

RDC

Bussard Dikis

EDUCATION / VOCATION / GYM STATE TRAINING SCHOOL FOR BOYS ELDORA, IOWA

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ABBREVIATIONS

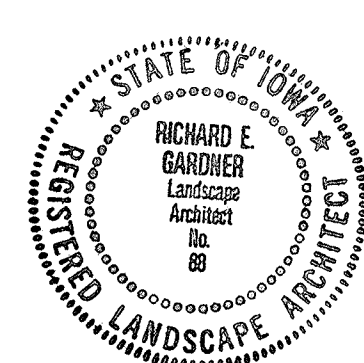
A AFF Above Floor Finish
AC PNL Acoustical Panel
AC TL Acoustical Tile
ADJ Adjustable
ALUM Aluminum
AND And
L Angle
APPROX Approximate
ARCH Architectural
B BLKG Blocking
BO Board
BOT Bottom
BOT OF Bottom Of
BRK Brick
BLDG Building
BUR Built-Up Roofing
C CAB Cabinet
CUH Cabinet Unit Heater
COT Carpet
CB Catch Basin
CG Ceiling
CEM Cement
CTR Center Line
CL Ceramic Tile
CHBD Chalkboard
CLR Clear
CLO Closet
COL Column
CONC Concrete
CMU Concrete Masonry Unit
CJ Construction Joint
CONT Continuous
CLJ Control Joint
CORR Corridor
CNR Counter
CNS Covered Vinyl Base
D DEPT Department
DET Detail
DIA Diameter
DIM Dimension
DISP Dispenser
DBL Double
DN Down
DOW Downspout
DWR Drawing
DWF Drinking Fountain
E EA Each
EW Each Way
EWC Electric Water Cooler
ELEC Electrical
EP Electrical Panelboard
EL Elevation
EMER Emergency
ENCL Enclosure
ENMAT Entry Mat
EP Epoxy
EQ Equal
EQUIP Equipment
EQUIP EXIST Existing
EXP Expansion
EXPJ Expansion Joint
EXPOS Exposed
EXT Exterior
EFS Exterior Insulation Finish System
F FWC Fabric Wall Covering
FAB Fabricated
FF Field Finish
FV Field Verify
FIN Finish
FIR Fire
FEKT Fire Extinguisher
FEC Fire Extinguisher Cabinet
FHC Fire Hose Cabinet
PHY Floor
FLR Floor
FLOR Floor
FLOOR Fluorescent
FTG Foot or Feet
FDN Foundation
G GA Gage
GALV Galvanized
GL Glass
GND Ground
GYP Gypsum
GYP BD Gypsum Board
H HDME Hardware
HDWD Hardwood
HGT Height
HMT Hollow Metal
HORIZ Horizontal
HB Hose Bibb
HR Hour
H.P.C. High Protective Coating
I ID Inside Diameter
INSUL Insulation
INTR Interior
INHM Insulated Hollow Metal
J JAN Janitor
JT Joint
K KIT Kitchen
L LAB Laboratory
LAV Lavatory
LT Light
LTGRM Light Gage Framing
LWR Lower
M MH Manhole
MFR Manufacturer
MARB Marble
MERS Mason Board
MO Masonry Opening
MAX Maximum
MECH Mechanical
MEMB Membrane
MET Metal
MIN Minimum
MISC Miscellaneous
MTD Mounted
MULL Mullion
N NATF Natural Finish
NOM Nominal
N North
NIC Not in Contract
NTS Not to Scale
O OFF Office
OC On Center
OPNG Opening
OD Outside Diameter
OA Overall
P PCC Portland Cement Concrete
PNT Point
PNTD Pointed
PR Pair
PNL Panel
PTN Partition
PLAS Plaster
PLAM Plastic Laminate
PL Plywood
PVC Polyvinyl Chloride
PVC Round
PRCST Precast
RCMU Reinforced Concrete Masonry Unit
PT Pressure Treated
Q QUARRY QUARRY
R RAD Radius
REF Reference
REFR Refrigerator
RCMU Reinforced Concrete Masonry Unit
REBAR Reinforcing Bar
REQ Required
RES Resilient
RSD Resilient Spout Floor
RD Roof Drain
RO Rough Opening
RUB Rubber
RB Rubber Base
S Sched
SCHED Schedule
SEAL Sealed
SECT Section
SECT Sink
SHT Sheet
SHT Metal
SHV Shelf
SIM Similar
SPEC Specification
SQ Square
SF Square Feet
STN Stained
STN Stainless Steel
STD Standard
STL Steel
STST Steel Joist
SUB Straight Vinyl Base
STOR Storage
STRUCT Structural
SQT Structural Gazed Facing Tile
SUSP Suspended
T TKB Tackboard
TEL Telephone
TV Television
TMD Tempered
TMD GL Tempered Glass
TER Terrace
THK Thick
THRES Threshold
TP Toilet Paper
T & G Tongue and Groove
T & B Top and Bottom
TO Top Of
TC Top of Curb, Top of Concrete
TP Top of Pavement
TST Top of Steel
TW Top of Wall
TF Top of Finish
TYP Typical
U UNF Unfinished
UNF Insulation
UNF Unless Otherwise Noted
UR Unreinforced
V VERT Vertical
VEST Vestibule
VB Vinyl Base
VCT Vinyl Composition Tile
VNSF Vinyl Sheet Flooring
VT Vinyl Tile
VWC Vinyl Wall Covering
W W Water Closet
WR Water Resistant
WTRPRF Waterproof
WT Weight
WWF Welded Wire Fabric
W/W Without
W/W With
WO Wood
WD Wood Furring
WDFR Wood Furring
WSF Wood Sports Flooring

MATERIAL SYMBOL LEGEND

BATT INSULATION
BRICK
CONCRETE
CMU
EARTH
FINISH WOOD
GRANULAR MATERIAL/GRAVEL
GYPSUM BOARD
LIMESTONE/MORTAR/SAND
METAL STUD PARTITION
PARTICLE BOARD
PLYWOOD
PRECAST CONCRETE
RIGID INSULATION
STEEL

DRAWING SYMBOL LEGEND

OFFICE
ROOM NAME
ROOM NUMBER
DOOR OPENING
WINDOW OPENING
DETAIL NUMBER
SHEET NUMBER
SECTION NUMBER
SHEET NUMBER
FLOOR ELEVATION MARKER
BUILDING SECTION
INTERIOR ELEVATION
SHEET NUMBER
CEILING TYPE
CEILING HT.
WALL TYPE



RDG CROSE GARDNER SHUKERT

I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and responsible charge. I am a duly registered professional engineer under the laws of the State of Iowa.
Signature: *Richard E. Gardner*
Pages or sheets covered by this seal: SP1 - SP7
Date issued: April 7, 1999



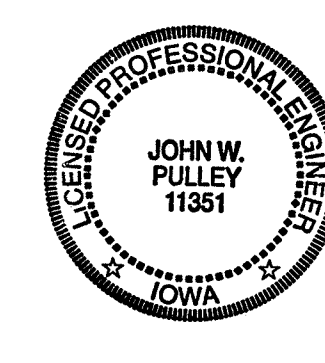
RDG BUSSARD DIKIS

I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and responsible charge. I am a duly registered professional engineer under the laws of the State of Iowa.
Signature: *Allan Oberlander*
Pages or sheets covered by this seal: A0.1 - A11.3
Date issued: April 7, 1999



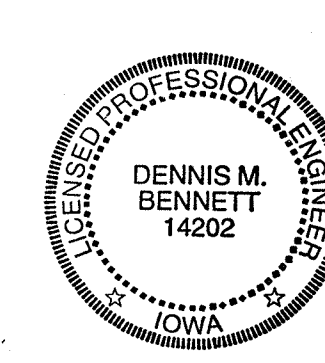
SHUCK-BRITTON INC.

I hereby certify that this engineering document was prepared by me or under my direct supervision and responsible charge. I am a duly licensed professional engineer under the laws of the State of Iowa.
Signature: *Timothy J. Monson*
Pages or sheets covered by this seal: S1.1 - S2.4
Date issued: April 7, 1999



PULLEY & ASSOCIATES

I hereby certify that this engineering document was prepared by me or under my direct supervision and responsible charge. I am a duly licensed professional engineer under the laws of the State of Iowa.
Signature: *John W. Pulley*
Pages or sheets covered by this seal: MD1.1 - P3.2
Date issued: April 7, 1999



PULLEY & ASSOCIATES

I hereby certify that this engineering document was prepared by me or under my direct supervision and responsible charge. I am a duly licensed professional engineer under the laws of the State of Iowa.
Signature: *Dennis M. Bennett*
Pages or sheets covered by this seal: E1.1 - E7.1
Date issued: April 7, 1999

Renaissance Design Group

An Architecture, Interior Design and Planning Corporation

RDG Bussard Dikis Inc. 303 Locust Street Des Moines, Iowa 50309 515-288-3141 Fax 515-288-8631

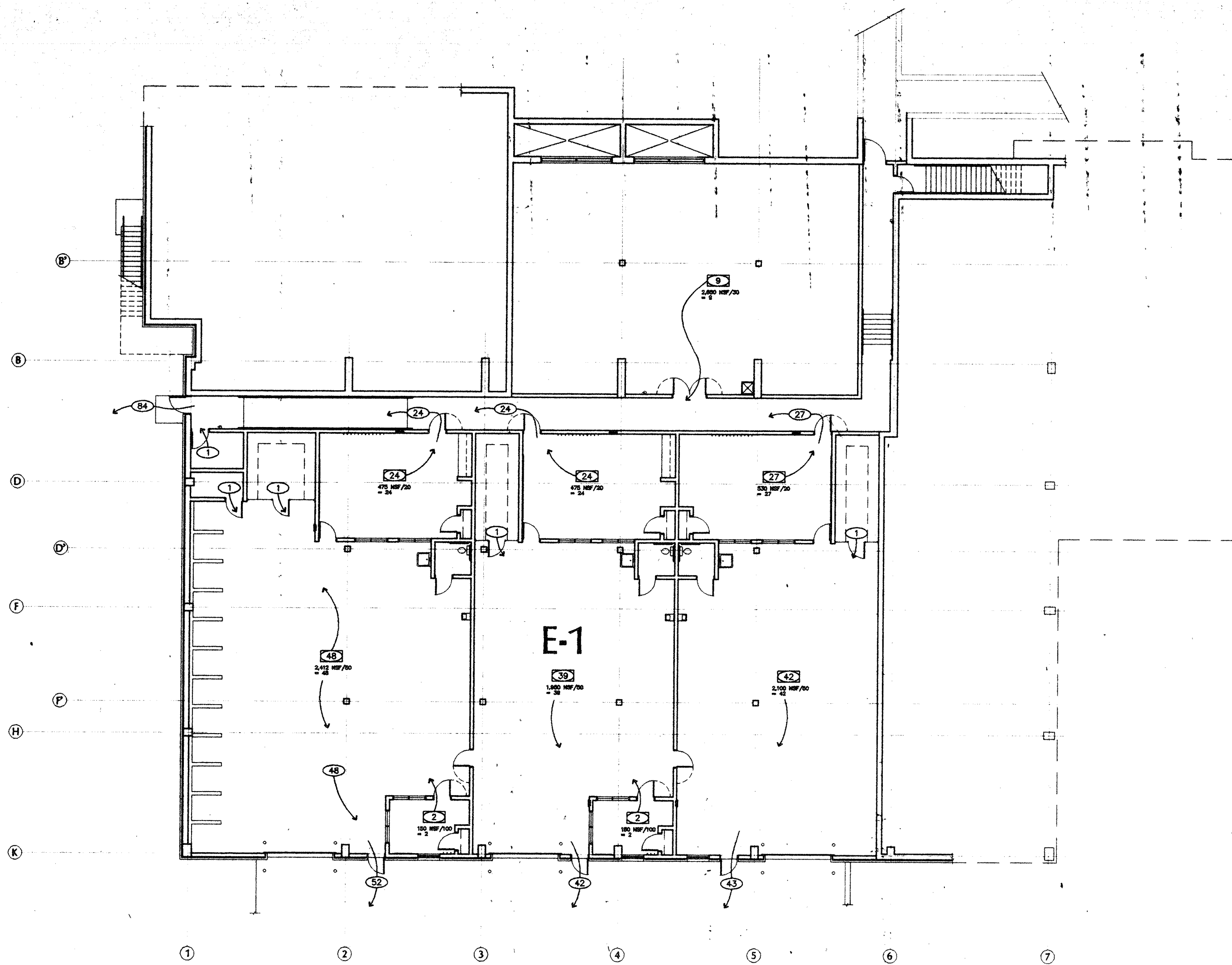
RDG Schutte William Birge Inc. 8805 Indian Hills Drive, Suite 100 Omaha, Nebraska 68114 402-392-0133 Fax 402-392-0413

RDG Crose Gardner Shukert Inc. 414 61st Street Des Moines, Iowa 50312 515-274-4925 Fax 515-274-6437

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DESIGN & CONSTRUCTION



B BASEMENT FLOOR CODE PLAN
1/16"=1'-0"

NOTES:

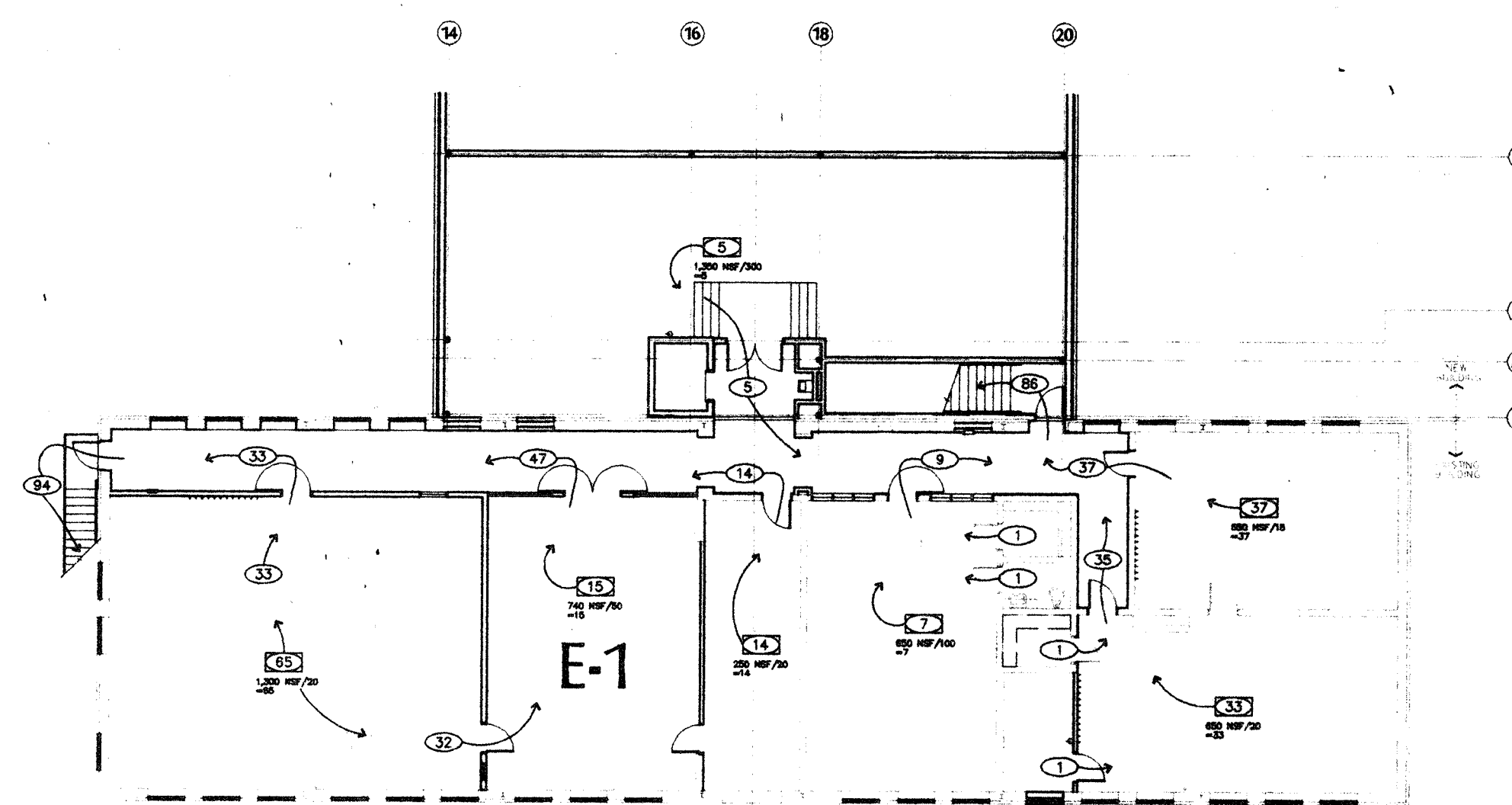
1. ALL STORAGE AREAS ARE CALCULATED AT 300 S.F. PER PERSON - U.O.N.
2. REFER TO FLOOR PLAN SHEETS FOR IDENTIFICATION OF ALTERNATE BID WORK

CODE PLAN SYMBOL KEY

- ROOM OCCUPANTS
- NUMBER EXITING
- DIRECTION OF TRAVEL
- TOTAL NUMBER EXITING @ DOOR(S)

NOTES

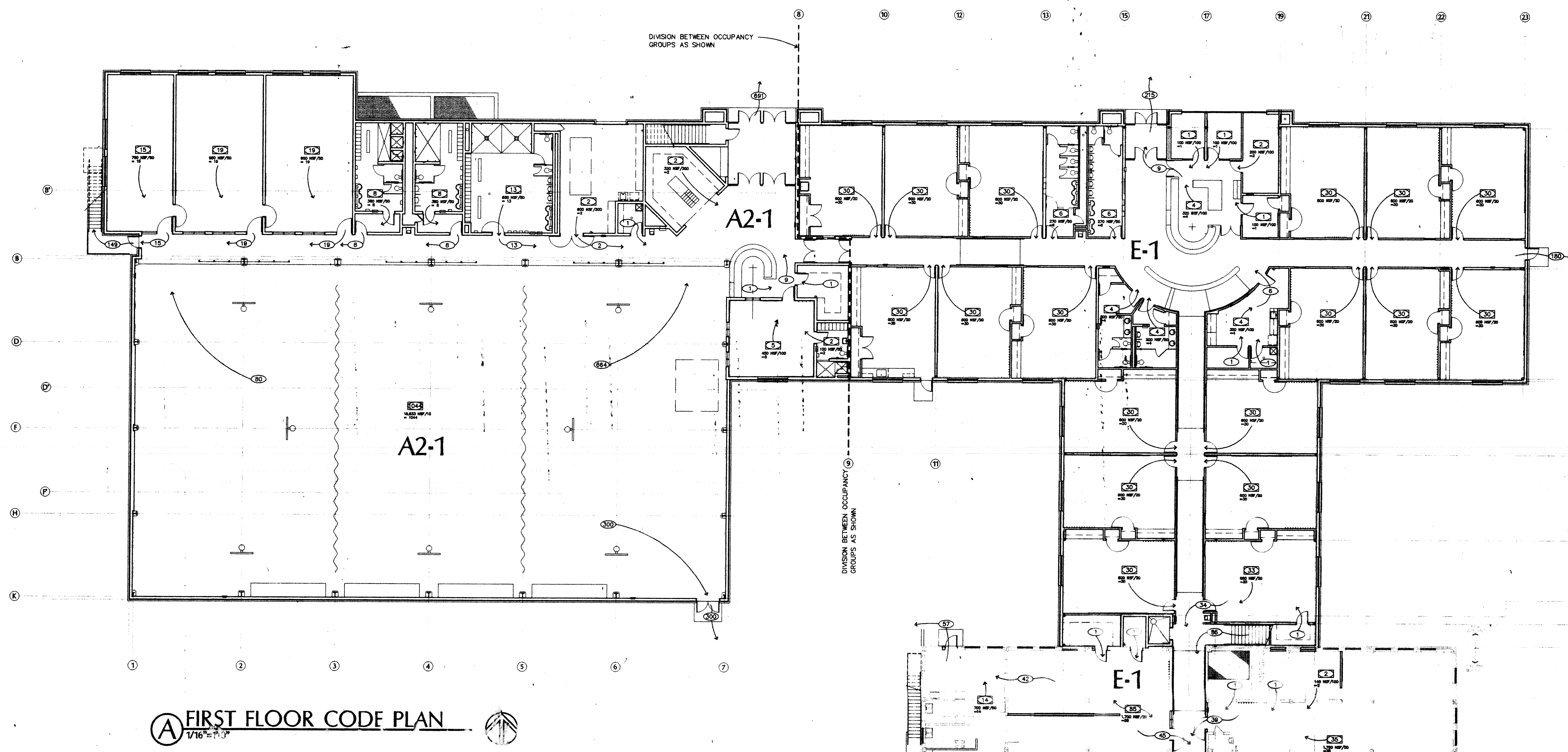
1. SEE FLOOR PLANS & REFLECTED CEILING PLANS FOR FIRE EXTINGUISHER LOCATIONS AND FIRE-RATED SEPARATION LOCATIONS.



C SECOND FLOOR CODE PLAN
1/16"=1'-0"

NOTES:

1. ALL STORAGE AREAS ARE CALCULATED AT 300 S.F. PER PERSON - U.O.N.
2. REFER TO FLOOR PLAN SHEETS FOR IDENTIFICATION OF ALTERNATE BID WORK



A FIRST FLOOR CODE PLAN
1/16"=1'-0"

NOTES:

1. ALL STORAGE AREAS ARE CALCULATED AT 300 S.F. PER PERSON - U.O.N.
2. REFER TO FLOOR PLAN SHEETS FOR IDENTIFICATION OF ALTERNATE BID WORK

CODE REVIEW - EDUCATION / VOCATION / GYMNASIUM BUILDING

1. CODES:

Uniform Building Code (UBC), 1994 Edition
National Electrical Code (NEC), 1996 Edition
Uniform Mechanical Code (UMC), 1994 Edition
Uniform Plumbing Code (UPC), 1996 Edition

Additional codes or regulations which may also apply are:

Americans with Disabilities Act (ADA) of 1990
National Fire Protection Association (NFPA), various applicable sections
Occupational Safety and Health Administration (OSHA), various applicable sections

2. ACTUAL GROSS FLOOR AREA (Calculated):

Occupancy E-1 (Educational):

First Floor (existing): 6,000 GSF

Second Floor (existing): 6,000 GSF

Sub-total (existing): 12,000 GSF

First Floor (new): 18,000 GSF

Second Floor (new): 2,000 GSF

Sub-total (new): 20,000 GSF

Educational Total: 37,000 GSF

Occupancy E-1 (Vocational):

Basement Floor (new): 14,000 GSF

Sub-total (new): 14,000 GSF

Vocational Total: 14,000 GSF

Occupancy A-2.1 (Assembly):

First Floor (new): 23,500 GSF

Sub-total (new): 23,500 GSF

Assembly Total: 23,500 GSF

GRAND TOTAL: 74,500 GSF

3. ALLOWABLE GROSS FLOOR AREA (UBC Table 5-B):

A. Occupancy A-2.1: Type II, One-hour = 13,500 SF, increase by 100% = 27,000 GSF
Occupancy E-1 (Educational): Type II, One-hour = 20,200 SF, increase by 100% = 40,400 GSF
Occupancy E-1 (Vocational): Type II, One-hour = 20,200 SF, increase by 100% = 40,400 GSF

Per UBC 505.1.2: 2.5% x (85 FT - 20 FT = 65 FT) = 162% (100% maximum allowed)

B. Area Separation Walls:

1. Shall not be less than two-hour fire-resistive construction in Type II One-hour buildings with openings protected by a fire assembly having a one-half-hour fire-protection rating. The total width of all openings shall not exceed 20 percent of the length of the wall (UBC 504.2.2).

2. Two-hour area separation walls may terminate at the underside of roofs of noncombustible construction provided 1) roof coverings are not located within 5 feet of the wall separation wall and 2) the entire building is provided with not less than a Class II roof opening (UBC 504.4, exception no. 3).

4. REQUIRED AND ACTUAL OCCUPANT LOAD (UBC Section 1002 and Table 10-A):

Refer to plans on Sheet A0.1:
Assembly area, less-concentrated use (Gymnasiums): 15 SF/Person
Classrooms: 20 SF/Person
Exercising rooms: 50 SF/Person
Locker rooms: 50 SF/Person
Mechanical equipment room: 300 SF/Person
Offices: 100 SF/Person
Storage and stock rooms: 100 SF/Person
School shops and vocational rooms: 50 SF/Person

5. OCCUPANCY GROUP (UBC Table 3-A, 303.1.1 and 305.1):

A-2.1: Assembly, Division 2.1 (over 300 persons without a legitimate stage).
E-1: Educational, Division 1 (over 50 persons through 12" grade).

6. OCCUPANCY SEPARATIONS (UBC Table 3-B):

No requirement for fire resistive separation.
Occupancy A-2.1: Type II, One-hour
Occupancy E-1: Type II, One-hour

Per UBC 506: When not required by other sections of the code, an approved automatic sprinkler system may be substituted for the one-hour fire-resistive construction required for Type II, One-hour construction.

8. ACTUAL LOCATION ON PROPERTY (UBC Chapter 8):

(North) 22 ft. to adjacent building
(South) 108 ft. to adjacent building
(East) 85 ft. to adjacent building
(West) Approximately 150 ft. to property line

9. OPENING PROTECTION WITHIN EXTERIOR WALLS (UBC Table 5-A):

Occupancy A-2.1: None required. Building is not less than 10 feet from an adjacent property line.
Occupancy E-1: None required. Building is not less than 10 feet from an adjacent property line.

10. ACTUAL BUILDING HEIGHT IN NUMBER OF STORIES:

Occupancy A-2.1: 1-story with E-1 (Vocational) basement (new)
Occupancy E-1: 2-story (existing)
1-story with partial 2-story (new)

11. ALLOWABLE BUILDING HEIGHT IN NUMBER OF STORIES (UBC Table 5-B):

Occupancy A-2.1: Type II, One-hour = 2 story
Occupancy E-1: Type II, One-hour = 2 story

12. RELEVANT REQUIREMENTS BASED ON OCCUPANCY GROUP:

A. Buildings housing Group A Occupancies shall front directly on or have an unobstructed access way to a public street not less than 20 feet in width. The main building entrance shall be located on the public street or on the access way (UBC 303.3).

B. An approved fire alarm system shall be installed as set forth in the Fire Code in Group A, Division 2.1 Occupancies (UBC 303.9).

C. Buildings housing Group A Occupancies shall front directly on or have an unobstructed access way to a public street not less than 20 feet in width. At least one required building exit shall be located on the public street or on the access way (UBC 305.3).

D. An approved fire alarm system shall be installed as set forth in the Fire Code in Group E Occupancies with an occupant load of 50 or more persons. The operation of automatic sprinkler or detection systems shall automatically activate the school fire alarm system, which shall include an alarm mounted on the building exterior (UBC 305.5).

E. Corridor walls and ceilings in Group E Occupancies shall be of not less than one-hour fire-resistive construction with protected openings (UBC 1007.5).

13. RELEVANT REQUIREMENTS BASED ON TYPE OF CONSTRUCTION:

A. Fire Resistive Requirements (UBC Table 6-A):
1. Type II, One-hour: Exterior bearing walls = One-hour
Interior bearing walls = One-hour
Exterior nonbearing walls = One-hour
Structural frames = One-hour
Permanent partitions = One-hour
Shall enclosures = One-hour
Floors and floor-ceilings = One-hour
Roofs and roof-ceilings = One-hour

B. An approved automatic sprinkler system may be substituted for the one-hour fire-resistive construction required for Type II, One-hour construction (UBC Section 506).

C. Type II One-hour buildings shall be of noncombustible construction, except that a wood surface or finish may be applied over noncombustible floor construction (UBC 603.1).

D. Shall enclosures (UBC 711.2, exception no. 1).
1. Shall enclosures shall extend from the lowest floor opening through successive floor openings and shall be enclosed at top and bottom.
2. Shafts extending through the roof deck need not be enclosed at the top.
3. Openings shall be protected by a self-closing or an automatic-closing fire assembly with a fire-protection rating of one-hour for one-hour resistive walls.

14. FIRE-RESISTIVE ASSEMBLIES FOR PROTECTION OF OPENINGS:

A. Fire assemblies required to have a one- and one-half-hour, one-hour and three-fourths-hour fire protection rating shall be provided with either an automatic, self-closing closing device (UBC 713.6.1.2).

B. Fire door assemblies which are installed across a corridor shall be equipped with an automatic closing device and shall be activated by a smoke detector (UBC 713.6.1.3).

C. All side-hinged swinging doors shall be provided with an automatic latch which will secure the door when it is closed (UBC 713.6.3).

D. The area of glazed openings in a fire door required to have a one- and one-half-hour or one-hour fire-resistive rating shall be limited to 100 square inches with a minimum dimension of 4 inches, per leaf if a pair of doors. Glazed openings shall be limited to 1,280 square inches, per leaf, when fire-resistive assemblies are required to have a three-fourths-hour fire-resistive rating (UBC 713.7).

