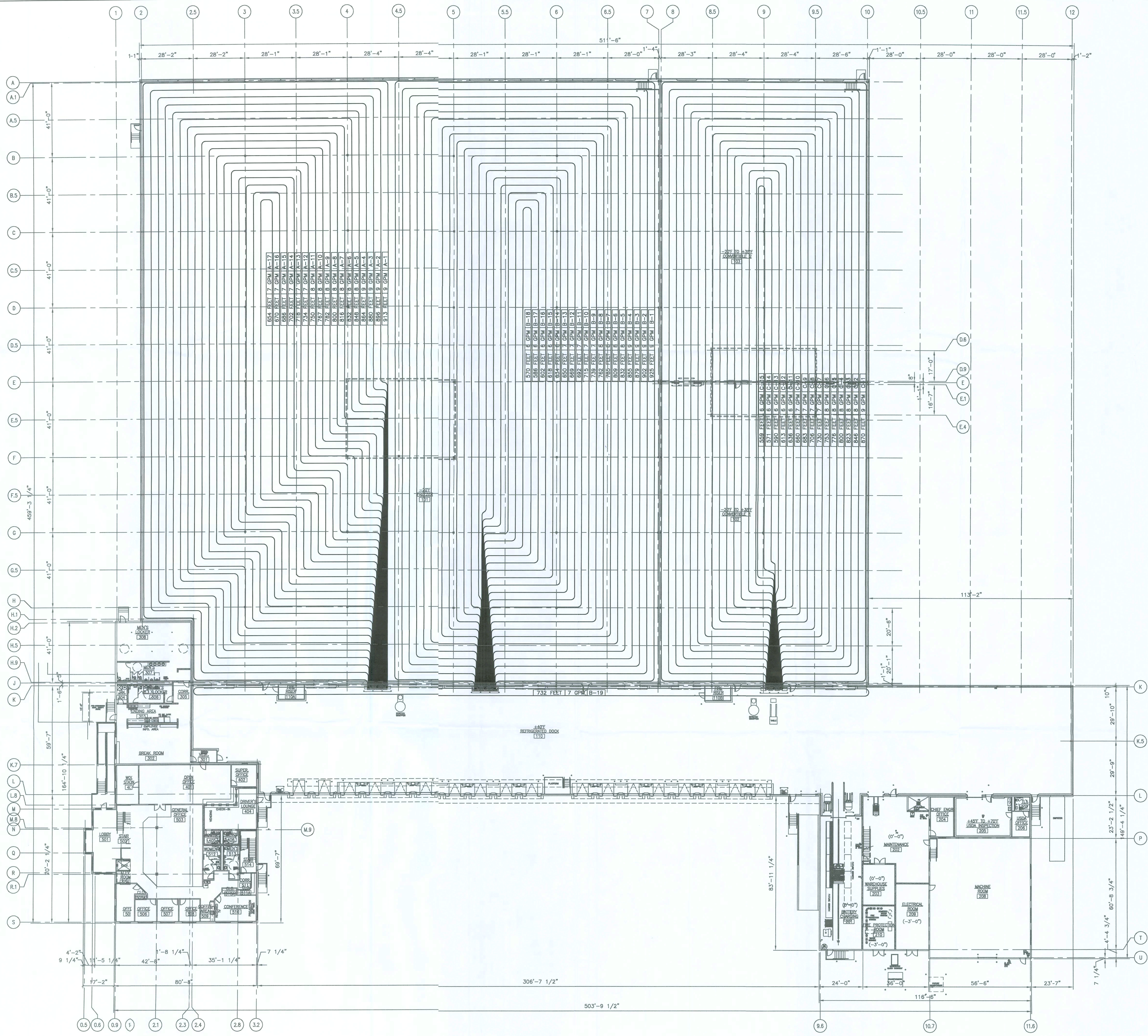


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UNITED STATES COLD STORAGE, INC
NEW FACILITY
LAKE CITY, FLORIDA

REFRIGERATION
UNDERFLOOR
WRAMING
LAYOUT

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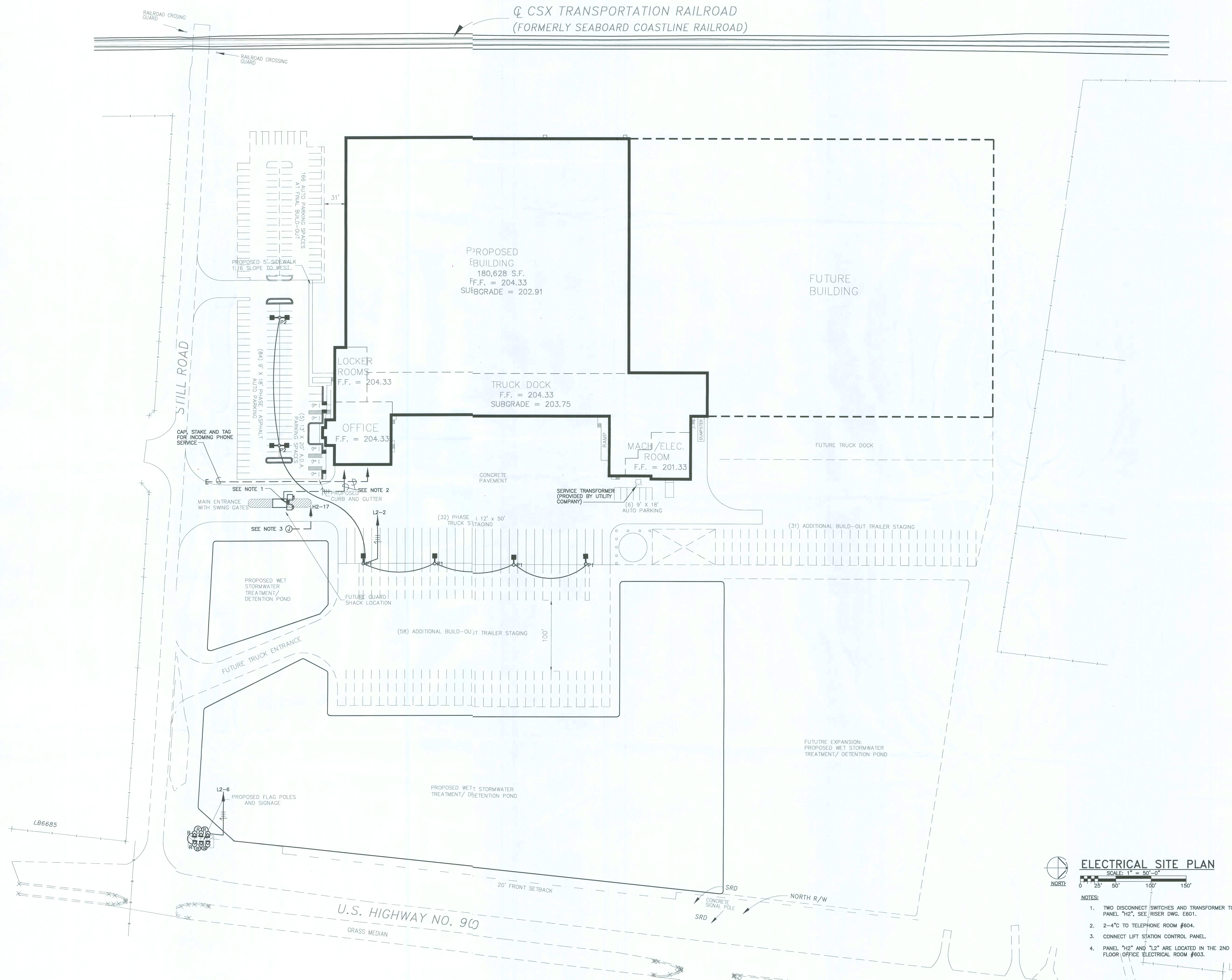
REV.	DATE	BY	MAC	PERMIT	ISSUE	DESCRIPTION
A	05-16-07	LDV				

JOB NO. 710-03019
DRAWN: LDV
CHECKED: ODD
SCALE:

R103A
DRAWING NO.

stellar
2900 HWY 101, SUITE 200, LAKE CITY, FL 33511
WWW.STELLAR-INC.COM
FLORIDA ARCHITECTURAL LICENSE NO. 9849

05/16/07



ELECTRICAL SITE PLAN
SCALE: 1" = 50'-0"

NOTES:

- TWO DISCONNECT SWITCHES AND TRANSFORMER TO PANEL "H2", SEE RISER DWG. E601.
- 2-4" TO TELEPHONE ROOM #604.
- CONNECT LIFT STATION CONTROL PANEL.
- PANEL "H2" AND "L2" ARE LOCATED IN THE 2ND FLOOR OFFICE ELECTRICAL ROOM #603.

THE STELLAR GROUP
DESIGN • CONSTRUCTION • REFRIGERATION
2800 HARTLEY ROAD, JACKSONVILLE, FL 32207 (904) 266-2900

FLORIDA PROFESSIONAL ELECTRICAL ENGINEERING
NO. 12586

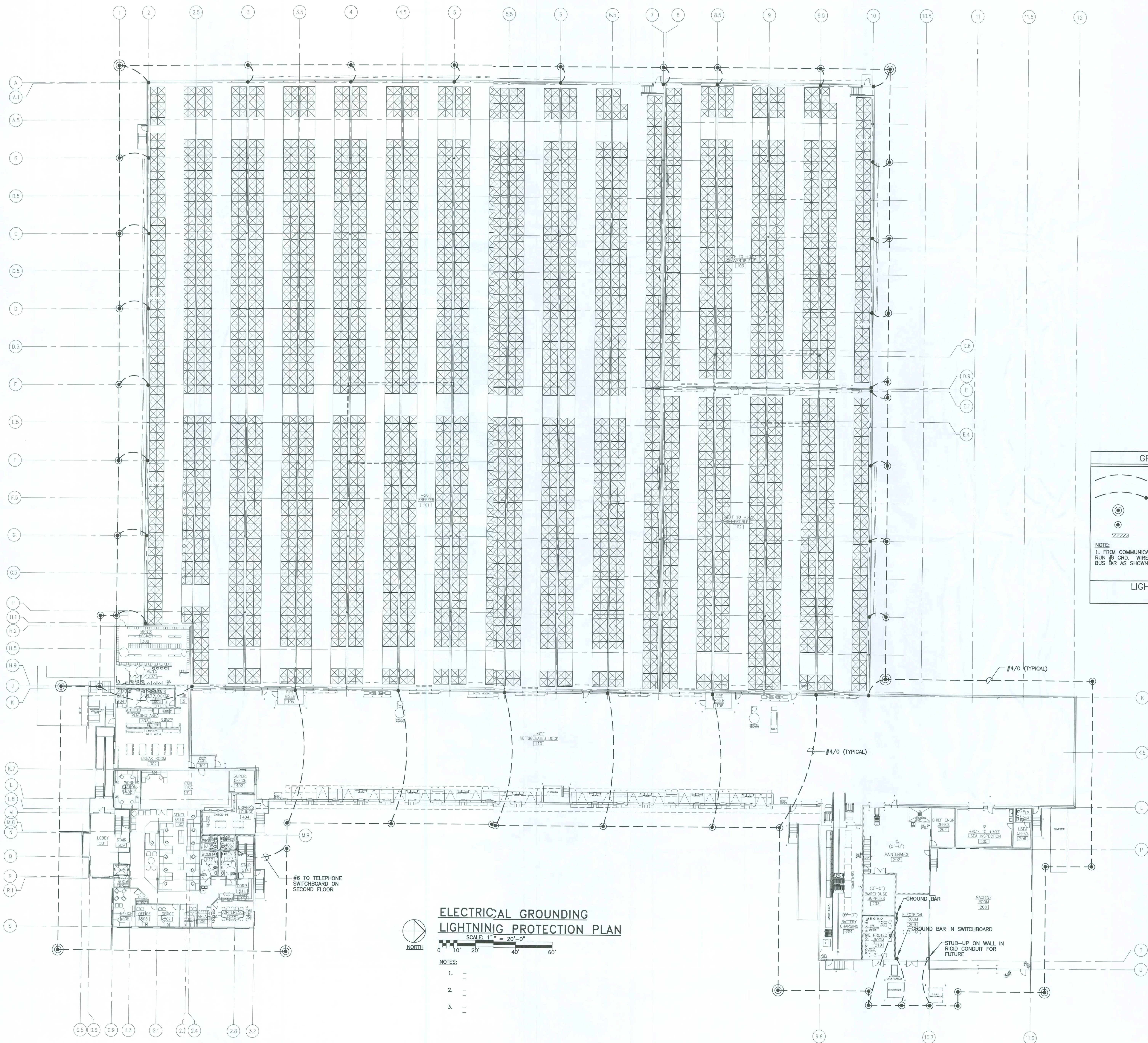
UNITED STATES COLD STORAGE, INC
NEW FACILITY
LAKE CITY, FLORIDA

**ELECTRICAL
SITE
PLAN**

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REV.	DATE	BY	DESCRIPTION
A	10/23/06	JAW	PRICING DOCUMENT
B	4/27/07	KBG	OWNER REVIEW
C	5/15/07	KBG	FOUNDATION PERMIT ISSUE

JOB NO.	03019
DRAWN:	KBG
CHECKED:	MTV
SCALE:	1"=50'-0"
E002	DRAWING NO.



