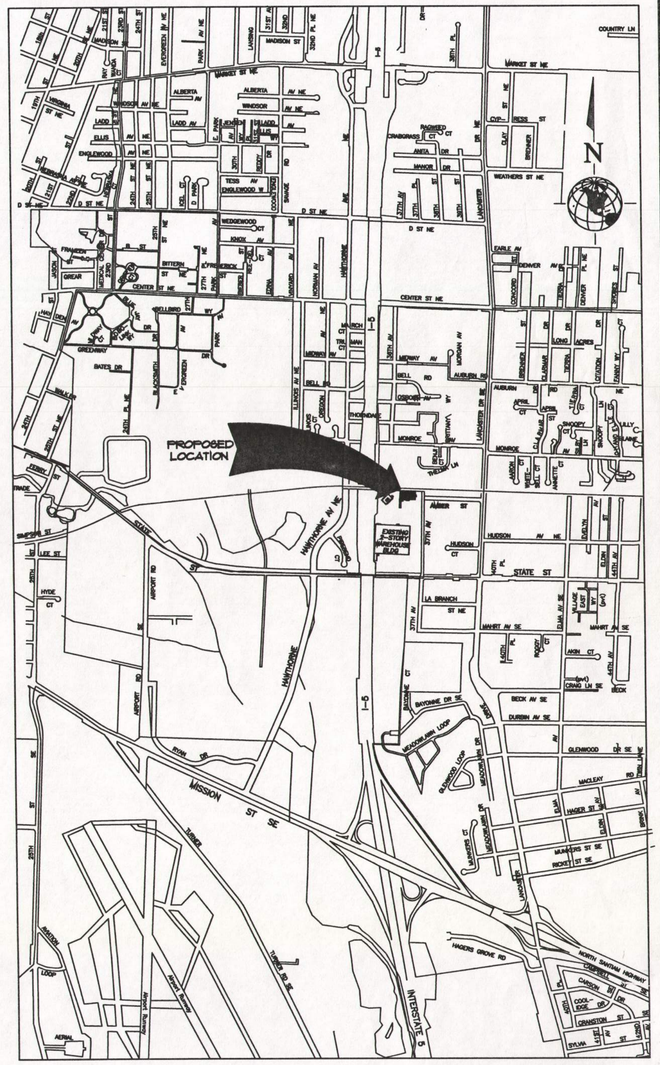
OREGON DEPARTMENT OF CORRECTIONS
CENTRAL DISTRIBUTION CENTER
NORTH WAREHOUSE
FREEZER INSTALLATION

SHEET INDEX

* DENOTES SHEETS NOT SUBMITTED ON 10-12-2001



VICINITY MAP
N.T.S.

Ref #411 Shelf
NW Freezer
10-11-01 CDC

JOB NO. 010171-S | CHECKED BY:
DRAWN BY: D.A.N. | DATE: 10-11-01

BMGP ENGINEERS, INC.
CONSULTING STRUCTURAL ENGINEERS
1045 13th ST. SE.
SALEM, OREGON 97302
PH: (503) 399-1259
FAX: (503) 399-8259

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MECHANICAL AND ELECTRICAL ENGINEERS
Environmental & Engineering Services Inc.
687 NW 5TH STREET
CORVALLIS, OREGON 97330
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FAX (541) 753-3948
EMAIL engineering@eesinet.com

COVER SHEET

NORTH WAREHOUSE
3601 STATE STREET
SALEM, OREGON

PRELIMINARY NOT FOR CONSTRUCTION

DWG. NO.
A1.0
of
010717-S

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℄ INTERSTATE 5

℄ STATE STREET

130'

100'

140'

EXISTING
2-STORY
WAREHOUSE
BLDG

548'

458'

EDGE OF PAVEMENT

AC

OFFICE

OFFICE

EXTG.
BLDG.

FENCE

EXISTING
11 PARKING
SPACES

ELEC.

CONC.

200'

PROPOSED
AREA OF WORK
IN EXISTING
BUILDING

EXT. CURB

EXISTING
7 PARKING
SPACES

100'

5" TRENCH
DRAIN

BOLLARD

UG TEL

UG TEL

FENCE

CURB

ROLLING
GATE

MAN
GATE

EXISTING
14 TRUCK
PARKING
SPACES

EXTG.
METAL BLDG.

37TH AVENUE

AMBER STREET

ACCESS POINT

BUILDING LEGAL

OVERALL
OCCUPANCY S-1
CONSTRUCTION TYPE V-N
(MAIN BUILDING III-N)
BUILDING IS FULLY SPRINKLERED
ALLOWABLE AREA - UNLIMITED (505.2)

WORK AREA - 24,276 SQ. FT.
EXISTING OCCUPANT LOAD
(ALL STORAGE (WAREHOUSE) = 49±
NEW OCCUPANT LOAD = 13±
(MOSTLY FREEZER)

N

SITE PLAN
1"=50'-0"

DRAWING TO APPROXIMATELY
1/2 OF SCALE SHOWN WHEN ON
11x17 SHEET
0 1 INCH

JOB NO. 010717-S
DRAWN BY: D.A.N.
CHECKED BY:
DATE: 10-11-01

CONSULTING STRUCTURAL ENGINEERS
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ENGINEERS, INC.

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Environmental & Engineering Services Inc.

SITE PLAN

NORTH WAREHOUSE
3601 STATE STREET
SALEM, OREGON

PRELIMINARY
NOT FOR
CONSTRUCTION

DWG. NO.
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of
010717-S

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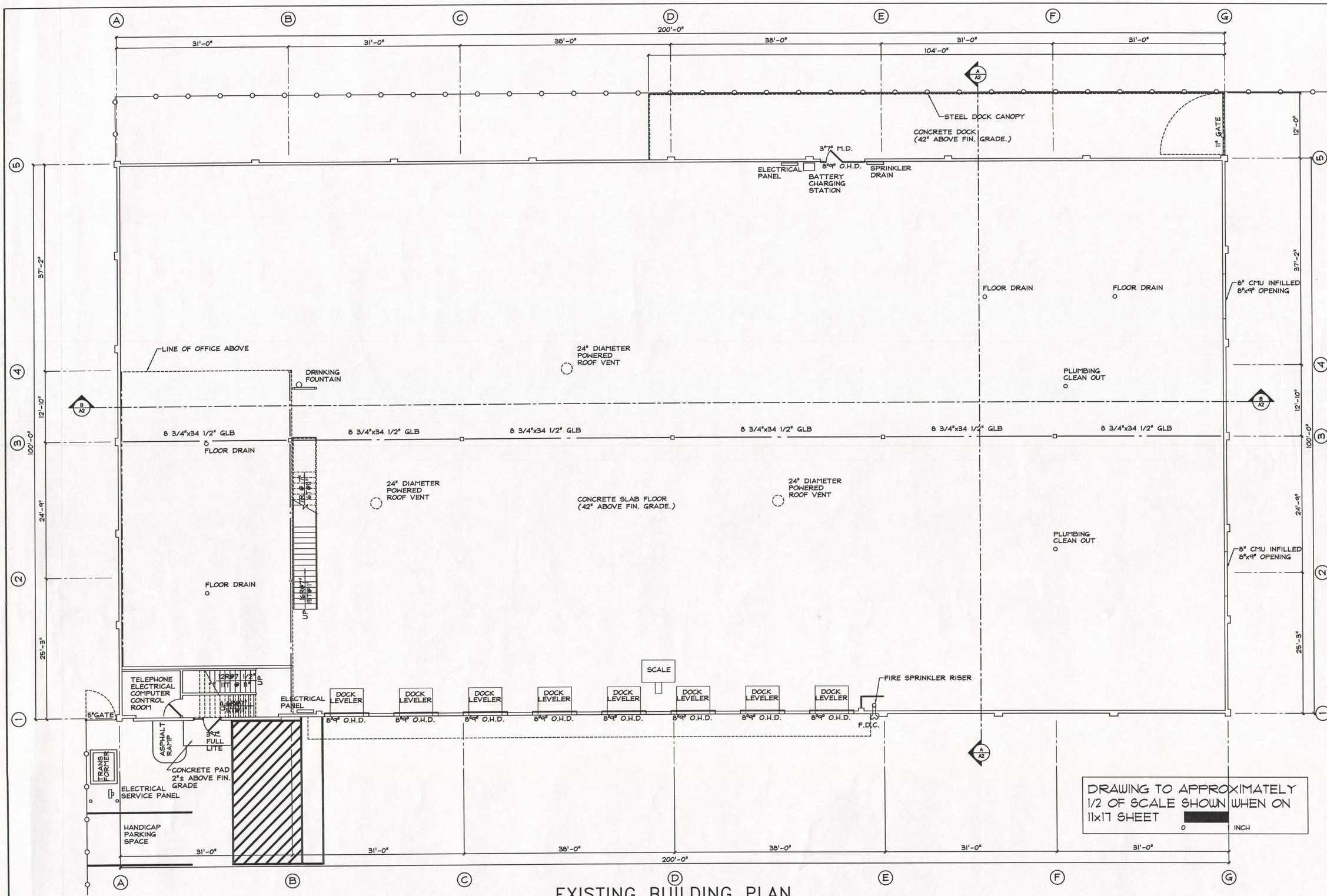

DRAWING TO APPROXIMATELY 1/2 OF SCALE SHOWN WHEN ON 11x17 SHEET

0 INCH

EXISTING BUILDING PLAN

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

CHECKED BY:
JOB NO. 010717-S
DRAWN BY: D.A.N.
DATE: 10-11-01

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Environmental & Engineering Services Inc.

EXISTING BUILDING PLAN

NORTH WAREHOUSE
3601 STATE STREET
SALEM, OREGON

PRELIMINARY NOT FOR CONSTRUCTION

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A2.0
of
010717-S

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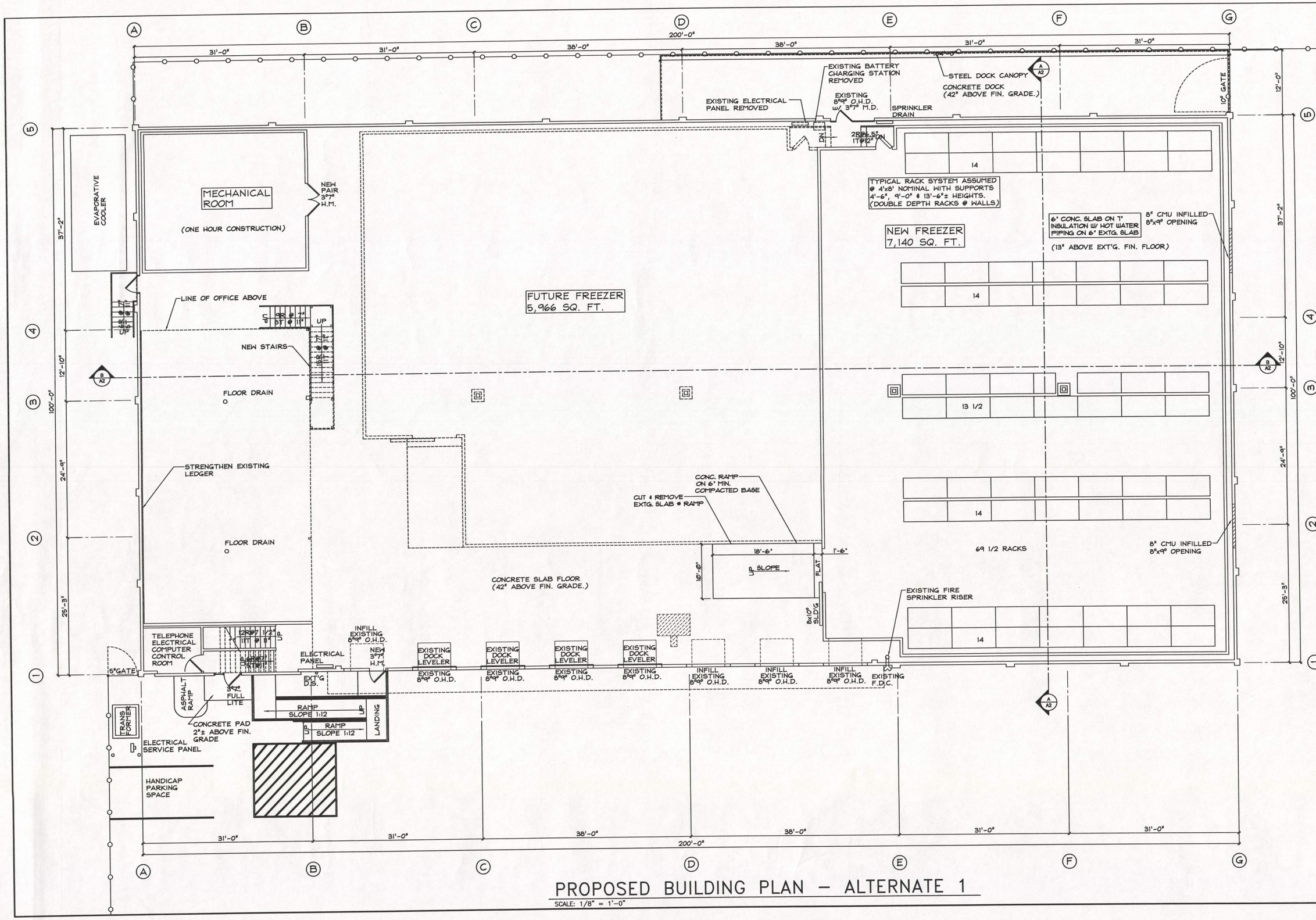

PROPOSED BUILDING PLAN – ALTERNATE 1

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

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JOB NO. 010717-S
DRAWN BY: D.A.N.
DATE: 10-11-01