E. Fire windows for protection of openings in interior walls shall be limited in area to that tested (UBC 713.8).

F. When corridor walls are required to be one-hour fire-resistive construction, every interior door opening shall be protected by a light-tight smoke- and draft-control assembly having a fire-protection rating of not less than 20 minutes, be without louver, be maintained as self-closing or automatic-closing by actuation of a smoke detector and be provided with a gasketed seal at sides and top of door (UBC 1005.5.1).

G. Interior openings for other than doors in a one-hour fire-resistive corridor walls shall be protected by fixed glazing with a fire-protection rating of at least three-fourths hour. The area of all openings, other than doors, shall not exceed 25 percent of the area of the corridor wall of the room which it is separating from the corridor (UBC 1005.8.2).

H. All wall doors in an exit enclosure shall be protected by a fire assembly having a fire-protection rating of not less than one-hour where one-hour enclosure construction is permitted. Doors shall be self-closing or shall be automatic closing by actuation of a smoke detector. (UBC 1009.3).

15. FIRE-PROTECTION SYSTEMS:

A. An automatic fire sprinkler system shall be installed throughout all buildings containing a Group E, Division 1 Occupancy, unless area separations with a fire-resistive rating of not less than two hours subdivide the building into separate compartments containing an aggregate floor area not greater than 20,000 square feet (UBC 904.2.1, exception no. 2).

16. NUMBER OF EXITS AND EXIT WIDTH REQUIREMENTS:

A. Per Table 10-A, a minimum of two exits are required where the number of occupants is at least:
Assembly area, less-concentrated use (Gymnasiums): 50 persons
Classrooms: 50 persons
Exercising rooms: 50 persons
Locker rooms: 50 persons
Mechanical equipment room: 30 persons
Offices: 50 persons
Storage and stock rooms: 30 persons

B. Every story or portion thereof having an occupant load of 501 to 1,000 shall not have less than three exits. Every story or portion thereof having an occupant load of 1,001 or more shall not have less than four exits (UBC 1003.1).

C. The total width of exits shall not be less than the occupant load served by an exit multiplied by 0.3 inches for stairways and 0.2 inches for other exits. Such widths shall be divided approximately equally among the separate exits (UBC 1003.2).

D. Group A-2.1 Occupancies shall be provided with a main exit that shall be of sufficient width to accommodate one half of the total occupant load (UBC 1003.1).

18. NUMBER OF EXITS AND EXIT WIDTH PROVIDED:

Refer to plans on Sheet A0.1.

19. DISTANCE TO EXITS:

A. If only two exits are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall dimension of the building or area to be served, measured in a straight line between exits. If three or more exits are required, then at least two of the exits shall comply and the additional exits shall be spaced a reasonable distance apart (UBC 1003.3).

B. Travel distance shall not exceed 200 feet when building is equipped with an automatic sprinkler system throughout (UBC 1003.4.1).

20. EXIT DOORS:

A. Exit doors from Group A Occupancies having an occupant load of 50 or more shall not be provided with a latch or lock unless it is panic hardware (UBC 1010.4).

B. In Group E Occupancies, exit doors from rooms having an occupant load of 50 or more and from corridors shall not be provided with a latch or lock unless it is panic hardware (UBC 1011.1).

21. EXIT CORRIDORS:

A. Width as determined in Section 1003.2, but not less than 44 inches (UBC 1003.2).

B. Doors when fully open shall not reduce the required width by more than 7 inches and when in any position shall not reduce the required width by more than one-half. Other nonstructural objects may project into the required width one-and-one-half inches on each side (UBC 1003.4, exception no. 3).

C. When accessible to the handicapped, changes in elevation shall be by means of a ramp (UBC 1009.6).

D. In corridors located in Group E Occupancies, any change in elevation of less than 2 feet shall be by means of ramps (UBC 1017.5).

E. The width of a corridor in a Group E, Division 1 Occupancy shall be the width required by Section 1003, plus 2 feet, but not less than 4 feet. The corridor width may be 44 inches when the total number of occupants served is less than 100 (UBC 1017.2, exception no. 1).

F. Walls of corridors serving an occupant load of 30 or more shall be of not less than one-hour fire-resistive construction (UBC 1007.5).

22. STAIRWAYS:

A. Width as determined in Section 1003.2, but not less than 44 inches and not less than 36 inches when serving 48 persons or less. Handrails may project into the required width 3 1/2 inches each side and stringers and other projections may project 1 1/2 inches into the required width (UBC 1006.2).

B. Rise: 4 to 7 inches. Run: 11 inches minimum (UBC 1006.3).

C. Landings: Depth (in direction of travel) shall not be less than the width of the stair. Such dimension need not exceed 44 inches when stair has a straight run. There shall not be more than 12'-0" vertically between landings (UBC 1006.7).

D. Stairways with open sides and stair landings which are more than 30 inches above grade or floor below shall require guardrails. The top of guardrails shall not be less than 42 inches in height. Open guardrails shall have intermediate rails such that a sphere 4 inches in diameter cannot pass through (UBC 1006.10 and Section 509).

E. In Group E Occupancies, each floor above or below the ground floor level shall have not less than two exit stairs and the required stair width shall be equally divided between such stairs, provided that stairs serving an occupant load of 100 or more shall not be less than 5 feet in clear width (UBC 1017.8).

F. Interior stairways need not be enclosed if serving only one adjacent floor, as long as any two such interconnected floors do not open to other floors (UBC 1009.1, exception no. 1).

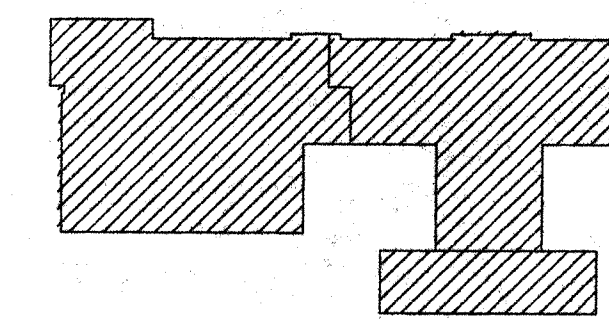
G. Stairway enclosures shall not be less than one-hour fire-resistive construction (UBC 1009.2).

23. RAMPS:

A. Width as determined in Section 1003.2, but not less than 44 inches and not less than 36 inches when serving 48 persons or less. Handrails may project into the required width 3 1/2 inches each side and stringers and other projections may project 1 1/2 inches into the required width (UBC 1007.2).

B. The slope of accessible ramps shall not be steeper than 1 unit vertical in 12 units horizontal (UBC 1007.3).

C. Ramps having slopes steeper than 1 unit vertical in 15 units horizontal shall have landings at the top and bottom, and at least one intermediate landing for each 5 feet of rise. Top and intermediate landings shall have a dimension measured in the direction of ramp run of not less than 5 feet and a dimension of not less than 6 feet at the bottom landing. Doors in any position shall not reduce the minimum dimension of the landing to less than 42 inches and shall not reduce the required width by more than 3 1/2 inches when fully open (UBC 1007.4).



KEY PLAN

**STATE TRAINING
SCHOOL FOR BOYS**

ELDORA, IOWA

**EDUCATION
VOCATION
GYM**

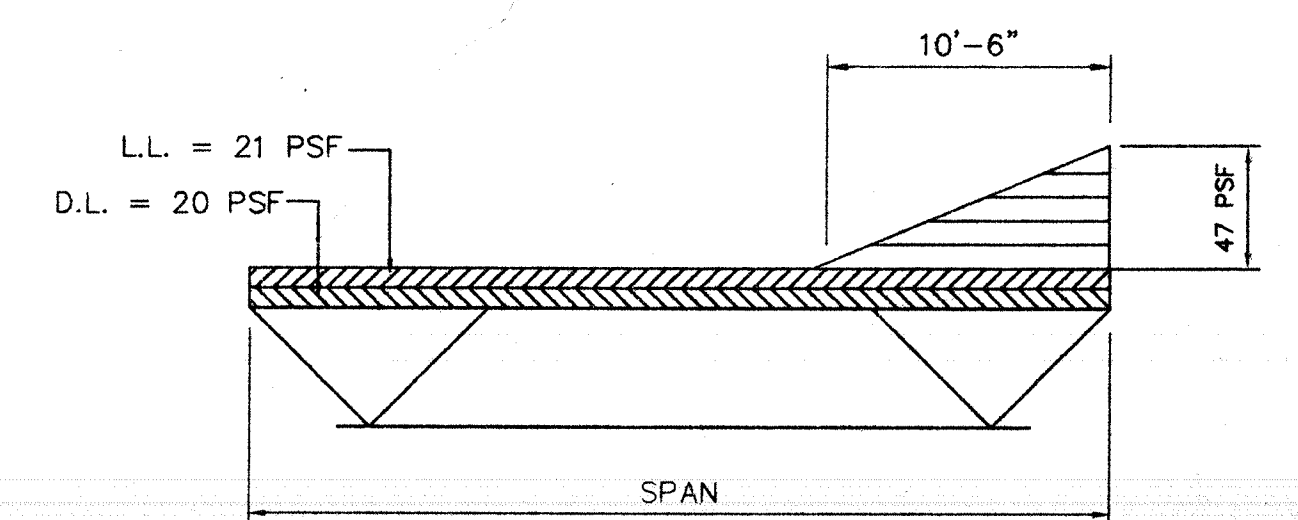
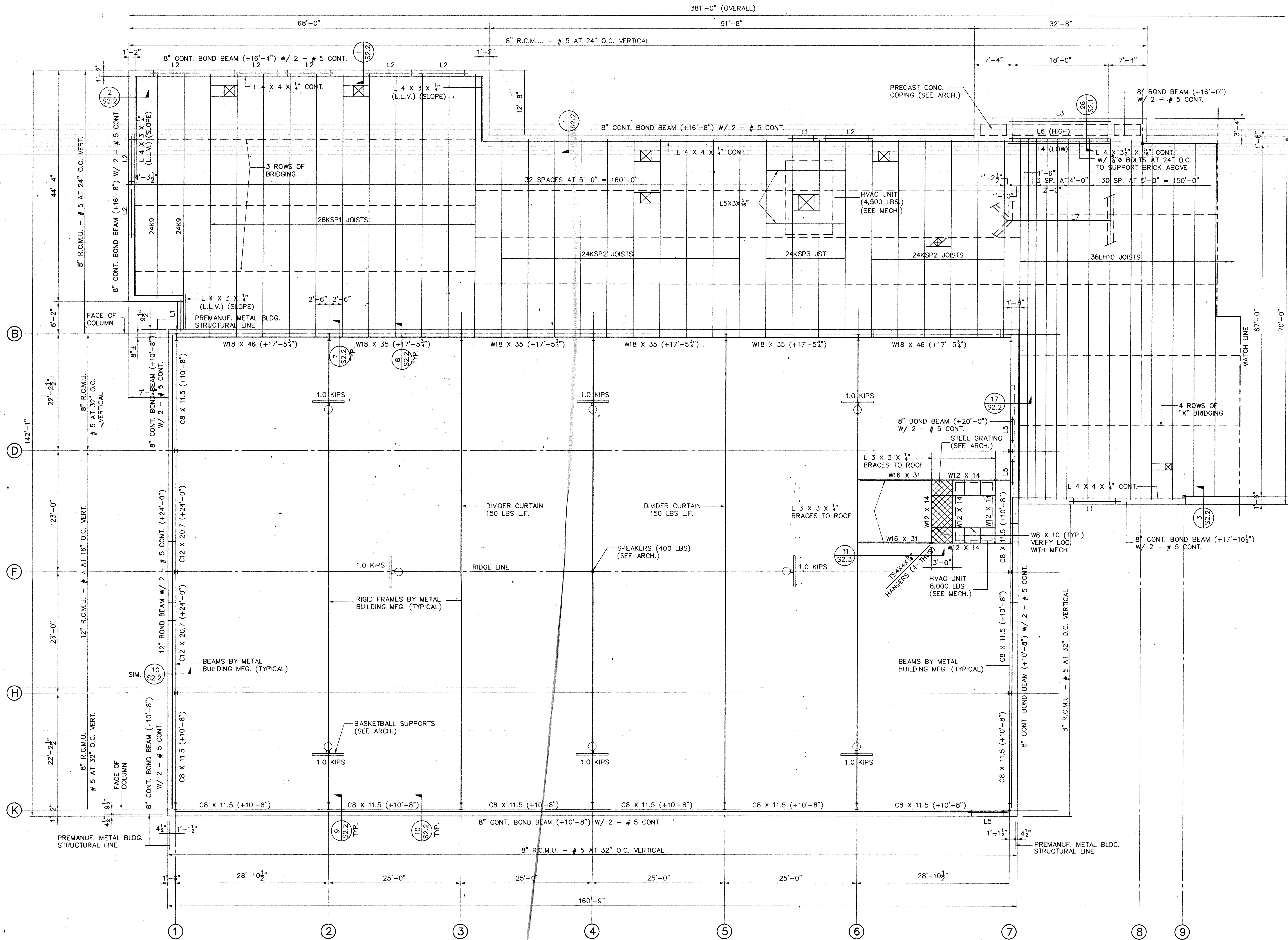
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Date: April 7, 1999
Project No: 98240.00
File No: CODEPLAN.DWG

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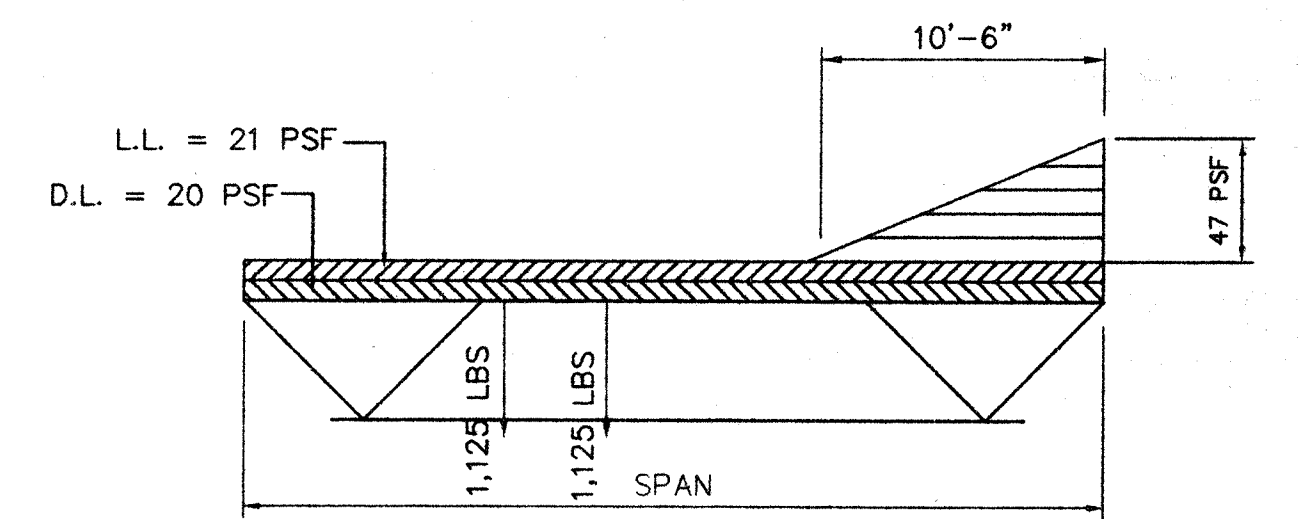
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28KSP1 & 24KSP2 JOIST LOADING DIAGRAM
NOT TO SCALE

JOIST FABRICATOR TO PROVIDE ANY REQUIRED ADDITIONAL JOIST REINFORCING TO SUPPORT THE DETAILED SNOW DRIFT PROFILE FOR ALL SP DESIGNATED JOISTS. JOIST SIZE INDICATED TO BE THE MINIMUM SIZE PROVIDED. MECH. L.L. DEFLECTION = $L/360$

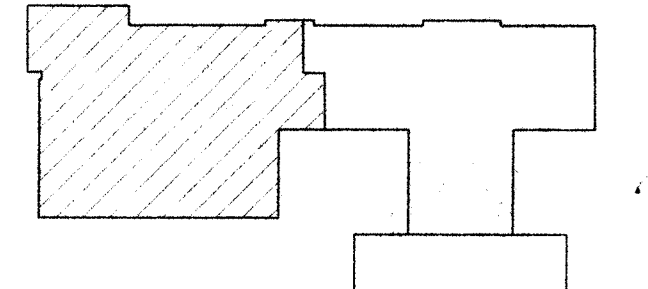


24KSP3 JOIST LOADING DIAGRAM
NOT TO SCALE

JOIST FABRICATOR TO PROVIDE ANY REQUIRED ADDITIONAL JOIST REINFORCING TO SUPPORT THE DETAILED SNOW DRIFT PROFILE FOR ALL SP DESIGNATED JOISTS. JOIST SIZE INDICATED TO BE THE MINIMUM SIZE PROVIDED. MECH. L.L. DEFLECTION = $L/360$

- NOTES:**
- ALL ELEVATIONS REFERENCED TO FINISHED FLOOR LINE (+0'-0") = 100'-0"
 - (+16'-8") DENOTES DISTANCE FROM FINISHED FLOOR LINE TO TOP OF BEAM OR TOP OF BOND BEAM.
 - ALL ROOF DECK TO BE 1 1/2" - 20 GA. STEEL DECK TYPE "WR" (U.N.O.)
 - DENOTES BRIDGING: L 1 X 1 X 1/2" CONT. AT TOP AND BOTTOM OF JOISTS.
 - L 4 X 3 X 1/2" (L.L.V.) BOLT TO WALL W/ 8" X 6" EXP. BOLTS AT 2'-0" O.C. (TYPICAL)
 - FOR DIMENSIONS AND ELEVATIONS NOT SHOWN SEE ARCHITECTURAL
 - METAL BUILDING MANUFACTURER TO ANALYZE STRUCTURE FOR CONSTRUCTION SEQUENCING LOADS ON COLUMNS AND HANGING LOADS TO ENSURE STRUCTURE STABILITY AND PREVENT OVERSTRESS DURING ERECTION
 - JOISTS TO BE DESIGNED FOR MECHANICAL UNIT LOADS AND SPECIAL LOADINGS AS INDICATED ON PLANS AND IN NOTES.
 - SEE MECHANICAL PLANS FOR EXACT LOCATIONS, SIZE AND WEIGHT OF ROOF TOP UNITS
 - "BWM" DENOTES METAL BUILDING MANUFACTURER
 - PROVIDE L 3 X 3 X 1/2" DECK EDGE ANGLE U.N.O.
 - PROVIDE L 4 X 4 X 1/2" ROOF FRAMES UNDER ALL MECH. CURBS, WELD FRAMES TO JOISTS OR BEAMS.

- UNEL SCHEDULE**
- L1: W8 X 10 W/ R 13 X 5/8"
 - L2: W12 X 14 W/ R 13 X 5/8"
 - L3: W16 X 26 W/ R 13 X 5/8"
 - L4: TS8 X 8 X 3/4" (+11'-0")
 - L5: 2 - L 5 X 3 1/2 X 5/8" (L.L.V.)
 - L6: W16 X 45 (+16'-5 1/2")
 - L7: W16 X 26 W/ R 7 X 5/8"



KEY PLAN

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DES MOINES, IOWA 50312
515/242-1477

STATE TRAINING SCHOOL FOR BOYS

ELDORA, IOWA

EDUCATION VOCATION GYM

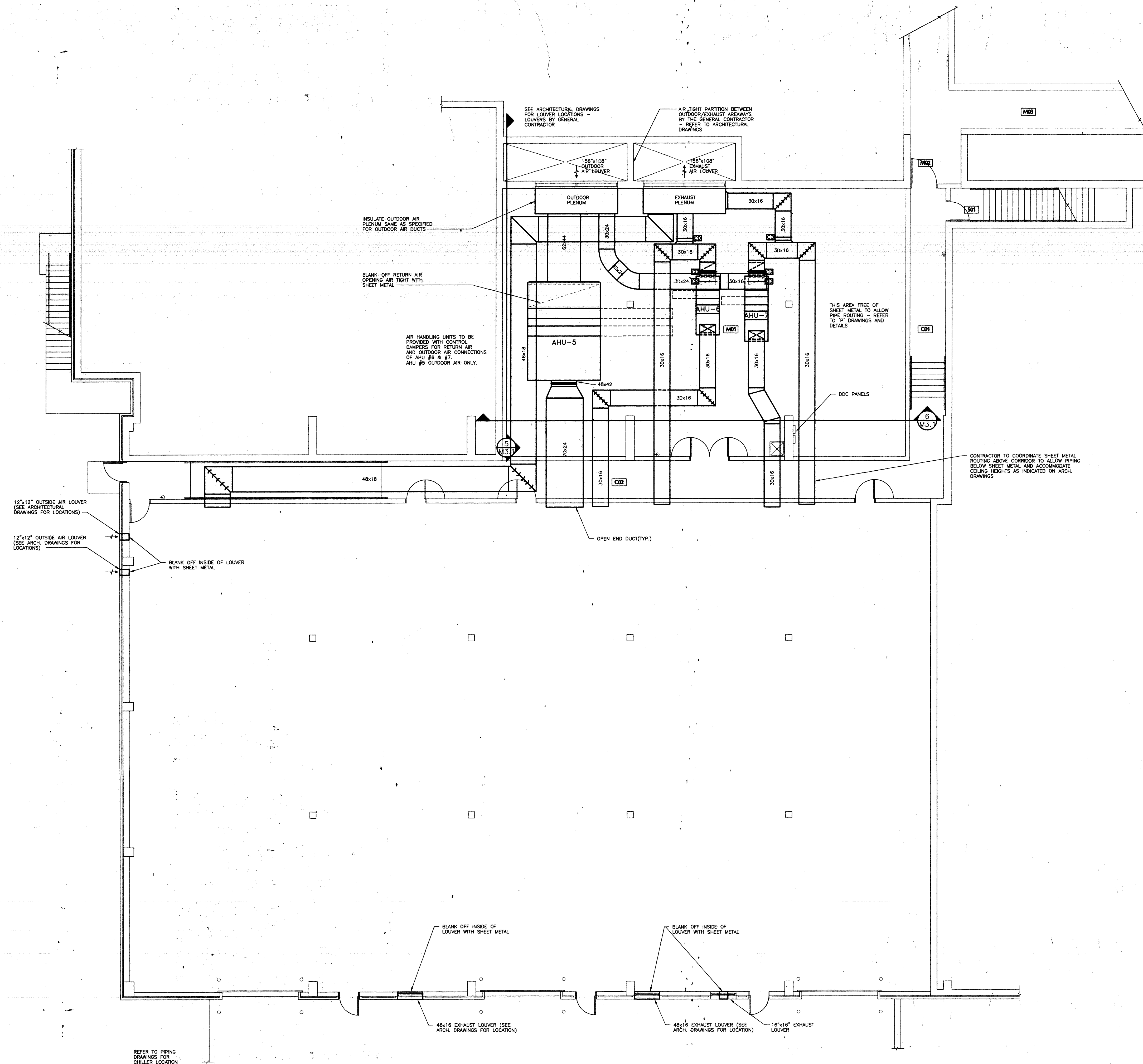
S1.4

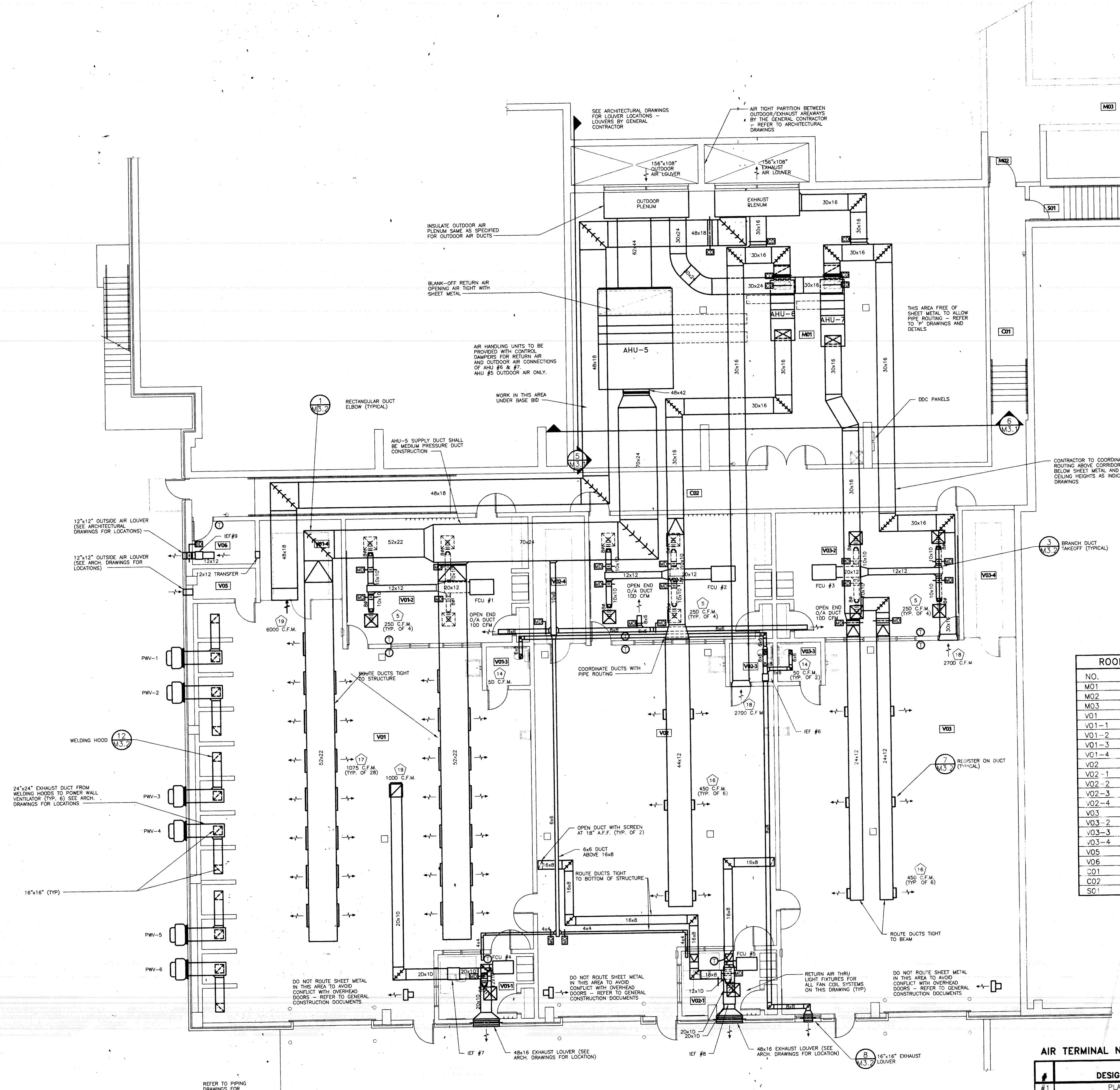
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Project No: 98240.00
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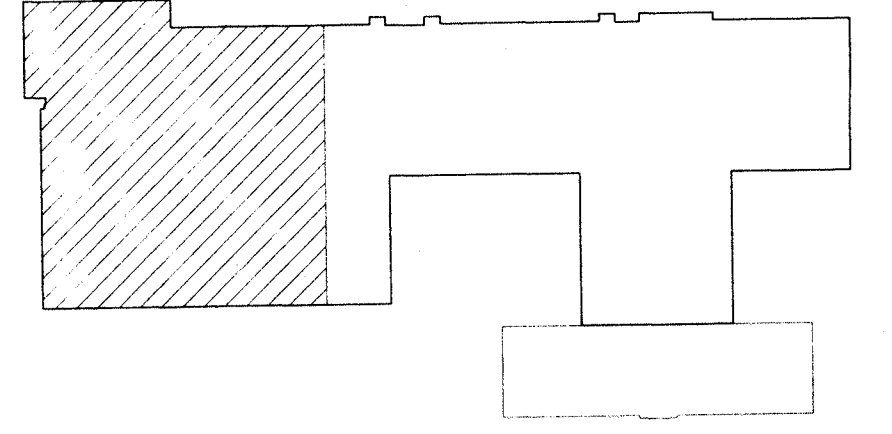
RDG Bussard Dikis
303 Locust Street Des Moines Iowa 50309 515 288 3141

ROOF FRAMING PLAN-GYMNASIUM





ROOM SCHEDULE	
NO.	ROOM NAME
M01	MECH/ELEC
M02	TUNNEL
M03	EXISTING TUNNEL
V01	WELDING
V01-1	OFFICE
V01-2	CLASSROOM
V01-3	TOILET
V01-4	TOOL STORAGE
V02	AIR-COOLED ENGINES
V02-1	OFFICE
V02-2	CLASSROOM
V02-3	TOILET
V02-4	TOOL STORAGE
V03	HABITAT FOR HUMANITY
V03-2	CLASSROOM
V03-3	TOILET
V03-4	TOOL STORAGE
V05	TANK STORAGE
V06	AIR COMP.
C01	CORRIDOR
C02	CORRIDOR
SC1	STAIR



