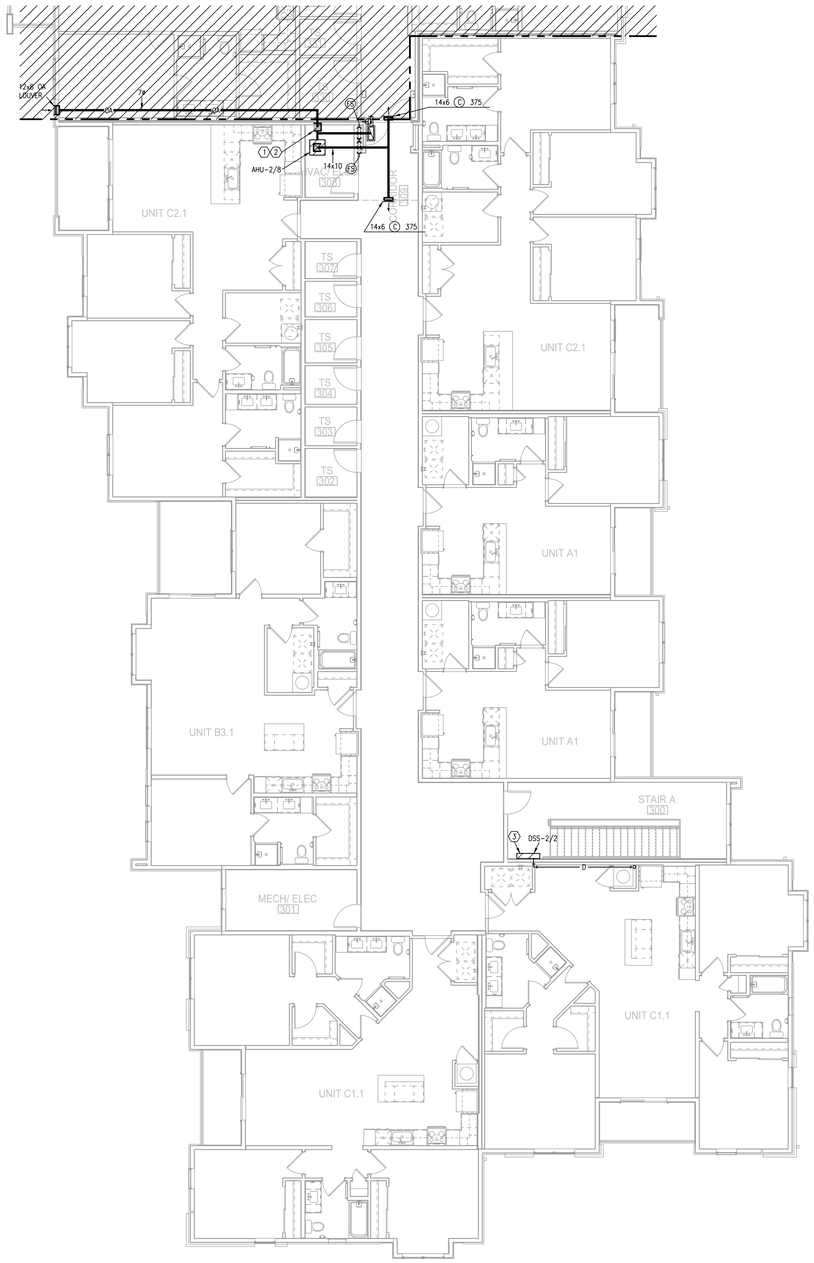
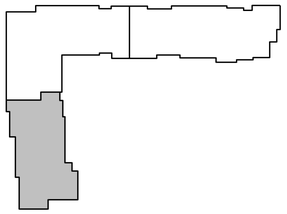


1 **BLDG 2-A, PARTIAL THIRD FLOOR PLAN**
1/8"=1'-0"
HVAC

NORTH



KEY PLAN
NO SCALE

NORTH

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ELECTRICAL ENGINEER

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DATE: 7.15.2021

REVISIONS 1 2

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M119

BLDG 2-A, PARTIAL THIRD FLOOR PLAN - HVAC

NOTES:

1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
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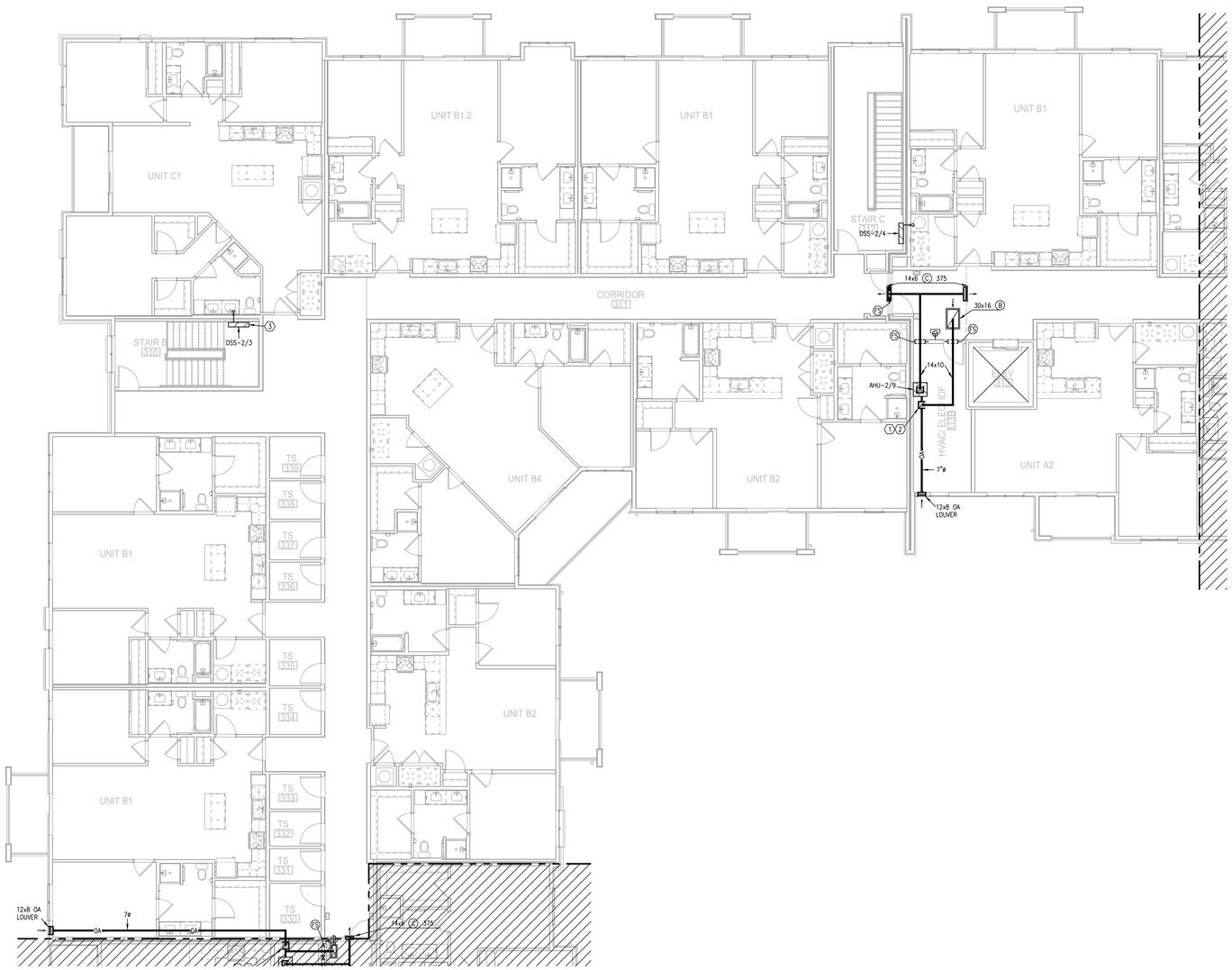
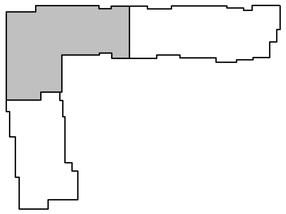


1 **BLDG 2-B, PARTIAL THIRD FLOOR PLAN**
1/8"=1'-0"
HVAC

NORTH



KEY PLAN
NO SCALE

NORTH

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ELECTRICAL ENGINEER

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DATE: 7.15.2021

REVISIONS 4

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M120

BLDG 2-B, PARTIAL THIRD FLOOR PLAN - HVAC

NOTES:

1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
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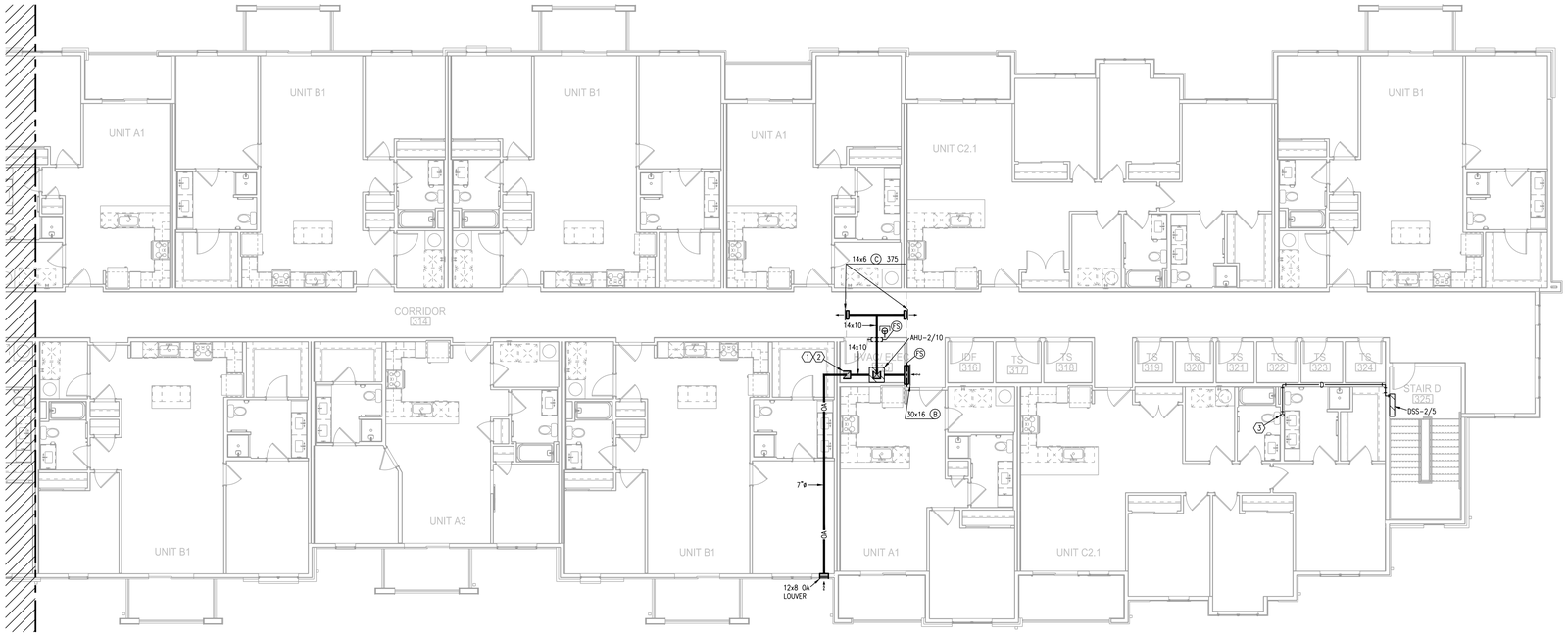
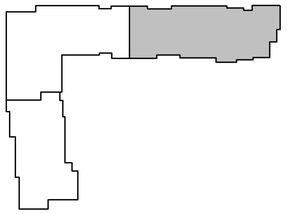


1 **BLDG 2-C, PARTIAL THIRD FLOOR PLAN**
1/8"=1'-0"
HVAC

NORTH



KEY PLAN
NO SCALE

NORTH

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LSA PROJECT NO. 2104008

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NO. E-27000
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7-15-21

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CIVIL ENGINEER
GENERAL CONTRACTOR
MECHANICAL ENGINEER
PLUMBING ENGINEER
ELECTRICAL ENGINEER

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PLUMBING
ELECTRICAL

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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR¡ PROJECT NO. 20-001

SHEET NO.

M121

BLDG 2-C, PARTIAL THIRD FLOOR PLAN - HVAC

NOTES:

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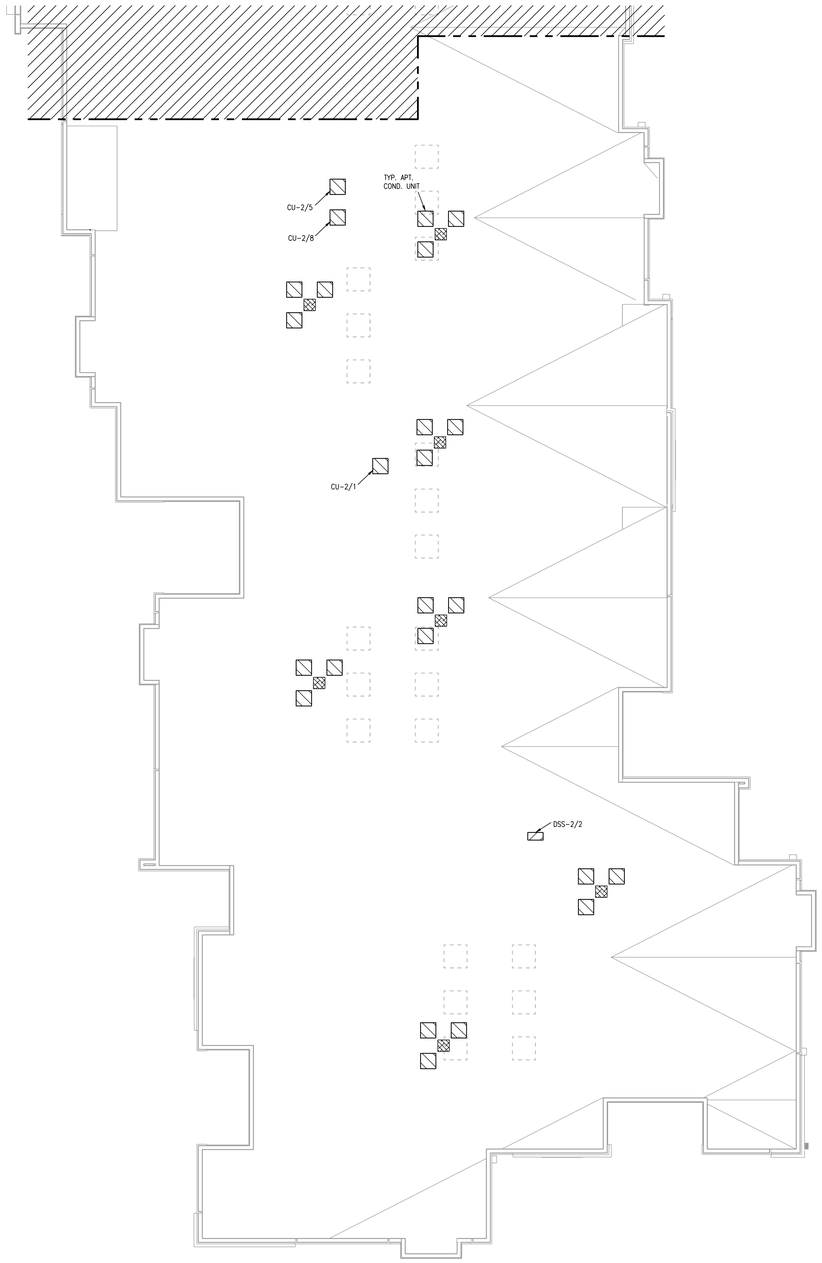
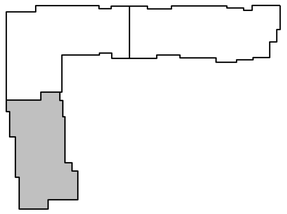


1 **BLDG 2-A, PARTIAL ROOF PLAN**
1/8"=1'-0"
HVAC

NORTH



KEY PLAN
NO SCALE

NORTH

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LSA PROJECT NO. 2104008

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7-15-21

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DATE: 7.15.2021

REVISIONS 2

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M122

BLDG 2-A, PARTIAL ROOF PLAN - HVAC

NOTES:

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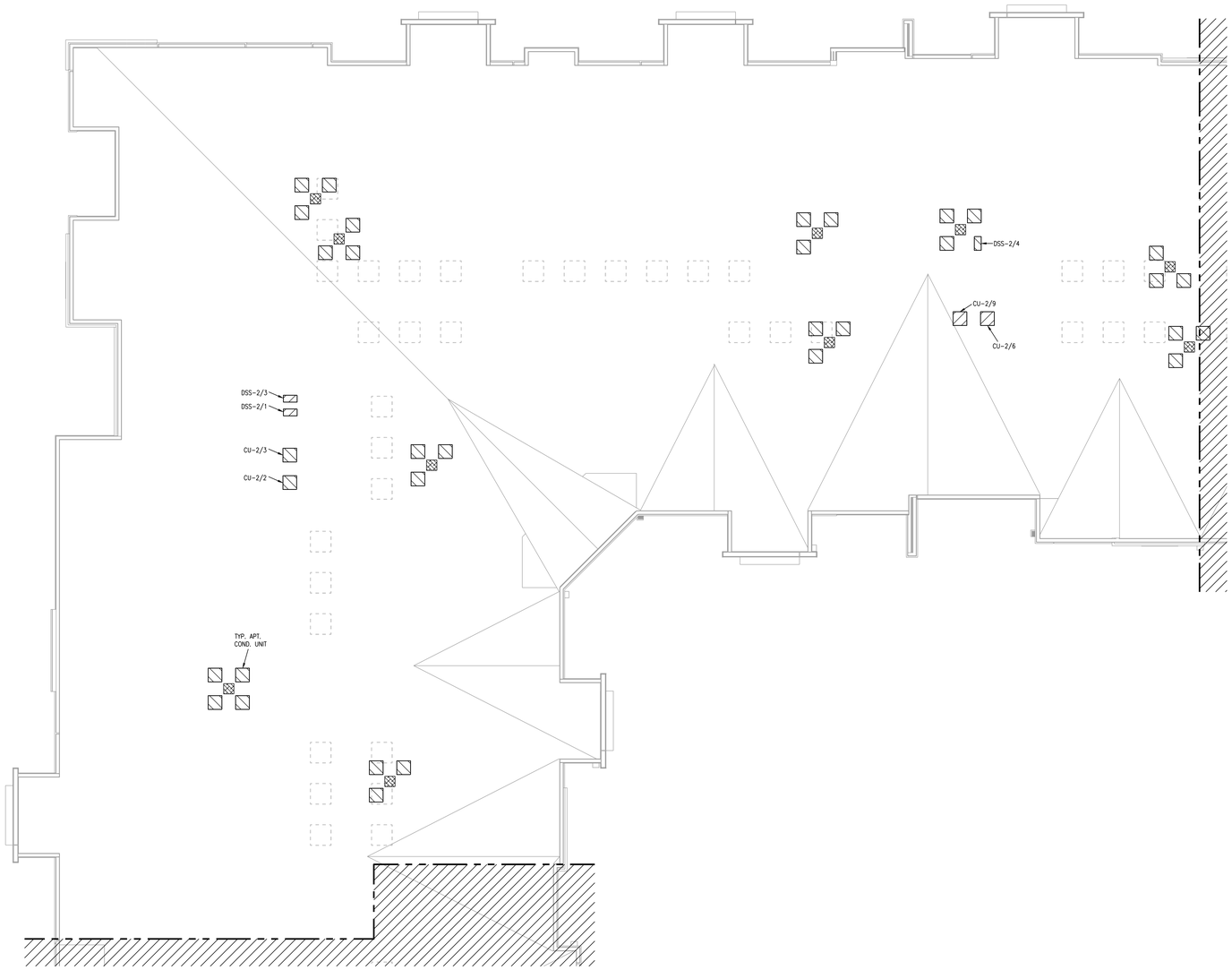
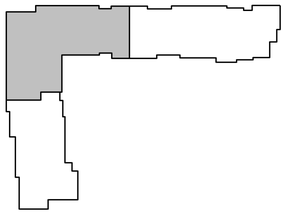


1 **BLDG 2-B, PARTIAL ROOF PLAN**
1/8"=1'-0"
HVAC
NORTH



KEY PLAN
NO SCALE
NORTH

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ELECTRICAL

Together Development

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DATE: 7.15.2021

REVISIONS 1

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M123

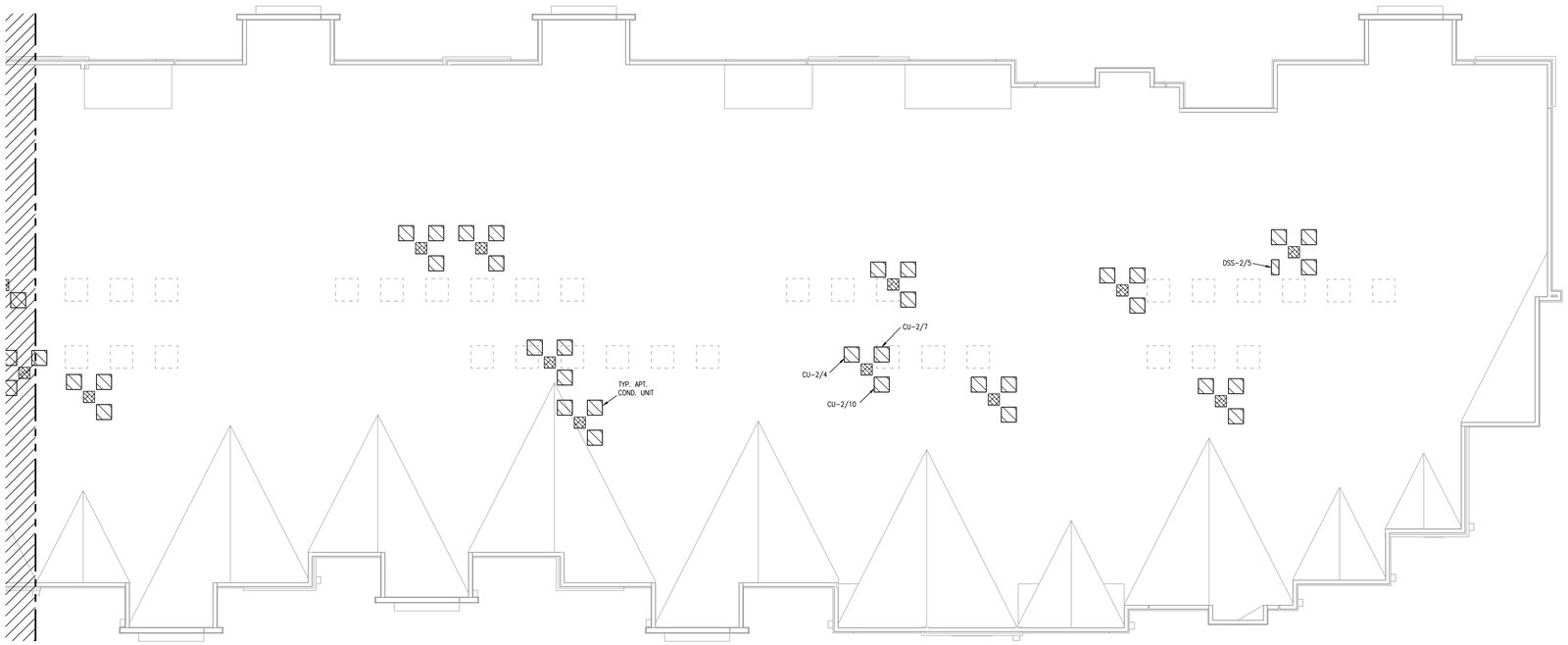
BLDG 2-B, PARTIAL ROOF PLAN - HVAC

NOTES:

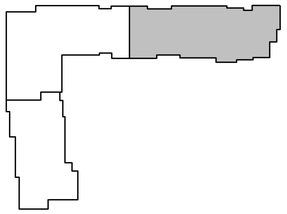
1. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
2. SEE THE ARCHITECTURAL, LIGHTING AND STRUCTURAL DRAWINGS FOR CLEARANCES.
3. MAINTAIN 3 FEET CLEARANCE FROM EXHAUST DUCTS TO BUILDING OPENINGS AND 10 FEET TO AIR INTAKES.
4. ROUTE NO DUCTS OVER ELECTRICAL EQUIPMENT.
5. FLEXIBLE DUCT LENGTHS SHALL NOT EXCEED 8 FEET AND SHALL BE AS STRAIGHT AS POSSIBLE AND NOT KINKED AT DIFFUSER OR TAKE-OFF.

LEGEND:

1. OUTSIDE AIR CONTROL AND BALANCING DAMPER.
2. DUCT WITH CRD AT RATED MEMBRANE.
3. ROUTE COND. TO LAV TAILPIECE OR WASHER BOX.
4. 16x8 TYPE 'E' GRILLES, ONE HIGH, ONE LOW FOR RA PATH IN STUD SPACE. LINE SPACE WITH METAL.



1 **BLDG 2-C, PARTIAL ROOF PLAN**
1/8"=1'-0"
HVAC
NORTH



KEY PLAN
NO SCALE
NORTH

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DATE: 7.15.2021

REVISIONS 0

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TR¡ PROJECT NO. 20-001

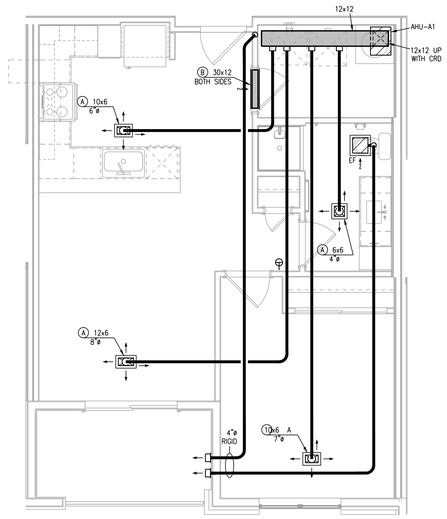
SHEET NO.

M124

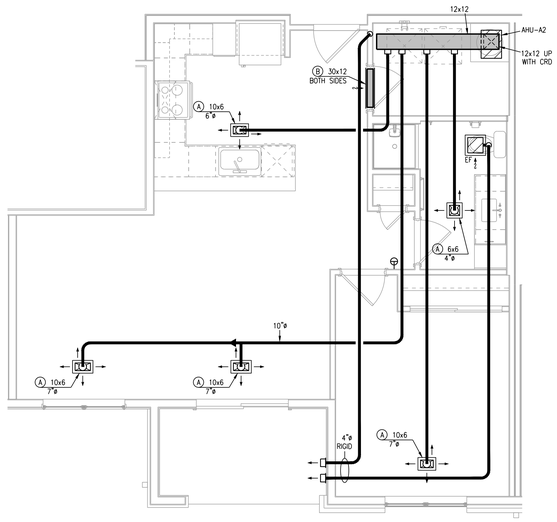
BLDG 2-C, PARTIAL ROOF PLAN - HVAC

NOTES:

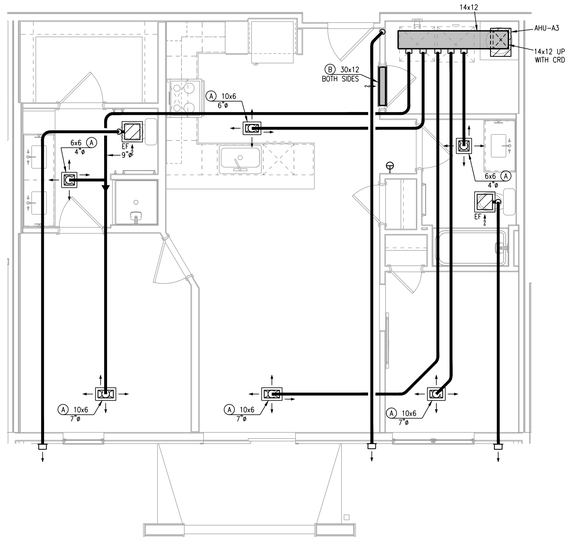
1. ALL TYPE "A" SUPPLY REGISTERS HAVE A UL555C CEILING RADIATION DAMPER UNLESS NOTED OTHERWISE. PROVIDE CRD UNLESS NOTED OTHERWISE AT AHU DISCHARGE AND RATED MEMBRANE.
2. PROVIDE MANUFACTURER REQUIRED CLEARANCES FOR AHU'S AND WATER HEATERS.
3. ALL CONDENSING UNITS ARE ROOF MOUNTED. MANUFACTURER SHALL PROVIDE ANY ACCESSORIES REQUIRED FOR PROPER OPERATION.
4. PROVIDE GUY GRAY MODEL DB350/DB3D DRYER VENT BOX AT ALL DRYER LOCATIONS. NOTE TOP FLOOR SHALL ROUTE THRU FLOOR BELOW.
5. GENERALLY CENTER GRILLES/REGISTERS IN WALLS, OVER DOORS, ALIGN WITH WINDOWS, ETC.
6. MAINTAIN 3 FT. FROM EXHAUST/VENTS TO BUILDING OPENINGS. DRYER VENT CAPS SHALL HAVE 4" DEEP BY 4" WIDE OPENING FOR AIR FLOW.
7. ROUTE AHU CONDENSATE INDIRECT TO FLOOR DRAINS IN AHU CLOSETS.
8. EXHAUST FANS AT TOP FLOOR MAY VENT TO ROOF.
9. EXHAUST FANS TO BE FIRE-RATED, HUMIDITY-SENSING TYPE, 80 CFM AT 0.1 ESP.
10. USE RA GRILLE AT HVAC CLOSET AS CRD ACCESS, POSITION CORRECTLY. SIZE MAY VARY WITH SAME AREA.
11. TOP FLOOR DUCTS SHALL BE BELOW THE ATTIC INSULATION SHALL BE R-8 INSULATED AND SEALED TO PREVENT CONDENSATION.