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FLOOR PLAN - ALTERNATE 1

NORTH WAREHOUSE
3601 STATE STREET
SALEM, OREGON

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A2.1
of
010717-S

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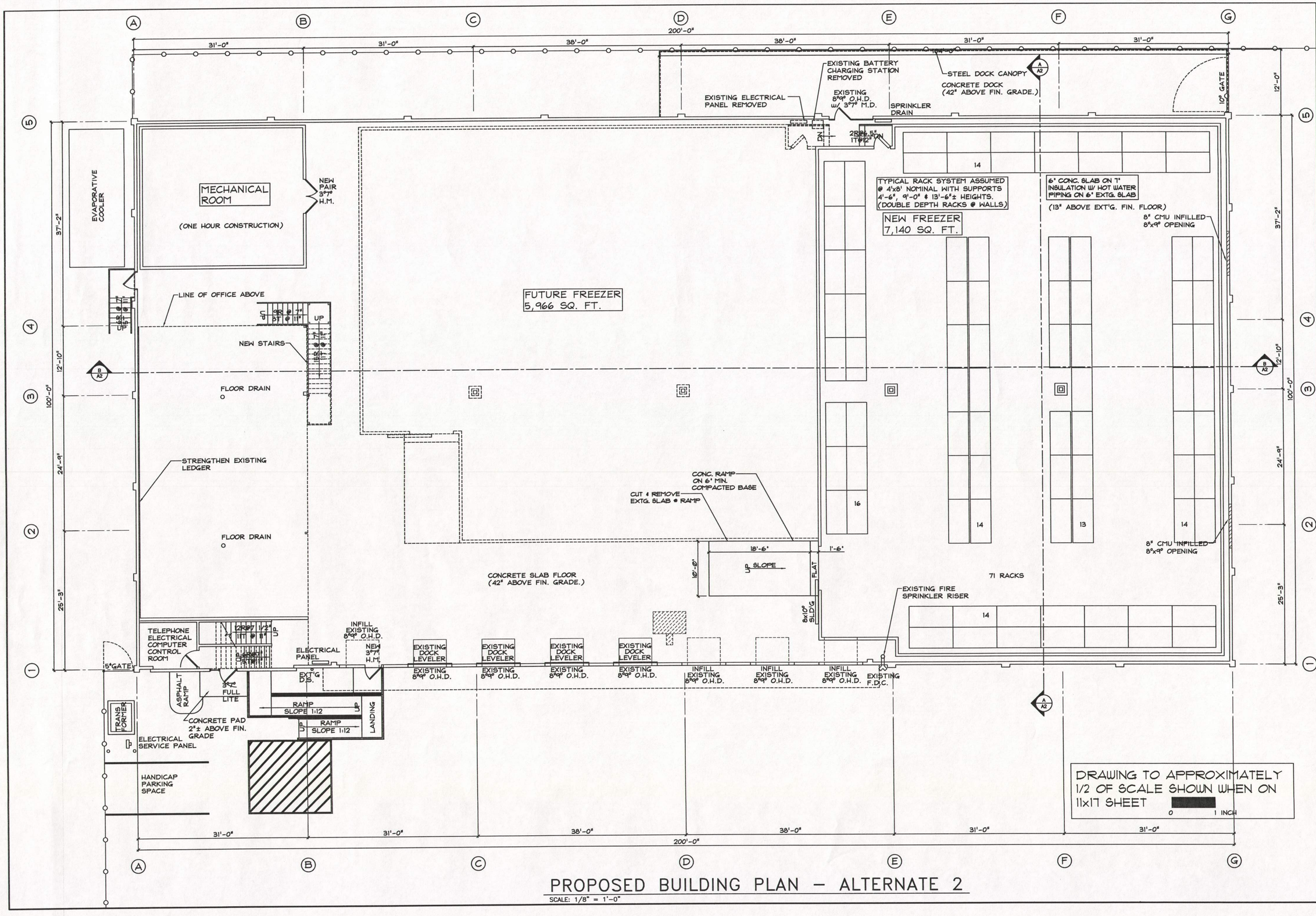

PROPOSED BUILDING PLAN – ALTERNATE 2

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

CHECKED BY:
JOB NO. 010717-S
DRAWN BY: D.A.N.
DATE: 10-11-01

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FLOOR PLAN - ALTERNATE 2

NORTH WAREHOUSE
3601 STATE STREET
SALEM, OREGON

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A2.1
of
010717-S

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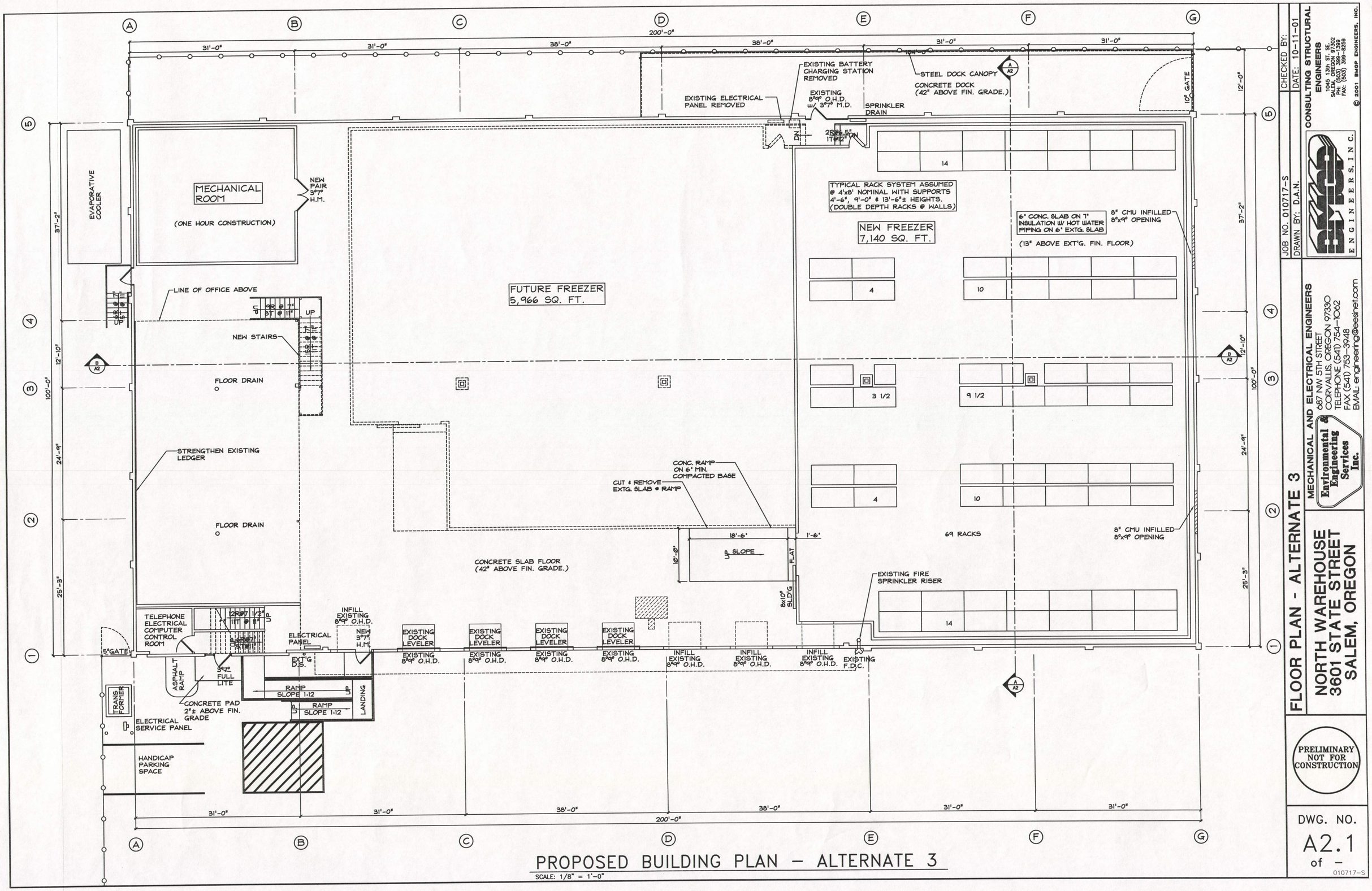

PROPOSED BUILDING PLAN – ALTERNATE 3

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

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DRAWN BY: D.A.N.

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FLOOR PLAN - ALTERNATE 3

NORTH WAREHOUSE
3601 STATE STREET
SALEM, OREGON

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A2.1
of –
010717-S

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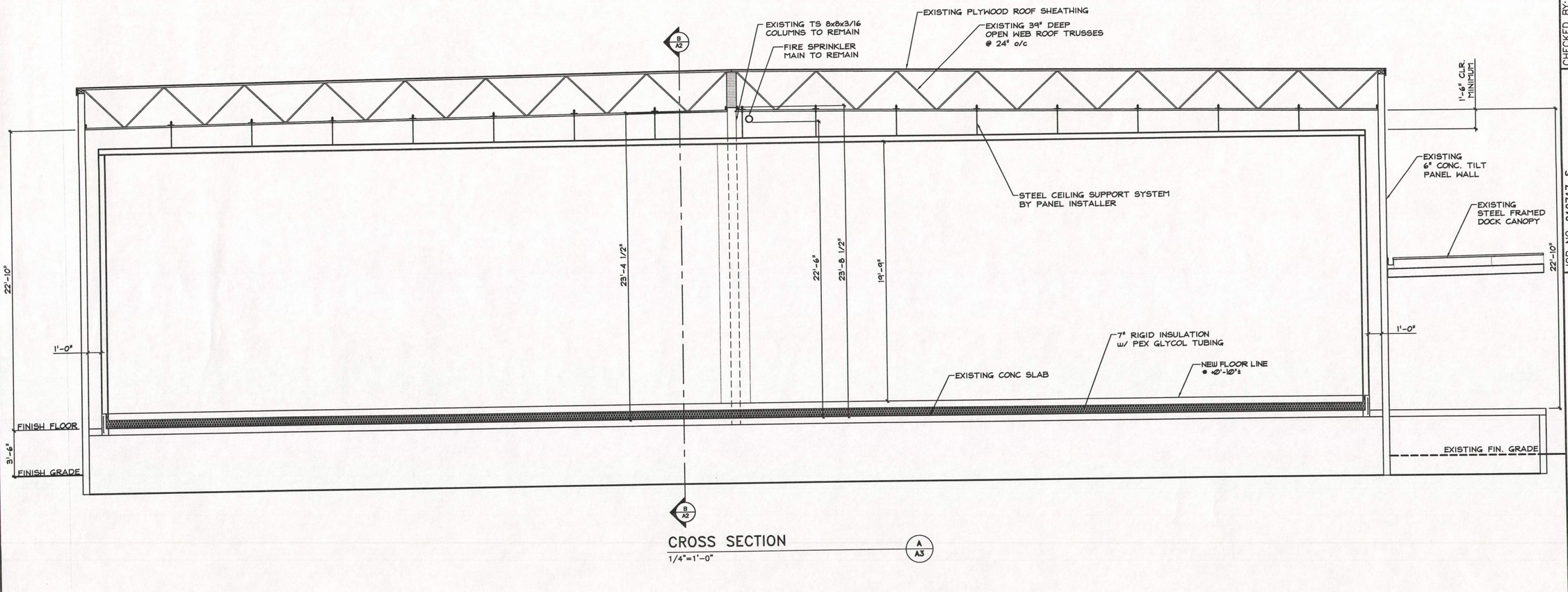
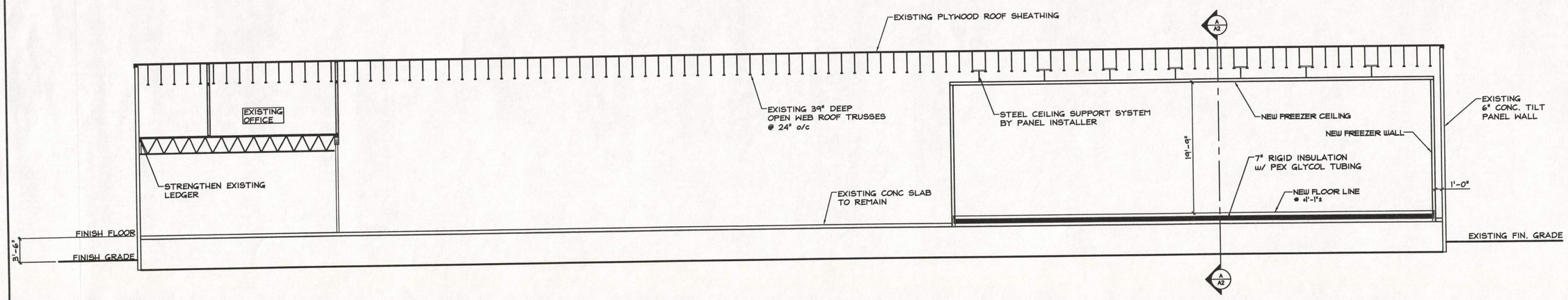


CROSS SECTION
1/4"=1'-0"
A
A3



LONGITUDINAL SECTION
1/8"=1'-0"
B
A3

CHECKED BY:
JOB NO. 010717-S
DRAWN BY: D.A.N.
DATE: 10-11-01

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Environmental & Engineering Services Inc.

SECTIONS

NORTH WAREHOUSE
3601 STATE STREET
SALEM, OREGON

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of
010717-S

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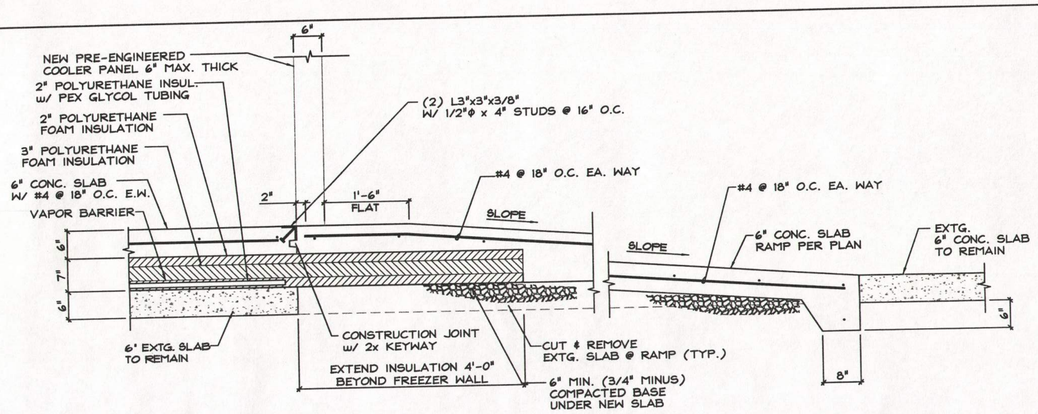
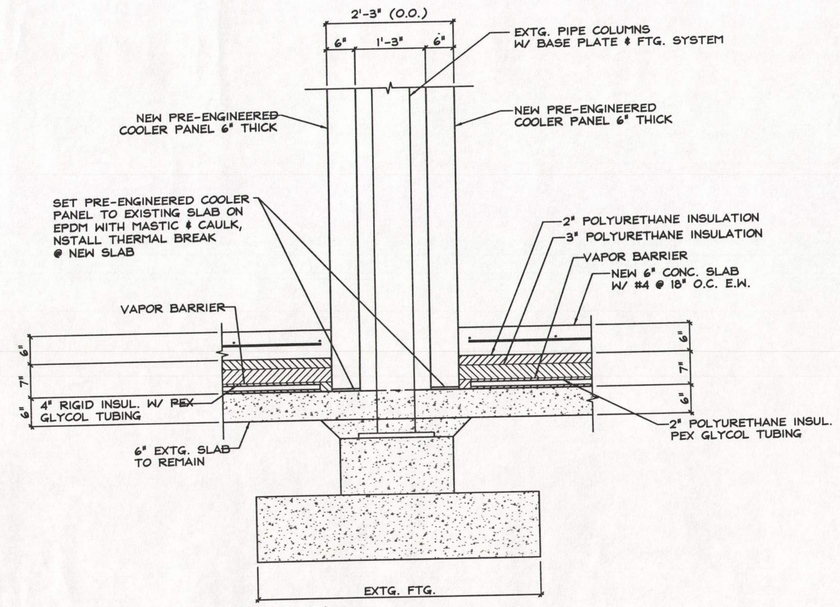


RAMP DETAIL

3/4"=1'-0"

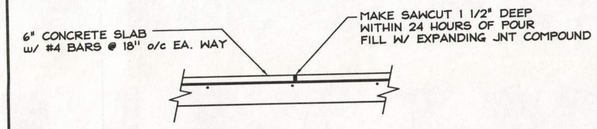
1 / S5.1



COLUMN INCASED W/ COOLER PANEL

3/4"=1'-0"