GROUNDING LEGEND

- BARE COPPER WIRE
- CAD WELD CONNECTION
- GROUNDING WELL
- GROUND ROD
- /// GROUNDING BUS BAR

NOTE:
1. FROM COMMUNICATION CABINETS
RUN #6 GRD. WIRE THE CLOSEST BLDG COLUMN OR GRD
BUS BAR AS SHOWN.

LIGHTNING PROTECTION:
(NFPA 780)

**ELECTRIC AL GROUNDING
LIGHTNING PROTECTION PLAN**

SCALE: 1" = 20'-0"

- NOTES:**
1. ---
 2. ---
 3. ---

THE STELLAR GROUP
DESIGN & CONSTRUCTION & REFINANCE
2800 HARTLEY ROAD, JACKSONVILLE, FL 32227 (904) 240-2900

FLORIDA
REGISTERED
ELECTRICAL ENGINEER
NO. 12588

UNITED STATES COLD STORAGE, INC
NEW FACILITY
LAKE CITY, FLORIDA

**ELECTRICAL
GROUNDING
LIGHTNING
PROTECTION
PLAN**

REV.	DATE	BY	DESCRIPTION
D	4/10/07	KBG	FOUNDATION PERMIT ISSUE
C	4/17/07	KBG	OWNER REVIEW
B	4/17/07	JAW	REVISED PRICING DOCUMENTS
A	5/22/07	JAW	PRICING DOCUMENTS

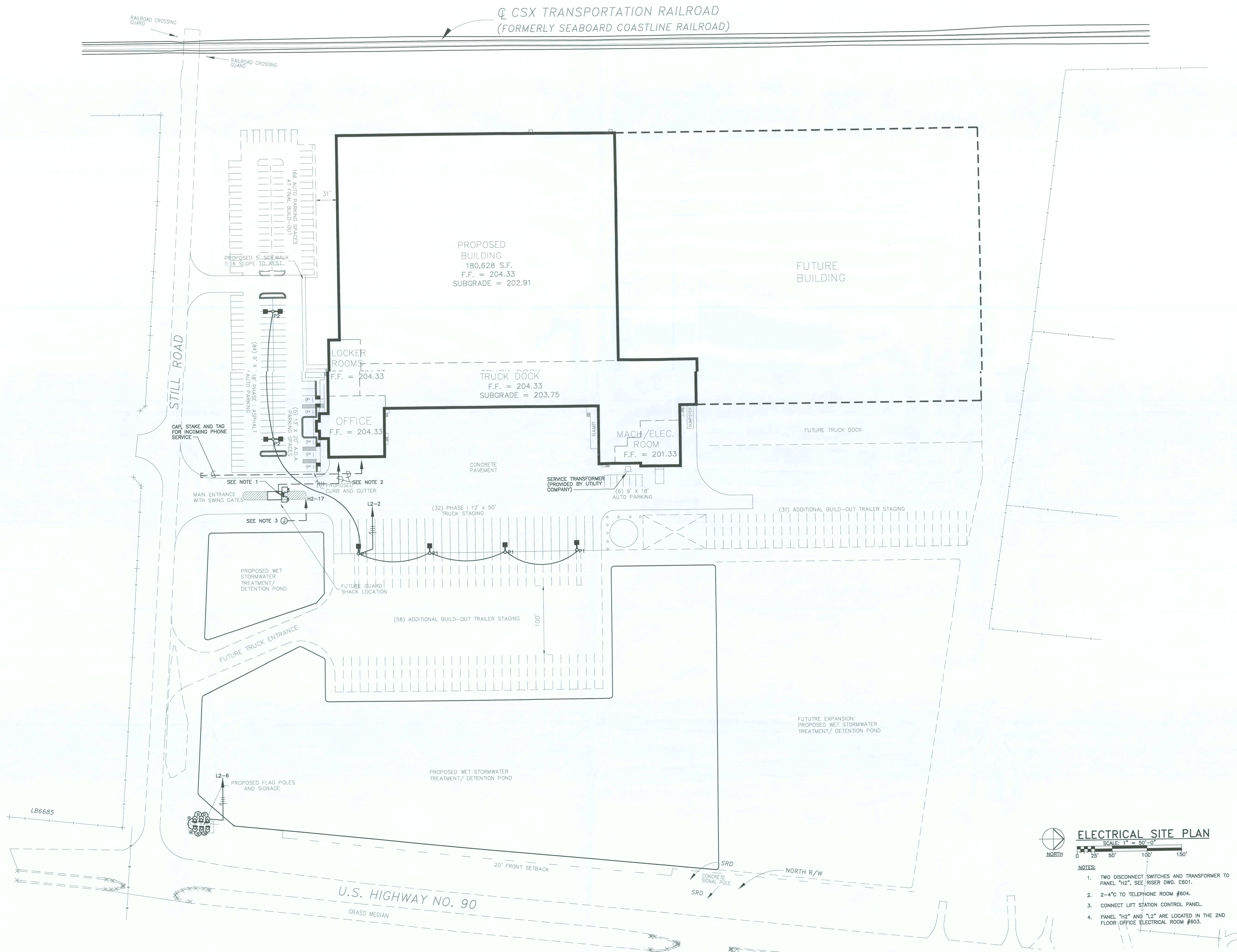
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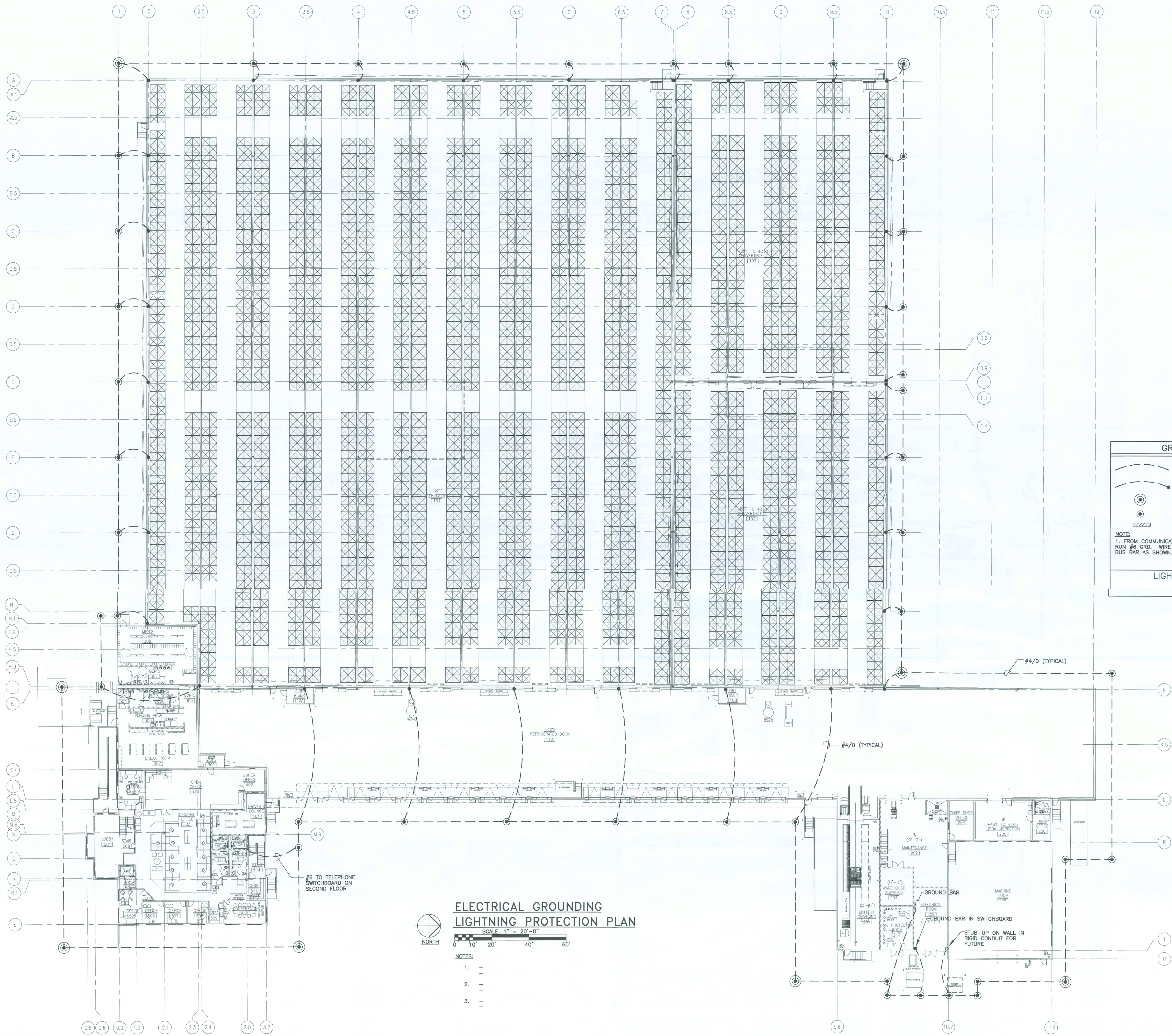
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SCALE: **1"=20'-0"**

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JOB NO.	03019
DRAWN:	KBG
CHECKED:	MTV
SCALE:	1"=20'-0"

REINFORCED CONCRETE NOTES

- ALL CONCRETE WORK SHALL CONFORM TO ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
- THE USE OF FLY ASH IS PROHIBITED. CONCRETE MIX DESIGNS SHALL BE SUBMITTED AND APPROVED PRIOR TO CASTING ANY CONCRETE.
- ALL CONCRETE PLACED SHALL BE VIBRATED BY MECHANICAL VIBRATORS.
- COMPLETE FABRICATION AND PLACING DRAWINGS FOR REINFORCING STEEL SHALL BE SUBMITTED FOR APPROVAL. NO FABRICATION MAY BEGIN UNTIL DRAWINGS ARE COMPLETED AND APPROVED.
- LAP SPLICES FOR REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI 318. SPLICES SHALL BE AS CALLED FOR IN THE LATEST EDITION OF THE CRSI "MANUAL OF STANDARD PRACTICE".
- REINFORCING OF ALL CONCRETE MEMBERS SHALL HAVE THE FOLLOWING CLEAR CONCRETE COVER.

COVER (INCHES)	
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3
CONCRETE EXPOSED TO EARTH OR WEATHER:	
#6 BARS THROUGH #18 BARS	2
#5 BARS OR SMALLER	1 1/2
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH:	
SLAB AND WALLS:	
#14 AND #18 BARS	1 1/2
#11 BARS AND SMALLER	3/4
COLUMNS:	
PRIMARY REINFORCEMENT, TIES, STIRRUPS AND SPIRALS	1 1/2

- THE CONTRACTOR SHALL PROVIDE CHAIRS AT 4'-0" CENTER TO CENTER TO SUPPORT WIRE MESH WHILE CASTING SLAB. PULL FABRIC UP BETWEEN SUPPORTS TO PROVIDE 2" CLEARANCE TO TOP OF SLAB. MINIMUM SIDE AND END LAP ON FABRIC SHALL BE ONE WIRE SPACE.
- SPLICE WELDING OF REINFORCING STEEL SHALL BE DONE IN STRICT ACCORDANCE WITH THE AMERICAN WELDING SOCIETY "REINFORCING STEEL WELDING CODE". PREHEATING OF THE REINFORCING SHALL BE BASED ON THE CARBON EQUIVALENCY DETERMINED FROM REINFORCING MILL REPORTS. GRADE 40 REINFORCING SHALL BE WELDED WITH E60XX LOW HYDROGEN ELECTRODES.
- MANUAL WELDING OF REINFORCING BARS FOR EMBEDS IS NOT ALLOWED.
- CONCRETE WALLS SHALL BE REINFORCED AROUND ALL OPENINGS WITH 2-#5 BARS ON AN 18"-0" SPACING AND EXTENDED 2'-0" BEYOND OPENING. UNLESS NOTED OTHERWISE.
- THE LONGITUDINAL REINFORCING STEEL IN BOND BEAMS, WALLS AND FOOTINGS SHALL BE CONTINUOUS AROUND CORNERS. SEE TYPICAL DETAILS THIS SHEET.
- CHAMFER EXPOSED EDGES OF COLUMNS AND BEAMS 3/4".
- SAWN JOINTS IN SLABS-ON-GRADE SHALL BE CUT AS SOON AS POSSIBLE AFTER THE CONCRETE HARDENS. JOINTS CAN BE CUT WITH A POWER BLADE WITHIN 4 TO 12 HOURS AFTER THE SLAB HAS BEEN PLACED AND FINISHED. JOINTS MUST BE CUT AS SOON AS THE CONCRETE IS FIRM ENOUGH NOT TO BE TORN OR DAMAGED BY THE BLADE. THE CONCRETE IS HARD ENOUGH WHEN THE BLADE DOES NOT DISLODGE ANY AGGREGATE AND WHEN THE EDGES OF THE CUT DO NOT RAVEL.
- CONTROL JOINTS IN ALL FOUNDATION AND RETAINING WALLS SHALL BE PLACED NOT MORE THAN 18'-0" APART AND SHALL BE 3/4" V-CHAMFERED ON BOTH SIDES, UNLESS NOTED OTHERWISE. EXPANSION JOINTS SHALL BE LOCATED AS NOTED ON THE PLANS. SEE DETAILS THIS SHEET.

