

# PIPING SYMBOLS

# DOUBLE LINE DUCTWORK SYMBOLS

|      |                             |     |                                      |
|------|-----------------------------|-----|--------------------------------------|
| SD   | SANITARY SEWER              | FOS | FUEL-OIL SUPPLY                      |
| SD   | STORM DRAIN                 | FOR | FUEL-OIL RETURN                      |
| ---  | VENT                        | FV  | FUEL-OIL VENT                        |
| ACID | ACID RESISTANT DRAIN        | PA  | PIPE ANCHOR                          |
| D    | DRAINLINE                   | PG  | PIPE GUIDE                           |
| ---  | COLD WATER                  | --- | EXPANSION JOINT                      |
| ---  | HOT WATER                   | --- | GATE VALVE                           |
| ---  | HOT WATER CIRCULATING       | --- | GLOBE VALVE                          |
| HRS  | HEAT RECOVERY SUPPLY        | --- | BUTTERFLY VALVE                      |
| HR   | HEAT RECOVERY RETURN        | --- | CHECK VALVE                          |
| HPS  | HIGH PRESSURE STEAM         | --- | HOSE GATE VALVE, DRAIN VALVE W/PLUG  |
| HR   | HIGH PRESSURE RETURN        | --- | BALANCING VALVE                      |
| MPS  | MEDIUM PRESSURE STEAM       | --- | BALL VALVE                           |
| MR   | MEDIUM PRESSURE RETURN      | --- | PLUG VALVE                           |
| LPS  | LOW PRESSURE STEAM          | --- | ELECTRIC CONTROL VALVE               |
| LR   | LOW PRESSURE RETURN         | --- | CALIBRATED BALANCING VALVE           |
| HMS  | HOT WATER HEATING SUPPLY    | --- | PRESSURE RELIEF, ANGLE VALVE         |
| HR   | HOT WATER HEATING RETURN    | --- | PRESSURE REDUCING VALVE              |
| CHMS | CHILLED WATER SUPPLY        | --- | AUTOMATIC CONTROL VALVE, 2 WAY       |
| CHMR | CHILLED WATER RETURN        | --- | AUTOMATIC CONTROL VALVE, 3 WAY       |
| CH   | CHILLED OR HOT WATER SUPPLY | --- | PRESSURE RELIEF, STRAIGHT THRU VALVE |
| CHR  | CHILLED OR HOT WATER RETURN | HB  | HOSE BIBB                            |
| C    | COLD CONDENSER WATER        | HH  | WALL HYDRANT                         |
| CR   | HOT CONDENSER WATER         | --- | ELBOW, 90°                           |
| RD   | REFRIGERANT DISCHARGE       | --- | ELBOW, 90° TURNED UP                 |
| RS   | REFRIGERANT SUCTION         | --- | ELBOW, 90° TURNED DOWN               |
| G    | GAS                         | --- | ELBOW, 45°                           |
| VAC  | VACUUM (AIR)                | --- | ELBOW, 45° TURNED DOWN               |
| A    | COMPRESSED AIR              | --- | ELBOW, 45° TURNED UP                 |
| CP   | CONDENSATE PUMP DISCHARGE   | --- | TEE                                  |
| BFD  | BOILER FEEDWATER DISCHARGE  | --- | TEE, OUTLET TURNED UP                |
| BBD  | BOILER BLOW DOWN            | --- | TEE, OUTLET TURNED DOWN              |
| SV   | STEAM VENT                  | --- | STRAINER                             |
|      |                             | --- | CONCENTRIC REDUCER                   |
|      |                             | --- | ECCENTRIC REDUCER                    |

|     |                                 |
|-----|---------------------------------|
| --- | PLUG                            |
| --- | UNION                           |
| --- | FLEXIBLE PIPE CONNECTION        |
| --- | FLOOR DRAIN W/TRAP              |
| --- | CLEAN OUT                       |
| --- | STEAM TRAP                      |
| --- | DRIP STATION                    |
| --- | P.R.S.                          |
| --- | PRESSURE REDUCING STATION       |
| --- | PRESSURE GAGE                   |
| --- | TEMPERATURE GAGE                |
| --- | VACUUM GAGE                     |
| --- | THERMOMETER                     |
| --- | AUTOMATIC AIR VENT              |
| --- | HUMIDISTAT                      |
| --- | THERMOSTAT                      |
| --- | UNIT HEATER                     |
| --- | UPRIGHT FIRE SPRINKLER HEAD     |
| --- | PENDANT FIRE SPRINKLER HEAD     |
| --- | SIDEWALL FIRE SPRINKLER HEAD    |
| --- | FIRE PROTECTION WATER SUPPLY    |
| --- | AUTOMATIC FIRE SPRINKLER SUPPLY |
| --- | FIRE DEPARTMENT CONNECTION      |
| --- | WATERFLOW DETECTOR              |
| --- | WATER HAMMER ARRESTOR           |
| --- | MANUAL AIR VENT                 |
| --- | BLIND FLANGE                    |
| --- | LATERAL Y                       |
| --- | CAP                             |
| --- | BACKFLOW PREVENTER              |

|      |                                                                          |
|------|--------------------------------------------------------------------------|
| 12X6 | RECTANGULAR DUCTWORK (1ST FIG SIDE SHOWN, 2ND FIG IS FOR SIDE NOT SHOWN) |
| 12"Ø | ROUND DUCT                                                               |
| ---  | FLEXIBLE ROUND DUCT                                                      |
| 12X6 | FLAT OVAL DUCT (1ST FIG SIDE SHOWN, 2ND FIG IS FOR SIDE NOT SHOWN)       |
| ---  | OPPOSED BLADE VOLUME DAMPER (VD) DISTANCE BETWEEN                        |
| ---  | FLEXIBLE DUCT CONNECTION                                                 |
| FD   | FIRE DAMPER                                                              |
| ---  | DUCT TRANSITION, ROUND TO RECTANGULAR                                    |
| ---  | DUCT TRANSITION, RECTANGULAR TO ROUND                                    |
| ---  | DUCT TRANSITION, RECTANGULAR OR ROUND                                    |
| R    | INCLINED RISE W/RESPECT TO AIR FLOW, RECTANGULAR                         |
| D    | INCLINED DROP W/RESPECT TO AIR FLOW, RECTANGULAR                         |
| R    | INCLINED RISE W/RESPECT TO AIR FLOW, ROUND                               |
| D    | INCLINED DROP W/RESPECT TO AIR FLOW, ROUND                               |
| ---  | 90° ELBOW, RECTANGULAR                                                   |
| ---  | 45° ELBOW, RECTANGULAR                                                   |
| ---  | 90° ELBOW, ROUND                                                         |
| ---  | 45° ELBOW, ROUND                                                         |
| SD   | SPLITTER DAMPER                                                          |
| ---  | TAP-IN BRANCH, RECTANGULAR (RETURN OR EXHAUST)                           |
| ---  | TAP-IN BRANCH DUCT WITH AIR EXTRACTOR                                    |
| BDD  | BACKDRAFT DAMPER                                                         |

|       |                                                                                      |
|-------|--------------------------------------------------------------------------------------|
| ---   | MITER TEE, RECTANGULAR                                                               |
| ---   | BRANCH DUCT, LATERAL FITTING, ROUND                                                  |
| ---   | BRANCH DUCT, TEE FITTING, ROUND                                                      |
| ---   | BRANCH DUCT, "Y" FITTING, ROUND                                                      |
| ---   | SUPPLY DUCT SECTION, RECTANGULAR                                                     |
| ---   | EXHAUST OR RETURN DUCT SECTION, RECTANGULAR                                          |
| ---   | 90° ELBOW TURNED UP, RECTANGULAR                                                     |
| ---   | 90° ELBOW TURNED DOWN, RECTANGULAR                                                   |
| ---   | 90° ELBOW TURNED UP, ROUND                                                           |
| ---   | 90° ELBOW TURNED DOWN, ROUND                                                         |
| ---   | CEILING DIFFUSER                                                                     |
| ---   | CEILING DIFFUSER                                                                     |
| ---   | CEILING REGISTER OR GRILLE, EXHAUST OR RETURN                                        |
| ---   | SUPPLY REGISTER OR GRILLE                                                            |
| ---   | EXHAUST OR RETURN REGISTER OR GRILLE                                                 |
| S-CFM | AIR-LIGHT TROFFER W/FLEXIBLE DUCT CONNECTION "S" INDICATES SUPPLY, "R" INDICATES CFM |
| TU-10 | TERMINAL UNIT (CAPACITY AND TYPE SHOWN IN SCHEDULE)                                  |
| ---   | CEILING STRIP LINE OR INTEGRATED CEILING DIFFUSER WITH FLEXIBLE DUCT CONNECTION      |
| SPS   | STATIC PRESSURE SENSOR (MOUNTED IN DUCT)                                             |
| AD    | ACCESS DOOR                                                                          |

## MISC. SYMBOLS

## GENERAL NOTES

|      |                                                   |
|------|---------------------------------------------------|
| P-00 | PLUMBING FIXTURE NUMBER                           |
| 000  | ROOM NUMBER                                       |
| ---  | POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK |
| ---  | FLAT OVAL DUCT                                    |
| ---  | ROUND DUCT                                        |
| NT   | NIGHT THERMOSTAT                                  |
| ---  | OVERRIDE TIMER                                    |

- FOR GENERAL ABBREVIATIONS, SEE SHEET G-1.
- UNLESS OTHERWISE INDICATED, ALL DUCTWORK AND PIPING SHALL BE RUN ABOVE CEILING AND SHALL BE RUN EXPOSED AS HIGH AS POSSIBLE IN AREAS WITHOUT CEILINGS.
- DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS. DUCT SIZE SHALL BE INCREASED AS REQUIRED TO ACCOMMODATE INTERNAL INSULATION WHERE PROVIDED.
- DUCTWORK AND PIPING LAYOUTS ARE SCHEMATIC. ANY DROPS, RISERS OR OFFSETS, SLEEVES, ELBOWS, UNIONS AND OTHER MISCELLANEOUS FITTINGS REQUIRED BUT NOT SHOWN SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL FIELD CHECK SIZES AND LOCATIONS OF EXISTING DUCTWORK AND PIPING BEFORE FABRICATING OR PURCHASING DUCTWORK AND PIPING FOR CONNECTION TO OR INSTALLATION IN EXISTING WORK.
- ALL NECESSARY ALTERATIONS AND RELOCATIONS OF EXISTING PIPES, DUCTS, CONDUITS, LIGHTS, HANGARS, ETC. WHICH ARE TO REMAIN SHALL BE PROVIDED AS REQUIRED FOR THE INSTALLATION OF NEW WORK SHOWN.
- PIPING AND EQUIPMENT INDICATED AS EXISTING WERE TAKEN FROM ORIGINAL DESIGN DRAWINGS AND DEPICT ONLY THOSE ITEMS ELIMINATED OR MODIFIED BY THIS CONTRACT. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND SIZES AND SHALL MAKE ADJUSTMENTS IN PIPE, DUCT AND EQUIPMENT LOCATIONS AS NECESSARY.
- SEE SHEET A-1 FOR DEMOLITION PLAN AND NOTES.
- ALL FLEXIBLE DUCT RUNOUTS TO AIR HANDLING LIGHT FIXTURES SHALL BE 6"Ø
- SEE SHEET A-11 FOR ADDITIONAL PLUMBING DETAILS.

|                                                                                                       |                                   |                                                                               |  |
|-------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------|--|
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| DESIGNED BY:<br>DSC                                                                                   | OFFICE OF CONSTRUCTION MANAGEMENT |                                                                               |  |
| DRAWN BY:<br>CADD                                                                                     | HOSPITAL AND RESEARCH FACILITY    |                                                                               |  |
| CHECKED BY:<br>Caw                                                                                    | LEGEND & GENERAL NOTES            |                                                                               |  |
| APPROVED BY: OCM                                                                                      | APPROVED BY: DIR                  | DRAWING NUMBER                                                                |  |
| APPROVED BY:                                                                                          | DATE REV 9-22-87<br>SEPT 1986     | SHEET AC-1                                                                    |  |



## AIR HANDLING UNIT SCHEDULE

| MARK | TYPE          | FAN SECTION |         |         |                          |                          |          | COOLING COIL |             |          |                |      |                   | VIBRATION ISOLATORS |                              | MAX. SOUND POWER LEVELS (DB RE 10-12 WATTS) |    |    |    |    |    |    |    |
|------|---------------|-------------|---------|---------|--------------------------|--------------------------|----------|--------------|-------------|----------|----------------|------|-------------------|---------------------|------------------------------|---------------------------------------------|----|----|----|----|----|----|----|
|      |               | MAX CFM     | MIN CFM | MIN. OA | EXTERNAL STATIC (IN. WG) | MINIMUM WHEEL DIA. (IN.) | MAX. RPM | HP           | E.A.T. (°F) | LAT (°F) | CAPACITY (MBH) |      | CHILLED WATER GPM | TYPE                | MIN. STATIC DEFLECTION (IN.) | OCTAVE BAND                                 |    |    |    |    |    |    |    |
|      |               |             |         |         |                          |                          |          |              | DB          | WB       | DB             | WB   | SENSIBLE          |                     |                              | 1                                           | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
|      |               |             |         |         |                          |                          |          |              |             |          |                |      | TOTAL             |                     |                              |                                             |    |    |    |    |    |    |    |
| AH-1 | CONSTANT VOL. | 17340       | 17340   | 17340   | 1.25                     | 30                       | 1165     | 20           | 91.0        | 74.0     | 50.0           | 49.0 | 767.8             | FS                  | 1.0                          | 90                                          | 92 | 93 | 88 | 87 | 82 | 74 | 54 |
| AH-2 | VAV           | 8960        | 4480    | 840     | 1.40                     | 24                       | 1430     | 7.5          | 80.1        | 63.5     | 50.0           | 49.0 | 292.2             | FS                  | 1.0                          | 86                                          | 88 | 89 | 84 | 83 | 78 | 70 | 50 |
| AH-3 | CONSTANT VOL. | 5000        | 5000    | 5000    | 0.85                     | 16                       | 2235     |              | 91.0        | 74.0     | 50.0           | 49.0 | 210.6             | HSN                 | 1.0                          | 84                                          | 86 | 84 | 82 | 81 | 76 | 68 | 48 |

## NOTES:

- EXTERNAL STATIC DOES NOT INCLUDE COOLING COIL, INLET VANES, FILTERS, OR CASING. INDICATED HORSEPOWER IS BASED ON TOTAL STATIC PRESSURE.
- COOLING COIL CAPACITIES SHALL BE BASED ON 42°F EWT AND 20 FT. WG MAX WATER PD, AND 1.2 IN. MAX. APD.
- MAX. COIL FACE VELOCITY SHALL BE 500 FPM.
- VAV UNITS SHALL HAVE VARIABLE INLET VANES. MINIMUM FLOW SHALL BE HALF OF SCHEDULED CFM.
- SOUND POWER LEVELS SHALL BE MEASURED AT FAN DISCHARGE.
- IF BID ALTERNATE NO. 2 IS NOT DEDUCTED, AH-1 SHALL BE BALANCED TO SUPPLY 16,770 CFM.

## HEATING AND VENTILATING UNIT SCHEDULE

| MARK | FAN SECTION |                          |                          |          |    | HEATING COIL |             |        | VIBRATION ISOLATORS |                              | MAX. SOUND POWER LEVELS (DB RE 10-12 WATTS) |    |    |    |    |    |    |    |
|------|-------------|--------------------------|--------------------------|----------|----|--------------|-------------|--------|---------------------|------------------------------|---------------------------------------------|----|----|----|----|----|----|----|
|      | CFM         | EXTERNAL STATIC (IN. WG) | MINIMUM WHEEL DIA. (IN.) | MAX. RPM | HP | E.A.T. (°F)  | L.A.T. (°F) | HW GPM | TYPE                | MIN. STATIC DEFLECTION (IN.) | OCTAVE BANDS                                |    |    |    |    |    |    |    |
|      |             |                          |                          |          |    |              |             |        |                     |                              | 1                                           | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
|      |             |                          |                          |          |    |              |             |        |                     |                              |                                             |    |    |    |    |    |    |    |
| HV-1 | 1540        | 0.65                     | 12                       | 1255     | 1  | 14           | 72          | 10     | HSN                 | 1.0                          | 87                                          | 83 | 79 | 73 | 70 | 65 | 63 | 40 |

## NOTES:

- EXTERNAL STATIC DOES NOT INCLUDE HEATING COIL, FACE-AND-BYPASS DAMPERS, FILTERS OR CASING. INDICATED HORSEPOWER IS BASED ON TOTAL STATIC PRESSURE.
- HEATING COIL CAPACITIES SHALL BE BASED ON 180°F EWT AND 5 FT. WG MAX WATER PD.
- MAX. COIL FACE VELOCITY SHALL BE 700 FPM.
- SOUND POWER LEVELS SHALL BE MEASURED AT FAN DISCHARGE.