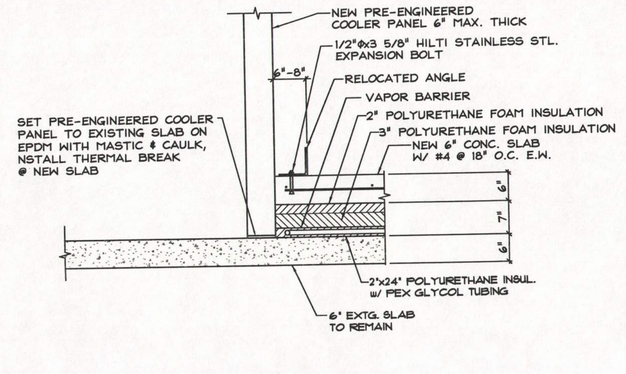
3 / S5.1



TYPICAL SAWCUT JOINT

3/4" = 1'-0"

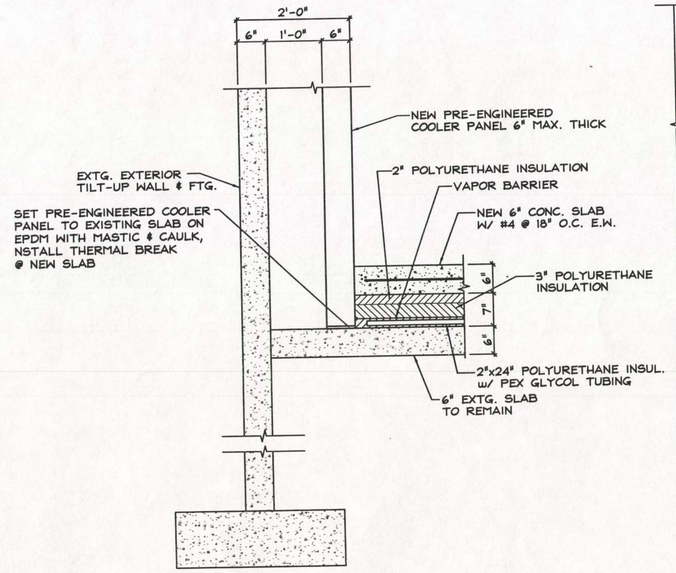
6 / S5.1



COOLER WALL/ FLOOR DETAIL

3/4"=1'-0"

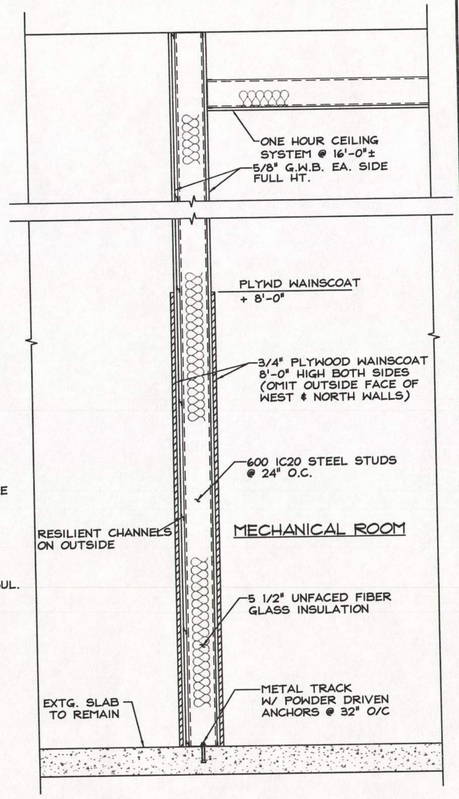
2 / S5.1



EAST COOLER WALL/ FLOOR DETAIL

3/4"=1'-0"

4 / S5.1



MECHANICAL WALL SECTION

3/4"=1'-0"

5 / S5.1

NOTE:
FREEZER PANEL DETAILS ARE DRAWN WITH 6" THICK PANELS. PANELS MAY VARY WITH MANUFACTURER.

CHECKED BY:
DATE: 10-10-01
JOB NO. 010717-S
DRAWN BY: D.A.N.

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BMGE ENGINEERS, INC.

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DETAILS

NORTH WAREHOUSE
3601 STATE STREET
SALEM, OREGON

PRELIMINARY NOT FOR CONSTRUCTION

DWG. NO.
S5.1
of
010717-S

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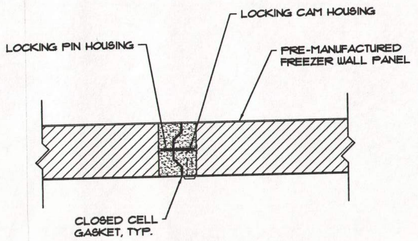
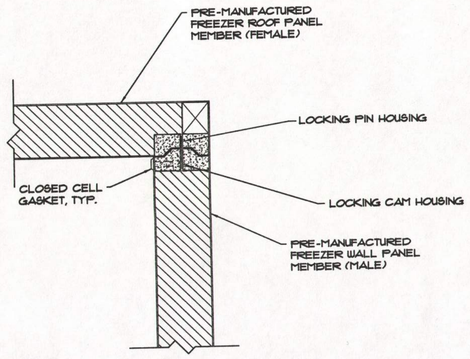


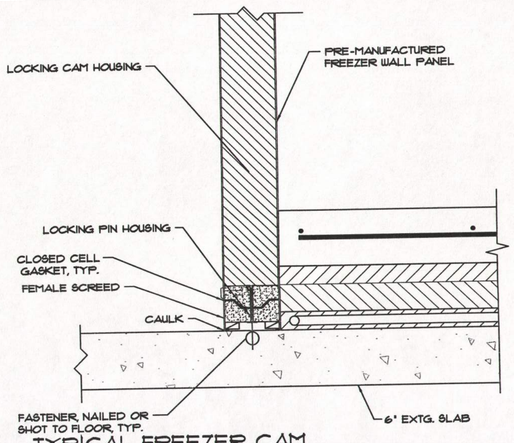
TYPICAL FREEZER CAM LOCK WALL ASSEMBLY

1 1/2"=1'-0" — 1 / S5.2



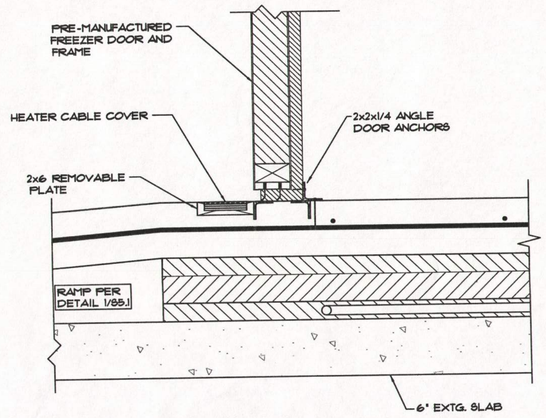
TYPICAL FREEZER CAM LOCK DOWN ROOF ASSEMBLY

1 1/2"=1'-0" — 2 / S5.2



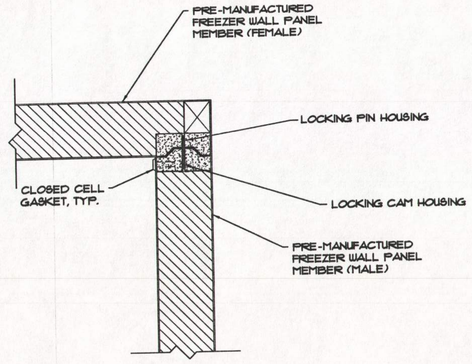
TYPICAL FREEZER CAM LOCK DOWN SCREED ASSEMBLY

3/4"=1'-0" — 3 / S5.2



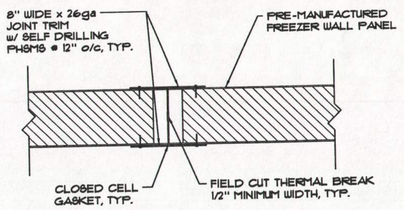
TYPICAL FREEZER DOOR JAMB ASSEMBLY

3/4"=1'-0" — 4 / S5.2



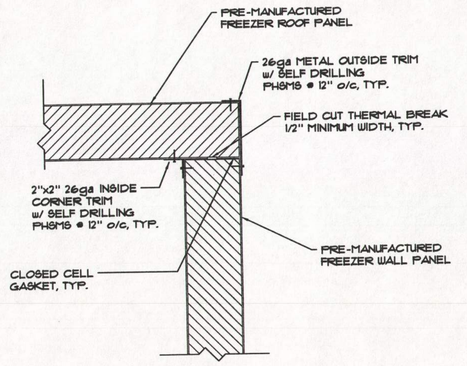
TYPICAL FREEZER CAM LOCK CORNER ASSEMBLY

1 1/2"=1'-0" — 5 / S5.2



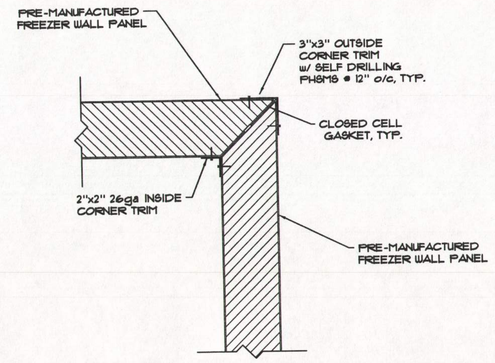
ALTERNATE FREEZER WALL PANEL TO WALL PANEL ASSEMBLY

1 1/2"=1'-0" — 6 / S5.2



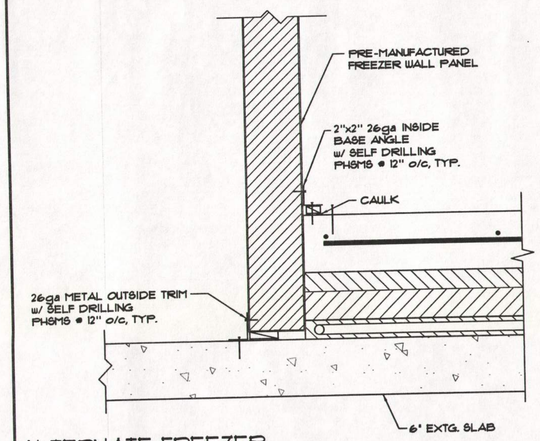
ALTERNATE FREEZER WALL TO ROOF ASSEMBLY

1 1/2"=1'-0" — 7 / S5.2



ALTERNATE FREEZER CORNER ASSEMBLY

1 1/2"=1'-0" — 8 / S5.2



ALTERNATE FREEZER WALL TO FOUNDATION ASSEMBLY

3/4"=1'-0" — 9 / S5.2

NOTE:

THESE DETAILS ARE PROVIDED FOR BIDDING PURPOSES ONLY, THE SELECTED MANUFACTURER SHALL SUBMIT CONSTRUCTION DETAILS AND SPECIFICATIONS TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.

JOB NO. 010717-S
DRAWN BY: D.A.N.
CHECKED BY:
DATE: 10-11-01

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FREEZER DETAILS

NORTH WAREHOUSE
3601 STATE STREET
SALEM, OREGON

PRELIMINARY NOT FOR CONSTRUCTION

DWG. NO.
S5.2
of
010717-S

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WORK SCOPE

The work under this Contract is to provide the labor, material, and equipment for the complete installation of the systems described. Contractor is responsible for installation, balancing, testing, startup, and operational checkout for a fully functional system.

The drawings and work scope are not intended to be comprehensive of all work to be done under this Contract. Specifications, drawings, and work scope must be used in their entirety to develop full understanding of the work to be done under this Contract.

Provide and install total refrigeration and integral freeze protection floor system and fire protection system for food storage warehouse per Drawings. Refrigeration equipment to be located in mechanical room allocated. The system includes furnishing of all components and installation of a custom engineered refrigeration system that has the capability to maintain operating temperature of -20° F.

Refrigeration system to include evaporators, pumps, piping, evaporative condenser, compressors, expansion tanks, accumulator, oil separator system, valves, fittings, micro-processor controls, alarms, and related equipment for fully functional system. Provide equipment room ventilation system, emergency shut down switching, and related Oregon Code requirements for safe refrigeration operation and containment. Provide equipment isolation pads, pipe supports and hangers, and seismic restraints for each major equipment component. Provide computer based control of system including hydronic floor freeze protection for fully automatic operation. Provide and install exhaust fans for freezer condensation control.

Coordinate initial start-up and temperature pull-down procedures with Contractor's Commissioning Agent in accordance with Specification Section 01820.

The radiant under floor freeze protection system is to include continuous engineered cross-linked polyethylene (PEX) tubing coupled with a shell and tube heat exchanger in the refrigerant piping. Loop temperatures shall be maintained by mixing valves and a central control panel tied into temperature sensors. Radiant tube manifolds and connecting fittings to be accessible for service. Underground connections not allowed. Glycol ground loop to be maintained at 45° F to 55 °F.

One fire protection system is to be installed with allowance for future second system. Work to include design and approval of the two systems. The systems are double interlocked pre-action dry system using compressed nitrogen gas with extra large orifice 286°F dry pendant sprinklers installed in ceiling of the 0°F freezer. Install 140°F fire detectors in ceiling of freezer. Release control to have a minimum of 90- hour backup battery and automatic recharging capability. Provide and install new piping and large orifice 286°F upright sprinklers for protection of the intertistal space between the top of the freezer and the roof.

Perform water quantity and pressure test on existing hydrants. Obtain approval to reuse existing standpipes, fire department connections, hose connections, wall fire hydrants, and other ancillary existing system parts.

Provide and install interface to existing fire alarm system, two emergency pull boxes, and visual and auditory alarms. Provide and install two cabinets for spare sprinklers, tools, spares, and instructions. Provide two spare 300 cubic feet high pressure nitrogen gas cylinders, fully charged.

Test operation of existing air compressor, existing dry valve "7AA", and all new equipment per fire department's requirements. Final fire department approval of both systems shall be required for Substantial Completion.

GENERAL NOTES

Provide submittals of product information to Engineer for approval.

Manufacturers listed represent minimum standards. Other manufacturers will be considered following prior approval. Final apprpval is at time of submittal.

All work shall comply with applicable codes and regulations as enforced by the State of Oregon and the local Code Authority.

Contractor is responsible for any damage to roof membrane resulting from this work.

Reports will be submitted to Engineer in duplicate giving observations and results of test, indicating compliance or non-compliance with specified standards and with Contract Documents.

Install all work parallel and plumb to building lines.

All piping and equipment shall be installed in a manner and in locations to avoid obstruction, preserve head room, and keep openings and passageways clear.

Existing facilities are drawn as accurately as can be determined from existing drawings and on-site inspections. Verify at Project.

No attempt has been made to show all pipe supports, locations and expansion joints. Refer to specifications for this.

Visitation of the job site is required before bidding, existing conditions may affect the extent of the work. Additional costs will not be authorized due to lack of understanding of the scope of work and existing conditions.

To insure the structural integrity of the building, all cutting required for the installation of ducts, piping, and conduit is to be cleared through the Engineer before work is done.

INITIAL START UP AND TEMPERATURE PULL-DOWN REQUIREMENTS

1. Contraction joints must be able to prevent structural damage during pull-down.
2. First stage of temperature reduction should be from ambient down to 35°F. Usually takes about 72 hours.
3. Hold room until dry. Any plaster should be fully cured before refrigeration.
4. Doors should be partially open during pull-down to relieve the internal vacuum caused by cooling air.
5. At end of holding period caulk any open joints. Concrete slab will contract during pull-down.
6. After above steps pull-down to 0°F. Expect rate of 5°F per day total drying and total pull-down process can take up to 4 weeks.