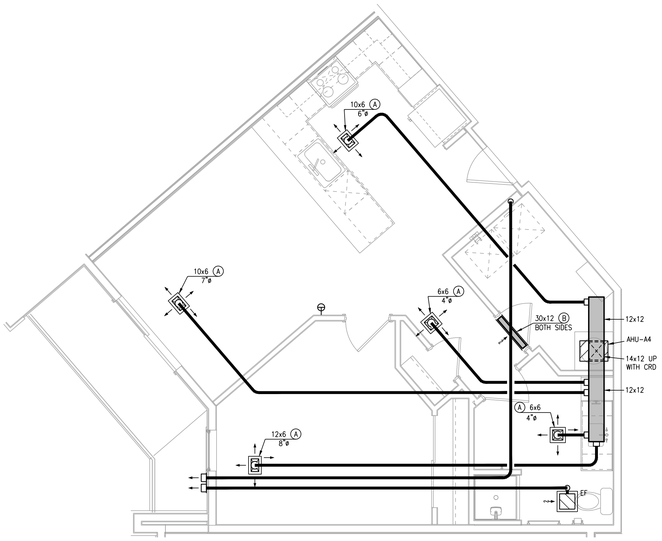
1 **TYPICAL UNIT PLAN - A1**
1/4"=1'-0" (UNITS A1-1, A1-2 SIMILAR) HVAC



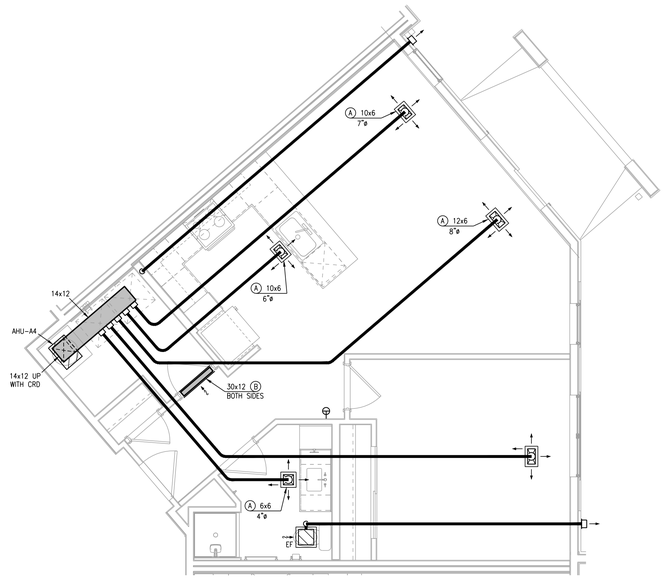
2 **TYPICAL UNIT PLAN - A2**
1/4"=1'-0" HVAC



3 **TYPICAL UNIT PLAN - A3**
1/4"=1'-0" HVAC



4 **TYPICAL UNIT PLAN - A4**
1/4"=1'-0" (TYPE A SIMILAR) HVAC



5 **TYPICAL UNIT PLAN - A5**
1/4"=1'-0" HVAC

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REVISIONS 1

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

M201

TYPICAL UNIT PLANS - HVAC

NOTES:

1. ALL TYPE "A" SUPPLY REGISTERS HAVE A UL555C CEILING RADIATION DAMPER UNLESS NOTED OTHERWISE. PROVIDE CRD UNLESS NOTED OTHERWISE AT AHU DISCHARGE AND RATED MEMBRANE.
2. PROVIDE MANUFACTURER REQUIRED CLEARANCES FOR AHU'S AND WATER HEATERS.
3. ALL CONDENSING UNITS ARE ROOF MOUNTED. MANUFACTURER SHALL PROVIDE ANY ACCESSORIES REQUIRED FOR PROPER OPERATION.
4. PROVIDE GUY GRAY MODEL DB350/DB3D DRYER VENT BOX AT ALL DRYER LOCATIONS. NOTE TOP FLOOR SHALL ROUTE THRU FLOOR BELOW.
5. GENERALLY CENTER GRILLES/REGISTERS IN WALLS, OVER DOORS, ALIGN WITH WINDOWS, ETC.
6. MAINTAIN 3 FT. FROM EXHAUST/VENTS TO BUILDING OPENINGS. DRYER VENT CAPS SHALL HAVE 4" DEEP BY 4" WIDE OPENING FOR AIR FLOW.
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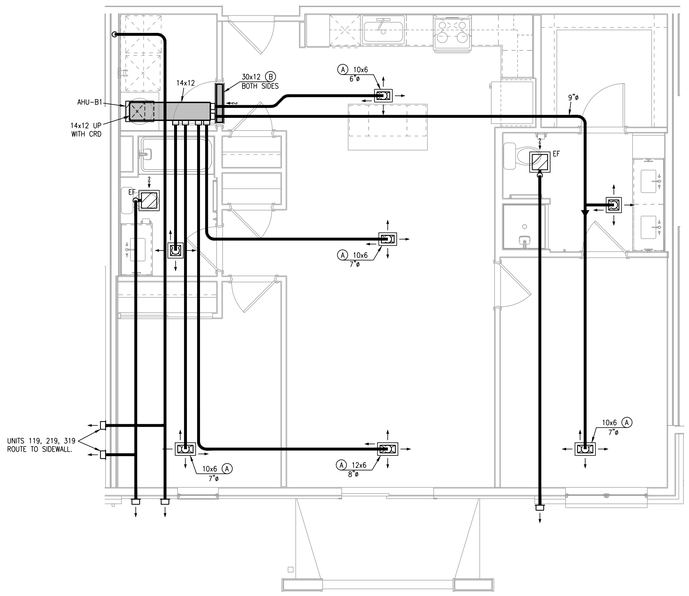
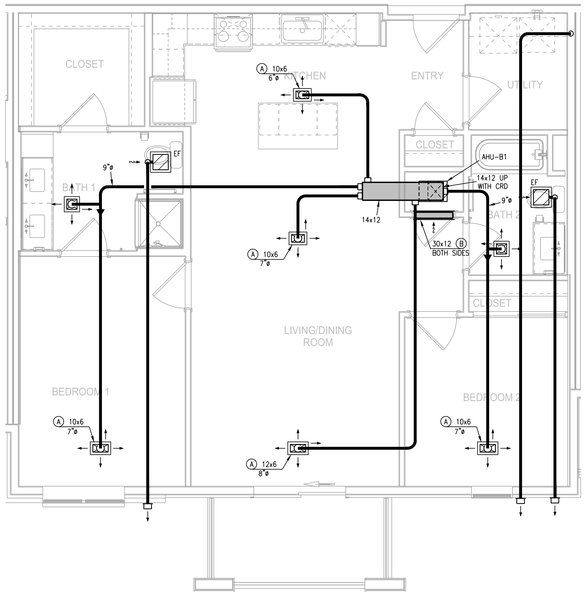
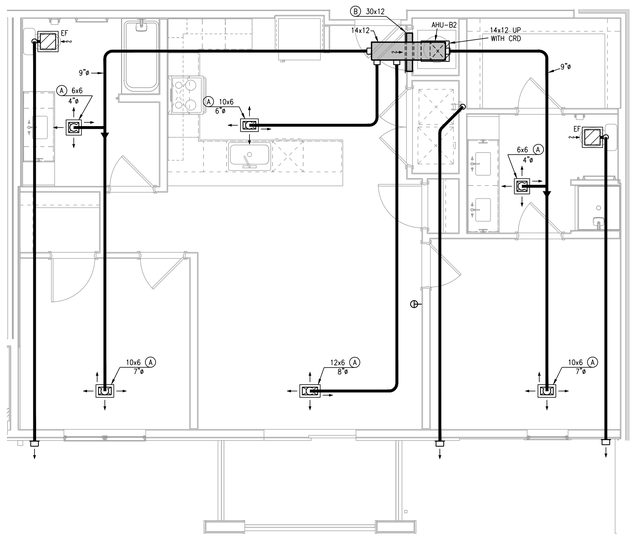
9. EXHAUST FANS TO BE FIRE-RATED, HUMIDITY-SENSING TYPE, 80 CFM AT 0.1 ESP.
10. USE RA GRILLE AT HVAC CLOSET AS CRD ACCESS, POSITION CORRECTLY. SIZE MAY VARY WITH SAME AREA.
11. TOP FLOOR DUCTS SHALL BE BELOW THE ATTIC INSULATION SHALL BE R-8 INSULATED AND SEALED TO PREVENT CONDENSATION.



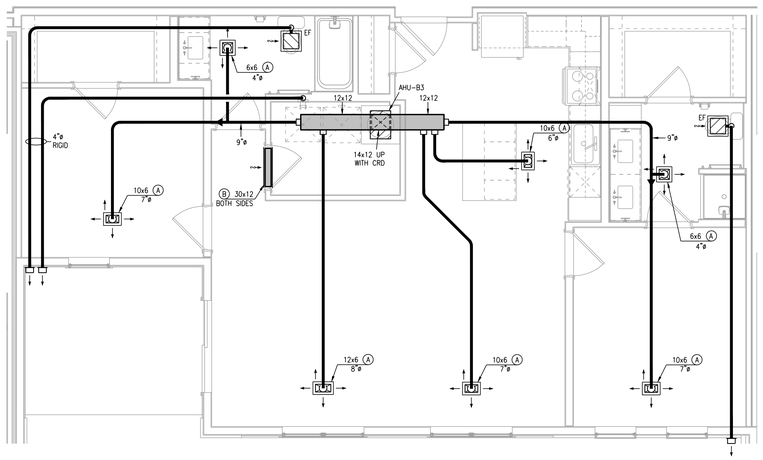
1 **TYPICAL UNIT PLAN - B1**
1/4"=1'-0" (UNITS B1-1, B1-2, B1-3 SIMILAR) HVAC



2 **TYPICAL UNIT PLAN - B1 TYPE A**
1/4"=1'-0" HVAC



3 **TYPICAL UNIT PLAN - B2**
1/4"=1'-0" (UNIT B2-TYPE A SIMILAR) HVAC



4 **TYPICAL UNIT PLAN - B3**
1/4"=1'-0" (UNIT B3-1 SIMILAR) HVAC

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REVISIONS 1

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TR,i PROJECT NO. 20-001

SHEET NO.

M202

TYPICAL UNIT PLANS - HVAC

NOTES:

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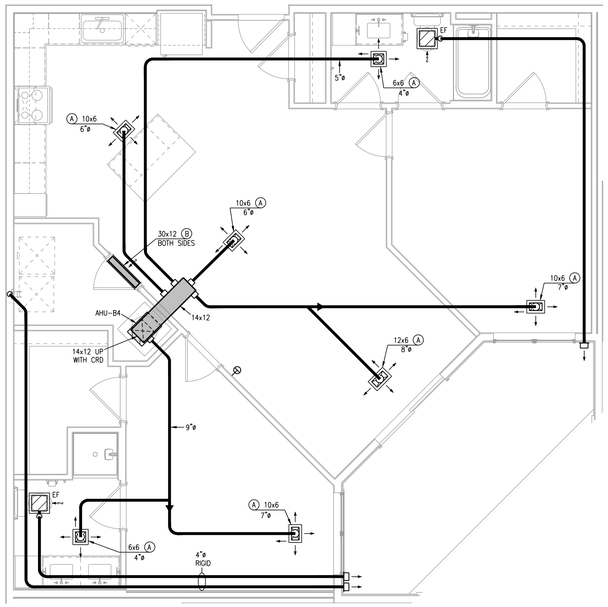
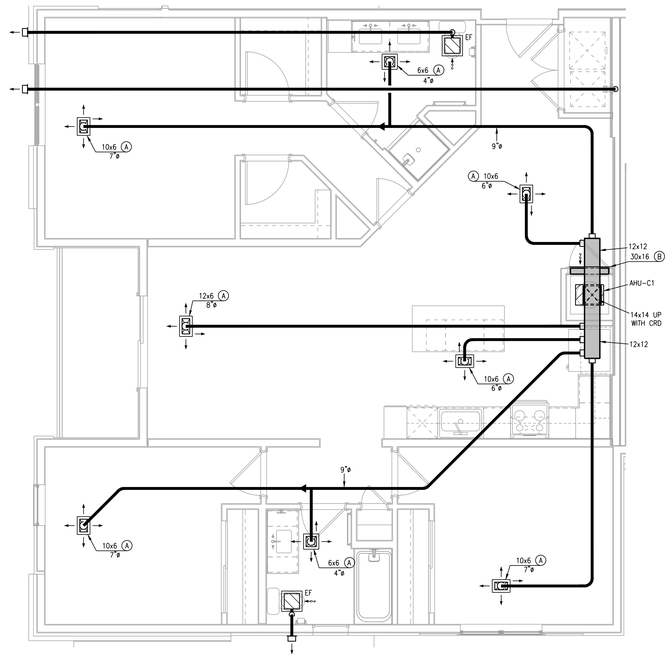


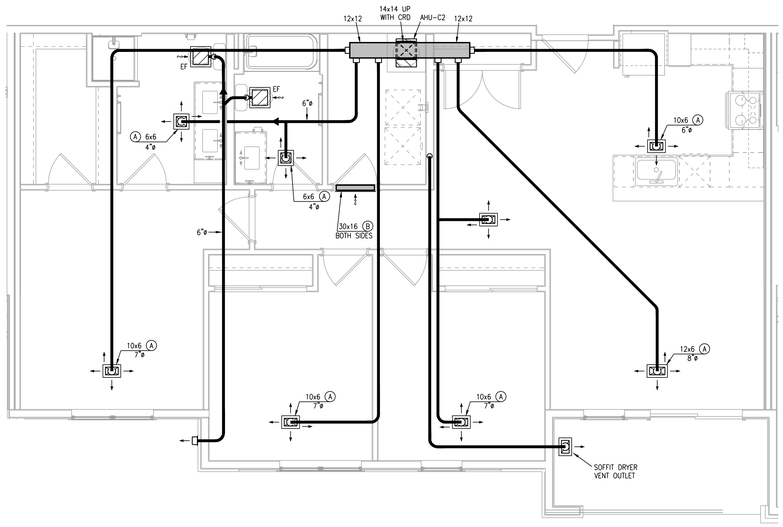
1 TYPICAL UNIT PLAN - B4

1/4"=1'-0" HVAC



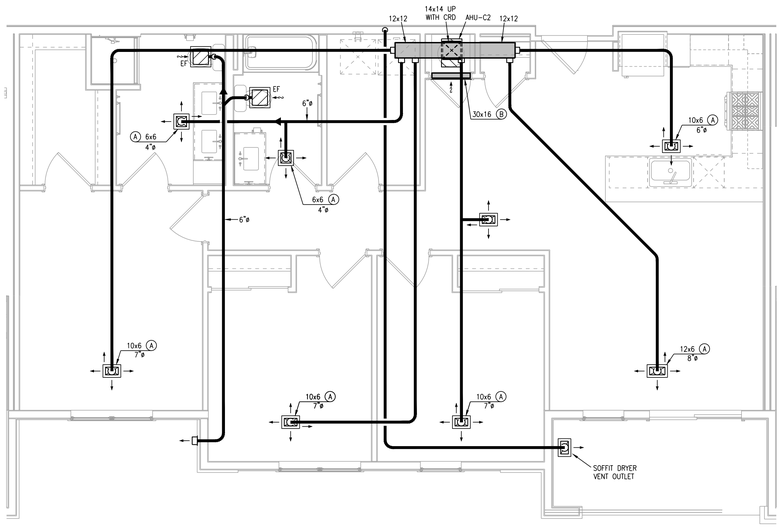
2 TYPICAL UNIT PLAN - C1

1/4"=1'-0" (UNIT C1-1 SIMILAR) HVAC



3 TYPICAL UNIT PLAN - C2

1/4"=1'-0" (UNIT C2-1 SIMILAR) HVAC



4 TYPICAL UNIT PLAN - C2 TYPE A

1/4"=1'-0" HVAC

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REVISIONS 1

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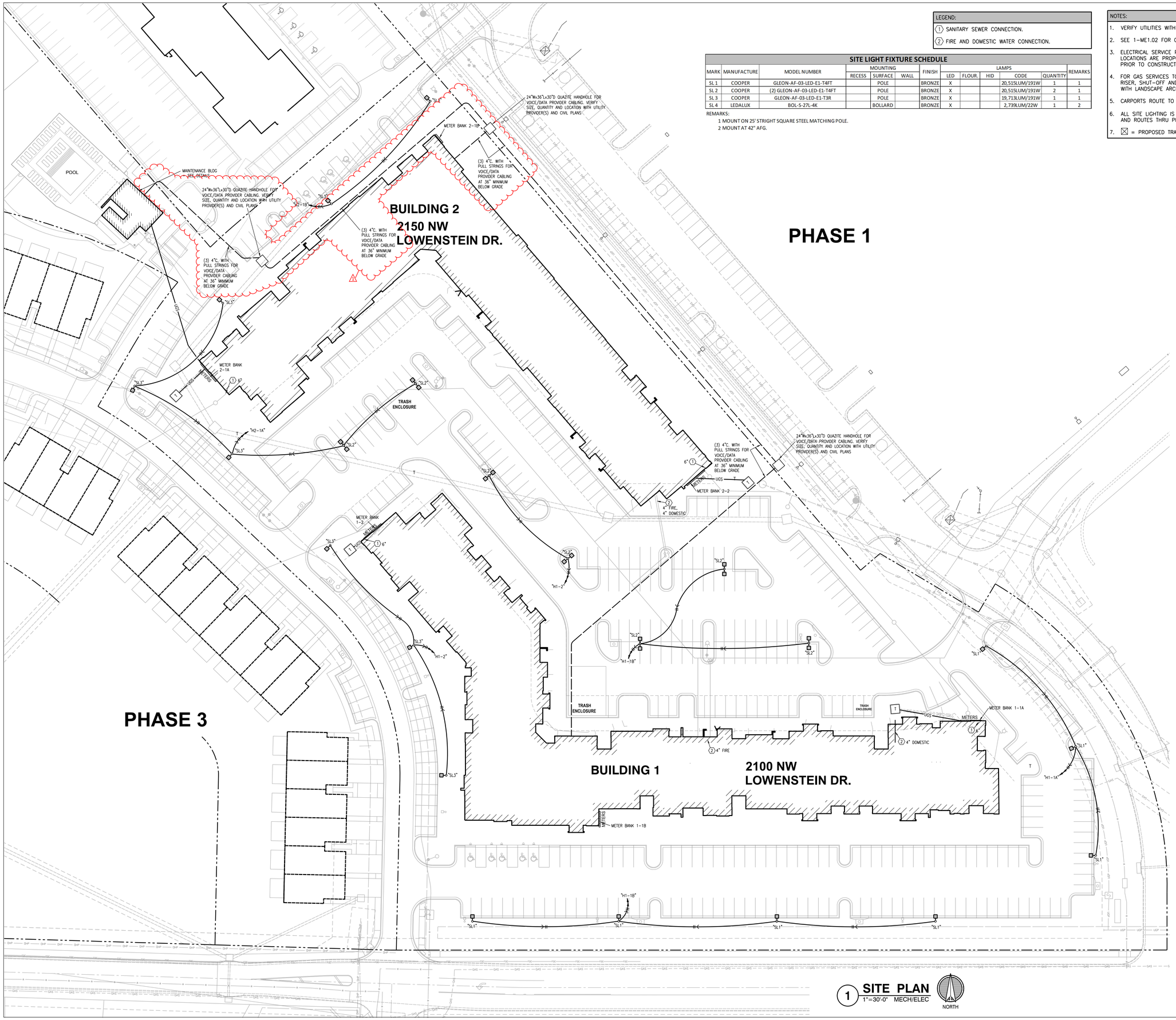
TR,i PROJECT NO. 20-001

SHEET NO.

M203

TYPICAL UNIT PLANS - HVAC



LEGEND:
(1) SANITARY SEWER CONNECTION.
(2) FIRE AND DOMESTIC WATER CONNECTION.

SITE LIGHT FIXTURE SCHEDULE

MARK	MANUFACTURE	MODEL NUMBER	MOUNTING			FINISH	LAMPS					REMARKS
			RECESS	SURFACE	WALL		LED	FLOUR.	HID	CODE	QUANTITY	
SL 1	COOPER	GLEON-AF-03-LED-E1-T4FT		POLE		BRONZE	X			20,515LUM/191W	1	1
SL 2	COOPER	(2) GLEON-AF-03-LED-E1-T4FT		POLE		BRONZE	X			20,515LUM/191W	2	1
SL 3	COOPER	GLEON-AF-03-LED-E1-T3R		POLE		BRONZE	X			19,713LUM/191W	1	1
SL 4	LEDALUX	BOL-S-27L-4K		BOLLARD		BRONZE	X			2,739LUM/22W	1	2

REMARKS:
1 MOUNT ON 25' STRIGHT SQUARE STEEL MATCHING POLE.
2 MOUNT AT 42" AFG.

NOTES:
1. VERIFY UTILITIES WITH CIVIL DRAWING AND PROVIDERS.
2. SEE 1-ME1.02 FOR GARAGE DETAIL.
3. ELECTRICAL SERVICE PRIMARY AND TRANSFORMER LOCATIONS ARE PROPOSED. OBTAIN KCPL DESIGN PRIOR TO CONSTRUCTION OR ORDERING EQUIPMENT.
4. FOR GAS SERVICES TO AMENITIES, PROVIDE STEEL RISER, SHUT-OFF AND KEY OPERATED VALVE. VERIFY WITH LANDSCAPE ARCHITECT.
5. CARPORTS ROUTE TO GARAGE PANELS.
6. ALL SITE LIGHTING IS (3) #10 IN 3/4" PVC CONDUIT AND ROUTES THRU PHOTOCELL.
7. ☒ = PROPOSED TRANSFORMER LOCATION.

1 **SITE PLAN** 1"=30'-0" MECH/ELEC

NORTH

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REVISIONS 1

1 PERMIT REVIEW COMMENTS 08-17-21

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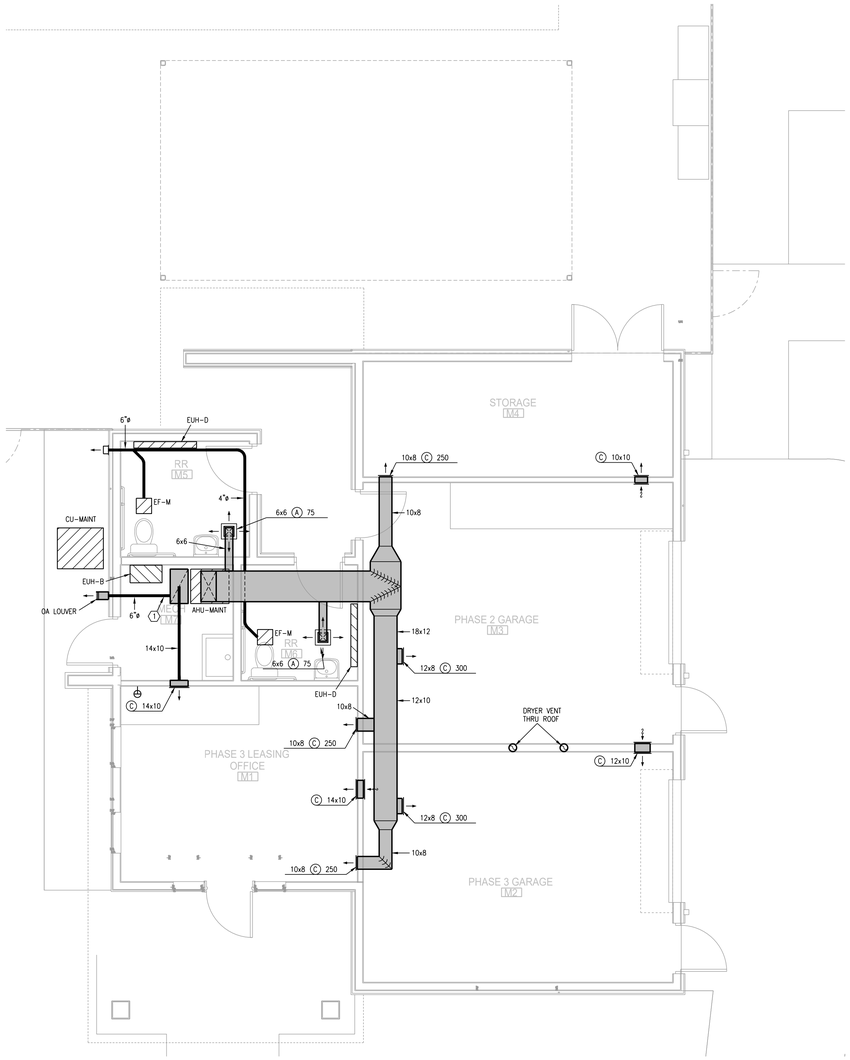
SHEET NO.

ME101

SITE PLAN - MECH/ELEC



1 MAINTENANCE BLDG FLOOR PLAN

1/4"=1'-0"

HVAC

NORTH

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GENERAL CONTRACTOR	GENERAL CONTRACTOR
MECHANICAL ENGINEER	ENGINEER
PLUMBING ENGINEER	PLUMBING
ELECTRICAL ENGINEER	ELECTRICAL

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REVISIONS 1

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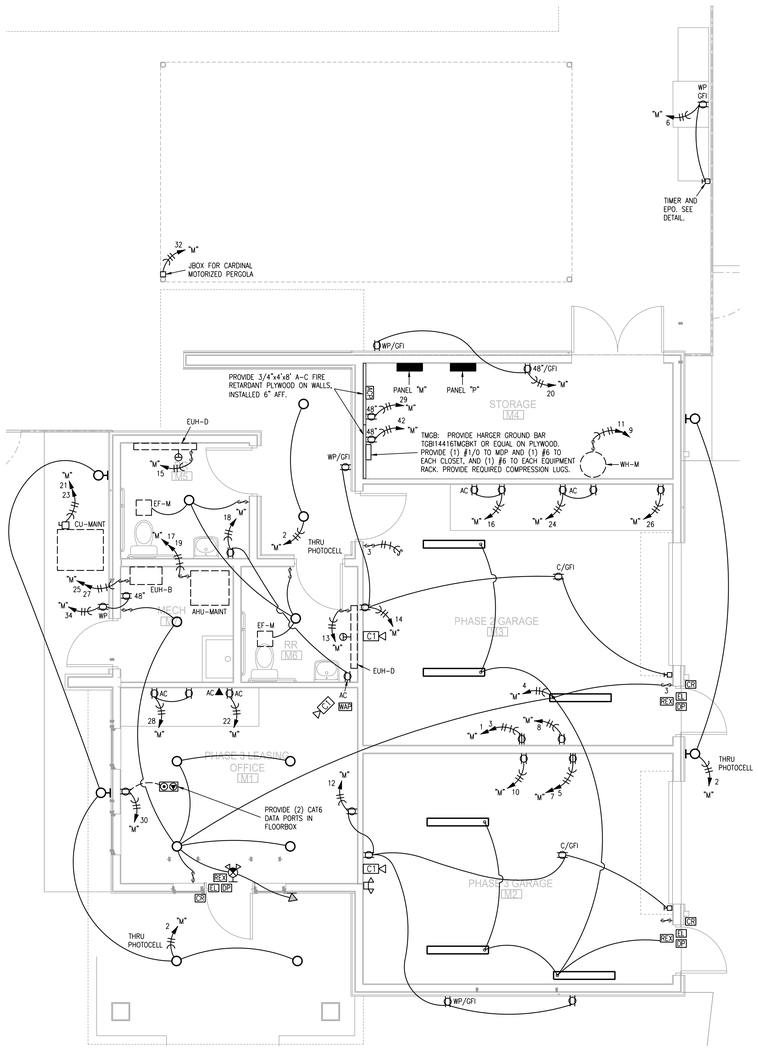
ME202

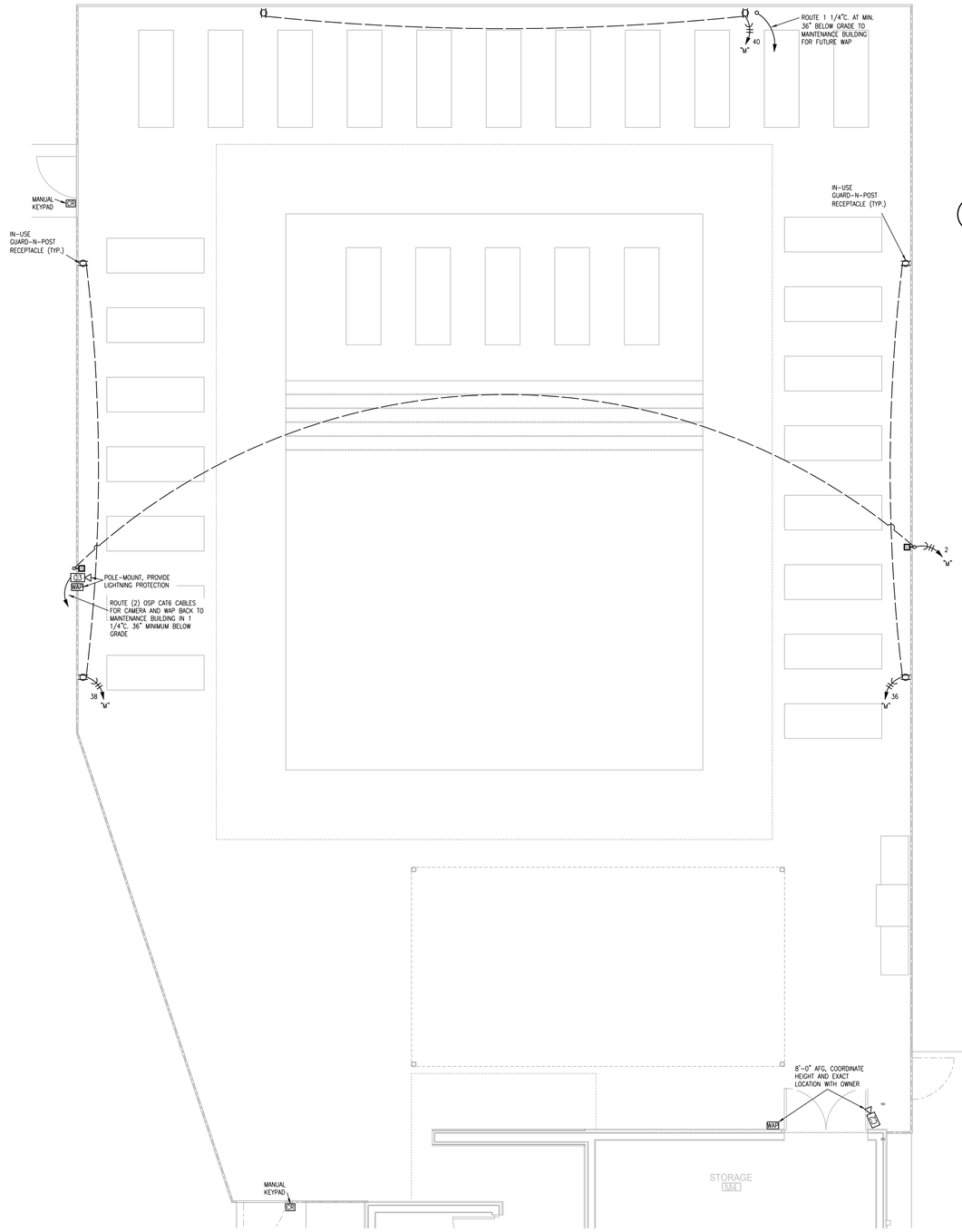
MAINTENANCE BLDG - HVAC

ALL CIRCUITING SHALL BE (2) #12 & (1) #12 GRD. UNLESS NOTED UNLESS.