REINFORCED MASONRY NOTES

- ALL MASONRY CONSTRUCTION SHALL COMPLY WITH ACI 530-95/ASCE 5-95/TMS 402-95 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES".
- LAP VERTICAL BARS 48 DIAMETERS WITH WIRE TIES.
- GROUT ALL CELLS CONTAINING VERTICAL REINFORCEMENT IN 4'-0" LIFTS MAXIMUM. DO NOT BEGIN PLACEMENT OF GROUT UNTIL ALIGNMENT OF CELLS ARE INSPECTED AND APPROVED.
- FILL ALL CELLS BELOW FINISHED GRADE.
- PROVIDE #9 GALV. HORIZONTAL JOINT REINFORCEMENT IN WALLS AT 16" O.C. VERTICALLY UNLESS NOTED OTHERWISE. PROVIDE HORIZONTAL JOINT REINFORCEMENT IN BOND BEAMS AT 8" O.C. VERTICALLY. LAP JOINT REINFORCEMENT 12" O.C. MINIMUM.
- PROVIDE HORIZONTAL JOINT REINFORCEMENT AT 32" O.C. ACROSS VERTICAL CONTROL JOINTS IN WALLS AT 16" O.C. & ACROSS VERTICAL CONTROL JOINTS IN BOND BEAMS. TOP AND BOTTOM REINFORCEMENT IN SPANDREL BEAMS SHALL BE CONTINUOUS ACROSS CONTROL JOINTS.
- PROVIDE VERTICAL CONTROL JOINTS AT 24'-0" O.C. MAXIMUM LOCATE BOND BEAM CONTROL JOINTS AT CENTERLINE OF COLUMNS. SEE DETAIL THIS SHEET.
- PROVIDE 1-#5 BAR VERTICAL MINIMUM AT ALL CORNERS, INTERSECTIONS AND EACH SIDE OF CONTROL JOINTS.
- PROVIDE 2-#5 BARS VERTICAL AT 8" O.C. AT END WALLS.
- PROVIDE 1-#5 BAR VERTICAL MINIMUM EACH SIDE OF OPENING 4'-0" WIDE OR LESS. PROVIDE 2-#5 BARS VERTICAL MINIMUM 8" O.C. ON EACH SIDE OF OPENING GREATER THAN 4'-0".
- ALL REINFORCED HOLLOW UNIT MASONRY SHALL BE BUILT TO PRESERVE THE UNOBSERVED VERTICAL CONTINUITY OF THE CELLS TO BE FILLED. WALLS AND CROSS WEBS FORMING SUCH CELLS TO BE FILLED SHALL BE FULL-BEDDED IN MORTAR TO PREVENT LEAKAGE OF GROUT. ALL HEAD (OR END) JOINTS SHALL BE SOLIDLY FILLED WITH MORTAR FOR A DISTANCE IN FROM THE FACE OF THE WALL OR UNIT NOT LESS THAN THE THICKNESS OF THE LONGITUDINAL FACE SHELLS. BOND SHALL BE PROVIDED BY LAPPING UNITS IN SUCCESSIVE VERTICAL COURSES OR BY EQUIVALENT MECHANICAL ANCHORAGE.
- VERTICAL CELLS TO BE FILLED SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR, UNOBSERVED, CONTINUOUS, VERTICAL CELL MEASURING NOT LESS THAN 3" AND HAVING A CLEAR AREA OF 10 SQUARE INCHES.
- VERTICAL REINFORCEMENT SHALL BE HELD IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT EXCEEDING 10 FEET.
- WHEN THE GROUTING IS STOPPED FOR ONE HOUR OR LONGER, HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE POUR OF GROUT NOT LESS THAN 1/2" BELOW THE TOP OF THE UPPERMOST UNIT GROUTED.
- WHERE UNTELS BEAR ON MASONRY WALLS, THEY SHALL BEAR ON EITHER A BOND BEAM COURSE OR CORES GROUTED SOLID. ALL UNTELS SHALL HAVE AT LEAST 8" OF BEARING AT EACH END UNLESS NOTED OTHERWISE.

SPECIAL INSPECTIONS

- PERIODIC INSPECTION OF STRUCTURAL STEEL CONSTRUCTION IN ACCORDANCE WITH IBC 200 TABLE 1704.3.3. SNUG TIGHT BOLTS, FIELD WELDS, FLOOR AND ROOF DECK WELDS, STEEL FRAME CONNECTIONS.
- PERIODIC INSPECTION OF CONCRETE CONSTRUCTION IN ACCORDANCE WITH IBC 200 TABLE 1704.4. REINFORCING STEEL PLACEMENT, PROPER USE OF DESIGN MIX, CURING, ERECTION OF TILT-UP PANELS.
- PERIODIC LEVEL - 1 INSPECTION OF REINFORCED MASONRY CONSTRUCTION IN ACCORDANCE WITH IBC 2000 TABLE 1704.5.1. MORTAR, MORTAR JOINTS, LOCATION OF REBAR, ANCHORS, COLD WEATHER PROCEDURES, PRE-GROUT PREPARATION, GROUTING.

STRUCTURAL STEEL GENERAL NOTES

- ALL STRUCTURAL STEEL WORK SHALL CONFORM TO 1989 "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS" OF THE A.I.S.C.
- FABRICATORS AND ERECTORS SHALL BE MEMBERS OF THE A.I.S.C. OR CERTIFIED FOR CATEGORY I, A.I.S.C. QUALITY CERTIFICATION PROGRAM OR HAVE HAD AT LEAST 10 YEARS EXPERIENCE IN FABRICATION AND ERECTION OF SIMILAR STL. STRUCTURES.
- SHOP DRAWING FOR ALL STRUCTURAL STEEL SHALL BE SUBMITTED AND APPROVED PRIOR TO ANY FABRICATION.
- STEEL FRAMING CONNECTIONS SHALL BE BOLTED OR WELDED. BOLTS SHALL BE A MINIMUM OF 3/4" DIAMETER UNLESS NOTED OTHERWISE AND SHALL BE ASTM 325. ALBOLTED CONNECTIONS SHALL BE "SNUG TIGHT" UNLESS NOTED OTHERWISE. TOBOLTS MAY BE USED.
- THE CONTACT SURFACES WITHIN SLIP CRITICAL JOINTS SHALL BE FREE FROM OIL, PAINT, LACQUER OR GALVANIZING.
- ROOF DECKS SHALL BE INSTALLED IN ACCORDANCE WITH THE STEEL DECK INSTITUTIONAL MANUFACTURERS' RECOMMENDATIONS. DECKING SHALL BE PLACED IN, THREE-SPAN CONTINUOUS CONDITION. SINGLE OR DOUBLE SPAN CONDITIONS REQUIRE PRIOR APPROVAL BY THE STRUCTURAL ENGINEER.
- BEAMS SHALL BE FABRICATED AND ERECTED WITH NATURAL CAMBER UP.
- ALL WELDS SHALL CONFORM TO AWS D1.1-2000, "STRUCTURAL WELDING CODE". ALL GROVE WELDS SHOWN ON CONTRACT DOCUMENTS SHALL BE FULL PENETRATION UNLESS NOTED OTHERWISE. WELDING SHALL BE DONE WITH E-70XX ELECTRODES UNLESS NOTED OTHERWISE.
- STRUCTURAL STEEL EMBEDDING IN CONCRETE SHALL NOT BE PAINTED.
- GROUT USED IN GROUT BEDS UNDER COLUMN BASE PLATES SHALL BE CEMENT BASED NON-SHRINK GROUT. THE GROUT SHALL EXHIBIT NO SHRINKAGE IN ACCORDANCE WITH ASTM C827-82, "TEST METHOD FOR EARLY VOLUMEMCHANGE OF CEMENTITIOUS MIXTURES" AND SHALL HAVE A MINIMUM 28DAY COMPRESSIVE STRENGTH OF 5000 PSI WHEN TESTED IN ACCORDANCE WITH ASTM C-109-80, "TEST METHOD FOR COMPRESSIVE STRENGTH OF HYDRAULIC CEMENT MORTARS".
- SHOP OR FIEL SPLICES NOT SHOWN ON THE CONTRACT DOCUMENTS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL.
- STRUCTURAL STEEL FRAMING SHALL BE ERECTED TRUE AND PLUMB IN ACCORDANCE WITH A.I.S.C. CODE OF STANDARD PRACTICE. ANY FRAMING EXCEEDING TOLERANCES OF THE CODE OF STANDARD PRACTICE SHALL BE CORRECTED AS DIRECTED BY THE STRUCTURAL ENGINEER.
- THE STRUCTURAL STEEL ERECTOR SHALL PROVIDE TEMPORARY BRACING OF THE STRUCTURAL STEEL FRAME WORK AGAINST LATERAL LOADINGS SUCH AS WIND. THE BRACING SHALL REMAIN IN PLACE UNTIL THE FINAL SYSTEM FOR RESISTING LATERAL LOADS IS IN PLACE AND EFFECTIVE AS APPROVED BY THE STRUCTURAL ENGINEER.
- UNLESS OTHERWISE SHOWN, ALL BEAM CONNECTIONS SHALL BE STANDARD FRAMED OR SITED CONNECTIONS. UNLESS GREATER REACTIONS ARE INDICATED ON THE PLANS, CONNECTIONS SHALL DEVELOP AT LEAST ONE-HALF OF THE TOTAL UNIFORM LOAD CAPACITY TABULATED IN THE TABLES OF THE MANUAL FOR THE GIVEN SHAPE AND SPAN OF THE BEAM IN QUESTION. NO CASE, HOWEVER, SHALL THE LENGTH OF THE FRAMED CONNECTIONS BE LESS THAN ONE-HALF OF THE "T" DISTANCE OF THE BEAM WEB.
- GUSSET PLATE SHALL BE 3/8" THICK MINIMUM.
- WHERE PRACTICAL, UNLESS SHOWN DIFFERENTLY ON DRAWINGS, ALL BRACING CONNECTIONS SHALL BE DESIGNED AND DETAILED SO THAT ALL FORCE COMPONENTS CAN BE DELIVERED DIRECTLY TO THE CENTERLINE OF INTERSECTING MEMBERS. WHERE THIS IS NOT DONE, CONNECTIONS SHALL BE DESIGNED TO ACCOUNT FOR RESULTING ECCENTRICITIES.
- TRUSSES TO BE ALL WELDED CONSTRUCTION, UNLESS NOTED OTHERWISE. WHERE BOLTS ARE USED, BOTTOM CHORDS SHALL BE DETAILED TO PRODUCE NO REDUCTION OF CROSS SECTION DUE TO SLOT HOLES.
- (- OR -) INDICATES TENSION IN MEMBERS. (+ OR +) INDICATES COMPRESSION IN MEMBERS.
- ALL TRUSSES, BOTTOM CHORD BRACING, SWAY FRAMES, X-BRACING, LACE AND SHIRT TYPE MEMBERS SHALL EITHER DEVELOP THE FORCE INDICATED ON THE DRAWINGS OR ONE-HALF THE ALLOWABLE TENSION FORCE IN THE MEMBER, WHICHEVER IS LARGER.
- BAR JOISTS SHALL BE FABRICATED AND ERECTED, BRACED WITH RIGID BRIDGING AND ANCHORED TO THE SUPPORTING MEMBERS IN STRICT ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE STEEL JOIST INSTITUTE LATEST EDITION.
- PROVIDE JOIST AS SHOWN ON PLANS. EXTEND BOTTOM CHORD OF JOISTS AT COLUMNS.
- JOISTS AND JOIST GIRDERS SHALL BE DESIGNED FOR LOADS INDICATED ON PLANS. SEE DRAWING [S10X] FOR JOIST (SP) AND JOIST GIRDER (JGL) LOAD TABLES.
- JOIST AND GIRDER FABRICATOR SHALL SUBMIT SIGNED AND SEALED CALCULATIONS BY A REGISTERED ENGINEER SHOWING ALL LOADS AND SPECIAL CONDITIONS TOGETHER WITH SHOP DRAWINGS PRIOR TO ERECTION OF JOISTS AND GIRDERS.
- JOISTS AND GIRDERS SHALL BE DESIGNED FOR UPLIFT AS INDICATED ON PLANS. BOTTOM CHORD BRACES AND UPLIFT BRIDGING SHALL BE DESIGNED AND FURNISHED BY THE JOIST GIRDER MANUFACTURER.
- WIND POSTS TERMINATE 1 1/2" BELOW JOIST AND JOIST GIRDER BOTTOM CHORD.
- ALL JOIST GIRDERS SHALL HAVE BOTTOM CHORD BRACES AT MID SPANS TYPICALLY.
- ALL SAG RODS ARE 5/8".
- STRUCTURAL STEEL SUPPORTS FOR STOREFRONTS, CURTAIN WALLS AND SKYLIGHTS SHALL BE AS SHOWN ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. ANY ADDITIONAL REINFORCEMENT AND CONNECTIONS REQUIRED FOR THE SYSTEM SHALL BE PROVIDED AND INSTALLED BY THE MANUFACTURER.
- ALL STRUCTURAL STEEL, MISCELLANEOUS STEEL AND STEEL JOISTS U.N.O. SHALL BE GIVEN ONE SHOP COAT AND ONE FIELD TOUCH UP PAINT, GRAY COLOR.
- ROD BRACE CIVIS PIN HOLE DIAMETER = PIN DIAMETER + 1/16" PIN DIAMETER - ROD DIAMETER
- ROD BRACE CIVIS GRIP = GUSSET PLATE THICKNESS + 1/4".
- ROD BRACE TUNBUCKLE MUST BE WELL CLEAR OF SLOT IN GIRT.

