

RE-ROSE CMLC MCA  
DELEHANN'S COR  
15/1100+200  
DRAWING @ BOX (WORKS)  
3625 GRN @ 575-5151  
DATE 55-80-1224

Sec 192 P.M.  
New piping layout

**FIRE PROTECTION SPECIFIC PROPOSED NOTES**

1. PROVIDE SERVICES OF A MECHANICAL CONTRACTOR TO REMOVE SECTIONS OF EXISTING DUCTWORK FROM THE STAIRWELLS. REMOVE ABANDONED DUCTWORK COMPLETELY.
2. REMOVE A SECTION OF RETURN AIR DUCTWORK TO CLEAR THE PROPOSED PIPE ROUTE. CUT OUT A SECTION OF DUCTWORK FROM THE STAIRWELL AND INSTALL A SECTION OF FLEXIBLE DUCT UP AND OVER PROPOSED PIPING.
3. PROVIDE THE SERVICES OF AN ELECTRICAL CONTRACTOR TO REMOVE SECTIONS OF EXISTING ELECTRICAL DUCTWORK AND IDENTIFY CIRCUITS AS REQUIRED. PROVIDE NEW LEADS AND CONDUCTORS AS REQUIRED.
4. REMOVE THE ABANDONED SWITCH AND TRANSFORMER MOUNTED ABOVE THE CEILING. CONTROL PANEL TO REMAIN.
5. PROVIDE THE SERVICES OF A GENERAL TRADES CONTRACTOR TO PATCH THE STAIRWELL WALLS TO RESTORE THE FIRE RATING INTEGRITY.

6. PROVIDE A COMPLETE FIRE PROTECTION SPRINKLER SYSTEM WITH THE FOLLOWING NOTES:  
 NOTES DRAWING FOR ALL SPRINKLER PIPING SHALL BE SHOWN CONCEALED ABOVE CEILING OR IN CHASES EXCEPT WHERE NOTED OTHERWISE. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING FRUITURE AND FINISHES. SPRINKLER PIPING SHALL BE "METALLIC" GROOVED JOINT PIPING SYSTEM WITH SCHEDULE 40 BLACK IRON PIPE FOR MAINS 2 1/2" AND ABOVE, SCHEDULE 40 BLACK IRON PIPE WITH THREADED FITTINGS AND DISTRIBUTION LOOPS. OBTAIN APPROVAL FOR ANY DEVIATIONS FROM DESIGN. BRANCHES TO HEADS MAY BE FORMED TO SUIT FIELD CONDITIONS.

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PROJECT: DELEHANN HALL (LUVF)  
ADDRESS: CUSTODIEN NUNCIOE LABS.  
CITY: BURLINGTON, VERMONT  
DRAWN BY: SPARKS  
TITLE: SPRINKLER  
SCALE: 1/8"=1'-0"  
DATE: 07/27/84  
JOB NO.: NORTH COUNTRY FIRE PROTECTION  
P.O. BOX 2104 - COLLETSVILLE VT  
(802) 878-0594 - COLLETSVILLE VT

WATER DATA  
STATIC: 85  
RESIDUAL: 80  
PITOT: 80  
LOW FLOW: 100  
DATE: 10/24

DESIGN: CRITIKA  
H20 DESIGN  
20/1100+200  
(RENOVATION TO EXISTING)  
IN-CALCULUM

UNDERWRITERS:  
FIRE DEPT. CONN.  
ELECTRICAL WIRING BY  
UNDERGROUND BY  
EXCAVATION & BACKFILL BY  
THRUST BLOCKS BY  
PAINTING BY  
CUTTING & PATCHING BY

CONTRACT WITH:  
ADDRESS:  
CITY:  
PHONE:

DATE: BY: CO-ORD. REVISIONS - LOCATE BY GRID COORDINATES

TYPE & SIZE: AUTOMATIC SPRINKLER SYSTEMS  
HEADS: FINISH MODEL (DEGREE) QTY:

SPRINKLER HEAD SYMBOLS:  
 ○ UPRIGHT ON 1/2" OUTLET  
 ○ PENDANT ON 1/2" OUTLET  
 ○ UPRIGHT ON 1" OUTLET  
 ○ PENDANT ON 1" OUTLET  
 ○ DRY PENDENT ON 1" OUTLET  
 ○ FLUSH ON 1" OUTLET  
 ○ SIDEWALL ON 1/2" OUTLET

STANDARD SYMBOLS:  
 □ ALARM CHECK VALVE  
 □ RISER W/ GATE VALVE  
 □ RISER W/ DRUG VALVE  
 □ RISER W/ DRUG VALVE  
 □ RISER W/ DRUG VALVE  
 □ WATER MOTOR BELL  
 □ ELECTRIC FIRE DEPT. CONN.  
 □ FLUSH FIRE DEPT. CONN.

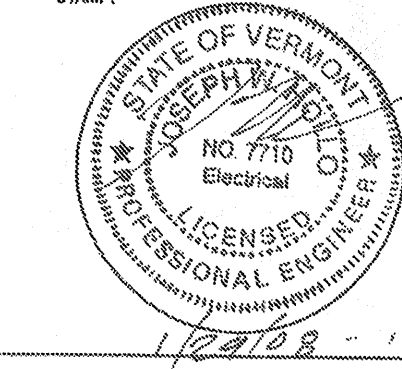
STANDARD SYMBOLS:  
 # POST INDICATOR VALVE  
 □ FIRE HYDRANT  
 □ FIRE DEPT. CONNECTION  
 □ C-S & Y GATE VALVE  
 □ SWING CHECK VALVE  
 □ NEW UNDERGROUND  
 □ EXIST. UNDERGROUND

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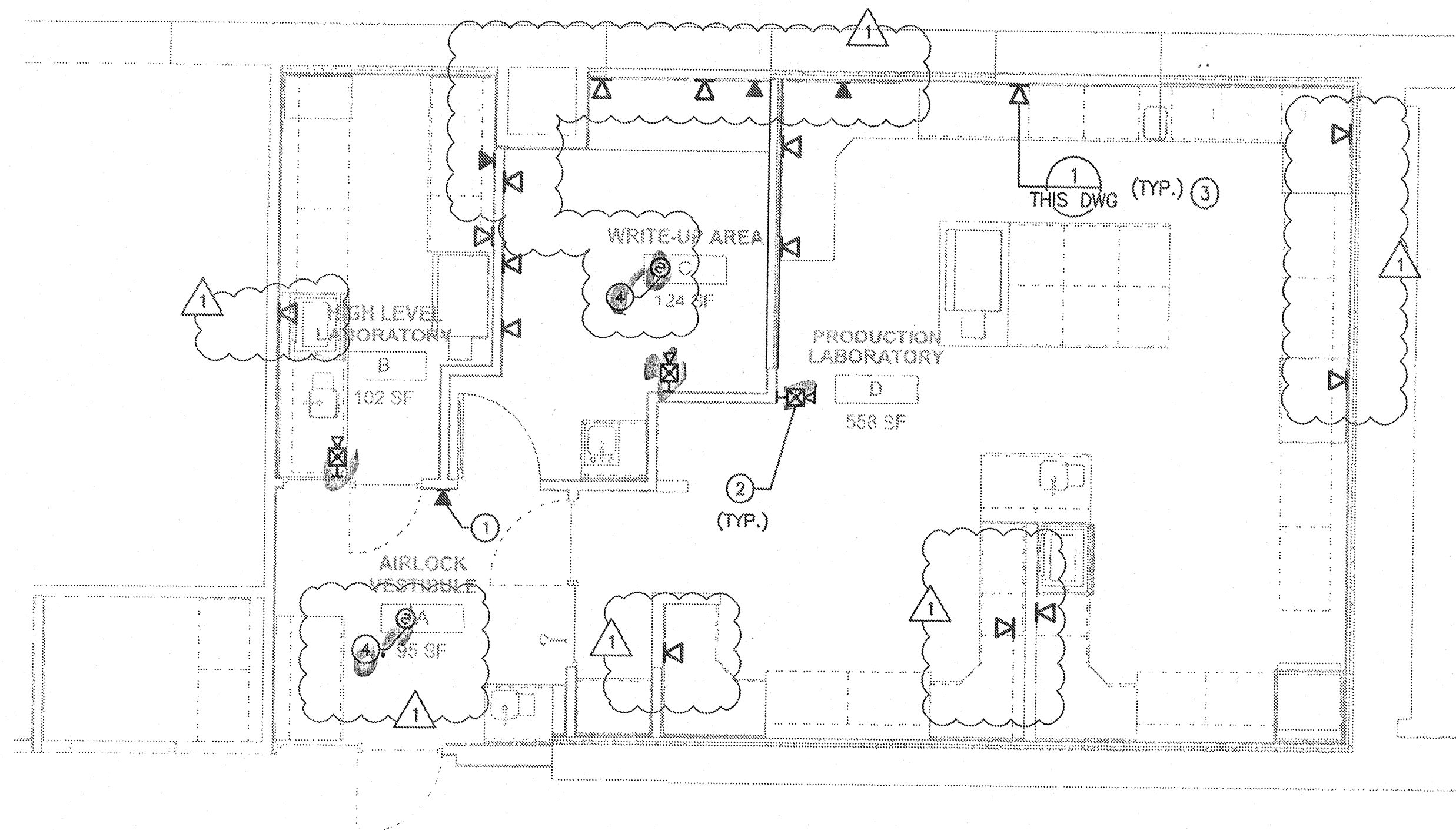


**GENERAL NOTES:**

A. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DRAWING E-0.

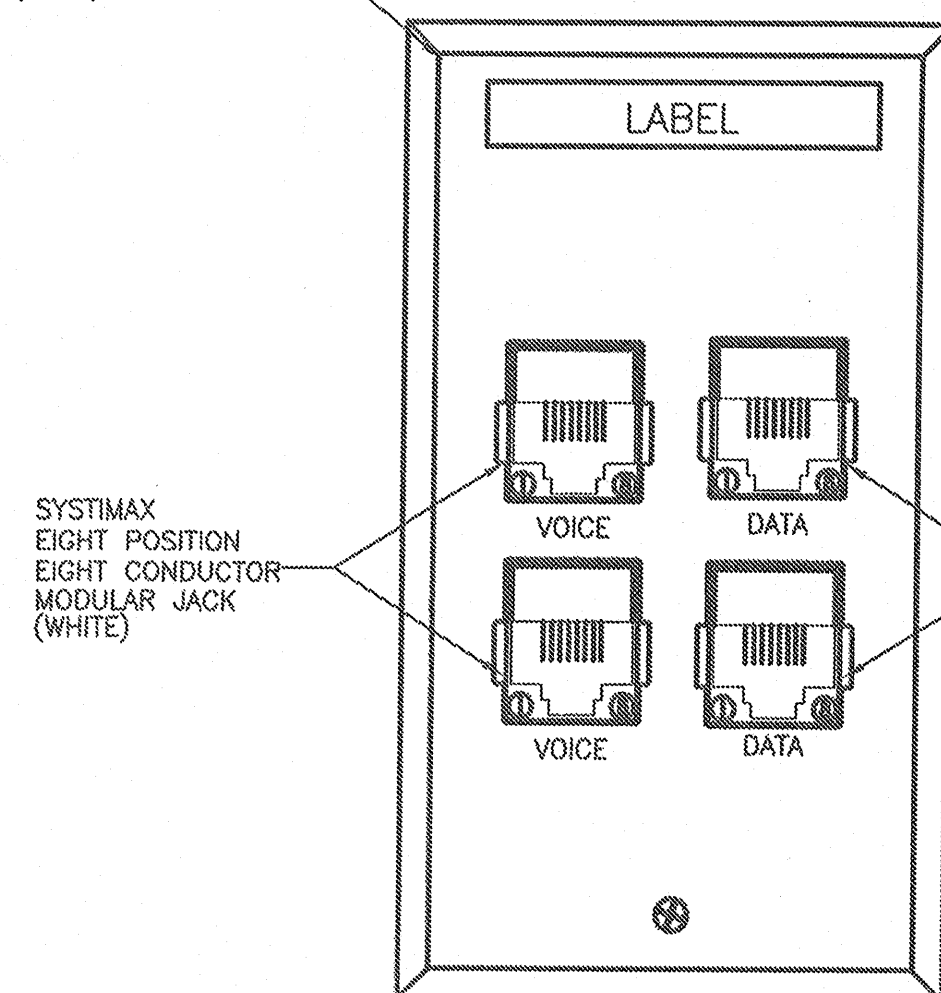
**KEYED NOTES:**

1. TELEPHONE JACK.
2. PROVIDE 15 CANDELA FIRE ALARM HORN/STROBE. MATCH EXISTING UNIVERSITY TYPE. TIE INTO EXISTING BUILDING FIRE ALARM SYSTEM.
3. COORDINATE FINAL LOCATION OF DATA JACKS WITH LAB OWNER.
4. PROVIDE SMOKE DETECTOR. MATCH EXISTING UNIVERSITY TYPE AND TIE INTO BUILDING FIRE ALARM SYSTEM.



1 TELECOM/LIFE SAFETY  
SCALE: 1/4"=1'-0"

SYSTEMAX  
MODULAR FACEPLATE  
(GRAY)



SYSTEMAX  
EIGHT POSITION  
EIGHT CONDUCTOR  
MODULAR JACK  
(WHITE)

SYSTEMAX  
EIGHT POSITION  
EIGHT CONDUCTOR  
MODULAR JACK  
(BLUE)

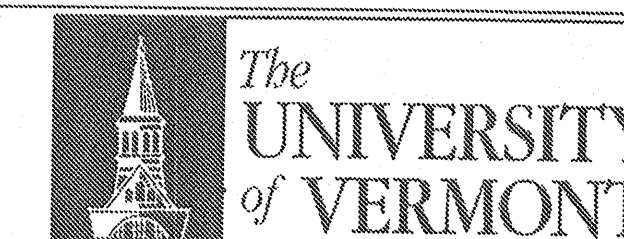
VOICE - (2) 4-PAIR CAT. 5e UTP  
DATA - (2) 4-PAIR CAT. 5e UTP

1 DATA OUTLET FACEPLATE  
NTS

*Terms + cable by UVM*

| 1   | CONFORMED         | 01/23/08 | IDC  |
|-----|-------------------|----------|------|
| 0   | IFC               | 11/16/07 | IDCA |
| NO. | REVISION OR ISSUE | DATE     | BY   |

KEYPLAN



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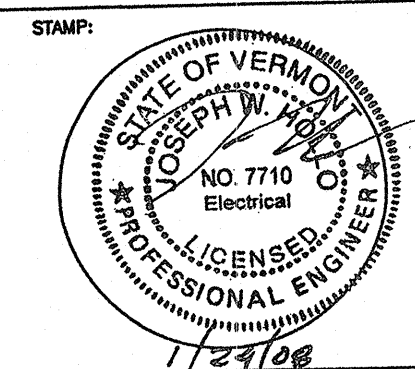
TITLE: TELECOM &  
LIFE SAFETY  
PLAN

DATE ISSUED: DRAWING SCALE:  
ACAD FILE: T-1 EQUIPMENT CODE:

DRAWING NUMBER:

T-1

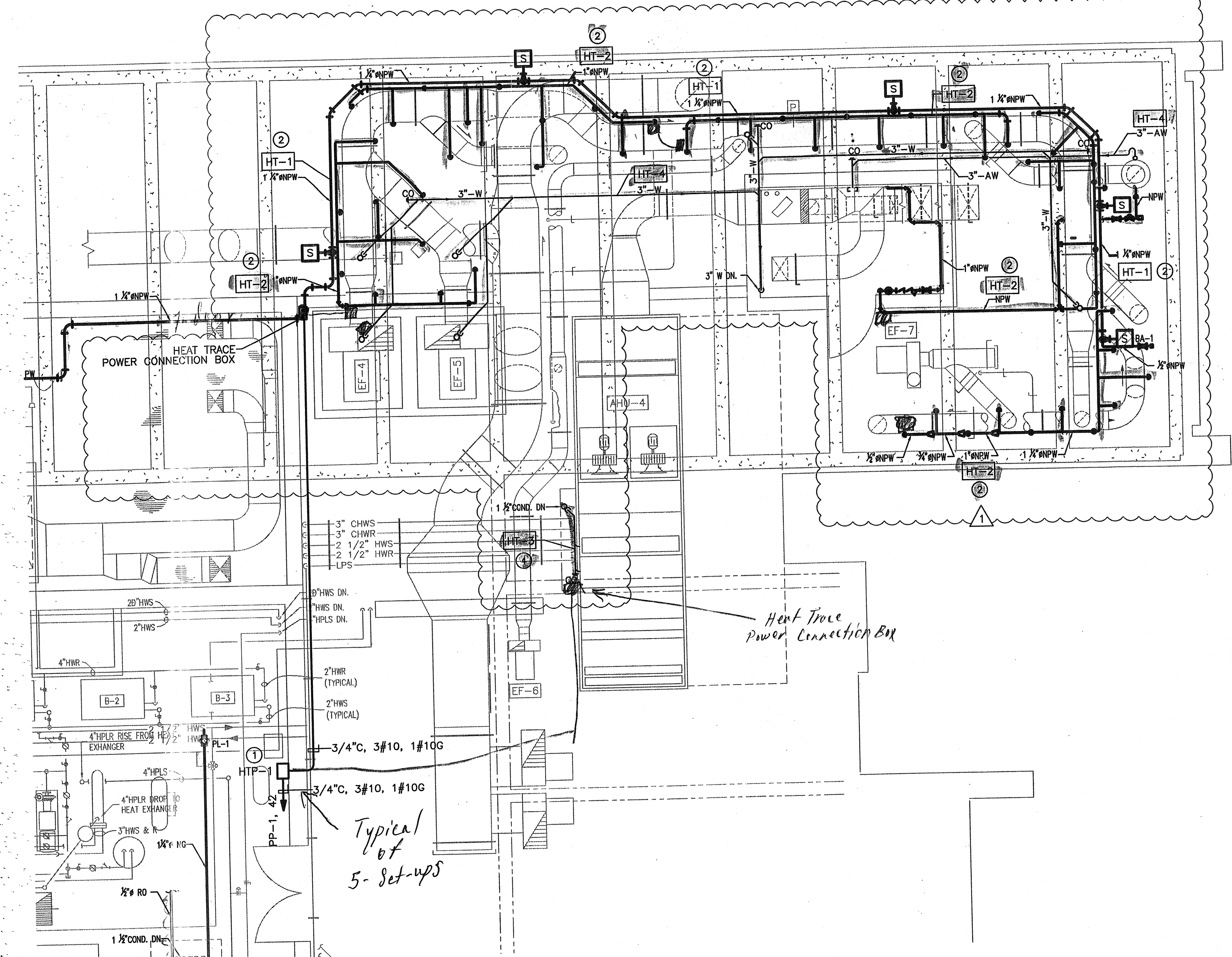




**GENERAL NOTES:**  
 A. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DRAWING E-0.  
 B. REFER TO SPECIFICATIONS 16011 AND 15488 FOR ADDITIONAL INFORMATION.

**KEYED NOTES:**

- PROVIDE HEAT TRACE CONTROLLER. RAYCHEM DIGITRACE MODEL 910, 120V, 30A WITH AMBIENT SENSING THERMOSTAT. SET AT 40°F OR APPROVED EQUAL. COORDINATE FINAL LOCATION WITH UNIVERSITY.
- HEAT TRACE CIRCUIT HT-01 COVERS OUTSIDE 1.25" WASHDOWN HEADER NPW LINES. CIRCUIT HT-02 COVERS OUTSIDE 1.5" THROUGH 2.5" WASHDOWN ZONE NPW LINES. EXTEND HEAT TRACE CABLE TO BRANCHES OFF OF MAIN LINES. PROVIDE ADDITIONAL POWER CONNECTION BOXES AS REQUIRED FOR COMPLETE SYSTEM.
- HEAT TRACE SCRUBBER WASH DOWN NOZZLE AND SCRUBBER. EXTEND HT-4 AS REQUIRED.
- EXTEND CONDUIT AND CABLE AND HEAT TRACE CONDENSATE DRAIN. PROVIDE POWER CONNECTION BOX AS REQUIRED.



1 ROOF LEVEL - HEAT TRACE PLAN  
 SCALE: 1/4"=1'-0"

| HEAT TRACE SCHEDULE |             |                         |                      |                         |           |                            |                           |         |                                 |
|---------------------|-------------|-------------------------|----------------------|-------------------------|-----------|----------------------------|---------------------------|---------|---------------------------------|
| HEAT TRACE MARK NO. | DESCRIPTION | PIPE SIZE/TYPE          | INSULATION SIZE/TYPE | HEAT TRACE CABLE TYPE ① | RUNS/PIPE | APPROX CABLE LENGTH (FT) ② | HEAT TRACE SOURCE/CIRCUIT | VOLTAGE | REMARKS                         |
| HT-1 (40°F)         | NPW LINE    | 1.25"/CU                | 1"/FG                | 3 WATT                  | 1         | 100                        | HTP-1/1                   | 120     | COMBINED WITH CIRCUIT HT-2,3,&4 |
| HT-2 (40°F)         | NPW LINE    | .5", .75", 1", 1.25"/CU | 1"/FG                | 3 WATT                  | 1         | 180                        | HTP-1/1                   | 120     | COMBINED WITH CIRCUIT HT-1,3,&4 |
| HT-3 (40°F)         | COND. LINE  | 1.5"/PVC                | 1"/FG                | 5 WATT                  | 1         | 10                         | HTP-1/1                   | 120     | COMBINED WITH CIRCUIT HT-1,2&4  |
| HT-4 (40°F)         | W/AW LINES  | 3"/PVC                  | 1"/FG                | 8 WATT                  | 1         | 100                        | HTP-1/1                   | 120     | COMBINED WITH CIRCUIT HT-1,2&3  |

*Handwritten notes in table: Total Cable 1,140 ft.*

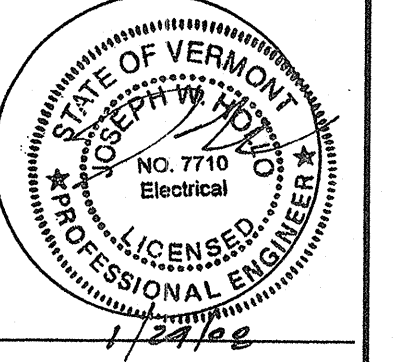
KEYPLAN

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 Laboratory

TITLE: ELECTRICAL HEAT TRACE PLAN

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: E-4 EQUIPMENT CODE: \_\_\_\_\_  
 DRAWING NUMBER: E-4





**GENERAL NOTES:**  
 A. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DRAWING E-0.

| PANEL SCHEDULE FORM |                          |                   |      |                        |             |         |                    |                   |             |   |         |                             |                   | PROJECT: 364972         |      |                       |         |                                      |    |
|---------------------|--------------------------|-------------------|------|------------------------|-------------|---------|--------------------|-------------------|-------------|---|---------|-----------------------------|-------------------|-------------------------|------|-----------------------|---------|--------------------------------------|----|
|                     |                          |                   |      |                        |             |         |                    |                   |             |   |         |                             |                   | DATE: 10/22/2007        |      |                       |         |                                      |    |
|                     |                          |                   |      |                        |             |         |                    |                   |             |   |         |                             |                   | DESIGNER: BRAJDIC       |      |                       |         |                                      |    |
| Panel Number: PP-1  |                          |                   |      |                        |             |         |                    |                   |             |   |         |                             |                   | 3 Phase Voltage LL: 208 |      |                       |         |                                      |    |
|                     |                          |                   |      |                        |             |         |                    |                   |             |   |         |                             |                   | 4 Wire Voltage LG: 120  |      |                       |         |                                      |    |
| OC Devices: CKT BRK |                          |                   |      | Device Family: BOLT ON |             |         |                    | Mounting: SURFACE |             |   |         | Enclosure: NEMA 1           |                   |                         |      |                       |         |                                      |    |
| Comments: 225 A MCB |                          |                   |      |                        |             |         |                    | Bus Rating: 225A  |             |   |         | Available Fault Duty: 1500A |                   |                         |      |                       |         |                                      |    |
| ckt no.             | description/ location    | * load criteria * |      |                        | total VA    | remarks | device Amps        | P                 | device Amps | P | remarks | total VA                    | * load criteria * |                         |      | description/ location | ckt no. |                                      |    |
| 1                   | HIGH LEVEL LAB OVEN      | RCPT              | 360  | 1                      | 0.7         | 252     |                    | 30                | 1           | A | 20      | 1                           | 126               | RCPT                    | 180  | 1                     | 0.7     | PROD. LAB EAST ULTRASOUND            | 2  |
| 3                   | PROD. LAB WEST OVEN      | RCPT              | 360  | 1                      | 0.7         | 252     |                    | 30                | 1           | B | 20      | 1                           | 126               | RCPT                    | 180  | 1                     | 0.7     | PROD. LAB EAST CENTRIFUGE            | 4  |
| 5                   | PROD. LAB EAST OVEN      | RCPT              | 360  | 1                      | 0.7         | 252     |                    | 30                | 1           | C | 20      | 1                           | 882               | RCPT                    | 180  | 7                     | 0.7     | PROD. LAB RECEPTS.                   | 6  |
| 7                   | PROD. LAB WEST RECEPTS.  | RCPT              | 180  | 4                      | 0.7         | 504     |                    | 20                | 1           | A | 30      | 1                           | 1260              | MISC                    | 1800 | 1                     | 0.7     | PANEL IN PENTHOUSE                   | 8  |
| 9                   | WRITE UP AREA RECEPTS.   | RCPT              | 180  | 5                      | 0.7         | 630     |                    | 20                | 1           | B | 20      | 1                           | 252               | RCPT                    | 360  | 1                     | 0.7     | PROD. LAB EAST OVEN                  | 10 |
| 11                  | WRITE UP AREA RECEPTS.   | RCPT              | 180  | 6                      | 0.7         | 756     |                    | 20                | 1           | C | 20      | 1                           | 756               | RCPT                    | 180  | 6                     | 0.7     | PROD. LAB E / AIRLOCK / HIGH LEV. LA | 12 |
| 13                  | HIGH LEV. LAB GLOVE BOX  | RCPT              | 180  | 1                      | 0.7         | 126     |                    | 20                | 1           | A | 20      | 1                           | 126               | RCPT                    | 180  | 1                     | 0.7     | PROD. LAB NORTH CENTRIFUGE           | 14 |
| 15                  | HIGH LEV. LAB ULTRASOUND | RCPT              | 180  | 1                      | 0.7         | 126     |                    | 20                | 1           | B | 20      | 1                           | 252               | MISC                    | 360  | 1                     | 0.7     | Door Control Power                   | 16 |
| 17                  | HIGH LEV. LAB CENTRIFUGE | RCPT              | 180  | 1                      | 0.7         | 126     |                    | 20                | 1           | C | 20      | 1                           | 126               | MISC                    | 180  | 1                     | 0.7     | SPARE                                | 18 |
| 19                  | Shunt Trip Power         |                   |      |                        |             | 0       |                    | 20                | 1           | A | 20      | 1                           | 739.2             | LGT                     | 42   | 22                    | 0.8     | Production Lab Receivables           | 20 |
| 21                  | Air Lock Power           |                   |      |                        |             | 0       |                    | 20                | 1           | B | 20      | 1                           | 403.2             | LGT                     | 42   | 12                    | 0.8     | HIGH LEVEL LAB / WRITE-UP LIGHTING   | 22 |
| 23                  | FUME HOOD #1 RECEPT.     | RCPT              | 1200 | 1                      | 0.7         | 840     | SHUNT TRIP BREAKER | 30                | 1           | C | 30      | 1                           | 840               | RCPT                    | 1200 | 1                     | 0.7     | FUME HOOD #3 RECEPT.                 | 24 |
| 25                  |                          |                   |      |                        |             | 0       |                    |                   |             | A |         |                             | 0                 |                         |      |                       |         |                                      | 26 |
| 27                  | FUME HOOD #1 RECEPT.     | RCPT              | 1200 | 1                      | 0.7         | 840     | SHUNT TRIP BREAKER | 30                | 1           | B | 30      | 1                           | 840               | RCPT                    | 1200 | 1                     | 0.7     | FUME HOOD #4 RECEPT.                 | 28 |
| 29                  |                          |                   |      |                        |             | 0       |                    |                   |             | C |         |                             | 0                 |                         |      |                       |         |                                      | 30 |
| 31                  | FUME HOOD #2 RECEPT.     | RCPT              | 1200 | 1                      | 0.7         | 840     | SHUNT TRIP BREAKER | 30                | 1           | A | 30      | 1                           | 840               | RCPT                    | 1200 | 1                     | 0.7     | FUME HOOD #4 RECEPT.                 | 32 |
| 33                  |                          |                   |      |                        |             | 0       |                    |                   |             | B |         |                             | 0                 |                         |      |                       |         |                                      | 34 |
| 35                  | FUME HOOD #2 RECEPT.     | RCPT              | 1200 | 1                      | 0.7         | 840     | SHUNT TRIP BREAKER | 30                | 1           | C | 30      | 1                           | 840               | RCPT                    | 1200 | 1                     | 0.7     | FUME HOOD #5 RECEPT.                 | 36 |
| 37                  |                          |                   |      |                        |             | 0       |                    |                   |             | A |         |                             | 0                 |                         |      |                       |         |                                      | 38 |
| 39                  | FUME HOOD #3 RECEPT.     | RCPT              | 1200 | 1                      | 0.7         | 840     | SHUNT TRIP BREAKER | 30                | 1           | B | 30      | 1                           | 840               | RCPT                    | 1200 | 1                     | 0.7     | FUME HOOD #5 RECEPT.                 | 40 |
| 41                  |                          |                   |      |                        |             | 0       |                    |                   |             | C |         |                             | 0                 |                         |      |                       |         |                                      | 42 |
| End Use Loads:      |                          | Phase A           | VA:  | 4813                   |             | Phase B |                    | VA:               | 5401        |   | Phase C |                             | VA:               | 6258                    |      |                       |         |                                      |    |
| Total Loads:        |                          | Demand KVA:       | 16.5 |                        | Demand FLA: |         | 45.8               |                   |             |   |         |                             |                   |                         |      |                       |         |                                      |    |
| REMARKS: 10KA IER   |                          |                   |      |                        |             |         |                    |                   |             |   |         |                             |                   |                         |      |                       |         |                                      |    |

1

|     |                   |          |      |
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| 1   | CONFORMED         | 01/23/08 | IDC  |
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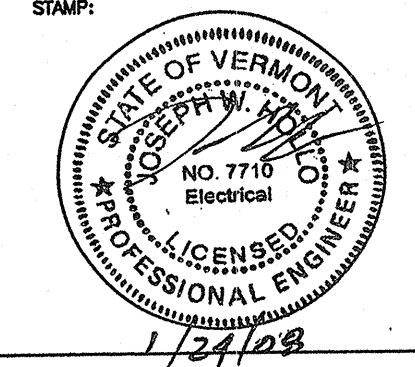
KEYPLAN

**The UNIVERSITY of VERMONT**  
 Delehanty Hall  
 Cosmogenic Nuclide  
 Laboratory

TITLE: ELECTRICAL PANEL SCHEDULE

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: E-3 EQUIPMENT CODE: \_\_\_\_\_  
 DRAWING NUMBER: E-3





**GENERAL NOTES:**  
 A. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DRAWING E-0.

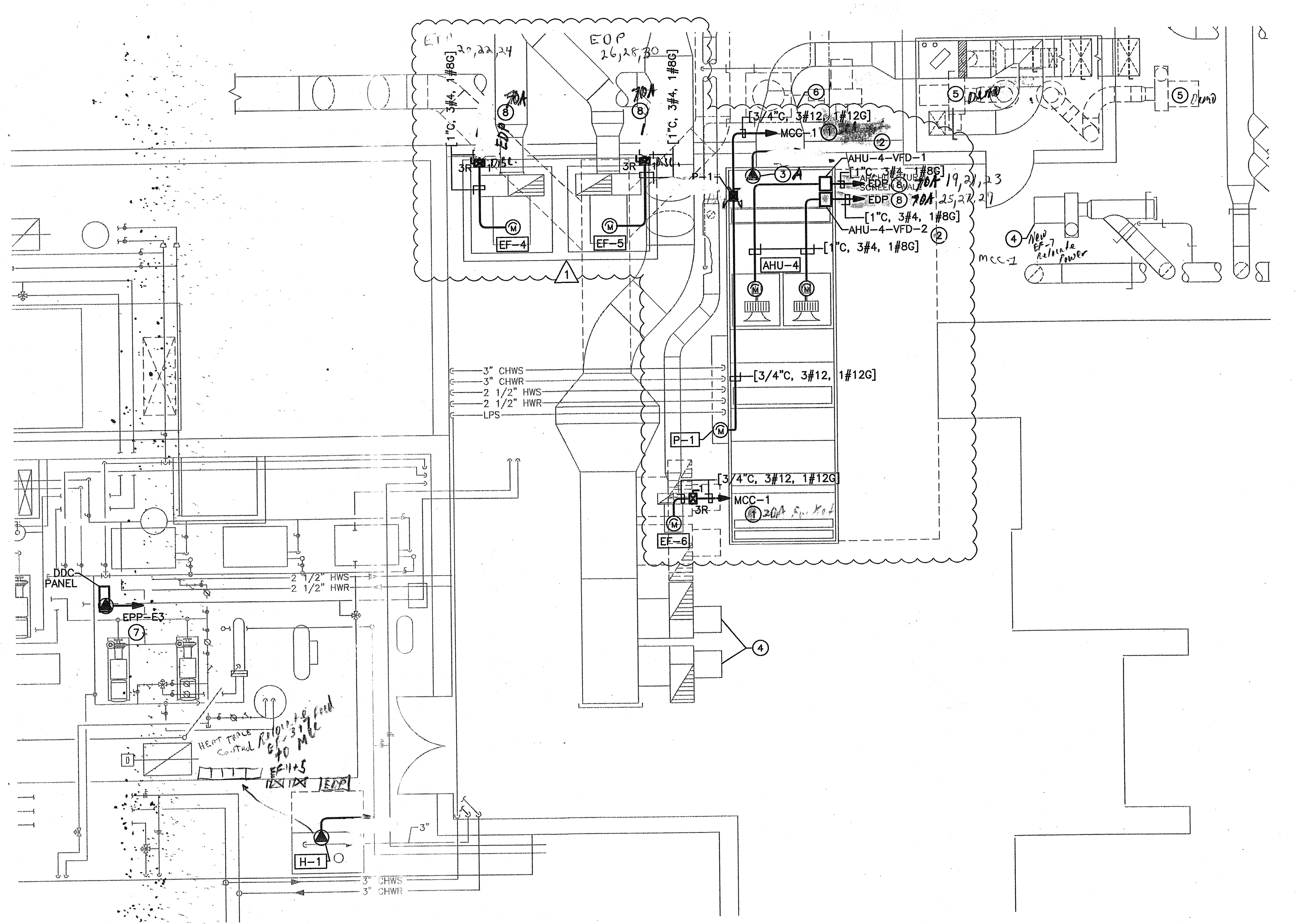
**KEYED NOTES:**

1. PROVIDE NEW 20A, 3-POLE CIRCUIT BREAKER IN PANEL INDICATED. MATCH ALL C-BREAKERS ON AVAILABLE SPACES. PANEL LOCATED IN PENTHOUSE.
2. VFD SUPPLIED AS PART OF PACKAGED SYSTEM. COORDINATE LOCATION WITH MECHANICAL. VFD PRE-WIRED TO MOTOR.
3. SINGLE POINT CONNECTION FOR AHU LIGHTS AND RECEPTACLES.
4. EXISTING FAN TO BE RELOCATED TO THIS LOCATION. EXTEND EXISTING CIRCUITS AS REQUIRED TO NEW LOCATION. SEE MECHANICAL DRAWING M-2 FOR PRESENT LOCATION.
5. EXISTING EXHAUST FANS TO BE REMOVED. DISCONNECT AND REMOVE CONDUIT AND CABLE BACK TO SOURCE PANEL. SEE MECHANICAL DRAWING M-2 FOR MORE INFORMATION.

**KEYED NOTES: (CONT'D)**

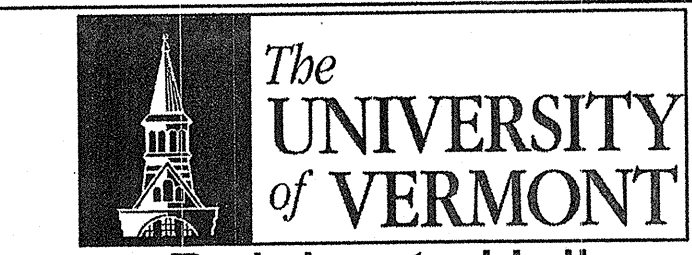
6. PROVIDE ADDRESSABLE DUCT DETECTOR ON DISCHARGE SIDE OF AHU-4 AND TIE INTO DDC SYSTEM. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR.
7. DDC PANEL TO BE ON EMERGENCY POWER. ELECTRICAL CONTRACTOR TO ALLOCATE 20A, 120V CIRCUIT FROM PANEL E-3 IN ROOM 330. UPDATE PANEL SCHEDULE TO INDICATE NEW LOAD.
8. PROVIDE NEW 70A, 3-POLE CIRCUIT BREAKER IN PANEL INDICATED. MATCH EXISTING TYPE. COORDINATE WITH UNIVERSITY ON AVAILABLE SPACES. PANEL LOCATED IN PENTHOUSE.

|     |                   |          |      |
|-----|-------------------|----------|------|
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**1 ELECTRICAL ROOF PLAN**  
 SCALE: 1/4"=1'-0"

KEYPLAN



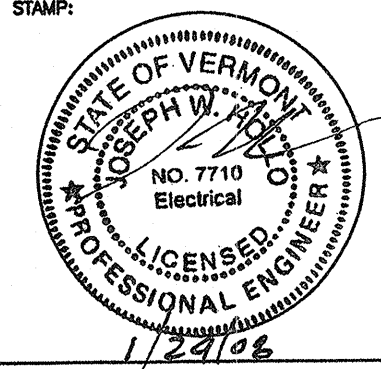
**Delehanty Hall  
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TITLE: **ELECTRICAL  
 ROOF LEVEL  
 POWER  
 PLAN**

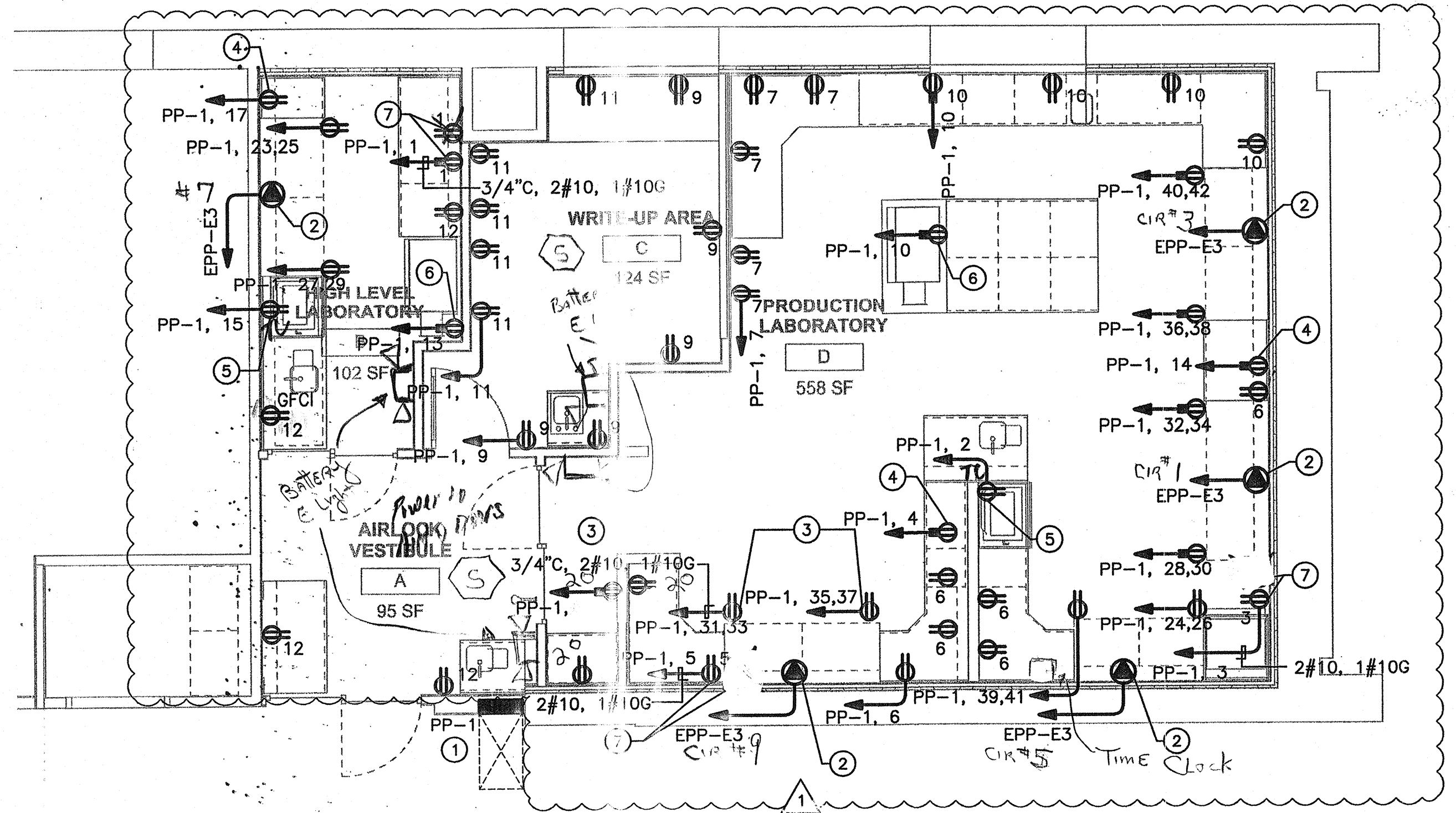
DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: E-2 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER:  
**E-2**





**GENERAL NOTES:**  
 A. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DRAWING E-0.



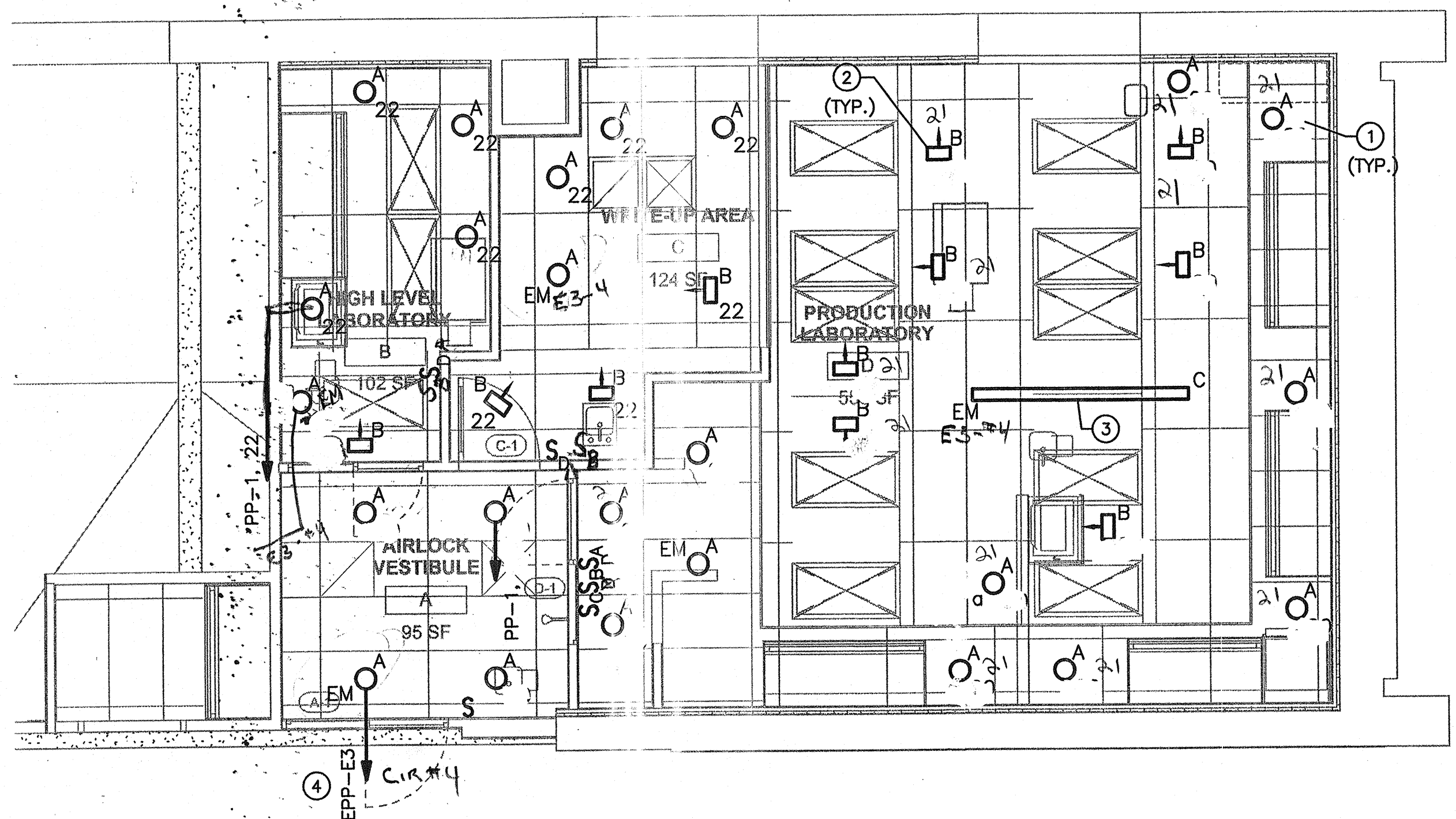
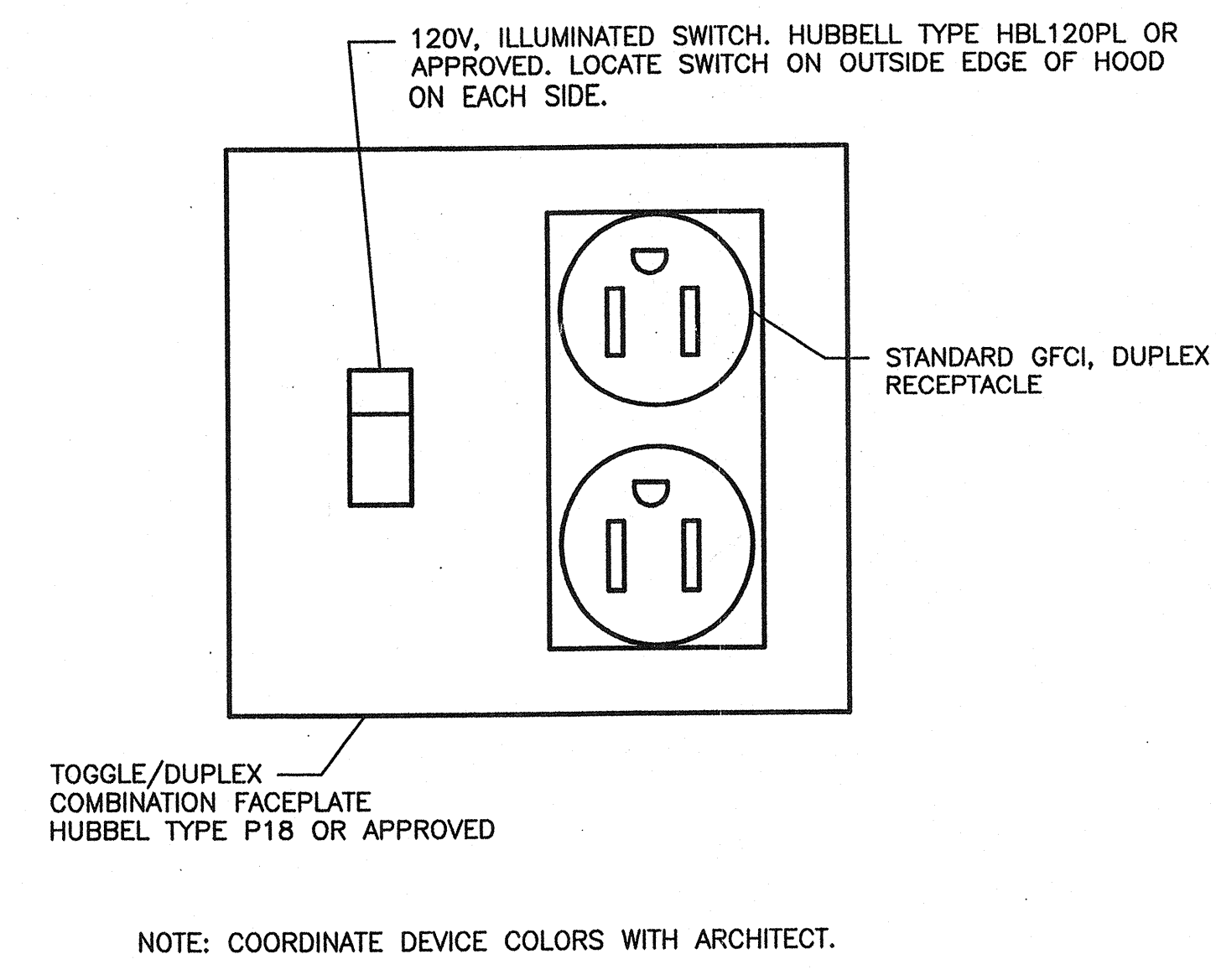
**1 POWER PLAN**  
 SCALE: 1/4"=1'-0"

Shunt Trip Power is CIR. #19  
 Door Control Power CIR. #8

**POWER KEYED NOTES:**

1. PROVIDE 208/120V, 225A PANELBOARD WITH (42) 1-POLE 20A BRANCH CIRCUIT BREAKERS. SQUARE-D TYPE NQOD OR APPROVED. PANEL TO BE FED FROM MAIN 208V DISTRIBUTION PANEL ON LEVEL 1. PROVIDE NEW 225A CIRCUIT BREAKER IN PANEL. MATCH EXISTING TYPE. ROUTE 2 1/2" CONDUIT WITH 4#4/0, 1#4G FROM MAIN PANEL TO NEW PP-1. COORDINATE FINAL LOCATION WITH DDC ALARM PANEL. SEE MECHANICAL DRAWINGS.
2. SINGLE POINT CONNECTION FOR FUME HOOD. EACH FUME HOOD TO BE ON IT'S OWN EMERGENCY POWER 20A, 120V CIRCUIT. ELECTRICAL CONTRACTOR TO ALLOCATE CIRCUITS IN PANEL E-3 LOCATED IN ROOM 330. UPDATE PANEL SCHEDULE TO INDICATE NEW LOADS.
3. PROVIDE INDIVIDUALLY SWITCHED DEDICATED DUPLEX RECEPTACLE. TYPICAL (2) PER FUME HOOD. RECEPTACLE TO BE GFCI TYPE. PROVIDE SHUNT TRIP CIRCUIT BREAKER IN PANEL PP-1 FOR FUME HOOD RECEPTACLES AND TIE INTO DDC SYSTEM FOR SHUTDOWN OF RECEPTACLES IN CASE OF FIRE. SEE DETAIL "A" THIS DRAWING FOR CONFIGURATION. CIRCUITS TO FUME HOOD RECEPTACLES TO BE 3/4"C, 2#10, 1#10G.
4. DEDICATE RECEPTACLE FOR CENTRIFUGE.
5. DEDICATED RECEPTACLE FOR ULTRASOUND. PROVIDE PROGRAMMABLE TIMER FOR RECEPTACLE. UPM #SE-11P OR APPROVED.
6. DEDICATED RECEPTACLE FOR GLOVE BOX.
7. DEDICATED RECEPTACLE FOR OVEN.

**A FUME HOOD SWITCHED RECEPTACLE DETAIL**  
 SCALE: N.T.S.



**2 LIGHTING PLAN**  
 SCALE: 1/4"=1'-0"

**LIGHTING KEYED NOTES:**

1. TYPE "A" FIXTURE: PROVIDE 120V, 8" OPEN REFLECTOR, RECESSED DOWNLIGHT WITH (1) 42W COMPACT FLUORESCENT LAMP. LITHONIA TYPE LP8F OR APPROVED.
2. TYPE "B" FIXTURE: PROVIDE 120V, PENDANT MOUNT, DIRECTIONAL DOWNLIGHT 39W METAL HALIDE LAMP. CAPRI LIGHTING TYPE SEGNO DUE OR APPROVED. MOUNT FIXTURE APPROX. 1'-0" BELOW CEILING.
3. TYPE "C" FIXTURE: PROVIDE 120V, INDIRECT FIXTURE, 9 1/2"Wx 4'-0"L WITH (2) 32W T8 LAMPS. LITE CONTROL VIDERE TYPE OR APPROVED. MOUNT FIXTURE 8'-0" AFF.
4. FIXTURES INDICATED WITH "EM" TO BE ON 20A, 120V EMERGENCY POWER CIRCUIT FROM PANEL E-3 IN ROOM 330. ONE CIRCUIT FOR ALL EMERGENCY FIXTURES IN LAB AREA. ELECTRICAL CONTRACTOR TO ALLOCATE CIRCUIT AND UPDATE PANEL SCHEDULE TO INDICATE NEW LOADS.

| NO. | REVISION OR ISSUE | DATE     | BY   |
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KEYPLAN

**The UNIVERSITY of VERMONT**  
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 Cosmogenic Nuclide Laboratory

TITLE: **ELECTRICAL POWER & LIGHTING PLANS**

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACD FILE: E-1 EQUIPMENT CODE: \_\_\_\_\_  
 DRAWING NUMBER: **E-1**



## ELECTRICAL LEGEND

| SYMBOL | POWER PLAN   |
|--------|--|
|        | 480/277V MAJOR ELECTRICAL COMPONENT OR DEVICE, i.e. MOTOR CONTROL CENTER, SWITCHBOARD, TRANSFORMER, ETC.   |
|        | 208/120V MAJOR ELECTRICAL COMPONENT OR DEVICE, i.e. PANELBOARD, TRANSFORMER, ETC.  |
|        | CONVENIENCE RECEPTACLE—SINGLE, DUPLEX, 4-PLEX, GFCI=GROUND FAULT CIRCUIT INTERRUPTER, IG=ISOLATED GROUND, SG= SURGE, H=HOSPITAL GRADE, EP=EXPLOSION PROOF.                 |
|        | PEDESTAL—DUPLEX OR DUPLEX WITH TELEPHONE/DATA AS INDICATED.  |
|        | TELEPHONE RECEPTACLE—WALL MOUNTED OR FLUSH IN FLOOR, E=EMERGENCY TELEPHONE.  |
|        | DATA RECEPTACLE—WALL MOUNTED OR FLUSH IN FLOOR.  |
|        | TELEPHONE BACKBOARD.   |
|        | SPECIAL PURPOSE RECEPTACLE—NEMA CONFIGURATION AND AMPERAGE AS INDICATED.   |
|        | DUPLEX CONVENIENCE RECEPTACLE—FLUSH IN FLOOR.  |
|        | DISCONNECT SWITCH—NONFUSED OR FUSED (40/60, 40=FUSE AMPERAGE, 60=SWITCH AMPERAGE).   |
|        | ENCLOSED THERMAL MAGNETIC CIRCUIT BREAKER—SEE SPECIFICATION FOR TYPE, OF TRIP. (175/225, 175=TRIP AMPERAGE, 225=FRAME AMPERAGE).   |
|        | ENCLOSED CONTACTOR—MAGNETIC, AMPERAGE INDICATED.   |
|        | ENCLOSED STARTER—MAGNETIC OR COMBINATION MAGNETIC, NEMA SIZE INDICATED.  |
|        | MULTI-OUTLET PLUG STRIP   WIRE MOLD.   |
|        | BUSWAY—FEEDER OR PLUG-IN AS INDICATED. PLUG-IN DEVICE TYPE AND RATING AS INDICATED.  |
|        | CONNECTION POINT TO EQUIPMENT SPECIFIED, SUPPLIED AND INSTALLED UNDER OTHER DIVISIONS. RACEWAY, CONDUCTORS AND CONNECTIONS UNDER THIS DIVISION.                            |
|        | CONNECTION POINT TO MOTOR SPECIFIED, SUPPLIED AND INSTALLED UNDER OTHER DIVISIONS. RACEWAY, CONDUCTORS AND CONNECTIONS UNDER THIS DIVISION. REFER TO ONE-LINE OR SCHEDULE. |
|        | DENOTES TYPICAL NEW EQUIPMENT TAG  |
|        | NEW FEEDER, DISCONNECT SWITCH AND MOTOR.   |
|        | NEW FEEDER UTILIZING EXISTING DISCONNECT SWITCH AND MOTOR  |
|        | MANUAL MOTOR STARTER SWITCH.<br>WP - WEATHER PROTECTED   |
|        | LOCKABLE MANUAL MOTOR STARTER SWITCH.<br>WP - WEATHER PROTECTED  |
|        | CONCRETE EQUIPMENT PAD   |
|        | ELECTRICAL EQUIPMENT ACCESS ZONE AS PER NEC 110.26(A)(1).  |

| SYMBOL | RACEWAY PLAN   |
|--------|--|
|        | CONDUIT—UP   CONDUIT—DOWN.                                       |
|        | CONDUIT—STUBBED AND CAPPED, LOCATION AS INDICATED.               |
|        | GROUND ROD   TEST WELL   GROUND BUS.                             |
|        | GROUND CONNECTION.   |
|        | HOME RUN—DESTINATION SHOWN.                                      |
|        | CABLE TRAY—WIDTH AS INDICATED.                                   |
|        | BOX—WALL, CEILING, OR FLOOR MOUNTED. J=JUNCTION BOX, P=PULL BOX. |
|        | POWER/DATACOM POLE—OPTIONS AS SPECIFIED.                         |
|        | CIRCUIT/CONDUIT SCHEDULE IDENTIFIER—SEE SCHEDULE.                |
|        | ELECTRIC DOOR HOLDER CONTACT                                     |

| SYMBOL | ONE-LINE DIAGRAM   |
|--------|--|
|        | GROUND.  |
|        | MAGNETIC STARTER—NEMA SIZE AS INDICATED. FVNR UNLESS 2S1W, 2S2W, RVAT, OR FVR INDICATED.   |
|        | CIRCUIT BREAKER—MAGNETIC TRIP ONLY (MCP) TRIP SIZE INDICATED, 3 POLE UNLESS NOTED OTHERWISE.                                     |
|        | CIRCUIT BREAKER—THERMAL MAGNETIC OR SOLID STATE TRIP. TRIP/FRAME INDICATED, 3 POLE UNLESS NOTED OTHERWISE.                       |
|        | SWITCH   FUSED SWITCH—CURRENT RATINGS INDICATED, 3 POLE UNLESS NOTED OTHERWISE.  |
|        | LOW VOLTAGE CIRCUIT BREAKER—DRAW OUT MOUNTED   MEDIUM VOLTAGE CIRCUIT BREAKER—DRAW OUT MOUNTED.                                  |
|        | SURGE ARRESTOR.  |
|        | CAPACITOR—KVAR INDICATED, 3 PHASE UNLESS NOTED OTHERWISE.  |
|        | METER WITH SWITCH—TYPE OF METER AND SCALE RANGE INDICATED.   |
|        | TRANSFORMER—KVA, PRIMARY AND SECONDARY VOLTAGE INDICATED. CONNECTIONS, K=RATING, AND SHIELD AS INDICATED OR SPECIFIED.           |
|        | AUTOMATIC TRANSFER SWITCH—CONTINUOUS CURRENT RATING INDICATED. 3 OR 4 POLE AND BYPASS AS SPECIFIED. N=NORMAL, E=STANDBY, L=LOAD. |
|        | PANELBOARD OR MOTOR CONTROL CENTER—RATING AS SPECIFIED. SEE SCHEDULE OR ONE-LINE.  |
|        | INSTRUMENTATION VOLTAGE TRANSFORMER   CURRENT TRANSFORMER—RATIO, QUANTITY, POLARITY, AND CONNECTIONS INDICATED.                  |
|        | ENGINE GENERATOR   MOTOR.  |
|        | CONNECTION POINT TO EQUIPMENT SPECIFIED.   |

| SYMBOL | LIGHTING PLAN   |
|--------|---|
|        | LUMINAIRE—UPPER CASE LETTER INDICATES TYPE PER LUMINAIRE SCHEDULE. "EM" INDICATES EMERGENCY POWER. LOWER CASE LETTER INDICATES SWITCHING. C17 INDICATES PANEL LOCATION. 2 INDICATES CIRCUIT NUMBER. |
|        | POLE MOUNTED LUMINAIRE.   |
|        | FLOOR MOUNTED LUMINAIRE.  |
|        | BATTERY OPERATED EMERGENCY LIGHT—TWO LAMPS   REMOTE HEAD.   |
|        | EXIT LIGHT—WALL OR CEILING MOUNTED, DIRECTION ARROWS AS INDICATED. SHADING INDICATES FACE OR FACES.   |
|        | PHOTOELECTRIC LIGHTING CONTROL UNIT—SENSOR AIMED NORTH UNLESS INDICATED OTHERWISE.  |
|        | WALL SWITCH. 2=DOUBLE POLE, 3=THREE WAY, 4=FOUR WAY, D=DIMMER, IR=INFRA RED, K=KEY OPERATED, LV=LOW VOLTAGE, P=PILOT LIGHT, T=TIMER. LOWER CASE LETTER INDICATES SWITCHING.                         |
|        | MOTION SENSOR. G=GROUP, M=MICROWAVE, P=PIR, PRX=PROXIMITY, U=ULTRASONIC. LOWER CASE LETTER INDICATES SWITCHING ZONE.  |

## ABBREVIATIONS

| ABB     | DESCRIPTION   |
|---------|---|
| ABB     | AMMETER, AMPERE                                     |
| A       | ALTERNATING CURRENT                                 |
| AF      | AMPERE FRAME  |
| AFF     | ABOVE FINISHED FLOOR                                |
| ARF     | ABOVE RAISED FLOOR                                  |
| AT      | AMP TRIP  |
| ATS     | AUTOMATIC TRANSFER SWITCH                           |
| BRKR    | BREAKER   |
| BLDG    | BUILDING  |
| BOC     | BOTTOM OF CONDUIT                                   |
| BOD     | BOTTOM OF DUCT                                      |
| BOT     | BOTTOM OF TRAY                                      |
| C       | CONDUIT, COIL                                       |
| CB      | CIRCUIT BREAKER                                     |
| CCTV    | CLOSED-CIRCUIT TELEVISION                           |
| CKT     | CIRCUIT   |
| CRS     | COATED RIGID STEEL                                  |
| DIA     | DIAMETER  |
| DIV     | DIVISION  |
| Δ       | DELTA CONNECTED                                     |
| E       | EMPTY, EMERGENCY                                    |
| (E)     | EXISTING  |
| EG      | ENGINE GENERATOR                                    |
| EM      | EMERGENCY   |
| EMO     | EMERGENCY MANUAL OFF                                |
| EMT     | ELECTRICAL METALLIC TUBING                          |
| (F)     | FUTURE  |
| FBO     | FURNISHED BY OTHERS                                 |
| FDR     | FEEDER  |
| FU      | FUSE  |
| FVNR    | FULL VOLTAGE NONREVERSING                           |
| FVR     | FULL VOLTAGE REVERSING                              |
| G       | GROUND  |
| GFCI    | GROUND FAULT CIRCUIT INTERRUPTER                    |
| GFR     | GROUND FAULT RELAY                                  |
| GRC     | GALVANIZED RIGID CONDUIT                            |
| HID     | HIGH-INTENSITY DISCHARGE                            |
| HOA     | HAND-OFF-AUTO                                       |
| ICCB    | INSULATED CASE CIRCUIT BREAKER                      |
| IER     | INTEGRATED EQUIPMENT RATING                         |
| IMC     | INTERMEDIATE METALLIC CONDUIT                       |
| JB      | JUNCTION BOX  |
| KA      | KILOAMPERE  |
| KVA     | KILOVOLT-AMPERE                                     |
| KW      | KILOWATT  |
| MCB     | MAIN CIRCUIT BREAKER                                |
| MCC     | MOTOR CONTROL CENTER                                |
| MCCB    | MOLDED CASE CIRCUIT BREAKER                         |
| MCP     | MOTOR CIRCUIT PROTECTOR                             |
| MFR     | MANUFACTURER  |
| MH      | MANHOLE   |
| MLO     | MAIN LUGS ONLY                                      |
| MT, MTD | MOUNT, MOUNTED                                      |
| (N)     | NEW   |
| N       | NEUTRAL   |
| NC      | NORMALLY CLOSED                                     |
| NEC     | NATIONAL ELECTRICAL CODE                            |
| NEMA    | NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION       |
| NFPA    | NATIONAL FIRE PROTECTION ASSOCIATION                |
| NO      | NORMALLY OPEN                                       |
| NTS     | NOT TO SCALE  |
| OFCI    | OWNER FURNISHED, CONTRACTOR INSTALLED               |
| OFI     | OWNER FURNISHED, OWNER INSTALLED                    |
| OFSI    | OWNER FURNISHED, SUBCONTRACTOR INSTALLED            |
| PB      | PUSHBUTTON  |
| PNL     | PANEL   |
| PVC     | POLYVINYL CHLORIDE                                  |
| ∅       | PHASE   |
| QTY     | QUANTITY  |
| RCPT    | RECEPTACLE  |
| RMC     | RIGID METALLIC CONDUIT                              |
| RVNR    | REDUCED VOLTAGE NONREVERSING                        |
| RVR     | REDUCED VOLTAGE REVERSING                           |
| SS      | STAINLESS STEEL                                     |
| SW      | SWITCH  |
| SWBD    | SWITCHBOARD   |
| SWGR    | SWITCHGEAR  |
| TBD     | TO BE DETERMINED                                    |
| TVSS    | TRANSIENT VOLTAGE SURGE SUPPRESSION                 |
| TYP     | TYPICAL   |
| UPS     | UNINTERRUPTIBLE POWER SUPPLY                        |
| UNO     | UNLESS NOTED OTHERWISE                              |
| VA      | VOLT-AMPERE   |
| VAR     | VOLT-AMPERE REACTIVE                                |
| VFD     | VARIABLE FREQUENCY DRIVE                            |
| W       | WATT, WIRE  |
| WP      | WEATHERPROOF  |
| X       | EXPLOSIONPROOF—CLASS, DIVISION, AND GROUP AS NOTED. |
| XFMR    | TRANSFORMER   |
| Y       | WYE CONNECTED                                       |

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 200 Corporate Center Drive  
 Suite 200  
 Moon Township, PA 15108-3186  
 www.idcarchitects.com

IDC PROJECT NO.: 364972      CLIENT PROJECT NO.:

DRAWN: \_\_\_\_\_ REVIEWED: \_\_\_\_\_  
 DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_

NOTICE: \_\_\_\_\_ STAMP: \_\_\_\_\_

- GENERAL NOTES:**
- THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS APPEAR ON THIS SHEET AND NOT ON PROJECT DRAWINGS.
  - CIRCUITS ARE 2#12, 1#12G, 3/4" UNLESS NOTED OTHERWISE. CIRCUITS ARE RATED FOR OVERHEAD ROUTING. OBTAIN ENGINEER APPROVAL ON DERATING FOR UNDERGROUND OR TRAY INSTALLATION.
  - MOUNTING PER SPECIFICATIONS UNLESS INDICATED OTHERWISE.
  - NEMA 1 UNLESS INDICATED OTHERWISE, 3R=NEMA 3R, 4X=NEMA 4X, WP=WEATHERPROOF, X=EXPLOSIONPROOF.
  - IER INDICATES THE MINIMUM SHORT CIRCUIT RATING OF COMPONENT IN AN ASSEMBLY. SERIES OR CASCADED RATINGS ARE NOT ALLOWED UNLESS SPECIFICALLY NOTED.

|     |                   |          |      |
|-----|-------------------|----------|------|
| 1   | CONFORMED         | 01/23/08 | IDC  |
| 0   | IFC               | 11/16/07 | IDCA |
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KEYPLAN

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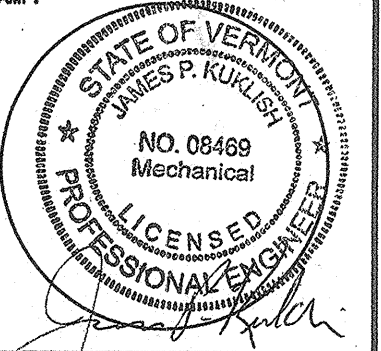
**Delehanty Hall  
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Laboratory**

TITLE: ELECTRICAL LEGEND ABBREVIATIONS AND SYMBOLS

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: E-0      EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER: **E-0**



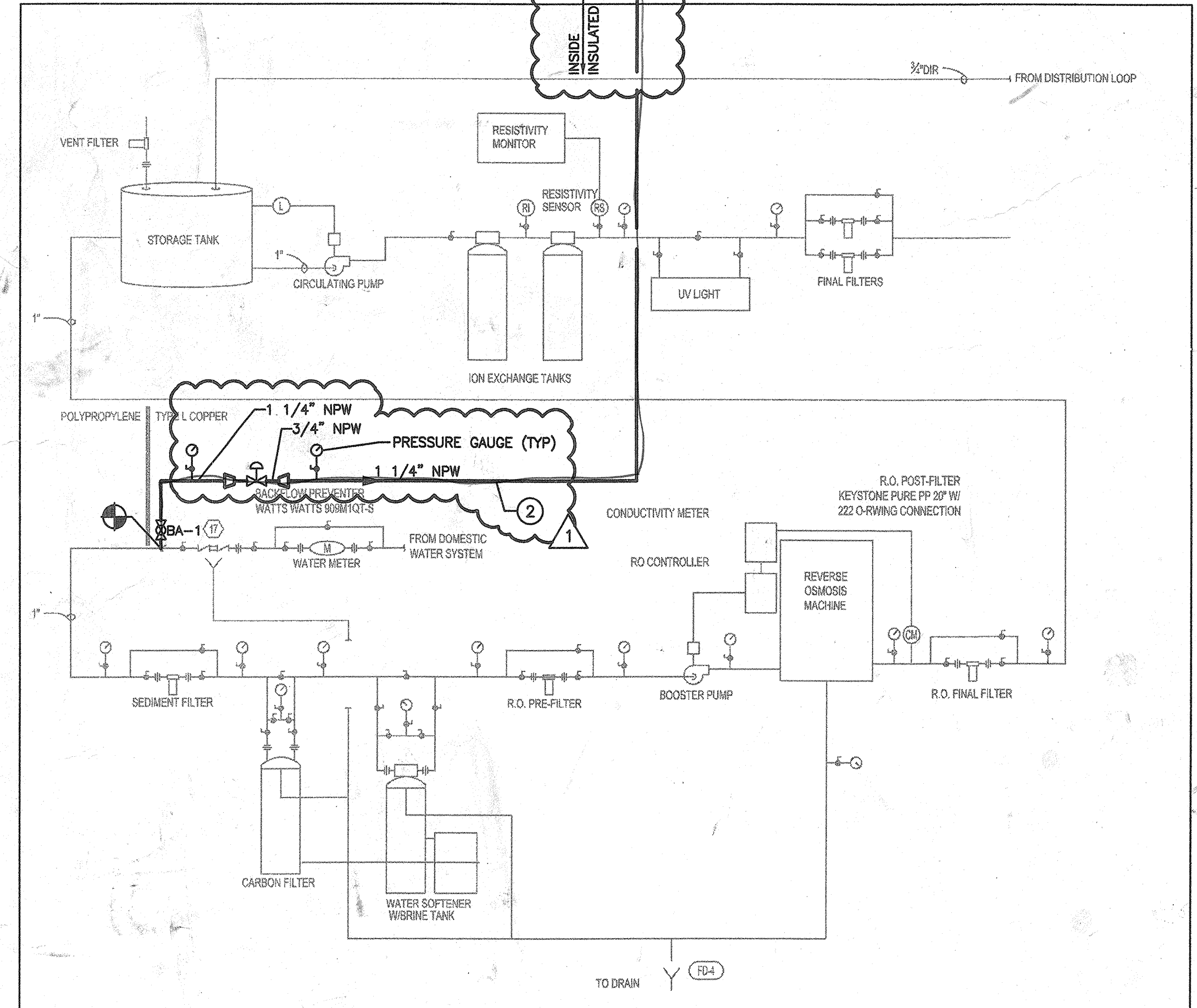
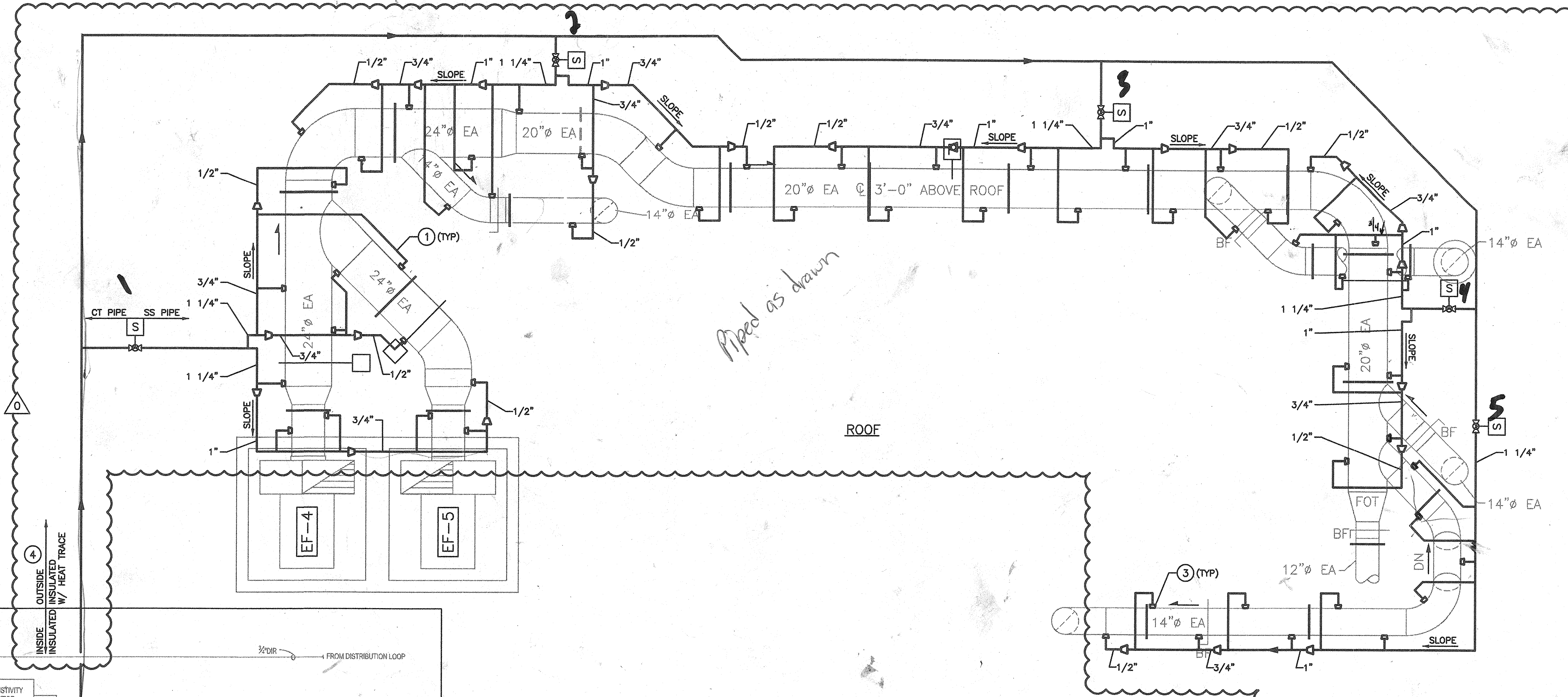


**GENERAL NOTES:**

- A. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL INFORMATION MAY BE APPLICABLE TO ALL OR SOME CONSTRUCTION PACKAGES.
- B. PIPE SIZE SHOWN ON CONNECTION SCHEDULES ARE INDIVIDUAL FIXTURE REQUIREMENTS. SIZE BRANCH WASTE AND VENT PIPING ON ACCUMULATED FIXTURE WEIGHTS PER APPLICABLE PLUMBING CODE.
- C. PLUMBING DRAWINGS ARE GENERALLY DIAGRAMMATIC. VERIFY FIXTURE LOCATIONS AND MOUNTING HEIGHTS WITH ARCHITECTURAL DRAWINGS. VERIFY ROUGH-IN REQUIREMENTS PRIOR TO INSTALLING ANY FIXTURE OR EQUIPMENT SUPPLIED BY OWNER.
- D. FLOOR DRAINS, FLOOR SINKS AND HUB DRAINS SHALL BE PRIMED.
- E. INSTALL ALL PIPING IN EXTERIOR WALLS ON INTERIOR SIDE OF BUILDING INSULATION.
- F. VERIFY ACCESSORY SIZE WITH MANUFACTURER TO ENSURE CONFORMANCE WITH AMERICANS WITH DISABILITIES ACT MOUNTING HEIGHTS.
- G. SUPPLY AND INSTALL CONTRACTORS SHALL VERIFY DIMENSIONS AND CONNECTION POINTS PRIOR TO FABRICATION.

**KEYED NOTES:**

- 1 ALL BRANCH PIPING TO NOZZLES SHALL BE 1/2"Ø.
- 2 SET WATER PRESSURE @ 20 PSI.
- 3 SPRAY JET NOZZLE SHALL BE 1/4" THREADED ROUND PVC OR TEFLON® NPT.
- 4 ELECTRICAL CONTRACTOR SHALL PROVIDE INSULATION AND HEAT TRACING FOR ALL OUTSIDE PIPING.



1 DUCT SPRAY WASH SYSTEM ONE-LINE DIAGRAM  
 NTS

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TITLE: PLUMBING DETAILS

DATE ISSUED: DRAWING SCALE:  
 ACAD FILE: P-6 EQUIPMENT CODE:

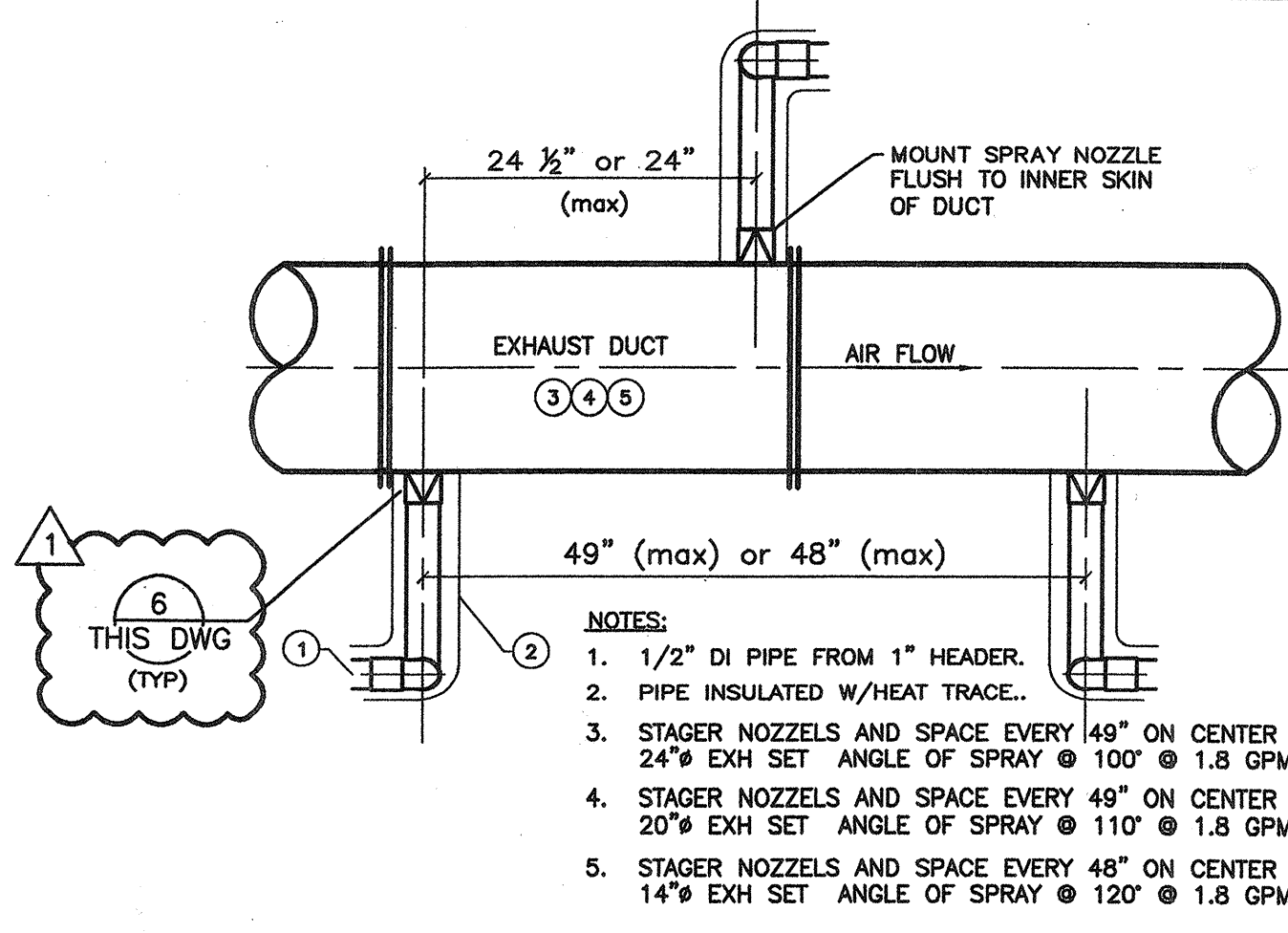
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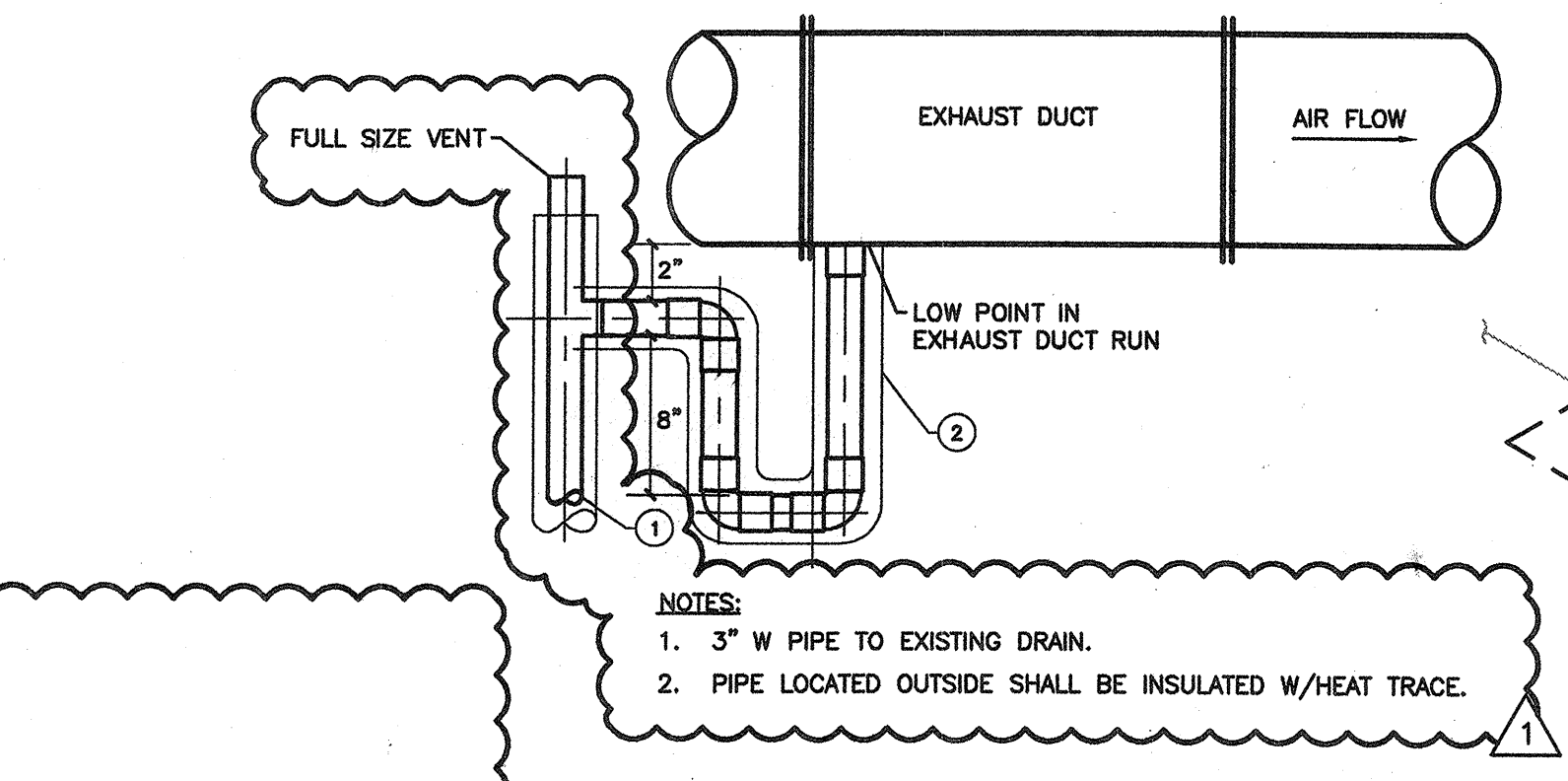
| PLUMBING FIXTURE SCHEDULE |                      |      |      |        |        |        |  |
|---------------------------|----------------------|------|------|--------|--------|--------|--|
| TAG                       | DESCRIPTION          | C.W. | H.W. | D.I.W. | WASTE  | VENT   | REMARKS  |
| ES                        | SAFETY SHOWER        | -    | -    | -      | -      | -      | FEED EMERGENCY SHOWER FROM TEMPERED WATER SYSTEM. PIPE SIZE SHALL BE 1".   |
| EW                        | DRENCH HOSE EYE WASH | -    | -    | -      | -      | -      | FEED EMERGENCY SHOWER FROM TEMPERED WATER SYSTEM. PIPE SIZE SHALL BE 1/2". |
| FD-1                      | 3" FLOOR DRAIN       | -    | -    | -      | 3"     | -      | PROVIDE TRAP PRIMER INSTALLATION.  |
| L-1                       | LAVATORY             | 1/2" | 1/2" | -      | 1 1/2" | 1 1/2" | -  |
| SK-1                      | INTEGRAL LAB SINK    | 1/2" | 1/2" | -      | 1 1/2" | 1 1/2" | -  |
| S-1                       | INTEGRAL LAB SINK    | 1/2" | 1/2" | -      | 1 1/2" | 1 1/2" | -  |
| FO                        | FLOOR CLEANOUT       | -    | -    | -      | -      | -      | SIZE PER LOCATION AND PROVIDE FINISHING FLANGE PER FLOOR TREATMENT         |
| WC                        | WALL CLEANOUT        | -    | -    | -      | -      | -      | PROVIDE CHROME COVERPLATE  |
| CO                        | CLEANOUT             | 1/2" | -    | -      | -      | -      | -  |
| TP-1                      | TRAP PRIMER ASSEMBLY | -    | -    | -      | -      | -      | COMBINE WITH MULTI HEAD DISTRIBUTION UNITS DU-2, DU-3, DU-4                |
| NG                        | NATURAL GAS TURRET   | -    | -    | -      | -      | -      | MOUNT TURRET ON WORK SURFACE. COORDINATE LOCATION IN FIELD.                |
| TD                        | TRENCH DRAIN         | -    | -    | -      | 4"     | -      | PROVIDE TRAP PRIMER  |

NOTES:  
 1. ALL INTEGRAL SINKS SHALL BE FURNISHED WITH THE LABORATORY FURNITURE BY THE LABORATORY FURNITURE REPRESENTATIVE. THE INSTALLATION OF THE SINK IN THE WORK SURFACE SHALL BE COMPLETED BY THE LABORATORY FURNITURE INSTALLER.  
 2. DRAINAGE SHALL GO TO ACID WASTE SYSTEM.  
 3. CENTER ALL LAB FLOOR DRAINS BELOW EMERGENCY SHOWERS.

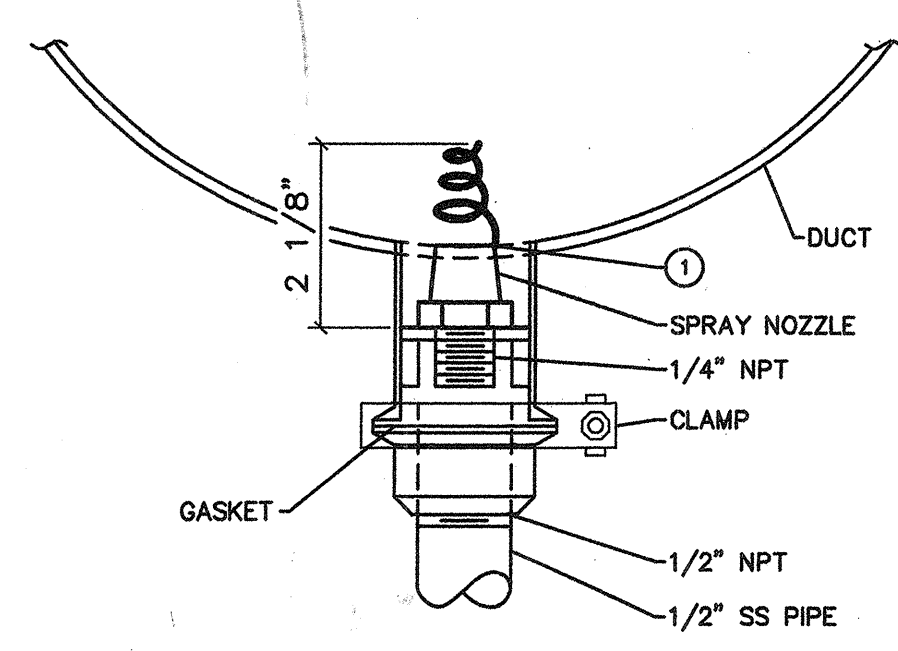
| FUME HOOD SCHEDULE |                  |                |             |            |        |            |           |          |           |   |
|--------------------|------------------|----------------|-------------|------------|--------|------------|-----------|----------|-----------|---|
| TAG                | DESCRIPTION      | LOCATION       | EXHAUST CFM | SUPPLY CFM | D.I.W. | ACID WASTE | ACID VENT | GAS QTY. | SINK QTY. | REMARKS   |
| FH-1               | NEW 6' FUME HOOD | HIGH LEVEL LAB | -           | -          | 1/2"   | 1 1/2"     | 1 1/2"    | NA       | 1         | OWNER FURNISHED, CONTRACTOR INSTALLED. HCL, HF, HN03, PERCHLORIC, AND H2SO4 ACID USE. |
| FH-2               | NEW 6' FUME HOOD | PRODUCTION LAB | -           | -          | 1/2"   | 1 1/2"     | 1 1/2"    | 1        | 1         | OWNER FURNISHED, CONTRACTOR INSTALLED. HCL, H2O2, HN03, AND H2SO4 ACID USE.           |
| FH-3               | NEW 5' FUME HOOD | PRODUCTION LAB | -           | -          | 1/2"   | 1 1/2"     | 1 1/2"    | NA       | 1         | OWNER FURNISHED, CONTRACTOR INSTALLED. HN03 ACID USE.                                 |
| FH-4               | NEW 6' FUME HOOD | PRODUCTION LAB | -           | -          | 1/2"   | 1 1/2"     | 1 1/2"    | 1        | 1         | OWNER FURNISHED, CONTRACTOR INSTALLED. HCL, HF, HN03, PERCHLORIC, AND H2SO4 ACID USE. |
| FH-5               | NEW 6' FUME HOOD | PRODUCTION LAB | -           | -          | 1/2"   | 1 1/2"     | 1 1/2"    | NA       | 1         | OWNER FURNISHED, CONTRACTOR INSTALLED. HCL, HF, HN03, PERCHLORIC, AND H2SO4 ACID USE. |



4 TYPICAL SPRAY DUCT DETAIL  
NTS

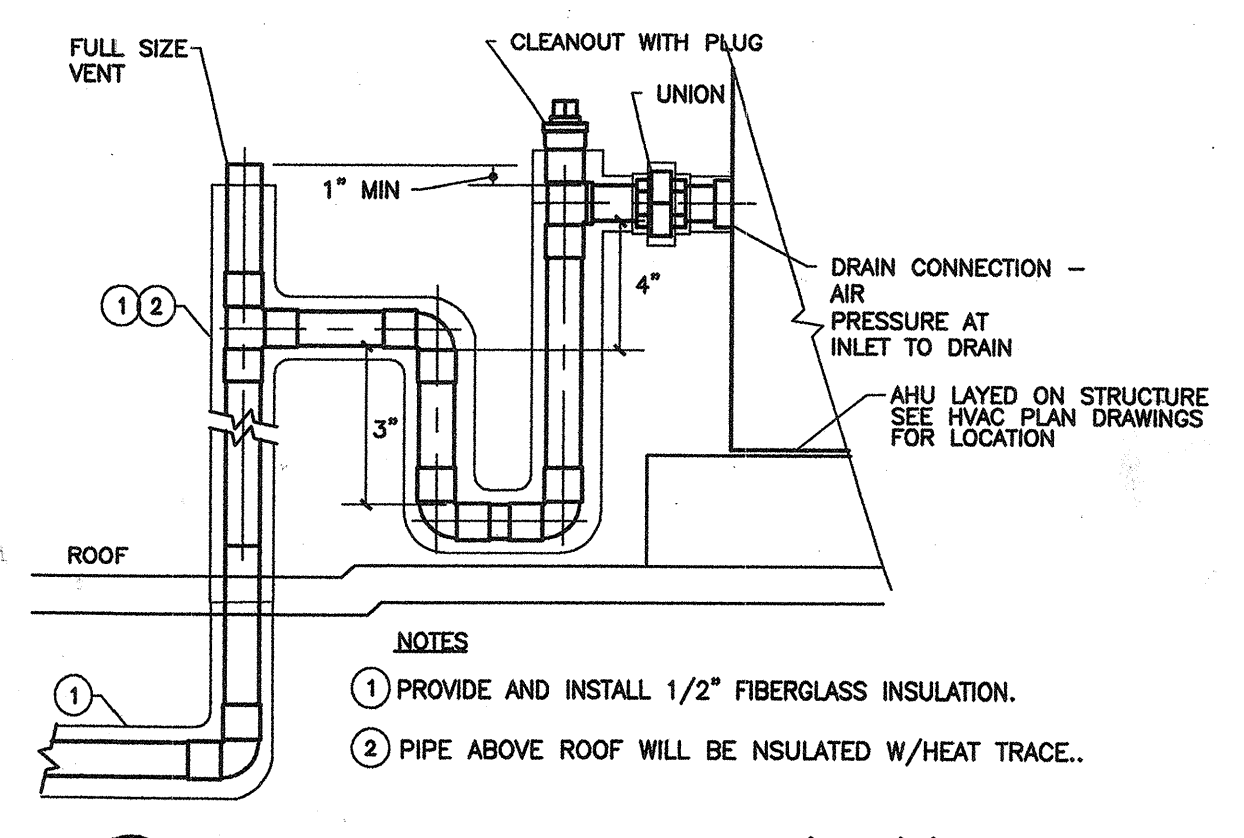


5 TYPICAL LOW POINT DUCT DRAIN  
NTS

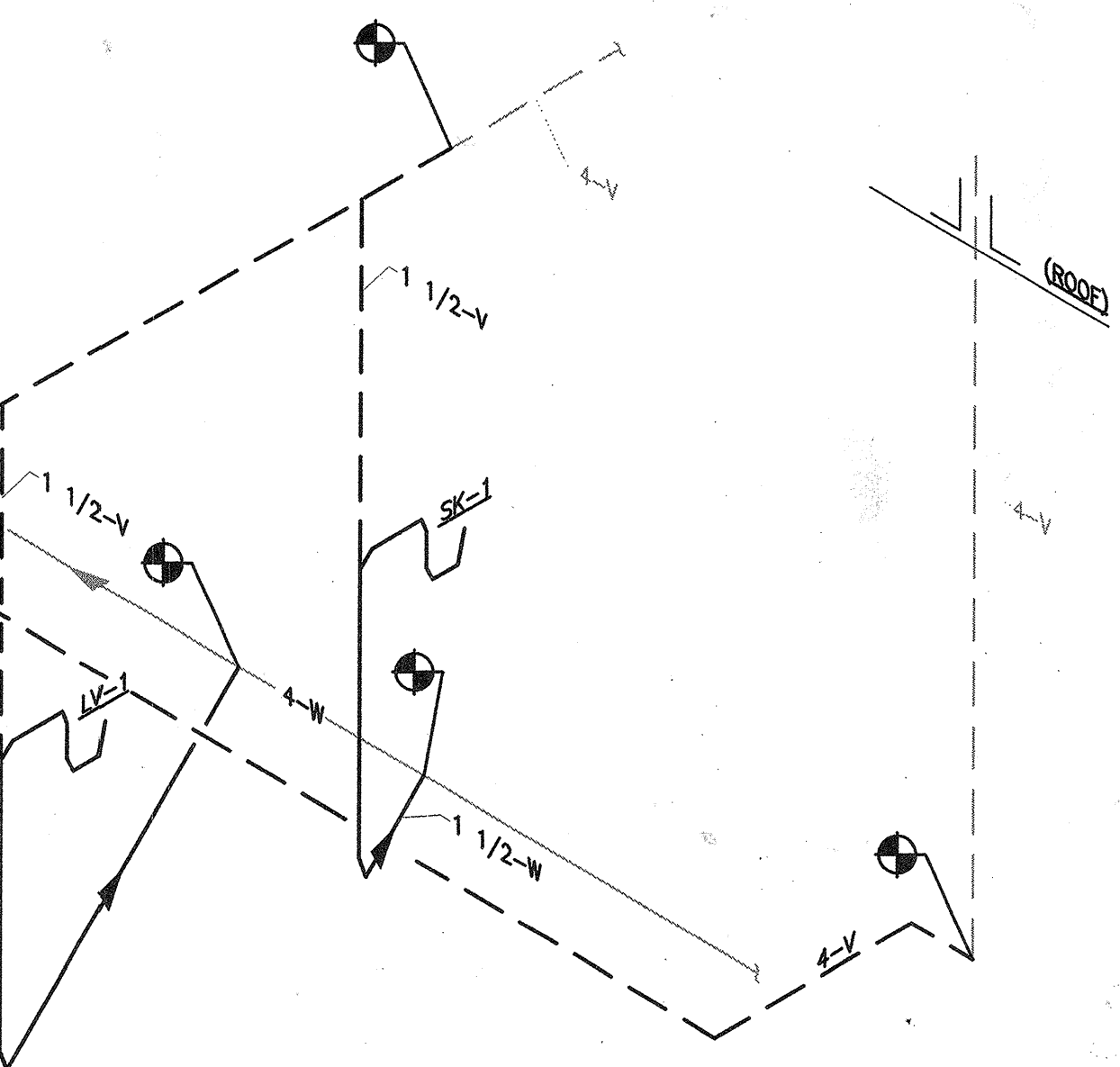


NOTES:  
 1. MOUNT SPRAY NOZZLE SO OPENING OF PIG TAIL IS FLUSH WITH INNER WALL OF DUCT.

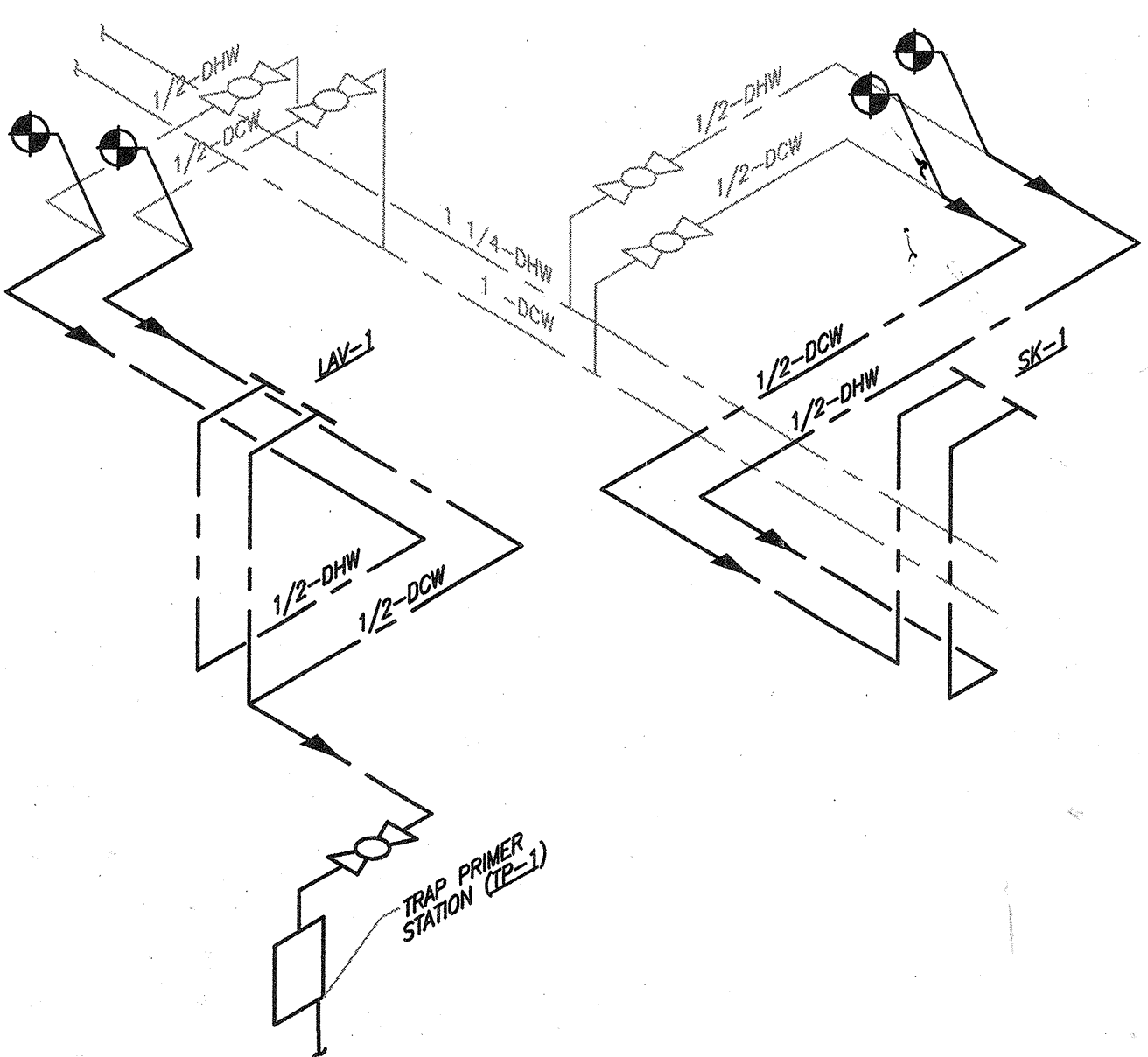
6 NOZZLE INSTALLATION DETAIL  
NTS



1 CONDENSATE DRAIN P-TRAP (AHU's)  
NTS



2 SANITARY RISER DIAGRAM  
NTS



3 DOMESTIC WATER RISER DIAGRAM  
NTS

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 200 Corporate Center Drive  
 Suite 200  
 Moon Township, PA 15108-3186  
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D. FLOOR DRAINS, FLOOR SINKS AND HUB DRAINS SHALL BE PRIMED.