KEY PLAN
NOT TO SCALE

STATE TRAINING
SCHOOL FOR BOYS

ELDORA, IOWA

EDUCATION
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GYM

M2.1A

Date: APRIL 7, 1999
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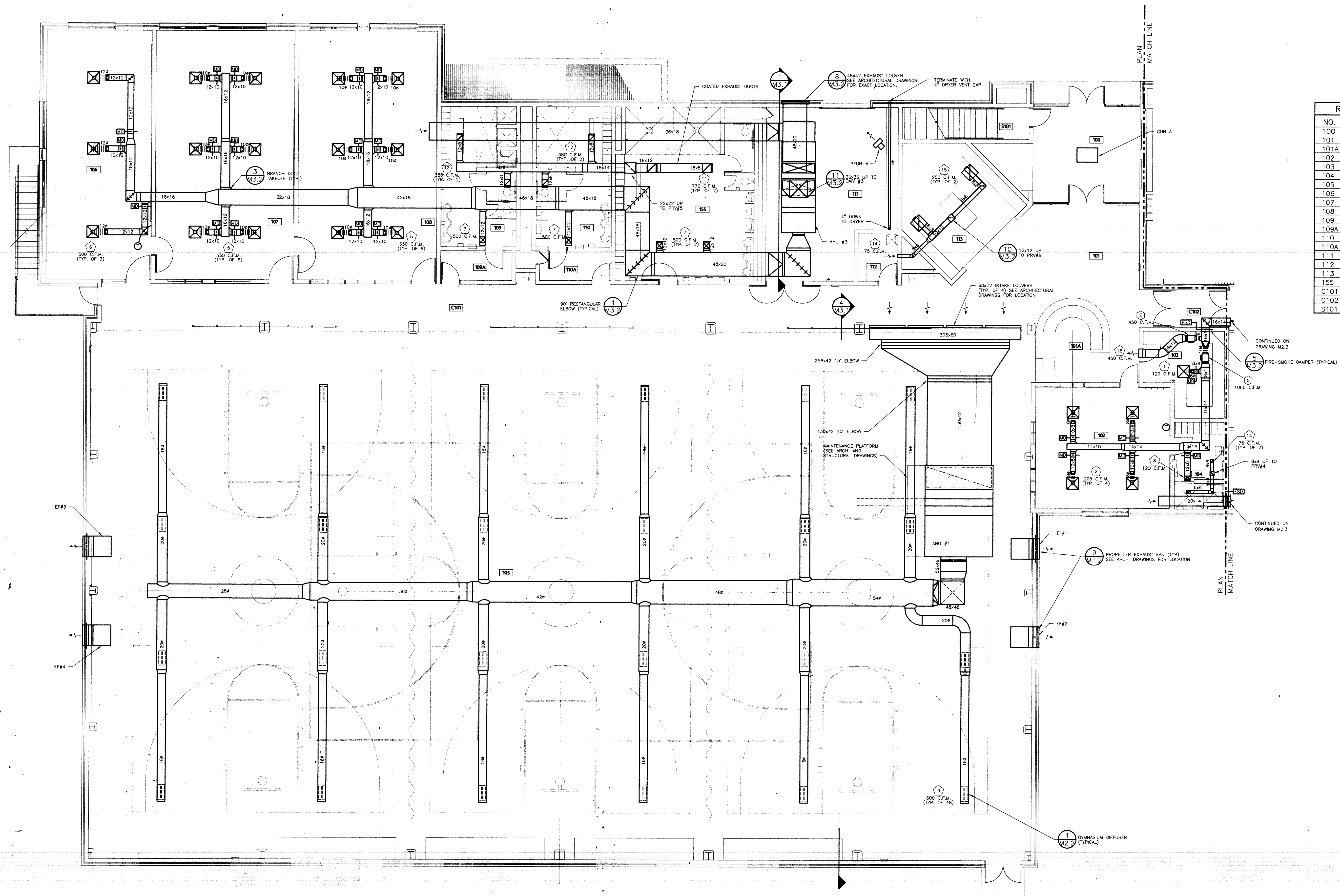
AIR TERMINAL NOTES:						
#	DESIGNATION	SIZE	NECK SIZE	MAX. CFM	T _h (FT)	N.C.
#1	PLAQUE	24"x24"	6"	200	9	21
#2	PLAQUE	24"x24"	6"	200	13	25
#3	PLENUM SLOT DIFFUSER	48"	8"	225	28	22
#4	PLENUM SLOT DIFFUSER	24"	8"	150	42	33
#5	SUPPLY AIR DIFFUSER	24"x24"	10"	330	10	20
#6	SUPPLY AIR DIFFUSER	24"x24"	12"	500	13	25
#7	SUPPLY AIR REGISTER	12"x12"	12"x12"	500	18	20
#8	SUPPLY AIR REGISTER	6"x12"	6"x12"	150	<10	9
#9	GYMNASIUM DIFFUSER	30"x6"	30"x6"	600	44	14
#10	RETURN AIR PANEL	24"x24"	24"x24"	2000	-	30
#11	EXHAUST AIR REGISTER	18"x18"	18"x18"	770	-	24
#12	EXHAUST AIR REGISTER	12"x12"	12"x12"	380	-	24
#13	EXHAUST AIR REGISTER	8"x8"	8"x8"	200	-	27
#14	EXHAUST AIR REGISTER	6"x6"	6"x6"	75	-	14
#15	EXHAUST AIR PANEL	24"x24"	8"x8"	300	-	21
#16	SUPPLY AIR REGISTER	18"x10"	18"x10"	450	17	12
#17	SUPPLY AIR REGISTER	42"x18"	42"x18"	1075	<10	27
#18	RETURN AIR GRILLE	36"x20"	36"x20"	2700	-	35
#19	RETURN AIR GRILLE	48"x24"	48"x24"	6000	-	33

BASEMENT FLOOR PLAN - HVAC
SCALE: 1/8" = 1'-0"

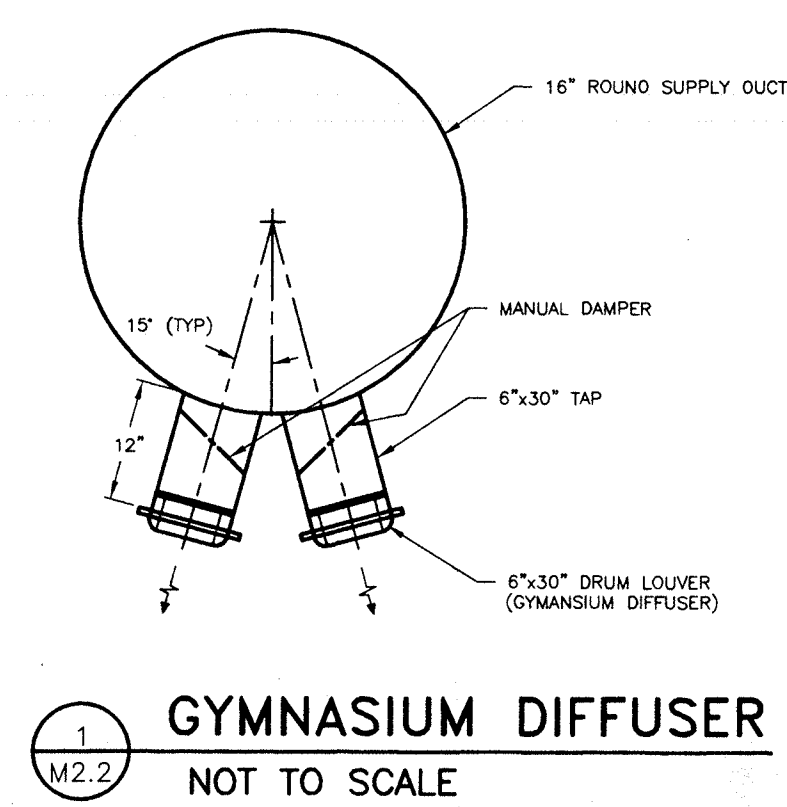
FINAL
CONSTRUCTION
DOCUMENT

Pulley
& Associates, Inc.
Consulting Engineers
1135 Grand Avenue, Suite 102
Near Des Moines, Iowa 50319
Phone: (515) 223-9531 Fax: (515) 223-9570
E-mail: pulley@pulleyengineers.com

RDG
Bussard Dikis
303 Locust Street Des Moines Iowa 50309 515.288.3141 Fax 515.288.8631



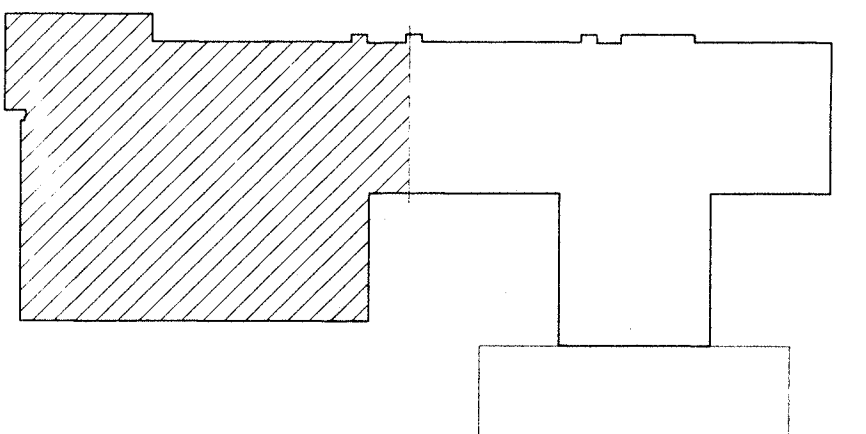
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100	VESTIBULE
101	LOBBY
101A	CONTROL
102	OFFICE
103	STORAGE
104	LOCKER
105	GYMNASIUM
106	EXERCISE
107	FITNESS
108	FITNESS
109	WOMEN'S LOCKER
109A	VESTIBULE
110	MEN'S LOCKER
110A	VESTIBULE
111	STORAGE
112	JANITOR
113	BASKETS
155	MEN'S LOCKER
C101	CORRIDOR
C102	CORRIDOR
S101	STAIR



PARTIAL FIRST FLOOR PLAN - HVAC
SCALE: 1/8" = 1'-0"

AIR TERMINAL NOTES:

#	DESIGNATION	SIZE	NECK SIZE	MAX. CFM	T _{sp} (FT)	N.C.	NOTES
#1	PLAQUE	24"x24"	6"	200	9	21	-
#2	PLAQUE	24"x24"	6"	350	13	25	-
#3	PLENUM SLOT DIFFUSER	48"	8"	225	28	22	(3) 1" SLOTS
#4	PLENUM SLOT DIFFUSER	24"	8"	150	42	33	(2) 1" SLOTS
#5	SUPPLY AIR DIFFUSER	24"x24"	10"	330	10	20	TMSA
#6	SUPPLY AIR DIFFUSER	24"x24"	12"	500	13	25	TMSA
#7	SUPPLY AIR REGISTER	12"x12"	12"x12"	500	18	20	301 RS-SS
#8	SUPPLY AIR REGISTER	6"x12"	6"x12"	250	13	20	301 RS
#9	GYMNASIUM DIFFUSER	30"x6"	30"x6"	600	44	14	-
#10	RETURN AIR PANEL	24"x24"	24"x24"	2000	-	30	-
#11	EXHAUST AIR REGISTER	18"x18"	18"x18"	770	-	24	355 RS-SS
#12	EXHAUST AIR REGISTER	12"x12"	12"x12"	380	-	24	355 RS-SS
#13	EXHAUST AIR REGISTER	8"x8"	8"x8"	200	-	27	355 RS
#14	EXHAUST AIR REGISTER	6"x6"	6"x6"	75	-	14	355 RS
#15	EXHAUST AIR PANEL	24"x24"	24"x24"	300	-	1	PAR
#16	SUPPLY AIR REGISTER	18"x18"	18"x18"	450	17	12	-
#17	SUPPLY AIR REGISTER	42"x18"	42"x18"	1075	<10	27	-
#18	RETURN AIR GRILLE	36"x20"	36"x20"	2700	-	35	-



KEY PLAN
NOT TO SCALE

STATE TRAINING SCHOOL FOR BOYS

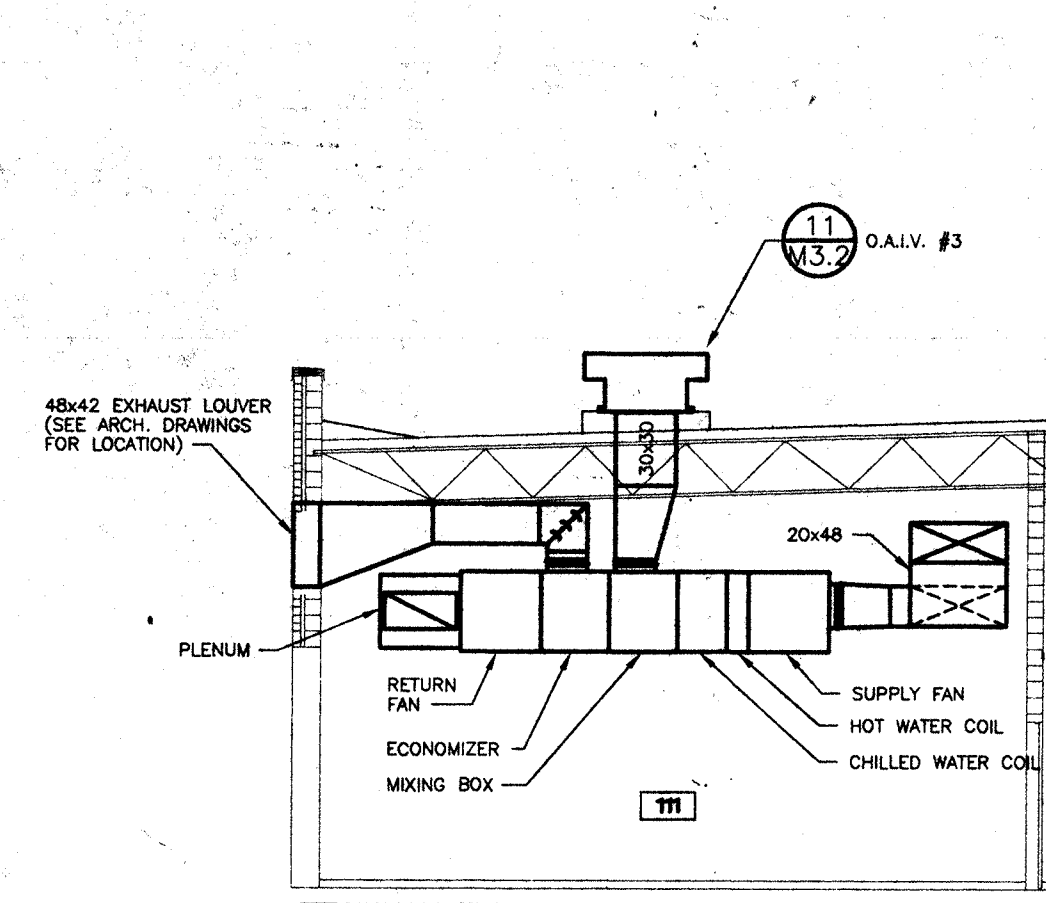
ELDORA, IOWA

EDUCATION
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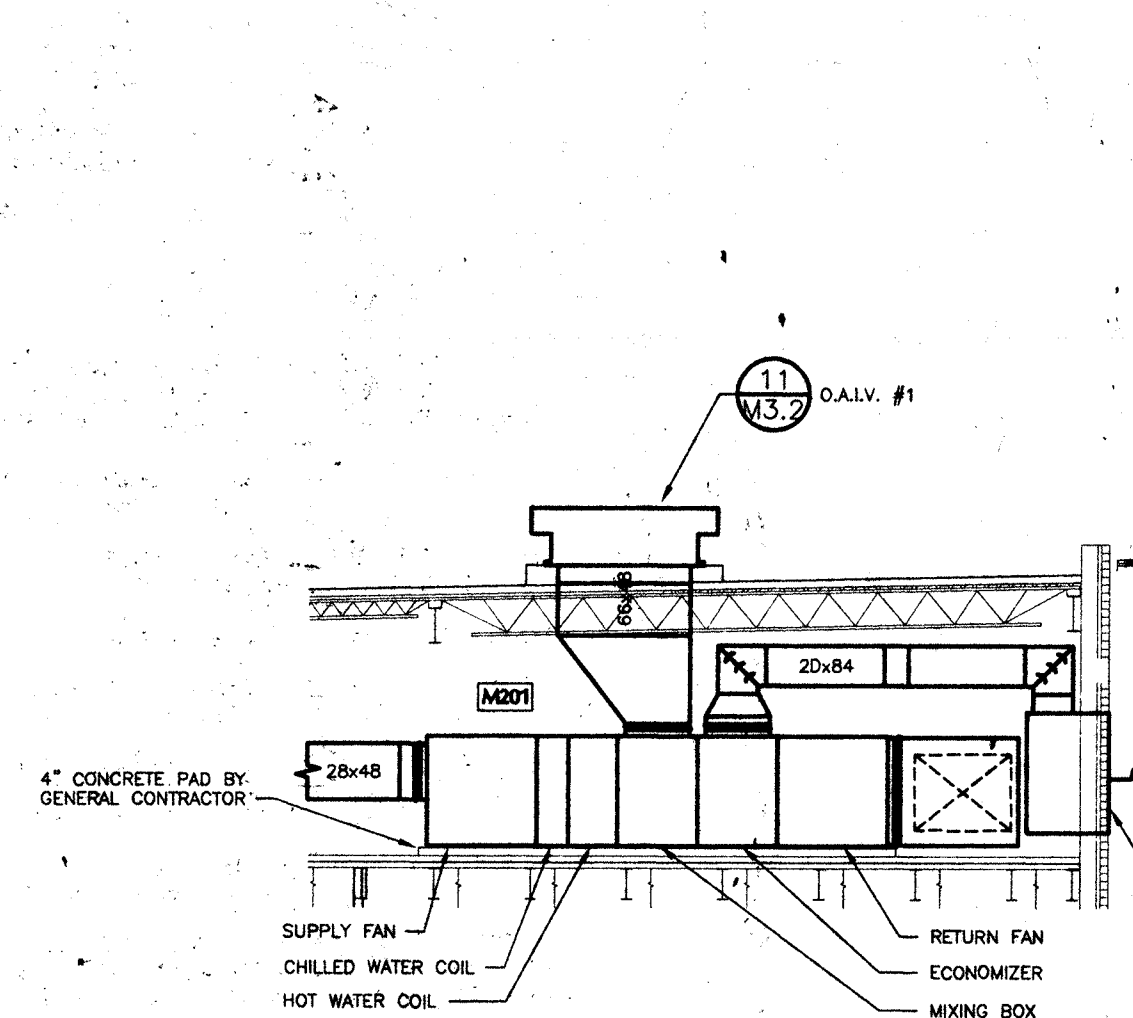
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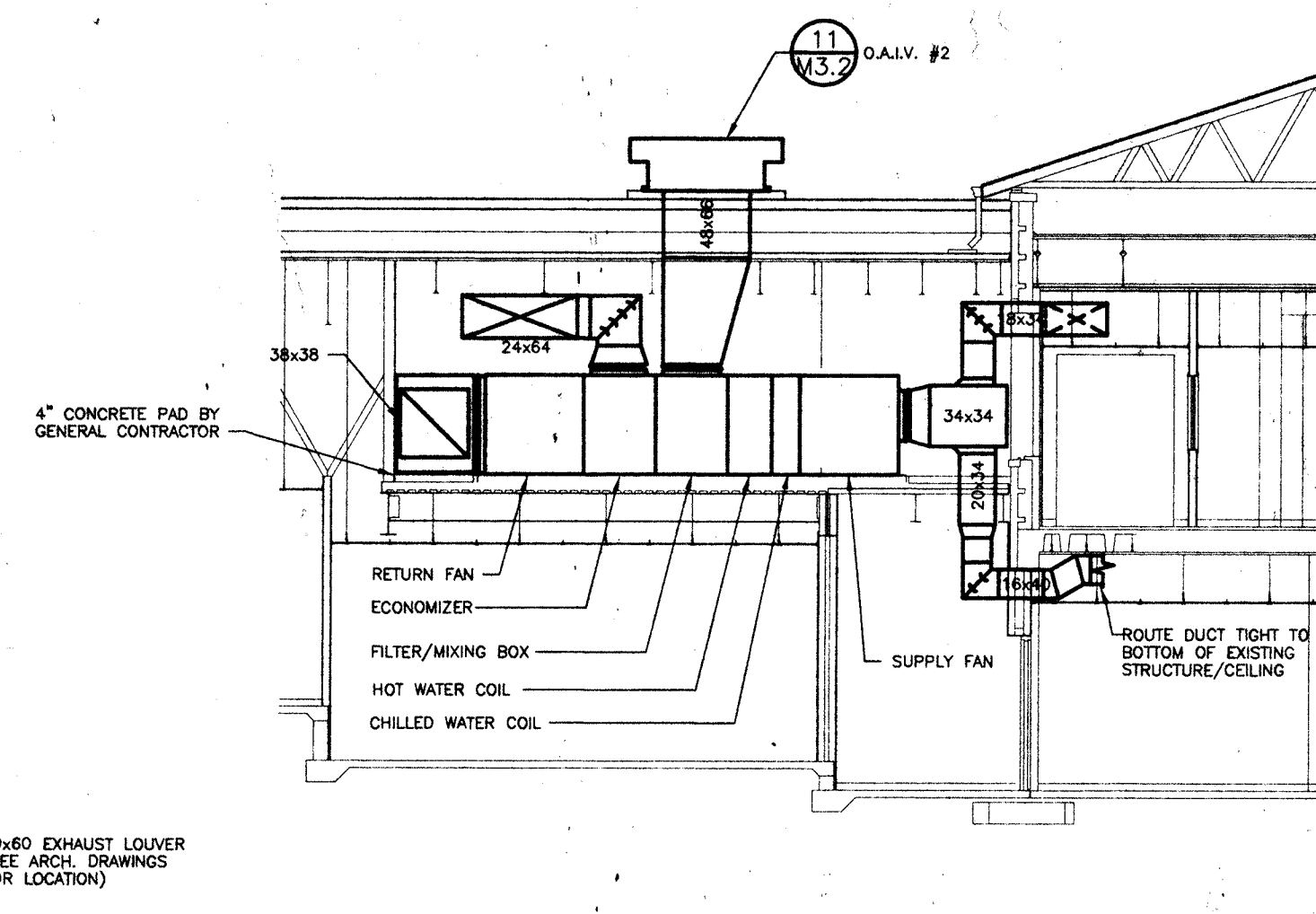
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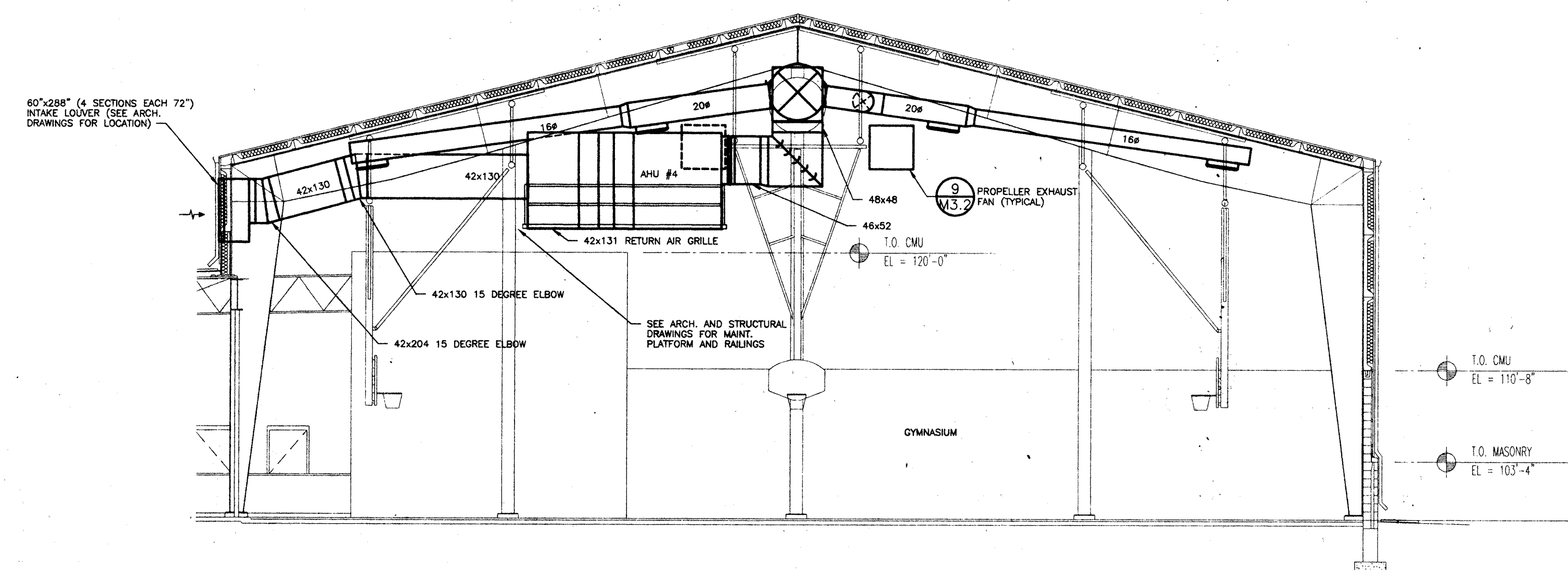
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SCALE: 1/8" = 1'-0"



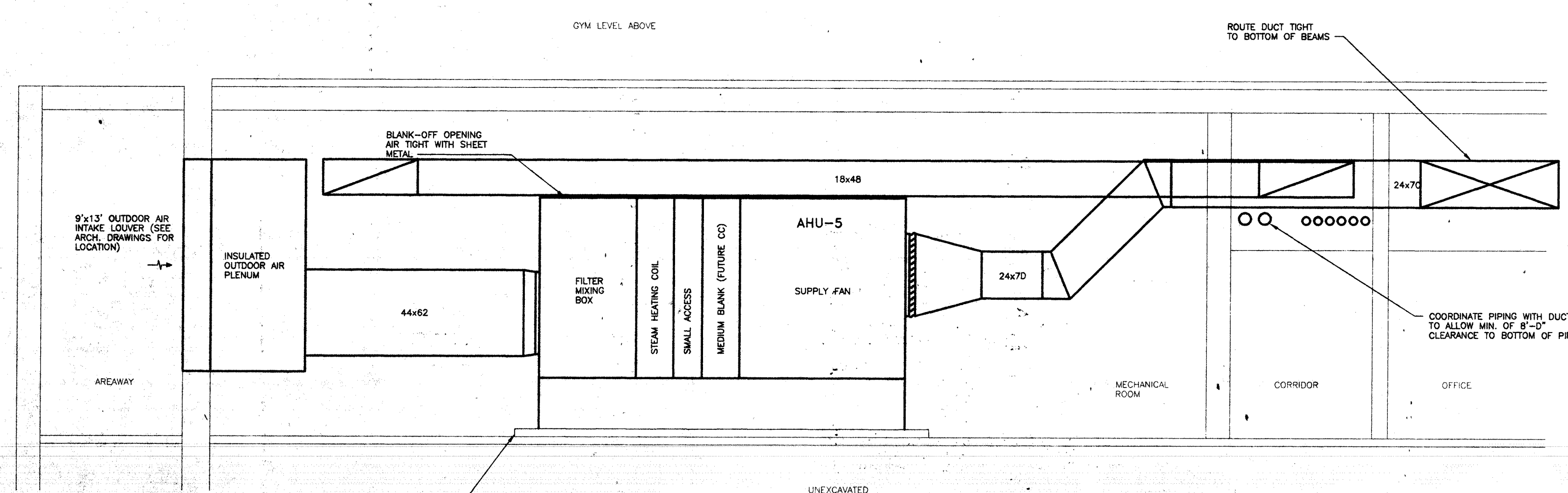
2 MECHANICAL SECTION - AHU #1
SCALE: 1/8" = 1'-0"