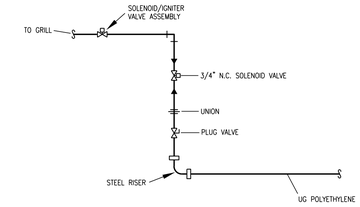
$2500 ALLOWANCE FOR LIGHTING AND FANS IN COVERED SEATING



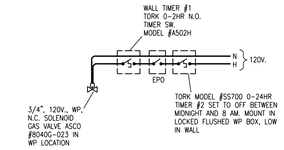
1 **MAINTENANCE BLDG FLOOR PLAN**
1/4"=1'-0" ELECTRICAL
NORTH



2 **MAINTENANCE BLDG FLOOR PLAN**
1/4"=1'-0" ELECTRICAL
NORTH



PIPING SCHEMATIC



CONTROL SCHEMATIC

3 **GAS CONTROL DETAIL**
NO SCALE (GRILL)

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STRUCTURAL	
CIVIL	
GENERAL CONTRACTOR	
ENGINEER	
PLUMBING	
ELECTRICAL	

Tegethoff DEVELOPMENT

The Signature at West Pryor

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DATE: 7.15.2021

REVISIONS 2

2 PERMIT REVIEW COMMENTS 08-17-21

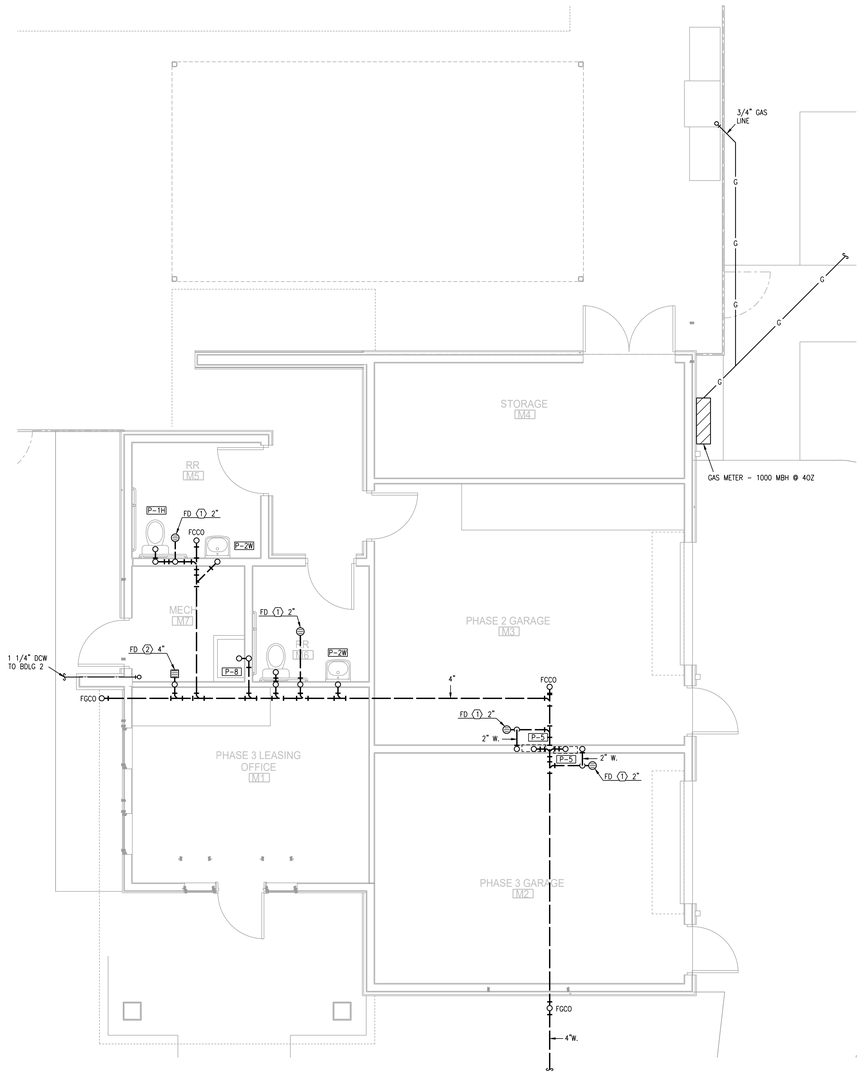
DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

SHEET NO.

ME203

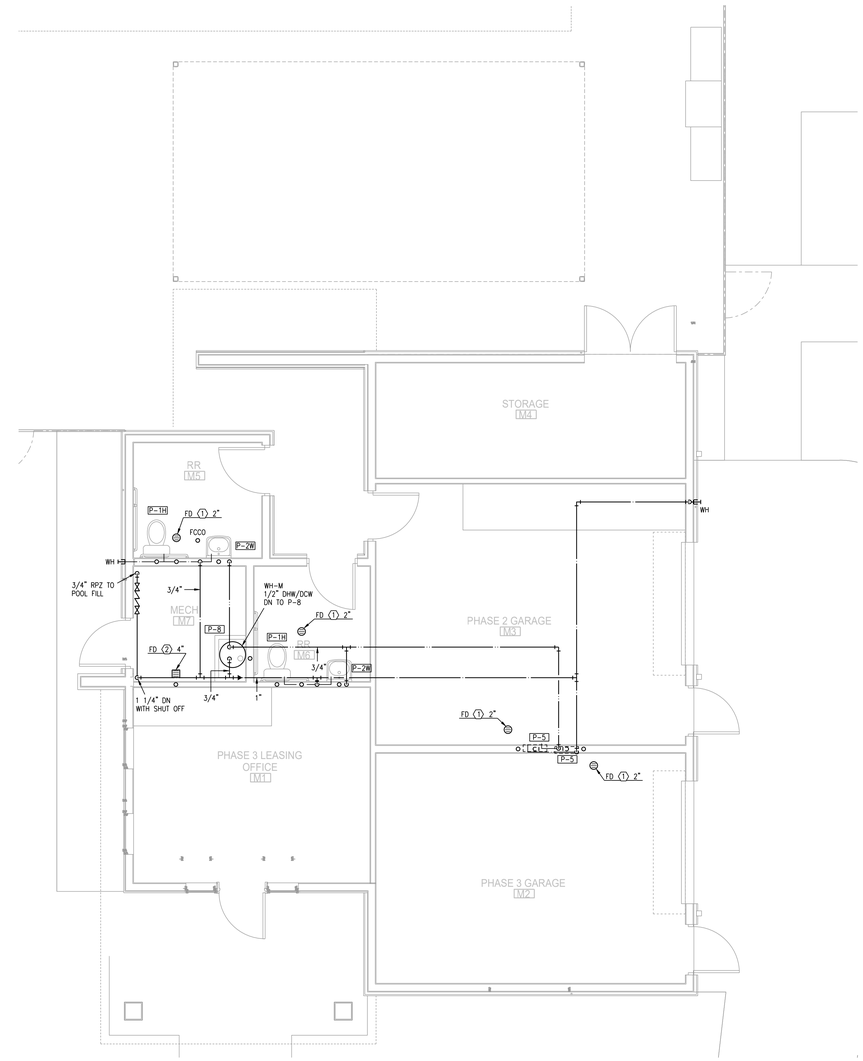
MAINTENANCE BLDG - ELECTRICAL



1 MAINTENANCE BLDG FLOOR PLAN

1/4"=1'-0" BELOW-GRADE PLUMBING

NORTH



2 MAINTENANCE BLDG FLOOR PLAN

1/4"=1'-0" PLUMBING

NORTH

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LSA PROJECT NO. 2104008

STATE OF MISSOURI
RICHARD R. BEARDMORE
PROFESSIONAL ENGINEER
8-17-21

ARCHITECT	TR,i ARCHITECTS
STRUCTURAL ENGINEER	STRUCTURAL
CIVIL ENGINEER	CIVIL
GENERAL CONTRACTOR	GENERAL CONTRACTOR
MECHANICAL ENGINEER	ENGINEER
PLUMBING ENGINEER	PLUMBING
ELECTRICAL ENGINEER	ELECTRICAL

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DATE: 7.15.2021

REVISIONS 2

2 PERMIT REVIEW COMMENTS 08-17-21

DWG BY CAD/RRB

TR,i PROJECT NO. 20-001

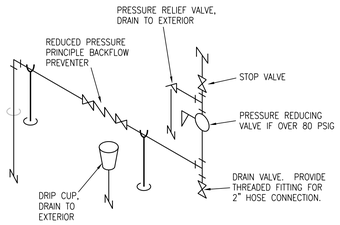
SHEET NO. 2

ME201

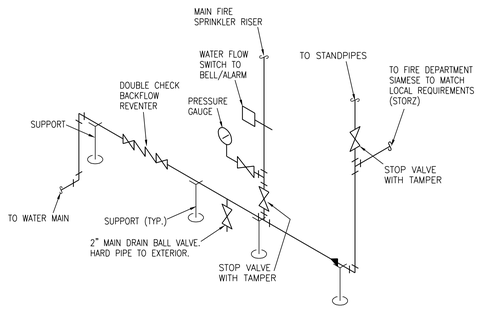
MAINTENANCE BLDG - PLUMBING

NOTES:

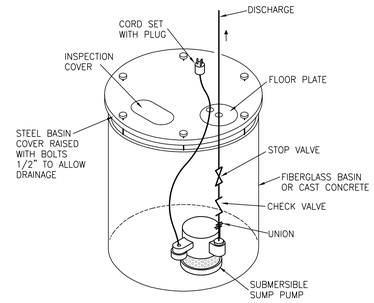
1. DRAWING IS SCHEMATIC ONLY. INSTALLATION SHALL CONFORM TO NFPA AND ALL APPLICABLE LOCAL CODES.



1 DOMESTIC WATER RISER
NO SCALE



2 FIRE SUPPRESSION ENTRANCE RISER
NO SCALE

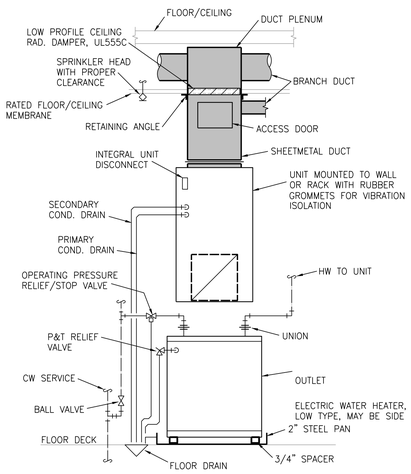


3 ELEVATOR SUMP PUMP DETAIL
NO SCALE

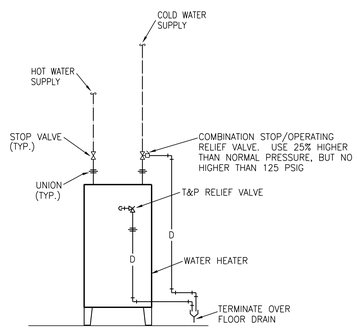
PLUMBING/MECHANICAL SYMBOLS LEGEND

P-1	WATER CLOSET & TYPE (TYP. FOR ALL PLUMBING FIXTURES)		MANUAL DAMPER
	WASTE LINE ABOVE EARTH (W.)	BD	BACKDRAFT DAMPER
	WASTE LINE IN EARTH (W.)	AD	AUTOMATIC DAMPER
CO	CLEAN OUT	FD	FIRE DAMPER
FFCO	FLUSH FLOOR CLEAN OUT	FS	FIRE/SMOKE DAMPER
FGCO	FLUSH GRADE CLEAN OUT	SD	SMOKE DAMPER
2" (1) FD	FLOOR DRAIN AND TYPE	6x6 (A) 80	GRILLE, REGISTER OR DIFFUSER, SIZE, TYPE & CFM
RD	ROOF DRAIN		VOLUME EXTRACTOR AND TURNING VANES
2" (1) RD	ROOF DRAIN AND TYPE	RAR	RETURN, EXHAUST OR FRESH AIR DUCT SECTION UP & DOWN
	VENT LINE (V.)	SAR	SUPPLY AIR DUCT SECTION UP AND DOWN
	DOMESTIC COLD WATER SUPPLY (DCW)		FLEXIBLE DUCT CONNECTION
	DOMESTIC HOT WATER SUPPLY (DHW)		ROUND OR RECTANGULAR DUCT
	DOMESTIC HOT WATER RETURN (DHWR)		FLEXIBLE DUCT
HB/36"	HOSE BIBB AND MOUNTING HEIGHT		THERMOSTAT
WH	WALL HYDRANT	L	REFRIGERANT LIQUID
F	FIRE LINE/STANDPIPE	S	REFRIGERANT SUCTION
D	DRAIN LINE	AD	ACCESS DOOR
G	NATURAL GAS LINE	AFF	ABOVE FINISHED FLOOR
	RISE & DROP IN PIPE WITH CUT-OFF VALVE	EA	EXHAUST AIR
	REDUCER	OA	OUTSIDE AIR
	CHECK VALVE	RA	RETURN AIR
	STOP VALVE	SA	SUPPLY AIR
	BALANCING VALVE	VBS	VENT BELOW SLAB
	PLUG VALVE	VTR	VENT THRU ROOF
	2-WAY CONTROL VALVE OR SOLENOID VALVE		CONNECT NEW TO EXISTING
	3-WAY CONTROL VALVE OR SOLENOID VALVE		LOCKABLE GUARD
	PRESSURE REDUCING VALVE		
	STRAINER		
	UNION		
	FLEXIBLE PIPE CONNECTION		

NOTES: ALL SYMBOLS SHOWN ABOVE MAY NOT APPEAR ON PLANS. REFER TO ELECTRICAL SYMBOLS LEGEND FOR ELECTRICAL SYMBOLS THAT MAY BE SHOWN ON MECHANICAL PLANS.

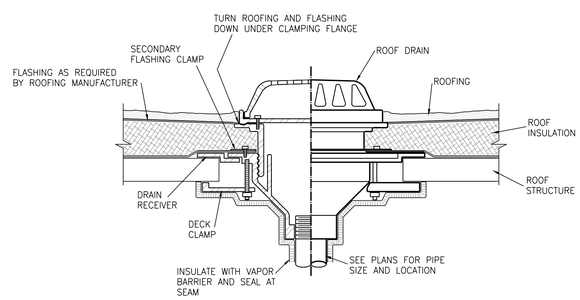


4 MECHANICAL CLOSET DETAIL
NO SCALE

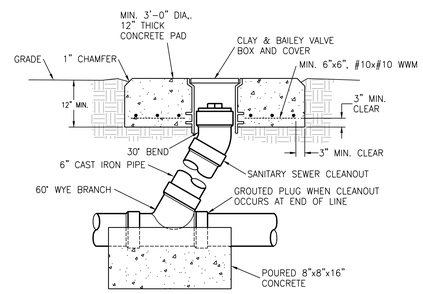


5 ELECTRIC WATER HEATER DETAIL
NO SCALE

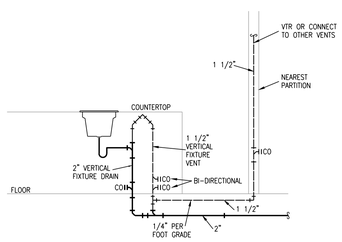
COMMAND AREA



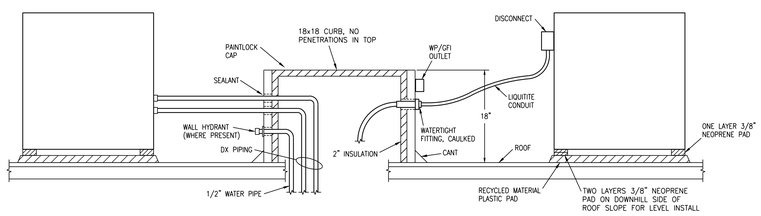
6 ROOF DRAIN DETAIL
NO SCALE



7 FLUSH GRADE CLEANOUT DETAIL
NO SCALE



8 ISLAND VENT DETAIL
NO SCALE



9 ROOF CURB DETAIL
NO SCALE

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REVISIONS 2

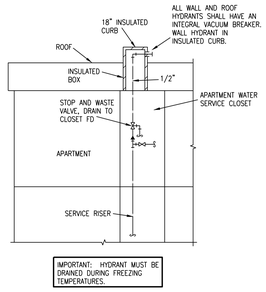
DWG BY CAD/RRB

TR.i PROJECT NO. 20-001

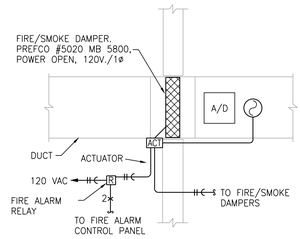
SHEET NO.

MP101

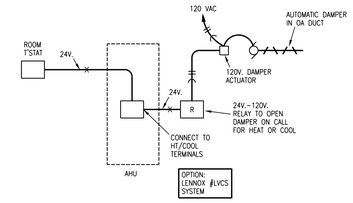
MECHANICAL DETAILS



1 ROOF HYDRANT DETAIL
NO SCALE



2 FIRE/SMOKE DAMPER DETAIL
NO SCALE



3 OUTSIDE AIR DAMPER CONTROL SCHEMATIC
NO SCALE (TYP. FOR CORRIDOR UNITS)

PREFCO
JOHNSON/TECH AIR CONTROL INC.

Ceiling Radiation Damper
3 Hour Rated
For Use in Static Systems
Models 5680 Submittal

Filename: Prefco Submittal 5680 Rev 27/12/14

Application

The Model 5680 provides fire and heat radiation protection of HVAC penetrations in any floor/ceiling and roof/ceiling assemblies with restrained or unrestrained ratings of 3 hours or less. Standard fire dampers (1 1/2 & 3 hr.) do not provide the required protection.

Standard Construction

- **Frame**
  21 GA Galvanized Steel
- **Blades - Full Length Hinge**
  21 GA Galvanized Steel
- **Closure Springs**
  Stainless Steel
- **Fusible Link - UL-33**
  UL Listed 212F (standard) 165 F (optional)
  McCabe Link (optional)
- **Insulation (blade)**
  Ceramic Fiber

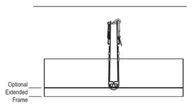
Model 5680 meets or complies with the following as a ceiling radiation damper.

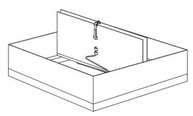
- **NFPA Standards**
- **All major building codes, including BOCA, ICBO/UBC, SBCCI & ICC International Code**

- UL 555C Listing 3 Hour - File #R7365
- CA State Fire Marshall - #3225-1518-103

High Free Area Design

Optional Volume Control Device (5965)



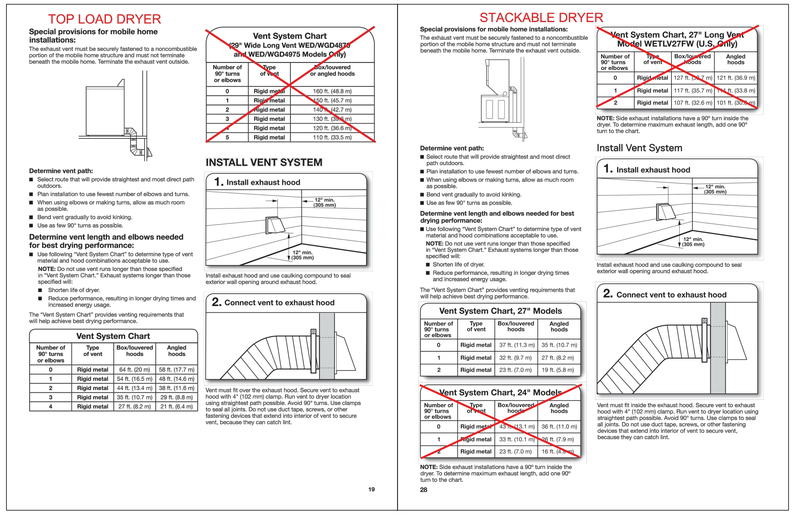


Standard Sizes (duct)	
Minimum	*4 1/2" x 4 1/2"*
Maximum	*24" wide or 30" long - 576 sq. in. total max.*

NOTES:

- Dampers are fabricated 3/16" under ordered diameter for clearance
- Approved for use in any UL Fire Resistance Directory Series Designs
- For 2 hour rating, refer to Model 5660

4 CEILING RADIATION DAMPER DETAIL
NO SCALE



5 DRYER VENT DETAIL
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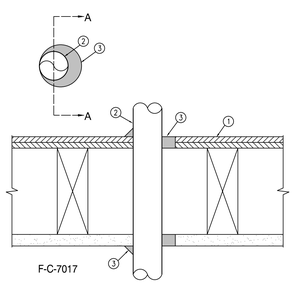


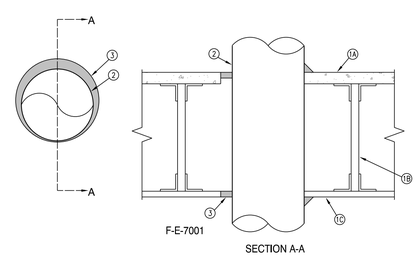
LEGEND:

1. FLOOR-CEILING ASSEMBLY - THE 1HR FIRE RATED SOLID OR TRUSSED LUMBER JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL L500 SERIES FLOOR-CEILING DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY. THE GENERAL CONSTRUCTION DETAILS OF THE FLOOR-CEILING ASSEMBLY ARE SUMMARIZED BELOW:
   A. FLOORING SYSTEM - LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD OR FLOOR TOPPING MIXTURE AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAX. DIAMETER OF OPENING IS 5" (127mm).
   B. WOOD JOISTS - NOM 10" (254mm) DEEP (OR DEEPER) LUMBER, STEEL OR COMBINATION LUMBER AND STEEL JOISTS, TRUSSES OR STRUCTURAL WOOD MEMBERS* WITH BRIDGING AS REQUIRED AND WITH ENDS FIRESTOPPED.
   C. GYPSUM BOARD* - NOM 4" (122cm) WIDE BY 5/8" (16mm) THICK AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. GYPSUM BOARD SECURED TO WOOD JOISTS OR FURRING CHANNELS AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAX OF OPENING IS 6" BY 5 1/2" (152mm BY 140mm).
1A. CHASE WALL (OPTIONAL, NOT SHOWN) - THE DUCT (ITEM 2) MAY BE ROUTED THROUGH A FIRE-RATED SINGLE, DOUBLE OR STAGGERED WOOD STUD/GYPSUM BOARD CHASE WALL HAVING A FIRE RATING CONSISTENT WITH THAT OF THE FLOOR-CEILING ASSEMBLY. THE CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS - NOM 2" BY 6" (51mm BY 152mm) OR DOUBLE NOM 2" BY 4" (51mm BY 102mm) LUMBER STUDS.
   B. SOLE PLATE - NOM 2" BY 6" (51mm BY 152mm) OR PARALLEL 2" BY 4" (51mm BY 102mm) LUMBER PLATES, TIGHTLY BUTTED.
   C. TOP PLATE - THE DOUBLE TOP PLATE SHALL CONSIST OF TWO NOM 2" BY 6" (51mm BY 152mm) OR TWO SETS OF PARALLEL 2" BY 4" (51mm BY 102mm) LUMBER PLATES, TIGHTLY BUTTED. MAX OF OPENING IS 6" BY 5 1/2" (152mm BY 140mm).
   D. GYPSUM BOARD* - THICKNESS TYPE, NUMBER OF LAYERS AND FASTENERS SHALL BE AS SPECIFIED IN INDIVIDUAL WALL AND PARTITION DESIGN.
2. STEEL DUCT - NOM 4" (102mm) DIAMETER (OR SMALLER) NO. 30 GAUGE (OR HEAVIER) GALVANIZED STEEL DUCT TO BE INSTALLED ECCENTRICALLY OR CONCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE DUCT AND THE PERIPHERY OF OPENING SHALL BE MIN. 0" (0mm) (POINT CONTACT) TO MAX 2" (51mm) DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR-CEILING ASSEMBLY.
3. FILL, VOID OR CAVITY MATERIALS* - CAULK OR SEALANT - MIN 3/4" (19mm) THICKNESS OF CAULK APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE. MIN. 5/8" (16mm) THICKNESS OF CAULK APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTTOM SURFACE OF CEILING OR TOP PLATE. MIN 1/2" (13mm) DIAMETER BEAD OF CAULK APPLIED AT THE DUCT/FLOOR OR SOLE PLATE INTERFACE AT POINT CONTACT LOCATION ON THE TOP SIDE OF ASSEMBLY AND AT THE DUCT/CEILING OR TOP PLATE INTERFACE AT POINT CONTACT LOCATION ON BOTTOM SIDE OF ASSEMBLY.

   3M COMPANY - FIREDAM 150+, CP 25WB+CAULK OR FB-3000 WT SEALANT.

* BEARING THE UL CLASSIFICATION MARK.

6 FIRE STOP SYSTEM F-C-7017 DETAIL
NO SCALE



LEGEND:

1. FLOOR-CEILING ASSEMBLY - THE 1HR FIRE RATED CONCRETE AND STEEL JOIST FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL G500 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY, AS SUMMARIZED BELOW:
   A. FLOORING - NORMAL OR LIGHTWEIGHT CONCRETE AS SPECIFIED IN THE INDIVIDUAL G500 SERIES DESIGN. MAX. DIAMETER OF OPENING IS 11" (279mm).
   B. JOISTS - STEEL JOISTS OR STRUCTURAL STEEL MEMBERS* AS SPECIFIED IN THE INDIVIDUAL G500 SERIES DESIGN.
   C. GYPSUM BOARD* - MIN. 5/8" (16mm) THICK, SCREW-ATTACHED TO FURRING CHANNELS AS SPECIFIED IN THE INDIVIDUAL G500 SERIES DESIGN. MAX. DIAMETER OF OPENING IS 11" (279mm).
2. STEEL VENT DUCT - NOM 4" (102mm) DIAMETER (OR SMALLER) NO. 30 GAUGE (OR HEAVIER) GALVANIZED STEEL VENT DUCT OR NOM 10" (254mm) DIAMETER (OR SMALLER) NO. 28 GAUGE (OR HEAVIER) GALVANIZED STEEL VENT DUCT. DIAMETER OF OPENINGS TO BE MAX. 1" (25mm) LARGER THAN OUTSIDE DIAMETER OF DUCT. DUCT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY IN OPENING. THE ANNULAR SPACE BETWEEN THE DUCT AND THE PERIPHERY OF OPENING SHALL BE MIN. 0" (POINT CONTACT) TO MAX. 1" (0 TO MAX 25mm). DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR-CEILING ASSEMBLY.
3. FILL, VOID OR CAVITY MATERIALS* - CAULK OR SEALANT - MIN. 3/4" (19mm) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR. MIN. 5/8" (16mm) THICKNESS OF APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTTOM SURFACE OF CEILING. AN ADDITIONAL MIN. 1/4" (6mm) BEAD OF FILL MATERIAL APPLIED AT THE DUCT/FLOOR INTERFACE AT POINT CONTACT LOCATION ON THE TOP SURFACE OF FLOOR AND AT THE DUCT/CEILING INTERFACE AT POINT CONTACT LOCATION ON THE LOWER SURFACE OF CEILING.

   3M COMPANY - CP 25WB+JC 15WB+CAULK OR FB-3000 WT SEALANT.

* BEARING THE UL CLASSIFICATION MARKING.