E. INSTALL ALL PIPING IN EXTERIOR WALLS ON INTERIOR SIDE OF BUILDING INSULATION.

F. VERIFY ACCESSORY SIZE WITH MANUFACTURER TO ENSURE CONFORMANCE WITH AMERICANS WITH DISABILITIES ACT MOUNTING HEIGHTS.

G. SUPPLY AND INSTALL CONTRACTORS SHALL VERIFY DIMENSIONS AND CONNECTION POINTS PRIOR TO FABRICATION.

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TITLE: PLUMBING DETAILS

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DRAWING NUMBER: P-5





**KEYED NOTES CONT.**

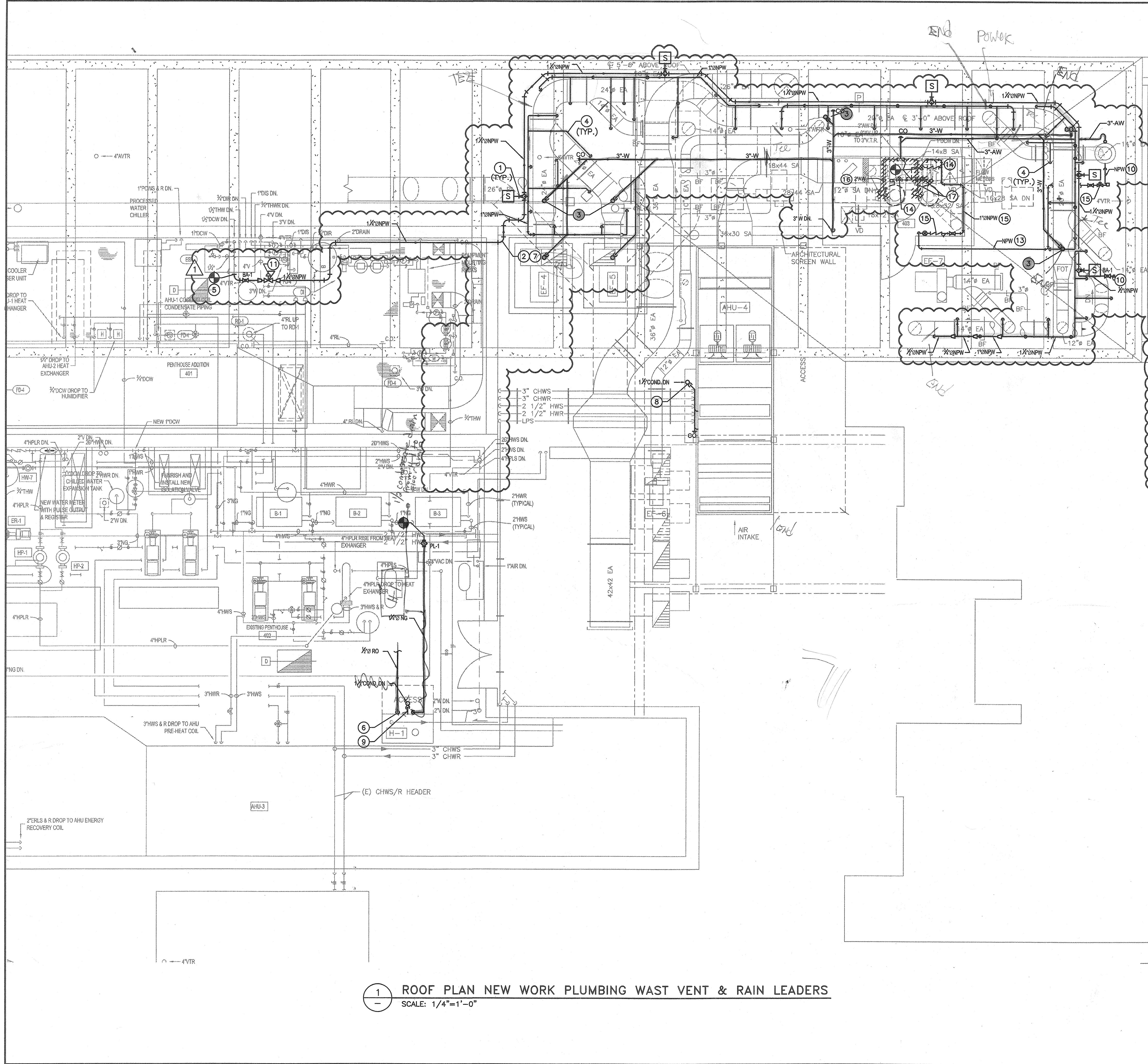
6. FIELD ROUTE 1/2" RO PIPING TO NEAREST EXISTING RO HEADER AND CONNECT NEW 1/2" RO TO EXISTING RO. PROVIDE BA-3 ON NEW 1/2" RO AT POINT OF CONNECTION.
7. SUBMIT PIPE RACK DETAIL FOR REVIEW BY ENGINEER PRIOR TO INSTALLATION OF 1 1/4" NPW PIPING.
8. SEE DETAIL 1 DRAWING P-5 FOR DRAIN CONNECTION TO AHU-5.
9. PROVIDE STANDARD P-TRAP CONNECTION FOR H-1 DRAIN CONNECTION.
10. PROVIDE 1/2" LINE W/VALVE TO BE USED AS BLOW-OUT. PROVIDE END HOSE END CONNECTION AND PLUG.
11. PROVIDE 3/4" PRESSURE REGULATOR MANUFACTURED BY FEBCO "SERIES PRV-1" OR EQUAL. SET DOWN STREAM PRESSURE @ 20 PSI.
12. PROVIDE CCO1 PIPE BETWEEN METER AND SCRUBBER.
13. USE SAME SIZE NPW PIPE AS EXISTING NPW PIPE TO EXISTING SCRUBBER.
14. RELOCATE ALL EXISTING VALVES, METERS, AND BACKFLOW PREVENTER FROM EXISTING MAKE-UP WATER SYSTEM.
15. NEW LOCATION FOR EXISTING VALVES, METERS, AND BACKFLOW PREVENTER BEING RE-USE FROM EXISTING MAKE-UP WATER SYSTEM.
16. REMOVE EXISTING 2" AW PIPING FROM SCRUBBER AND CAP PIPE AT RISER.
17. REMOVE EXISTING 2" AW AND NPW PIPING FROM SCRUBBER THAT IS BEING RELOCATED. CAP EXISTING AW PIPE AT RISER.

**GENERAL NOTES**

A FOR GENERAL NOTES AND SYMBOLS SEE DRAWING P-0.

**KEYED NOTES**

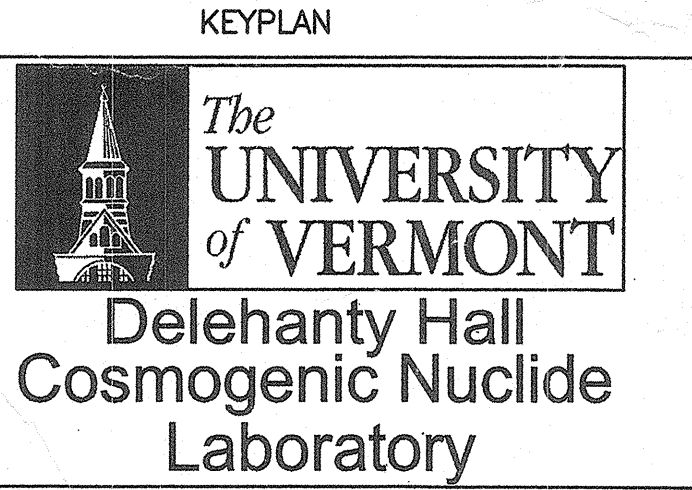
1. PROVIDE NEW AUTOMATED SPRAY WASH SYSTEM. WASH CYCLES SHALL BE SET SO THAT ONLY ONE SOLENOID VALVE OPERATES AT ONE TIME. SEE SPECIFICATION 15990 FOR DDCS.
2. INSULATE AND HEAT TRACE NEW W AND NPW PIPING THAT IS EXPOSED OUTSIDE. PIPING FROM THE SOLENOID VALVE TO DUCT SHALL SLOPE TO DUCT TO ALLOW WATER TO DRAIN FROM PIPE WHEN ATOMIZED SPRAY WASH IS NOT OPERATIONAL.
3. SEE DETAIL 5 DWG. P-5 FOR DRAIN CONNECTION TO NEW PSP COATED EXHAUST DUCT.
4. SEE DETAIL 4 DWG. P-5 FOR SPRAY WASH CONNECTION INSIDE OF EXHAUST DUCTWORK.
5. SEE DETAIL 6 DWG. P-5 FOR SPRAY WASH ONE LINE DIAGRAM.



**1 ROOF PLAN NEW WORK PLUMBING WAST VENT & RAIN LEADERS**  
 SCALE: 1/4"=1'-0"

|     |                   |          |      |
|-----|-------------------|----------|------|
| 1   | CONFORMED         | 01/23/08 | IDC  |
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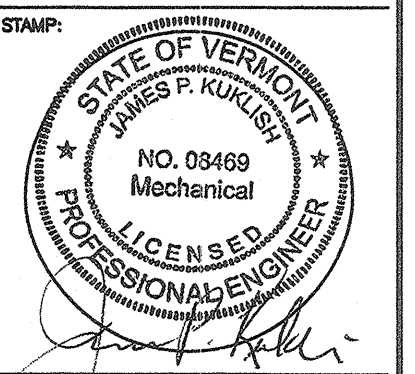
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 TITLE: PLUMBING  
 ROOF PLAN  
 NEW  
 WORK

DATE ISSUED: DRAWING SCALE:  
 ACAD FILE: P-4 EQUIPMENT CODE:  
 DRAWING NUMBER:  
**P-4**



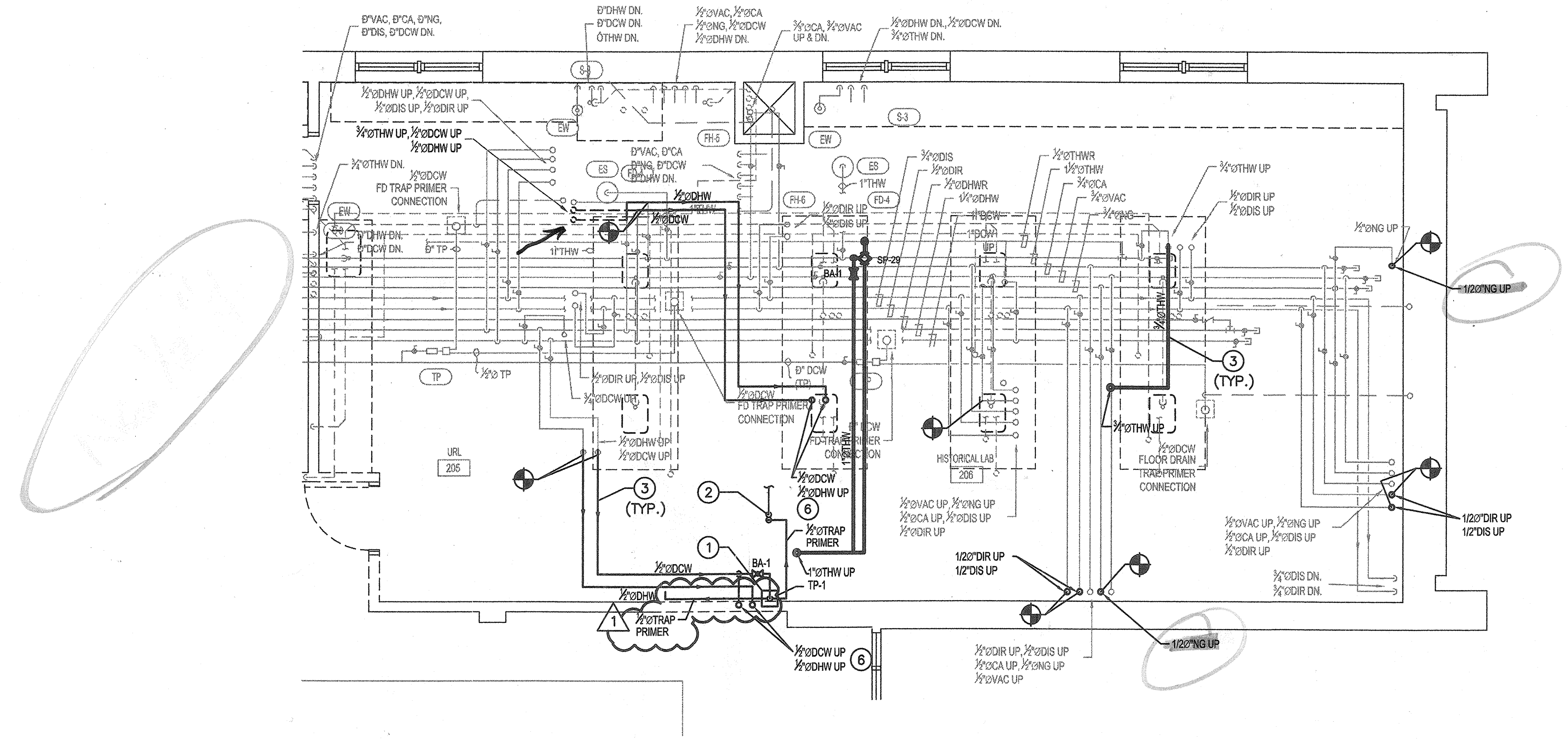


**GENERAL NOTES**

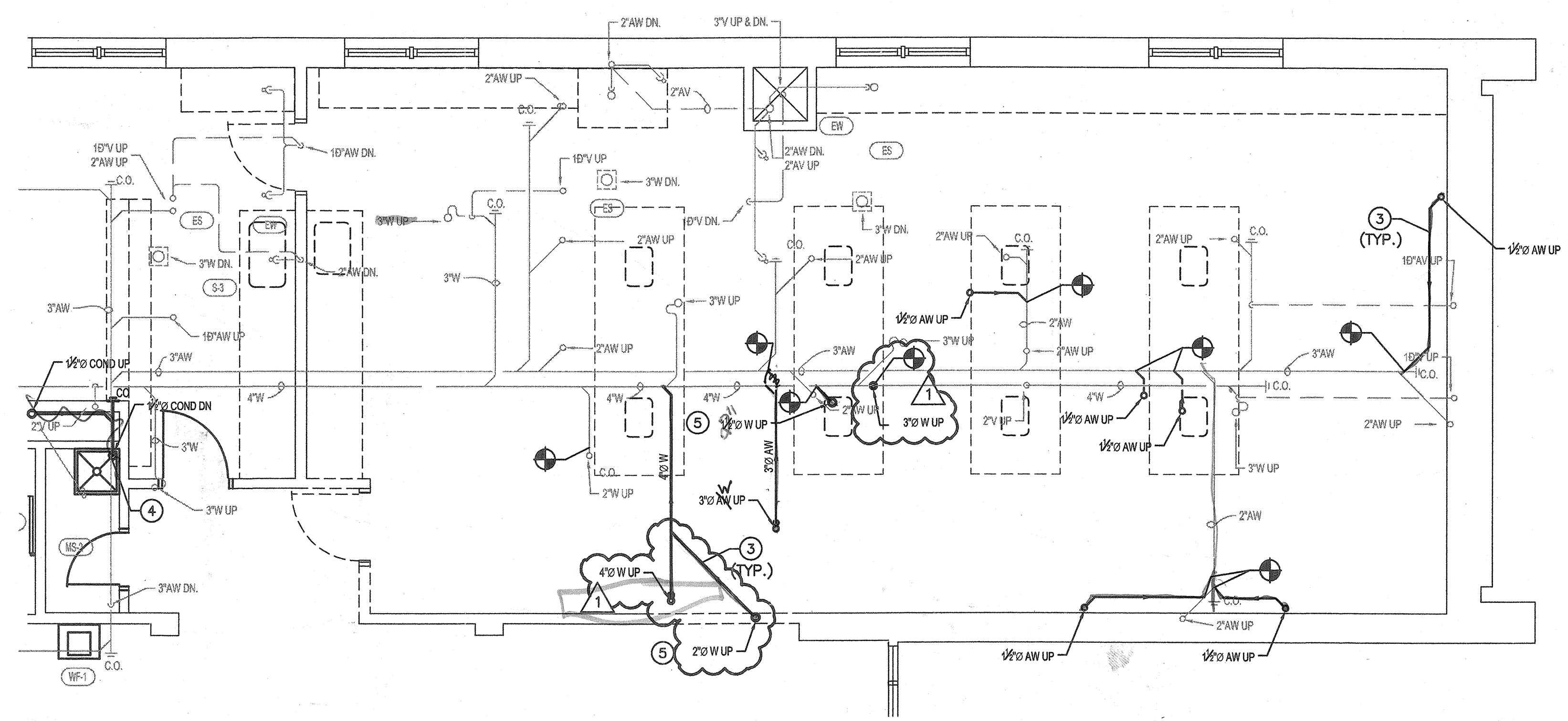
A FOR GENERAL NOTES AND SYMBOLS SEE DRAWING P-0.

**KEYED NOTES**

1. CONNECT NEW 1/2" DCW TO NEW TRAP PRIMER. LOCATE NEW TRAP PRIMER ABOVE CEILING IN THIS LOCATION.
2. CONNECT NEW PRIMER LINE TO NEW FLOOR DRAIN.
3. CONTRACTOR SHALL INSPECT AREA BEFORE BID AND COORDINATE WITH GENERAL CONTRACTOR AND OWNER TO DEMO OR RELOCATE EXISTING SERVICES AS REQUIRED.
4. DROP PIPE DOWN TO MOP SINK AND TERMINATE DRAIN PIPE 4" OVER EXISTING MOP SINK.
5. SEE DETAIL 2 DWG. P-5 FOR SANITARY RISER DIAGRAM.
6. SEE DETAIL 3 DWG. P-5 FOR WATER RISER DIAGRAM.



**1 2nd FLOOR PLAN NEW WORK PLUMBING SERVICES**  
 SCALE: 1/4"=1'-0"



**2 2nd FLOOR PLAN NEW WORK WASTE VENT & RAIN LEADERS**  
 SCALE: 1/4"=1'-0"

|     |                   |          |      |
|-----|-------------------|----------|------|
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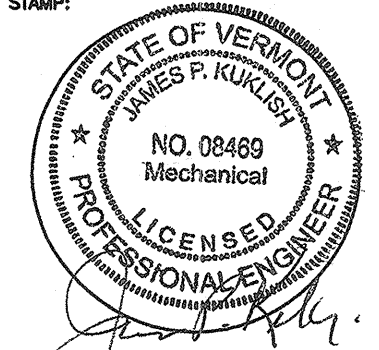
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TITLE: PLUMBING  
 SECOND FLOOR PLAN  
 NEW WORK

DRAWING NUMBER: P-3

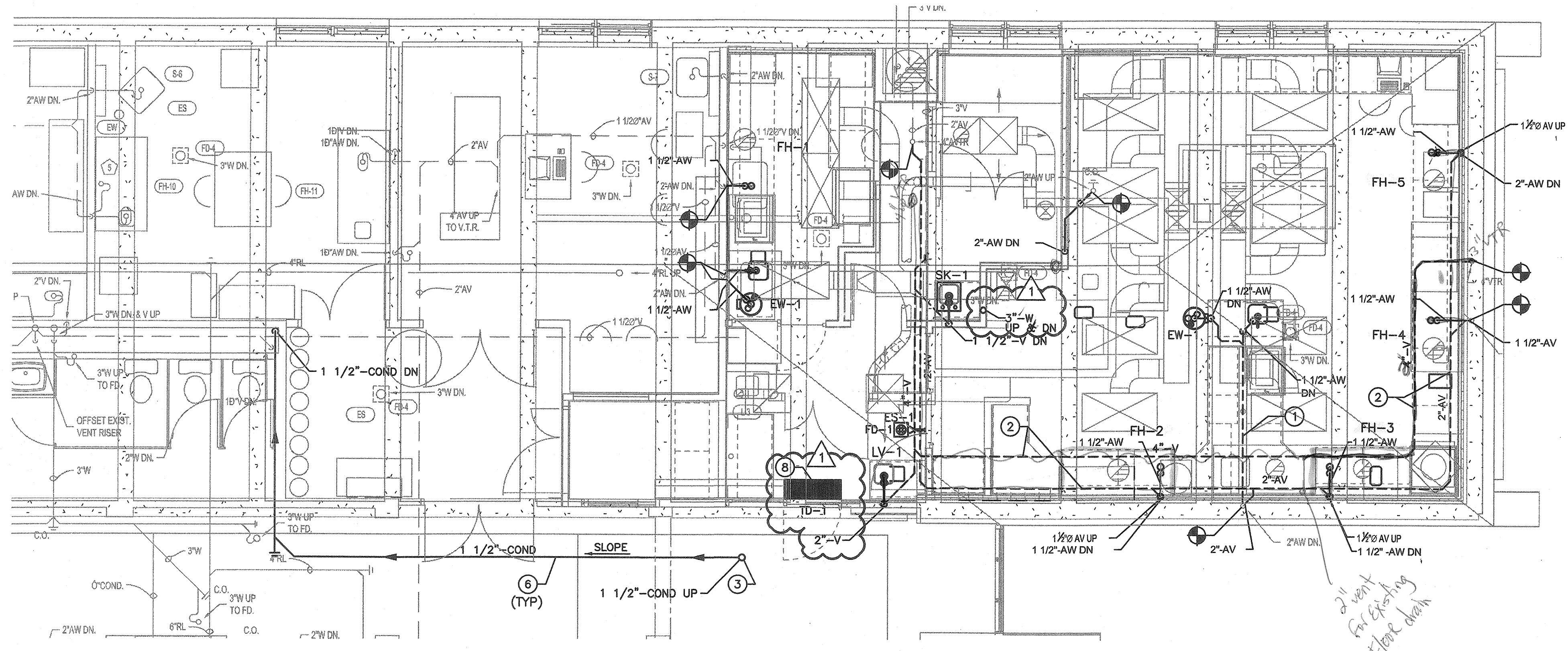
P-3



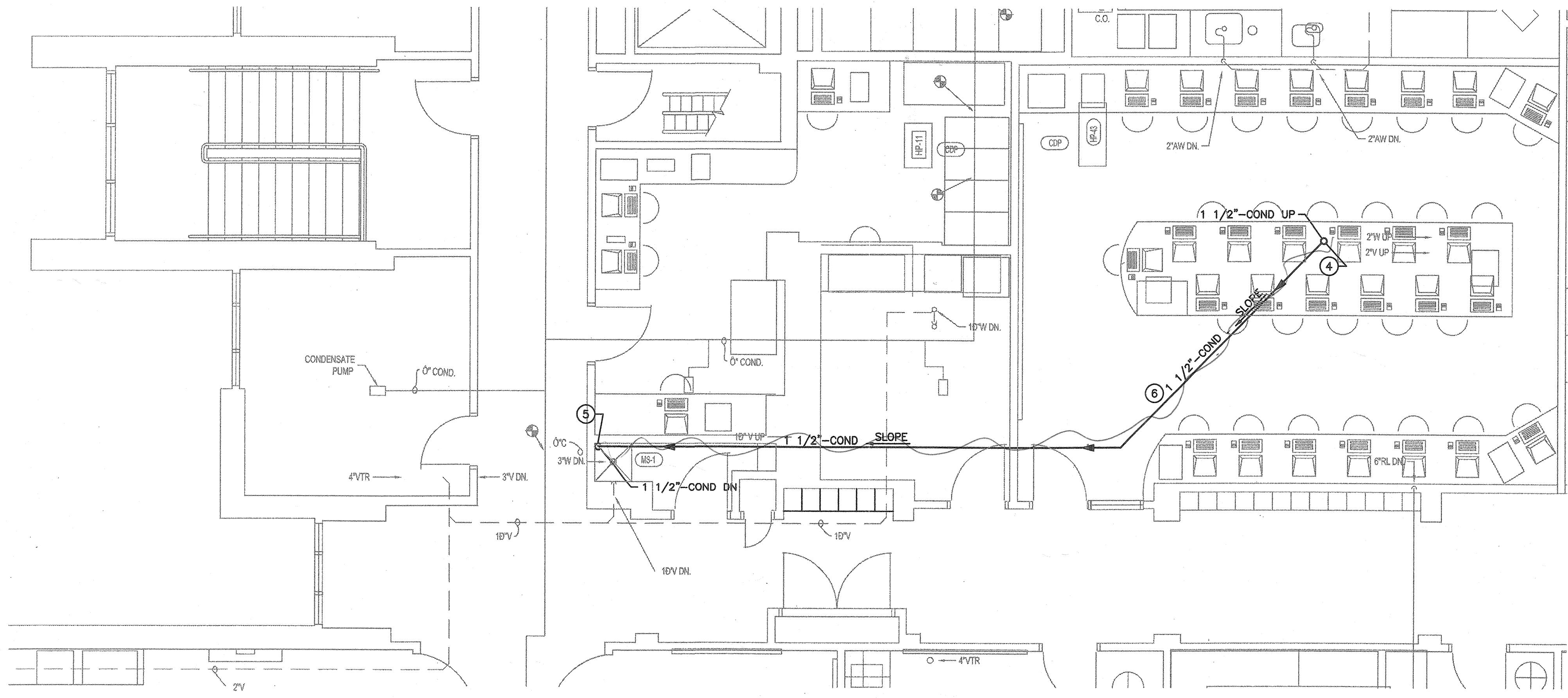


**KEYED NOTES CONT.**

- 5 DROP PIPE DOWN TO MOP SINK AND TERMINATE DRAIN PIPE 4" OVER EXISTING MOP SINK.
- 6 CONTRACTOR SHALL INSPECT AREA BEFORE BID AND COORDINATE WITH GENERAL CONTRACTOR AND OWNER TO DEMO OR RELOCATE EXISTING SERVICES AS REQUIRED.
- 7 2" AW SHALL BE MOUNTED TIGHT TO UNDER SIDE OF ROOF CEILING TO CLEAR TOP OF ULPA FILTER. AFTER PIPE CLEARS ULPA FILTER DROP 2" AW SO TOP OF PIPE CLEARS BOTTOM OF BEAM.
- 8 PROVIDE TRENCH TD-1 DRAIN MANUFACTURED BY J.R. SMITH CO. "MODEL 7213" OR EQUAL.



**1** 3rd FLOOR PART PLAN NEW WORK WASTE VENT & RAIN LEADERS  
 SCALE: 1/4"=1'-0"



**2** 3rd FLOOR PART PLAN NEW WORK WASTE VENT & RAIN LEADERS  
 SCALE: 1/4"=1'-0"

**GENERAL NOTES**

- A FOR GENERAL NOTES SEE PLUMBING LEGEND P-0.
- B SLOPE 1 1/2" COND. PIPE 1/4" PER FOOT.

**KEYED NOTES**

- 1 FURNISH AND INSTALL AV PIPING UNDER COUNTER AND ROUTE INSIDE OF PIPE CHASE. COUNTER NEW VENT TO EXISTING AT WALL.
- 2 FURNISH AND INSTALL VENT PIPING IN BULKHEAD AND ROUTE BETWEEN EXHAUST RISER FROM HOOD.
- 3 1 1/2" COND. PIPE FROM AHU-4 LOCATED ON THE ROOF. SLOPE PIPE 1/4" PER FOOT. MOUNT PIPING AS HIGH AS POSSIBLE TO UNDERSIDE OF ROOF AND STRUCTURAL BEAMS.
- 4 1 1/2" COND. PIPE FROM H-1 LOCATED IN THE PENTHOUSE. SLOPE PIPE 1/4" PER FOOT. MOUNT PIPING AS HIGH AS POSSIBLE TO UNDERSIDE OF ROOF AND STRUCTURAL BEAMS.

| 1   | CONFORMED         | 01/23/08 | IDC  |
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AS BUILT

KEYPLAN

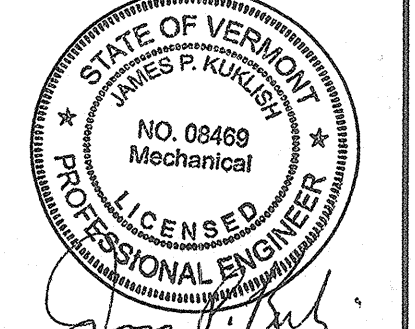
**The UNIVERSITY of VERMONT**  
 Delehanty Hall  
 Cosmogenic Nuclide  
 Laboratory

TITLE: PLUMBING  
 THIRD FLOOR PLAN  
 NEW WORK

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACD FILE: P-2 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER:  
 P-2





**KEYED NOTES CONT.**

- 7 CONNECT DCW AND DHW TO FOOT CONTROLLER FOR SINK. MANUFACTURER KOHLER MODEL K-13816 OR EQUAL.
- 8 CONNECT DIS TO FOOT CONTROLLER FOR SINK. ALL INTEGRAL COMPONENTS TO BE POLYPRO OR STAINLESS STEEL.
- 9 CONNECT DIS TO DI-POLISHERS. DI-POLISHERS SHALL BE PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR.
- 10 FURNISH AND INSTALL THW PIPING UNDER COUNTER AND CONNECT TO NEW EYE WASH LOCATED NEXT TO COUNTER.
- 11 NO FIBERGLASS INSULATION SHALL BE USED INSIDE THE LAB AREAS. PROVIDE ARMAFLEX INSULATION FOR TWS PIPING TO EYEWASH.
- 12 AS-BUILTS SHOWN ON DRAWING MAY NOT COMPLY TO EXACT CONDITIONS ON SITE. CONTRACTOR SHALL INSPECT AREA AND COORDINATE WITH GENERAL CONTRACT AND OWNER TO DEMO OR RELOCATE EXISTING SERVICES AS REQUIRED.

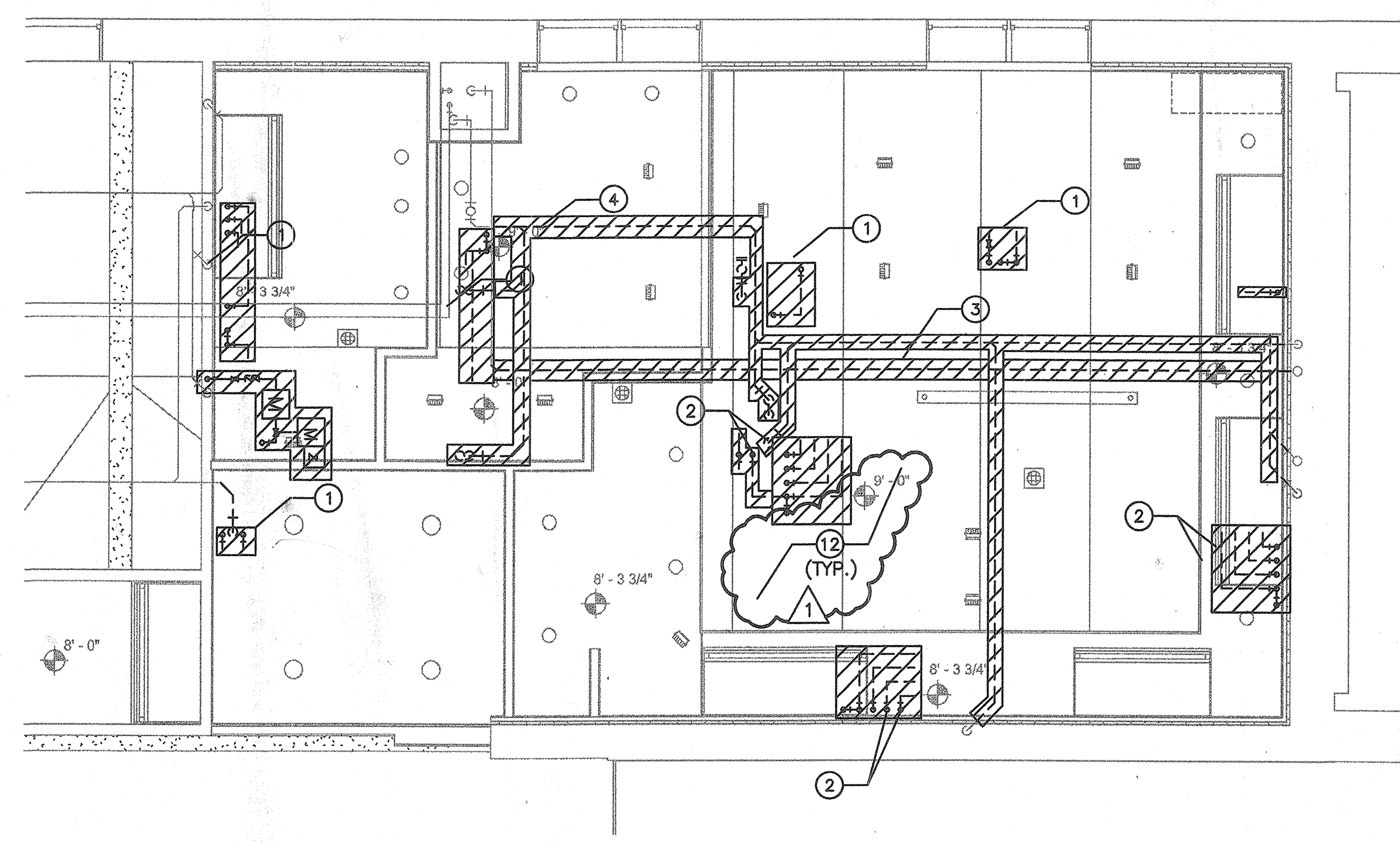
AS-BUILTS SHOWN ON DRAWING MAY NOT COMPLY TO EXACT CONDITIONS ON SITE. CONTRACTOR SHALL INSPECT AREA AND COORDINATE WITH GENERAL CONTRACT AND OWNER TO DEMO OR RELOCATE EXISTING SERVICES AS REQUIRED.

**GENERAL NOTES**

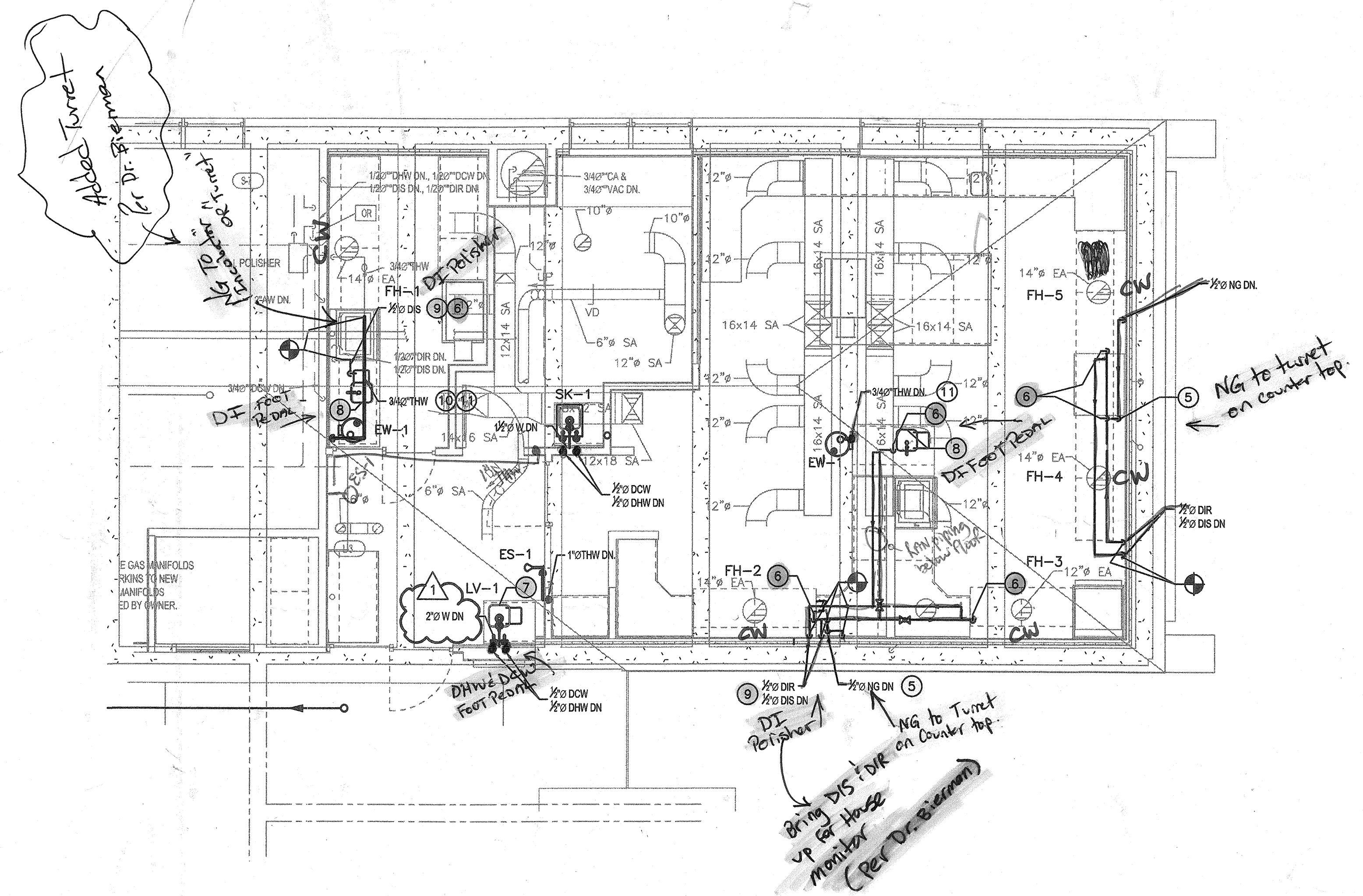
A FOR GENERAL NOTES (SEE PLUMBING LEGEND P-0).

**KEYED NOTES**

- 1. REMOVE EXISTING PIPING IN THIS ENTIRE AREA DOWN TO FLOOR BELOW. CAP ANY PIPE THAT WILL NOT BE REUSED.
- 2. REMOVE EXISTING CA AND VAC PIPING IN THIS ENTIRE AREA DOWN TO FLOOR BELOW. CAP PIPE AT NEAREST SHUTOFF VALVE.
- 3. REMOVE EXISTING SANITARY PIPING.
- 4. REMOVE EXISTING ACID WASTE VENT PIPING.
- 5. FURNISH AND INSTALL NG PIPING UNDER COUNTER AND CONNECT TO TURRET LOCATED ON WORKING SURFACE. MANUFACTURER CHICAGO FAUCET MODEL 980-909-957-3KAGV OR EQUAL.
- 6. FURNISH AND INSTALL DIS PIPING UNDER COUNTER AND CONNECT TO POLYPRO FAUCET LOCATED ON WORKING SURFACE. MANUFACTURE PLASTINETICS INC. PPRO MODEL 1000-YN OR EQUAL.



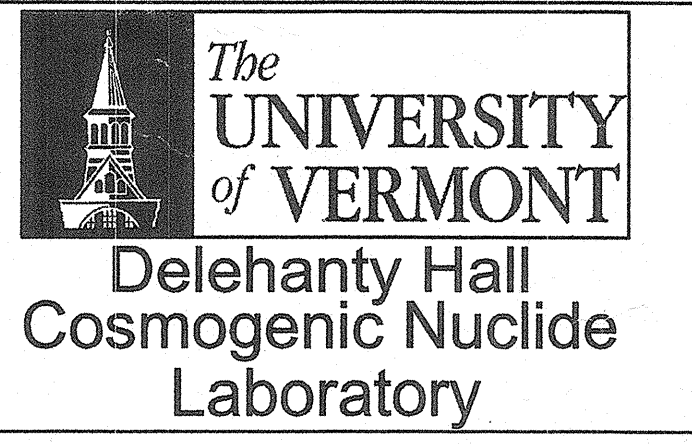
**1** 3rd FLOOR PLAN DEMO WORK  
 SCALE: 1/4"=1'-0"



**2** 3rd FLOOR PLAN NEW WORK PLUMBING SERVICES  
 SCALE: 1/4"=1'-0"

|     |                   |          |      |
|-----|-------------------|----------|------|
| 1   | CONFORMED         | 01/23/08 | IDC  |
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**AS BUILT**



TITLE: PLUMBING FLOOR PLAN NEW AND DEMO WORK

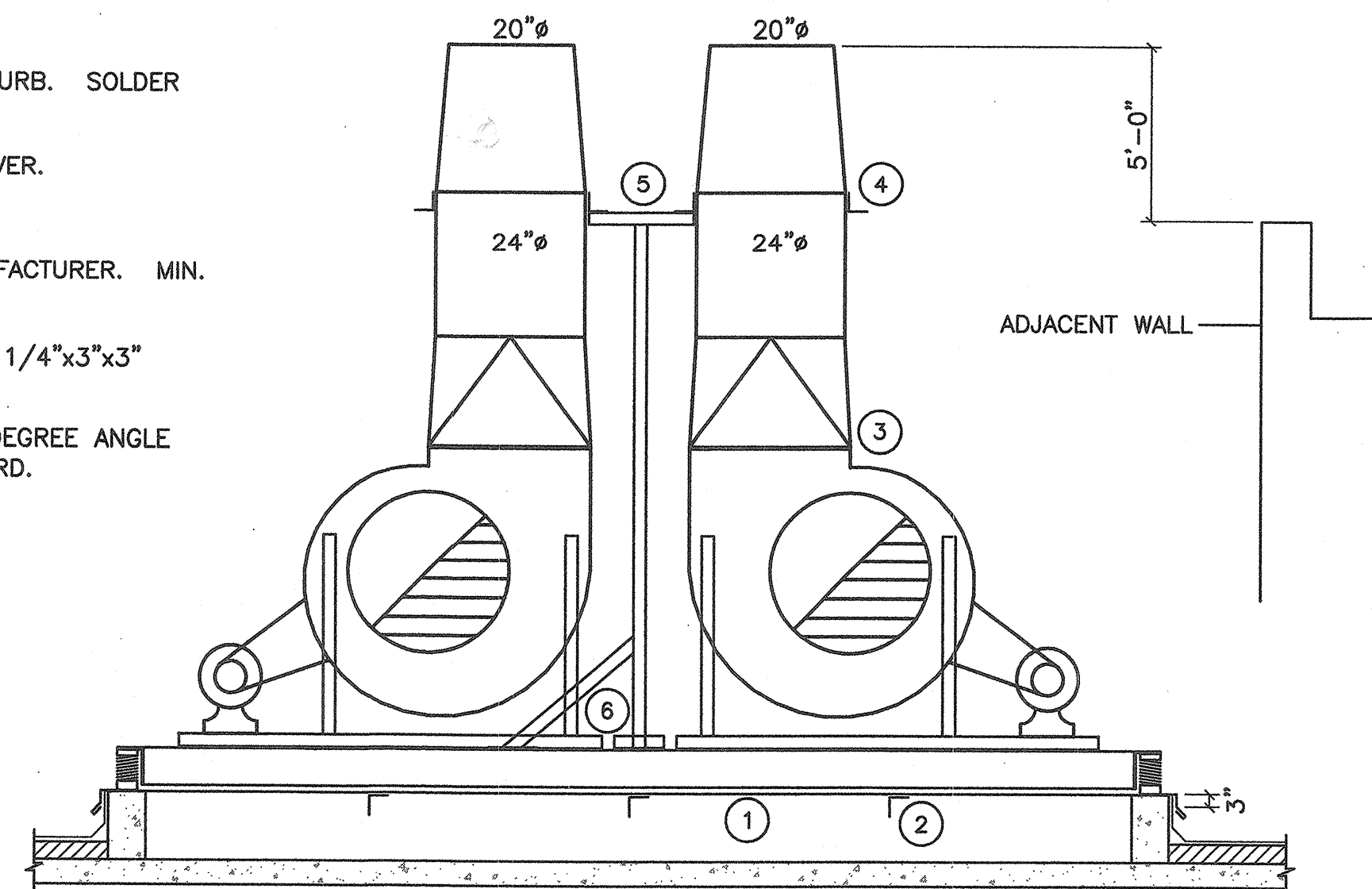
DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: P-1 EQUIPMENT CODE: \_\_\_\_\_  
 DRAWING NUMBER: \_\_\_\_\_

P-1



KEYED NOTES:

- 1 T304 SS COVER OVER LENGTH AND WIDTH OF CURB. SOLDER ALL SEAMS WATER TIGHT.
- 2 INTERNAL STIFFENERS AS REQ'D TO SUPPORT COVER.
- 3 BOLTED CONNECTION AT FAN.
- 4 ANGLE RING MOUNTED ON DUCT BY DUCT MANUFACTURER. MIN. 1/4"x2"x2".
- 5 SUPPORT STEEL BOLTED TO DUCT RINGS. MIN. 1/4"x3"x3" TUBE.
- 6 ANCHOR POST TO INERTIA BASE. PROVIDE 45 DEGREE ANGLE SUPPORT IN TWO DIRECTIONS; MIN. 24" OUTBOARD.



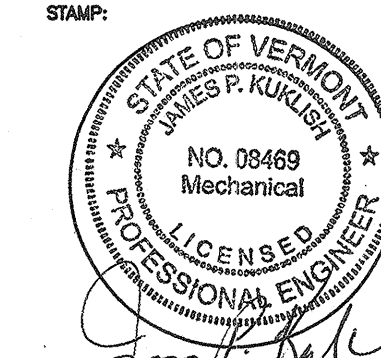
1 DETAIL - EF-4, 5 MOUNTING  
1/2"=1'-0"

IDC PROJECT NO.: 364972

CLIENT PROJECT NO.:

DRAWN: \_\_\_\_\_ REVIEWED: \_\_\_\_\_  
DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_

NOTICE: \_\_\_\_\_ STAMP: \_\_\_\_\_



GENERAL NOTES:

A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

| NO. | REVISION OR ISSUE | DATE     | BY   |
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| 1   | CONFORMED         | 01/23/08 | IDC  |
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AS BUILT

KEYPLAN



**Delehanty Hall  
Cosmogenic Nuclide  
Laboratory**

TITLE: MECHANICAL DETAILS

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
ACAD FILE: M-7 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER:  
M-7



**GENERAL NOTES:**  
 A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

| NO. | REVISION OR ISSUE | DATE     | BY   |
|-----|-------------------|----------|------|
| 1   | CONFORMED         | 01/23/08 | IDC  |
| 0   | IFC               | 11/16/07 | IDCA |

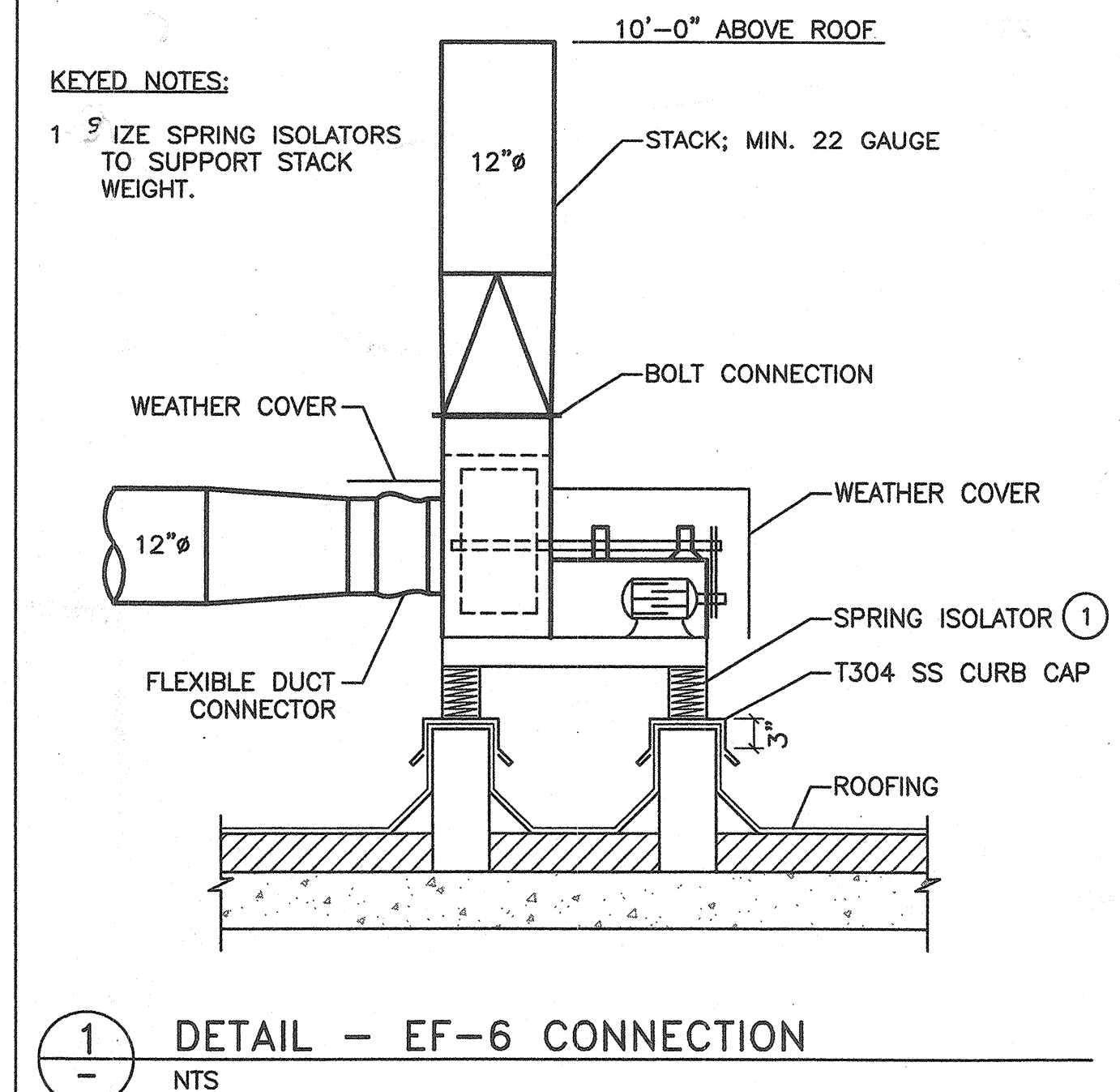
**AS BUILT**

KEYPLAN  
  
**The UNIVERSITY of VERMONT**

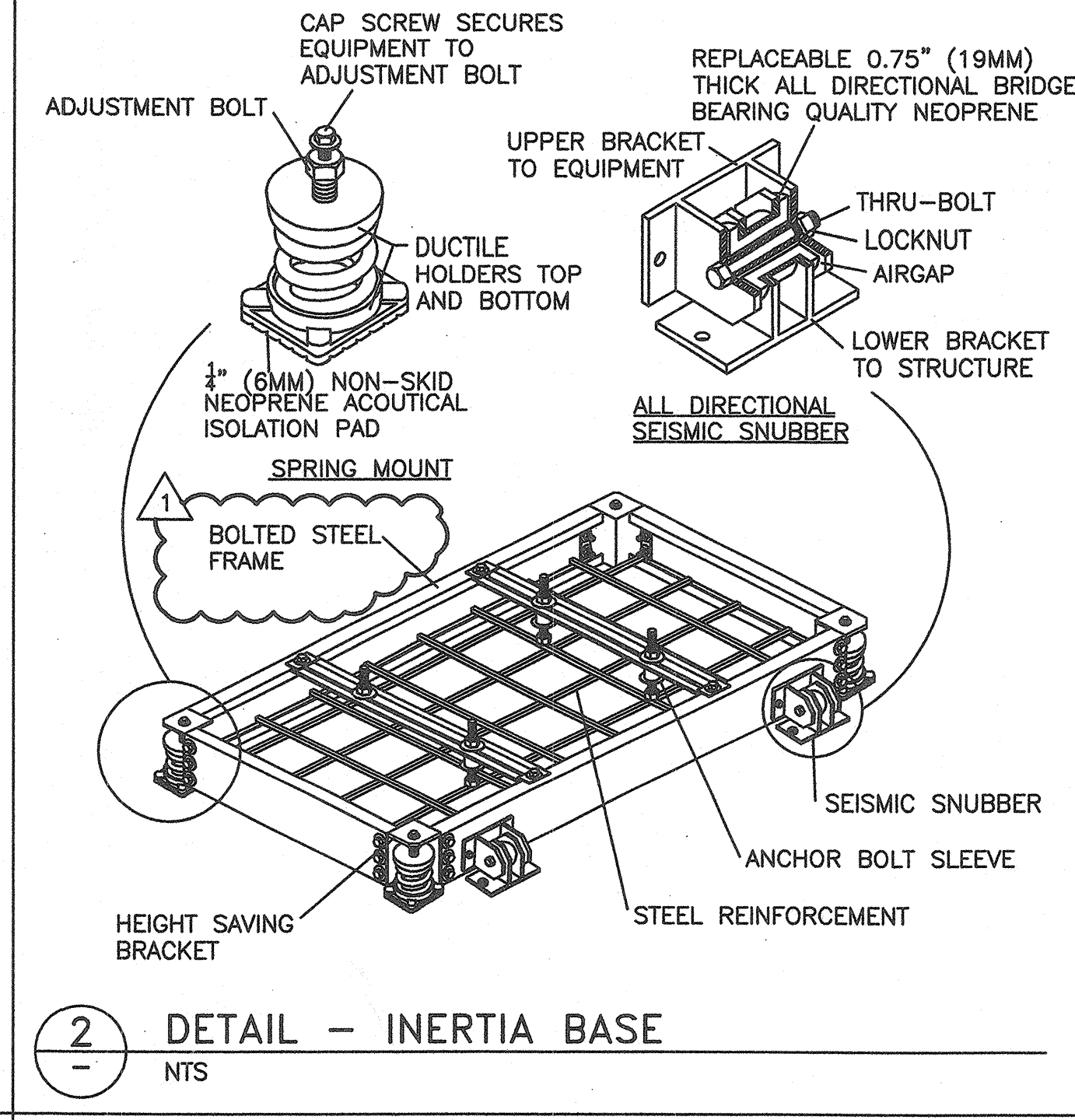
**Delehanty Hall  
 Cosmogenic Nuclide  
 Laboratory**  
 MECHANICAL  
 DETAILS

DATE ISSUED: DRAWING SCALE:  
 ACD FILE: M-6 EQUIPMENT CODE:  
 DRAWING NUMBER:

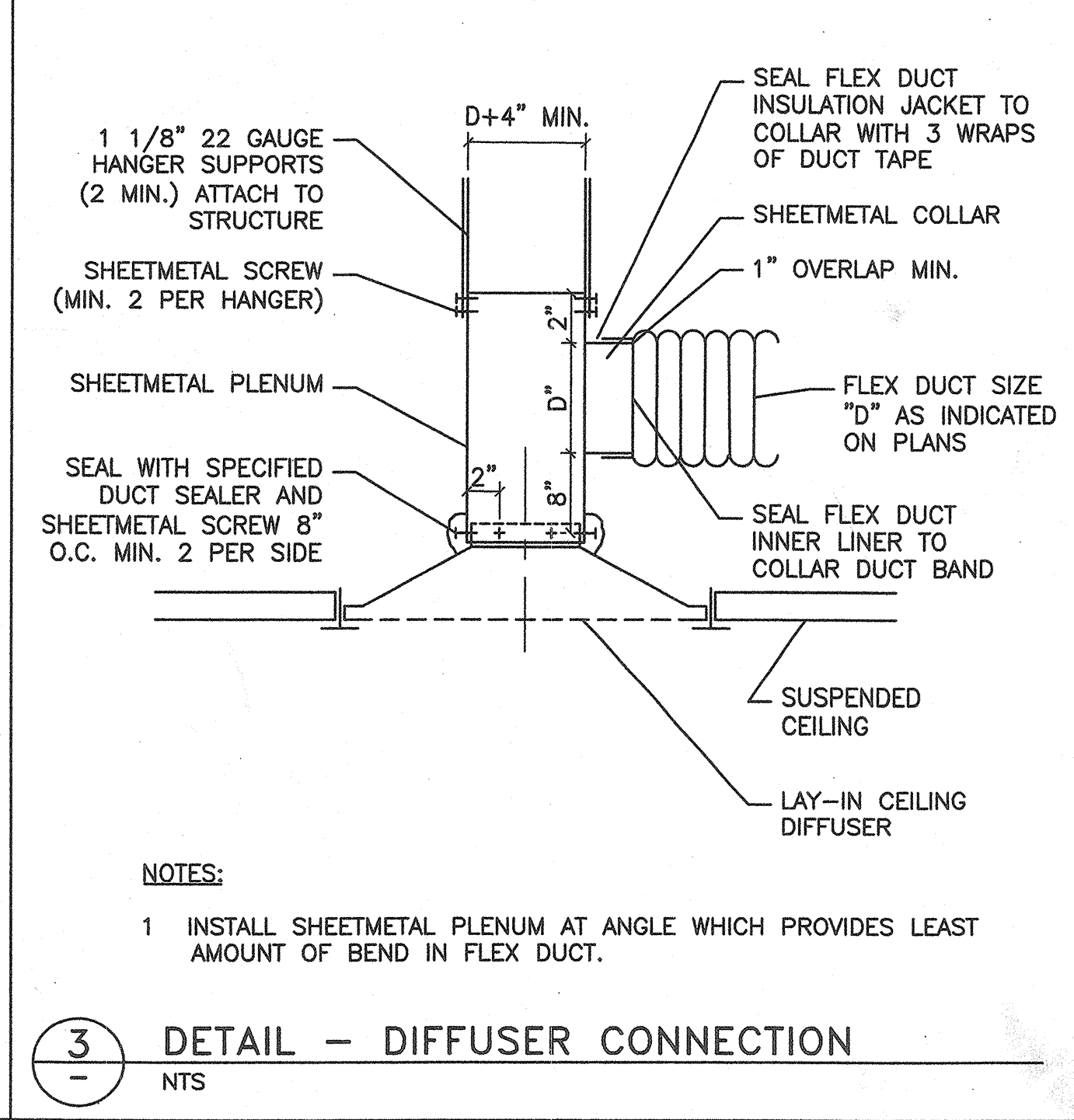
M-6



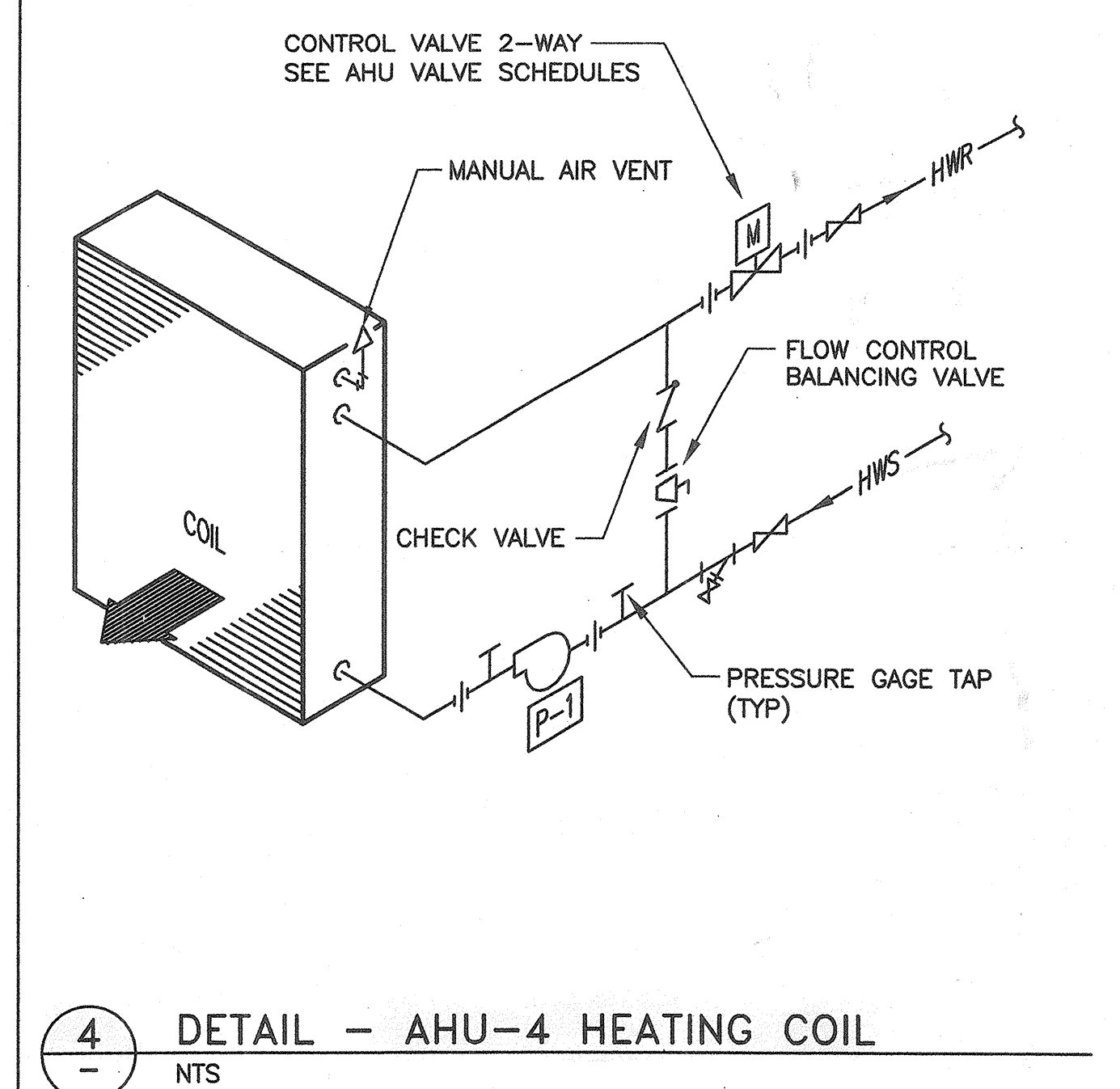
**1** DETAIL - EF-6 CONNECTION  
 NTS



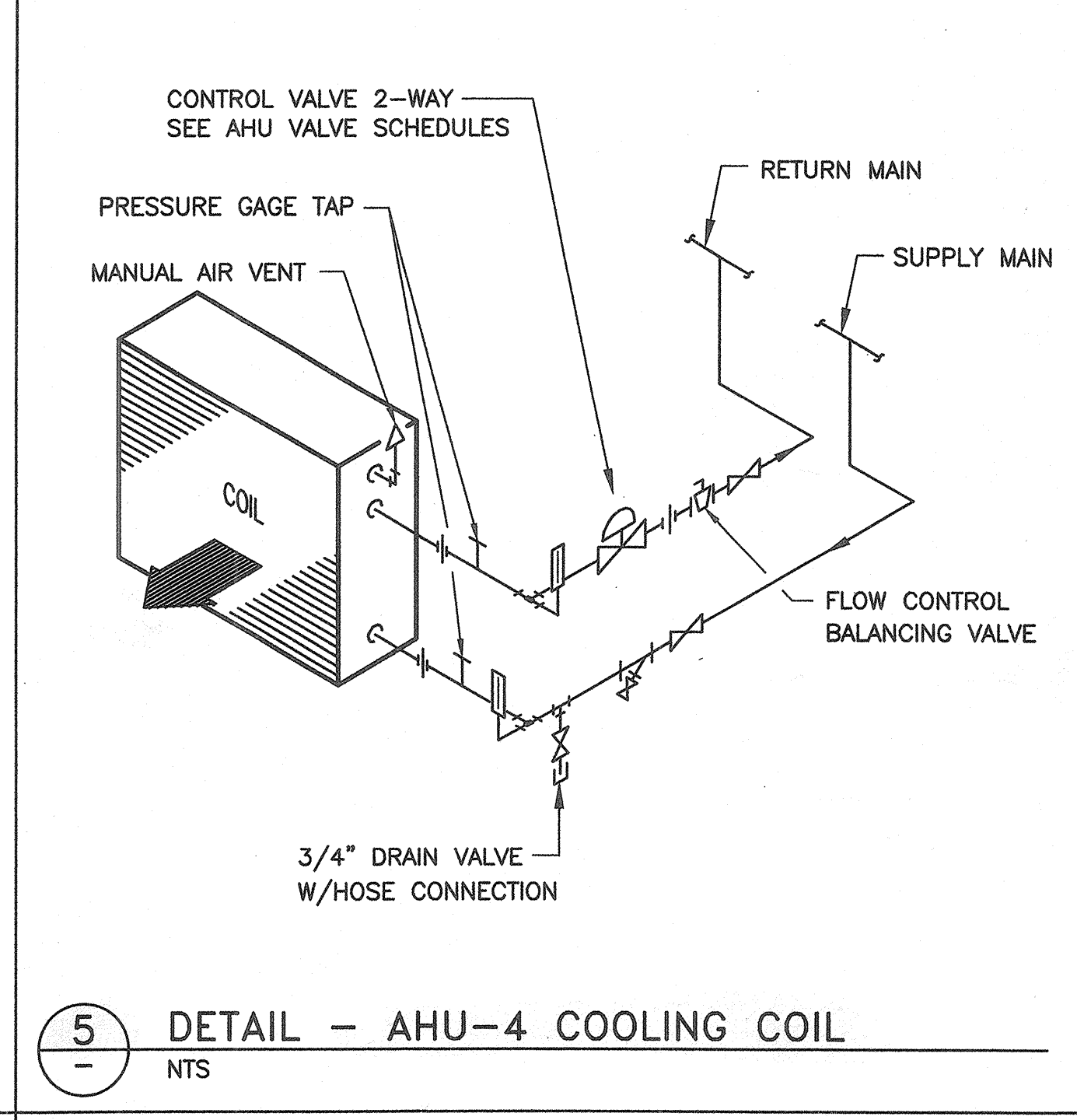
**2** DETAIL - INERTIA BASE  
 NTS



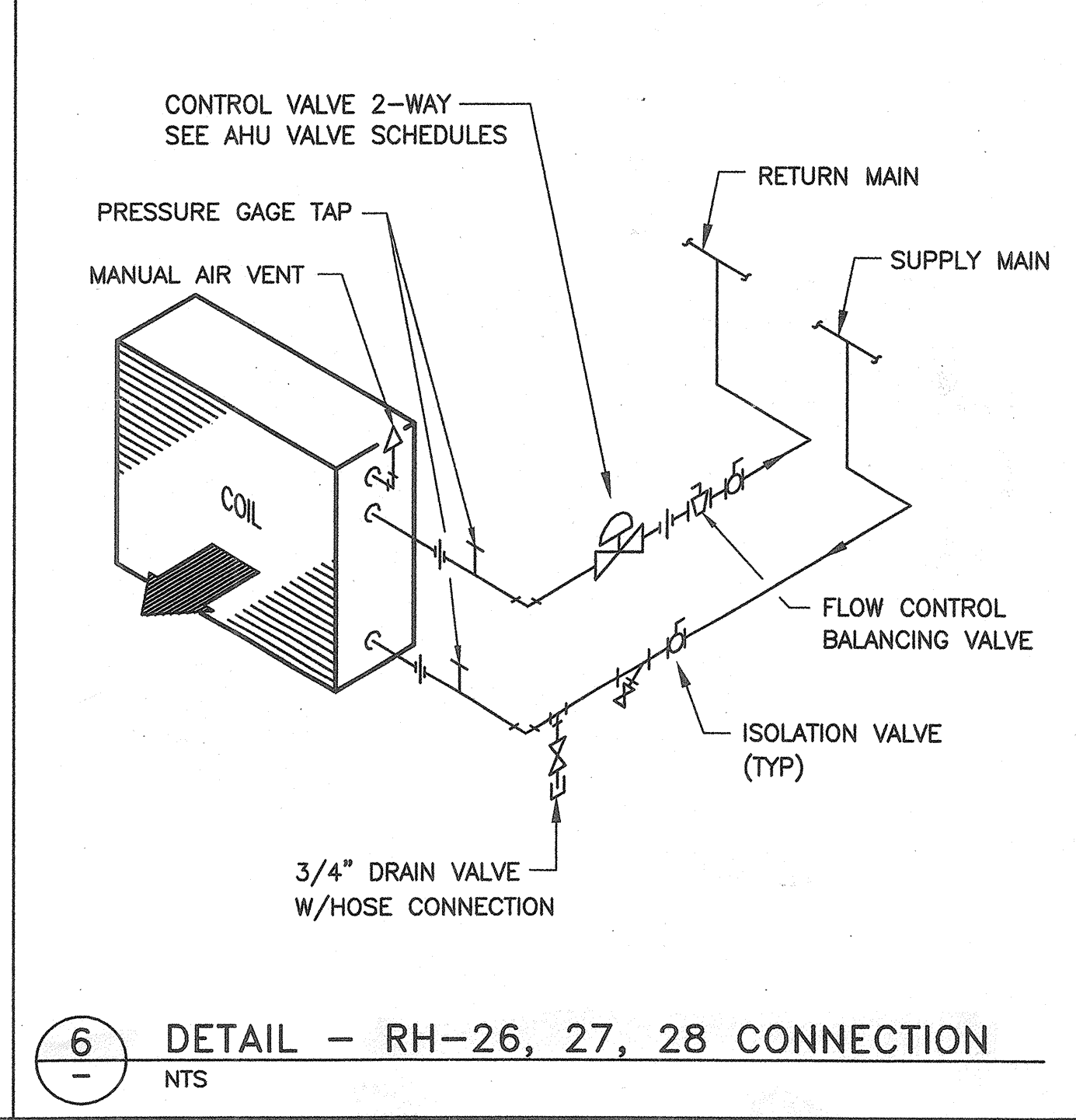
**3** DETAIL - DIFFUSER CONNECTION  
 NTS



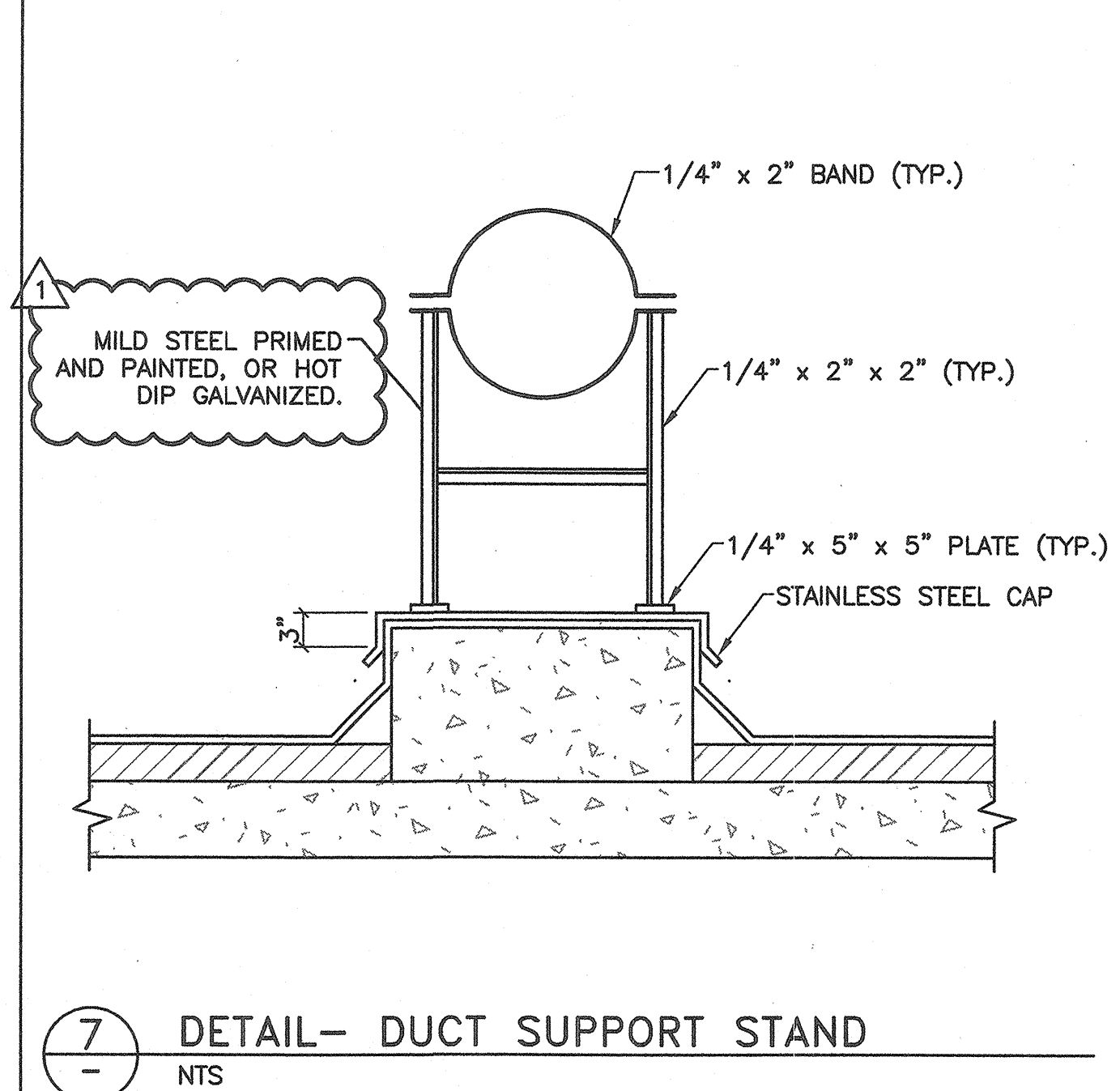
**4** DETAIL - AHU-4 HEATING COIL  
 NTS



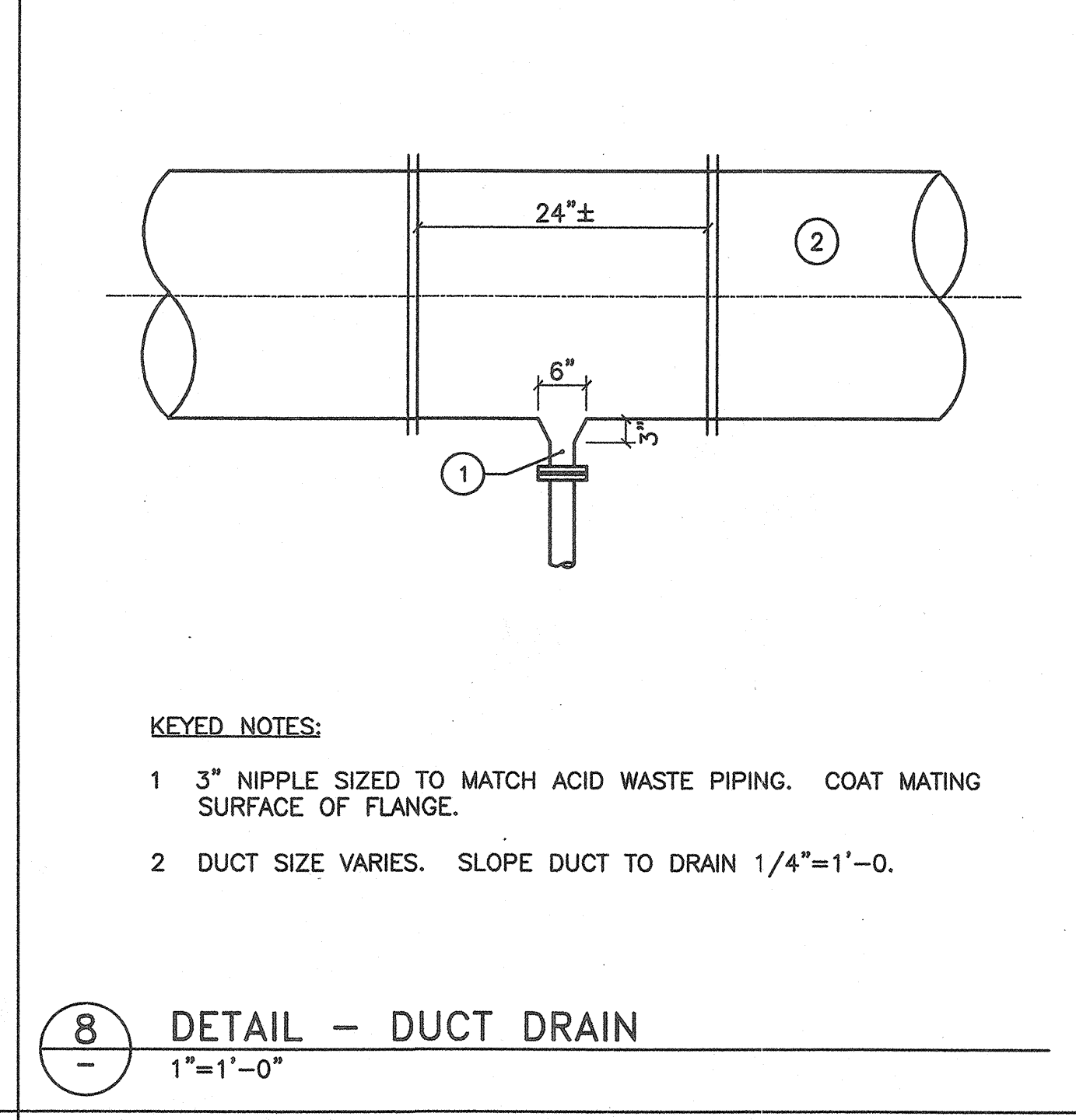
**5** DETAIL - AHU-4 COOLING COIL  
 NTS



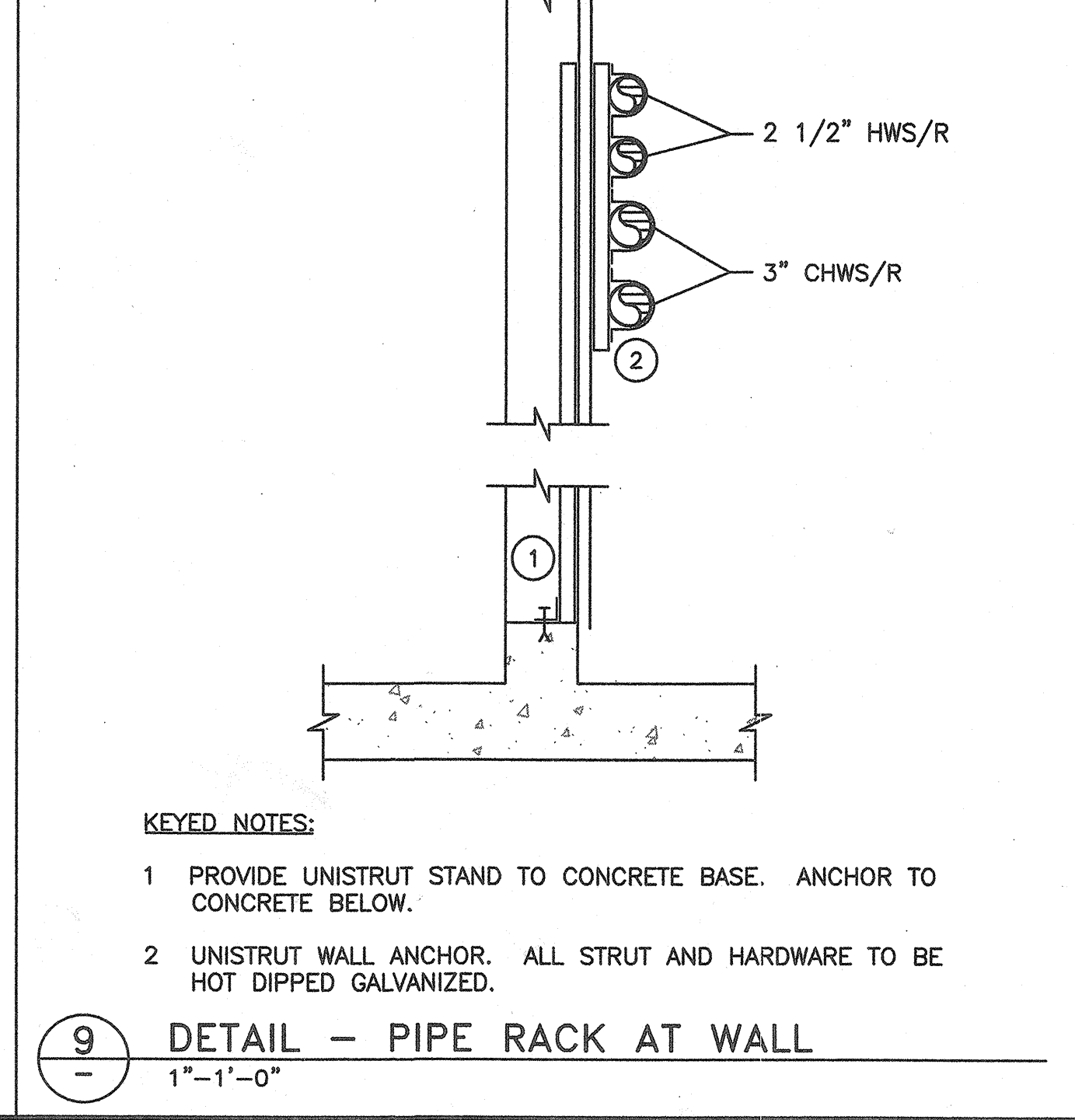
**6** DETAIL - RH-26, 27, 28 CONNECTION  
 NTS



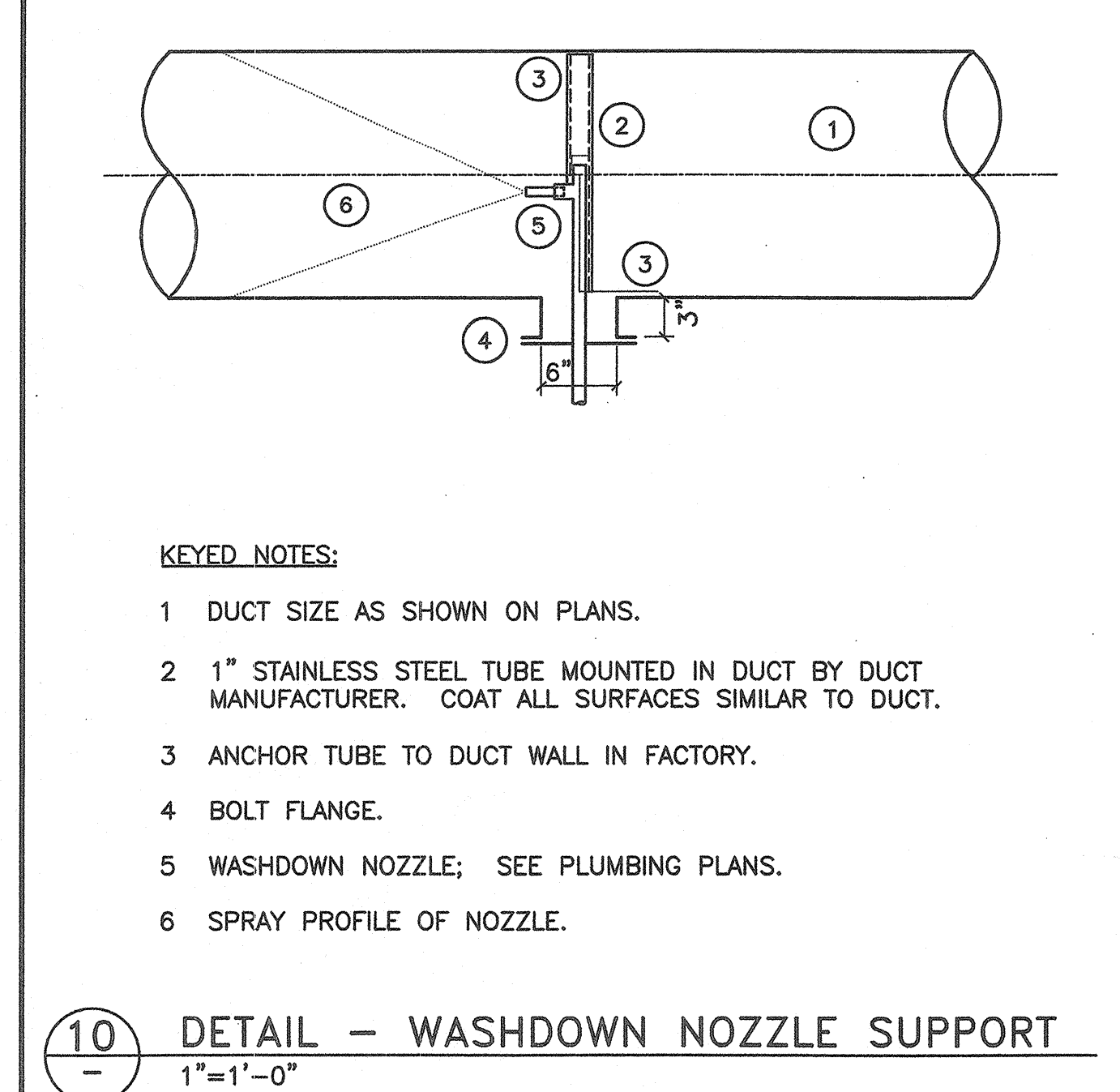
**7** DETAIL- DUCT SUPPORT STAND  
 NTS



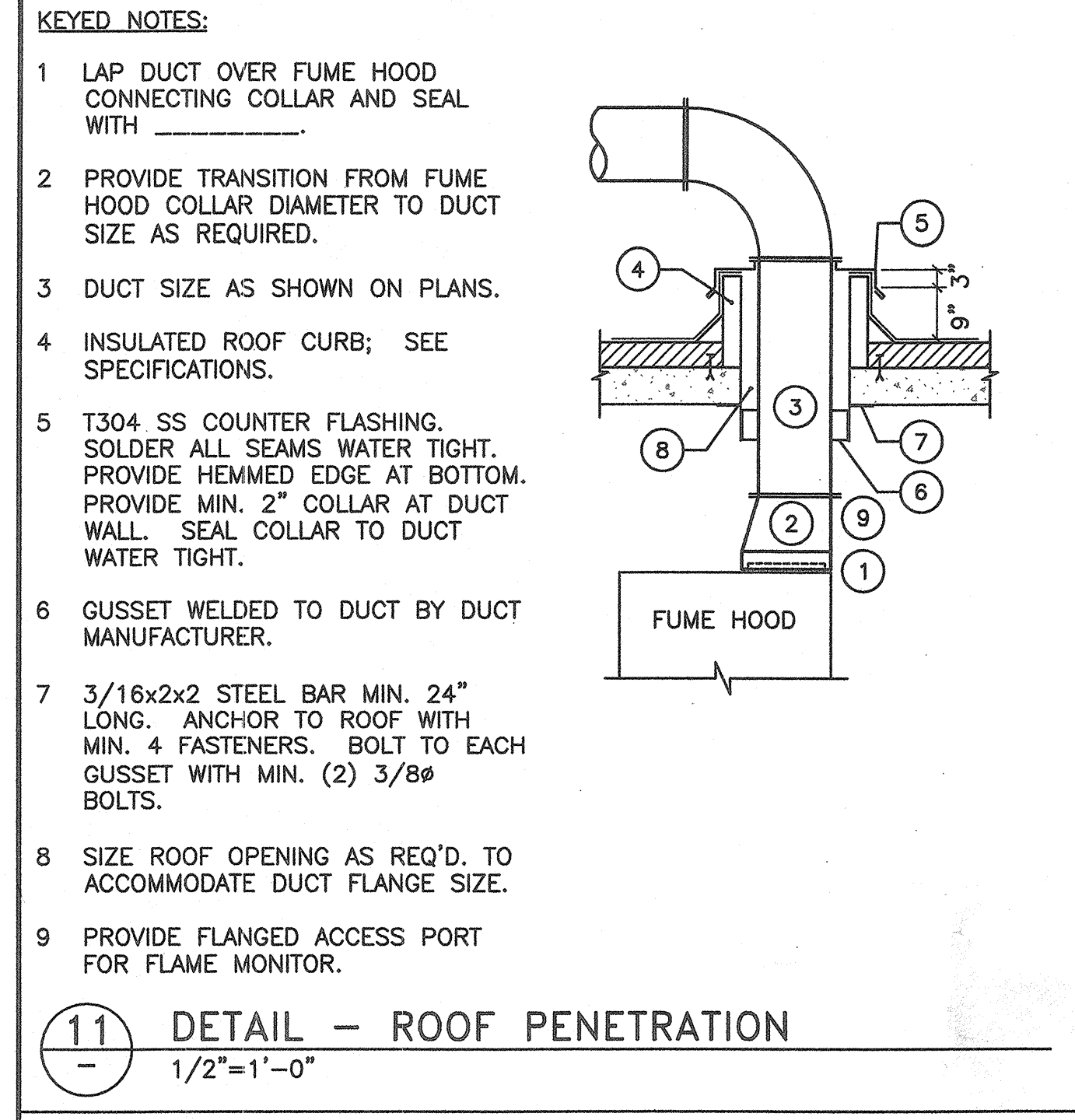
**8** DETAIL - DUCT DRAIN  
 1/2"=1'-0"



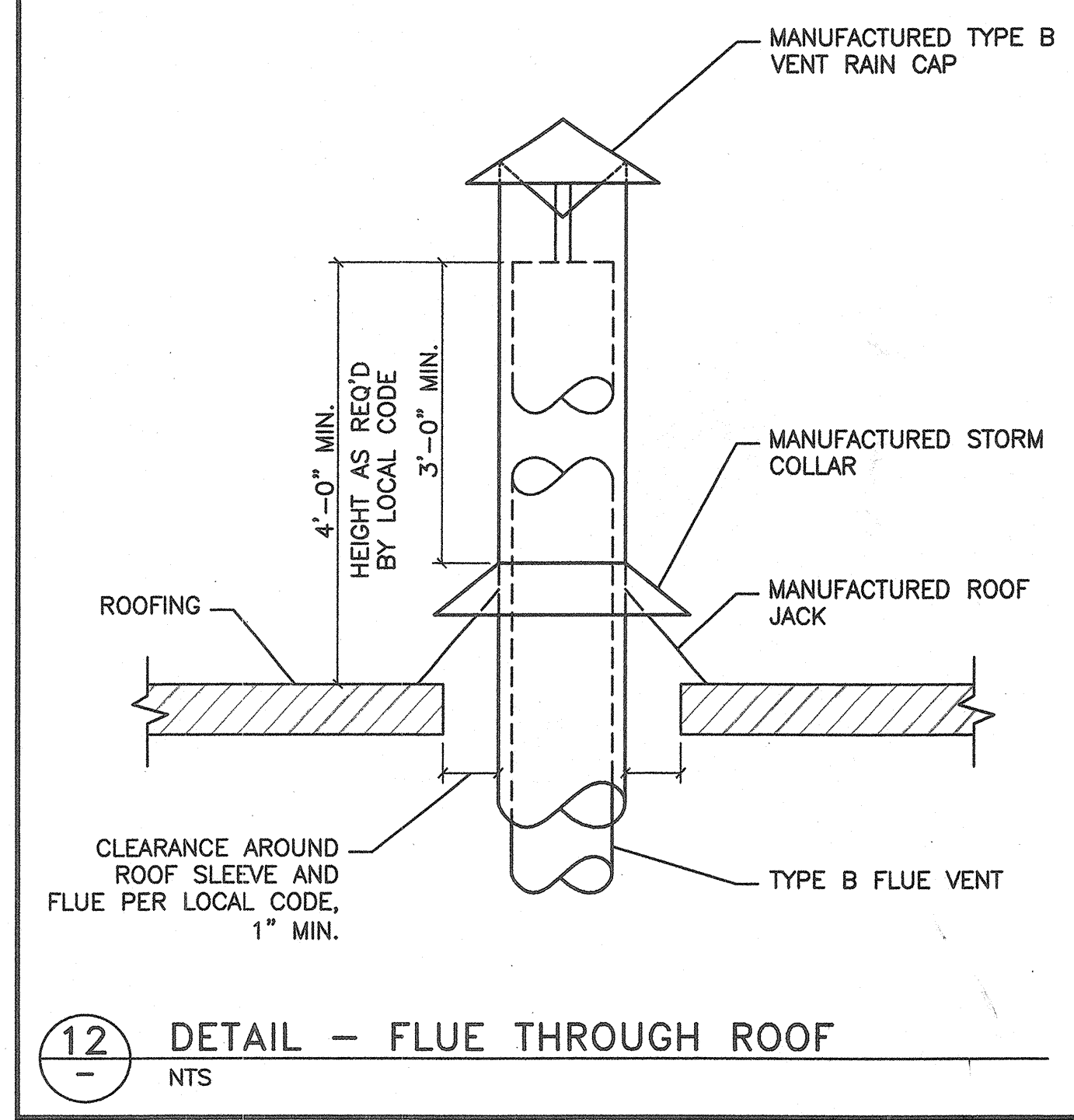
**9** DETAIL - PIPE RACK AT WALL  
 1"-1'-0"



**10** DETAIL - WASHDOWN NOZZLE SUPPORT  
 1"-1'-0"

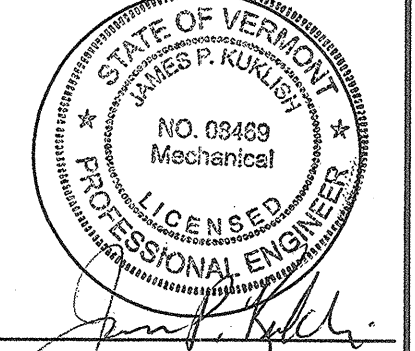


**11** DETAIL - ROOF PENETRATION  
 1/2"=1'-0"

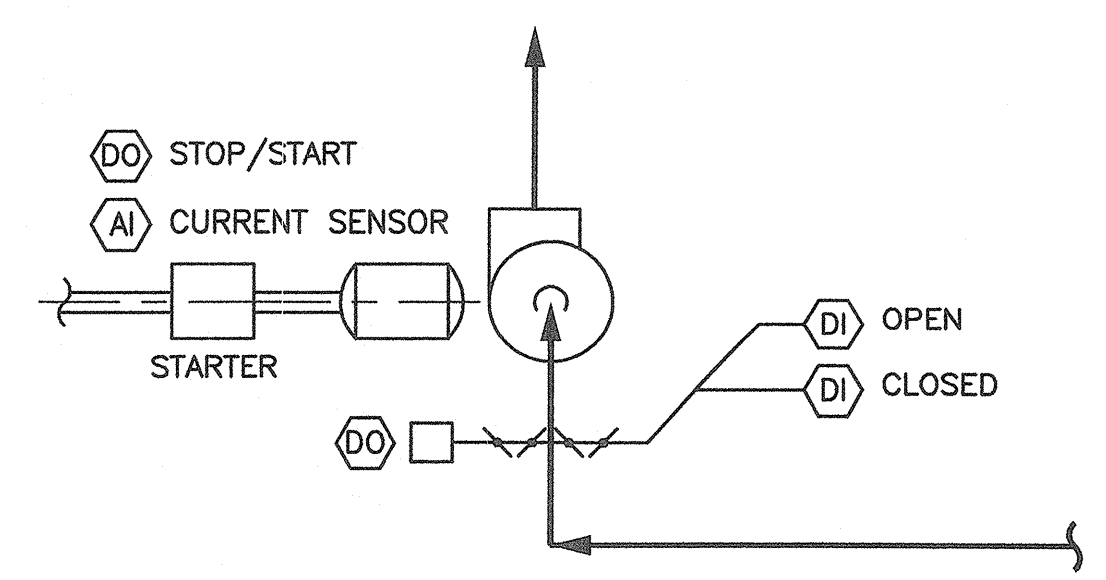


**12** DETAIL - FLUE THROUGH ROOF  
 NTS



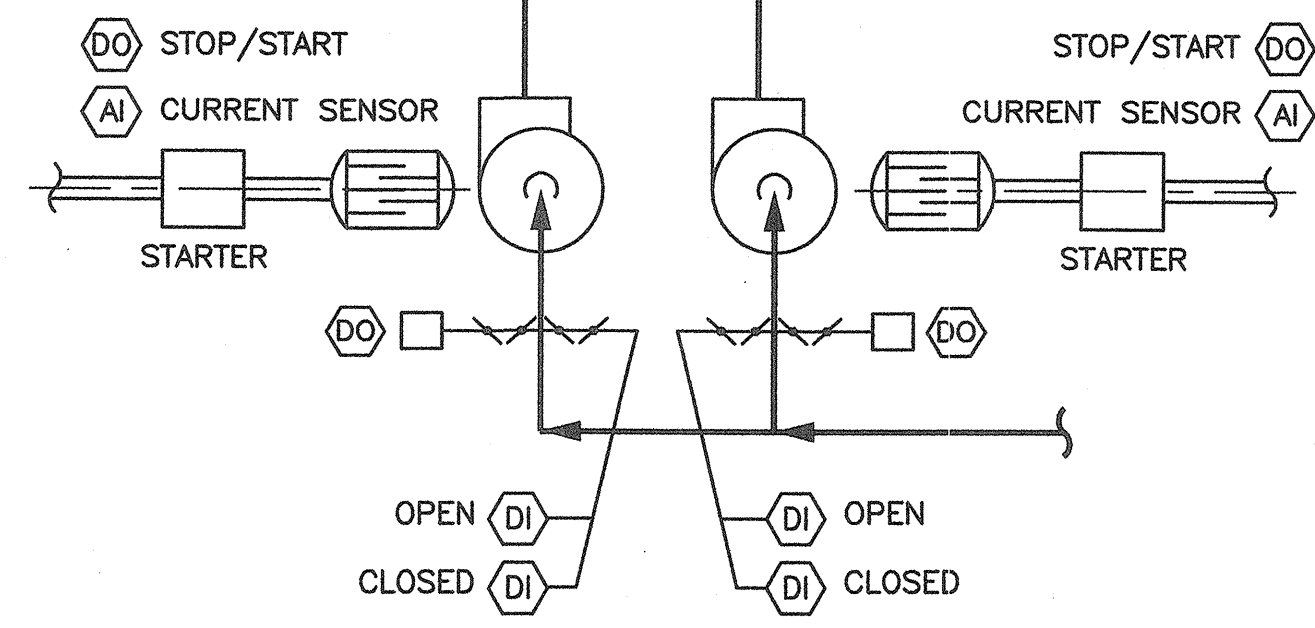


GENERAL NOTES:  
 A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

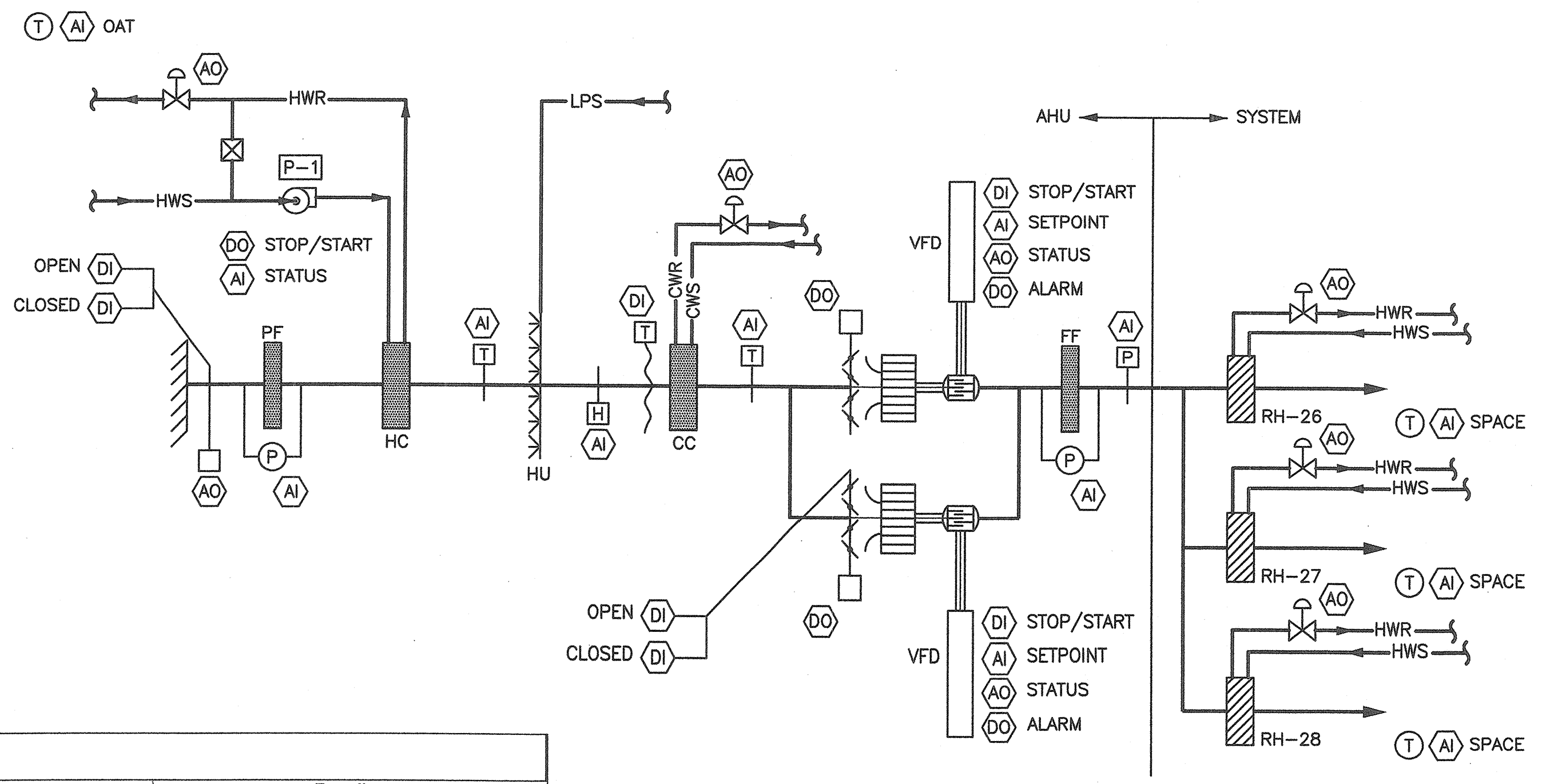


NOTES:  
 EF-7 SIMILIAR EXCEPT WITHOUT ISOLATION DAMPER.