INSPECTIONS

- DRILLED & UNDRILLED SHAFTS:
 - GEOTECHNICAL ENGINEER TO EVALUATE SHAFT BOTTOM BEFORE PLACING REBAR OR CONCRETE.
 - REBAR INSPECTOR TO VERIFY SHAFT REBAR CAGE BEFORE IT IS PLACED IN HOLE.
- SHALLOW FOUNDATIONS AND GRADE BEAMS:
 - GEOTECHNICAL OR CONCRETE INSPECTOR TO VERIFY SUBGRADE IS NOT FROZEN OR SATURATED.
 - CONCRETE INSPECTOR TO VERIFY VOID FORM IS IN PLACE AS REQUIRED AND THAT REBAR IS PER DRAWINGS.
- ANCHOR RODS:
 - STEEL INSPECTOR TO VERIFY SIZE, PROJECTION, SPACING AND LOCATION OF ANCHOR RODS BEFORE CONCRETE IS PLACED.
- STRUCTURAL STL:
 - STEEL INSPECTOR TO VISUALLY INSPECT WELD OF JOIST GIRDER TOP CHORD TO COLUMN KNIFE PLATE (1/5113) AND WELD OF TIE PLATE TO TOP OF JOIST (2/5113) BEFORE ROOF DECK IS INSTALLED.
 - STEEL INSPECTOR TO VERIFY THAT BOLTED CONNECTIONS ARE TIGHTENED PER SPECIFICATIONS, THAT ROD BRACING IS TIGHT AND NOT RUBBING AGAINST GIRT HOLES.
 - WELDING ADJACENT TO METAL PANELS TO BE INSPECTED BEFORE PANELS ARE SET.

DESIGN NOTES

DESIGN DATA:
FLORIDA BUILDING CODE 2004 EDITION W/ 2006 SUPPLEMENT
WIND DESIGN
BASIC WIND SPEED: 100 MPH
IMPORTANCE FACTOR: 1.0
CATEGORY: ENCLOSED BUILDING
EXPOSURE: C
INTERNAL PRESSURE COEFFICIENT: ±0.18
COMPONENTS & CLADDING PRESSURES: (10 SQ. FT. CONTRIBUTORY AREA)
WALL: END ZONE INT. ZONE
POS. 25.0 PSF NEG. 25.0 PSF
NEG. -33.4 PSF NEG. -27.1 PSF
ROOF: CORNER PERIMETER
POS. 11.1 PSF POS. 11.1 PSF
NEG. -69.1 PSF NEG. -45.9 PSF
FIELD POS. 11.1 PSF NEG. -27.3 PSF
(SEISMIC NOT CONSIDERED PER CODE)
2500 PSF
[GEOTECHNICAL FIRM]
REPORT [DATE] [REPORT NO.]

SEISMIC
SOIL BEARING CAPACITY
LIVE LOADS:
ROOF:
PENTHOUSE
MEZZANINE
CATWALK
STAIRS AND LANDINGS
INTERIOR WALLS
GROUND SNOW LOAD
0 PSF

DEAD LOADS:
SINGLE PLY ROOF MEMBRANE
ROOF INSULATION
METAL ROOF DECK
JOIST
MECH/ELEC/PLUMB
CEILING
SPRINKLER

MATERIALS:
WIDE FLANGE STEEL
CHANNELS, ANGLES & PLATES
RECTANGULAR STRUCTURAL TUBING
STANDARD PIPE
HIGH STRENGTH BOLTS
ANCHOR RODS
STEEL JOISTS & JOIST GIRDERS
METAL ROOF DECK
METAL FLOOR DECK
WELDING ELECTRODES
RIGID UNDER FLOOR INSULATION
RIGID INSULATION BLOCK
(LAST-A-FOAM R9330)
STEEL GRATING
RAISED-PATTERN FLOOR PLATE

CONCRETE (28 DAYS):
FOOTINGS
WEAR SLAB/SLAB-ON-GRADE
SUB-SLAB
TILT-UP PANELS
ALL OTHER CONCRETE
PRECAST/PRESTRESSED CONCRETE

REINFORCING STEEL
COMPOSITE STUDS
DEFORMED BAR ANCHORS (DBA)
A108
A185
UNCOATED, ASTM A-416 GRADE 270
REDHEAD A7 (ICC ER-5560) OR HILT HIT HY150 (ICC ER-5193)

MASONRY
CONCRETE MASONRY UNIT (CMU)
NET AREA ASSUMED; AN
MORTAR
GROUT

BACK DESIGN DATA:
MAXIMUM RACK POSTLOAD
RACK LAYOUT
UTILIZATION ASSUMED
BASE PLATE

3000 PSI
3000 PSI
3000 PSI (2500) PSI AT 7 DAYS
4000 PSI
3000 PSI
5000 PSI

A615 GRADE 60
3/4" x 0'-3" LONG MEETING AWS D1.1
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A185
UNCOATED, ASTM A-416 GRADE 270
REDHEAD A7 (ICC ER-5560) OR HILT HIT HY150 (ICC ER-5193)

C90, f'm = 15000 PSI
[FACE SHELL, BEDDING] [FULL BEDDING] NOMA-TEK 141A
5270 TYPE M OR S BELOW GRADE, TYPE N ABOVE GRADE
C476 2000 PSI

3000#/PALLET, 5'5 HIGH
48" x 108"
85X
6" x 8" MIN. @ 1 INT. POST

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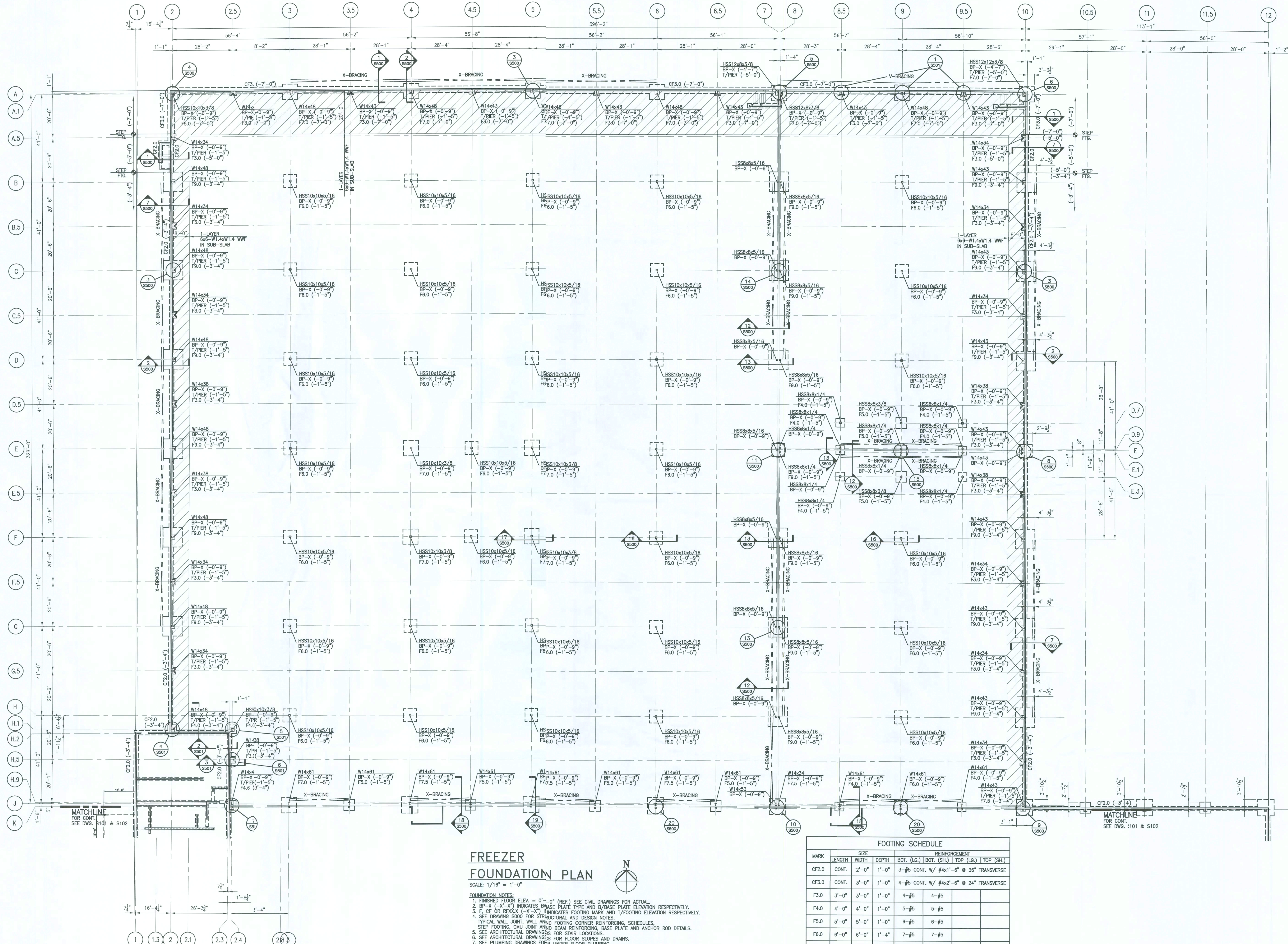
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5/18/07

UNITED STATES COLD STORAGE, INC
NEW FACILITY
LAKE CITY, FLORIDA

WELFARE
AREA
AND
PARTIAL DOCK
FOUNDATION
PLAN

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REV.	DATE	BY	DESCRIPTION
1	5/17/07	DLP	FOUNDATION PERMIT ISSUE
2	5/17/07	DLP	FOUNDATION PERMIT ISSUE
3	5/17/07	DLP	FOUNDATIONS REVIEW
4	5/17/07	DLP	FOUNDATIONS REVIEW