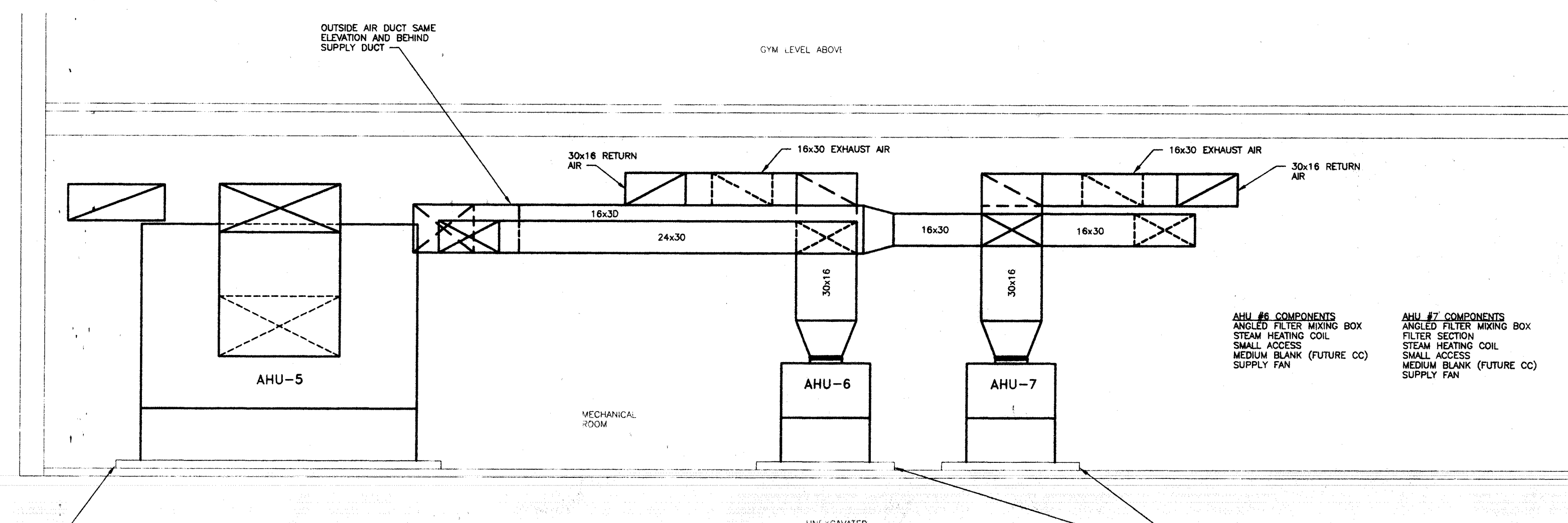
3 MECHANICAL SECTION - AHU #2 (ALTERNATE BID)
SCALE: 1/8" = 1'-0"



4 MECHANICAL SECTION - AHU #4
SCALE: 1/8" = 1'-0"



5 AHU #5 ELEVATION LOOKING EAST
SCALE: 1/4" = 1'-0"



6 AHU ELEVATION LOOKING NORTH
SCALE: 1/4" = 1'-0"

STATE TRAINING
SCHOOL FOR BOYS

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M3.1

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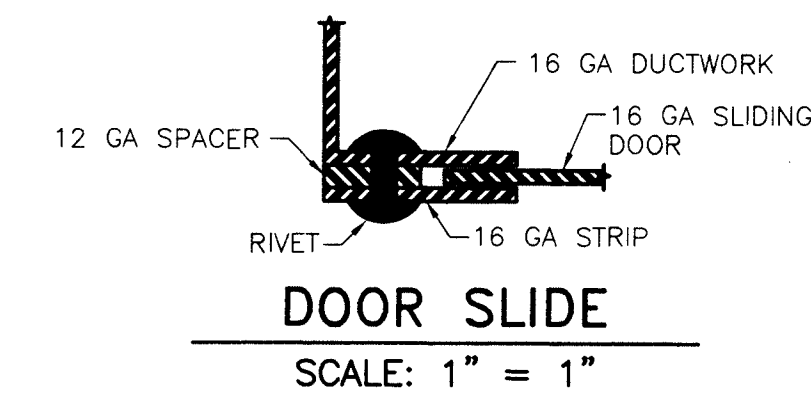
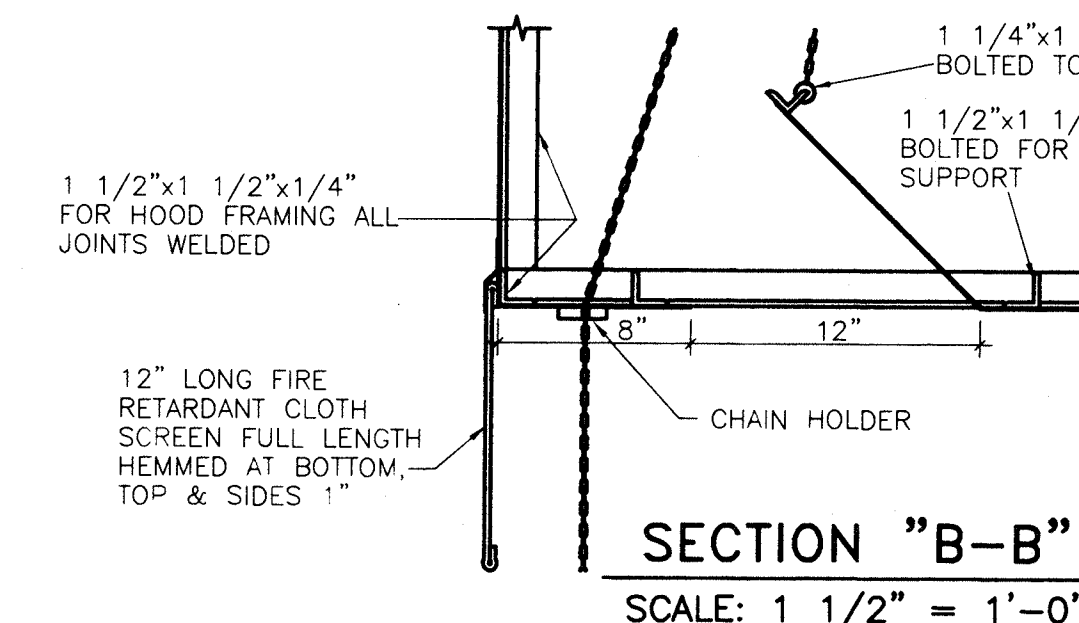
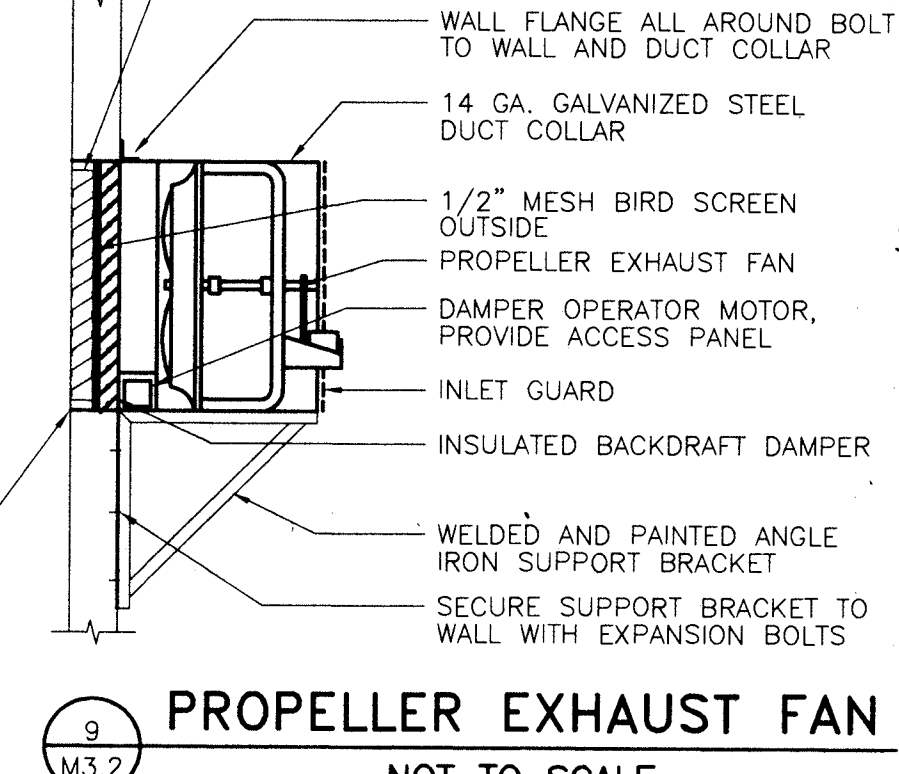
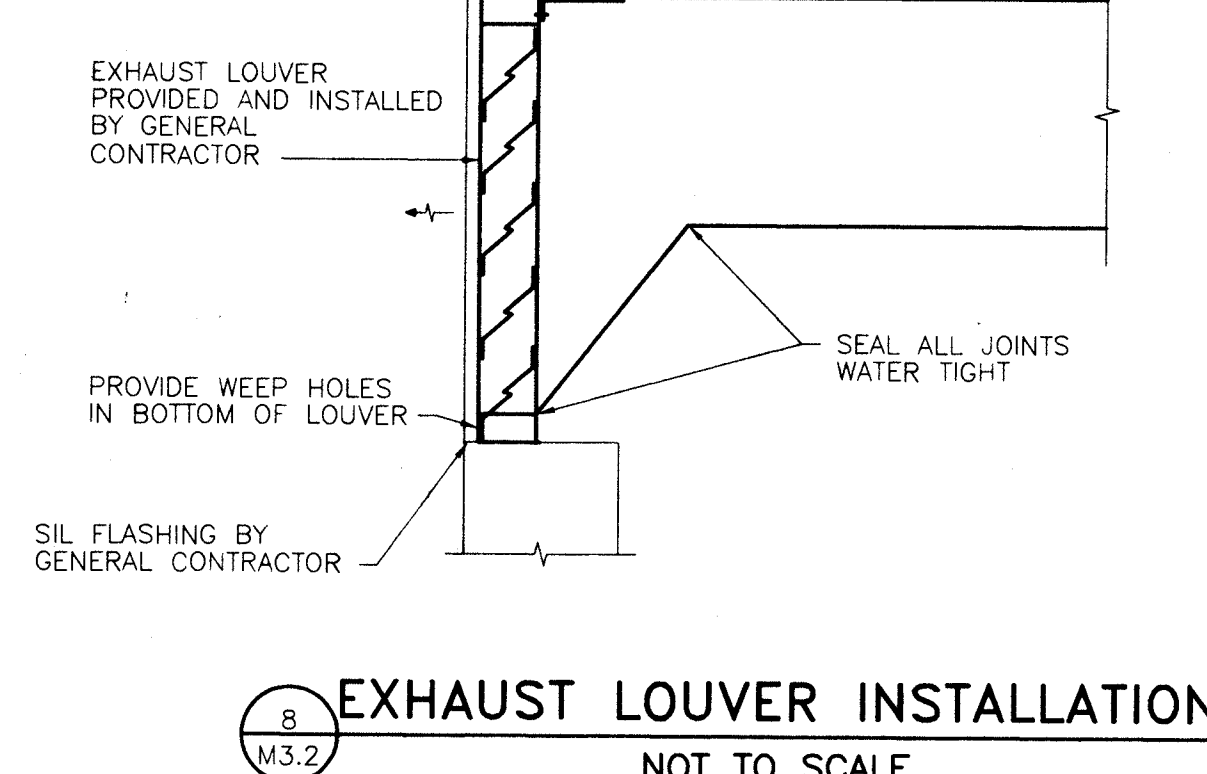
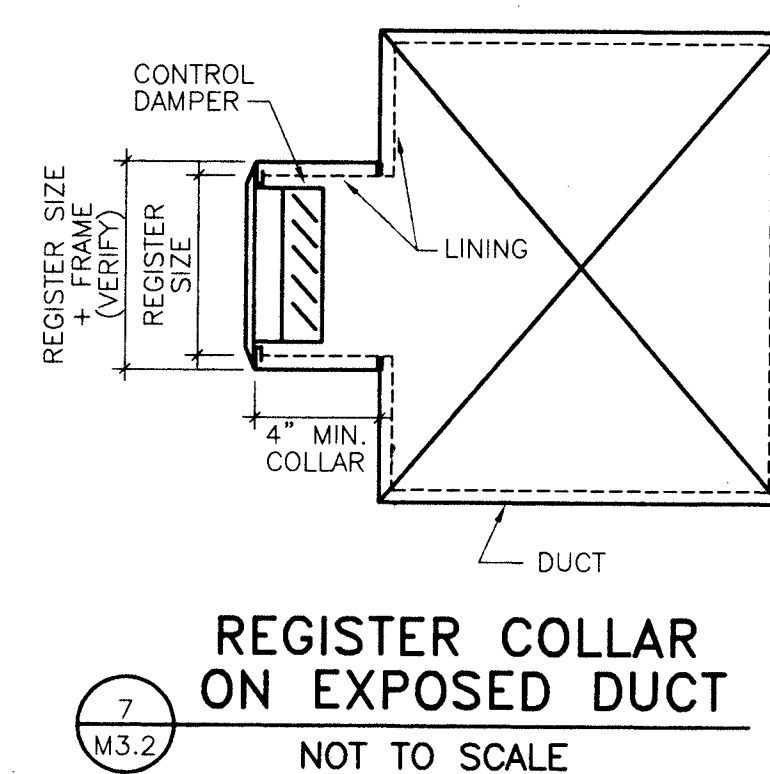
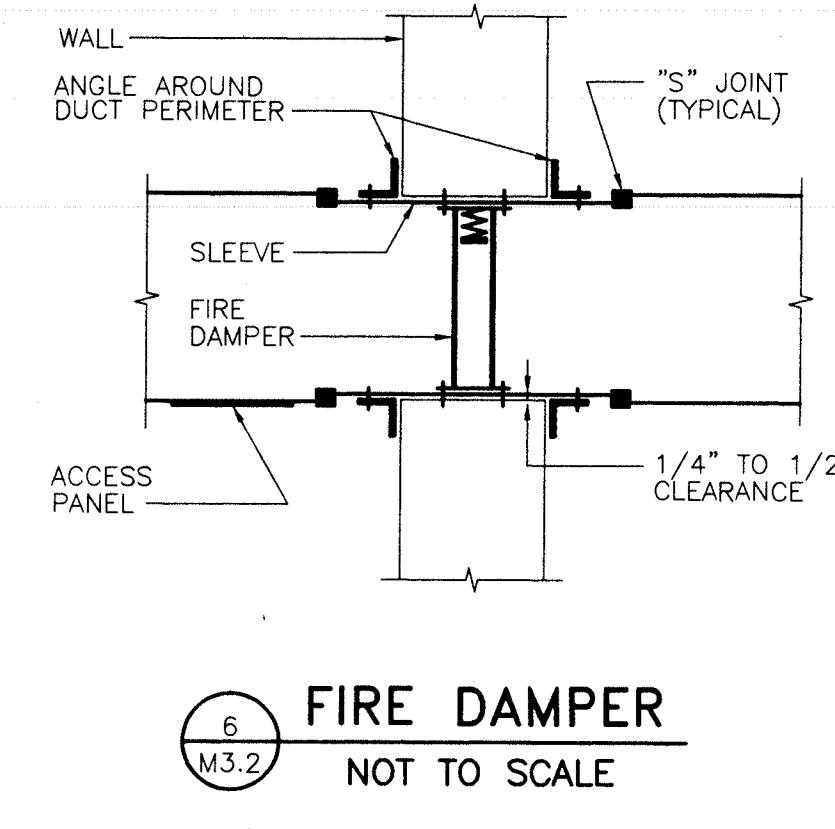
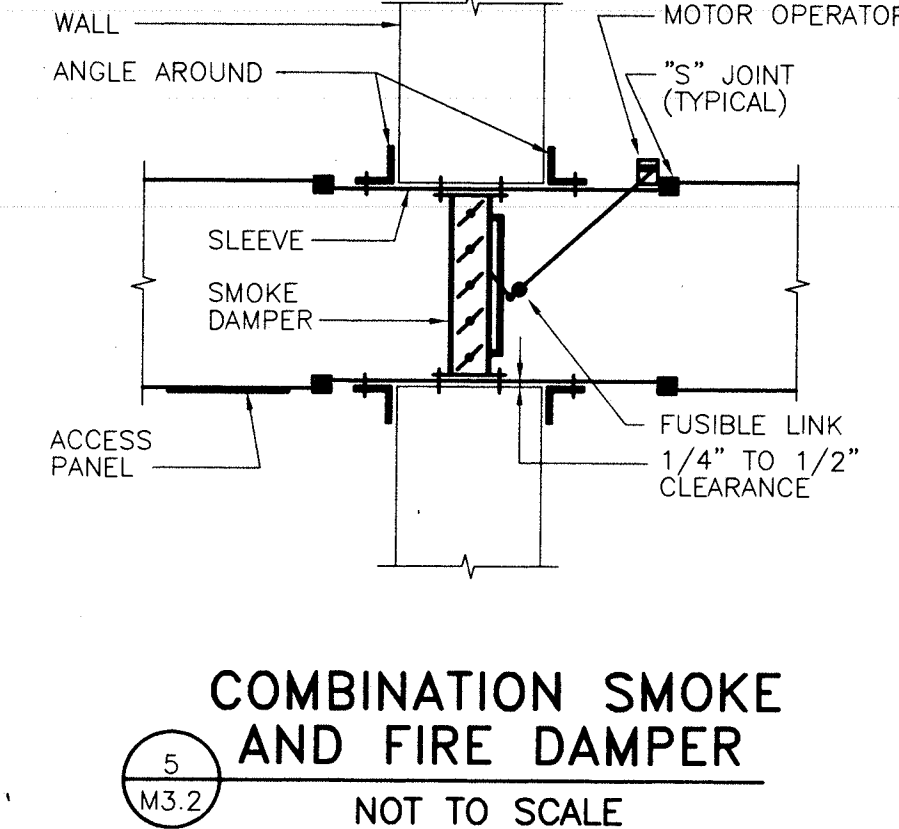
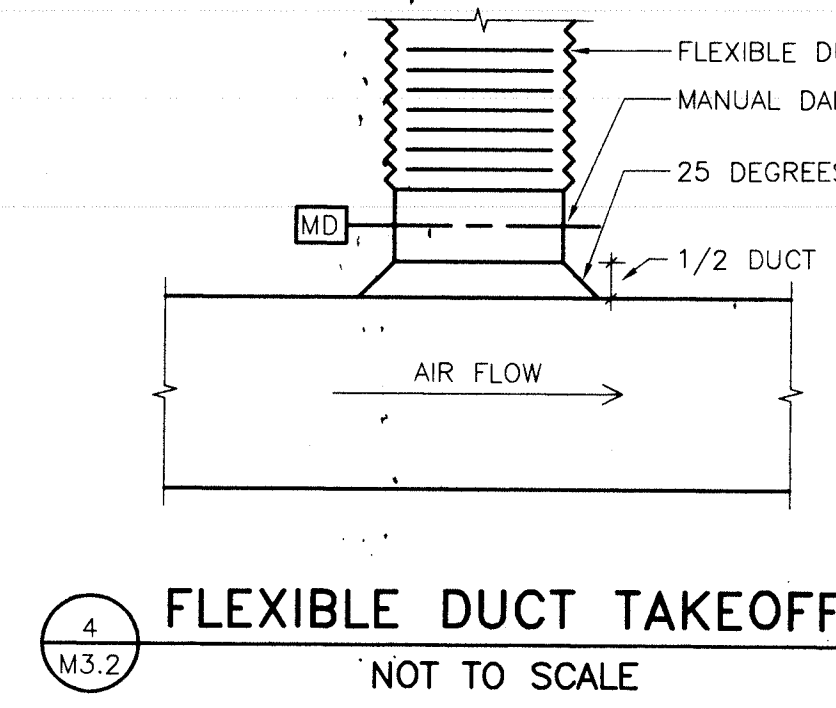
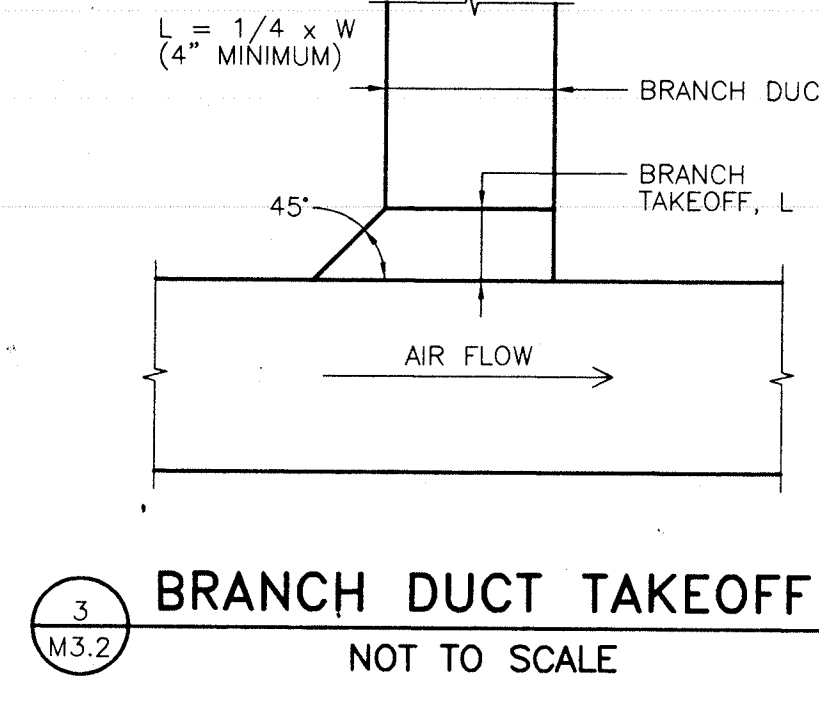
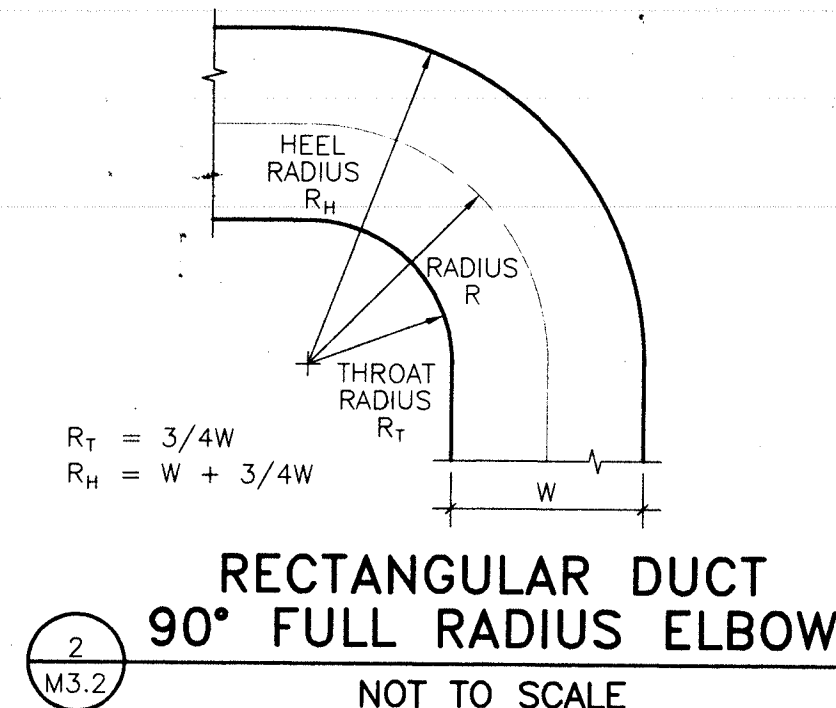
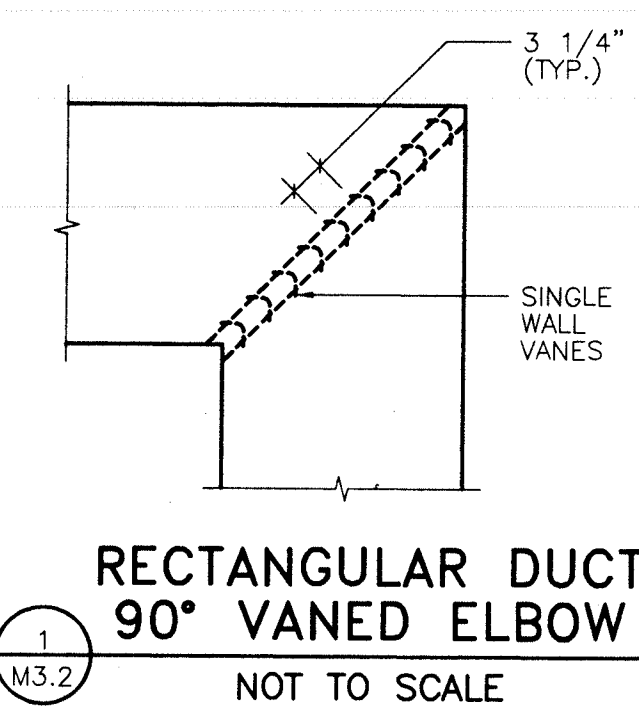
TRANSVERSE JOINT REINFORCEMENT FOR LOW AND MEDIUM PRESSURE DUCTS (PRESSURE -4 TO +4 IN. H ₂ O)									
MINIMUM RIGIDITY CLASS	STANDING SEAM H X T (MIN)	STANDING S H X T (MIN)	STANDING S (BAR OR ANGLE REIN)	STANDING S H X T (MIN)	STANDING S H X T (MIN)	STANDING SEAM H X T (MIN)	CAPPED FLANGE H X T (MIN)	COMPANION ANGLE H X T (NOM)	FLANGED H X T (MIN)
A	1 1/8 x 26GA	1/2 x 26GA	1 1/2 x 24GA 1 1/2 x 1/8 BAR	1 x 26GA	1 1/8 x 26GA	1/2 x 24GA	3/4 x 26GA 1/2 GA	1 x 1/8 ANG	1 x 24GA
B	1 1/8 x 26GA	1/2 x 22GA	1 1/2 x 24GA 1 1/2 x 1/8 BAR	1 x 26GA	1 1/8 x 26GA	3/4 x 24GA	3/4 x 26GA 1/2 GA	1 x 1/8 ANG	1 x 24GA
C	1 1/8 x 22GA	1 x 26GA	1 1/2 x 24GA 1 1/2 x 1/8 BAR	1 x 26GA	1 1/8 x 26GA	1 x 24GA	1 x 24GA 24GA	1 x 1/8 ANG	1 x 24GA
D	---	1 x 24GA	1 1/2 x 24GA 1 1/2 x 1/8 BAR	1 x 24GA	1 1/8 x 26GA	3/4 x 18GA 1/2 GA	1 x 24GA 24GA	1 x 1/8 ANG	1 x 22GA
E	---	---	1 1/2 x 24GA 1 1/2 x 1/8 BAR	1 1/8 x 26GA W=3/16	1 1/8 x 18GA	1 x 18GA	1 1/2 x 24GA 24GA	1 x 1/8 ANG	1 x 18GA
F	---	---	1 1/2 x 24GA 1 1/2 x 1/8 BAR	1 1/8 x 26GA W=3/16	1 1/2 x 24GA	1 1/2 x 20GA	1 1/2 x 20GA 20GA	1 1/4 x 1/8 ANG	1 1/2 x 22GA
G	---	---	1 1/2 x 24GA 1 1/2 x 1/8 BAR	1 1/8 x 18GA W=3/16	1 1/2 x 18GA	1 1/2 x 18GA	2 x 18GA 20GA	1 1/4 x 1/8 ANG	1 1/2 x 18GA
H	---	---	1 1/2 x 24GA 1 1/2 x 1/8 BAR	---	---	---	---	1 1/2 x 3/16 ANG	2 x 18GA
I	---	---	2 x 2 x 1/8 ANG	---	---	---	---	1 1/2 x 1/4 ANG	2 x 18GA

LOW PRESSURE DUCTWORK VAV BOX TO DIFFUSER	
RECTANGULAR DUCT CONSTRUCTION	
DUCT SIZE	REINFORCEMENT CLASS AND MAXIMUM SPACING FOR GIVEN METAL THICKNESS
2" WG STATIC +OR-	26 GA 24 GA 22 GA 20 GA 18 GA 16 GA
<10"	A-5 A-5 A-5 A-5 A-5 A-5
12"	A-5 A-5 A-5 A-5 A-5 A-5
18"	A-5 A-5 A-5 A-5 A-5 A-5
20"	A-5 A-5 A-5 A-5 A-5 A-5
22"	A-5 A-5 A-5 A-5 A-5 A-5
24"	B-5 B-5 B-5 B-5 B-5 B-5
26"	B-5 B-5 B-5 B-5 B-5 B-5
28"	B-5 B-5 B-5 B-5 B-5 B-5
30"	C-4 C-4 C-4 C-4 C-4 C-4
36"	C-4 C-4 C-4 C-4 C-4 C-4
42"	C-4 C-4 C-4 C-4 C-4 C-4
48"	C-4 C-4 C-4 C-4 C-4 C-4
54"	C-4 C-4 C-4 C-4 C-4 C-4
60"	C-4 C-4 C-4 C-4 C-4 C-4
66"	C-4 C-4 C-4 C-4 C-4 C-4
72"	C-4 C-4 C-4 C-4 C-4 C-4
84"	C-4 C-4 C-4 C-4 C-4 C-4
96"	C-4 C-4 C-4 C-4 C-4 C-4
98"	C-4 C-4 C-4 C-4 C-4 C-4