**3** CONTROL DIAGRAM - EF-6  
 - NTS



**2** CONTROL DIAGRAM - EF-4, 5  
 - NTS



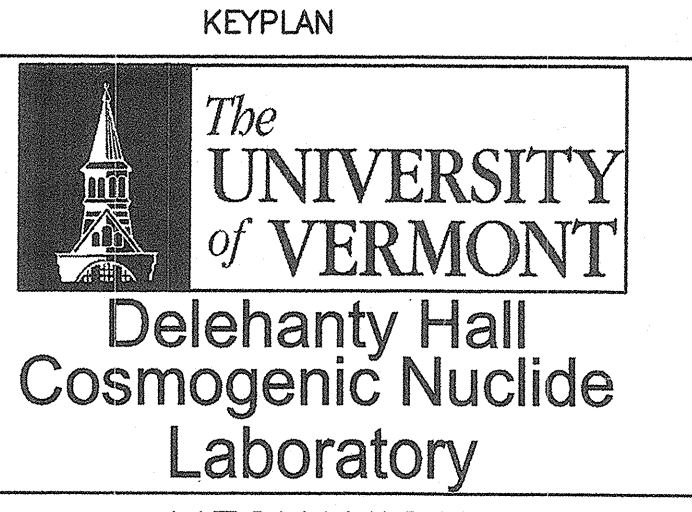
**1** CONTROL DIAGRAM - AHU-4  
 - NTS

| Name  | Alarm ID | Alarm Location |                     |                            |            |          |  | System response     |                            |                  | Trending          |                                 |  |
|---|----------|----------------|---------------------|----------------------------|------------|----------|--|---------------------|----------------------------|------------------|-------------------|---------------------------------|--|
|   |          | Lab enunciator | Corridor enunciator | Corridor Monitor panel (1) | Facilities | Paul (2) | Hot Plate + hood 120V outlets Shutdown | AHU and EF Shutdown | Time delay before shutdown | sample frequency | duration of trend | auto archive after trend period |  |
| <b>AHU-4</b>  |          |                |                     |                            |            |          |  |                     |                            |                  |                   |                                 |  |
| AHU enable command  |          |                |                     | X                          | X          | X        | X                                      |                     | COV                        | 1 year           | X                 |                                 |  |
| Outside air damper status (position vs. commanded position)                   |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Heating water control valve (position vs. commanded position)                 |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Chilled water control valve (position vs. commanded position)                 |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Fan #1 operation alarm (status vs. command)                                   |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Fan #2 operation alarm (status vs. command)                                   |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Fan #1 isolation damper status (position vs. commanded position)              |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Fan #2 isolation damper status (position vs. commanded position)              |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Pump P-1 status   |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Supply duct static pressure (set point vs. actual value)                      |          |                |                     | X                          | X          | X        |  |                     | 1 min.                     | 1 month          | X                 |                                 |  |
| Supply duct static pressure high limit alarm (preset variance from set point) |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Supply duct static pressure low limit alarm (preset variance from set point)  |          | X              | X                   | X                          | X          | X        | X                                      | X                   | 15 seconds                 | COV              | 1 year            | X                               |  |
| Filter #1 DP high limit   |          |                |                     | X                          | X          | X        |  |                     | 1 day                      | 6 months         | X                 |                                 |  |
| Filter #2 DP high limit   |          |                |                     | X                          | X          | X        |  |                     | 1 day                      | 2 years          | X                 |                                 |  |
| Freeze stat trip  |          |                |                     | X                          | X          | X        |  | X                   | 5 seconds                  | COV              | 1 year            | X                               |  |
| Discharge air temperature set point alarm (set point vs. actual)              |          |                |                     | X                          | X          | X        |  |                     | 15 min                     | 1 month          | X                 |                                 |  |
| Discharge air temperature high limit alarm (preset variance from set point)   |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Discharge air temperature low limit alarm (preset variance from set point)    |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| <b>EF-4,5</b>   |          |                |                     |                            |            |          |  |                     |                            |                  |                   |                                 |  |
| Fan #1 operation alarm (status vs. command)                                   |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Fan #2 operation alarm (status vs. command)                                   |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Damper #1 status (position vs. commanded position)                            |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Damper #2 status (position vs. commanded position)                            |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Duct static pressure alarm (preset variance from set point)                   |          | X              | X                   | X                          | X          | X        | X                                      |                     | 1 minute                   | 1 month          | X                 |                                 |  |
| <b>EF-6</b>   |          |                |                     |                            |            |          |  |                     |                            |                  |                   |                                 |  |
| Fan operation alarm (status vs. command)                                      |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Duct static pressure alarm (preset variance from set point)                   |          | X              | X                   | X                          | X          | X        | X                                      |                     | 1 minute                   | 1 month          | X                 |                                 |  |
| <b>EF-7</b>   |          |                |                     |                            |            |          |  |                     |                            |                  |                   |                                 |  |
| Fan operation alarm (status vs. command)                                      |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Duct static pressure alarm (preset variance from set point)                   |          | X              | X                   | X                          | X          | X        | X                                      |                     | 1 minute                   | 1 month          | X                 |                                 |  |
| <b>H-1</b>  |          |                |                     |                            |            |          |  |                     |                            |                  |                   |                                 |  |
| General alarm from control system   |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| <b>RH-26,27,28</b>  |          |                |                     |                            |            |          |  |                     |                            |                  |                   |                                 |  |
| RH-26 status  |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| RH-27 status  |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| RH-28 status  |          |                |                     | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| <b>Miscellaneous</b>  |          |                |                     |                            |            |          |  |                     |                            |                  |                   |                                 |  |
| Fume hood #1 monitor general alarm  |          | X              | X                   | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Fume hood #2 monitor general alarm  |          | X              | X                   | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Fume hood #3 monitor general alarm  |          | X              | X                   | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Fume hood #4 monitor general alarm  |          | X              | X                   | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Fume hood #5 monitor general alarm  |          | X              | X                   | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| HCL and HF sniffer system general alarm                                       |          | X              | X                   | X                          | X          | X        | X                                      | X                   | 10 seconds                 | COV              | 1 year            | X                               |  |
| High Level Production vs. Vestibule DP photohelic (low limit)                 |          | X              | X                   | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Write Up vs. Vestibule DP photohelic (low limit)                              |          | X              | X                   | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Product Lab vs. Vestibule DP photohelic (low limit)                           |          | X              | X                   | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| corridor vs. Vestibule DP photohelic (low limit)                              |          | X              | X                   | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |  |
| Production Lab temperature status   |          | X (1)          |                     |                            | X          | X        |  |                     |                            |                  |                   |                                 |  |
| High Level temperature status   |          | X (1)          |                     |                            | X          | X        |  |                     |                            |                  |                   |                                 |  |
| Write Up temperature status   |          | X (1)          |                     |                            | X          | X        |  |                     |                            |                  |                   |                                 |  |
| Production RH status  |          | X (1)          |                     |                            | X          | X        |  |                     |                            |                  |                   |                                 |  |
| High Level RH status  |          | X (1)          |                     |                            | X          | X        |  |                     |                            |                  |                   |                                 |  |
| Write Up RH status  |          | X (1)          |                     |                            | X          | X        |  |                     |                            |                  |                   |                                 |  |

Notes: (1) via wall sensor/controller, not wall mounted enunciator  
 (2) Paul's alarm = cell + email + home phone

|     |                   |          |      |
|-----|-------------------|----------|------|
| 1   | CONFORMED         | 01/23/08 | IDC  |
| 0   | IFC               | 11/16/07 | IDCA |
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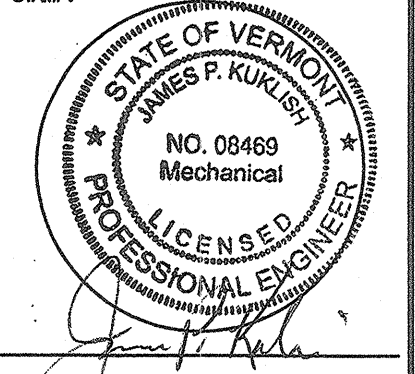
MECHANICAL CONTROL DIAGRAMS

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACO FILE: M-5 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER:  
**M-5**



DRAWN: \_\_\_\_\_ REVIEWED: \_\_\_\_\_  
 DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_



GENERAL NOTES:  
 A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

| FAN SCHEDULE |          |          |              |            |      |            |     |         |                     |                              |
|--------------|----------|----------|--------------|------------|------|------------|-----|---------|---------------------|------------------------------|
| GENERAL      |          | CAPACITY |              |            |      | ELECTRICAL |     |         | BASIS OF DESIGN     | REMARKS                      |
| UNIT         | LOCATION | CFM      | TSP (IN. WC) | WHEEL (IN) | EFF. | VOLTS/PH   | MHP | STARTER |                     |                              |
| EF-4         | ROOF     | 6,500    | 5.0          | 36.5       | -    | 208/3      | 15  | MAG     | DUALL FH 36.5       | SEE SPECIFICATION DATA SHEET |
| EF-5         | ROOF     | 6,500    | 5.0          | 36.5       | -    | 208/3      | 15  | MAG     | DUALL FH 36.5       | SEE SPECIFICATION DATA SHEET |
| EF-6         | ROOF     | 410      | 1.5          | 8          | -    | 208/3      | 0.5 | MAG     | GREENHECK 8-BISW-41 | -                            |

| HEATING WATER COIL SCHEDULE |          |       |         |         |     |     |      |              |          |                 |         |
|-----------------------------|----------|-------|---------|---------|-----|-----|------|--------------|----------|-----------------|---------|
| GENERAL                     |          | COIL  |         |         |     |     |      |              |          | BASIS OF DESIGN | REMARKS |
| UNIT                        | LOCATION | CFM   | EAT (F) | LAT (F) | EWT | LWT | GPM  | APD (IN. WC) | WPD (FT) |                 |         |
| RH-26                       | ROOF     | 4,500 | 55      | 80      | 180 | 160 | 12.4 | 0.2          | 5        | HEATCRAFT       | -       |
| RH-27                       | ROOF     | 1,200 | 55      | 80      | 180 | 160 | 3.3  | 0.2          | 5        | HEATCRAFT       | -       |
| RH-28                       | ROOF     | 470   | 55      | 80      | 180 | 160 | 1.3  | 0.2          | 5        | HEATCRAFT       | -       |

| PUMP SCHEDULE |          |               |      |          |                    |      |      |     |            |      |                     |         |
|---------------|----------|---------------|------|----------|--------------------|------|------|-----|------------|------|---------------------|---------|
| GENERAL       |          |               | PUMP |          |                    |      |      |     | ELECTRICAL |      | BASIS OF DESIGN     | REMARKS |
| UNIT          | LOCATION | SERVICE       | GPM  | TDH (FT) | IMPELLER DIA. (IN) | RPM  | EFF. | HP  | VOLTS/PH   | AMPS |                     |         |
| P-1           | AHU-4    | HEATING WATER | 34   | 20       | 5.4                | 1750 | 40   | 1/2 | 208/3      | 1.5  | BELL & GOSSETT 1.5A | -       |

| AIR HANDLING UNIT SCHEDULE |          |            |      |      |     |              |                      |               |               |         |         |     |          |              |                |         |              |         |         |     |          |              |
|----------------------------|----------|------------|------|------|-----|--------------|----------------------|---------------|---------------|---------|---------|-----|----------|--------------|----------------|---------|--------------|---------|---------|-----|----------|--------------|
|                            |          | SUPPLY FAN |      |      |     |              | COOLING COIL         |               |               |         |         |     |          |              |                |         | HEATING COIL |         |         |     |          |              |
| UNIT                       | LOCATION | CFM        | SIZE | EFF. | RPM | TSP (IN. WC) | TOTAL CAPACITY (MBH) | EAT DB/WB (F) | LAT DB/WB (F) | EWT (F) | LWT (F) | GPM | WPD (FT) | APD (IN. WC) | CAPACITY (MBH) | EAT (F) | LAT (F)      | EWT (F) | LWT (F) | GPM | WPD (FT) | APD (IN. WC) |
| AHU-4                      | ROOF     | 6,500      | 20   | -    | -   | 6.0          | 370                  | 88/71         | 55/54         | 46      | 58      | 61  | 10       | 0.5          | 500            | -10     | 60           | 180     | 150     | 34  | 10       | 0.2          |

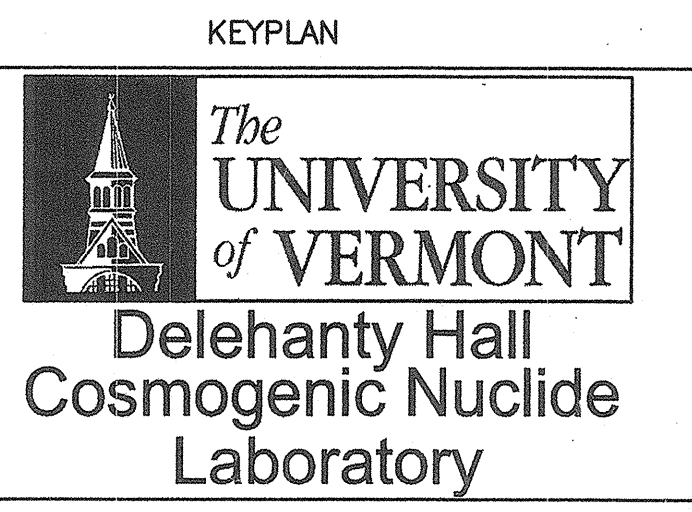
| HUMIDIFIER |         |              |            | PREFILTER |           |      | FINAL FILTER |           |      | ELECTRICAL |     |         | CABINET             | BASIS OF DESIGN | REMARKS   |
|------------|---------|--------------|------------|-----------|-----------|------|--------------|-----------|------|------------|-----|---------|---------------------|-----------------|---|
| EAT (F)    | LAT (F) | FLOW (lb/hr) | FLOW (gpm) | QTY       | SIZE (IN) | EFF. | QTY          | SIZE (IN) | EFF. | VOLTS/PH   | MHP | STARTER | SIZE (INCHES)       |                 |   |
| 61/40      | 60/53   | 240          | 0.5        | 3         | 24x24     | 30%  | 3            | 24x24     | 90%  | 208/3      | 15  | VFD     | 302 L x 76 W x 72 H | CLEAN PAK       | TWO 15 HP MOTORS; N+1 APPLICATION. SEE SPECIFICATION DATA SHEET |
|            |         |              |            | 3         | 12x24     | 30%  | 3            | 12x24     | 90%  |            |     |         |                     |                 |   |

| HUMIDIFIER SCHEDULE |               |              |             |             |          |       |         |                 |               |                  |             |                   |       |
|---------------------|---------------|--------------|-------------|-------------|----------|-------|---------|-----------------|---------------|------------------|-------------|-------------------|-------|
| TAG                 | LOCATION      | SYSTEM STEAM |             | NATURAL GAS |          | WATER |         | RESERVOIR (GAL) | SIZE (INCHES) | WEIGHT (1) (LBS) | ELECTRICAL  | BASIS OF DESIGN   | NOTES |
|                     |               | LBS/HR       | PRESSURE    | MBH         | PRESSURE | GPH   | PSI     |                 |               |                  |             |                   |       |
| H-1                 | MECHANICAL RM | 300          | ATMOSPHERIC | 400         | -        | 40    | 25 ~ 80 | 40              | 56Lx33Wx41H   | 850              | 120V, 3 FLA | DRI-STEAM GTS-400 |       |

NOTES: 1. OPERATING WEIGHT INCLUDES WATER VOLUME

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|-----|-------------------|----------|------|
| 1   | CONFORMED         | 01/23/08 | IDC  |
| 0   | IFC               | 11/16/07 | IDCA |

**AS BUILT**

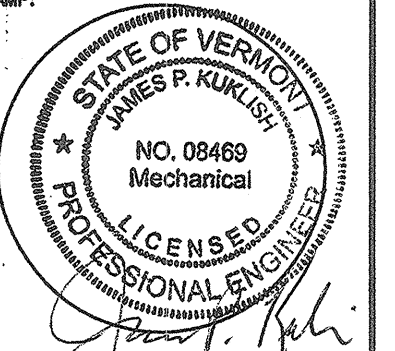


TITLE: MECHANICAL SCHEDULES

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: M-4 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER:  
**M-4**



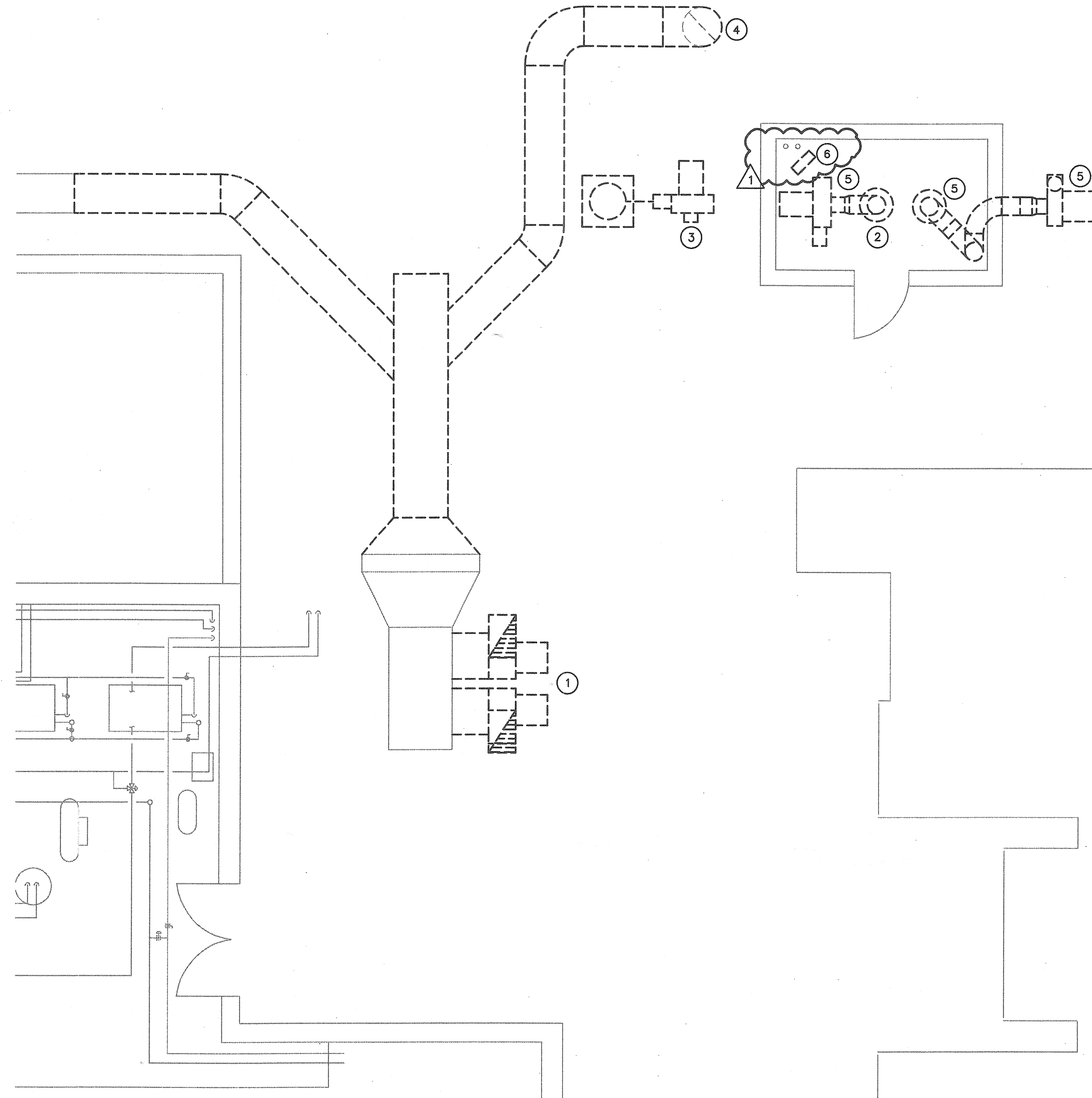


**GENERAL NOTES:**

A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

**KEYED NOTES:**

- 1 RELOCATE EXISTING FANS TO NEW LOCATION SHOWN ON DRAWING M-2.
- 2 RELOCATE EXISTING SCRUBBER AND ASSOCIATED FEEDWATER SYSTEM TO NEW LOCATION SHOWN ON DRAWING M-2.
- 3 RELOCATE EXISTING FAN AND ASSOCIATED STACK TO NEW LOCATION SHOWN ON DRAWING M-2.
- 4 REMOVE DUCTWORK TO ROOF LINE.
- 5 REMOVE FAN AND SCRUBBER; RETURN TO OWNER.
- 6 RELOCATE EXISTING UNIT HEATER AND PIPING TO ACCOMMODATE NEW DUCTWORK. SEE M-2.

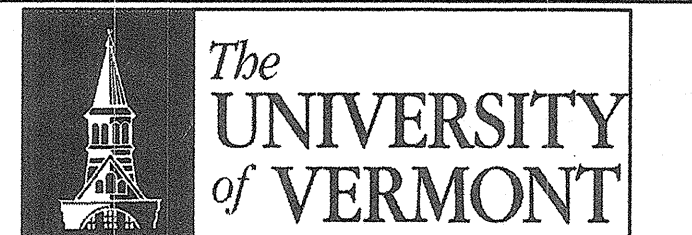


**1** MECHANICAL ROOF DEMOLITION PLAN  
SCALE: 1/4"=1'-0"



| 1   | CONFORMED         | 01/23/08 | IDC  |
|-----|-------------------|----------|------|
| 0   | IFC               | 11/16/07 | IDCA |
| NO. | REVISION OR ISSUE | DATE     | BY   |

**AS BUILT**



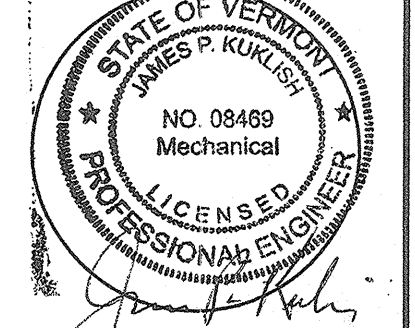
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Laboratory**

TITLE: MECHANICAL ROOF PLAN DEMOLITION

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
ACAD FILE: M-3 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER:  
**M-3**





**GENERAL NOTES:**  
 A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

**KEYED NOTES:**  
 1 RELOCATE EXISTING SCRUBBER TO THIS LOCATION. PROVIDE SUPPORT TO SCRUBBER AS REQUIRED. INSULATE SCRUBBER SIMILAR TO CONNECTING DUCTWORK ON ROOF.

2 7" TYPE B FLUE UP THROUGH ROOF; SEE 12/M-6.  
 3 3" ATMOSPHERIC STEAM; CONNECT TO H-1 COLLAR. SLOPE PIPING 1/8"=1'-0" FROM AHU-4 PIPING HIGH POINT BACK TO H-1. PROVIDE (2) 45-DEGREE ELBOWS W/ 6" PIPE LENGTH BETWEEN AT ALL RISER TO HORIZONTAL TURNS.

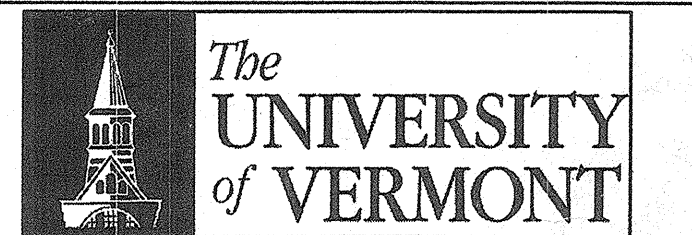
4 14"Ø DOWN THROUGH ROOF. SEE 2/M-1 FOR CONTINUATION.

5 SEE 11/M-6; TYPICAL ALL ROOF PENETRATIONS.

|     |                   |          |      |
|-----|-------------------|----------|------|
| 1   | CONFORMED         | 01/23/08 | IDC  |
| 0   | IFC               | 11/16/07 | IDCA |
| NO. | REVISION OR ISSUE | DATE     | BY   |

**AS BUILT**

KEYPLAN

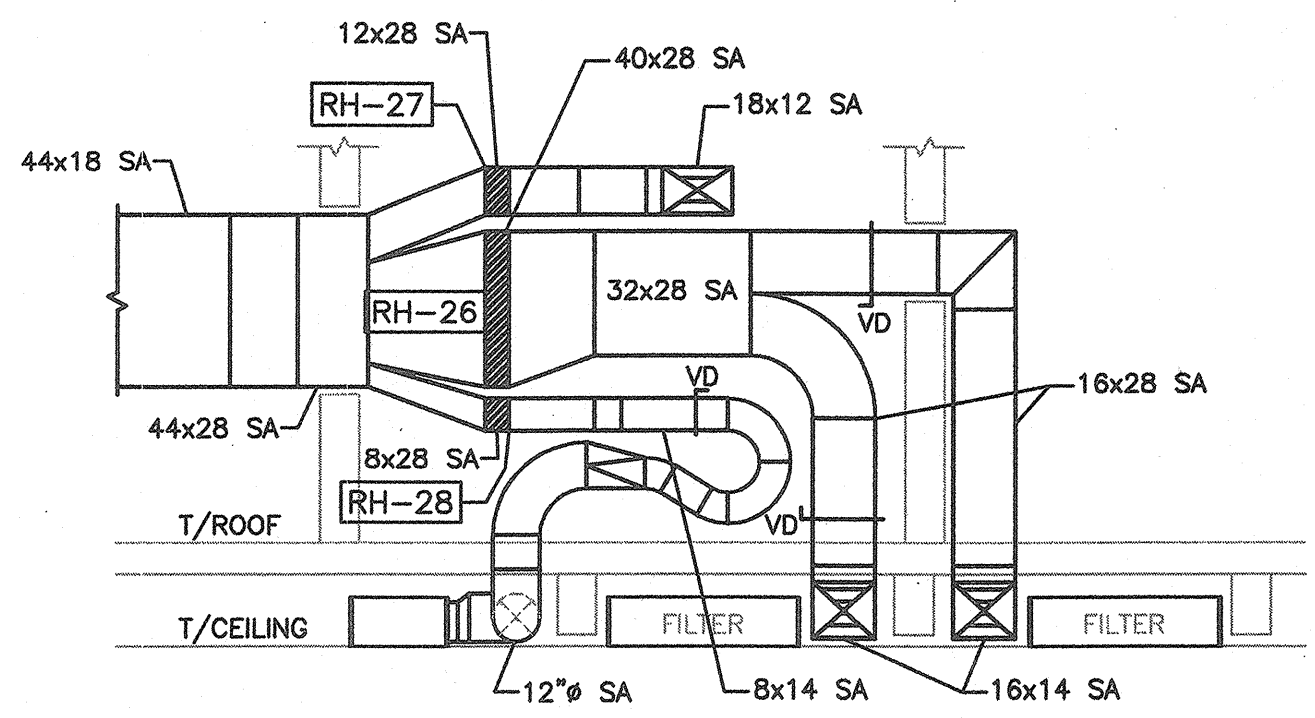
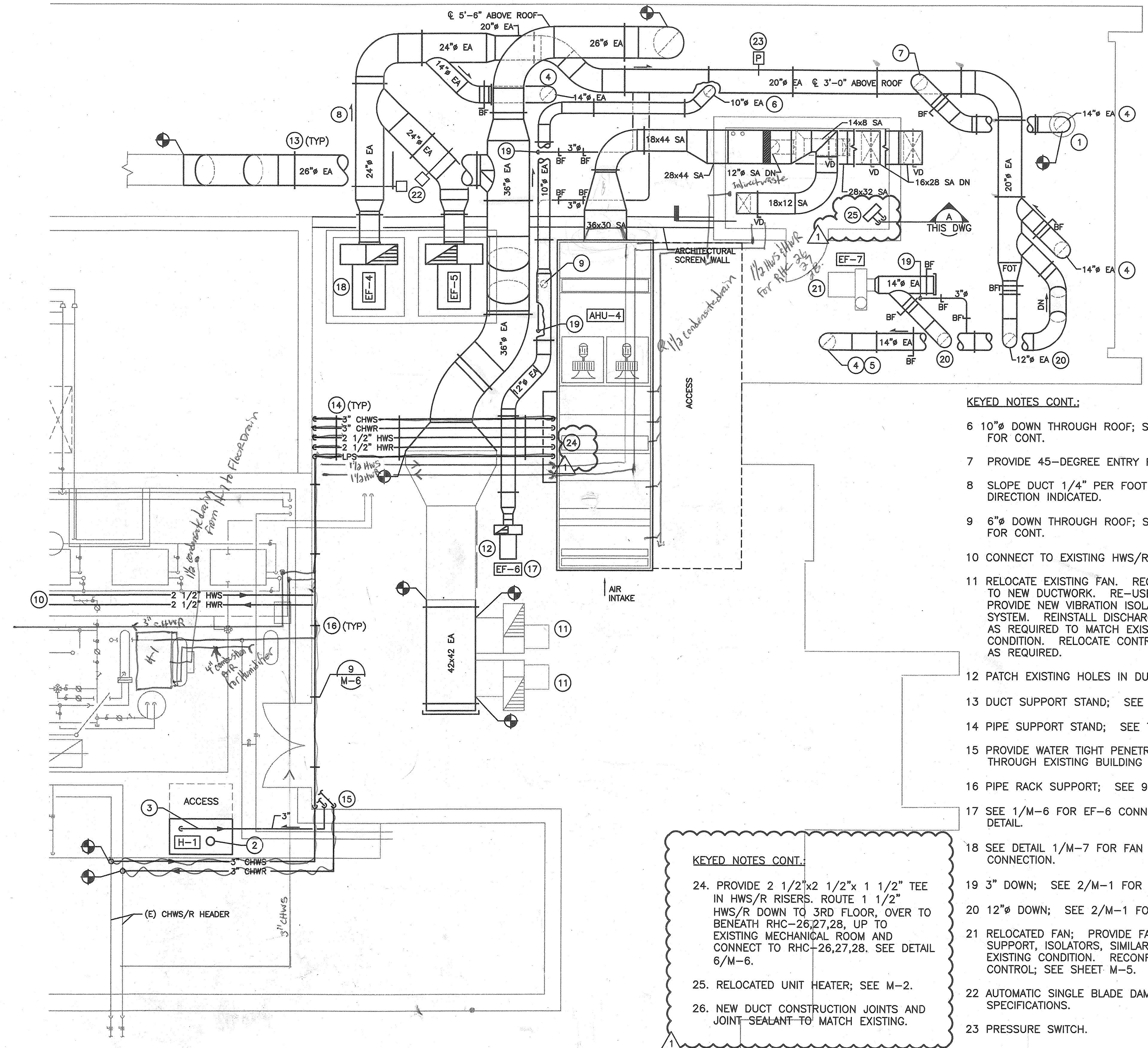


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 Cosmogenic Nuclide  
 Laboratory**

TITLE: **MECHANICAL  
 ROOF PLAN**

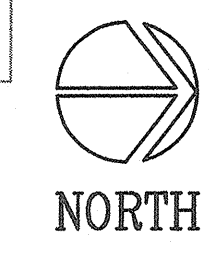
DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: M-2 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER: **M-2**



**A SECTION**  
 1/4"=1'-0"

**1 MECHANICAL ROOF PLAN**  
 SCALE: 1/4"=1'-0"



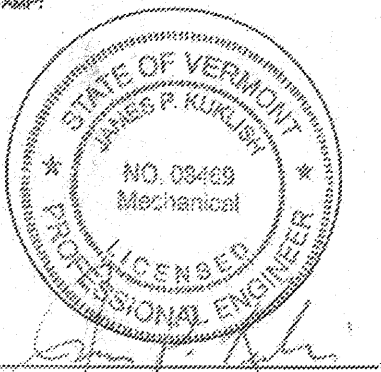
**KEYED NOTES CONT.:**

- 6 10"Ø DOWN THROUGH ROOF; SEE 2/M-1 FOR CONT.
- 7 PROVIDE 45-DEGREE ENTRY FITTING.
- 8 SLOPE DUCT 1/4" PER FOOT IN DIRECTION INDICATED.
- 9 6"Ø DOWN THROUGH ROOF; SEE 2/M-1 FOR CONT.
- 10 CONNECT TO EXISTING HWS/R HEADER.
- 11 RELOCATE EXISTING FAN. RECONNECT TO NEW DUCTWORK. RE-USE OR PROVIDE NEW VIBRATION ISOLATION SYSTEM. REINSTALL DISCHARGE STACKS AS REQUIRED TO MATCH EXISTING CONDITION. RELOCATE CONTROL WIRING AS REQUIRED.
- 12 PATCH EXISTING HOLES IN DUCT.
- 13 DUCT SUPPORT STAND; SEE 7/M-6.
- 14 PIPE SUPPORT STAND; SEE 7/M-6.
- 15 PROVIDE WATER TIGHT PENETRATION THROUGH EXISTING BUILDING WALL.
- 16 PIPE RACK SUPPORT; SEE 9/M-6.
- 17 SEE 1/M-6 FOR EF-6 CONNECTION DETAIL.
- 18 SEE DETAIL 1/M-7 FOR FAN CONNECTION.
- 19 3" DOWN; SEE 2/M-1 FOR CONT.
- 20 12"Ø DOWN; SEE 2/M-1 FOR CONT.
- 21 RELOCATED FAN; PROVIDE FAN STACK, SUPPORT, ISOLATORS, SIMILAR TO EXISTING CONDITION. RECONFIGURE CONTROL; SEE SHEET M-5.
- 22 AUTOMATIC SINGLE BLADE DAMPER; SEE SPECIFICATIONS.
- 23 PRESSURE SWITCH.

**KEYED NOTES CONT.:**

- 24. PROVIDE 2 1/2"x2 1/2"x 1 1/2" TEE IN HWS/R RISERS. ROUTE 1 1/2" HWS/R DOWN TO 3RD FLOOR, OVER TO BENEATH RHC-26,27,28, UP TO EXISTING MECHANICAL ROOM AND CONNECT TO RHC-26,27,28. SEE DETAIL 6/M-6.
- 25. RELOCATED UNIT HEATER; SEE M-2.
- 26. NEW DUCT CONSTRUCTION JOINTS AND JOINT SEALANT TO MATCH EXISTING.





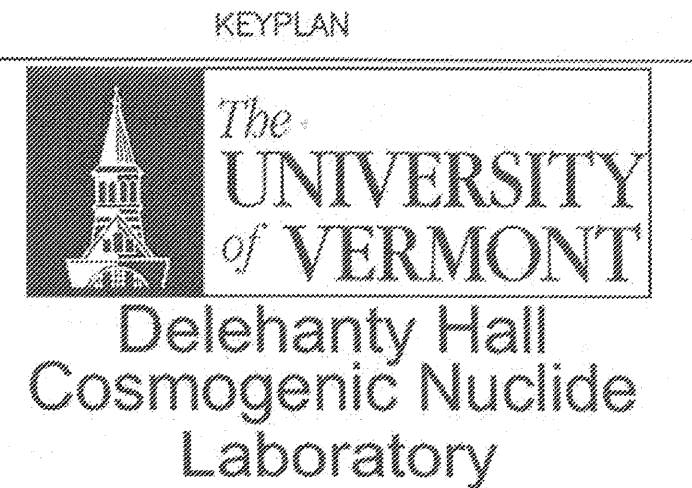
**GENERAL NOTES:**  
 A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

- KEYED NOTES:**
- 1 RELOCATE EXISTING SCRUBBER TO THIS LOCATION. PROVIDE SUPPORT TO SCRUBBER AS REQUIRED. INSULATE SCRUBBER SIMILAR TO CONNECTING DUCTWORK ON ROOF.
  - 2 7" TYPE B FLUE UP THROUGH ROOF; SEE 12/M-6.
  - 3 3" ATMOSPHERIC STEAM; CONNECT TO H-1 COLLAR. SLOPE PIPING 1/8"=1'-0" FROM AHU-4 PIPING HIGH POINT BACK TO H-1. PROVIDE (2) 45-DEGREE ELBOWS W/ 6" PIPE LENGTH BETWEEN AT ALL RISER TO HORIZONTAL TURNS.
  - 4 14"Ø DOWN THROUGH ROOF. SEE 2/M-1 FOR CONTINUATION.
  - 5 SEE 11/M-6; TYPICAL ALL ROOF PENETRATIONS.

- KEYED NOTES CONT.:**
- 6 10"Ø DOWN THROUGH ROOF; SEE 2/M-1 FOR CONT.
  - 7 PROVIDE 45-DEGREE ENTRY FITTING.
  - 8 SLOPE DUCT 1/4" PER FOOT IN DIRECTION INDICATED.
  - 9 6"Ø DOWN THROUGH ROOF; SEE 2/M-1 FOR CONT.
  - 10 CONNECT TO EXISTING HWS/R HEADER.
  - 11 RELOCATE EXISTING FAN. RECONNECT TO NEW DUCTWORK. RE-USE OR PROVIDE NEW VIBRATION ISOLATION SYSTEM. REINSTALL DISCHARGE STACKS AS REQUIRED TO MATCH EXISTING CONDITION. RELOCATE CONTROL WIRING AS REQUIRED.
  - 12 PATCH EXISTING HOLES IN DUCT.
  - 13 DUCT SUPPORT STAND; SEE 7/M-6.
  - 14 PIPE SUPPORT STAND; SEE 7/M-6.
  - 15 PROVIDE WATER TIGHT PENETRATION THROUGH EXISTING BUILDING WALL.
  - 16 PIPE RACK SUPPORT; SEE 9/M-6.
  - 17 SEE 1/M-6 FOR EF-6 CONNECTION DETAIL.
  - 18 SEE DETAIL 1/M-7 FOR FAN CONNECTION.
  - 19 3" DOWN; SEE 2/M-1 FOR CONT.
  - 20 12"Ø DOWN; SEE 2/M-1 FOR CONT.
  - 21 RELOCATED FAN; PROVIDE FAN STACK, SUPPORT, ISOLATORS, SIMILAR TO EXISTING CONDITION. RECONFIGURE CONTROL; SEE SHEET M-5.
  - 22 AUTOMATIC SINGLE BLADE DAMPER; SEE SPECIFICATIONS.
  - 23 PRESSURE SWITCH.

| NO. | REVISION OR ISSUE | DATE     | BY   |
|-----|-------------------|----------|------|
| 2   | DRB-1             | 02/06/08 | IDCA |
| 1   | CONFORMED         | 01/23/08 | IDC  |
| 0   | IFC               | 11/16/07 | IDCA |

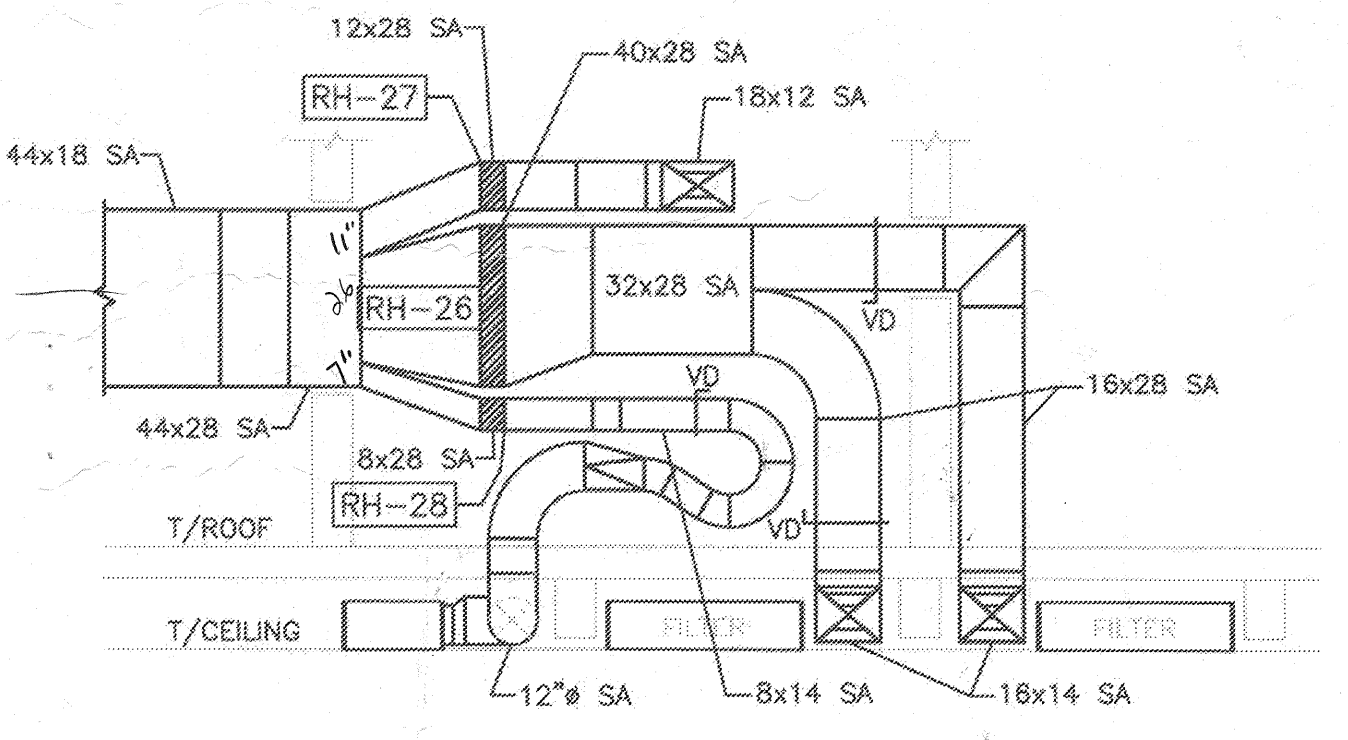
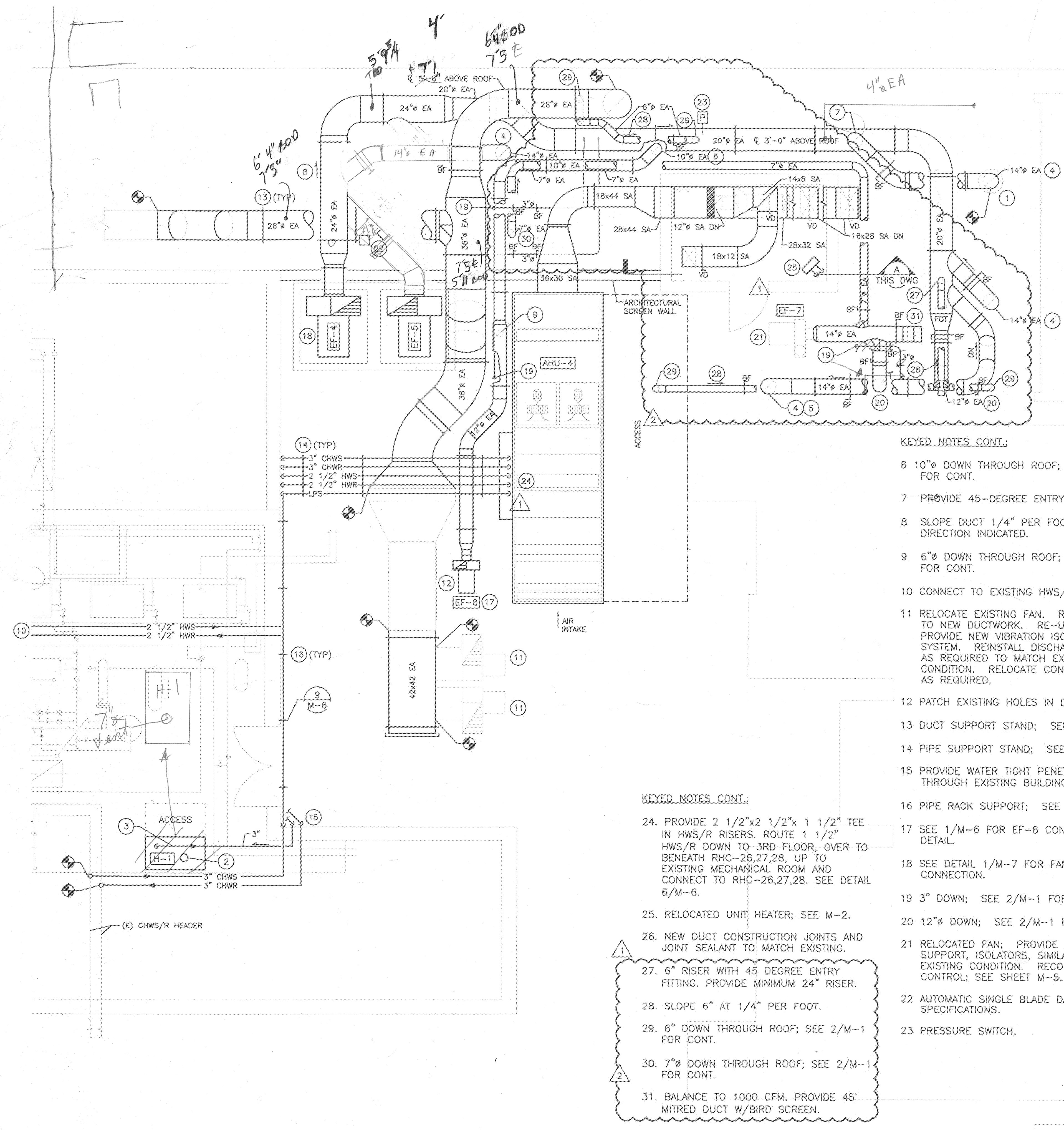
**AS BUILT**



TITLE: MECHANICAL ROOF PLAN

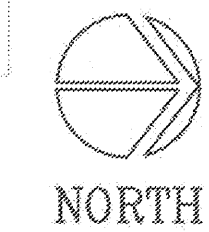
DATE ISSUED: DRAWING SCALE:  
 ACAD FILE: M-2 EQUIPMENT CODE:

DRAWING NUMBER: M-2



**A SECTION**  
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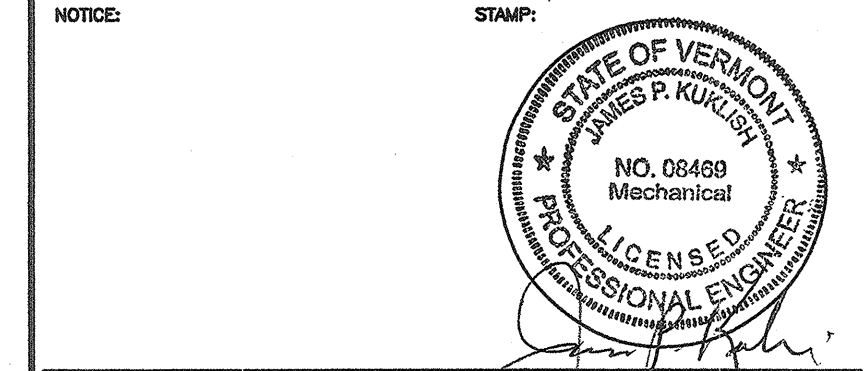
**1 MECHANICAL ROOF PLAN**  
 SCALE: 1/4"=1'-0"



- KEYED NOTES CONT.:**
24. PROVIDE 2 1/2"x2 1/2"x 1 1/2" TEE IN HWS/R RISERS. ROUTE 1 1/2" HWS/R DOWN TO 3RD FLOOR, OVER TO BENEATH RHC-26,27,28, UP TO EXISTING MECHANICAL ROOM AND CONNECT TO RHC-26,27,28. SEE DETAIL 6/M-6.
  25. RELOCATED UNIT HEATER; SEE M-2.
  26. NEW DUCT CONSTRUCTION JOINTS AND JOINT SEALANT TO MATCH EXISTING.
  27. 6" RISER WITH 45 DEGREE ENTRY FITTING. PROVIDE MINIMUM 24" RISER.
  28. SLOPE 6" AT 1/4" PER FOOT.
  29. 6" DOWN THROUGH ROOF; SEE 2/M-1 FOR CONT.
  30. 7"Ø DOWN THROUGH ROOF; SEE 2/M-1 FOR CONT.
  31. BALANCE TO 1000 CFM. PROVIDE 45' MITRED DUCT W/BIRD SCREEN.

Name: M-2.dwg User: 3338 Date: 06/08/08 3:26pm





**GENERAL NOTES:**  
A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

- KEYED NOTES:**
- TRANSITION AND CONNECT TO FUME HOOD AS REQUIRED; PROVIDE A WATER TIGHT SEAL. EXTEND DUCT UP THROUGH ROOF; SEE 1/M-2 FOR CONTINUATION. SEE 11/M-6 FOR DETAIL.
  - DUCT UP THROUGH ROOF. SEE 1/M-2 FOR CONTINUATION AND 11/M-6 FOR DETAIL.
  - ULPA FILTER; BALANCE TO 430 CFM. TYP OF 10.
  - ULPA FILTER; BALANCE TO 380 CFM. TYP OF 3.
  - 3" EA DOWN TO BASE CABINET; CONTINUE TO CABINET COLLAR; DUCT UP TO ROOF SEE 1/M-2; SEE 11/M-6 FOR DETAIL FOR SIMILAR ROOF PENETRATION. BALANCE TO 30 CFM.

|     |                   |          |      |
|-----|-------------------|----------|------|
| 1   | CONFORMED         | 01/23/08 | IDC  |
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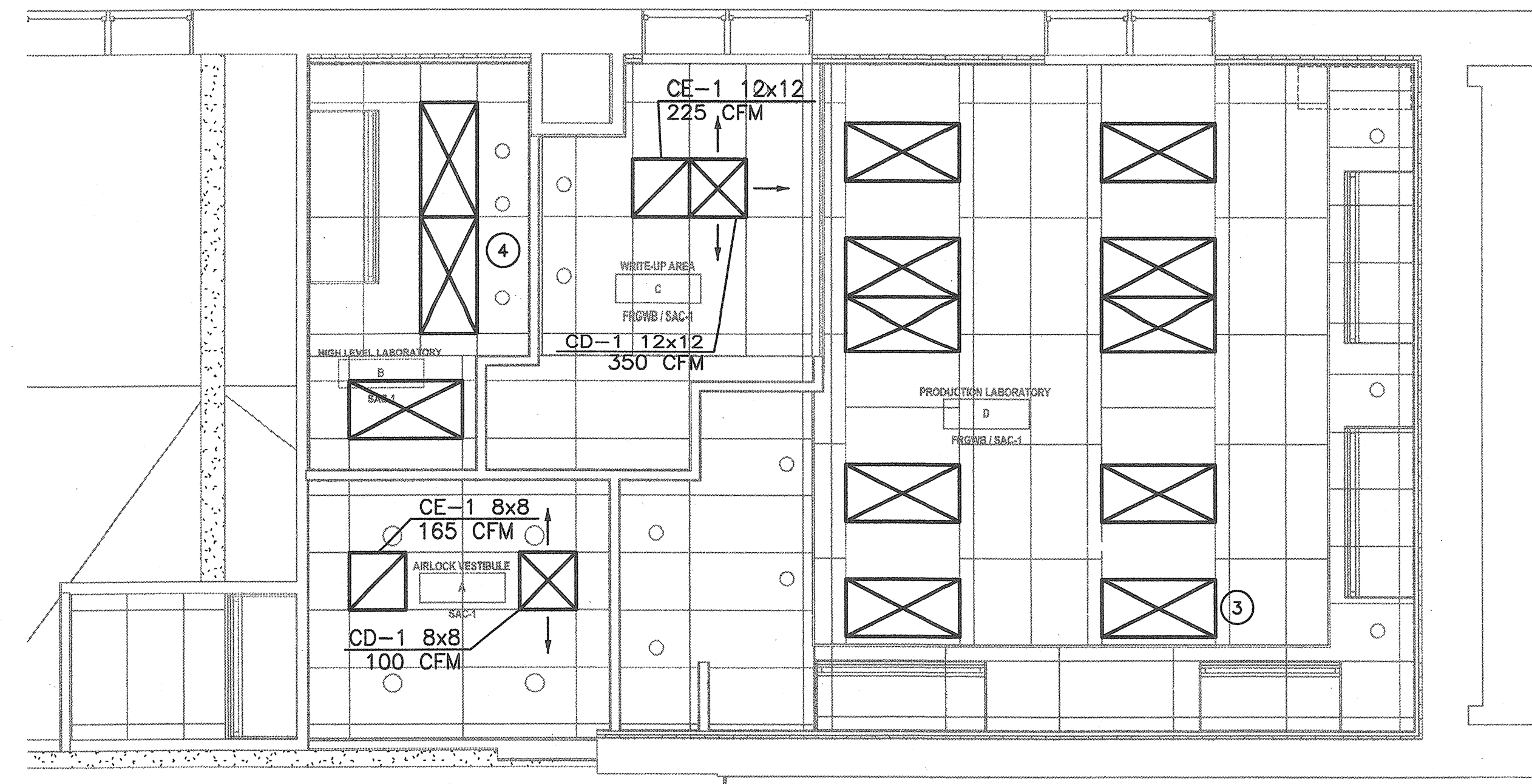
TITLE:  
**MECHANICAL  
FLOOR PLAN AND  
CEILING PLAN**

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
ACAD FILE: M-1 EQUIPMENT CODE: \_\_\_\_\_

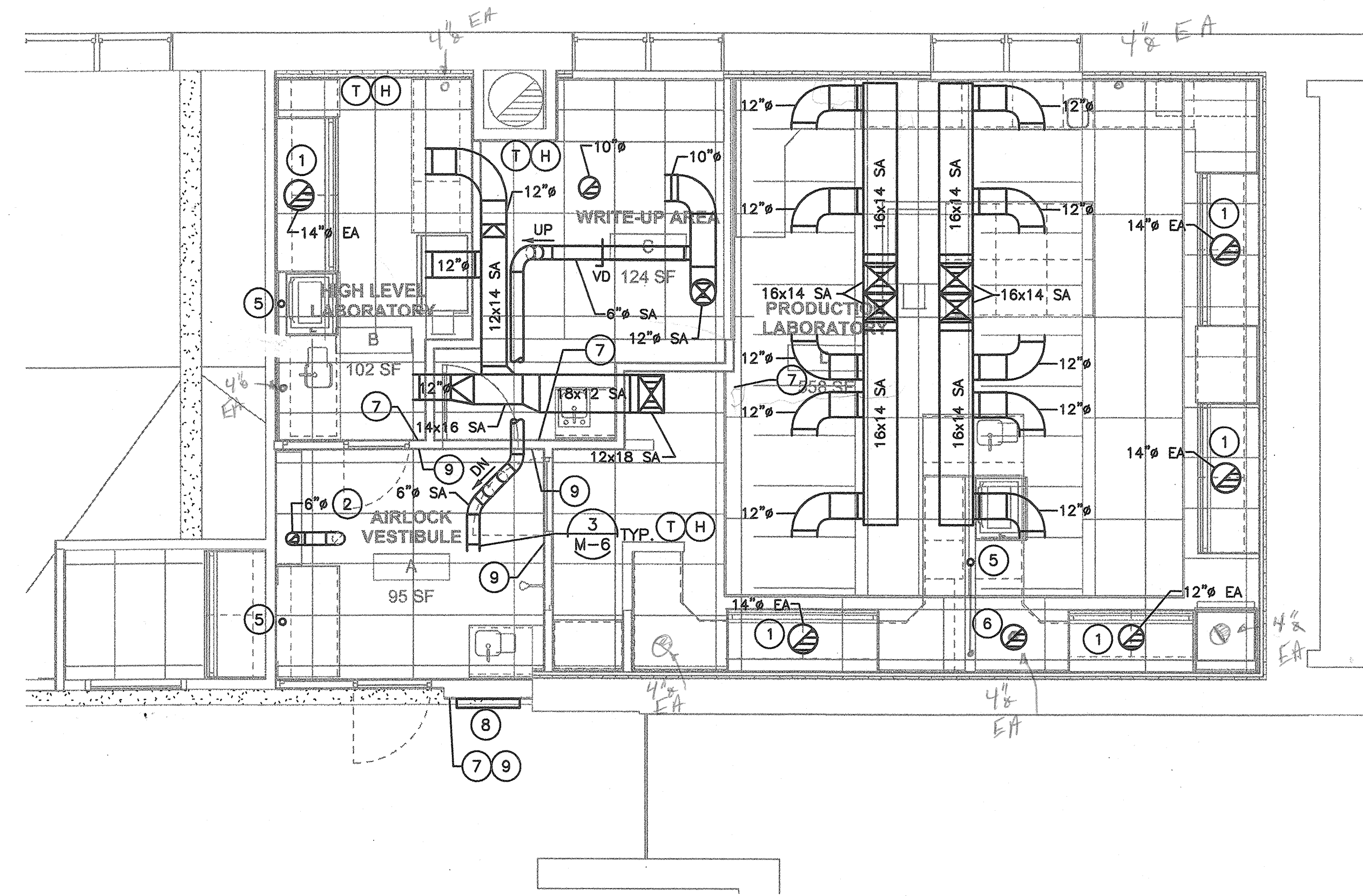
DRAWING NUMBER:  
**M-1**



- KEYED NOTES CONT.:**
- 12"Ø TO SNORKEL/HOOD EXTEND UP THROUGH, SEE 11/M-6 FOR SIMILAR DETAIL. SEE 1/M-2 FOR CONTINUATION.
  - DDC AUDIBLE/VISUAL ALARM ENUNCIATOR; SEE SPECIFICATION 15900.
  - DDC MONITOR PANEL; SEE SPECIFICATION 15900.
  - PHOTOHELIC GAUGE; SEE SPECIFICATION 15900.

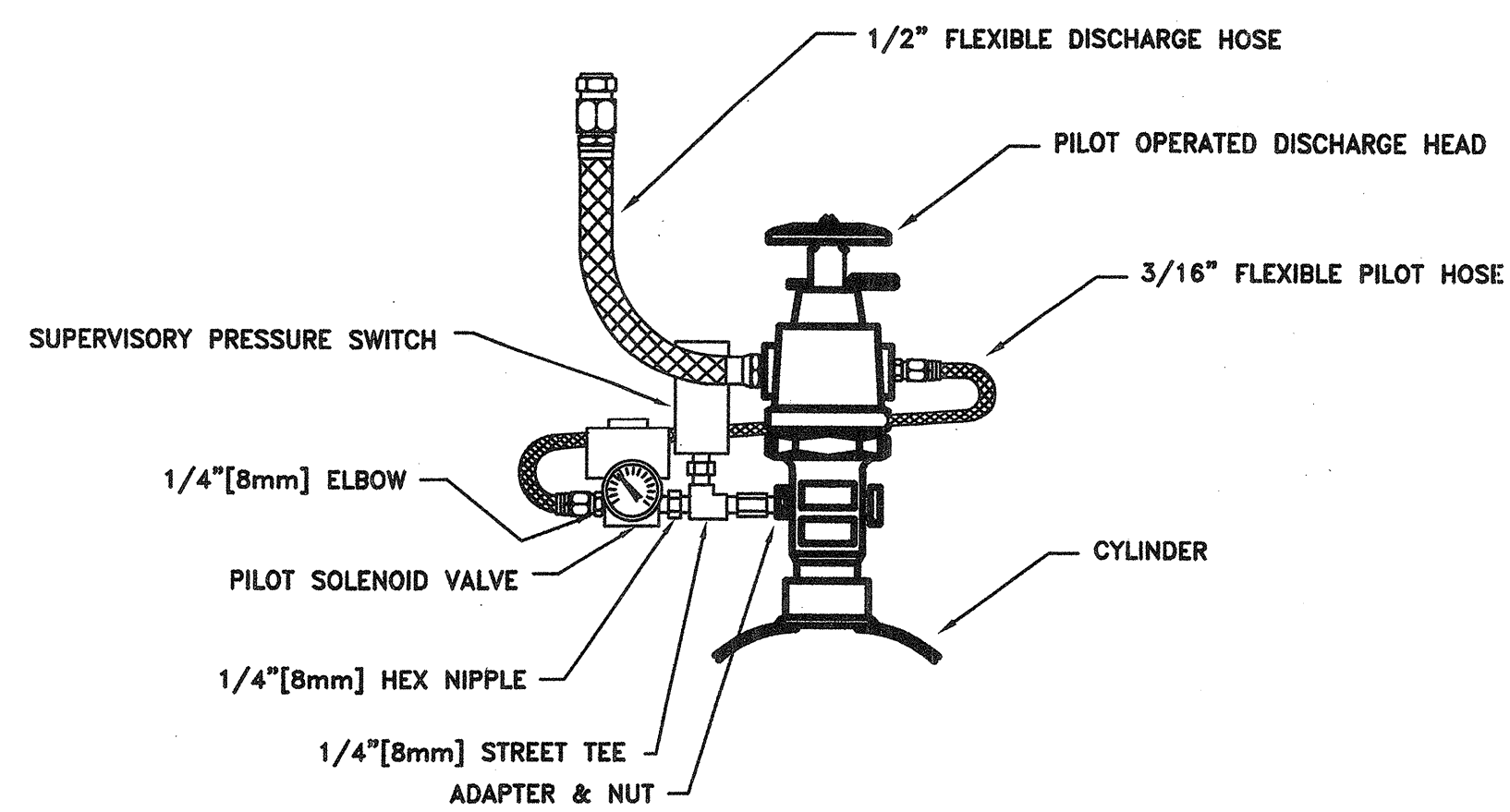


**1 MECHANICAL CEILING PLAN**  
SCALE: 1/4"=1'-0"

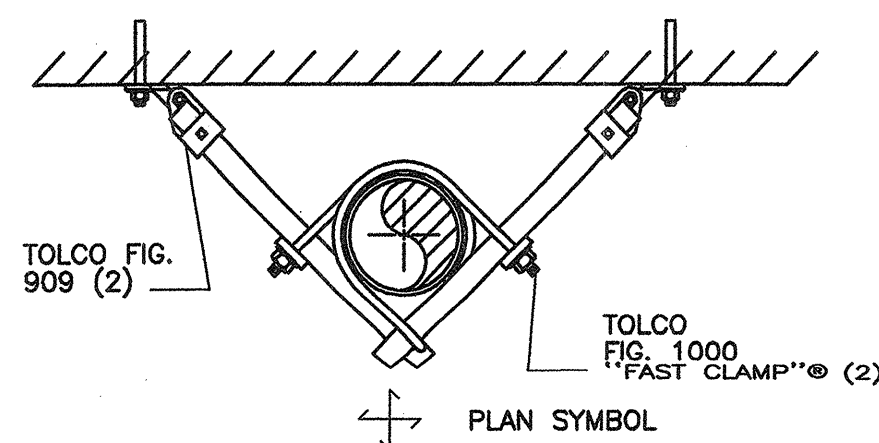


**2 MECHANICAL FLOOR PLAN**  
SCALE: 1/4"=1'-0"

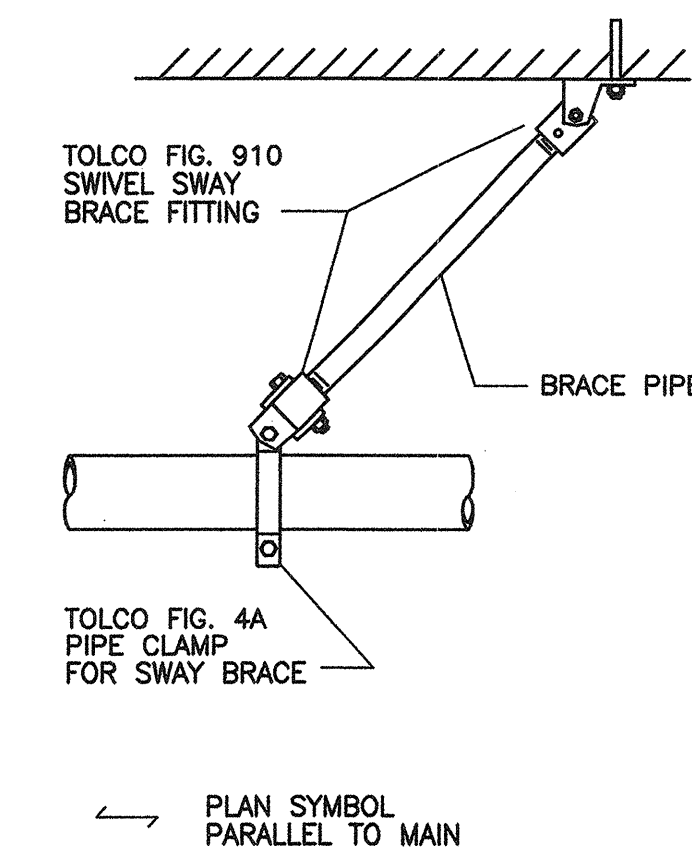




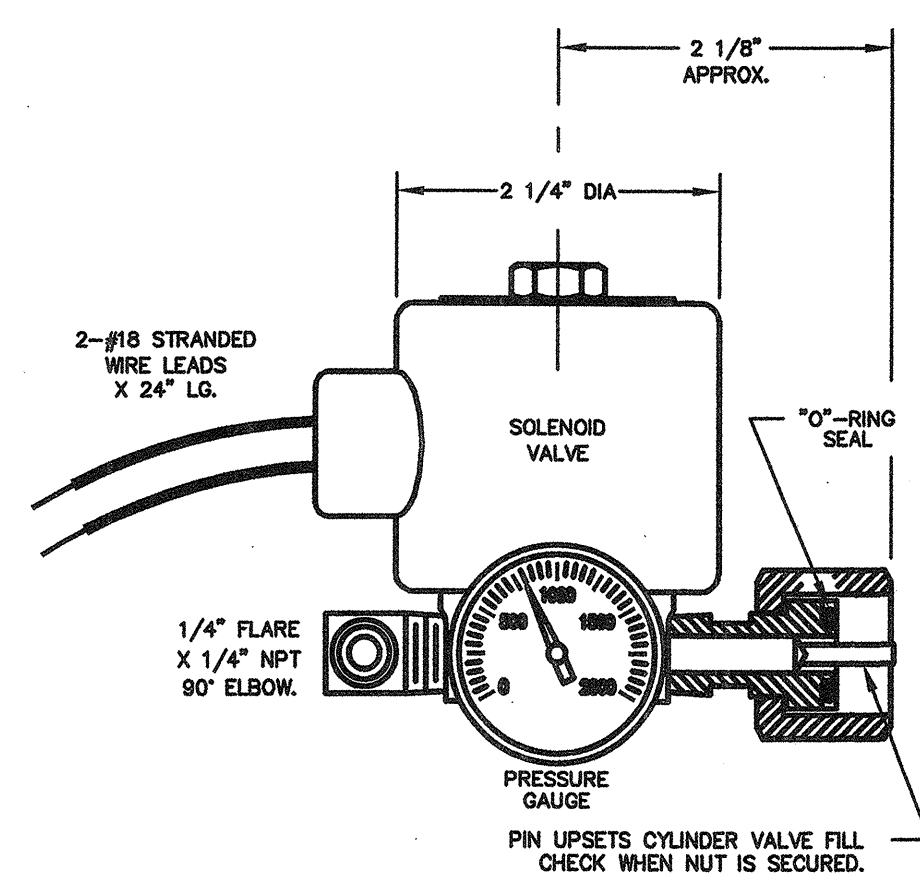
7 PRIMARY CYLINDER CONNECTION DETAIL  
NTS



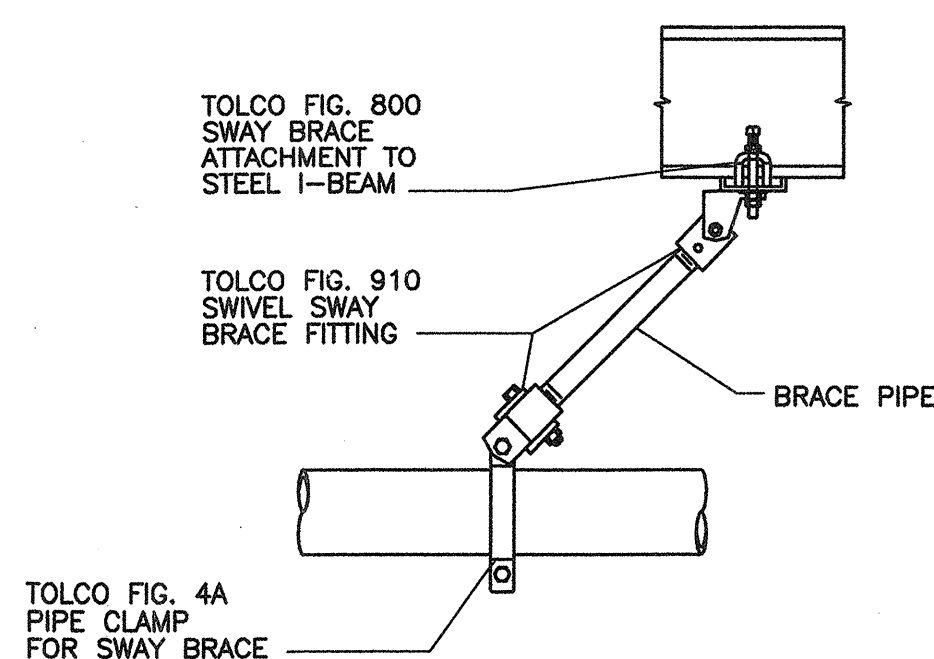
4 FAST CLAMP RISER BRACE  
NTS



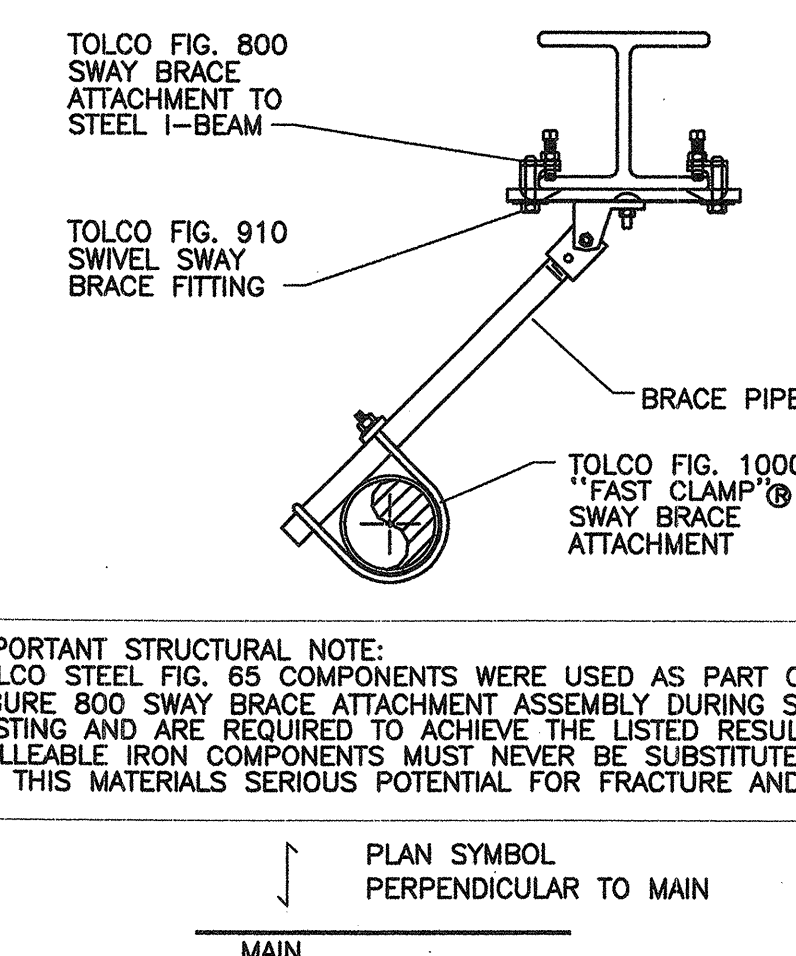
1 LONGITUDINAL EARTHQUAKE BRACE  
NTS



8 SOLENOID PILOT VALVE ASSEMBLY  
NTS

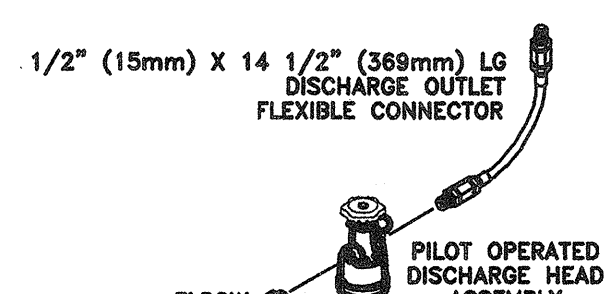


5 SWAY BRACE ATTACHMENT TO STEEL I-BEAM SHOWN IN LONGITUDINAL BRACE APPLICATION  
NTS

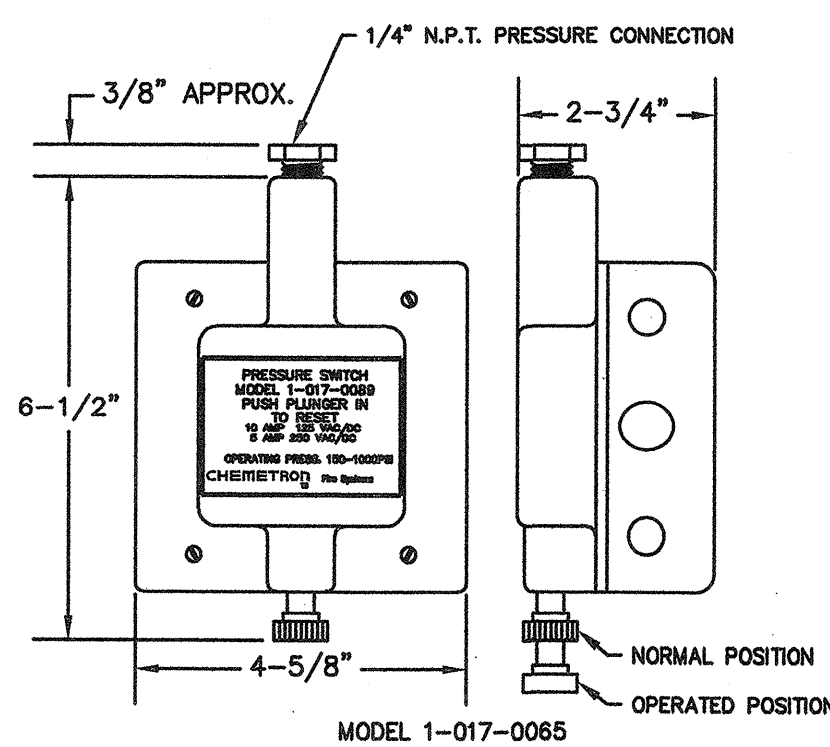
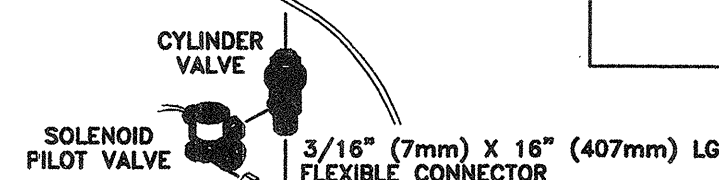


2 SWAY BRACE ATTACHMENT TO STEEL I-BEAM SHOWN IN LATERAL BRACE APPLICATION  
NTS

IMPORTANT STRUCTURAL NOTE:  
TOLCO STEEL FIG. 65 COMPONENTS WERE USED AS PART OF THE FIGURE 800 SWAY BRACE ATTACHMENT ASSEMBLY DURING STRUCTURAL TESTING AND ARE REQUIRED TO ACHIEVE THE LISTED RESULTS. MALLEABLE IRON COMPONENTS MUST NEVER BE SUBSTITUTED BECAUSE OF THIS MATERIALS SERIOUS POTENTIAL FOR FRACTURE AND FAILURE.



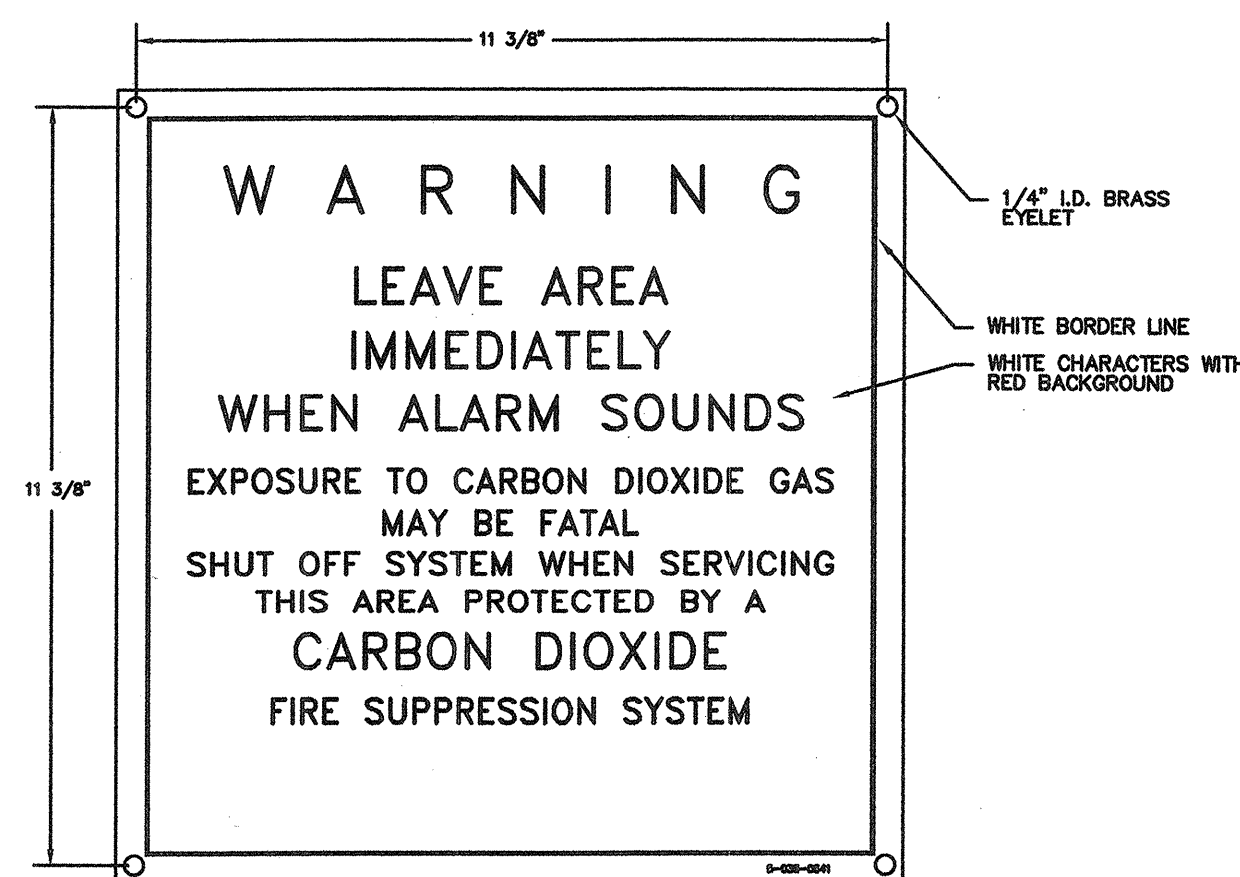
10 CO2 CYLINDER  
NTS



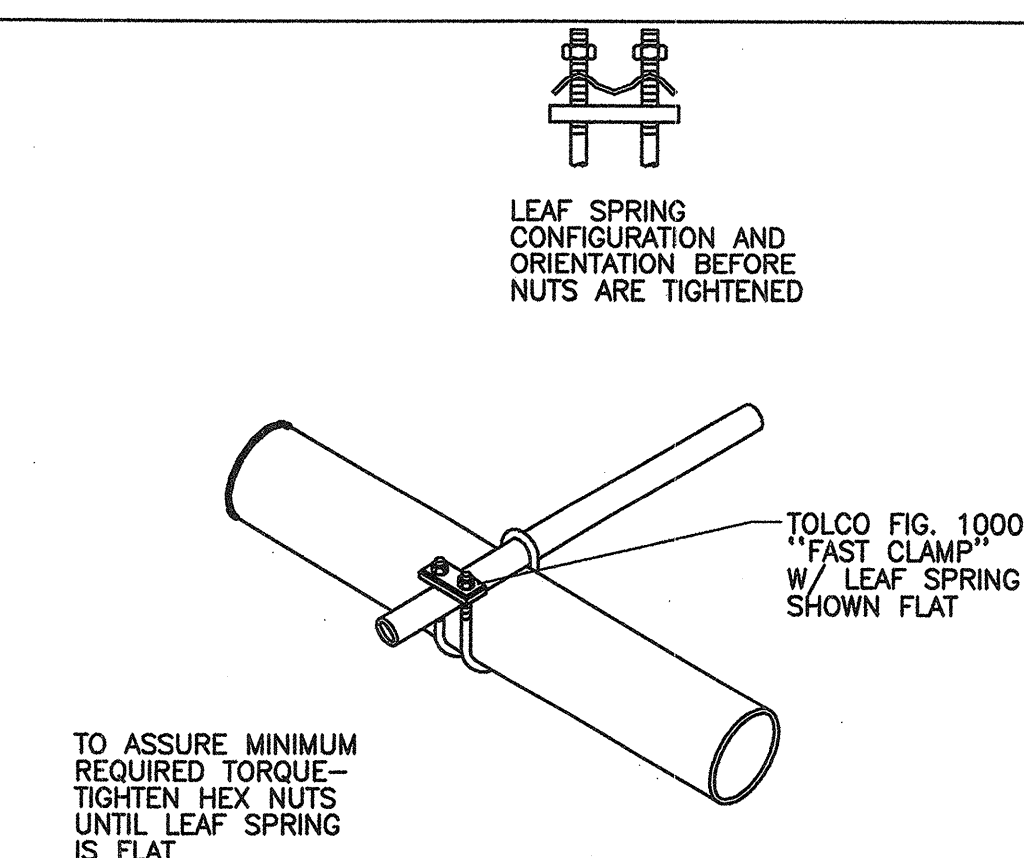
9 PRESSURE SWITCH  
NTS

NOTE:  
1. DIMENSIONS VARY BASED ON CYLINDER SIZE.  
2. MOUNT CYLINDER ON WALL. COORDINATE WITH ARCHITECTURAL CONTRACTOR FOR LOCATION.

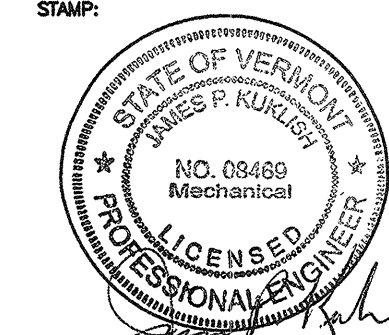
NOTE:  
LOCATE WARNING SIGN PER FIELD CONDITIONS IN EVERY NEARBY SPACE WHERE CARBON DIOXIDE CAN ACCUMULATE TO HAZARDOUS LEVELS.



6 CO2 SYSTEM WARNING SIGN  
NTS



3 LATERAL EARTHQUAKE BRACE LEAF SPRING CONFIGURATION  
NTS



| 1   | CONFORMED         | 01/23/08 | IDC  |
|-----|-------------------|----------|------|
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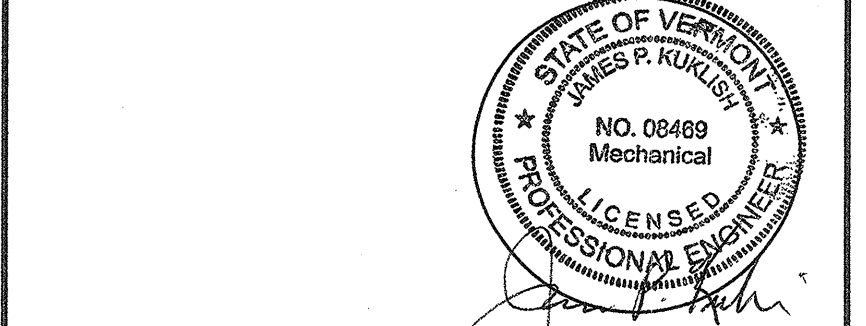
TITLE: FIRE PROTECTION DETAILS

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ACAD FILE: F-2 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER:

F-2





**GENERAL NOTES**

- A SEE LEGEND SHEET FOR NOTES AND SYMBOLS ON DRAWING P-0.
- B FIRE PROTECTION DRAWINGS ARE GENERALLY DIAGRAMMATIC. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ALL SPRINKLER HEADS, PIPING, VALVES, FITTINGS, OFFSETS, MISCELLANEOUS APPURTENANCES AND DETAILS.
- C SPRINKLER PIPING SHALL NOT RUN THROUGH ELECTRICAL ROOMS.
- D IN AREAS WHERE THERE ARE CEILINGS, SPRINKLERS ABOVE AND BELOW CEILING MUST DELIVER THE SAME DESIGN DENSITY.
- E PROVIDE MANUAL AIR VENT AT THE HIGH POINT OF EACH ZONE. ROUTE DRAIN UP TO THE NEAREST HUB DRAIN, FLOOR SINK, OR MOP SINK AT THE UTILITY LEVEL ZONE. ROUTE DRAIN UP TO THE NEAREST HUB DRAIN, FLOOR SINK, OR MOP SINK AT THE UTILITY LEVEL.
- F ADD HOSE STREAM TO CALCS AS FOLLOWS: ALL ZONES ADD 250 GPM HOSE STREAM.
- G PIPING ABOVE CLEANROOM AREAS SHALL BE THREADED, FLANGED, OR WELDED ONLY.

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KEYPLAN

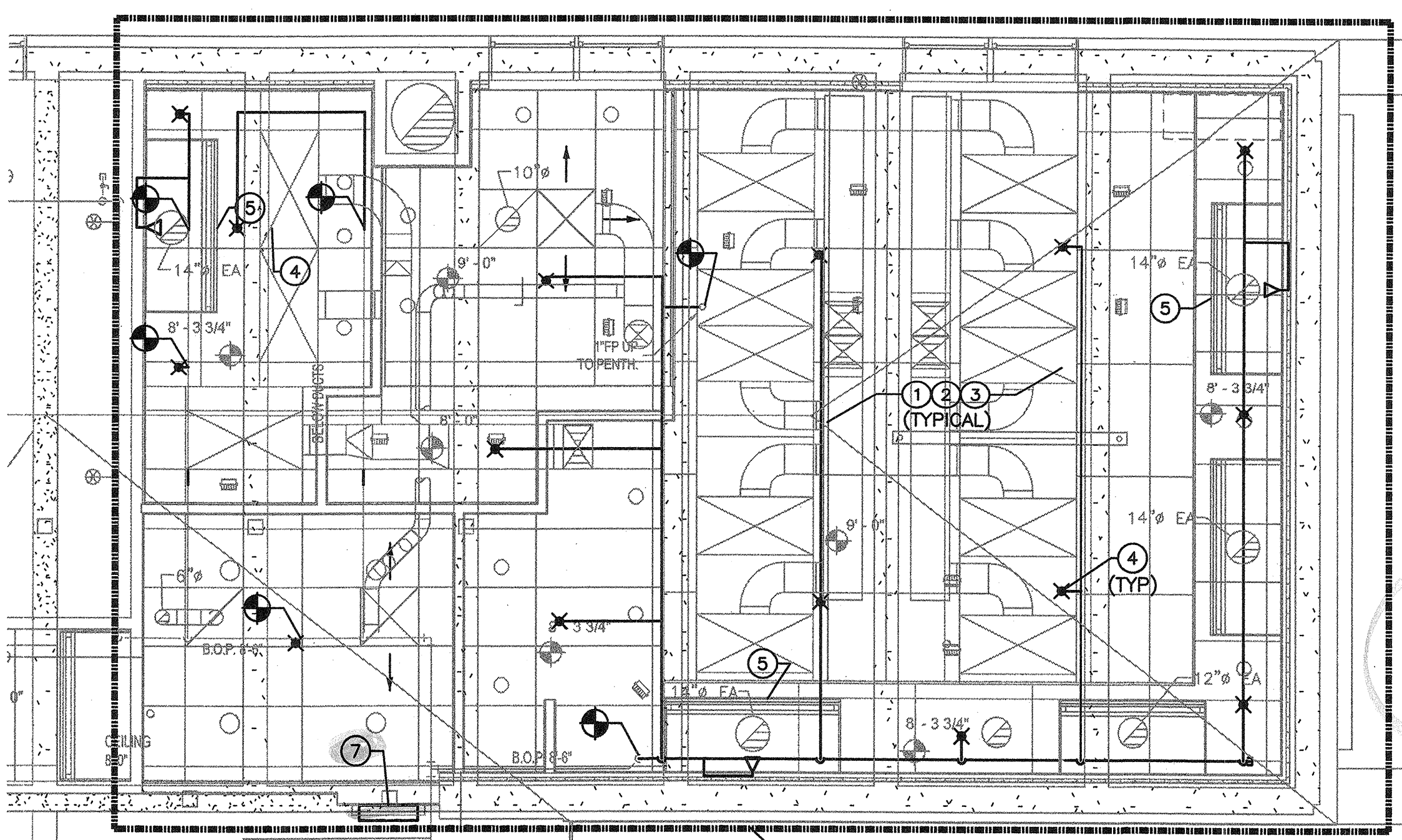
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TITLE: FIRE PROTECTION FLOOR PLAN AND CEILING PLAN NEW & DEMO WORK

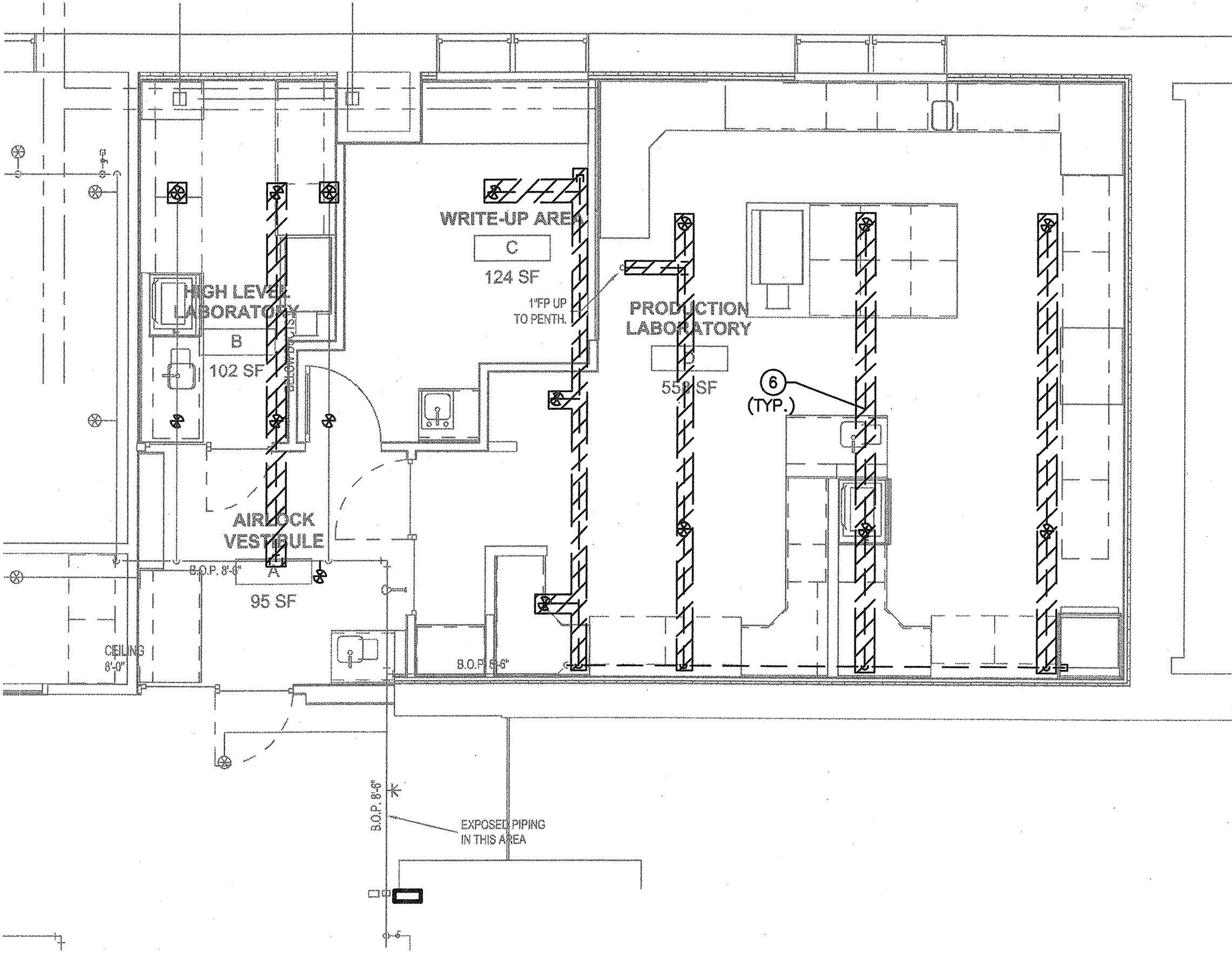
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**KEYED NOTES**

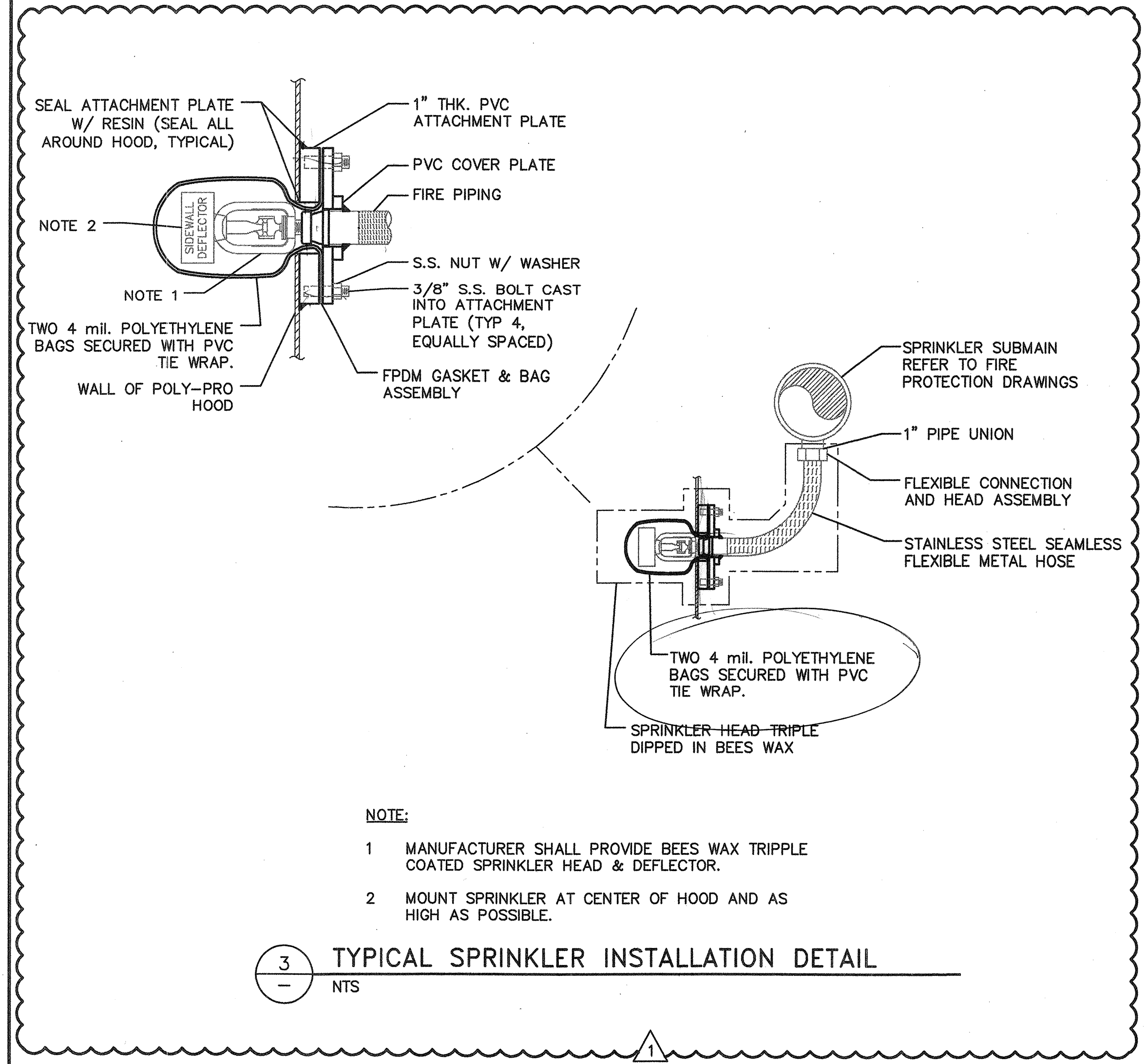
1. ALL NEW SPRINKLER PIPING IN THIS AREA WILL BE LOCATED TIGHT TO STEEL BEAMS ON MEZZANINE LEVEL UNLESS NOTED OTHERWISE.
2. PROVIDE ADDITIONAL SPRINKLERS WHERE OBSTRUCTION MAY OCCUR DURING INSTALLATION OF NEW SERVICES.
3. CONTRACTOR SHALL INSPECT AREA BEFORE BID AND COORDINATE WITH GENERAL CONTRACTOR AND OWNER TO DEMO OR RELOCATE EXISTING SERVICES AS REQUIRED.
4. PROVIDE CONCEALED SPRINKLER HEAD IN LABORATORY AREAS ONLY.
5. PROVIDE STAND-ALONE AUTOMATIC FIRE SUPPRESSION SYSTEM FOR ALL UL AND FM APPROVED HOODS. SEE NOTES AND SPECIFICATION FOR TYPE OF FIRE EXTINGUISHING SYSTEM. SUPPRESSION SYSTEM SHALL BE FURNISHED BY MANUFACTURER AND INSTALLATION TESTING APPROVALS ETC. SHALL BE DONE BY INSTALLING CONTRACTOR AND ASSISTED BY THE MANUFACTURER. BASES OF DESIGN FOR CO2 HOOD PROTECTION IS "ANSUL FIRE SYSTEMS".
6. REMOVE ALL EXISTING SPRINKLER PIPING AND SPRINKLER HEADS IN AIRLOCK VESTIBULE, WRITE-UP AREA, HIGH LEVEL AND PRODUCTION LABORATORY'S.
7. LOCATION OF NEW FIRE ALARM PANEL PROVIDED BY MANUFACTURER OF FIRE SUPPRESSION SYSTEM FOR HOODS.
8. VERIFY W/ OWNER IF WET OR GAS SUPPRESSION SYSTEM IS REQUIRED FOR PERCHLORIC HOODS. IF WET SPRINKLER SYSTEM IS REQUIRED SEE DETAIL 3 THIS DWG FOR INSTALLATION OF SPRINKLER INSIDE OF HOOD.



**1** CEILING & OVERHEAD PIPING PLAN NEW WORK  
 SCALE: 1/4"=1'-0"



**2** FLOOR PLAN DEMO WORK  
 SCALE: 1/4"=1'-0"



- NOTE:
- 1 MANUFACTURER SHALL PROVIDE BEES WAX TRIPPLE COATED SPRINKLER HEAD & DEFLECTOR.
  - 2 MOUNT SPRINKLER AT CENTER OF HOOD AND AS HIGH AS POSSIBLE.
- 3** TYPICAL SPRINKLER INSTALLATION DETAIL  
 NTS



**FIRE PROTECTION DESIGN PARAMETERS:**

1. CONTRACTOR SHALL PERFORM A NEW WATER FLOW TEST AT THE NEAREST TWO (2) HYDRANTS TO VERIFY CURRENT FLOW TEST RESULTS.
2. CONTRACTOR SHALL HYDRAULICALLY DESIGN THE SPRINKLER SYSTEM BASED ON RESULTS OF THE NEW FLOW TEST.
3. DESIGN STANDARDS: CURRENT EDITION OF IBC, INTERNATIONAL BUILDING CODE 2003, STATE OF VERMONT STATE FIRE CODE, NFPA 12,13, 25 & 45 FOR AUTOMATIC SPRINKLERS, CO2 EXTINGUISHING SYSTEMS FOR HOODS AND ANY CURRENT INSURANCE CARRIER STANDARDS AND RECOMMENDATIONS.
4. INSURANCE CARRIER: THE SPRINKLER CONTRACTOR SHALL VERIFY PROVIDER WITH THE GENERAL CONTRACTOR PRIOR TO COMMENCEMENT OF WORK.
5. ORDINARY HAZARD (GROUP 2) DENSITY AREA FOR LABORATORIES; TESTING AND RESEARCH, AND OTHER GENERAL USE OFFICE SPACES: 0.2 GPM PER SQ. FT. OVER 1500 SQ. FT. (PER NFPA 12,13 & NFPA 45) USING 165', 1/2" DIA. ORIFICE SPRINKLERS. FLOW AT REMOTE HEAD SHALL BE 22.5 GPM AT 20 PSI MINIMUM WITH A K=5.6 FACTOR AND A MAXIMUM HEAD SPACING OF 120 SQ. FT. PER HEAD BASED UPON HYDRAULIC CALCULATION. 250 GPM BASED ON HOSE STREAM.
6. ALL SYSTEM COMPONENTS SHALL BE UL LISTED AND FM APPROVED.
7. THE SPRINKLER CONTRACTOR SHALL SUBMIT THREE (3) COPIES OF DRAWINGS AND CALCULATIONS TO THE INSURANCE CARRIER AND LOCAL AUTHORITY OF JURISDICTION FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.
8. THE FIRE PROTECTION DRAWINGS SHOW THE GENERAL INTENT OF THE FIRE SUPPRESSION SYSTEM. THE SPRINKLER CONTRACTOR SHALL HYDRAULICALLY CALCULATE AND PROVIDE A FULLY SPRINKLED BUILDING AND SHALL MAKE THE APPROPRIATE ADJUSTMENTS TO THE PIPE RUNS AND SPRINKLER HEAD LOCATIONS INDICATED ON THE DRAWINGS TO COORDINATE WITH ALL TRADES WHILE MEETING ALL STATE OF VERMONT CODE REQUIREMENTS.
9. THE SPRINKLER CONTRACTOR SHALL HAVE ALL FINAL SPRINKLER SHOP DRAWINGS STAMPED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT WITH EXPERTISE IN FIRE PROTECTION EXPERTISE.
10. THE SPRINKLER CONTRACTOR SHALL INCLUDE AN INSPECTORS TEST CONNECTION ON EVERY FLOOR AT THE HYDRAULICALLY MOST REMOTE BRANCH LINE OR AT THE MAIN SYSTEM RISER IN ACCORDANCE WITH NFPA 13, SECTION A.8.16.4.2 OR OTHER AUTHORITY HAVING JURISDICTION.
11. THE SPRINKLER CONTRACTOR SHALL PROVIDE THE NECESSARY SPRINKLER HEADS REQUIRED FOR THE AREAS OF CONSTRUCTION INDICATED ON THE CONTRACT DOCUMENTS INCLUDING THOSE FOR AREAS OF WHERE OBSTRUCTIONS ARE OVER 48" WIDE PER NFPA-13 IN OPEN CEILING AREAS, BASED UPON THE FINAL SHEETMETAL DUCTWORK SHOP DRAWINGS FOR THOSE AREAS.

**CO2 HIGH PRESSURE MECHANICAL NOTES**

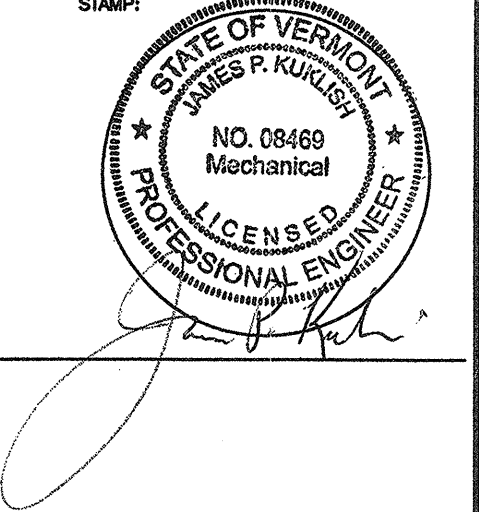
1. PIPE SIZE AND NOZZLE LOCATIONS
  - A. ALL PIPE SIZES AND NOZZLE LOCATIONS SHALL BE INSTALLED TO ASSURE PROPER DISTRIBUTION.
2. DISCHARGE PIPING -
  - A. ALL PIPING 3/4" AND SMALLER SHALL BE SCHEDULE 40 (FERROUS PIPING: BLACK OR GALVANIZED STEEL PIPE ASTM A-53 SEAMLESS OR ELECTRIC WELDED, GRADE A, B, OR C. ASTM A-120 AND ORDINARY CAST-IRON PIPE IS NOT TO BE USED). FITTINGS SHALL BE CLASS 300 - FLANGED JOINTS SHALL BE CLASS 600. BLACK OR GALVANIZED IS ACCEPTABLE (NOTE: WHERE GALVANIZED IS USED, FITTINGS SHALL BE GALVANIZED). CLASS 150 AND CAST-IRON FITTINGS SHALL NOT BE USED.
  - B. ALL PIPING LARGER THAN 3/4" AND UP TO 4" SHALL BE A MINIMUM OF SCHEDULE 80 (FERROUS PIPING: BLACK OR GALVANIZED STEEL PIPE ASTM A-53 SEAMLESS OR ELECTRIC WELDED, GRADE A OR B, OR A-106 GRADE A, B, OR C. ASTM A-120, FURANCE BUTT WELDED ASTM-53 PIPE AND ORDINARY CAST-IRON PIPE SHALL NOT BE USED. FITTINGS SHALL BE CLASS 300; FLANGED JOINTS SHALL BE CLASS 600. BLACK OR GALVANIZED IS ACCEPTABLE (NOTE: WHERE GALVANIZED PIPE IS USED, FITTINGS SHALL BE GALVANIZED). CLASS 150 AND CAST-IRON FITTINGS SHALL NOT BE USED
3. PIPE REDUCTIONS -
  - A. ALL REDUCTIONS IN DISCHARGE PIPE SIZE SHALL BE MADE BY USING REDUCING FITTINGS, REDUCERS, OR SWAGED NIPPLES. REDUCING BUSHINGS ARE NOT PERMITTED.
4. CLEANING -
  - A. PIPING AND TUBING SHALL BE CLEANED THOROUGHLY AS ASSEMBLED. PULL WIRE FLUE BRUSH THROUGH PIPE LENGTH SEVERAL TIMES. PULL CLEAN CLOTH RAGS TREATED WITH AN APPROVED SOLVENT.
5. FABRICATION -
  - A. PIPE AND TUBING SHALL BE CUT CLEAN AND REAMED THOROUGHLY TO REMOVE ALL BURRS AND RIDGES.
  - B. ALL PIPE AND TUBING SHALL BE THOROUGHLY CLEANED AS ASSEMBLED.
6. IMPORTANT NOTES -
  - A. IT IS IMPORTANT THAT CYLINDER AND PIPING ARRANGEMENT BE INSTALLED TO INSURE PROPER PERFORMANCE. IF FIELD CONDITIONS DICTATE CHANGES WHICH AFFECT THE LENGTH OF PIPE RUNS OR NUMBER OF FITTINGS, THE INSTALLING CONTRACTOR SHALL CONTACT THE SYSTEMS ENGINEERING DEPARTMENT, BURLINGTON, VERMONT, FOR APPROVAL OF ANY MODIFICATION.
  - B. ALL TEES IN THE DISTRIBUTION BEYOND THE CYLINDER BANK CROSS CONNECTIONS MUST BE IN THE HORIZONTAL POSITION (WHERE ALL OUTLETS ARE IN THE SAME HORIZONTAL PLANE) OR IN THE VERTICAL DOWN POSITION. NO VERTICAL SIDE OUTLETS ARE PERMITTED.
7. EQUIPMENT LOCATION NOTE -
  - A. UNLESS OTHERWISE SPECIFIED, FIRE FIGHTER SUPPLIED EQUIPMENT IS TO BE MOUNTED AS FOLLOWS: REMOTE MANUAL RELEASE STATIONS - HORIZONTAL CENTERLINE 4'-6" ABOVE GRADE OR FLOOR. ROUTING VALVE MANUAL CONTROL AND PRESSURE SWITCHES - WITHIN EASY REACH.
8. STORAGE TEMPERATURE NOTE -
  - A. THIS SYSTEM IS DESIGNED FOR OPERATION WITHIN A MAXIMUM TEMPERATURE RANGE OF 0 DEGREE F TO 150 DEGREES F. IF THE CYLINDER LOCATION IS SUBJECT TO TEMPERATURES BELOW OR ABOVE THIS RANGE, CONTACT THE SYSTEM ENGINEERING DEPARTMENT FOR INSTRUCTIONS.