7 FIRE STOP SYSTEM F-E-7001 DETAIL
NO SCALE

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LSA PROJECT NO. 2104008

STATE OF MISSOURI
RICHARD R. BEARDMORE
NUMBER PE-2004020234
PROFESSIONAL ENGINEER
7-15-21

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MECHANICAL ENGINEER
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DATE: 7.15.2021

REVISIONS 1

DWG BY CAD/RRB

TR.i PROJECT NO. 20-001

SHEET NO.

MP102

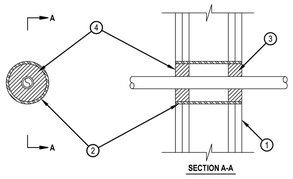
MECHANICAL DETAILS

System No. W-L-2186

WL 2186

Classified by Underwriters Laboratories, Inc. to UL 1479

F Ratings — 1 and 2 Hr (See Items 1 and 4)
T Ratings — 1/2 and 1 Hr (See Items 3 and 4)
L Rating at Ambient - Less Than 1 CFM/sq ft
L Rating at 400 F - 2 CFM/sq ft



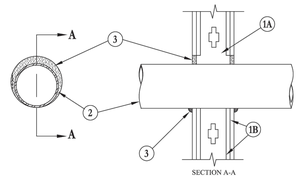
SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing shall consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) . Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — For 1 hr assembly, one layer of min 5/8 in. (16 mm) thick gypsum board as required in the individual Wall and Partition Design. For 2 hr assembly, two layers of min 5/8 in. (16 mm) thick gypsum board as required in the individual Wall and Partition Design. Max diam of opening is 3 in. (76 mm).
   The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Steel Sleeve — (Optional) - Max 3 in. (76 mm) diam Schedule 40 (or heavier) steel pipe sleeve Hilti Firestop opening core drilled through wall. Length of steel sleeve to be equal to thickness of wall.
3. Through Penetrant — One nom 1 in. (25 mm) diam (or smaller) SDR 9 cross-linked polyethylene (PEX) tubing for use in closed (process or supply) piping systems. The tubing installed concentrically or eccentrically within the opening. The annular space between the tube and the steel sleeve or wall opening shall be min 1/2 in. (13 mm) to max 1-3/8 in. (35 mm). Tube to be rigidly supported on both sides of wall assembly. When steel sleeve (Item 2) is not provided, tube may be installed at an angle not greater than 45-degrees from perpendicular.
   The hourly T Rating is 1/2 Hr and 1 Hr for 1 Hr and 2 Hr fire rated wall assemblies, respectively.
4. Fill, Void or Cavity Material* -Sealant — Min 5/8 in. (16 mm) and 1-1/4 in. (32 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly for 1 and 2 hr rated walls, respectively. When a steel sleeve (Item 2) is provided for assemblies with L Ratings, sealant shall be applied around perimeter of opening to cover the exposed ends of the sleeve and to lap min 1/4 in. (6 mm) onto gypsum board on each side of wall.
   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.

Hilti Firestop Systems

System No. W-L-2264

November 20, 2009
F Ratings – 1 and 2 Hr (See Item 1)
T Ratings – 0, 1and 2 Hr (See Item 2)



SECTION A-A

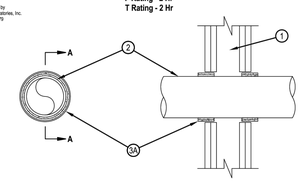
1. **Wall Assembly** – The 1 and 2 hr fire rated gypsum board/stud wall assemblies shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board*** – Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Diam of opening shall be 1 in. (25 mm) larger than nom pipe diam.
   The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Through Penetrants** – One nonmetallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe or conduit and periphery of opening shall be min of 0 in. (0 mm, point contact) to max 5/8 in. (16 mm). Pipe or conduit to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
   A. **Polyvinyl Chloride (PVC) Pipe** – Nom 2 in. (51 mm) diam (or smaller). Schedule 40 solid core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 2 in. (51 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
   C. **Rigid Nonmetallic Conduit** – Nom 2 in. (51 mm) diam (or smaller). Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).
   D. **Acrylonitrile Butadiene Styrene (ABS) Pipe** – Nom 2 in. (51 mm) diam (or smaller). Schedule 40 solid core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   The hourly T Rating of the Firestop system is 0 Hr when pipes are used in vented (drain, waste or vent) piping systems. The hourly T Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed when pipes are used in closed (process or supply) piping systems.
3. **Fill, Void or Cavity Materials*** – **Caulk or Sealant** – Min thickness of 5/8 in. (16 mm) of caulked applied within annulus between pipe or conduit and periphery of the opening, flush with both surfaces of wall assembly. At the point contact location between pipe or conduit and gypsum board, a min 1/2 in. (13 mm) diam bead of caulk or putty shall be applied at the pipe or conduit/gypsum board interface on both surfaces of wall assembly.
   3M COMPANY – FireDam 150+, CP 25WB+, IC 15WB+ caulk or FB-3000 WT sealant.
   (Note: CP 25WB+ and FireDam 150+ not suitable for use with CPVC pipes.)
*Bearing the UL Classification Mark

System No. W-L-2344

WL 2344

Classified by Underwriters Laboratories, Inc. to UL 1479

F Rating - 2 Hr
T Rating - 2 Hr



SECTION A-A

1. Wall Assembly – The 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs – Wall framing shall consist of either wood or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. Gypsum Board* – Min 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum board type, thickness, number of layers and orientation shall be as specified in the individual U300 or U400 Wall and Partition Design. Max diam of opening is 5-1/2 in.
2. Through Penetrants – One nonmetallic pipe to be centered within the firestop system. A nom annular space of 3/8 to1/2 in. is required within the firestop system. Pipe to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes may be used:
   A. Acrylonitrile Butadiene Styrene (ABS) Pipe – Nom 4 in. diam (or smaller) Schedule 40 cellular or solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   B. Polyvinyl Chloride (PVC) Pipe – Nom 4 in. diam (or smaller) Schedule 40 cellular or solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   C. Chlorinated Polyvinyl Chloride (CPVC) Pipe – Nom 4 in. diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.
3. Firestop System – The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material* – Wrap Strip – Two layers of nom 3/16 in. thick by 1-3/4 in. wide intumescent wrap strip individually wrapped around the outer circumference of the pipe and slid into the annular space such that wrap strip extends 3/4 in. beyond both surfaces of wall. Butted ends in successive layers shall be offset. Wrap strip secured with tape, wire or tie wire.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CP648-E W45/1-3/4" Wrap Strip
*Bearing the UL Classification Mark

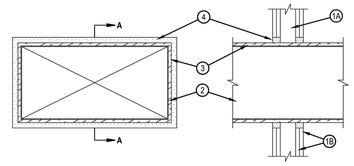
Hilti Firestop Systems

System No. W-L-7059

WL 7059

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 1 and 2 Hr (See Item 1)	F Ratings – 1 and 2 Hr (See Item 1)
T Rating - 1/2 and 3/4 Hr (See Item 1)	FT Rating - 1/2 and 3/4 Hr(See Item 1)
	FH Ratings - 1 and 2 Hr (See Item 1)
	FTH Rating - 1/2 and 3/4 Hr (See Item 1)



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing shall consist of channel studs. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. The opening in the wall to accommodate the steel duct (Item 2) shall be framed on all sides using lengths of studs installed between the vertical studs and attached to the studs at each end. The framed opening in the wall shall be a nom 6 in. (152 mm) wide and 12 in. (305 mm) higher than the width and height of the steel duct.
   B. Wallboard, Gypsum* — 5/8 in. (16 mm) thick, 4 ft (1.22 mm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400, V400 or W400 Series Design in the UL Fire Resistance Directory. Max area of opening is 386 sq. in. (0.25 m2)with max dimensions of 26-3/4 in. (679 mm) for steel studs. The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed. The hourly T, FT and FTH Ratings are 1/2 hr and 3/4 hr for 1 and 2 hr rated assemblies, respectively

Hilti Firestop Systems

System No. W-L-7059

WL 7059

2. Steel Duct — Nom 24 in. by 12 in. (610 by 305 mm) (or smaller) No. 24 gauge (or heavier) steel duct to be installed eccentrically within the framed opening. The annular space shall be min 1 in. (25 mm) to max 1-3/4 in. (45 mm) Steel duct to be rigidly supported on both sides of wall assembly.
3. Batts and Blankets* — Max 1-1/2 in. (38 mm) thick glass fiber batt or blanket (min 3/4 pcf or 12 kg/m3) jacketed on the outside with a foil-scrim-kraft facing. Longitudinal and transverse joints sealed with aluminum foil tape. During the installation of the fill material, the batt or blanket shall be compressed 50% such that the annular space within the firestop system shall be min 1/4 in. (6 mm) to max 1 in. (25 mm). See Batts and Blankets - (BKNV) category in the Building Materials Directory for names of manufacturers. Any batt or blanket meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index 50 or less may be used.
4. Fill, Void or Cavity Material* - Sealant — Min 5/8 in. or 1-1/4 in. (16 or 32 mm) thickness of fill material applied within annulus, flush with both surfaces of wall for 1 or 2 hr walls, respectively. If voids develop after the fill materials cures, the voids shall be sealed with additional fill material.
   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.

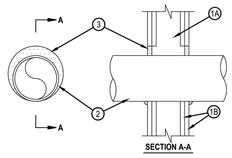
Hilti Firestop Systems

System No. W-L-1054

WL 1054

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings —1 and 2 Hr (See Items 1 and 3)	F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating at Ambient — Less Than 1 CFM/sq ft	FH Ratings —1 and 2 Hr (See Items 1 and 3)
L Rating at 400 F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
	FTH Rating — 0 Hr
	L Rating at Ambient — Less Than 1 CFM/sq ft L Rating at 400 F — Less Than 1 CFM/sq ft



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 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 nom 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. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.
The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly.

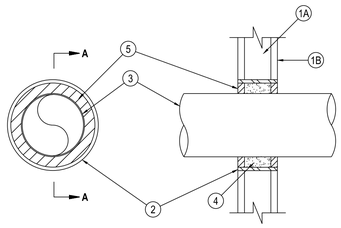
Hilti Firestop Systems

NOTES AND LEGENDS:

1. 1. Wall Assembly – The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 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 nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
   B. Gypsum Board* – One layer of nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 8-5/8 in.

   Metallic Sleeve – Nom 8 in. diam (or smaller) Schedule 40 (or heavier) steel sleeve cast into wall assembly with joint compound and installed flush with wall surfaces.
2. Air Duct – Nom 6 in. diam (or smaller) prefabricated No. 28 MSG galv sheet metal duct. A min 1/2 to max 1-1/2 in. annular space is required within the firestop system. Duct to be rigidly supported on both sides of wall assembly.
3. Forming Material* – Foamed plastic forming material foamed into opening as a permanent form. Forming material to be recessed from both surfaces of wall as required to accommodate the required thickness of fill material.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC – CF810, CF812 or CF511 Foam Sealant
4. Fill, Void or Cavity Material* – Min 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC – FS-ONE Sealant
5. *Bearing the UL Classification Mark



SECTION A-A

1 FIRE STOP DETAIL
NO SCALE — SYSTEM W-L-7017

NOTES:

1. Wall Assembly – The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 series wall and partition design 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 nom 2 by 4 in. (51 by 102mm) lumber spaced 16 in. (406mm) o.c. Steel studs to be min 3 1/2 in. (89mm) wide spaced max 24 in. (610mm) o.c.

   B. Gypsum Board:
   The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified the individual design in the UL fire resistance directory. Max diameter of opening is 5 in. (127mm).

   The hourly f rating of the firestop system is equip to the hourly fire rating of the wall assembly in which it is installed. The hourly t rating is 1 and 2 hr for 1 and 2 hr rated assemblies, respectively.

2. Through Penetrations – One nonmetallic pipe or conduit concentrically or eccentrically within the firestop system. The annular space between penetrant and periphery of opening shall be min 3/4 in. (10mm) to max 5/8 in. (16mm). Penetrant to be rigidly supported on both sides of wall assembly. The following types of sizes of nonmetallic pipes or conduits:

   A. Polyvinyl Chloride (PVC) Pipe:
   Nom 4 in. (102mm) diameter (or smaller) schedule 40 solid core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

   B. Fire Retardant Polypropylene (FRPP) Pipe:
   Nom 4 in. (102mm) diameter (or smaller) schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

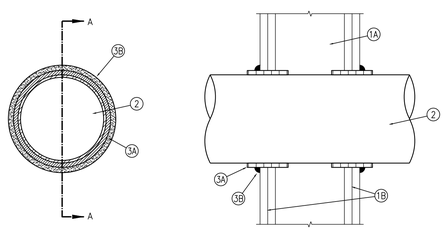
   C. Rigid Nonmetallic Conduit:
   Nom 4 in. (102mm) diameter (or smaller) schedule 40 PVC conduit installed in accordance with the national electrical code (NFPA no. 70).

   Firestop System – The firestop system shall consist of the following:
3.
   A. Fill, Void or Cavity Materials – wrap strip:
   min 3/16 in. (5mm) thick intumescent material supplied in 2 1/2 in. (64mm) wide strips. Single layer of pre-cut wrap strip tightly wrapped around nonmetallic pipe and secured with the adhesive closure tab. Wrap strip to be slid into opening such that the outer edge of wrap strip extends approximately 5/8 in. (16mm) from both surfaces of wall.

   B. Fill, Void or Cavity Material – Caulk or Sealant:
   Min 1/4 in. (6mm) diameter bead of sealant applied to gypsum board/wrap strip interface on both sides of wall.

U.L. SYSTEM NO. WL2551
F RATING = 1 AND 2 HR (SEE ITEM 1)
T RATING = 1 AND 2 HR (SEE ITEM 1)

FRONT VIEW — SECTION A–A



2 FIRE STOP SYSTEM W-L-2551 DETAIL
NO SCALE

NOTES:

1. Floor–Ceiling Assembly The 1 hr fire–rated solid or trussed lumber joist floor–ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor–Ceiling Designs in the UL Fire Resistance Directory. The general construction features of the floor–ceiling assembly are summarized below:

   A. Flooring System Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor–Ceiling Design. Max diam of opening shall be 5 in.

   B. Wood Joist* Nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.

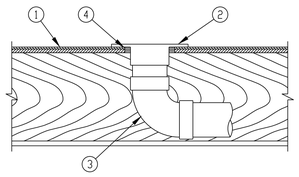
   C. Gypsum Board* Nom 5/8 in. thick, 4 ft wide as specified in the individual Floor–Ceiling Design.

2. Closet Flange Acrylonitrile butadiene styrene (ABS) or polyvinyl chloride (PVC) closet stub sized to accommodate drain pipe. Closet flange installed over drain piping within floor opening with flange secured to plywood floor with steel screws. Diam of circular opening through flooring (Item 1A) to be max ½ in. larger than outside diam of closet flange.

3. Drain Piping Nom 4 in. diam (on smaller) Schedule 40 acrylonitrile butadiene styrene (ABS) or polyvinyl chloride (PVC) drain pipe and 90 degree elbow for use in vented (drain, waste or vent) piping systems. Pipe installed concentrically within firestop system.

4. Fill, Void or Cavity Materials*—–Sealant Min 3/4 in. thickness of fill material applied within the annulus, flush with the bottom surface of floor.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC –– FS–ONE Sealant

5. Water Closet (Not Shown)––Floor mounted vitreous china water closet.
   *Bearing the UL Classification Mark



3 FIRE RATED PENETRATION DETAIL
NO SCALE — SYSTEM FC-2203

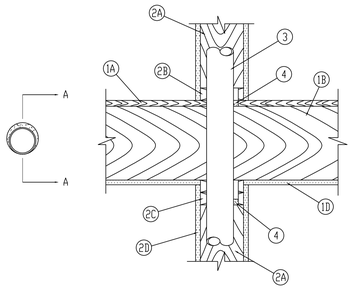
NOTES:

1. Floor–Ceiling Assembly The fire–rated solid or trussed lumber joist floor–ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor–Ceiling Designs in the UL Fire Resistance Directory. The general construction details of the floor–ceiling assembly are summarized below:
   A. Flooring System Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor–Ceiling Design. Max diam of floor opening is 3 in.
   B. Wood Joists Nom 2 by 10 in. lumber joists spaced 16 in. OC with nom 1 by 3 in. lumber bridging and with ends firestopped. As an alternate to lumber joists, nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required with ends firestopped.
   C. Furring Channels (Not shown) – Resilient galv steel furring installed perpendicular to wood joists (Item 1B) between wallboard (Item 1D) and wood joists as required in the individual Floor–Ceiling Design.
   D. Gypsum Board* Nom 4 ft wide by 5/8 in. thick as specified in the individual Floor–Ceiling Design.

2. Chase Wall The through penetrant (Item 3) shall be routed through a 1 hr fire–rated single, double or staggered wood stud/gypsum wallboard chase wall constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs Nom 2 by 4 in. lumber studs.
   B. Sole Plate Nom 2 by 4 in. lumber plates.
   C. Top Plate The double top plate shall consist of two nom 2 by 4 in. lumber plates. Max diam of opening is 3 in.
   D. Gypsum Board* Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.

3. Through – Penetrants One nonmetallic pipe to be installed either eccentrically or concentrically within the firestop system. The annular space between the through penetrant and the periphery of the opening
   shall be a min 0 in. (point contact) to a max of 5/8 in. Pipe to be rigidly supported on both sides of the floor–ceiling assembly. The following types and sizes of nonmetallic pipes may be used.
   A. Polyvinyl Chloride (PVC) Pipe Nom 2 in. diam (or smaller) Schedule 40 cellular or solid core PVC pipe for use in closed (process or supply) or vented (drain, waste, or vent) piping systems.
   B. Acrylonitrile Butadine Styrene (ABS) Pipe Nom 2 in diam (or smaller) Schedule 40 cellular or solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   C. Chlorinated Polyvinyl Chloride (CPVC) Pipe Nom 2 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

4. Fill, Void or Cavity Material* –– Sealant Min 3/4 in. thickness of fill material applied within the annulus, flush with top surface of floor and flush with bottom surface of lower top plate.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC – FS – ONE Sealant
   *Bearing the UL Classification Marking



4 FIRE RATED PENETRATION DETAIL
NO SCALE — SYSTEM FC-2142

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LSA PROJECT NO. 2104008

STATE OF MISSOURI — RICHARD R. BEARDMORE — PROFESSIONAL ENGINEER — 7-15-21

ARCHITECT
STRUCTURAL ENGINEER
CIVIL ENGINEER
GENERAL CONTRACTOR
MECHANICAL ENGINEER
PLUMBING ENGINEER
ELECTRICAL ENGINEER

TR;i ARCHITECTS
STRUCTURAL
CIVIL
GENERAL CONTRACTOR
ENGINEER
PLUMBING
ELECTRICAL

Tegethoff DEVELOPMENT

The Signature at West Pryor

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DATE: 7.15.2021

REVISIONS △

DWG BY CAD/RRB
TR;i PROJECT NO. 20-001
SHEET NO.
MP103
MECHANICAL DETAILS

WATER HEATER SCHEDULE

MARK	MFGR	MODEL	FUEL	VOLTAGE/PH/ AMPS	INPUT	EFFICIENCY/ PF	GALLONS STORAGE	GPH RECOVERY @ 80° RISE	FLUE TYPE	EXPANSION	CIRCULATOR GPM/HD	NOTES
TYP APT	A.O. SMITH	ECLN-40	ELEC	208/1/19	4.5 KW	0.95	38	23	N/A			1, 2, 3
WH-2/1, 2/2, 2/3, 2/4, 1/1, 1/2, 1/3, 1/4	A.O. SMITH	EMT-2.5	ELEC	120/1/13	1.4 KW	N/A	2.5	7	N/A	RELIEF V.		1, 2
WH-M	A.O. SMITH	ECLN-40	ELEC	208/1/19	4.5 KW	0.95	38	23	N/A			1, 2, 3

NOTES
1- PROVIDE ASME P&T VALVE, DRAIN VALVE
2- PROVIDE COMBINATION STOP AND OPERATING PRESSURE RELIEF VALVE
3- LOW TYPE

ELECTRIC UNIT HEATER SCHEDULE

MARK	MFGR	MODEL	KW	MBH	CFM	ELECTRICAL VOLTS/ PH	FLA	OCP	WIRING	CONFIGURATION - NOTES
EUH - A	BERKO	FRA-4024	3.0	10.2	100	208/1	12	20	(3) #12	WALL, 1, 4, 5
EUH - B	BERKO	HUHAA-1520	15.0	51.0	910	208/3	42	60	(2)#8 (1)#10	SUSPENDED, 4, 7
EUH - C	BERKO	SRC-1512	1.5	5.1	65	120/1	12	20	(3) #12	CEILING, 1, 4, 6
EUH - D	BERKO	QMKC2514W	1.0	3.4		120/1	8.3	20	(3) #12	FLOOR, 1, 4

NOTES:
1-SURFACE MOUNTED
2-SEMI-RECESSED
3-FULLY RECESSED
4-DISCONNECT
5-INTEGRAL TSTAT

PUMP SCHEDULE

MARK	MFGR	MODEL	TYPE	MEDIUM	GPM	FT. HEAD	SUMP	HP	ELEC	NOTES
ELEV SUMP	ZOELLER	152	SUBMERSIBLE	WATER	50	15	2' X 2' DEEP	1.5	120/1	1, 2, 3

NOTES
1. PLUG IN FLOAT CONTROL WITH 20 FT CORD, HIGH OIL SENSING, HIGH WATER LIGHTS/HORN CONTROL PANEL
2. PROVIDE WITH SIMPLEX #940-0005 SWITCH AND CONTROL PANEL WITH PIGGYBACK CORD, ADJUSTABLE SETPOINTS.
3. PUMP MUST PROVIDE 50 GPM AT 15 FEET OF HEAD

DRAIN SCHEDULE

MARK	APPLICATION	MFGR	MODEL	BODY MAT'L	DEPTH	GRATE MAT'L	GRATE SHAPE	ACCESSORIES
APT FD	FLOOR	SIOUX CHIEF	842	ABS/PVC	3"	NICKEL BRONZE	6" SQUARE	2
FD-1	FLOOR	ZURN	ZN-415S	COATED CAST IRON	3"	NICKEL BRONZE	6" ROUND	1, 2
FD-2	FLOOR	ZURN	Z-611-S	COATED CAST IRON	6"	COATED CAST IRON	9" SQUARE	1, 2, 3
RD-1	ROOF	SIOUX CHIEF	868	ABS/PVC	6"	POLY	DOME	
RD-2	ROOF	SIOUX CHIEF	868-STP2	ABS/PVC	6"	POLY	DOME	4

ACCESSORIES:
1 - DEEP TRAP, ADJUSTABLE GRATE
2 - USE WIDE FLANGE MODEL WHERE IN WOOD CONSTRUCTION
3 - INTERNAL STRAINER
4 - 2" DAM FOR OVERFLOW SERVICE

AIR TERMINAL DEVICE SCHEDULE

MARK	MANUFACTURER	MODEL	FINISH	DAMPER	FRAME TYPE	NOTES
A	AIR MATE	A190	WHITE	YES	GYP BD	
B	AIR MATE	170	WHITE	NO	GYP BD	
B1	AIR MATE	280 FF	WHITE	NO	GYP BD	
C	AIR MATE	240 VO	WHITE	YES	GYP BD	
D	PRICE	620DAL/N/L/A/B12	WHITE	YES	GYP. BD.	W/CRD
E	PRICE	635/N/L/A/B12	WHITE	NO	GYP. BD.	
E1	PRICE	635DAL/L/A/B12	WHITE	YES	GYP. BD.	

FAN SCHEDULE

MARK	MFGR	MODEL	CFM	ESP	FAN HP	ELECTRICAL VOLTS/ PH	FLA	OCP	WIRING	CONFIGURATION - NOTES
APT EF	AIR KING	FRAK80H	80	0.1	Fr.	120/1	1	15	(3) #12	ceiling, 1
EF-1/1 - 1/4, 2/1 - 2/3, M1, M2	AIR KING	FRAK80	80	0.1	Fr.	120/1	1	15	(3) #12	ceiling, 1

NOTES: 1-CEILING GRILLE, CRD, DS, WALL/ROOF CAP

HVAC SYSTEM SCHEDULE

MARK	MFGR	NOM TON	MODEL	CFM	OA CFM	AHU/RTU E.S.P.	HP	SMBH	TMBH	HEAT CAP	ELEC	FLA	OCP	OUTDOOR UNIT MFGR	MODEL	ELEC	FLA	OCP	SEER	NOTES
UNITS																				
A1, A2, A4	GOODMAN	1 1/2	AWUF2408C14	600		0.5	0.2	12.4	17.4	5.6 KW	208/1	31	40	GOODMA N	GSX14018	208/1	14	20	14.0	
A3, A5, B1, B2, B3, B4	GOODMAN	2	AWUF2408C14	750		0.5	0.2	17.2	22.8	5.6 KW	208/1	31	40	GOODMAN	GSX14024	208/1	14	25	14.0	
C1, C2	GOODMAN	2 1/2	AWUF3010C14	950		0.5	0.33	20.6	27.4	7.5 KW	208/1	41	60	GOODMAN	GSX14030	208/1	15	30	14.0	
COMMON AREAS																				
1/1, 1/4 - 1/11, 2/1, 2/2, 2/4 - 2/10	GOODMAN	2	ARUF25B14	600-800	100	0.5	0.33	17.0	23.2	7.5 KW	208/1	40	50	GOODMAN	GSX14025	208/1	14	25	14.0	
1/3, 1/2	GOODMAN	5	ARUF61D14	1650-1950	265	0.5	0.75	41	57.5	11.4 KW	208/1	57	70	GOODMAN	GSX14-0601	208/1	26.3	50	14.0	
2/2, 2/3	GOODMAN	4	ARUF47D14	1400-1600	250	0.4	0.5	32	45	11.4 KW	208/1	57	70	GOODMAN	GSX14-0481	208/1	21.2	45	14.0	
MAINT	GOODMAN	4	ARUF47D14	1350	100	0.4	0.5	32	45	11.4 KW	208/1	57	70	GOODMAN	GSX14-0481	208/1	21.2	45	14.0	
DSS-1/1 - 1/5, 2/1 - 2/5	FUJITSU	1 1/2	ASU18RLF	540	0	0			18	23 MBH	208-240/1	W/HP		FUJITSU	ASU18RLF	208-240/1	13	25	19	WALL STAT, LOW AMB
DSS-1/6	FUJITSU	1 1/2	AUU18RLFCC	400					18	21 MBH	208-240/1	W/HP		FUJITSU	AOU18RLFC	208-240/1	7.7	20	20	WALL STAT, LOW AMB

NOTE: PROVIDE LONG LINE ACCESSORY KIT ON ALL SPLIT SYSTEMS THAT EXCEED MFGR'S LIMITS

PLUMBING FIXTURE SCHEDULE

Mark	Item	Model	Description	Individual Connections W	V	CW	HW	Accessories Supplies	Stops	Carrier	P-Trap	Drain	Other
P-1	Water Closet, Tank Type	ProFlo #PF1401T	Floor-mounted standard height white vitreous china elongated bowl 1.6 gpf gravity type with Fluidmaster 400A flush mechanicsm and bolt covers. Provide molded wood closed front elongated white seat with integral bumpers, external check hinges with stainle	3" or 4"	2"	1"		2					
P-1H	Accessible Water Closet, Tank Type	ProFlo #1403T	Floor-mounted ADA height white vitreous china elongated bowl 1.6 gpf gravity type with Fluidmaster 400A flush mechanicsm and bolt covers. Provide molded wood closed front elongated white seat with integral bumpers, external check hinges with stainless st	3" or 4"	2"	1"		2					
P-2	Lavatory, Countertop	ProFlo #PF20174 with Pfister #LF-49-PEGS	20" x 17" oval vtreous china countertop lavatory with overflow. Faucet is 4" o.c. single lever ADA handle, copper waterways, chrome finish, 1.2 GPM, metal pop-up.	2"	1 1/2" or 2"	1/2"	1/2"	2	1		1	1	1 ON ACCESSIBLE UNITS
P-2W	Lavatory, Wall hung	Profio #PF5511WH with Pfister #LF-049-PEB	ADA compliant, wall hung, single hole 20"x18" oval vitreous china lavatory with overflow. Faucet is ADA compliant, 1.2 GPM.	2"	1 1/2" or 2"	1/2"	1/2"	2	1		1	1	
P-3	Bathtub	Aquatic Bath 260030 with Pfister 8P8-PESGS	60" x 36" x 15" tall non-slip basin and tub overflow and turn and lift stop with finish to match faucet. Pressure-balanced single handle Brushed nickel valve, 2.5 gpm showerhead, tub spout with pull-up diverter. Provide future grab bar blocking. Water	2"	2"	1/2"	1/2"				2, 4		
P-3S	Shower	Aquatic Bath 3636CPANNS with Pfister LG89-7FEK	36" x 36" white fiberglass reinforced plastic/acrylic non-slip basin with surround, soap dishes. Pressure-balanced single handle valve, 2.5 gpm brushed nickel showerhead, drain to match.	2"	2"	1/2"	1/2"				2		
P-3SH	ADA Shower	Freedom Showers 38 1/2" x 37 1/2" with Pfister LG16-3RHK	ADA 38 1/2" x 37 1/2"white fiberglass reinforced plastic/acrylic non-slip basin with surround, soap dishes. Pressure-balanced single handle valve, 2.5 gpm brushed nickel showerhead, drain to match.	2"	2"	1/2"	1/2"				2		
P-4	Kitchen Sink	ProFlo #PFUC206 with Pfister #LG529-NES	Stainless steel under-mount 20 ga.dual bowl 33" x 22" x 8" deep. Single handle faucet with pull-out sprayer. Evergrind Model E101 disposer with cord/plug.	2"	2"	1/2"	1/2"	1	1		2	2	
P-4H	Accessible Kitchen Sink	Elkay ELUHAD281655 with Delta 16968	bowl 33" x 22" x 6" deep with back outlet. Single handle faucet with pull-out sprayer. ISE Badger 1 disposer with cord/plug. Install per ADA clearnaces.	2"	2"	1/2"	1/2"	1	1		2	2	
P-4C	Kitchen Sink	ProFlo #PFUC206 with PFISTER #LG529-NEB	Stainless steel under-mount 20 ga.dual bowl 33" x 22" x 8" deep. Single handle faucet with pull-out sprayer. Evergrind Model E101 disposer with cord/plug.	2"	2"	1/2"	1/2"	1	1		2	2	
P-5	Washer Box	Guy Gray #WB200HATM	Recessed non-metallic with dual PVC/ABS 2" outlets, two angle quarter turn stops with built-in shock absorbers.	2"	2"	1/2"	1/2"	1			3		
P-6	Water Outlet Box	Guy Gray #BIM877QTS	Recessed non-metallic with two angle quarter turn stops.			1/2"		1					
P-8	Janitor's Sink	Fiat #MSB-2424	24" x 24" x 10" white molded stone with stainless steel integral drain, chrome plated brass wall mounted faucet with VB, integral stops, adjustable wall brace, pail hook, 3/4" hose threaded spout.	2" or 3"	2"	1/2"	1/2"				2		2
P-9	Accessible Dual Height Fountain with Bottle Filler	Elkay #LZSTL8WSLK	ADA wall-mounted water station including bubbler and bottle-filler, side and front push buttons.	2"	1 1/2" or 2"	1/2"		2	1		2		

Supplies
1 - Flexible braided stainless steel
2 - Flexible braided compression hose.
3 - Zurn #ZER6003-CP 1.0 gpf diaphragm type.
4 - Provide tempering valve below sink set at 110 deg

Stops
1 - Angle handle compression

Carrier
1 - Steel tube floor-mounted in-wall carrier with arms

P-Trap
1 - PVC with deep escutcheon
2 - PVC
3 - deep seal PVC trap and 30" standpipe.