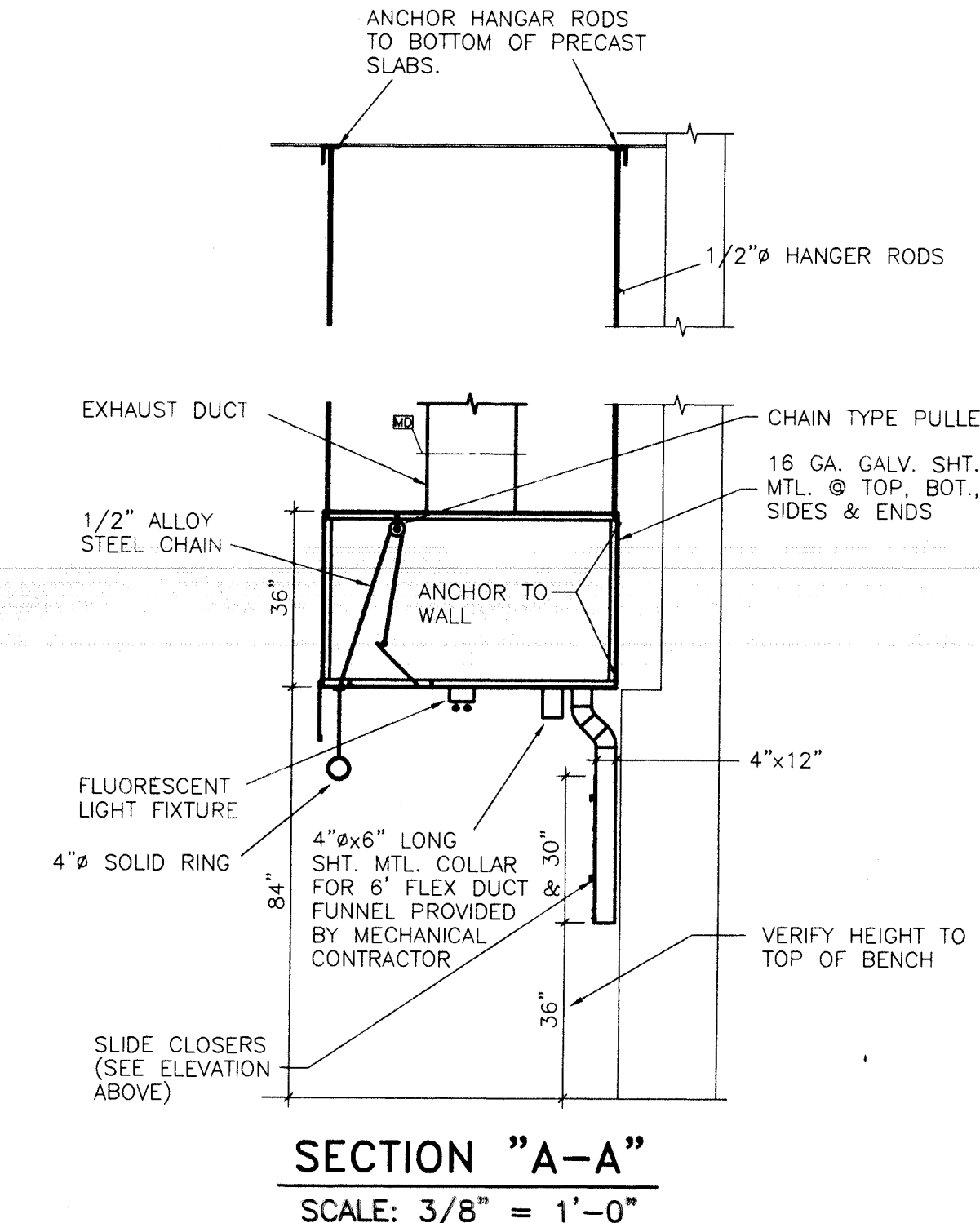
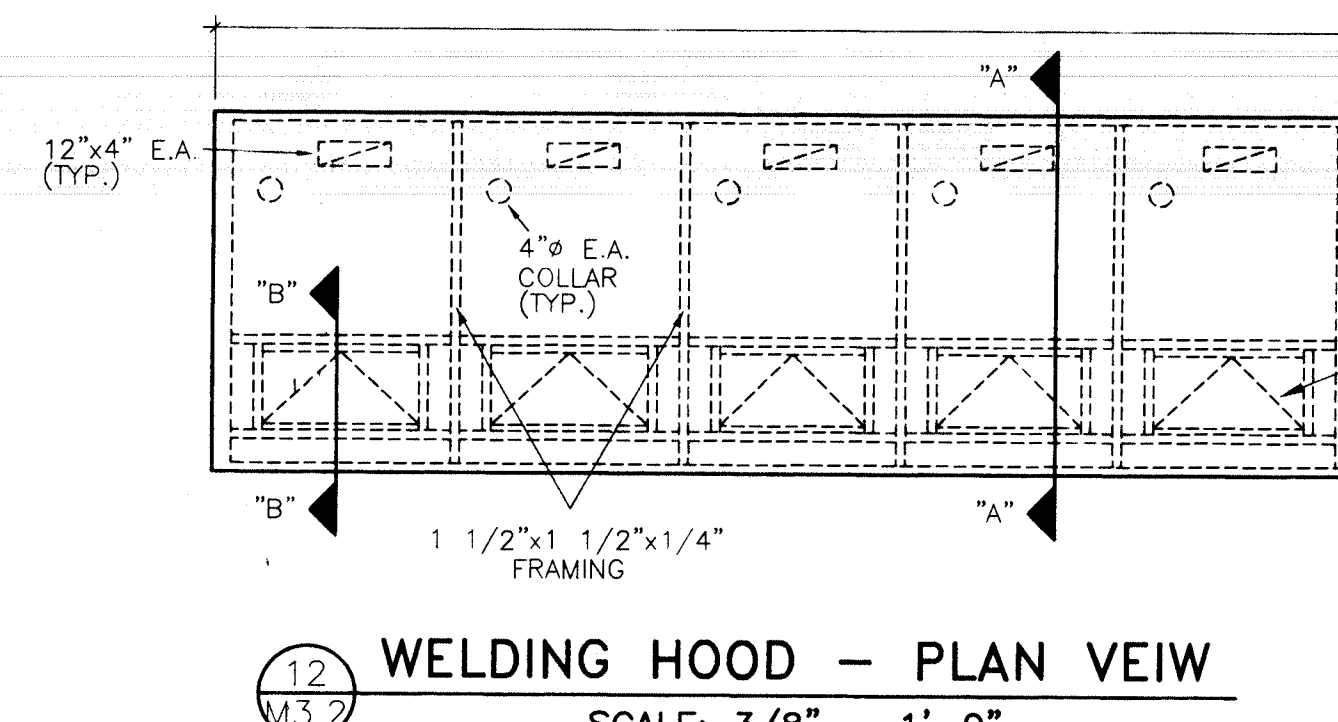
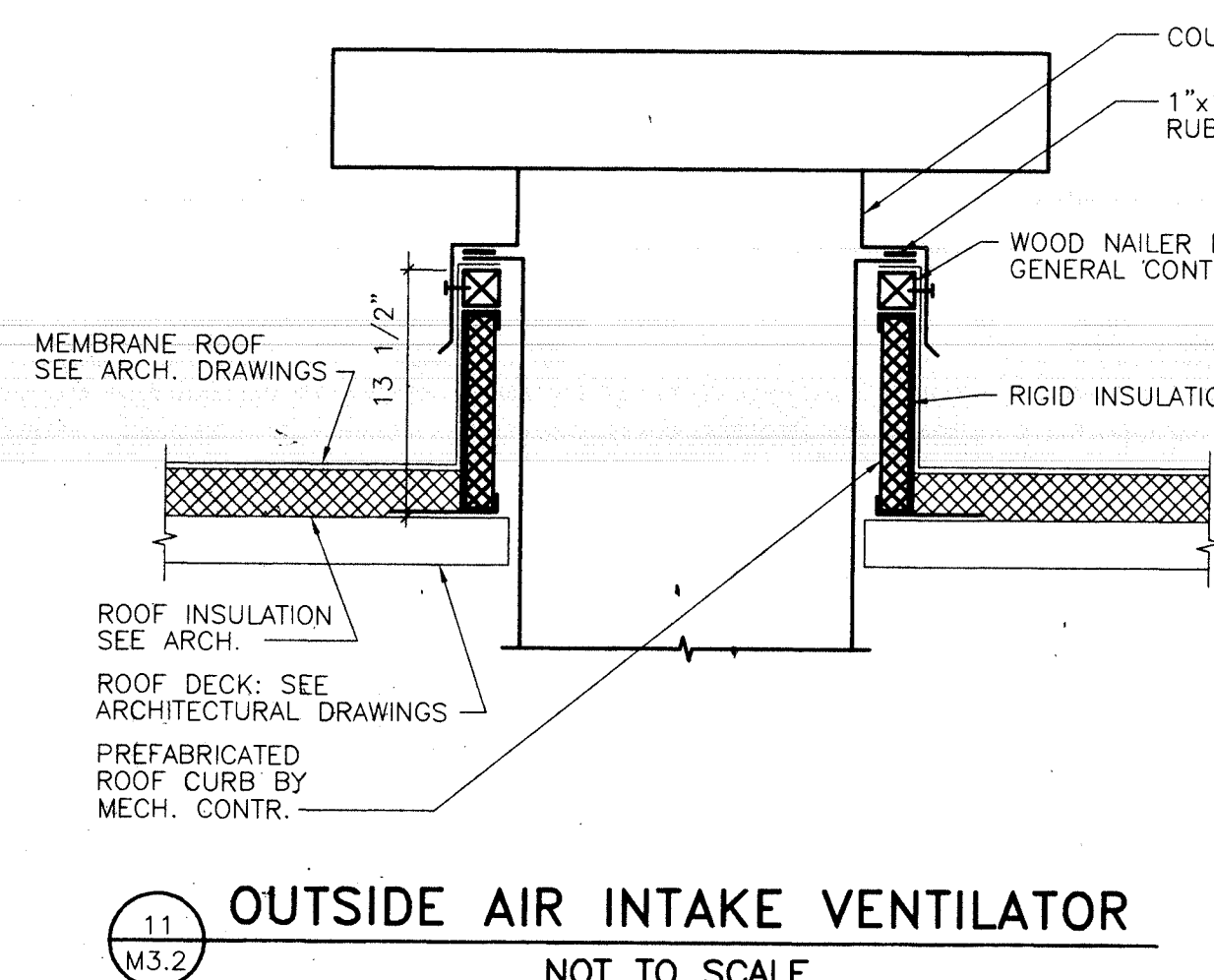
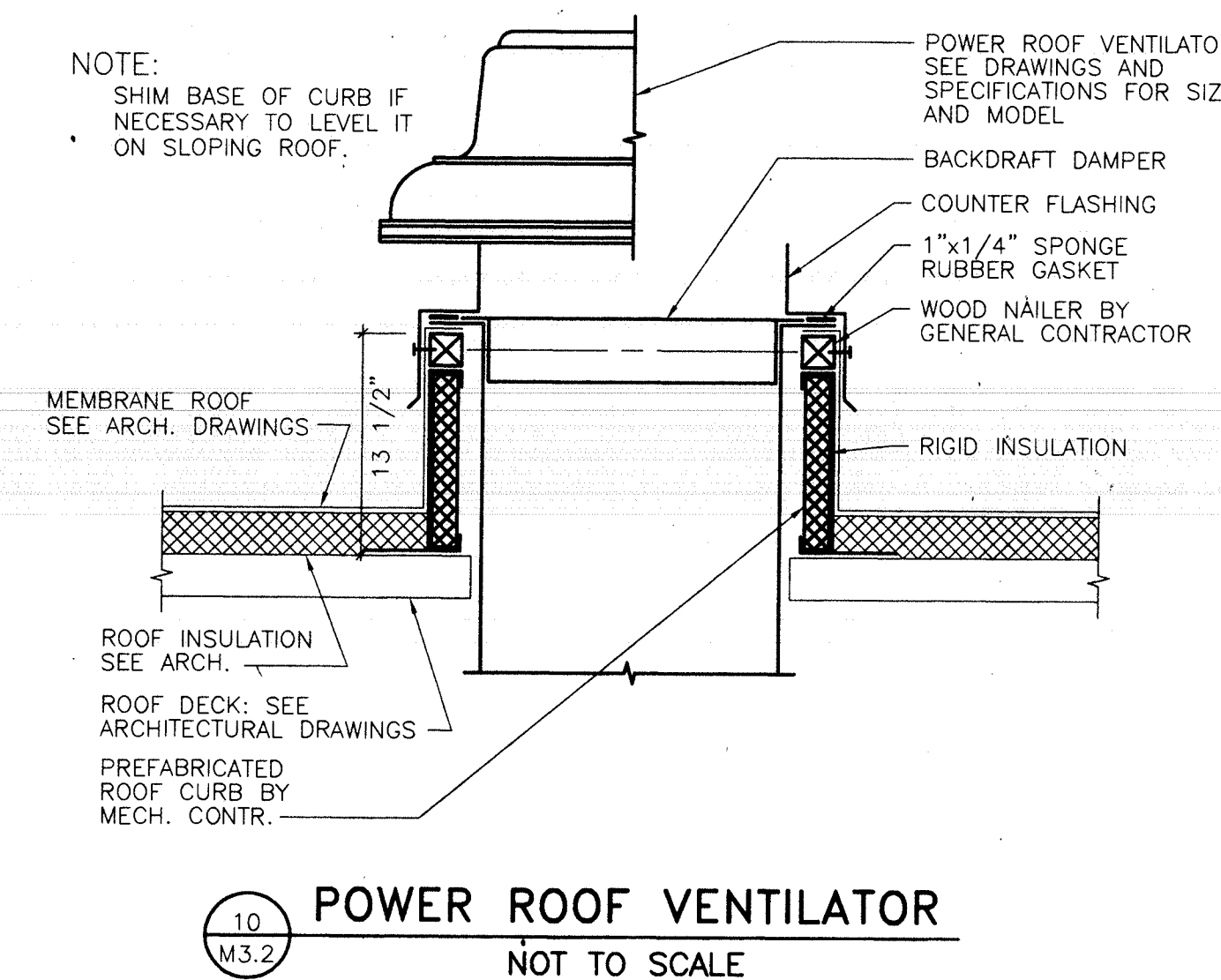
MEDIUM PRESSURE DUCTWORK FAN DISCHARGE TO VAV BOX	
RECTANGULAR DUCT CONSTRUCTION	
DUCT SIZE	REINFORCEMENT CLASS AND MAXIMUM SPACING FOR GIVEN METAL THICKNESS
4" WG STATIC +OR-	26 GA 24 GA 22 GA 20 GA 18 GA 16 GA
<10"	A-5 A-5 A-5 A-5 A-5 A-5
12"	A-5 A-5 A-5 A-5 A-5 A-5
18"	A-5 A-5 A-5 A-5 A-5 A-5
20"	A-5 A-5 A-5 A-5 A-5 A-5
22"	A-5 A-5 A-5 A-5 A-5 A-5
24"	B-5 B-5 B-5 B-5 B-5 B-5
26"	B-5 B-5 B-5 B-5 B-5 B-5
28"	B-5 B-5 B-5 B-5 B-5 B-5
30"	C-4 C-4 C-4 C-4 C-4 C-4
36"	C-4 C-4 C-4 C-4 C-4 C-4
42"	C-4 C-4 C-4 C-4 C-4 C-4
48"	C-4 C-4 C-4 C-4 C-4 C-4
54"	C-4 C-4 C-4 C-4 C-4 C-4
60"	C-4 C-4 C-4 C-4 C-4 C-4
66"	C-4 C-4 C-4 C-4 C-4 C-4
72"	C-4 C-4 C-4 C-4 C-4 C-4
84"	C-4 C-4 C-4 C-4 C-4 C-4
96"	C-4 C-4 C-4 C-4 C-4 C-4
98"	C-4 C-4 C-4 C-4 C-4 C-4

ROUND DUCT CONSTRUCTION	
DUCT SIZE	REINFORCEMENT CLASS AND MAXIMUM SPACING FOR GIVEN METAL THICKNESS
4" WG STATIC +OR-	26 GA 24 GA 22 GA 20 GA 18 GA 16 GA
<10"	A-5 A-5 A-5 A-5 A-5 A-5
12"	A-5 A-5 A-5 A-5 A-5 A-5
18"	A-5 A-5 A-5 A-5 A-5 A-5
20"	A-5 A-5 A-5 A-5 A-5 A-5
22"	A-5 A-5 A-5 A-5 A-5 A-5
24"	B-5 B-5 B-5 B-5 B-5 B-5
26"	B-5 B-5 B-5 B-5 B-5 B-5
28"	B-5 B-5 B-5 B-5 B-5 B-5
30"	C-4 C-4 C-4 C-4 C-4 C-4
36"	C-4 C-4 C-4 C-4 C-4 C-4
42"	C-4 C-4 C-4 C-4 C-4 C-4
48"	C-4 C-4 C-4 C-4 C-4 C-4
54"	C-4 C-4 C-4 C-4 C-4 C-4
60"	C-4 C-4 C-4 C-4 C-4 C-4
66"	C-4 C-4 C-4 C-4 C-4 C-4
72"	C-4 C-4 C-4 C-4 C-4 C-4
84"	C-4 C-4 C-4 C-4 C-4 C-4
96"	C-4 C-4 C-4 C-4 C-4 C-4
98"	C-4 C-4 C-4 C-4 C-4 C-4

DUCT CONSTRUCTION TABLES:
1) FOR A GIVEN DUCT MAXIMUM SIDE DIMENSION AND METAL THICKNESS, THE LETTERS INDICATE THE TYPE (RIGIDITY CLASS) OF REINFORCEMENT AND THE NUMBER INDICATES THE MAXIMUM SPACING IN FEET BETWEEN REINFORCEMENTS.
2) BLANK SPACES INDICATE NO REINFORCEMENT REQUIRED. DASHED SPACES INDICATE DUCT NOT ALLOWED.
3) BEAD OR CROSSBREAK ALL PANELS 19" OR WIDER.
4) * INDICATES TIE RODS REQUIRED.



GENERAL NOTE:
ALL ITEMS SHOWN ARE TO BE SUPPLIED AND INSTALLED BY THE MECHANICAL CONTRACTOR, UNLESS OTHERWISE NOTED.



AIR HANDLING UNIT SCHEDULE (A.H.U.)

SPECIFICATION BASED ON TRANE

REFERENCE	#1	#2	#3	#4	#5	#6	#7
MFR. MODEL #	MCC SIZE 30	MCC SIZE 30	MCC SIZE 14	MCC SIZE 66	MCC SIZE 66	MCC SIZE 06	MCC SIZE 06
LOCATION	NEW SCHOOL	OLD SCHOOL	LOCKER ROOM	GYM	WELDING	SMALL ENGINES	WOODWORKING
FAN TYPE	FC	FC	FC	FC	FC	FC	FC
AIR VOLUME (C.F.M.)	15100	15100	6550	30000	30000	2700	2700
EXT. S.P. ("W.C.")	3.5	3	1.5	0.75	1.5	1.25	1.25
TOT. S.P. ("W.C.")	4.94	4.1	2.68	1.39	2.2	2.6	2.6
FAN OUTLET (FT²)	5.2	5.2	3.4	16.5	16.5	1.4	1.4
B.H.P.	19.5	19.5	4.9	12	19.8	2.1	2.1
MOTOR H.P.	20	20	7.5	15	20	3	3
ELECTRICAL	208V/3ø	208V/3ø	208V/3ø	208V/3ø	208V/3ø	208V/3ø	208V/3ø
NOTES	—	ALT. BID	—	—	—	—	—
TYPE	HOT WATER	HOT WATER	HOT WATER	HOT WATER	STEAM	STEAM	STEAM
FACE AREA (FT²)	12.1	12.1	12.1	63.0	63.0	—	—
E.D.B./E.W.B.	25°F/65°F	25°F/65°F	51°F/91°F	40.9°F/77.8°F	51°F/90°F	25°F/60°F	25°F/60°F
E.W.T./L.W.T./E.S.P.	180°F/160°F	180°F/160°F	180°F/160°F	180°F/160°F	3 PSI	3 PSI	3 PSI
FLOW RATE	33 GPM	33 GPM	28.4 GPM	119.3 GPM	3186 LB/HR	196 LB/HR	196 LB/HR
P.D.	1.9" HD	1.9" HD	1.9" HD	9.5" HD	1.8 PSI	0.7 PSI	0.7 PSI
AIR P.D. ("W.C.")	0.16	0.16	0.12	0.07	0.16	0.22	0.22
FACE AREA (FT²)	29.0	29.0	14.2	—	—	—	—
E.D.B./E.W.B.	75°F/63°F	75°F/63°F	80°F/66°F	—	—	—	—
L.D.B./L.W.B.	51.9°F/51.7°F	52°F/52°F	49°F/49°F	—	—	—	—
E.W.T./L.W.T.	45°F/55°F	45°F/55°F	45°F/55°F	—	—	—	—
FLOW RATE (G.P.M.)	94.2	94.2	63.6	—	—	—	—
WATER P.D. ("HD.")	11.6	11.6	27.1	—	—	—	—
AIR P.D. ("W.C.")	.076	.076	0.94	—	—	—	—
DEPTH	2"	2"	2"	2"	2"	2"	2"
FILTER TYPE	PLEATED	PLEATED	PLEATED	PLEATED	PLEATED	PLEATED	PLEATED
MEDIA TYPE	THROWAWAY	THROWAWAY	THROWAWAY	THROWAWAY	THROWAWAY	THROWAWAY	THROWAWAY
FACE AREA (FT²)	47.2	47.2	26.7	108.3	108.3	11.1	11.1
EFFICIENCY (%)	30	30	30	30	30	30	30
MFR. MODEL #	308	308	148	—	—	—	—
LOCATION	MECH. RM.	MECH. RM.	LOCKER ROOM	—	—	—	—
FAN TYPE	FC	FC	FC	—	—	—	—
AIR VOLUME (C.F.M.)	13590	13590	6550	—	—	—	—
EXT. S.P. ("W.C.")	.5	.5	0.5	—	—	—	—
TOT. S.P. ("W.C.")	.91	.91	0.7	—	—	—	—
FAN OUTLET (FT²)	5.2	5.2	3.4	—	—	—	—
B.H.P.	5.9	5.9	2.7	—	—	—	—
MOTOR H.P.	7.5	7.5	3	—	—	—	—
ELECTRICAL	208V/3ø	208V/3ø	208V/3ø	—	—	—	—

PUMP SCHEDULE

SPECIFICATION BASED ON BELL AND GOSSET

REFERENCE	CWCP#1	CWCP#2	HWCP#1	HWCP#2	DHWCP#1
MFR. SERIES #	1510	1510	1510	1510	PL-36
SIZE	38B	38B	2-1/2AB	2-1/2AB	1-1/4"
LOCATION	MECH. RM.	MECH. RM.	MECH. RM.	MECH. RM.	MECH. RM.
TYPE	BASE MT.	BASE MT.	BASE MT.	BASE MT.	BASE MT.
R.P.M.	1750	1750	1750	1750	1750
DELIVERY (G.P.M.)	288	288	150	150	12
HEAD (')	72	72	40	40	20
EFFICIENCY (%)	70.6	70.6	73.0	73.0	—
B.H.P.	10.6	10.6	2.6	2.6	—
MOTOR H.P.	15	15	3.0	3.0	1/6
ELECTRICAL	208V/3ø	208V/3ø	208V/3ø	208V/3ø	120V/1ø

VARIABLE AIR VOLUME UNIT SCHEDULE (V.A.V.)

SPECIFICATION BASED ON TRANE

REFERENCE	A	B	C	D	E	F	G	H	I	J	K
BOX SIZE	04	05	06	07	08	09	10	12	14	16	24X16
INLET SIZE	4	5	6	7	8	9	10	12	14	16	24X16
MINIMUM C.F.M.	45	65	85	115	150	195	245	325	500	580	1600
MAX. COOLING C.F.M.	150	200	300	450	600	850	1150	1700	2700	3200	4000
MAX. HEATING C.F.M.	100	150	200	300	400	600	800	1150	1800	2150	2650
MAX. NC-BASIC ASSY.	28	28	27	27	28	28	30	29	35	32	39
HEATING COIL (M.B.H.)	4.32	6.48	8.64	12.96	17.28	25.92	34.56	49.68	77.76	92.88	114.48
FLOW RATE (G.P.M.)	0.4	0.6	0.9	1.3	1.7	2.6	3.4	5.0	7.8	9.3	11.5

NOTES:
MINIMUM PRESSURE DIFFERENCE BETWEEN INLET AND OUTLET OF V.A.V. BOX IS 1" OF S.P.
MAX. NC - THIS IS AIRBORNE SOUND DATA AT 1.0" DIFF. S.P. DISCHARGE.
NC BASED ON 10 DB ROOM ABSORPTION AND AT LEAST 5 FEET OF 10" DIAMETER LINED DUCT. 200 GPM OUTLET.

PROPELLER FAN UNIT HEATER SCHEDULE (P.F.U.H.)

SPECIFICATION BASED ON DUNHAM-BUSH

REFERENCE	A	B
MFR. MODEL #	H250C	H300C
AIR VOLUME (C.F.M.)	900	1050
HTG. CAP. (M.B.H.)	38.3	45.7
FLOW RATE (G.P.M.)	3.9	4.6
E.W.T./L.W.T.	180°F/160°F	180°F/60°F
MOTOR H.P.	1/20	1/8
ELECTRICAL	120V/1ø	120V/1ø

POWER ROOF VENTILATOR SCHEDULE (P.R.V.)

SPECIFICATION BASED ON COOK

REFERENCE	#1	#2	#3	#4	#5	#6
MFR. MODEL #	120C10D	90C150H	90C100H	90C100H	ACE-B 210C3B	90C150H
AIR VOLUME (C.F.M.)	800	500	160	150	3060	575
EXT. S.P. ("W.C.")	0.25	0.25	0.25	0.25	0.25	.25
FAN R.P.M.	952	1355	987	2306	612	1450
TIP SPEED	2990	3192	2325	3.8	3364	3416
SONES	4.9	6.7	3.9	3.8	7.3	7.8
B.H.P.	0.08	0.10	0.08	0.08	0.28	12
MOTOR H.P.	1/8	1/6	1/25	1/25	1/3	1/8
ELECTRICAL	120V/1ø	120V/1ø	120V/1ø	120V/1ø	120V/1ø	120V/1ø
B.D. DAMPER SIZE	14x14	12x12	8x8	8x8	22x22	12x12

COMPUTER ROOM AIR CONDITIONING UNIT SCHEDULE (C.R.A.C.)

SPECIFICATION BASED ON SANYO

REFERENCE	#1
MFR. MODEL #	12KS11W
TOTAL CAPACITY (M.B.H.)	12
E.D.B./E.W.B.	80°F/67°F
AIR VOLUME (C.F.M.)	360
EXTERNAL STATIC PRESS.	0
COMPRESSOR KW	1.2
COMPRESSOR ELECTRICAL	120V/1ø

STEAM-TO-HOT WATER HEAT EXCHANGER SCHEDULE (HE)

SPECIFICATION BASED ON BELL AND GOSSET

REFERENCE	#1
MFR. MODEL #	SU14 4-4
DESIGN PRESSURE	150 PSIG
TUBE SIDE FLUID	WATER
TUBE SIDE FLOW RATE (GPM)	300 GPM
TUBE SIDE TEMP. IN	160°F
TUBE SIDE TEMP. OUT	180°F
TUBE SIDE PRESSURE DROP	5 FT HD
SHELL SIDE FLUID	STEAM
SHELL SIDE PRESSURE	3 PSI
SHELL SIDE FLOW RATE	3,112 LBS/HR
TOTAL CAPACITY	3,000 MBH
SHELL SIDE PRESSURE DROP	0 PSI

AIR COOLED CHILLER SCHEDULE

SPECIFICATION BASED ON TRANE

REFERENCE	#1
MFR. MODEL #	RTAA
CHILLER TYPE	AIR-COOLED
MINIMUM TONS	120
REFRIGERANT	HCFC-22
EVAP. FLUID	40% GLYCOL
EVAP. G.P.M.	252
EVAP. ENT. TEMP.	54°F
EVAP. LVG. TEMP.	44°F
EVAP. FOULING FACTOR	.00025
EVAP. P.D. ("HD.")	12
COND. AMBIENT	95°F
COND. FAN QUANTITY	10
TOTAL AIRFLOW	91480
COND. FAN H.P. (EACH)	1
COMPRESSOR KW	—
ELECTRICAL	208V/3ø

INLINE EXHAUST FAN SCHEDULE (I.E.F.)