**GENERAL DRAWING NOTES:**

- A. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO PROVIDE A COMPLETE FIRE PROTECTION SYSTEM FOR THE PROPOSED PROJECT. THE SYSTEMS PROVIDED SHALL CONFORM TO THE DETAILS STATED IN THE SPECIFICATIONS AND SHOWN ON THE DRAWINGS. ITEMS OR WORK NOT SHOWN OR SPECIFIED, BUT REQUIRED FOR A COMPLETE FIRE PROTECTION SYSTEM, SHALL BE PROVIDED AND SHALL CONFORM TO ACCEPTED TRADE PRACTICES, LOCAL CODES, AND GOVERNING AUTHORITIES.
- B. THE DRAWINGS AND SPECIFICATIONS ARE PRESENTED TO DEFINE SPECIFIC SYSTEM REQUIREMENTS AND SERVE TO EXPAND ON THE PRIMARY CONTRACT REQUIREMENTS OF PROVIDING COMPLETE SYSTEMS. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE ONLY THE GENERAL ARRANGEMENT OF THE ITEMS COMPRISING THE SEVERAL SYSTEMS INCLUDED IN THE FIRE PROTECTION WORK.
- C. DO NOT SCALE DRAWINGS. BECAUSE OF THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE OFFSETS, FITTINGS, VALVES OR SIMILAR ITEMS WHICH MAY BE REQUIRED TO MAKE A COMPLETE OPERATING SYSTEM. CAREFULLY INVESTIGATE CONDITIONS AFFECTING WORK. INSTALL WORK IN SUCH A MANNER THE INTERFERENCES BETWEEN PIPING, CONDUIT, DUCTS, EQUIPMENT, ARCHITECTURAL AND STRUCTURAL FEATURES ARE AVOIDED. PROVIDE ITEMS THAT MAY BE REQUIRED TO MEET THE CONDITIONS AT THE BUILDING, WITHOUT ADDITIONAL COSTS TO THE OWNER.
- D. SPRINKLER CONTRACTORS SHALL HAVE SUFFICIENT EXPERTISE (MINIMUM OF 5 YEARS) IN THE TYPE OF CONSTRUCTION TO REALIZE THE EXTENT OF THE WORK REQUIRED. THEREFORE, IT SHOULD BE OBVIOUS TO ANY PRUDENT FIRM WITH EXPERIENCE IN THIS FIELD THAT THESE DOCUMENTS MAY NOT EXPLICITLY DISCLOSE FINAL DETAILS. HOWEVER, CONTRACTORS SHALL HAVE THE EXPERTISE NECESSARY TO INCLUDE NECESSARY APPOINTMENTS.
- E. PROTECT FLOORING FROM DAMAGE DURING THE CONSTRUCTION PERIOD. PROVIDE PLYWOOD OR SIMILAR MATERIAL UNDER EQUIPMENT OR MATERIALS STORED ON FLOORS, AND ANY AREAS WHERE CONSTRUCTION MAY DAMAGE THE FLOOR SURFACES. FLOOR SURFACES (INCLUDING SEALER) DAMAGED DURING THE CONSTRUCTION SHALL BE REPLACED AT THE COST OF THE CONTRACTOR AT FAULT.
- F. FIRE PROTECTION BRANCH LINES SHALL BE SLOPED TO DRAIN BACK TO CROSSMAINS. CROSSMAINS SHALL BE SLOPED TO DRAIN BACK TO BULK MAINS OR MAIN RISER. INSTALL AUXILIARY DRAINS WHERE TRAPPED PIPING RUNS ARE UNAVOIDABLE. THE SPRINKLER SYSTEM SHALL BE FULLY DRAINABLE.
- G. UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD, TIGHT TO UNDERSIDE OF FLOOR SLAB WITH SPACE FOR INSULATION AND HANGERS AS REQUIRED.
- H. INSTALL PIPING SO THAT VALVES ARE ACCESSIBLE. VALVE STEMS SHALL BE VERTICAL, POINTING UP. ADJUST VALVES FOR SMOOTH AND EASY OPERATION.
- J. COORDINATE ALL WORK WITH WORK OF OTHER TRADES SHOWN ON OTHER DRAWINGS.
- K. PROVIDE APPROVED FIRESAFING AT ALL FLOOR AND WALL PENETRATIONS.
- L. NO PIPING SHALL BE LOCATED IN ANY ELECTRICAL ROOMS, CLOSETS OR TELECOMMUNICATION ROOMS UNLESS THOSE PIPES SERVE ONLY THAT SPACE AND ARE INDICATED ON DRAWINGS UNLESS INDICATED OTHERWISE.
- M. ALL VALVES AND EQUIPMENT IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI STANDARD IDENTIFICATION SYSTEM. CONTRACTORS ARE RESPONSIBLE FOR ANY REQUIRED CROSS REFERENCE BETWEEN THESE DRAWINGS AND SPECIFICATIONS AND OTHER DISCIPLINES.
- N. SET PIPE SLEEVES IN GENERAL CONSTRUCTION PRIOR TO POURING CONCRETE.
- O. COORDINATE THE EXACT LOCATION OF ALL FIRE PROTECTION EQUIPMENT AND DEVICES WITH GENERAL CONTRACTOR PRIOR TO ROUGH-IN AND INSTALLATION.
- P. REFER TO FIRE PROTECTION DRAWINGS FOR LOCATION OF EQUIPMENT AND SPRINKLER HEADS. THE SPRINKLER CONTRACTOR SHALL COORDINATE EXACT PLACEMENT OF SPRINKLER HEADS WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS.
- Q. FOLLOW THE FIRE PROTECTION INSTALLATION REQUIREMENTS BASED UPON THE 2002 EDITION OF NFPA 13, NFPA 14, NFPA 20, AND 2003 INTERNATIONAL BUILDING CODES.
- R. FLOOR CONTROL VALVE ASSEMBLIES SHALL BE INSTALLED NO HIGHER THAN 7'-0" ABOVE FINISHED FLOOR OR LANDING ELEVATION.
- S. THE FIRE PROTECTION CONTRACTOR SHALL PROVIDE FLEXIBLE CONNECTORS IN ALL PIPING SYSTEMS CONNECTED TO FIRE PROTECTION EQUIPMENT WHICH REQUIRES VIBRATION ISOLATION. FLEXIBLE CONNECTIONS WHEN REQUIRED SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE.
- T. ALL PIPE SIZES INDICATED ON THE DRAWING SHALL BE MINIMUM PIPE SIZES FOR THE SERVICE.
- U. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR SEALING AND OR FIRE STOPPING ALL PENETRATIONS PERFORMED WITHIN THE SCOPE OF THEIR WORK. PENETRATION PATCHING, SEALING, AND FIRESTOPPING REQUIREMENTS INCLUDING FINISHES SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

**FIRE PROTECTION SYMBOLS:**

- FP — FIRE PROTECTION PIPING — ABOVE GROUND
- D — DRAIN
- FPW — UNDERGROUND FIRE PROTECTION PIPING
- [Symbol] — DIRECTION OF PITCH IN PIPING
- [Symbol] — ELBOW UP, 90 DEGREE
- [Symbol] — ELBOW DOWN, 90 DEGREE
- [Symbol] — TEE UP
- [Symbol] — TEE DOWN
- [Symbol] — DIRECTION OF FLOW
- [Symbol] — PRESSURE GAUGE w/BALL VALVE ISOLATION
- [Symbol] — FLOW SWITCH
- [Symbol] — GATE VALVE WITH TAMPER SWITCH
- [Symbol] — STRAINER
- [Symbol] — FIRE DEPARTMENT CONNECTION — FDC
- [Symbol] — UNION
- [Symbol] — CHECK VALVE
- [Symbol] — CHECK VALVE WITH BALL DRIP
- [Symbol] — BALL VALVE
- [Symbol] — BUTTERFLY VALVE
- [Symbol] — PRESSURE REDUCING VALVE
- [Symbol] — BALANCING VALVE, PLUG TYPE
- [Symbol] — STANDPIPE HOSE VALVE CONNECTION
- [Symbol] — FIRE PUMP TEST HEADER PER NFPA 20
- [Symbol] — SIDEWALL SPRINKLER HEAD
- [Symbol] — PENDANT SPRINKLER HEAD
- [Symbol] — CONCEALED SPRINKLER HEAD
- [Symbol] — UPRIGHT SPRINKLER HEAD
- [Symbol] — UPRIGHT SPRINKLER HEAD AT UPPER CEILING OF ATRIUM
- [Symbol] — KEYNOTE DESIGNATION
- [Symbol] — DENOTES CONNECT TO EXISTING



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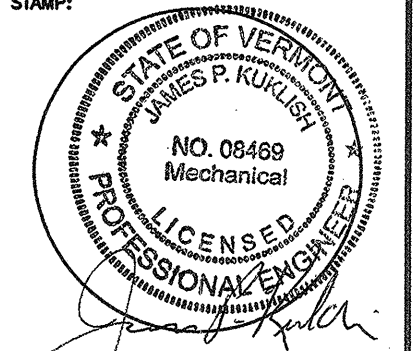
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TITLE: FIRE PROTECTION LEGEND ABBREVIATIONS AND SYMBOLS

DRAWING NUMBER: F-0



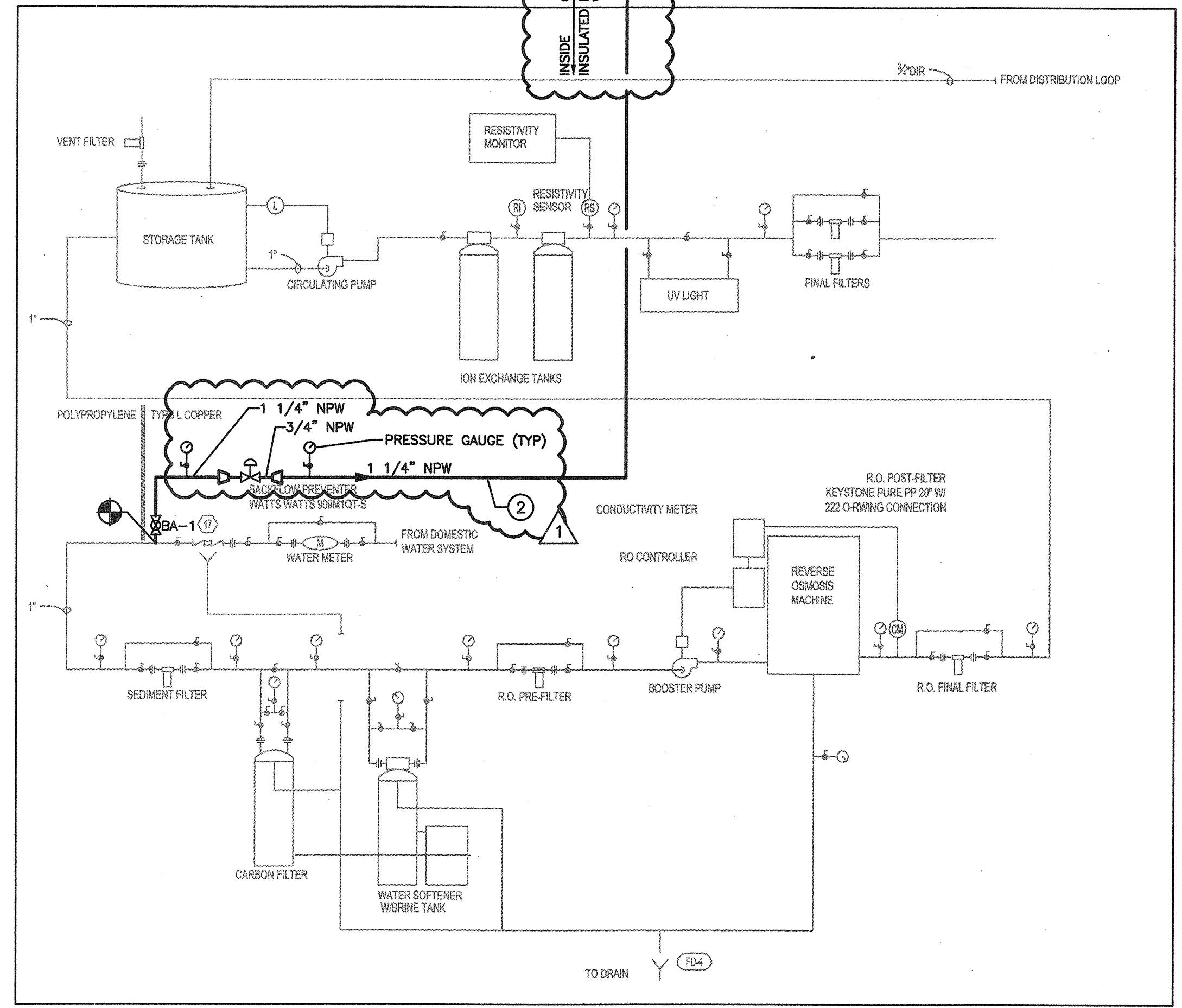
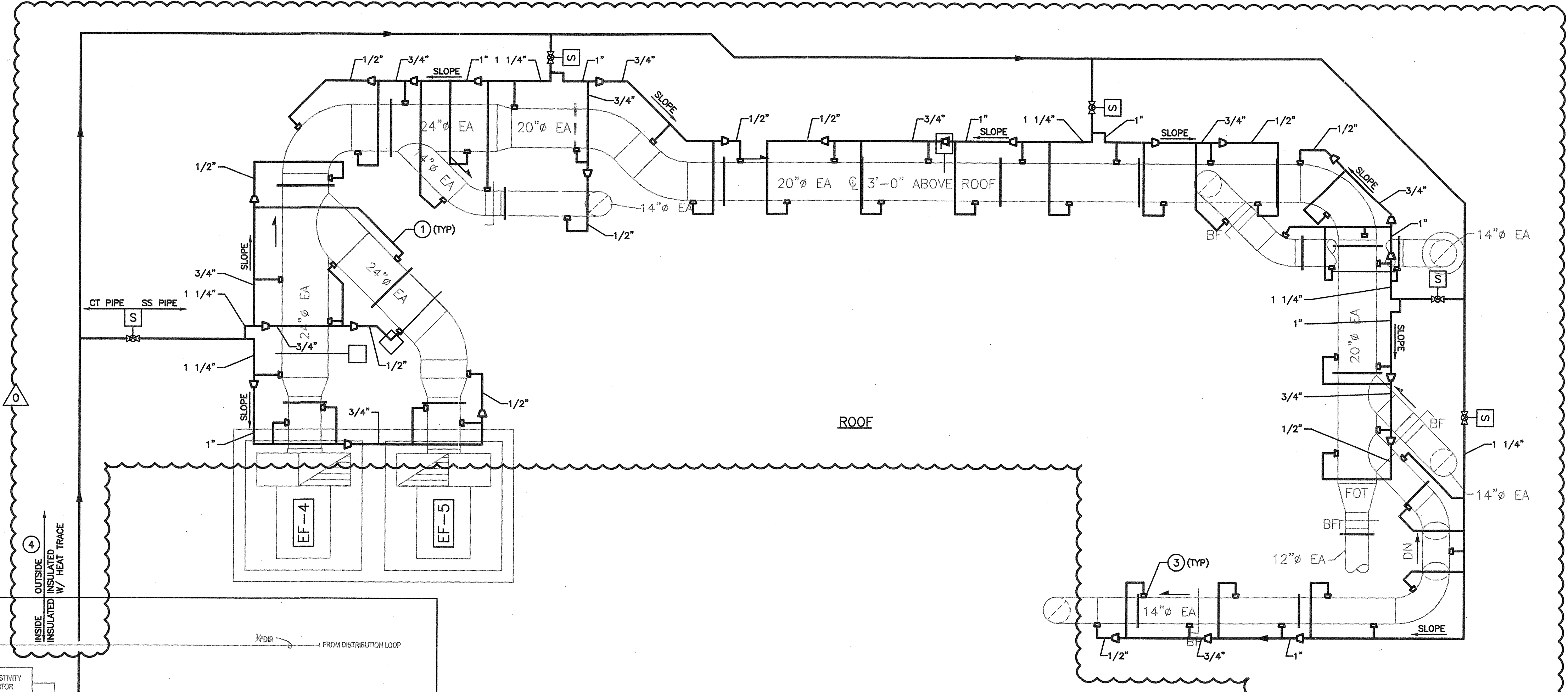


**GENERAL NOTES:**

- A. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL INFORMATION MAY BE APPLICABLE TO ALL OR SOME CONSTRUCTION PACKAGES.
- B. PIPE SIZE SHOWN ON CONNECTION SCHEDULES ARE INDIVIDUAL FIXTURE REQUIREMENTS. SIZE BRANCH WASTE AND VENT PIPING ON ACCUMULATED FIXTURE WEIGHTS PER APPLICABLE PLUMBING CODE.
- C. PLUMBING DRAWINGS ARE GENERALLY DIAGRAMMATIC. VERIFY FIXTURE LOCATIONS AND MOUNTING HEIGHTS WITH ARCHITECTURAL DRAWINGS. VERIFY ROUGH-IN REQUIREMENTS PRIOR TO INSTALLING ANY FIXTURE OR EQUIPMENT SUPPLIED BY OWNER.
- D. FLOOR DRAINS, FLOOR SINKS AND HUB DRAINS SHALL BE PRIMED.
- E. INSTALL ALL PIPING IN EXTERIOR WALLS ON INTERIOR SIDE OF BUILDING INSULATION.
- F. VERIFY ACCESSORY SIZE WITH MANUFACTURER TO ENSURE CONFORMANCE WITH AMERICANS WITH DISABILITIES ACT MOUNTING HEIGHTS.
- G. SUPPLY AND INSTALL CONTRACTORS SHALL VERIFY DIMENSIONS AND CONNECTION POINTS PRIOR TO FABRICATION.

**KEYED NOTES:**

- 1 ALL BRANCH PIPING TO NOZZLES SHALL BE 1/2"Ø.
- 2 SET WATER PRESSURE @ 20 PSI.
- 3 SPRAY JET NOZZLE SHALL BE 1/4" THREADED ROUND PVC OR TEFLON® NPT.
- 4 ELECTRICAL CONTRACTOR SHALL PROVIDE INSULATION AND HEAT TRACING FOR ALL OUTSIDE PIPING.



1 DUCT SPRAY WASH SYSTEM ONE-LINE DIAGRAM  
 NTS

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TITLE: PLUMBING DETAILS

DATE ISSUED: DRAWING SCALE:  
 ACO FILE: P-6 EQUIPMENT CODE:

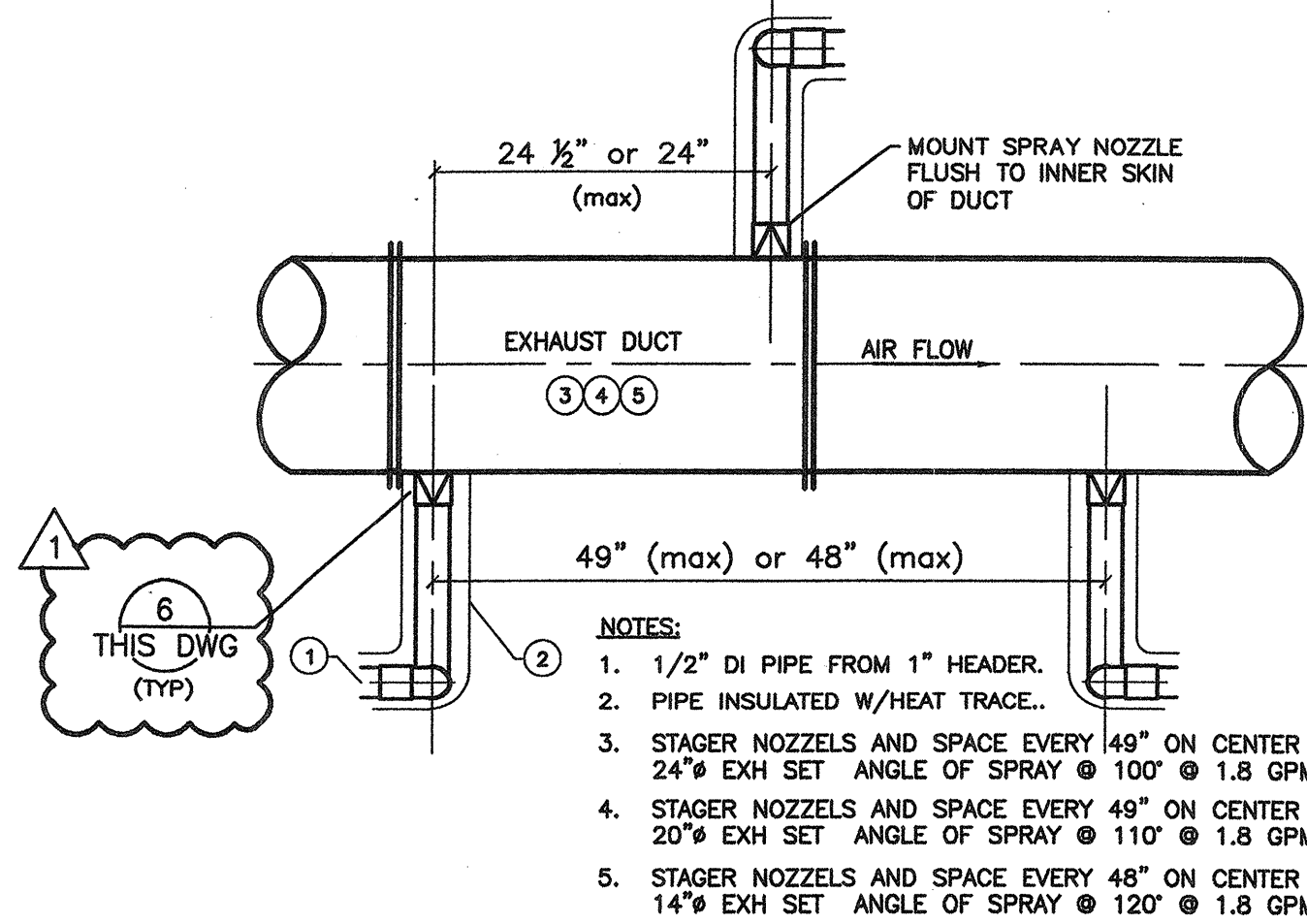
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| TAG  | DESCRIPTION          | C.W. | H.W. | D.I.W. | WASTE  | VENT   | REMARKS  |
|------|----------------------|------|------|--------|--------|--------|--|
| ES   | SAFETY SHOWER        | -    | -    | -      | -      | -      | FEED EMERGENCY SHOWER FROM TEMPERED WATER SYSTEM. PIPE SIZE SHALL BE 1".   |
| EW   | DRENCH HOSE EYE WASH | -    | -    | -      | -      | -      | FEED EMERGENCY SHOWER FROM TEMPERED WATER SYSTEM. PIPE SIZE SHALL BE 3/4". |
| FD-1 | 3" FLOOR DRAIN       | -    | -    | -      | 3"     | -      | PROVIDE TRAP PRIMER INSTALLATION.  |
| L-1  | LAVATORY             | 1/2" | 1/2" | -      | 1 1/2" | 1 1/2" | -  |
| SK-1 | INTEGRAL LAB SINK    | 1/2" | 1/2" | -      | 1 1/2" | 1 1/2" | -  |
| S-1  | INTEGRAL LAB SINK    | 1/2" | 1/2" | -      | 1 1/2" | 1 1/2" | -  |
| FOO  | FLOOR CLEANOUT       | -    | -    | -      | -      | -      | SIZE PER LOCATION AND PROVIDE FINISHING FLANGE PER FLOOR TREATMENT         |
| WCO  | WALL CLEANOUT        | -    | -    | -      | -      | -      | PROVIDE CHROME COVERPLATE  |
| CO   | CLEANOUT             | 1/2" | -    | -      | -      | -      | -  |
| TP-1 | TRAP PRIMER ASSEMBLY | -    | -    | -      | -      | -      | COMBINE WITH MULTI HEAD DISTRIBUTION UNITS DU-2, DU-3, DU-4                |
| VG   | NATURAL GAS TURRET   | -    | -    | -      | -      | -      | MOUNT TURRET ON WORK SURFACE. COORDINATE LOCATION IN FIELD.                |
| TD   | TRENCH DRAIN         | -    | -    | -      | 4"     | -      | PROVIDE TRAP PRIMER  |

NOTES:  
 1. ALL INTEGRAL SINKS SHALL BE FURNISHED WITH THE LABORATORY FURNITURE BY THE LABORATORY FURNITURE REPRESENTATIVE. THE INSTALLATION OF THE SINK IN THE WORK SURFACE SHALL BE COMPLETED BY THE LABORATORY FURNITURE INSTALLER.  
 2. DRAINAGE SHALL GO TO ACID WASTE SYSTEM.  
 3. CENTER ALL LAB FLOOR DRAINS BELOW EMERGENCY SHOWERS.

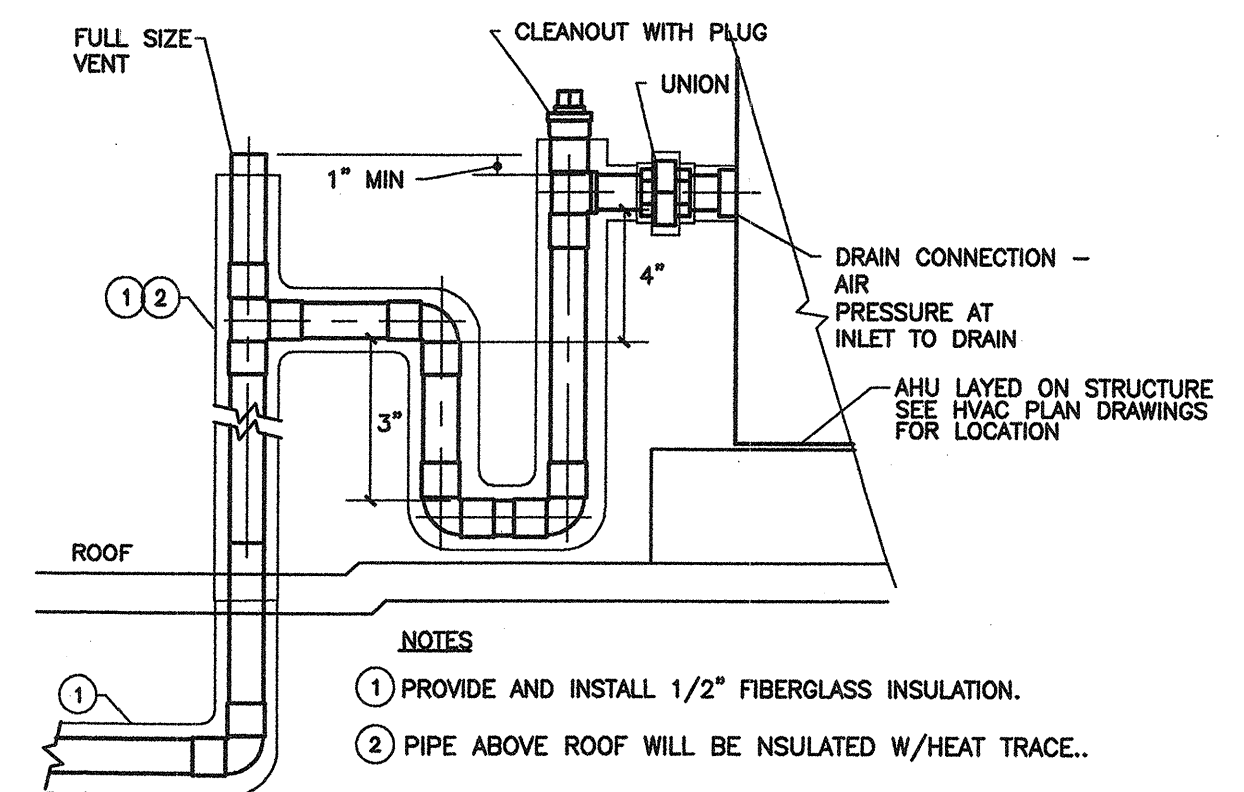
| TAG  | DESCRIPTION      | LOCATION       | EXHAUST CFM | SUPPLY CFM | D.I.W. | ACID WASTE | ACID VENT | GAS QTY. | SINK QTY. | REMARKS   |
|------|------------------|----------------|-------------|------------|--------|------------|-----------|----------|-----------|---|
| FH-1 | NEW 6' FUME HOOD | HIGH LEVEL LAB | -           | -          | 1/2"   | 1 1/2"     | 1 1/2"    | NA       | 1         | OWNER FURNISHED, CONTRACTOR INSTALLED. HCL, HF, HN03, PERCHLORIC, AND H2SO4 ACID USE. |
| FH-2 | NEW 6' FUME HOOD | PRODUCTION LAB | -           | -          | 1/2"   | 1 1/2"     | 1 1/2"    | 1        | 1         | OWNER FURNISHED, CONTRACTOR INSTALLED. HCL, H2O2, HN03, AND H2SO4 ACID USE.           |
| FH-3 | NEW 5' FUME HOOD | PRODUCTION LAB | -           | -          | 1/2"   | 1 1/2"     | 1 1/2"    | NA       | 1         | OWNER FURNISHED, CONTRACTOR INSTALLED. HN03 ACID USE.                                 |
| FH-4 | NEW 6' FUME HOOD | PRODUCTION LAB | -           | -          | 1/2"   | 1 1/2"     | 1 1/2"    | 1        | 1         | OWNER FURNISHED, CONTRACTOR INSTALLED. HCL, HF, HN03, PERCHLORIC, AND H2SO4 ACID USE. |
| FH-5 | NEW 6' FUME HOOD | PRODUCTION LAB | -           | -          | 1/2"   | 1 1/2"     | 1 1/2"    | NA       | 1         | OWNER FURNISHED, CONTRACTOR INSTALLED. HCL, HF, HN03, PERCHLORIC, AND H2SO4 ACID USE. |



4 TYPICAL SPRAY DUCT DETAIL  
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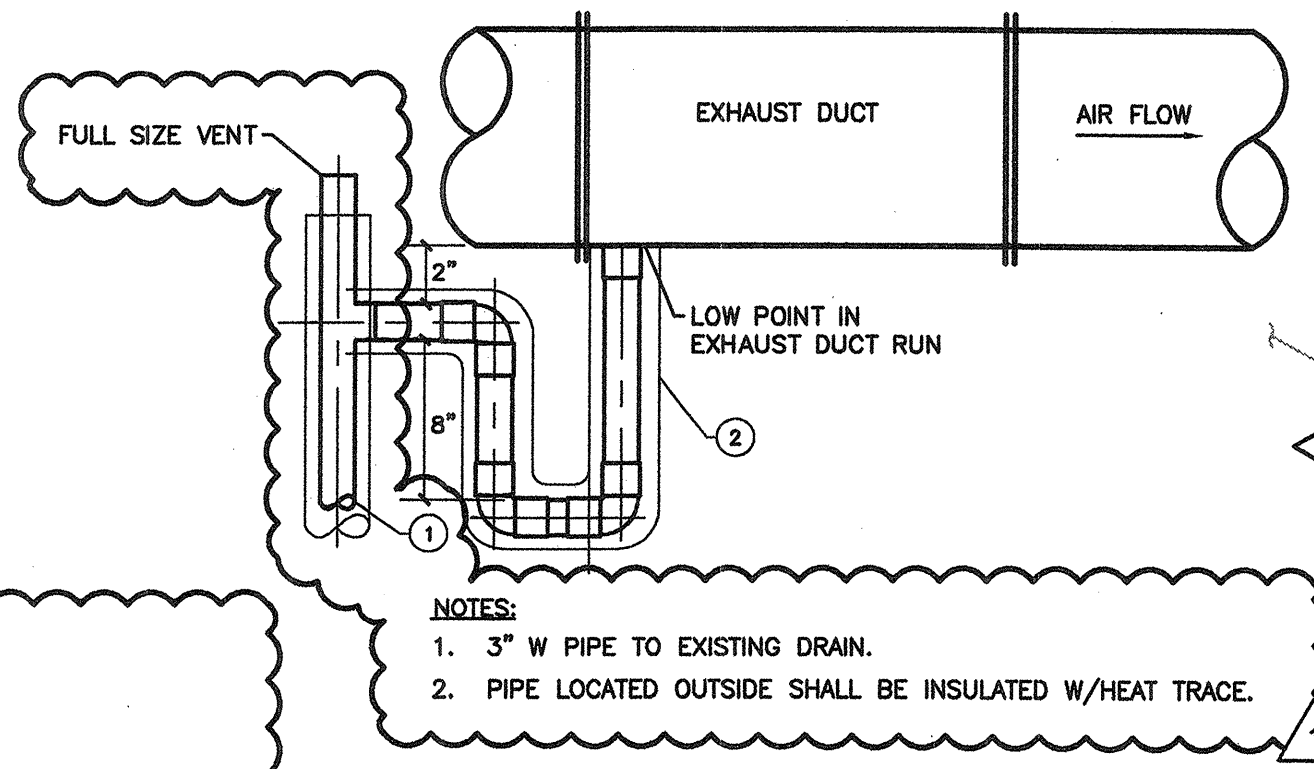
6 THIS DWG (TYP)

- NOTES:  
 1. 1/2" DI PIPE FROM 1" HEADER.  
 2. PIPE INSULATED W/HEAT TRACE.  
 3. STAGER NOZZELS AND SPACE EVERY 48" ON CENTER FOR 24" EXH SET ANGLE OF SPRAY @ 100' @ 1.8 GPM & 20 PSI.  
 4. STAGER NOZZELS AND SPACE EVERY 49" ON CENTER FOR 20" EXH SET ANGLE OF SPRAY @ 110' @ 1.8 GPM & 20 PSI.  
 5. STAGER NOZZELS AND SPACE EVERY 48" ON CENTER FOR 14" EXH SET ANGLE OF SPRAY @ 120' @ 1.8 GPM & 20 PSI.



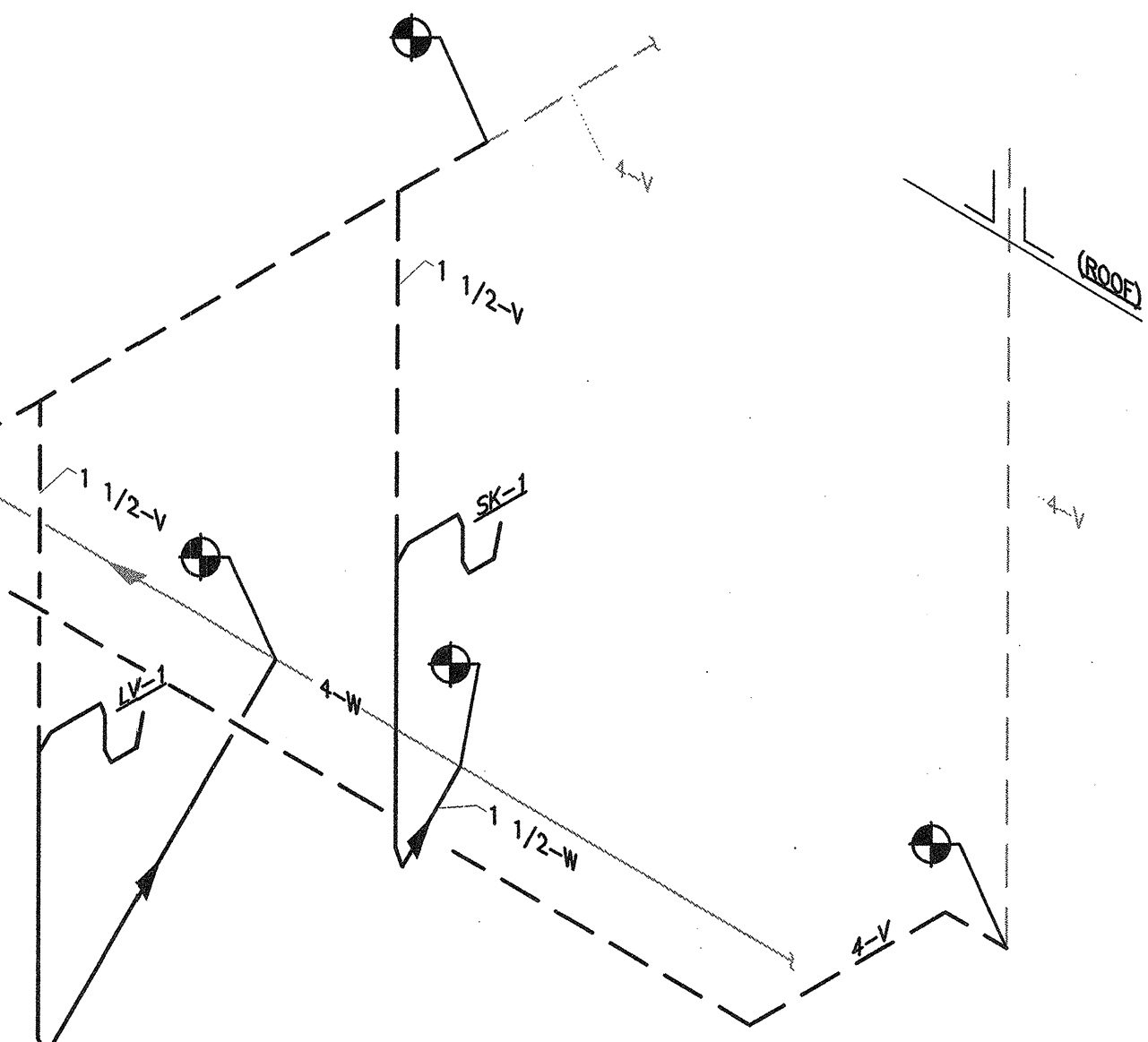
1 CONDENSATE DRAIN P-TRAP (AHU's)  
NTS

- NOTES:  
 1. PROVIDE AND INSTALL 1/2" FIBERGLASS INSULATION.  
 2. PIPE ABOVE ROOF WILL BE INSULATED W/HEAT TRACE.

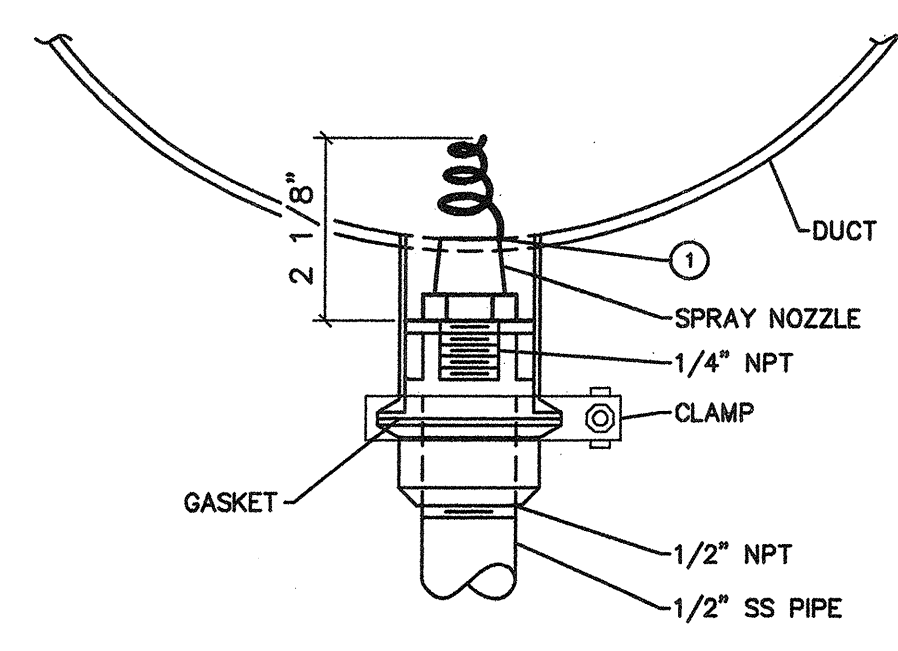


5 TYPICAL LOW POINT DUCT DRAIN  
NTS

- NOTES:  
 1. 3" W PIPE TO EXISTING DRAIN.  
 2. PIPE LOCATED OUTSIDE SHALL BE INSULATED W/HEAT TRACE.

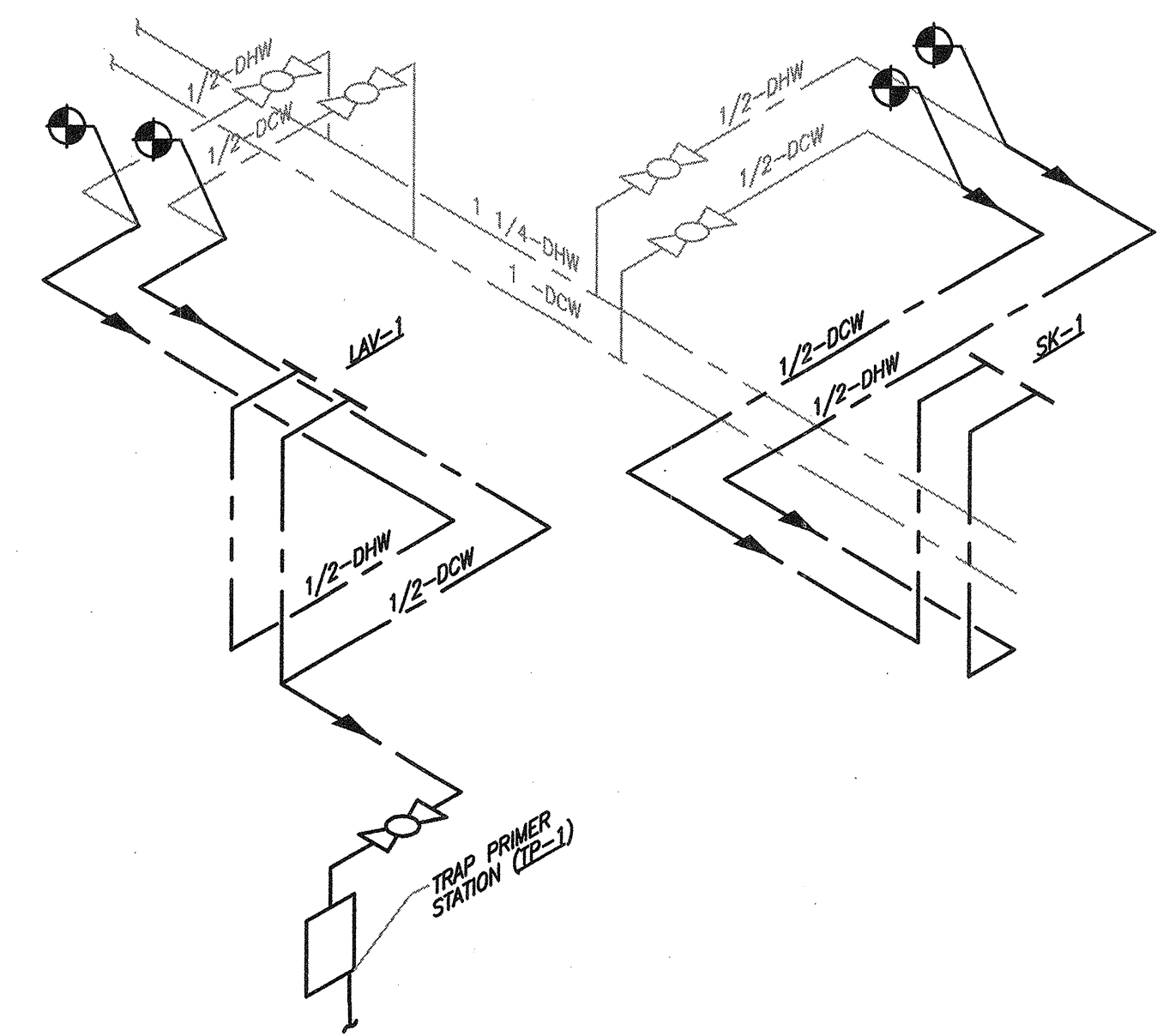


2 SANITARY RISER DIAGRAM  
NTS



- NOTES:  
 1. MOUNT SPRAY NOZZLE SO OPENING OF FIG TAIL IS FLUSH WITH INNER WALL OF DUCT.

6 NOZZLE INSTALLATION DETAIL  
NTS



3 DOMESTIC WATER RISER DIAGRAM  
NTS

**IDC ARCHITECTS**  
 200 Corporate Center Drive  
 Suite 200  
 Moon Township, PA 15108-3186  
 www.idcarchitects.com

IDC PROJECT NO.: 364972 CLIENT PROJECT NO.:

DRAWN: REVIEWED:  
 DESIGNED: APPROVED:  
 NOTICE: STAMP:

STATE OF VERMONT  
 JAMES P. KUKULSKI  
 NO. 08469  
 Mechanical  
 LICENSED PROFESSIONAL ENGINEER

**GENERAL NOTES:**

A. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL INFORMATION MAY BE APPLICABLE TO ALL OR SOME CONSTRUCTION PACKAGES.

B. PIPE SIZE SHOWN ON CONNECTION SCHEDULES ARE INDIVIDUAL FIXTURE REQUIREMENTS. SIZE BRANCH WASTE AND VENT PIPING ON ACCUMULATED FIXTURE WEIGHTS PER APPLICABLE PLUMBING CODE.

C. PLUMBING DRAWINGS ARE GENERALLY DIAGRAMMATIC. VERIFY FIXTURE LOCATIONS AND MOUNTING HEIGHTS WITH ARCHITECTURAL DRAWINGS. VERIFY ROUGH-IN REQUIREMENTS PRIOR TO INSTALLING ANY FIXTURE OR EQUIPMENT SUPPLIED BY OWNER.

D. FLOOR DRAINS, FLOOR SINKS AND HUB DRAINS SHALL BE PRIMED.

E. INSTALL ALL PIPING IN EXTERIOR WALLS ON INTERIOR SIDE OF BUILDING INSULATION.

F. VERIFY ACCESSORY SIZE WITH MANUFACTURER TO ENSURE CONFORMANCE WITH AMERICANS WITH DISABILITIES ACT MOUNTING HEIGHTS.

G. SUPPLY AND INSTALL CONTRACTORS SHALL VERIFY DIMENSIONS AND CONNECTION POINTS PRIOR TO FABRICATION.

|     |                   |          |      |
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| 0   | IFC               | 11/16/07 | IDCA |
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KEYPLAN

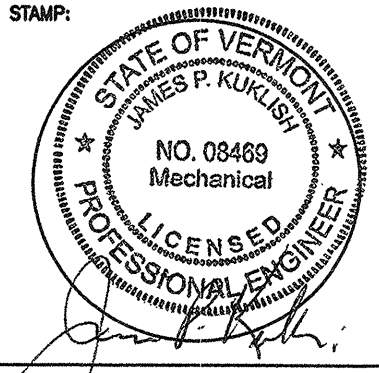
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 Cosmogenic Nuclide Laboratory

TITLE: PLUMBING DETAILS

DRAWING NUMBER: P-5

DATE ISSUED: ACAD FILE: P-5 DRAWING SCALE: EQUIPMENT CODE:



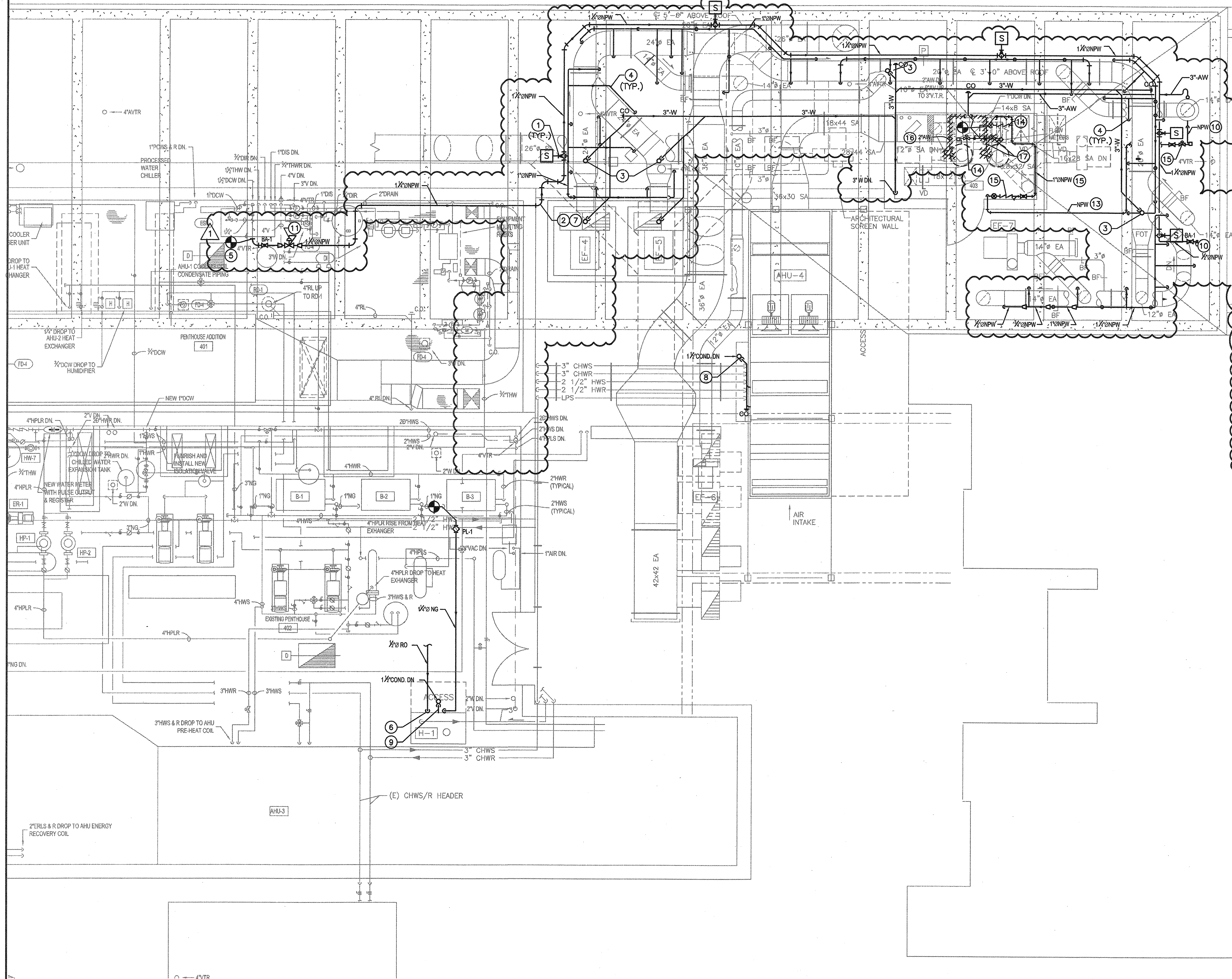


**GENERAL NOTES**  
 A FOR GENERAL NOTES AND SYMBOLS SEE DRAWING P-0.

- KEYED NOTES**
1. PROVIDE NEW AUTOMATED SPRAY WASH SYSTEM. WASH CYCLES SHALL BE SET SO THAT ONLY ONE SOLENOID VALVE OPERATES AT ONE TIME. SEE SPECIFICATION 15990 FOR DDCS.
  2. INSULATE AND HEAT TRACE NEW W AND NPW PIPING THAT IS EXPOSED OUTSIDE. PIPING FROM THE SOLENOID VALVE TO DUCT SHALL SLOPE TO DUCT TO ALLOW WATER TO DRAIN FROM PIPE WHEN ATOMIZED SPRAY WASH IS NOT OPERATIONAL.
  3. SEE DETAIL 5 DWG. P-5 FOR DRAIN CONNECTION TO NEW PSP COATED EXHAUST DUCT.
  4. SEE DETAIL 4 DWG. P-5 FOR SPRAY WASH CONNECTION INSIDE OF EXHAUST DUCTWORK.
  5. SEE DETAIL 6 DWG. P-5 FOR SPRAY WASH ONE LINE DIAGRAM.

**KEYED NOTES CONT.**

6. FIELD ROUTE 1/2" RO PIPING TO NEAREST EXISTING RO HEADER AND CONNECT NEW 1/2" RO TO EXISTING RO. PROVIDE BA-3 ON NEW 1/2" RO AT POINT OF CONNECTION.
7. SUBMIT PIPE RACK DETAIL FOR REVIEW BY ENGINEER PRIOR TO INSTALLATION OF 1 1/4" NPW PIPING.
8. SEE DETAIL 1 DRAWING P-5 FOR DRAIN CONNECTION TO AHU-5.
9. PROVIDE STANDARD P-TRAP CONNECTION FOR H-1 DRAIN CONNECTION.
10. PROVIDE 1/2" LINE W/VALVE TO BE USED AS BLOW-OUT. PROVIDE END HOSE END CONNECTION AND PLUG.
11. PROVIDE 3/4" PRESSURE REGULATOR MANUFACTURED BY FEBCO "SERIES PRV-1" OR EQUAL. SET DOWN STREAM PRESSURE @ 20 PSI.
12. PROVIDE CCO1 PIPE BETWEEN METER AND SCRUBBER.
13. USE SAME SIZE NPW PIPE AS EXISTING NPW PIPE TO EXISTING SCRUBBER.
14. RELOCATE ALL EXISTING VALVES, METERS, AND BACKFLOW PREVENTER FROM EXISTING MAKE-UP WATER SYSTEM.
15. NEW LOCATION FOR EXISTING VALVES, METERS, AND BACKFLOW PREVENTER BEING RE-USE FROM EXISTING MAKE-UP WATER SYSTEM.
16. REMOVE EXISTING 2" AW PIPING FROM SCRUBBER AND CAP PIPE AT RISER.
17. REMOVE EXISTING 2" AW AND NPW PIPING FROM SCRUBBER THAT IS BEING RELOCATED. CAP EXISTING AW PIPE AT RISER.



**1 ROOF PLAN NEW WORK PLUMBING WAST VENT & RAIN LEADERS**  
 SCALE: 1/4"=1'-0"

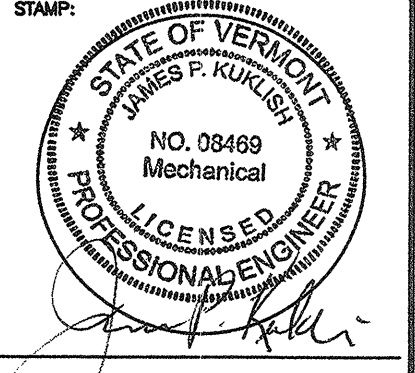
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TITLE: PLUMBING ROOF PLAN NEW WORK  
 DRAWING NUMBER: P-4



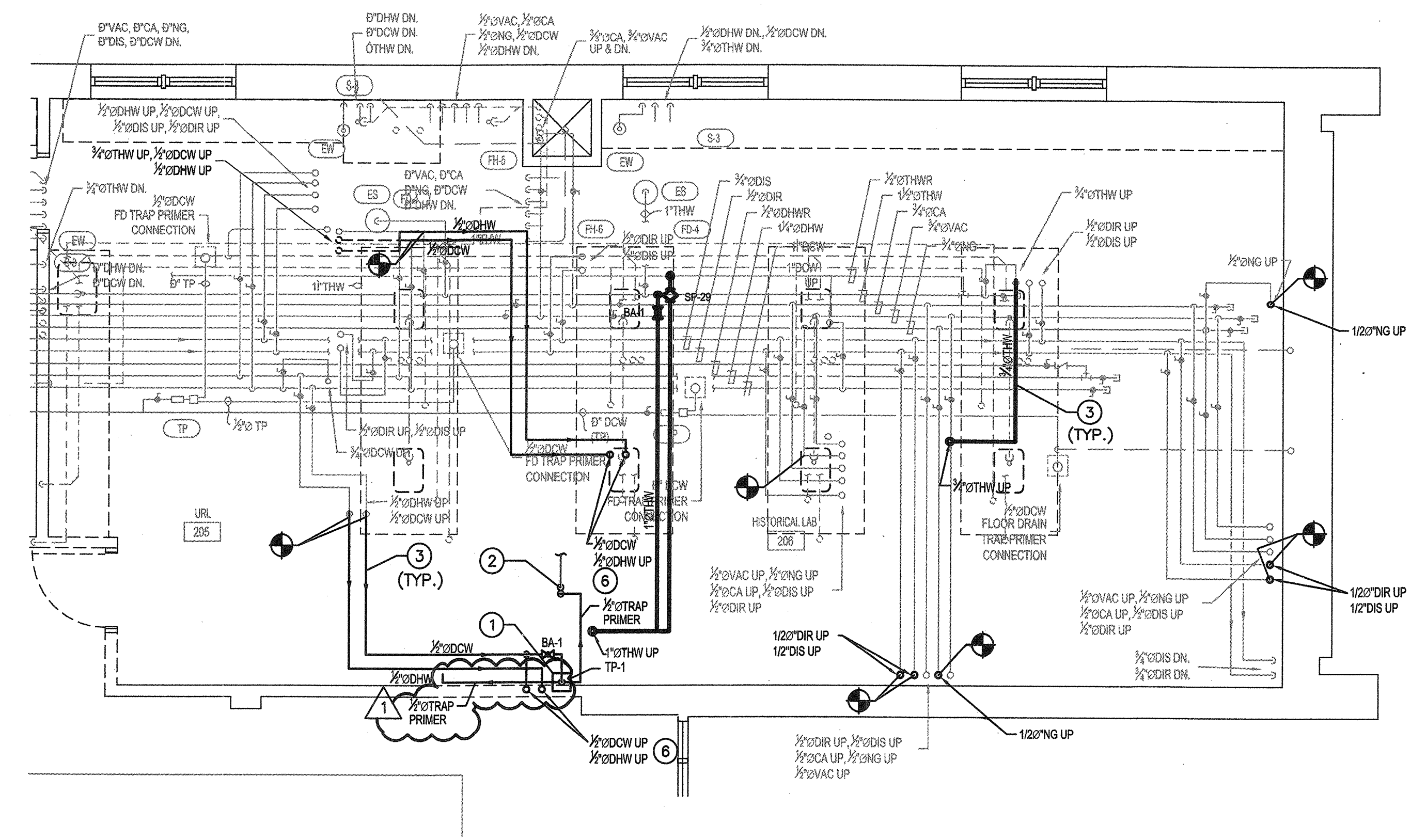


**GENERAL NOTES**

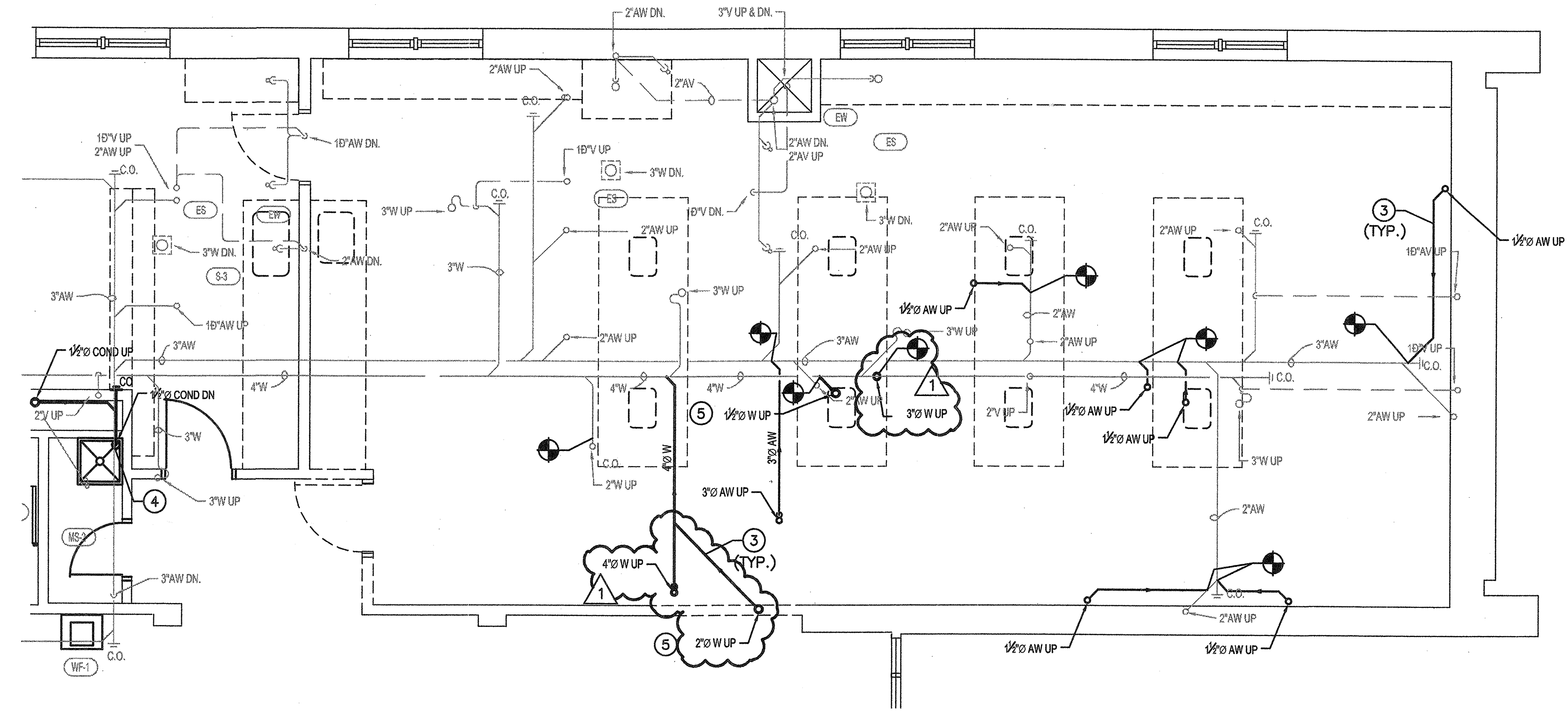
A FOR GENERAL NOTES AND SYMBOLS SEE DRAWING P-0.

**KEYED NOTES**

1. CONNECT NEW 1/2" DCW TO NEW TRAP PRIMER. LOCATE NEW TRAP PRIMER ABOVE CEILING IN THIS LOCATION.
2. CONNECT NEW PRIMER LINE TO NEW FLOOR DRAIN.
3. CONTRACT SHALL INSPECT AREA BEFORE BID AND COORDINATE WITH GENERAL CONTRACTOR AND OWNER TO DEMO OR RELOCATE EXISTING SERVICES AS REQUIRED.
4. DROP PIPE DOWN TO MOP SINK AND TERMINATE DRAIN PIPE 4" OVER EXISTING MOP SINK.
5. SEE DETAIL 2 DWG. P-5 FOR SANITARY RISER DIAGRAM.
6. SEE DETAIL 3 DWG. P-5 FOR WATER RISER DIAGRAM.



**1 2nd FLOOR PLAN NEW WORK PLUMBING SERVICES**  
SCALE: 1/4"=1'-0"



**2 2nd FLOOR PLAN NEW WORK WASTE VENT & RAIN LEADERS**  
SCALE: 1/4"=1'-0"

|   |           |          |      |
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KEYPLAN

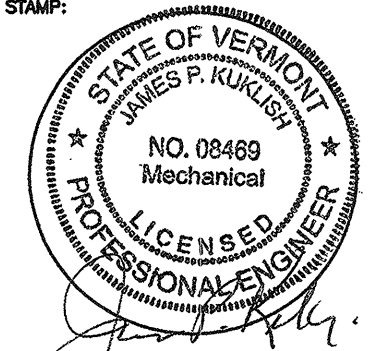
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TITLE: PLUMBING  
SECOND FLOOR PLAN  
NEW WORK

DATE ISSUED: DRAWING SCALE:  
ACAD FILE: P-3 EQUIPMENT CODE:

DRAWING NUMBER:  
**P-3**





**KEYED NOTES CONT.**

- 5 DROP PIPE DOWN TO MOP SINK AND TERMINATE DRAIN PIPE 4" OVER EXISTING MOP SINK.
- 6 CONTRACTOR SHALL INSPECT AREA BEFORE BID AND COORDINATE WITH GENERAL CONTRACTOR AND OWNER TO DEMO OR RELOCATE EXISTING SERVICES AS REQUIRED.
- 7 2" AW SHALL BE MOUNTED TIGHT TO UNDER SIDE OF ROOF CEILING TO CLEAR TOP OF ULPA FILTER. AFTER PIPE CLEARS ULPA FILTER DROP 2" AW SO TOP OF PIPE CLEARS BOTTOM OF BEAM.
- 8 PROVIDE TRENCH TD-1 DRAIN MANUFACTURED BY J.R. SMITH CO. "MODEL 7213" OR EQUAL.

**GENERAL NOTES**

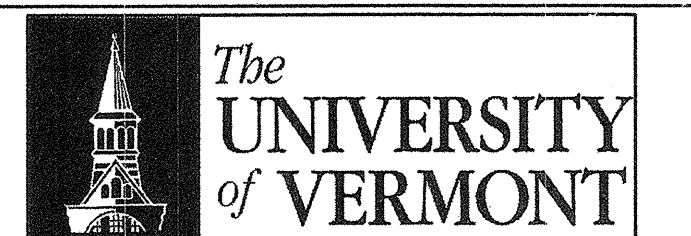
- A FOR GENERAL NOTES SEE PLUMBING LEGEND P-0.
- B SLOPE 1 1/2" COND. PIPE 1/4" PER FOOT.

**KEYED NOTES**

- 1 FURNISH AND INSTALL AV PIPING UNDER COUNTER AND ROUTE INSIDE OF PIPE CHASE. CONNECT NEW VENT TO EXISTING AT WALL.
- 2 FURNISH AND INSTALL VENT PIPING IN BULKHEAD AND ROUTE BETWEEN EXHAUST RISER FROM HOOD.
- 3 1 1/2" COND. PIPE FROM AHU-4 LOCATED ON THE ROOF. SLOPE PIPE 1/4" PER FOOT. MOUNT PIPING AS HIGH AS POSSIBLE TO UNDERSIDE OF ROOF AND STRUCTURAL BEAMS.
- 4 1 1/2" COND. PIPE FROM H-1 LOCATED IN THE PENTHOUSE. SLOPE PIPE 1/4" PER FOOT. MOUNT PIPING AS HIGH AS POSSIBLE TO UNDERSIDE OF ROOF AND STRUCTURAL BEAMS.

|     |                   |          |      |
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KEYPLAN

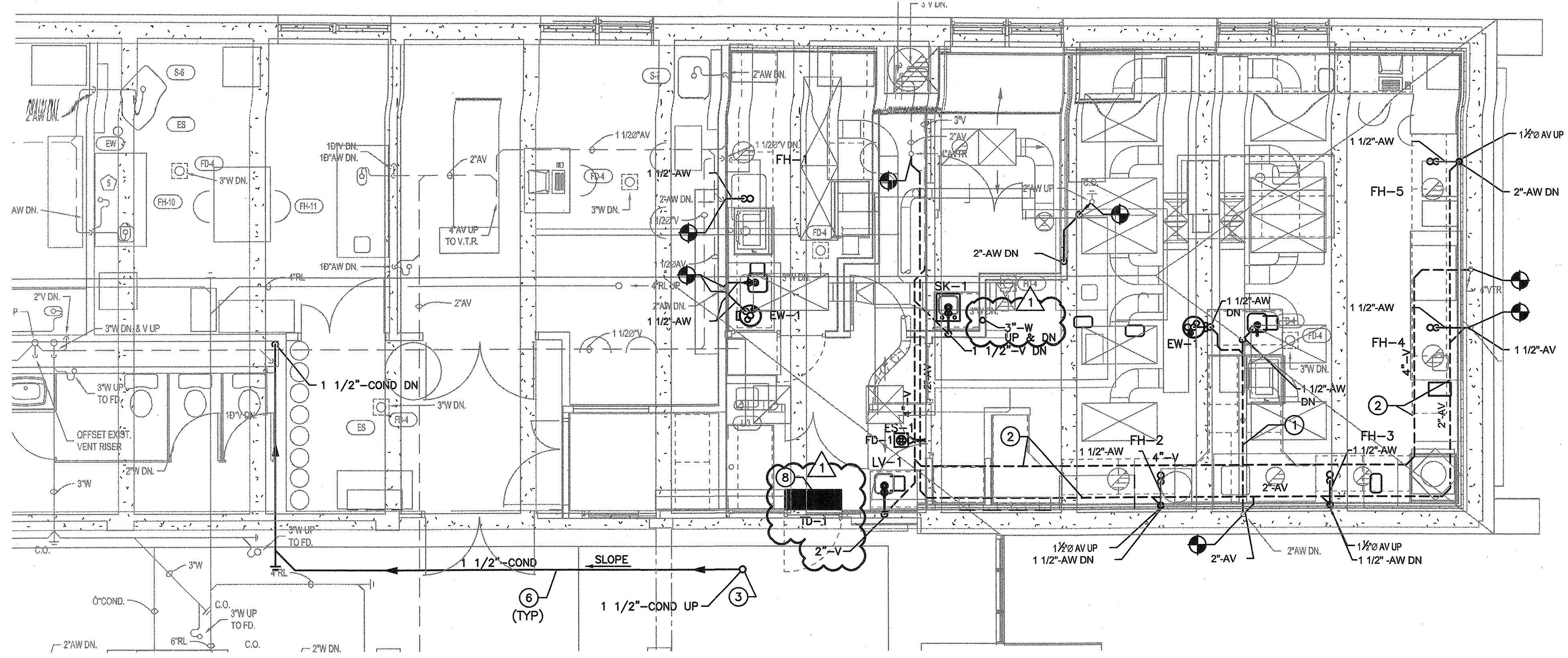


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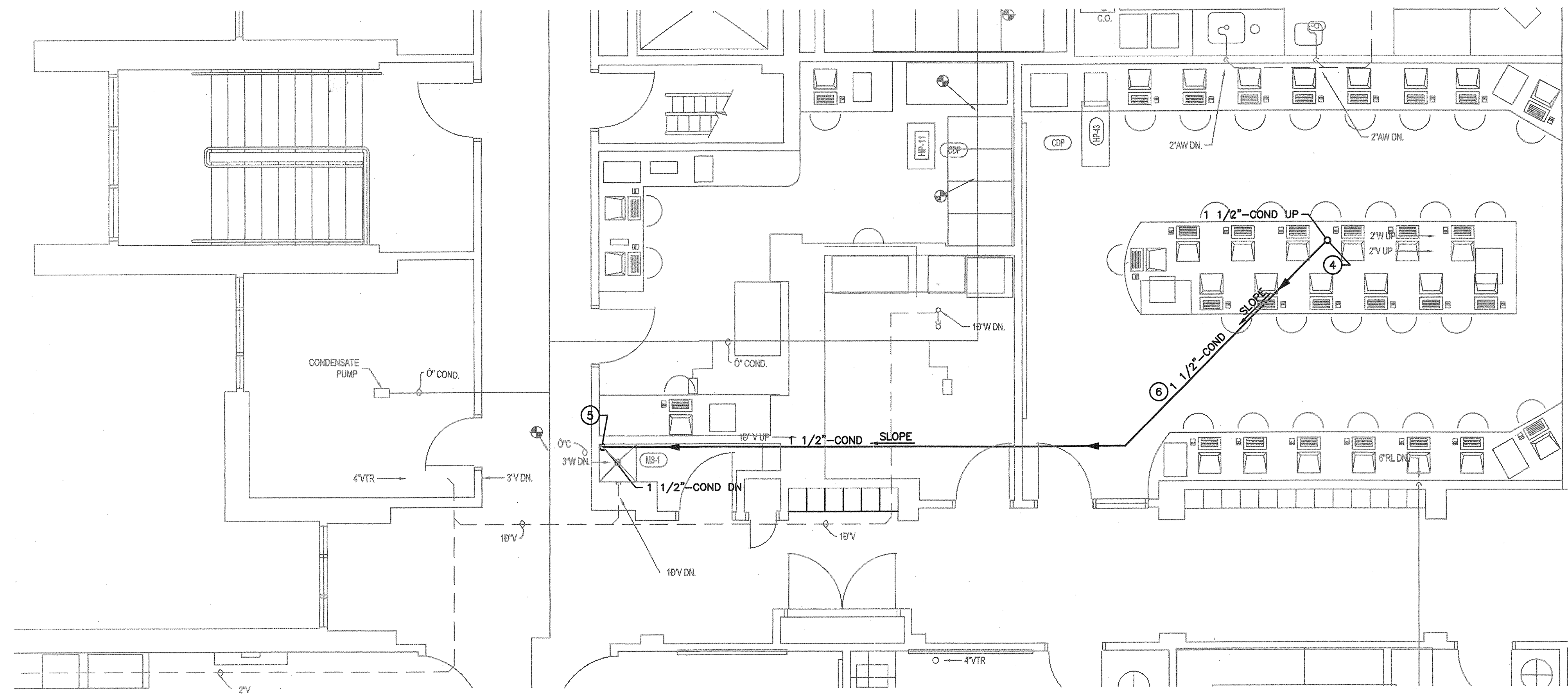
TITLE: PLUMBING  
 THIRD FLOOR PLAN  
 NEW  
 WORK

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: P-2 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER:  
**P-2**

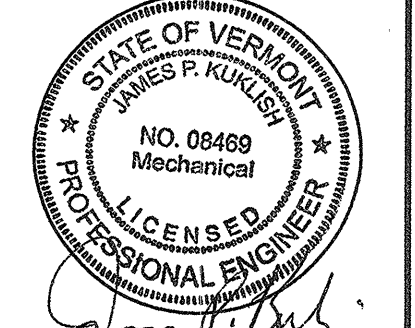


**1 3rd FLOOR PART PLAN NEW WORK WASTE VENT & RAIN LEADERS**  
 SCALE: 1/4"=1'-0"



**2 3rd FLOOR PART PLAN NEW WORK WASTE VENT & RAIN LEADERS**  
 SCALE: 1/4"=1'-0"





**KEYED NOTES CONT.**

- 7 CONNECT DCW AND DHW TO FOOT CONTROLLER FOR SINK. MANUFACTURER KOHLER MODEL K-13816 OR EQUAL.
- 8 CONNECT DIS TO FOOT CONTROLLER FOR SINK. ALL INTEGRAL COMPONENTS TO BE POLYPRO OR STAINLESS STEEL.
- 9 CONNECT DIS TO DI-POLISHERS. DI-POLISHERS SHALL BE PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR.
- 10 FURNISH AND INSTALL THW PIPING UNDER COUNTER AND CONNECT TO NEW EYE WASH LOCATED NEXT TO COUNTER.
- 11 NO FIBERGLASS INSULATION SHALL BE USED INSIDE THE LAB AREAS. PROVIDE ARMAFLEX INSULATION FOR TWS PIPING TO EYEWASH.

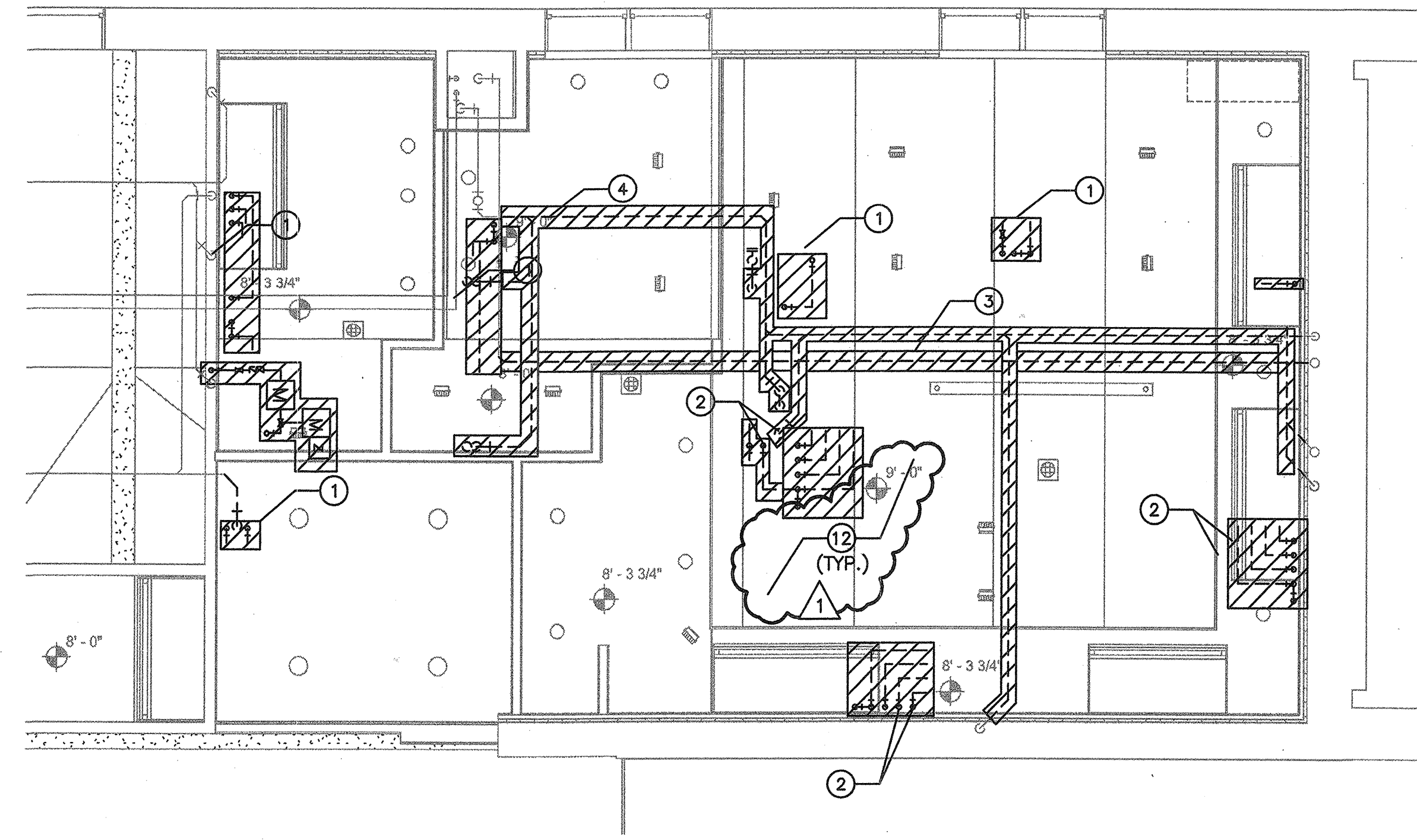
12 AS-BUILTS SHOWN ON DRAWING MAY NOT COMPLY TO EXACT CONDITIONS ON SITE. CONTRACTOR SHALL INSPECT AREA AND COORDINATE WITH GENERAL CONTRACT AND OWNER TO DEMO OR RELOCATE EXISTING SERVICES AS REQUIRED.

**GENERAL NOTES**

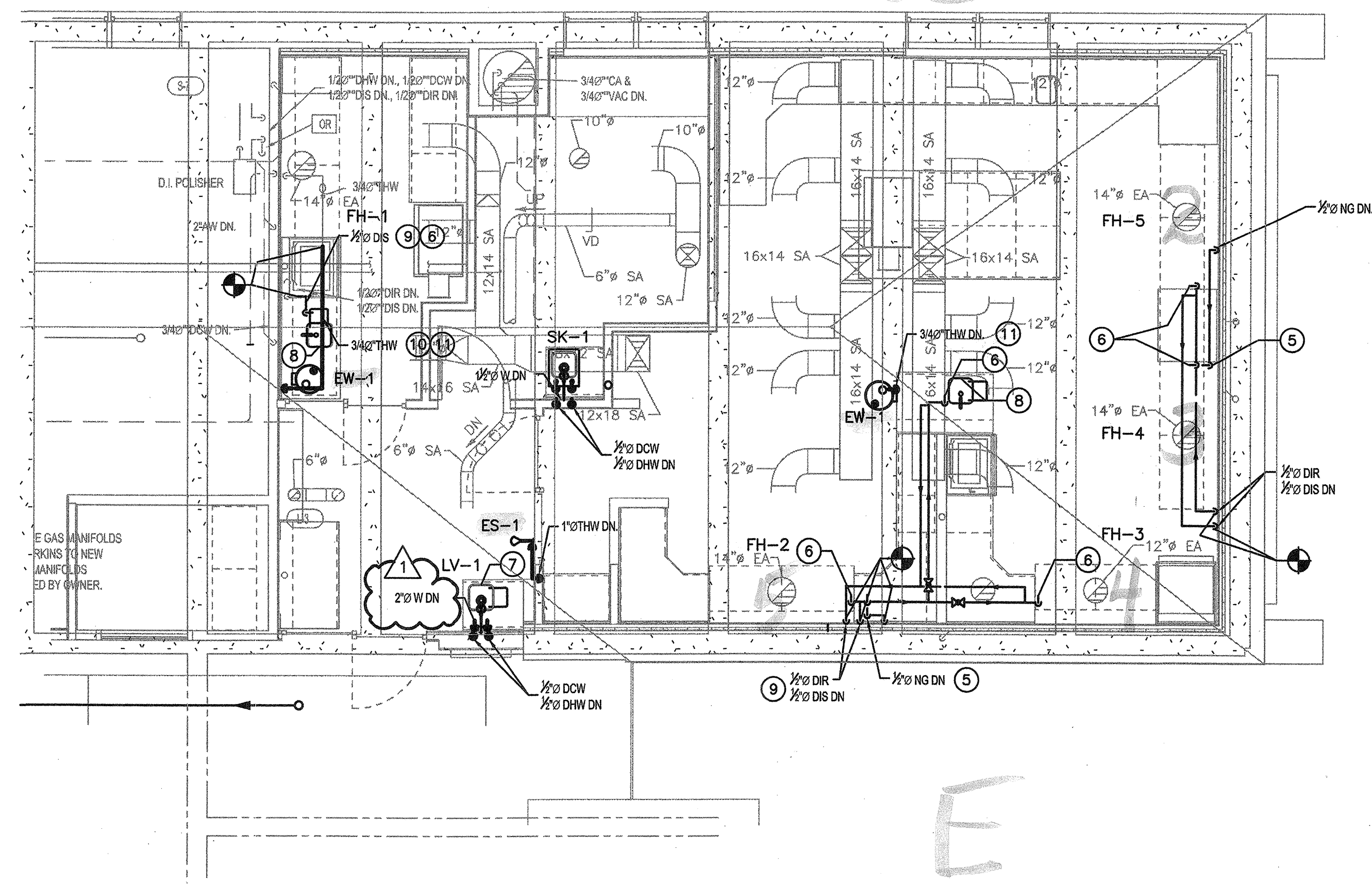
A FOR GENERAL NOTES (SEE PLUMBING LEGEND P-0).

**KEYED NOTES**

- 1. REMOVE EXISTING PIPING IN THIS ENTIRE AREA DOWN TO FLOOR BELOW. CAP ANY PIPE THAT WILL NOT BE REUSED.
- 2. REMOVE EXISTING CA AND VAC PIPING IN THIS ENTIRE AREA DOWN TO FLOOR BELOW. CAP PIPE AT NEAREST SHUTOFF VALVE.
- 3. REMOVE EXISTING SANITARY VENT PIPING.
- 4. REMOVE EXISTING ACID WASTE VENT PIPING.
- 5. FURNISH AND INSTALL NG PIPING UNDER COUNTER AND CONNECT TO TURRET LOCATED ON WORKING SURFACE. MANUFACTURER CHICAGO FAUCET MODEL 980-909-957-3KAGV OR EQUAL.
- 6. FURNISH AND INSTALL DIS PIPING UNDER COUNTER AND CONNECT TO POLYPRO FAUCET LOCATED ON WORKING SURFACE. MANUFACTURE PLASTINETICS INC. PPRO MODEL 1000-YN OR EQUAL.



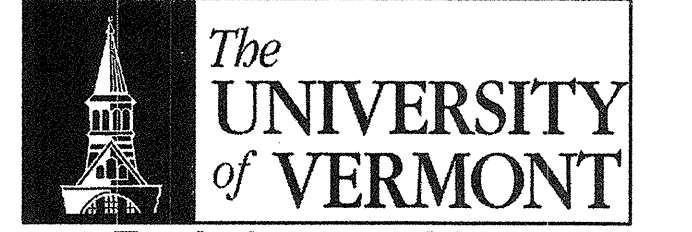
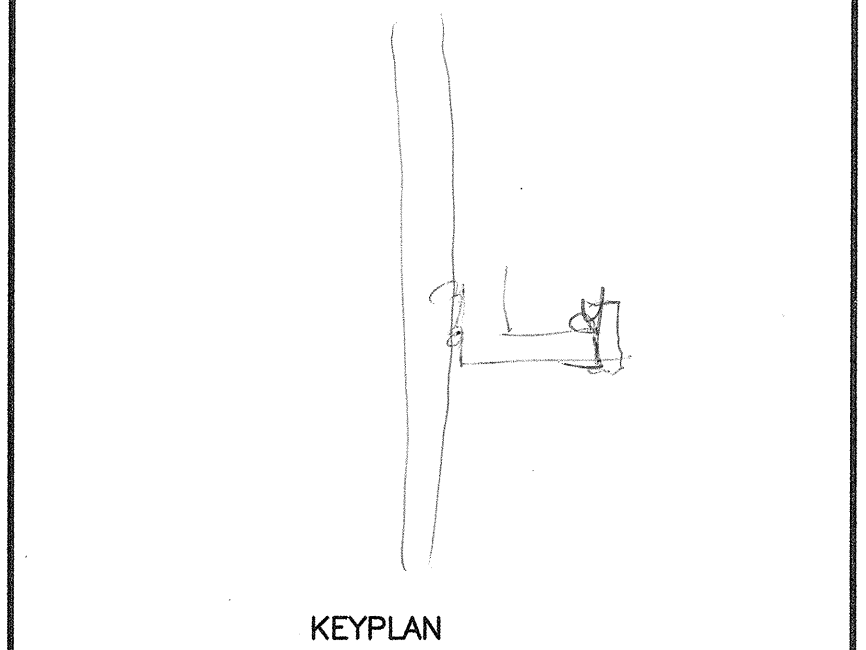
**1 3rd FLOOR PLAN DEMO WORK**  
 SCALE: 1/4"=1'-0"



**2 3rd FLOOR PLAN NEW WORK PLUMBING SERVICES**  
 SCALE: 1/4"=1'-0"

*Phase cont.  
 3-10-08  
 w/ Mike Warren  
 Hood numbering  
 as marked*

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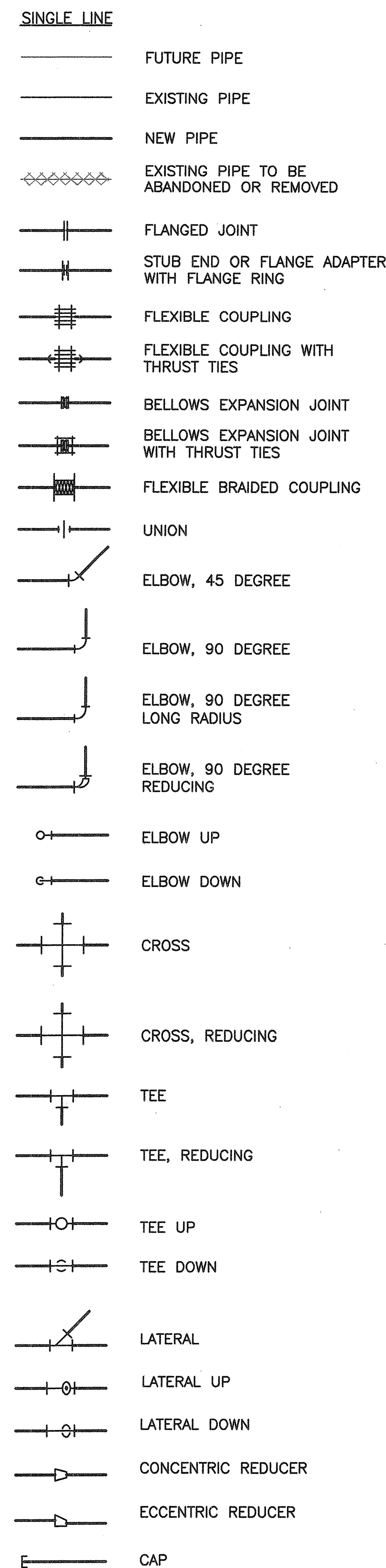
TITLE:  
**PLUMBING  
 FLOOR PLAN  
 NEW AND  
 DEMO WORK**

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE:  
 A/C/D FILE: P-1 EQUIPMENT CODE:

DRAWING NUMBER:  
**P-1**

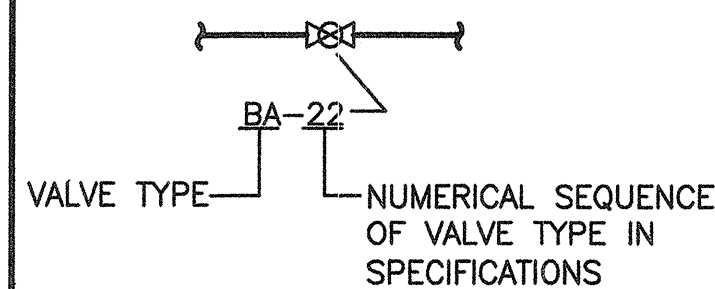


**PIPE AND FITTING SYMBOLS**

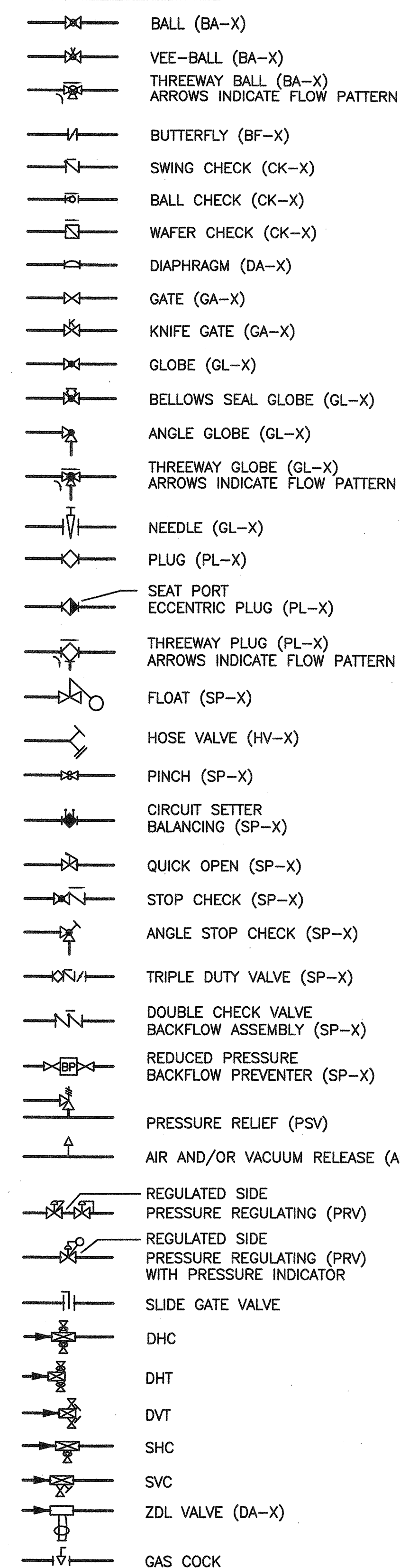


- NOTES:**
- EXISTING PIPING AND EQUIPMENT IS SHOWN WITH LIGHT WEIGHT AND/OR SCREENED LINE CONSTRUCTION. NEW PIPING AND EQUIPMENT IS SHOWN HEAVY.
  - PIPE FITTINGS SHOWN HERE DO NOT REFLECT ALL END CONNECTIONS. REFER TO PIPING SPECIFICATIONS AND PIPING PLANS FOR PIPING MATERIAL AND JOINT TYPES.

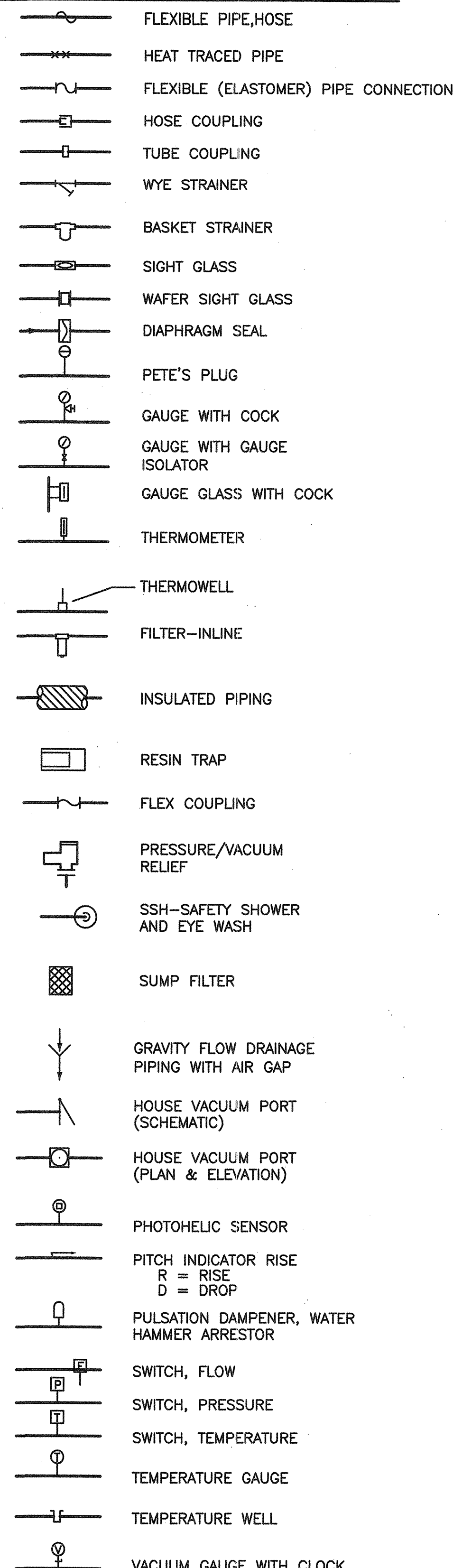
**VALVE DESIGNATION**



**VALVE SYMBOLS**



**MISCELLANEOUS PIPING SYMBOLS**



**EQUIPMENT TYPES**

| CODE | DESCRIPTION               |
|------|---------------------------|
| CDU  | CLEANER DISPENSING UNIT   |
| CO   | CLEAN OUT                 |
| ES   | EMERGENCY SHOWER UNIT     |
| EW   | EMERGENCY EYE WASH UNIT   |
| FCO  | FLOOR CLEAN OUT           |
| FD   | FLOOR DRAIN               |
| FH   | FUME HOOD                 |
| FS   | FLOOR SINK                |
| FR   | FLOW RESTRICTOR           |
| GT   | GREASE TRAP               |
| HB   | HOSE BIB                  |
| L    | LAVATORY                  |
| MS   | MOP SINK                  |
| OD   | OVERFLOW DRAIN            |
| S    | SINK                      |
| SI   | SOLIDS INTERCEPTOR        |
| SS   | SCRUB SINK                |
| TC   | TEMPERATURE CONTROL VALVE |
| TD   | TRENCH DRAIN              |
| TSM  | TRAP SECTION MACHINE      |
| TP   | TRAP PRIMER               |
| WC   | WATER CLOSET              |
| WCO  | WALL CLEAN OUT            |
| WFO  | WATER FILTRATION UNIT     |

| PLUMBING ABBREVIATIONS & DESCRIPTION |                                  |       |                                |
|--------------------------------------|----------------------------------|-------|--------------------------------|
| A/C                                  | AIR CONDITIONING                 | LAT   | LEAVING AIR TEMPERATURE        |
| AFF                                  | ABOVE FINISHED FLOOR             | PRV   | PRESSURE REDUCING VALVE        |
| ALUM.                                | ALUMINUM                         | PSI   | POUNDS PER SQUARE INCH         |
| AR                                   | ARGON                            | PSIG  | POUNDS PER SQUARE INCH GAUGE   |
| AP                                   | ACCESS PANEL                     | QD    | QUICK DISCONNECT               |
| ATM.                                 | ATMOSPHERE                       | R     | RETURN                         |
| AUTO.                                | AUTOMATIC                        | RA    | RETURN AIR                     |
| BFC                                  | BELOW FINISHED CEILING           | RPM   | REVOLUTIONS PER MINUTE         |
| BHP                                  | BRAKE HORSE POWER                | RL    | RING LEADER                    |
| AV                                   | ACID VENT                        | S/S   | STAINLESS STEEL                |
| BTU                                  | BRITISH THERMAL UNIT             | SA    | SUPPLY AIR                     |
| CFM                                  | CUBIC FEET PER MINUTE            | SCHR  | SECONDARY CHILLED WATER RETURN |
| CI                                   | CAST IRON                        | SCHS  | SECONDARY CHILLED WATER SUPPLY |
| CO                                   | CLEAN OUT                        | SD    | SPLITTER DAMPER                |
| COND                                 | CONDENSATE                       | SEC   | SECOND                         |
| CWR                                  | CONDENSER WATER RETURN           | SP    | STATIC PRESSURE                |
| CWS                                  | CONDENSER WATER SUPPLY           | SQ    | FT. SQUARE FOOT                |
| AW                                   | ACID WASTE                       | STD   | STANDARD                       |
| DDC                                  | DIRECT DIGITAL CONTROL           | ER    | EMERGENCY WATER RETURN         |
| DIA                                  | DIAMETER                         | TEMP. | TEMPERATURE                    |
| DN.                                  | DOWN                             | TP    | TRAP PRIMER                    |
| EA                                   | EXHAUST AIR                      | TSP   | TOTAL STATIC PRESSURE          |
| EAT                                  | ENTERING AIR TEMPERATURE         | TT    | TOP THROAT                     |
| CA                                   | COMPRESSED AIR                   | TYP.  | TYPICAL                        |
| DHW                                  | DOMESTIC HOT WATER               | ES    | EMERGENCY WATER SUPPLY         |
| EVAP                                 | EVAPORATOR                       | VTR   | VENT THRU ROOF                 |
| DCW                                  | DOMESTIC COLD WATER              | W     | WIDTH, WEST, WATER             |
| EWT                                  | ENTERING WATER TEMPERATURE       | W/    | WITH                           |
| FA                                   | FREE AREA IN SQUARE FEET         | W/O   | WITHOUT                        |
| FC                                   | FAIL CLOSED; FLEXIBLE CONNECTION | WB    | WET BULB                       |
| DHWR                                 | DOMESTIC HOT WATER RETURN        | WC    | WATER CLOSET                   |
| FLX                                  | FLEXIBLE CONNECTION              | WMS   | WIRE MESH SCREEN               |
| FO                                   | FAIL OPEN                        | LDB   | LEAVING DRY BULB TEMPERATURE   |
| FPM                                  | FEET PER MINUTE                  | LRA   | LOCK ROTOR AMPS                |
| FPS                                  | FEET PER SECOND                  | LWB   | LEAVING WET BULB TEMPERATURE   |
| GAL.                                 | GALLON                           | LWT   | LEAVING WATER TEMPERATURE      |
| GALV                                 | GALVANIZED                       | MER   | MECHANICAL EQUIPMENT ROOM      |
| DIR                                  | DEIONIZED WATER RETURN           | NC    | NORMALLY CLOSED                |
| GPH                                  | GALLON PER HOUR                  | NO    | NOT IN CONTRACT                |
| HB                                   | HOSE BIB                         | NO    | NORMALLY OPEN                  |
| HP                                   | HORSE POWER                      | NTS   | NOT TO SCALE                   |
| HVAC                                 | HEATING VENTILATION AND A/C      | OA    | OUTSIDE AIR                    |
| DIS                                  | DEIONIZED WATER SUPPLY           | OPBD  | OPPOSED BLADE DAMPER           |
| IN                                   | INCHES                           | OZ    | OUNCE                          |
| IN H2O                               | INCHES OF WATER                  | PCWS  | PROCESS COOLING WATER SUPPLY   |
| IN W.G.                              | INCHES OF WATER GAUGE            | PCWR  | PROCESS COOLING WATER RETURN   |
| K.W.                                 | KILOWATTS                        | FW    | FILTERED WATER                 |
| HE                                   | HELIUM                           | PH    | PHASE                          |
| LA                                   | LABORATORY COMPRESSED AIR        | VAC   | VACUUM                         |
| N                                    | NITROGEN                         | TP    | TRAP PRIMER                    |
| NG                                   | NATURAL GAS                      | V     | SANITARY VENT                  |
| OX                                   | OXYGEN                           | W     | SANITARY WASTE                 |
|                                      |                                  | THW   | TEMPERED HOT WATER             |
|                                      |                                  | THWR  | TEMPERED HOT WATER RETURN      |

**GAS OUTLET LEGEND**

|      |                                  |
|------|----------------------------------|
| (AR) | ARGON OUTLET                     |
| (CA) | COMPRESSED AIR OUTLET            |
| (HE) | HELIUM OUTLET                    |
| (LA) | LABORATORY COMPRESSED AIR OUTLET |
| (N)  | NITROGEN OUTLET                  |
| (NG) | NATURAL GAS OUTLET               |
| (O)  | OXYGEN OUTLET                    |

| FLOW STREAM | NAME                      | COMPLIANCE    | SIZE RANGE    | SECTION | PIPING MATERIAL |
|-------------|---------------------------|---------------|---------------|---------|-----------------|
| AW          | ACID DRAIN                | B31.3         | 1" - 4"       | 15090   | CC01            |
| COND        | CONDENSATE DRAIN          | LOCAL CODE    | 1/2" - 6"     | 15090   | PC05            |
|             |                           |               | 2-1/2" & LESS | 15080   | CT01            |
|             |                           |               | 2-1/2" & LESS | 15090   | PC05            |
| DCW         | DOMESTIC CITY WATER       | PLUM CODE     | 3" & LESS     | 15080   | CT01            |
|             |                           |               | 3" & LESS     | 15080   | CT01            |
| DHW         | DOMESTIC HOT WATER        | PLUM CODE     | 3" & LESS     | 15080   | CT01            |
|             |                           |               | 3" & LESS     | 15094   | PP01            |
| DIS/R       | DI WATER SUPPLY/RETURN    | B31.3         | 1/2" - 12"    | 15073   | ST04            |
|             |                           |               | 1/2" - 12"    | 15073   | ST04            |
| AV          | ACID VENT                 | B31.3         | 1/2" - 8"     | 15070   | PC05            |
| F           | FIRE PROTECTION WATER     | NFPA 13 FM    | 2-1/2" & LESS | 13390   | NFPA 13         |
| NG          | NATURAL GAS               | NFPA 54/B31.3 | 1" - 12"      | 15061   | CS02            |
| NPW         | NON-POTABLE WATER         | B31.3         | 3" & LESS     | 15080   | CT01            |
| THW/R       | TEMPERED HOT WATER/RETURN | B31.3         | 3" & LESS     | 15080   | CT01            |
| V           | SANITARY VENT             | PLUM CODE     | 1 1/2" TO 6"  | 15066   | CI01            |
| W           | SANITARY WASTE SYSTEM     | PLUM CODE     | 1 1/2" - 6"   | 15066   | CI01            |
|             |                           |               | 1 1/2" - 6"   | 15080   | CT01            |

**GENERAL NOTES CONT.:**

- H. MAINTAIN INTEGRITY OF FIRE RATED PARTITIONS BY PROVIDING FIRE BARRIERS AT ALL OPENINGS, GAPS AND VOIDS, SEAL LARGE OPENINGS USING MATERIALS CONSISTENT WITH WALL CONSTRUCTION. SEAL GAPS AND JOINTS BETWEEN CONSTRUCTION MATERIALS USING A UL APPROVED FIRE RESISTANT SEALER/FILLER.
- J. ALL WORK METHODS OF CONSTRUCTION ARE TO COMPLY WITH ALL FEDERAL, STATE, REGIONAL AND LOCAL BUILDING REQUIREMENTS.
- K. ALL MATERIALS AND SYSTEMS ARE TO BE CONSIDERED NEW UNLESS OTHERWISE NOTED.
- L. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO PROVIDE A COMPLETE PLUMBING SYSTEM FOR THE PROPOSED PROJECT. THE SYSTEMS PROVIDED SHALL CONFORM TO THE DETAILS STATED IN THE SPECIFICATIONS AND SHOWN ON THE DRAWINGS. ITEMS OR WORK NOT SHOWN OR SPECIFIED, BUT REQUIRED FOR A COMPLETE PLUMBING SYSTEM, SHALL BE PROVIDED AND SHALL CONFORM TO ACCEPTED TRADE PRACTICES, LOCAL CODES, AND GOVERNING AUTHORITIES.
- M. THE DRAWINGS AND SPECIFICATIONS ARE PRESENTED TO DEFINE SPECIFIC SYSTEM REQUIREMENTS AND SERVE TO EXPAND ON THE PRIMARY CONTRACT REQUIREMENTS OF PROVIDING COMPLETE SYSTEMS. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE ONLY THE GENERAL ARRANGEMENT OF THE ITEMS COMPRISING THE SEVERAL SYSTEMS INCLUDED IN THE PLUMBING WORK.
- N. DO NOT SCALE DRAWINGS. BECAUSE OF THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE OFFSETS, FITTINGS, VALVES OR SIMILAR ITEMS WHICH MAY BE REQUIRED TO MAKE A COMPLETE OPERATING SYSTEM. CAREFULLY INVESTIGATE CONDITIONS AFFECTING WORK. INSTALL WORK IN SUCH A MANNER THE INTERFERENCES BETWEEN PIPING, CONDUIT, DUCTS, EQUIPMENT, ARCHITECTURAL AND STRUCTURAL FEATURES ARE AVOIDED. PROVIDE ITEMS THAT MAY BE REQUIRED TO MEET THE CONDITIONS AT THE BUILDING, WITHOUT ADDITIONAL COSTS TO THE OWNER.
- O. CONTRACTORS SHALL HAVE SUFFICIENT EXPERTISE (MINIMUM OF 5 YEARS) IN THE TYPE OF CONSTRUCTION TO REALIZE THE EXTENT OF THE WORK REQUIRED. THEREFORE, IT SHOULD BE OBVIOUS TO ANY PRUDENT FIRM WITH EXPERIENCE IN THIS FIELD THAT THESE DOCUMENTS MAY NOT EXPLICITLY DISCLOSE FINAL DETAILS. HOWEVER, CONTRACTORS SHALL HAVE THE EXPERTISE NECESSARY TO INCLUDE NECESSARY APPOINTMENTS.
- P. PROTECT FLOORING FROM DAMAGE DURING THE CONSTRUCTION PERIOD. PROVIDE PLYWOOD OR SIMILAR MATERIAL UNDER EQUIPMENT OR MATERIALS STORED ON FLOORS, AND ANY AREAS WHERE CONSTRUCTION MAY DAMAGE THE FLOOR SURFACES. FLOOR SURFACES (INCLUDING SEALER) DAMAGED DURING THE CONSTRUCTION SHALL BE REPLACED AT THE COST OF THE CONTRACTOR AT FAULT.
- Q. ALL SANITARY PIPING 3 INCHES AND LARGER SHALL BE INSTALLED AT A SLOPE OF 1/8" PER FOOT, WHILE SANITARY AND STORM PIPING 2 1/2 INCHES AND SMALLER SHALL BE INSTALLED AT A SLOPE OF 1/4" PER FOOT IN DIRECTION OF FLOW. THE HORIZONTAL VENT PIPING SHALL BE INSTALLED WITH A SLOPE TO DRIP BACK TO THE SOIL OR WASTE PIPING.
- R. PROVIDE SHUT-OFF VALVES AT EACH PLUMBING FIXTURE AND EQUIPMENT REQUIRING CONNECTIONS REGARDLESS OF WHETHER SHOWN ON DRAWINGS. PROVIDE SHUT-OFF VALVES ON EACH BRANCH LINE TAKE OFF FROM RISERS AND AT BASE OF EACH RISER.
- S. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR SEALING AND OR FIRE STOPPING ALL PENETRATIONS PERFORMED WITHIN THE SCOPE OF THEIR WORK. PENETRATION PATCHING, SEALING, AND FIRESTOPPING REQUIREMENTS INCLUDING FINISHES SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
- T. INSTALL PIPING SO THAT VALVES ARE ACCESSIBLE. VALVE STEMS SHALL BE VERTICAL, POINTING UP. ADJUST VALVES FOR SMOOTH AND EASY OPERATION.
- U. CONTRACTOR TO COORDINATE ALL WORK WITH WORK OF OTHER TRADES SHOWN ON OTHER DRAWINGS. ANY WORK INSTALLED WITHOUT SUFFICIENT COORDINATION BY THE CONTRACTOR SHALL BE REMOVED BY THE CONTRACTOR WITH NO ADDITIONAL COSTS TO THE OWNER.
- V. CONTRACTOR TO PROVIDE APPROVED FIRESAFING AT ALL FLOOR AND WALL PENETRATIONS.
- W. NO PIPING SHALL BE LOCATED IN ANY ELECTRICAL ROOMS, CLOSETS OR TELECOMMUNICATION ROOMS UNLESS THOSE PIPES SERVE ONLY THAT SPACE AND ARE INDICATED ON DRAWINGS.
- X. ALL VALVES AND EQUIPMENT IDENTIFICATION SHALL BE IN ACCORDANCE WITH OWNER'S IDENTIFICATION SYSTEM. CONTRACTORS ARE RESPONSIBLE FOR ANY REQUIRED CROSS REFERENCE BETWEEN THESE DRAWINGS AND SPECIFICATIONS AND OTHER DISCIPLINES.
- Y. MEANS OF ACCESS SHALL BE PROVIDED TO CONCEALED TRAPS, VALVES, CLEANOUTS, DRAIN POINTS, SHOCK ARRESTORS OR SIMILAR ITEMS. CONTRACTORS SHALL COORDINATE THE LOCATIONS AND QUANTITIES OF ALL ACCESS PANELS DURING BIDDING PHASE. ACCESS PANELS SHALL BE FURNISHED UNDER ANOTHER DIVISION.
- Z. ALL CONNECTIONS TO SANITARY SOIL AND WASTE STACKS SHALL BE MADE WITH COMBINATION WYE AND 1/8" BENDS.
- AA. MAXIMUM FLOW RATES IN HOT AND COLD WATER SUPPLY PIPE SHALL NOT EXCEED 5 FEET PER SECOND.
- BB. FOLLOW THE REQUIREMENTS OF THE LATEST EDITION OF THE INTERNATIONAL PLUMBING CODE, LOCAL CODES, AND OTHER GOVERNING AUTHORITIES.
- CC. WHERE DOMESTIC HOT AND COLD WATER PIPING DROPS INTO A PIPE CHASE, THE SIZE SHOWN FOR THE DROPS SHALL CONTINUE TO THE LAST FIXTURE.
- DD. ALL PIPING SHALL GRADE TO LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND AT ALL LOW POINTS.
- EE. PROVIDE CLEANOUTS IN SANITARY PIPING SYSTEMS AT ENDS OF RUNS, AT CHANGES IN DIRECTION AT BASE OF STACKS AND AT 50 FOOT INTERVALS IN HORIZONTAL PIPING AND ELSEWHERE AS INDICATED.
- FF. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MEMORY STOPS.