## FAN SCHEDULE

| MARK | TYPE           | DESCRIPTION          | CFM  | EXT. STATIC AT MAX FLOW (IN. WG) | MIN. BLADE OR WHEEL DIAMETER (IN.) | MIN. HP | MAX. SPEED RPM | VIBRATION ISOLATORS |                              | MAX. SOUND POWER LEVELS (DB RE 10-12 WATTS) |    |    |    |    |    |    |    |
|------|----------------|----------------------|------|----------------------------------|------------------------------------|---------|----------------|---------------------|------------------------------|---------------------------------------------|----|----|----|----|----|----|----|
|      |                |                      |      |                                  |                                    |         |                | TYPE                | MIN. STATIC DEFLECTION (IN.) | OCTAVE BAND                                 |    |    |    |    |    |    |    |
|      |                |                      |      |                                  |                                    |         |                |                     |                              | 1                                           | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
|      |                |                      |      |                                  |                                    |         |                |                     |                              |                                             |    |    |    |    |    |    |    |
| F-1  | CENT           | MAIN EXHAUST         | 9715 | 0.375                            | 36                                 | 1 1/2   | 425            | FS                  | 1.0                          | 87                                          | 81 | 74 | 69 | 65 | 61 | 58 | 55 |
| F-2  | CENT           | AH-2 RA FAN          | 8120 | 0.5                              | 33                                 | 1 1/2   | 525            | FS                  | 1.0                          | 86                                          | 80 | 75 | 69 | 66 | 62 | 59 | 54 |
| F-3  | INLINE CENT    | LL TOILET EXH.       | 295  | 0.25                             | 10                                 | 1/4     | 1620           | FS                  | 1.0                          | 80                                          | 87 | 78 | 78 | 68 | 64 | 64 | 59 |
| F-4  | CENT           | GRINDER EXHAUST      | 300  | 2.00                             | 12                                 | 1/4     | 1540           | FSLT                | 1.0                          | 86                                          | 80 | 77 | 70 | 64 | 59 | 52 | 46 |
| F-5  | AIR INDUCTION  | PERCHLORIC ACID EXH. | 720  | 0.375                            | 7                                  | 3/4     | 3600           | NP                  | 0.30                         | 68                                          | 69 | 69 | 69 | 69 | 71 | 68 | 64 |
| F-6  | CENT           | HOOD EXHAUST         | 1560 | 1.50                             | 22                                 | 3/4     | 770            | FSLT                | 1.0                          | 96                                          | 84 | 77 | 71 | 65 | 60 | 57 | 54 |
| F-7  | CENT           | HOOD EXHAUST         | 700  | 2.00                             | 19                                 | 1/2     | 980            | FSLT                | 1.0                          | 91                                          | 87 | 80 | 72 | 67 | 62 | 59 | 56 |
| F-8  | CENT           | HOOD EXHAUST         | 1200 | 2.00                             | 19                                 | 3/4     | 1040           | FSLT                | 1.0                          | 92                                          | 93 | 81 | 74 | 69 | 64 | 61 | 56 |
| F-9  | PENTHOUSE VENT | CENTRAL LAB EXH.     | 1440 | 0.125                            | 14                                 | 1/4     | 835            | ---                 | ---                          | 70                                          | 75 | 70 | 62 | 59 | 56 | 49 | 41 |
| F-10 |                | PREP LAB EXH.        | 1150 | 0.375                            | 14                                 | 1/4     | 860            | ---                 | ---                          | 72                                          | 75 | 70 | 63 | 57 | 56 | 40 | 43 |
| F-11 |                | LAB EXHAUST          | 1200 | 0.125                            | 14                                 | 1/4     | 720            | ---                 | ---                          | 70                                          | 75 | 70 | 62 | 59 | 56 | 49 | 41 |
| F-12 |                | JAN. & TOILET EXH.   | 1210 | 0.25                             | 14                                 | 1/4     | 802            | ---                 | ---                          | 70                                          | 75 | 69 | 60 | 57 | 54 | 47 | 40 |
| F-13 |                | BIRD RM. EXH.        | 1480 | 0.25                             | 18                                 | 1/4     | 555            | ---                 | ---                          | 66                                          | 72 | 60 | 54 | 62 | 52 | 40 | 35 |
| F-14 |                | ELEVATOR RM. EXH.    | 1000 | 0.25                             | 10                                 | 1/4     | 1270           | ---                 | ---                          | 70                                          | 76 | 71 | 66 | 58 | 57 | 51 | 43 |
| F-15 |                | SHOP & TRASH EXH.    | 325  | 0.25                             | 10                                 | 1/20    | 1550           | ---                 | ---                          | 61                                          | 73 | 70 | 64 | 60 | 56 | 51 | 45 |
| F-16 | PENTHOUSE VENT | MAMOSEI EXHAUST      | 5000 | 0.25                             | 30                                 | 1/2     | 380            | ---                 | ---                          | 79                                          | 76 | 67 | 58 | 55 | 51 | 43 | 37 |
| F-17 | PROPELLER      | MAMOSEI UTIL. RM.    | 700  | 0.25                             | 24                                 | 1/4     | 600            | ---                 | ---                          | -                                           | -  | -  | -  | -  | -  | -  | -  |
| F-18 | INLINE CENT    | ENVIRON CHAMBER      | 420  | 0.375                            | 8                                  | 1/4     | 1385           | HSN                 | 1.0                          | 79                                          | 83 | 78 | 71 | 61 | 57 | 57 | 52 |
| F-19 | PROPELLER      | MECH. RM. VENT       | 4000 | 0.125                            | 36                                 | 1/4     | 425            | ---                 | ---                          | -                                           | -  | -  | -  | -  | -  | -  | -  |
| F-20 | PROPELLER      | MECH. RM. VENT       | 4000 | 0.125                            | 36                                 | 1/4     | 425            | ---                 | ---                          | -                                           | -  | -  | -  | -  | -  | -  | -  |
| F-21 | INLINE CENT    | HOLDING RM. EXH.     | 1130 | 0.50                             | 14                                 | 1/4     | 955            | FS                  | 1.0                          | 79                                          | 79 | 79 | 72 | 63 | 62 | 58 | 51 |
| F-22 | CENT           | OZONE EXHAUST        | 260  | 2.50                             | 6                                  | 1/3     | 3450           | HSN                 | 1.0                          | 83                                          | 79 | 74 | 69 | 64 | 61 | 59 | 56 |

## NOTES:

- SOUND POWER LEVELS SHALL BE MEASURED AT FAN INLET.
- F-9 SHALL BE TWO-SPEED. LOW SPEED CFM SHALL BE ONE HALF OF THE HIGH SPEED CFM.
- IF BID ALTERNATE NO. 2 IS NOT DEDUCTED, F-1 SHALL BE BALANCED TO EXHAUST 8725 CFM.
- ALL FANS SHALL BE BELT DRIVEN EXCEPT F-5 & F-15 WHICH SHALL BE DIRECT DRIVE.

## TERMINAL UNIT SCHEDULE

| MARK  | TYPE | MAX CFM | MIN. CFM | REHEAT COIL    |        |
|-------|------|---------|----------|----------------|--------|
|       |      |         |          | CAPACITY (MBH) | HW GPM |
|       |      |         |          |                |        |
| TU-1  | 1    | 340     | 170      | 6.7            | 0.7    |
| TU-2  | 2    | 295     | 295      | 11.3           | 1.2    |
| TU-3  | 1    | 905     | 455      | 23.0           | 2.4    |
| TU-4  | 1    | 410     | 205      | 8.1            | 0.9    |
| TU-5  | 1    | 580     | 290      | 14.0           | 1.5    |
| TU-6  | 1    | 380     | 190      | 9.1            | 1.0    |
| TU-7  | 1    | 380     | 190      | 9.1            | 1.0    |
| TU-8  | 1    | 225     | 115      | 6.7            | 0.7    |
| TU-9  | 1    | 220     | 110      | 5.0            | 0.6    |
| TU-10 | 1    | 640     | 320      | 12.6           | 1.3    |
| TU-11 | 1    | 525     | 265      | 12.2           | 1.3    |
| TU-12 | 1    | 270     | 135      | 8.1            | 0.9    |
| TU-13 | 1    | 650     | 325      | 14.3           | 1.4    |
| TU-14 | 1    | 520     | 260      | 10.0           | 1.1    |
| TU-15 | 1    | 520     | 260      | 10.0           | 1.1    |
| TU-16 | 1    | 525     | 265      | 12.2           | 1.3    |
| TU-17 | 1    | 350     | 175      | 10.2           | 1.1    |
| TU-18 | 1    | 635     | 320      | 15.8           | 1.6    |
| TU-19 | 1    | 450     | 225      | 11.3           | 1.2    |
| TU-20 | 1    | 240     | 120      | 4.6            | 0.5    |
| TU-21 | 1    | 320     | 160      | 6.3            | 0.7    |
| TU-22 | 1    | 250     | 125      | 8.2            | 0.9    |

## NOTES:

- TERMINAL UNIT CAPACITIES SHALL BE BASED ON 180°F EWT & 5 FT. WG MAX. WATER PD.
- TERMINAL UNIT TYPES SHALL BE AS FOLLOWS: TYPE-1 SHALL BE VARIABLE AIR VOLUME WITH HOT WATER REHEAT. TYPE-2 SHALL BE CONSTANT VOLUME WITH HOT WATER REHEAT.
- MINIMUM INLET STATIC PRESSURE SHALL NOT EXCEED 0.5 IN. WG.
- ALL RUNOUTS TO TERMINAL UNITS SHALL BE 3/4".

## DUCT HEATER SCHEDULE

| MARK  | CFM  | CAPACITY (MBH) | HW GPM | NOM. DIM. (IN.) |      |
|-------|------|----------------|--------|-----------------|------|
|       |      |                |        | LG              | HGT. |
|       |      |                |        |                 |      |
| DH-1  | 225  | 8.7            | 0.9    | 12              | 9    |
| DH-2  | 315  | 17.3           | 1.8    | 12              | 6    |
| DH-3  | 315  | 17.3           | 1.8    | 12              | 6    |
| DH-4  | 315  | 17.3           | 1.8    | 12              | 6    |
| DH-5  | 590  | 22.7           | 2.3    | 18              | 9    |
| DH-6  | 315  | 12.1           | 1.3    | 12              | 6    |
| DH-7  | 860  | 33.1           | 3.4    | 18              | 12   |
| DH-8  | 745  | 28.7           | 2.9    | 21              | 9    |
| DH-9  | 1650 | 76.2           | 7.7    | 24              | 18   |
| DH-10 | 2970 | 130.7          | 13.1   | 36              | 21   |
| DH-11 | 2250 | 99.0           | 9.9    | 36              | 18   |
| DH-12 | 930  | 47.1           | 4.8    | 24              | 12   |
| DH-13 | 210  | 8.1            | 0.9    | 12              | 9    |
| DH-14 | 310  | 11.9           | 1.2    | 12              | 9    |
| DH-15 | 625  | 26.1           | 2.7    | 18              | 9    |
| DH-16 | 840  | 32.3           | 3.3    | 18              | 12   |
| DH-17 | 1440 | 55.4           | 5.6    | 30              | 12   |
| DH-18 | 455  | 17.5           | 1.8    | 12              | 9    |
| DH-19 | 1200 | 46.2           | 4.7    | 18              | 15   |
| DH-20 | 1300 | 82.9           | 8.3    | 24              | 18   |
| DH-21 | 800  | 51.0           | 5.2    | 18              | 15   |
| DH-22 | 800  | 51.0           | 5.2    | 18              | 15   |
| DH-23 | 800  | 51.0           | 5.2    | 18              | 15   |
| DH-24 | 1300 | 82.9           | 8.3    | 24              | 18   |
| DH-25 | 195  | 7.5            | 0.8    | 12              | 6    |
| DH-26 | 780  | 30.0           | 3.1    | 21              | 9    |

## NOTES:

- DUCT HEATER CAPACITY SHALL BE BASED ON 180°F EWT AND 5 FT. WG. MAX. WATER PD.
- MAX. AIR STATIC PD SHALL BE 0.15 IN. WG.
- IF BID ALTERNATE NO. 2 IS NOT DEDUCTED, DH-10 SHALL BE 30" LONG BY 18" HIGH, AND CFM SHALL BE 1980.

## PENTHOUSE SCHEDULE

| MARK           | NOM. DIM. (IN.) |    |    | THROAT SIZE (IN.) |
|----------------|-----------------|----|----|-------------------|
|                | L               | W  | H  |                   |
| PH-1 THRU PH-3 | 80              | 68 | 38 | 72X54             |

## NOTES:

- MAX. APD SHALL NOT EXCEED 0.05 IN. WG @ 500 FPM THROAT VELOCITY.

## NOTES THIS SHEET:

- SEE SH. AC-1 FOR LEGEND AND GENERAL NOTES.
- FOR FURTHER SCHEDULES, SEE SH. AC-6.

## SOUND ATTENUATOR SCHEDULE

| MARK | CFM | MAX. APD (IN. WG) | NOM. DIM. (IN.) |         |
|------|-----|-------------------|-----------------|---------|
|      |     |                   | W (IN.)         | H (IN.) |
| SA-1 | 930 | 0.05              | 36              | 12      |
| SA-2 | 930 | 0.10              | 24              | 12      |
| SA-3 | 210 | 0.05              | 12              | 12      |
| SA-4 | 315 | 0.05              | 18              | 12      |
| SA-5 | 225 | 0.05              | 12              | 12      |
| SA-6 | 225 | 0.10              | 12              | 6       |
| SA-7 | 590 | 0.10              | 18              | 12      |
| SA-8 | 315 | 0.10              | 12              | 6       |
| SA-9 | 590 | 0.07              | 18              | 12      |

## UNIT HEATER SCHEDULE

| MARK | NOM. CFM | FAN MOTOR HP | RPM  | COIL CAPACITY (MBH) | GPM | RUNOUT (IN.) |
|------|----------|--------------|------|---------------------|-----|--------------|
|      |          |              |      |                     |     |              |
| UH-1 | 380      | 1/60         | 1550 | 4.2                 | 0.5 | 3/4          |
| UH-2 | 380      | 1/60         | 1550 | 3.0                 | 0.5 | 3/4          |
| UH-3 | 380      | 1/60         | 1550 | 10.2                | 1.0 | 3/4          |
| UH-4 | 380      | 1/60         | 1550 | 4.4                 | 0.5 | 3/4          |
| UH-5 | 380      | 1/60         | 1550 | 3.2                 | 0.5 | 3/4          |
| UH-6 | 380      | 1/60         | 1550 | 4.4                 | 0.5 | 3/4          |
| UH-7 | 380      | 1/60         | 1550 | 17.3                | 2.2 | 3/4          |
| UH-8 | 1000     | 1/20         | 1550 | 57.2                | 5.8 | 1            |

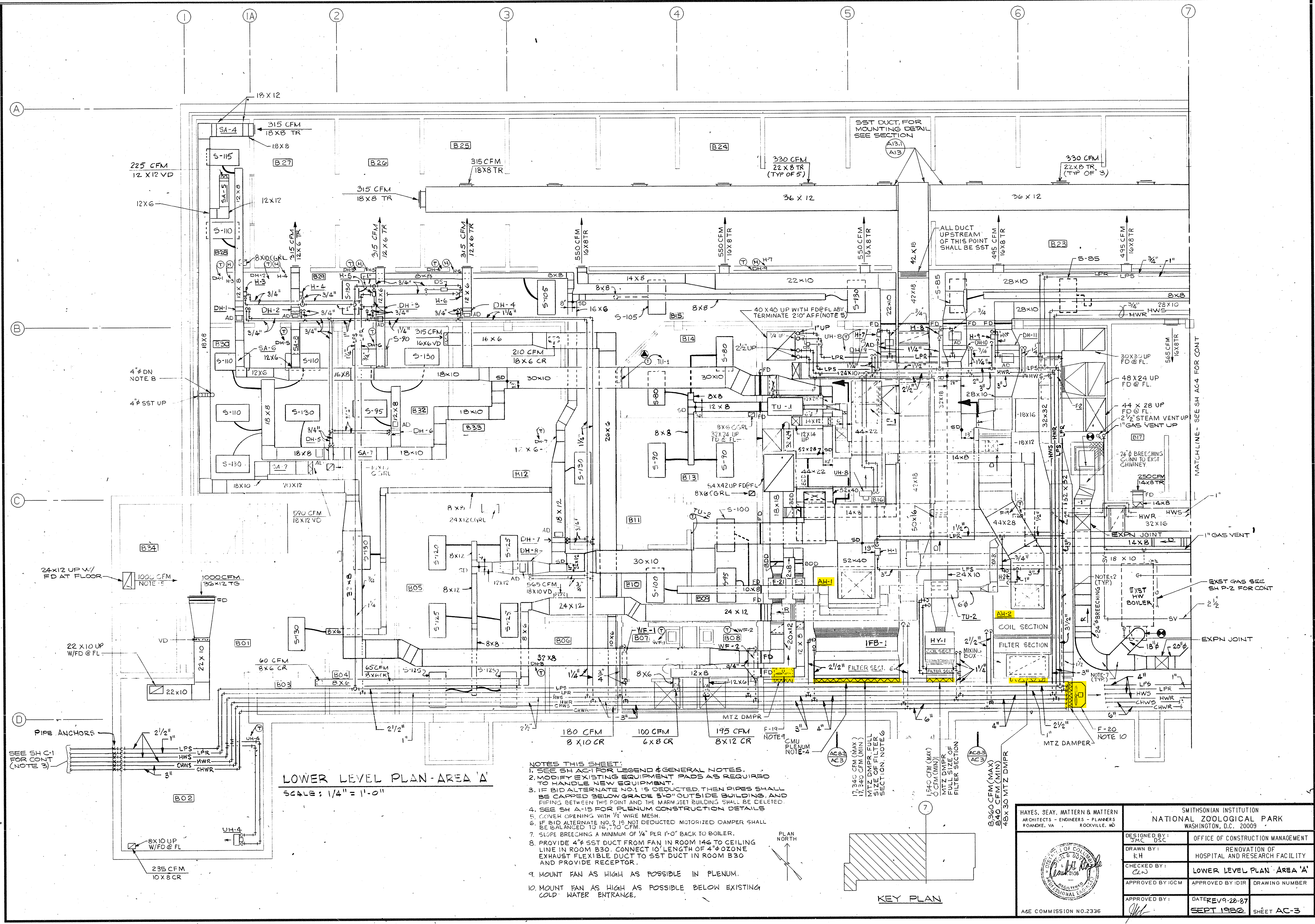
## NOTES:

- CAPACITIES BASED ON 180°F EWT & 70°F E.A.T.
- UNIT HEATERS SHALL BE HORIZONTAL DISCHARGE TYPE.

## CHILLER SCHEDULE

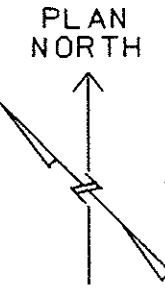
||
||
||





LOWER LEVEL PLAN - AREA 'A'  
SCALE: 1/4" = 1'-0"

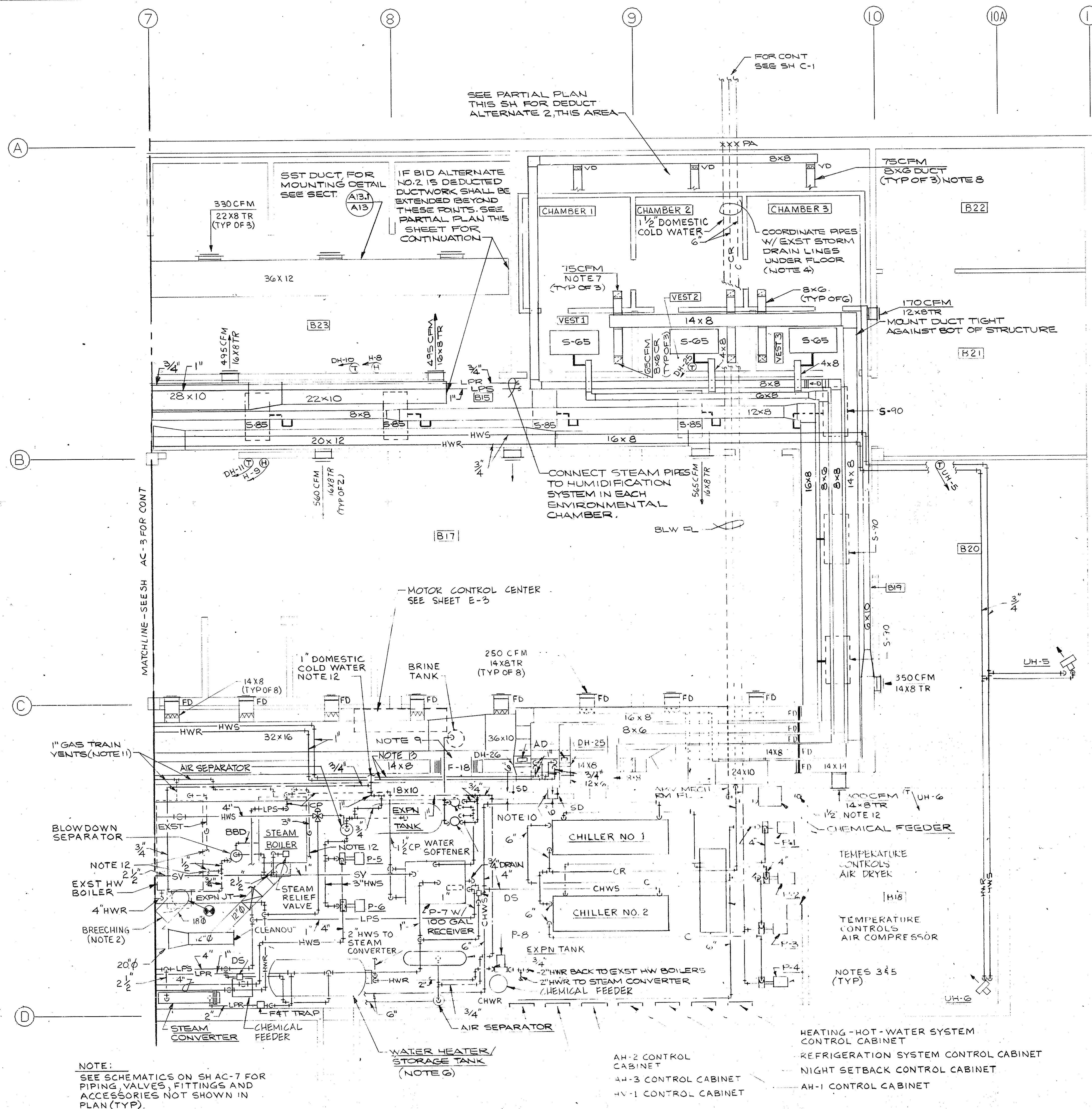
- NOTES THIS SHEET:
1. SEE SH A-1 FOR LEGEND & GENERAL NOTES.
  2. MODIFY EXISTING EQUIPMENT PADS AS REQUIRED TO HANDLE NEW EQUIPMENT.
  3. IF BID ALTERNATE NO. 1 IS DEDUCTED THEN PIPES SHALL BE CAPPED BELOW GRADE 5'-0" OUTSIDE BUILDING AND PIPING BETWEEN THE POINT AND THE MOUNT SET BUILDING SHALL BE DELETED.
  4. SEE SH A-15 FOR PLENUM CONSTRUCTION DETAILS.
  5. COVER OPENING WITH 1/2" WIRE MESH.
  6. IF BID ALTERNATE NO. 2 IS NOT DEDUCTED MOTORIZED DAMPER SHALL BE BALANCED TO 16.7 TO CFM.
  7. SLOPE BREACHING A MINIMUM OF 1/4" PER 1'-0" BACK TO BOILER.
  8. PROVIDE 4" SST DUCT FROM FAN IN ROOM 146 TO CEILING LINE IN ROOM B30. CONNECT TO LENGTH OF 4" OZONE EXHAUST FLEXIBLE DUCT TO SST DUCT IN ROOM B30 AND PROVIDE RECEPTOR.
  9. MOUNT FAN AS HIGH AS POSSIBLE IN PLENUM.
  10. MOUNT FAN AS HIGH AS POSSIBLE BELOW EXISTING COLD WATER ENTRANCE.