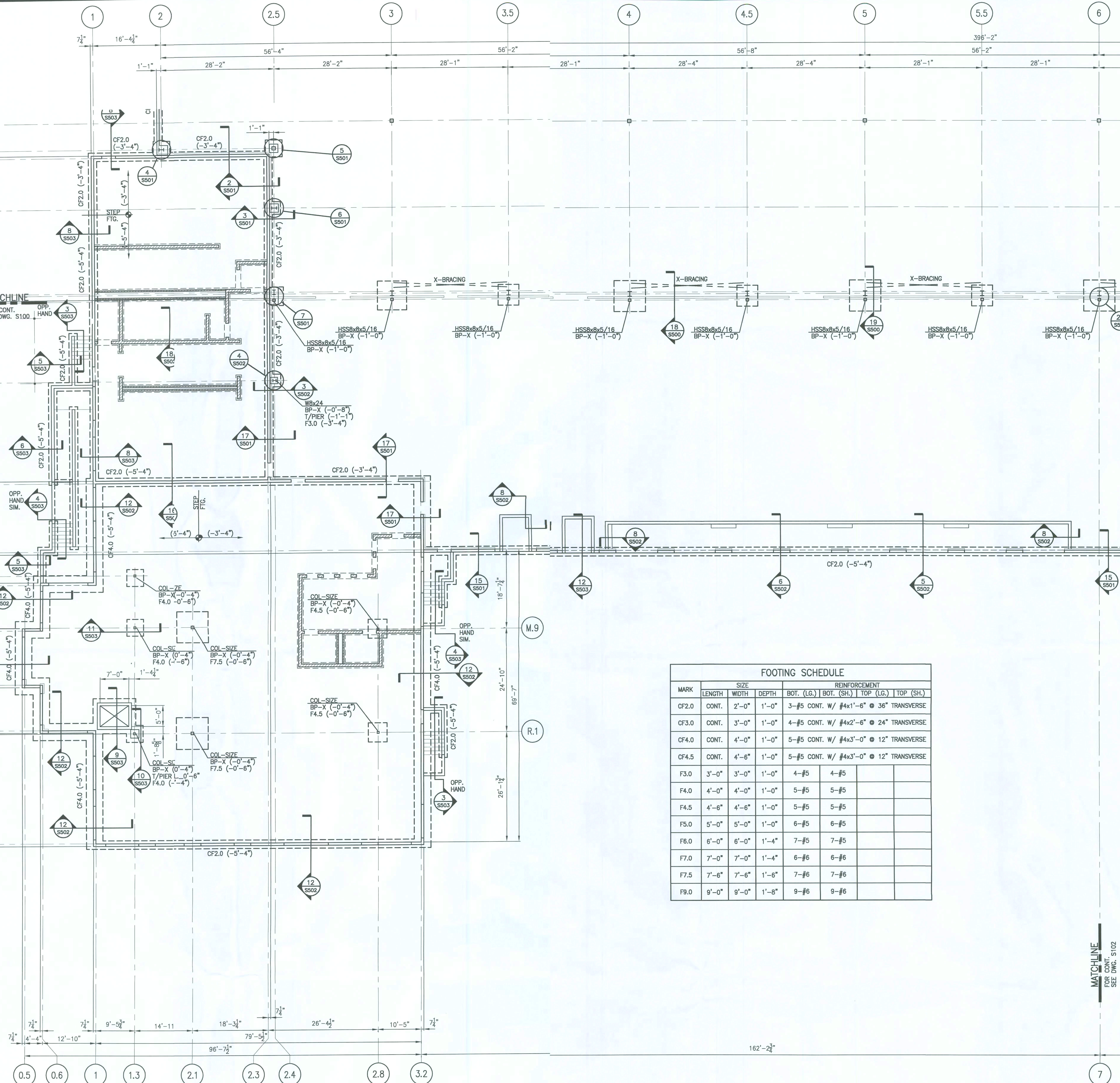
JOB NO. 710-03019

DRAWN: DLP

CHECKED: REK

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

S101
DRAWING NO.



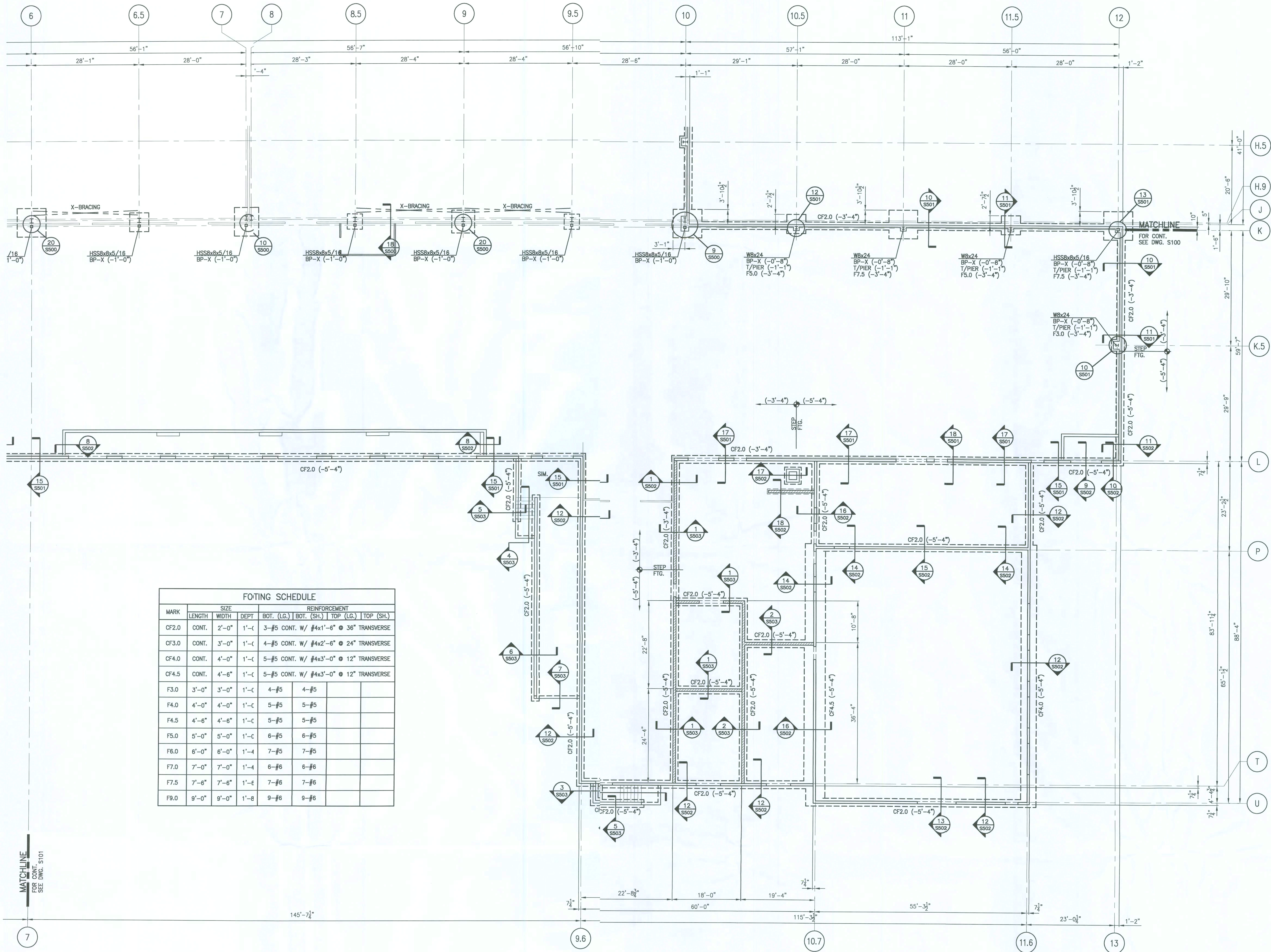
WELFARE AREA & PARTIAL DOCK
FOUNDATION PLAN

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



MATCHLINE
FOR CONT.
SEE DWG. S102

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MAINTENANCE AREA & PARTIAL DOCK
FOUNDATION PLAN

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



UNITED STATES COLD STORAGE, INC
NEW FACILITY
LAKE CITY, FLORIDA

MAINTENANCE
AREA
AND
PARTIAL DOCK
FOUNDATION
PLAN

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REV.	DATE	BY	DESCRIPTION
1	5/7/07	DLP	FOUNDATION PERMIT ISSUE
2	5/7/07	DLP	FOUNDATION BID ISSUE
3	5/7/07	DLP	OWNER'S REVIEW

JOB NO. 710-03019

DRAWN: DLP

CHECKED: REK

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

S102
DRAWING NO.

REV.	DATE	BY	DESCRIPTION
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2	5/7/07	DLP	FOUNDATION BID ISSUE
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4	5/7/07	DLP	
5	5/7/07	DLP	
6	5/7/07	DLP	
7	5/7/07	DLP	
8	5/7/07	DLP	
9	5/7/07	DLP	
10	5/7/07	DLP	
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20	5/7/07	DLP	

JOB NO. 710-03019

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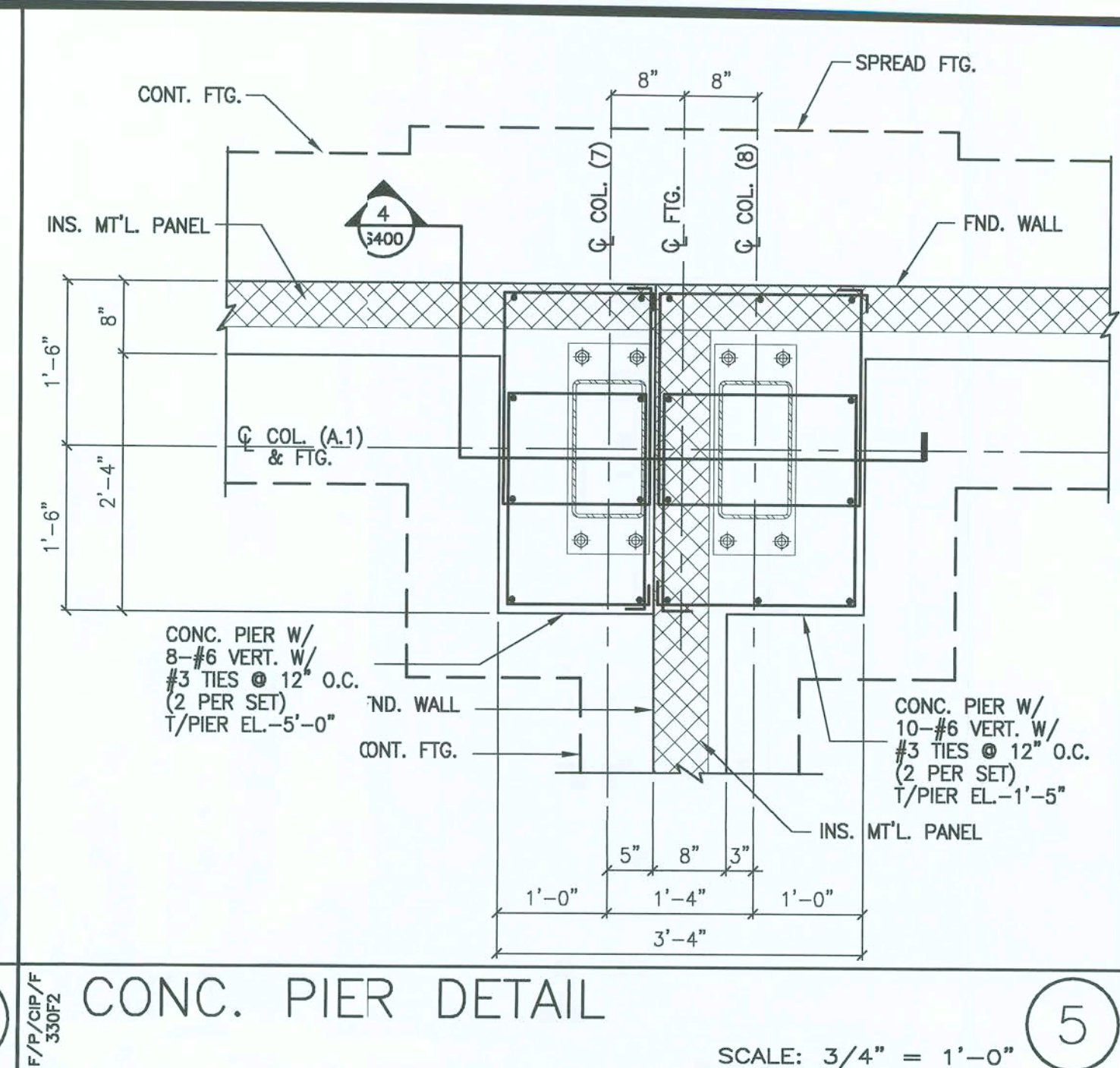
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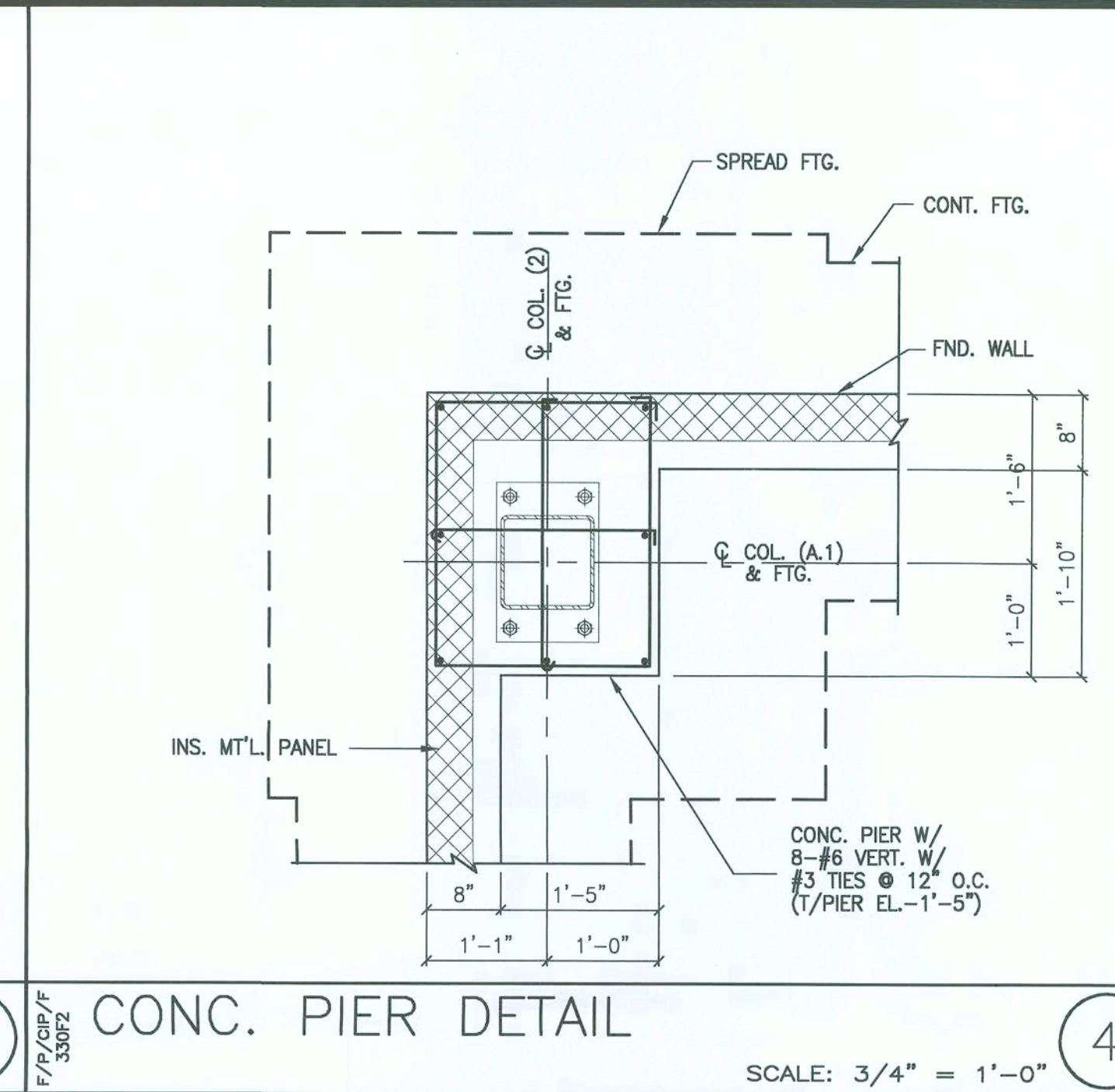
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THE STELLAR GROUP
DESIGN + CONSTRUCTION + REFRIGERATION
2800 HARTLEY ROAD, JACKSONVILLE, FL 32257 (904) 260-2600