SPECIFICATION BASED ON COOK

REFERENCE	#1	#2	#3	#4	#5	#6	#7	#8	#9
MFR. MODEL #	1355QI-D	GN-220	1355QI-D	GN-220	GN-220	GN-420	1355QI-D	1505QI-D	GN-420
AIR VOLUME (C.F.M.)	1200	80	1000	50	100	1000	1200	1500	1000
EXT. S.P. ("W.C.")	0.25	0.25	0.25	0.25	0.25	0.5	0.25	0.25	0.25
FAN SPEED (R.P.M.)	1040	1050	1040	1000	1260	785	1040	830	615
TIP SPEED (R.P.M.)	3675	—	3615	—	—	—	3615	3254	—
SONES	8.1	1.1	8.1	1.1	1.4	1.2	8.1	6.4	1.4
B.H.P.	.15	0.05	0.15	0.05	0.09	0.23	0.15	0.13	.23
MOTOR H.P.	1/6	1/6	1/6	1/6	1/6	1/4	1/6	1/3	1/4
B.D. DAMPER SIZE	12x12	8x6	12x12	8x6	8x6	20x10	20x10	12x12	12x12
ELECTRICAL	120V/1ø	120V/1ø	120V/1ø	120V/1ø	120V/1ø	120V/1ø	120V/1ø	120V/1ø	120V/1ø

POWER WALL VENTILATOR SCHEDULE (P.W.V.)

SPECIFICATION BASED ON COOK

REFERENCE	#1	#2	#3	#4	#5	#6
MFR. MODEL #	210W 8B	210W 8B	210W 8B	210W 8B	210W 8B	210W 8B
AIR VOLUME (C.F.M.)	6,000	6,000	6,000	6,000	6,000	6,000
EXT. S.P. ("W.C.")	0.375	0.375	0.375	0.375	0.375	0.375
FAN R.P.M.	1075	1075	1075	1075	1075	1075
TIP SPEED	5910	5910	5910	5910	5910	5910
SONES	21	21	21	21	21	21
B.H.P.	1.41	1.41	1.41	1.41	1.41	1.41
MOTOR H.P.	1.5	1.5	1.5	1.5	1.5	1.5
ELECTRICAL	208V/3ø	208V/3ø	208V/3ø	208V/3ø	208V/3ø	208V/3ø
B.D. DAMPER SIZE	24x24	24x24	24x24	24x24	24x24	24x24

EXHAUST FAN SCHEDULE (E.F.)

SPECIFICATION BASED ON COOK

REFERENCE	#1	#2	#3	#4
MFR. MODEL #	36XLW 6B	36XLW 6B	36XLW 6B	36XLW 6B
AIR VOLUME (C.F.M.)	7500	7500	7500	7500
EXT. S.P. ("W.C.")	0.25	0.25	0.25	0.25
FAN SPEED (R.P.M.)	518	518	518	518
TIP SPEED (R.P.M.)	793	793	793	793
SONES	14.4	14.4	14.4	14.4
B.H.P.	0.83	0.83	0.83	0.83
MOTOR H.P.	3/4	3/4	3/4	3/4
B.D. DAMPER SIZE	MODEL GSS	MODEL GSS	MODEL GSS	MODEL GSS
ELECTRICAL	208V/3ø	208V/3ø	208V/3ø	208V/3ø

OUTSIDE AIR INTAKE VENTILATOR SCHEDULE (O.A.I.V.)

SPECIFICATION BASED ON COOK

REFERENCE	#1	#2	#3
MFR. MODEL #	VI	VI	VI
AIR VOLUME (C.F.M.)	13,000	13,000	8550
PRESS. DROP ("W.C.")	0.1	0.1	0.12
THROAT SIZE (")	48x66	48x66	36x36
THROAT AREA (FT²)	22	22	9
INTAKE AREA (FT²)	44	44	18
HEIGHT (')	29	29	22
CURB CAP. SIZE	54x72	54x72	42x42
HOOD SIZE (")	92.75x110.75	92.75x110.75	66x66

FAN COIL UNIT SCHEDULE (F.C.U.)

SPECIFICATION BASED ON TRANE

REFERENCE	#1	#2	#3	#4	#5
CABINET TYPE (1)	HCA	HCA	HCA	HCA	HCA
UNIT SIZE	24	24	24	12	12
NOMINAL C.F.M.	800	800	800	200	200
DESIGN C.F.M.	1000	1000	1000	400	400
DESIGN SPEED	1240	1240	1240	815	815
ESP. ("W.C.")	0.25	.25	.25	.13	.13
MOTOR H.P.	0.5	.5	.5	.25	.25
ELECTRICAL	120V/1ø	120V/1ø	120V/1ø	120V/1ø	120V/1ø
NOTES	—	—	—	—	—
E.D.B.	62.5°F	62.5°F	62.5°F	60°F	60°F
L.D.B.	92.5°F	92.5°F	92.5°F	96.7°F	96.7°F
E.W.	180°F	180°F	180°F	180°F	180°F
WATER TEMP. DROP	20°F	20°F	20°F	20°F	20°F
FLOW RATE (G.P.M.)	2	2	2	1	1
WATER P.D. ("HD.")	3	3	3	2	2
E.D.B./E.W.B.	80°F/67°F	80°F/67°F	80°F/67°F	80°F/67°F	80°F/67°F
L.D.B./L.W.B.	59°F/58°F	59°F/58°F	59°F/58°F	65°F/62°F	65°F/62°F
E.W.	45°F	45°F	45°F	45°F	45°F
WATER TEMP. RISE	10°F	10°F	10°F	10°F	10°F
FLOW RATE (G.P.M.)	5.9	5.9	5.9	1.8	1.8
WATER P.D. ("HD.")	7	7	7	4	4

AHU-1 POINTS LIST

ANALOG INPUTS

AI-1 OUTDOOR AIR TEMPERATURE
AI-2 STATIC PRESSURE TRANSMITTER
AI-3 DISCHARGE AIR TEMPERATURE
AI-4 MIXED AIR TEMPERATURE
AI-5 * SUPPLY FAN VFD %SPEED FEEDBACK
AI-6 * RETURN FAN VFD %SPEED FEEDBACK

ANALOG OUTPUTS

AO-1 MIXED AIR DAMPERS
AO-2 HEATING COIL VALVE
AO-3 COOLING COIL VALVE
AO-4 SUPPLY FAN VFD %SPEED SIGNAL
AO-5 RETURN FAN VFD %SPEED SIGNAL

DIGITAL INPUTS

DI-1 * FILTER STATUS
DI-2 * SUPPLY FAN PROOF-OF-FLOW
DI-3 * RETURN FAN PROOF-OF-FLOW
DI-4 * SUPPLY FAN VFD FAULT INDICATION
DI-5 * RETURN FAN VFD FAULT INDICATION
DI-6 * SUPPLY FAN VFD BYPASS STATUS
DI-7 * RETURN FAN VFD BYPASS STATUS

DIGITAL OUTPUTS

DO-1 SUPPLY FAN VFD STOP/START
DO-2 RETURN FAN VFD STOP/START

AHU-2 POINTS LIST

ANALOG INPUTS

AI-1 OUTDOOR AIR TEMPERATURE
AI-2 STATIC PRESSURE TRANSMITTER
AI-3 DISCHARGE AIR TEMPERATURE
AI-4 MIXED AIR TEMPERATURE
AI-5 * SUPPLY FAN VFD %SPEED FEEDBACK
AI-6 * RETURN FAN VFD %SPEED FEEDBACK

ANALOG OUTPUTS

AO-1 MIXED AIR DAMPERS
AO-2 HEATING COIL VALVE
AO-3 COOLING COIL VALVE
AO-4 SUPPLY FAN VFD %SPEED SIGNAL
AO-5 RETURN FAN VFD %SPEED SIGNAL

DIGITAL INPUTS

DI-1 * FILTER STATUS
DI-2 * SUPPLY FAN PROOF-OF-FLOW
DI-3 * RETURN FAN PROOF-OF-FLOW
DI-4 * SUPPLY FAN VFD FAULT INDICATION
DI-5 * RETURN FAN VFD FAULT INDICATION
DI-6 * SUPPLY FAN VFD BYPASS STATUS
DI-7 * RETURN FAN VFD BYPASS STATUS

DIGITAL OUTPUTS

DO-1 SUPPLY FAN VFD STOP/START
DO-2 RETURN FAN VFD STOP/START

AHU-3 POINTS LIST

ANALOG INPUTS

AI-1 OUTDOOR AIR TEMPERATURE
AI-2 STATIC PRESSURE TRANSMITTER
AI-3 DISCHARGE AIR TEMPERATURE
AI-4 MIXED AIR TEMPERATURE
AI-5 * SUPPLY FAN VFD %SPEED FEEDBACK
AI-6 * RETURN FAN VFD %SPEED FEEDBACK

ANALOG OUTPUTS

AO-1 MIXED AIR DAMPERS
AO-2 HEATING COIL VALVE
AO-3 COOLING COIL VALVE
AO-4 SUPPLY FAN VFD %SPEED SIGNAL
AO-5 RETURN FAN VFD %SPEED SIGNAL

DIGITAL INPUTS

DI-1 * FILTER STATUS
DI-2 * SUPPLY FAN PROOF-OF-FLOW
DI-3 * RETURN FAN PROOF-OF-FLOW
DI-4 * SUPPLY FAN VFD FAULT INDICATION
DI-5 * RETURN FAN VFD FAULT INDICATION
DI-6 * SUPPLY FAN VFD BYPASS STATUS
DI-7 * RETURN FAN VFD BYPASS STATUS

DIGITAL OUTPUTS

DO-1 SUPPLY FAN VFD STOP/START
DO-2 RETURN FAN VFD STOP/START

AHU-4 POINTS LIST

ANALOG INPUTS

AI-1 OUTDOOR AIR TEMPERATURE
AI-2 DISCHARGE AIR TEMPERATURE
AI-3 MIXED AIR TEMPERATURE
AI-4 * SPACE TEMPERATURE
AI-5 * SUPPLY FAN VFD %SPEED FEEDBACK
AI-6 * RETURN FAN VFD %SPEED FEEDBACK

ANALOG OUTPUTS

AO-1 MIXED AIR DAMPERS
AO-2 HEATING COIL VALVE
AO-3 COOLING COIL VALVE

DIGITAL INPUTS

DI-1 * FILTER STATUS
DI-2 * SUPPLY FAN PROOF-OF-FLOW
DI-3 * EF #1 STATUS
DI-4 * EF #2 STATUS
DI-5 * EF #3 STATUS
DI-6 * EF #4 STATUS

DIGITAL OUTPUTS

DO-1 SUPPLY FAN VFD STOP/START
DO-2 EF #1 STOP/START
DO-3 EF #2 STOP/START
DO-4 EF #3 STOP/START
DO-5 EF #4 STOP/START

AHU-5 POINTS LIST

ANALOG INPUTS

AI-1 OUTDOOR AIR TEMPERATURE
AI-2 DISCHARGE AIR TEMPERATURE
AI-3 * SPACE TEMPERATURE
AI-4 * SUPPLY FAN VFD %SPEED FEEDBACK
AI-5 * SPACE STATIC PRESSURE

ANALOG OUTPUTS

AO-1 HEATING COIL VALVE
AO-2 COOLING COIL VALVE (FUTURE)
AO-3 SUPPLY FAN VFD %SPEED SIGNAL

DIGITAL INPUTS

DI-1 * FILTER STATUS
DI-2 * SUPPLY FAN PROOF-OF-FLOW
DI-3 * SUPPLY FAN VFD FAULT INDICATION
DI-4 * SUPPLY FAN VFD BYPASS STATUS
DI-5 * PWV #1 STATUS
DI-6 * PWV #2 STATUS
DI-7 * PWV #3 STATUS
DI-8 * PWV #4 STATUS
DI-9 * PWV #5 STATUS
DI-10 * PWV #6 STATUS

DIGITAL OUTPUTS

DO-1 SUPPLY FAN VFD STOP/START

AHU-6 POINTS LIST

ANALOG INPUTS

AI-1 OUTDOOR AIR TEMPERATURE
AI-2 DISCHARGE AIR TEMPERATURE
AI-3 MIXED AIR TEMPERATURE
AI-4 * SPACE TEMPERATURE
AI-5 * SPACE CO

ANALOG OUTPUTS

AO-1 MIXED AIR DAMPERS
AO-2 HEATING COIL VALVE
AO-3 COOLING COIL VALVE (FUTURE)

DIGITAL INPUTS

DI-1 * FILTER STATUS
DI-2 * SUPPLY FAN PROOF-OF-FLOW
DI-3 * EXHAUST FAN IEF#8 STATUS

DIGITAL OUTPUTS

DO-1 SUPPLY FAN STOP/START
DO-2 EXHAUST FAN IEF#8 STOP/START

AHU-7 POINTS LIST

ANALOG INPUTS

AI-1 OUTDOOR AIR TEMPERATURE
AI-2 DISCHARGE AIR TEMPERATURE
AI-3 MIXED AIR TEMPERATURE
AI-4 * SPACE TEMPERATURE

ANALOG OUTPUTS

AO-1 MIXED AIR DAMPERS
AO-2 HEATING COIL VALVE
AO-3 COOLING COIL VALVE (FUTURE)

DIGITAL INPUTS

DI-1 * PRE-FILTER STATUS
DI-2 * FINAL FILTER STATUS
DI-3 * SUPPLY FAN PROOF-OF-FLOW

DIGITAL OUTPUTS

DO-1 SUPPLY FAN STOP/START

VAV BOX POINTS LIST

ANALOG INPUTS

AI-1 INLET VELOCITY (CFM)
AI-2 COIL DISCHARGE TEMPERATURE
AI-3 * SPACE TEMPERATURE

ANALOG OUTPUTS

AO-1 VAV DAMPER
AO-2 HEATING COIL VALVE

DIGITAL INPUTS

DI-1 BOILER PLANT SIGNAL

DIGITAL OUTPUTS

NOT USED

CHILLER PLANT POINTS LIST

ANALOG INPUTS

AI-1 OUTDOOR AIR TEMPERATURE
AI-2 CHILLED WATER SUPPLY TEMPERATURE
AI-3 CHILLED WATER RETURN TEMPERATURE

ANALOG OUTPUTS

AO-1 CHILLED WATER RESET

DIGITAL INPUTS

DI-1 * CHILLER ALARM
DI-2 * CHILLED WATER PUMP #1 STATUS
DI-3 * CHILLED WATER PUMP #2 STATUS

DIGITAL OUTPUTS

DO-1 CHILLER ENABLE/DISABLE
DO-2 CHILLED WATER PUMP #1 STOP/START
DO-3 CHILLED WATER PUMP #2 STOP/START

HEATING PLANT POINTS LIST

ANALOG INPUTS

AI-1 OUTDOOR AIR TEMPERATURE
AI-2 HOT WATER SUPPLY TEMPERATURE
AI-3 HOT WATER RETURN TEMPERATURE
AI-4 STEAM MAIN PRESSURE

ANALOG OUTPUTS

AO-1 STEAM HEATING VALVE

DIGITAL INPUTS

DI-1 * HOT WATER PUMP #1 STATUS
DI-2 * HOT WATER PUMP #2 STATUS
DI-3 * DOMESTIC HW PUMP STATUS

DIGITAL OUTPUTS

DO-1 HOT WATER PUMP #1 STOP/START
DO-2 HOT WATER PUMP #2 STOP/START
DO-3 DOMESTIC HW RECIRC PUMP STOP/START

PRV EXHAUST POINTS LIST

ANALOG INPUTS

NOT USED

ANALOG OUTPUTS

NOT USED

DIGITAL INPUTS

DI-1 * PRV #1 STATUS
DI-2 * PRV #2 STATUS
DI-3 * PRV #3 STATUS
DI-4 * PRV #4 STATUS
DI-5 * PRV #5 STATUS
DI-6 * PRV #6 STATUS

DIGITAL OUTPUTS

DO-1 PRV #1 STOP/START
DO-2 PRV #2 STOP/START
DO-3 PRV #3 STOP/START
DO-4 PRV #4 STOP/START
DO-5 PRV #5 STOP/START
DO-6 PRV #6 STOP/START

IEF EXHAUST FAN POINTS LIST

ANALOG INPUTS

AI-1 * IEF #5 SPACE TEMPERATURE
AI-2 * IEF #9 SPACE TEMPERATURE

ANALOG OUTPUTS

NOT USED

DIGITAL INPUTS

DI-1 * IEF #1 STATUS
DI-2 * IEF #2 STATUS
DI-3 * IEF #3 STATUS
DI-4 * IEF #4 STATUS
DI-5 * IEF #5 STATUS
DI-6 * IEF #6 STATUS
DI-7 * IEF #9 STATUS

DIGITAL OUTPUTS

DO-1 IEF #1 STOP/START
DO-2 IEF #2 STOP/START
DO-3 IEF #3 STOP/START
DO-4 IEF #4 STOP/START
DO-5 IEF #5 STOP/START
DO-6 IEF #6 STOP/START
DO-7 IEF #9 STOP/START

FAN COIL UNIT POINTS LIST

ANALOG INPUTS

AI-1 * SPACE TEMPERATURE

ANALOG OUTPUTS

AO-1 HOT WATER VALVE
AO-2 CHILLED WATER VALVE

DIGITAL INPUTS

NOT USED

DIGITAL OUTPUTS

DO-1 FAN STOP/START

UNIT HEATER POINTS LIST

ANALOG INPUTS

AI-1 * SPACE TEMPERATURE

ANALOG OUTPUTS

AO-1 HOT WATER VALVE
AO-2 CHILLED WATER VALVE

DIGITAL INPUTS

NOT USED

DIGITAL OUTPUTS

DO-1 FAN STOP/START

CRAC #1 POINTS LIST

ANALOG INPUTS

AI-1 * SPACE TEMPERATURE

ANALOG OUTPUTS

NOT USED

DIGITAL INPUTS

DI-1 * SYSTEM ALARM

DIGITAL OUTPUTS

DO-1 SYSTEM ENABLE/DISABLE

ELECTRICAL POINTS LIST

ANALOG INPUTS

AI-1 AIR-COOLED CHILLER (CT)
AI-2 PUMP PANEL (CT)
AI-3 1200A MAIN SWITCH (CT)

ANALOG OUTPUTS

NOT USED

DIGITAL INPUTS

DI-1 PHOTOCELL

DIGITAL OUTPUTS

DO-1 EXTERIOR BUILDING LIGHTS CONTRACTOR
DO-2 EXTERIOR POLE LIGHTS CONTRACTOR
DO-3 EXTERIOR PARKING LIGHTS CONTRACTOR

VARIABLE FREQUENCY DRIVE SCHEDULE (VFD)

SPECIFICATION BASED ON SQUARE 'D'

	VFD-1	VFD-2	VFD-3	VFD-4	VFD-5	VFD-6	VFD-7
MODEL #	ALTIVAR 20	ALTIVAR 20	ALTIVAR 20	ALTIVAR 20	ALTIVAR 20	ALTIVAR 20	ALTIVAR 20
HORSEPOWER	20	20	20	20	20	20	20
SERVICE	AHU-1S	AHU-1R	AHU-2S	AHU-2R	AHU-3S	AHU-3R	AHU-5
LOCATION	AHU-1	AHU-1	AHU-2	AHU-2	AHU-3	AHU-3	AHU-5
NOTES:	VFD'S PROVIDED AND MOUNTED BY CONTROLS CONTRACTOR VFD CONTROL WIRING BY CONTROLS CONTRACTOR VFD POWER WIRING BY ELECTRICAL CONTRACTOR REFER TO SPECS FOR DOOR MOUNTED & INTERNAL OPTIONS						

DDC CONTROL NOTES:

- REFER TO 19900 SPECIFICATIONS FOR SEQUENCE OF OPERATION.
- LISTED POINTS ARE TO BE PROVIDED AT A MINIMUM. PROVIDE ALL REQUIRED HARD AND SOFT POINTS TO ACCOMPLISH THE SEQUENCE OF OPERATION.
- * DI NOTES A POINT TO BE ALARMED. CONSULT WITH OWNER FOR ALARM LEVEL FOR EACH POINT NOTED TO BE ALARMED.
- IT IS ACCEPTABLE TO UTILIZE COMMON OUTDOOR AIR TEMPERATURE POINTS AS LONG AS THE EQUIPMENT HAS SIMILAR INTAKE CONDITIONS AND SYSTEM REDUNDANCY IS MAINTAINED.
- VFD'S SHALL BE PERMANENTLY TAGGED WITH THE EQUIPMENT IT SERVES AND NOT THE TAG NUMBER FROM THE SCHEDULE. FOR EXAMPLE, THE VFD-7 TAG SHALL READ "AHU-5 SUPPLY FAN VFD."
- IT IS ACCEPTABLE TO CONNECT PRV'S AND IEF'S TO THE NEAREST DDC CONTROLLER IN LIEU OF SEPARATE CONTROLLERS AS SHOWN. THE WELDING HOOD EXHAUST FANS AND THE GYM EXHAUST FANS SHALL STAY ON THE AHU CONTROLLERS AS SHOWN.
- IT IS ACCEPTABLE TO CONNECT CUH'S AND PFU'S TO THE NEAREST DDC CONTROLLER IN LIEU OF SEPARATE CONTROLLERS AS SHOWN.
- IT IS ACCEPTABLE TO CONNECT THE CRAC TO THE NEAREST DDC CONTROLLER IN LIEU OF A SEPARATE CONTROLLER AS SHOWN.
- LIGHTS SHALL BE CONTROLLED FROM BUILDING-MOUNTED PHOTOCELL OR, AT OPTION OF THE USER, FROM AN ADJUSTABLE TIME-OF-DAY SCHEDULE.
- PROVIDE ENERGY MONITORS (CT) IN THREE LOCATIONS AS SHOWN AND SPECIFIED.
- DDC CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE ALTERNATE BIDS AND ADJUST POINTS, SEQUENCE, PROGRAMMING, ETC. AS REQUIRED.

STATE TRAINING
SCHOOL FOR BOYS

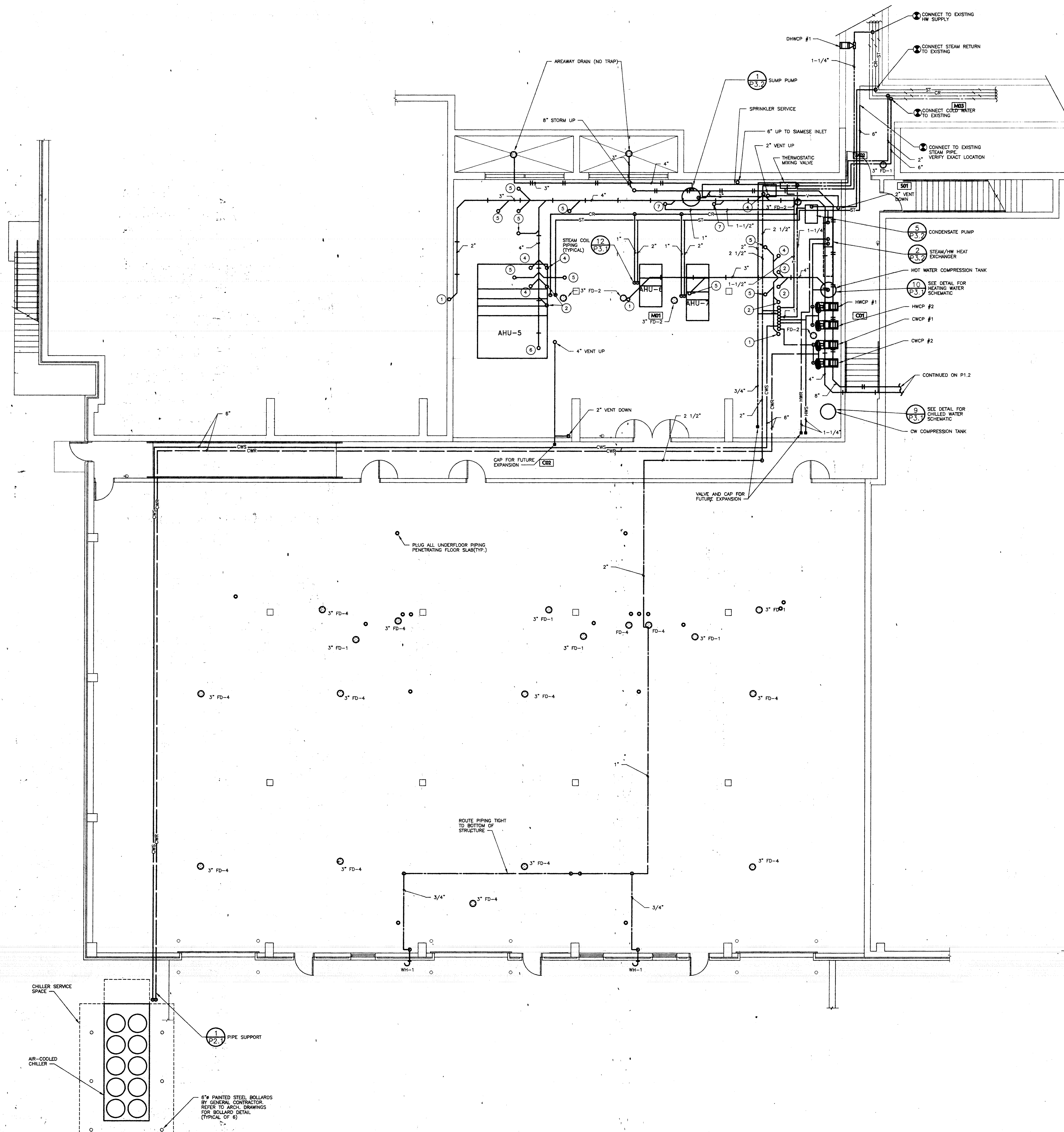
ELDORA, IOWA

EDUCATION
VOCATION
GYM

M3.4

Date: APRIL 7, 1999
Project No: 98071
File No: 98071M34

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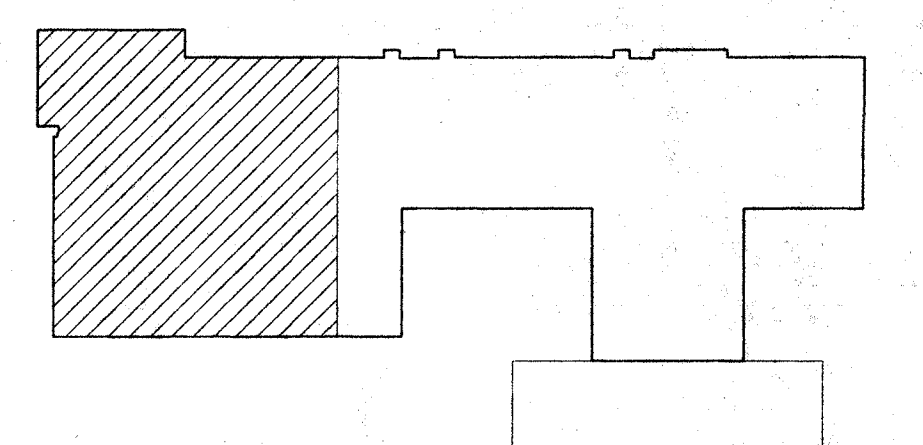


NOTES:

- 1 2" WASTE AND VENT UP TO LAVATORY
- 2 2" SOIL AND VENT UP TO URINAL
- 3 3" WASTE UP TO JANITORS RECEPTOR
- 4 4" SOIL AND VENT UP TO WATER CLOSET
- 5 3" WASTE UP TO FLOOR DRAIN
- 6 1 1/2" WASTE AND VENT UP TO ELECTRIC WATER COOLER
- 7 3" WASTE UP TO COLUMN SHOWER
- 8 1/2" HW, 1/2" CW, 2" VENT DOWN TO LAVATORY
- 9 1" CW DOWN TO WATER CLOSET
- 10 1-1/2" CW DOWN EXTEND 1" TO EACH WATER CLOSET
- 11 1/2" CW DOWN TO HOSE BIB
- 12 1/2" CW DOWN TO EYE WASH
- 13 1/2" HW, 1/2" CW DOWN TO JANITOR RECEPTOR

NOTE:

COORDINATE LOCATION/INSTALLATION OF MECHANICAL AND ELECTRICAL WORK WITH ALL OTHER TRADES. NO ASPECT OF A SYSTEM INSTALLATION OR ITS ROUGH-IN SHALL COMMENCE UNTIL PROPER AND TIMELY COORDINATION WITH ALL TRADES ASSOCIATED WITH THE INSTALLATION HAS TRANSPIRED. ITEMS TO BE COORDINATED SHALL INCLUDE BUT NOT BE LIMITED TO: BUILDING STRUCTURE, SHEET METAL, ALL PIPING SYSTEMS, LIGHT FIXTURES, CONDUITS, CABLE TRAYS, ETC. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.