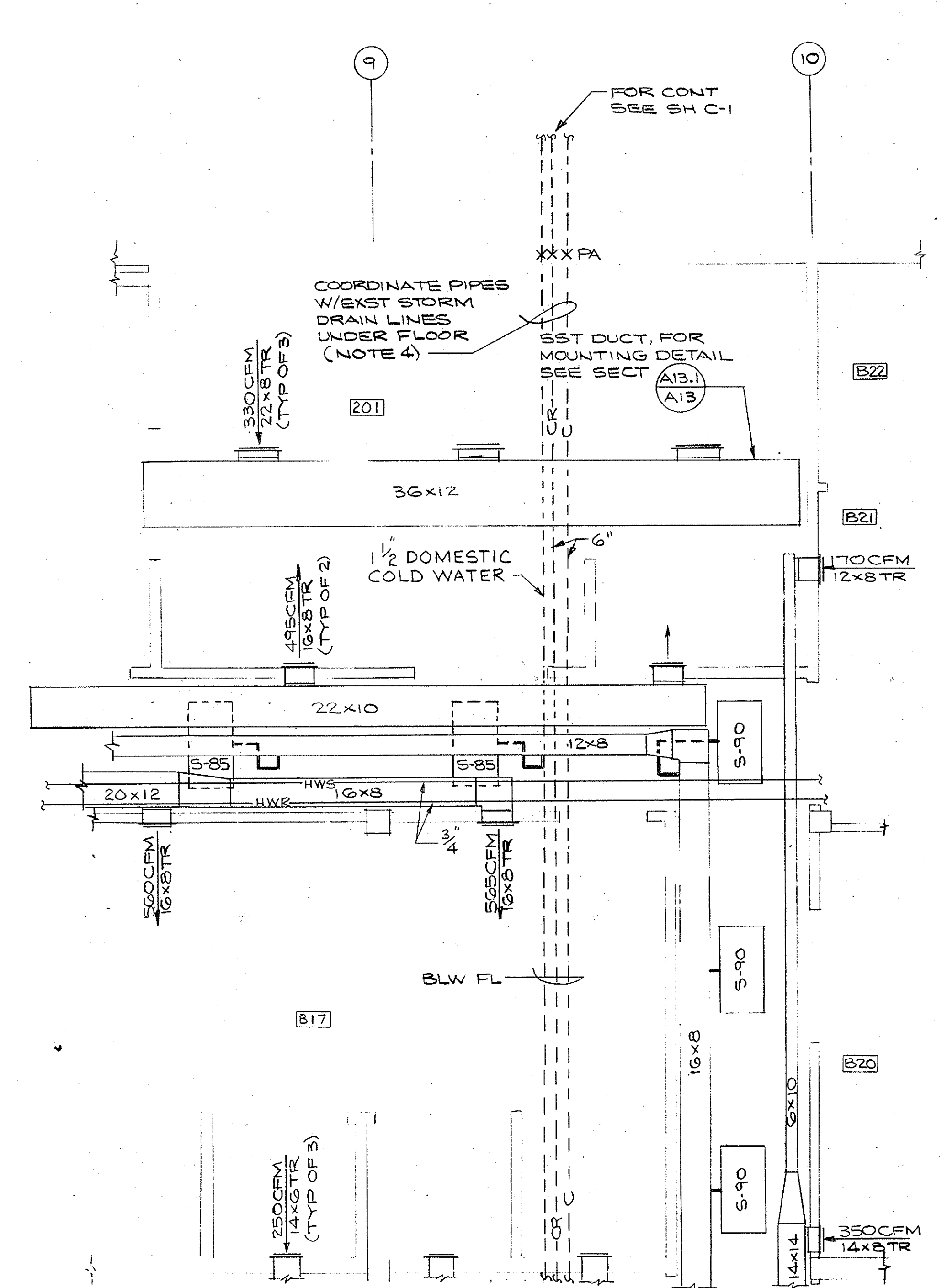
KEY PLAN

|                                                                                                       |                     |                                                                               |                |
|-------------------------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------|----------------|
| HAYES, SEAY, MATTERN & MATTERN<br>ARCHITECTS - ENGINEERS - PLANNERS<br>ROANOKE, VA      ROCKVILLE, MD |                     | SMITHSONIAN INSTITUTION<br>NATIONAL ZOOLOGICAL PARK<br>WASHINGTON, D.C. 20009 |                |
| DESIGNED BY:<br>JMK                                                                                   | DESIGNED BY:<br>JMK | OFFICE OF CONSTRUCTION MANAGEMENT                                             |                |
| DRAWN BY:<br>KH                                                                                       | DRAWN BY:<br>KH     | RENOVATION OF<br>HOSPITAL AND RESEARCH FACILITY                               |                |
| CHECKED BY:<br>CLW                                                                                    | CHECKED BY:<br>CLW  | LOWER LEVEL PLAN - AREA 'A'                                                   |                |
| APPROVED BY: GCM                                                                                      | APPROVED BY: GCM    | APPROVED BY: DIR                                                              | DRAWING NUMBER |
| APPROVED BY:                                                                                          | APPROVED BY:        | DATE: 9-28-87                                                                 | SHEET AC-3     |
| ASE COMMISSION NO. 2336                                                                               |                     | SEPT 1986                                                                     |                |



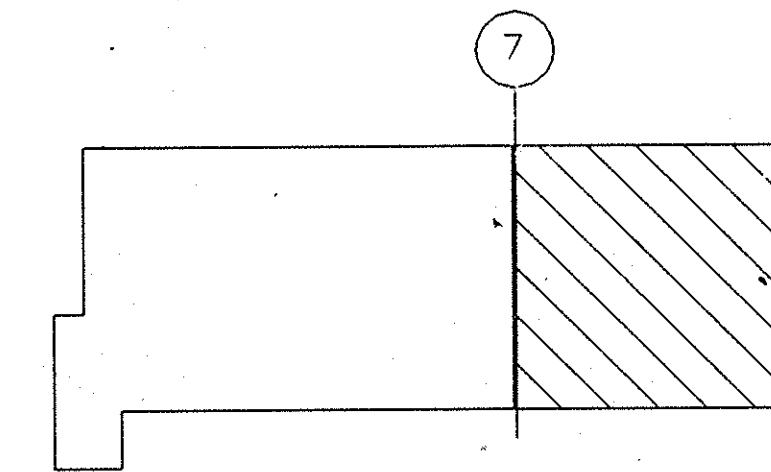
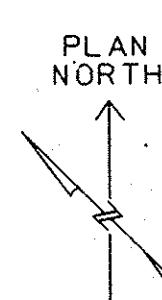


LOWER LEVEL PLAN - AREA 'B'  
SCALE: 1/4" = 1'-0"



DEDUCT ALTERNATE NO. 2  
PARTIAL PLAN - LOWER LEVEL AREA 'B'

- NOTES THIS SHEET:
1. SEE SH AC-1 FOR LEGEND AND GENERAL NOTES.
  2. REMOVE AND REPLACE EXST BREECHING
  3. MODIFY EXISTING EQUIPMENT PADS AS REQUIRED TO HANDLE NEW EQUIPMENT.
  4. SLOPE CONDENSER WATER PIPES 1/8" PER FOOT BACK TO MECHANICAL ROOM. PIPES SHALL ENTER MECHANICAL ROOM UNDER STAIRS.
  5. ALL NEW EQUIPMENT SHALL BE SET ON 4" THICK CONCRETE PADS.
  6. SEE SHEET P-2 FOR PLUMBING CONNECTIONS TO TANK.
  7. CONNECT TO CHAMBER EXHAUST REGISTERS PROVIDED W/CHAMBER.
  8. CONNECT CHAMBER SUPPLY DUCTS TO RETURN AIR SIDE OF HEATING AND COOLING UNIT DUCTWORK.
  9. F-18 AND ALL ASSOCIATED DUCTWORK BACK TO CONNECTION AT 18x18 MAIN SHALL BE DELETED FROM CONTRACT IF BID ALTERNATE NO. 2 IS DEDUCTED.
  10. ALL DUCTWORK FROM THIS POINT ON DOWNSTREAM SHALL BE DELETED FROM CONTRACT IF BID ALTERNATE NO. 2 IS DEDUCTED.
  11. CONNECT GAS VENT LINE TO EXISTING GAS TRAIN.
  12. SEE SH P-2 FOR CONTINUATION
  13. LOCATE PIPES AT LEAST 3 FEET AWAY FROM MOTOR CONTROL CENTER.



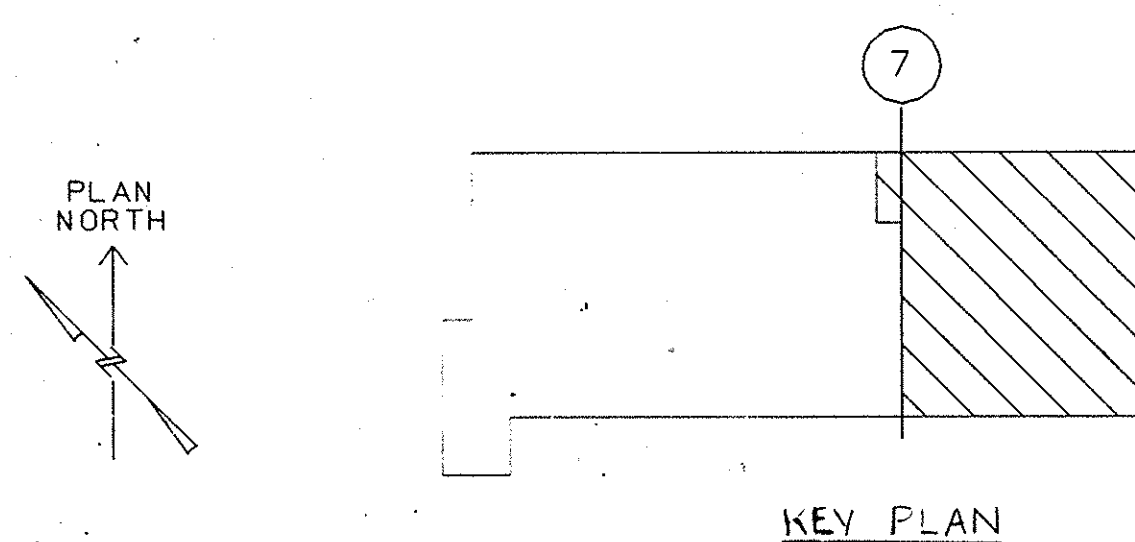
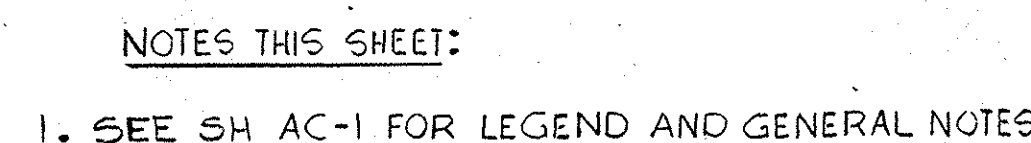
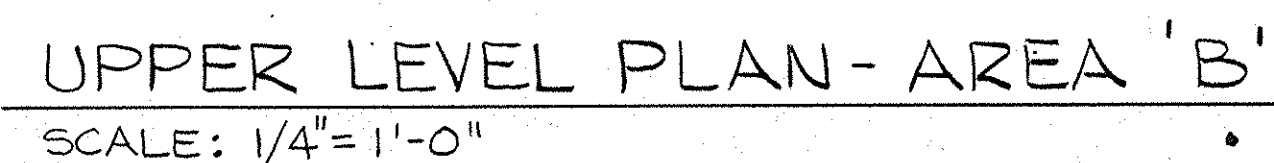
KEY PLAN

|                                                                                                       |                                   |                                                                               |                                                 |
|-------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------|
| HAYES, SEAY, MATTERN & MATTERN<br>ARCHITECTS - ENGINEERS - PLANNERS<br>ROANOKE, VA      ROCKVILLE, MD |                                   | SMITHSONIAN INSTITUTION<br>NATIONAL ZOOLOGICAL PARK<br>WASHINGTON, D.C. 20009 |                                                 |
| DESIGNED BY:<br>JMC DSC                                                                               | OFFICE OF CONSTRUCTION MANAGEMENT | DRAWN BY:<br>BA                                                               | RENOVATION OF<br>HOSPITAL AND RESEARCH FACILITY |
| CHECKED BY:<br>EJC                                                                                    | LOWER LEVEL PLAN<br>AREA 'B'      | APPROVED BY: JCM                                                              | DRAWING NUMBER                                  |
| APPROVED BY:                                                                                          | DATE REV 9-28-87                  | APPROVED BY: DIR                                                              | SHEET AC-4                                      |
| A&E COMMISSION NO. 2336                                                                               |                                   |                                                                               |                                                 |









| CABINET HEATER SCHEDULE |                   |       |                 |     |      |             |
|-------------------------|-------------------|-------|-----------------|-----|------|-------------|
| OIL                     |                   |       |                 | FAN |      |             |
| MARKK                   | CAPACITY<br>(MBH) | (GPM) | RUNOUT<br>(IN.) | CFM | RPM  | MOTOR<br>HP |
| CH-1                    | 20                | 0.5   | 3/4             | 300 | 1370 | 1/12        |