**IDC ARCHITECTS**  
 200 Corporate Center Drive  
 Suite 200  
 Moon Township, PA 15108-3186  
 www.idcarchitects.com

IDC PROJECT NO: 364972      CLIENT PROJECT NO: \_\_\_\_\_

DESIGNED: \_\_\_\_\_      REVIEWED: \_\_\_\_\_

APPROVED: \_\_\_\_\_

NO. 08469  
 MECHANICAL  
 LICENSED PROFESSIONAL ENGINEER

- GENERAL NOTES:**
- A. THIS IS A STANDARD/LEGEND SHEET. THEREFORE, NOT ALL INFORMATION MAY BE APPLICABLE TO ALL OR SOME CONSTRUCTION PACKAGES.
- B. PIPE SIZE SHOWN ON CONNECTION SCHEDULES ARE INDIVIDUAL FIXTURE REQUIREMENTS. SIZE BRANCH WASTE AND VENT PIPING ON ACCUMULATED FIXTURE WEIGHTS PER APPLICABLE PLUMBING CODE.
- C. PLUMBING DRAWINGS ARE GENERALLY DIAGRAMMATIC. VERIFY FIXTURE LOCATIONS AND MOUNTING HEIGHTS WITH ARCHITECTURAL DRAWINGS. VERIFY ROUGH-IN REQUIREMENTS PRIOR TO INSTALLING ANY FIXTURE OR EQUIPMENT SUPPLIED BY OWNER.
- D. FLOOR DRAINS, FLOOR SINKS AND HUB DRAINS SHALL BE PRIMED.
- E. INSTALL ALL PIPING IN EXTERIOR WALLS ON INTERIOR SIDE OF BUILDING INSULATION.
- F. VERIFY ACCESSORY SIZE WITH MANUFACTURER TO ENSURE CONFORMANCE WITH AMERICANS WITH DISABILITIES ACT MOUNTING HEIGHTS.
- G. SUPPLY AND INSTALL CONTRACTORS SHALL VERIFY DIMENSIONS AND CONNECTION POINTS PRIOR TO FABRICATION.
- | NO. | REVISION OR ISSUE | DATE     | BY  |
|-----|-------------------|----------|-----|
| 1   | CONFORMED         | 01/23/08 | IDC |
| 0   | IFC               | 11/16/07 | IDC |

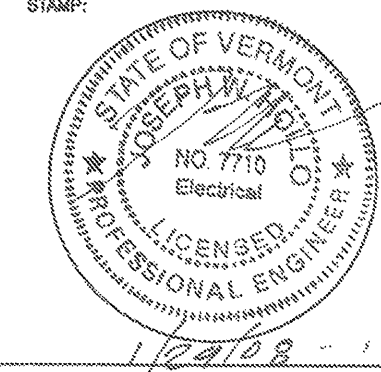
KEYPLAN

**The UNIVERSITY of VERMONT**  
 Delehanty Hall  
 Cosmogenic Nuclide Laboratory

TITLE: **PLUMBING LEGEND ABBREVIATIONS AND SYMBOLS**

DRAWING NUMBER: **P-0**



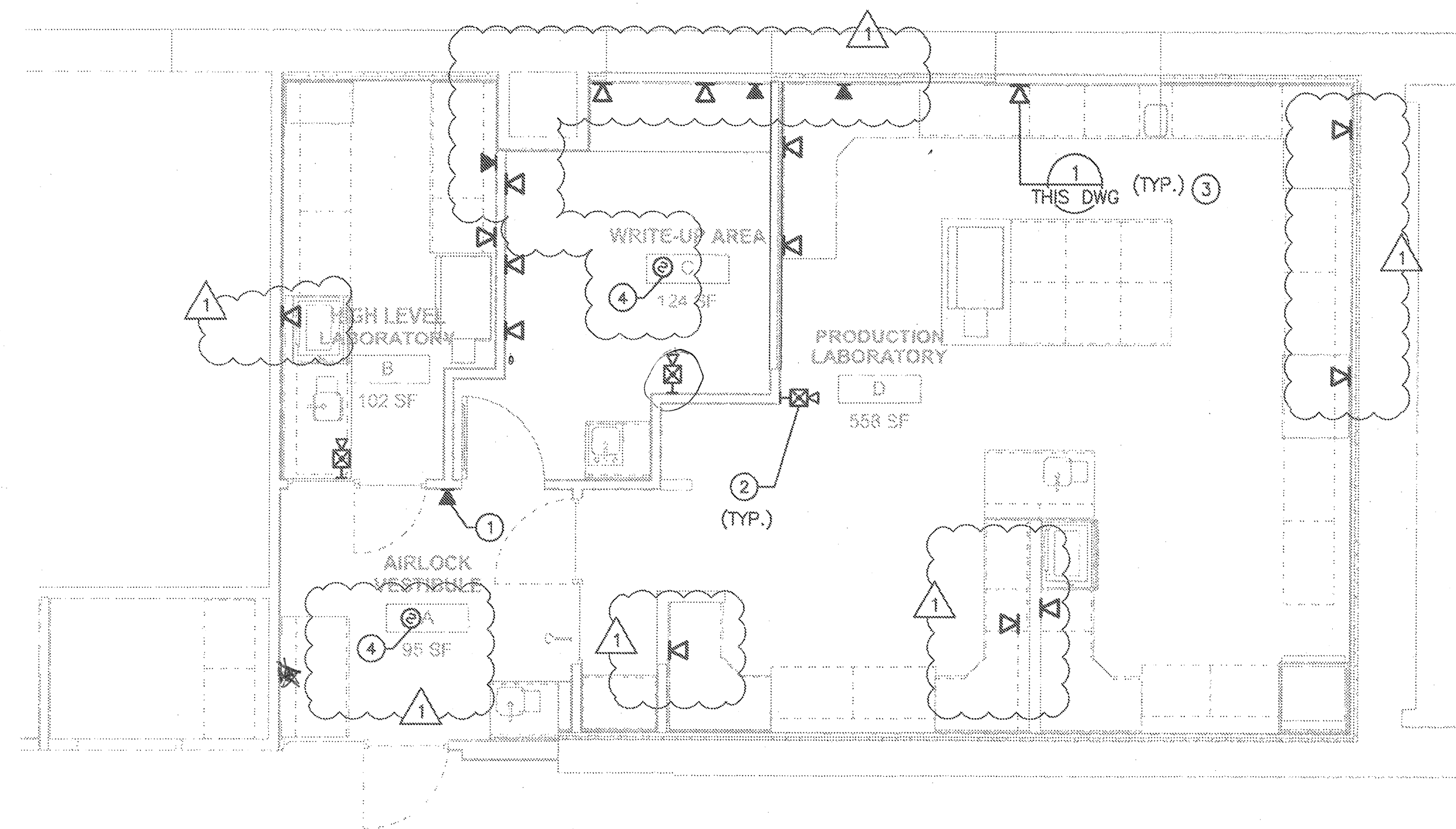


**GENERAL NOTES:**

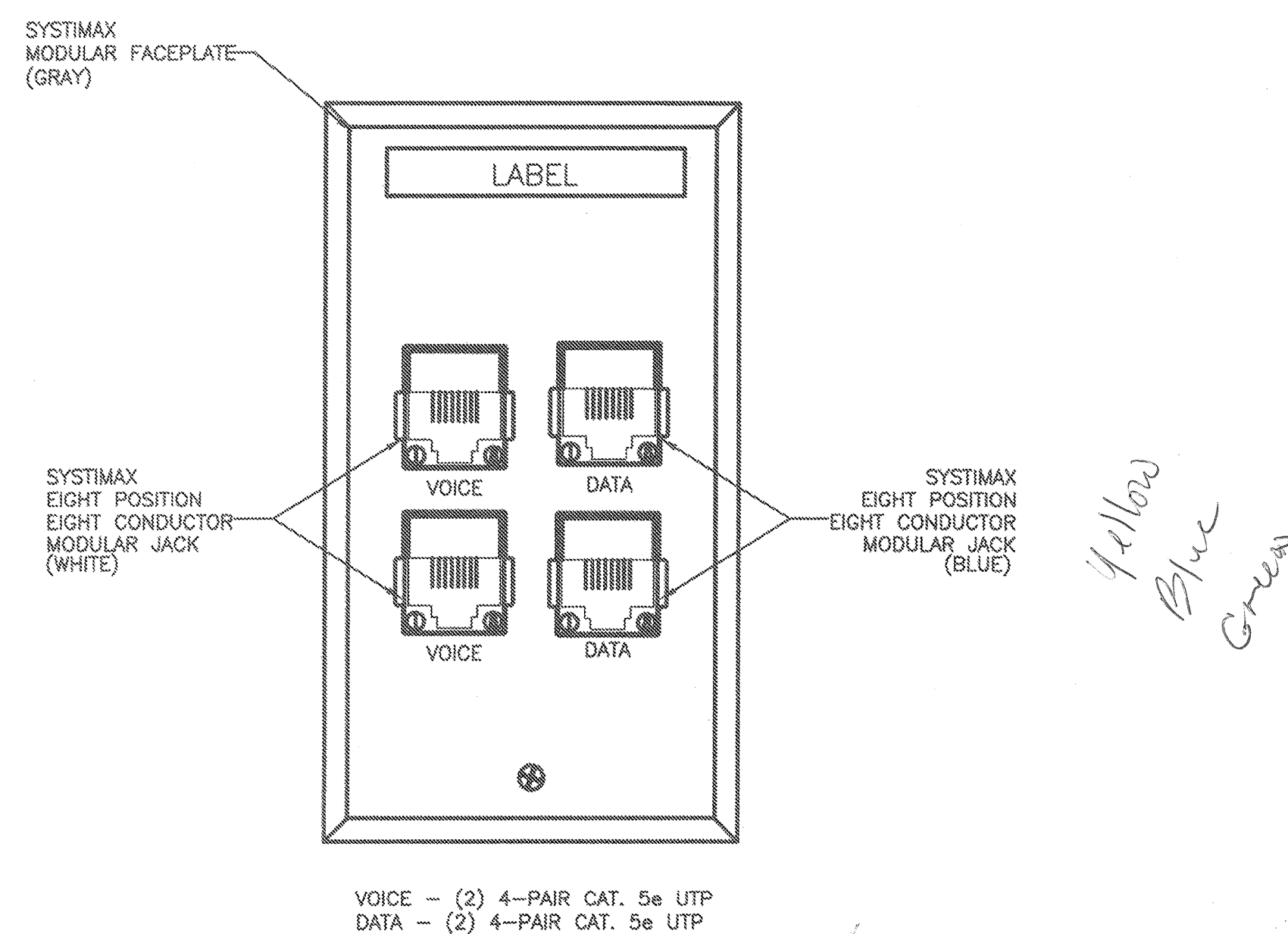
A. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DRAWING E-0.

**KEYED NOTES:**

1. TELEPHONE JACK.
2. PROVIDE 15 CANDELA FIRE ALARM HORN/STROBE. MATCH EXISTING UNIVERSITY TYPE. TIE INTO EXISTING BUILDING FIRE ALARM SYSTEM.
3. COORDINATE FINAL LOCATION OF DATA JACKS WITH LAB OWNER.
4. PROVIDE SMOKE DETECTOR. MATCH EXISTING UNIVERSITY TYPE AND TIE INTO BUILDING FIRE ALARM SYSTEM.



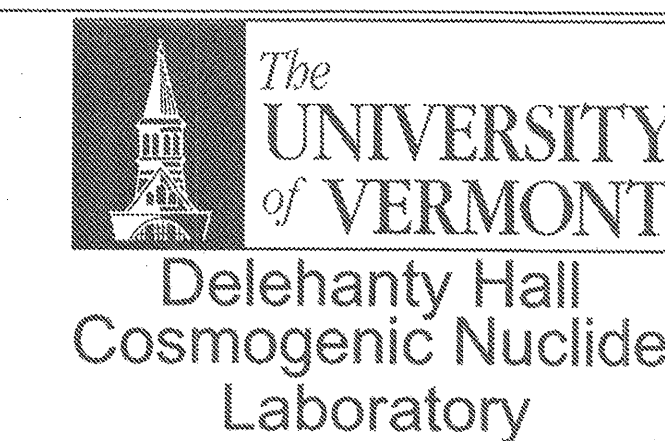
**1**  
 TELECOM/LIFE SAFETY  
 SCALE: 1/4"=1'-0"



**1**  
 DATA OUTLET FACEPLATE  
 NTS

| NO. | REVISION OR ISSUE | DATE     | BY   |
|-----|-------------------|----------|------|
| 1   | CONFORMED         | 01/23/08 | IDC  |
| 0   | IFC               | 11/16/07 | IDCA |

KEYPLAN



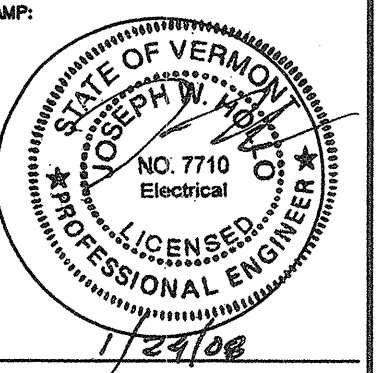
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DATE ISSUED: DRAWING SCALE:  
 ACAD FILE: T-1 EQUIPMENT CODE:

DRAWING NUMBER:

T-1



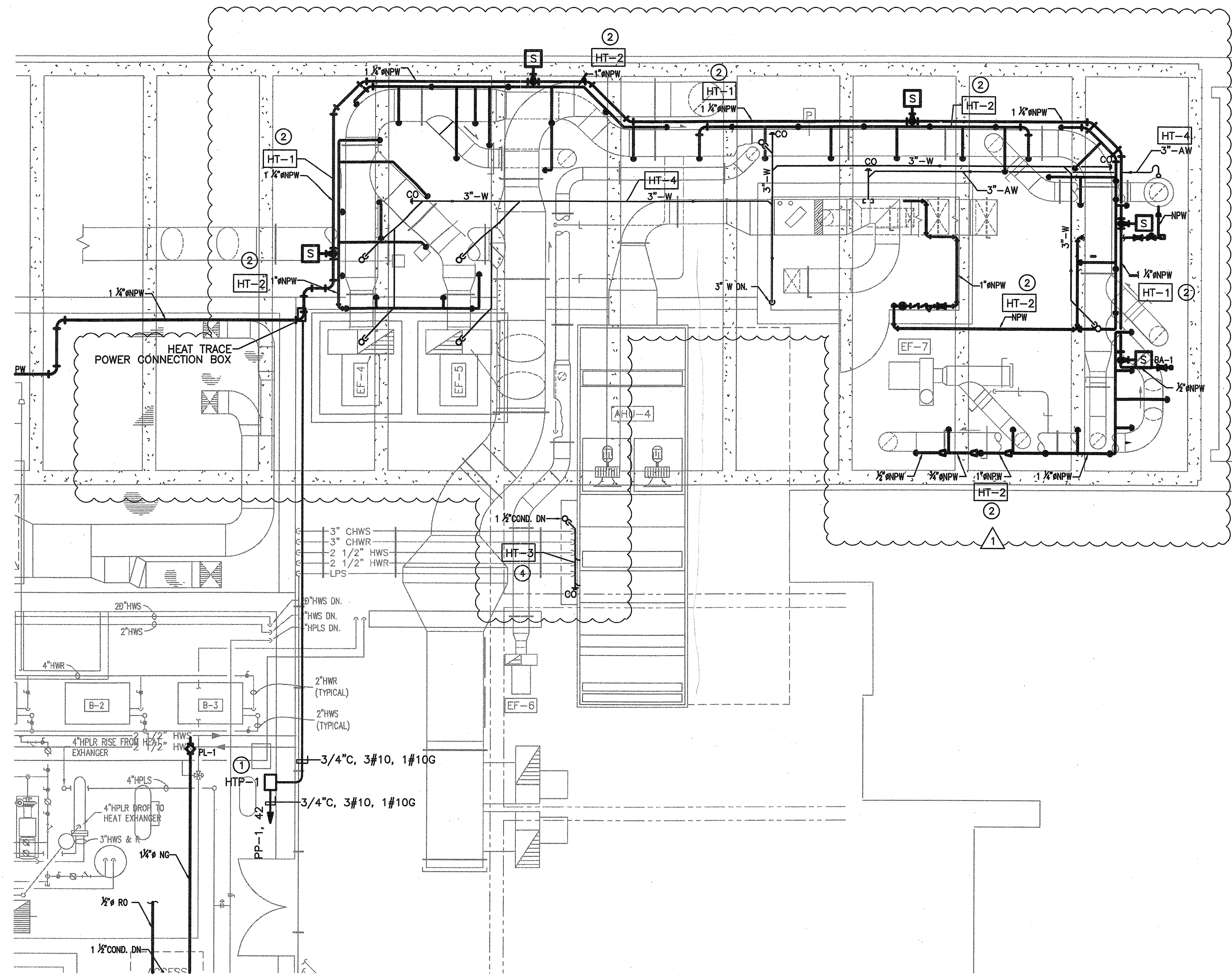


**GENERAL NOTES:**

- A. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DRAWING E-0.
- B. REFER TO SPECIFICATIONS 16011 AND 15488 FOR ADDITIONAL INFORMATION.

**KEYED NOTES:**

1. PROVIDE HEAT TRACE CONTROLLER. RAYCHEM DIGITRACE MODEL 910, 120V, 30A WITH AMBIENT SENSING THERMOSTAT SET AT 40°F OR APPROVED EQUAL. COORDINATE FINAL LOCATION WITH UNIVERSITY.
2. HEAT TRACE CIRCUIT HT-01 COVERS OUTSIDE 1.25" WASHDOWN HEADER NPW LINES. CIRCUIT HT-02 COVERS OUTSIDE 5 THRU 1.25" WASHDOWN ZONE NPW LINES. EXTEND HEAT TRACE CABLE TO BRANCHES OFF OF MAIN LINES. PROVIDE ADDITIONAL POWER CONNECTION BOXES AS REQUIRED FOR COMPLETE SYSTEM.
3. HEAT TRACE SCRUBBER WASH DOWN NOZZLE AND SCRUBBER. EXTEND HT-4 AS REQUIRED.
4. EXTEND CONDUIT AND CABLE AND HEAT TRACE CONDENSATE DRAIN. PROVIDE POWER CONNECTION BOX AS REQUIRED.



1 ROOF LEVEL - HEAT TRACE PLAN  
 SCALE: 1/4"=1'-0"

**HEAT TRACE SCHEDULE**

| HEAT TRACE MARK NO. | DESCRIPTION | PIPE SIZE/TYPE          | INSULATION SIZE/TYPE | HEAT TRACE CABLE TYPE ① | RUNS/PIPE | APPROX CABLE LENGTH (FT) ② | HEAT TRACE SOURCE/CIRCUIT | VOLTAGE | REMARKS                         |
|---------------------|-------------|-------------------------|----------------------|-------------------------|-----------|----------------------------|---------------------------|---------|---------------------------------|
| HT-1 (40°F)         | NPW LINE    | 1.25"/CU                | 1"/FG                | 3 WATT                  | 1         | 100                        | HTP-1/1                   | 120     | COMBINED WITH CIRCUIT HT-2,3,&4 |
| HT-2 (40°F)         | NPW LINE    | .5", .75", 1", 1.25"/CU | 1"/FG                | 3 WATT                  | 1         | 180                        | HTP-1/1                   | 120     | COMBINED WITH CIRCUIT HT-1,3,&4 |
| HT-3 (40°F)         | COND. LINE  | 1.5"/PVC                | 1"/FG                | 5 WATT                  | 1         | 10                         | HTP-1/1                   | 120     | COMBINED WITH CIRCUIT HT-1,2,&4 |
| HT-4 (40°F)         | W/AW LINES  | 3"/PVC                  | 1"/FG                | 8 WATT                  | 1         | 100                        | HTP-1/1                   | 120     | COMBINED WITH CIRCUIT HT-1,2,&3 |

KEYPLAN



**Delehanty Hall  
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 Laboratory**

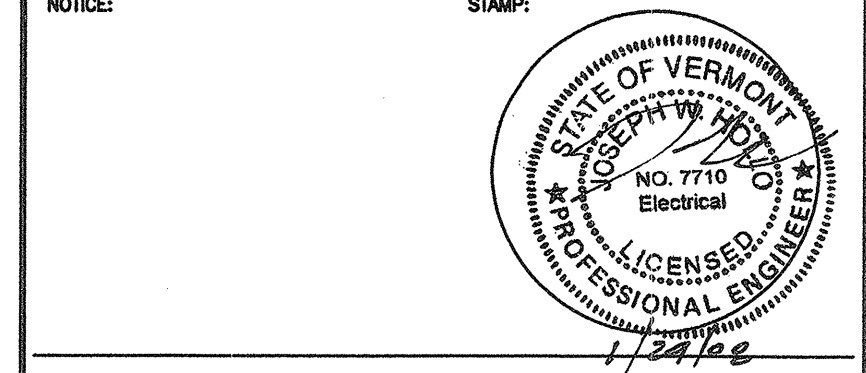
TITLE: ELECTRICAL  
 HEAT TRACE  
 PLAN

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACD FILE: E-4 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER:  
 E-4

*Handwritten:* 390





**GENERAL NOTES:**  
 A. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DRAWING E-0.

| PANEL SCHEDULE FORM |                          |                   |      |                        |     |             |                    |                   |      |   |         |                             |                    | PROJECT: 364972         |      |             |                   |     |                                      |    |                          |         |
|---------------------|--------------------------|-------------------|------|------------------------|-----|-------------|--------------------|-------------------|------|---|---------|-----------------------------|--------------------|-------------------------|------|-------------|-------------------|-----|--------------------------------------|----|--------------------------|---------|
|                     |                          |                   |      |                        |     |             |                    |                   |      |   |         |                             |                    | DATE: 10/22/2007        |      |             |                   |     |                                      |    |                          |         |
|                     |                          |                   |      |                        |     |             |                    |                   |      |   |         |                             |                    | DESIGNER: BRAJDIC       |      |             |                   |     |                                      |    |                          |         |
| Panel Number: PP-1  |                          |                   |      |                        |     |             |                    |                   |      |   |         |                             |                    | 3 Phase Voltage LL: 208 |      |             |                   |     |                                      |    |                          |         |
|                     |                          |                   |      |                        |     |             |                    |                   |      |   |         |                             |                    | 4 Wire Voltage LG: 120  |      |             |                   |     |                                      |    |                          |         |
| OC Devices: CKT BRK |                          |                   |      | Device Family: BOLT ON |     |             |                    | Mounting: SURFACE |      |   |         | Enclosure: NEMA 1           |                    |                         |      |             |                   |     |                                      |    |                          |         |
| Comments: 225 A MCB |                          |                   |      |                        |     |             |                    | Bus Rating: 225A  |      |   |         | Available Fault Duty: 1500A |                    |                         |      |             |                   |     |                                      |    |                          |         |
| ckt no.             | description/<br>location | * load criteria * |      |                        |     | total<br>VA | remarks            | device            |      | P |         | device                      |                    | P                       |      | total<br>VA | * load criteria * |     |                                      |    | description/<br>location | ckt no. |
|                     |                          | type              | ea   | qty                    | dem |             |                    | Amps              | P    | H | Amps    | P                           | type               | ea                      | qty  |             | dem               |     |                                      |    |                          |         |
| 1                   | HIGH LEVEL LAB OVEN      | RCPT              | 360  | 1                      | 0.7 | 252         |                    | 30                | 1    | A | 20      | 1                           |                    | 126                     | RCPT | 180         | 1                 | 0.7 | PROD. LAB EAST ULTRASOUND            | 2  |                          |         |
| 3                   | PROD. LAB WEST OVEN      | RCPT              | 360  | 1                      | 0.7 | 252         |                    | 30                | 1    | B | 20      | 1                           |                    | 126                     | RCPT | 180         | 1                 | 0.7 | PROD. LAB EAST CENTRIFUGE            | 4  |                          |         |
| 5                   | PROD. LAB EAST OVEN      | RCPT              | 360  | 1                      | 0.7 | 252         |                    | 30                | 1    | C | 20      | 1                           |                    | 882                     | RCPT | 180         | 7                 | 0.7 | PROD. LAB RECEPTS.                   | 6  |                          |         |
| 7                   | PROD. LAB WEST RECEPTS.  | RCPT              | 180  | 4                      | 0.7 | 504         |                    | 20                | 1    | A | 30      | 1                           | PANEL IN PENTHOUSE | 1260                    | MISC | 1800        | 1                 | 0.7 | HEAT TRACE PANEL HT-1                | 8  |                          |         |
| 9                   | WRITE UP AREA RECEPTS.   | RCPT              | 180  | 5                      | 0.7 | 630         |                    | 20                | 1    | B | 20      | 1                           |                    | 252                     | RCPT | 360         | 1                 | 0.7 | PROD. LAB EAST OVEN                  | 10 |                          |         |
| 11                  | WRITE UP AREA RECEPTS.   | RCPT              | 180  | 6                      | 0.7 | 756         |                    | 20                | 1    | C | 20      | 1                           |                    | 756                     | RCPT | 180         | 6                 | 0.7 | PROD. LAB E / AIRLOCK / HIGH LEV. LA | 12 |                          |         |
| 13                  | HIGH LEV. LAB GLOVE BOX  | RCPT              | 180  | 1                      | 0.7 | 126         |                    | 20                | 1    | A | 20      | 1                           |                    | 126                     | RCPT | 180         | 1                 | 0.7 | PROD. LAB NORTH CENTRIFUGE           | 14 |                          |         |
| 15                  | HIGH LEV. LAB ULTRASOUND | RCPT              | 180  | 1                      | 0.7 | 126         |                    | 20                | 1    | B | 20      | 1                           |                    | 252                     | MISC | 360         | 1                 | 0.7 | AHU-1 LIGHTS AND RECEPTS.            | 16 |                          |         |
| 17                  | HIGH LEV. LAB CENTRIFUGE | RCPT              | 180  | 1                      | 0.7 | 126         |                    | 20                | 1    | C | 20      | 1                           |                    | 126                     | MISC | 180         | 1                 | 0.7 | HUMIDIFIER H-1 (PENTHOUSE)           | 18 |                          |         |
| 19                  | SPARE                    |                   |      |                        |     | 0           |                    | 20                | 1    | A | 20      | 1                           |                    | 739.2                   | LGT  | 42          | 22                | 0.8 | AIR LOCK / PROD. LAB LIGHTING        | 20 |                          |         |
| 21                  | SPARE                    |                   |      |                        |     | 0           |                    | 20                | 1    | B | 20      | 1                           |                    | 403.2                   | LGT  | 42          | 12                | 0.8 | HIGH LEVEL LAB / WRITE-UP LIGHTING   | 22 |                          |         |
| 23                  | FUME HOOD #1 RECEPT.     | RCPT              | 1200 | 1                      | 0.7 | 840         | SHUNT TRIP BREAKER | 30                | 1    | C | 30      | 1                           | SHUNT TRIP BREAKER | 840                     | RCPT | 1200        | 1                 | 0.7 | FUME HOOD #3 RECEPT.                 | 24 |                          |         |
| 25                  |                          |                   |      |                        |     | 0           |                    |                   |      | A |         |                             |                    | 0                       |      |             |                   |     |                                      | 26 |                          |         |
| 27                  | FUME HOOD #1 RECEPT.     | RCPT              | 1200 | 1                      | 0.7 | 840         | SHUNT TRIP BREAKER | 30                | 1    | B | 30      | 1                           | SHUNT TRIP BREAKER | 840                     | RCPT | 1200        | 1                 | 0.7 | FUME HOOD #4 RECEPT.                 | 28 |                          |         |
| 29                  |                          |                   |      |                        |     | 0           |                    |                   |      | C |         |                             |                    | 0                       |      |             |                   |     |                                      | 30 |                          |         |
| 31                  | FUME HOOD #2 RECEPT.     | RCPT              | 1200 | 1                      | 0.7 | 840         | SHUNT TRIP BREAKER | 30                | 1    | A | 30      | 1                           | SHUNT TRIP BREAKER | 840                     | RCPT | 1200        | 1                 | 0.7 | FUME HOOD #4 RECEPT.                 | 32 |                          |         |
| 33                  |                          |                   |      |                        |     | 0           |                    |                   |      | B |         |                             |                    | 0                       |      |             |                   |     |                                      | 34 |                          |         |
| 35                  | FUME HOOD #2 RECEPT.     | RCPT              | 1200 | 1                      | 0.7 | 840         | SHUNT TRIP BREAKER | 30                | 1    | C | 30      | 1                           | SHUNT TRIP BREAKER | 840                     | RCPT | 1200        | 1                 | 0.7 | FUME HOOD #5 RECEPT.                 | 36 |                          |         |
| 37                  |                          |                   |      |                        |     | 0           |                    |                   |      | A |         |                             |                    | 0                       |      |             |                   |     |                                      | 38 |                          |         |
| 39                  | FUME HOOD #3 RECEPT.     | RCPT              | 1200 | 1                      | 0.7 | 840         | SHUNT TRIP BREAKER | 30                | 1    | B | 30      | 1                           | SHUNT TRIP BREAKER | 840                     | RCPT | 1200        | 1                 | 0.7 | FUME HOOD #5 RECEPT.                 | 40 |                          |         |
| 41                  |                          |                   |      |                        |     | 0           |                    |                   |      | C |         |                             |                    | 0                       |      |             |                   |     |                                      | 42 |                          |         |
| End Use Loads:      |                          | Phase A           | VA:  | 4813                   |     | Phase B     |                    | VA:               | 5401 |   | Phase C |                             | VA:                | 6258                    |      |             |                   |     |                                      |    |                          |         |
| Total Loads:        |                          | Demand KVA:       |      | 16.5                   |     |             |                    |                   |      |   |         |                             |                    |                         |      |             |                   |     |                                      |    |                          |         |
|                     |                          | Demand FLA:       |      | 45.8                   |     |             |                    |                   |      |   |         |                             |                    |                         |      |             |                   |     |                                      |    |                          |         |
| REMARKS: 10KA IER   |                          |                   |      |                        |     |             |                    |                   |      |   |         |                             |                    |                         |      |             |                   |     |                                      |    |                          |         |

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| 1   | CONFORMED         | 01/23/08 | IDC  |
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KEYPLAN

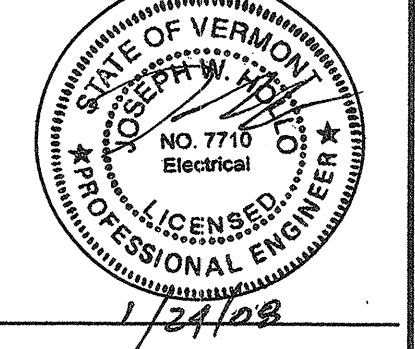
**The UNIVERSITY of VERMONT**  
 Delehanty Hall  
 Cosmogenic Nuclide  
 Laboratory

TITLE: ELECTRICAL PANEL SCHEDULE

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: E-3 EQUIPMENT CODE: \_\_\_\_\_  
 DRAWING NUMBER: E-3



|                 |                 |
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| DRAWN: _____    | REVIEWED: _____ |
| DESIGNED: _____ | APPROVED: _____ |
| NOTICE: _____   | STAMP: _____    |

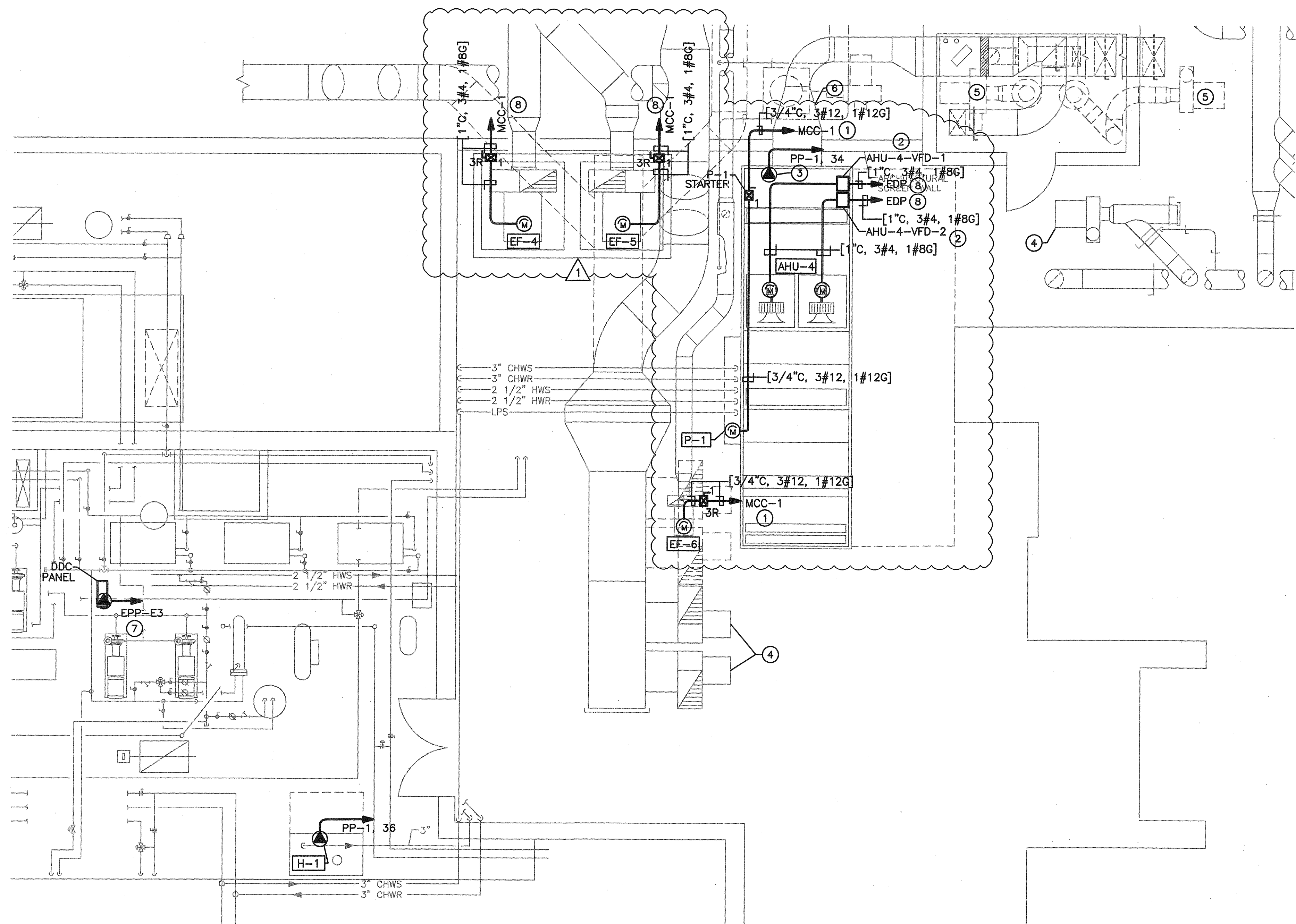


**GENERAL NOTES:**  
A. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DRAWING E-0.

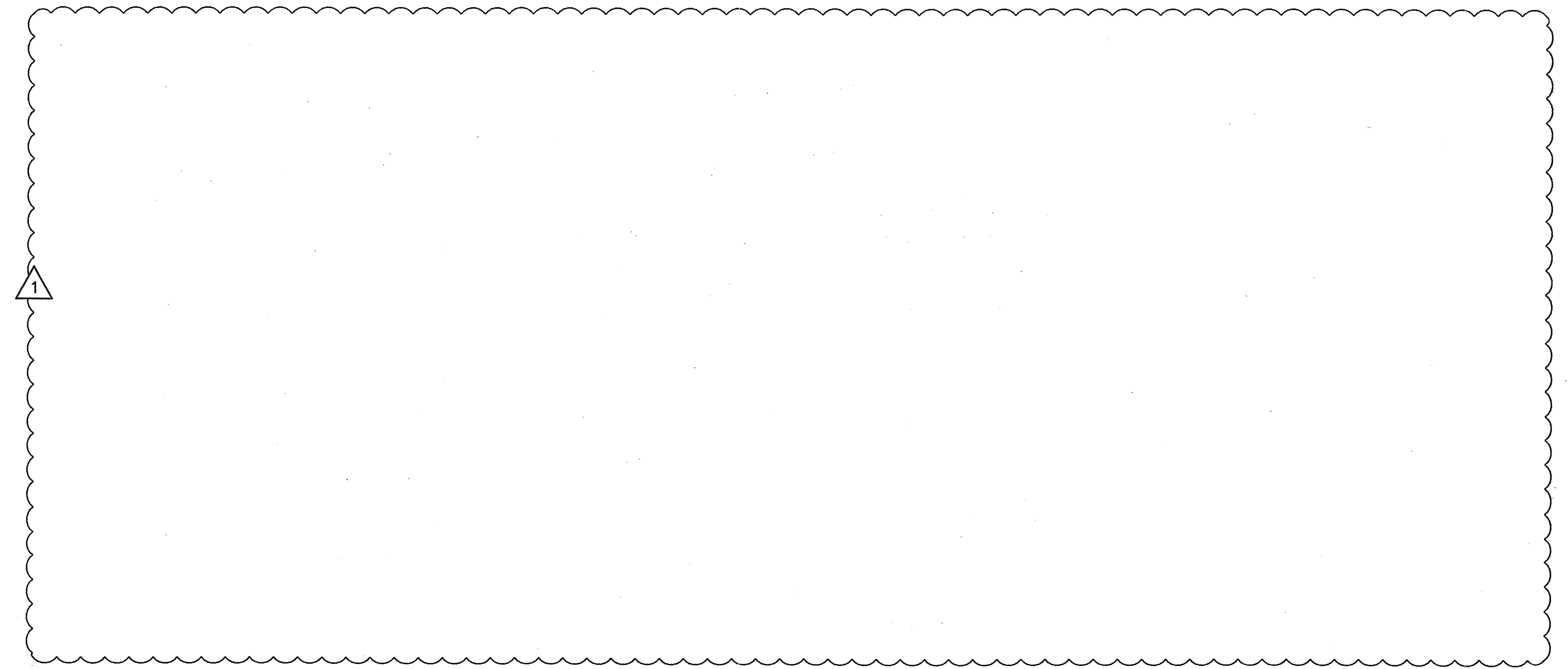
- KEYED NOTES:**
1. PROVIDE NEW 20A, 3-POLE CIRCUIT BREAKER IN PANEL INDICATED. MATCH EXISTING TYPE. COORDINATE WITH UNIVERSITY ON AVAILABLE SPACES. PANEL LOCATED IN PENTHOUSE.
  2. VFD SUPPLIED AS PART OF PACKAGED SYSTEM. COORDINATE LOCATION WITH MECHANICAL. VFD PRE-WIRED TO MOTOR.
  3. SINGLE POINT CONNECTION FOR AHU LIGHTS AND RECEPTACLES.
  4. EXISTING FAN TO BE RELOCATED TO THIS LOCATION. EXTEND EXISTING CIRCUITS AS REQUIRED TO NEW LOCATION. SEE MECHANICAL DRAWING M-2 FOR PRESENT LOCATION.
  5. EXISTING EXHAUST FANS TO BE REMOVED. DISCONNECT AND REMOVE CONDUIT AND CABLE BACK TO SOURCE PANEL. SEE MECHANICAL DRAWING M-2 FOR MORE INFORMATION.

- KEYED NOTES: (CONT'D)**
6. PROVIDE ADDRESSABLE DUCT DETECTOR ON DISCHARGE SIDE OF AHU-4 AND TIE INTO DDC SYSTEM. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR.
  7. DDC PANEL TO BE ON EMERGENCY POWER. ELECTRICAL CONTRACTOR TO ALLOCATE 20A, 120V CIRCUIT FROM PANEL E-3 IN ROOM 330. UPDATE PANEL SCHEDULE TO INDICATE NEW LOAD.
  8. PROVIDE NEW 70A, 3-POLE CIRCUIT BREAKER IN PANEL INDICATED. MATCH EXISTING TYPE. COORDINATE WITH UNIVERSITY ON AVAILABLE SPACES. PANEL LOCATED IN PENTHOUSE.

|     |                   |          |      |
|-----|-------------------|----------|------|
| 1   | CONFORMED         | 01/23/08 | IDC  |
| 0   | IFC               | 11/16/07 | IDCA |
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**1 ELECTRICAL ROOF PLAN**  
SCALE: 1/4"=1'-0"



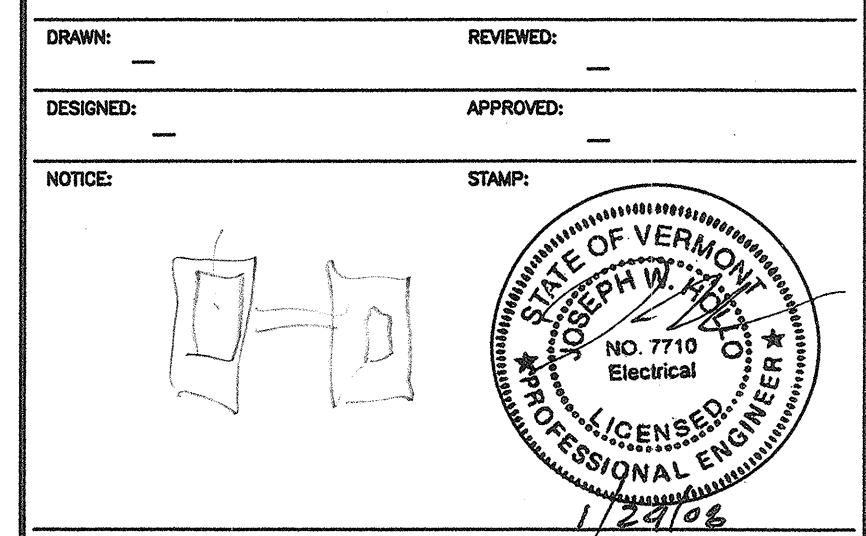
KEYPLAN

**Delehanty Hall  
Cosmogenic Nuclide  
Laboratory**

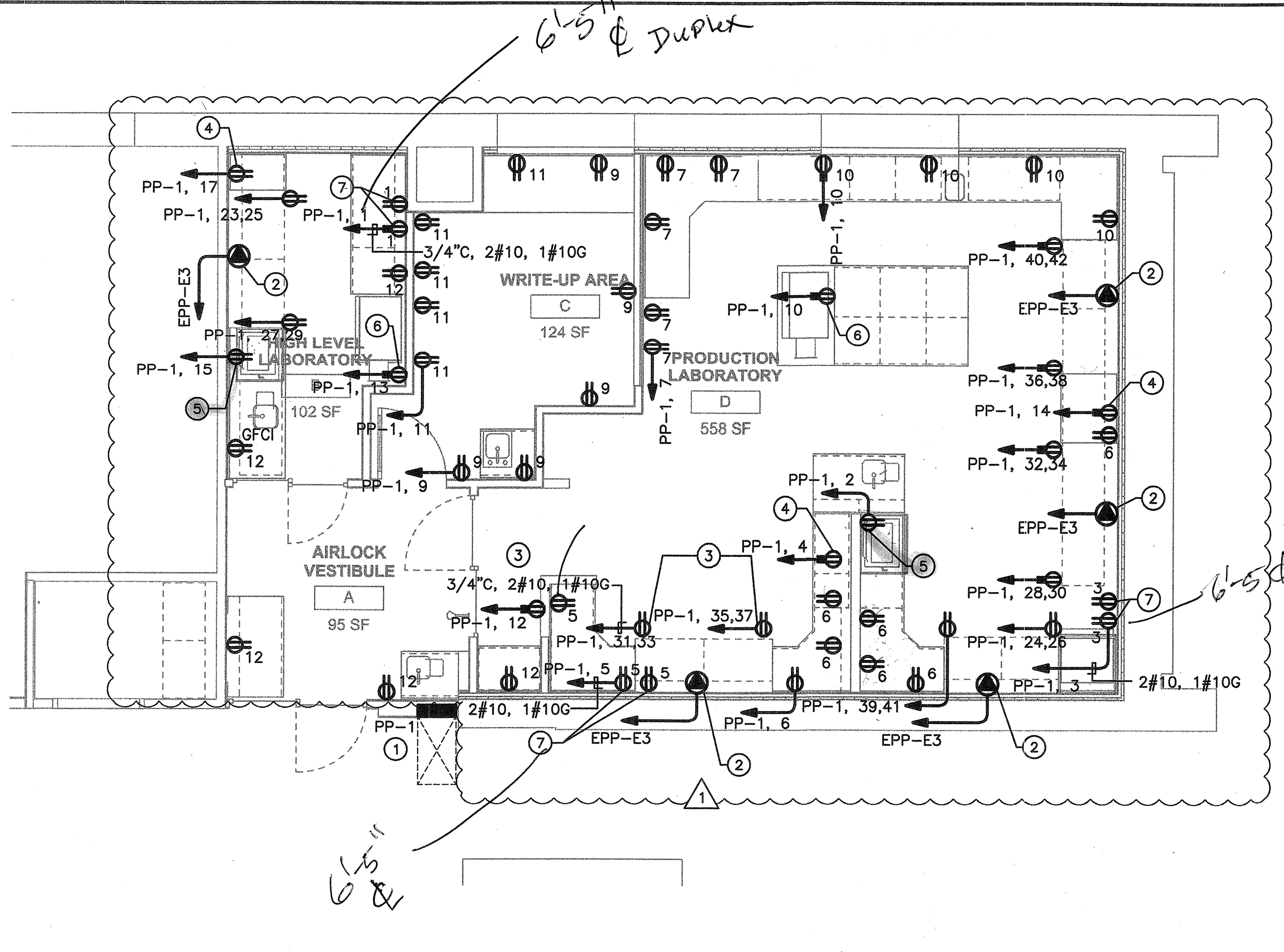
TITLE: **ELECTRICAL  
ROOF LEVEL  
POWER  
PLAN**

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
ACAD FILE: E-2 EQUIPMENT CODE: \_\_\_\_\_  
DRAWING NUMBER: **E-2**





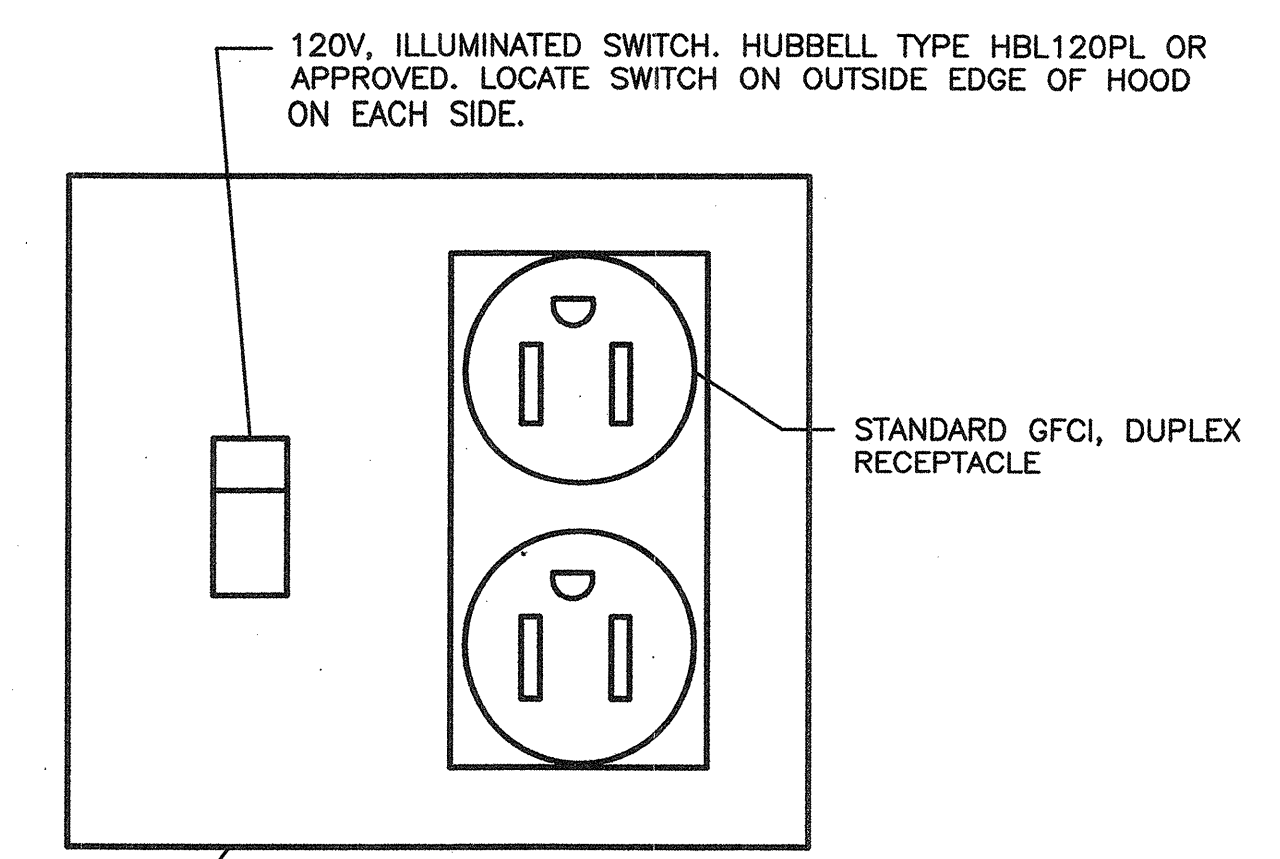
**GENERAL NOTES:**  
 A. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DRAWING E-0.



**1 POWER PLAN**  
 SCALE: 1/4"=1'-0"

**POWER KEYED NOTES:**

1. PROVIDE 208/120V, 225A PANELBOARD WITH (42) 1-POLE 20A BRANCH CIRCUIT BREAKERS. SQUARE-D TYPE NQOD OR APPROVED. PANEL TO BE FED FROM MAIN 208V DISTRIBUTION PANEL ON LEVEL 1. PROVIDE NEW 225A CIRCUIT BREAKER IN PANEL. MATCH EXISTING TYPE. ROUTE 2 1/2" CONDUIT WITH 4#4/0, 1#4G FROM MAIN PANEL TO NEW PP-1. COORDINATE FINAL LOCATION WITH DDC ALARM PANEL. SEE MECHANICAL DRAWINGS.
2. SINGLE POINT CONNECTION FOR FUME HOOD. EACH FUME HOOD TO BE ON IT'S OWN EMERGENCY POWER 20A, 120V CIRCUIT. ELECTRICAL CONTRACTOR TO ALLOCATE CIRCUITS IN PANEL E-3 LOCATED IN ROOM 330. UPDATE PANEL SCHEDULE TO INDICATE NEW LOADS.
3. PROVIDE INDIVIDUALLY SWITCHED DEDICATED DUPLEX RECEPTACLE. TYPICAL (2) PER FUME HOOD. RECEPTACLE TO BE GFCI TYPE. PROVIDE SHUNT TRIP CIRCUIT BREAKER IN PANEL PP-1 FOR FUME HOOD RECEPTACLES AND TIE INTO DDC SYSTEM FOR SHUTDOWN OF RECEPTACLES IN CASE OF FIRE. SEE DETAIL "A" THIS DRAWING FOR CONFIGURATION. CIRCUITS TO FUME HOOD RECEPTACLES TO BE 3/4"C, 2#10, 1#10G.
4. DEDICATE RECEPTACLE FOR CENTRIFUGE.
5. DEDICATED RECEPTACLE FOR ULTRASOUND. PROVIDE PROGRAMMABLE TIMER FOR RECEPTACLE. UPM #SE-11P OR APPROVED.
6. DEDICATED RECEPTACLE FOR GLOVE BOX.
7. DEDICATED RECEPTACLE FOR OVEN.



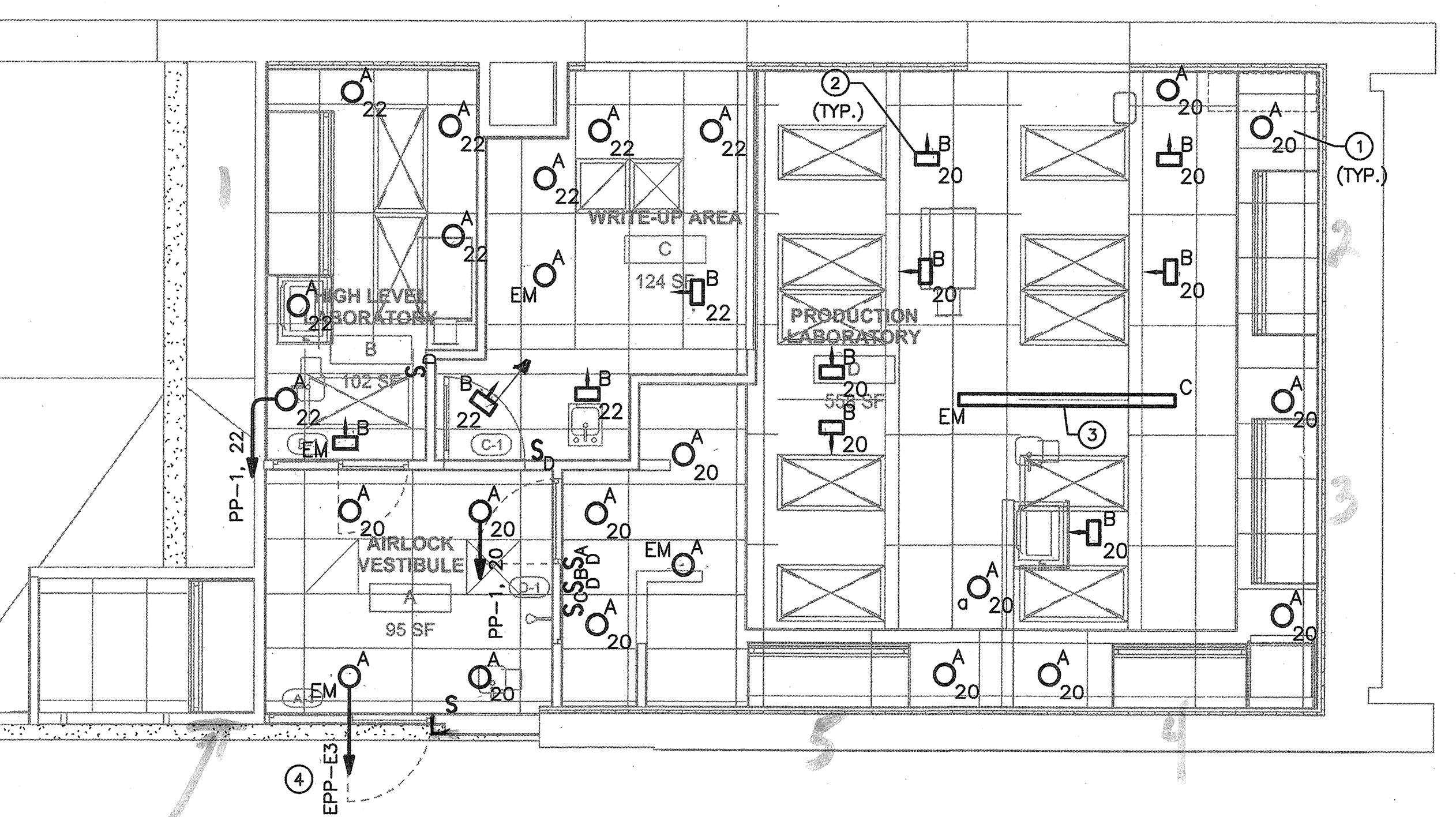
TOGGLE/DUPLEX COMBINATION FACEPLATE HUBBELL TYPE P18 OR APPROVED

NOTE: COORDINATE DEVICE COLORS WITH ARCHITECT.

**A FUME HOOD SWITCHED RECEPTACLE DETAIL**  
 SCALE: N.T.S.

**LIGHTING KEYED NOTES:**

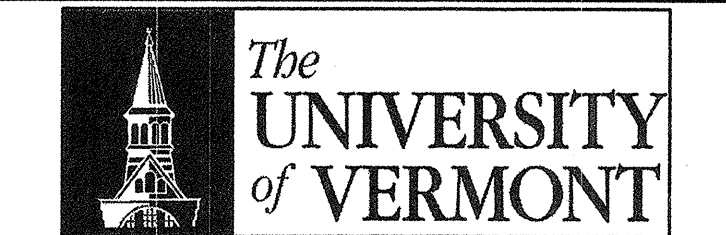
1. TYPE "A" FIXTURE: PROVIDE 120V, 8" OPEN REFLECTOR, RECESSED DOWNLIGHT WITH (1) 42W COMPACT FLUORESCENT LAMP. LITHONIA TYPE LP8F OR APPROVED.
2. TYPE "B" FIXTURE: PROVIDE 120V, PENDANT MOUNT, DIRECTIONAL DOWNLIGHT 39W METAL HALIDE LAMP. CAPRI LIGHTING TYPE SEGNO DUE OR APPROVED. MOUNT FIXTURE APPROX. 1'-0" BELOW CEILING.
3. TYPE "C" FIXTURE: PROVIDE 120V, INDIRECT FIXTURE, 9 1/2"Wx 4'-0"L WITH (2) 32W T8 LAMPS. LITE CONTROL VIDERE TYPE OR APPROVED. MOUNT FIXTURE 8'-0" AFF.
4. FIXTURES INDICATED WITH "EM" TO BE ON 20A, 120V EMERGENCY POWER CIRCUIT FROM PANEL E-3 IN ROOM 330. ONE CIRCUIT FOR ALL EMERGENCY FIXTURES IN LAB AREA. ELECTRICAL CONTRACTOR TO ALLOCATE CIRCUIT AND UPDATE PANEL SCHEDULE TO INDICATE NEW LOADS.



**2 LIGHTING PLAN**  
 SCALE: 1/4"=1'-0"

Control Tech

KEYPLAN



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 Laboratory

TITLE: ELECTRICAL  
 POWER &  
 LIGHTING  
 PLANS

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE:  
 ACAD FILE: E-1 EQUIPMENT CODE:

DRAWING NUMBER:  
 E-1

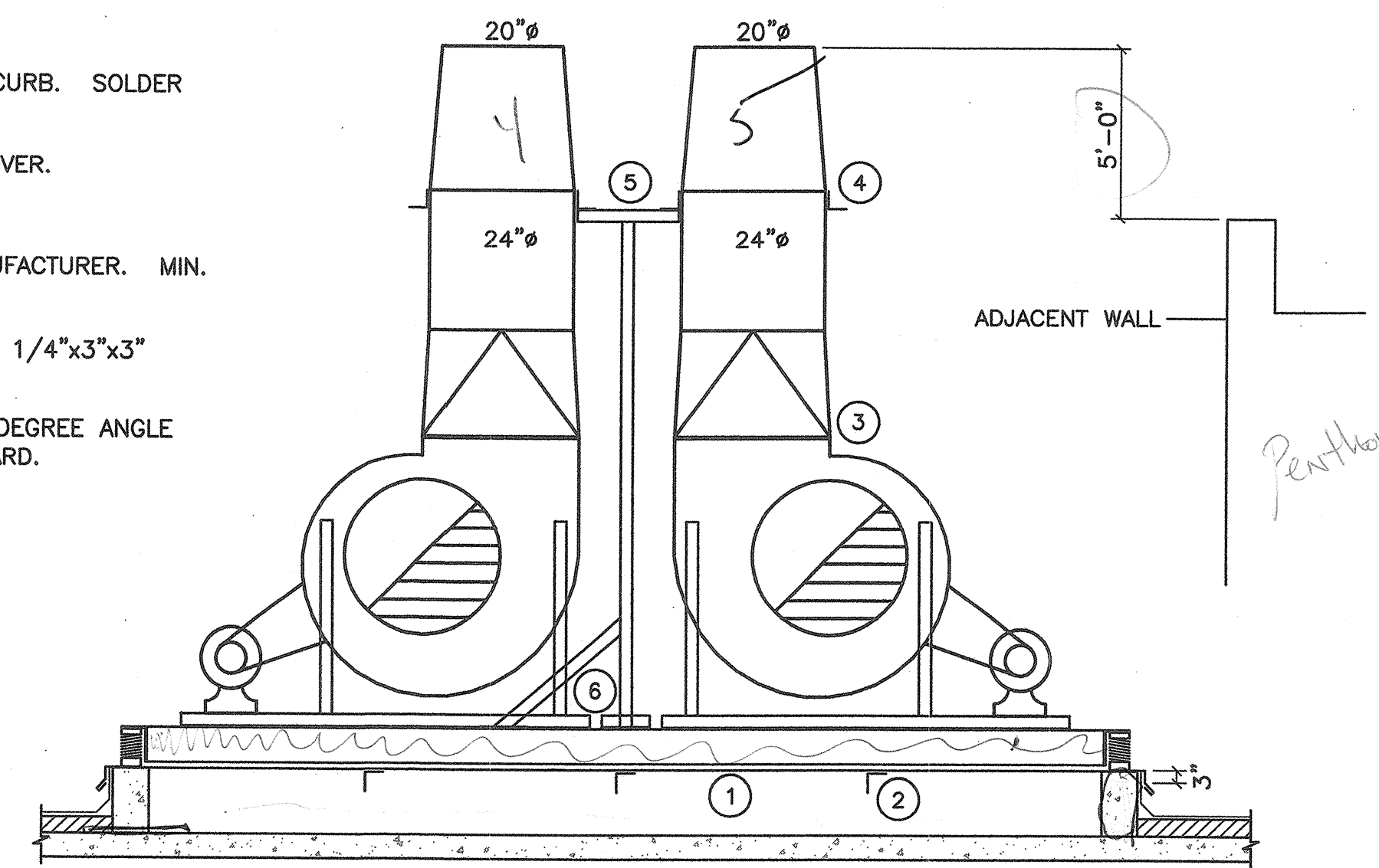






**KEYED NOTES:**

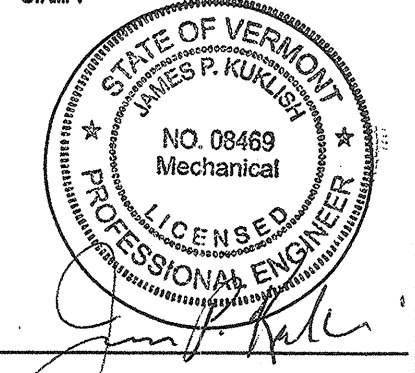
- 1 T304 SS COVER OVER LENGTH AND WIDTH OF CURB. SOLDER ALL SEAMS WATER TIGHT.
- 2 INTERNAL STIFFNERS AS REQ'D TO SUPPORT COVER.
- 3 BOLTED CONNECTION AT FAN.
- 4 ANGLE RING MOUNTED ON DUCT BY DUCT MANUFACTURER. MIN. 1/4"x2"x2".
- 5 SUPPORT STEEL BOLTED TO DUCT RINGS. MIN. 1/4"x3"x3" TUBE.
- 6 ANCHOR POST TO INERTIA BASE. PROVIDE 45 DEGREE ANGLE SUPPORT IN TWO DIRECTIONS; MIN. 24" OUTBOARD.



1  
-  
DETAIL -- EF-4, 5 MOUNTING  
1/2"=1'-0"

3600 # steel plus fans & stack

IDC PROJECT NO.: 364972      CLIENT PROJECT NO.:  
 DRAWN: \_\_\_\_\_      REVIEWED: \_\_\_\_\_  
 DESIGNED: \_\_\_\_\_      APPROVED: \_\_\_\_\_



GENERAL NOTES:  
 A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

| 1   | CONFORMED         | 01/23/08 | IDC  |
|-----|-------------------|----------|------|
| 0   | IFC               | 11/16/07 | IDCA |
| NO. | REVISION OR ISSUE | DATE     | BY   |

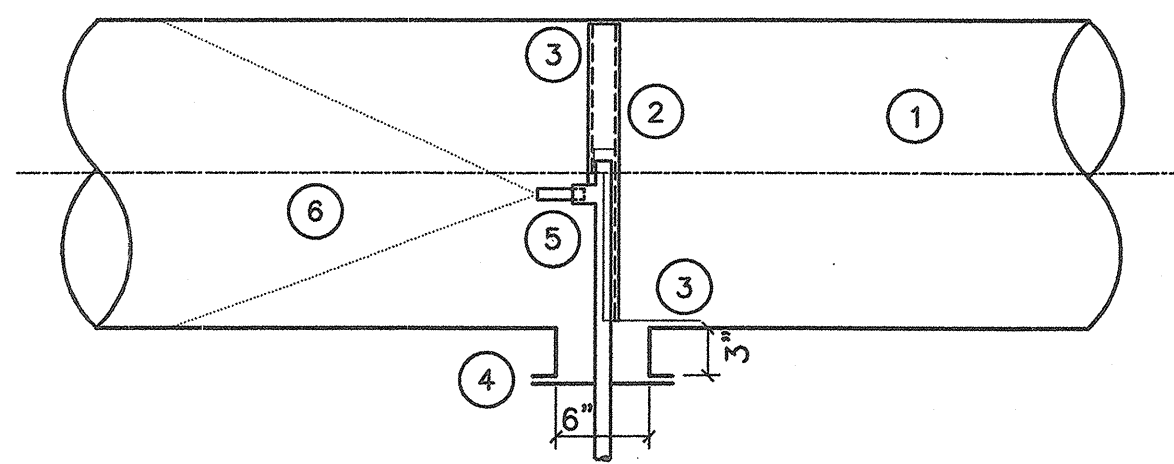
KEYPLAN

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TITLE: MECHANICAL DETAILS

DATE ISSUED: \_\_\_\_\_      DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: M-7      EQUIPMENT CODE: \_\_\_\_\_  
 DRAWING NUMBER:  
 M-7

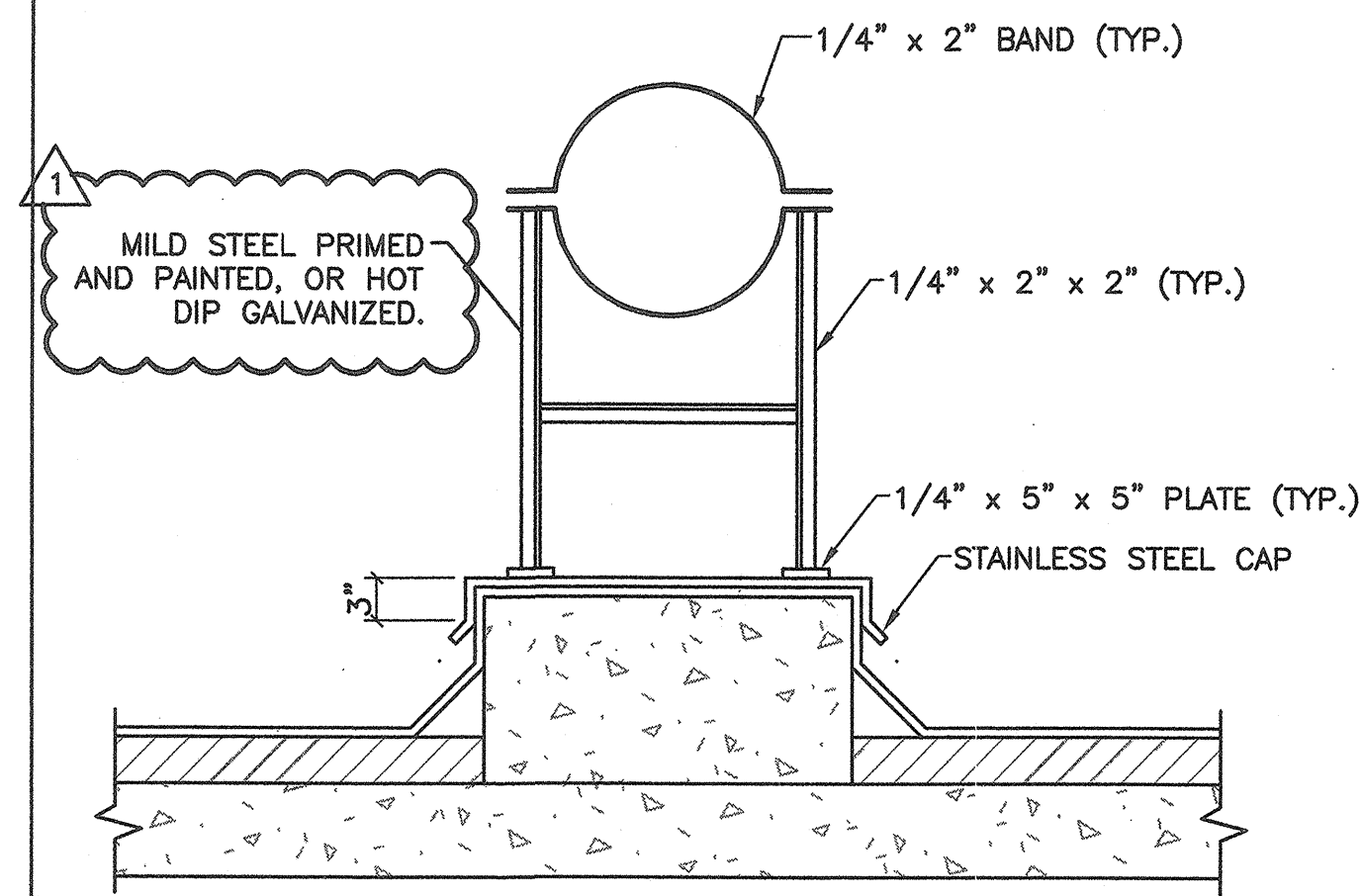




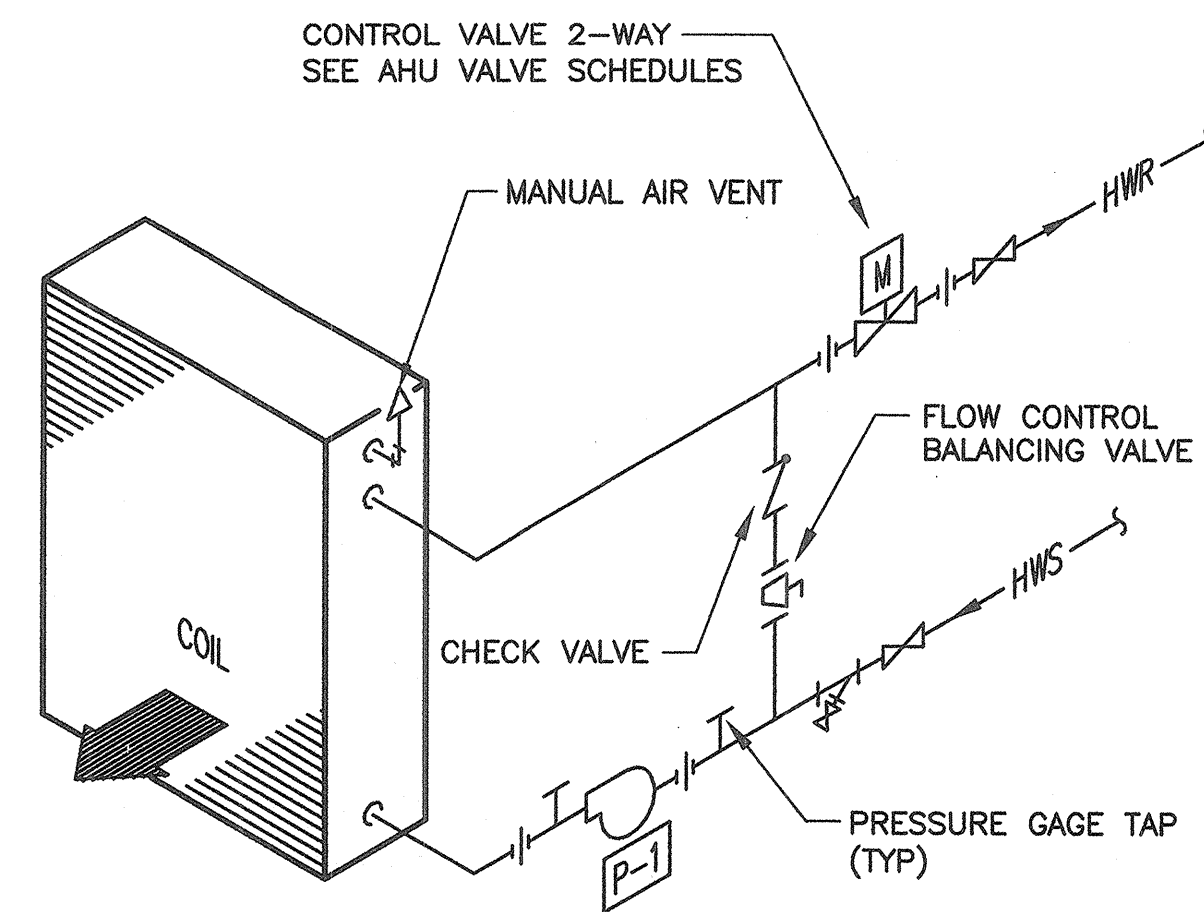
**KEYED NOTES:**

- 1 DUCT SIZE AS SHOWN ON PLANS.
- 2 1" STAINLESS STEEL TUBE MOUNTED IN DUCT BY DUCT MANUFACTURER. COAT ALL SURFACES SIMILAR TO DUCT.
- 3 ANCHOR TUBE TO DUCT WALL IN FACTORY.
- 4 BOLT FLANGE.
- 5 WASHDOWN NOZZLE; SEE PLUMBING PLANS.
- 6 SPRAY PROFILE OF NOZZLE.

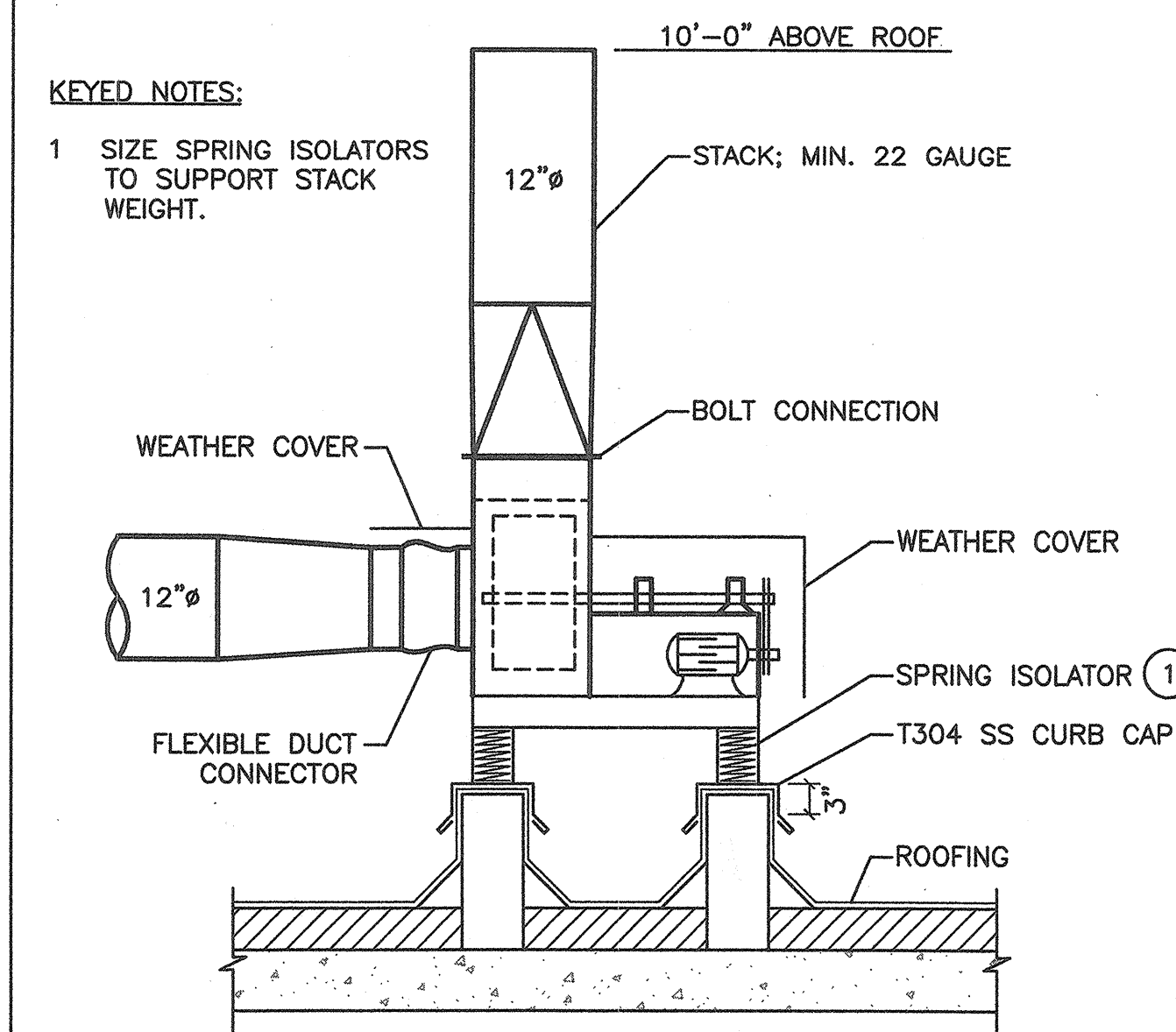
**10** DETAIL - WASHDOWN NOZZLE SUPPORT  
1"=1'-0"



**7** DETAIL- DUCT SUPPORT STAND  
NTS



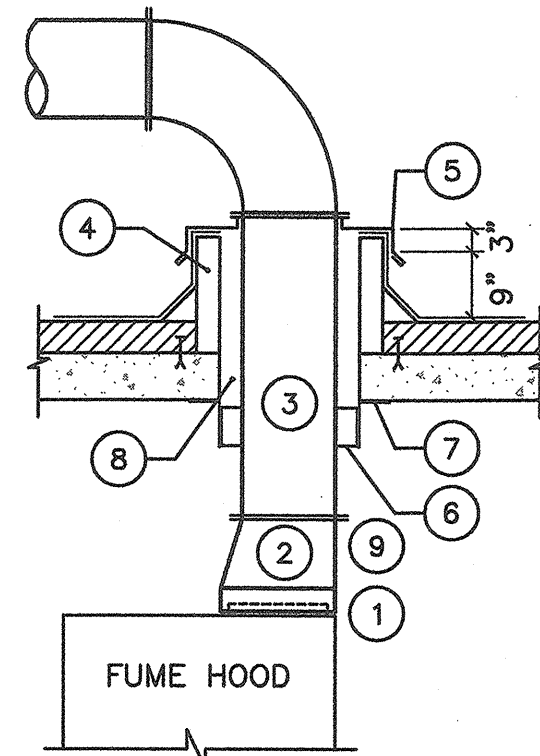
**4** DETAIL - AHU-4 HEATING COIL  
NTS



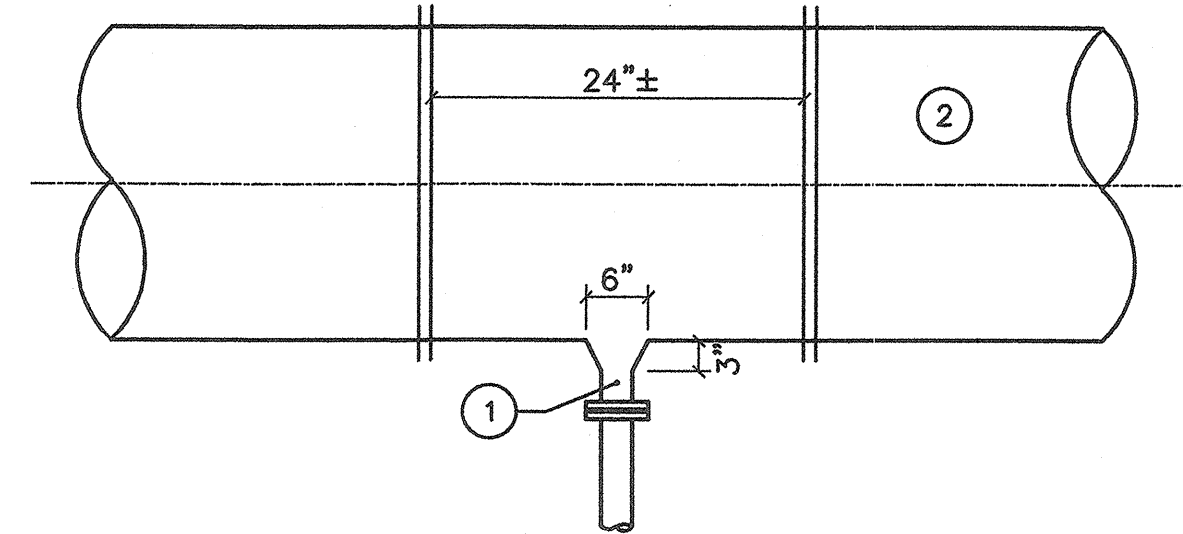
**1** DETAIL - EF-6 CONNECTION  
NTS

**KEYED NOTES:**

- 1 LAP DUCT OVER FUME HOOD CONNECTING COLLAR AND SEAL WITH \_\_\_\_\_.
- 2 PROVIDE TRANSITION FROM FUME HOOD COLLAR DIAMETER TO DUCT SIZE AS REQUIRED.
- 3 DUCT SIZE AS SHOWN ON PLANS.
- 4 INSULATED ROOF CURB; SEE SPECIFICATIONS.
- 5 T304 SS COUNTER FLASHING. SOLDER ALL SEAMS WATER TIGHT. PROVIDE HEMMED EDGE AT BOTTOM. PROVIDE MIN. 2" COLLAR AT DUCT WALL. SEAL COLLAR TO DUCT WATER TIGHT.
- 6 GUSSET WELDED TO DUCT BY DUCT MANUFACTURER.
- 7 3/16x2x2 STEEL BAR MIN. 24" LONG. ANCHOR TO ROOF WITH MIN. 4 FASTENERS. BOLT TO EACH GUSSET WITH MIN. (2) 3/8" BOLTS.
- 8 SIZE ROOF OPENING AS REQ'D. TO ACCOMMODATE DUCT FLANGE SIZE.
- 9 PROVIDE FLANGED ACCESS PORT FOR FLAME MONITOR.



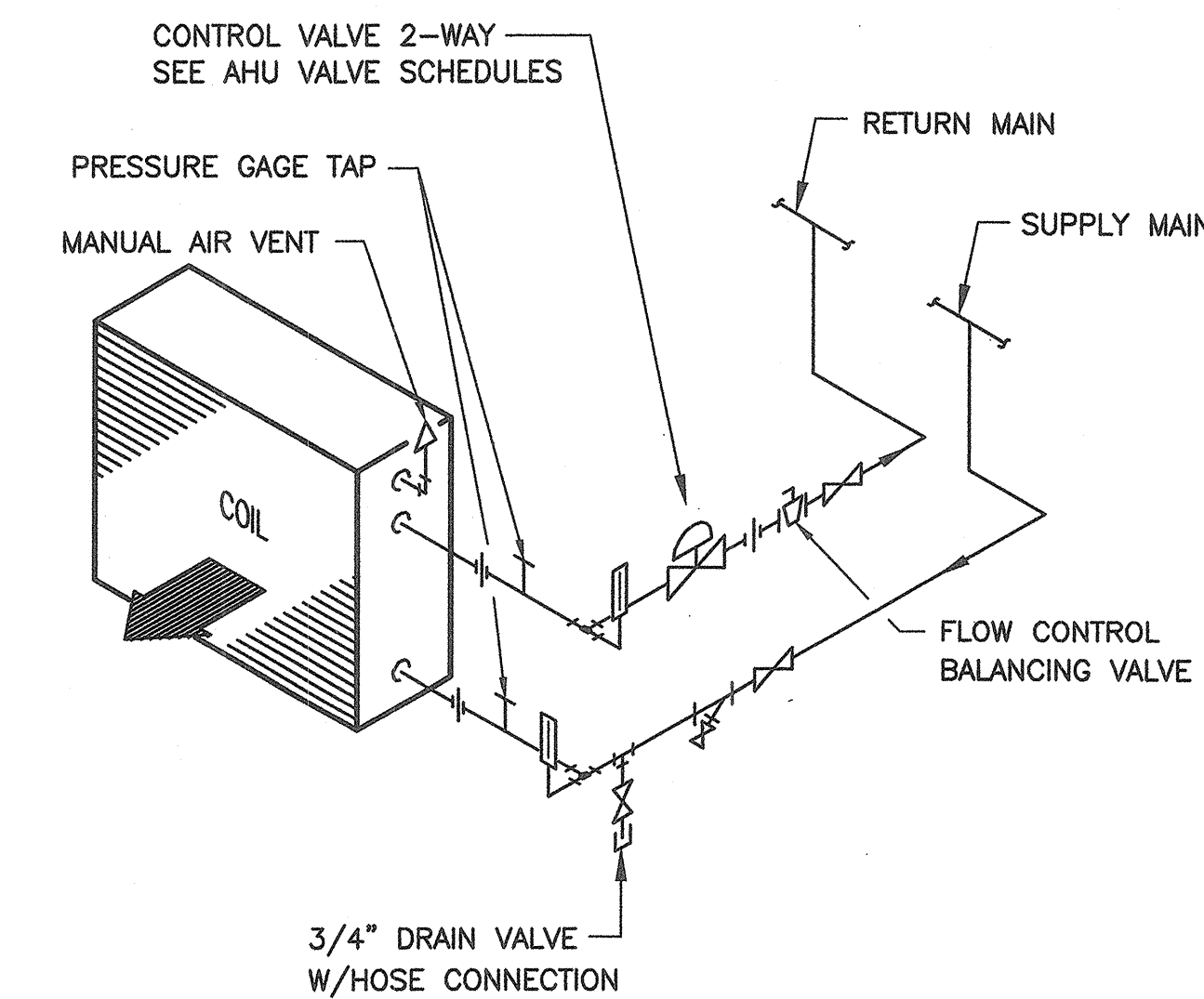
**11** DETAIL - ROOF PENETRATION  
1/2"=1'-0"



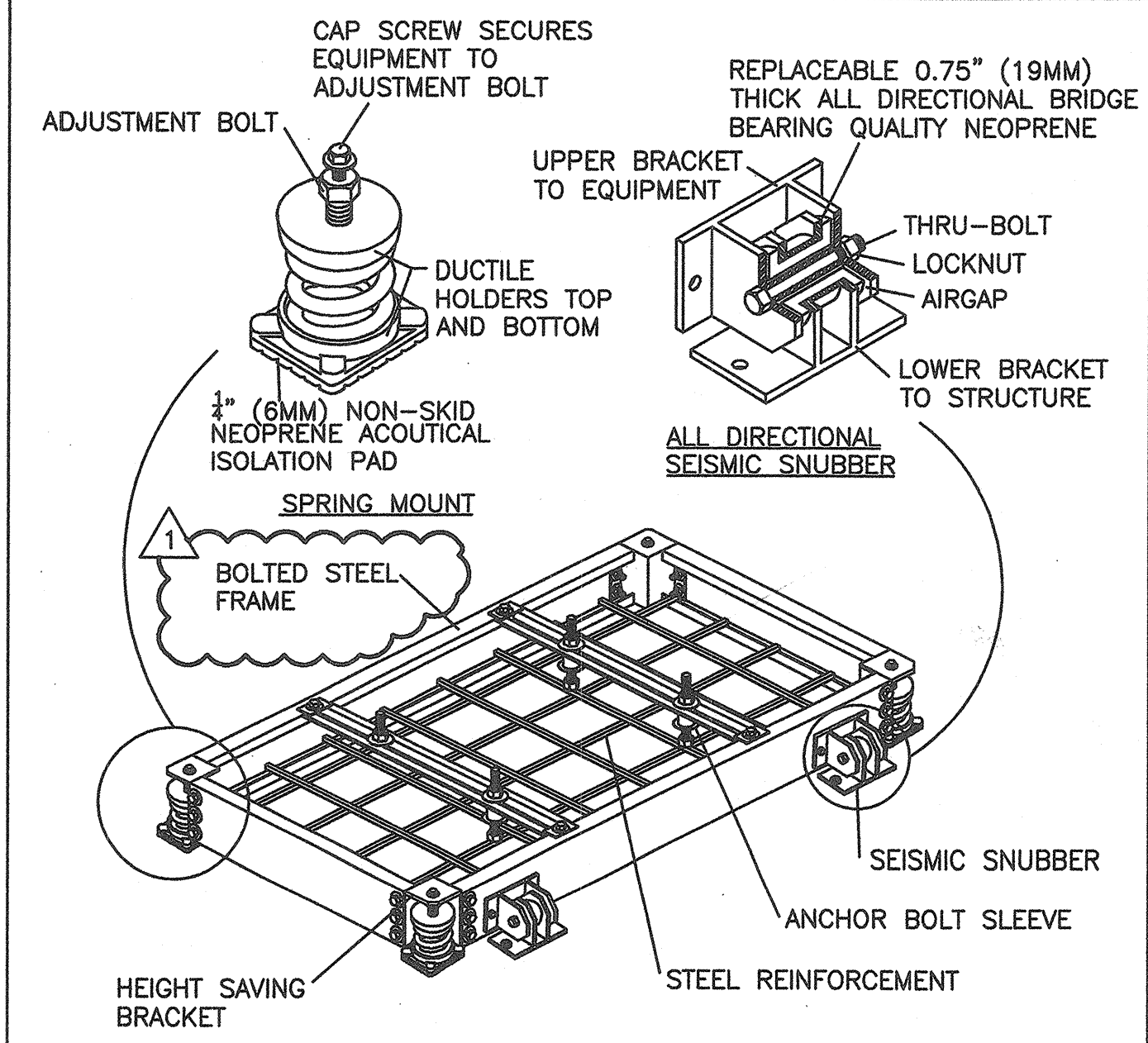
**KEYED NOTES:**

- 1 3" NIPPLE SIZED TO MATCH ACID WASTE PIPING. COAT MATING SURFACE OF FLANGE.
- 2 DUCT SIZE VARIES. SLOPE DUCT TO DRAIN 1/4"=1'-0."

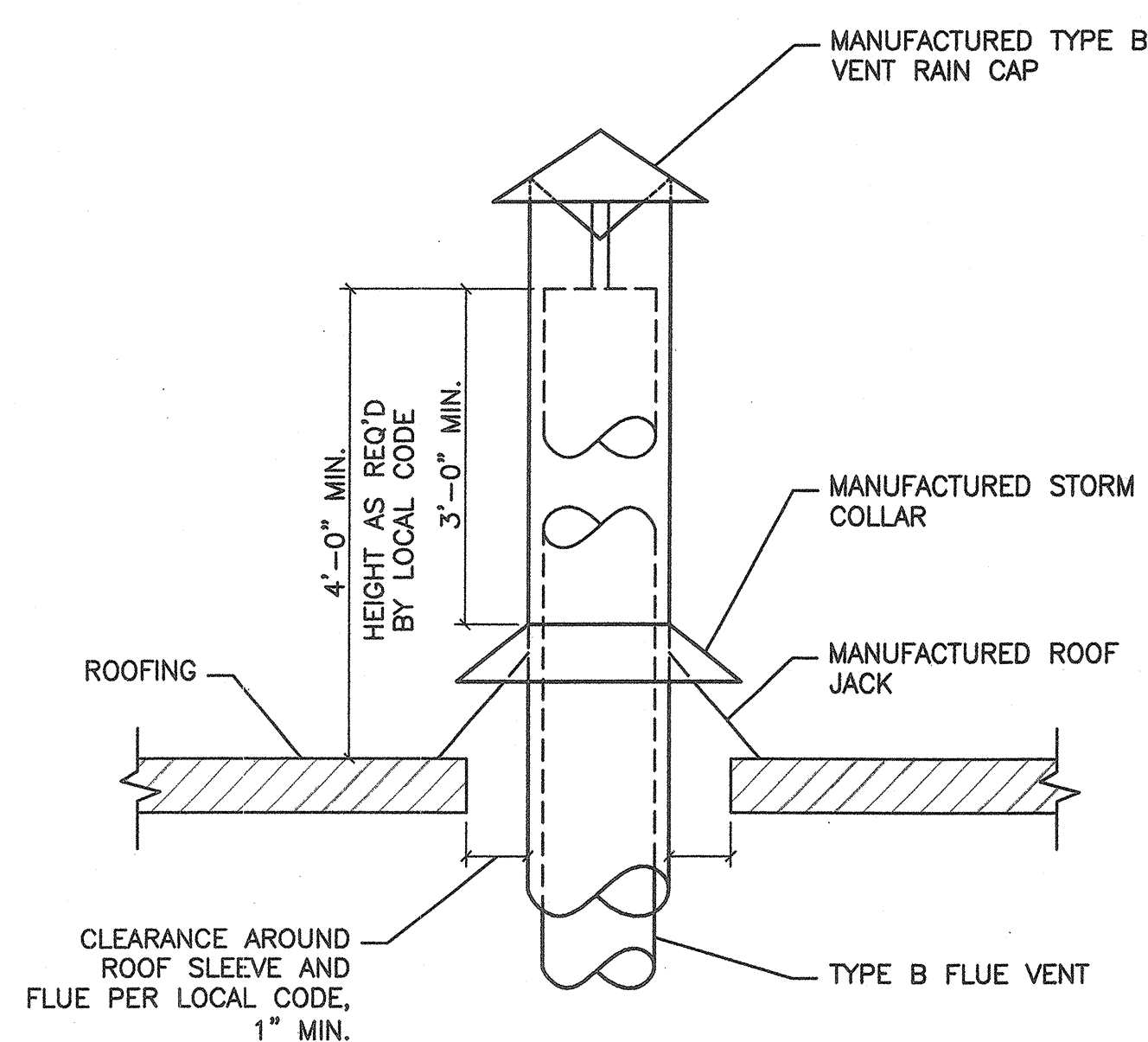
**8** DETAIL - DUCT DRAIN  
1"=1'-0"



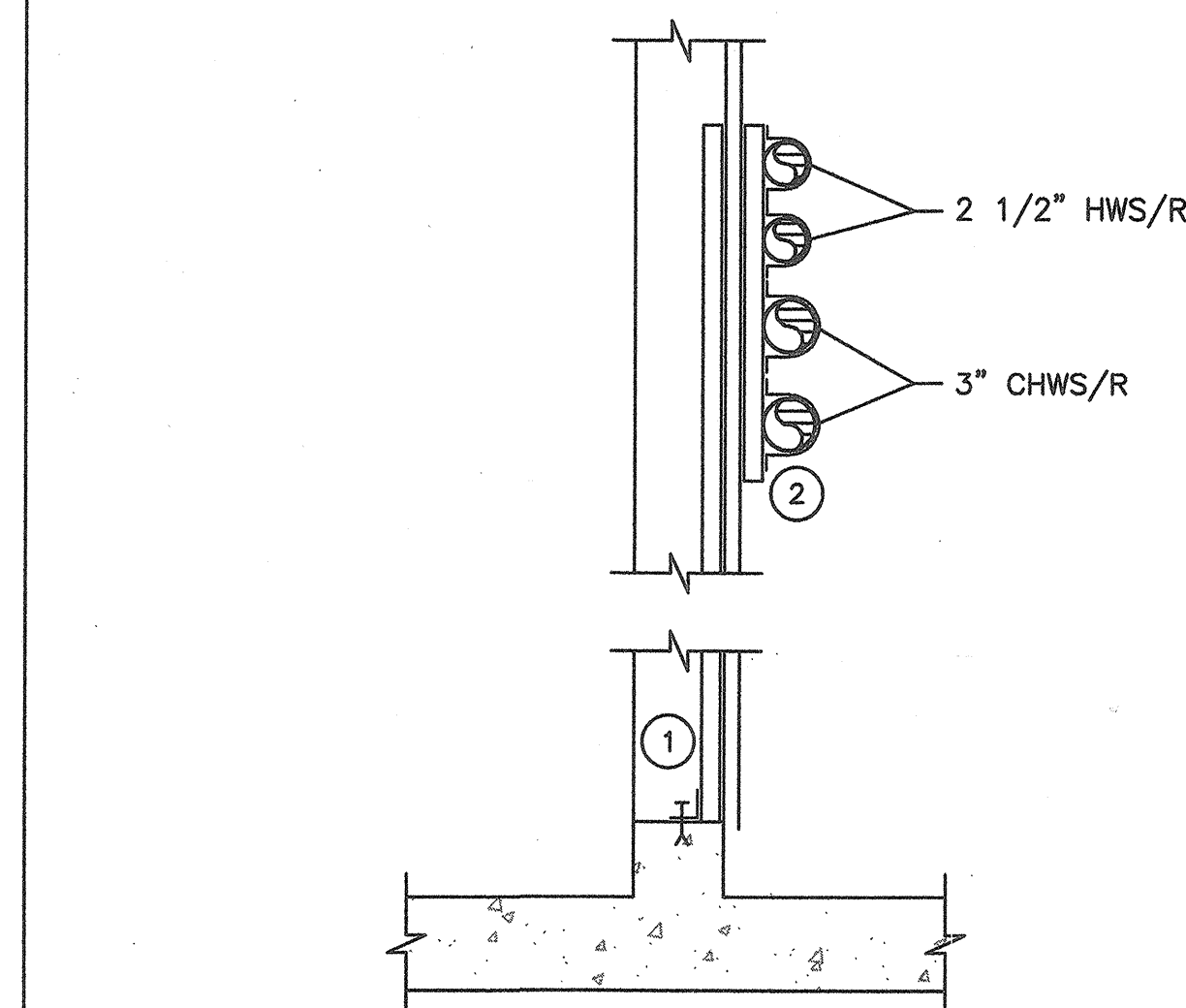
**5** DETAIL - AHU-4 COOLING COIL  
NTS



**2** DETAIL - INERTIA BASE  
NTS



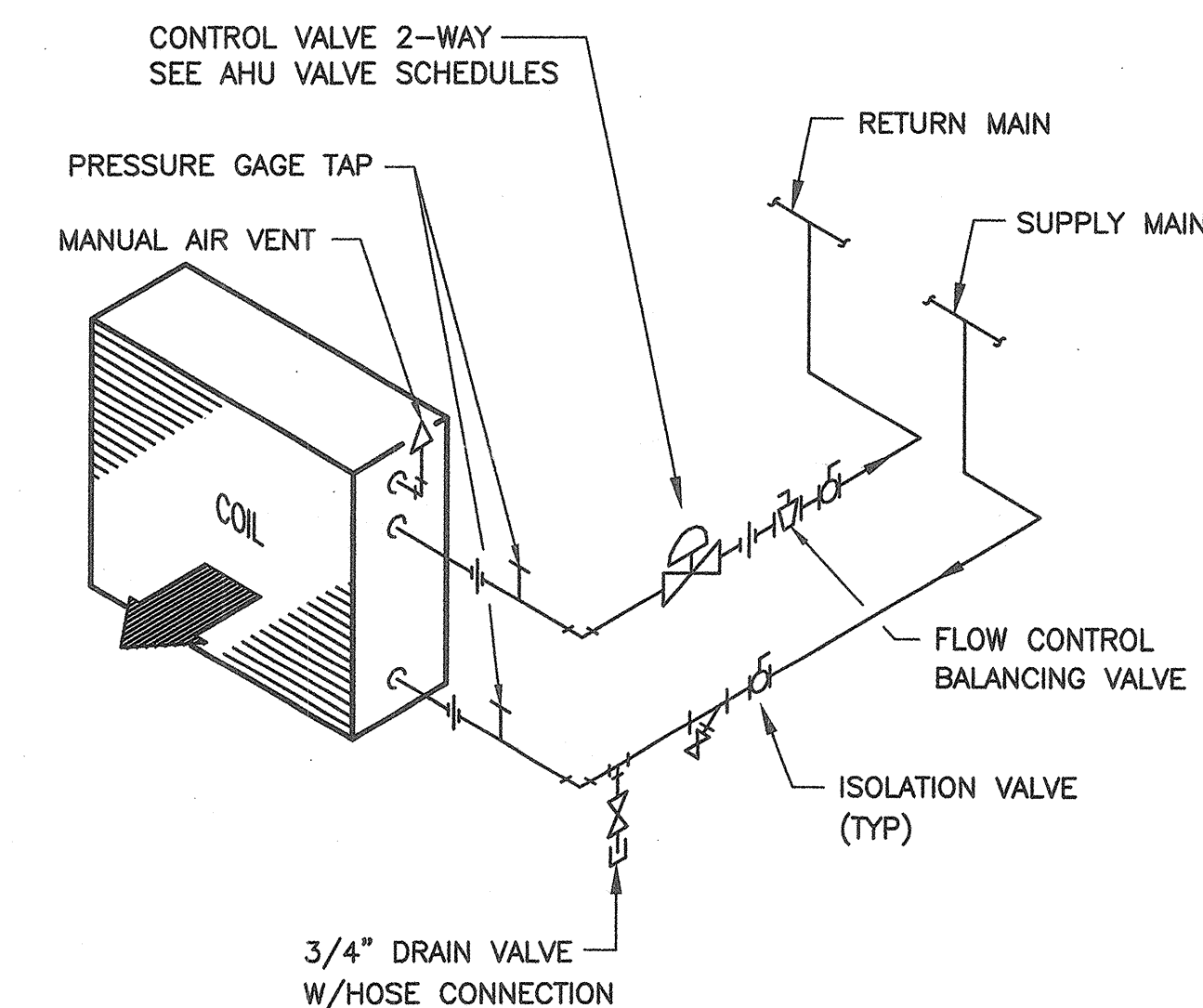
**12** DETAIL - FLUE THROUGH ROOF  
NTS



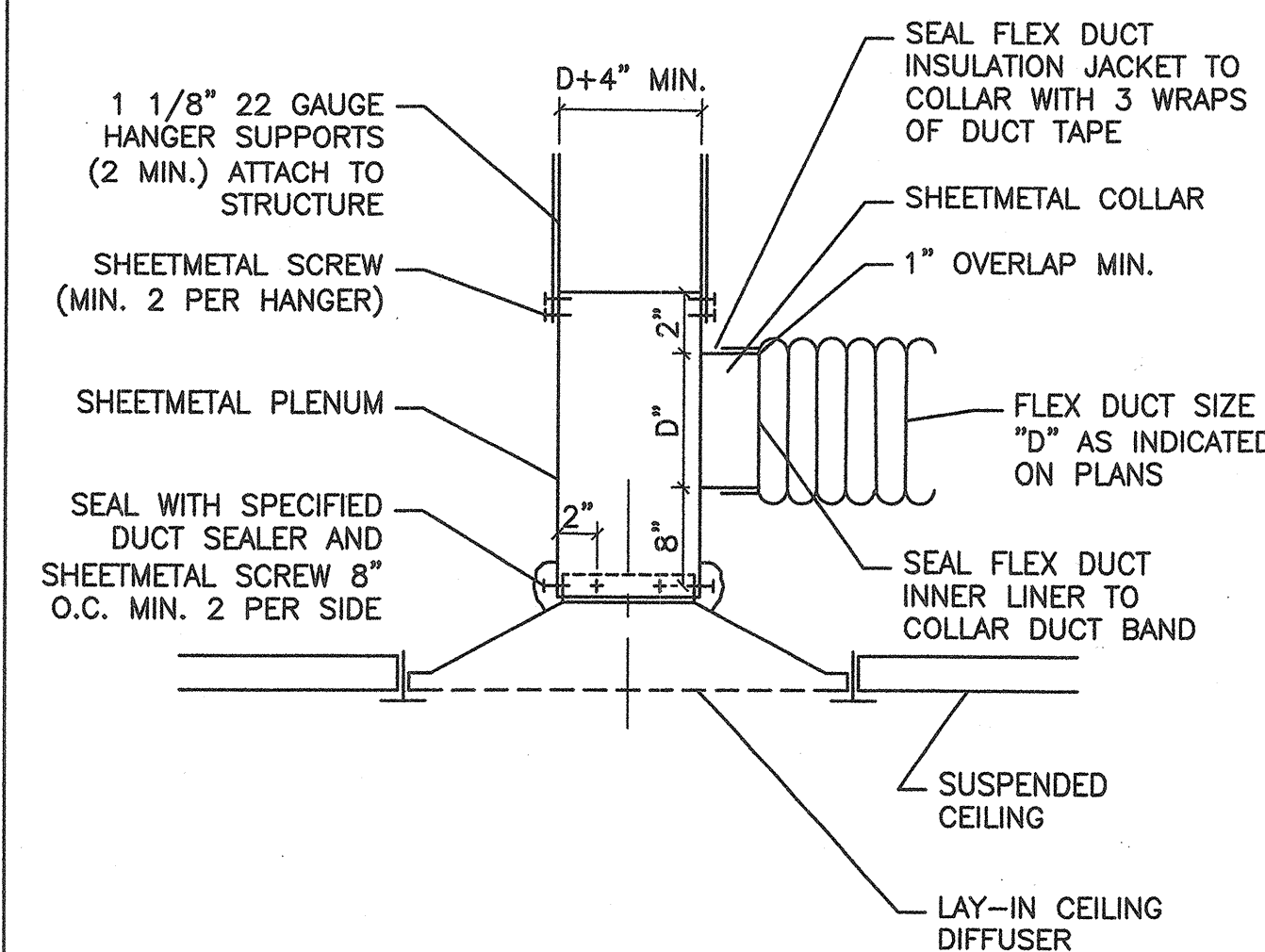
**KEYED NOTES:**

- 1 PROVIDE UNISTRUT STAND TO CONCRETE BASE. ANCHOR TO CONCRETE BELOW.
- 2 UNISTRUT WALL ANCHOR. ALL STRUT AND HARDWARE TO BE HOT DIPPED GALVANIZED.