KEY PLAN
NOT TO SCALE

STATE TRAINING
SCHOOL FOR BOYS

ELDORA, IOWA

EDUCATION
VOCATION
GYM

P2.1

Date: APRIL 7, 1999
Project No: 98071
File No: 98071P21

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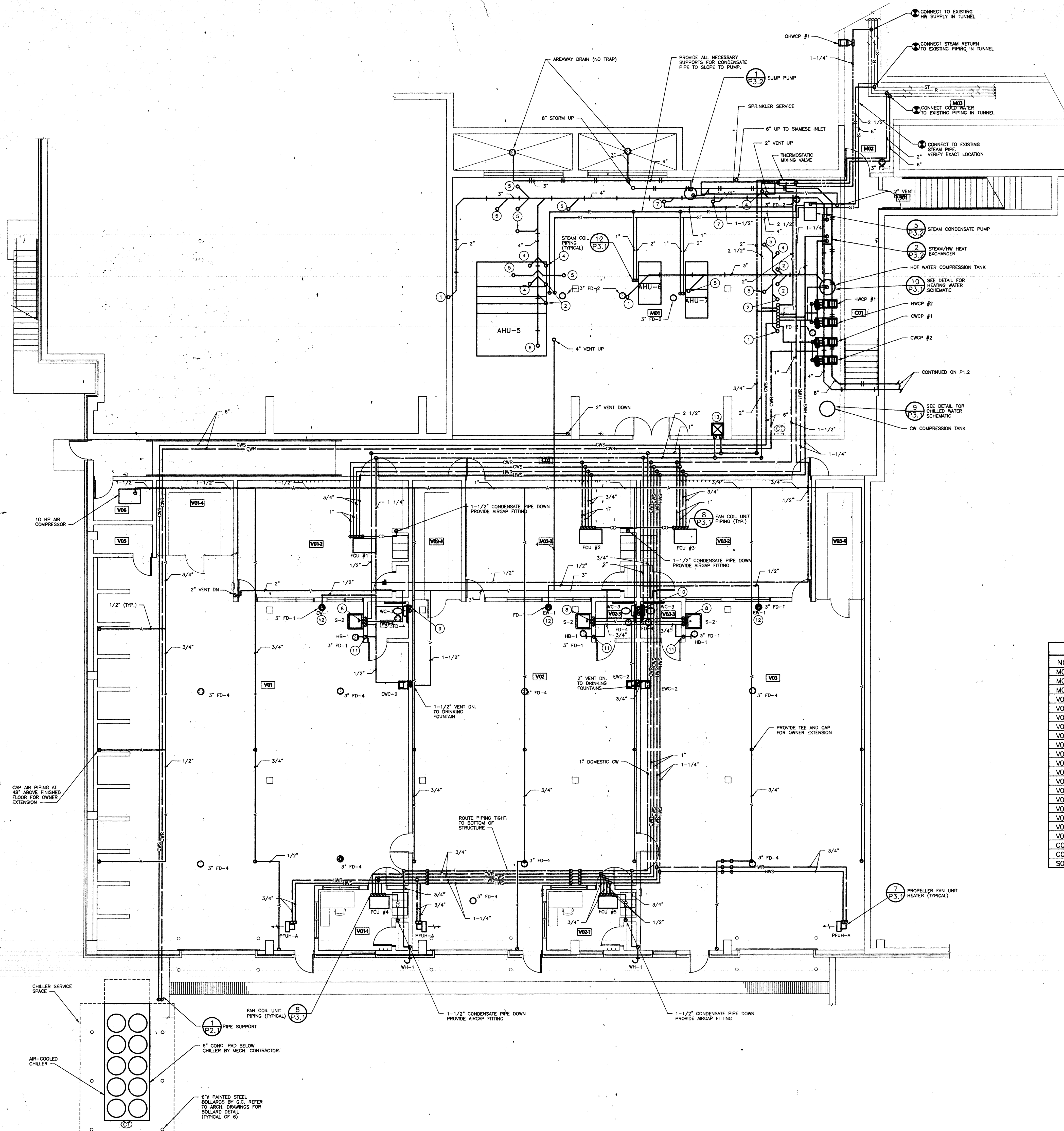
BASEMENT FLOOR PLAN - PLUMBING & PIPING
SCALE: 1/8" = 1'-0"

FINAL
CONSTRUCTION
DOCUMENT

PROJECT ENGINEER PROJECT MANAGER QUALITY ASSURANCE DATE
JF CUC VB 4/16/99

Pulley
& Associates, Inc.
Consulting Engineers
1105 Grand Avenue, Suite 100
West Des Moines, Iowa 50263
Phone: (515) 251-9531 Fax: (515) 251-9570
E-mail: pulley@pulleyandassociates.com

RDC Bussard Dikis
303 Locust Street Des Moines Iowa 50309 515.288.3141 Fax 515.288.8631



NOTES:

- ① 2" WASTE AND VENT UP TO LAVATORY
- ② 2" SOIL AND VENT UP TO URINAL
- ③ 3" WASTE UP TO JANITORS RECEPTOR
- ④ 4" SOIL AND VENT UP TO WATER CLOSET
- ⑤ 3" WASTE UP TO FLOOR DRAIN
- ⑥ 1 1/2" WASTE AND VENT UP TO ELECTRIC WATER COOLER
- ⑦ 3" WASTE UP TO COLUMN SHOWER
- ⑧ 1/2" HW, 1/2" CW, 2" VENT DOWN TO LAVATORY
- ⑨ 1" CW DOWN TO WATER CLOSET
- ⑩ 1-1/2" CW DOWN EXTEND 1" TO EACH WATER CLOSET
- ⑪ 1/2" CW DOWN TO HOSE BIB
- ⑫ 1/2" CW DOWN TO EYE WASH
- ⑬ 1/2" HW, 1/2" CW DOWN TO JANITOR RECEPTOR

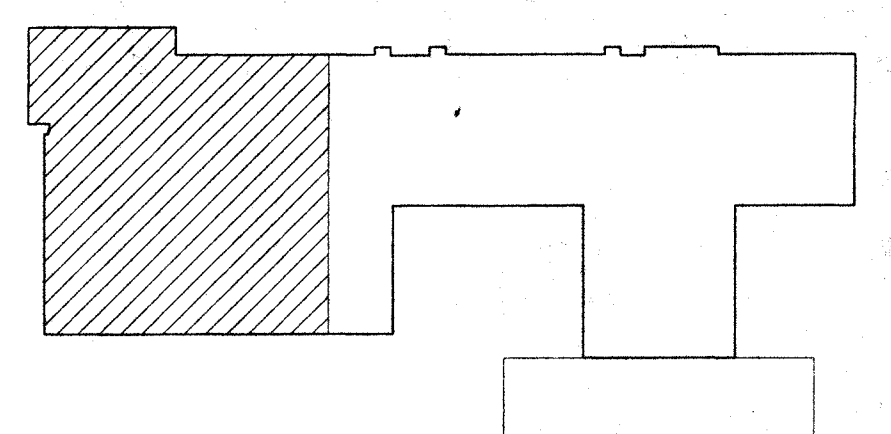
NOTE:

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NOTE:

REFER TO DRAWING P2.1 FOR BASE BID WORK.

ROOM SCHEDULE	
NO.	ROOM NAME
M01	MECH/ELEC.
M02	TUNNEL
M03	EXISTING TUNNEL
V01	WELDING
V01-1	OFFICE
V01-2	CLASSROOM
V01-3	TOILET
V01-4	TOOL STORAGE
V02	AIR-COOLED ENGINES
V02-1	OFFICE
V02-2	CLASSROOM
V02-3	TOILET
V02-4	TOOL STORAGE
V03	HABITAT FOR HUMANITY
V03-2	CLASSROOM
V03-3	TOILET
V03-4	TOOL STORAGE
V05	TANK STORAGE
V06	AIR COMP.
C01	CORRIDOR
C02	CORRIDOR
S01	STAIR



KEY PLAN
NOT TO SCALE

STATE TRAINING
SCHOOL FOR BOYS

ELDORA, IOWA

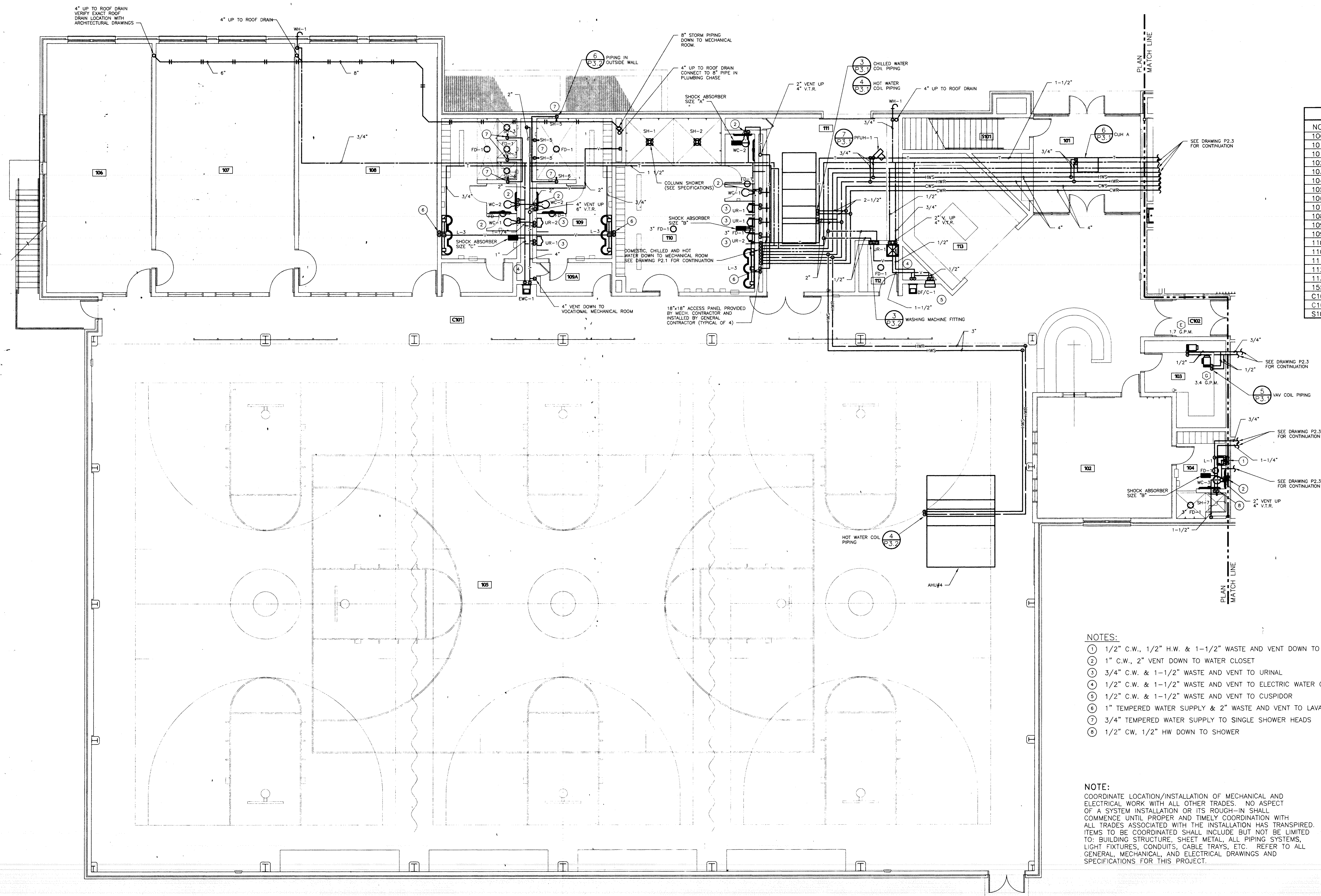
EDUCATION
VOCATION
GYM

P2.1A

Date: APRIL 7, 1999
Project No: 98071
File No: 98071P21

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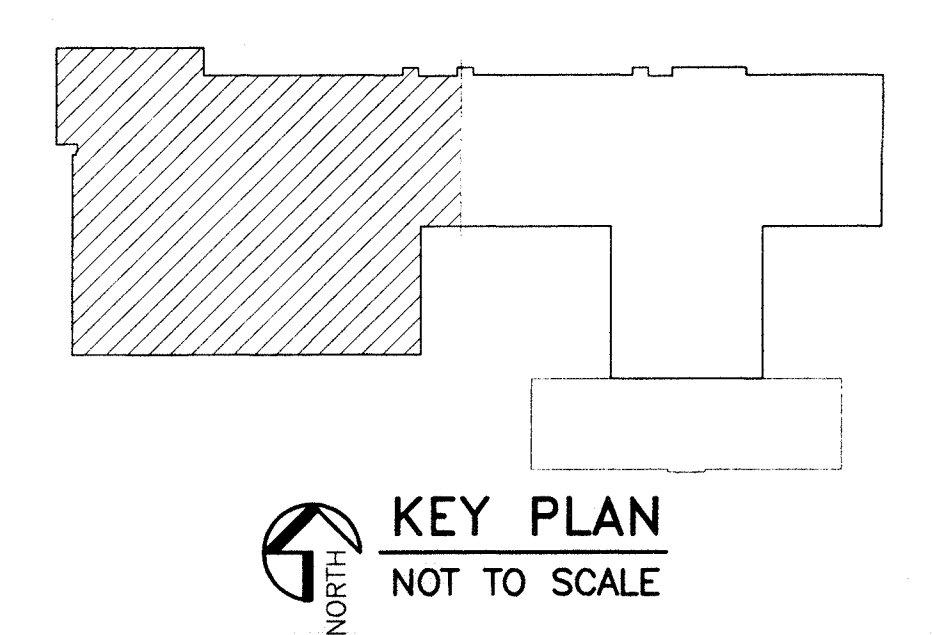
BASEMENT FLOOR PLAN - PLUMBING & PIPING
SCALE: 1/8" = 1'-0"



ROOM SCHEDULE	
NO.	ROOM NAME
100	VESTIBULE
101	LOBBY
101A	CONTROL
102	OFFICE
103	STORAGE
104	LOCKER
105	GYMNASIUM
106	EXERCISE
107	FITNESS
108	FITNESS
109	WOMEN'S LOCKER
109A	VESTIBULE
110	MEN'S LOCKER
110A	VESTIBULE
111	STORAGE
112	JANITOR
113	BASKETS
155	MEN'S LOCKER
C101	CORRIDOR
C102	CORRIDOR
S101	STAIR

- NOTES:
- ① 1/2" C.W., 1/2" H.W. & 1-1/2" WASTE AND VENT DOWN TO LAVATORY
 - ② 1" C.W., 2" VENT DOWN TO WATER CLOSET
 - ③ 3/4" C.W. & 1-1/2" WASTE AND VENT TO URINAL
 - ④ 1/2" C.W. & 1-1/2" WASTE AND VENT TO ELECTRIC WATER COOLER
 - ⑤ 1/2" C.W. & 1-1/2" WASTE AND VENT TO CUSPIDOR
 - ⑥ 1" TEMPERED WATER SUPPLY & 2" WASTE AND VENT TO LAVATORY
 - ⑦ 3/4" TEMPERED WATER SUPPLY TO SINGLE SHOWER HEADS
 - ⑧ 1/2" C.W. 1/2" HW DOWN TO SHOWER

NOTE:
COORDINATE LOCATION/INSTALLATION OF MECHANICAL AND ELECTRICAL WORK WITH ALL OTHER TRADES. NO ASPECT OF A SYSTEM INSTALLATION OR ITS ROUGH-IN SHALL COMMENCE UNTIL PROPER AND TIMELY COORDINATION WITH ALL TRADES ASSOCIATED WITH THE INSTALLATION HAS TRANSPIRED. ITEMS TO BE COORDINATED SHALL INCLUDE BUT NOT BE LIMITED TO: BUILDING STRUCTURE, SHEET METAL, ALL PIPING SYSTEMS, LIGHT FIXTURES, CONDUITS, CABLE TRAYS, ETC. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.