Drain
1 - Metal pop-up with tailpiece
2 - Basket strainers in finish to match faucet, tailpiece.

Other
1 - Provide trap and supply guard if exposed.
2 - Provide mop bracket, hose bracket, SS wall guards

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DATE: 7.15.2021

REVISIONS 1
1 PERMIT REVIEW COMMENTS 08-17-21

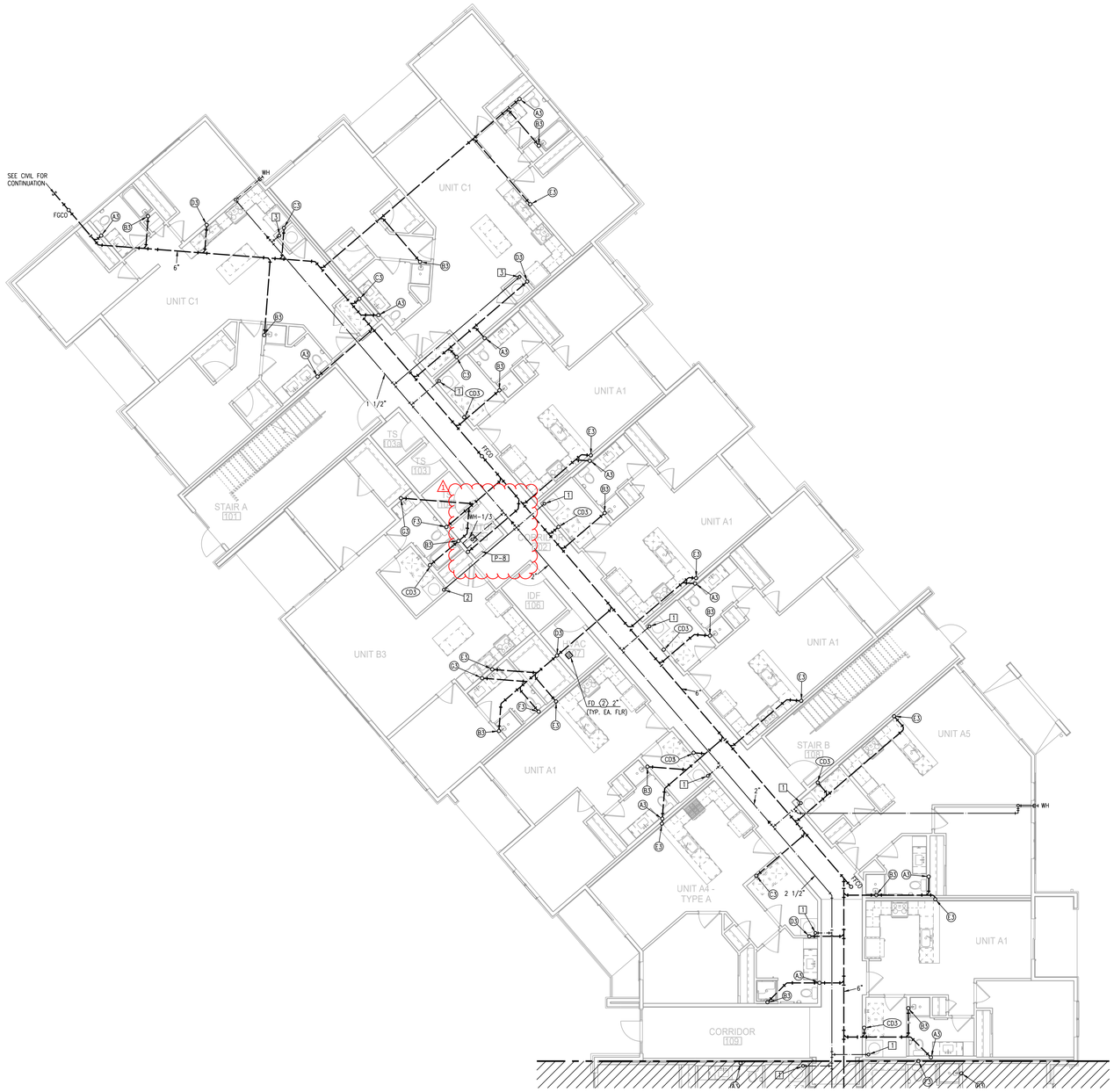
DWG BY CAD/RRB
TR,i PROJECT NO. 20-001
SHEET NO.
MP104
MECHANICAL SCHEDULES

NOTES:

1. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE.
2. ALL BELOW SLAB SUPPLY PIPING SHALL BE PEX WITH NO JOINTS. DHW BELOW SLAB TO BE INSULATED TO R-3.
3. DHW PIPING 3/4" AND LARGER TO BE INSULATED TO R-3 MINIMUM
4. ALL SUPPLY PIPING IS 1/2" UNLESS NOTED OTHERWISE.
5. CONNECT ALL APPLIANCES OR EQUIPMENT PER MANUFACTURERS INSTRUCTIONS.
6. ALL PLUMBING VENTS SHALL BE 10 FEET FROM OPENINGS OR INTAKE.
7. THERE SHALL BE NO PVC WITHIN RETURN AIR PLENUMS.
8. ALL FIXTURES WITH QUICK CLOSING VALVES SHALL HAVE BLADDER OR TYPE SHOCK SUPPRESSORS FOR EACH CHASE.
9. SEE ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS.
10. REFER TO THE ARCHITECTURAL DRAWINGS FOR FLOOR DRAIN LOCATIONS AND FLOOR SLOPES IF PRESENT.
11. ROUTE DRAIN PIPING FROM WATER HEATERS, AIR HANDLERS OR EQUIPMENT TO FLOOR DRAINS. PROVIDE PROPER TRAPS.
12. ROUTE NO PIPING OVER ELECTRICAL EQUIPMENT.
13. ALL WASTE AND ROOF DRAIN STACKS SHALL HAVE CLEANOUTS AT THE BASE.

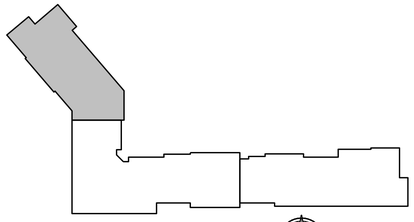
LEGEND:

1. 3"V. UP TO RISER FOR FUTURE CONNECTION.
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.



1 **BLDG 1-A, PARTIAL FIRST FLOOR PLAN**
1/8"=1'-0"
PLUMBING

NORTH



KEY PLAN
NO SCALE

NORTH

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1 PERMIT REVIEW COMMENTS 08-17-21

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TR,i PROJECT NO. 20-001

SHEET NO.

P101

BLDG 1-A, PARTIAL FIRST FLOOR PLAN - PLUMBING

NOTES:

1. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE.
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3. DHW PIPING 3/4" AND LARGER TO BE INSULATED TO R-3 MINIMUM
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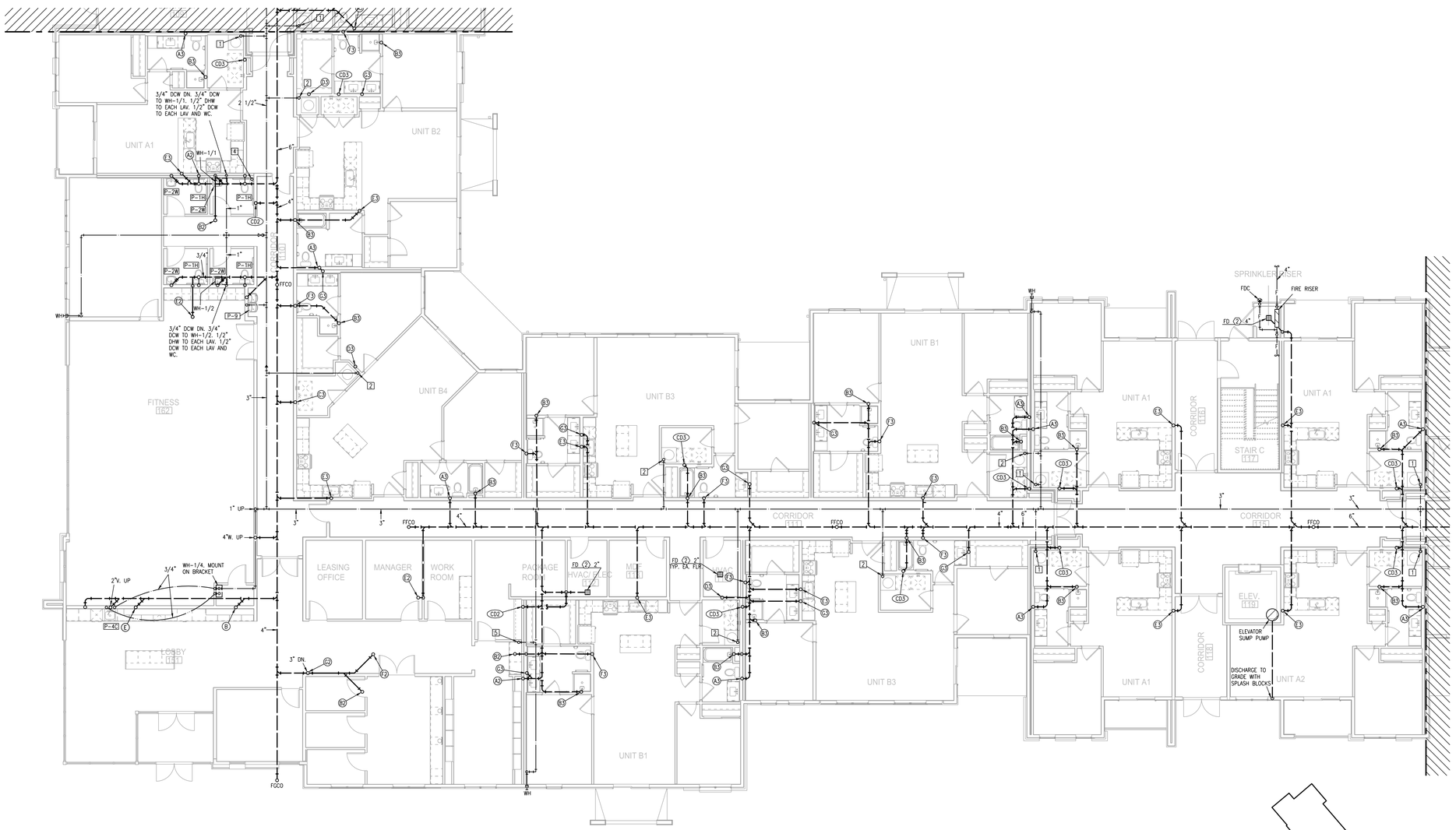
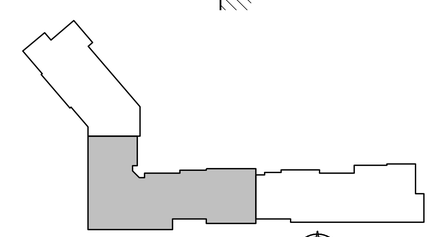
8. ALL FIXTURES WITH QUICK CLOSING VALVES SHALL HAVE BLADDER OR TYPE SHOCK SUPPRESSORS FOR EACH CHASE.
9. SEE ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS.
10. REFER TO THE ARCHITECTURAL DRAWINGS FOR FLOOR DRAIN LOCATIONS AND FLOOR SLOPES IF PRESENT.
11. ROUTE DRAIN PIPING FROM WATER HEATERS, AIR HANDLERS OR EQUIPMENT TO FLOOR DRAINS. PROVIDE PROPER TRAPS.
12. ROUTE NO PIPING OVER ELECTRICAL EQUIPMENT.
13. ALL WASTE AND ROOF DRAIN STACKS SHALL HAVE CLEANOUTS AT THE BASE.

LEGEND:

1. 3"V. UP TO RISER FOR FUTURE CONNECTION.
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.



1 **BLDG 1-B, PARTIAL FIRST FLOOR PLAN**
1/8"=1'-0" PLUMBING
NORTH



KEY PLAN
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SHEET NO.

P102

BLDG 1-B, PARTIAL FIRST FLOOR PLAN - PLUMBING

NOTES:

1. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE.
2. ALL BELOW SLAB SUPPLY PIPING SHALL BE PEX WITH NO JOINTS. DHW BELOW SLAB TO BE INSULATED TO R-3.
3. DHW PIPING 3/4" AND LARGER TO BE INSULATED TO R-3 MINIMUM
4. ALL SUPPLY PIPING IS 1/2" UNLESS NOTED OTHERWISE.
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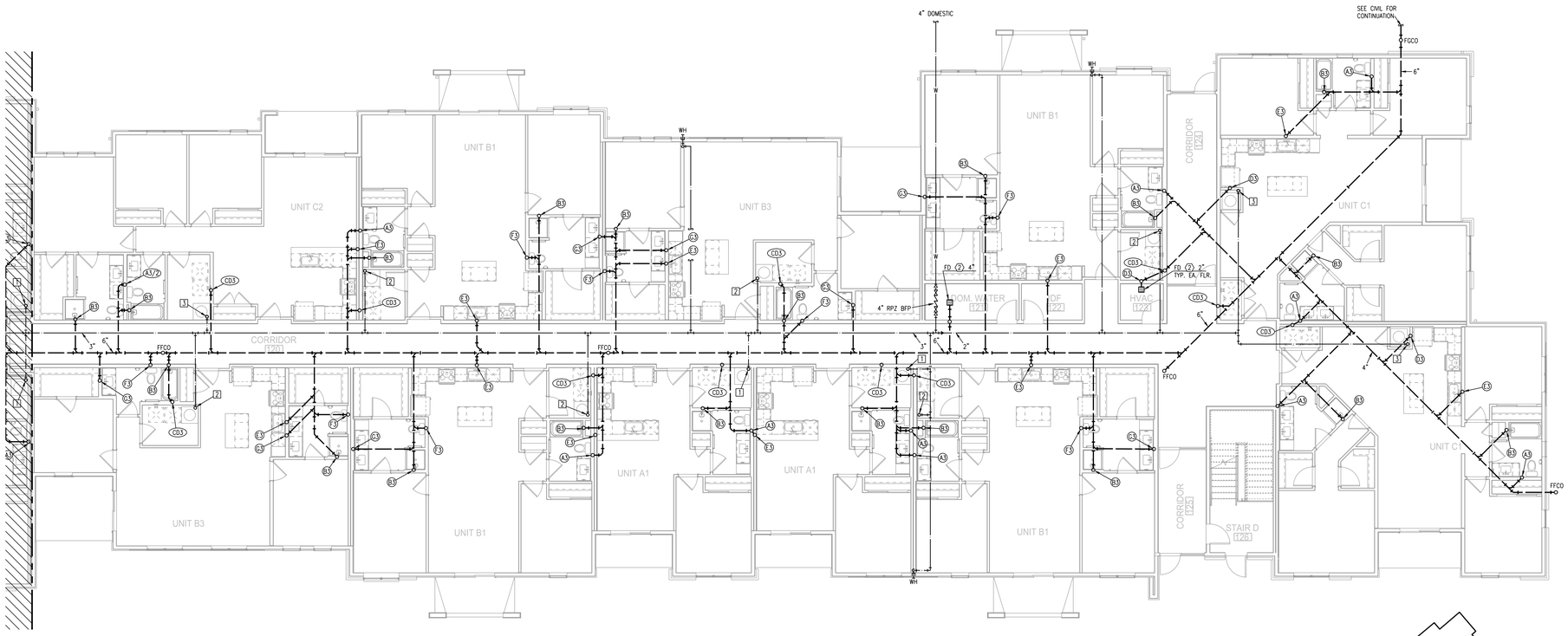
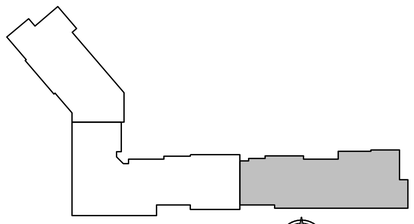
9. SEE ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS.
10. REFER TO THE ARCHITECTURAL DRAWINGS FOR FLOOR DRAIN LOCATIONS AND FLOOR SLOPES IF PRESENT.
11. ROUTE DRAIN PIPING FROM WATER HEATERS, AIR HANDLERS OR EQUIPMENT TO FLOOR DRAINS. PROVIDE PROPER TRAPS.
12. ROUTE NO PIPING OVER ELECTRICAL EQUIPMENT.
13. ALL WASTE AND ROOF DRAIN STACKS SHALL HAVE CLEANOUTS AT THE BASE.

LEGEND:

1. 3"V. UP TO RISER FOR FUTURE CONNECTION.
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.



1 **BLDG 1-C, PARTIAL FIRST FLOOR PLAN**
1/8"=1'-0"
PLUMBING
NORTH



KEY PLAN
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NORTH

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SHEET NO.

P103

BLDG 1-C, PARTIAL FIRST FLOOR PLAN - PLUMBING

NOTES:

1. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE.
2. ALL BELOW SLAB SUPPLY PIPING SHALL BE PEX WITH NO JOINTS. DHW BELOW SLAB TO BE INSULATED TO R-3.
3. DHW PIPING 3/4" AND LARGER TO BE INSULATED TO R-3 MINIMUM
4. ALL SUPPLY PIPING IS 1/2" UNLESS NOTED OTHERWISE.
5. CONNECT ALL APPLIANCES OR EQUIPMENT PER MANUFACTURERS INSTRUCTIONS.
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9. SEE ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS.
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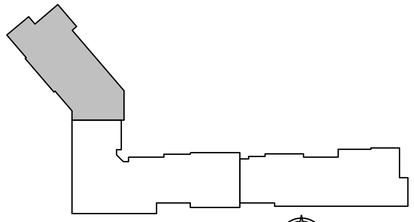
11. ROUTE DRAIN PIPING FROM WATER HEATERS, AIR HANDLERS OR EQUIPMENT TO FLOOR DRAINS. PROVIDE PROPER TRAPS.
12. ROUTE NO PIPING OVER ELECTRICAL EQUIPMENT.
13. ALL WASTE AND ROOF DRAIN STACKS SHALL HAVE CLEANOUTS AT THE BASE.

LEGEND:

1. 3"V. UP TO RISER FOR FUTURE CONNECTION.
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.

1 **BLDG 1-A, PARTIAL SECOND FLOOR PLAN**
1/8"=1'-0"
PLUMBING
NORTH



KEY PLAN
NO SCALE
NORTH

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ENGINEER
PLUMBING
ELECTRICAL

Tegethoff DEVELOPMENT

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DATE: 7.15.2021

REVISIONS 2

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TR,i PROJECT NO. 20-001

SHEET NO.

P104

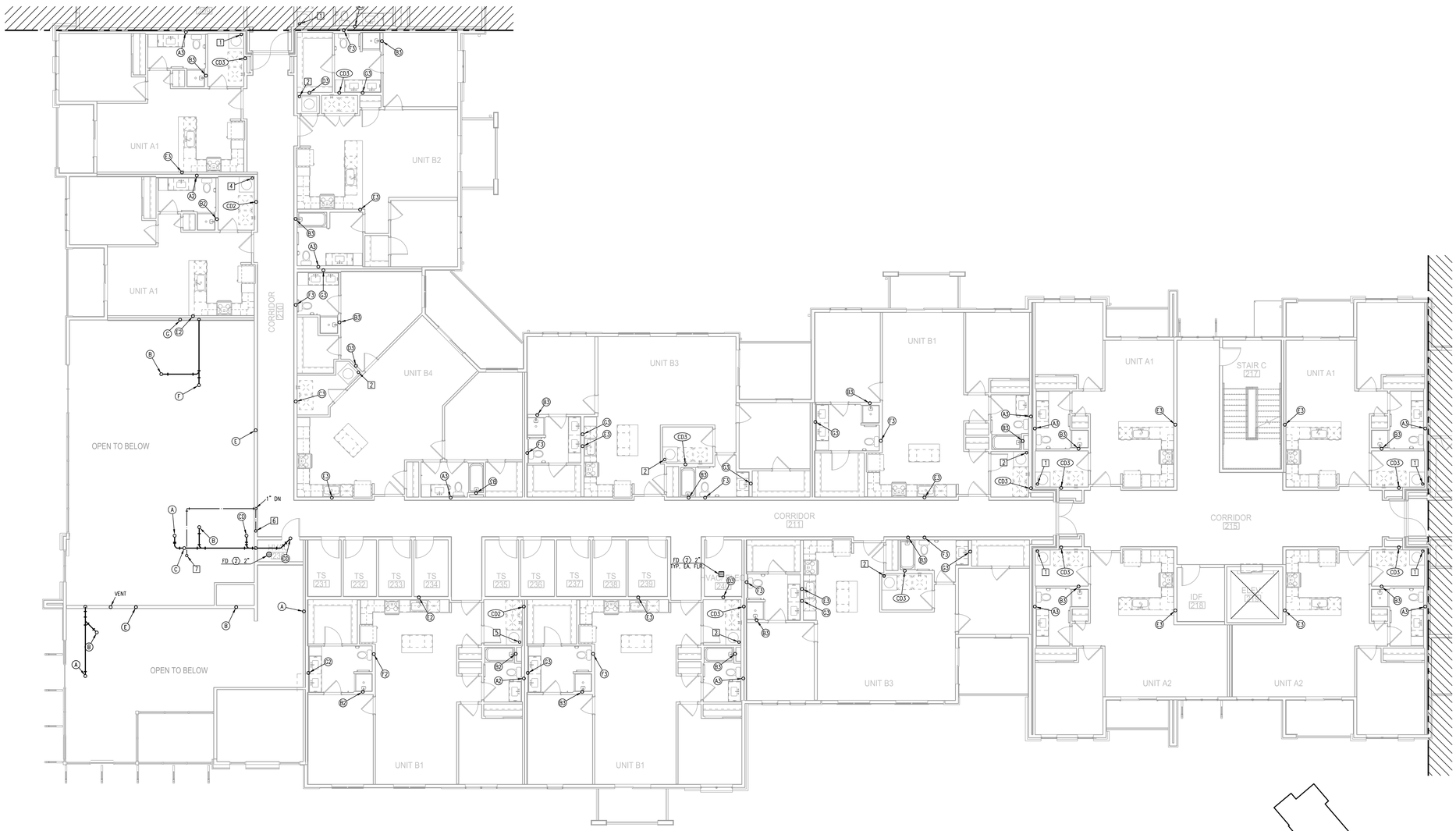
BLDG 1-A, PARTIAL SECOND FLOOR PLAN - PLUMBING

NOTES:

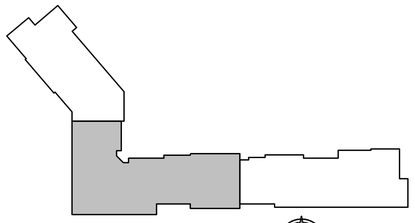
1. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE.
2. ALL BELOW SLAB SUPPLY PIPING SHALL BE PEX WITH NO JOINTS. DHW BELOW SLAB TO BE INSULATED TO R-3.
3. DHW PIPING 3/4" AND LARGER TO BE INSULATED TO R-3 MINIMUM
4. ALL SUPPLY PIPING IS 1/2" UNLESS NOTED OTHERWISE.
5. CONNECT ALL APPLIANCES OR EQUIPMENT PER MANUFACTURERS INSTRUCTIONS.
6. ALL PLUMBING VENTS SHALL BE 10 FEET FROM OPENINGS OR INTAKE.
7. THERE SHALL BE NO PVC WITHIN RETURN AIR PLENUMS.
8. ALL FIXTURES WITH QUICK CLOSING VALVES SHALL HAVE BLADDER OR TYPE SHOCK SUPPRESSORS FOR EACH CHASE.
9. SEE ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS.
10. REFER TO THE ARCHITECTURAL DRAWINGS FOR FLOOR DRAIN LOCATIONS AND FLOOR SLOPES IF PRESENT.
11. ROUTE DRAIN PIPING FROM WATER HEATERS, AIR HANDLERS OR EQUIPMENT TO FLOOR DRAINS. PROVIDE PROPER TRAPS.
12. ROUTE NO PIPING OVER ELECTRICAL EQUIPMENT.
13. ALL WASTE AND ROOF DRAIN STACKS SHALL HAVE CLEANOUTS AT THE BASE.

LEGEND:

1. 3"V. UP TO RISER FOR FUTURE CONNECTION.
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.



1 **BLDG 1-B, PARTIAL SECOND FLOOR PLAN**
1/8"=1'-0"
PLUMBING
NORTH



KEY PLAN
NO SCALE
NORTH

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RICHARD R. BEARDMORE
NUMBER
PROFESSIONAL ENGINEER
7-15-21

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GENERAL CONTRACTOR
MECHANICAL ENGINEER
PLUMBING ENGINEER
ELECTRICAL ENGINEER

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TR¡ PROJECT NO. 20-001

SHEET NO.

P105

BLDG 1-B, PARTIAL SECOND FLOOR PLAN - PLUMBING

NOTES:

1. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE.
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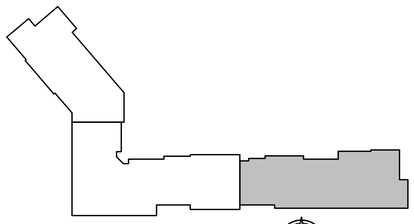
7. THERE SHALL BE NO PVC WITHIN RETURN AIR PLENUMS.
8. ALL FIXTURES WITH QUICK CLOSING VALVES SHALL HAVE BLADDER OR TYPE SHOCK SUPPRESSORS FOR EACH CHASE.
9. SEE ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS.
10. REFER TO THE ARCHITECTURAL DRAWINGS FOR FLOOR DRAIN LOCATIONS AND FLOOR SLOPES IF PRESENT.
11. ROUTE DRAIN PIPING FROM WATER HEATERS, AIR HANDLERS OR EQUIPMENT TO FLOOR DRAINS. PROVIDE PROPER TRAPS.
12. ROUTE NO PIPING OVER ELECTRICAL EQUIPMENT.
13. ALL WASTE AND ROOF DRAIN STACKS SHALL HAVE CLEANOUTS AT THE BASE.

LEGEND:

1. 3"V. UP TO RISER FOR FUTURE CONNECTION.
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.

1 **BLDG 1-C, PARTIAL SECOND FLOOR PLAN**
1/8"=1'-0"
PLUMBING

NORTH



KEY PLAN
NO SCALE

NORTH

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PLUMBING ENGINEER
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SHEET NO.

P106

BLDG 1-C, PARTIAL SECOND FLOOR PLAN - PLUMBING

NOTES:

1. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE.
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3. DHW PIPING 3/4" AND LARGER TO BE INSULATED TO R-3 MINIMUM
4. ALL SUPPLY PIPING IS 1/2" UNLESS NOTED OTHERWISE.
5. CONNECT ALL APPLIANCES OR EQUIPMENT PER MANUFACTURERS INSTRUCTIONS.
6. ALL PLUMBING VENTS SHALL BE 10 FEET FROM OPENINGS OR INTAKE.
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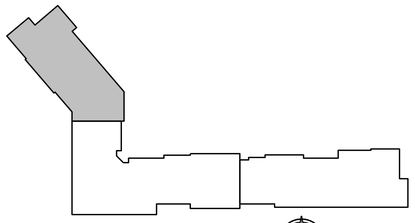
9. SEE ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS.
10. REFER TO THE ARCHITECTURAL DRAWINGS FOR FLOOR DRAIN LOCATIONS AND FLOOR SLOPES IF PRESENT.
11. ROUTE DRAIN PIPING FROM WATER HEATERS, AIR HANDLERS OR EQUIPMENT TO FLOOR DRAINS. PROVIDE PROPER TRAPS.
12. ROUTE NO PIPING OVER ELECTRICAL EQUIPMENT.
13. ALL WASTE AND ROOF DRAIN STACKS SHALL HAVE CLEANOUTS AT THE BASE.