NOTE

1. CH-1 IS MOUNTED ABOVE CEILING W/DUCTED SUPPLY & RETURN

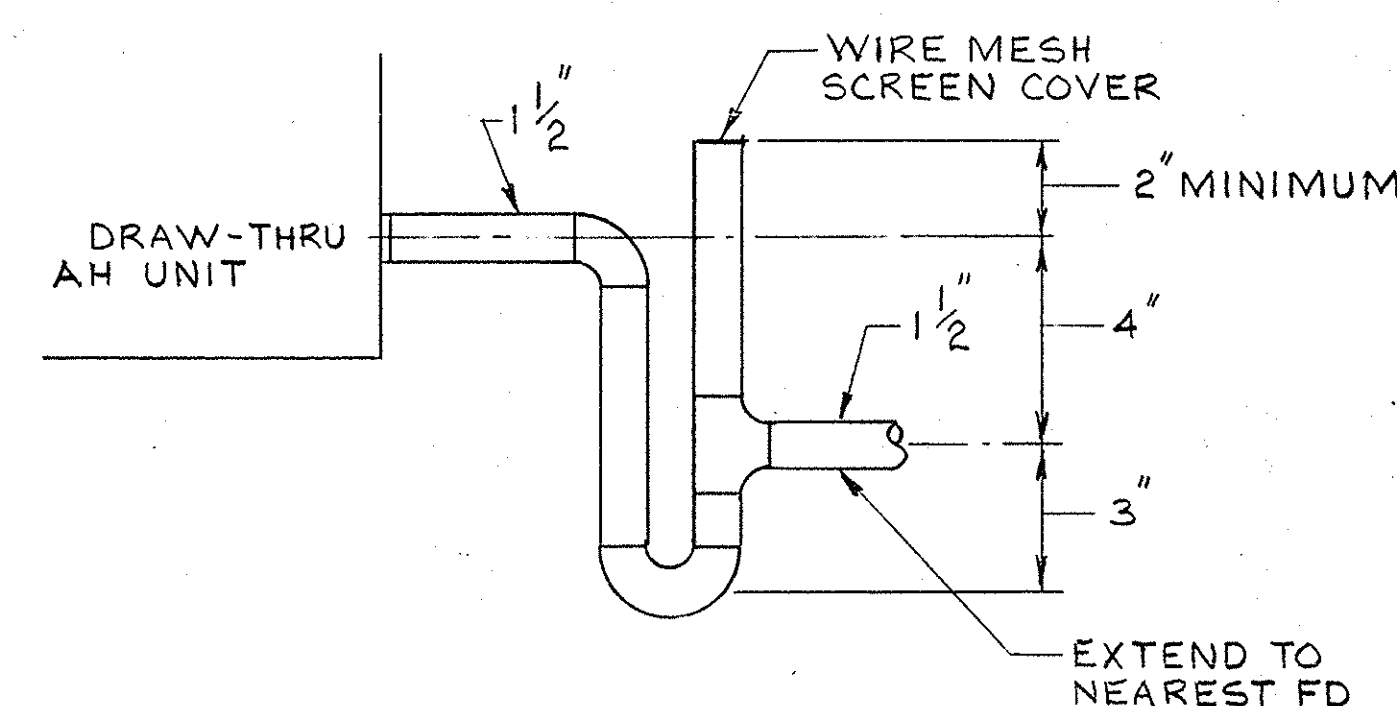
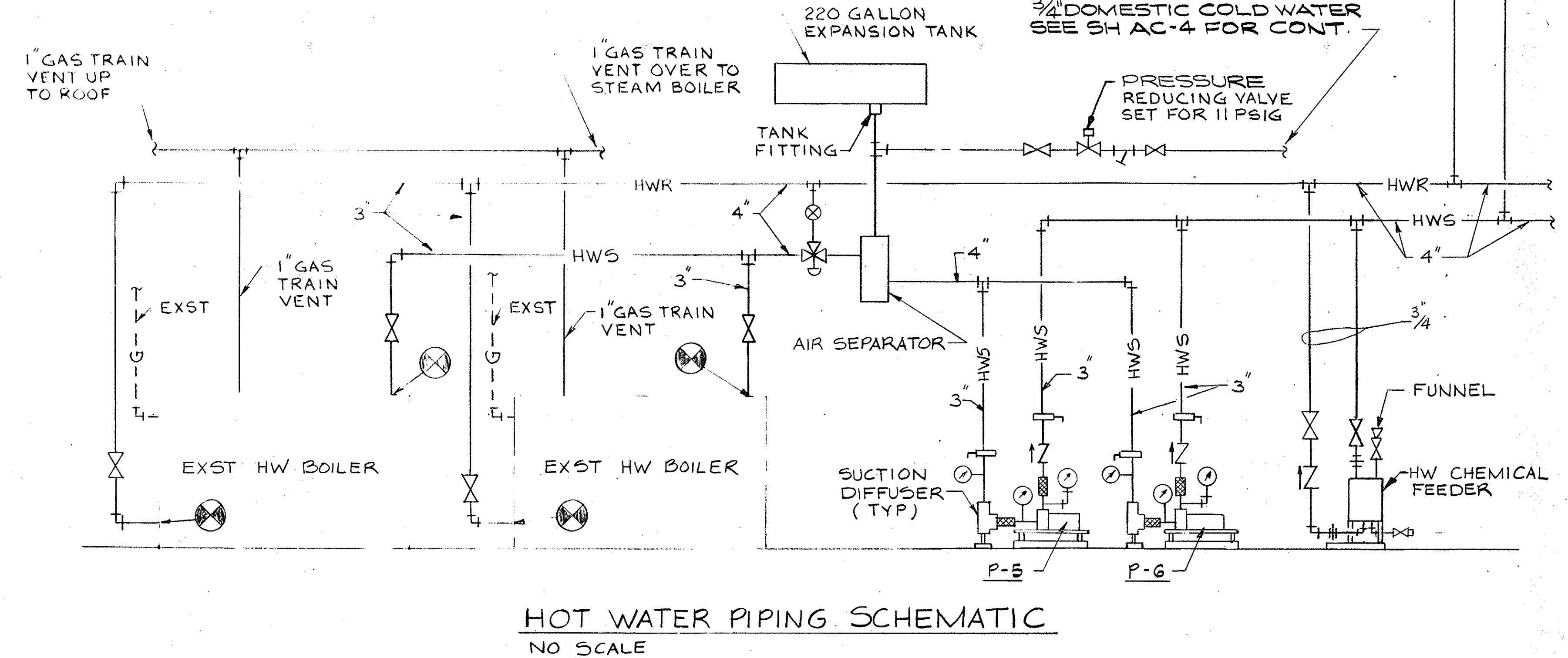
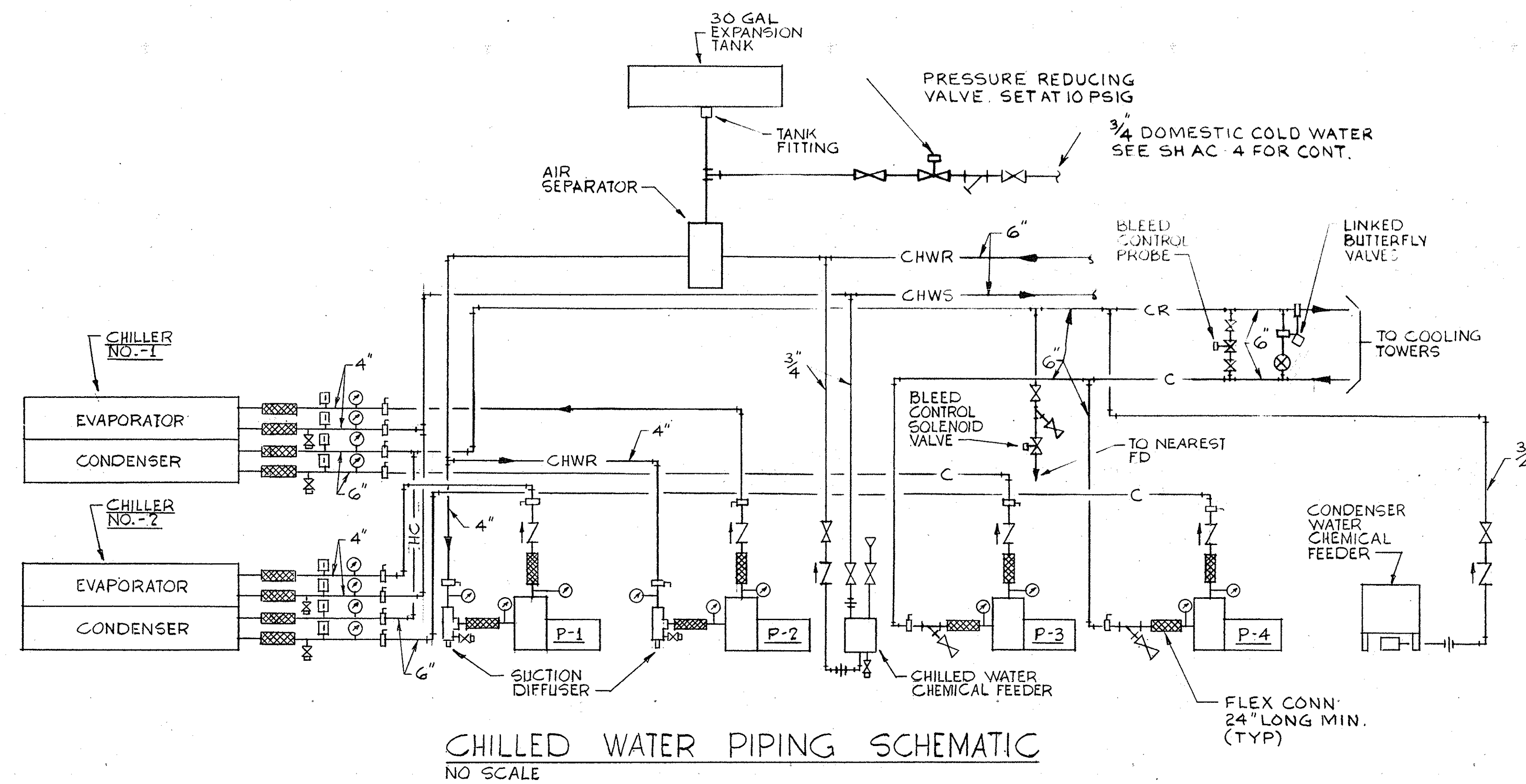
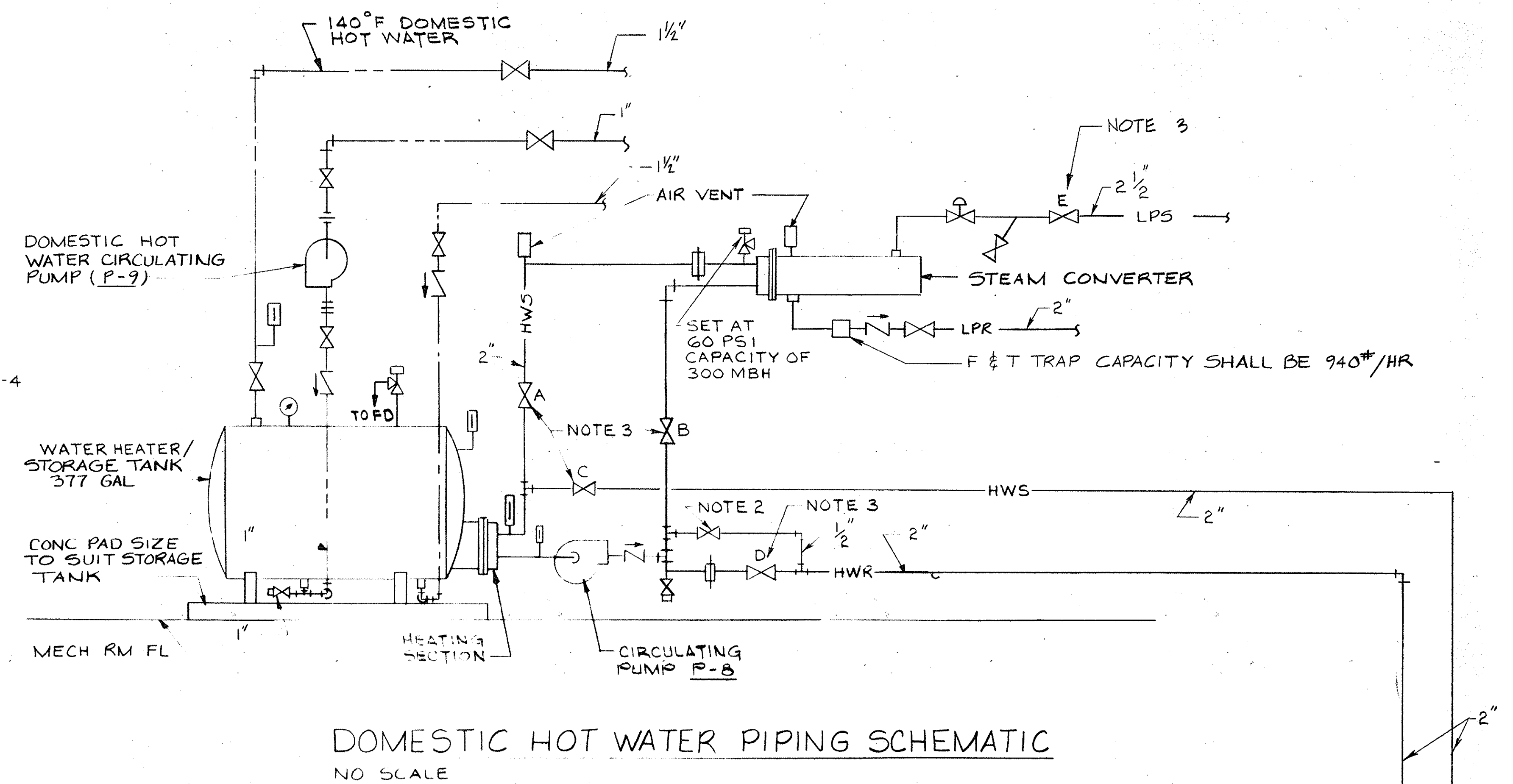
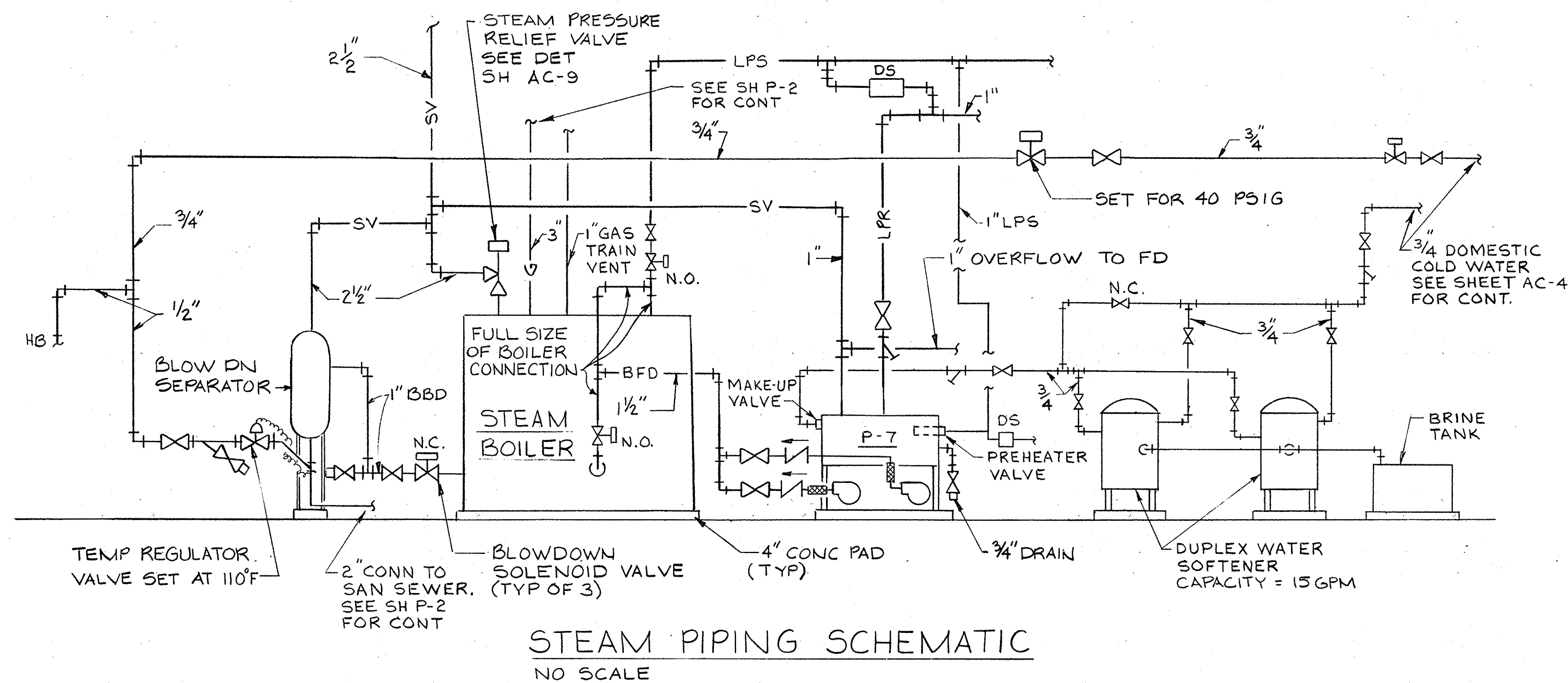
| HUMIDIFIER SCHEDULE |                     |      |                     |
|---------------------|---------------------|------|---------------------|
| MARK                | CAPACITY<br>(LB/HR) |      |                     |
|                     |                     | MARK | CAPACITY<br>(LB/HR) |
| H-1                 | 513                 | H-9  | 93                  |
| H-2                 | 27                  | H-10 | 39                  |
| H-3                 | 10                  | H-11 | 92                  |
| H-4                 | 13                  | H-12 | 57                  |
| H-5                 | 13                  | H-13 | 57                  |
| H-6                 | 13                  | H-14 | 57                  |
| H-7                 | 68                  | H-15 | 92                  |
| H-8                 | 123                 |      |                     |

NOTES:

1. ALL CAPACITIES BASED ON 15 PSIG STEAM.
2. IF BID ALTERNATE NO. 2 IS NOT DEDUCTED, H-8 CAPACITY SHALL BE 82 LB/HR, AND H-1 CAPACITY SHALL BE 497 LB/HR.

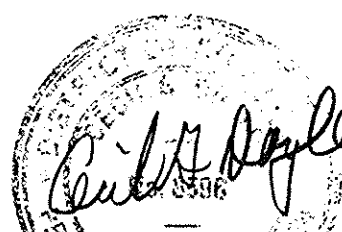
|                                                                                                       |                  |                                                                               |                |
|-------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------|----------------|
| HAYES, SEAY, MATTERN & MATTERN<br>ARCHITECTS - ENGINEERS - PLANNERS<br>ROANOKE, VA      ROCKVILLE, MD |                  | SMITHSONIAN INSTITUTION<br>NATIONAL ZOOLOGICAL PARK<br>WASHINGTON, D.C. 20009 |                |
|                  | DESIGNED BY:     | OFFICE OF CONSTRUCTION MANAGEMENT                                             |                |
|                                                                                                       | DRAWN BY:        | RENOVATION OF                                                                 |                |
|                                                                                                       | CHECKED BY:      | HOSPITAL AND RESEARCH FACILITY                                                |                |
|                                                                                                       | APPROVED BY: JCM | UPPER LEVEL PLAN AREA'S                                                       |                |
|                                                                                                       | APPROVED BY: JCM | APPROVED BY: DIR                                                              | DRAWING NUMBER |
| A&E COMMISSION NO.2336                                                                                |                  | DATE REV 9-28-87<br>SEPT 1986                                                 | SHEET AC-6     |





| VALVE OPERATION CHART     |        |        |        |        |        |
|---------------------------|--------|--------|--------|--------|--------|
| OPERATING CYCLE           | VALVE  |        |        |        |        |
|                           | A      | B      | C      | D      | E      |
| BOILER HEATED DOMESTIC HW | CLOSED | CLOSED | OPEN   | OPEN   | CLOSED |
| STEAM HEATED DOMESTIC HW  | OPEN   | OPEN   | CLOSED | CLOSED | OPEN   |

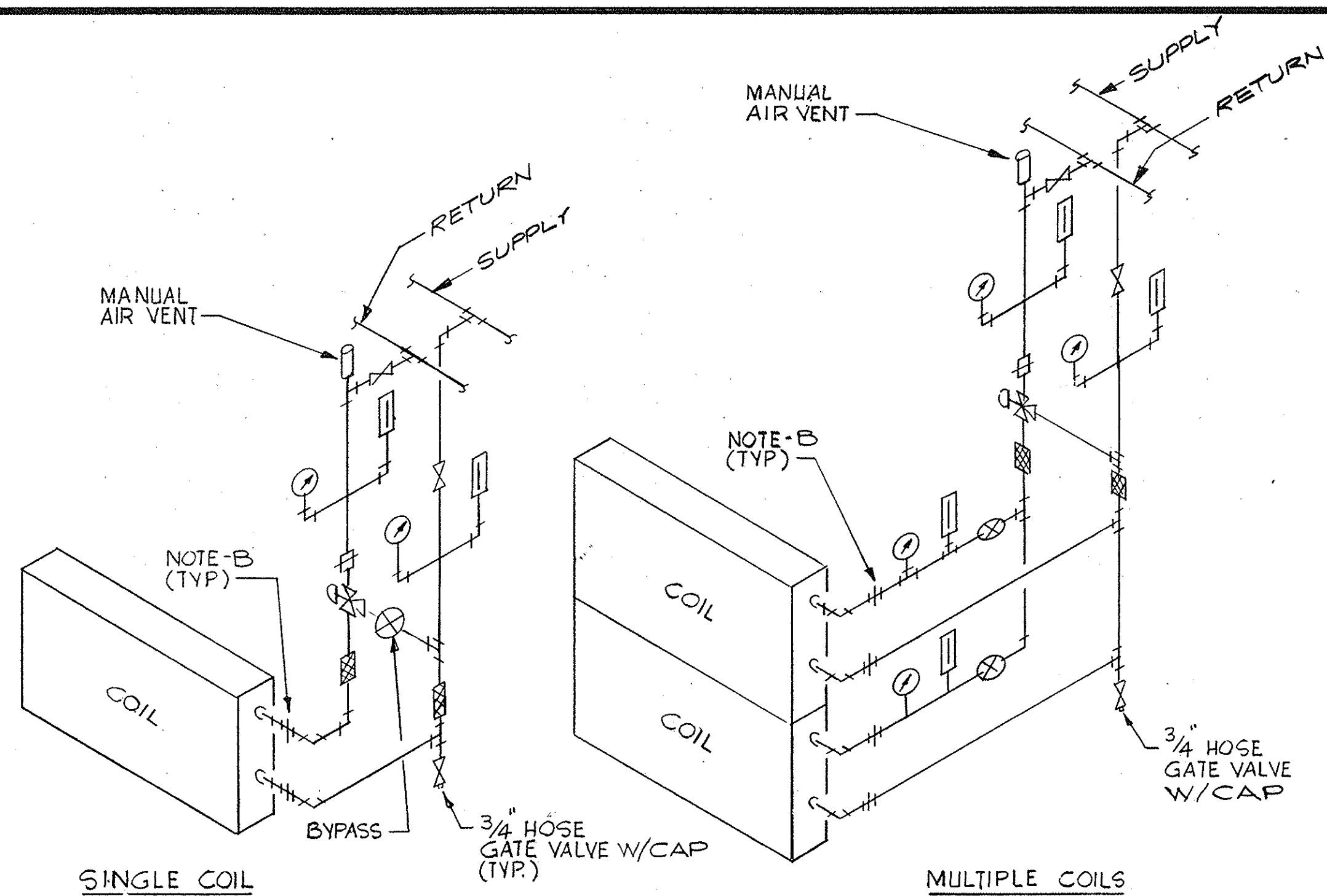
- NOTES THIS SHEET:
- SEE SHEET AC-1 FOR LEGEND AND GENERAL NOTES.
  - PROVIDE ENGRAVED VALVE TAG READING AS FOLLOWS:  
"VALVE NORMALLY OPEN FOR EXPANSION AND MAKE-UP".  
POSITION VALVE OPEN AND REMOVE HANDLE.
  - SEE VALVE OPERATION CHART THIS SHEET FOR VALVE STATUS.

|                                                                                                                       |                                                                                                        |                                                                               |                |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------|
| HAYES, SEAY, MATTERN & MATTERN<br>ARCHITECTS - ENGINEERS - PLANNERS<br>ROANOKE, VA                      ROCKVILLE, MD |                                                                                                        | SMITHSONIAN INSTITUTION<br>NATIONAL ZOOLOGICAL PARK<br>WASHINGTON, D.C. 20003 |                |
|                                  | DESIGNED BY :<br>JAC DSC                                                                               | OFFICE OF CONSTRUCTION MANAGEMENT                                             |                |
|                                                                                                                       | DRAWN BY :<br>KH                                                                                       | RENOVATION OF<br>HOSPITAL AND RESEARCH FACILITY                               |                |
|                                                                                                                       | CHECKED BY :<br>CW                                                                                     | PIPING SCHEMATICS                                                             |                |
|                                                                                                                       | APPROVED BY : OCM                                                                                      | APPROVED BY : DIR                                                             | DRAWING NUMBER |
|                                                                                                                       | APPROVED BY :<br> | DATE REV 9-28-07<br>SEPT 1986                                                 | SHEET AC-7     |