EQUIPMENT LIST

Compressor C-1:
Screw compressor with minimum capacity of 36 tons refrigeration @ -10°F suction and 85F condensing temperatures using R-717 ammonia refrigerant. Thermal siphon cooling. Two speed motor. 550 cfm displacement. 4,000 lbs. Vilter VSM 301, Bitzer, Chandler, or prior approved equal.

Compressor C-2:
Screw compressor with minimum capacity of 36 tons refrigeration @ -10°F suction and 85F condensing temperatures using R-717 ammonia refrigerant. Thermal siphon cooling. Two speed motor. 550 cfm displacement. 4,000 lbs. Vilter VSM 301, Bitzer, Chandler, or prior approved equal.

Compressor C-3:
Screw compressor with minimum capacity of 36 tons refrigeration @ -10°F suction and 85F condensing temperatures using R-717 ammonia refrigerant. Thermal siphon cooling. Two speed motor. 550 cfm displacement. 4,000 lbs. Vilter VSM 301, Bitzer, Chandler, or prior approved equal.

Evaporative Condenser CU-1:
Factory assembled evaporative condenser capable of rejecting minimum 1,960,000 Btu/hr. 1 ½ Hp, 220 gpm. 26,500 cfm fan with two 3 Hp motors and variable frequency drive. 10,000 lbs. Vilter VSA 142, BAC, Evapco, or prior approved equal.

Evaporators AU-1 to AU-4:
Four (4) evaporators at 95,000 Btu/hr capacity 4 fins per inch, hot gas bypass defrost. Two 1 Hp fan motors. Vilter HP23-64-1, Colmac, HeatCraft, or prior approved equal.

Pressure Vessels:
Suction accumulator: Shell and tube accumulator with high level float control, 36" diameter x 8'. 120 VAC.

High pressure receiver: Welded steel tank, 24" diameter x 12'.

Circulation Pumps:
Inline circulation, 15 gpm at 25 feet head. Motor ½ Hp, 120 volt. Grundfos UPC-50-160, B&G, Armstrong, Taco, or approved equal. Two (2) required.
?Exhaust fans:
Aluminum, sidewall mounted exhaust fan with capacities as noted below:

EF-1	900 cfm, 1/10 Hp, 1 required
EF-2	2,500 cfm, 1/3 Hp, 1 required
EF-3	1,200 cfm, 1/8 Hp, 2 required

Greenheck, Cook, Acme, or approved equal.

CONTROL SEQUENCES

Compressors:

Compressor C-1 starts logic (primary). Call for compressor or "hand" switch on unless plant fault or trip relay active. If compressor C-1 faulted, buffer timer active before compressor C-2 starts. If C-1 does not start in grace period, C-2 starts. Compressor C-2 is a stand-by compressor. Compressor C-2 operates only is freezer capacity is too great for C-1 or compressor #1 is faulted aor will not start. Compresor #2 has fault trip relays as C-1. Compressor C-2 capacity enable ocurs if the suction pressure is greater or equal to setpoint.

Freeze Protection System:

Coldest slab temperature sensor control heating valves. Heating valve V-1 opens to full heat prior to heat valve V-2 opening. Controller operates both valves to maintain minimum setpoint of 85F (operator adjustable).

Defrost Cycle:

Step 1: Pump down accumulator below flow level, main discharge reg de-energized and hot gas reg energized (hot gas bypass defrost).
Step 2: Evaporator fans off and enable suction stop relay
Step 3: Enable hot gas bypass solenoid
Step 4: Disable hot gas bypass solenoid and defrost relief energized for 5 minutes.
Step 5: Disable defrost: Main gas and discharge revert back to normal suction. Stop relay remains open this step.

Time delay between the eight evaporator starts so all do not start same time. A one minute timer. Assure time delay between defrost cycles and only two evaporators defrosting at a time. Sequence so only one evaporator on the south branch (AU-1 to AU-4) and one evaporator on the north branch (AU-5 to AU-8) defrost simultaneously.

Alarms:

- Low level or high level refrigerant leak - horn/light alarm
- Freezer high temperature alarm
- Compressor C-1 and C-2 faulted lights
- Overflow trap
- Emergency refrigeration switch - glycol pump.

Refrigeration leak detection & alarm on low/high levels. Start emergency machine room vent fan EF-4 on high limit.

LEGEND

- CONDENSATE DRAIN LINE
- DISCHARGE LINE
- HOT GAS BYPASS LINE
- LIQUID LINE
- SUCTION LINE
- VENT LINE
- CHECK VALVE
- GLOBE VALVE
- REGULATOR VALVE
- ANGLE VALVE

FILE: 02BMG-M1.0.DWG

DOC DISTRIBUTION CENTER FREEZER REMODEL

D.O.C. NORTH FREEZER ADDITION
3601 AMBER STREET SE
SALEM, OREGON
FOR: DEPARTMENT OF CORRECTIONS

MECHANICAL AND ELECTRICAL ENGINEERS
Environmental & Engineering Services Inc.
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FAX (541) 753-3948
EMAIL: engineering@eesinet.com

REVISION:

JOB NO. 010717-S | CHECKED BY:
DRAWN BY: R.L.P. | DATE: OCT. 11, 01

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PORTLAND, OREGON 97209
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REGISTERED PROFESSIONAL ENGINEER
10373
OREGON
SEPT. 21, 1979
FRED E. SHAUB
EXPIRES 06-30-2002

DWG. NO.
M1.0
of 5

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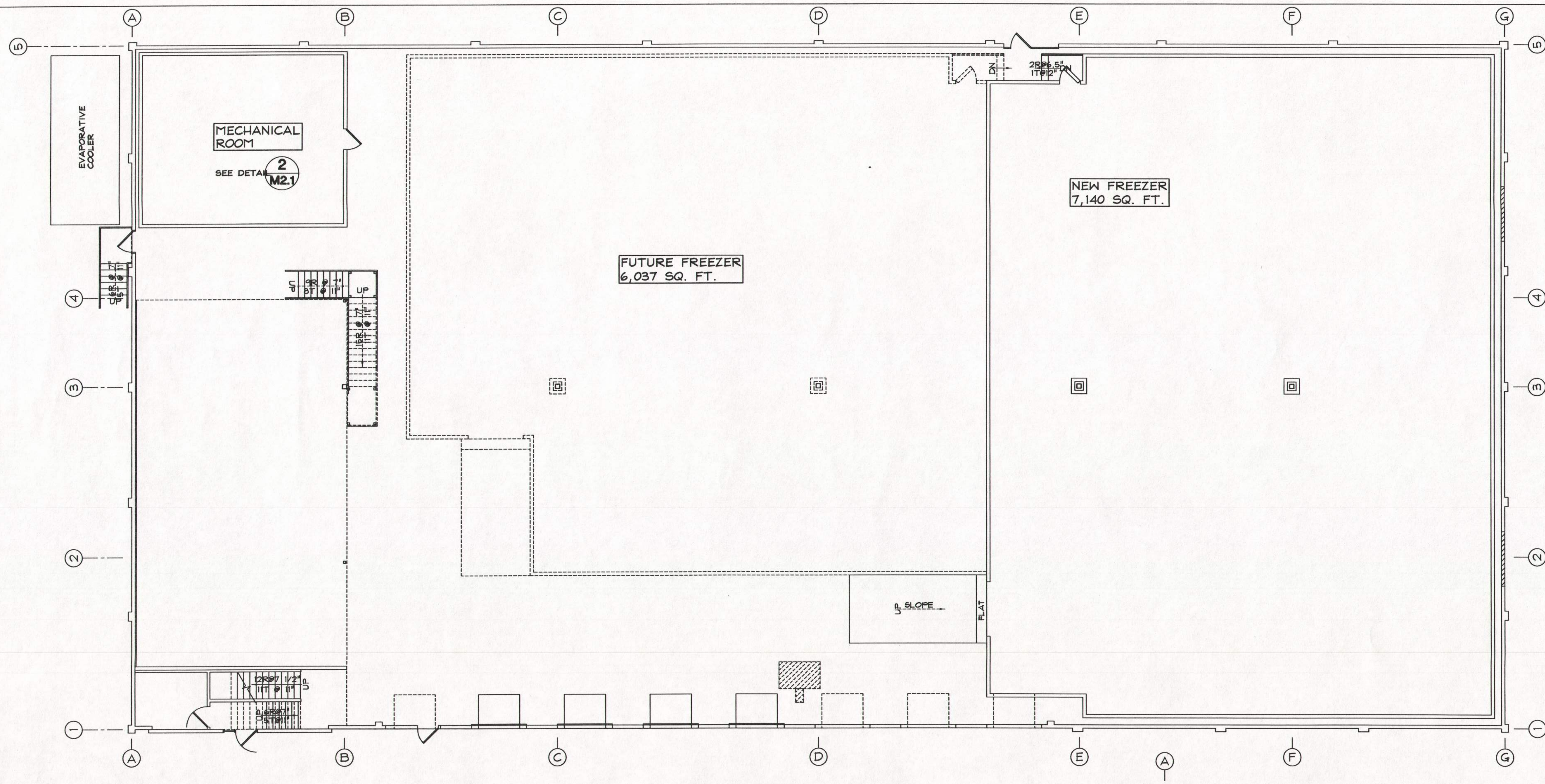
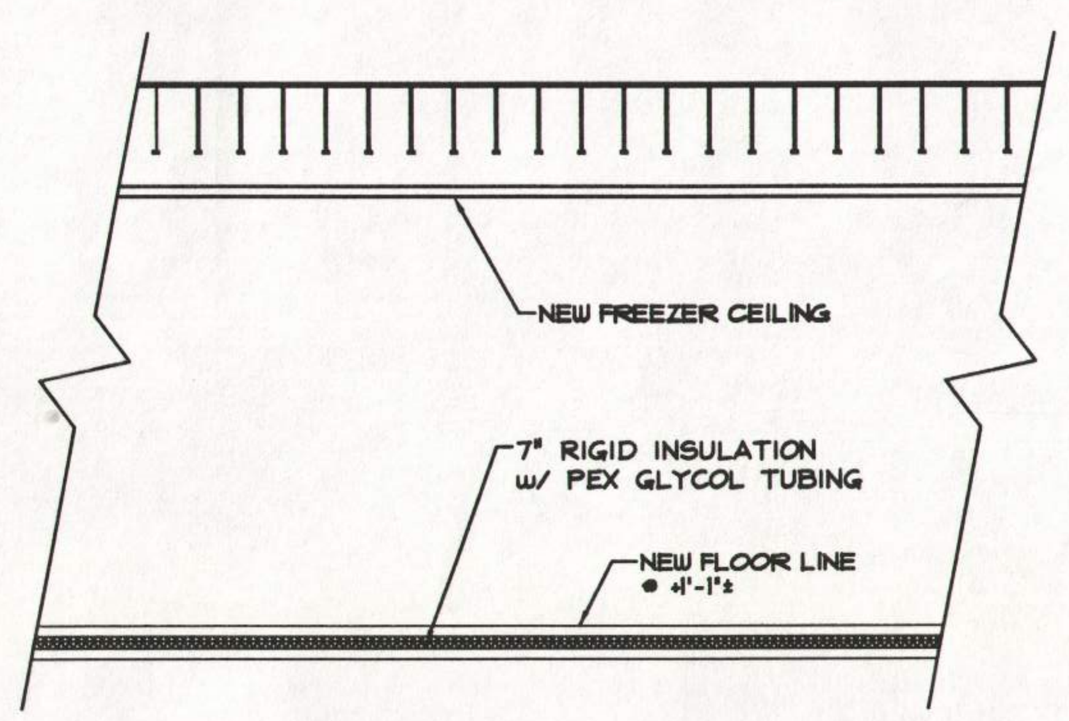
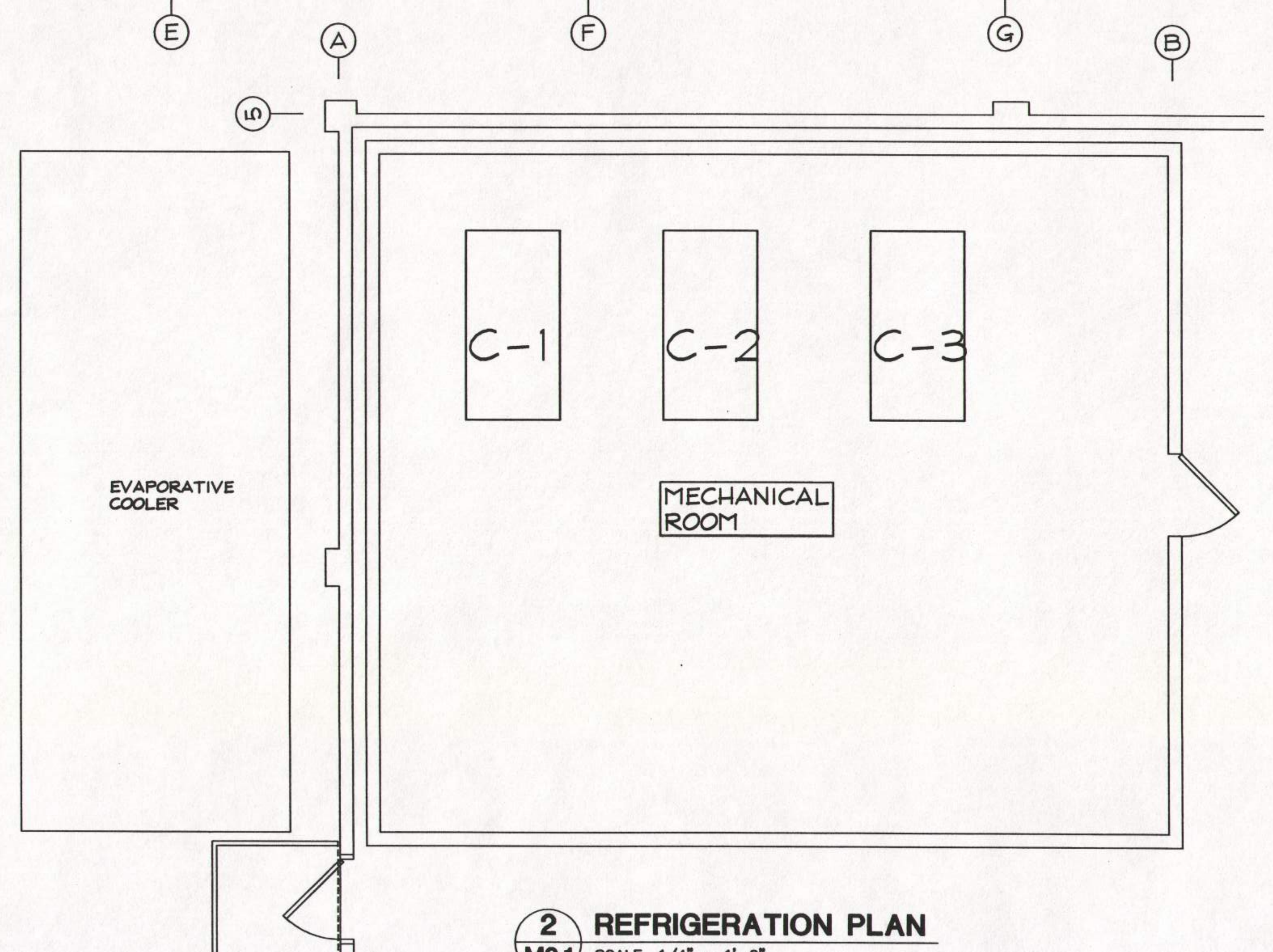