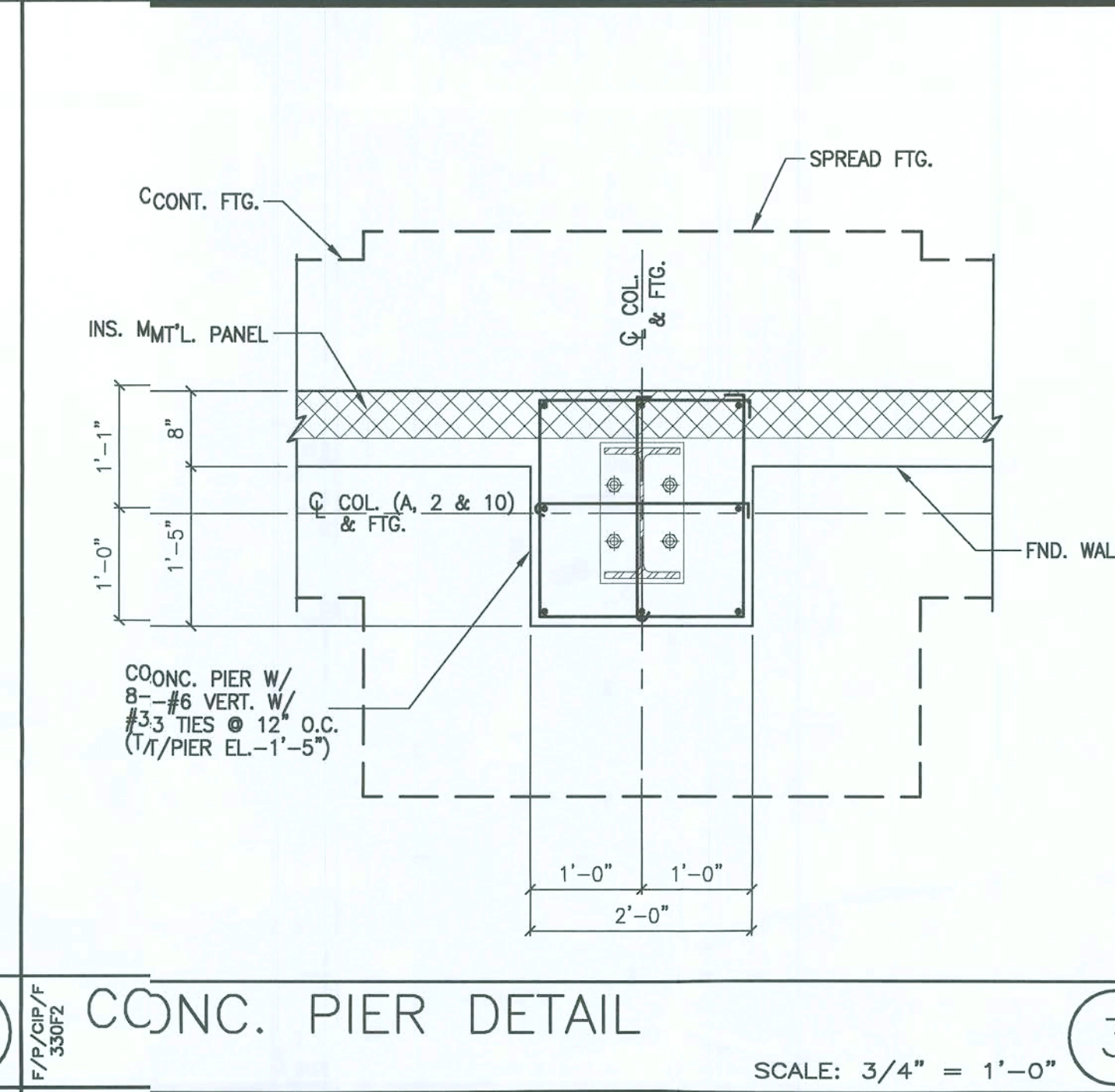
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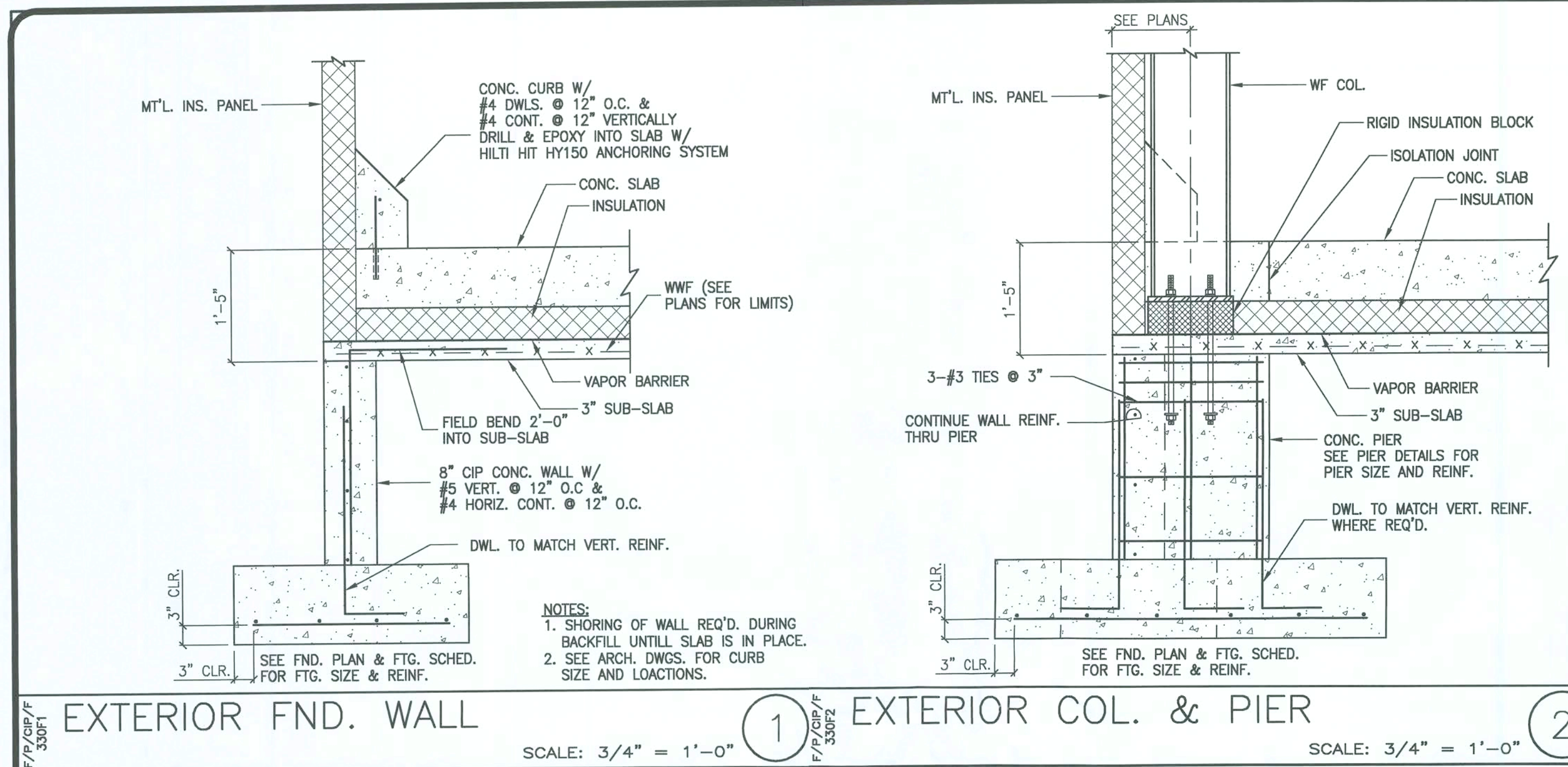
CONC. PIER DETAIL 5 SCALE: 3/4" = 1'-0"