LEGEND:

1. 3"V. UP TO RISER FOR FUTURE CONNECTION.
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.

1 **BLDG 1-A, PARTIAL THIRD FLOOR PLAN**
1/8"=1'-0"
PLUMBING
NORTH



KEY PLAN
NO SCALE
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REVISIONS 4

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TR,i PROJECT NO. 20-001

SHEET NO.

P107

BLDG 1-A, PARTIAL THIRD FLOOR PLAN - PLUMBING

NOTES:

1. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE.
2. ALL BELOW SLAB SUPPLY PIPING SHALL BE PEX WITH NO JOINTS. DHW BELOW SLAB TO BE INSULATED TO R-3.
3. DHW PIPING 3/4" AND LARGER TO BE INSULATED TO R-3 MINIMUM
4. ALL SUPPLY PIPING IS 1/2" UNLESS NOTED OTHERWISE.
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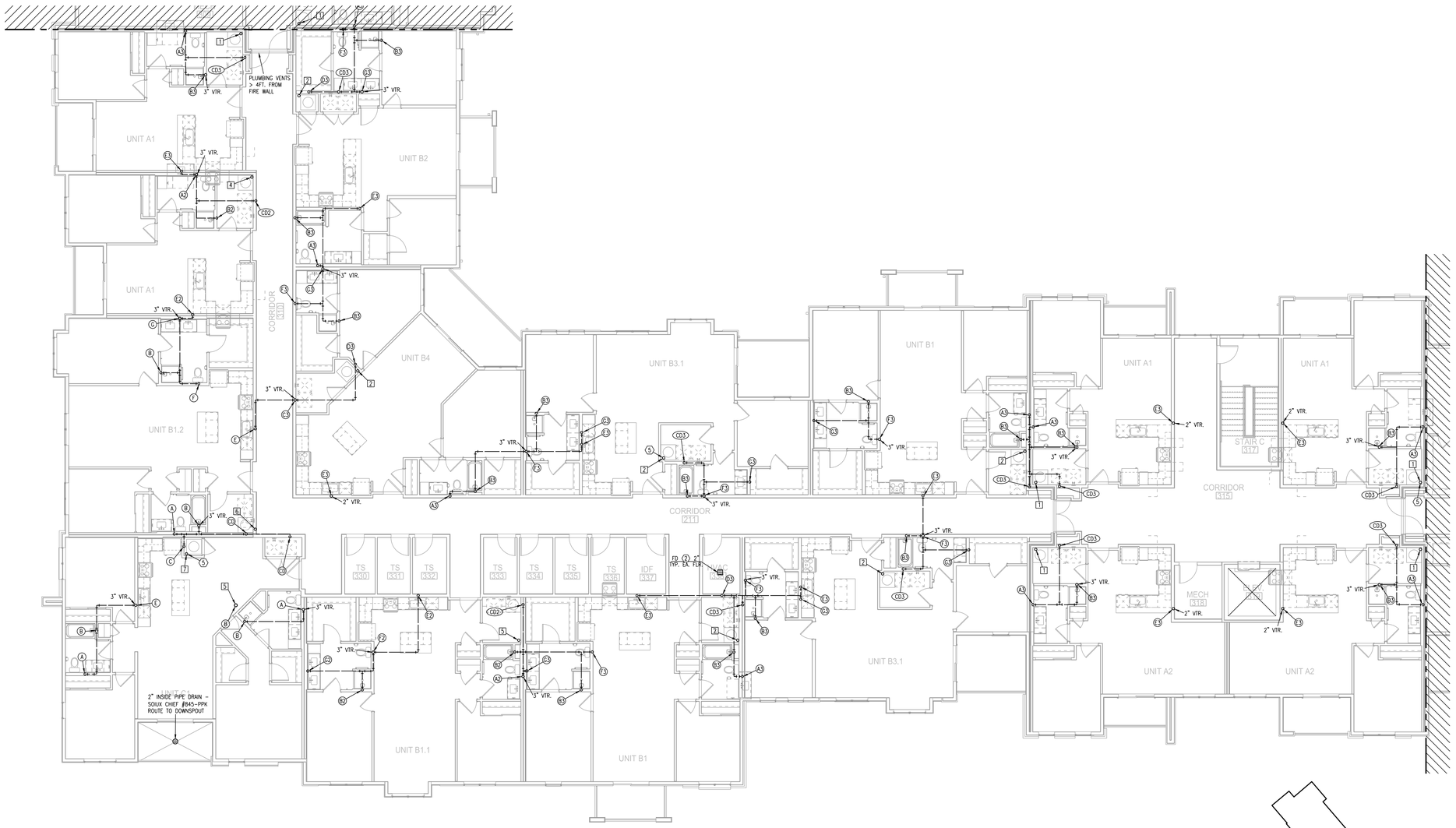
7. THERE SHALL BE NO PVC WITHIN RETURN AIR PLENUMS.
8. ALL FIXTURES WITH QUICK CLOSING VALVES SHALL HAVE BLADDER OR TYPE SHOCK SUPPRESSORS FOR EACH CHASE.
9. SEE ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS.
10. REFER TO THE ARCHITECTURAL DRAWINGS FOR FLOOR DRAIN LOCATIONS AND FLOOR SLOPES IF PRESENT.
11. ROUTE DRAIN PIPING FROM WATER HEATERS, AIR HANDLERS OR EQUIPMENT TO FLOOR DRAINS. PROVIDE PROPER TRAPS.
12. ROUTE NO PIPING OVER ELECTRICAL EQUIPMENT.
13. ALL WASTE AND ROOF DRAIN STACKS SHALL HAVE CLEANOUTS AT THE BASE.

LEGEND:

1. 3"V. UP TO RISER FOR FUTURE CONNECTION.
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.

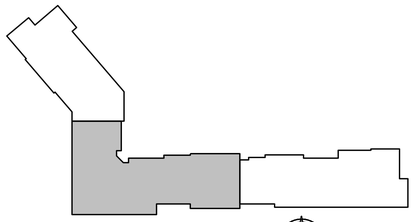


1 BLDG 1-B, PARTIAL THIRD FLOOR PLAN

1/8"=1'-0"

PLUMBING

NORTH



KEY PLAN

NO SCALE

NORTH

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REVISIONS 4

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TR,i PROJECT NO. 20-001

SHEET NO.

P108

BLDG 1-B, PARTIAL THIRD FLOOR PLAN - PLUMBING

NOTES:

1. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE.
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13. ALL WASTE AND ROOF DRAIN STACKS SHALL HAVE CLEANOUTS AT THE BASE.

LEGEND:

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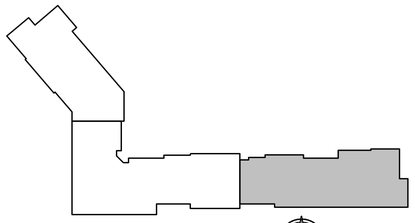
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.

1 BLDG 1-C, PARTIAL THIRD FLOOR PLAN

1/8"=1'-0"

PLUMBING

NORTH



KEY PLAN

NO SCALE

NORTH

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PLUMBING ENGINEER
ELECTRICAL ENGINEER

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DATE: 7.15.2021

REVISIONS 4

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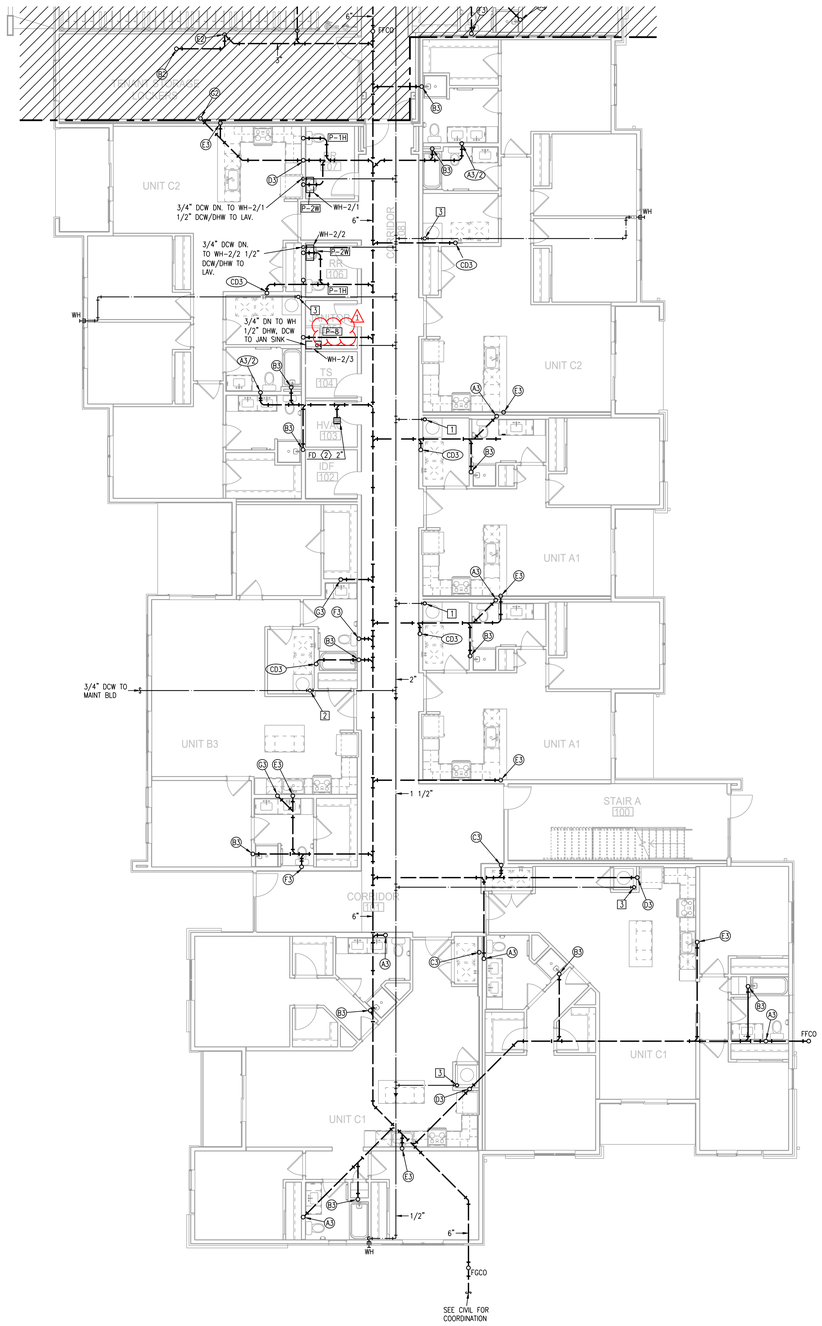
TR,i PROJECT NO. 20-001

SHEET NO.

P109

BLDG 1-C, PARTIAL THIRD FLOOR PLAN - PLUMBING



1 BLDG 2-A, PARTIAL FIRST FLOOR PLAN

1/8"=1'-0"

PLUMBING

NORTH

NOTES:

1. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE.
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LEGEND:

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3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
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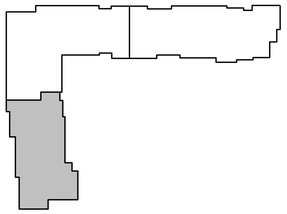
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.



KEY PLAN

NO SCALE

NORTH

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LS& PROJECT NO. 2104008

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8-17-21

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DATE: 7.15.2021

REVISIONS 2

2 PERMIT REVIEW COMMENTS 08-17-21

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TR,i PROJECT NO. 20-001

SHEET NO.

P110

BLDG 2-A, PARTIAL FIRST FLOOR PLAN - PLUMBING

NOTES:

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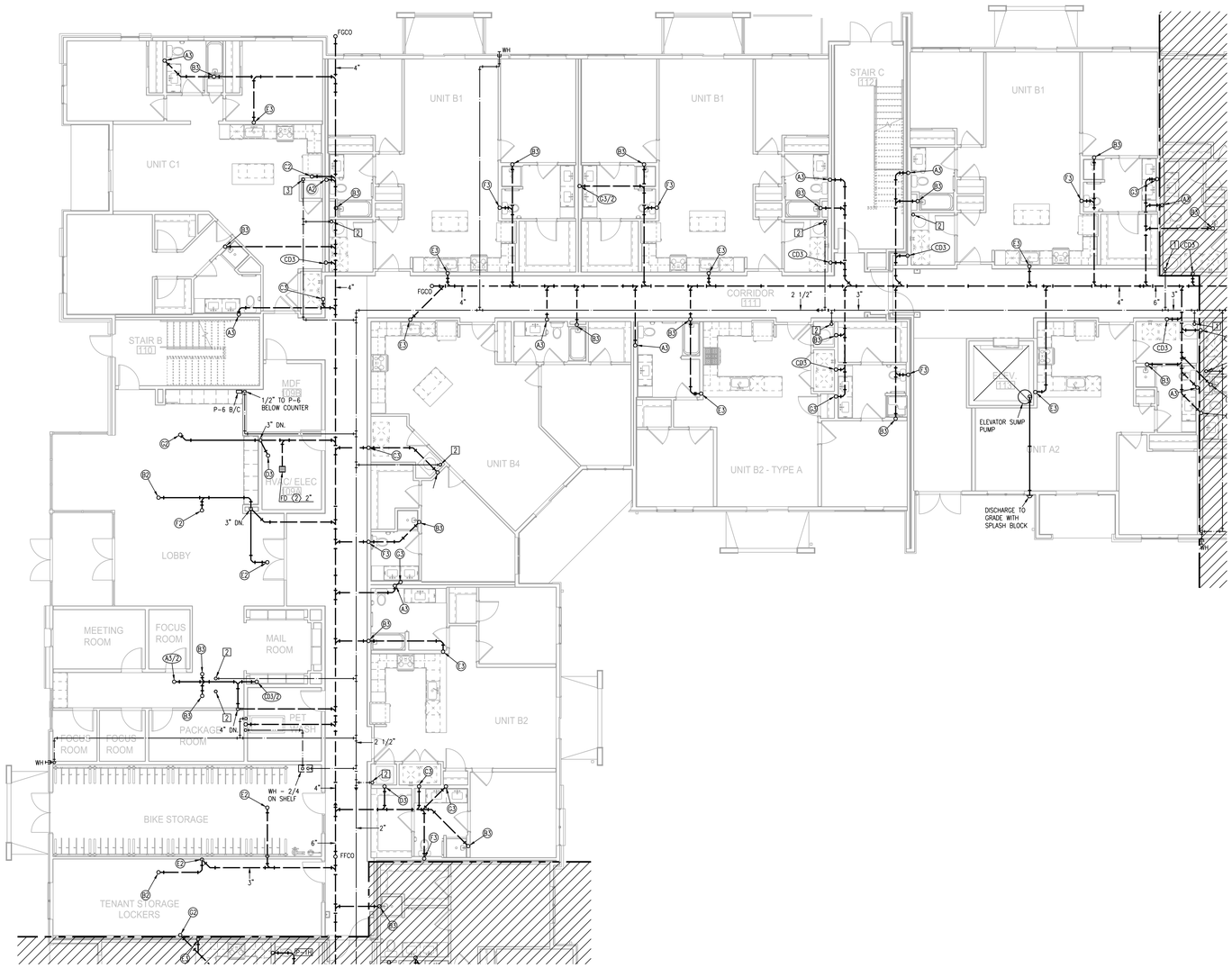
13. ALL WASTE AND ROOF DRAIN STACKS SHALL HAVE CLEANOUTS AT THE BASE.

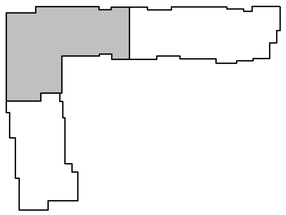
LEGEND:

1. 3"V. UP TO RISER FOR FUTURE CONNECTION.
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.



1 **BLDG 2-B, PARTIAL FIRST FLOOR PLAN**
1/8"=1'-0" PLUMBING

NORTH



KEY PLAN
NO SCALE

NORTH

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DATE: 7.15.2021

REVISIONS 1

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TR,i PROJECT NO. 20-001

SHEET NO.

P111

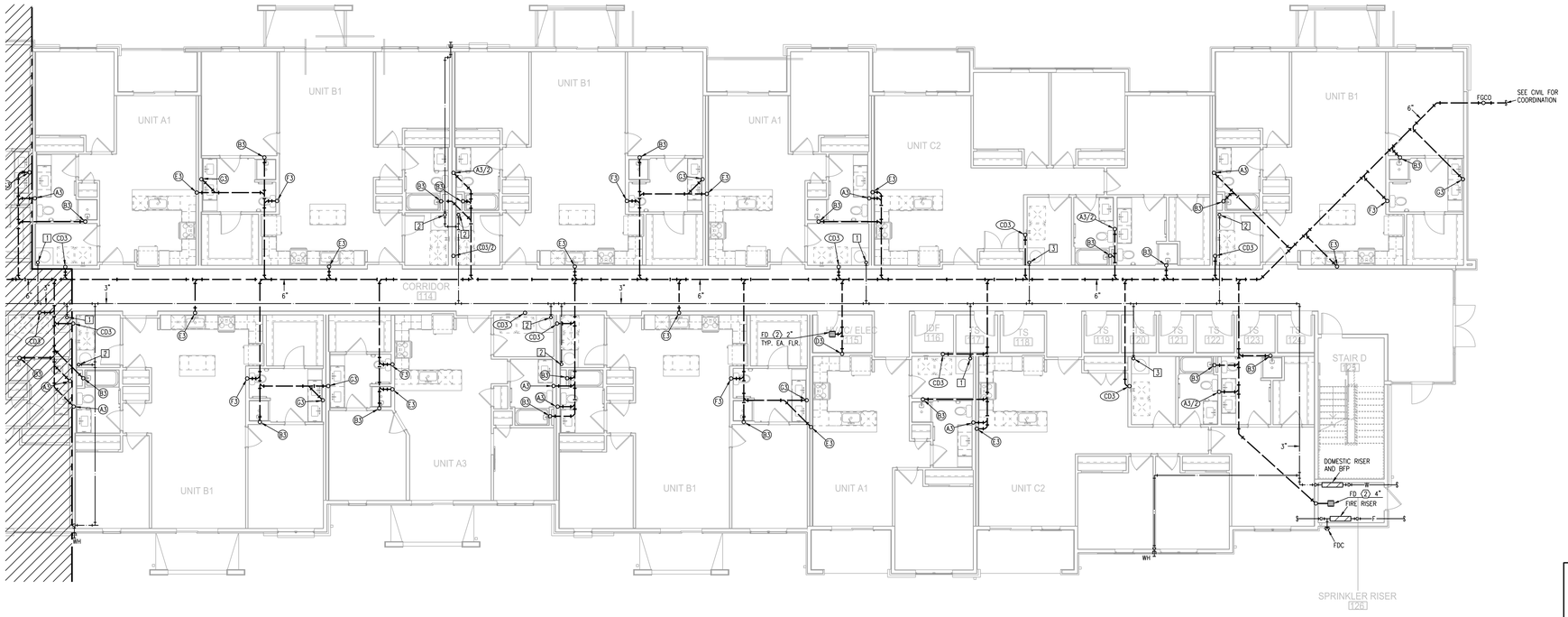
BLDG 2-B, PARTIAL FIRST FLOOR PLAN - PLUMBING

NOTES:

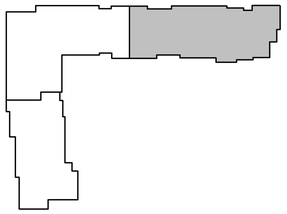
1. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE.
2. ALL BELOW SLAB SUPPLY PIPING SHALL BE PEX WITH NO JOINTS. DHW BELOW SLAB TO BE INSULATED TO R-3.
3. DHW PIPING 3/4" AND LARGER TO BE INSULATED TO R-3 MINIMUM
4. ALL SUPPLY PIPING IS 1/2" UNLESS NOTED OTHERWISE.
5. CONNECT ALL APPLIANCES OR EQUIPMENT PER MANUFACTURERS INSTRUCTIONS.
6. ALL PLUMBING VENTS SHALL BE 10 FEET FROM OPENINGS OR INTAKE.
7. THERE SHALL BE NO PVC WITHIN RETURN AIR PLENUMS.
8. ALL FIXTURES WITH QUICK CLOSING VALVES SHALL HAVE BLADDER OR TYPE SHOCK SUPPRESSORS FOR EACH CHASE.
9. SEE ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS.
10. REFER TO THE ARCHITECTURAL DRAWINGS FOR FLOOR DRAIN LOCATIONS AND FLOOR SLOPES IF PRESENT.
11. ROUTE DRAIN PIPING FROM WATER HEATERS, AIR HANDLERS OR EQUIPMENT TO FLOOR DRAINS. PROVIDE PROPER TRAPS.
12. ROUTE NO PIPING OVER ELECTRICAL EQUIPMENT.
13. ALL WASTE AND ROOF DRAIN STACKS SHALL HAVE CLEANOUTS AT THE BASE.

LEGEND:

1. 3"V. UP TO RISER FOR FUTURE CONNECTION.
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.



1 **BLDG 2-C, PARTIAL FIRST FLOOR PLAN**
1/8"=1'-0"
PLUMBING
NORTH



KEY PLAN
NO SCALE
NORTH

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RICHARD R. BEARDMORE
NUMBER
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GENERAL CONTRACTOR
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PLUMBING ENGINEER
ELECTRICAL ENGINEER

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SHEET NO.

P112

BLDG 2-C, PARTIAL FIRST FLOOR PLAN - PLUMBING

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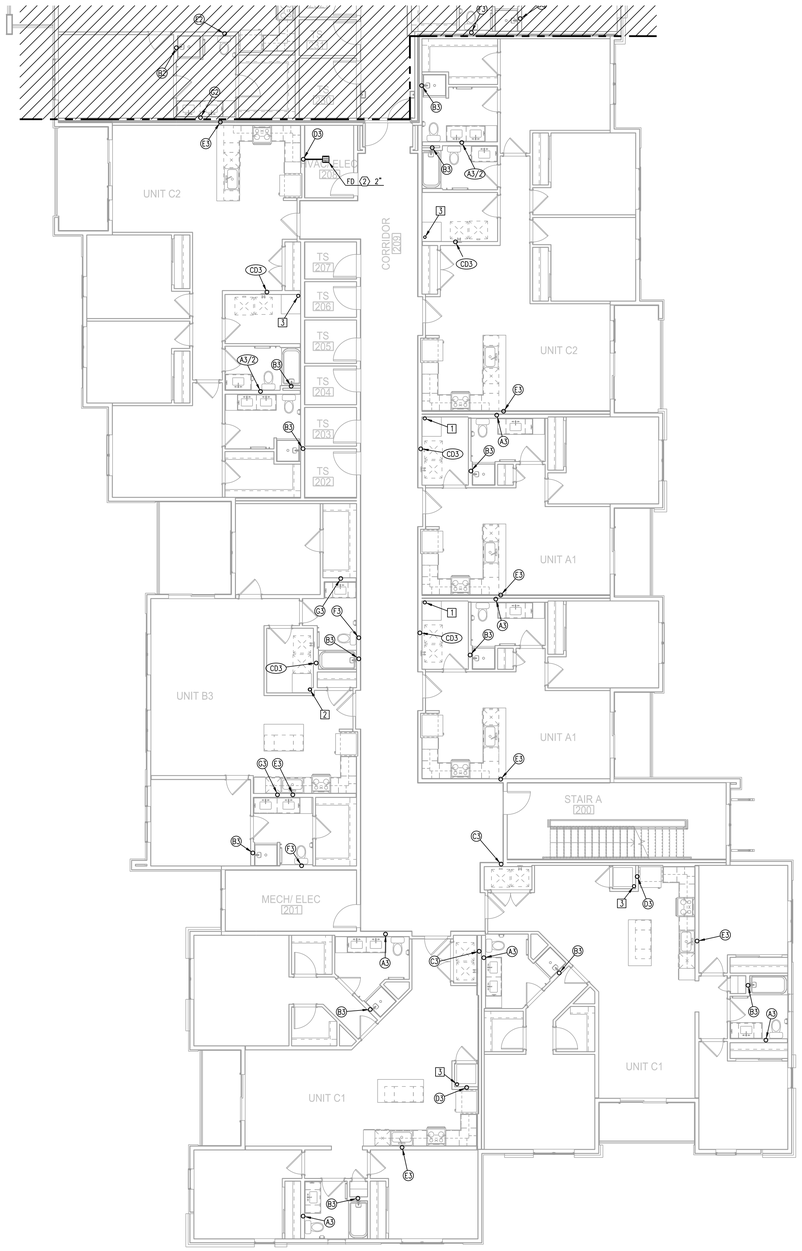
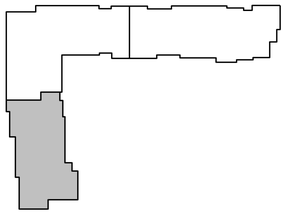
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.



1 **BLDG 2-A, PARTIAL SECOND FLOOR PLAN**
1/8"=1'-0"
PLUMBING
NORTH



KEY PLAN
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SHEET NO.

P113

BLDG 2-A, PARTIAL SECOND FLOOR PLAN - PLUMBING

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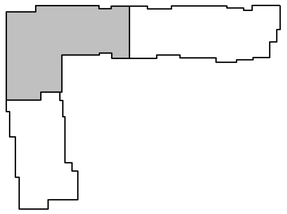
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.

1 **BLDG 2-B, PARTIAL SECOND FLOOR PLAN**
1/8"=1'-0"
PLUMBING
NORTH



KEY PLAN
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REVISIONS 1

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SHEET NO.

P114

BLDG 2-B, PARTIAL SECOND FLOOR PLAN - PLUMBING

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LEGEND:

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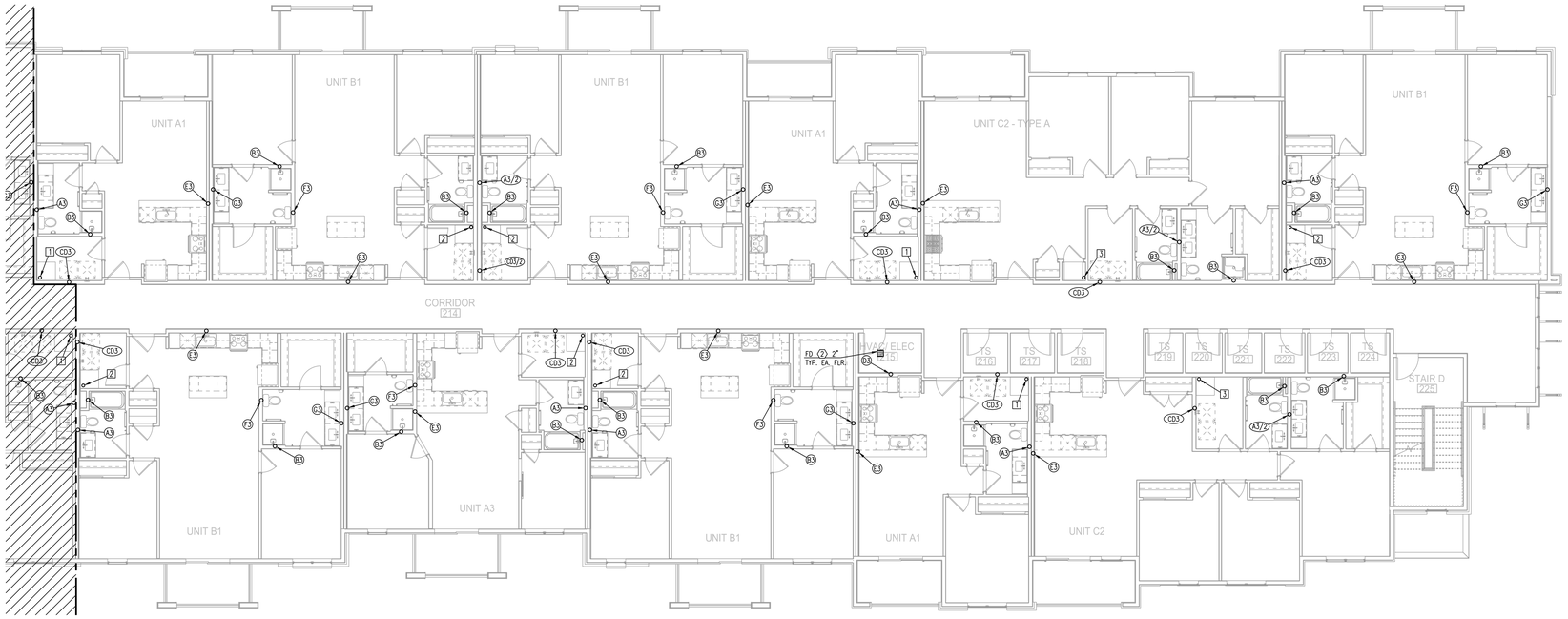
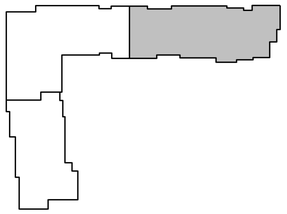
2. 6" UP TO DOWNSPOUT CONNECTION.
3. DOWNSPOUT CONNECTION. 6" DOWN TO GARAGE.
4. PENETRATE BEAM PER STRUCTURAL DETAIL.
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.



1 **BLDG 2-C, PARTIAL SECOND FLOOR PLAN**
1/8"=1'-0"
PLUMBING
NORTH



KEY PLAN
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REVISIONS 2

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SHEET NO.