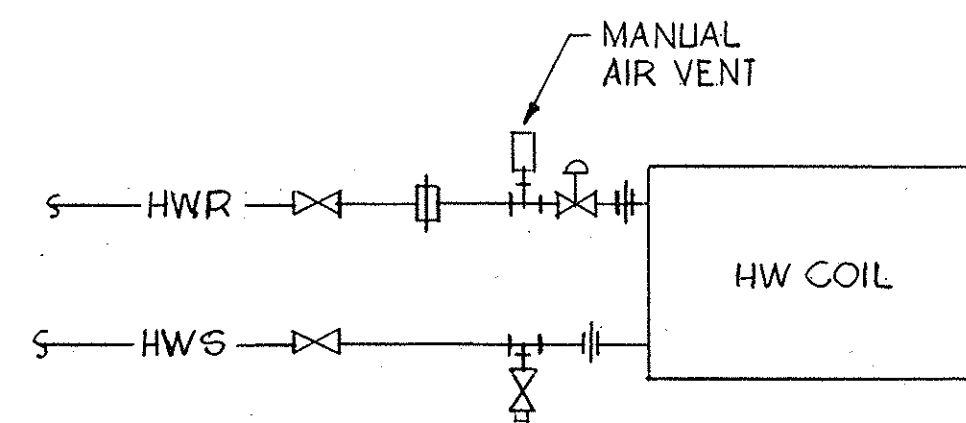




TYPICAL AIR HANDLING UNIT WATER COIL PIPING  
NO SCALE

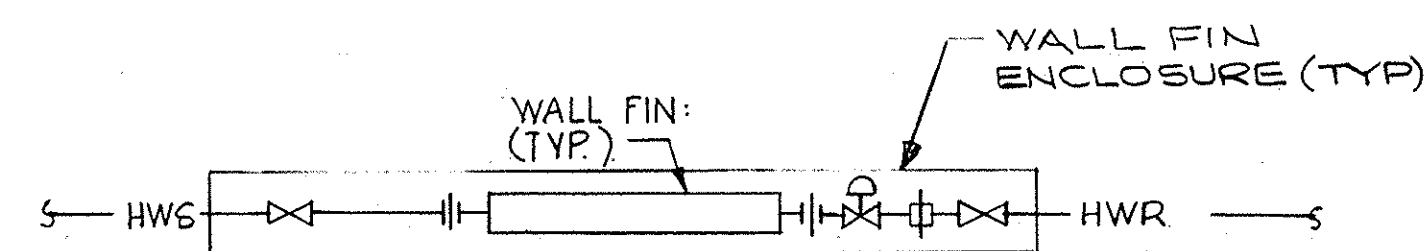
NOTES:

- A. PIPING TYPICAL FOR BOTH CHILLED WATER COILS AND HOT WATER COILS.  
B. LOCATE FLANGES OR UNIONS TO FACILITATE COIL REMOVAL.

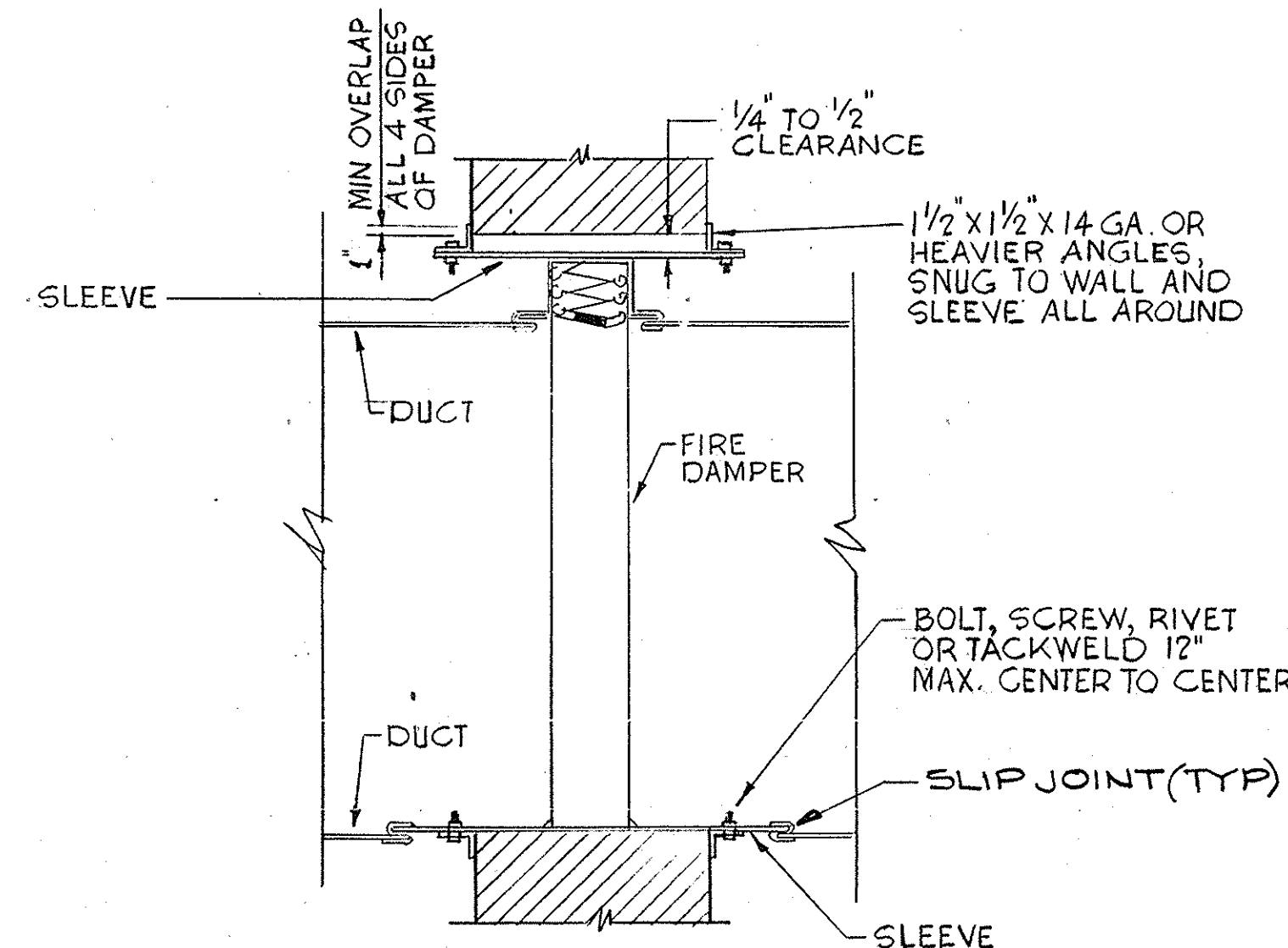


TYPICAL HOT WATER COIL PIPING  
NO SCALE

NOTE: TYPICAL FOR UNIT HEATERS, CABINET HEATERS, DUCT HEATERS AND TERMINAL UNIT REHEAT COILS.

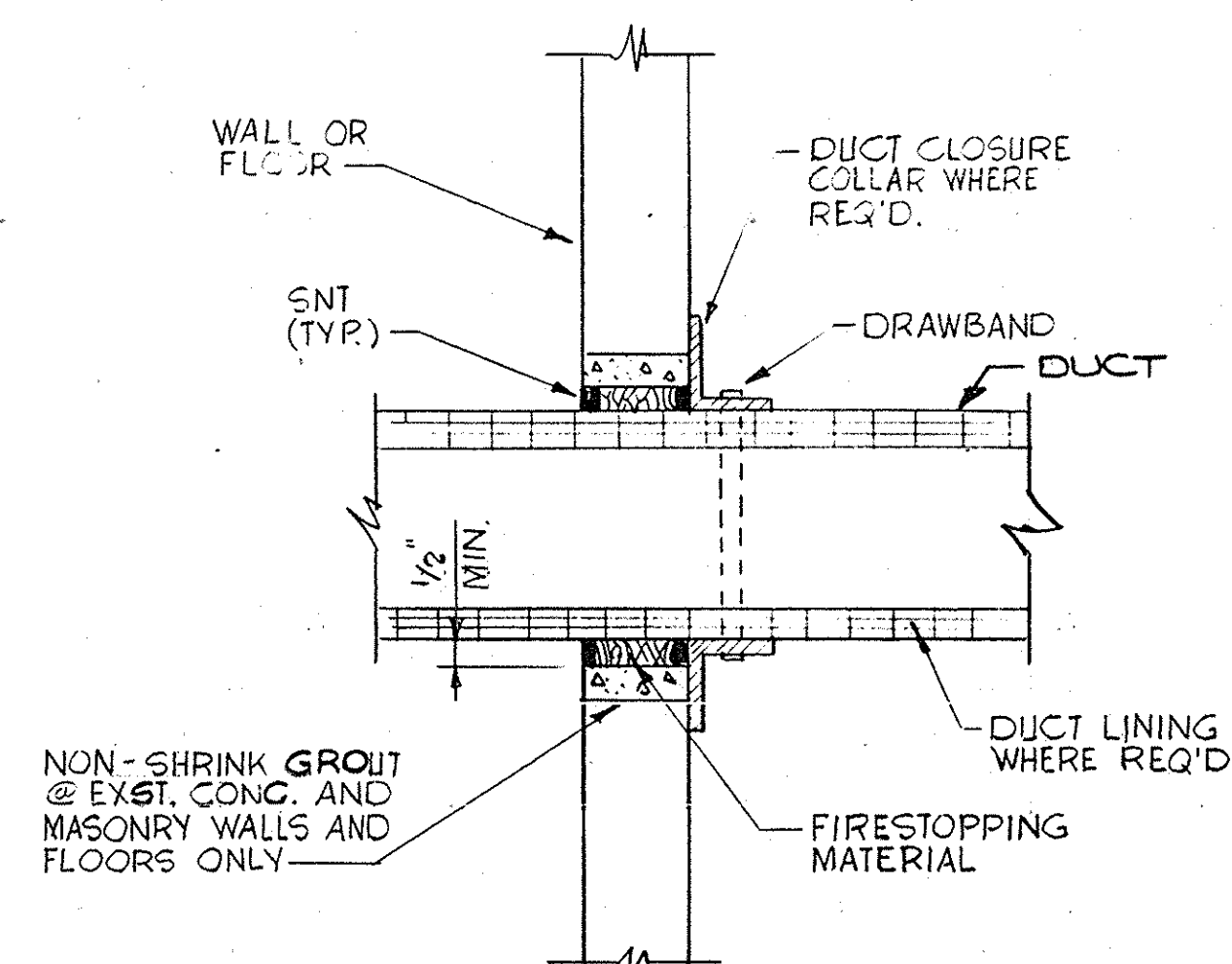


WALL FIN PIPING  
NO SCALE



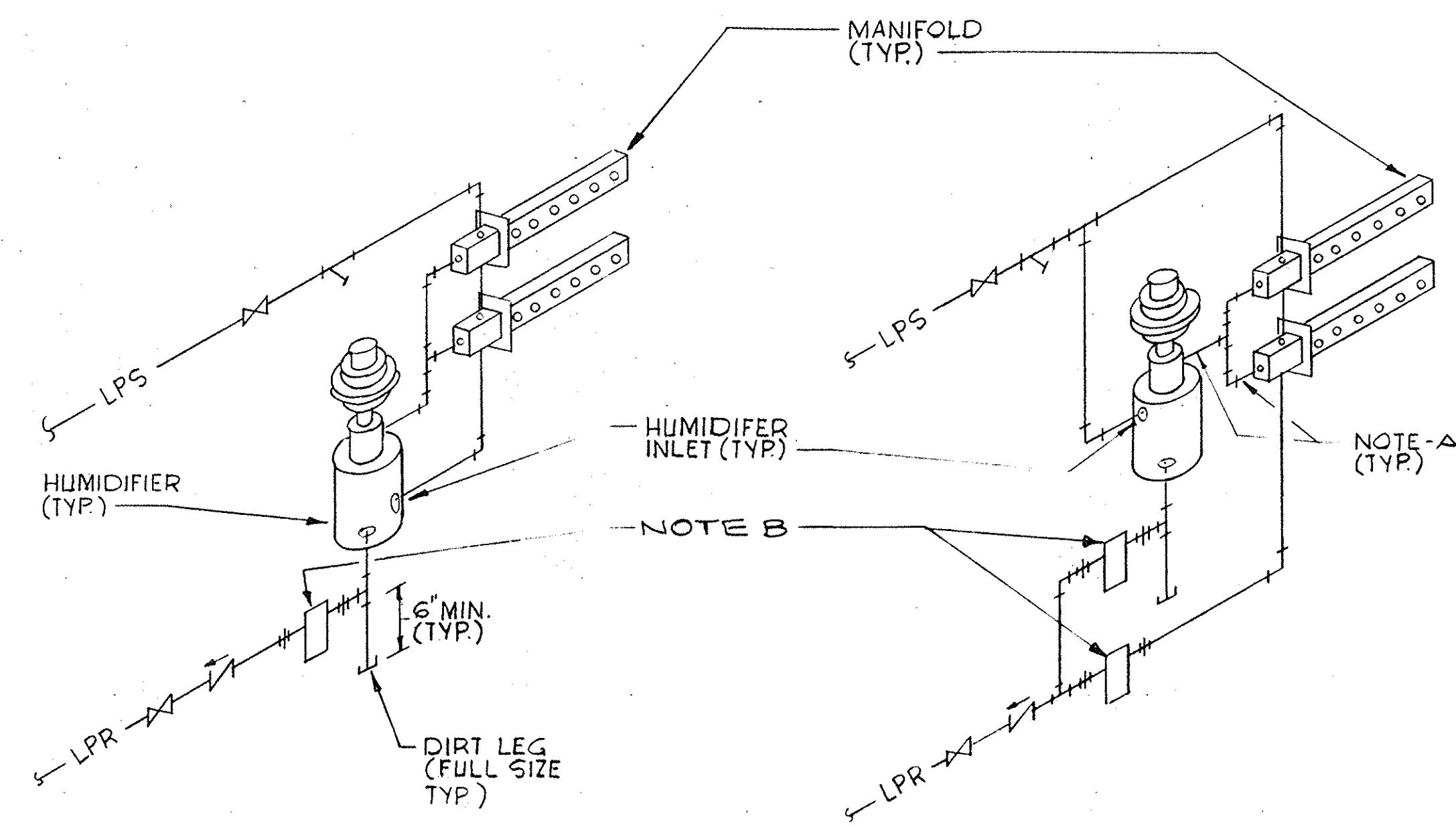
TYP FIRE DAMPER INSTALLATION DETAIL  
NO SCALE

NOTE: BOLT, SCREW, RIVET OR TACKWELD DAMPER TO SLEEVE AT MAXIMUM 12" CENTER TO CENTER.



DUCT PENETRATION DETAIL  
NO SCALE

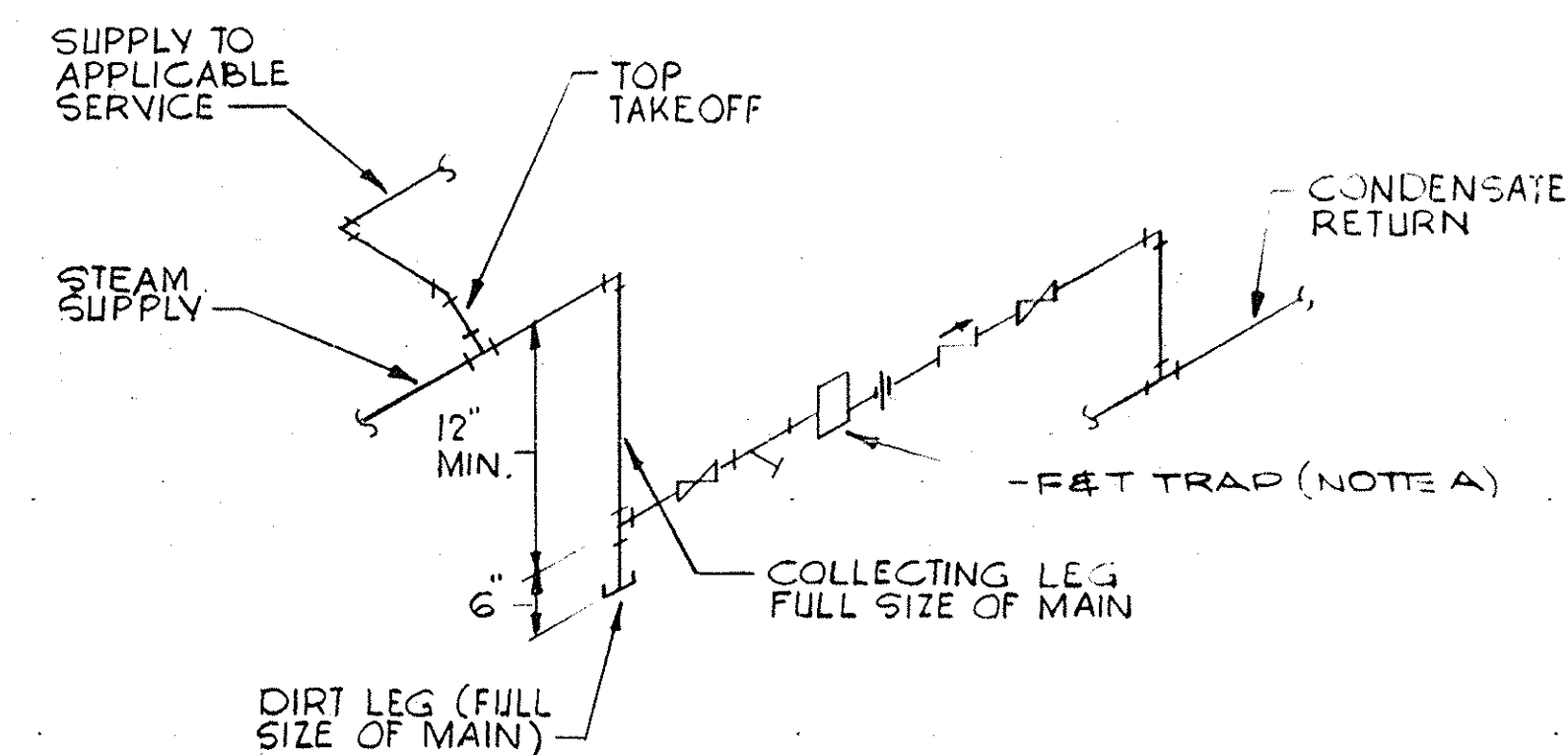
NOTE: PROVIDE DUCT CLOSURE COLLARS WHERE DUCTS ARE EXPOSED



TYPICAL STEAM HUMIDIFIER PIPING  
NO SCALE

NOTES:

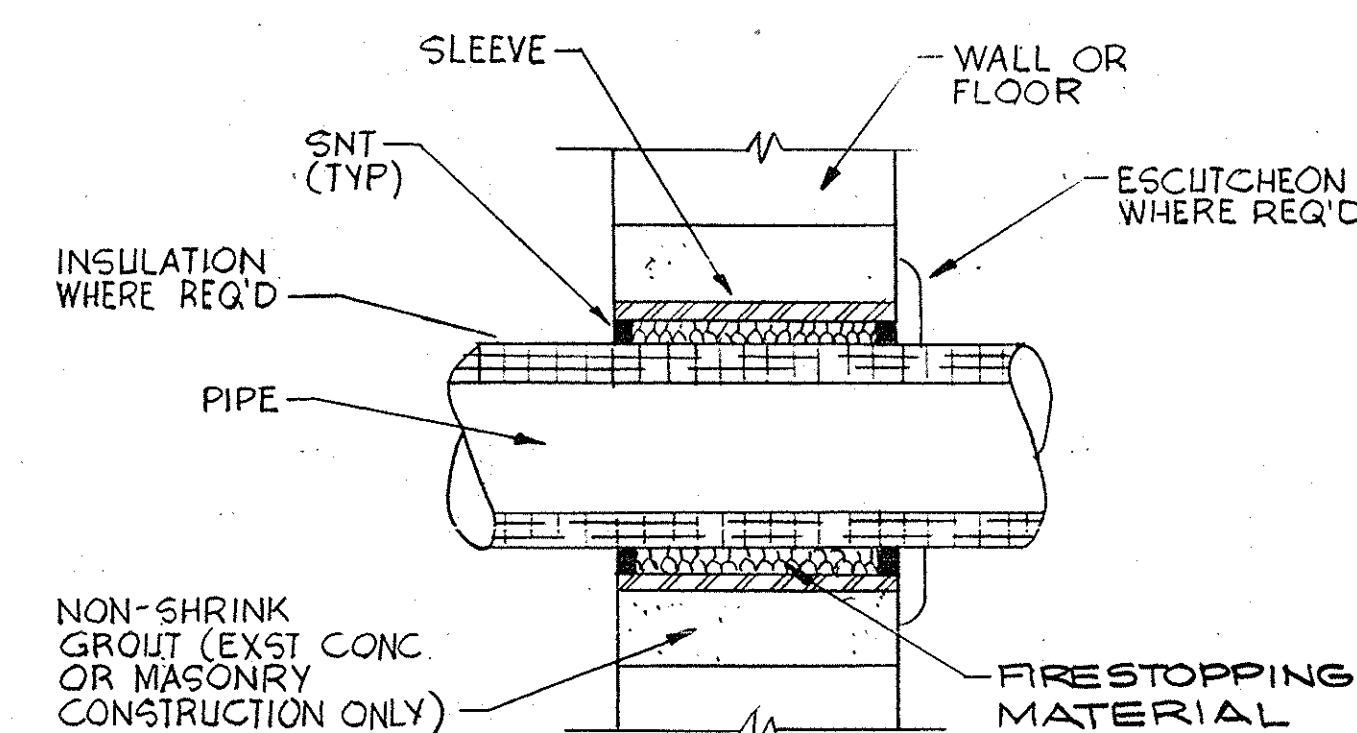
- A. SIZE PIPE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.  
B. STEAM TRAP SIZE AND TYPE AS RECOMMENDED BY HUMIDIFIER MANUFACTURER.