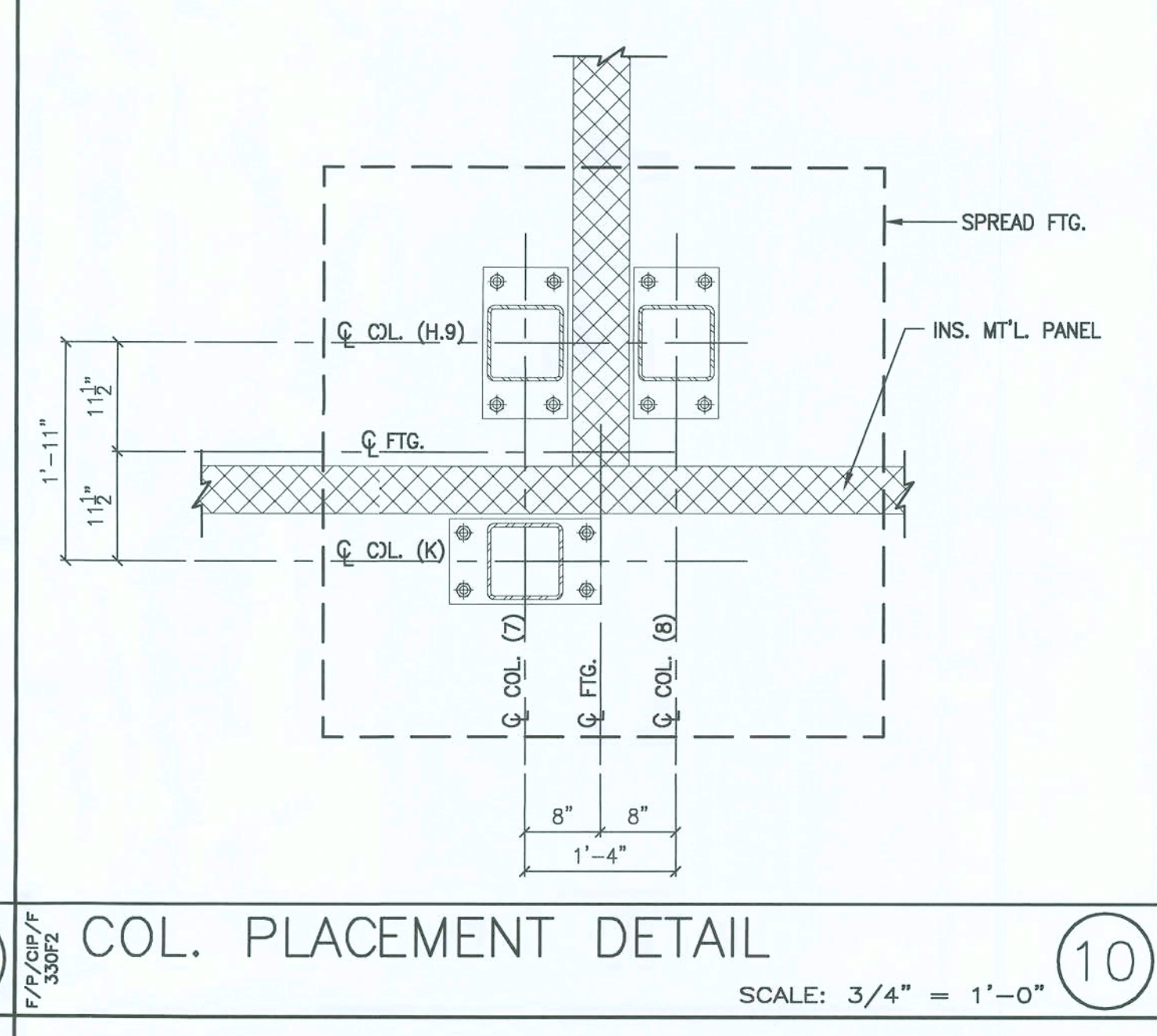
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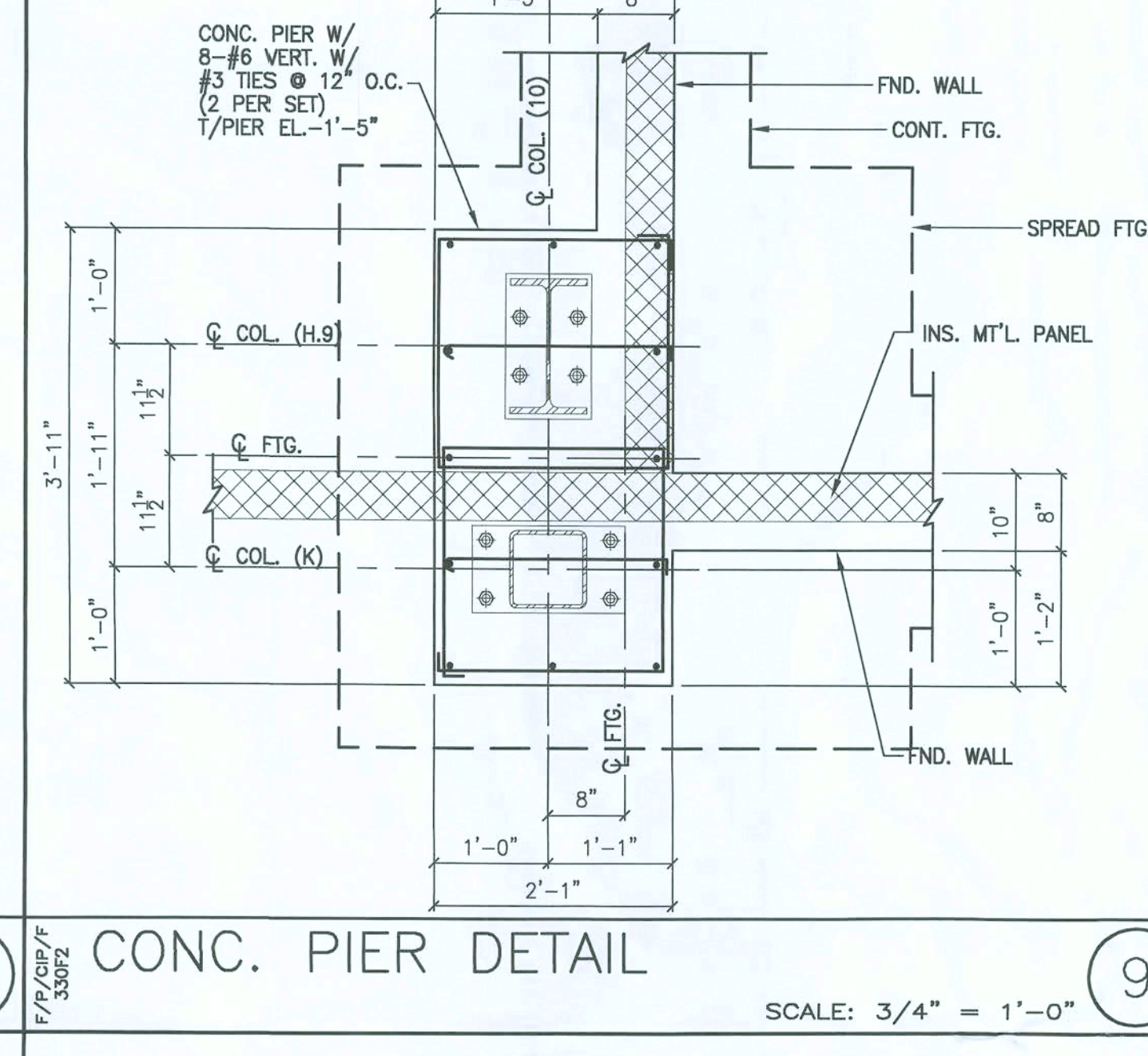
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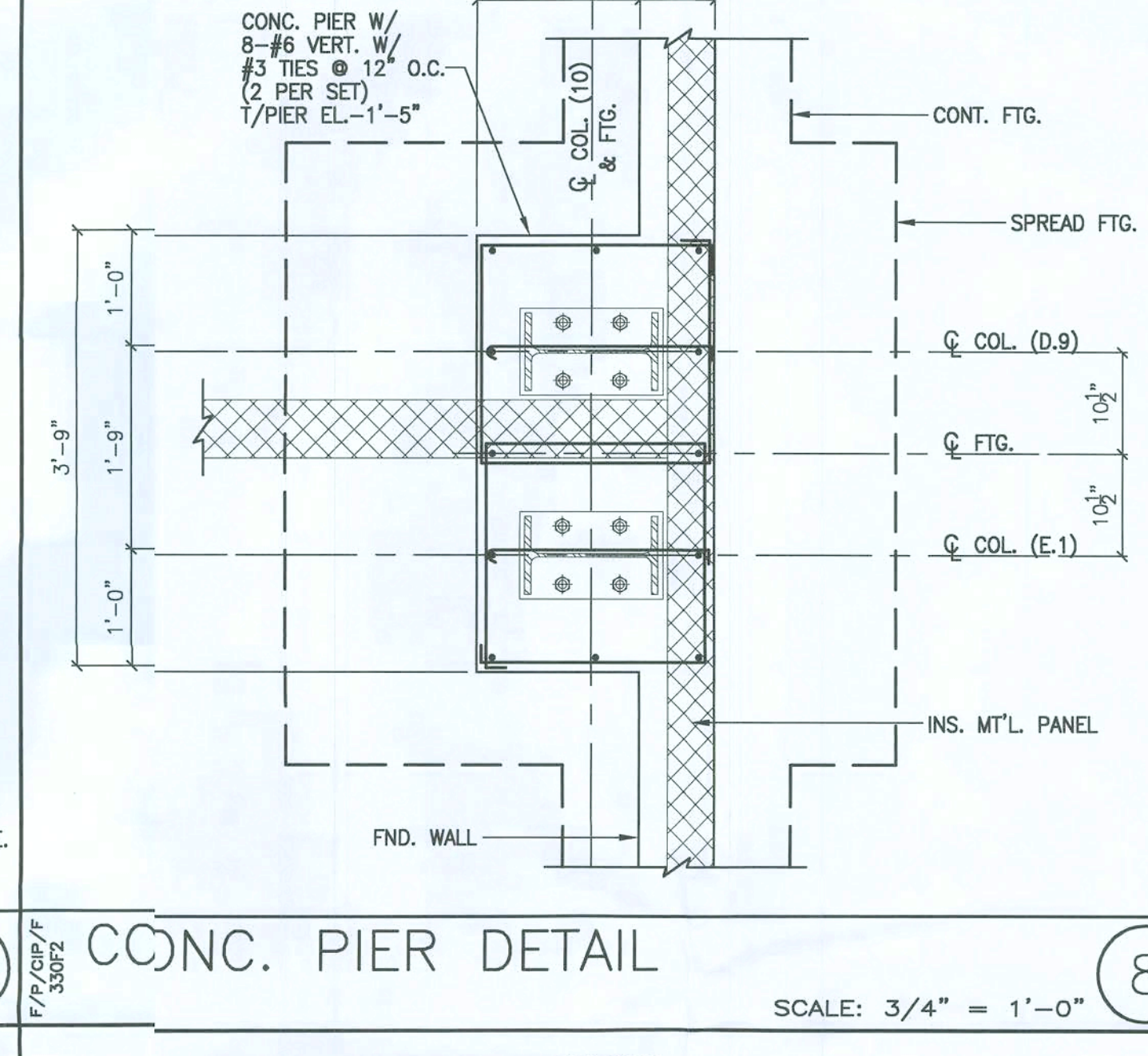
EXTERIOR FND. WALL 1 SCALE: 3/4" = 1'-0"



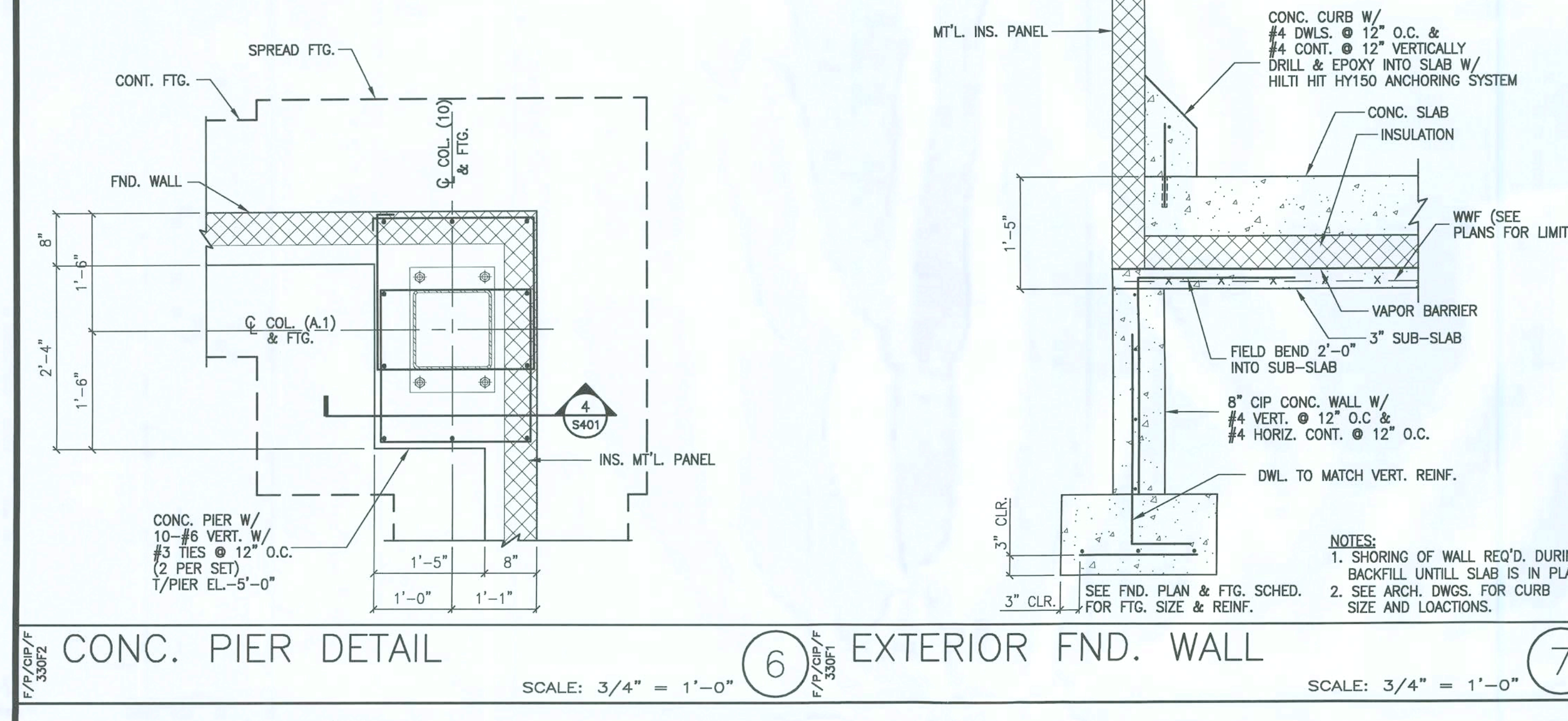
COL. PLACEMENT DETAIL 10 SCALE: 3/4" = 1'-0"