P115

BLDG 2-C, PARTIAL SECOND FLOOR PLAN - PLUMBING

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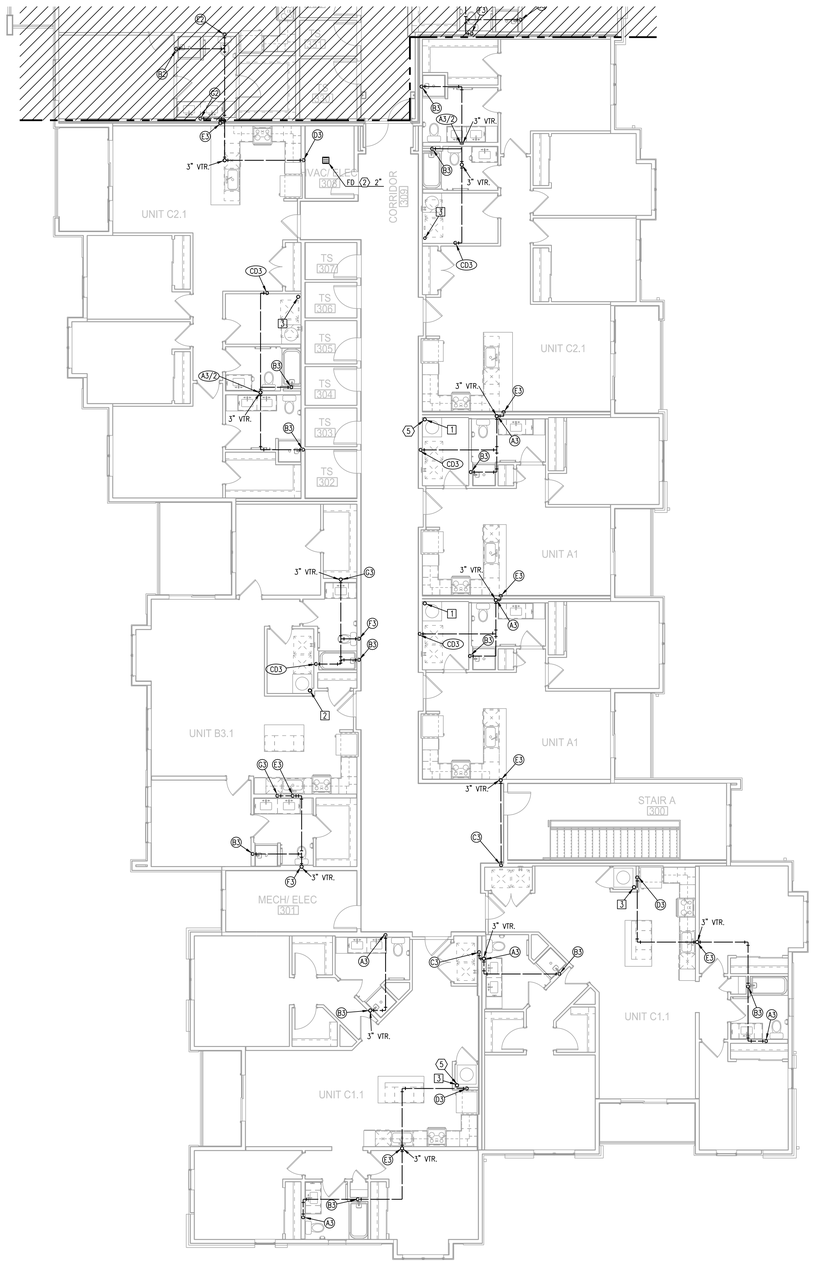
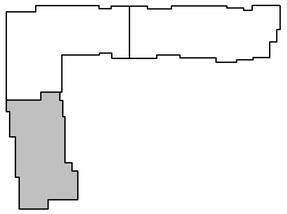
5. 3/4" UP TO ROOF HYDRANT. SEE DETAIL.



1 **BLDG 2-A, PARTIAL THIRD FLOOR PLAN**
1/8"=1'-0"
PLUMBING
NORTH



KEY PLAN
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REVISIONS 1 2

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P116

BLDG 2-A, PARTIAL THIRD FLOOR PLAN - PLUMBING

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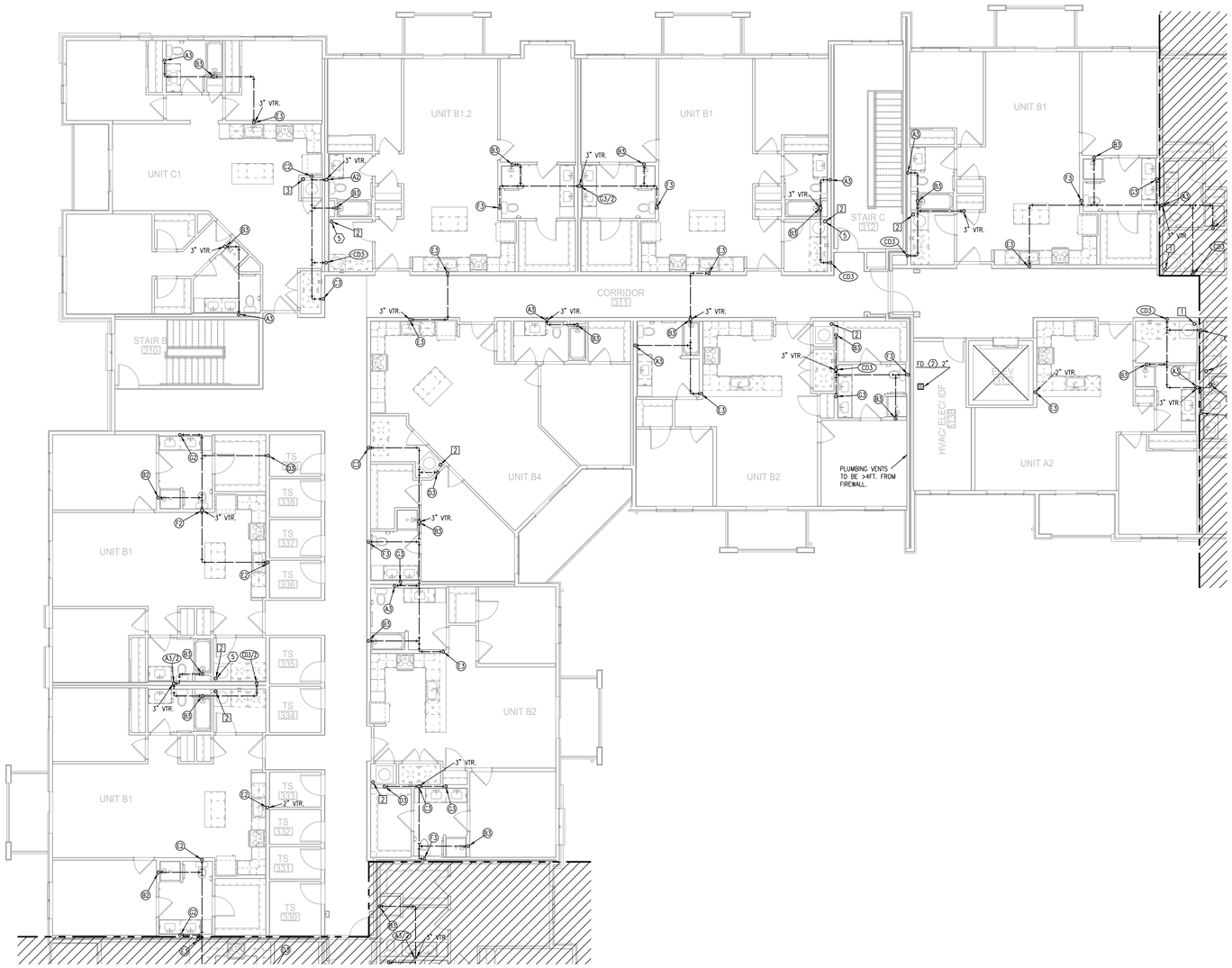

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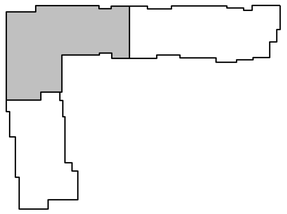
1/8"=1'-0" PLUMBING

NORTH



KEY PLAN
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REVISIONS 2

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SHEET NO.

P117

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PLUMBING

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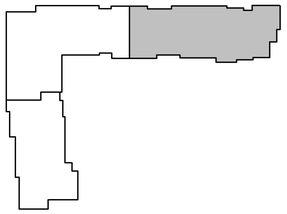

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REVISIONS 4

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TR¡ PROJECT NO. 20-001

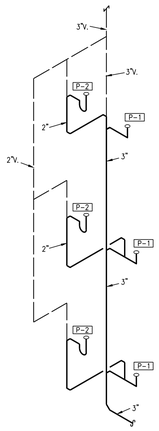
SHEET NO.

P118

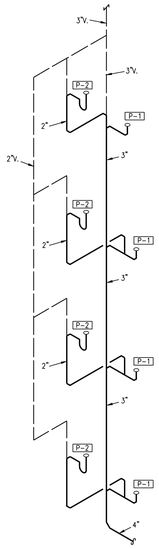
BLDG 2-C, PARTIAL THIRD FLOOR PLAN - PLUMBING

NOTES:

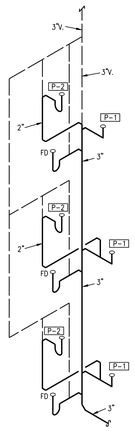
1. PROVIDE CLEANOUTS AT BASE OF ALL STACKS.



A3 PLUMBING RISER
NO SCALE



A4 PLUMBING RISER
NO SCALE



AD3 PLUMBING RISER
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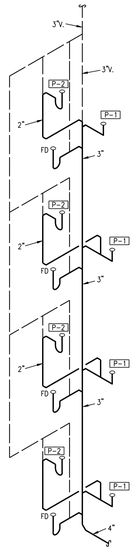

AD4 PLUMBING RISER
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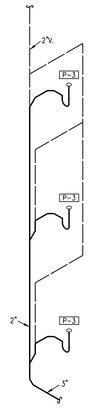
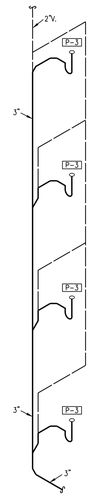


B3 PLUMBING RISER
NO SCALE



B4 PLUMBING RISER
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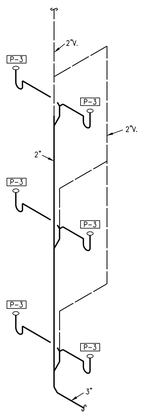
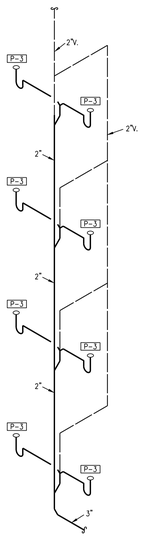


B3/2 PLUMBING RISER
NO SCALE



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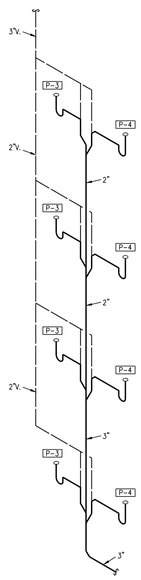
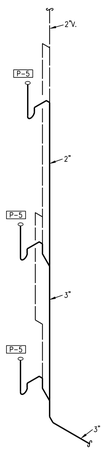
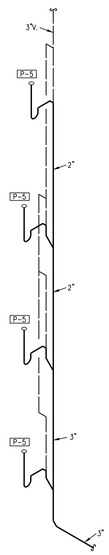


BE4 PLUMBING RISER
NO SCALE



C3 PLUMBING RISER
NO SCALE



C4 PLUMBING RISER
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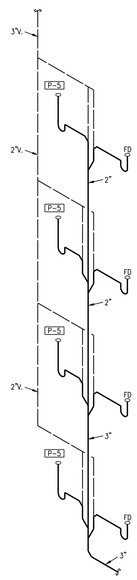

CD4 PLUMBING RISER
NO SCALE

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STATE OF MISSOURI
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NUMBER
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7-15-21

ARCHITECT	TR¡ ARCHITECTS
STRUCTURAL ENGINEER	STRUCTURAL
CIVIL ENGINEER	CIVIL
GENERAL CONTRACTOR	GENERAL CONTRACTOR
MECHANICAL ENGINEER	ENGINEER
PLUMBING ENGINEER	PLUMBING
ELECTRICAL ENGINEER	ELECTRICAL

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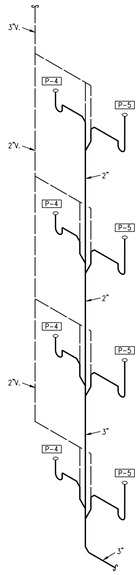
SHEET NO.

P119

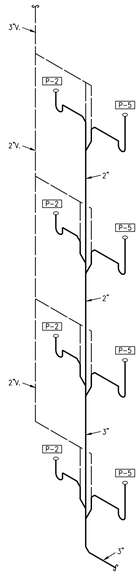
PLUMBING RISERS

NOTES:

1. PROVIDE CLEANOUTS AT BASE OF ALL STACKS.

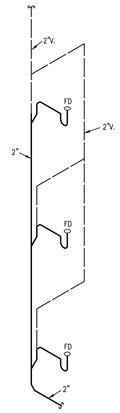


CE4 PLUMBING RISER
NO SCALE

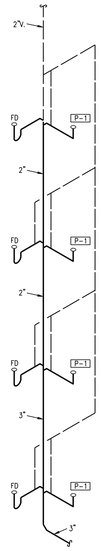


CG4 PLUMBING RISER
NO SCALE

SOME RISERS MAY HAVE DUAL LAVATORIES.



D3 PLUMBING RISER
NO SCALE



DF4 PLUMBING RISER
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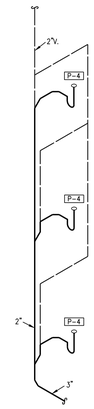
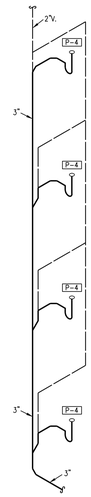
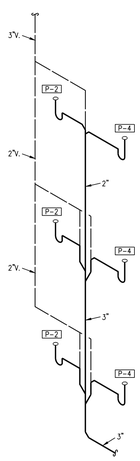


E3 PLUMBING RISER
NO SCALE

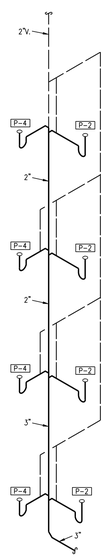


E4 PLUMBING RISER
NO SCALE



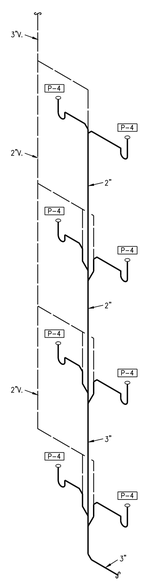
EG3 PLUMBING RISER
NO SCALE

SOME RISERS MAY HAVE DUAL LAVATORIES.

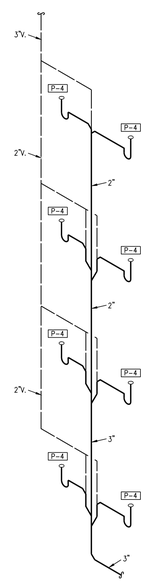


EG4 PLUMBING RISER
NO SCALE

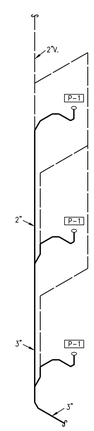
SOME RISERS MAY HAVE DUAL LAVATORIES.



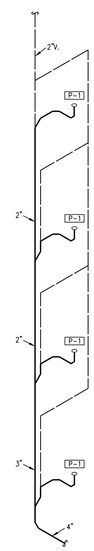
E3/2 PLUMBING RISER
NO SCALE



E4/2 PLUMBING RISER
NO SCALE



F3 PLUMBING RISER
NO SCALE



F4 PLUMBING RISER
NO SCALE

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REVISIONS 0

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TR¡ PROJECT NO. 20-001

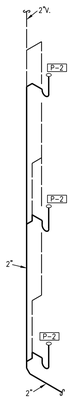
SHEET NO.

P120

PLUMBING RISERS

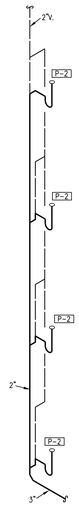
NOTES:

1. PROVIDE CLEANOUTS AT BASE OF ALL STACKS.



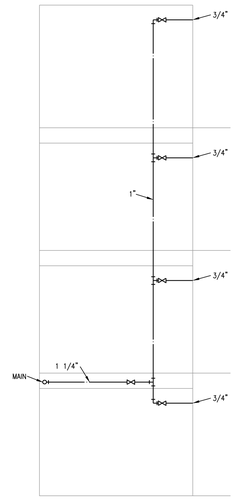
G3 PLUMBING RISER
NO SCALE

SOME RISERS MAY HAVE DUAL LAVATORIES.

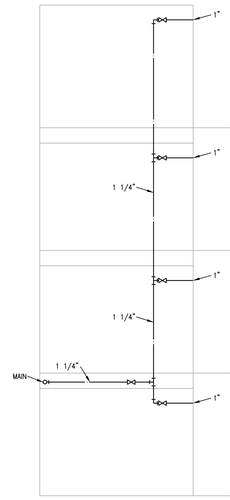


G4 PLUMBING RISER
NO SCALE

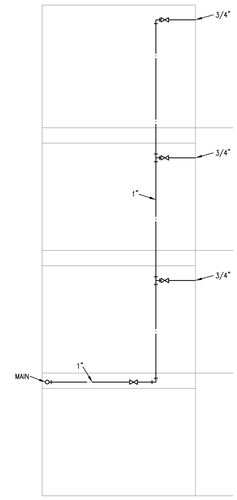
SOME RISERS MAY HAVE DUAL LAVATORIES.



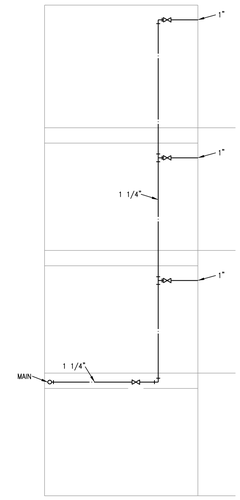
1 SUPPLY RISER
NO SCALE (ONE BATH)



2 SUPPLY RISER
NO SCALE (TWO BATH)



3 SUPPLY RISER
NO SCALE (ONE BATH)



4 SUPPLY RISER
NO SCALE (TWO BATH)

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REVISIONS 1 2

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TR.i PROJECT NO. 20-001

SHEET NO.

P121

PLUMBING RISERS

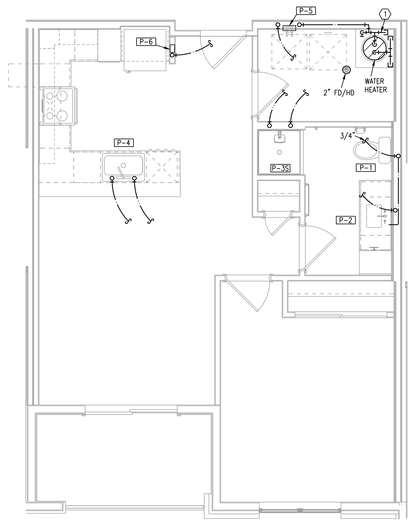
NOTES:

1. ROUTE TOP FLOOR SUPPLY PLUMBING IN CEILING BELOW. NO SUPPLY IN ATTIC.
2. PROVIDE SURGE SUPPRESSORS ON P-4, P-5, AND P-6.
3. CONNECT DISHWASHERS, DISPOSERS, ICE MAKERS, WASHERS..
4. PROVIDE 2" FLOOR DRAIN AT EACH AHU/WH LOCATION.
5. ROUTE 1/2" PEX TO EACH FIXTURE FROM MANIFOLD.
6. P-5, P-6 ON CORRIDOR WALLS SHALL HAVE FIRE PUTTY PADS OR EQUIVALENT FIRE PROTECTION.

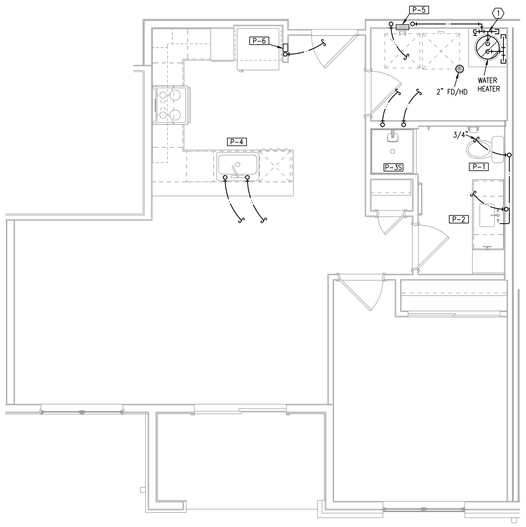
LEGEND:

(1) 3/4" CW MANIFOLD WITH SHUT-OFF.

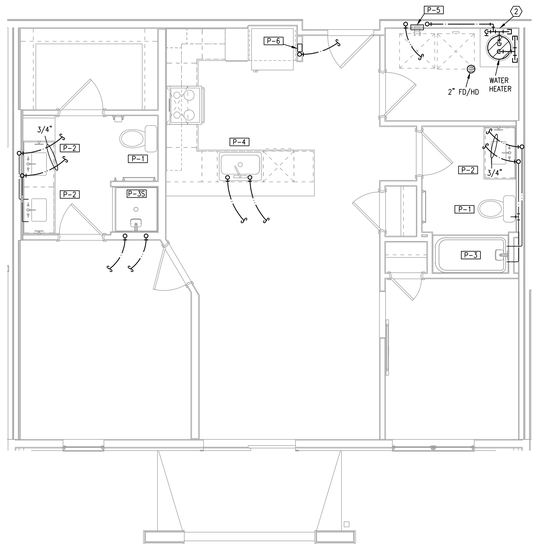
(2) 1" CW MANIFOLD WITH SHUT-OFF.



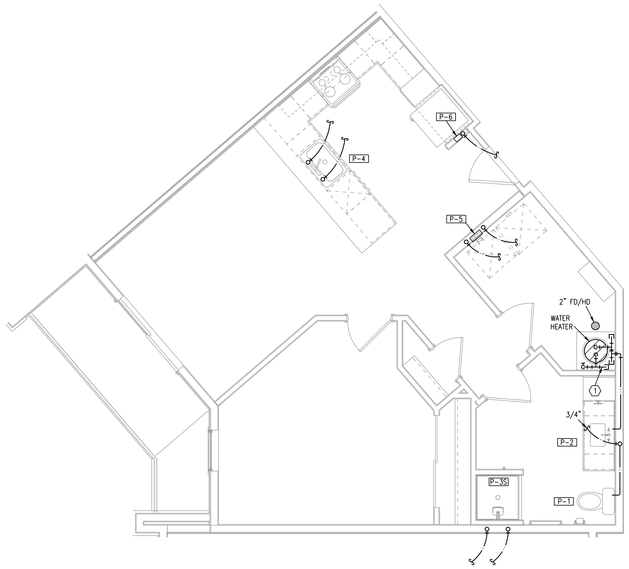
1 **TYPIC AL UNIT PLAN - A1**
1/4"=1'-0" (UNITS A1-1, A1-2 SIMILAR) PLUMBING



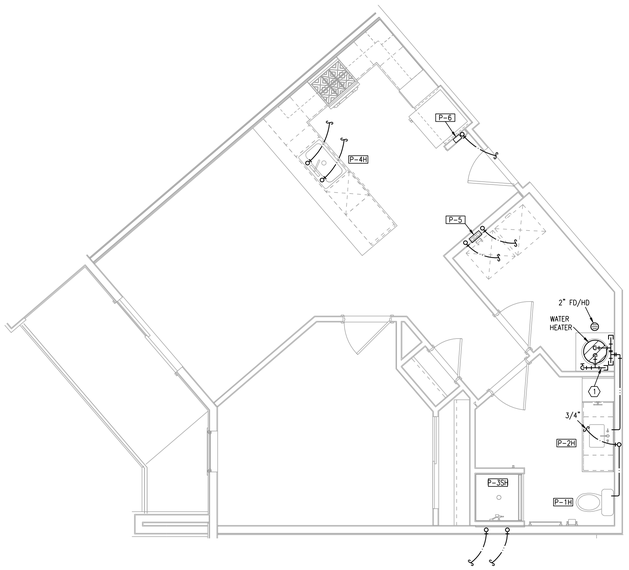
2 **TYPICAL UNIT PLAN - A2**
1/4"=1'-0" . PLUMBING



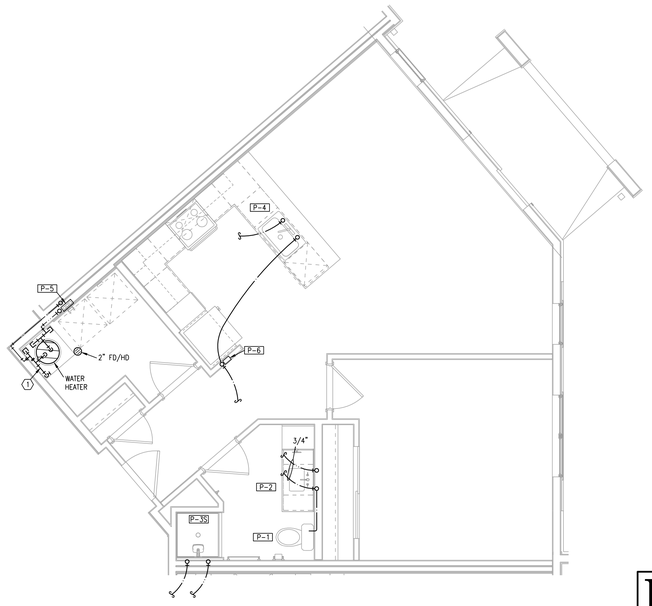
3 **TYPICAL UNIT PLAN - A3**
1/4"=1'-0" . PLUMBING



4 **TYPICAL UNIT PLAN - A4**
1/4"=1'-0" . PLUMBING



5 **TYPICAL UNIT PLAN - A4 TYPE A**
1/4"=1'-0" . PLUMBING



5 **TYPICAL UNIT PLAN - A5**
1/4"=1'-0" . PLUMBING

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DATE: 7.15.2021

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TR,i PROJECT NO. 20-001

SHEET NO.

P201

TYPICAL UNIT PLANS - PLUMBING

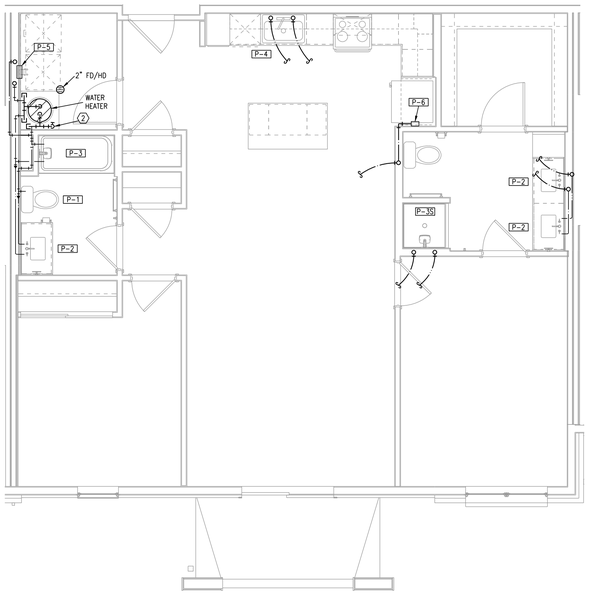
NOTES:

1. ROUTE TOP FLOOR SUPPLY PLUMBING IN CEILING BELOW. NO SUPPLY IN ATTIC.
2. PROVIDE SURGE SUPPRESSORS ON P-4, P-5, AND P-6.
3. CONNECT DISHWASHERS, DISPOSERS, ICE MAKERS, WASHERS..
4. PROVIDE 2" FLOOR DRAIN AT EACH AHU/WH LOCATION.
5. ROUTE 1/2" PEX TO EACH FIXTURE FROM MANIFOLD.
6. P-5, P-6 ON CORRIDOR WALLS SHALL HAVE FIRE PUTTY PADS OR EQUIVALENT FIRE PROTECTION.

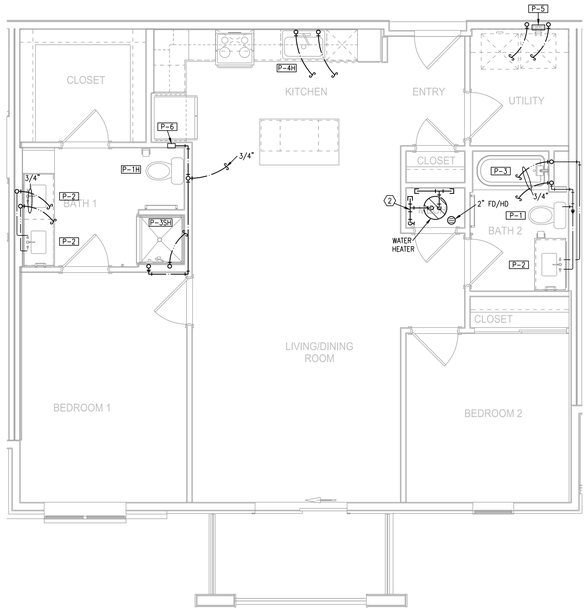
LEGEND:

(1) 3/4" CW MANIFOLD WITH SHUT-OFF.