REFRIGERATION PLAN
SCALE: 1/8" = 1'-0"



1 (M2.1) EXHAUST FAN ELEVATION DETAIL
SCALE: 1/8" = 1'-0"



2 (M2.1) REFRIGERATION PLAN
SCALE: 1/4" = 1'-0"

FILE: 02BMG-M2.1.DWG

NORTH WAREHOUSE - MECHANICAL REFRIGERATION PLAN

D.O.C. NORTH FREEZER ADDITION
3601 AMBER STREET SE
SALEM, OREGON
FOR: DEPARTMENT OF CORRECTIONS

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DWG. NO.
M2.1
of 2

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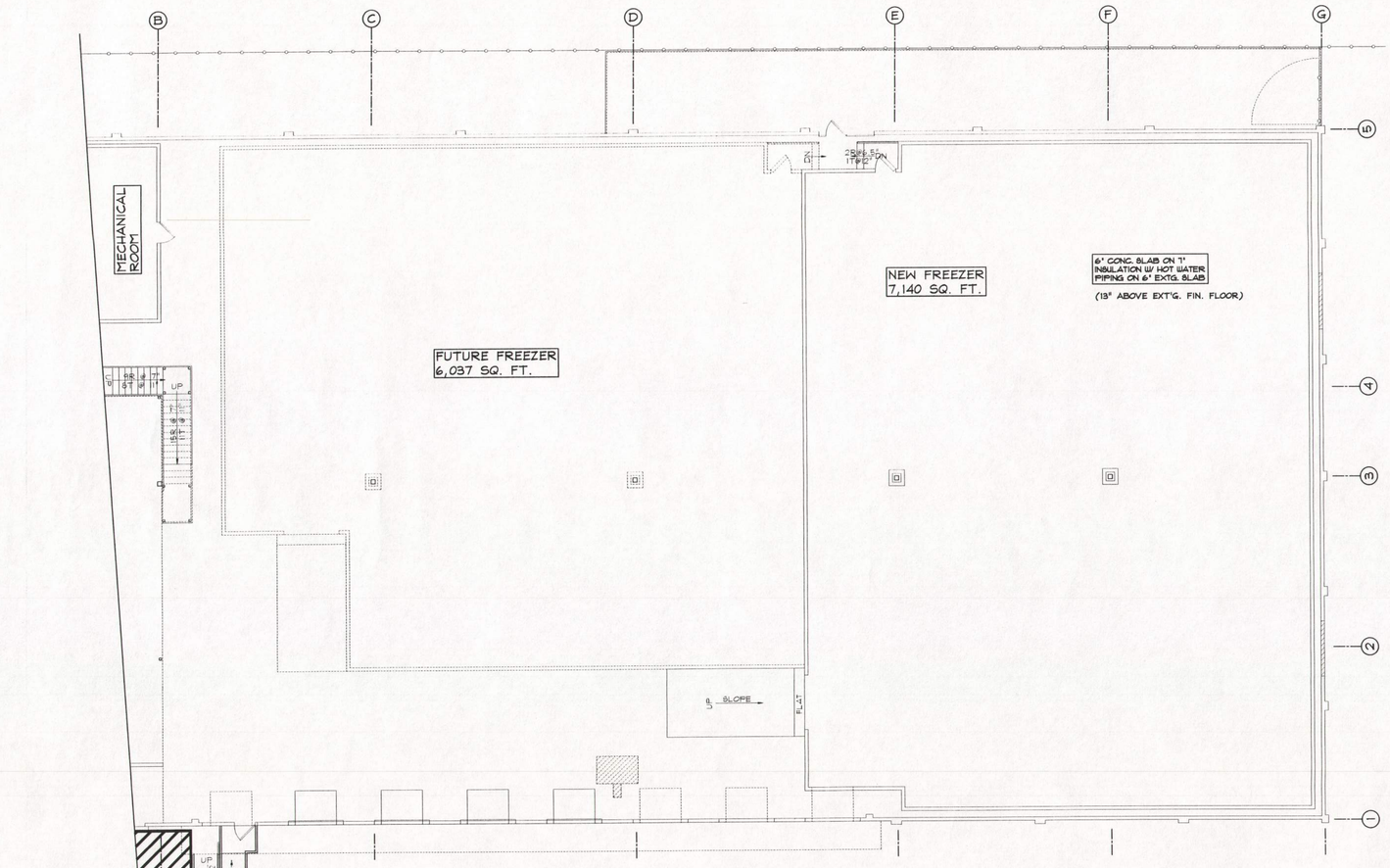
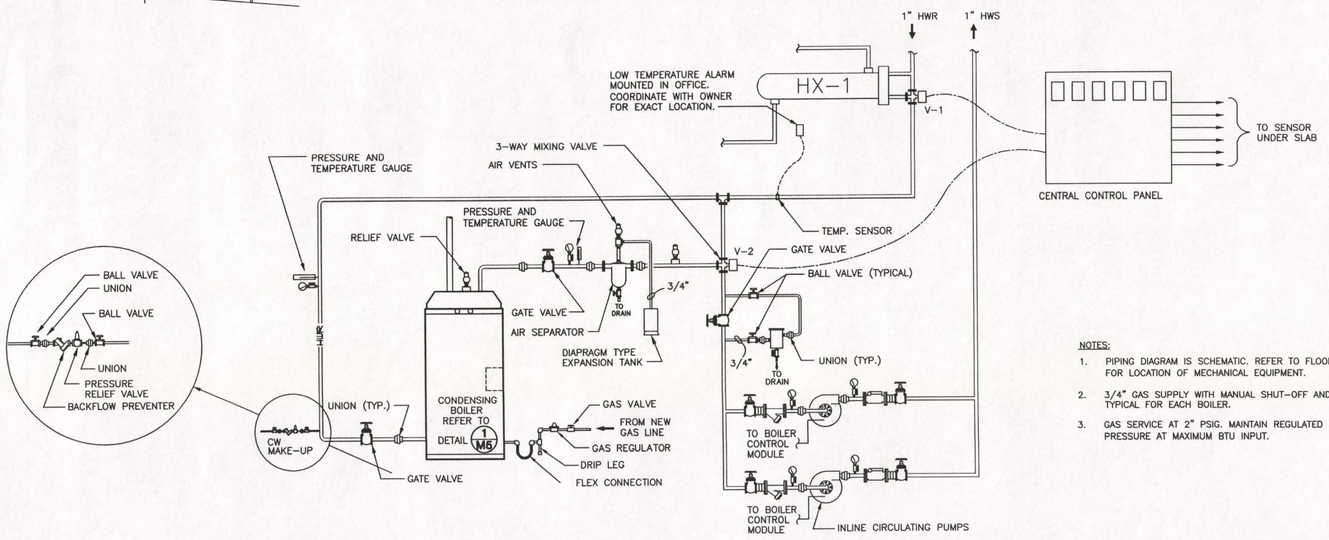


FREEZER FLOOR SLAB HYDRONIC HEATING PLAN

SCALE: 3/32" = 1'-0"

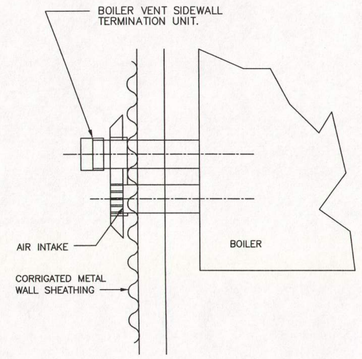


NOTES:

1. PIPING DIAGRAM IS SCHEMATIC. REFER TO FLOOR PLAN FOR LOCATION OF MECHANICAL EQUIPMENT.
2. 3/4" GAS SUPPLY WITH MANUAL SHUT-OFF AND REGULATOR TYPICAL FOR EACH BOILER.
3. GAS SERVICE AT 2" PSIG. MAINTAIN REGULATED 8.5" W.C. PRESSURE AT MAXIMUM BTU INPUT.

1/M2.2 HEATING WATER PIPING DIAGRAM

NOT TO SCALE



2/M2.2 SIDEWALL TERMINATION

NOT TO SCALE

REVIEW DOCUMENTS, NOT FOR CONSTRUCTION

NORTH WAREHOUSE - HYDRONIC HEATING PLAN

D.O.C. NORTH FREEZER ADDITION
3601 AMBER STREET SE
SALEM, OREGON
FOR: DEPARTMENT OF CORRECTIONS

REVISION:

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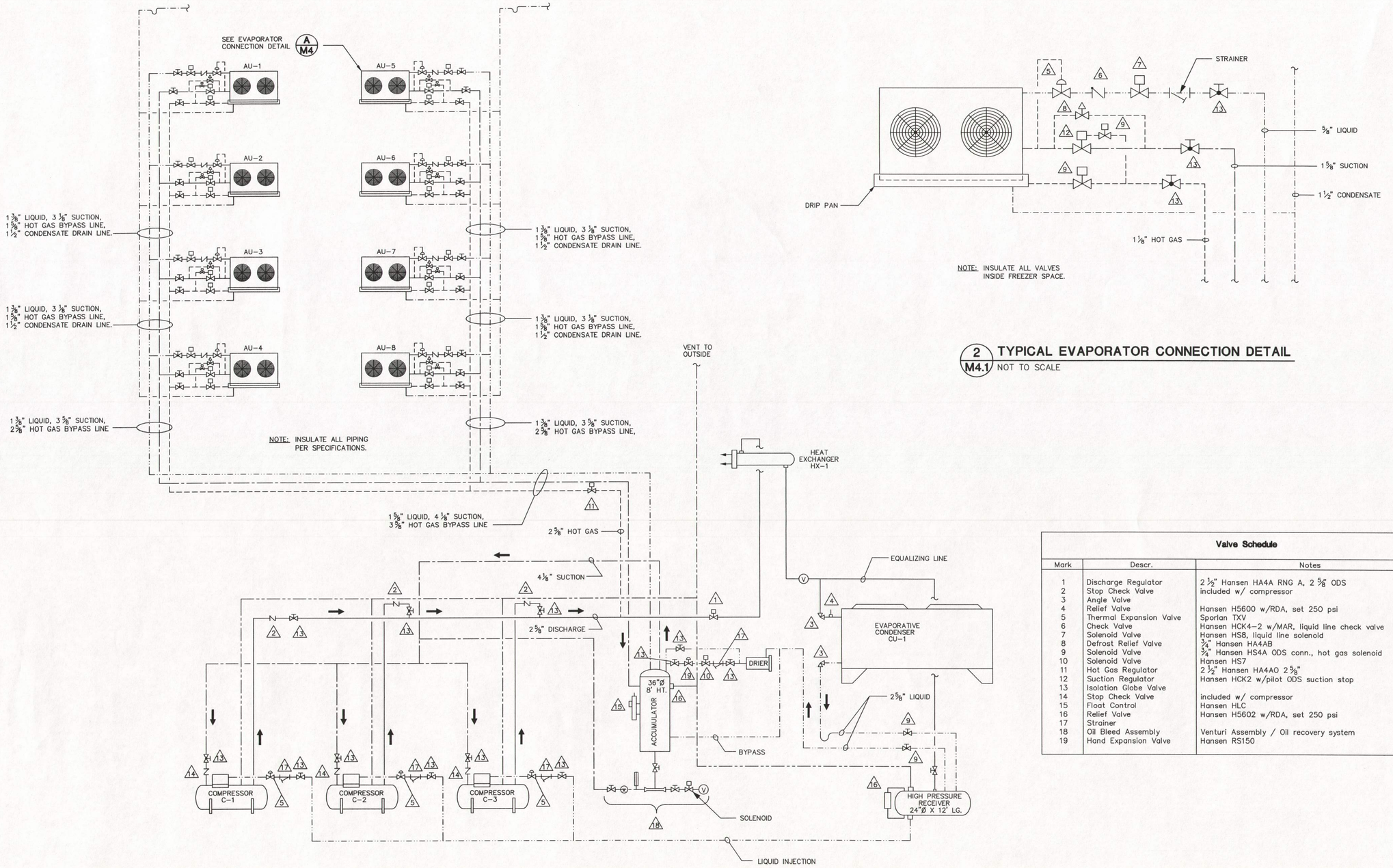
DWG. NO.
M2.2
of 3

FILE: 02BMG-M2.2.DWG



1 M4.1 REFRIGERATION SCHEMATIC

NOT TO SCALE

NOTE: INSULATE ALL VALVES INSIDE FREEZER SPACE.

2 M4.1 TYPICAL EVAPORATOR CONNECTION DETAIL

NOT TO SCALE

Valve Schedule

Mark	Descr.	Notes
1	Discharge Regulator	2 1/2" Hansen HA4A RNG A, 2 5/8" ODS
2	Stop Check Valve	included w/ compressor
3	Angle Valve	
4	Relief Valve	Hansen H5600 w/RDA, set 250 psi
5	Thermal Expansion Valve	Sporlan TXV
6	Check Valve	Hansen HCK4-2 w/MAR, liquid line check valve
7	Solenoid Valve	Hansen HSB, liquid line solenoid
8	Defrost Relief Valve	3/4" Hansen HA4AB
9	Solenoid Valve	3/4" Hansen HS4A ODS conn., hot gas solenoid
10	Solenoid Valve	Hansen HS7
11	Hot Gas Regulator	2 1/2" Hansen HA4AO 2 5/8"
12	Suction Regulator	Hansen HCK2 w/pilot ODS suction stop
13	Isolation Globe Valve	
14	Stop Check Valve	included w/ compressor
15	Float Control	Hansen HLC
16	Relief Valve	Hansen H5602 w/RDA, set 250 psi
17	Strainer	
18	Oil Bleed Assembly	Venturi Assembly / Oil recovery system
19	Hand Expansion Valve	Hansen RS150

REVIEW DOCUMENTS, NOT FOR CONSTRUCTION

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Environmental & Engineering Services Inc.