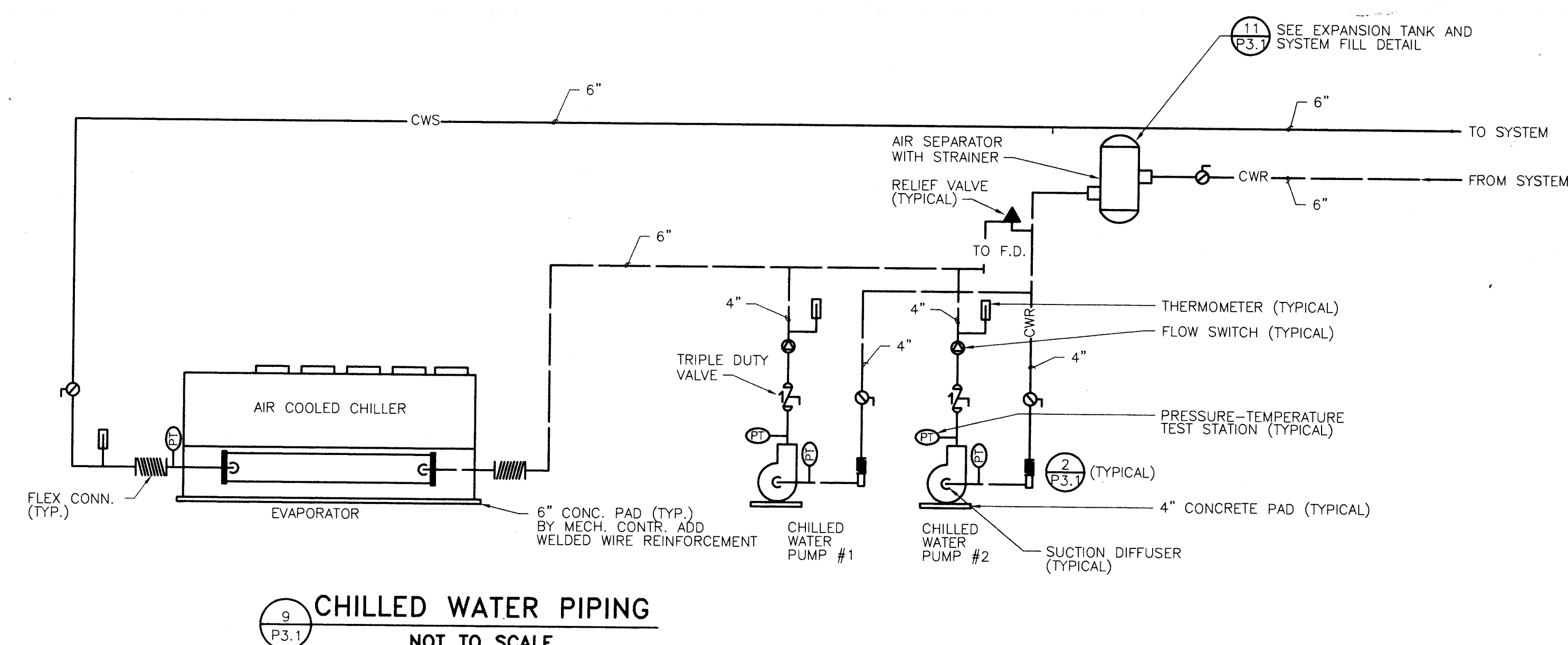
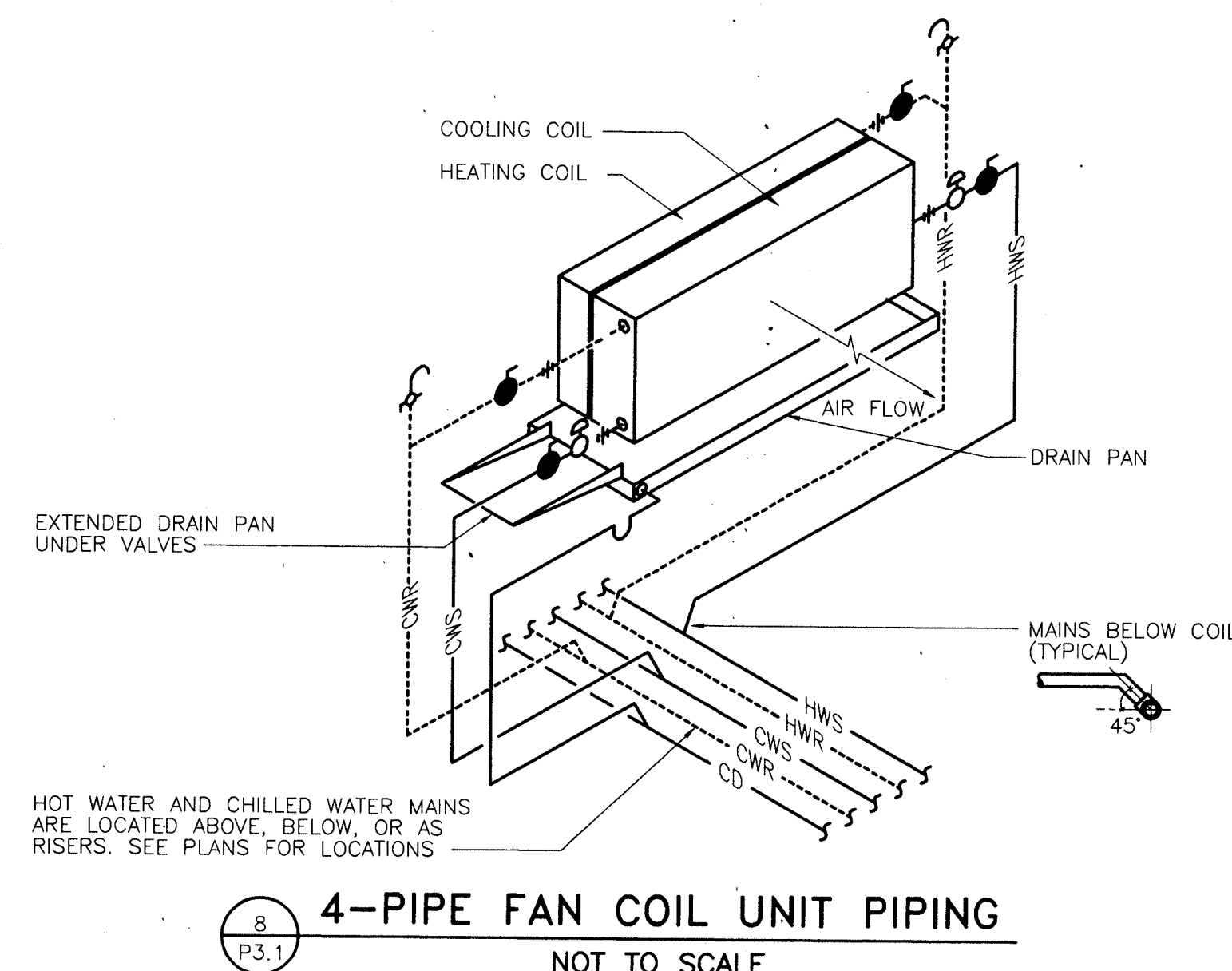
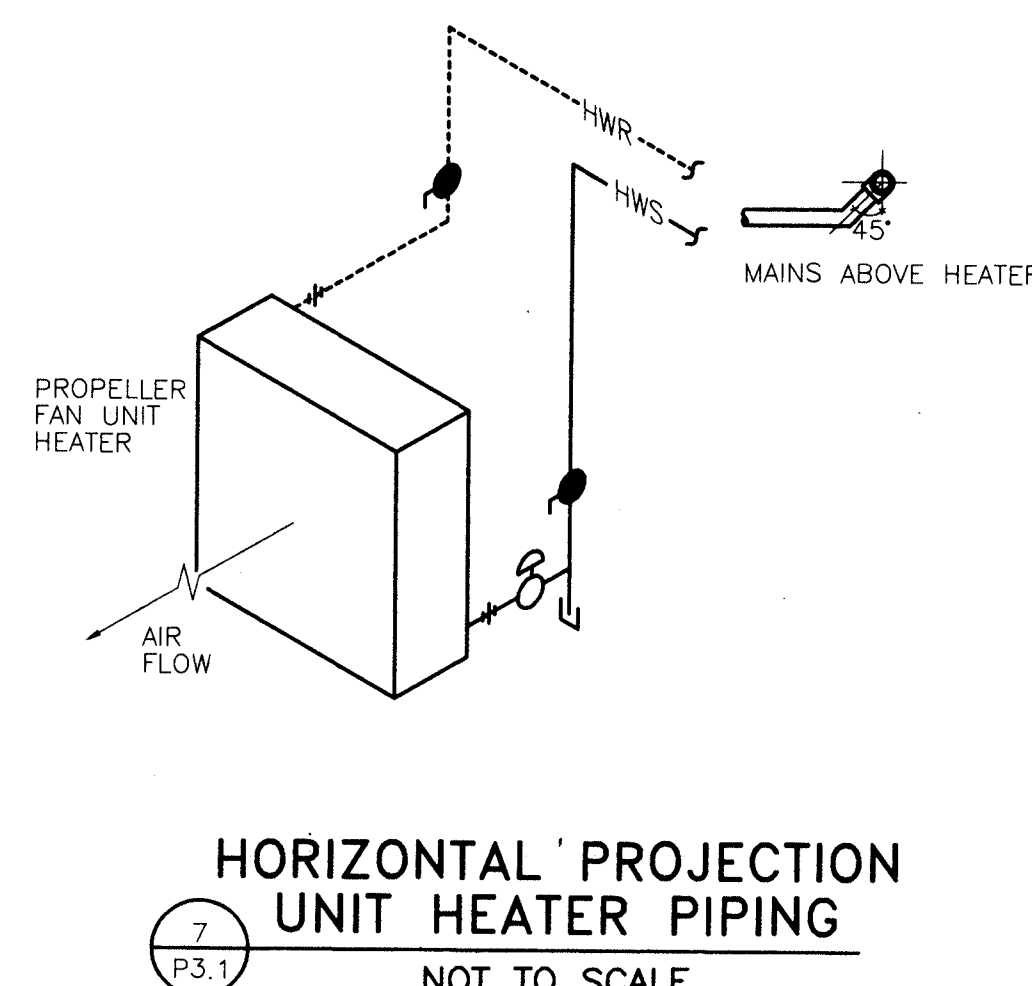
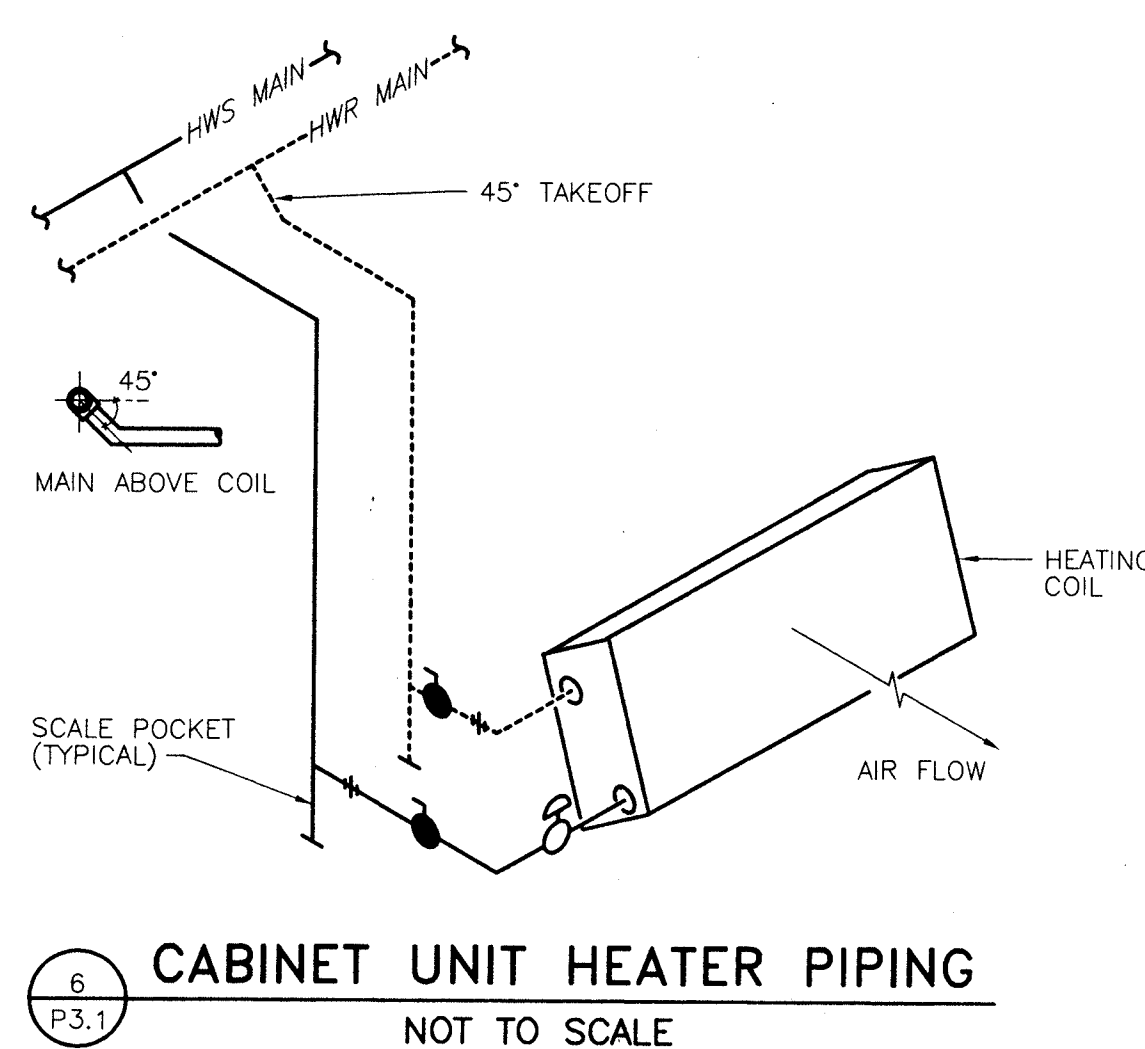
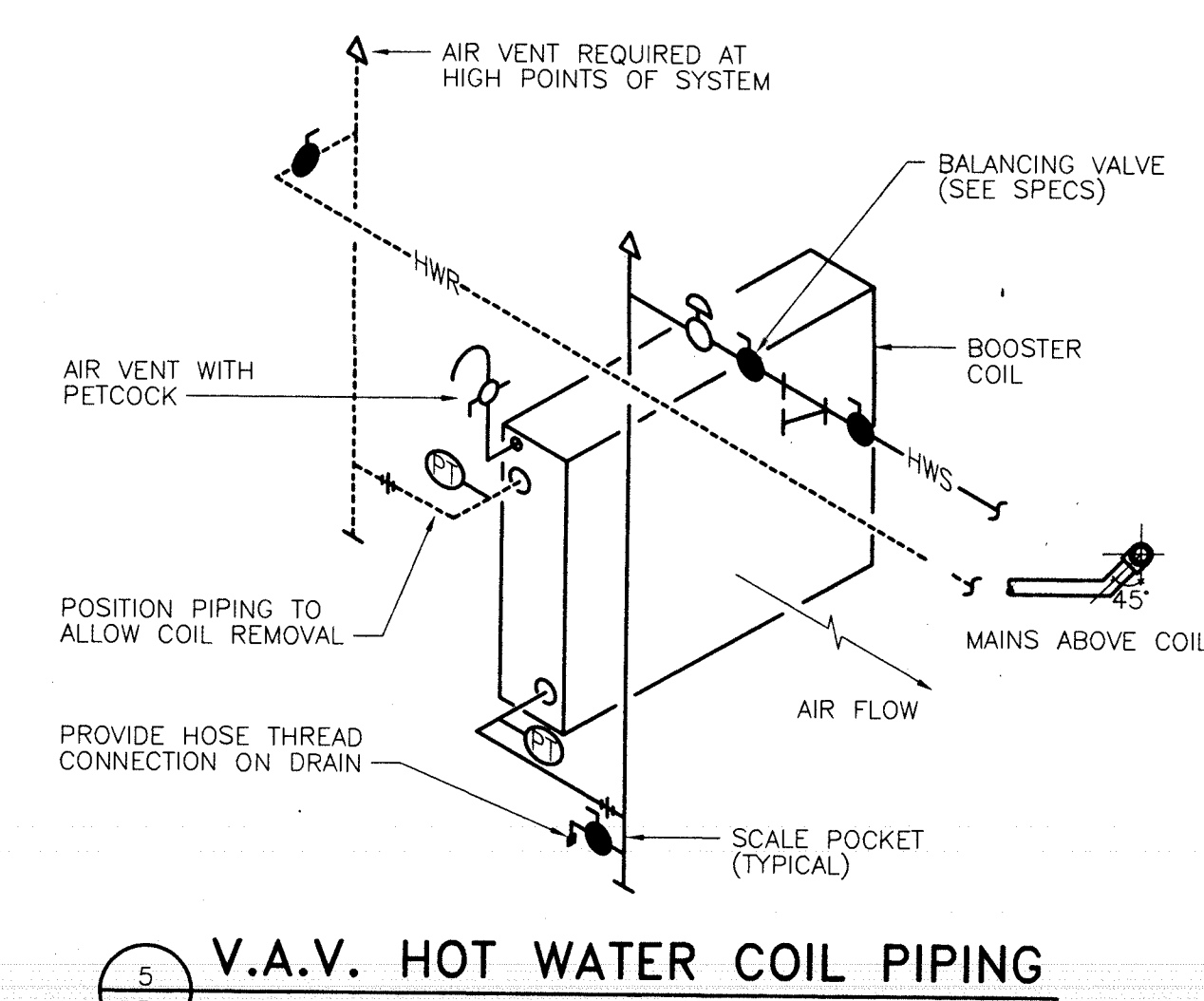
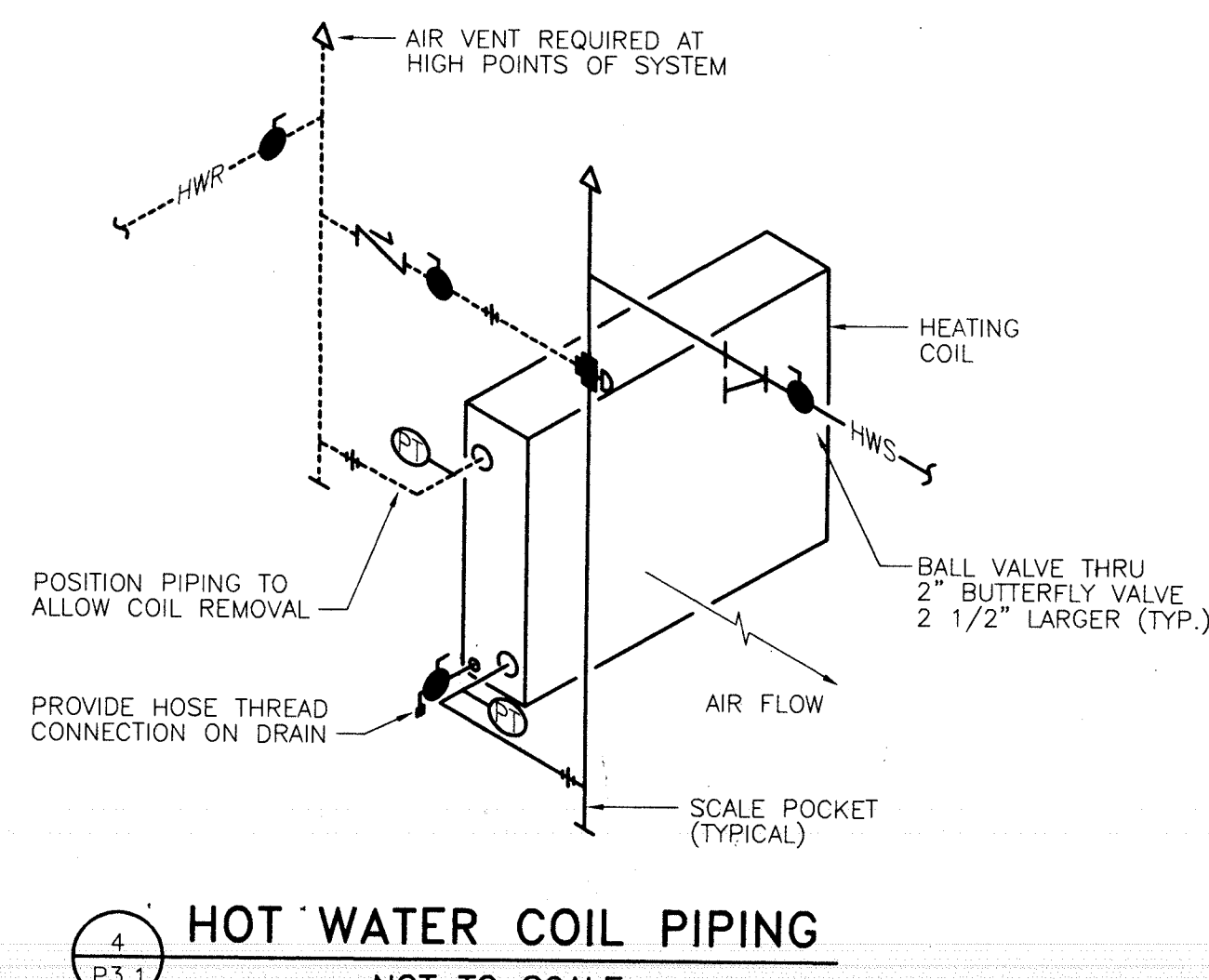
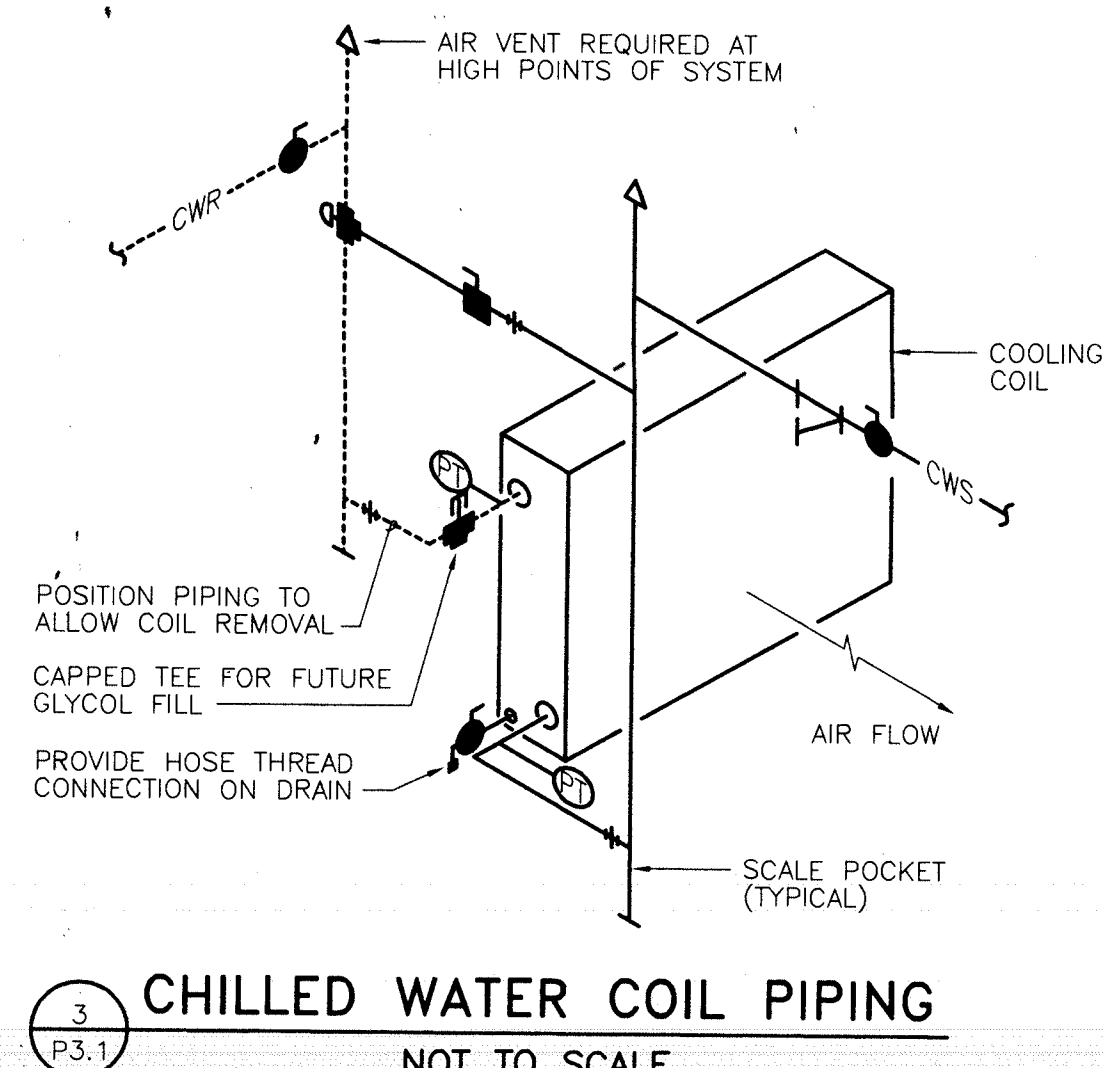
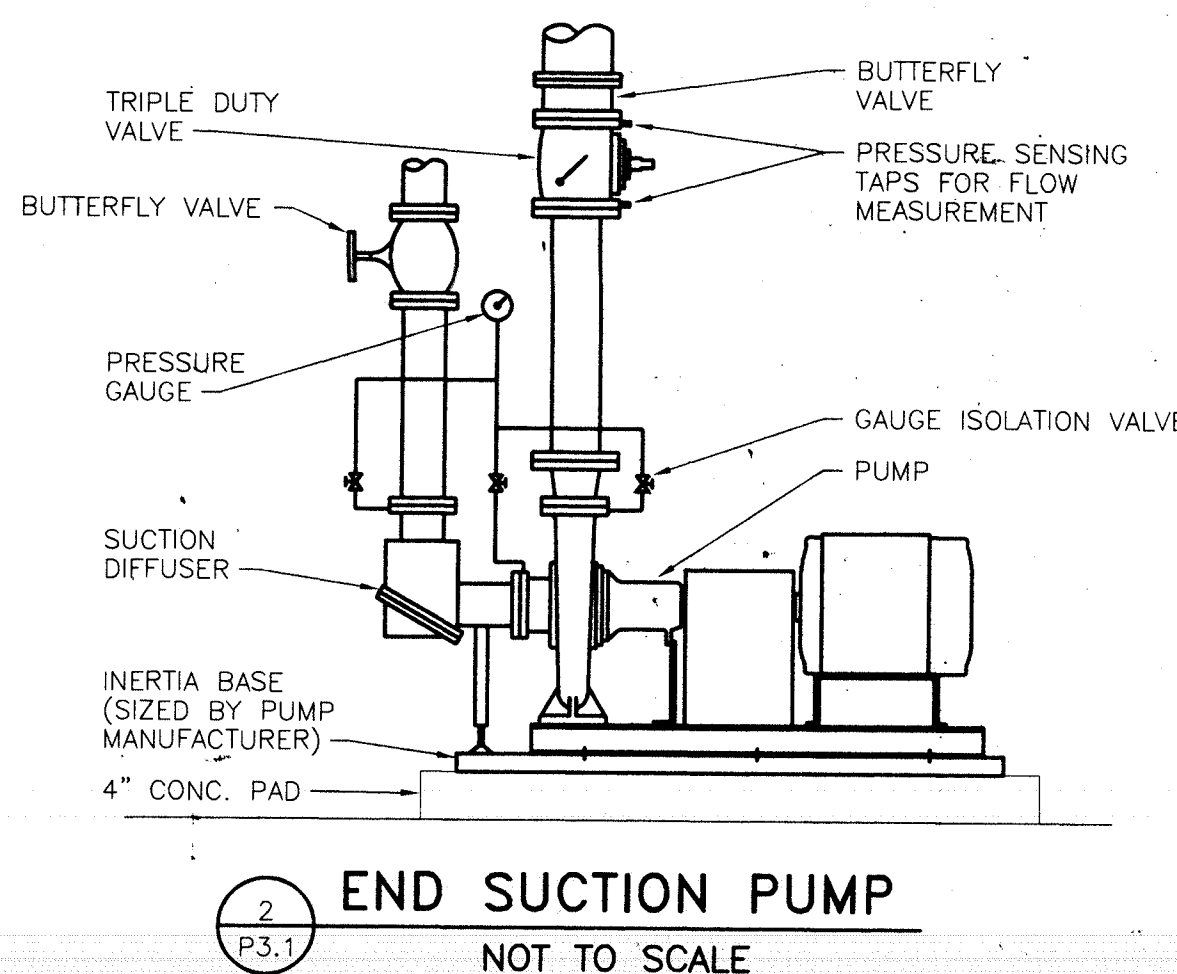
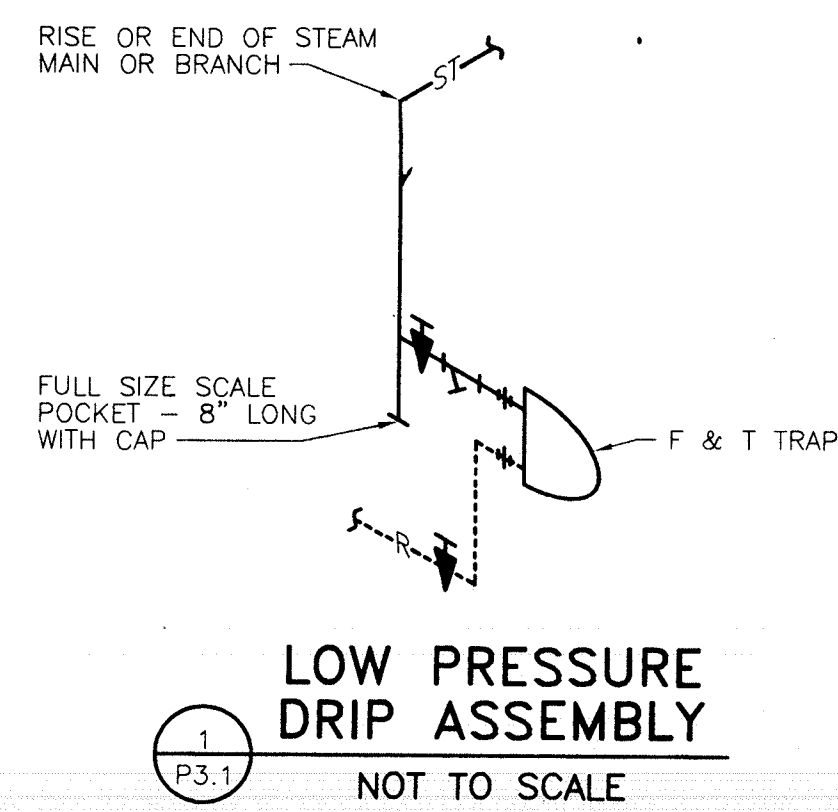
PARTIAL FIRST FLOOR PLAN - PLUMBING & PIPING
SCALE: 1/8" = 1'-0"

STATE TRAINING
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ELDORA, IOWA
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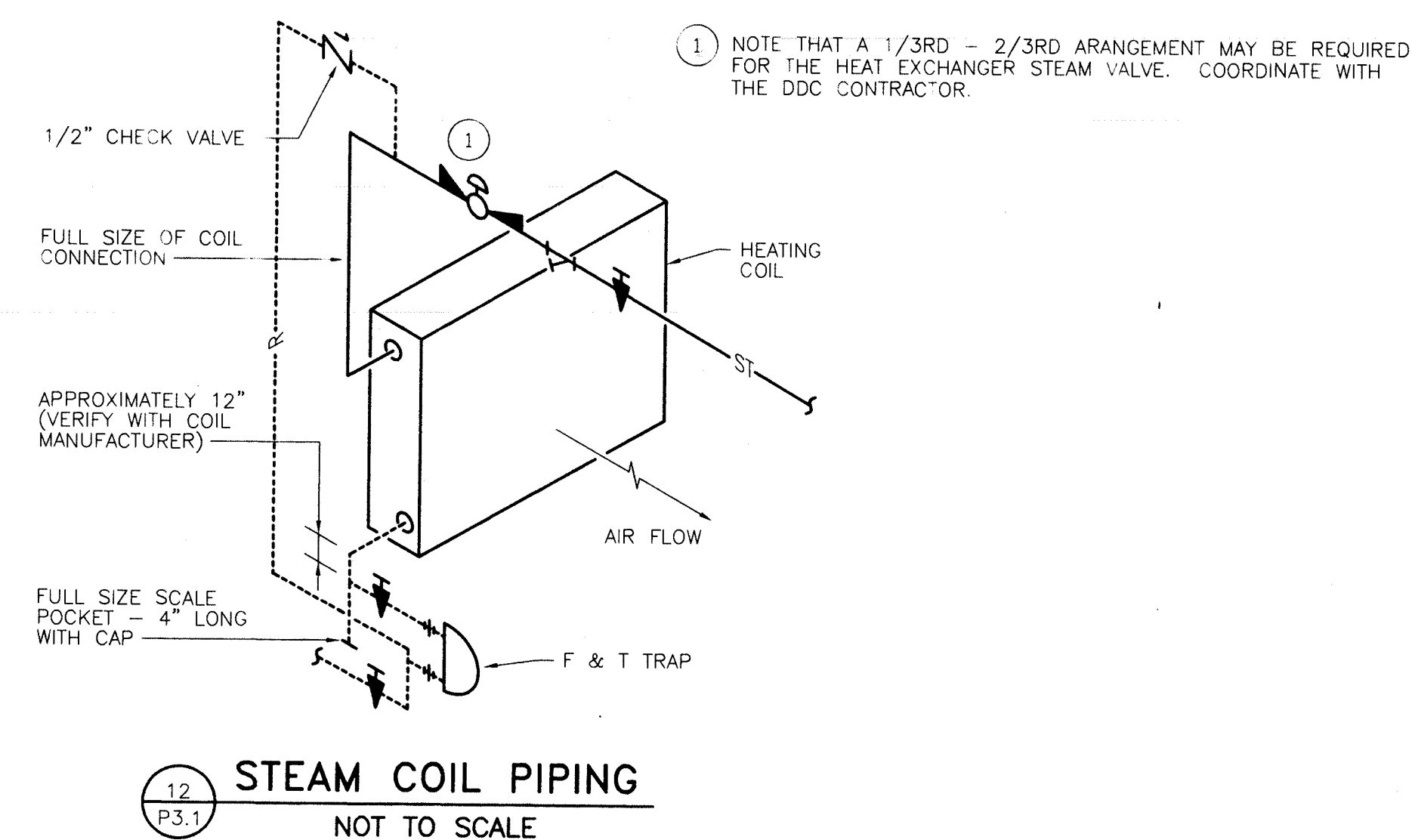
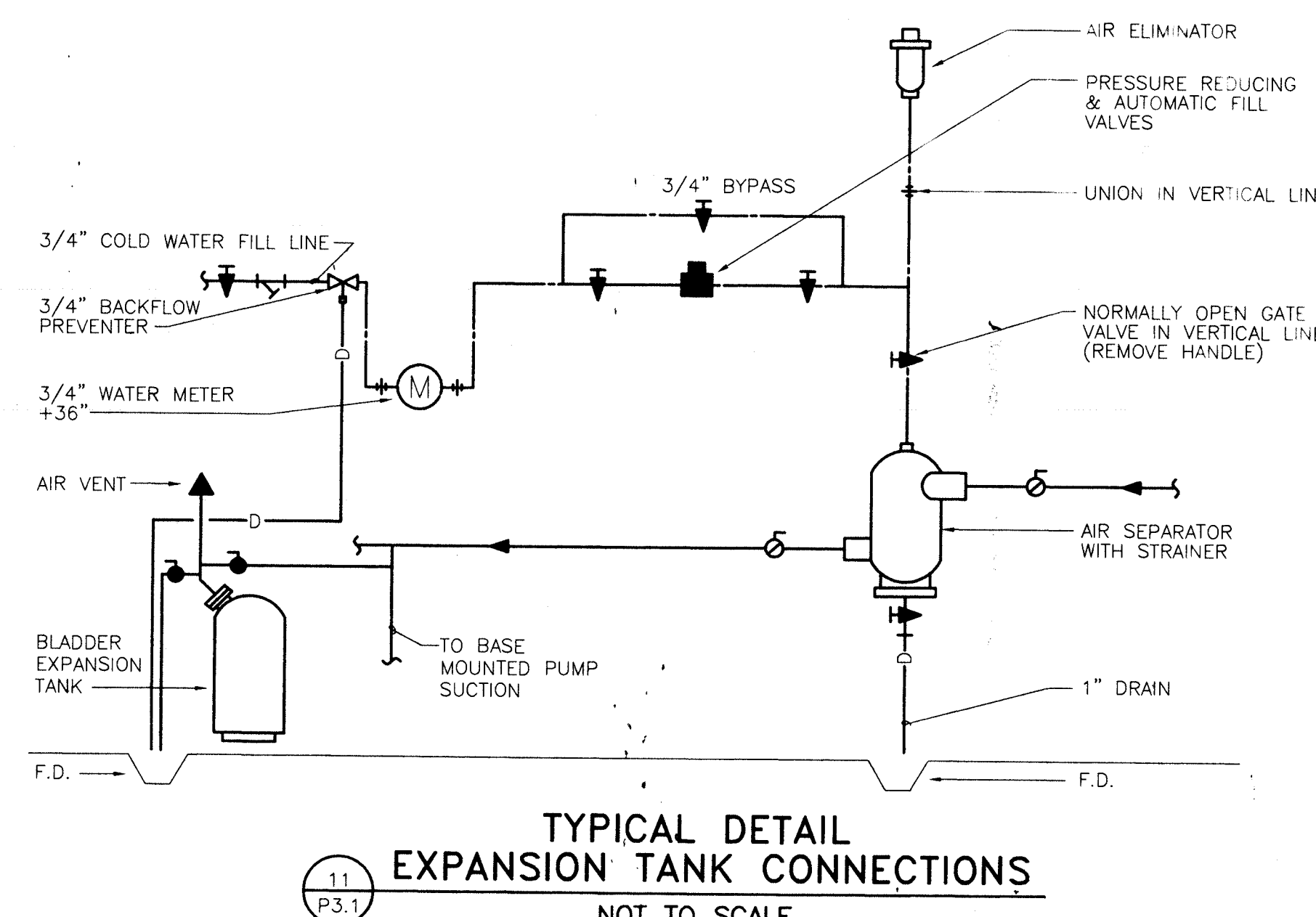
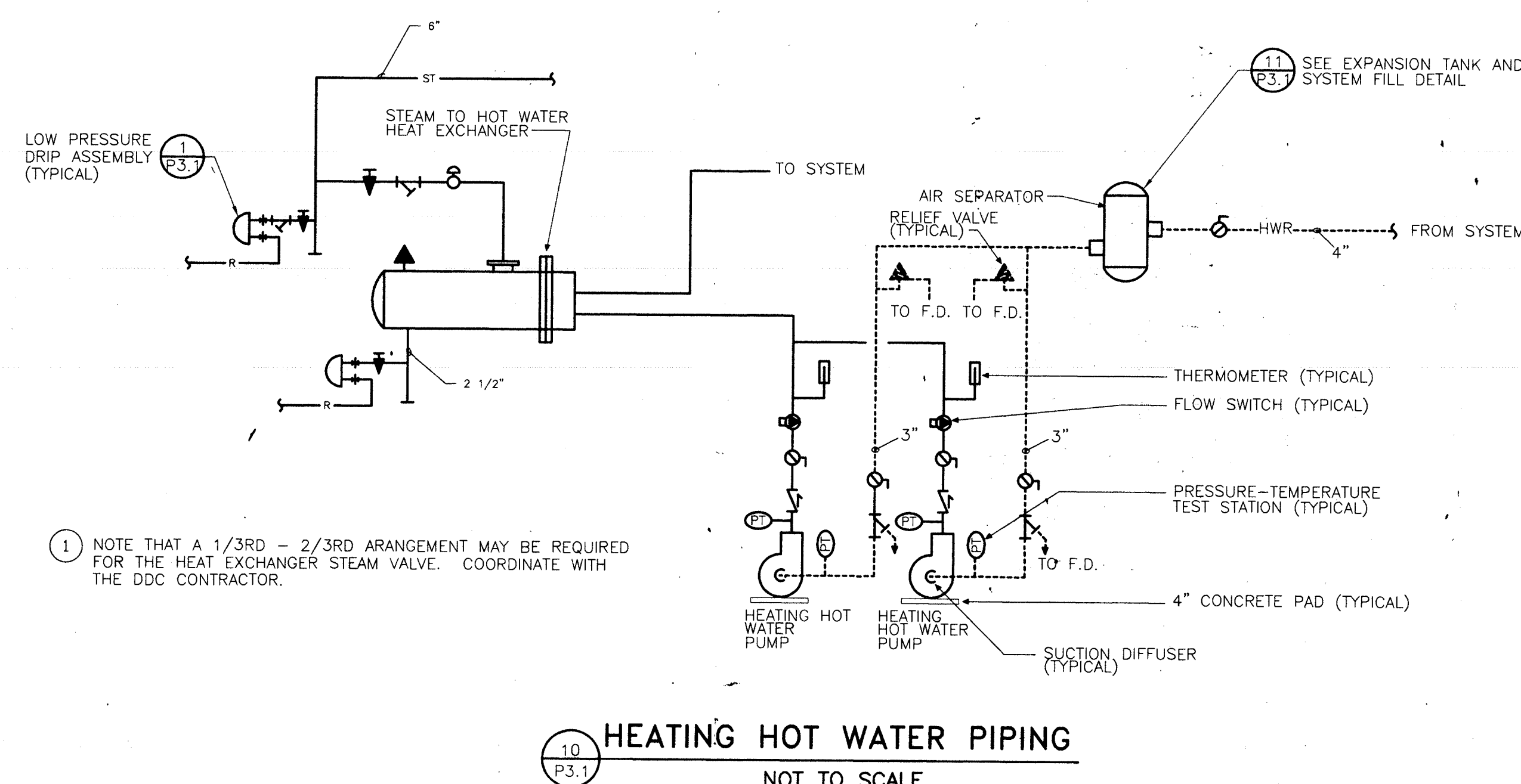
P2.2

Date: APRIL 7, 1999
Project No: 98071
File No: 98071-22

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TRAP SIZE SCHEDULE	
EQUIPMENT	TRAP SIZE
HEAT EXCHANGER	3"
AHU #5	3/4"
AHU #6	3/4"
AHU #7	3/4"



STATE TRAINING
SCHOOL FOR BOYS

ELDORA, IOWA

EDUCATION
VOCATION
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P3.1

Date: APRIL 7, 1999
Project No: 98071
File No: 98071P31

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