**9** DETAIL - PIPE RACK AT WALL  
1"=1'-0"



**6** DETAIL - RH-26, 27, 28 CONNECTION  
NTS



**NOTES:**

- 1 INSTALL SHEETMETAL PLENUM AT ANGLE WHICH PROVIDES LEAST AMOUNT OF BEND IN FLEX DUCT.

**3** DETAIL - DIFFUSER CONNECTION  
NTS

**IDC ARCHITECTS**  
200 Corporate Center Drive  
Suite 200  
Moon Township, PA 15108-3186  
www.idcarchitects.com

IDC PROJECT NO.: 364972 CLIENT PROJECT NO.:

DESIGNED: APPROVED:

NOTICE: STAMP:

**GENERAL NOTES:**  
A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

| NO. | REVISION OR ISSUE | DATE     | BY   |
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| 1   | CONFORMED         | 01/23/08 | IDC  |
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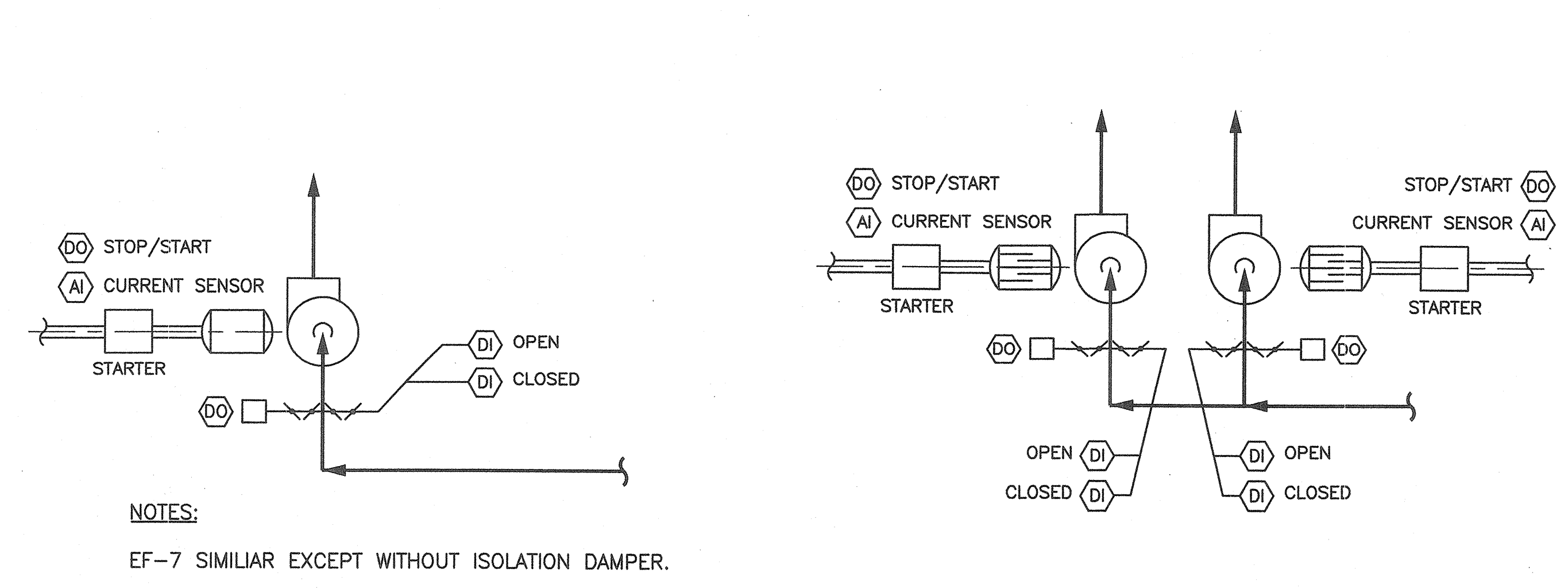
TITLE: MECHANICAL DETAILS

DATE ISSUED: DRAWING SCALE:  
ACAD FILE: M-6 EQUIPMENT CODE:

DRAWING NUMBER:  
M-6

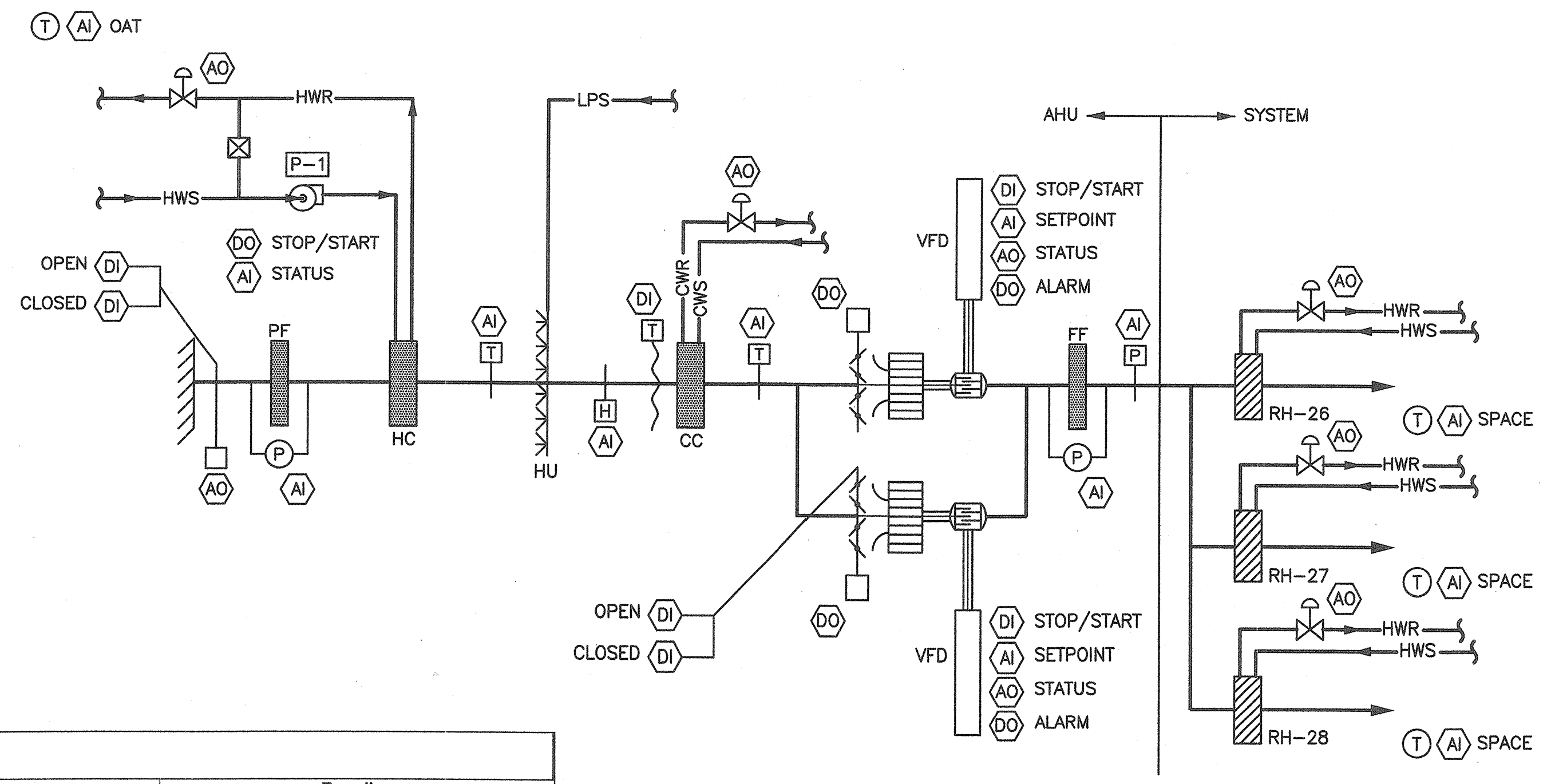


GENERAL NOTES:  
 A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.



**3** CONTROL DIAGRAM - EF-6  
 NTS

**2** CONTROL DIAGRAM - EF-4, 5  
 NTS



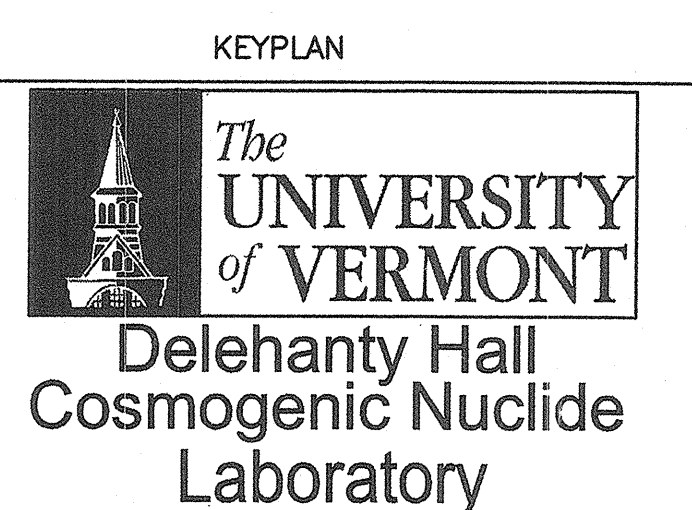
**1** CONTROL DIAGRAM - AHU-4  
 NTS

**ALARM MATRIX**

| Name  | Alarm ID | Alarm Location |                    |                            |            |          | System response                        |                     |                            | Trending         |                   |                                 |
|---|----------|----------------|--------------------|----------------------------|------------|----------|--|---------------------|----------------------------|------------------|-------------------|---------------------------------|
|   |          | Lab enuciator  | Corridor enuciator | Corridor Monitor panel (1) | Facilities | Paul (2) | Hot Plate + hood 120V outlets Shutdown | AHU and EF Shutdown | Time delay before shutdown | sample frequency | duration of trend | auto archive after trend period |
| <b>AHU-4</b>  |          |                |                    |                            |            |          |  |                     |                            |                  |                   |                                 |
| AHU enable command  |          |                |                    | X                          | X          | X        | X                                      |                     | COV                        | 1 year           | X                 |                                 |
| Outside air damper status (position vs. commanded position)                   |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Heating water control valve (position vs. commanded position)                 |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Chilled water control valve (position vs. commanded position)                 |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Fan #1 operation alarm (status vs. command)                                   |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Fan #2 operation alarm (status vs. command)                                   |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Fan #1 isolation damper status (position vs. commanded position)              |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Fan #2 isolation damper status (position vs. commanded position)              |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Pump P-1 status   |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Supply duct static pressure (set point vs. actual value)                      |          |                |                    | X                          | X          | X        |  |                     | 1 min.                     | 1 month          | X                 |                                 |
| Supply duct static pressure high limit alarm (preset variance from set point) |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Supply duct static pressure low limit alarm (preset variance from set point)  |          | X              | X                  | X                          | X          | X        | X                                      | X                   | 15 seconds                 | COV              | 1 year            | X                               |
| Filter #1 DP high limit   |          |                |                    | X                          | X          | X        |  |                     | 1 day                      | 6 months         | X                 |                                 |
| Filter #2 DP high limit   |          |                |                    | X                          | X          | X        |  |                     | 1 day                      | 2 years          | X                 |                                 |
| Freeze stat trip  |          |                |                    | X                          | X          | X        |  | X                   | 5 seconds                  | COV              | 1 year            | X                               |
| Discharge air temperature set point alarm (set point vs. actual)              |          |                |                    | X                          | X          | X        |  |                     | 15 min                     | 1 month          | X                 |                                 |
| Discharge air temperature high limit alarm (preset variance from set point)   |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Discharge air temperature low limit alarm (preset variance from set point)    |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| <b>EF-4,5</b>   |          |                |                    |                            |            |          |  |                     |                            |                  |                   |                                 |
| Fan #1 operation alarm (status vs. command)                                   |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Fan #2 operation alarm (status vs. command)                                   |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Damper #1 status (position vs. commanded position)                            |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Damper #2 status (position vs. commanded position)                            |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Duct static pressure alarm (preset variance from set point)                   |          | X              | X                  | X                          | X          | X        | X                                      |                     | 1 minute                   | 1 month          | X                 |                                 |
| <b>EF-6</b>   |          |                |                    |                            |            |          |  |                     |                            |                  |                   |                                 |
| Fan operation alarm (status vs. command)                                      |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Duct static pressure alarm (preset variance from set point)                   |          | X              | X                  | X                          | X          | X        | X                                      |                     | 1 minute                   | 1 month          | X                 |                                 |
| <b>EF-7</b>   |          |                |                    |                            |            |          |  |                     |                            |                  |                   |                                 |
| Fan operation alarm (status vs. command)                                      |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Duct static pressure alarm (preset variance from set point)                   |          | X              | X                  | X                          | X          | X        | X                                      |                     | 1 minute                   | 1 month          | X                 |                                 |
| <b>H-1</b>  |          |                |                    |                            |            |          |  |                     |                            |                  |                   |                                 |
| General alarm from control system   |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| <b>RH-26,27,28</b>  |          |                |                    |                            |            |          |  |                     |                            |                  |                   |                                 |
| RH-26 status  |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| RH-27 status  |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| RH-28 status  |          |                |                    | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| <b>Miscellaneous</b>  |          |                |                    |                            |            |          |  |                     |                            |                  |                   |                                 |
| Fume hood #1 monitor general alarm  |          | X              | X                  | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Fume hood #2 monitor general alarm  |          | X              | X                  | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Fume hood #3 monitor general alarm  |          | X              | X                  | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Fume hood #4 monitor general alarm  |          | X              | X                  | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Fume hood #5 monitor general alarm  |          | X              | X                  | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| HCL and HF sniffer system general alarm                                       |          | X              | X                  | X                          | X          | X        | X                                      | X                   | 10 seconds                 | COV              | 1 year            | X                               |
| High Level Production vs. Vestibule DP photohelic (low limit)                 |          | X              | X                  | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Write Up vs. Vestibule DP photohelic (low limit)                              |          | X              | X                  | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Product Lab vs. Vestibule DP photohelic (low limit)                           |          | X              | X                  | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| corridor vs. Vestibule DP photohelic (low limit)                              |          | X              | X                  | X                          | X          | X        |  |                     | COV                        | 1 year           | X                 |                                 |
| Production Lab temperature status   |          | X (1)          |                    |                            | X          | X        |  |                     |                            |                  |                   |                                 |
| High Level temperature status   |          | X (1)          |                    |                            | X          | X        |  |                     |                            |                  |                   |                                 |
| Write Up temperature status   |          | X (1)          |                    |                            | X          | X        |  |                     |                            |                  |                   |                                 |
| Production RH status  |          | X (1)          |                    |                            | X          | X        |  |                     |                            |                  |                   |                                 |
| High Level RH status  |          | X (1)          |                    |                            | X          | X        |  |                     |                            |                  |                   |                                 |
| Write Up RH status  |          | X (1)          |                    |                            | X          | X        |  |                     |                            |                  |                   |                                 |

Notes: (1) via wall sensor/controller, not wall mounted enuciator  
 (2) Paul's alarm = cell + email + home phone

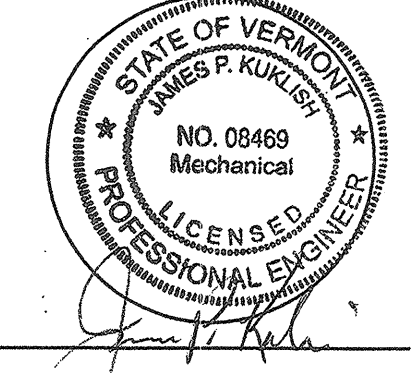
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| 1   | CONFORMED         | 01/23/08 | IDC  |
| 0   | IFC               | 11/16/07 | IDCA |
| NO. | REVISION OR ISSUE | DATE     | BY   |



TITLE: MECHANICAL CONTROL DIAGRAMS

DRAWING NUMBER: M-5





GENERAL NOTES:  
 A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

| FAN SCHEDULE |          |          |              |            |            |          |     |                 |                     |                              |
|--------------|----------|----------|--------------|------------|------------|----------|-----|-----------------|---------------------|------------------------------|
| GENERAL      |          | CAPACITY |              |            | ELECTRICAL |          |     | BASIS OF DESIGN | REMARKS             |                              |
| UNIT         | LOCATION | CFM      | TSP (IN. WC) | WHEEL (IN) | EFF.       | VOLTS/PH | MHP |                 |                     | STARTER                      |
| EF-4         | ROOF     | 6,500    | 5.0          | 36.5       | -          | 208/3    | 15  | MAG             | DUALL FH 36.5       | SEE SPECIFICATION DATA SHEET |
| EF-5         | ROOF     | 6,500    | 5.0          | 36.5       | -          | 208/3    | 15  | MAG             | DUALL FH 36.5       | SEE SPECIFICATION DATA SHEET |
| EF-6         | ROOF     | 410      | 1.5          | 8          | -          | 208/3    | 0.5 | MAG             | GREENHECK 8-BISW-41 | -                            |

| HEATING WATER COIL SCHEDULE |          |       |         |         |     |     |      |              |          |                 |         |
|-----------------------------|----------|-------|---------|---------|-----|-----|------|--------------|----------|-----------------|---------|
| GENERAL                     |          | COIL  |         |         |     |     |      |              |          | BASIS OF DESIGN | REMARKS |
| UNIT                        | LOCATION | CFM   | EAT (F) | LAT (F) | EWT | LWT | GPM  | APD (IN. WC) | WPD (FT) |                 |         |
| RH-26                       | ROOF     | 4,500 | 55      | 80      | 180 | 160 | 12.4 | 0.2          | 5        | HEATCRAFT       | -       |
| RH-27                       | ROOF     | 1,200 | 55      | 80      | 180 | 160 | 3.3  | 0.2          | 5        | HEATCRAFT       | -       |
| RH-28                       | ROOF     | 470   | 55      | 80      | 180 | 160 | 1.3  | 0.2          | 5        | HEATCRAFT       | -       |

| PUMP SCHEDULE |          |               |      |          |                    |      |      |     |            |      |                     |         |
|---------------|----------|---------------|------|----------|--------------------|------|------|-----|------------|------|---------------------|---------|
| GENERAL       |          |               | PUMP |          |                    |      |      |     | ELECTRICAL |      | BASIS OF DESIGN     | REMARKS |
| UNIT          | LOCATION | SERVICE       | GPM  | TDH (FT) | IMPELLER DIA. (IN) | RPM  | EFF. | HP  | VOLTS/PH   | AMPS |                     |         |
| P-1           | AHU-4    | HEATING WATER | 34   | 20       | 5.4                | 1750 | 40   | 1/2 | 208/3      | 1.5  | BELL & GOSSETT 1.5A | -       |

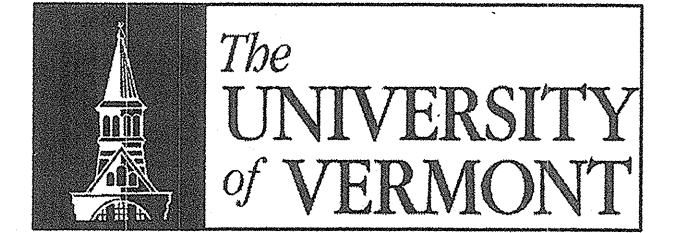
| AIR HANDLING UNIT SCHEDULE |          |            |      |      |     |              |                      |               |               |         |         |     |          |              |                |         |              |         |         |     |          |              |  |
|----------------------------|----------|------------|------|------|-----|--------------|----------------------|---------------|---------------|---------|---------|-----|----------|--------------|----------------|---------|--------------|---------|---------|-----|----------|--------------|--|
|                            |          | SUPPLY FAN |      |      |     |              | COOLING COIL         |               |               |         |         |     |          |              |                |         | HEATING COIL |         |         |     |          |              |  |
| UNIT                       | LOCATION | CFM        | SIZE | EFF. | RPM | TSP (IN. WC) | TOTAL CAPACITY (MBH) | EAT DB/WB (F) | LAT DB/WB (F) | EWT (F) | LWT (F) | GPM | WPD (FT) | APD (IN. WC) | CAPACITY (MBH) | EAT (F) | LAT (F)      | EWT (F) | LWT (F) | GPM | WPD (FT) | APD (IN. WC) |  |
| AHU-4                      | ROOF     | 6,500      | 20   | -    | -   | 6.0          | 370                  | 88/71         | 55/54         | 46      | 58      | 61  | 10       | 0.5          | 500            | -10     | 60           | 180     | 150     | 34  | 10       | 0.2          |  |

| HUMIDIFIER |         |              |            | PREFILTER |           |      | FINAL FILTER |           |      | ELECTRICAL |     |         | CABINET             | BASIS OF DESIGN | REMARKS   |
|------------|---------|--------------|------------|-----------|-----------|------|--------------|-----------|------|------------|-----|---------|---------------------|-----------------|---|
| EAT (F)    | LAT (F) | FLOW (lb/hr) | FLOW (gpm) | QTY       | SIZE (IN) | EFF. | QTY          | SIZE (IN) | EFF. | VOLTS/PH   | MHP | STARTER | SIZE (INCHES)       |                 |   |
| 61/40      | 60/53   | 240          | 0.5        | 3         | 24x24     | 30%  | 3            | 24x24     | 90%  | 208/3      | 15  | VFD     | 302 L x 76 W x 72 H | CLEAN PAK       | TWO 15 HP MOTORS; N+1 APPLICATION. SEE SPECIFICATION DATA SHEET |
|            |         |              |            | 3         | 12x24     | 30%  | 3            | 12x24     | 90%  |            |     |         |                     |                 |   |

| HUMIDIFIER SCHEDULE |               |              |             |             |          |       |         |                 |               |                  |             |                   |       |
|---------------------|---------------|--------------|-------------|-------------|----------|-------|---------|-----------------|---------------|------------------|-------------|-------------------|-------|
| TAG                 | LOCATION      | SYSTEM STEAM |             | NATURAL GAS |          | WATER |         | RESERVOIR (GAL) | SIZE (INCHES) | WEIGHT (1) (LBS) | ELECTRICAL  | BASIS OF DESIGN   | NOTES |
|                     |               | LBS/HR       | PRESSURE    | MBH         | PRESSURE | GPH   | PSI     |                 |               |                  |             |                   |       |
| H-1                 | MECHANICAL RM | 300          | ATMOSPHERIC | 400         | -        | 40    | 25 ~ 80 | 40              | 56Lx33Wx41H   | 850              | 120V, 3 FLA | DRI-STEAM GTS-400 |       |

NOTES: 1. OPERATING WEIGHT INCLUDES WATER VOLUME

KEYPLAN



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TITLE: MECHANICAL SCHEDULES

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: M-4 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER: \_\_\_\_\_

M-4



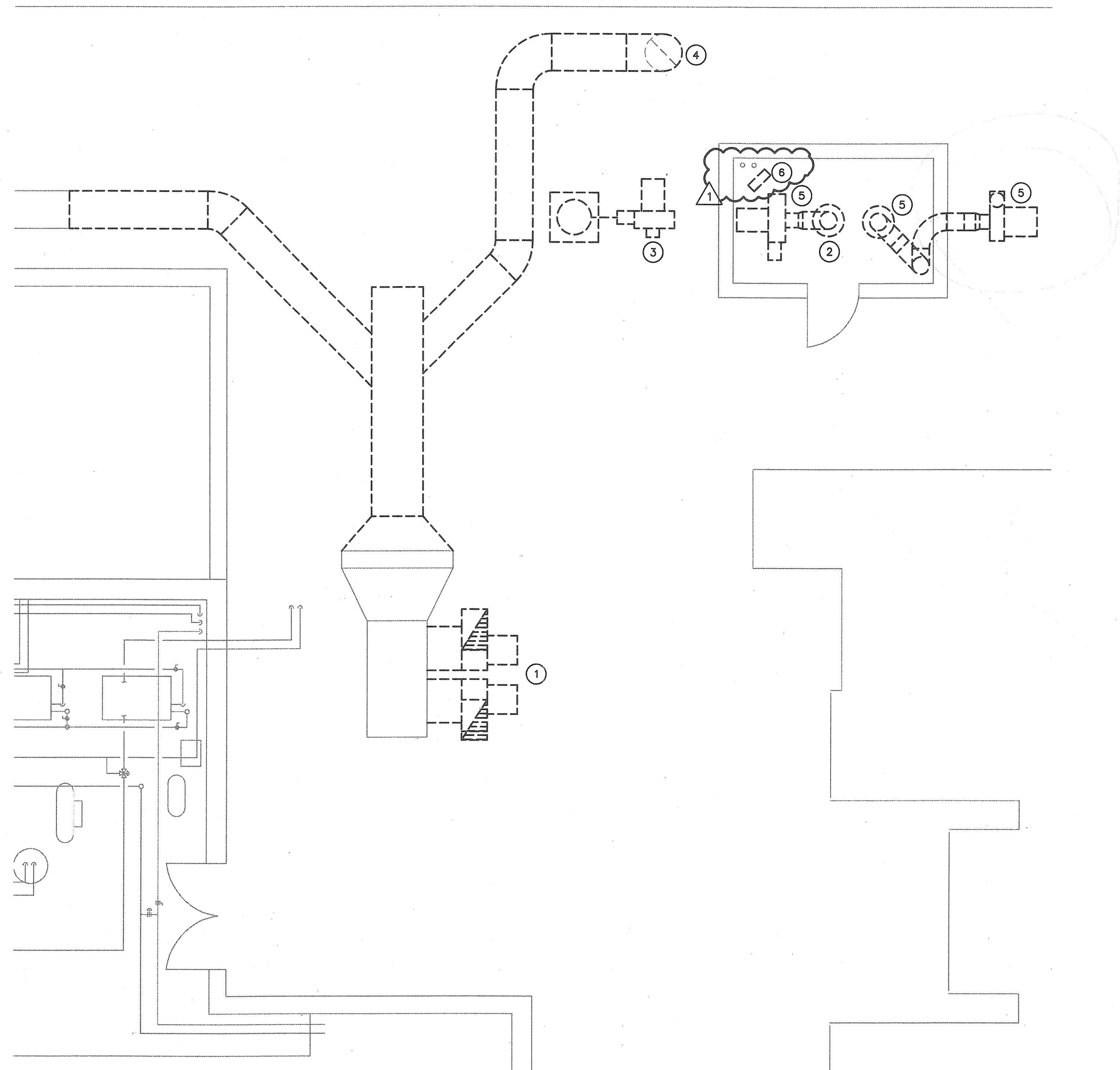


**GENERAL NOTES:**

A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

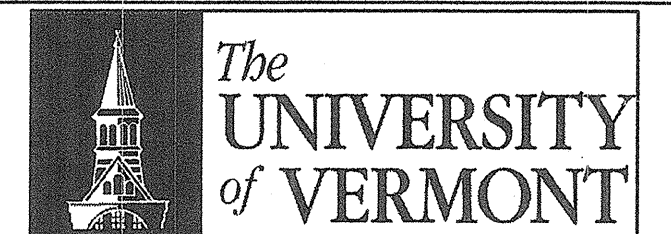
**KEYED NOTES:**

- 1 RELOCATE EXISTING FANS TO NEW LOCATION SHOWN ON DRAWING M-2.
- 2 RELOCATE EXISTING SCRUBBER AND ASSOCIATED FEEDWATER SYSTEM TO NEW LOCATION SHOWN ON DRAWING M-2.
- 3 RELOCATE EXISTING FAN AND ASSOCIATED STACK TO NEW LOCATION SHOWN ON DRAWING M-2.
- 4 REMOVE DUCTWORK TO ROOF LINE.
- 5 REMOVE FAN AND SCRUBBER; RETURN TO OWNER.
- 6 RELOCATE EXISTING UNIT HEATER AND PIPING TO ACCOMMODATE NEW DUCTWORK. SEE M-2.



| 1   | CONFORMED         | 01/23/08 | IDC  |
|-----|-------------------|----------|------|
| 0   | IFC               | 11/16/07 | IDCA |
| NO. | REVISION OR ISSUE | DATE     | BY   |

KEYPLAN



**Delehanty Hall  
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 Laboratory**

TITLE: MECHANICAL  
 ROOF PLAN  
 DEMOLITION

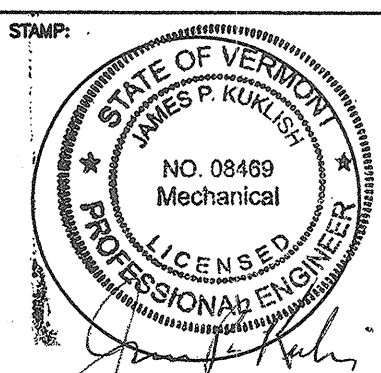
DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: M-3 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER:  
**M-3**

**1** MECHANICAL ROOF DEMOLITION PLAN  
 SCALE: 1/4"=1'-0"







**GENERAL NOTES:**

A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

**KEYED NOTES:**

- 1 RELOCATE EXISTING SCRUBBER TO THIS LOCATION. PROVIDE SUPPORT TO SCRUBBER AS REQUIRED. INSULATE SCRUBBER SIMILAR TO CONNECTING DUCTWORK ON ROOF.
- 2 7" TYPE B FLUE UP THROUGH ROOF; SEE 12/M-6.
- 3 3" ATMOSPHERIC STEAM; CONNECT TO H-1 COLLAR. SLOPE PIPING 1/8"=1'-0" FROM AHU-4 PIPING HIGH POINT BACK TO H-1. PROVIDE (2) 45-DEGREE ELBOWS W/ 6" PIPE LENGTH BETWEEN AT ALL RISER TO HORIZONTAL TURNS.
- 4 14" DOWN THROUGH ROOF. SEE 2/M-1 FOR CONTINUATION.
- 5 SEE 11/M-6; TYPICAL ALL ROOF PENETRATIONS.

**KEYED NOTES CONT.:**

- 6 10" DOWN THROUGH ROOF; SEE 2/M-1 FOR CONT.
- 7 PROVIDE 45-DEGREE ENTRY FITTING.
- 8 SLOPE DUCT 1/4" PER FOOT IN DIRECTION INDICATED.
- 9 6" DOWN THROUGH ROOF; SEE 2/M-1 FOR CONT.
- 10 CONNECT TO EXISTING HWS/R HEADER.
- 11 RELOCATE EXISTING FAN. RECONNECT TO NEW DUCTWORK. RE-USE OR PROVIDE NEW VIBRATION ISOLATION SYSTEM. REINSTALL DISCHARGE STACKS AS REQUIRED TO MATCH EXISTING CONDITION. RELOCATE CONTROL WIRING AS REQUIRED.

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**KEYPLAN**

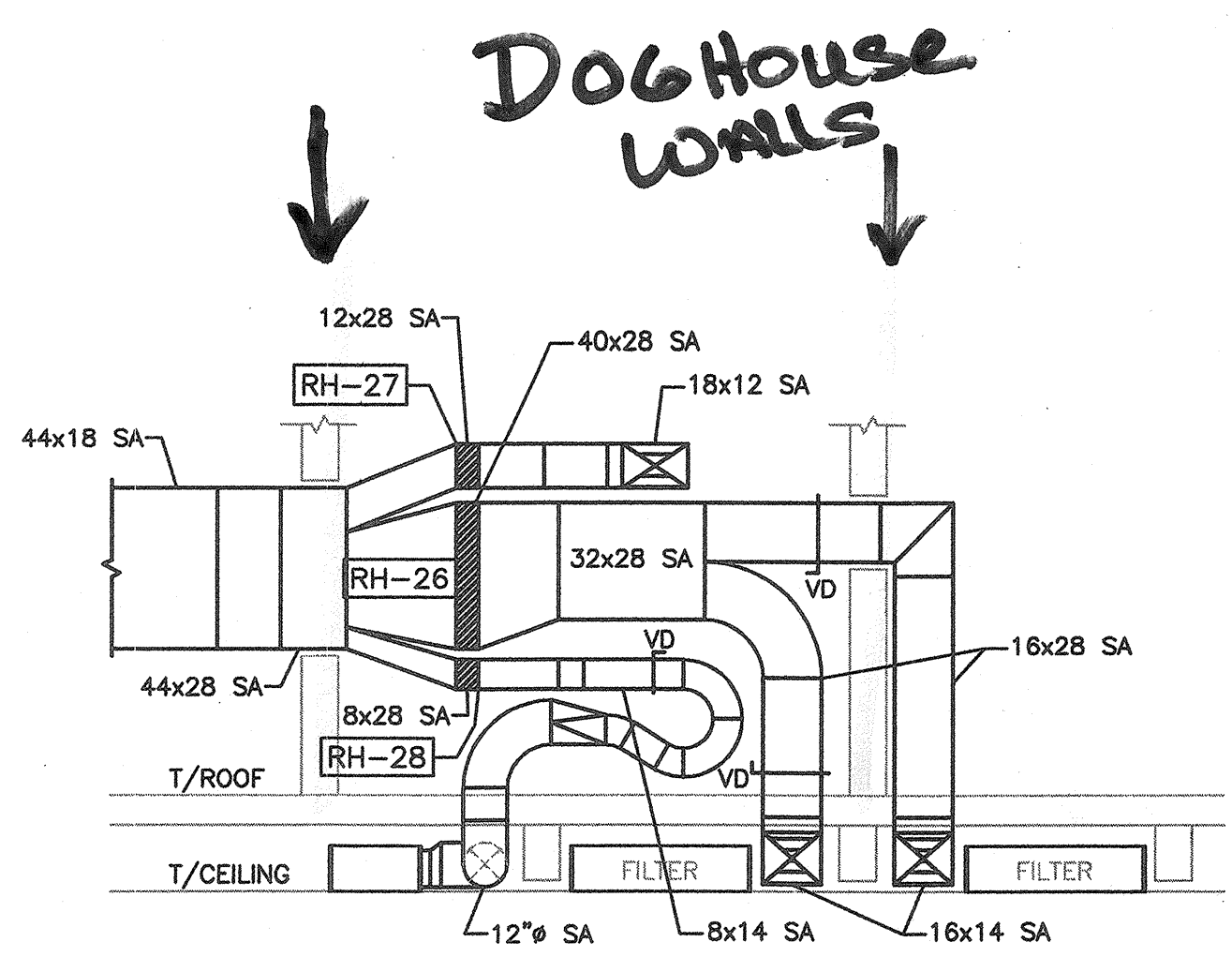
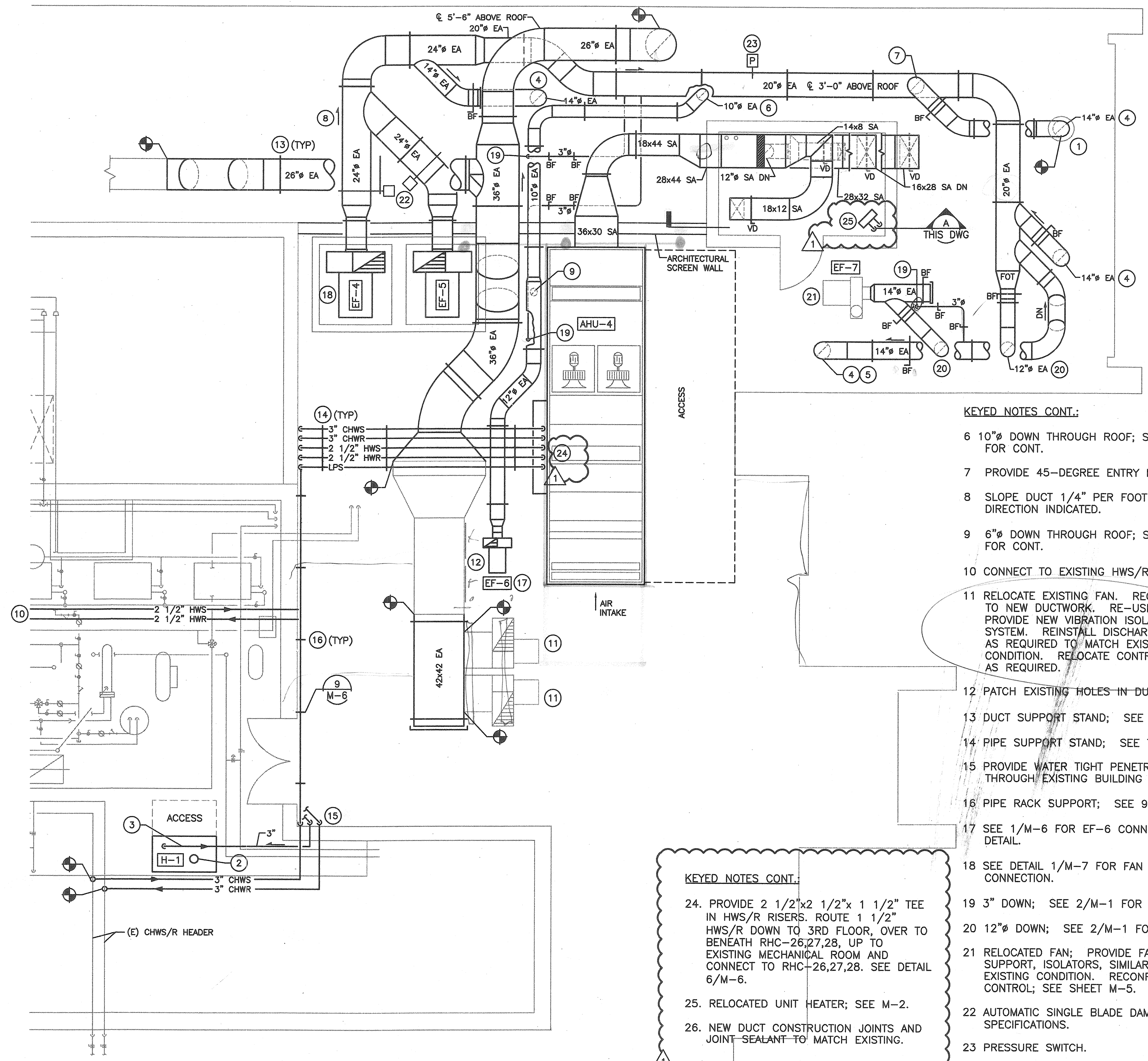


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TITLE: **MECHANICAL  
 ROOF PLAN**

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
 ACAD FILE: M-2 EQUIPMENT CODE: \_\_\_\_\_  
 DRAWING NUMBER: \_\_\_\_\_

M-2



**A SECTION**  
 1/4"=1'-0"

**1 MECHANICAL ROOF PLAN**  
 SCALE: 1/4"=1'-0"



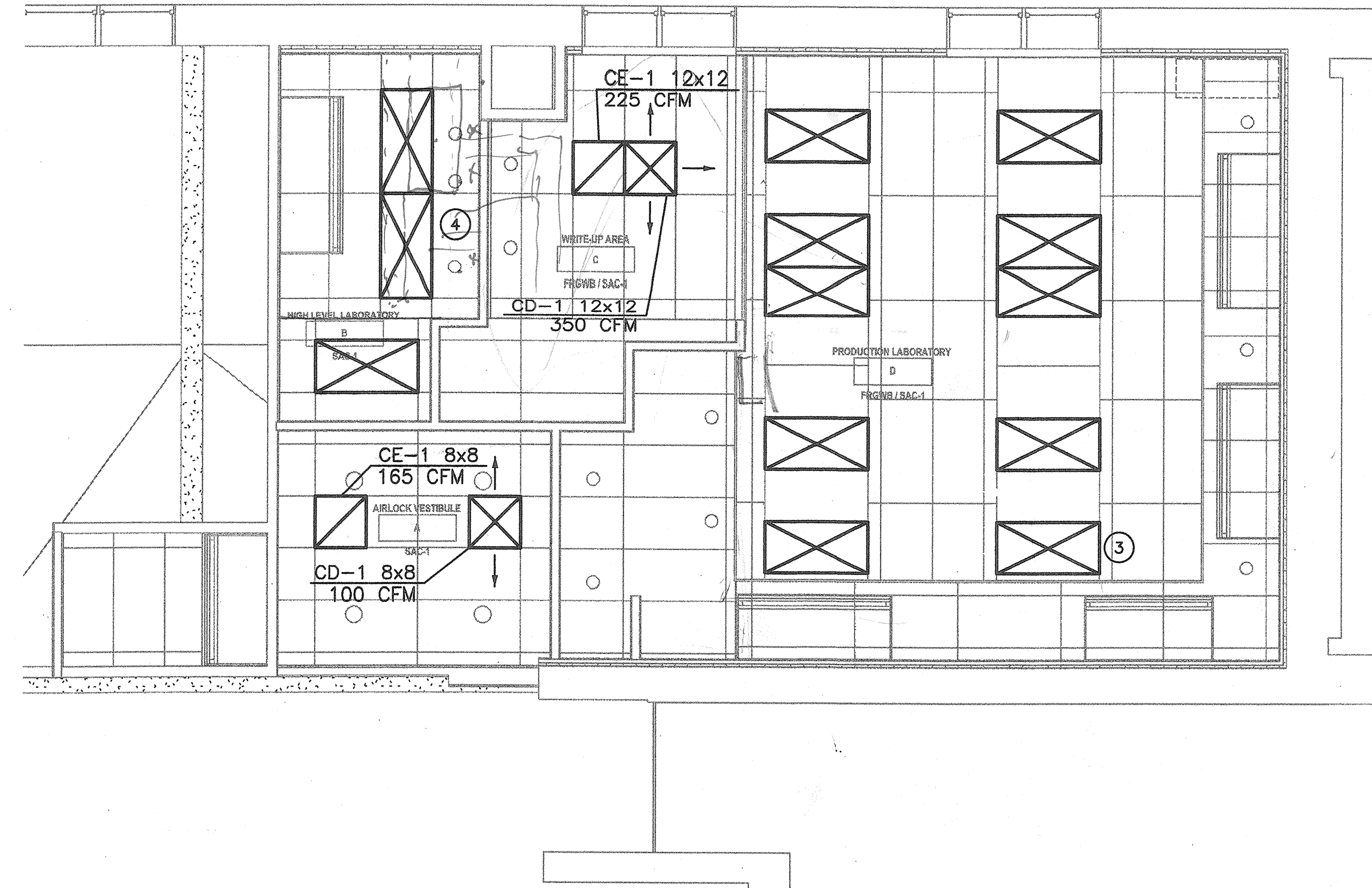
**KEYED NOTES CONT.:**

- 24. PROVIDE 2 1/2"x2 1/2"x 1 1/2" TEE IN HWS/R RISERS. ROUTE 1 1/2" HWS/R DOWN TO 3RD FLOOR, OVER TO BENEATH RHC-26,27,28, UP TO EXISTING MECHANICAL ROOM AND CONNECT TO RHC-26,27,28. SEE DETAIL 6/M-6.
- 25. RELOCATED UNIT HEATER; SEE M-2.
- 26. NEW DUCT CONSTRUCTION JOINTS AND JOINT SEALANT TO MATCH EXISTING.

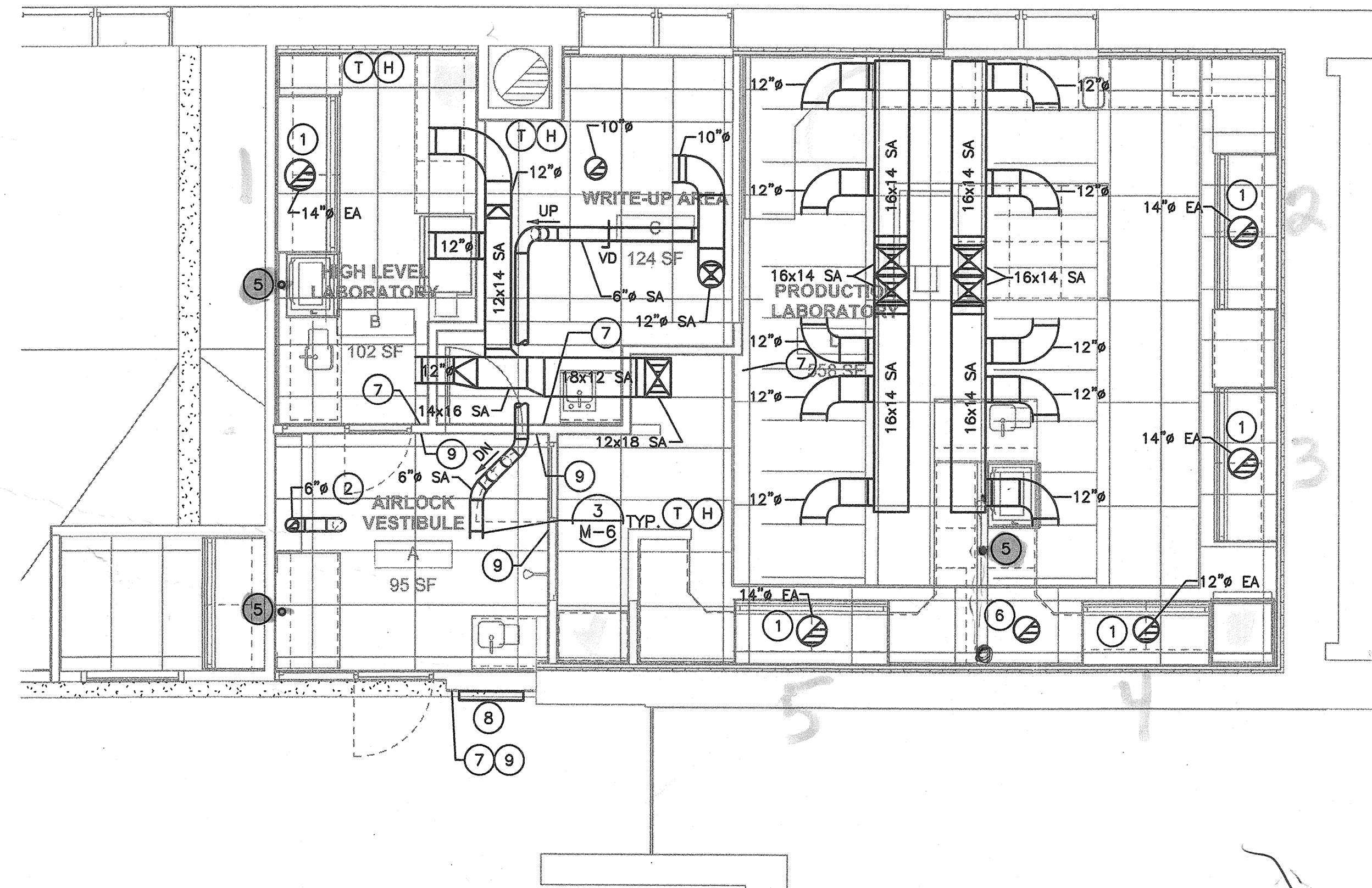


KEYED NOTES CONT.:

- 6 12"Ø TO SNORKEL/HOOD EXTEND UP THROUGH, SEE 11/M-6 FOR SIMILAR DETAIL. SEE 1/M-2 FOR CONTINUATION.
- 7 DDC AUDIBLE/VISUAL ALARM ENUNCIATOR; SEE SPECIFICATION 15900.
- 8 DDC MONITOR PANEL; SEE SPECIFICATION 15900.
- 9 PHOTOHELIC GAUGE; SEE SPECIFICATION 15900.



1 MECHANICAL CEILING PLAN  
SCALE: 1/4"=1'-0"



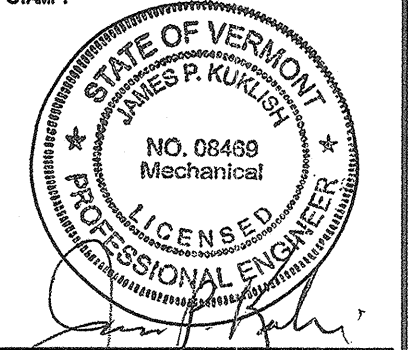
2 MECHANICAL FLOOR PLAN  
SCALE: 1/4"=1'-0"

IDC PROJECT NO.: 364972

CLIENT PROJECT NO.:

DRAWN: \_\_\_\_\_ REVIEWED: \_\_\_\_\_  
DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_

NOTICE: \_\_\_\_\_ STAMP: \_\_\_\_\_



GENERAL NOTES:

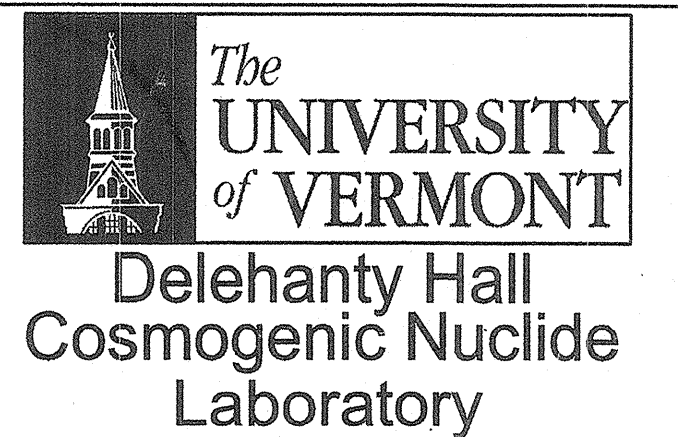
A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING M-0.

KEYED NOTES:

- 1 TRANSITION AND CONNECT TO FUME HOOD AS REQUIRED; PROVIDE A WATER TIGHT SEAL. EXTEND DUCT UP THROUGH ROOF; SEE 1/M-2 FOR CONTINUATION. SEE 11/M-6 FOR DETAIL.
- 2 DUCT UP THROUGH ROOF. SEE 1/M-2 FOR CONTINUATION AND 11/M-6 FOR DETAIL.
- 3 ULPA FILTER; BALANCE TO 430 CFM. TYP OF 10.
- 4 ULPA FILTER; BALANCE TO 380 CFM. TYP OF 3.
- 5 3" Ø EA DOWN TO BASE CABINET; CONTINUE TO CABINET COLLAR; DUCT UP TO ROOF SEE 1/M-2; SEE 11/M-6 FOR DETAIL FOR SIMILAR ROOF PENETRATION. BALANCE TO 30 CFM.

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KEYPLAN



TITLE: MECHANICAL FLOOR PLAN AND CEILING PLAN

DATE ISSUED: \_\_\_\_\_ DRAWING SCALE: \_\_\_\_\_  
ACAD FILE: M-1 EQUIPMENT CODE: \_\_\_\_\_

DRAWING NUMBER: \_\_\_\_\_



NORTH

M-1



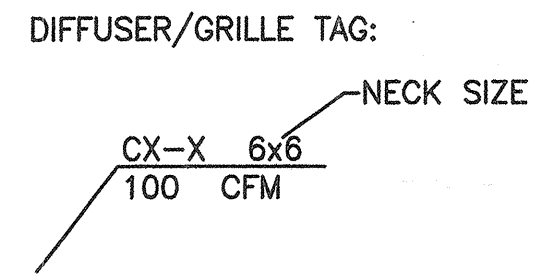
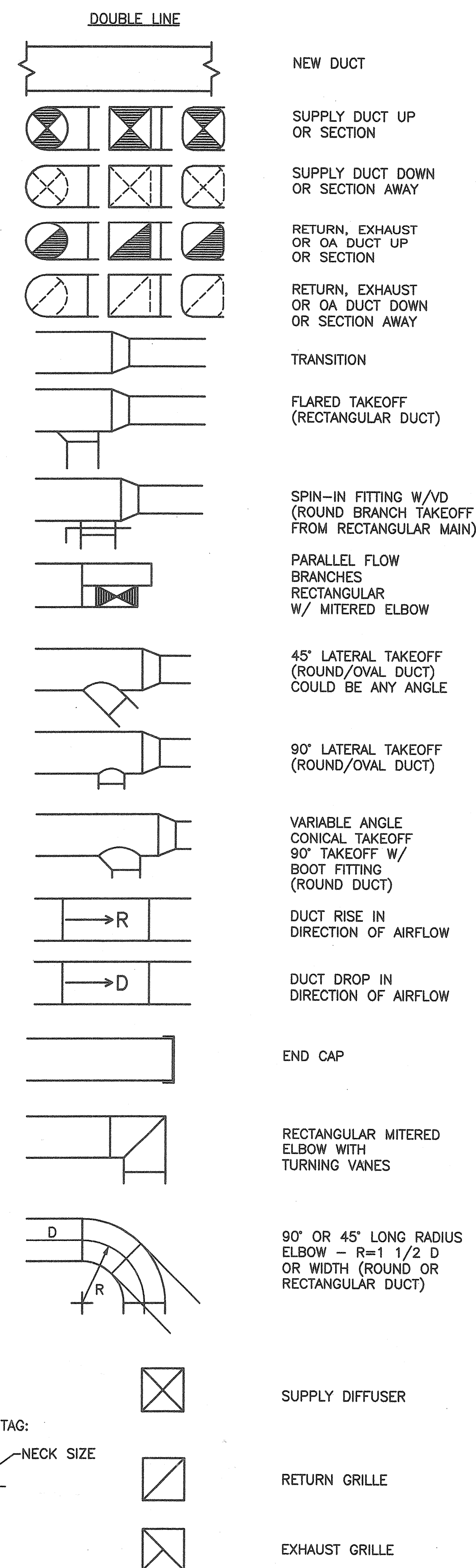
**PROJECT GENERAL DRAWING NOTES:**

1. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO PROVIDE A COMPLETE HEATING, VENTILATION AND AIR CONDITIONING SYSTEM FOR THE PROPOSED PROJECT. THE SYSTEMS PROVIDED SHALL CONFORM TO THE DETAILS STATED IN THE SPECIFICATIONS AND SHOWN ON THE DRAWINGS. ITEMS OR WORK NOT SHOWN OR SPECIFIED, BUT REQUIRED FOR A COMPLETE HEATING, VENTILATION AND AIR CONDITIONING SYSTEM, SHALL BE PROVIDED BY THE CONTRACTOR AND SHALL CONFORM TO ACCEPTED TRADE PRACTICES, LOCAL CODES, AND GOVERNING AUTHORITIES.
2. THE DRAWINGS AND SPECIFICATIONS ARE PRESENTED TO DEFINE SPECIFIC SYSTEM REQUIREMENTS AND SERVE TO EXPAND ON THE PRIMARY CONTRACT REQUIREMENTS OF PROVIDING COMPLETE SYSTEMS. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE ONLY THE GENERAL ARRANGEMENT OF THE ITEMS COMPRISING THE SEVERAL SYSTEMS INCLUDED IN THE HEATING, VENTILATION, AND AIR CONDITIONING WORK.
3. DO NOT SCALE THE DRAWINGS. BECAUSE OF THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE OFFSETS, FITTINGS, VALVES, OR SIMILAR ITEMS WHICH MAY BE REQUIRED TO MAKE A COMPLETE OPERATING SYSTEM. CAREFULLY INVESTIGATE CONDITIONS AFFECTING WORK AND INSTALL WORK IN SUCH A MANNER THAT INTERFERENCE BETWEEN PIPES, CONDUIT, DUCTS, EQUIPMENT, ARCHITECTURAL AND STRUCTURAL FEATURES SHALL BE AVOIDED. PROVIDE ITEMS THAT MAY BE REQUIRED TO MEET CONDITIONS AT THE BUILDING.
4. CONTRACTORS SHALL HAVE SUFFICIENT EXPERTISE IN THIS TYPE OF CONSTRUCTION TO REALIZE THE EXTENT OF THE WORK REQUIRED. THEREFORE, IT SHOULD BE OBVIOUS TO ANY PRUDENT FIRM WITH EXPERIENCE IN THIS FIELD THAT THESE DOCUMENTS MAY NOT EXPLICITLY DISCLOSE FINAL DETAILS; HOWEVER, CONTRACTORS SHALL HAVE THE EXPERTISE NECESSARY TO INCLUDE NECESSARY APPOINTMENTS.
5. COORDINATE ALL WORK WITH WORK SHOWN ON OTHER DRAWINGS. COORDINATE EXACT LOCATION OF DIFFUSERS, REGISTERS AND GRILLES WITH THE CEILING GRID AND OTHER TRADES.
6. INDICATED DUCT SIZES ARE CLEAR INSIDE OF DUCT DIMENSIONS
7. INDICATED DUCT AND PIPING RUNS ARE DIAGRAMMATIC. CONTRACTOR SHALL DETERMINE ALL REQUIRED OFFSETS AND DIRECTION CHANGES BEFORE FABRICATION AND INSTALLATION TO AVOID INTERFERENCE WITH OTHER TRADES.
8. TEMPORARY SHUTDOWN OF ANY SYSTEMS SHALL BE COORDINATED WITH OWNER OR OWNERS REPRESENTATIVE. PROVIDE AN INITIAL SCHEDULE OF SHUTDOWNS REQUIRED. ALSO, PROVIDE NOTICE TO OWNER 10 WORKING DAYS IN ADVANCE OF ANY SHUTDOWN.
9. NOTIFY OWNER OR OWNERS REPRESENTATIVE AT LEAST 48 HOURS PRIOR TO CONDUCTING PERFORMANCE TESTING AND BALANCING OF EQUIPMENT AND SYSTEMS TO ENABLE OWNER TO SCHEDULE ITS PERSONNEL ACCORDINGLY TO WITNESS THE TESTING AND BALANCING.
10. ALL WORK INDICATED AS DEMOLITION ON THE CONTRACT DOCUMENT SHALL BE REMOVED COMPLETELY, INCLUDING ALL ASSOCIATED HANGERS, SUPPORTS, AND APPURTENANCES. NO WORK INDICATED TO BE REMOVED SHALL BE LEFT ABANDONED IN PLACE. ALL DEMOLITION WORK SHALL BE COORDINATED WITH THE OWNER PRIOR TO COMMENCEMENT OF WORK.

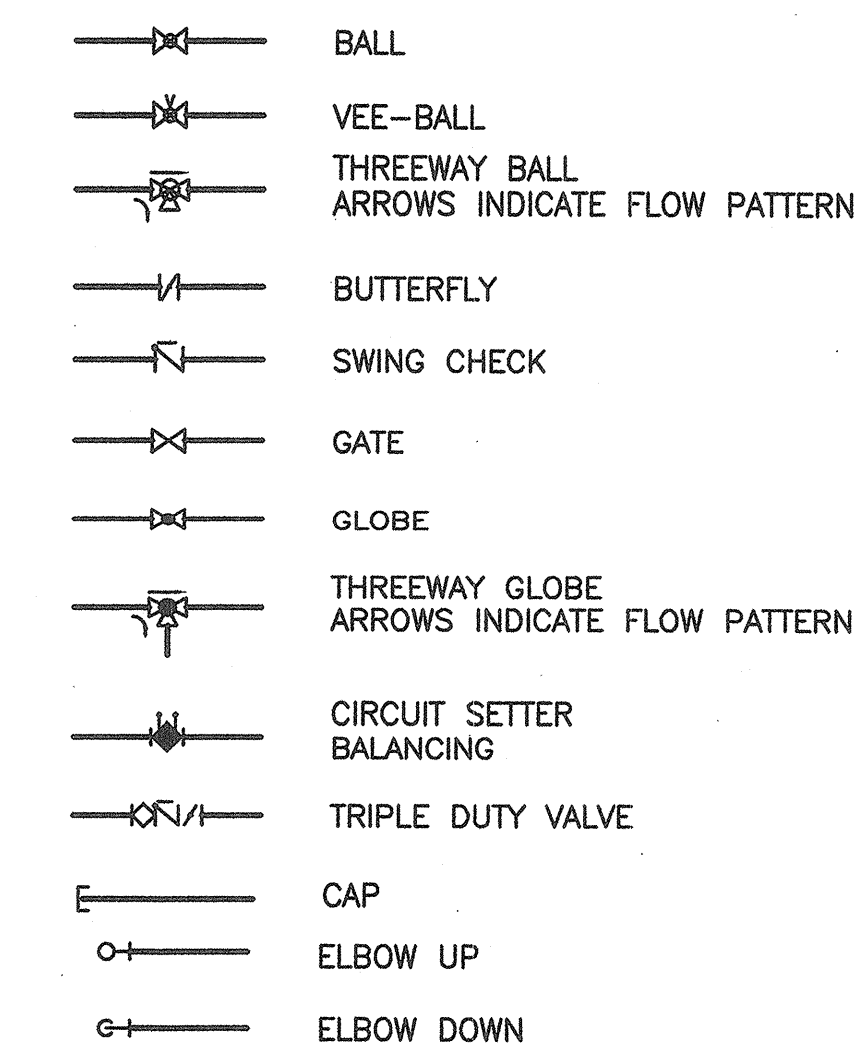
**HVAC ABBREVIATIONS**

|          |   |
|----------|---|
| APD      | AIR PRESSURE DROP                         |
| AHU      | AIR HANDLING UNIT                         |
| ARCH     | ARCHITECTURAL                             |
| BTU      | BRITISH THERMAL UNITS                     |
| CA       | COMPRESSED AIR                            |
| CAP      | CAPACITY                                  |
| CFM      | CUBIC FEET PER MINUTE                     |
| CHWS     | CHILLED WATER SUPPLY                      |
| CHWR     | CHILLED WATER RETURN                      |
| CLG      | CEILING                                   |
| CLN      | CLEAN                                     |
| C.O.     | CLEAN-OUT                                 |
| DB       | DRY BULB                                  |
| DRTY     | DIRTY                                     |
| DIA      | DIAMETER                                  |
| DN       | DOWN                                      |
| DWG      | DRAWING                                   |
| EA       | EXHAUST AIR                               |
| EAT      | ENTERING AIR TEMPERATURE                  |
| EF       | EXHAUST FAN                               |
| EFF      | EFFICIENCY                                |
| ESP      | EXTERNAL STATIC PRESSURE                  |
| EWT      | ENTERING WATER TEMPERATURE                |
| (E)      | EXISTING                                  |
| F        | DEGREES FAHRENHEIT                        |
| FPM      | FEET PER MINUTE                           |
| GPM      | GALLONS PER MINUTE                        |
| HC       | HEATING COIL                              |
| HP       | HORSE POWER                               |
| HWS      | HOT WATER SUPPLY                          |
| HWR      | HOT WATER RETURN                          |
| HVAC     | HEATING, VENTILATING AND AIR CONDITIONING |
| IN       | INCHES                                    |
| IN. W.G. | INCHES WATER GAGE                         |
| LAT      | LEAVING AIR TEMPERATURE                   |
| LWT      | LEAVING WATER TEMPERATURE                 |
| MAX.     | MAXIMUM                                   |
| MBH      | A THOUSAND BRITISH THERMAL UNITS PER HOUR |
| MHP      | MOTOR HORSE POWER                         |
| MIN.     | MINIMUM                                   |
| NTS      | NOT TO SCALE                              |
| OA       | OUTSIDE AIR                               |
| PH       | PHASE                                     |
| QTY      | QUANTITY                                  |
| (R)      | REMOVE                                    |
| RA       | RETURN AIR                                |
| RPM      | REVOLUTIONS PER MINUTE                    |
| SA       | SUPPLY AIR                                |
| SPEC(S)  | SPECIFICATION(S)                          |
| T        | THERMOSTAT                                |
| TSP      | TOTAL STATIC PRESSURE                     |
| TYP      | TYPICAL                                   |
| V        | VENT                                      |
| VD       | VOLUME DAMPER                             |
| WB       | WET BULB                                  |
| WPD      | WATER PRESSURE DROP                       |

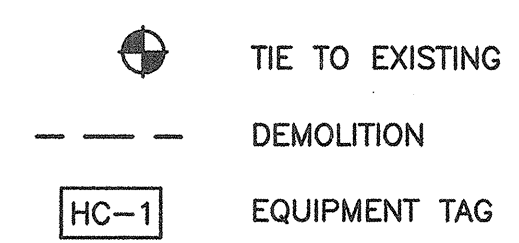
**DUCTWORK SYMBOLS**



**PIPING SYMBOLS**



**GENERAL SYMBOLS**



**IDC ARCHITECTS**

200 Corporate Center Drive  
Suite 200  
Moon Township, PA 15108-3186  
www.idcarchitects.com

IDC PROJECT NO.: 364972      CLIENT PROJECT NO.:

DESIGNED: \_\_\_\_\_      REVIEWED: \_\_\_\_\_

DRAWN: \_\_\_\_\_      APPROVED: \_\_\_\_\_

NOTICE: \_\_\_\_\_      STAMP: \_\_\_\_\_

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KEYPLAN

**The UNIVERSITY of VERMONT**

**Delehanty Hall  
Cosmogenic Nuclide  
Laboratory**

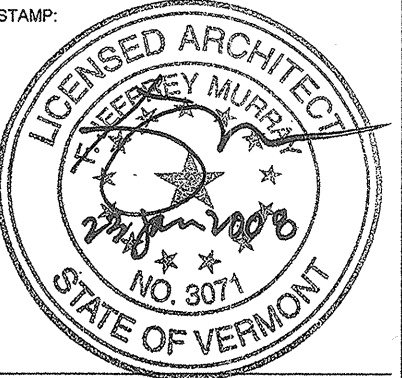
TITLE: **MECHANICAL  
LEGEND  
ABBREVIATIONS  
AND SYMBOLS**

DATE ISSUED: \_\_\_\_\_      DRAWING SCALE: \_\_\_\_\_

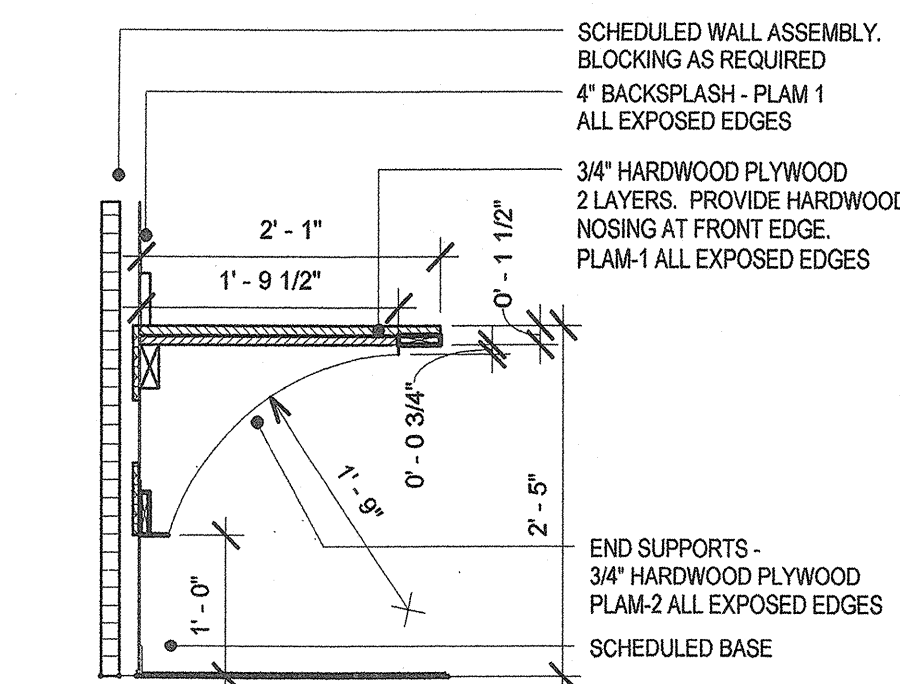
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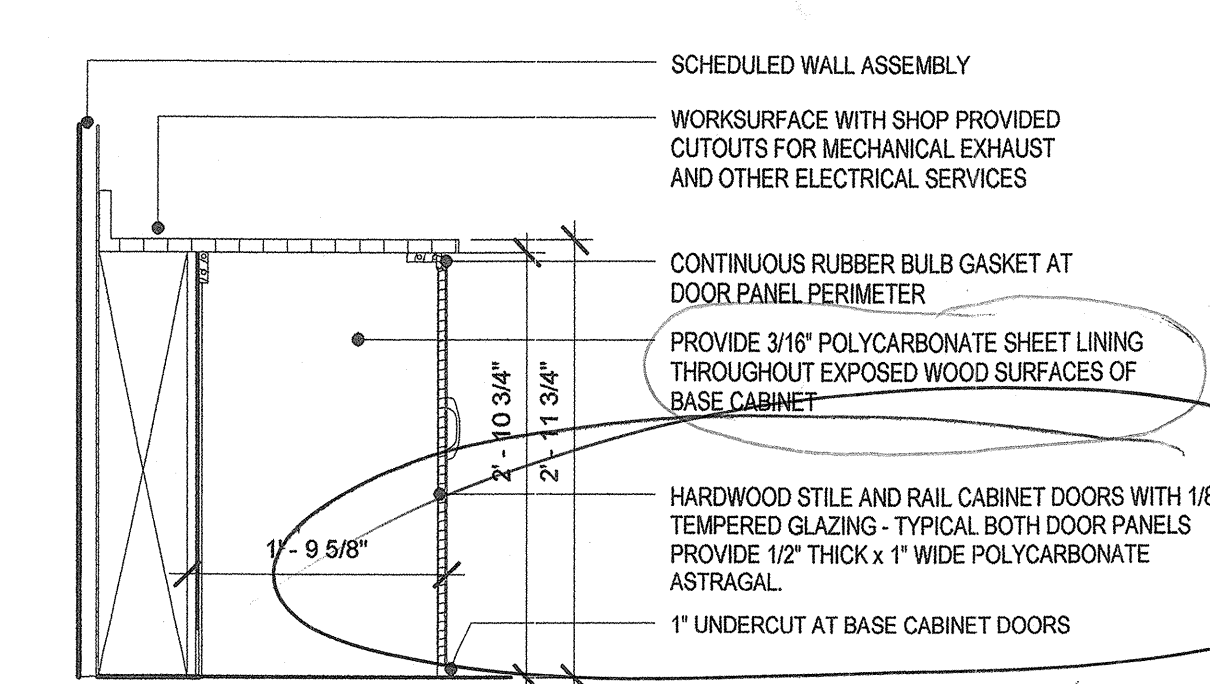




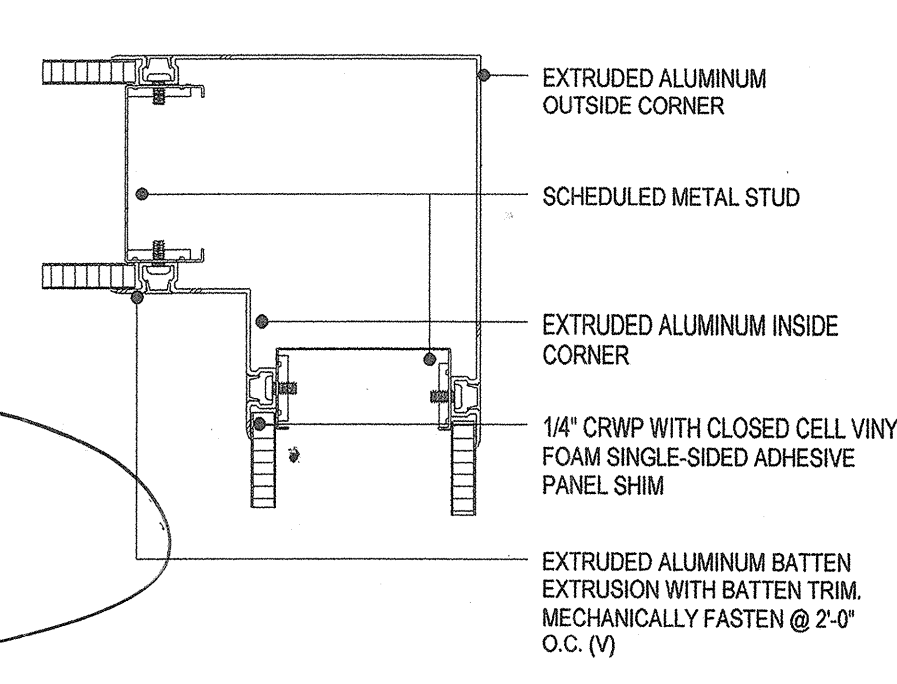
GENERAL NOTES  
 1. PROVIDE CONTINUOUS BEAD OF TYPE S-10 SEALANT AT ALL WORKSURFACE INTERSECTIONS WITH CLEAN ROOM WALL PANELS/ASSEMBLIES.



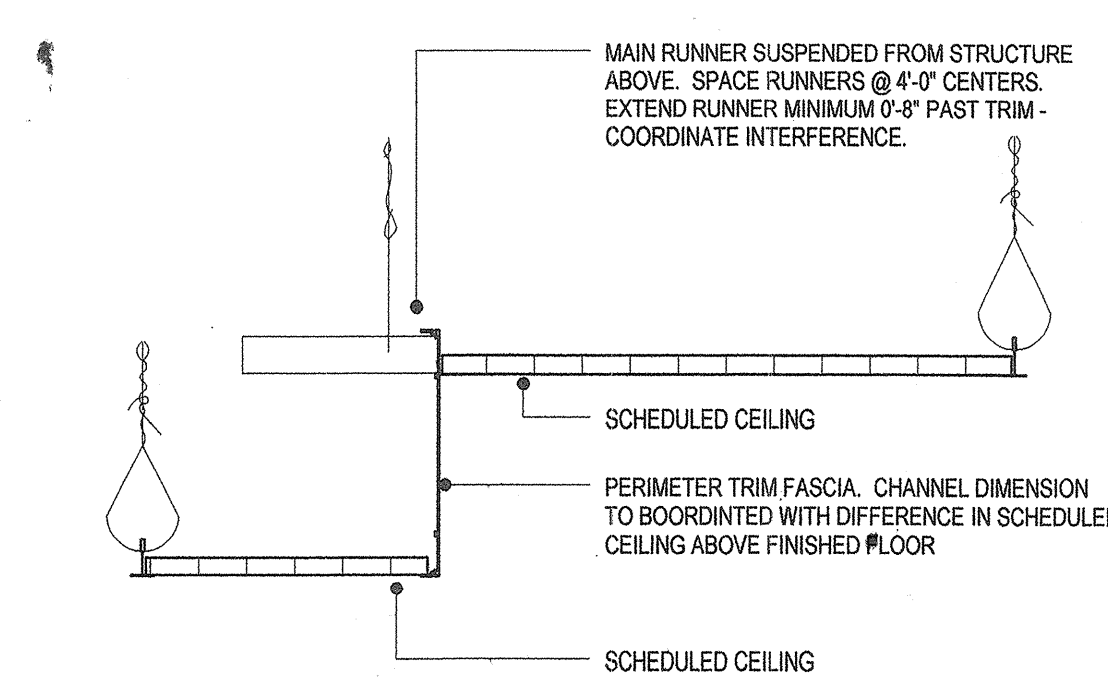
15 SECTION AT COUNTERTOP  
 3/4" = 1'-0"



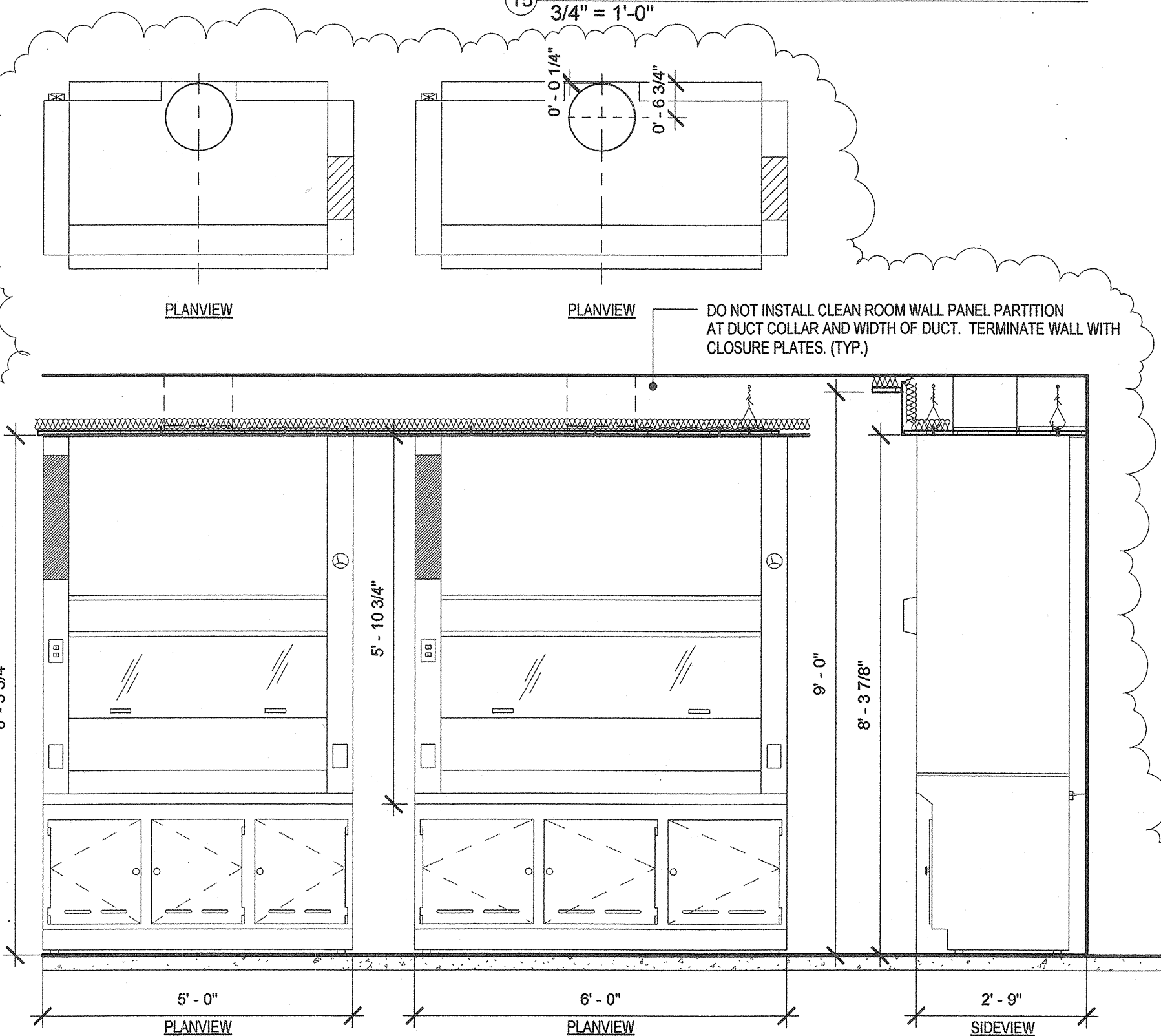
11 CASEWORK SECTION - ULTRASOUND CABINET  
 3/4" = 1'-0"



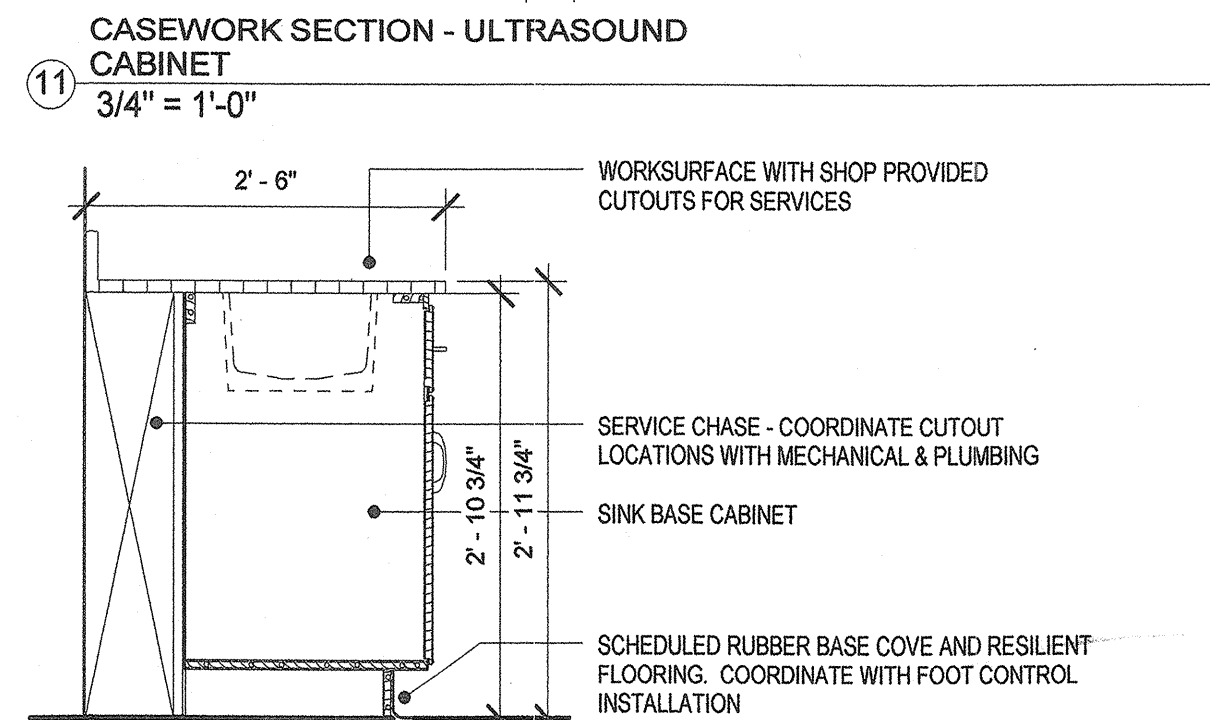
7 CRWP OUTSIDE CORNER DETAIL  
 3" = 1'-0"



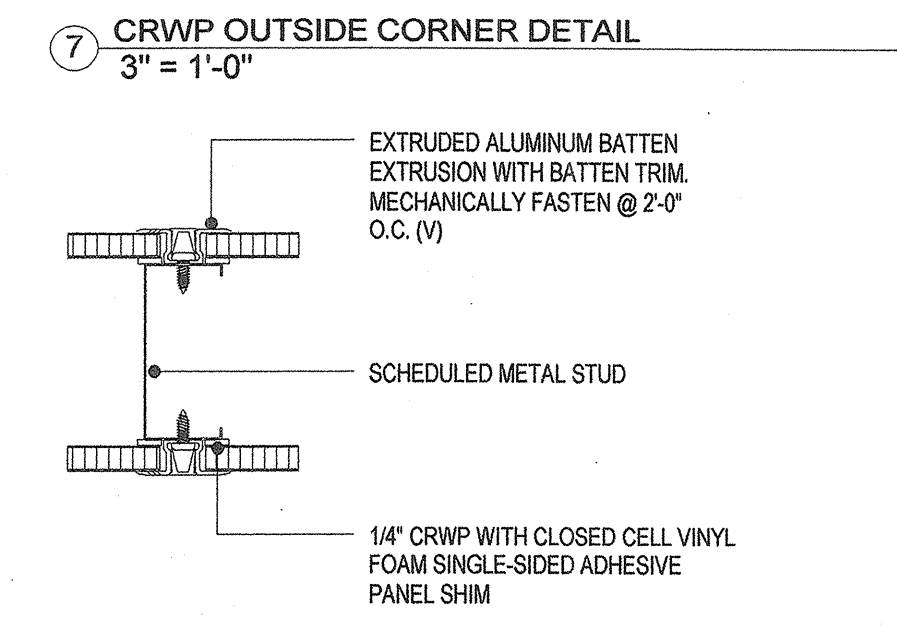
1 CEILING TRANSITION  
 1 1/2" = 1'-0"



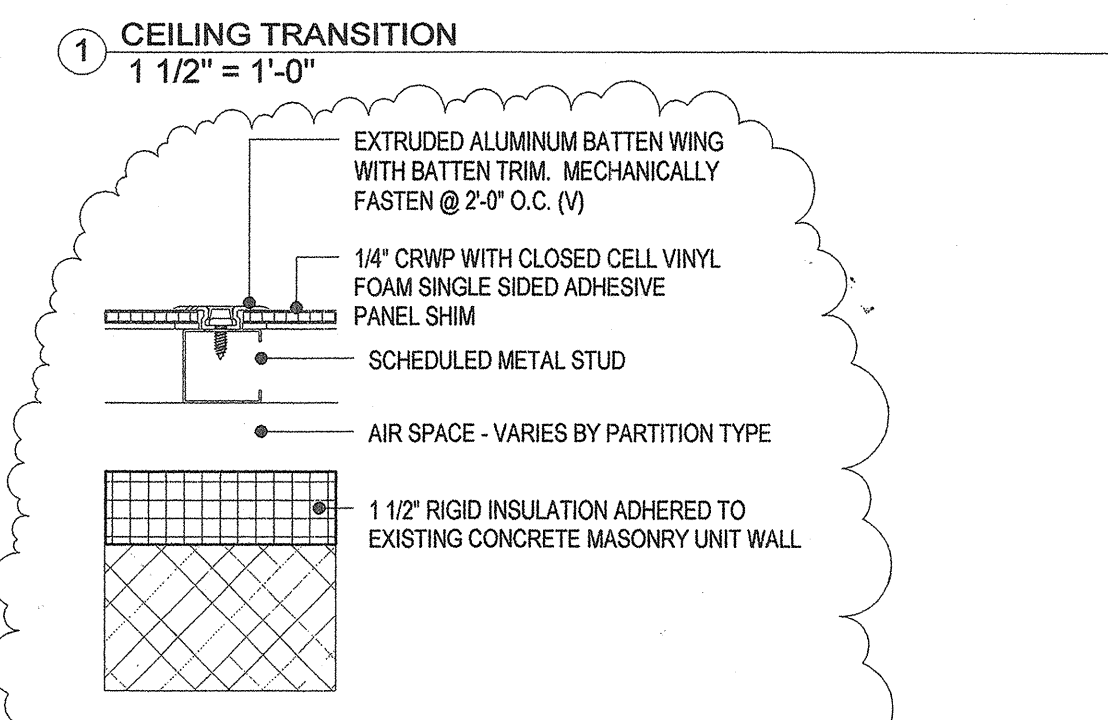
16 FUME HOOD ARRANGEMENT  
 1/2" = 1'-0"



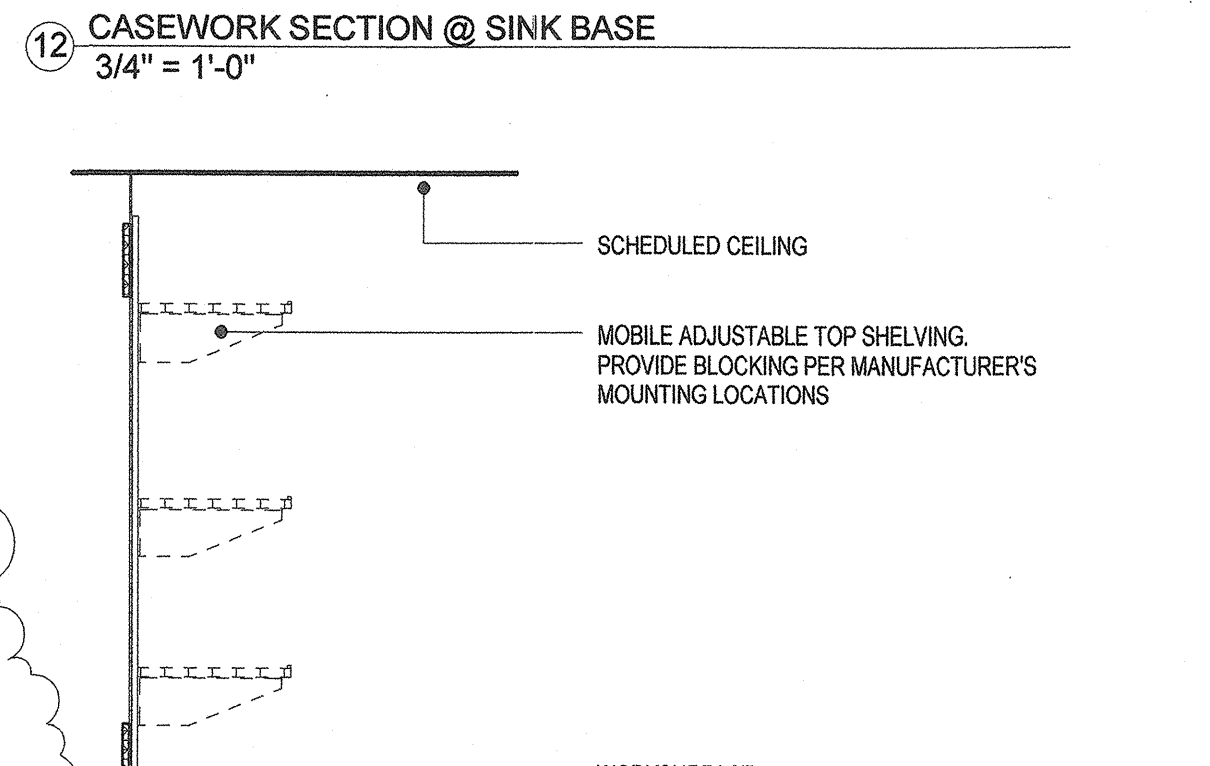
12 CASEWORK SECTION @ SINK BASE  
 3/4" = 1'-0"



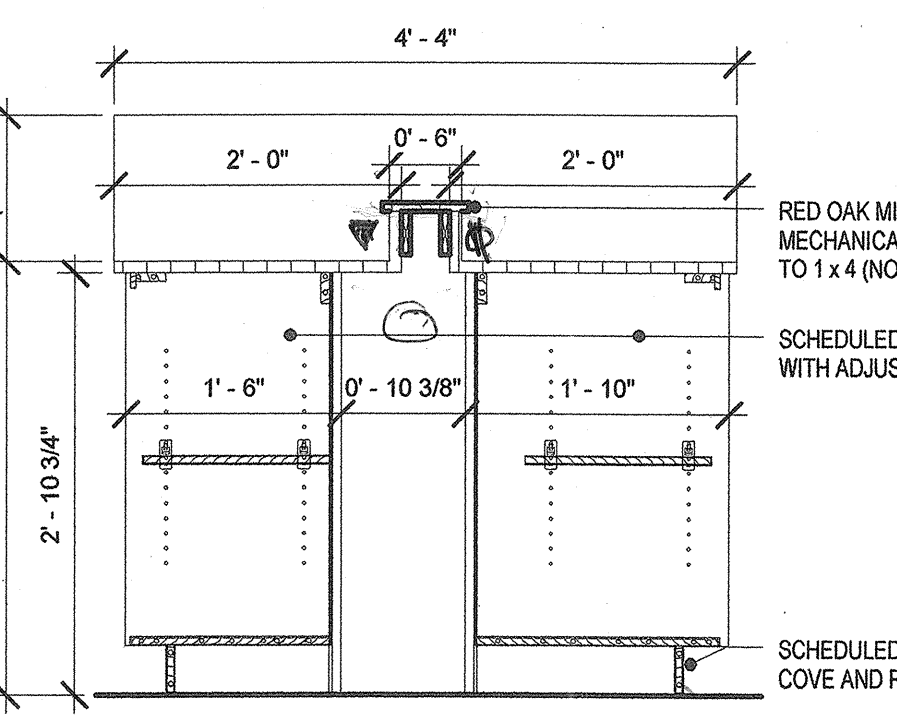
8 CRWP PLAN DETAIL  
 3" = 1'-0"



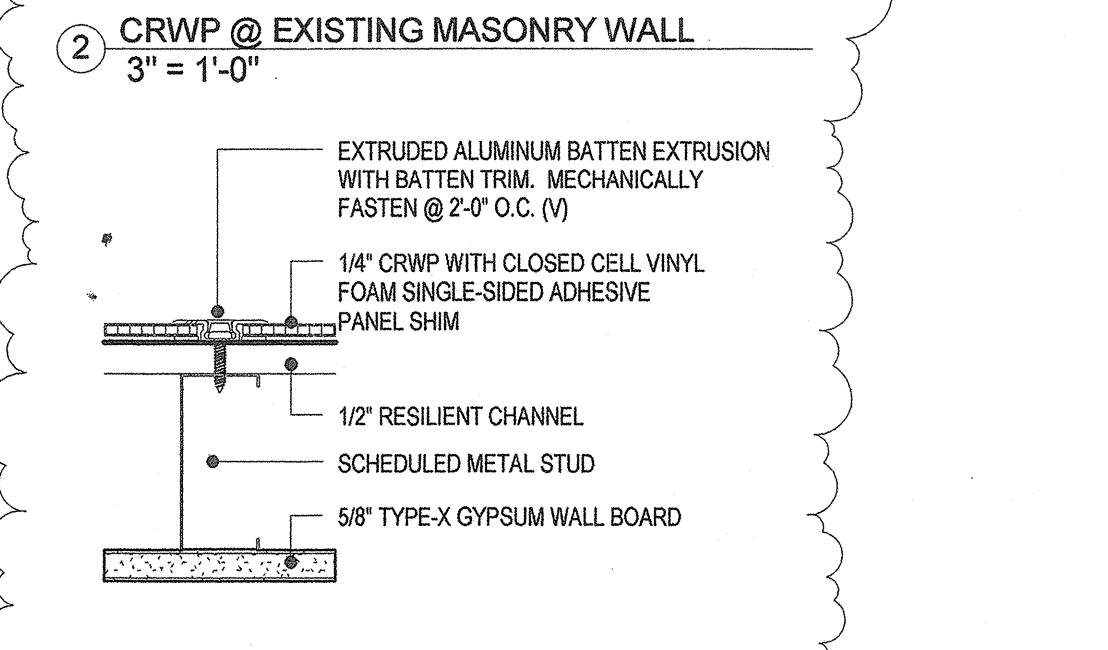
2 CRWP @ EXISTING MASONRY WALL  
 3" = 1'-0"



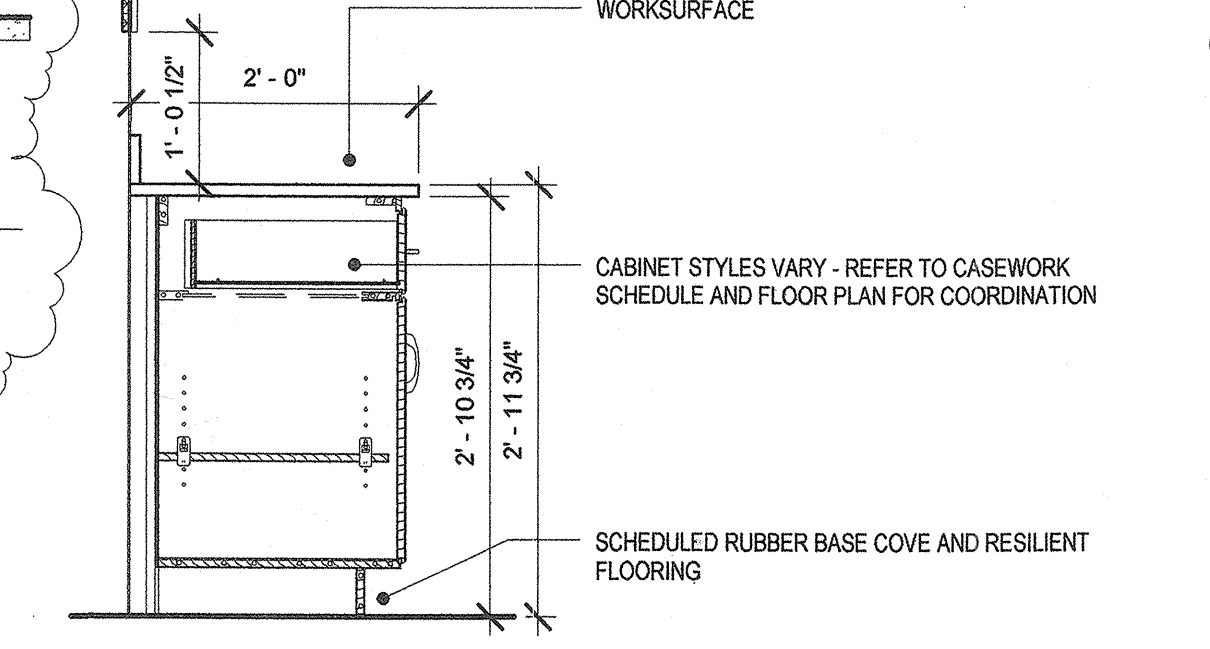
13 CASEWORK SECTION @ 24" COUNTERTOP  
 3/4" = 1'-0"



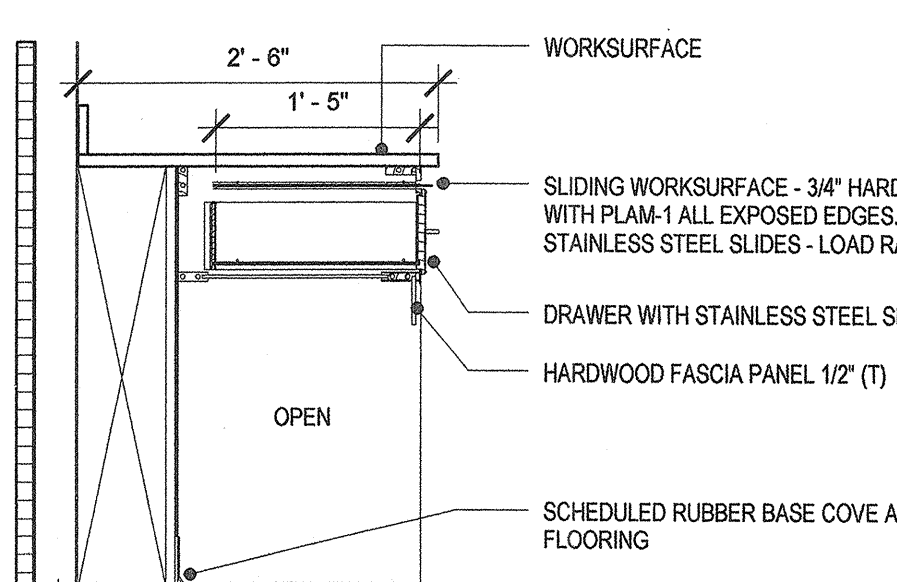
9 CASEWORK DETAIL - PENINSULA  
 3/4" = 1'-0"



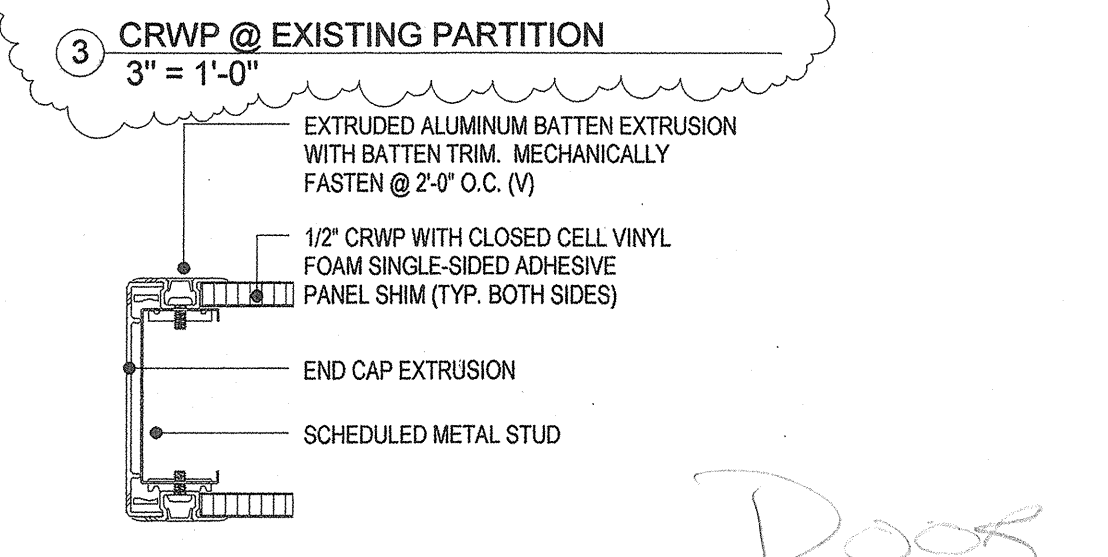
3 CRWP @ EXISTING PARTITION  
 3" = 1'-0"



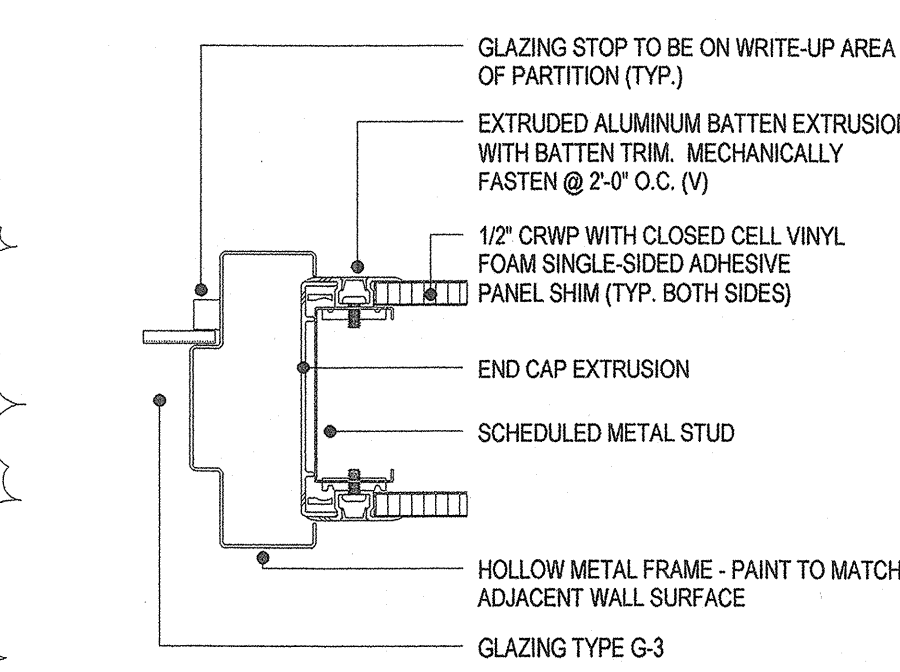
13 CASEWORK SECTION @ 24" COUNTERTOP  
 3/4" = 1'-0"