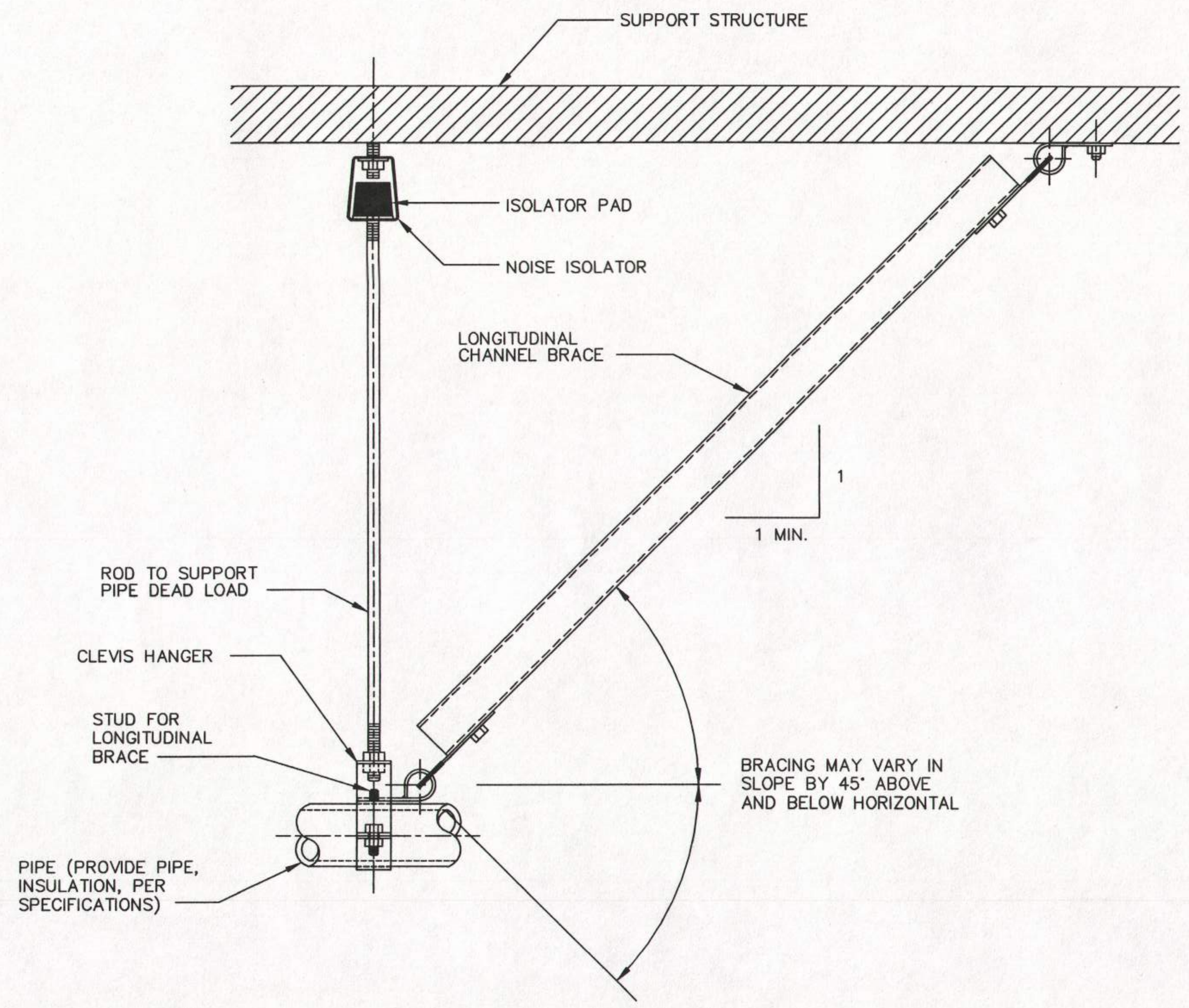
MECHANICAL SCHEMATICS

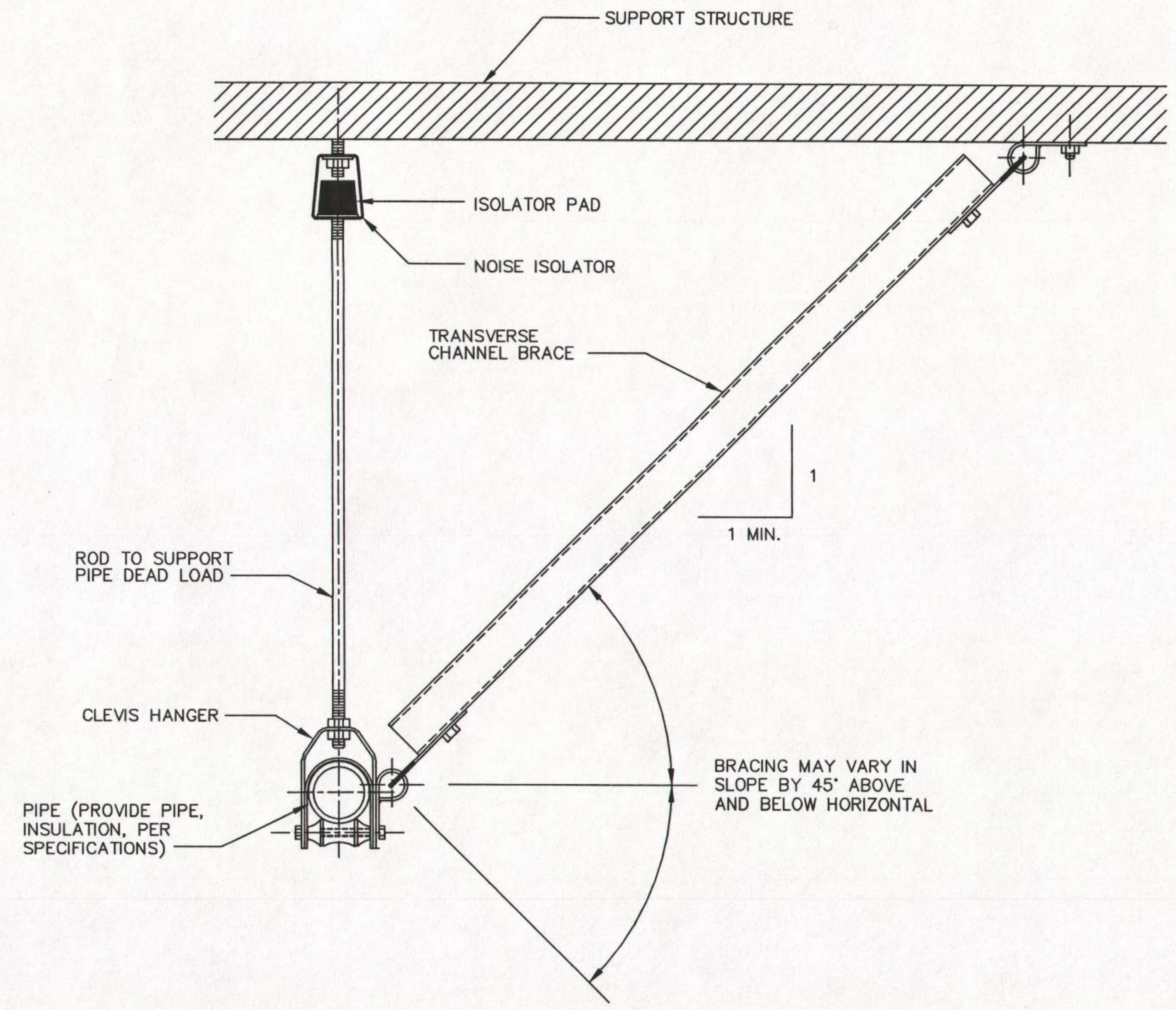
NORTH WAREHOUSE - MECHANICAL

D.O.C. NORTH FREEZER ADDITION
3601 AMBER STREET SE
SALEM, OREGON
FOR: DEPARTMENT OF CORRECTIONS

REGISTERED PROFESSIONAL ENGINEER
10373
OREGON
SEPT. 21, 1978
FRED E. SHAUB
EXPIRES 06-30-2002

DWG. NO.
M4.1
of 4

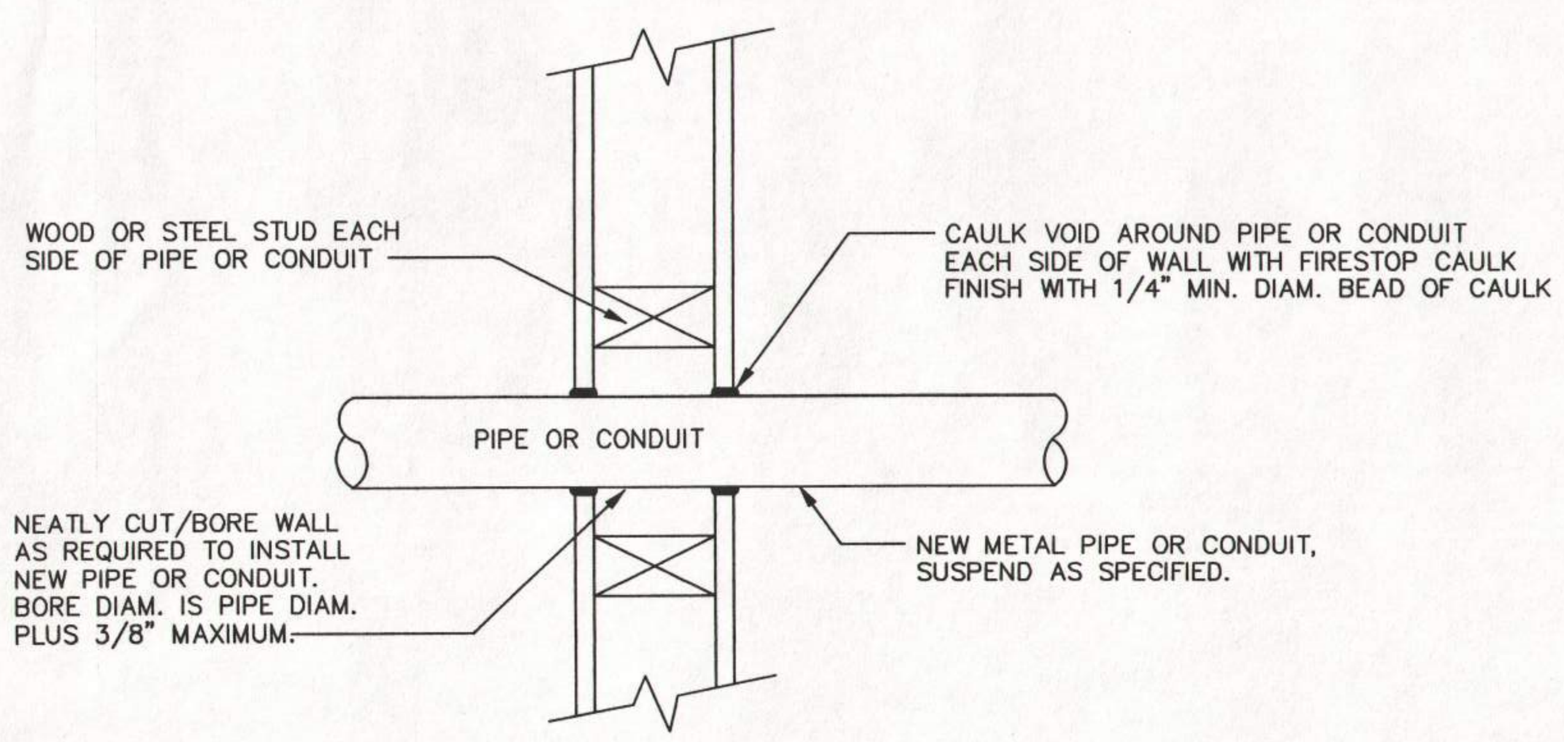


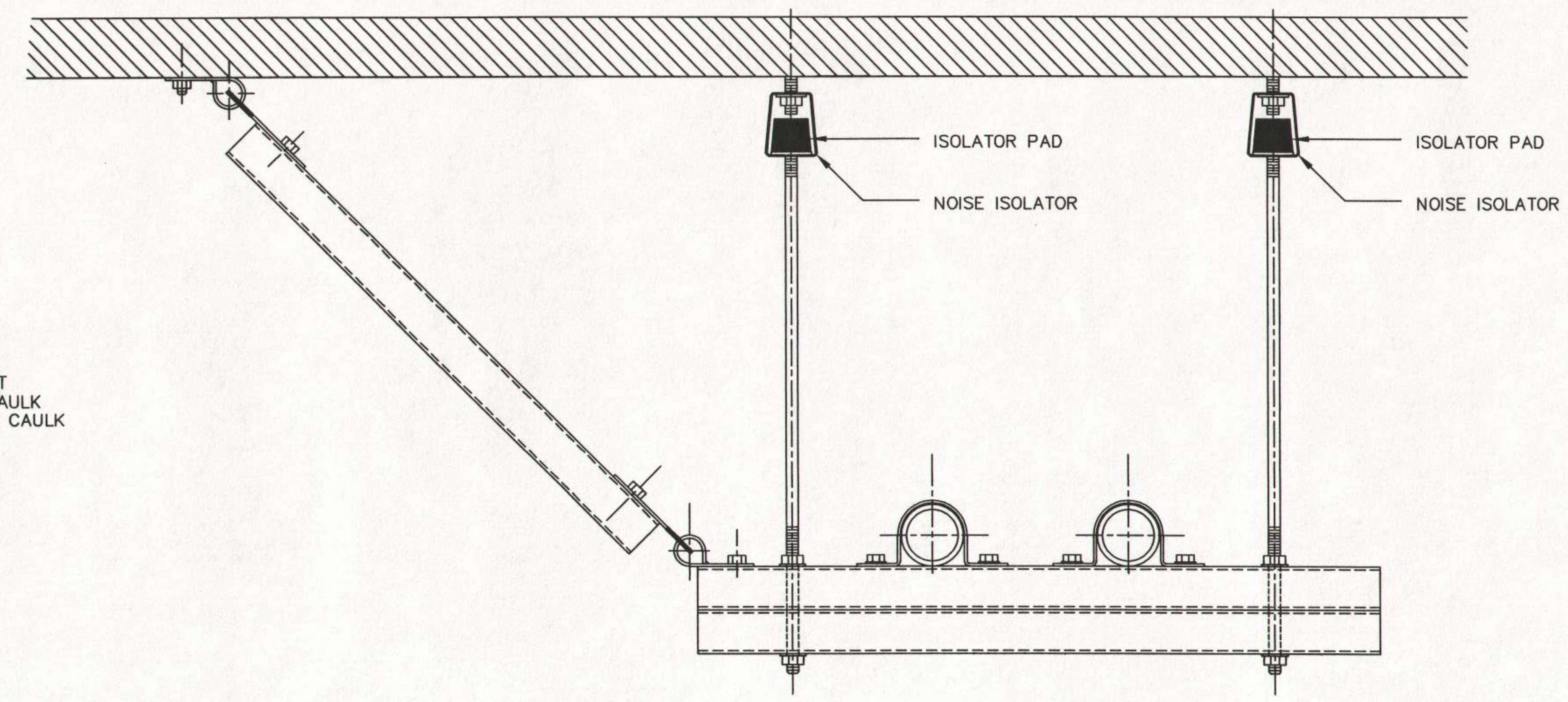


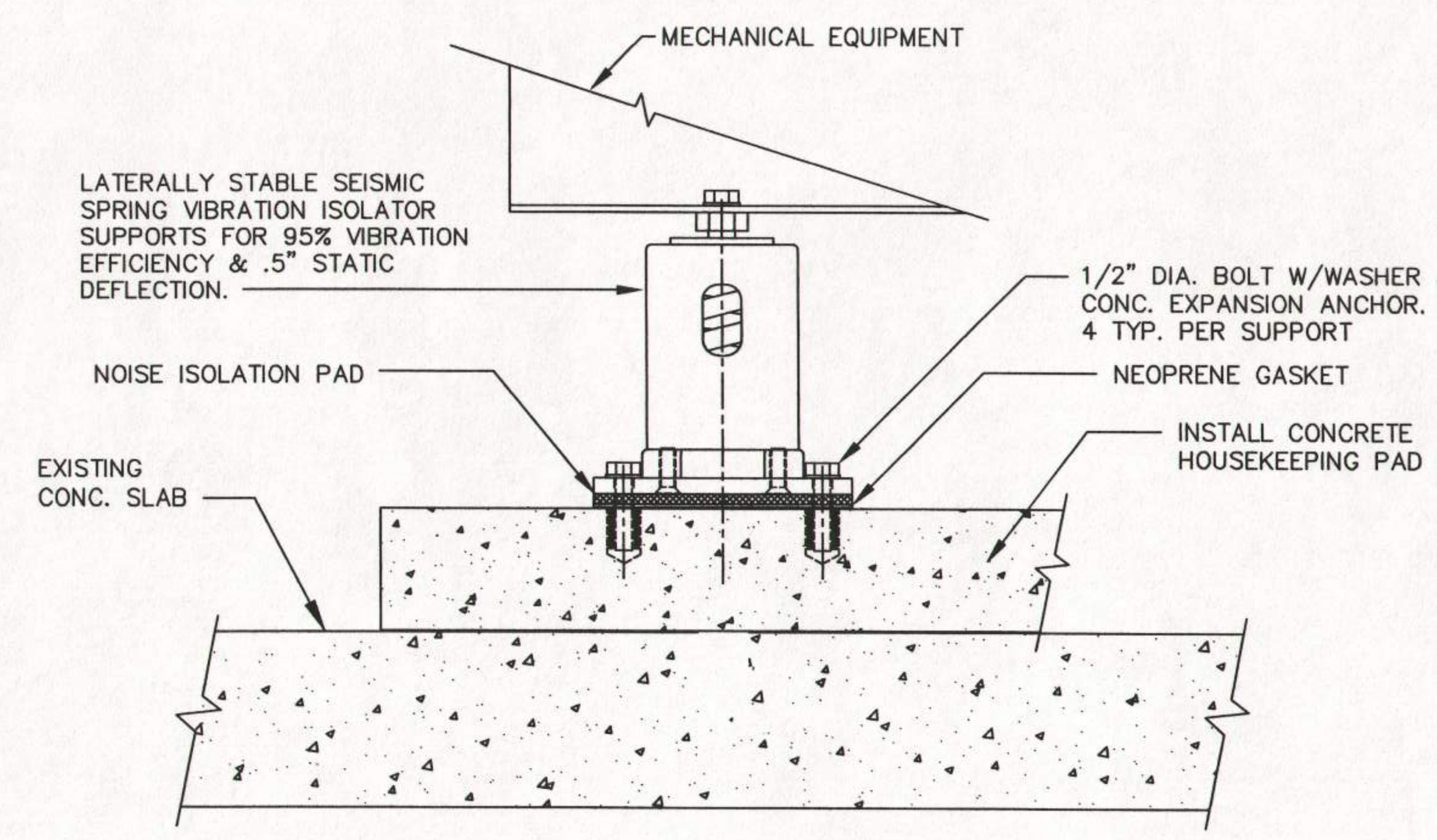
1 M5.1 **HEAT EXCHANGER DETAIL**
NOT TO SCALE

3 M5.1 **SEISMIC LONGITUDINAL BRACING FOR PIPING**
NOT TO SCALE

4 M5.1 **SEISMIC TRANSVERSE BRACING FOR PIPING**
NOT TO SCALE







2 M5.1 **FIRE RATED WALL PIPE PENETRATION DETAIL**
NOT TO SCALE

5 M5.1 **DOUBLE CHANNEL TRAPEZE SEISMIC TRANSVERSE BRACING FOR PIPING**
NOT TO SCALE

6 M5.1 **TYP. COMPRESSOR SEISMIC SUPPORT DETAIL**
NOT TO SCALE

REVIEW DOCUMENTS, NOT FOR CONSTRUCTION

FILE: 02BMG-M5.1.DWG

REVISION:

JOB NO. 010717-S | CHECKED BY:
DRAWN BY: R.L.P. | DATE: OCT. 11, 01

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NORTH WAREHOUSE - MECHANICAL DETAILS

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D.O.C. NORTH FREEZER ADDITION
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SALEM, OREGON
FOR: DEPARTMENT OF CORRECTIONS

REGISTERED PROFESSIONAL ENGINEER
10373
OREGON
SEPT. 21, 1979
FRED E. SHAUB
EXPIRES 06-30-2002

DWG. NO.
M5.1
of 5

OREGON DEPARTMENT OF CORRECTIONS
CENTRAL DISTRIBUTION CENTER
NORTH WAREHOUSE
FREEZER INSTALLATION

SHEET INDEX, ELECTRICAL

GENERAL NOTES:

Provide submittals of product information to Engineer for approval.

Manufacturers listed represent minimum standards. Other manufacturers will be considered following prior approval. Final approval is at time of submittal.

WORK UNDER THIS CONTRACT IS TO PROVIDE LABOR, MATERIALS, AND EQUIPMENT FOR THE COMPLETE INSTALLATION OF THE SYSTEMS DESCRIBED. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION, TESTING, STARTUP, AND OPERATIONAL CHECKOUT FOR A FULLY FUNCTIONAL BUILDING.

DRAWINGS AND WORK SCOPE ARE NOT INTENDED TO BE COMPREHENSIVE FOR ALL WORK UNDER THIS CONTRACT. SPECIFICATIONS, DRAWINGS, AND WORK SCOPE MUST BE USED IN THEIR ENTIRETY TO DEVELOP FULL UNDERSTANDING OF THE WORK TO BE DONE UNDER THIS CONTRACT.

CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE RESULTING FROM THIS WORK.

INSTALL ALL WORK PARALLEL AND PLUMB TO BUILDING LINES.

ALL CONDUIT AND DEVICES SHALL BE INSTALLED IN A MANNER AND IN LOCATIONS TO AVOID OBSTRUCTION, PRESERVE HEAD ROOM, AND KEEP OPENINGS AND PASSAGEWAYS CLEAR.

EXISTING FACILITIES ARE DRAWN AS ACCCURATELY AS CAN BE DETERMINED FROM EXISTING DRAWINGS AND ON-SITE INSPECTIONS. VERIFY AT PROJECT SITE.

NO ATTEMPT HAS BEEN MADE TO SHOW CONDUIT SUPPORTS, LOCATIONS, AND EXPANSION JOINTS. REFER TO SPECIFICATIONS.

JOB SITE VISIT IS REQUIRED BEFORE BIDDING, EXISTING CONDITIONS MAY AFFECT THE THE EXTENT OF THE WORK. ADDITIONAL COSTS WILL NOT BE AUTHORIZED DUE TO LACK OF UNDERSTANDING OF THE SOCPE OF WORK AND EXISTING CONDITIONS.

TO INSURE THE STRUCTURAL INTEGRETY OF THE BUILDING, ALL CUTTING REQUIRED FOR THE INSTALLAITON OF PANEL AND CONDUITS IS TO BE CLEARED THROUGH THE ENGINEER BEFORE WORK IS DONE. DO NOT CUT OR DRILL STRUCTURAL MEMBERS UNLESS APPROVED BY ENGINEER.

ELECTRIAL CONTRACTOR TO PROVIDE COVENIENCE OUTLET WITHIN 25 FEET OF ALL HVAC EQUIPMENT FOR MAINTENANCE SERVICE PER UMC ADOPTED BY OREGON SPECIALITY CODE.

PROVIDE FIRE ALARM SYSTEM AS REQUIRED BY CODE AND LOCAL AUTHORITY. SEE THE SPECIFICATIONS.

UNLESS OTHERWISE NOTED, PROVIDE CODE REQUIRED DISCONNECTS WHEN NOT PROVIDED AS PART OF THE EQUIPMENT BEING INSTALLED.

HOME RUNS ARE GENERALLY NOT SHOWN ON THESE DRAWINGS. UNLESS NOTED OTHERWISE, THE CONTRACTOR SHALL FOLLOW THE BEST ROUTE. COORDINATE ALL LOCATIONS WITH ARCHITECT/OWNER PRIOR TO INSTALLATION.

SITE CONDITIONS:

1. THE BUILDINGS WHERE THE WORK IS BEING DONE MAY HAVE CORRECTIONAL FACILITY INMATES IN THE AREA. BE AWARE OF THEIR ACTIVITIES IN THE CONSTRUCTION AREA.
2. ACCESS TO THE WORK AREAS IS RESTRICTED AND CONTROLLED.
2. TOOLS SHALL NOT BE LEFT UNATTENDED.
3. ALL MATERIALS AND PARTS SHALL BE ACCOUNTED FOR IN THE CONSTRUCTION AREA. REMOVE ALL GARBAGE AND SCRAPS INCLUDING SHEET METAL SCRAPS, DAILY.
4. PARKING IS RESTRICTED AND CONTROLLED. VEHICLES SHALL BE LOCKED WHEN NOT ATTENDED. NO PRIVATE VEHICLES ALLOWED; CONTRACTOR VEHICLES ONLY.
5. OREGON STATE HOSPITAL IS A "NO SMOKING" FACILITY. SMOKING ALLOWED IN DESIGNATED AREAS ONLY.

WORK SCOPE

The work under this Contract is to provide the labor, material, and equipment for the complete installation of the systems described. Contractor is responsible for installation, balancing, testing, startup, and operational checkout for a fully functional system.

The drawings and work scope are not intended to be comprehensive of all work to be done under this Contract. Specifications, drawings, and work scope must be used in their entirety to develop full understanding of the work to be done under this Contract.

Base Bid:
Provide and install total refrigeration and integral freeze protection floor system and fire protection system for food storage warehouse per Drawings. Refrigeration equipment to be located in mechanical room allocated. The system includes furnishing of all components and installation of a custom engineered refrigeration system that has the capability to maintain operating temperature of −20F. Some demolition of existing equipment is required.

Refrigeration system to include evaporators, pumps, piping, evaporative condenser, compressors, expansion tanks, accumulator, oil separator system, valves, fittings, micro-processor controls, alarms, and related equipment for fully functional system. Provide equipment room ventilation system, emergency shut down switching, and related Oregon Code requirements for safe refrigeration operation and containment. Provide also equipment supports and hangers, and seismic restraints for equipment.

Two fire protection systems are to be installed. Work to include design and approval of the two systems. System #1 is a double interlocked pre-action dry system using compressed nitrogen gas with extra large orifice 286F dry pendant sprinklers installed in ceiling of the −20F freezer. System #1 replaces 8" Grinnell dry valve and trim marked "8A." Install 140F fire detectors in ceiling of freezer. Install electrical release control designed and manufactured by the same manufacturer as valve on system #1. Release control to have a minimum of 90 hour backup battery and automatic recharging capability. System #2 is to reuse existing Grinnell 8" dry valve marked "7AA" and air compressor. Provide and install new piping and large orifice 286F upright sprinklers for protection of the intertistal space between the top of the freezer and the roof. Coordinate with Mechanical Contractor.

Provide and install interface to existing fire alarm system, two emergency pull boxes, and visual and auditory alarms. Provide and install two cabinets for spare sprinklers, tools, spares, and instructions. Provide two spare 300 cubic feet high pressure nitrogen gas cylinders, fully charged.

Test operation of existing air compressor, existing dry valve "7AA", and all new equipment per fire departments requirements. Final fire department approval of both systems shall be required for Substantial Completion.
INITIAL START UP REQUIREMENTS

EQUIPMENT LIST

Compressors C−1, 2, &3:
Screw compressor with minimum capacity of 55 tons refrigeration @ −30F suction and 85F condensing temperatures using R−22 refrigerant. Liquid injection oil cooling. Two speed motor. 550 cfm displacement. 4,000 lbs. Vilter VSS 451, Bitzer, Chandler, or prior approved equal.

Evaporative Condenser CU−1:
Factory assembled evaporative condenser capable of rejecting minimum 1,960,000 Btu/hr. 1 ∢ Hp, 220 gpm. 26,500 cfm fan with two 3 Hp motors and variable frequency drive. 10,000 lbs. Vilter VSA 142, BAC, Evapco, or prior approved equal.

Evaporators AU−1 to AU−8:
Eight (8) evaporators at 95,000 Btu/hr capacity 4 fins per inch, hot gas bypass defrost. Two 1 Hp fan motors. Vilter HP23−64−1, Colmac, HeatCraft, or prior approved equal.

Boiler B−1:
Gas fired, condensing boiler, minimum capacity 115 MBH. Weil McClain GV−5, or approved equal.

Circulations Pump:
Inline circulation, 15 gpm at 25 feet head. Motor ∢ Hp, 120 volt. Grundfos UPC−50−160, B&G, Armstrong, Taco, or approved equal. Two (2) required.

Exhaust fans:
Aluminum, sidewall mounted exhaust fan with capacities as noted below:

EF−1	900 cfm, 1/10 Hp, 1 required
EF−2	2,500 cfm, 1/3 Hp, 1 required
EF−3	1,200 cfm, 1/8 Hp, 2 required
EF−4	1,200 cfm, 1/8 Hp, 2 required

REVIEW DOCUMENTS, NOT FOR CONSTRUCTION

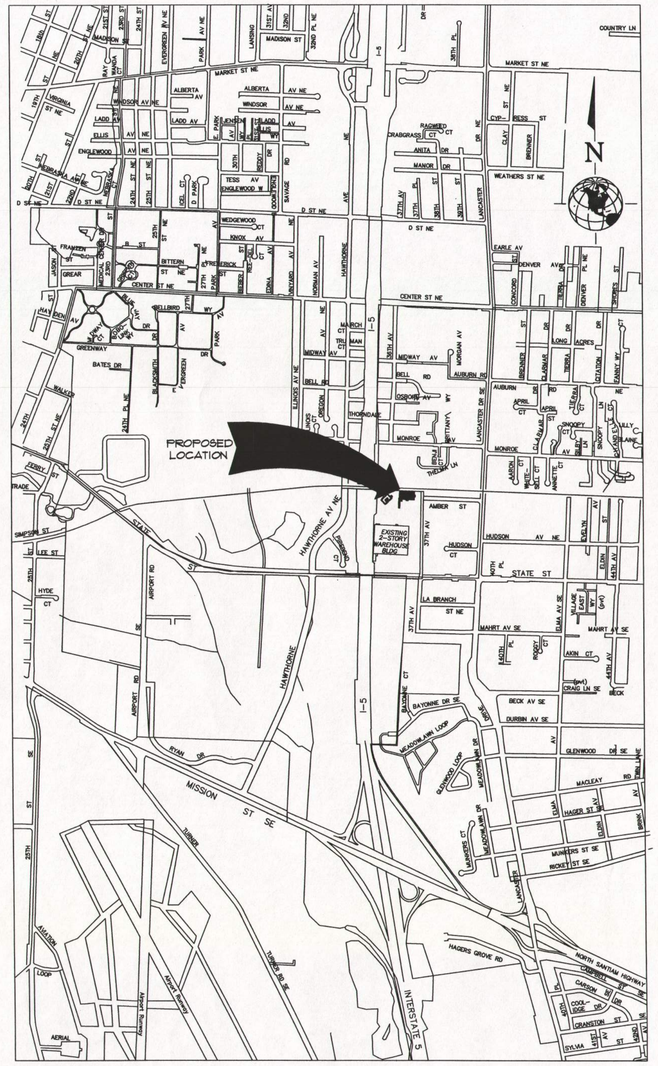
LEGEND

G−25	RECEPTACLE WITH CIRCUIT NUMBER. HOME RUNS ARE NOT SHOWN. CONTRACTOR TO DETERMINE BEST ROUTING FOR HOME RUN. DUPLEX & DOUBLE DUPLEX SHOWN. CENTER +18" AFF UNLESS SHOWN OTHERWISE.
IG	ISOLATED GROUND RECEPTACLE. INSTALL WITH INSULATED GREEN GROUND WIRE. RECEPTACLE SHALL BE LEVITON 5262−IG (ORANGE) OR EQUAL.
J	LOCATION WHERE A J−BOX IS REQUIRED. J−BOXES AT OTHER LOCATIONS ARE TO BE INSTALLED AS NEEDED.
EA1	EXIT LIGHT WITH FIXTURE TYPE. ORIENT ARROWS IF REQUIRED TO SHOW DIRECTION OF EXIT. IF STEM IS SHOWN, WALL MOUNT.
C−14 E EA1	FLUORESCENT FIXTURE WITH CIRCUIT NUMBER AND FIXTURE TYPE INDICATED. LETTER "E" INDICATES THAT FIXTURE ALSO HAS AN EMERGENCY BATTERY BACKUP KIT INSTALLED.
CU−2	MECHANICAL EQUIPMENT NUMBER (BOLD, LARGER LETTERS). DO NOT CONFUSE WITH CIRCUIT NUMBERS.
NB1 CA1	OTHER LIGHT FIXTURES. MAY BE FLUORESCENT OR HID. WALL MOUNT AND CEILING MOUNT SYMBOLS SHOWN. FIXTURE TYPE SHOWN.
2	ELECTRICAL NUMBERED NOTE SYMBOL
TV C	TELEPHONE, TV, AND COMPUTER OUTLET LOCATIONS. INSTALL FLUSH 4X4 BOX AND RUN CONDUIT TO ACCESSIBLE LOCATION PER THE SPECIFICATIONS.
	MOTOR LOAD
PA	PUBLIC ADDRESS (INTERCOM) STATION. SPEAKER AND FLUSH MOUNT CALL SWITCH PER SPECIFICATIONS.
MS	FIRE ALARM MANUAL STATION, MOUNT +42".
I H	IONIZATION AND HEAT DETECTORS − FIRE ALARM SYSTEM
PANEL "A"	ELECTRICAL PANELBOARD WITH PANEL NAME
S S3 S4	SWITCHES: SINGLE POLE, DIMMER, 3−WAY, 4−WAY