TYPICAL DRIP STATION  
NO SCALE

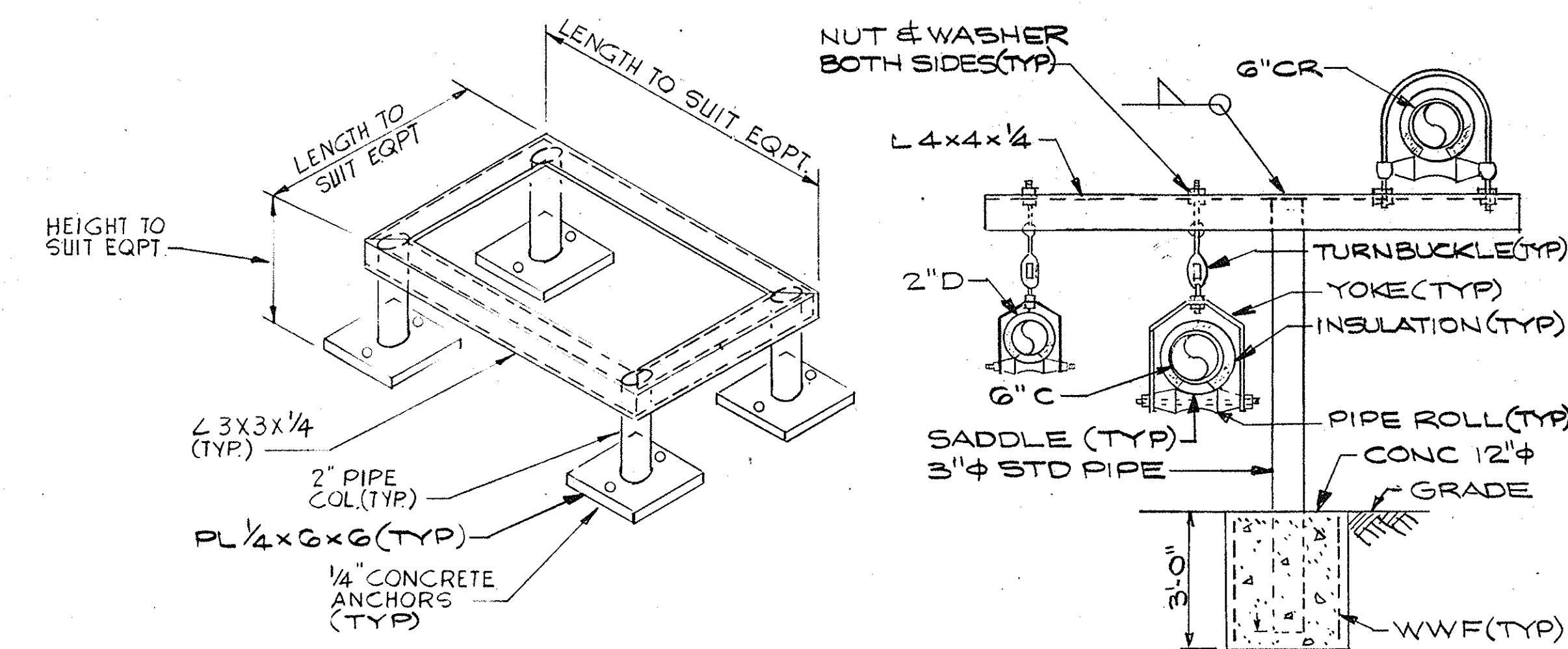
NOTE:

- A. TRAP CAPACITY SHALL BE 200 LBS PER HOUR MINIMUM.



PIPE PENETRATION DETAIL  
NO SCALE

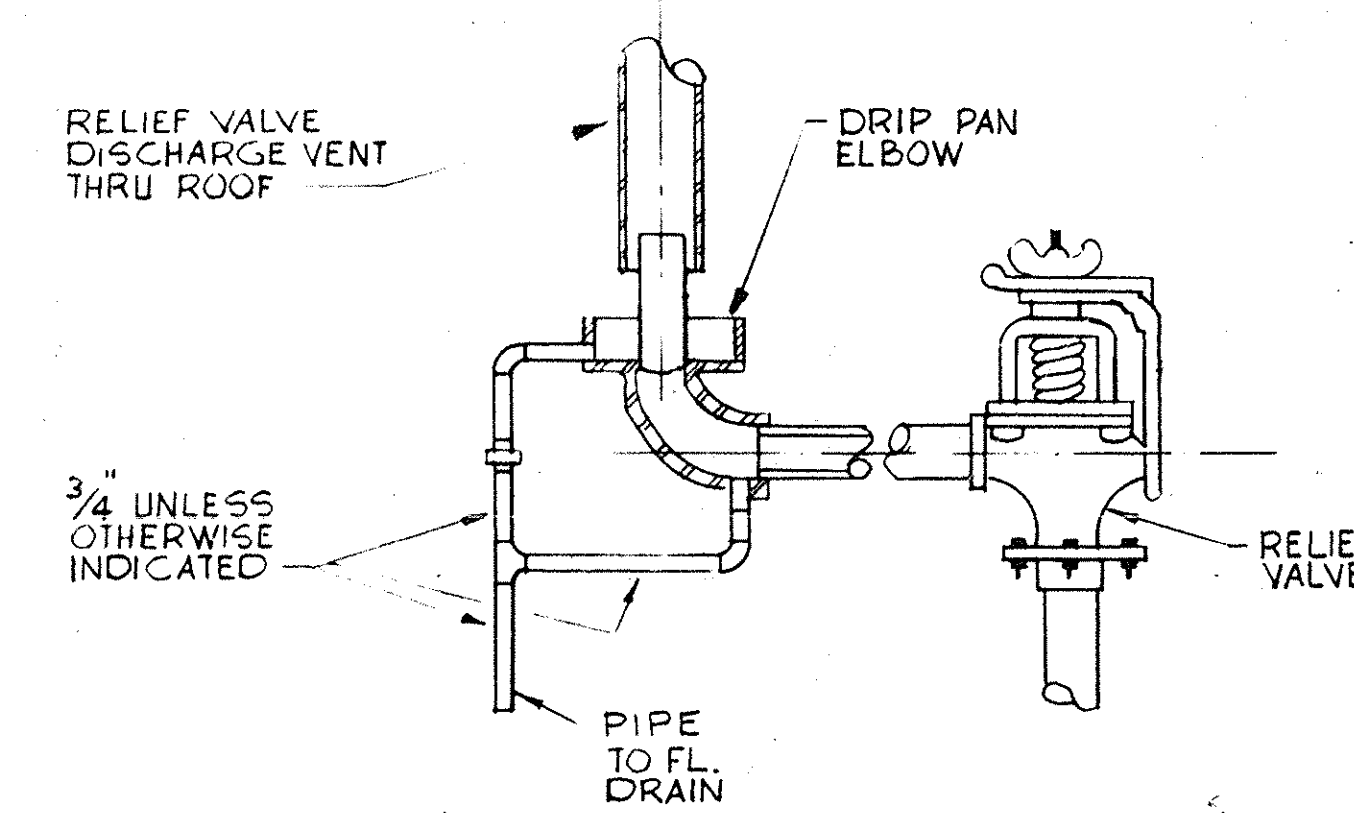
NOTES THIS SHEET  
1. SEE SHEET AC-1 FOR LEGEND AND GENERAL NOTES.



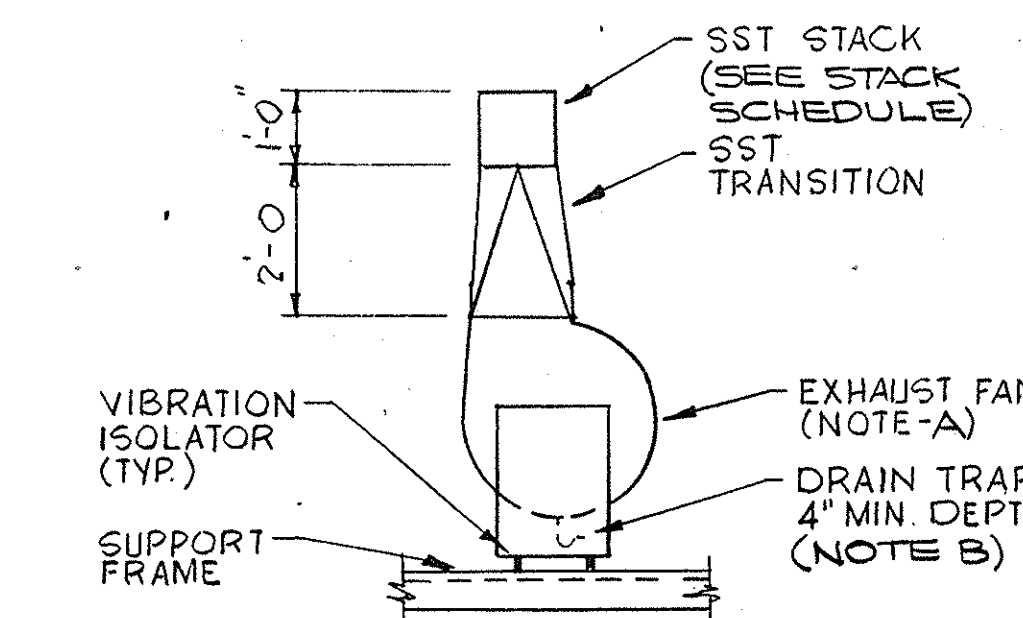
TYPICAL SUPPORT FRAME DETAIL  
NO SCALE

NOTE: WELD ALL CONNECTIONS AND GRIND SMOOTH

COOLING TOWER PIPE SUPPORT DETAIL  
NO SCALE



TYPICAL STEAM PRESSURE RELIEF VALVE DETAIL  
NO SCALE



EXHAUST STACK DETAIL TYP F-4,6,7,8  
NO SCALE

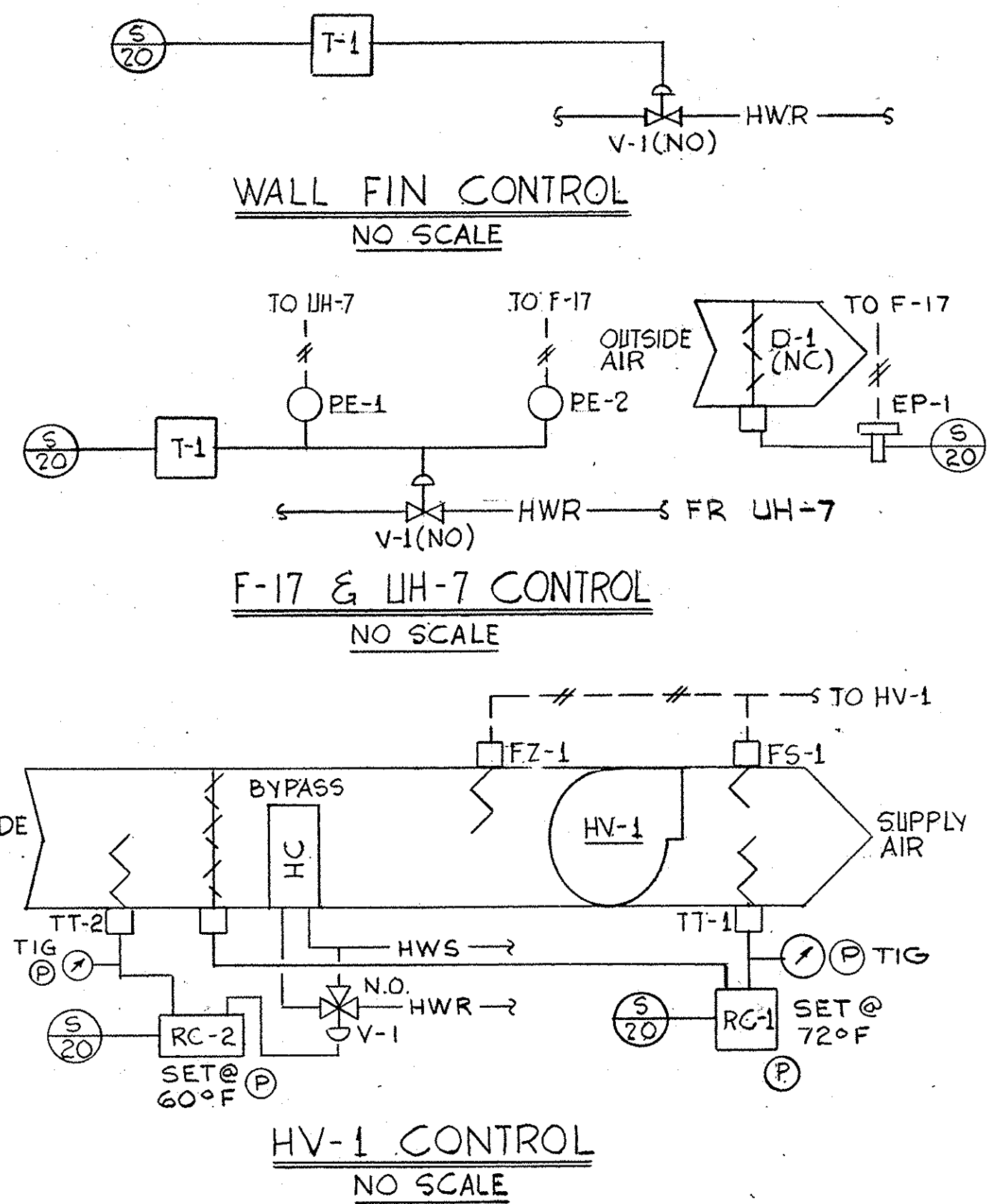
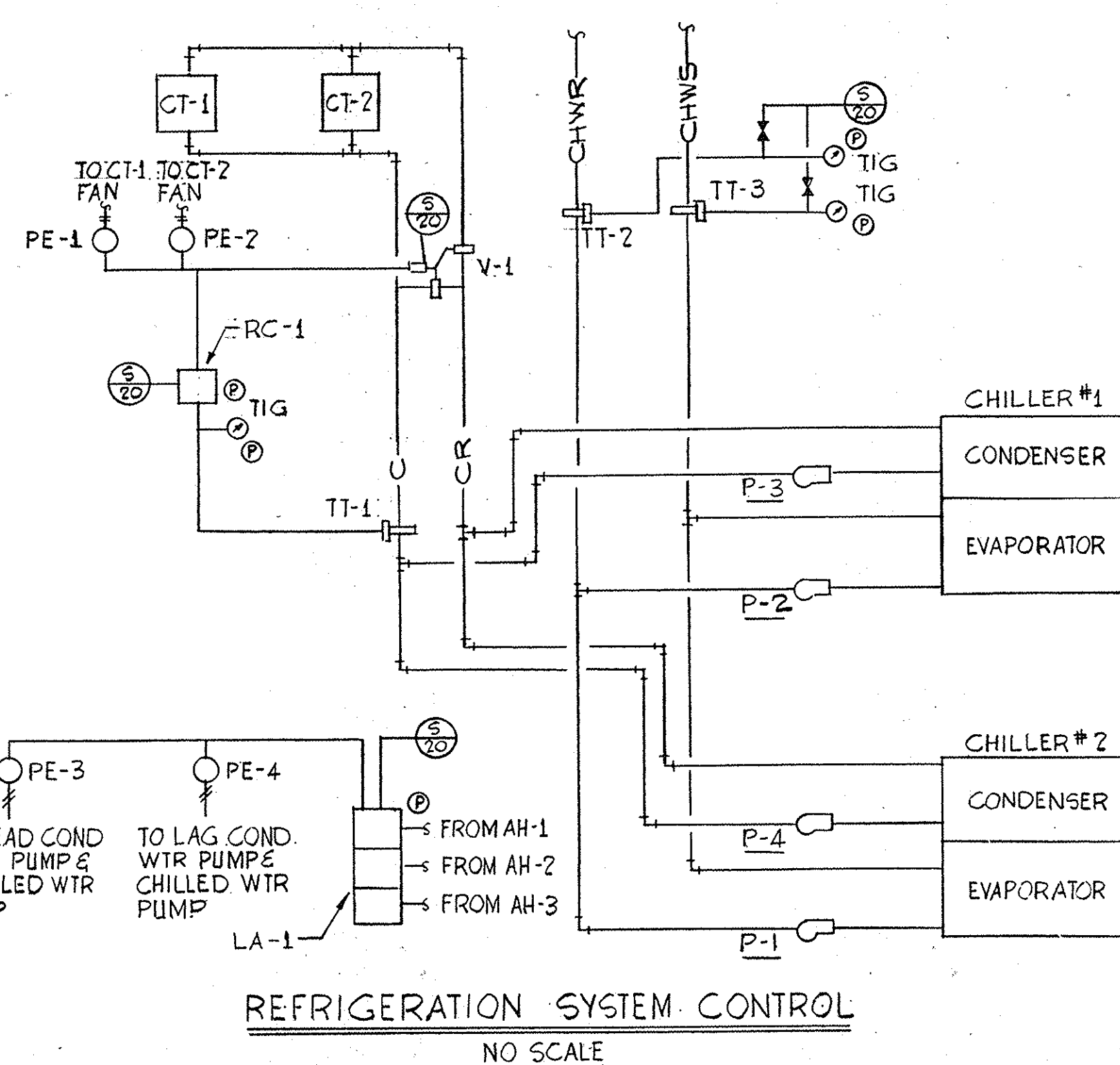
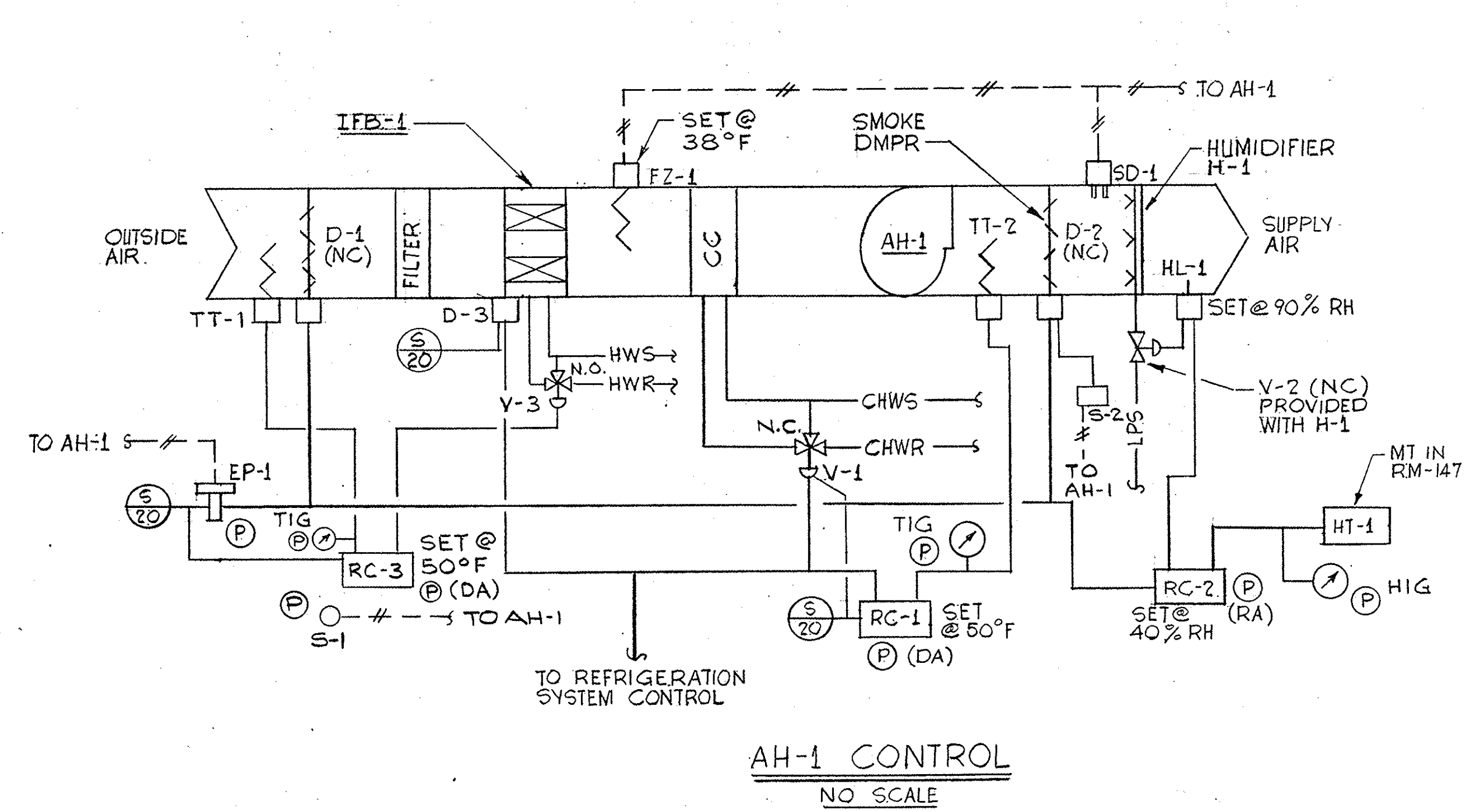
NOTES