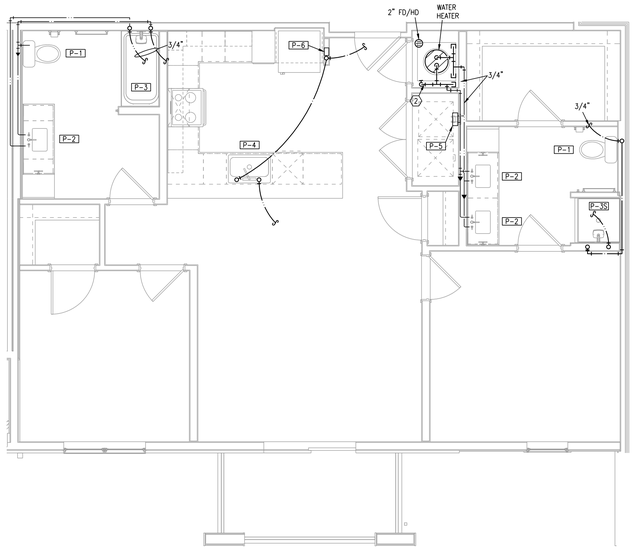
(2) 1" CW MANIFOLD WITH SHUT-OFF.



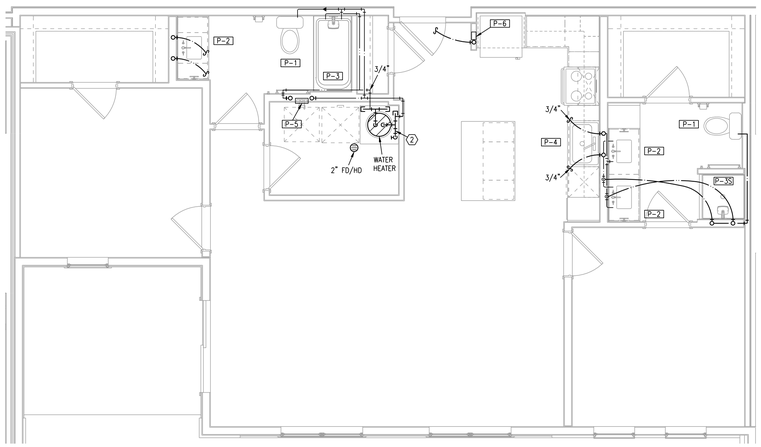
1 **TYPICAL UNIT PLAN - B1**
1/4"=1'-0" (UNITS B1-1, B1-2 SIMILAR) PLUMBING



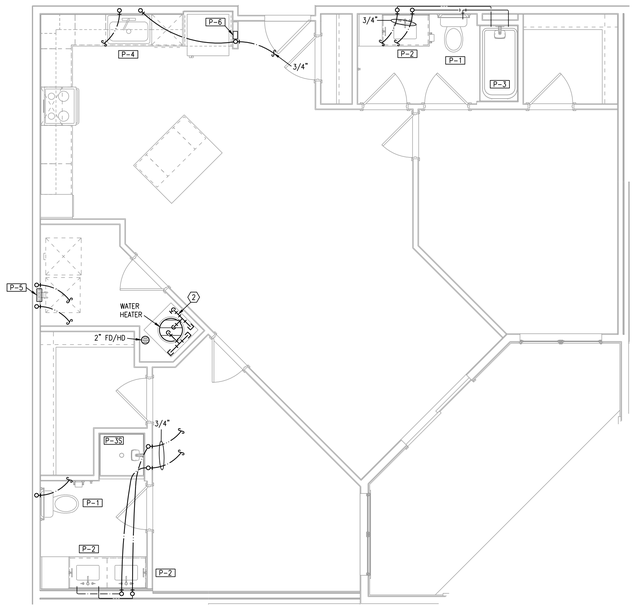
2 **TYPICAL UNIT PLAN - B1 TYPE A**
1/4"=1'-0" . PLUMBING



3 **TYPICAL UNIT PLAN - B2**
1/4"=1'-0" . PLUMBING



4 **TYPICAL UNIT PLAN - B3**
1/4"=1'-0" (UNIT B3-1 SIMILAR) PLUMBING



5 **TYPICAL UNIT PLAN - B4**
1/4"=1'-0" . PLUMBING

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REVISIONS 2

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TR,i PROJECT NO. 20-001

SHEET NO.

P202

TYPICAL UNIT PLANS - PLUMBING

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LSA PROJECT NO. 2104008

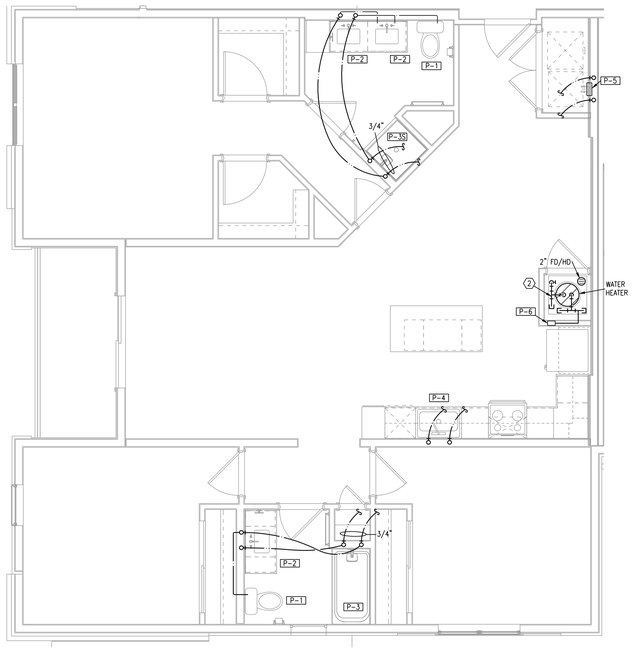
NOTES:

1. ROUTE TOP FLOOR SUPPLY PLUMBING IN CEILING BELOW. NO SUPPLY IN ATTIC.
2. PROVIDE SURGE SUPPRESSORS ON P-4, P-5, AND P-6.
3. CONNECT DISHWASHERS, DISPOSERS, ICE MAKERS, WASHERS..
4. PROVIDE 2" FLOOR DRAIN AT EACH AHU/WH LOCATION.
5. ROUTE 1/2" PEX TO EACH FIXTURE FROM MANIFOLD.
6. P-5, P-6 ON CORRIDOR WALLS SHALL HAVE FIRE PUTTY PADS OR EQUIVALENT FIRE PROTECTION.

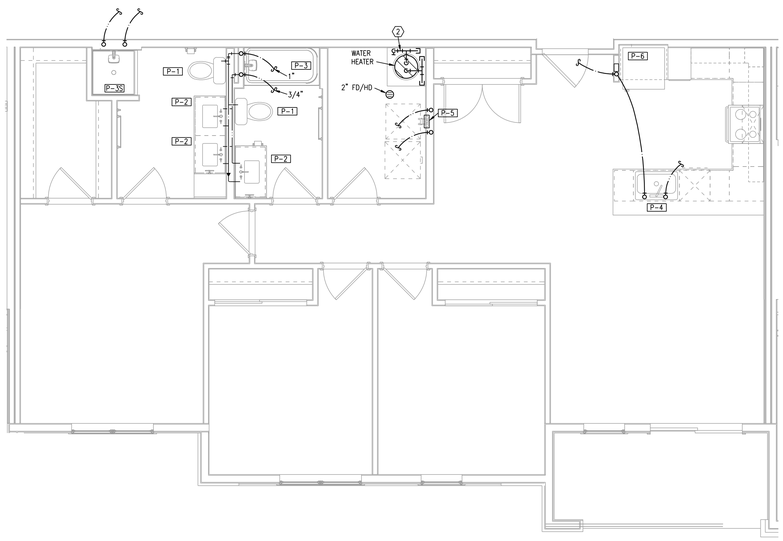
LEGEND:

(1) 3/4" CW MANIFOLD WITH SHUT-OFF.

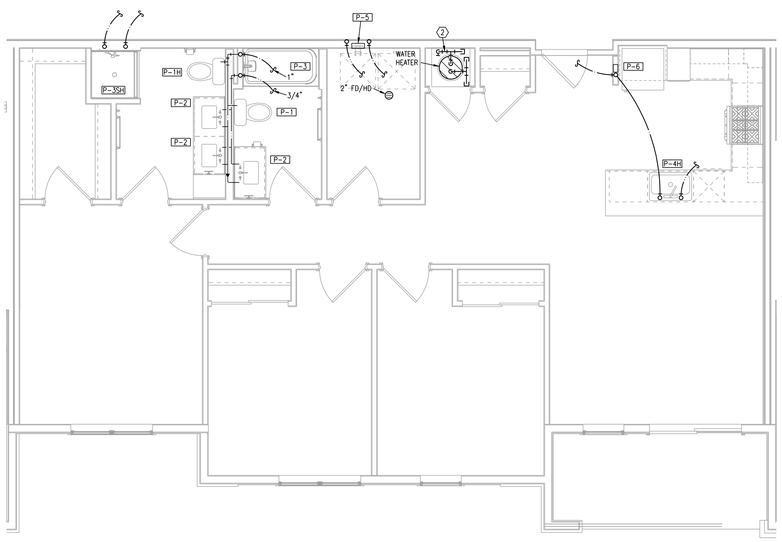
(2) 1" CW MANIFOLD WITH SHUT-OFF.



1 **TYPICAL UNIT PLAN - C1**
1/4"=1'-0" (UNIT C1-1 SIMILAR) PLUMBING



2 **TYPICAL UNIT PLAN - C2**
1/4"=1'-0" (UNIT C2-1 SIMILAR) PLUMBING



3 **TYPICAL UNIT PLAN - C2 TYPE A**
1/4"=1'-0" . PLUMBING

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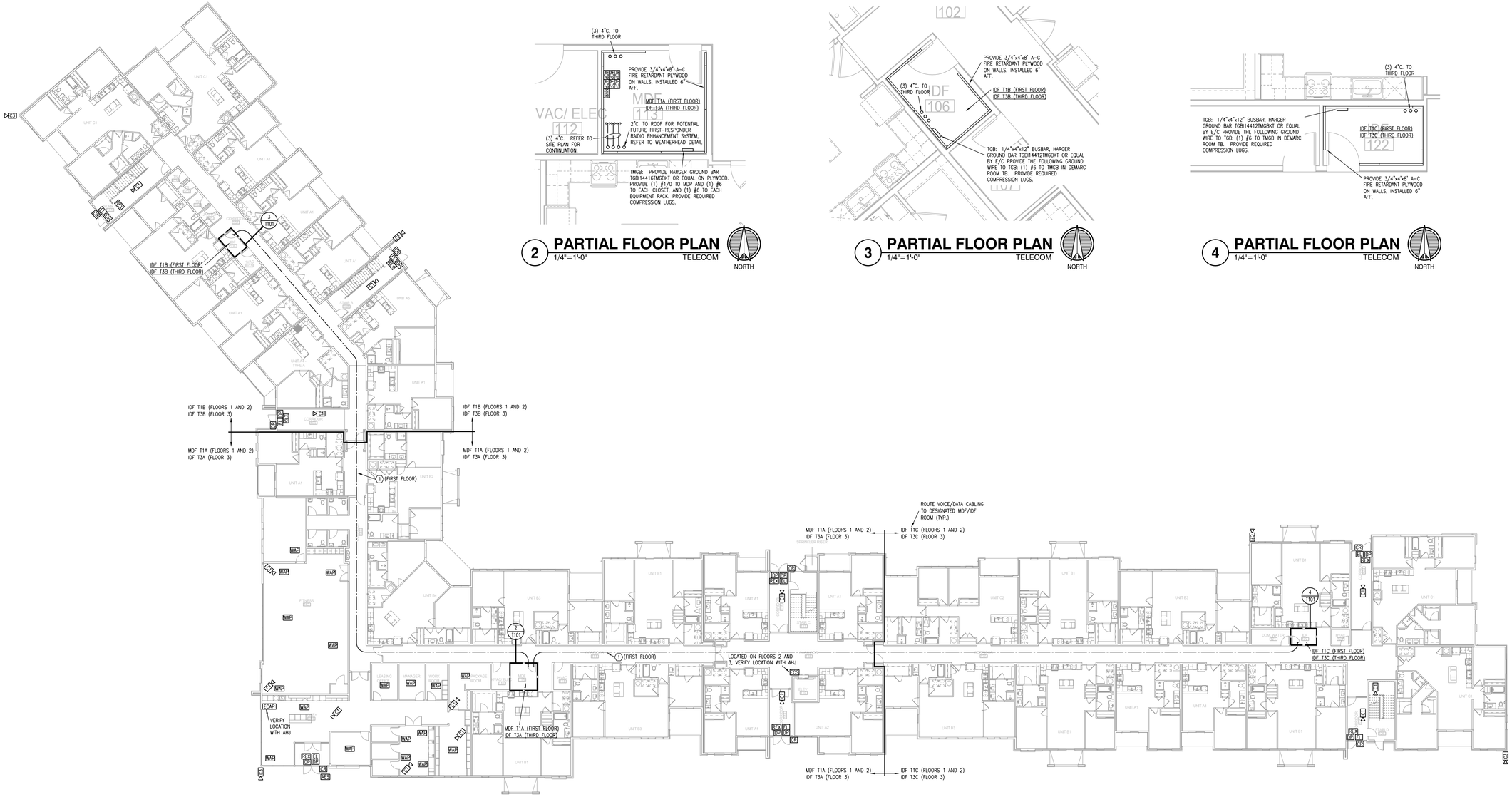
SHEET NO.

P203

TYPICAL UNIT PLANS - PLUMBING

LEGEND:
1 (3) 4" EMT CONDUITS BY E/C

NOTES:
1. ROUTE ALL CABLING FOR CARD READERS AND CAMERAS TO MDF T1A.



1 **BLDG 1-A, FIRST FLOOR PLAN**
1/16"=1'-0" (3RD FLOOR SIM.) TELECOM
NORTH

2 **PARTIAL FLOOR PLAN**
1/4"=1'-0" TELECOM
NORTH

3 **PARTIAL FLOOR PLAN**
1/4"=1'-0" TELECOM
NORTH

4 **PARTIAL FLOOR PLAN**
1/4"=1'-0" TELECOM
NORTH

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TR,i PROJECT NO. 20-001

SHEET NO.

T101

BLDG 1-A, FIRST FLOOR PLAN - TELECOM

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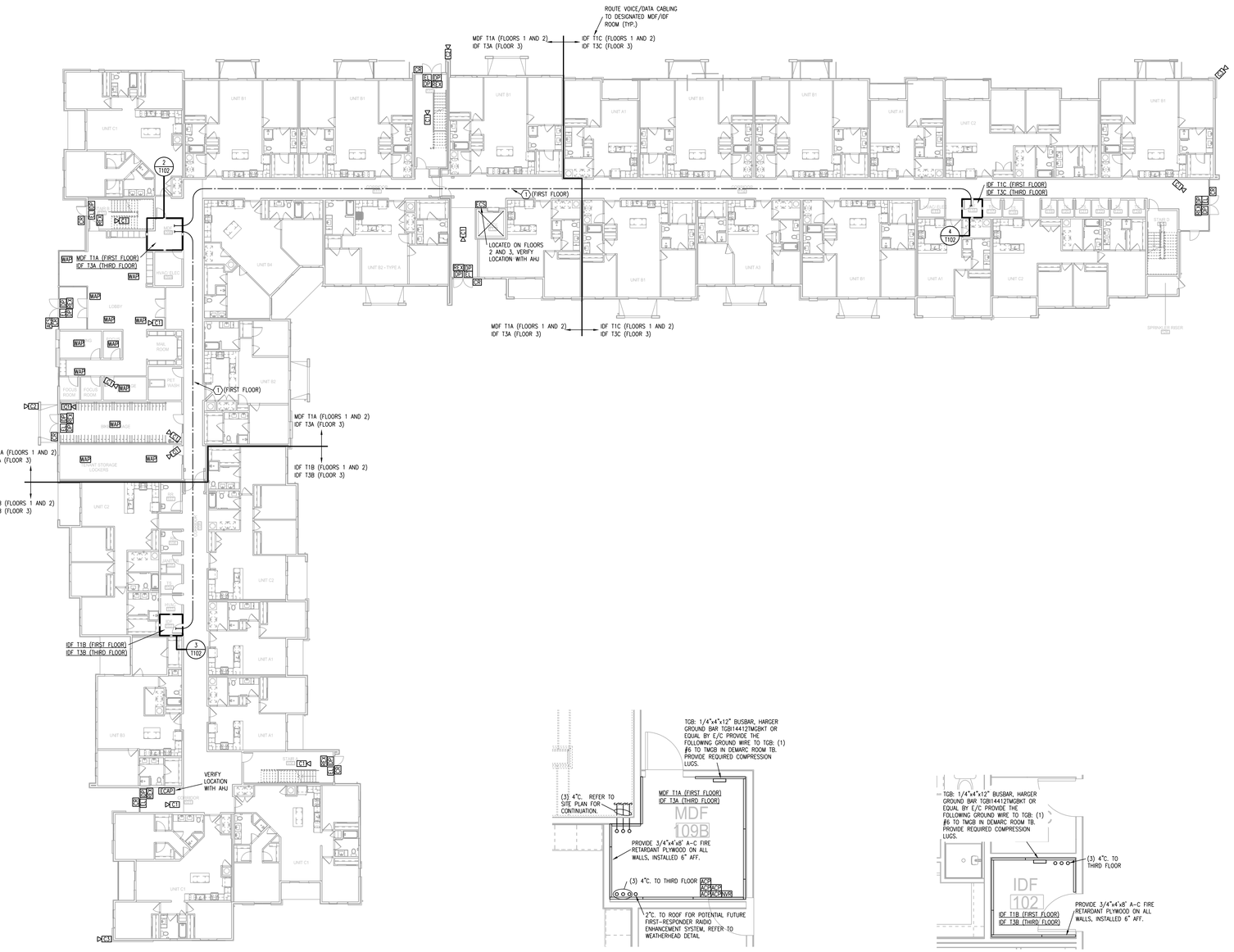
LSA PROJECT NO. 2104008

LEGEND:
1 (3) 4" EMT CONDUITS BY E/C

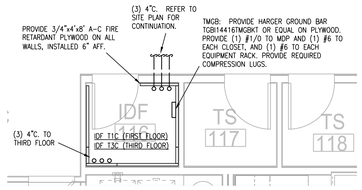
NOTES:
1. ROUTE ALL CABLING FOR CARD READERS AND CAMERAS TO MDF T1A.



1 BLDG 2-A, FIRST FLOOR PLAN
1/16"=1'-0" (THIRD FLOOR SIM.) TELECOM NORTH

2 PARTIAL FLOOR PLAN
1/4"=1'-0" TELECOM NORTH

3 PARTIAL FLOOR PLAN
1/4"=1'-0" TELECOM NORTH



4 PARTIAL FLOOR PLAN
1/4"=1'-0" TELECOM NORTH

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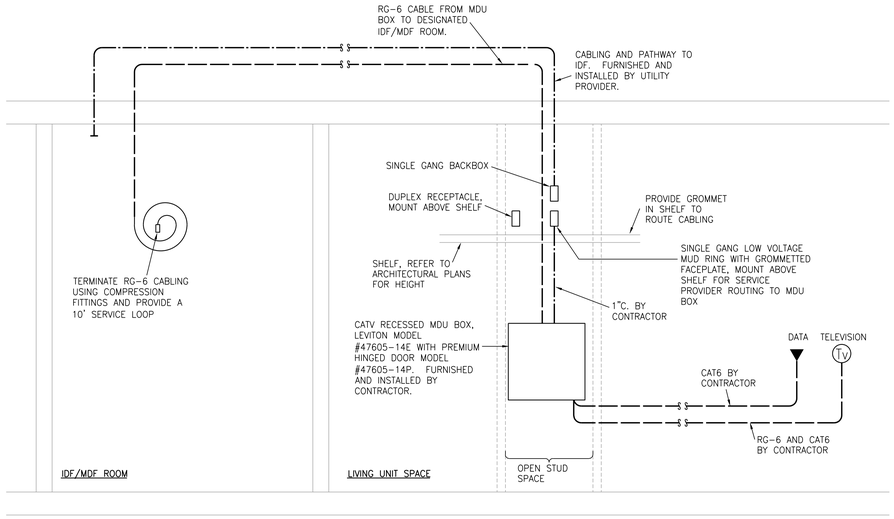
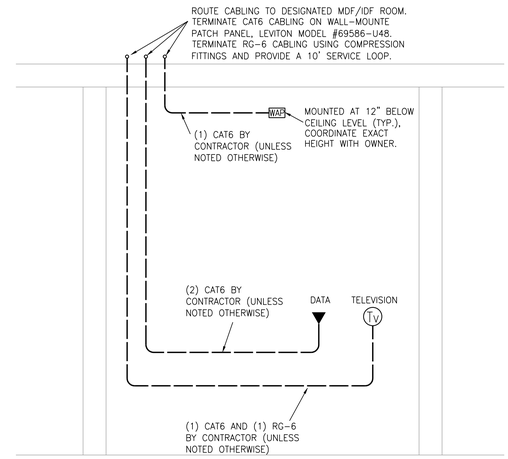
SHEET NO.

T102

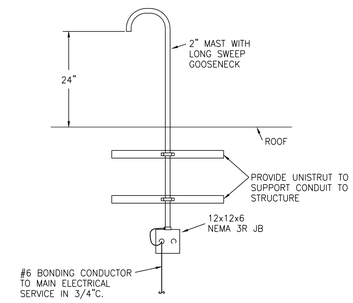
BLDG 2-A, PARTIAL FIRST FLOOR PLAN - TELECOM



1 TYPICAL APARTMENT RISER DIAGRAM
NO SCALE



2 TYPICAL COMMON/OFFICE AREA RISER DIAGRAM
NO SCALE



3 WEATHERHEAD DETAIL
NO SCALE

TWO-WAY COMMUNICATION SYSTEM SCHEDULE				
MARK	MANUFACTURER	MODEL NUMBER	DESCRIPTION	REMARKS
ECAP	CORNELL	A-4800M	EMERGENCY CALL ANNUNCIATOR PANEL	1
ECS	CORNELL	4800V	EMERGENCY CALL STATION	2
PS	CORNELL	B-5248A	POWER SUPPLY	3

REMARKS:
1 - PROVIDE POWER SUPPLIES AS REQUIRED. PROVIDE WITH STI MODEL #STI-7521 NEMA 4X CLEAR ENCLOSURE WITH THUMB LOCK.
2 - PROVIDE WITH DOUBLE GANG BACKBOX AND STI MODEL #STI-7511E CLEAR ENCLOSURE WITH THUMB LOCK.
3 - VERIFY SIZE OF POWER SUPPLY WITH LAYOUT OF THE SYSTEM.

ACCESS CONTROL CABLE SCHEDULE				
MARK	MANUFACTURER	MODEL/PART NUMBER	DESCRIPTION	REMARKS
1C,2C,3C,4C	BELDEN	538AFS	INSIDE ACCESS CONTROL CABLE (COMBO CABLE)	1
5C	BELDEN	5302UE	ELECTRIC LOCK CABLE 18 GA 4 COND STRANDED	1, 2
6C	CSC	759218	OUTSIDE ACCESS CONTROL CABLE (COMBO CABLE)	1

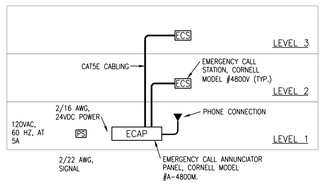
REMARKS:
1 - PROVIDED AND INSTALLED BY E/C.
2 - E/C TO ROUTE CABLE FROM DEVICE AND LEAVE A 8'-0" SERVICE LOOP AT THE BURGLAR ALARM PANEL. PROVIDE A 24" SERVICE LOOP AT DEVICE. PROVIDE A MECHANICALLY PRINTED LABEL ON EACH END OF EACH CABLE FOR REFERENCE.
3 - PROVIDED AS A PART OF THE DOOR HARDWARE PACKAGE.

ACCESS CONTROL LEGEND	
ACP	ACCESS CONTROL PANEL
CR	HID CARD READER
REX	REQUEST TO EXIT *
DP	DOOR POSITION SWITCH *
EL	ELECTRIC LOCK (24V DC.) *
PS	POWER SUPPLY (24V DC.) *
ADA	ADA PUSH BUTTON *
DADA	DUAL ADA PUSH BUTTON *
ADAM	ADA MOTORIZED OPERATOR *
AMS	AUDIO INTERCOM MASTER STATION
AIC	AUDIO INTERCOM
DPDP	DOUBLE THROW, DOUBLE POLE DOOR POSITION SWITCH *

* - INDICATES PROVIDED BY DOOR HARDWARE SUPPLIER. REFER TO DOOR HARDWARE SPECIFICATIONS FOR FURTHER WIRING/POWER REQUIREMENTS.

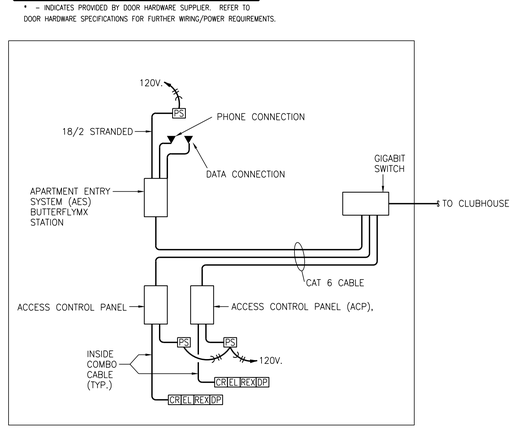
SECURITY SCHEDULE				
MARK	MANUFACTURER	MODEL NUMBER	DESCRIPTION	REMARKS
CR	SALTO	XS4	CARD READER	
ACP	SALTO	XS4 CU42EO/CU4200	ACCESS CONTROL PANEL/AUXILLIARY CONTROL PANEL	2
	SALTO		FOBs	1
C1	MARCH NETWORKS	35835-101	INDOOR CAMERA	
C2	AXIS	-	OUTDOOR 180° CAMERA	
C3	AXIS	P3717-PLE	OUTDOOR 360° CAMERA	3

REMARKS:
1 - PROVIDE 600.
2 - PROVIDE QUANTITIES SHOWN ON PLANS.
3 - PROVIDE WITH T94N01D PENDANT KIT.

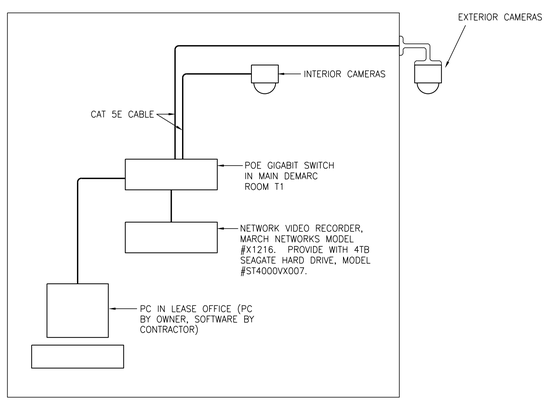


4 TWO-WAY COMMUNICATION DIAGRAM
NO SCALE

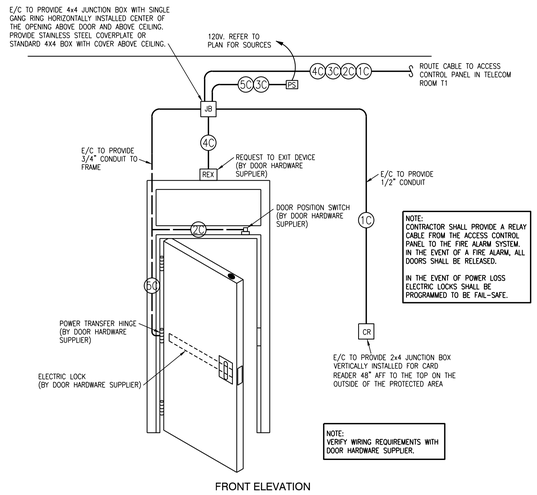
LEGEND:
1C PROXIMITY CARD READER (ORANGE)
18GA./6 COND. TWISTED OVERALL SHIELD, RISER RATED CABLE.
2C MAGNETIC SWITCH (WHITE)
18GA./2 COND. TWISTED OVERALL SHIELD, RISER RATED CABLE.
3C ELECTRIC LOCK (GRAY)
16GA./4 COND. TWISTED OVERALL SHIELD, RISER RATED CABLE.
4C REQUEST TO EXIT (BLUE)
18GA./4 COND. TWISTED OVERALL SHIELD, RISER RATED CABLE.
5C ELECTRIC LOCK FROM PS TO PUSHBAR
18GA./4 COND. TWISTED OVERALL SHIELD, RISER RATED CABLE.



7 TYPICAL ACCESS CONTROL PANEL DETAIL
NO SCALE



5 TYPICAL SECURITY CAMERA DETAIL
NO SCALE

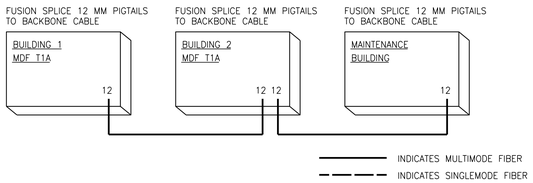


NOTE:
CONTRACTOR SHALL PROVIDE A RELAY CABLE FROM THE ACCESS CONTROL PANEL TO THE FIRE ALARM SYSTEM. IN THE EVENT OF A FIRE ALARM, ALL DOORS SHALL BE RELEASED.

IN THE EVENT OF POWER LOSS ELECTRIC LOCKS SHALL BE PROGRAMMED TO BE FAIL-SAFE.

NOTE:
VERIFY WIRING REQUIREMENTS WITH DOOR HARDWARE SUPPLIER.

6 ACCESS CONTROL DOOR DETAIL
NO SCALE — SINGLE DOOR ENTRY



8 FIBER BACKBONE CABLE TERMINATION DETAIL
NO SCALE

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REVISIONS
1 PERMIT REVIEW COMMENTS 08-17-21

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TELECOM DETAILS