LIGHT FIXTURE CODE EXPLANATION: XXN.C — NUMBER OF LAMPS; ARBITRARY SEQUENCE LETTER (A,B,C, ETC)

FIXTURE DESCRIPTION LETTER: Compact Fluorescent (non−troffer), Exit, Industrial, Incandescent, Hid, Parabolic troffer, Surface (fluorescent, non−compact, non−wrap), Troffer, Wraparound. Suspended fluorescent fixtures are also type "S".

NOTE: SOME SYMBOLS IN THIS LEGEND MAY NOT BE USED ON THE DRAWINGS.



VICINITY MAP
N.T.S.

FILE: 02BMG−E01.DWG

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Environmental & Engineering Services Inc.

NORTH WAREHOUSE - ELECTRICAL COVER SHEET

D.O.C. NORTH FREEZER ADDITION
3601 AMBER STREET SE
SALEM, OREGON
FOR: DEPARTMENT OF CORRECTIONS

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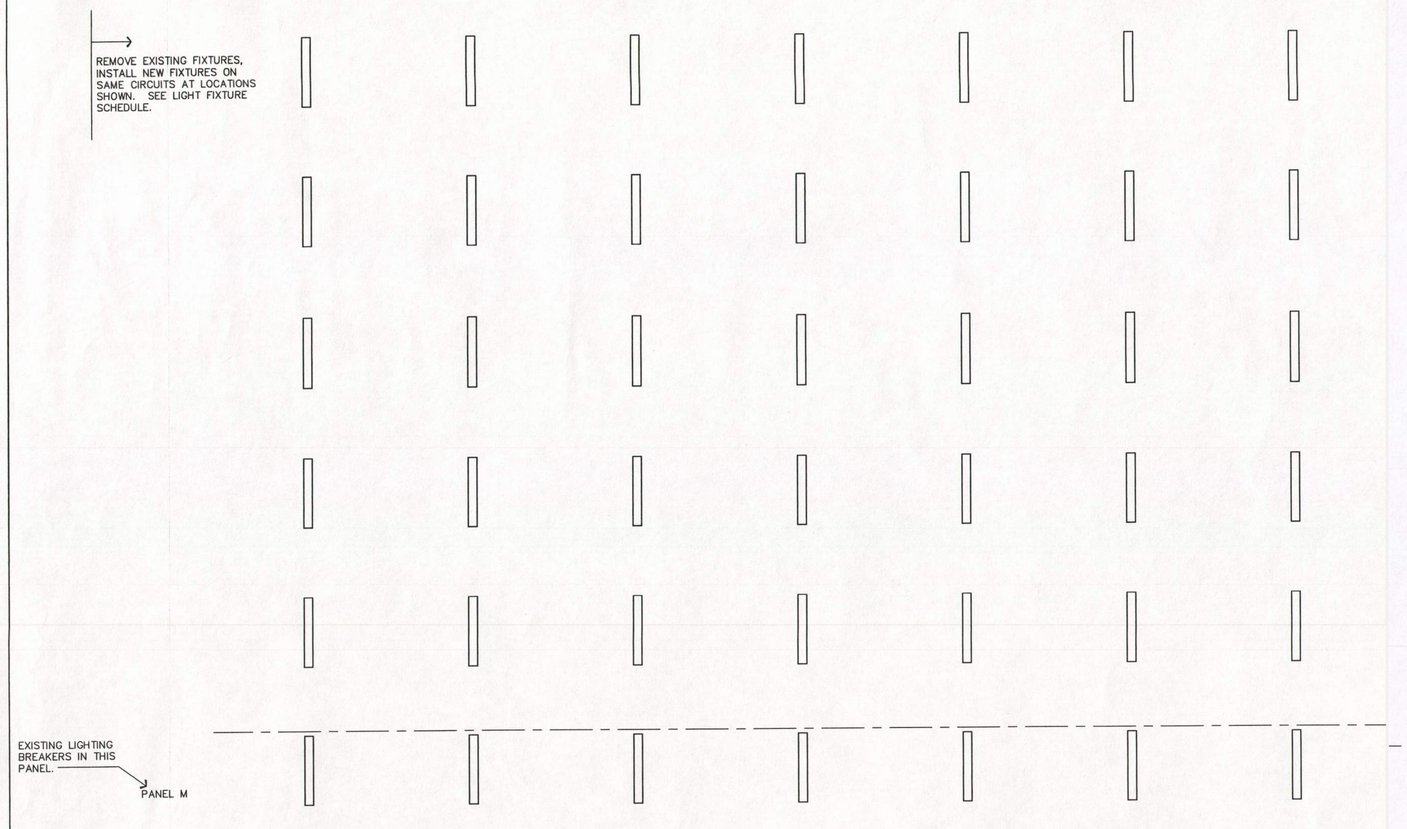
REMOVE EXISTING EQUIPMENT, INSTALL NEW EQUIPMENT ON NEW CIRCUITS AT LOCATIONS SHOWN.

REMOVE EXISTING FIXTURES, INSTALL NEW FIXTURES ON SAME CIRCUITS AT LOCATIONS SHOWN. SEE LIGHT FIXTURE SCHEDULE.



EXISTING LIGHTING BREAKERS IN THIS PANEL.

PANEL M

-plan

North

FREEZER FLOOR PLAN

1/8"=1'-0"

GENERAL NOTES:

A. DISCONNECT AND REMOVE DEVICES AND CIRCUITS IN DEMOLITION AREAS. VERIFY DEMOLISHED CIRCUITS DO DO NOT FEED DEVICES TO REMAIN.

COORDINATE WITH OTHER CONTRACTORS AND OWNER. MARK CIRCUITS AND DEVICES TO REMAIN. UPDATE PANEL SCHEDULES.

B. DETERMINE CIRCUITS TO REMAIN. PROVIDE TEMPORARY FEEDS TO CIRCUITS THAT REMAIN AND WILL BE IN USE DURING CONSTRUCTION. COORDINATE WITH OWNER.

C. DETERMINE CIRCUITS AND DEVICES TO REMOVED. DISCONNECT CIRCUITS TO BE REMOVED.

D. REUSE EXISTING CIRCUITS AS MUCH AS PRACTICAL.

E. FOR DEMOLISHED OR ABANDONED CIRCUITS, REMOVE CONDUCTORS AND CONDUIT BACK TO CIRCUIT BREAKER PANEL OR LAST J-BOX OF CIRCUIT TO REMAIN.

F. COORDINATE WITH MECHANICAL CONTRACTOR LOCATIONS FOR HVAC AND BOILER EQUIPMENT.

REQUIRED, BUT NOT SHOWN ON THE DRAWINGS:

1. MAIN DISTRIBUTION PANEL TO REMAIN.

2. BUILDING CONTROL PANELS TO REMAIN.

3. OFFICE AREA TO REMAIN SAME.

REVIEW DOCUMENTS, NOT FOR CONSTRUCTION

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ELECTRICAL DEMOLITION PLAN

NORTH WAREHOUSE - ELECTRICAL

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LIGHT FIXTURE SCHEDULE

Fixture Type	Made By	Model Number (All operate at 120 vac)	Fixture Type	Lamps per Fixture	Lamp Type and Color (See Specs)	Fixture Color / Finish	Additional Features and Notes
EMER	Lithonia *	ELU8X-H1212	Emerency lighting pack	2	halogen, 12w		
EMER-R	Lithonia *	ELA-T-N2512	Remote lights	2	incand, 25w		Power from unit EMER.
IA2	Lithonia *	EJ232-120-CW	Industrial style fluorescent	2	F32T8	white	Chain hang at 10', or higher if required to suit equipment. 3 require twist-lock.
EA1	Lithonia *	LES-W-1-R-120/277	LED exit with battery pack	(na)	LED, red	white	Univeral mount type, surface mounted, knockout direction indicators.
SA2	Lithonia *	VDC232-PCLW-120-CW-EL	Fluorescent 4' wall bracket	2	F32T8	white	Fixture requires both hot and switched conductors.
HA1	Lithonia *	TXP250S A26 277 LCPP, PPH (OR TPH)	Low bay style HPS	1	250 HPS		Mounted using twist-lock to allow repositioning.
	* or equal by Hubbell, Metalux, Columbia, or Lightolier.						

REVIEW DOCUMENTS,
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NORTH WAREHOUSE - ELECTRICAL DETAILS ? SCHEDULE

D.O.C. NORTH FREEZER ADDITION
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FOR: DEPARTMENT OF CORRECTIONS

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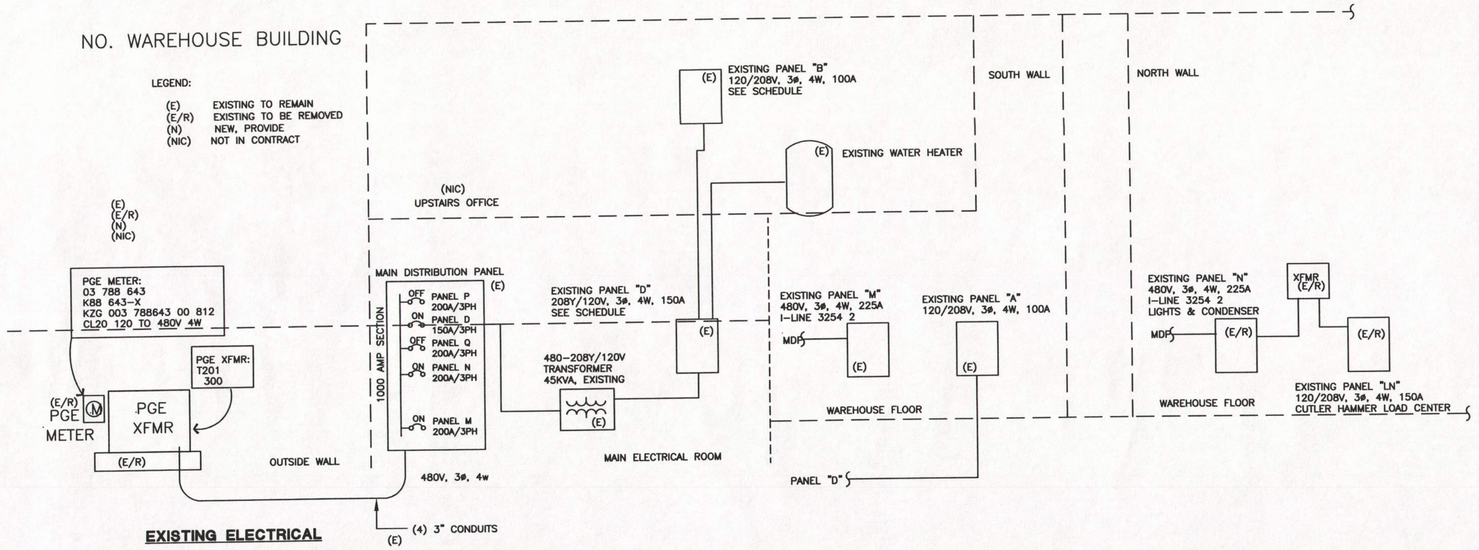
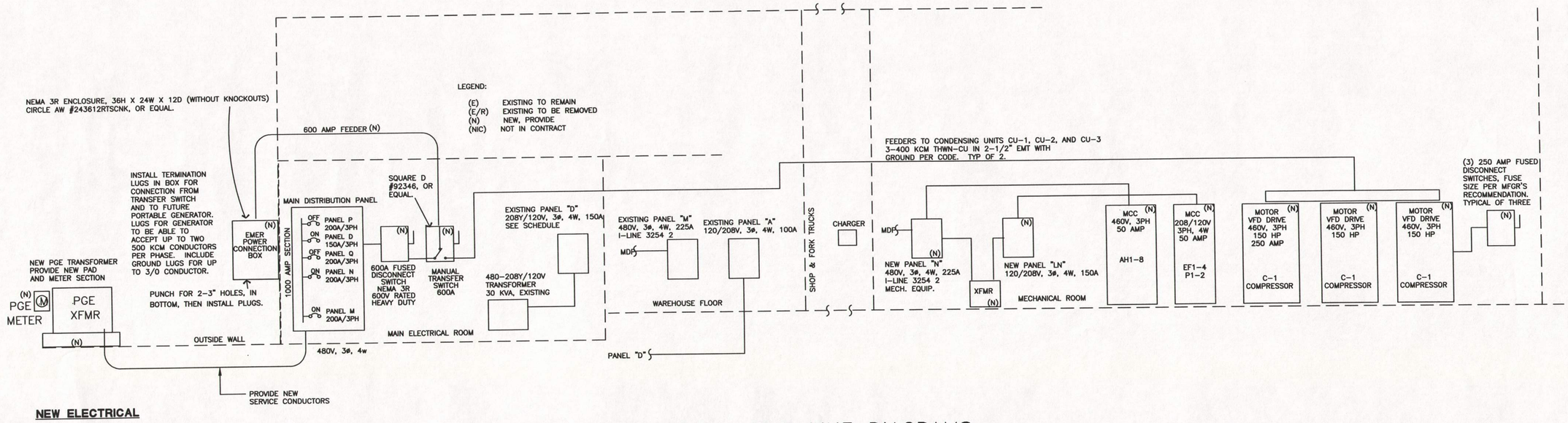


EXISTING ELECTRICAL

RISER DIAGRAM

NO SCALE



NEW ELECTRICAL

RISER DIAGRAM

NO SCALE

ELECTRICAL ONE LINE DIAGRAMS

SCALE: NONE

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D.O.C. NORTH FREEZER ADDITION
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