- A. EXHAUST HOOD DUCTWORK SHALL PENETRATE ROOF AND CONNECT TO EXHAUST FAN WITH LONG RADIUS ELBOW. ALL DUCTWORK AND FITTING SHALL BE STAINLESS STEEL.  
B. COLLECT DRAIN TRAPS INTO 3/4\"/>

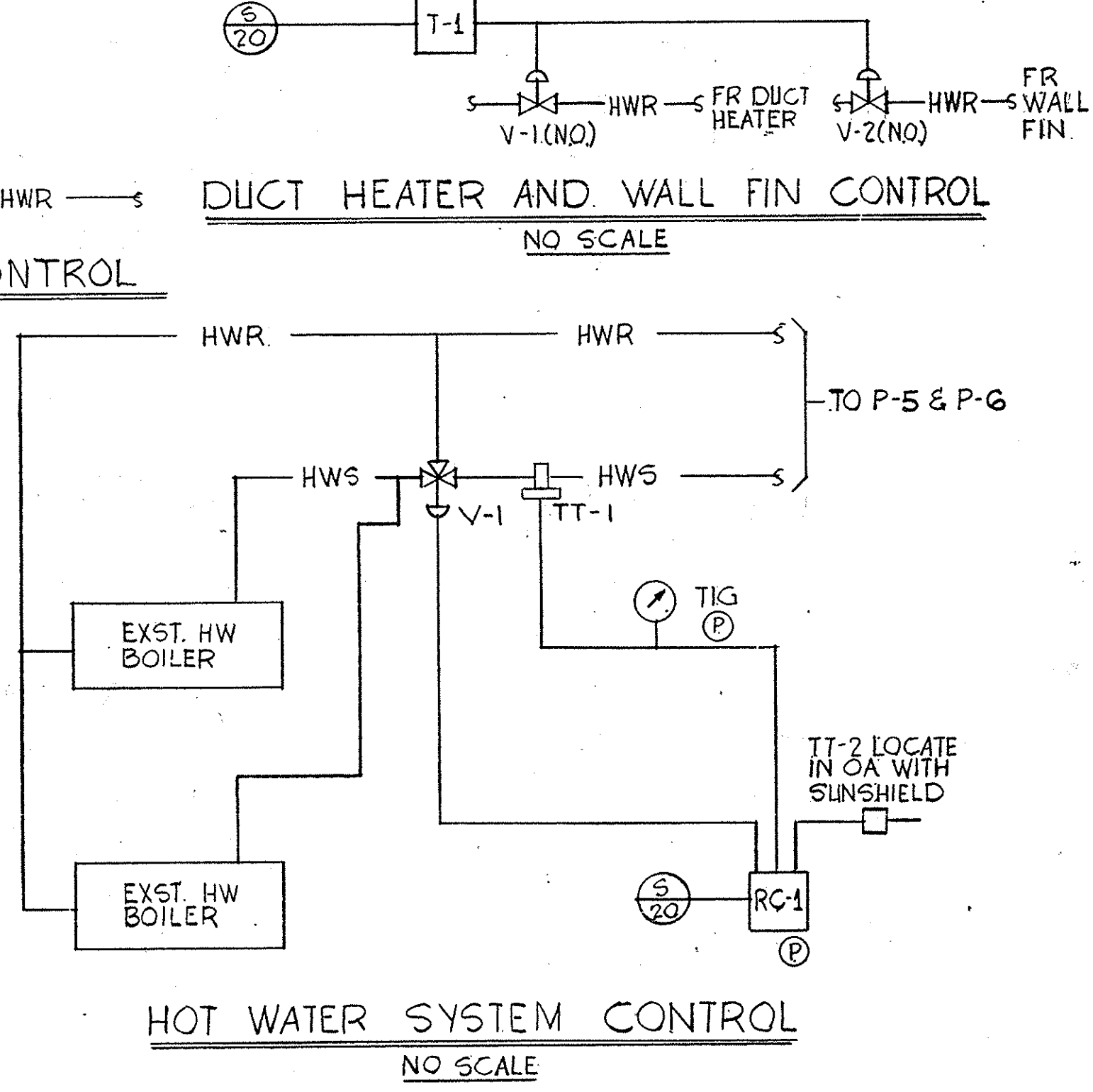
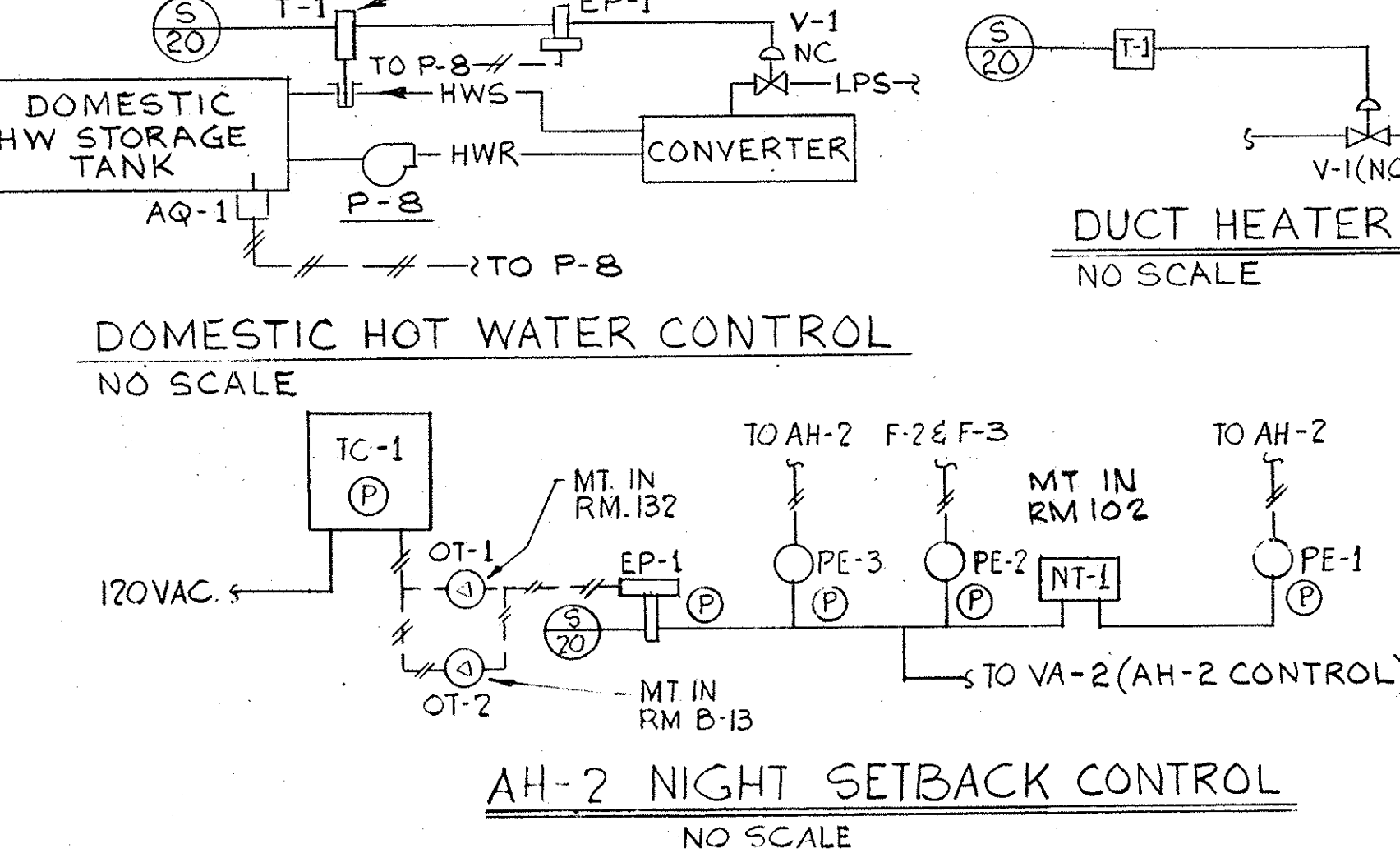
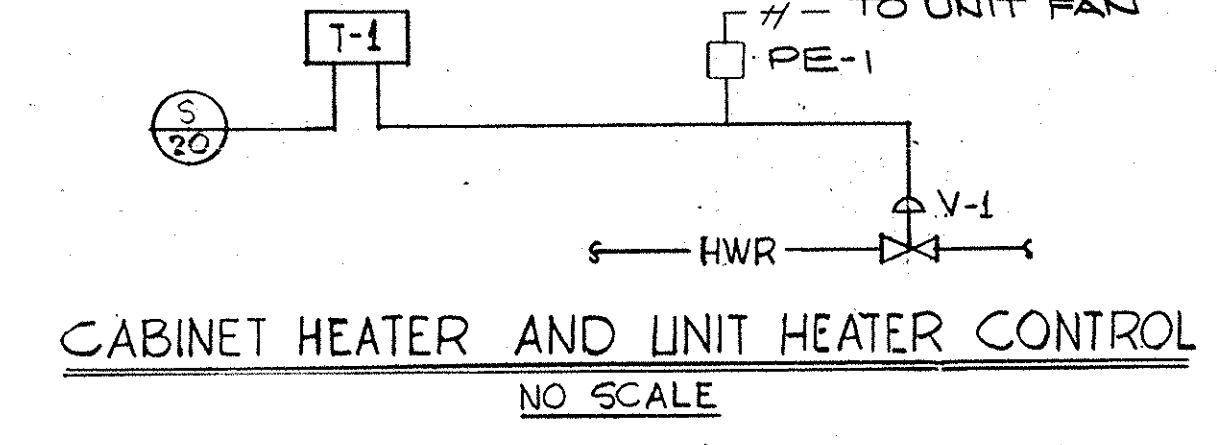
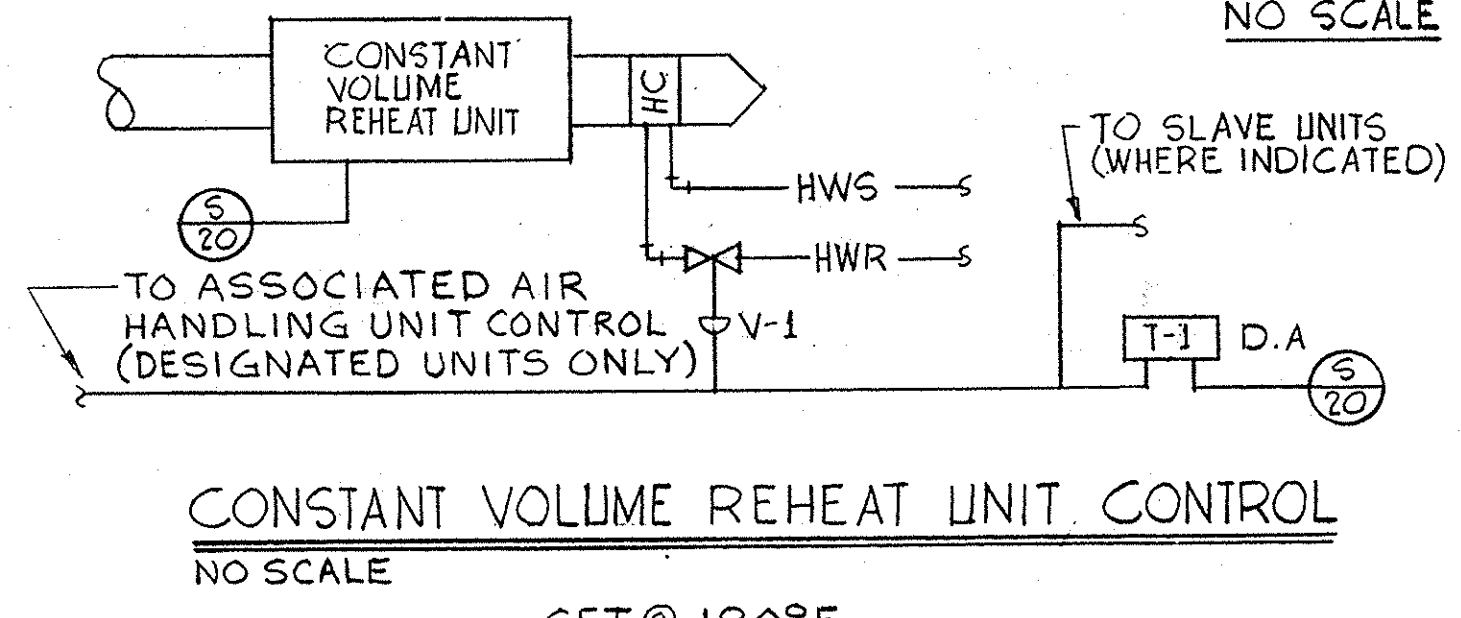
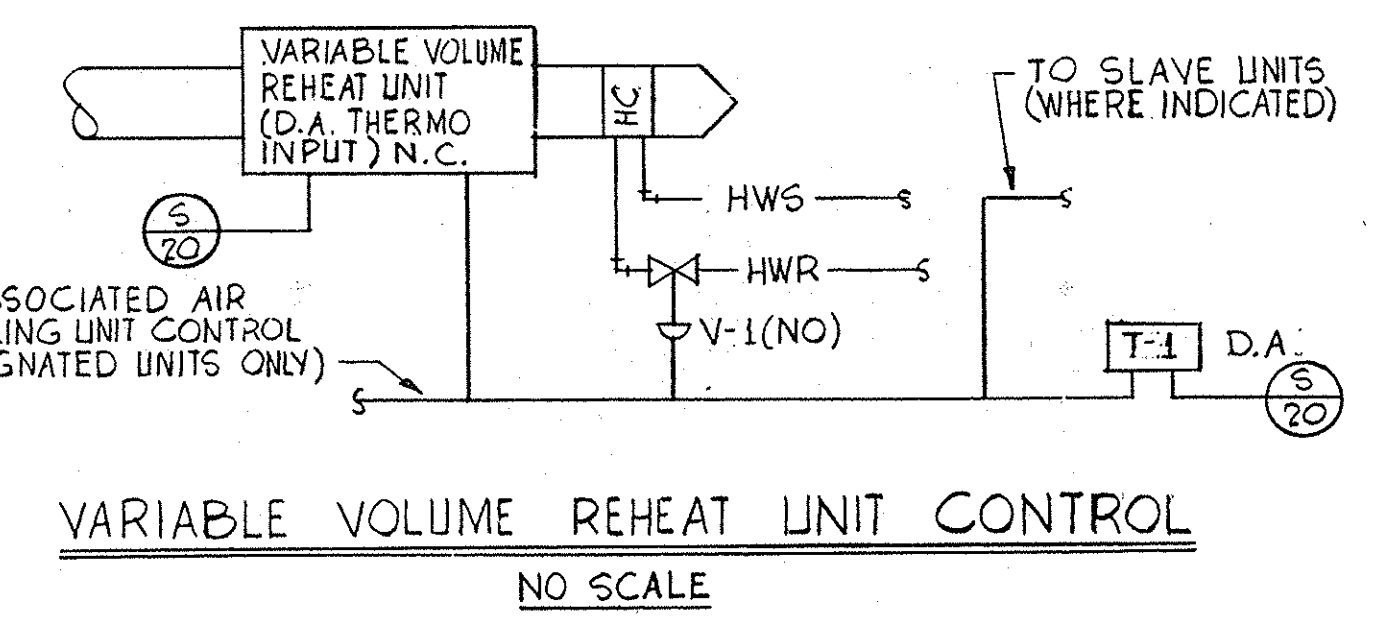
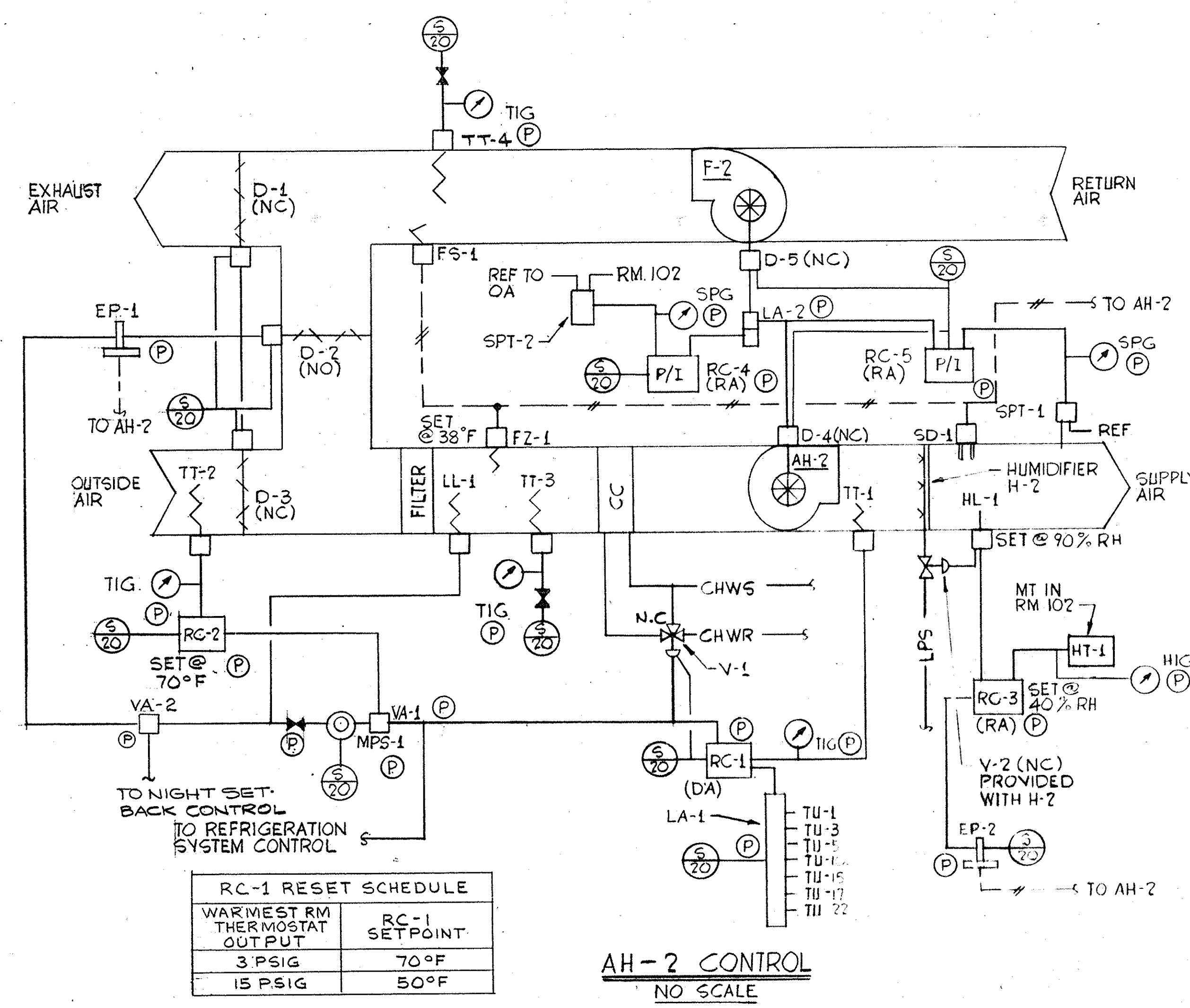
| MARK | STACK SIZE |
|------|------------|
| F-4  | 4"φ        |
| F-6  | 9"φ        |
| F-7  | 6"φ        |
| F-8  | 8"φ        |