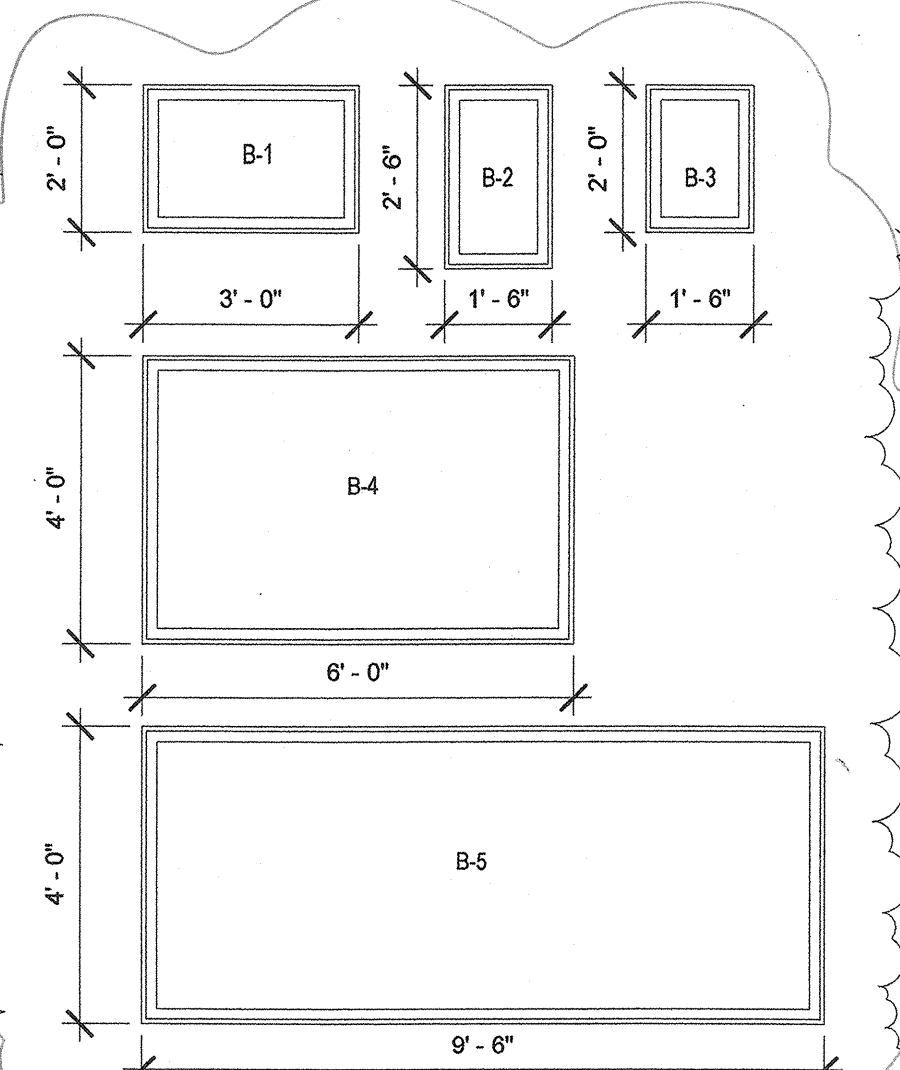
10 CASEWORK SECTION - CC-2  
 3/4" = 1'-0"



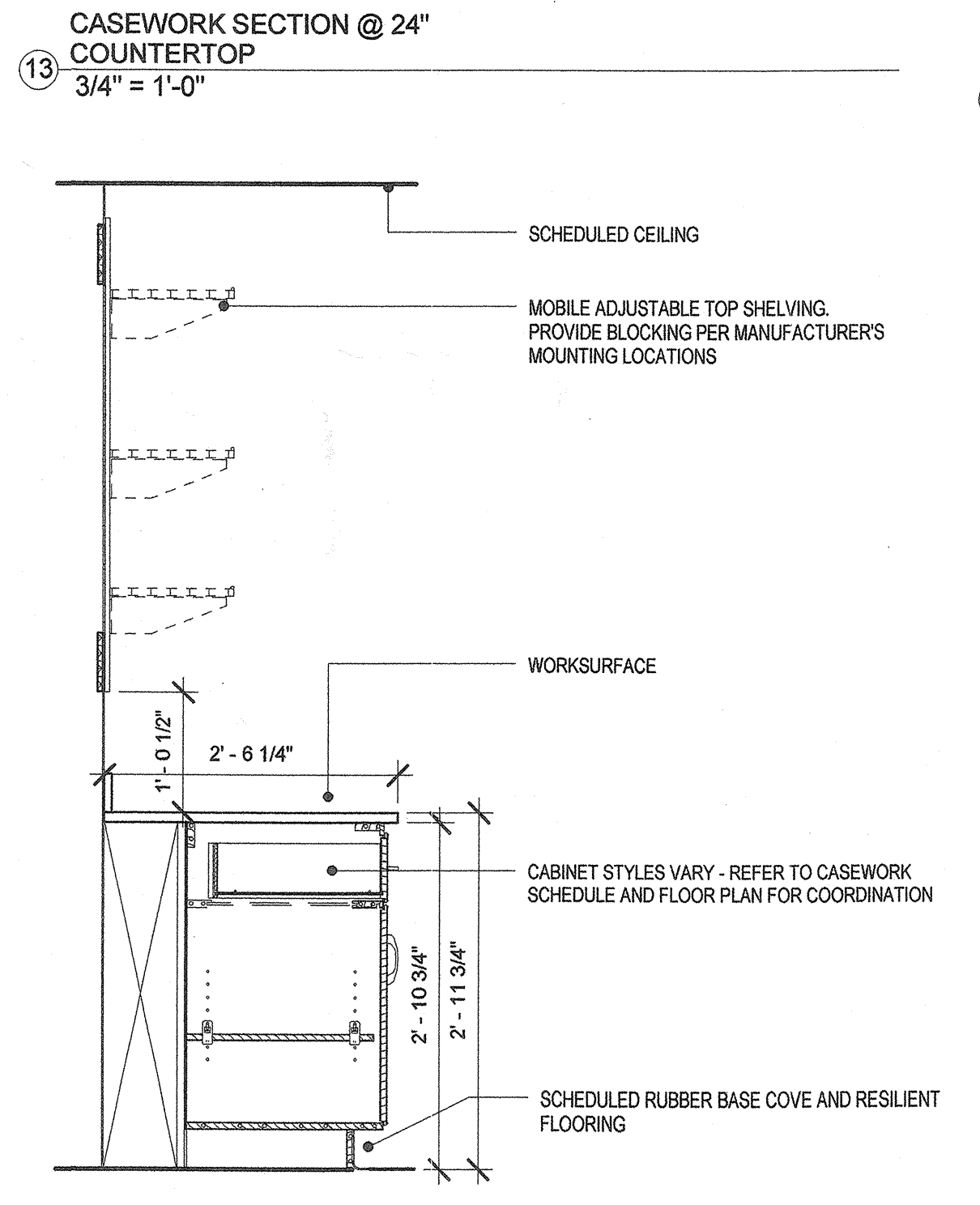
4 CRWP END WALL PLAN DETAIL  
 3" = 1'-0"



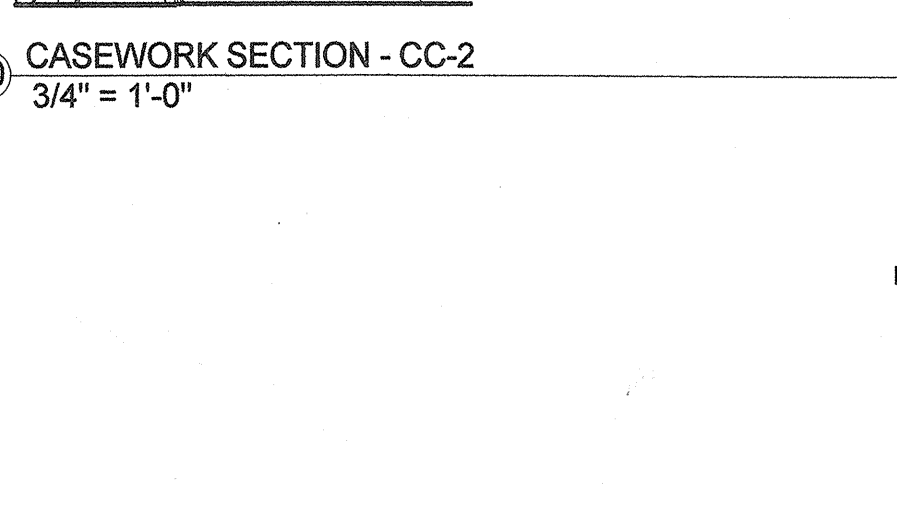
17 HM - BORROWED LITE DETAIL  
 3" = 1'-0"



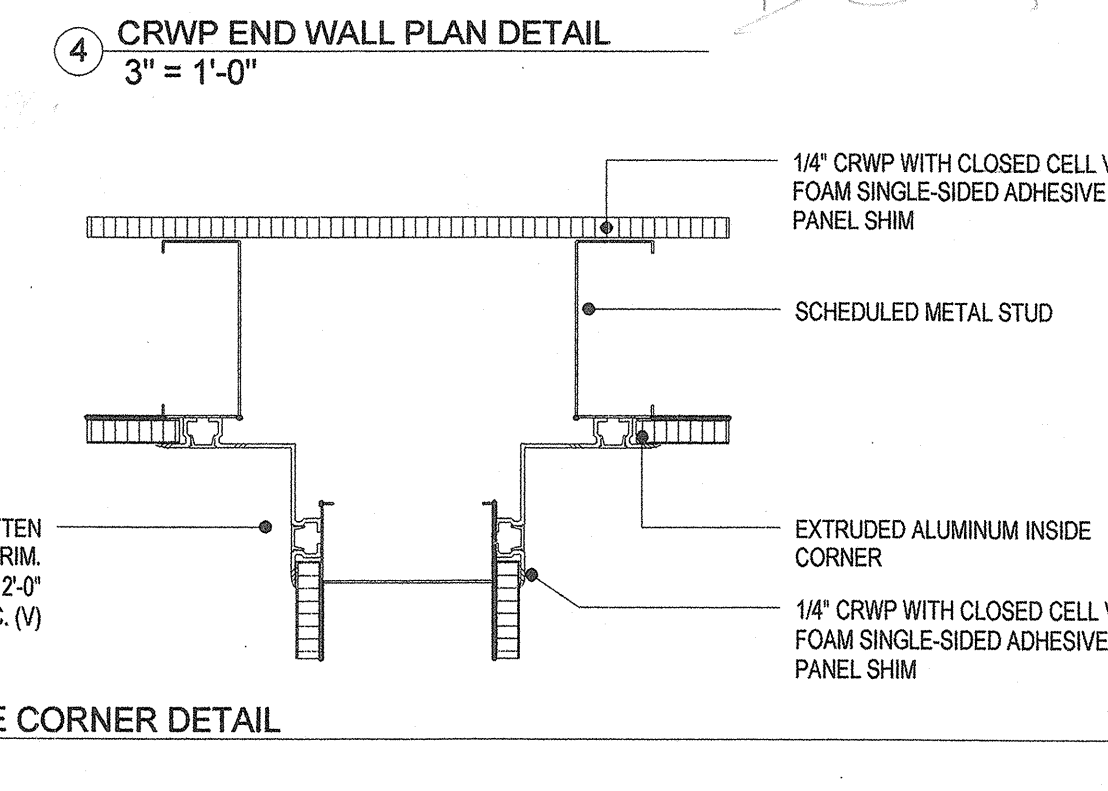
BORROWED LITE LEGEND  
 3/8" = 1'-0"



14 CASEWORK SECTION @ 30" COUNTERTOP  
 3/4" = 1'-0"

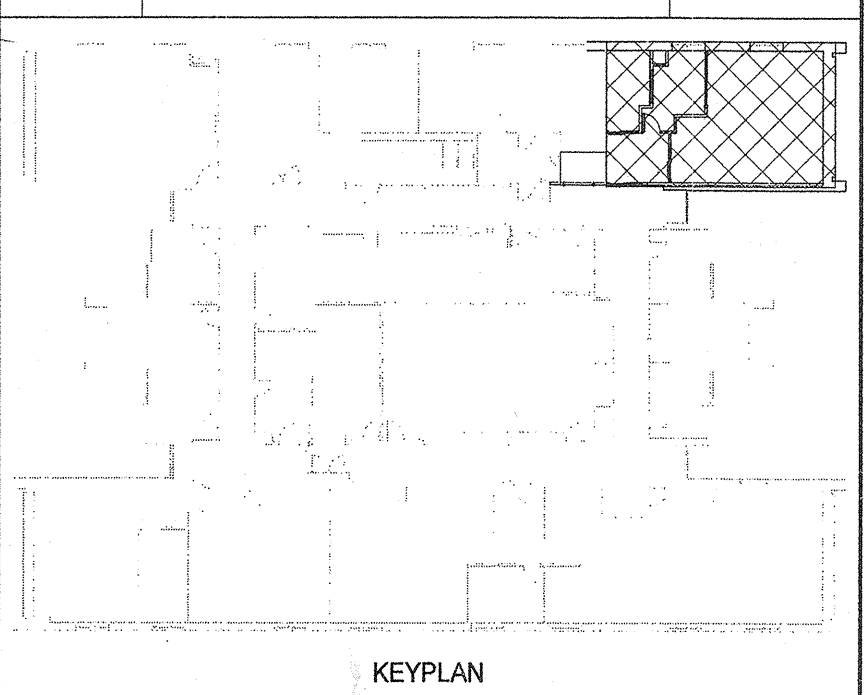


5 CRWP INSIDE CORNER DETAIL  
 3" = 1'-0"



6 SLIP TRACK DETAIL  
 3/4" = 1'-0"

|   |                         |          |
|---|-------------------------|----------|
| 1 | CONFORMED               | 01-23-08 |
| 0 | ISSUED FOR CONSTRUCTION | 11-15-07 |



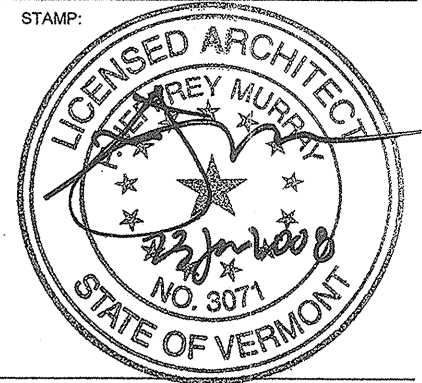
TITLE: COSMOGENIC NUCLIDE LABORATORY DELEHANTY HALL ARCHITECTURAL DETAILS

DATE ISSUED: 10/22/07 DRAWING SCALE: As indicated  
 ACAD FILE: EQUIPMENT CODE:

DRAWING NUMBER: A-6

*Sizes to stay per original drawings. Already ordered MG*

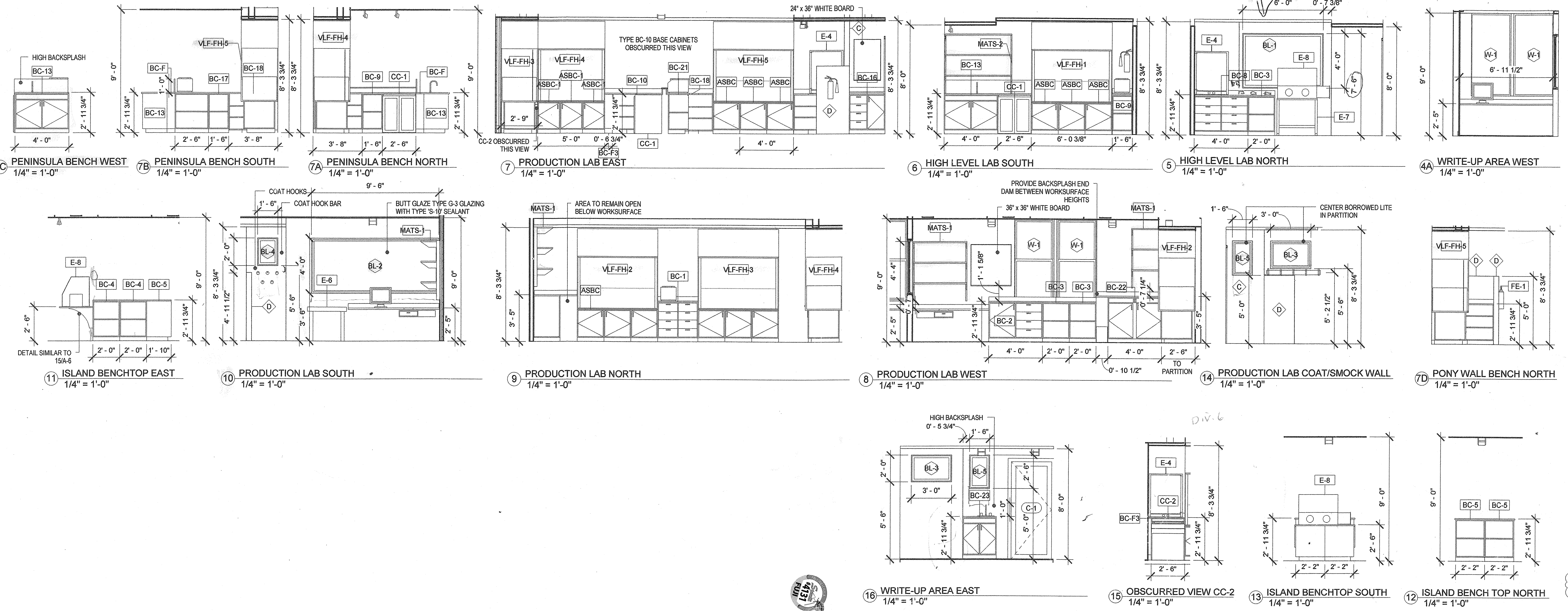
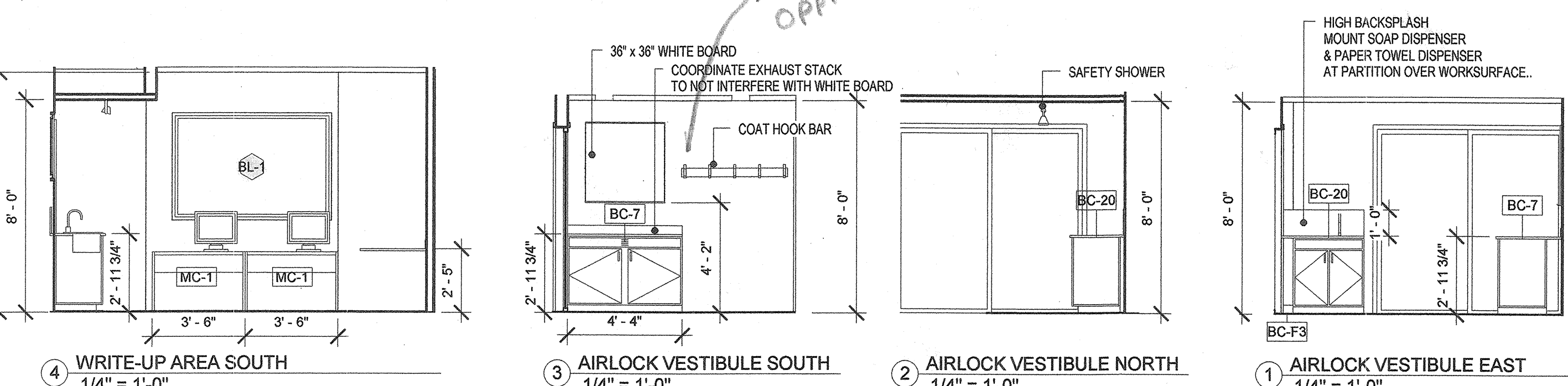
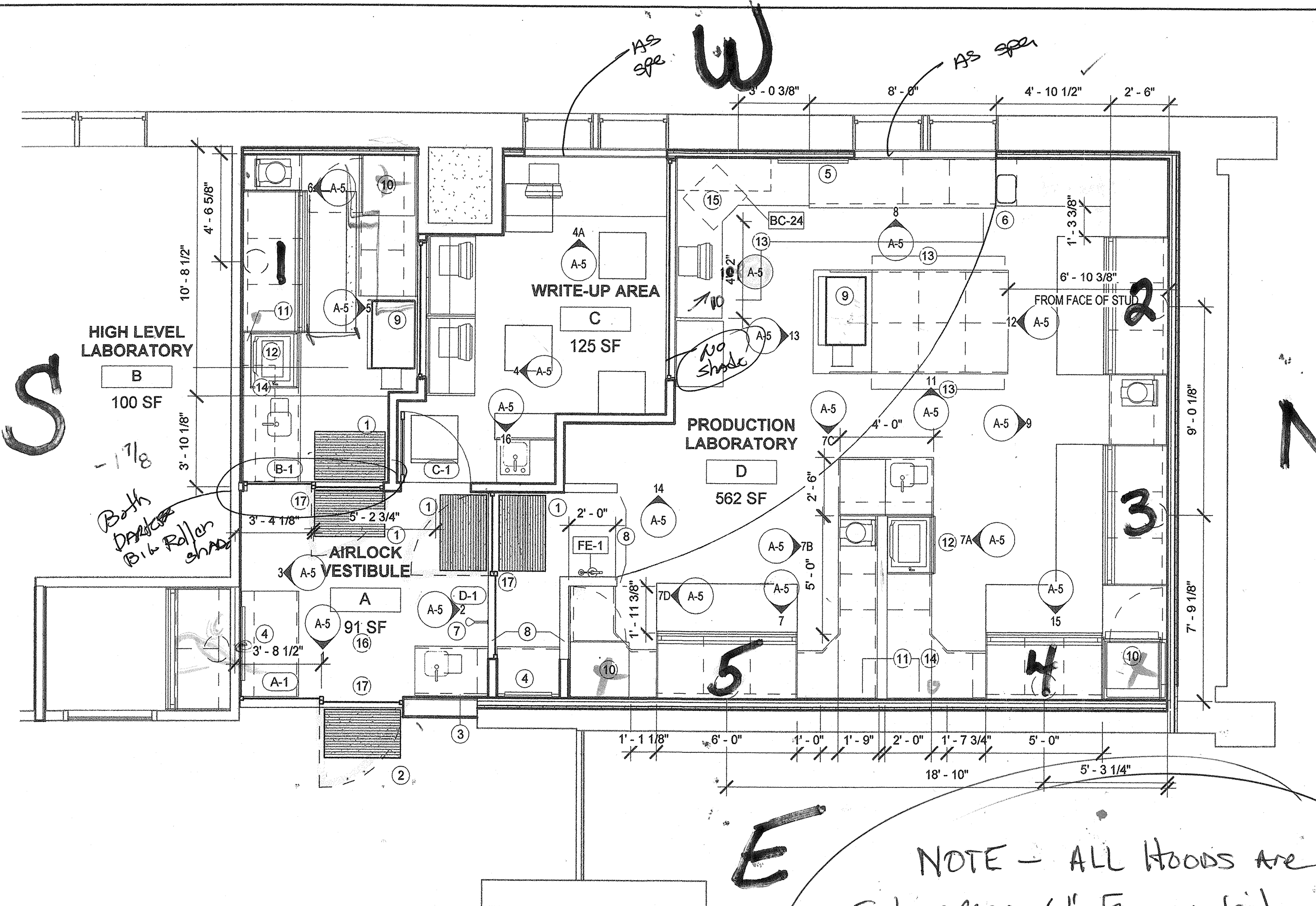




| Room: Name            | Mark   | Width     | Height     | Depth  | Description                          | Comments |
|-----------------------|--------|-----------|------------|--------|--------------------------------------|----------|
| AIRLOCK VESTIBULE     | BC-7   | 4'-4"     | 2'-10 3/4" | 1'-10" | CUSTOM SINK BASE CABINET (STORAGE)   |          |
| AIRLOCK VESTIBULE     | BC-20  | 2'-8"     | 2'-10 3/4" | 1'-10" | SINK BASE CABINET                    |          |
| AIRLOCK VESTIBULE     | BC-F3  | 0'-5 3/8" | 2'-10 3/4" | 1'-10" | FILLER PANEL                         |          |
| HIGH LEVEL LABORATORY | BC-8   | 4'-0"     | 2'-10 3/4" | 1'-10" | 8-DRAWER BASE CABINET                |          |
| HIGH LEVEL LABORATORY | BC-3   | 2'-0"     | 2'-10 3/4" | 1'-10" | SHELF UNIT BASE CABINET              |          |
| HIGH LEVEL LABORATORY | ASBC   | 2'-0"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| HIGH LEVEL LABORATORY | BC-9   | 1'-6"     | 2'-10 3/4" | 1'-10" | SHELF UNIT BASE CABINET              |          |
| HIGH LEVEL LABORATORY | ASBC   | 2'-0"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| HIGH LEVEL LABORATORY | BC-13  | 4'-0"     | 2'-10 3/4" | 1'-10" | SINK BASE CABINET                    |          |
| HIGH LEVEL LABORATORY | ASBC   | 2'-0"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | BC-2   | 4'-0"     | 2'-10 3/4" | 1'-10" | CUPBOARD/DRAWER BASE CABINET         |          |
| PRODUCTION LABORATORY | BC-3   | 2'-0"     | 2'-10 3/4" | 1'-10" | SHELF UNIT BASE CABINET              |          |
| PRODUCTION LABORATORY | BC-3   | 2'-0"     | 2'-10 3/4" | 1'-10" | SHELF UNIT BASE CABINET              |          |
| PRODUCTION LABORATORY | BC-22  | 4'-0"     | 3'-4"      | 2'-0"  | FLAMMABLE STORAGE CABINET            |          |
| PRODUCTION LABORATORY | ASBC   | 2'-0"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | ASBC-1 | 1'-8"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | BC-1   | 3'-0"     | 2'-10 3/4" | 1'-10" | 8-DRAWER BASE CABINET                |          |
| PRODUCTION LABORATORY | BC-4   | 2'-0"     | 2'-10 3/4" | 2'-2"  | CUSTOM SHELF UNIT BASE CABINET       |          |
| PRODUCTION LABORATORY | BC-4   | 2'-0"     | 2'-10 3/4" | 2'-2"  | CUSTOM SHELF UNIT BASE CABINET       |          |
| PRODUCTION LABORATORY | BC-4   | 2'-0"     | 2'-10 3/4" | 2'-2"  | CUSTOM SHELF UNIT BASE CABINET       |          |
| PRODUCTION LABORATORY | BC-5   | 2'-2"     | 2'-10 3/4" | 1'-10" | CUSTOM SHELF UNIT BASE CABINET       |          |
| PRODUCTION LABORATORY | BC-4   | 2'-0"     | 2'-10 3/4" | 2'-2"  | CUSTOM SHELF UNIT BASE CABINET       |          |
| PRODUCTION LABORATORY | ASBC   | 2'-0"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | ASBC   | 2'-0"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | BC-5   | 2'-2"     | 2'-10 3/4" | 1'-10" | CUSTOM SHELF UNIT BASE CABINET       |          |
| PRODUCTION LABORATORY | BC-21  | 2'-6"     | 2'-10 3/4" | 1'-6"  | SHELF UNIT BASE CABINET              |          |
| PRODUCTION LABORATORY | BC-17  | 1'-6"     | 2'-10 3/4" | 1'-6"  | SHELF UNIT BASE CABINET              |          |
| PRODUCTION LABORATORY | BC-9   | 1'-6"     | 2'-10 3/4" | 1'-10" | SHELF UNIT BASE CABINET              |          |
| PRODUCTION LABORATORY | BC-13  | 4'-0"     | 2'-10 3/4" | 1'-10" | SINK BASE CABINET                    |          |

| Room: Name            | Mark   | Width     | Height     | Depth  | Description                          | Comments |
|-----------------------|--------|-----------|------------|--------|--------------------------------------|----------|
| PRODUCTION LABORATORY | BC-18  | 2'-8"     | 2'-11 3/4" | 2'-8"  | CUSTOM CORNER SHELF BASE CABINET     |          |
| PRODUCTION LABORATORY | BC-10  | 2'-8"     | 2'-10 3/4" | 2'-8"  | CUSTOM CORNER SHELF BASE CABINET     |          |
| PRODUCTION LABORATORY | BC-F   | 0'-7"     | 2'-10 3/4" | 2'-0"  | FILLER PANEL                         |          |
| PRODUCTION LABORATORY | BC-F   | 0'-7"     | 2'-10 3/4" | 2'-0"  | FILLER PANEL                         |          |
| PRODUCTION LABORATORY | BC-19  | 2'-8"     | 2'-10 3/4" | 2'-8"  | CUSTOM CORNER SHELF BASE CABINET     |          |
| PRODUCTION LABORATORY | BC-16  | 2'-8"     | 2'-10 3/4" | 2'-8"  | CUSTOM CORNER SHELF BASE CABINET     |          |
| PRODUCTION LABORATORY | BC-24  | 2'-0"     | 2'-10 3/4" | 1'-10" | PENCIL DRAWER - WORKSURFACE MOUNT    |          |
| PRODUCTION LABORATORY | ASBC   | 2'-0"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | ASBC   | 2'-0"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | ASBC   | 2'-0"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | ASBC   | 2'-0"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | ASBC   | 2'-0"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | ASBC-1 | 1'-8"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | ASBC-1 | 1'-8"     | 2'-4"      | 2'-4"  | ACID STORAGE BASE CABINET - BY MANU. | 1        |
| PRODUCTION LABORATORY | BC-F3  | 0'-3"     | 2'-10 3/4" | 1'-10" | FILLER PANEL                         |          |
| PRODUCTION LABORATORY | BC-F3  | 0'-6 3/4" | 2'-10 3/4" | 1'-10" | FILLER PANEL                         |          |
| WRITE-UP AREA         | BC-23  | 2'-6"     | 2'-10 3/4" | 1'-10" | SINK BASE CABINET                    |          |

COMMENT LEGEND: 1. POLYPROPYLENE ACID STORAGE BASE CABINET BY FUME HOOD MANUFACTURER

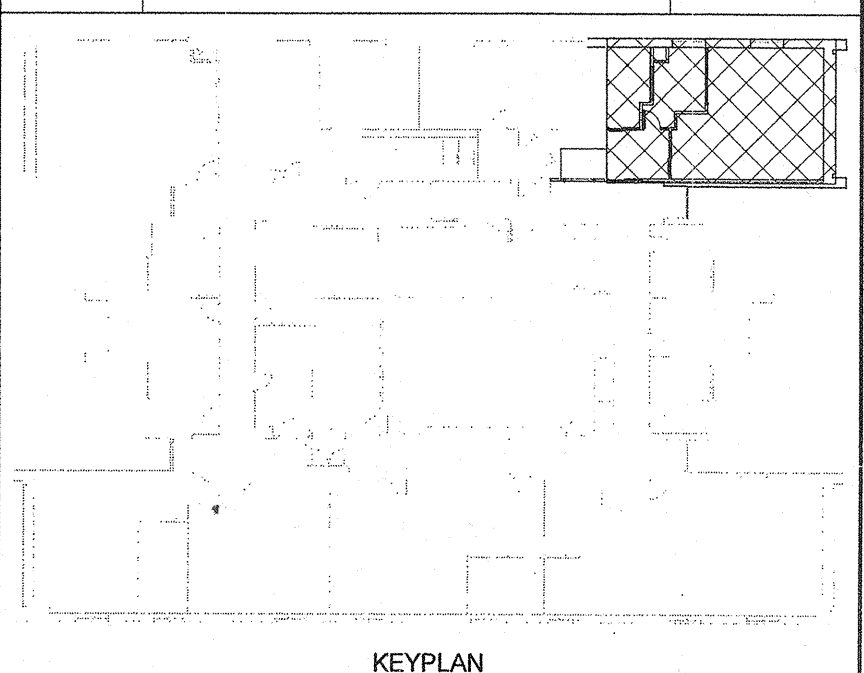


**NOTE - ALL HOODS ARE SET APPROX 6" FROM OUTSIDE WALLS FOR MECH. TIE-INS ELEC. PLUMB.**

Access panels Added to Close Gap

- GENERAL NOTES**
1. CONTINUE RESILIENT FLOORING AS BASE AT ALL CASEWORK.
- KEYED NOTES - ENLARGED FLOOR PLAN**
1. TACKY-MAT.
  2. WALK-OFF MAT.
  3. SAFETY PROTOCOL LOCATION - COORDINATE ANY INTERFERENCE WITH END-USER.
  4. WHITE BOARD.
  5. CORK BOARD.
  6. WASTE RECEPTACLE - BY OWNER (SHOWN FOR REFERENCE ONLY).
  7. SAFETY SHOWER ABOVE. COORDINATE WITH PLUMBING.
  8. COORDINATE INSTALLATION OF ACTIVATOR WITH END-USER.
  9. ALIGN.
  10. GLOVE-BOX.
  11. OVEN.
  12. ULTRAPURE WATER SYSTEM. COORDINATE INSTALLATION WITH FUME HOOD INSTALLATION AND DI WATER CONNECTION INSTALLATION.
  13. ULTRASOUND CABINET - SEE DETAIL FOR CASEWORK TYPE CC-1.
  14. MARINE EDGE FOR WORKSURFACE NOTE REQUIRED.
  15. LOCATION FOR BENCHTOP PORTABLE FUME HOOD FOR ACETONE. CONNECT FLEXIBLE SNORKEL WITH MECHANICAL EXHAUST SYSTEM.
  16. PENCIL DRAWER.
  17. TRENCH DRAIN AT FLOOR.
  18. SLOPE FLOOR AT CLEAN ROOM SLIDING DOORS FLUSH WITH THRESHOLD HEIGHT - 0" TRANSITION REQUIRED.

| No. | Description             | Date     |
|-----|-------------------------|----------|
| 1   | CONFORMED               | 01-23-08 |
| 0   | ISSUED FOR CONSTRUCTION | 11-15-07 |



**The UNIVERSITY of VERMONT**

TITLE: **COSMOGENIC NUCLIDE LABORATORY DELEHANTY HALL ENLARGED PLAN & ELEVATIONS EQUIPMENT & CASEWORK**

DATE ISSUED: 10/11/07 DRAWING SCALE: 1/4" = 1'-0"

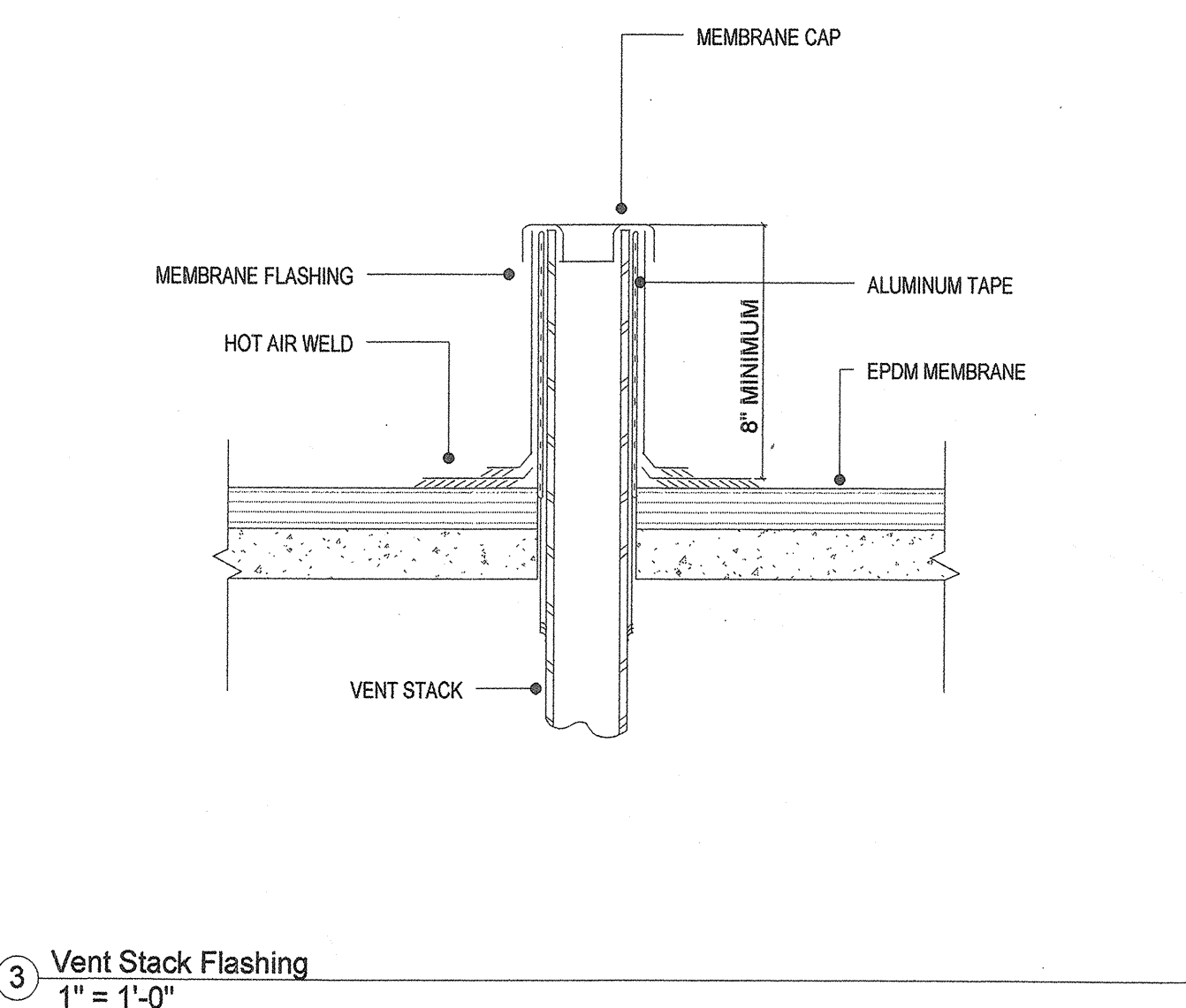
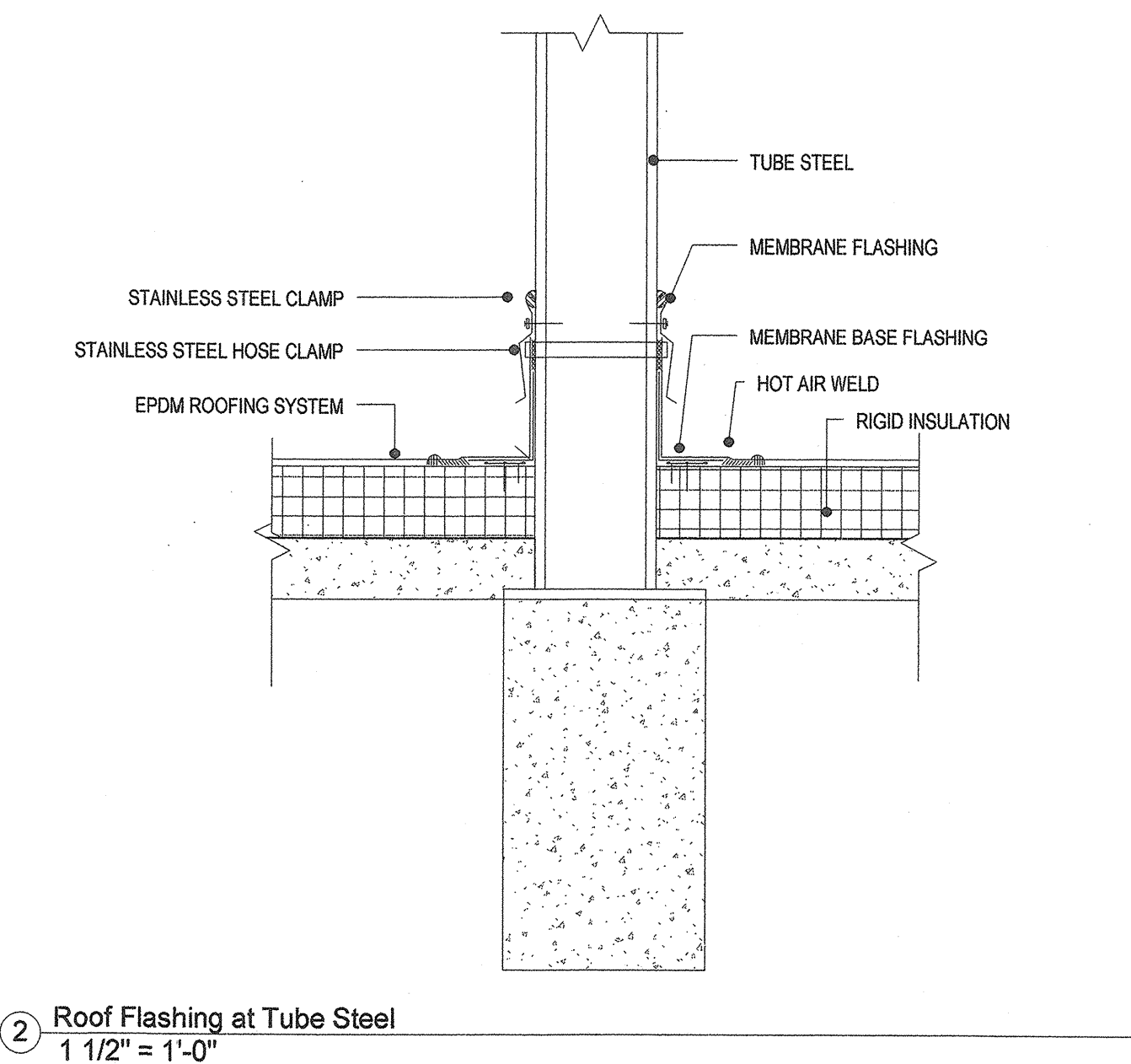
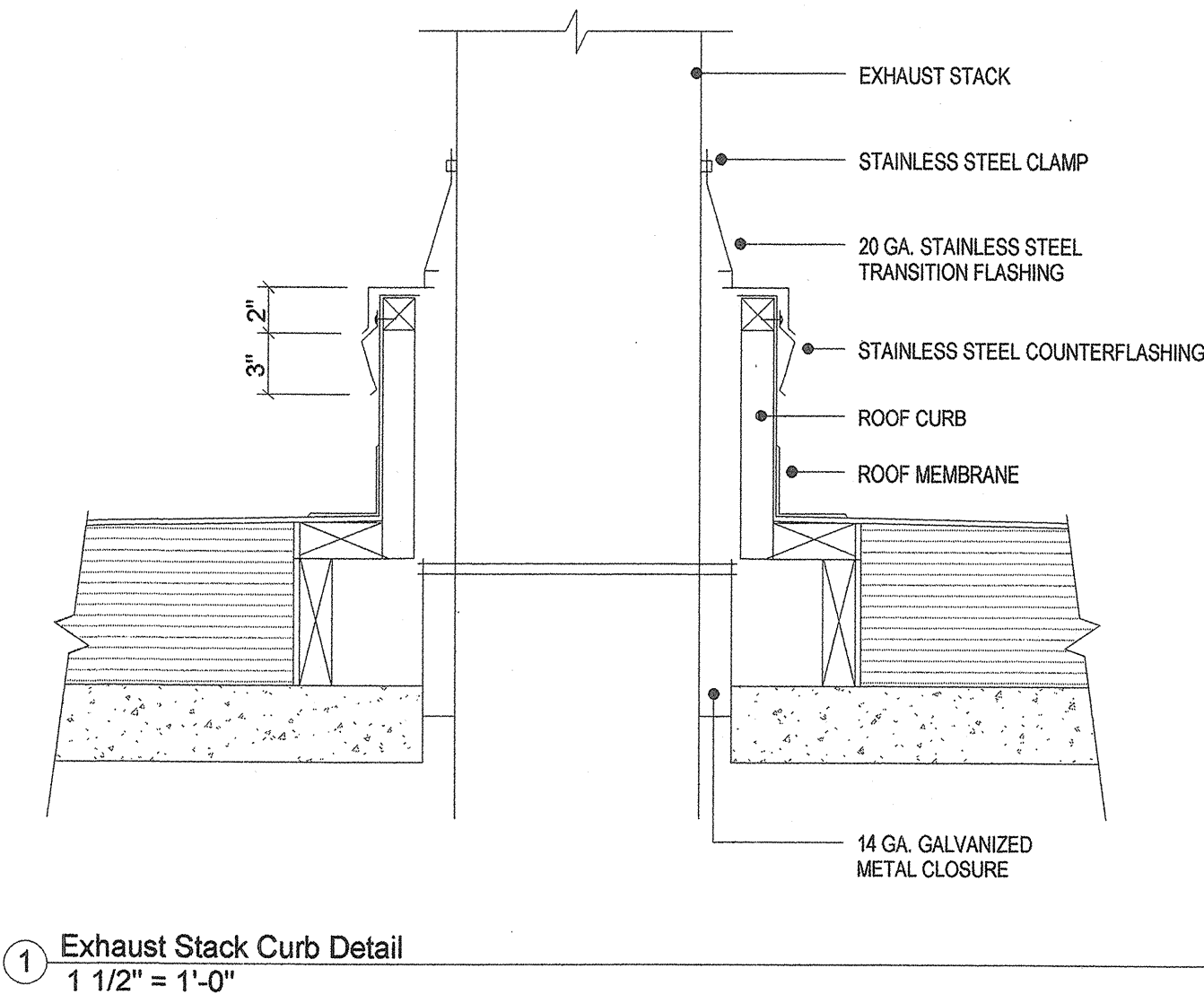
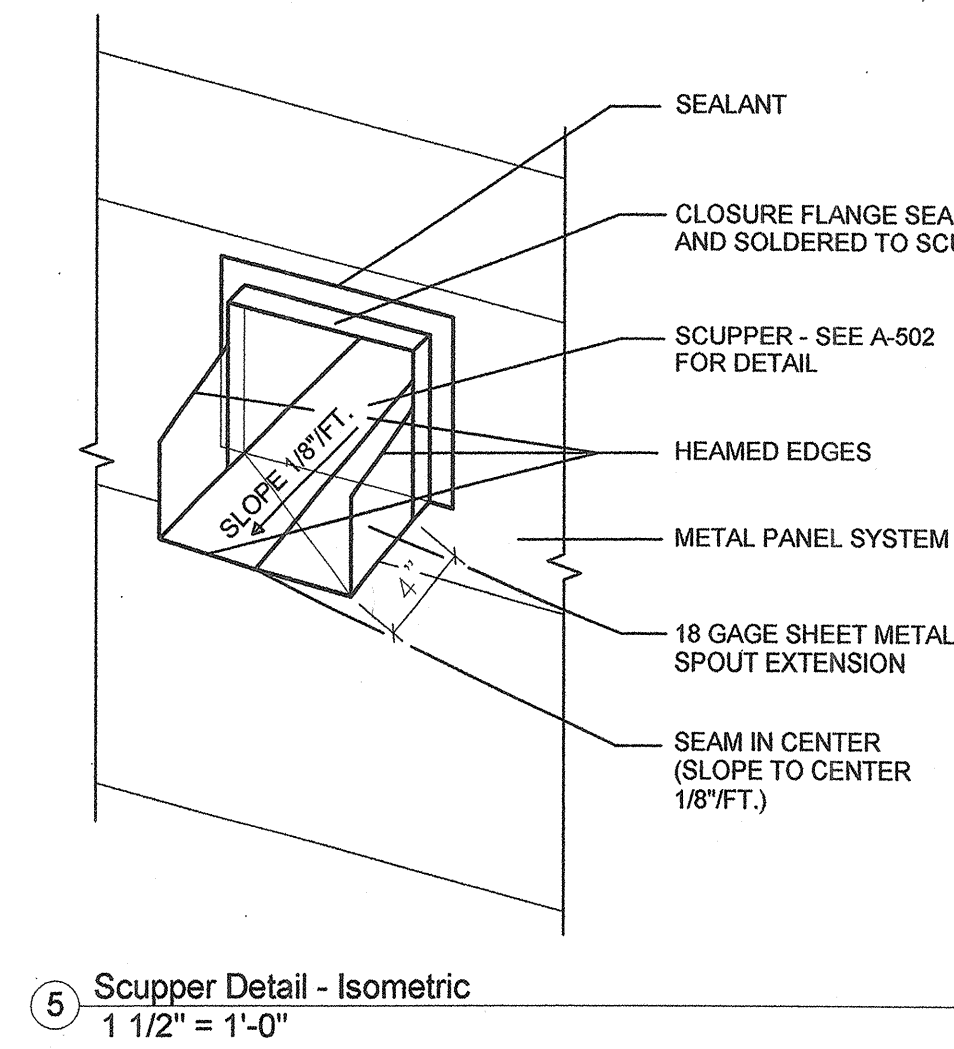
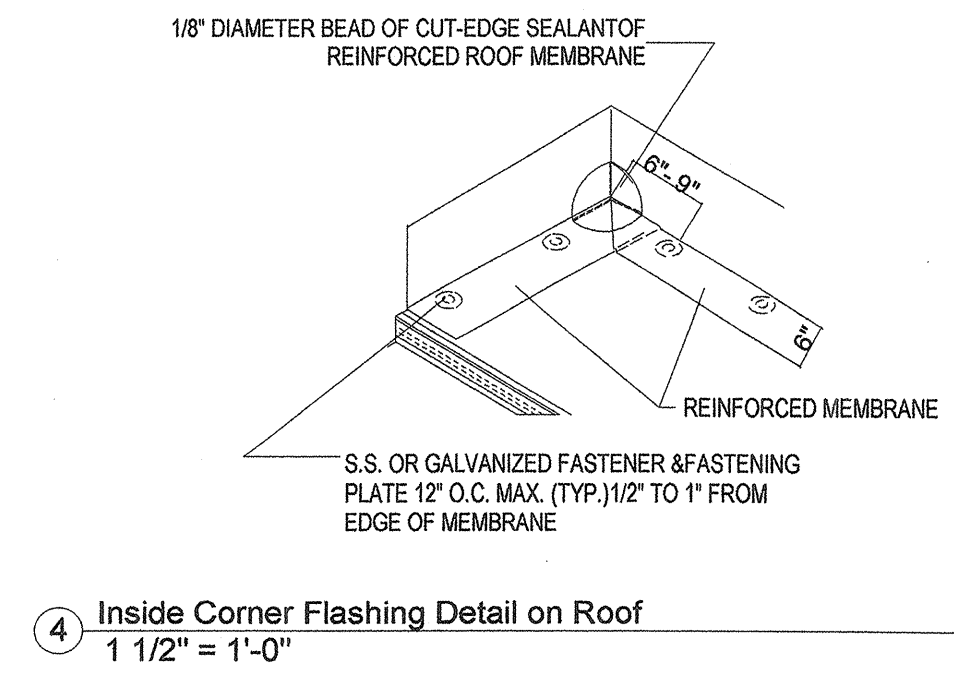
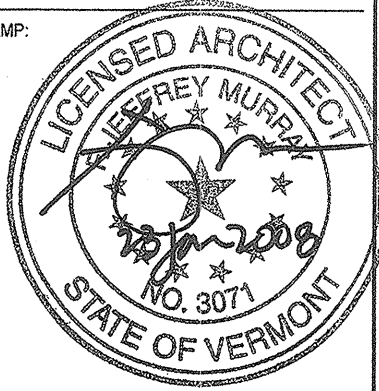
ACAD FILE: EQUIPMENT CODE:

DRAWING NUMBER: **A-5**

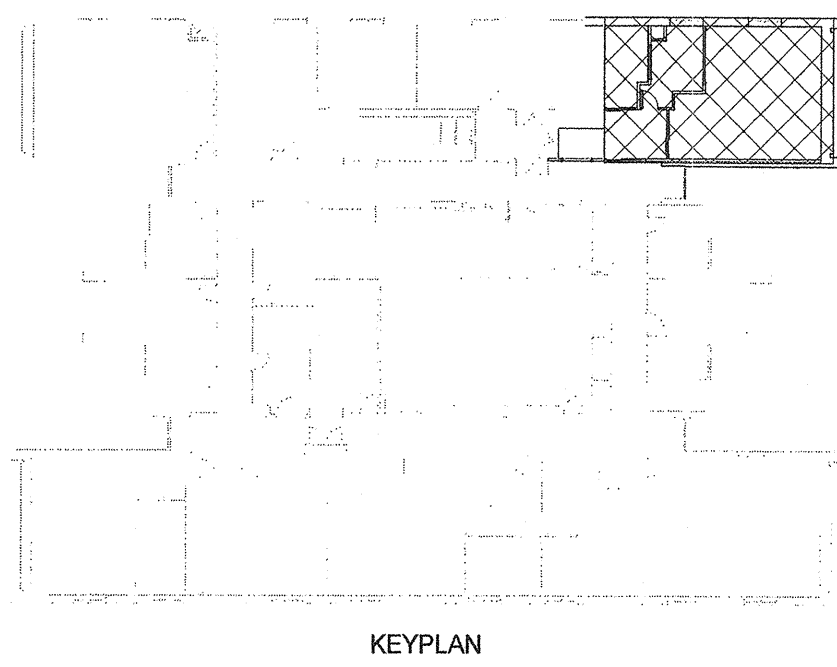








| 1   | CONFORMED               | 01-23-08 |
|-----|-------------------------|----------|
| 0   | ISSUED FOR CONSTRUCTION | 11-15-07 |
| No. | Description             | Date     |

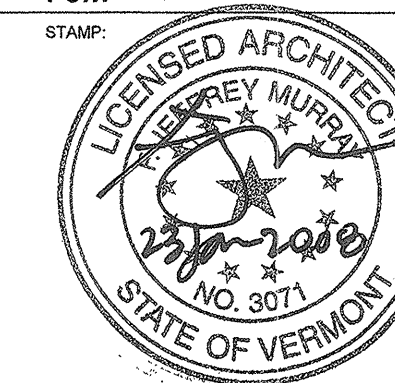


TITLE: COSMOGENIC NUCLIDE LABORATORY  
 DELEHANTY HALL  
 ARCHITECTURAL  
 ROOF ASSOCIATED DETAILS

DATE ISSUED: 10/22/07  
 DRAWING SCALE: As indicated  
 ACAD FILE: EQUIPMENT CODE:

DRAWING NUMBER:

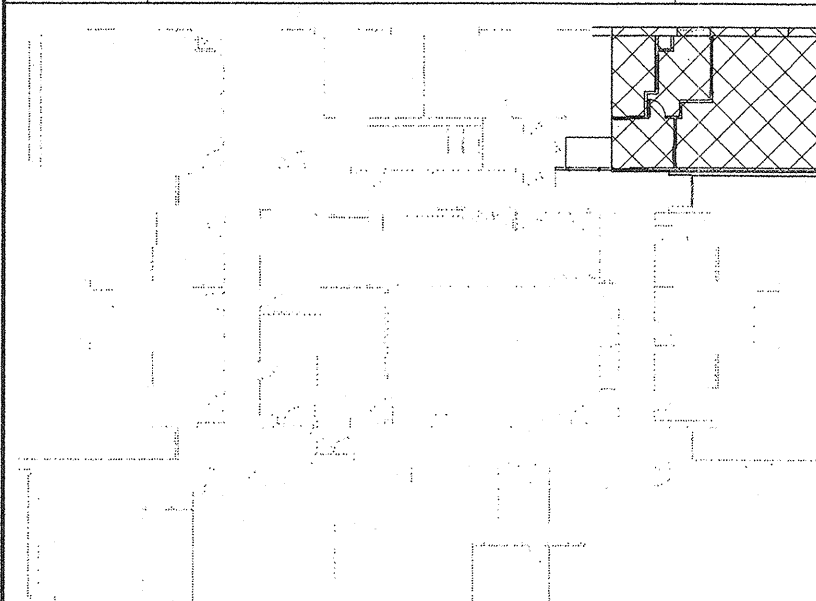




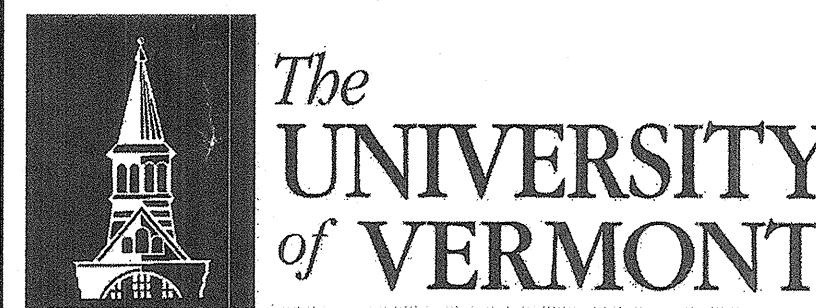
**ROOF PLAN - KEYED NOTES**

- EXISTING PIPE STEEL GUARDRAIL TO REMAIN
- 1 1/2" O.D. PIPE STEEL GUARDRAIL TO MATCH EXISTING ROOFING SYSTEM PENETRATION. COORDINATE WITH MECHANICAL DRAWINGS FOR EXHAUST SYSTEM LAYOUT AND DETAILS
- ROOFING SYSTEM PENETRATION. COORDINATE WITH MECHANICAL DRAWINGS FOR SUPPLY AIR SYSTEM LAYOUT AND DETAILS
- AIR HANDLER SUPPORT SYSTEM. COORDINATE ROOFING SYSTEM DETAILS WITH STRUCTURAL AND MECHANICAL DRAWINGS
- INERTIA BASE LOCATIONS. REFER TO MECHANICAL DETAILS FOR FLASHING AND ROOFING SYSTEM PATCH/REPAIR COORDINATION
- MECHANICAL EQUIPMENT SCREEN WALL. ALIGN EXTERIOR OF WALL WITH EXISTING MECHANICAL PENTHOUSE WALL. HEIGHT OF SCREEN WALL TO MATCH EXISTING MECHANICAL PENTHOUSE ADDITION

|   |                         |          |
|---|-------------------------|----------|
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KEYPLAN

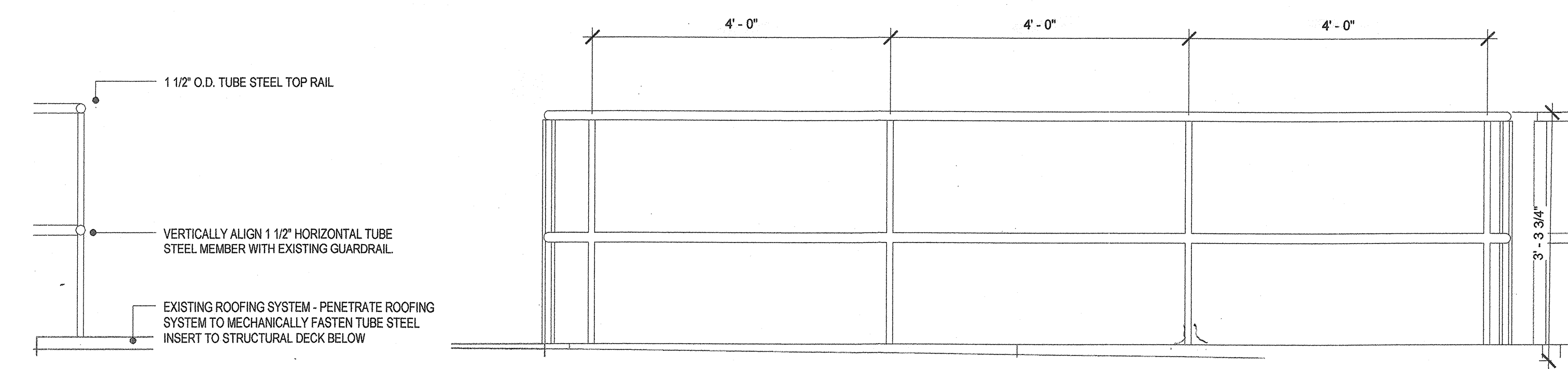


TITLE: **COSMOGENIC NUCLIDE LABORATORY**  
**DELEHANTY HALL**  
**ARCHITECTURAL ROOF PLAN & ROOF PLAN**

DATE ISSUED: 10/11/07 DRAWING SCALE: As indicated  
 ACAD FILE: EQUIPMENT CODE:  
 DRAWING NUMBER:

A-2

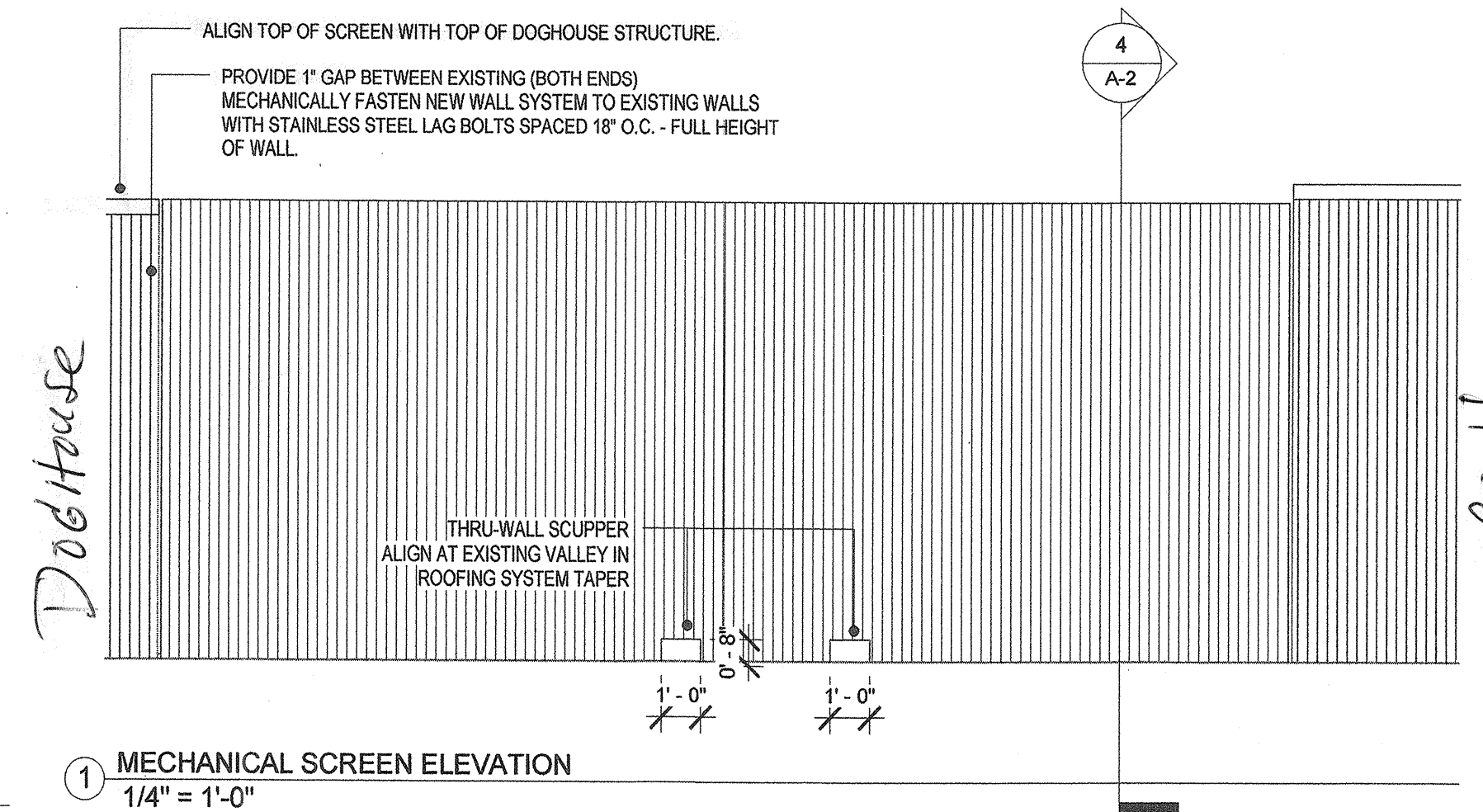
1/23/2008 11:27:06 AM



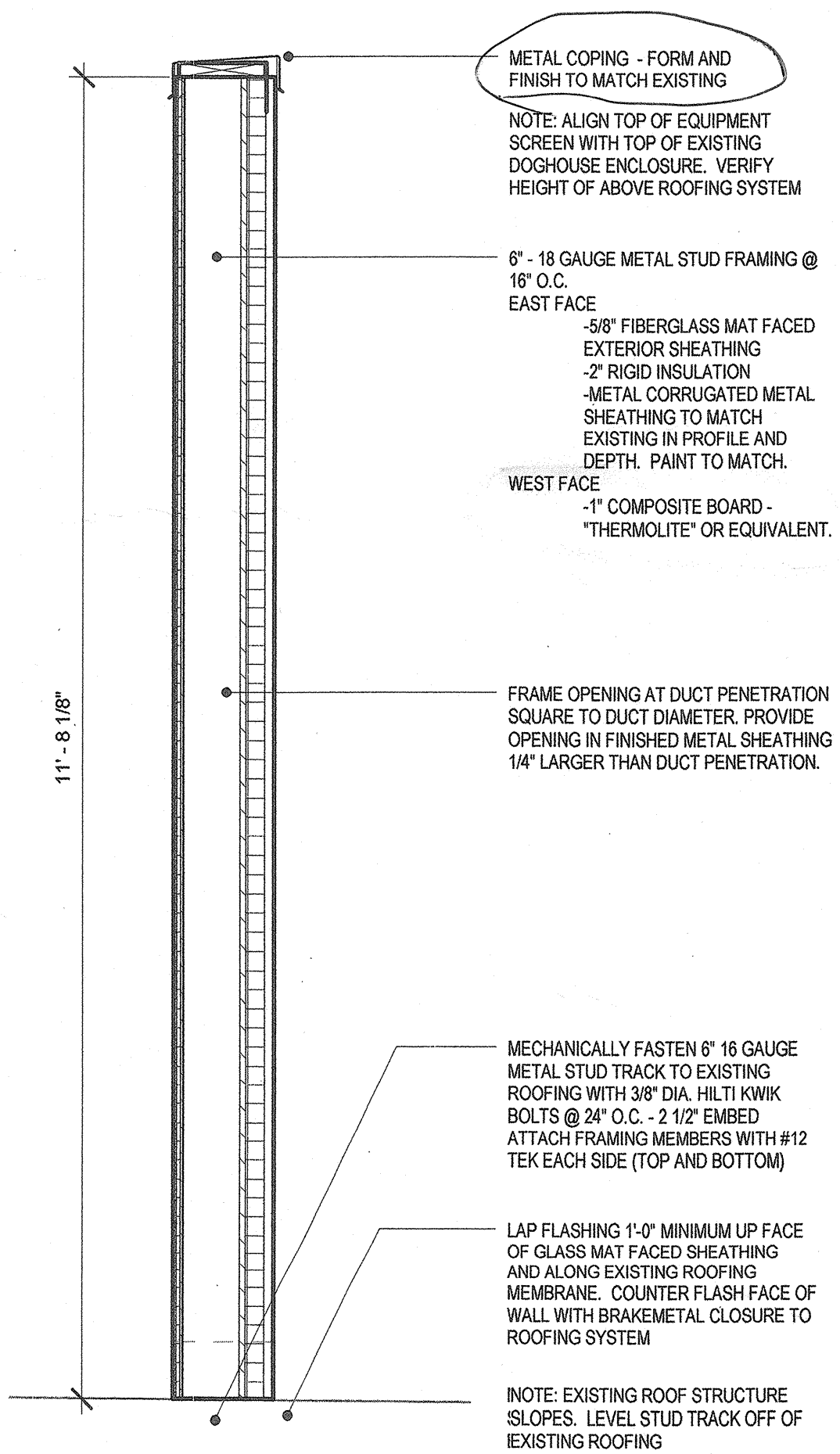
**3 EQUIPMENT GUARDRAIL DETAIL**  
 3/4" = 1'-0"

**2 GUARDRAIL ELEVATION**  
 3/4" = 1'-0"

NOTE: FINISH GUARDRAIL TO MATCH EXISTING. PRIME STEEL WITH ZINC RICH PRIMER. FINISH TO BE TYPE P-51

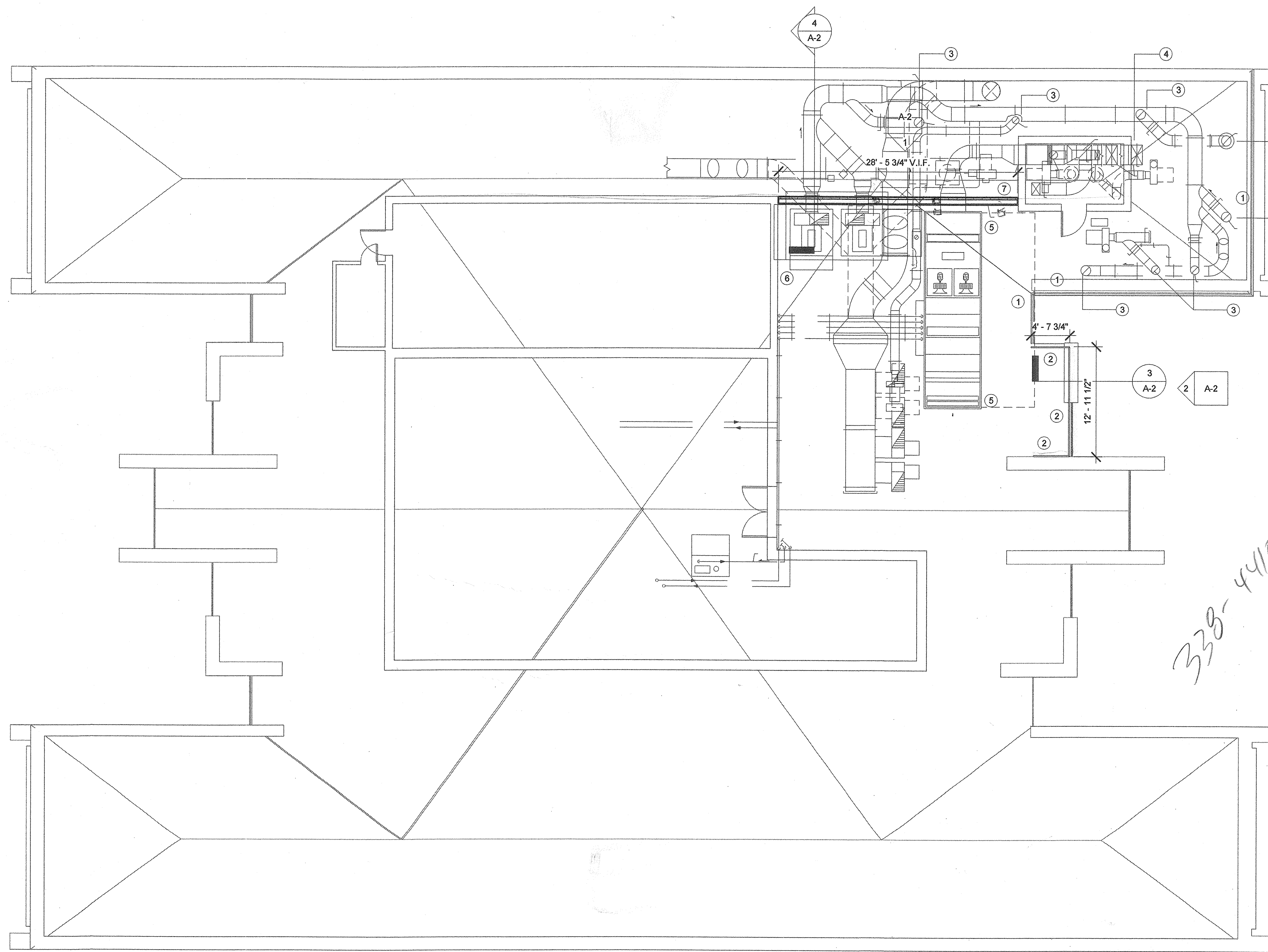


**1 MECHANICAL SCREEN ELEVATION**  
 1/4" = 1'-0"



**4 MECHANICAL SCREEN WALL SECTION**  
 3/4" = 1'-0"

NOTE: SEE DETAIL 4/S-3 FOR MECHANICAL SCREEN STRUCTURAL DETAILS

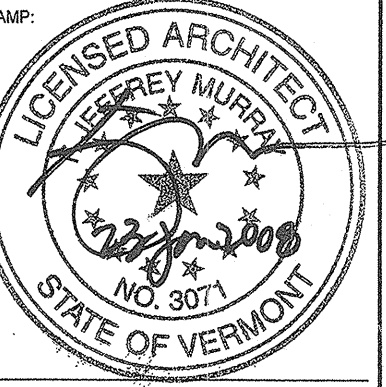


**A ROOF PLAN**  
 1/8" = 1'-0"



338-4410

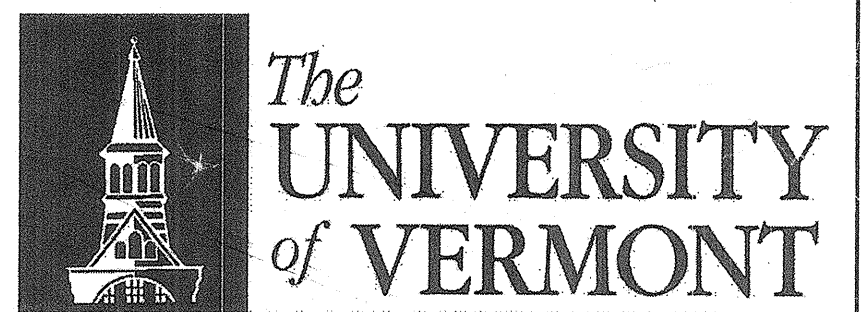
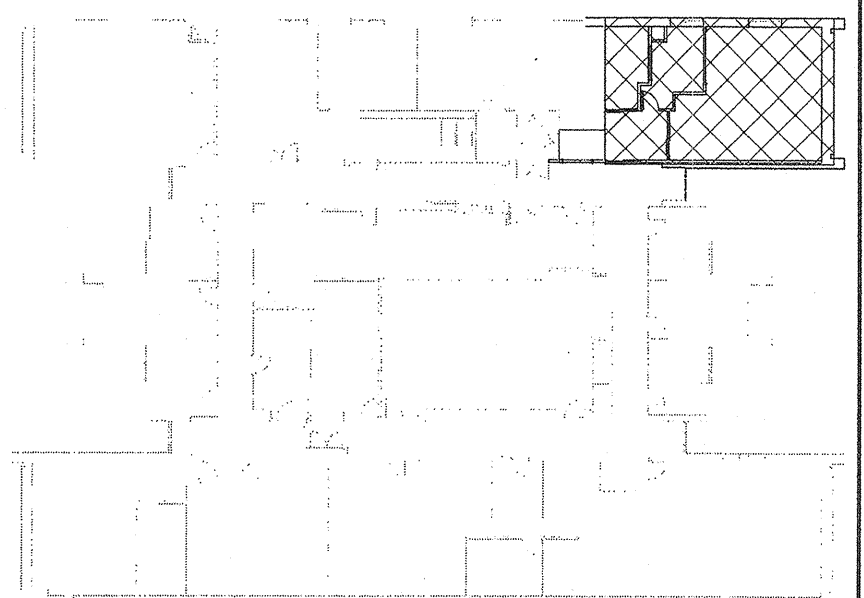




**GENERAL ARCHITECTURAL NOTES**

- DO NOT SCALE DRAWINGS
- CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY EXISTING CONDITIONS INCLUDING CONNECTIONS POINTS TO EXISTING SYSTEMS
- PARTITIONS ARE DIMENSIONED TO THE CENTER OF THE STUD UNLESS NOTED OTHERWISE
- LAYOUT DIMENSIONS START AT EXISTING EXTERIOR WALL - CONDITIONS AND CENTERLINES OF STRUCTURE
- PENETRATIONS AND EXISTING OPENINGS THROUGH FLOOR AND ROOF STRUCTURE ARE TO BE SEALED PER FIRESTOP DETAILS THIS SHEET
- ALL ROOM DEMISING PARTITIONS EXTEND TO THE UNDERSIDE OF THE STRUCTURE ABOVE
- WALL MOUNTED FIRE EXTINGUISHERS ARE TO BE PROVIDED AT EACH FUME HOOD LOCATION AS WELL AS ADJACENT TO ALL LABORATORY DOORS
- HEIGHTS ABOVE CEILING SYSTEMS ARE LIMITED. COORDINATE INSTALLATION OF MECHANICAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL INSTALLATIONS PRIOR TO CEILING INSTALLATION. NOTIFY ARCHITECT IF CONDITIONS PRECLUDE CEILING INSTALLATION AT THE HEIGHT ABOVE FINISHED FLOOR SHOWN
- TYPICAL MOUNTING HEIGHTS SHOWN. REFERENCE THESE HEIGHTS UNLESS SHOWN OTHERWISE IN THE DRAWINGS

|   |                         |          |
|---|-------------------------|----------|
| 1 | CONFORMED               | 01-23-08 |
| 0 | ISSUED FOR CONSTRUCTION | 11-15-07 |



**COSMOGENIC NUCLIDE LABORATORY ARCHITECTURAL LEGENDS, STANDARDS & GENERAL INFORMATION**

DATE ISSUED: 10/11/07  
 DRAWING SCALE: As indicated  
 ACAD FILE:  
 EQUIPMENT CODE:

DRAWING NUMBER:

A-1

**GRAPHIC LEGEND**

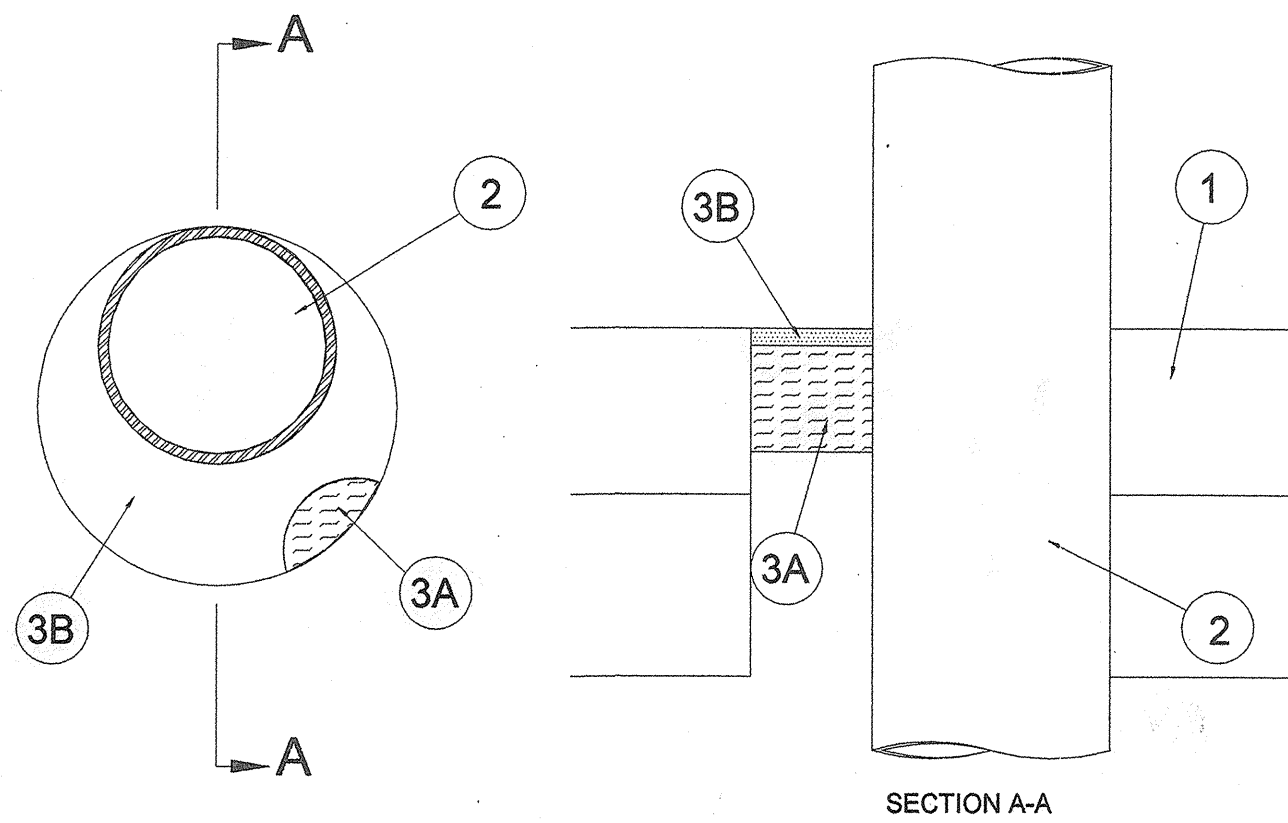
- CONCRETE
- CONCRETE MASONRY UNIT
- RIGID INSULATION
- BATT INSULATION OR MINERAL FIREPROOFING
- STEEL
- ALUMINUM
- PLYWOOD
- WOOD, ROUGH CONTINUOUS
- WOOD, ROUGH NON-CONTINUOUS
- WOOD, FINISHED
- ACOUSTICAL TILE
- GYPSUM WALLBOARD
- UNIT MASONRY - ENLARGED DETAIL

**ARCHITECTURAL SYMBOL LEGEND**

- ROOM NAME  
XXX  
SQ. FT. AREA
- ROOM INDICATOR
- PARTITION TYPE - REFER TO ASSEMBLIES BELOW
- 2  
LOCATED ON THE SAME SHEET
- 2  
7620  
LOCATED ON ANOTHER SHEET
- SECTION  
LOCATED ON THE SAME SHEET
- SECTION  
7300  
LOCATED ON ANOTHER SHEET
- INTERIOR ELEVATIONS  
ELEVATION NUMBER  
A-200  
SHEET
- X  
DOOR DESIGNATION
- 1  
KEYED NOTES
- 1  
DEMOLITION KEYED NOTES
- COL  
COLUMN CENTERLINE
- ELEVATION INDICATOR

**LEGEND OF NOTES:**

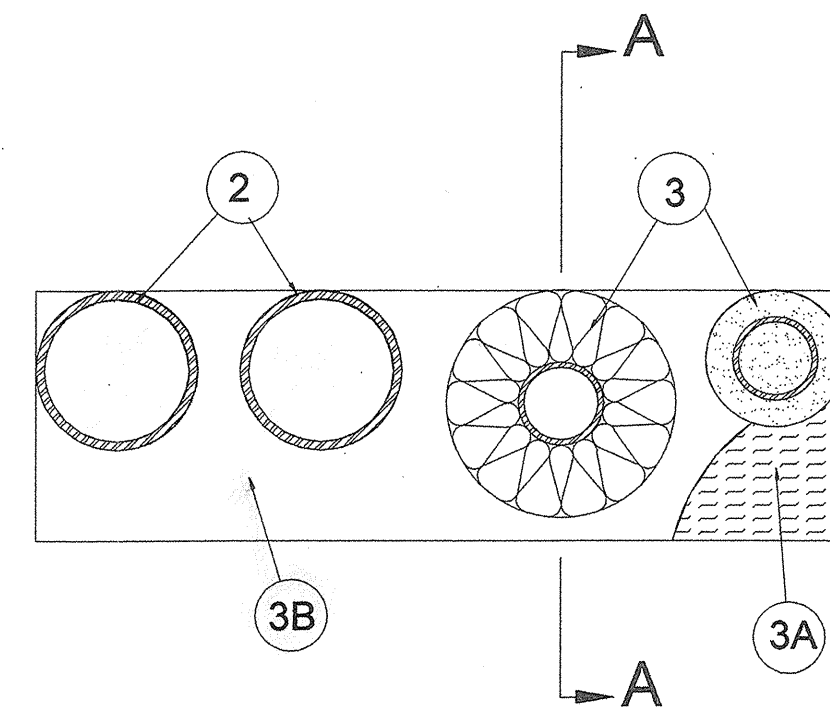
- EXISTING FLOOR/CEILING ASSEMBLY
- PENETRATING COMPONENT - SEE NOTE BELOW
- 2" USG - STRUCTRO BASE GYPSUM PLASTER OVER 16 GAUGE GENERAL PURPOSE MESH LATH WITH 6" MINERAL WOOL SAFING - FRICTION FIT AROUND PENETRATION
- 3M - FIRE DAM 150+ ACRYLIC CAULK



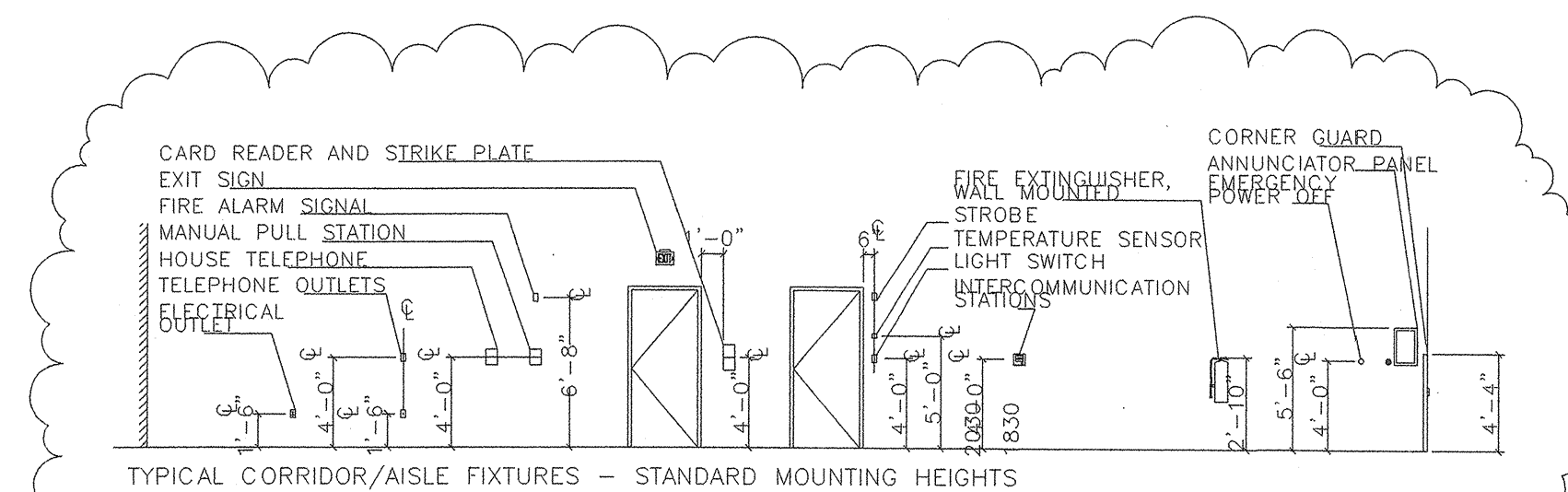
SINGLE PENETRATION

THROUGH PENETRATION FIRESTOP FOR 24" DIA. - MAXIMUM STEEL/IRON PIPE AND 6" DIA. MAXIMUM COPPER PIPE AND 4" DIA. MAXIMUM CONDUIT THROUGH EXISTING FLOOR/CEILING ASSEMBLY

FIRESTOP / PENETRATION DETAILS



MULTIPLE PENETRATIONS

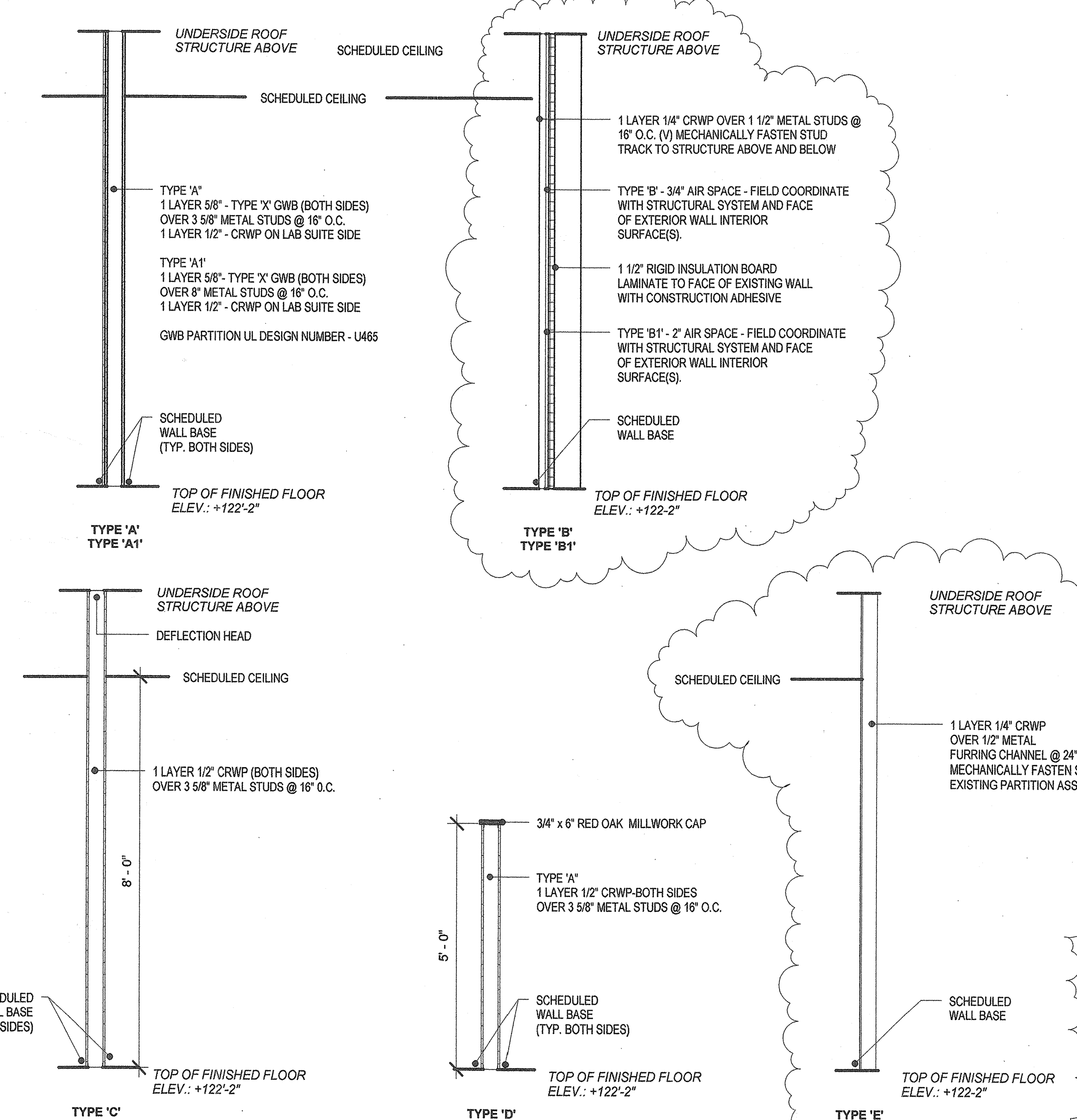


TYPICAL MOUNTING HEIGHTS

**MEP DEVICE INSTALLATION / MINERAL BATT INSULATION IN PARTITIONS**

**ARCHITECTURAL ABBREVIATIONS**

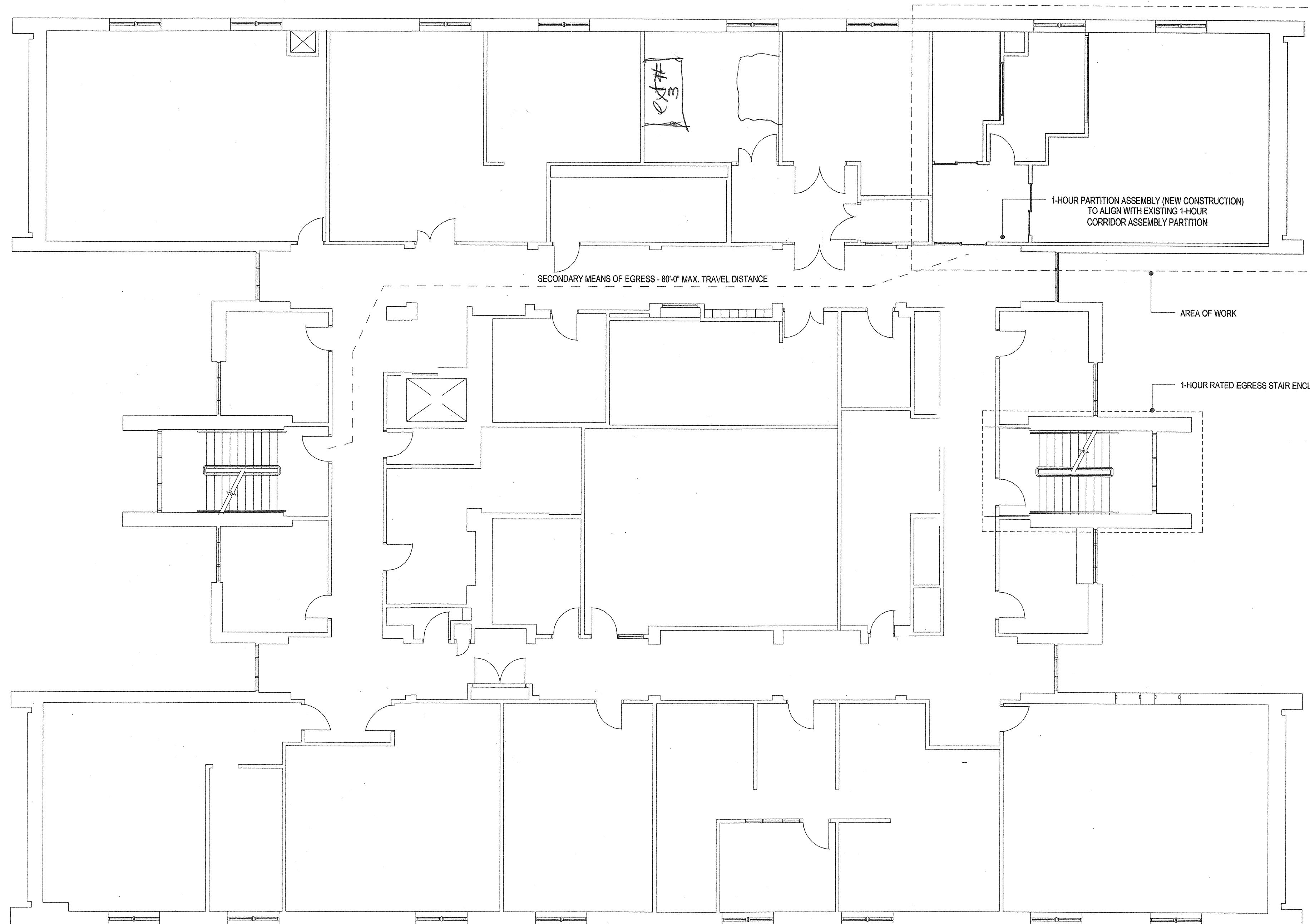
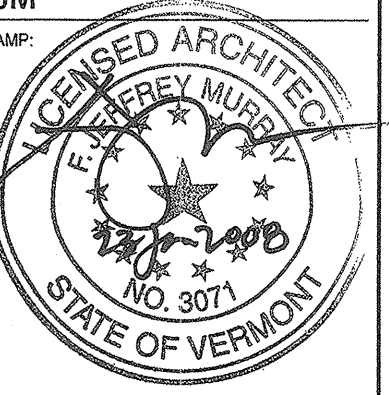
|        |                                       |              |                               |        |                                   |          |                              |
|--------|---------------------------------------|--------------|-------------------------------|--------|-----------------------------------|----------|------------------------------|
| @      | AT                                    | EA           | EACH                          | MATL   | MATERIAL                          | SD       | SOAP DISPENSER               |
| L      | ANGLE                                 | EGC          | EGGCRATE CEILING              | MECH   | MECHANICAL                        | SEC/SECT | SECTION                      |
| AAF    | ABOVE ACCESS FLOOR                    | EQ           | EQUAL                         | MEZZ   | MEZZANINE                         | SHT      | SHEET                        |
| ACOUST | ACOUSTICAL                            | ELELEV       | ELEVATION                     | MFR    | MANUFACTURER                      | SIB      | STRUCTURAL ISOLATION BREAK   |
| AF     | ACCESS FLOORING                       | ELEC         | ELECTRONIC                    | MIN    | MINIMUM                           | SIM      | SIMILAR                      |
| AFF    | ABOVE FINISH FLOOR                    | EM           | ELECTRO MAGNETIC              | MIR    | MIRROR                            | SM       | SOLID SURFACE MATERIAL       |
| AL OR  | ALUM ALUMINUM                         | INT          | INTERFERENCE                  | MISC   | MISCELLANEOUS                     | SPM      | SINGLE PLY MEMBRANE          |
| ANSI   | AMERICAN NATIONAL SAFETY INSTITUTE    | EMERG        | EMERGENCY                     | MS     | MOP SINK                          | SS       | STAINLESS STEEL              |
| APPROX | APPROXIMATE                           | EW           | EYEWASH                       | MT     | MARBLE TILE                       | SSIEW    | SAFETY SHOWER AND EYE WASH   |
| ARCH   | ARCHITECTURAL                         | EWC          | ELECTRIC WATER CLOSET         | MTB    | MARBLE TILE BASE                  | STC      | SOUND TRANSMISSION CLASS     |
| ASST   | ASSISTANT                             | EXIST OR (E) | EXISTING                      | MTL    | METAL                             | STD      | STANDARD                     |
| ASTM   | AMERICAN SOCIETY FOR TESTING MATERIAL | EXP          | EXPOSED                       | MWC    | METAL WALL COVERING               | STL      | STEEL                        |
| AT     | ACOUSTICAL TILE                       | EXP JT       | EXPANSION JOINT               | STRUCT | STRUCTURAL                        | SUSP     | SUSPENDED                    |
| AWT    | ACOUSTICAL WALL TREATMENT             | EXT          | EXTERIOR                      | (N)    | NEW                               |          |                              |
| B      | BASE                                  | FAC          | FACTORY FINISH                | NA     | NOT APPLICABLE                    | TEMP     | TEMPERED                     |
| BLDG   | BUILDING                              | FEXT OR FE   | FIRE EXTINGUISHER             | ND     | NAPKIN DISPOSAL                   | TRD      | TREAD                        |
| BM     | BEAM                                  | FF           | FINISH FLOOR                  | NIC    | NOT IN CONTRACT                   | THKNS    | THICKNESS                    |
| BOC    | BOTTOM OF CONCRETE                    | FG           | FINISH GRADE                  | NTS    | NOT TO SCALE                      | THR      | THRESHOLD                    |
| BOS    | BOTTOM OF STEEL                       | FGL          | FIRE GLASS                    | NV     | NAPKIN VENDOR                     | TO       | TOP OF                       |
| BOTT   | BOTTOM                                | FHS          | FIRE HOSE STATION             | OC     | ON CENTER                         | TOC      | TOP OF CONCRETE              |
| BUR    | BUILT UP ROOFING                      | FLG          | FLASHING                      | OPP    | OPPOSITE                          | TOP      | TOP OF PARAPET               |
|        |                                       | FLR          | FLOORING                      | OTO    | OUT TO OUT                        | TOS      | TOP OF STEEL                 |
|        |                                       | FM           | FACTORY MUTUAL                |        |                                   | TYP      | TYPICAL                      |
|        |                                       | FO           | FACE OF                       | P      | PAINT                             |          |                              |
|        |                                       | FOC          | FACE OF CONCRETE              | PL     | PLATE                             | UL       | UNDERWRITERS LABORATORIES    |
|        |                                       | FOF          | FACE OF FINISH                | PLAM   | PLASTIC LAMINATE                  | UON      | UNLESS OTHERWISE NOTED       |
|        |                                       | FOM          | FACE OF MULLION               | PLYWD  | PLYWOOD                           | UPS      | UNINTERRUPTIBLE POWER SUPPLY |
|        |                                       | FOS          | FACE OF STUDS                 | PMEJ   | PRE-MOULDED EXPANSION JOINT       | V        | VENT                         |
|        |                                       | FRP          | FIBERGLASS REINFORCED PLASTIC | PNL    | PANEL                             | VB       | VAPOR BARRIER                |
|        |                                       | FT           | FOOT, FEET                    | PR     | PAIR                              | VCT      | VINYL COMPOSITION TILE       |
|        |                                       |              |                               | PREFAB | PREFABRICATED                     | VLF      | VERTICAL LAMINAR FLOW HOOD   |
|        |                                       |              |                               | PT     | PASS THRU                         | VP       | VENT PIPE                    |
|        |                                       |              |                               | PTD    | PAPER TOWEL DISPENSER             | VRFY     | VERIFY                       |
|        |                                       |              |                               | PVC    | POLYVINYL CHLORIDE                | VTR      | VENT THROUGH ROOF            |
|        |                                       |              |                               | R      | RISER                             |          |                              |
|        |                                       |              |                               | RB     | RUBBER BASE                       | W        | WITH                         |
|        |                                       |              |                               | RD     | ROOF DRAIN                        | W/O      | WITHOUT                      |
|        |                                       |              |                               | REF    | REFLECTED                         | WB       | WHITE BOARD                  |
|        |                                       |              |                               | REJC   | ROOF EXPANSION JOINT COVER        | WC       | WALLCOVERING                 |
|        |                                       |              |                               | REQD   | REQUIRED                          | WD       | WOOD                         |
|        |                                       |              |                               | RES    | RESILIENT FLOOR                   | WH       | WALL HEATER                  |
|        |                                       |              |                               | RF     | ROOF                              | WP       | WATERPROOF/WEATHERPROOF      |
|        |                                       |              |                               | RFG    | ROOFING                           | WT       | WEIGHT                       |
|        |                                       |              |                               | RL     | RAIN LEADER                       | WTRPC    | WATERPROOF COATING           |
|        |                                       |              |                               | RM     | ROOM                              |          |                              |
|        |                                       |              |                               | RO     | ROUGH OPENING                     |          |                              |
|        |                                       |              |                               | RUB    | RUBBER                            |          |                              |
|        |                                       |              |                               | S      | SEALANT                           |          |                              |
|        |                                       |              |                               | SAC    | SUSPENDED ACOUSTICAL TILE CEILING |          |                              |
|        |                                       |              |                               | SDF    | STATIC DISSIPATIVE FLOORING       |          |                              |
|        |                                       |              |                               | SCD    | SEAT COVER DISPENSER              |          |                              |
|        |                                       |              |                               | SCR    | SUSPENDED CLEANROOM CEILING       |          |                              |