|                                                                                                    |                                                 |                                                                               |  |
|----------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------|--|
| HAYES, SEAY, MATTERN & MATTERN<br>ARCHITECTS - ENGINEERS - PLANNERS<br>ROANOKE, VA. ROCKVILLE, MD. |                                                 | SMITHSONIAN INSTITUTION<br>NATIONAL ZOOLOGICAL PARK<br>WASHINGTON, D.C. 20009 |  |
| DESIGNED BY:<br>JMC DSC                                                                            | OFFICE OF CONSTRUCTION MANAGEMENT               |                                                                               |  |
| DRAWN BY:<br>KH                                                                                    | RENOVATION OF<br>HOSPITAL AND RESEARCH FACILITY |                                                                               |  |
| CHECKED BY:<br>AW                                                                                  | DETAILS                                         |                                                                               |  |
| APPROVED BY: JCM                                                                                   | APPROVED BY: DIR                                | DRAWING NUMBER                                                                |  |
| APPROVED BY:                                                                                       | DATE REV 9-28-87                                | SHEET AC-9                                                                    |  |
| A&E COMMISSION NO. 2336                                                                            |                                                 |                                                                               |  |



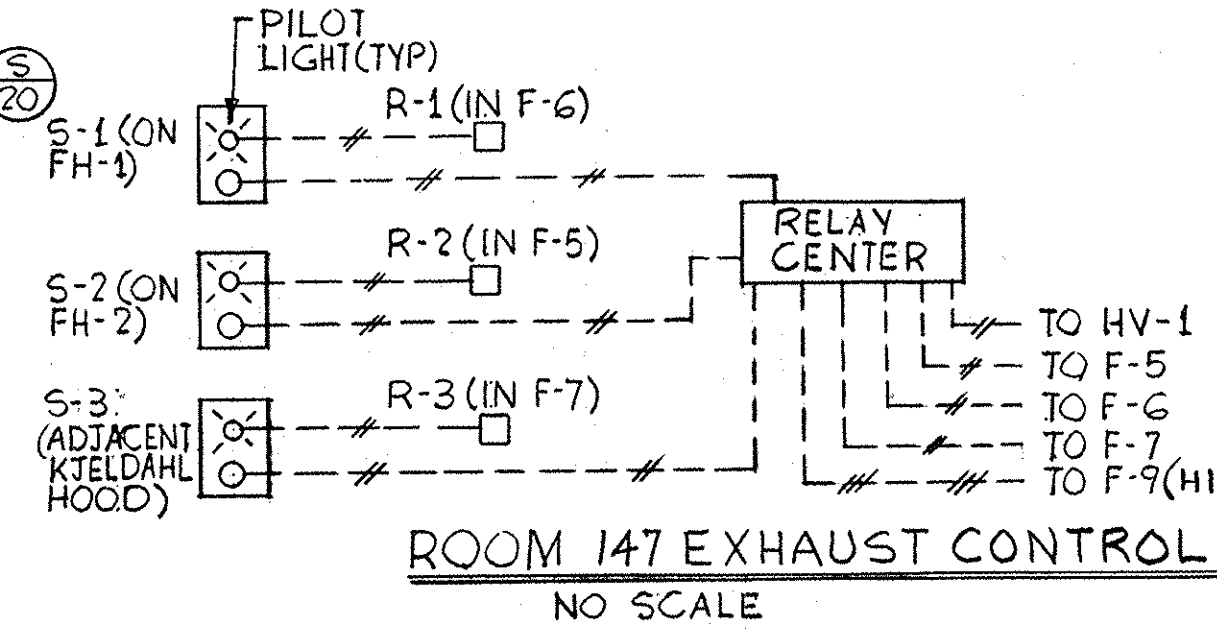
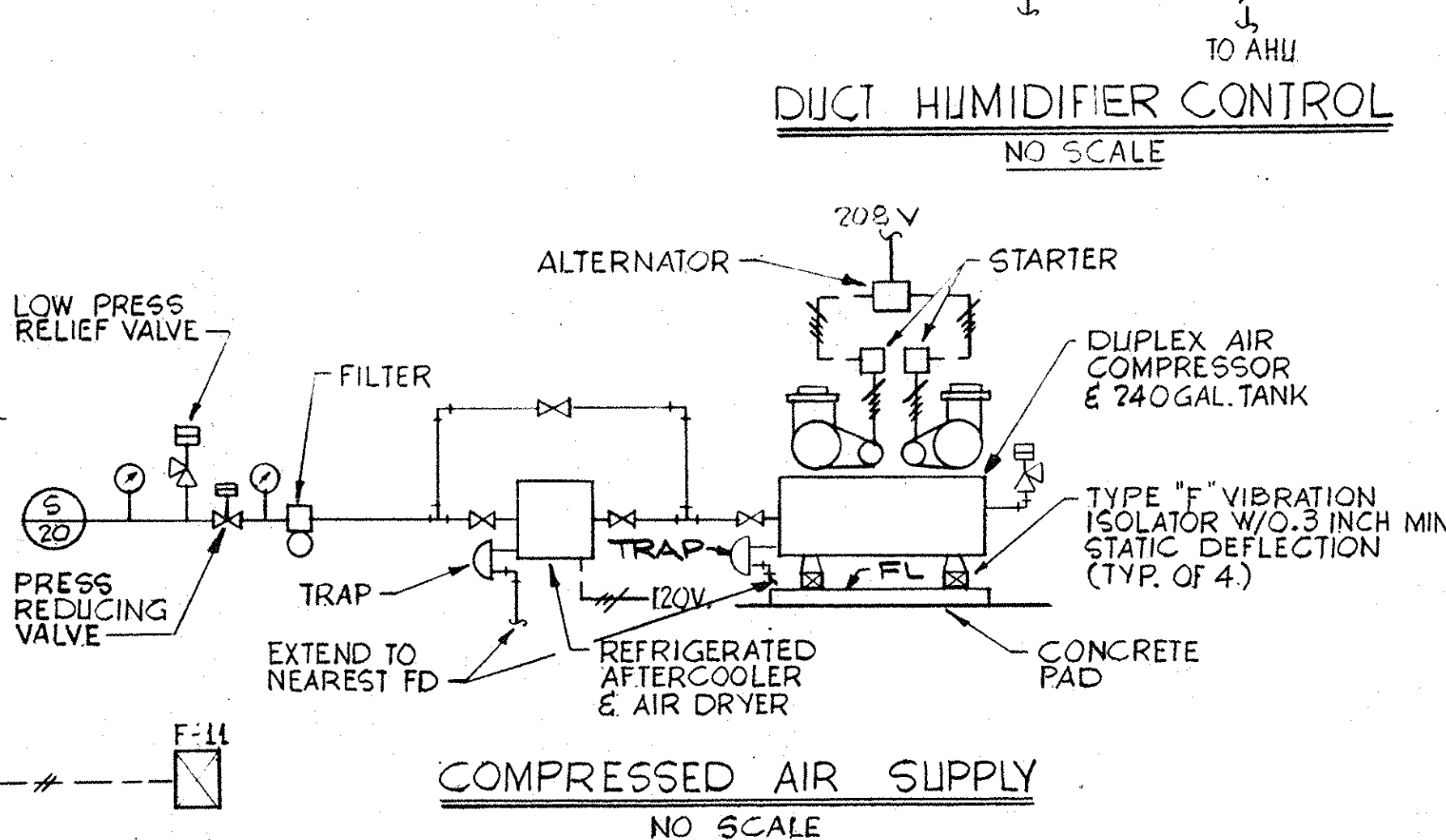
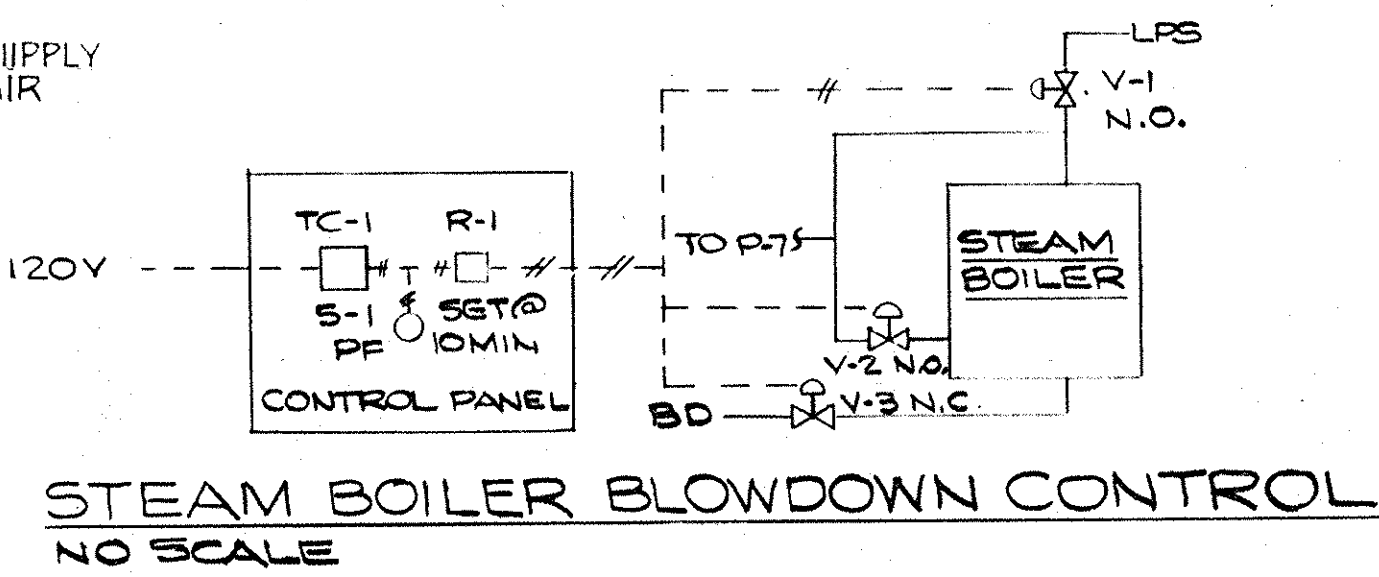
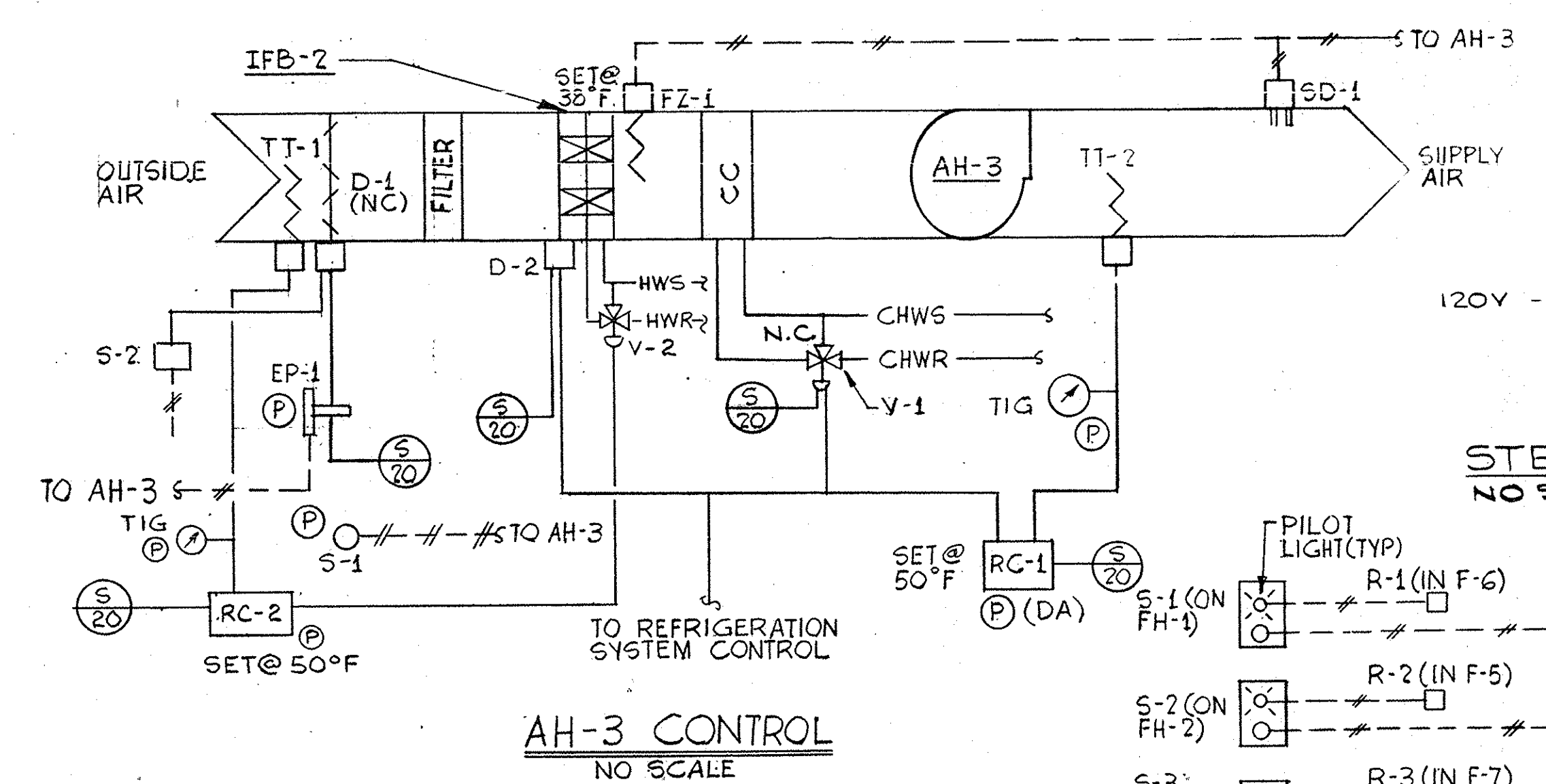


| TEMPERATURE CONTROL LEGEND |                                  |
|----------------------------|----------------------------------|
| CC                         | COOLING COIL                     |
| D                          | DAMPER                           |
| DA                         | DIRECT ACTING                    |
| F-S                        | FIRESTAT                         |
| F-Z                        | FREEZESTAT                       |
| HC                         | HEATING COIL                     |
| HIG                        | HUMIDITY INDICATING GAGE         |
| HT                         | HUMIDITY TRANSMITTER             |
| LA                         | LOAD ANALYZER                    |
| LL                         | LOW LIMIT CONTROLLER             |
| MPS                        | MINIMUM POSITION SWITCH          |
| NC                         | NORMALLY CLOSED                  |
| NO                         | NORMALLY OPEN                    |
| NT                         | NIGHT THERMOSTAT                 |
| OT                         | OVERIDE TIMER                    |
| P                          | PANEL MOUNTED ITEM               |
| PE                         | PNEUMATIC-ELECTRIC SWITCH        |
| P/I                        | PROPORTIONAL-INTEGRAL CONTROLLER |
| RA                         | REVERSE ACTING                   |
| RC                         | RECEIVER CONTROLLER              |
| RS                         | RESTRICTOR                       |
| SD                         | SMOKE DETECTOR                   |
| SPG                        | STATIC PRESSURE INDICATING GAGE  |
| SPT                        | STATIC PRESSURE TRANSMITTER      |
| ST                         | SUPPLY AIR MAIN (20PSIG)         |
| T                          | THERMOSTAT                       |
| TC                         | TIME CLOCK                       |
| TIG                        | TEMPERATURE INDICATING GAGE      |
| TT                         | TEMPERATURE TRANSMITTER          |
| V                          | CONTROL VALVE                    |
| VA                         | AIR VALVE                        |
| EP                         | ELECTRIC-PNEUMATIC SWITCH        |
| HL                         | HUMIDITY HIGH LIMIT              |
| HS                         | HUMIDISTAT                       |
| R                          | RELAY                            |
| -                          | CONTROL TUBING                   |
| -                          | CONTROL WIRING                   |



| HOT WATER RESET SCHEDULE |               |
|--------------------------|---------------|
| OAT                      | RC-1 SETPOINT |
| 30°F                     | 180°F         |
| 60°F                     | 110°F         |

NOTES THIS SHEET:  
1. SEE SHEET AC-1 FOR LEGEND AND GENERAL NOTES



|                                                                                    |                                   |                                                                               |  |
|------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------|--|
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| DESIGNED BY:<br>JMC DSC                                                            | OFFICE OF CONSTRUCTION MANAGEMENT | RENOVATION OF HOSPITAL AND RESEARCH FACILITY                                  |  |
| DRAWN BY:<br>KH                                                                    | CHECKED BY:<br>CZ                 | TEMPERATURE CONTROLS                                                          |  |
| APPROVED BY: OCM                                                                   | APPROVED BY: DIR                  | DRAWING NUMBER                                                                |  |
| APPROVED BY:                                                                       | DATE REV 9-28-87                  | SEPT 1986                                                                     |  |
| A&E COMMISSION NO. 2336                                                            |                                   | SHEET AC-10                                                                   |  |