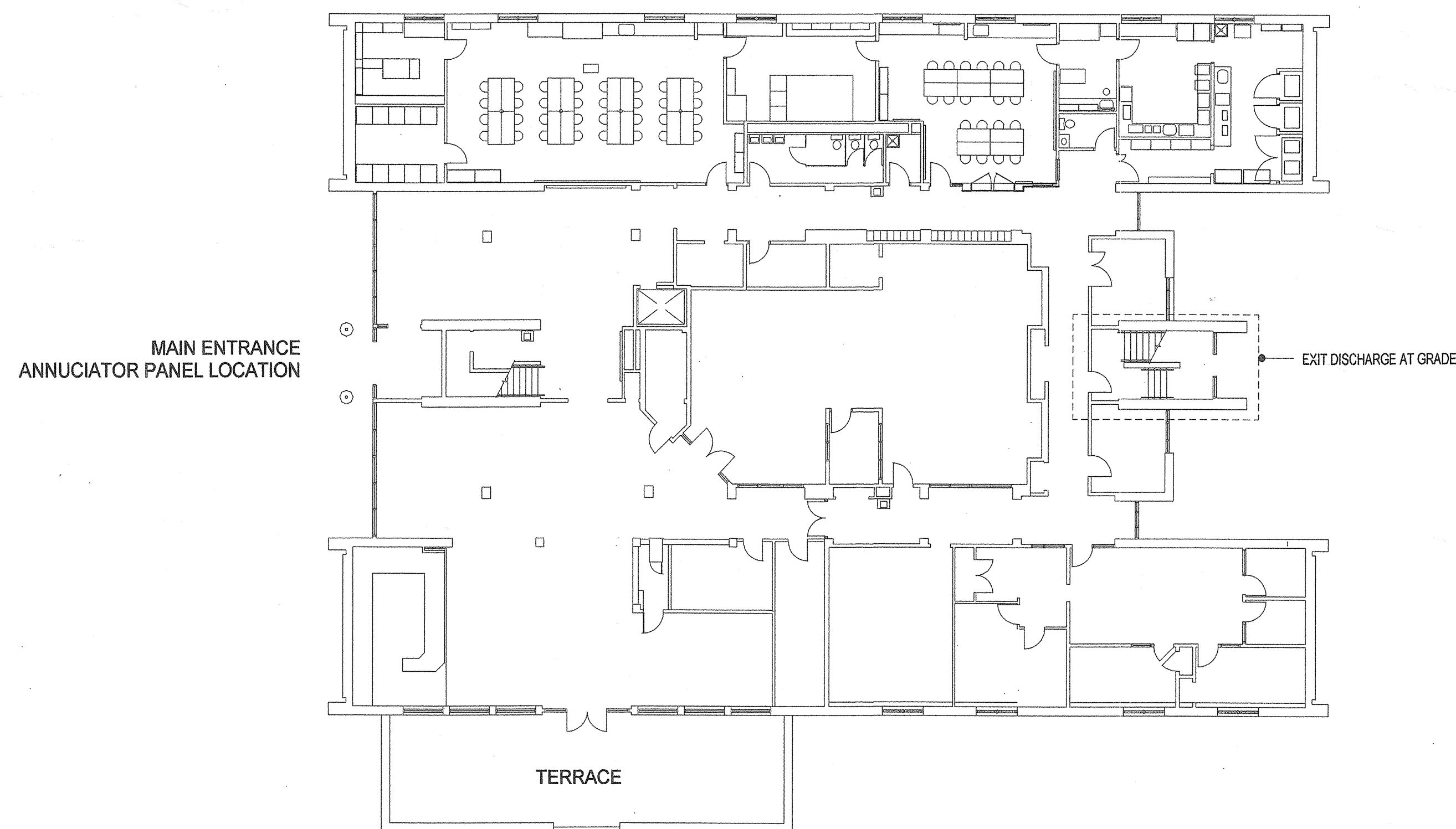
PARTITION TYPES



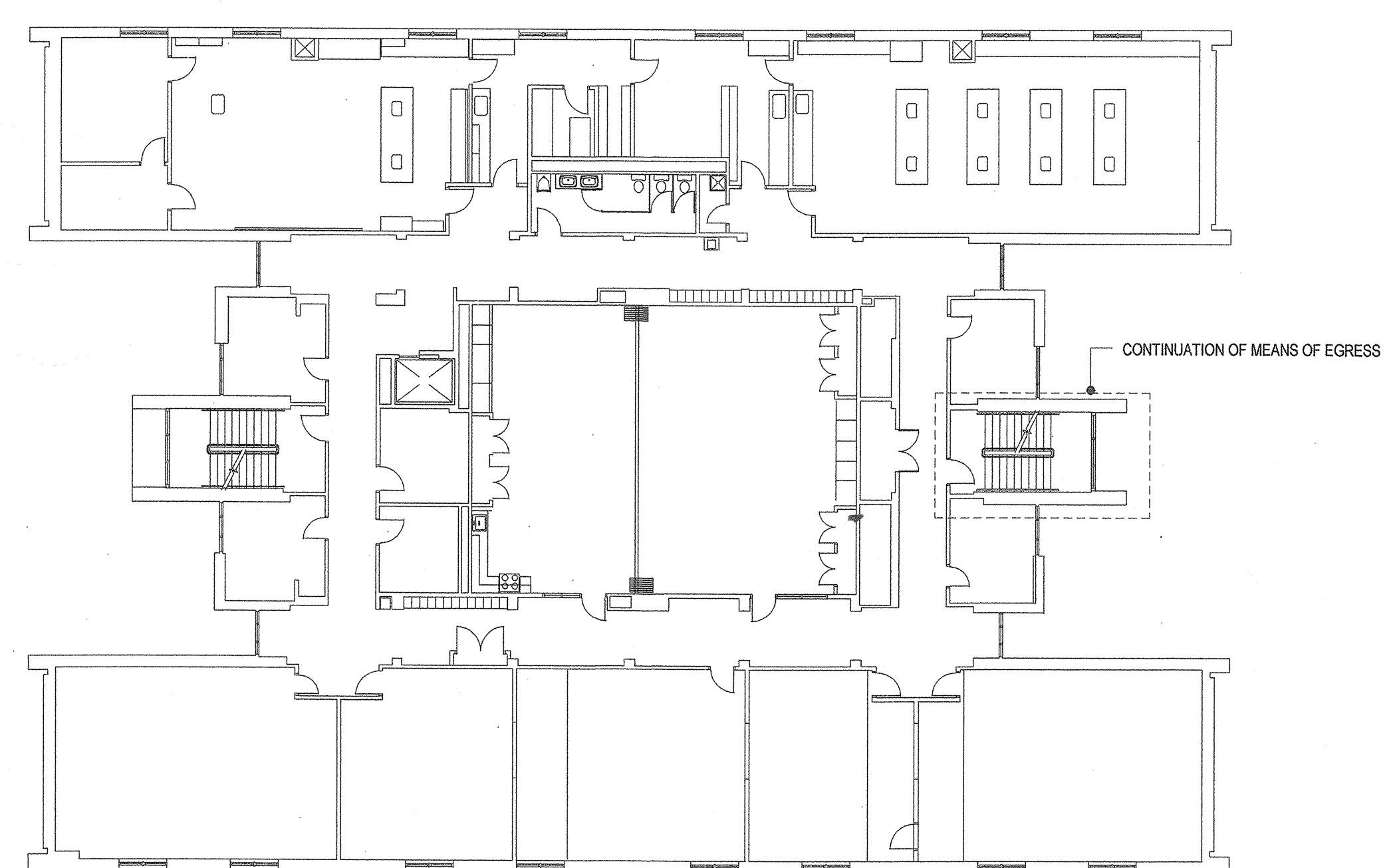
IDC PROJECT NO.: 364972  
 CLIENT PROJECT NO.:  
 DRAWN: MPW  
 DESIGNED: -  
 REVIEWED: RSS  
 APPROVED: FJM  
 NOTICE: STAMP:



① LIFE SAFETY FLOOR PLAN - LEVEL 3  
 1/8" = 1'-0"



③ LEVEL 1  
 1/16" = 1'-0"



② LEVEL 2  
 1/16" = 1'-0"

**LIFE SAFETY CODE INFORMATION**  
 CODE REFERENCES: NFPA NFC - LATEST EDITIONS UNLESS NOTED  
 101 - LIFE SAFETY CODE - 2003 EDITION  
 70 - NATIONAL ELECTRIC CODE  
 13 - INSTALLATION OF SPRINKLER SYSTEMS  
 30 - FLAMMABLE AND COMBUSTIBLE LIQUID CODE  
 45 - FIRE PROTECTION FOR LABORATORIES USING CHEMICALS  
 72 - NATIONAL FIRE ALARM CODE

OCCUPANCY TYPE: BUSINESS (LABORATORY)  
 SQUARE FOOT AREA: 882 sf  
 LEVEL OF WORK: LEVEL 3

BUILDING INFORMATION: 3 STORY  
 LEVEL 1 - 100'-0"  
 LEVEL 2 - 111'-1"  
 LEVEL 3 - 122'-2"  
 ROOF - 133'-1"

CONSTRUCTION: REINFORCED CONCRETE STRUCTURE  
 FLOORS, BEAMS, COLUMNS  
 CONCRETE MASONRY WITH BRICK VENEER

FIRE PROTECTION: FULLY SPRINKLERED  
 SMOKE DETECTION THROUGHOUT

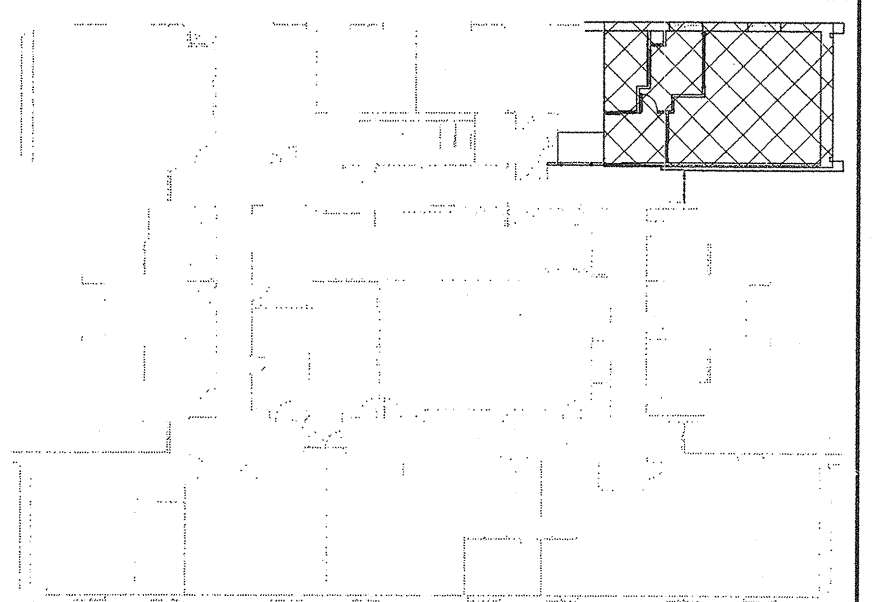
EMERGENCY ACCESS: 75% BUILDING PERIMETER ACCESSIBLE BY ROAD  
 NORTH, SOUTH AND WEST ELEVATIONS

CHEMICAL USE LIST:  
 ALL ITEMS LISTED ARE USED IN SMALL QUANTITIES PER WEEK

INORGANIC ACIDS: HCL, HF, HNO3, H2SO4, PERCHLORIC  
 BASES: NH4OH  
 ORGANIC SOLVENTS: ACETONE  
 ALCOHOLS: ISOPROPYL  
 OXIDANTS: H2O2

|   |                         |          |
|---|-------------------------|----------|
| 1 | CONFORMED               | 01-23-08 |
| 0 | ISSUED FOR CONSTRUCTION | 11-15-07 |

| No. | Description | Date |
|-----|-------------|------|
|-----|-------------|------|



KEYPLAN



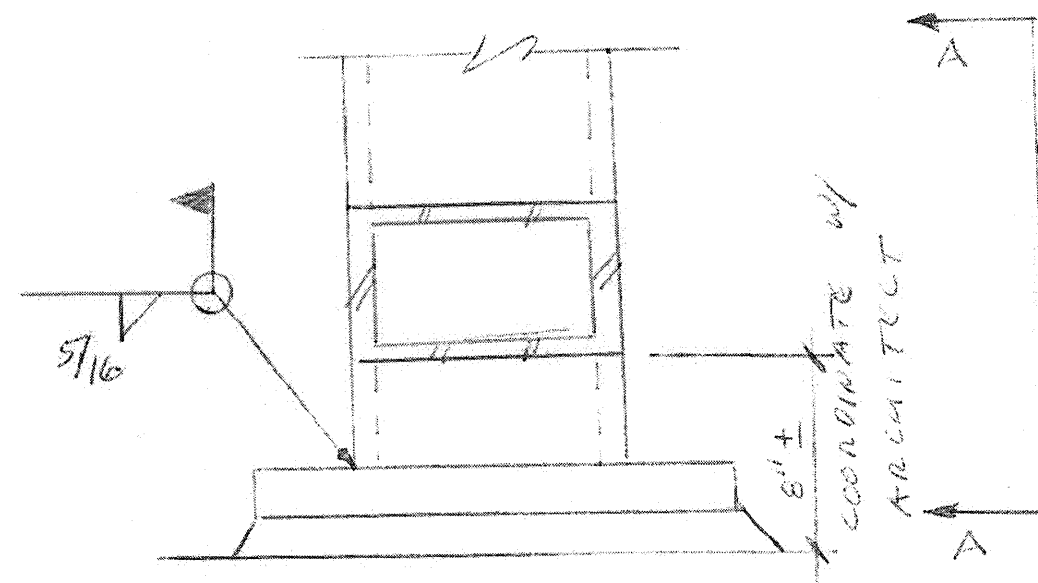
TITLE: COSMOGENIC NUCLIDE  
 LABORATORY  
 DELEHANTY HALL  
 BUILDING CODES  
 LIFE SAFETY SUMMARY

DATE ISSUED: 10/11/07  
 DRAWING SCALE: As indicated  
 ACAD FILE: EQUIPMENT CODE:

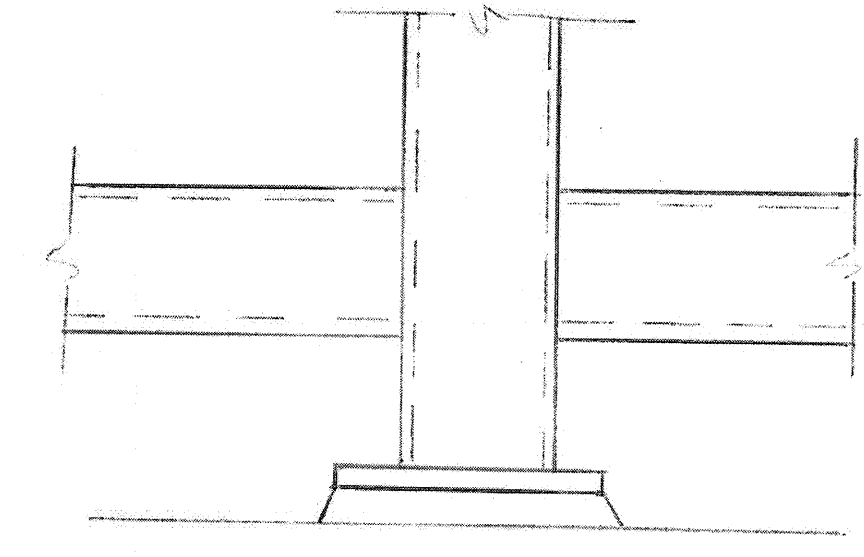
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A-0





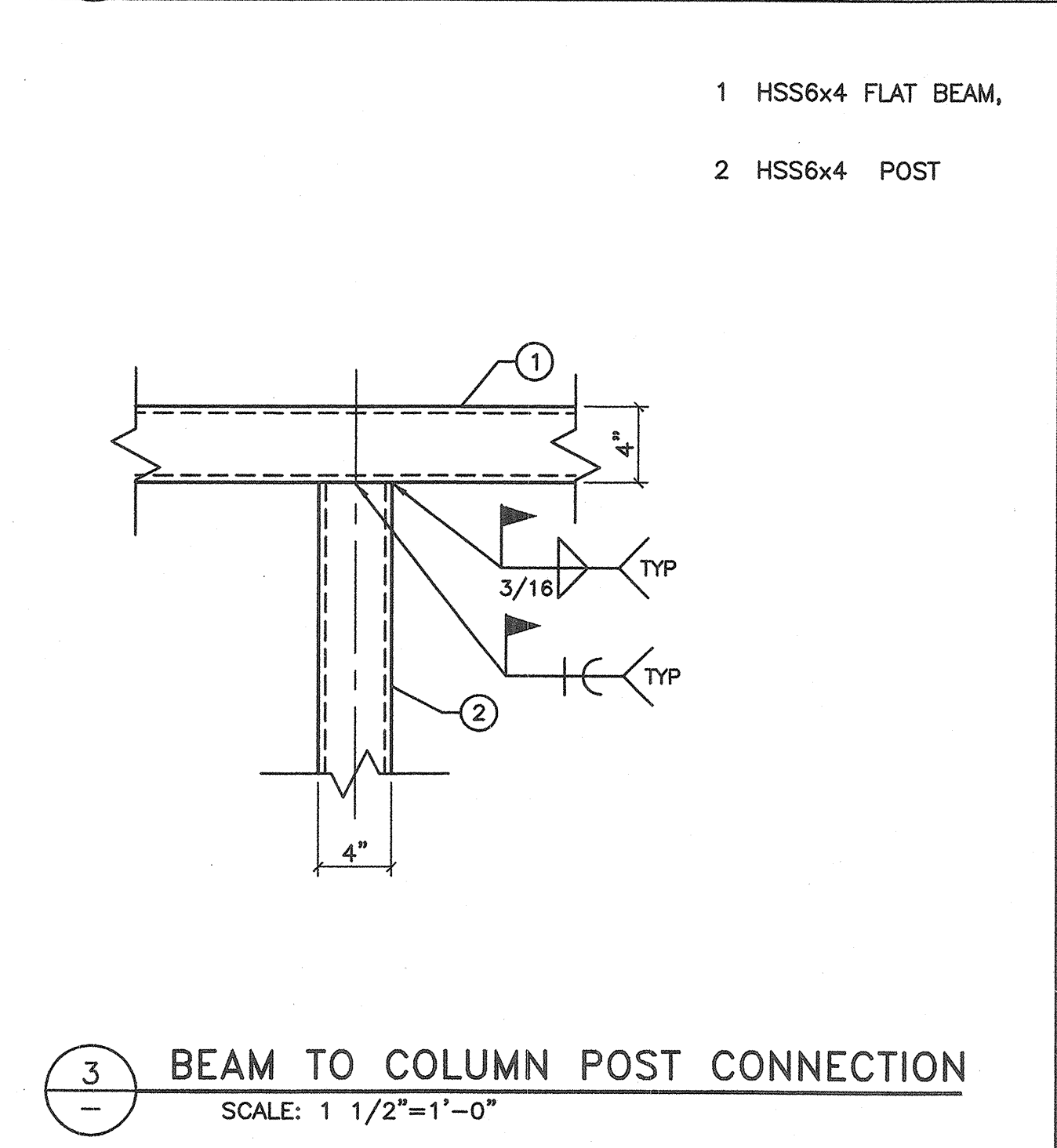
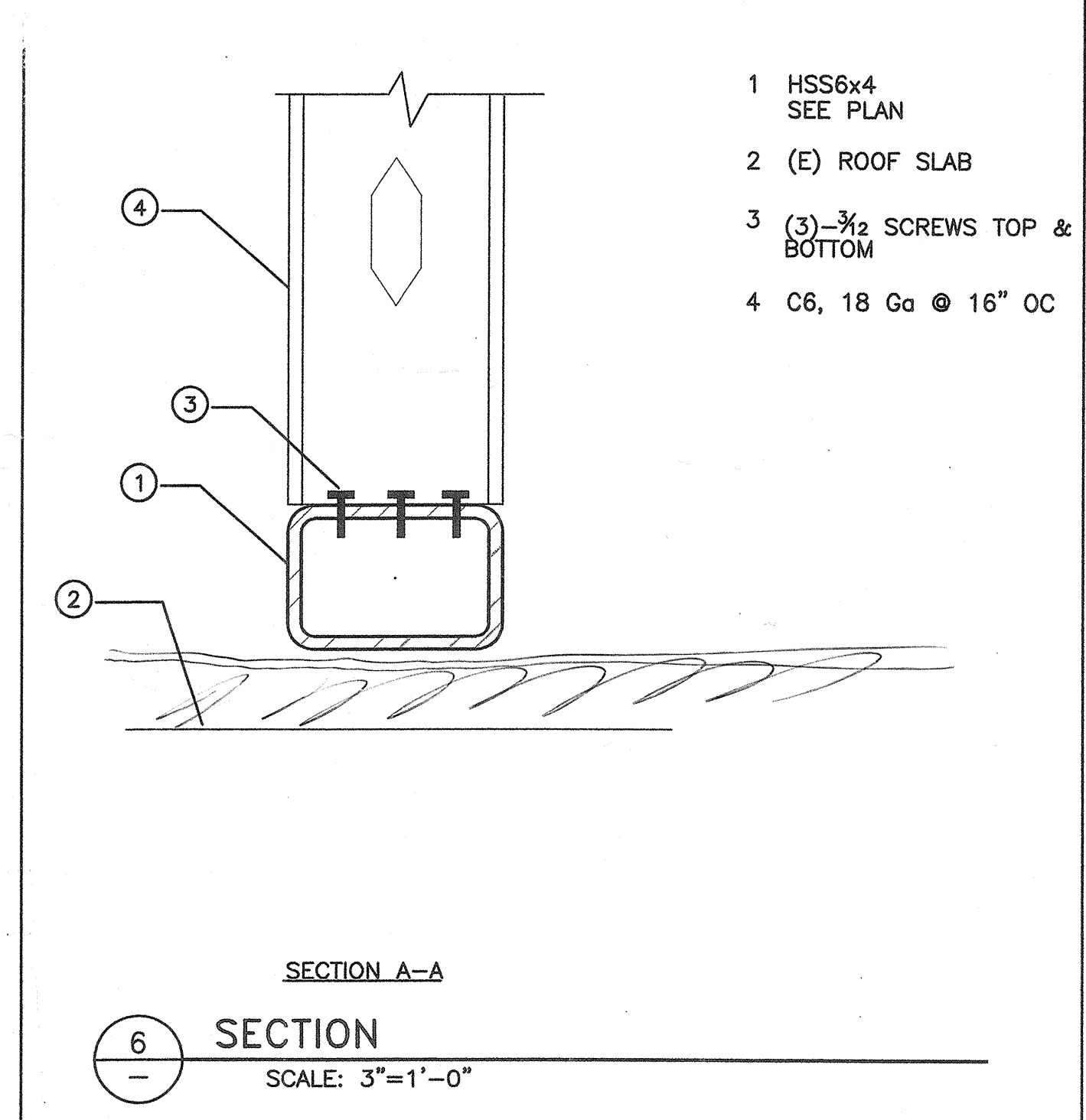
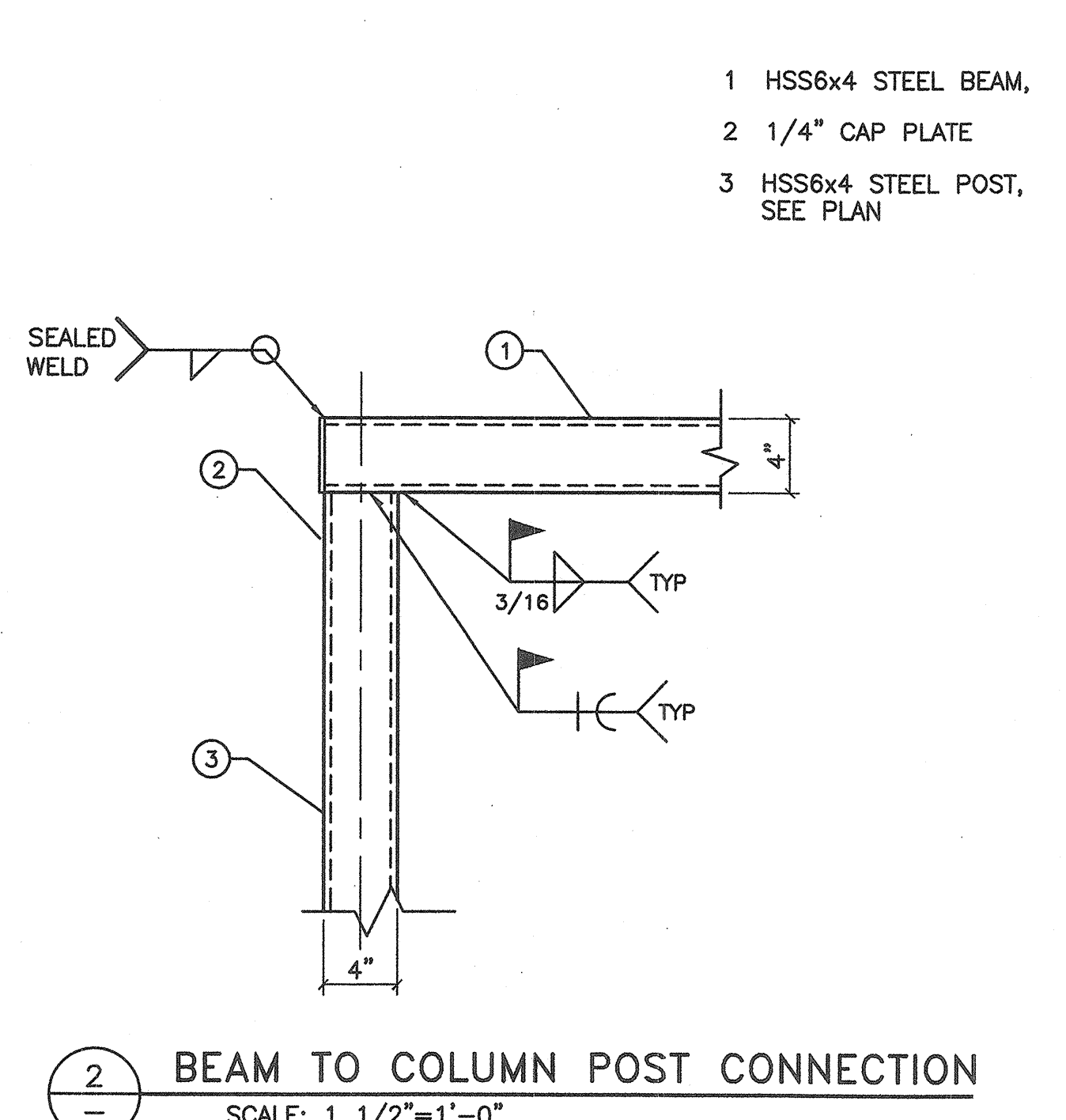
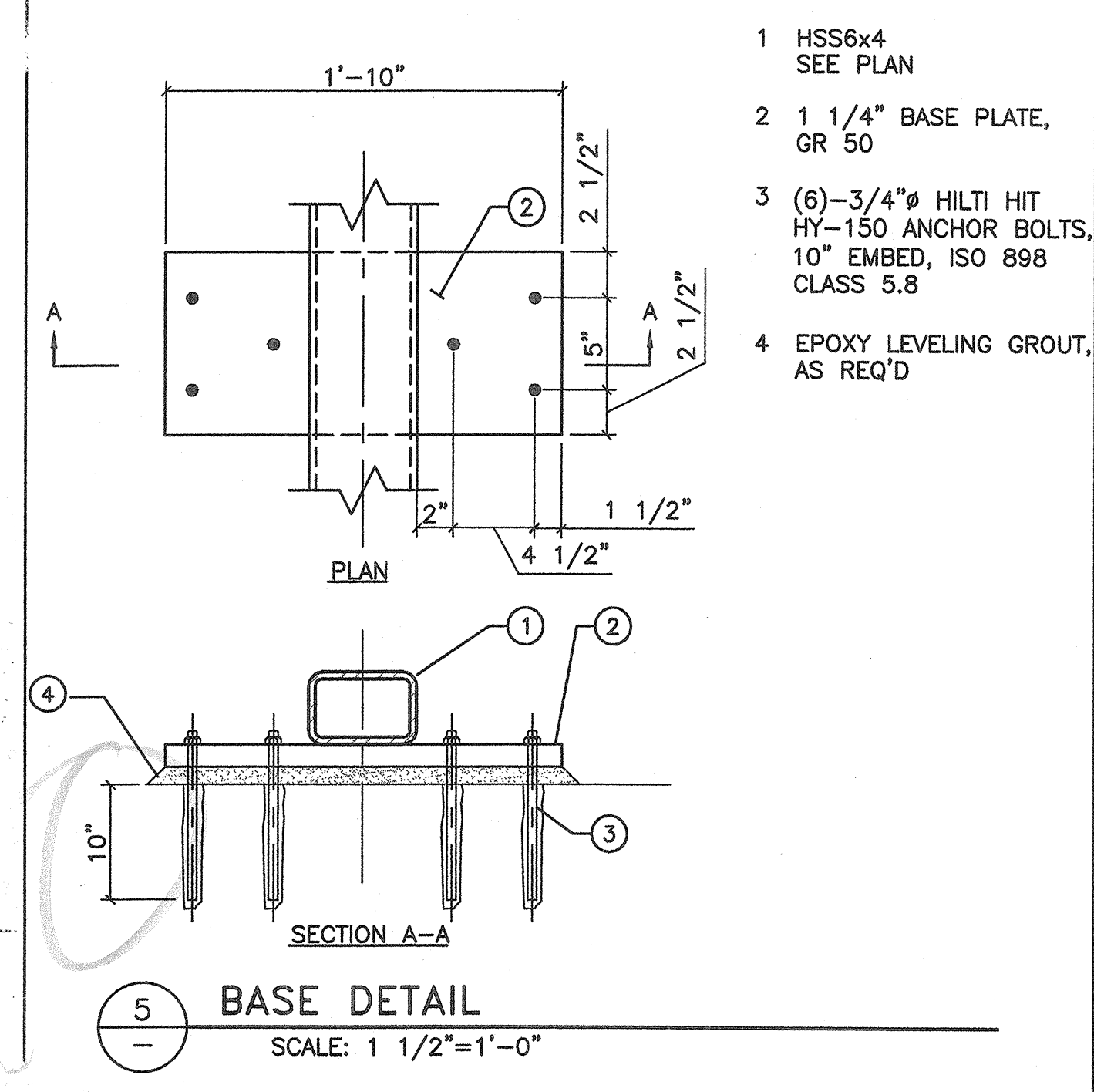
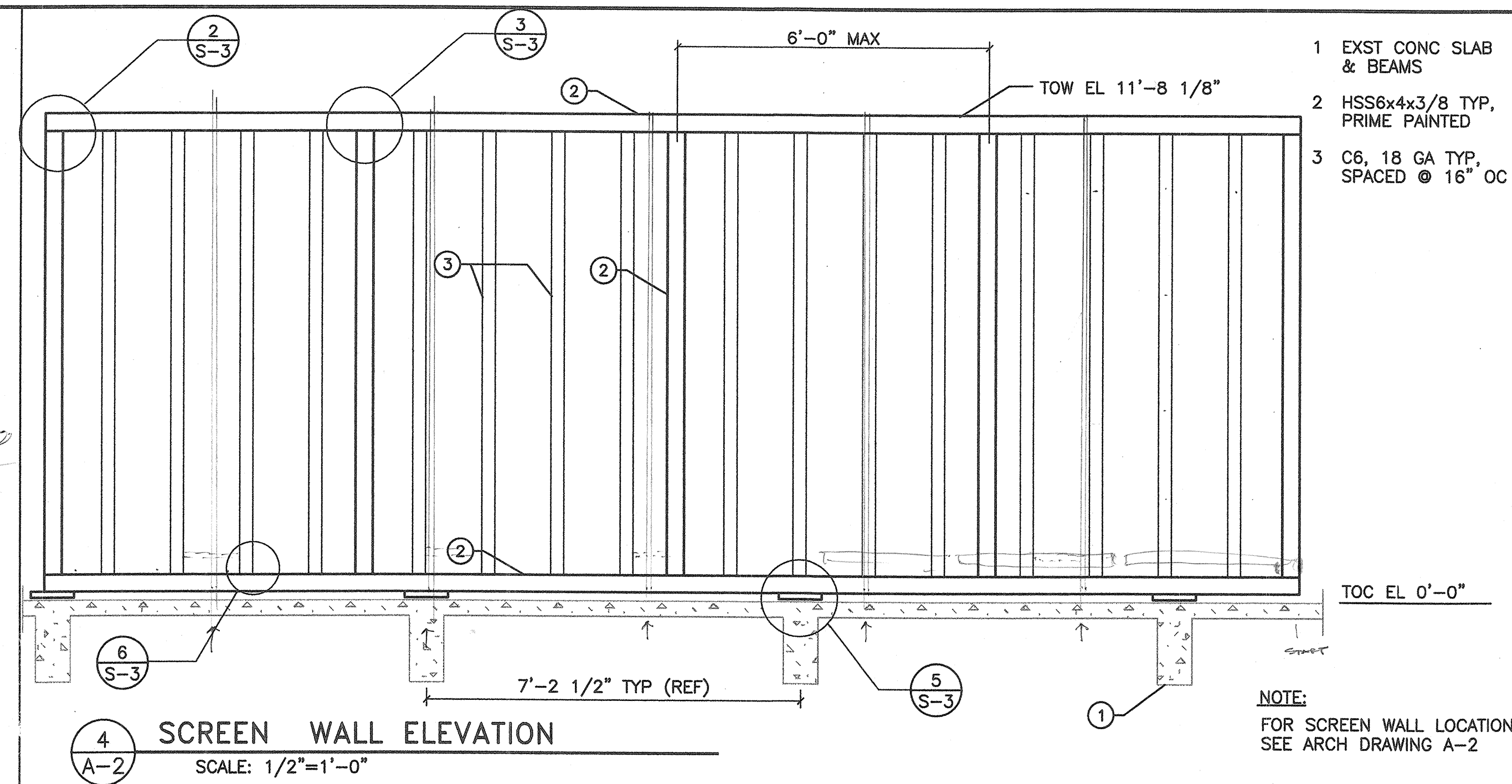
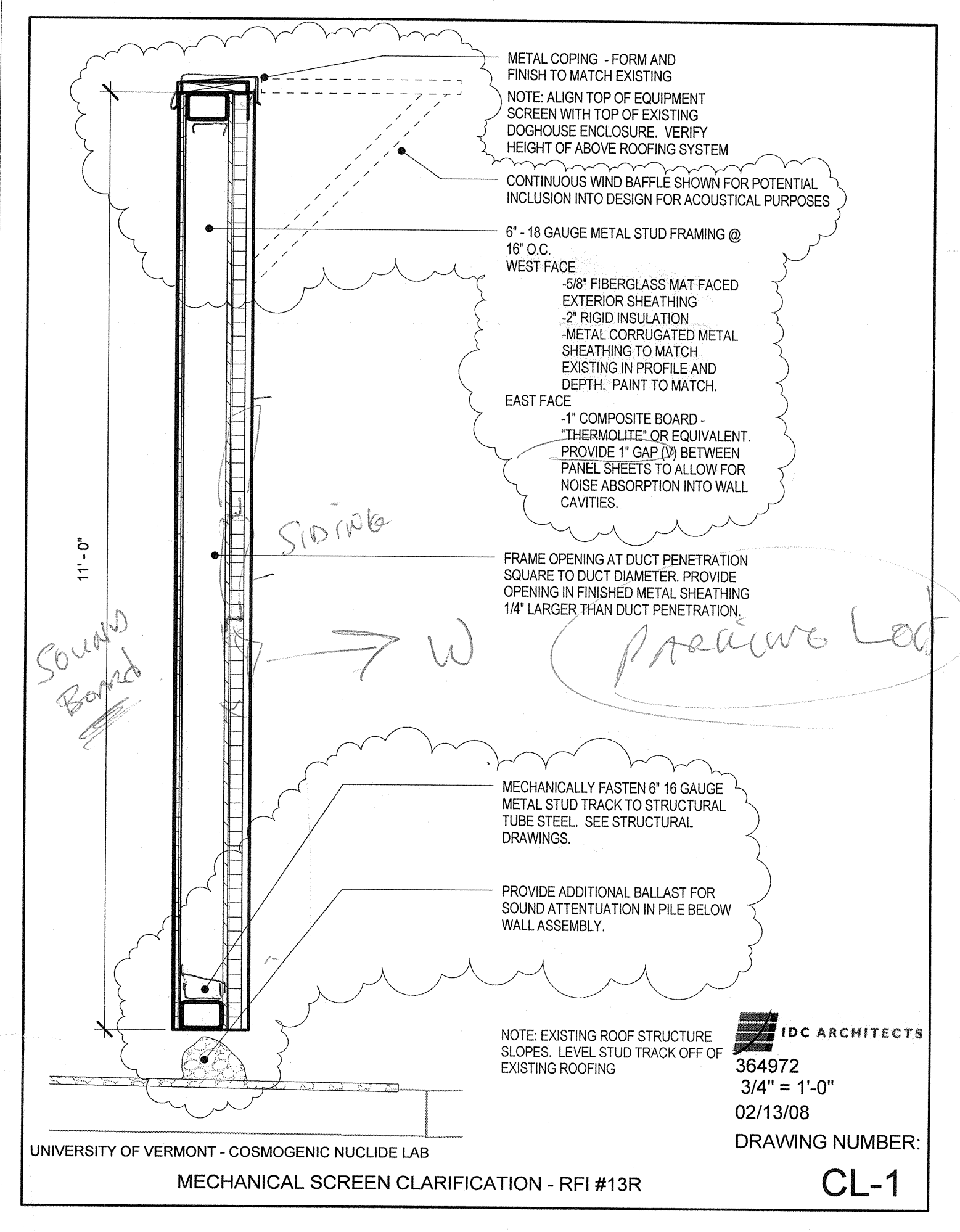
5 BASE DETAILS



7 SECTION A-A

NOTE: FOR INFORMATION NOT SHOWN, REFER TO DRAWING S-3

S10-S-1



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IDC PROJECT NO.: 364972  
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 DESIGNED: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
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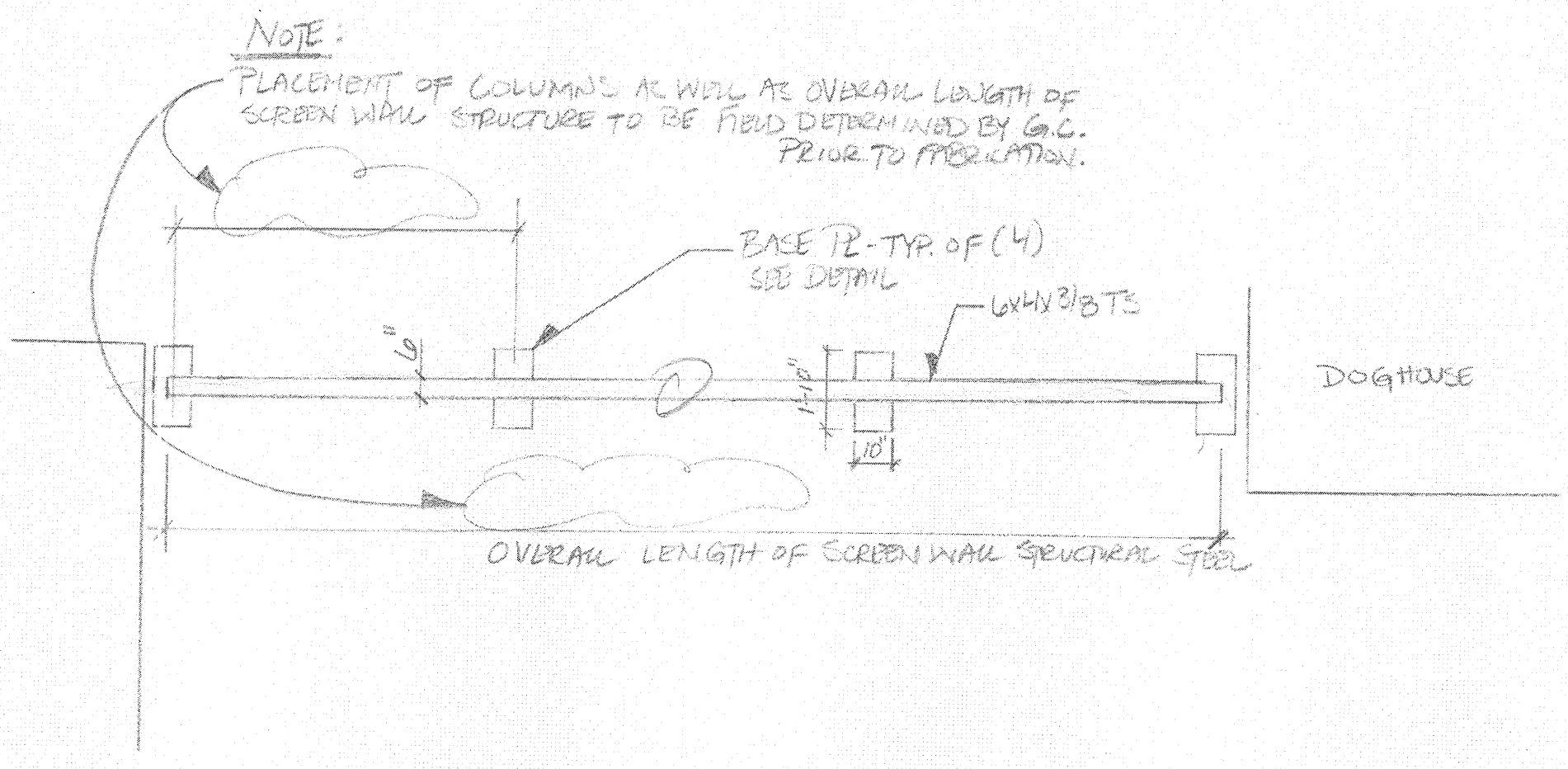
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DRAWING NUMBER: S-3

DRAWING SCALE: \_\_\_\_\_  
 EQUIPMENT CODE: \_\_\_\_\_

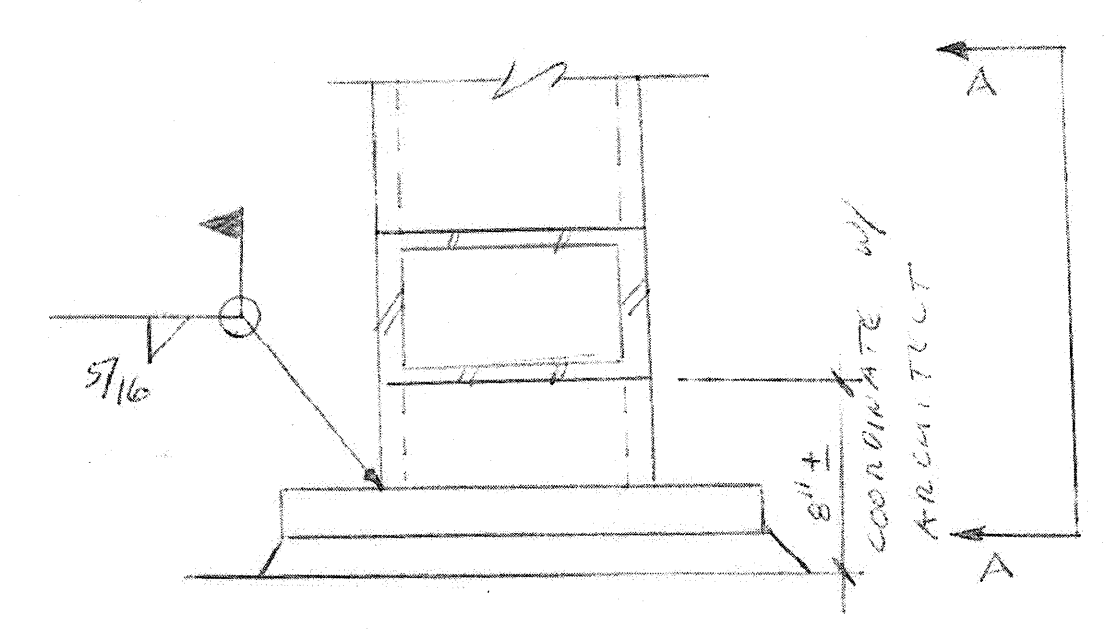
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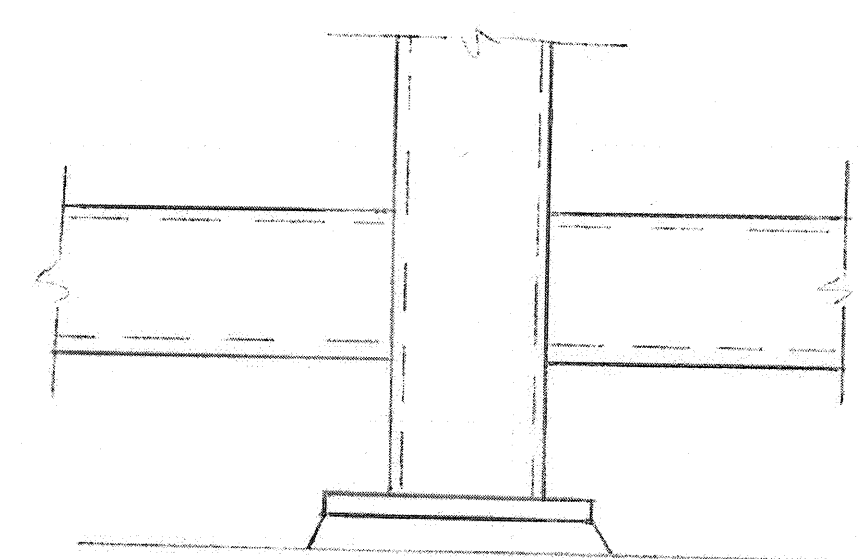


SCREEN WALL STRUCTURE-PLAN VIEW  
 SCALE: 1/4"=1'-0" STD SHIP PRINTED

U.V.M. DELEHANTY  
 P. G. ADAMS  
 2-18-08



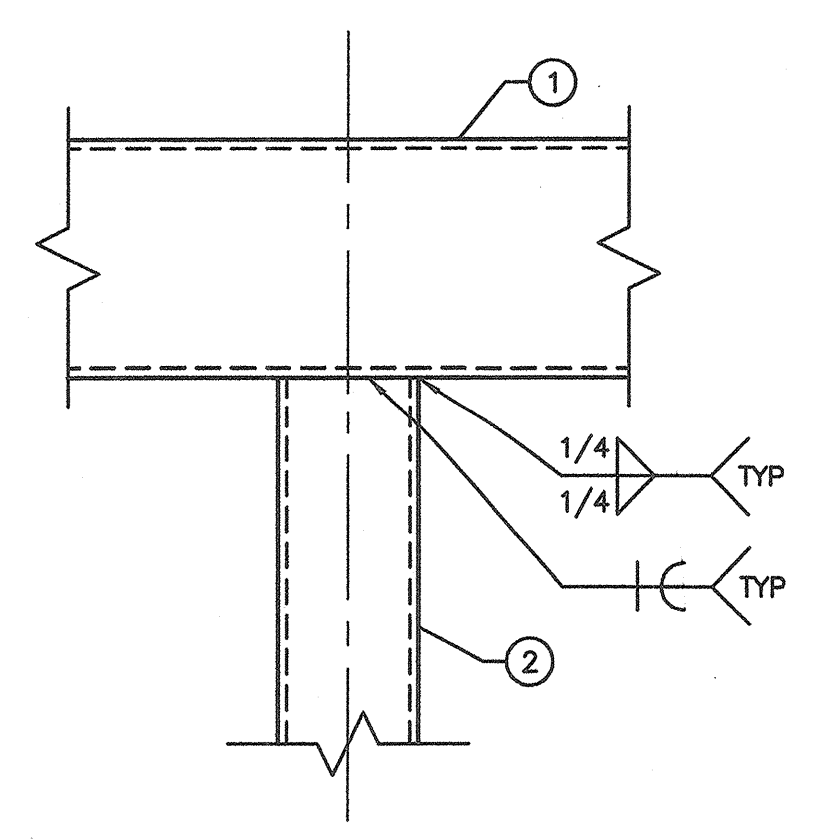
4 BASE DETAILS



7 SECTION A-A

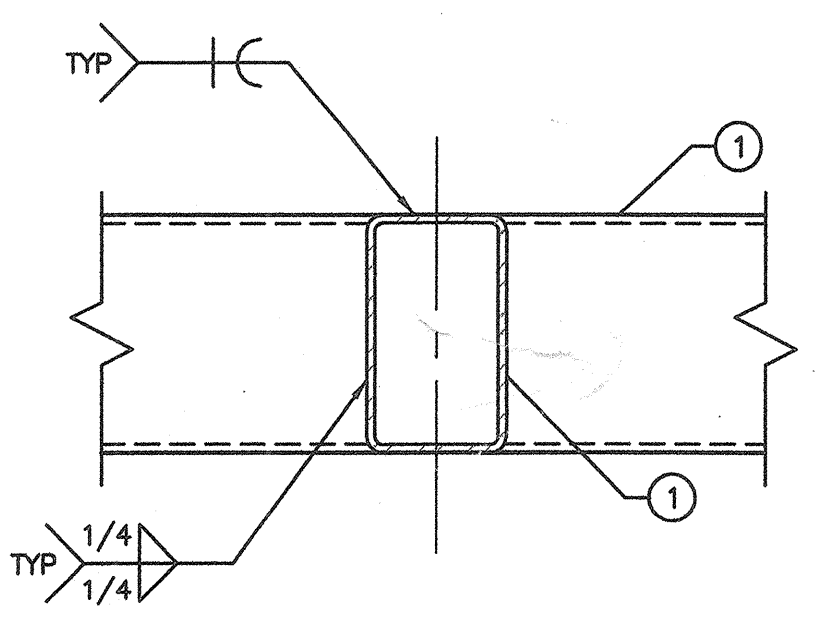
NOTE: FOR INFORMATION NOT SHOWN, REFER TO DRAWING S-3

SK-S-1



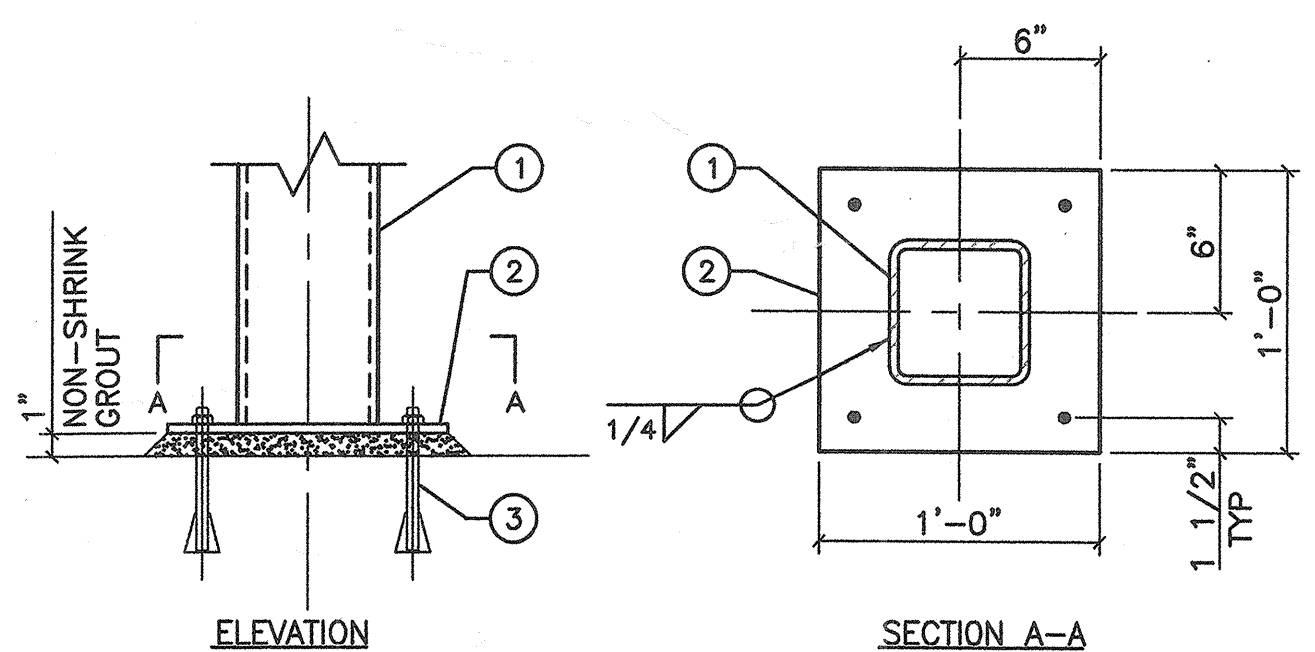
4 BEAM TO COLUMN POST CONNECTION  
 SCALE: 1 1/2"=1'-0"

- 1 HSS10x6 STEEL BEAM, SEE PLAN
- 2 HSS6x6 STEEL POST, SEE PLAN



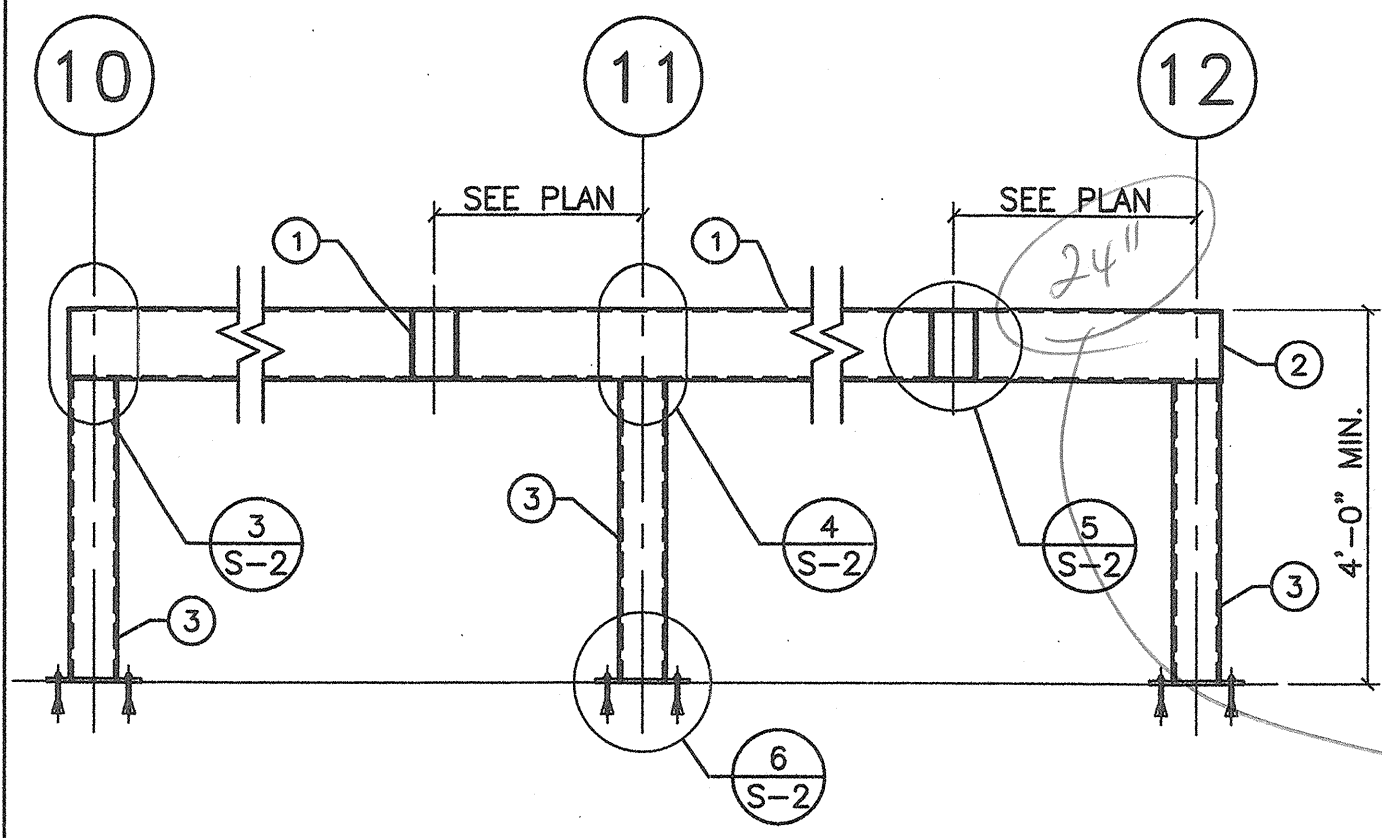
5 BEAM TO BEAM CONNECTION  
 SCALE: 1 1/2"=1'-0"

- 1 HSS10x6 STEEL BEAM, SEE PLAN



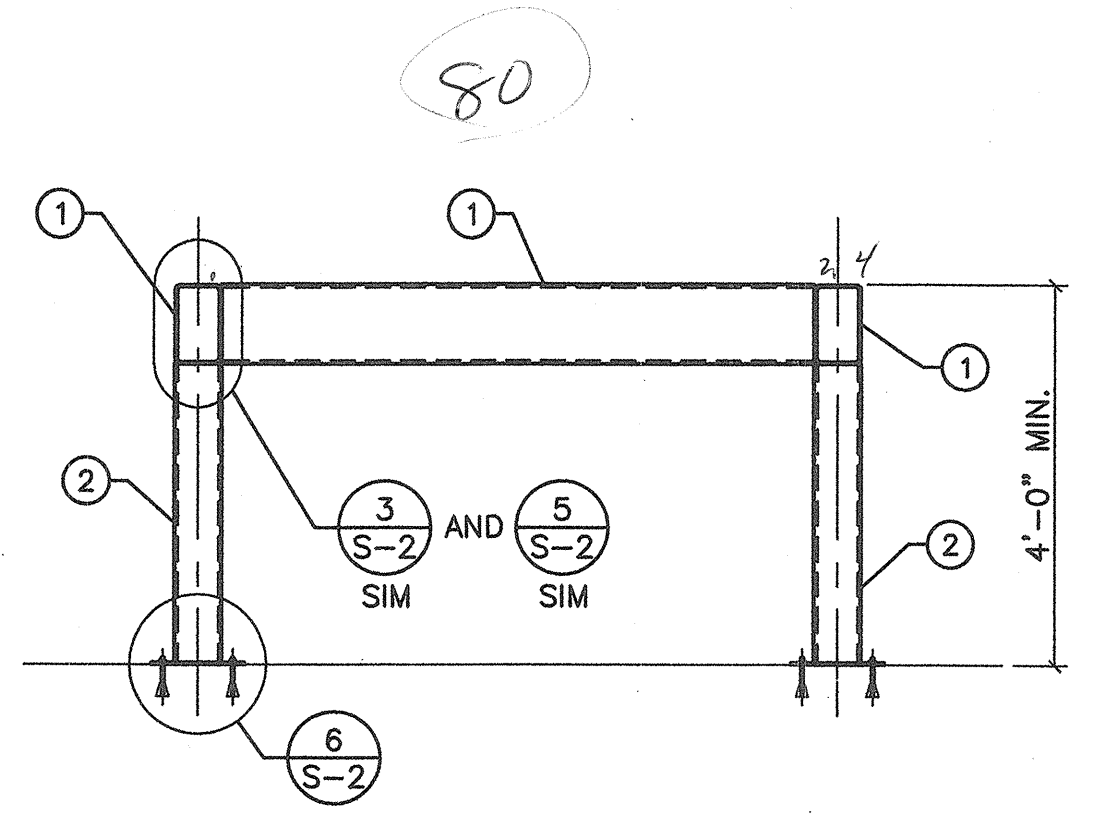
6 HSS POST BASE PLATE  
 SCALE: 1 1/2"=1'-0"

- 1 HSS6x6 STEEL POST, SEE PLAN
- 2 3/8" STEEL PLATE
- 3 (4)-1/2" HILTI KWIK BOLT 3 WITH 4" MIN. EMBEDMENT



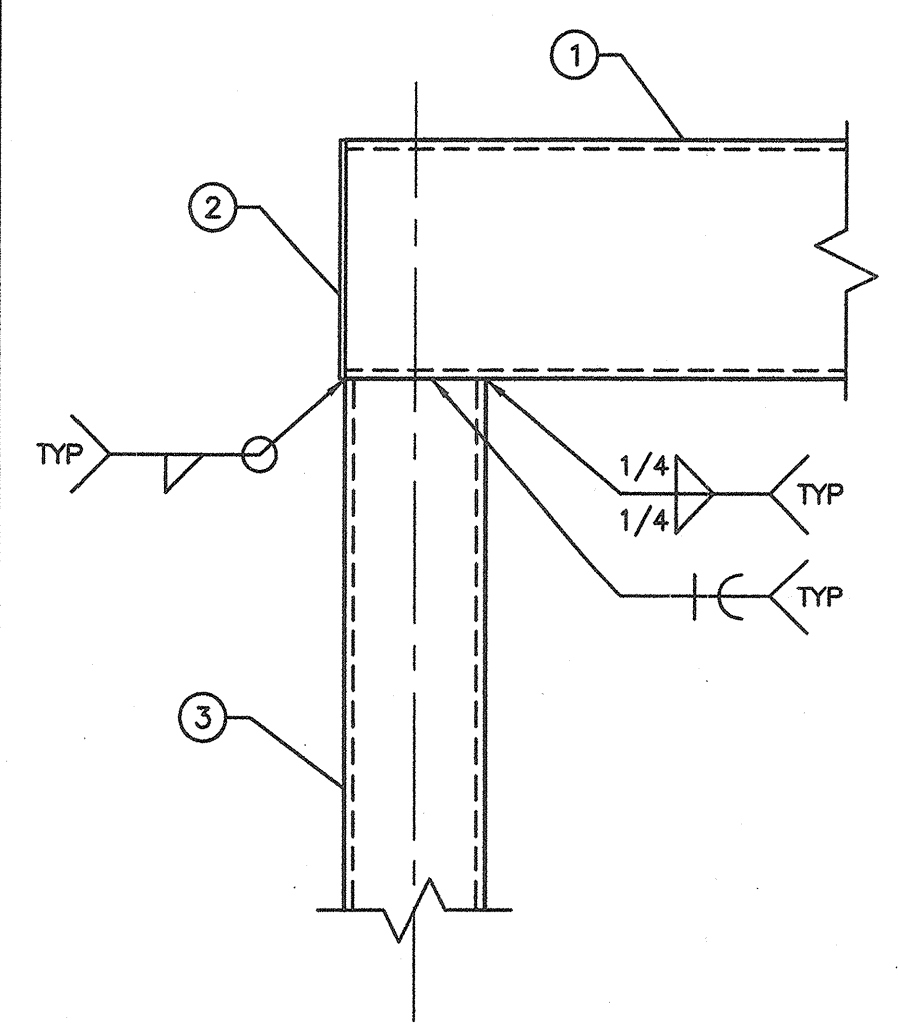
1 FRAMING ELEVATION  
 SCALE: 1/2"=1'-0"

- 1 HSS10x6 STEEL BEAM, SEE PLAN
- 2 1/4" CAP PLATE, EACH END
- 3 HSS6x6 STEEL POST, SEE PLAN



2 FRAMING ELEVATION  
 SCALE: 1/2"=1'-0"

- 1 HSS10x6 STEEL BEAM, SEE PLAN
- 2 HSS6x6 STEEL POST, SEE PLAN



3 BEAM TO COLUMN POST CONNECTION  
 SCALE: 1 1/2"=1'-0"

- 1 HSS10x6 STEEL BEAM, SEE PLAN
- 2 1/4" CAP PLATE
- 3 HSS6x6 STEEL POST, SEE PLAN

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2-22-08  
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| 1   | CONFORMED         | 01/23/08 | IDC  |
| 0   | IFC               | 11/18/07 | IDCA |
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KEYPLAN

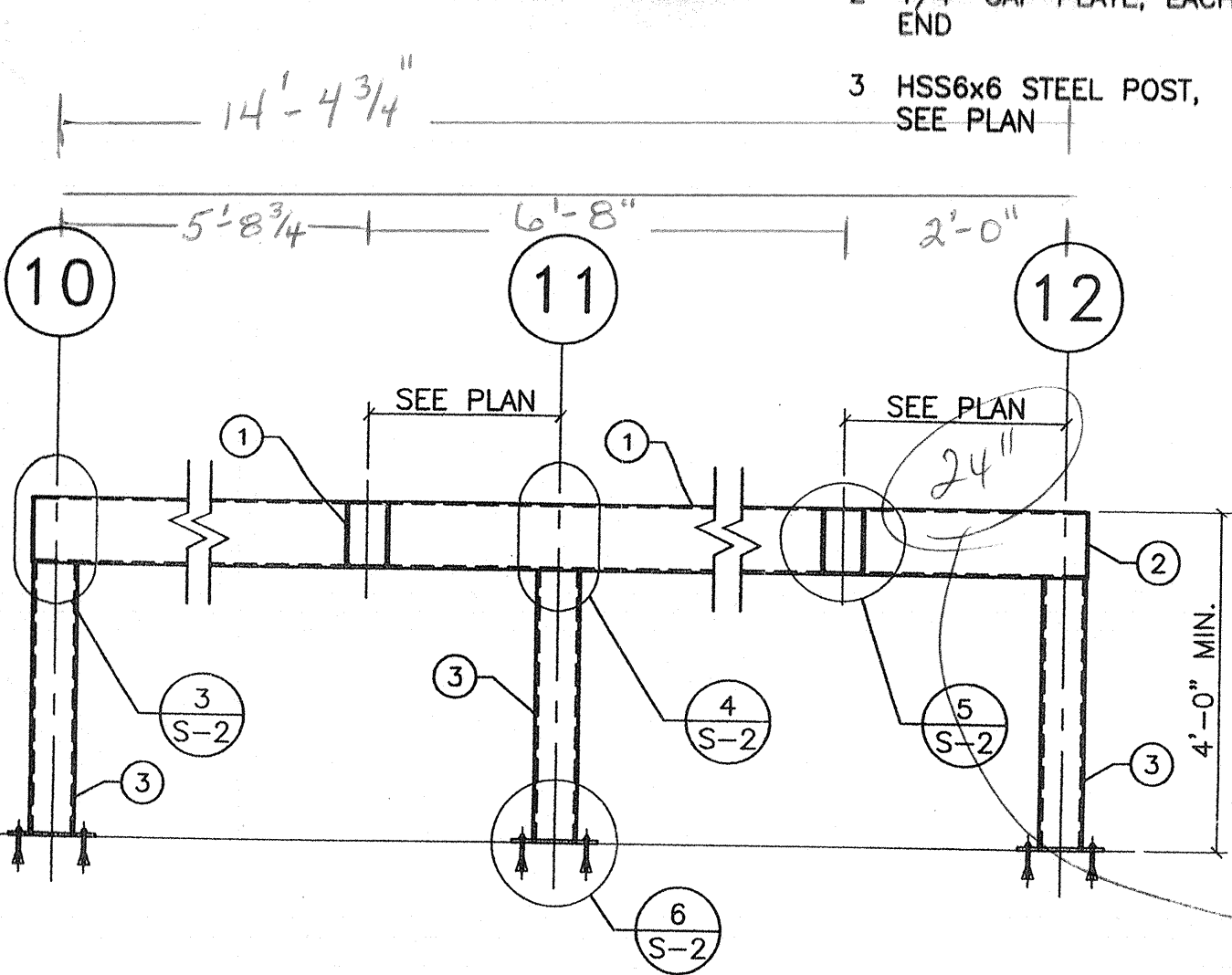
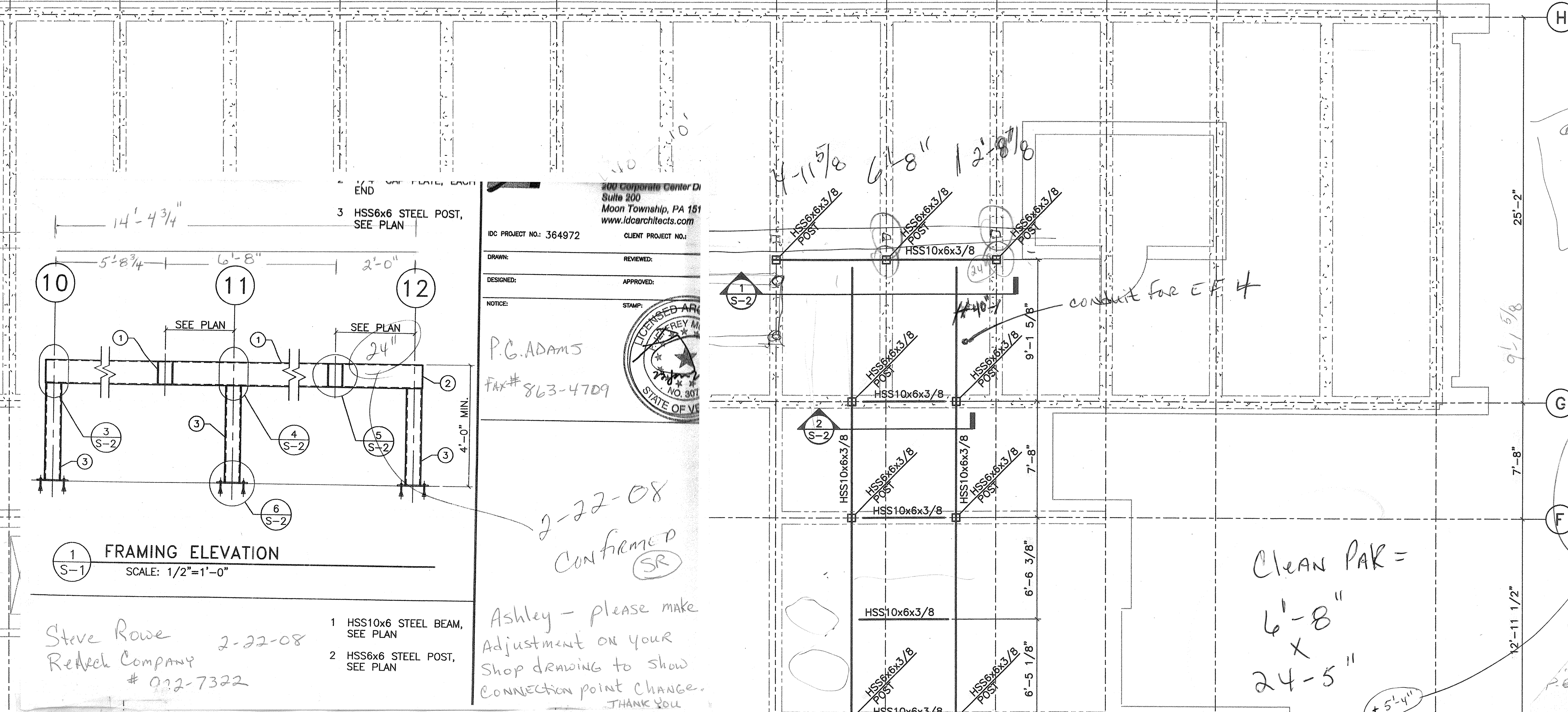
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 Cosmogenic Nuclide Laboratory

TITLE: STRUCTURAL DETAILS

DATE ISSUED: DRAWING SCALE:  
 ACAD FILE: S-2 EQUIPMENT CODE:  
 DRAWING NUMBER: S-2



6 7 8 9 10 11 12 13 14 15  
 7'-2 3/8" 14'-4 13/16" 14'-2 3/8" 14'-4 13/16" 7'-2 3/8" 7'-2 3/8" 7'-2 3/8" 7'-2 3/8" 14'-4 13/16"



1 S-1 FRAMING ELEVATION  
 SCALE: 1/2"=1'-0"

Steve Rowe 2-22-08  
 Redneck Company # 922-7322

300 Corporate Center Dr  
 Suite 200  
 Moon Township, PA 15108  
 www.idcarchitects.com

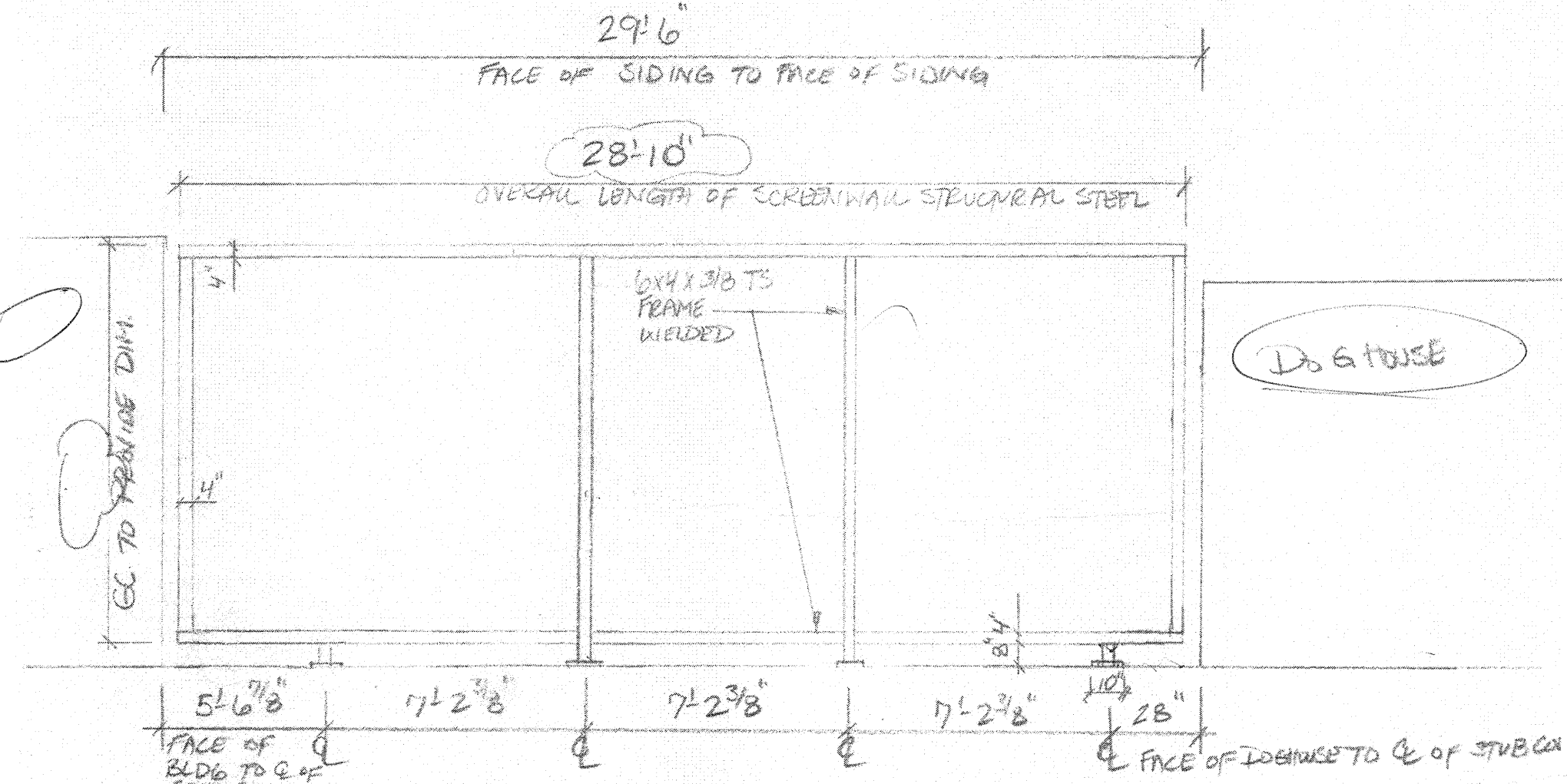
IDC PROJECT NO.: 364972 CLIENT PROJECT NO.:

DESIGNED: P.G. ADAMS  
 REVIEWED: P.G. ADAMS  
 APPROVED: P.G. ADAMS  
 STAMP: P.G. ADAMS  
 FAX# 863-4709

2-22-08  
 Confirmed SR

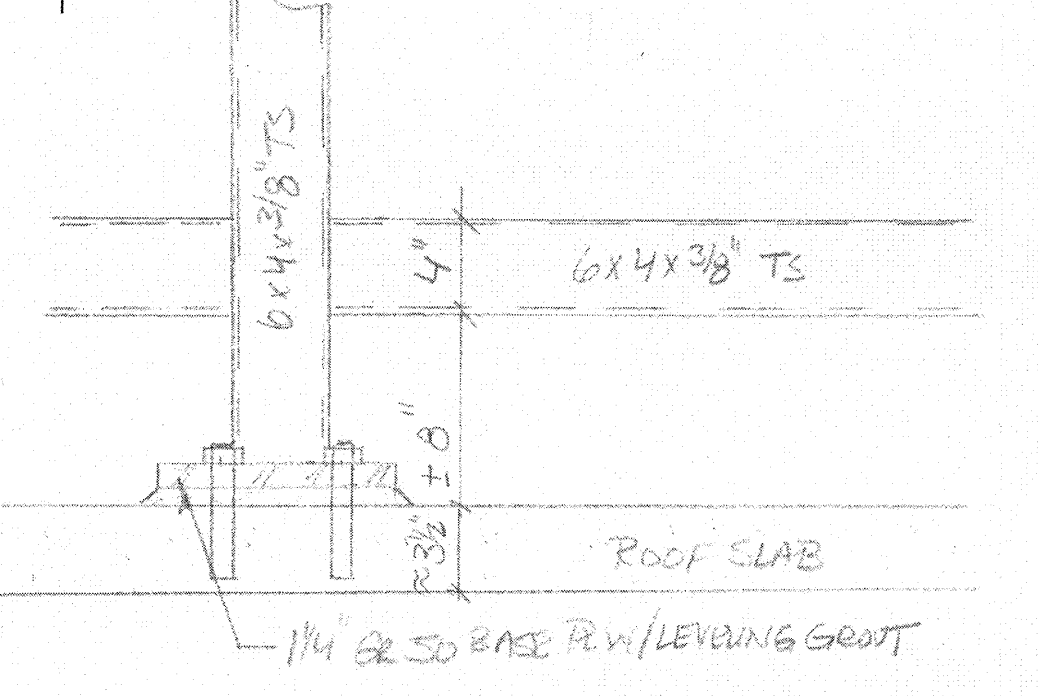
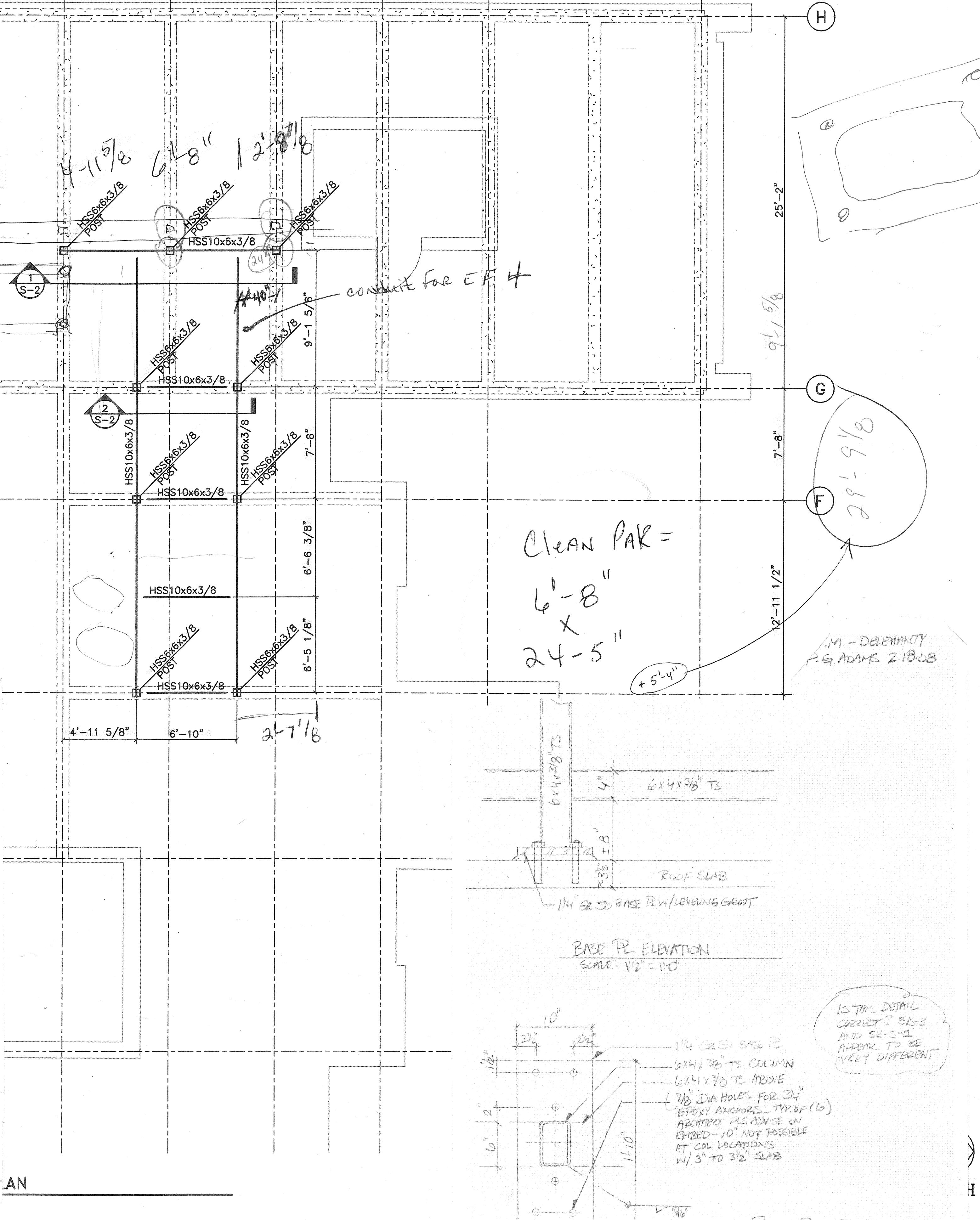
Ashley - please make  
 adjustment on your  
 shop drawing to show  
 connection point change.  
 THANK YOU

NOTE:  
 PLACEMENT OF COLUMNS ALONG AN OVERALL LENGTH OF  
 SCREENWALL STRUCTURE TO BE FIELD DETERMINED BY EC  
 PRIOR TO FABRICATION.

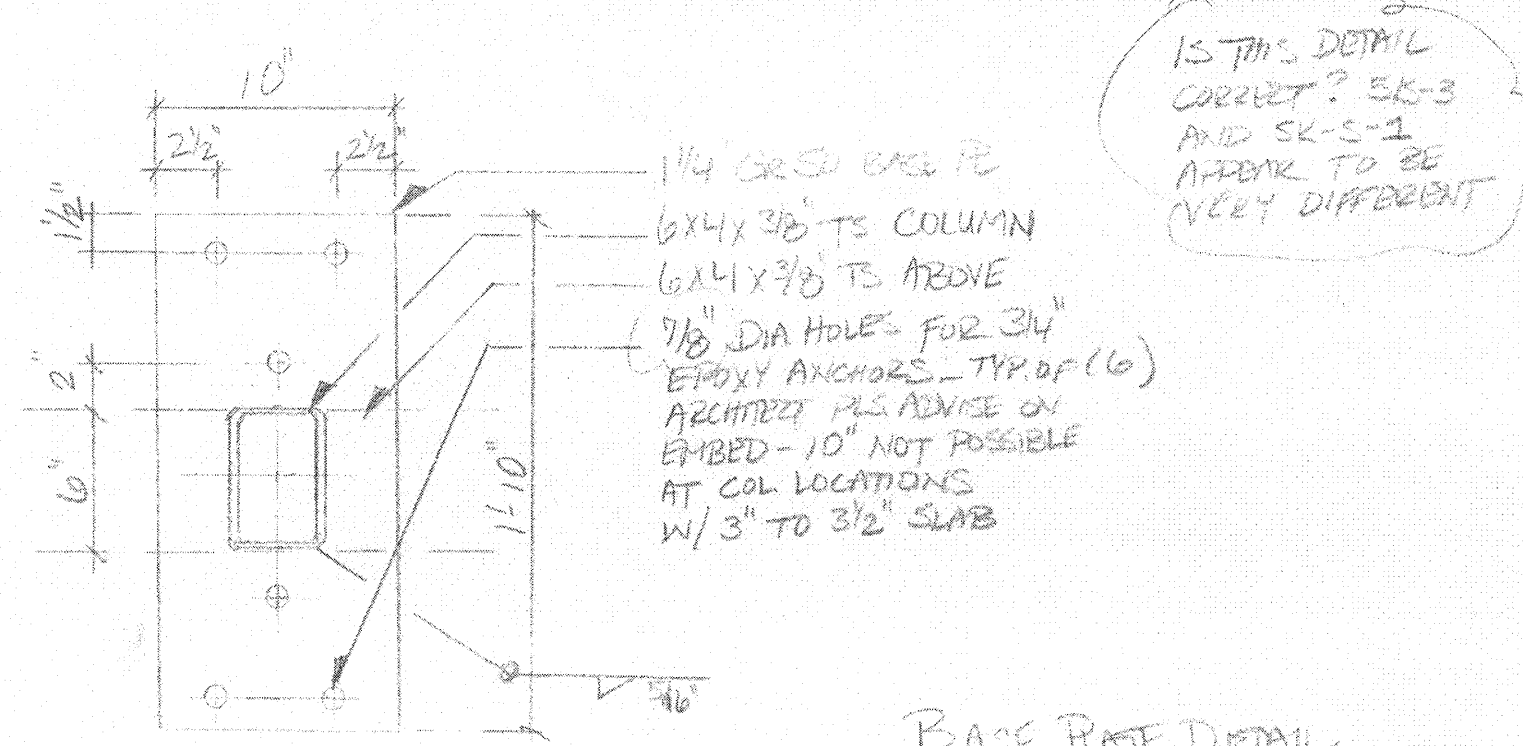


SCREEN WALL STRUCTURE - ELEVATION  
 SCALE: 1/4"=1'-0"

U.V.M. - DEBENNY  
 P.G. ADAMS 2/21/08  
 2.21.08 .AN



BASE PLATE ELEVATION  
 SCALE: 1/2"=1'-0"



BASE PLATE DETAIL  
 SCALE: 1/2"=1'-0"

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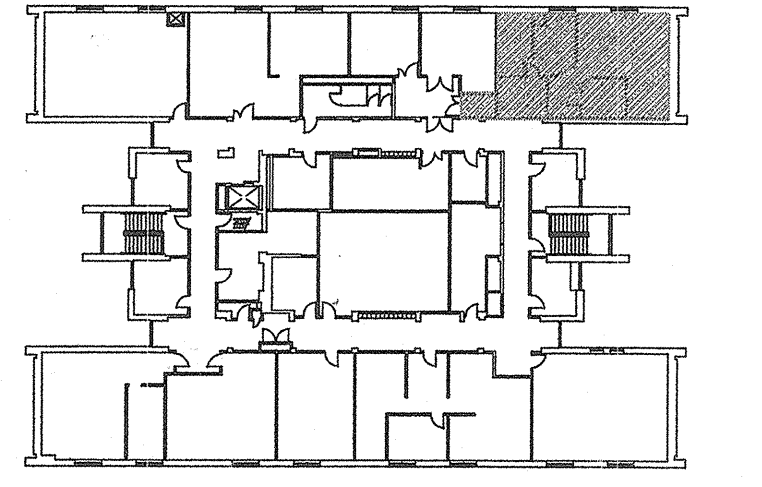
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DRAWN: REVIEWED:  
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LICENSED ARCHITECT  
 PERRY MURPHY  
 NO. 2008  
 STATE OF VERMONT

GENERAL NOTES:  
 A FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES SEE DRAWING S-0.  
 B FIELD VERIFY ALL DIMENSIONS, COORDINATE LOCATION, AND PLATFORM DIMENSIONS, WITH MECHANICAL DRAWINGS. IN CASE OF DISCREPANCY, MECHANICAL DRAWINGS CONTROL.

| 1   | CONFORMED         | 01/23/08 | IDC  |
|-----|-------------------|----------|------|
| 0   | IFC               | 11/16/07 | IDCA |
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KEYPLAN

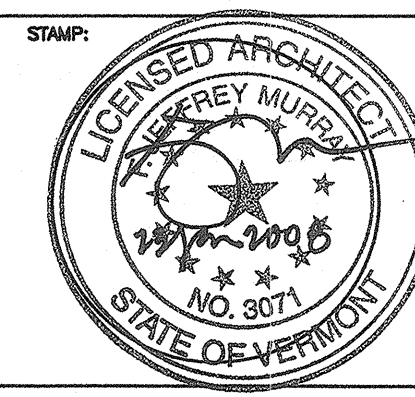
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STRUCTURAL ROOF PLAN

DATE ISSUED: DRAWING SCALE:  
 ACAD FILE: S-1 EQUIPMENT CODE:  
 DRAWING NUMBER:

S-1





**STRUCTURAL STEEL**

- A STEEL SHAPES, PLATES, AND BARS SHALL BE ASTM A36 OR A572-GRADE 50 AS NOTED ON THE DRAWINGS
- B STEEL SHAPED TUBING SHALL BE ASTM A500 GRADE B
- C STEEL PIPE SHALL BE ASTM A53 GRADE B
- D FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" AND "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES". DESIGN AND CONSTRUCTION OF TEMPORARY BRACING OR SHORING TO SAFELY SUPPORT STEEL PRIOR TO COMPLETION OF CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR
- E ALL BOLTS SHALL BE ASTM A325, 3/4" DIA TIGHTENED SNUG TIGHT TYP UN. HIGH STRENGTH BOLTING SHALL BE IN ACCORDANCE WITH AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS". A325SC BOLTS SHALL BE FULLY TENSIONED USING LOAD INDICATING WASHERS
- F MACHINE BOLTS AND ANCHOR BOLTS SHALL BE ASTM A307. USE TEMPLATES TO INSTALL ANCHOR BOLTS
- G WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE-STEEL". WELDING FILLER METAL SHALL BE AWS A5.1 OR A5.5 E70XX LOW HYDROGEN ELECTRODES. WELDERS SHALL BE AWS CERTIFIED. SUBMIT COPY OF ALL CERTIFICATIONS TO THE ENGINEER. SURFACES TO BE WELDED SHALL BE WIRE BRUSHED CLEAN BEFORE WELDING
- H PAINT ALL STEEL WITH 1 COAT OF RUST INHIBITIVE PRIMER TYP UN. SURFACES TO BE FIELD WELDED OR EMBEDDED IN CONCRETE, TOP FLANGES OF FRAMING TO RECEIVE COMPOSITE METAL DECK AND CONCRETE TOPPING SLABS, AND FAYING SURFACES OF A325SC BOLTED CONNECTIONS SHALL NOT BE SHOP PRIMED

**ABBREVIATIONS**

|        |                            |
|--------|----------------------------|
| AB     | ANCHOR BOLT                |
| ADDL   | ADDITIONAL                 |
| AL     | ALUMINUM                   |
| ALTN   | ALTERNATE                  |
| ANC    | ANCHOR                     |
| ARCH.  | ARCHITECT, ARCHITECTURAL   |
| BOT    | BOTTOM                     |
| BM     | BEAM                       |
| BRG    | BEARING                    |
| BETW   | BETWEEN                    |
| C TO C | CENTER TO CENTER           |
| CHKR   | CHECKERED                  |
| CIP    | CAST IN PLACE              |
| CJ     | CONSTRUCTION/CONTROL JOINT |
| CL, C  | CENTERLINE                 |
| CLR    | CLEAR, CLEARANCE           |
| CMU    | CONCRETE MASONRY UNIT      |
| COL    | COLUMN                     |
| CONC   | CONCRETE                   |
| CONN   | CONNECTION                 |
| CONT   | CONTINUOUS                 |
| COORD  | COORDINATE                 |
| CTR    | CENTER                     |
| CTRD   | CENTERED                   |
| CTSK   | COUNTERSINK                |
| DBA    | DEFORMED BAR ANCHOR        |
| DIA, Ø | DIAMETER                   |
| DWG    | DRAWING                    |
| EA     | EACH                       |
| ECS    | EPOXY COATED STEEL         |
| EF     | EACH FACE                  |
| EL     | ELEVATION                  |
| EQL    | EQUAL                      |
| EW     | EACH WAY                   |
| EXP    | EXPANSION                  |
| EXST   | EXISTING                   |
| FD     | FLOOR DRAIN                |
| FDN    | FOUNDATION                 |
| FLG    | FLANGE                     |
| FL     | FLOOR                      |
| FNSH   | FINISH                     |
| FRMG   | FRAMING                    |
| FRP    | FIBER REINFORCED PLASTIC   |
| FS     | FAR SIDE                   |
| FTG    | FOOTING                    |
| GA     | GAUGE, GAGE                |
| GALV   | GALVANIZED                 |
| GRTG   | GRATING                    |
| HCA    | HEADED CONCRETE ANCHOR     |
| HORIZ  | HORIZONTAL                 |
| HSB    | HIGH STRENGTH BOLT         |
| IF     | INSIDE FACE                |
| JT     | JOINT                      |
| LONG.  | LONGITUDINAL               |
| LLH    | LONG LEG HORIZONTAL        |
| LLV    | LONG LEG VERTICAL          |
| LSH    | LONG SLOTTED HOLE          |

**ABBREVIATIONS**

|        |                            |
|--------|----------------------------|
| MAX    | MAXIMUM                    |
| MB     | MACHINE BOLT               |
| MECH   | MECHANICAL                 |
| MET    | METAL                      |
| MFR    | MANUFACTURER               |
| MIN    | MINIMUM                    |
| NDT    | NON-DESTRUCTIVE TESTING    |
| NIC    | NOT IN CONTRACT            |
| NS     | NEAR SIDE                  |
| NTS    | NOT TO SCALE               |
| OC     | ON CENTER                  |
| OF     | OUTSIDE FACE               |
| O TO O | OUT TO OUT                 |
| OPNG   | OPENING                    |
| OPP    | OPPOSITE                   |
| OSH    | OVERSIZED HOLE             |
| PRCST  | PRECAST                    |
| PLCS   | PLACES                     |
| PJF    | PREMOLDED JOINT FILLER     |
| PL     | PLATE                      |
| PROJ   | PROJECTION                 |
| PSF    | POUNDS PER SQUARE FOOT     |
| PSI    | POUNDS PER SQUARE INCH     |
| PVC    | POLYVINYL CHLORIDE         |
| RD     | ROOF DRAIN                 |
| REINF  | REINFORCE, REINFORCING     |
| REQD   | REQUIRED                   |
| RO     | ROUGH OPENING              |
| RTN    | RETURN                     |
| SHT    | SHEET                      |
| SIB    | STRUCTURAL ISOLATION BREAK |
| SIM    | SIMILAR                    |
| SPCG   | SPACING                    |
| SPCS   | SPACES                     |
| SPECS  | SPECIFICATIONS             |
| SQ     | SQUARE                     |
| SST    | STAINLESS STEEL            |
| SSH    | SHORT SLOTTED HOLE         |
| STD    | STANDARD                   |
| STIF   | STIFFENER                  |
| STL    | STEEL                      |
| SYMM   | SYMMETRICAL                |
| T&B    | TOP & BOTTOM               |
| THK    | THICK                      |
| TO     | TOP OF                     |
| TOC    | TOP OF CONCRETE            |
| TOF    | TOP OF FOOTING             |
| TOS    | TOP OF STEEL               |
| TOW    | TOP OF WALL                |
| TRANSV | TRANSVERSE                 |
| TYP    | TYPICAL                    |
| UN     | UNLESS NOTED               |
| VERT   | VERTICAL                   |
| W/     | WITH                       |
| W/O    | WITHOUT                    |
| WS     | WATERSTOP                  |
| WWF    | WELDED WIRE FABRIC         |

**LEGEND**

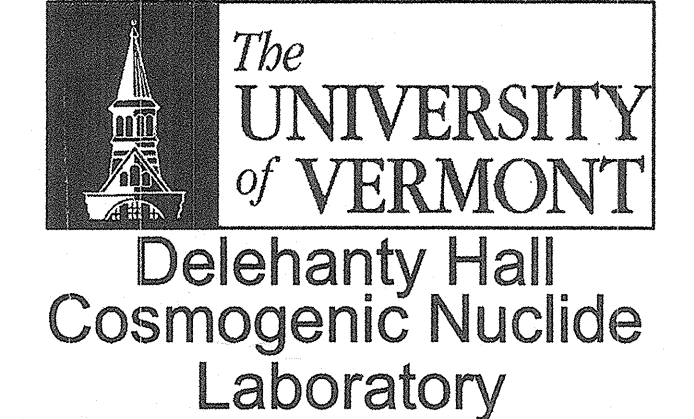
- DETAIL NUMBER**  
DETAIL IS REFERENCED AND SHOWN ON THE SAME DRAWING
- DETAIL NUMBER**  
DRAWING THAT DETAIL IS SHOWN ON
- SECTION DESIGNATION**  
SECTION CUT AND SHOWN ON THE SAME DRAWING
- SECTION DESIGNATION**  
DRAWING THAT SECTION IS SHOWN ON OR FIRST CUT ON
- FLOOR DRAIN (FD)**  
OR ROOF DRAIN (RD)
- ASTM A572-GRD 50 STEEL**
- BRACED BAY ABOVE FRAMING LEVEL SHOWN**
- BRACED BAY BELOW FRAMING LEVEL SHOWN**
- NUMBER OF SHEAR CONNECTORS ON FLOOR FRAMING MEMBER**
- MOMENT RESISTING CONNECTION**
- TILT-UP OR PRECAST PANEL TYPE**

**MATERIAL SYMBOLS**

|  |               |  |                      |
|--|---------------|--|----------------------|
|  | EARTH         |  | STEEL                |
|  | GRANULAR FILL |  | SAND FILL            |
|  | ROCK          |  | CMU (PLAN VIEW ONLY) |
|  | CONCRETE      |  |                      |

|     |                   |          |      |
|-----|-------------------|----------|------|
| 1   | CONFORMED         | 01/23/08 | IDC  |
| 0   | IFC               | 11/16/07 | IDCA |
| NO. | REVISION OR ISSUE | DATE     | BY   |

KEYPLAN

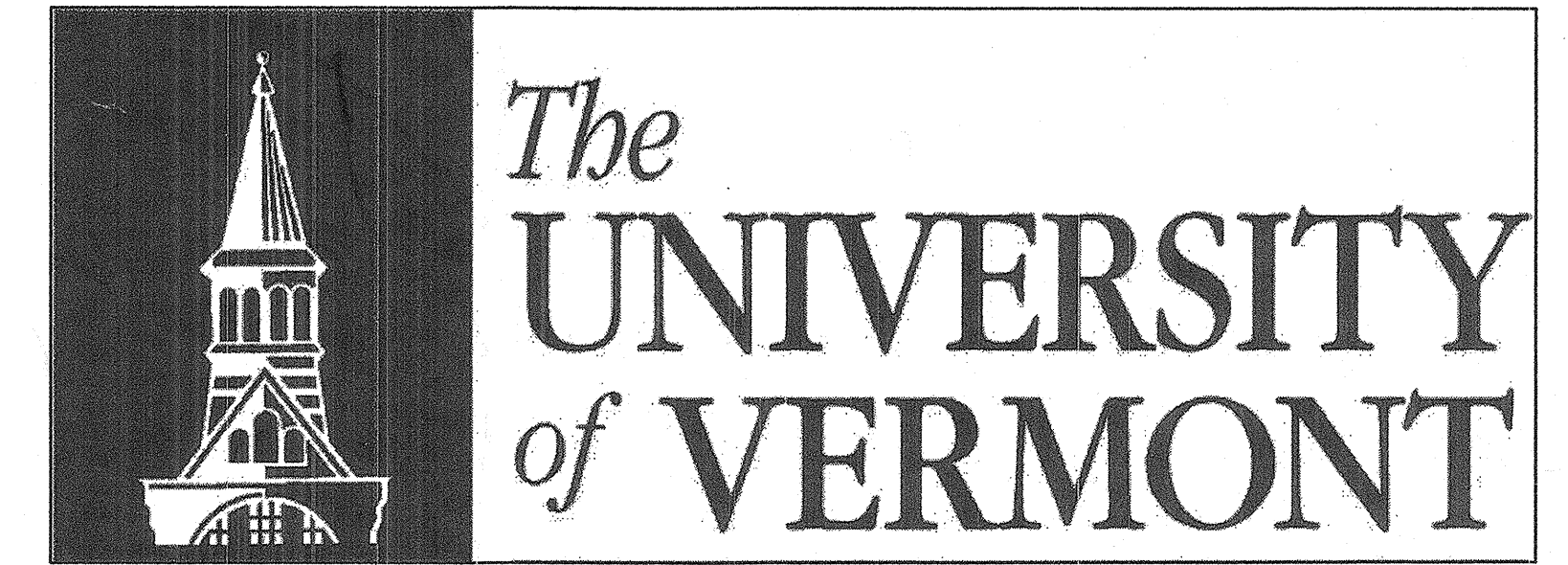


TITLE: MECHANICAL  
 LEGEND  
 ABBREVIATIONS  
 AND SYMBOLS

DATE ISSUED: DRAWING SCALE:  
 ACAD FILE: S-0 EQUIPMENT CODE:

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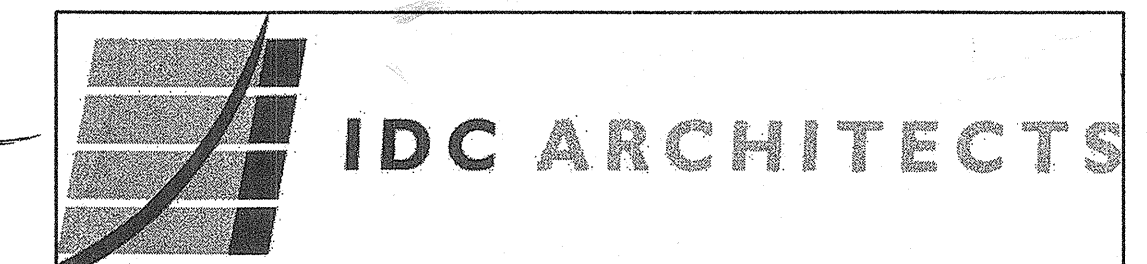
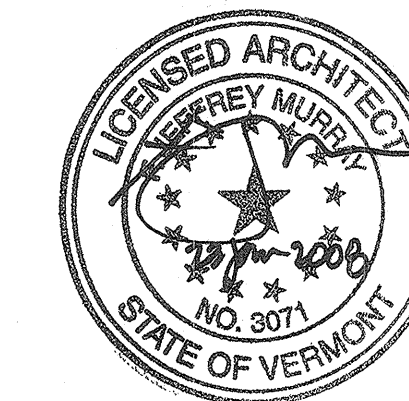
PROPOSED NEW CONSTRUCTION

# COSMOGENIC NUCLIDE LABORATORY DEPARTMENT OF GEOLOGY

DELEHANTY HALL  
180 COLCHESTER AVENUE  
BURLINGTON VERMONT 05405

## CONFORMED ISSUE FOR CONSTRUCTION

DATE ISSUED  
01/23/2008



200 Corporate Center Drive, Suite 200  
Pittsburgh, Pennsylvania 15108  
[www.idcarchitects.com](http://www.idcarchitects.com)

| <b>Structural</b>        |                 |                            |                         |                 |              |
|--------------------------|-----------------|----------------------------|-------------------------|-----------------|--------------|
| S-0                      | MECHANICAL      | LEGEND                     | ABBREVIATIONS           | AND SYMBOLS     | 1 1/23/2008  |
| S-1                      | STRUCTURAL      | ROOF PLAN                  |                         |                 | 1 1/23/2008  |
| S-2                      | STRUCTURAL      | DETAILS                    |                         |                 | 1 1/23/2008  |
| S-3                      | STRUCTURAL      | DETAILS                    |                         |                 | 0 1/23/2008  |
| <b>Architectural</b>     |                 |                            |                         |                 |              |
| A-0                      | ARCHITECTURAL   | BUILDING CODES             | LIFE SAFETY SUMMARY     |                 | 1 01/23/2008 |
| A-1                      | ARCHITECTURAL   | LEGENDS, STANDARDS &       | GENERAL INFORMATION     |                 | 1 01/23/2008 |
| A-2                      | ARCHITECTURAL   | ARCHITECTURAL ROOF PLAN &  | ROOF PLAN               |                 | 1 01/23/2008 |
| A-3                      | ARCHITECTURAL   | ARCHITECTURAL              | ROOF ASSOCIATED DETAILS |                 | 1 01/23/2008 |
| A-4                      | ARCHITECTURAL   | ENLARGED PLANS &           | SCHEDULES / DETAILS     |                 | 1 01/23/2008 |
| A-5                      | ARCHITECTURAL   | ENLARGED PLAN & ELEVATIONS | EQUIPMENT & CASEWORK    |                 | 1 01/23/2008 |
| A-6                      | ARCHITECTURAL   | ARCHITECTURAL              | DETAILS                 |                 | 1 01/23/2008 |
| <b>Mechanical</b>        |                 |                            |                         |                 |              |
| M-0                      | MECHANICAL      | LEGEND                     | ABBREVIATIONS           | AND SYMBOLS     | 1 1/23/2008  |
| M-1                      | MECHANICAL      | FLOOR PLAN AND             | CEILING PLAN            |                 | 1 1/23/2008  |
| M-2                      | MECHANICAL      | ROOF PLAN                  |                         |                 | 1 1/23/2008  |
| M-3                      | MECHANICAL      | ROOF PLAN                  | DEMOLITION              |                 | 1 1/23/2008  |
| M-4                      | MECHANICAL      | SCHEDULES                  |                         |                 | 1 1/23/2008  |
| M-5                      | MECHANICAL      | CONTROL DIAGRAMS           |                         |                 | 1 1/23/2008  |
| M-6                      | MECHANICAL      | DETAILS                    |                         |                 | 1 1/23/2008  |
| M-7                      | MECHANICAL      | DETAILS                    |                         |                 | 1 1/23/2008  |
| <b>Electrical</b>        |                 |                            |                         |                 |              |
| E-0                      | ELECTRICAL      | LEGEND                     | ABBREVIATIONS           | AND SYMBOLS     | 1 1/23/2008  |
| E-1                      | ELECTRICAL      | POWER &                    | LIGHTING                | PLANS           | 1 1/23/2008  |
| E-2                      | ELECTRICAL      | ROOF LEVEL                 | POWER                   | PLAN            | 1 1/23/2008  |
| E-3                      | ELECTRICAL      | PANEL                      | SCHEDULE                |                 | 1 1/23/2008  |
| E-4                      | ELECTRICAL      | HEAT TRACE                 | PLAN                    |                 | 1 1/23/2008  |
| <b>Telecommunication</b> |                 |                            |                         |                 |              |
| T-1                      | TELECOM &       | LIFE SAFETY                | PLAN                    |                 | 1 1/23/2008  |
| <b>Plumbing</b>          |                 |                            |                         |                 |              |
| P-0                      | PLUMBING        | LEGEND                     | ABBREVIATIONS           | AND SYMBOLS     | 1 1/23/2008  |
| P-1                      | PLUMBING        | FLOOR PLAN                 | NEW AND                 | DEMO WORK       | 1 1/23/2008  |
| P-2                      | PLUMBING        | THIRD FLOOR PLAN           | NEW                     | WORK            | 1 1/23/2008  |
| P-3                      | PLUMBING        | SECOND FLOOR PLAN          | NEW                     | WORK            | 1 1/23/2008  |
| P-4                      | PLUMBING        | ROOF PLAN                  | NEW                     | WORK            | 1 1/23/2008  |
| P-5                      | PLUMBING        | DETAILS                    |                         |                 | 1 1/23/2008  |
| P-6                      | PLUMBING        | DETAILS                    |                         |                 | 0 1/23/2008  |
| <b>Fire Protection</b>   |                 |                            |                         |                 |              |
| F-0                      | FIRE PROTECTION | LEGEND                     | ABBREVIATIONS           | AND SYMBOLS     | 1 1/23/2008  |
| F-1                      | FIRE PROTECTION | FLOOR PLAN AND             | CEILING PLAN            | NEW & DEMO WORK | 1 1/23/2008  |
| F-2                      | FIRE PROTECTION | DETAILS                    |                         |                 | 1 1/23/2008  |