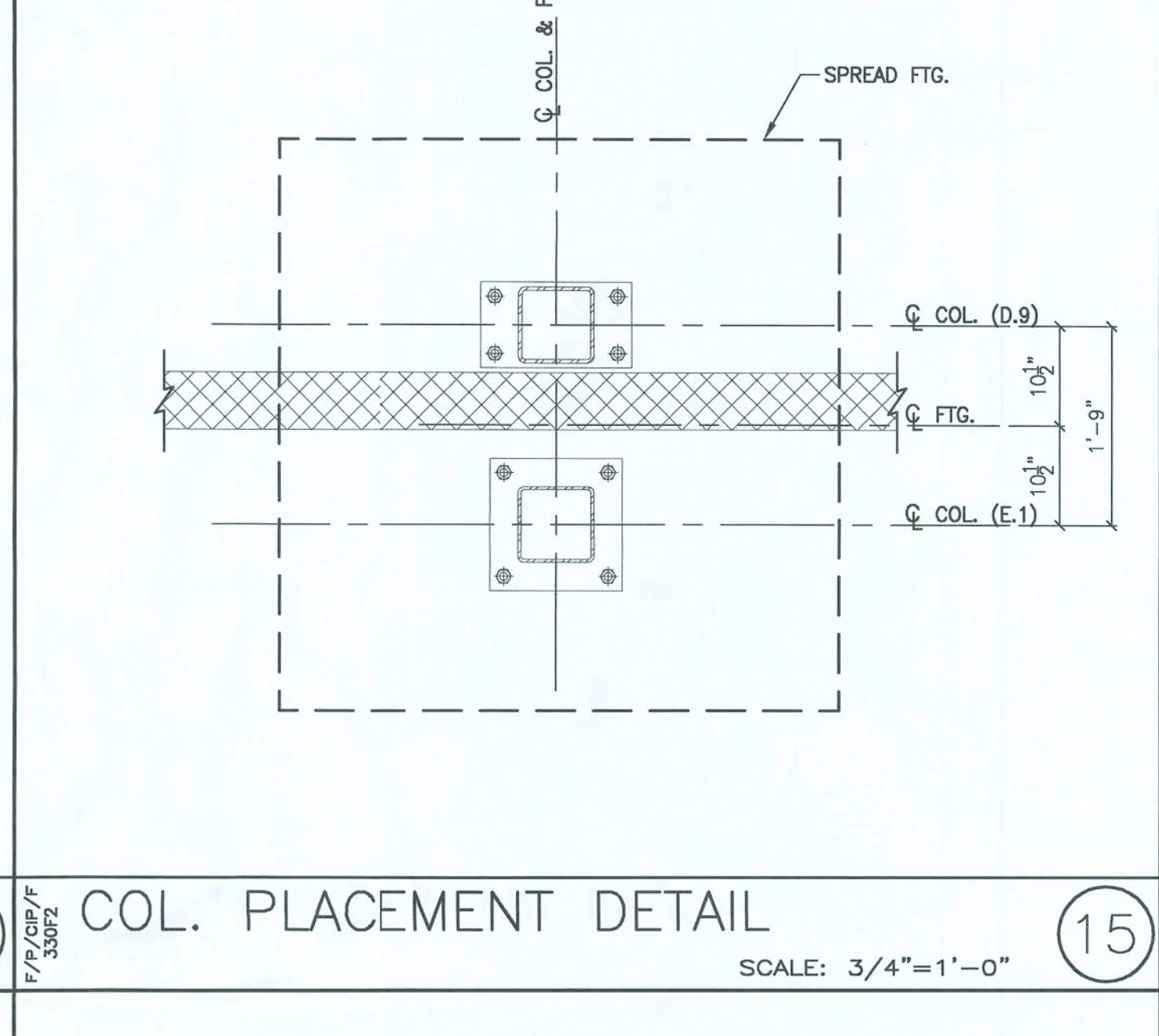
CONC. PIER DETAIL 9 SCALE: 3/4" = 1'-0"



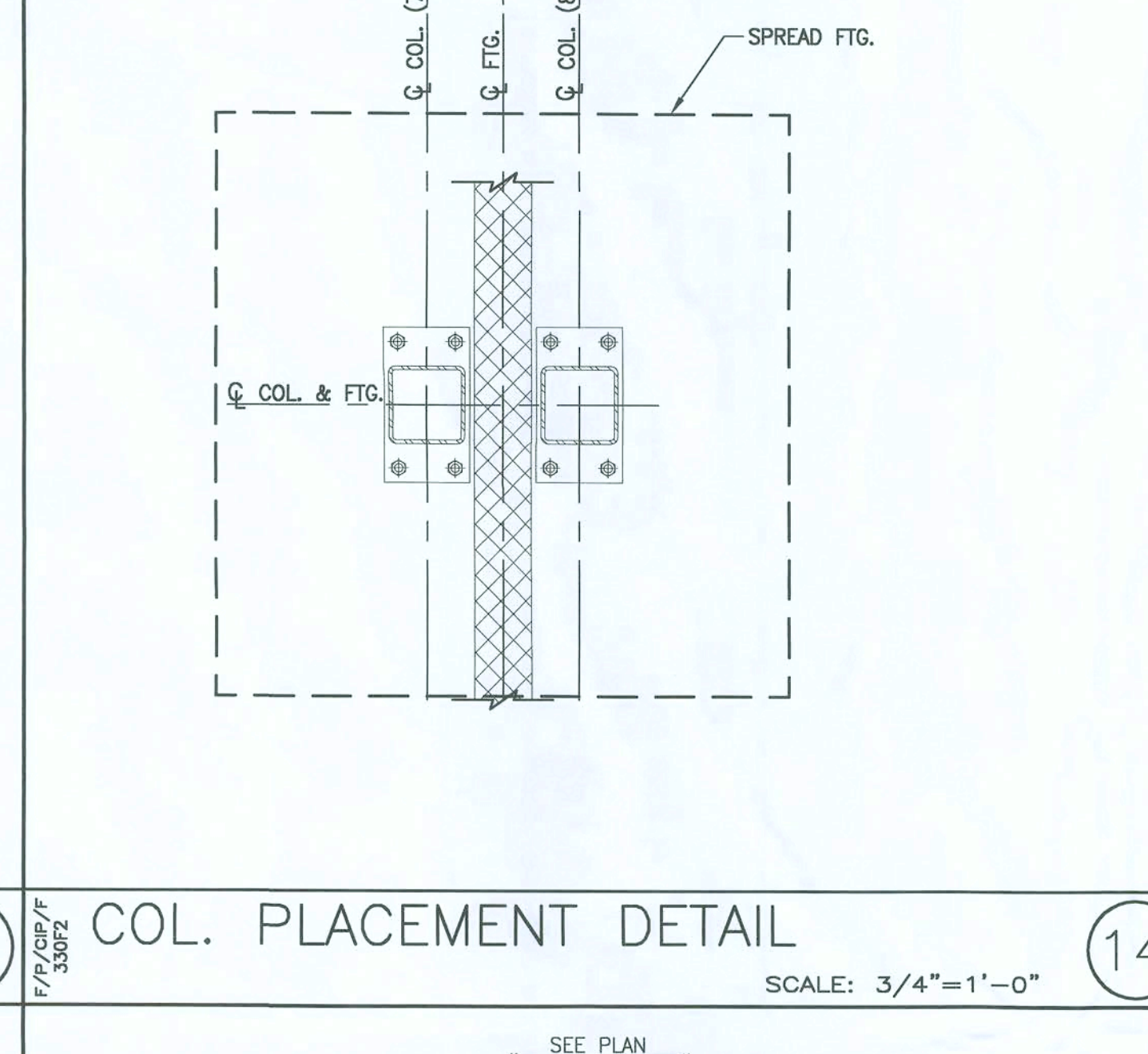
CONC. PIER DETAIL 8 SCALE: 3/4" = 1'-0"



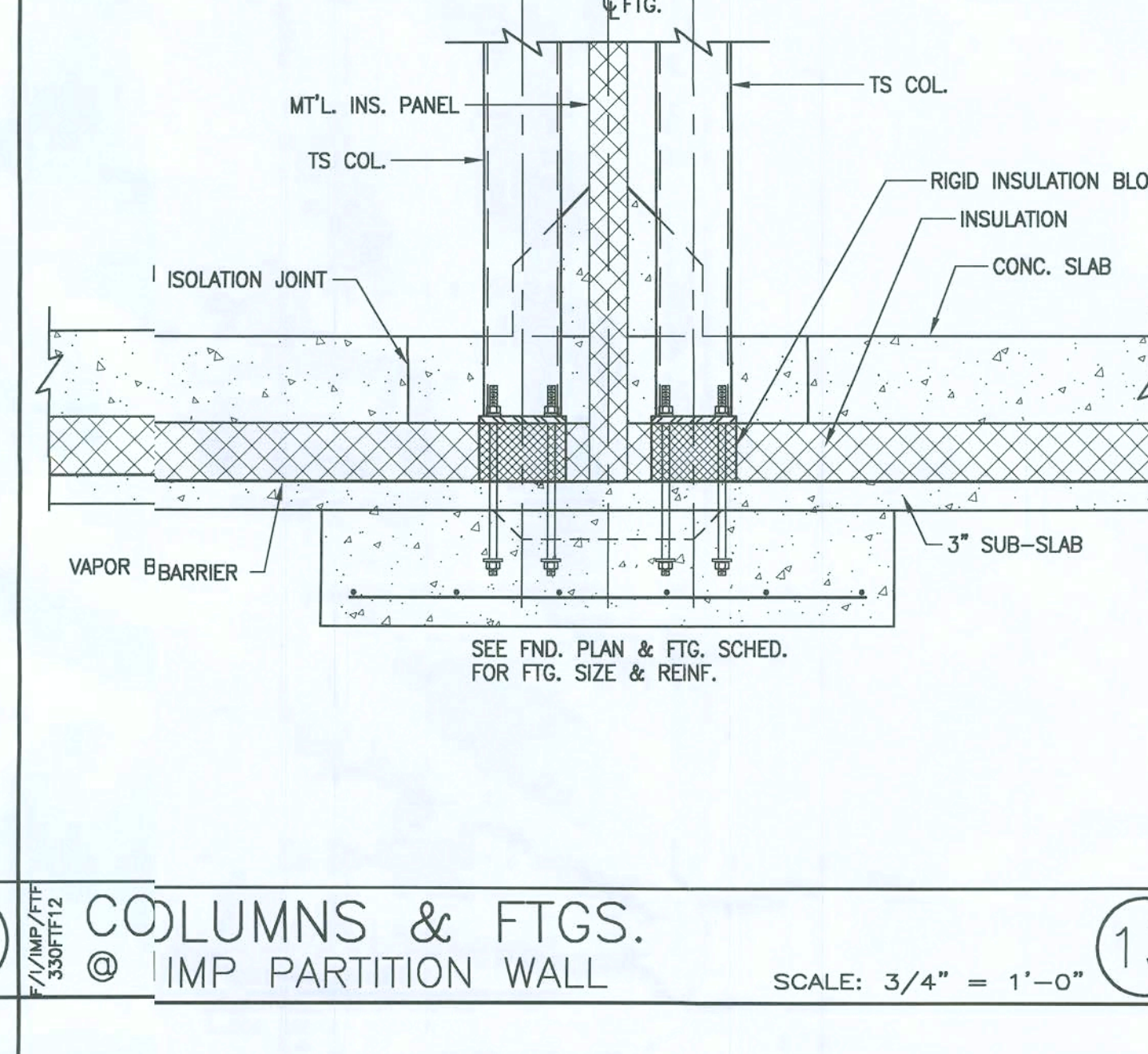
EXTERIOR FND. WALL 7 SCALE: 3/4" = 1'-0"



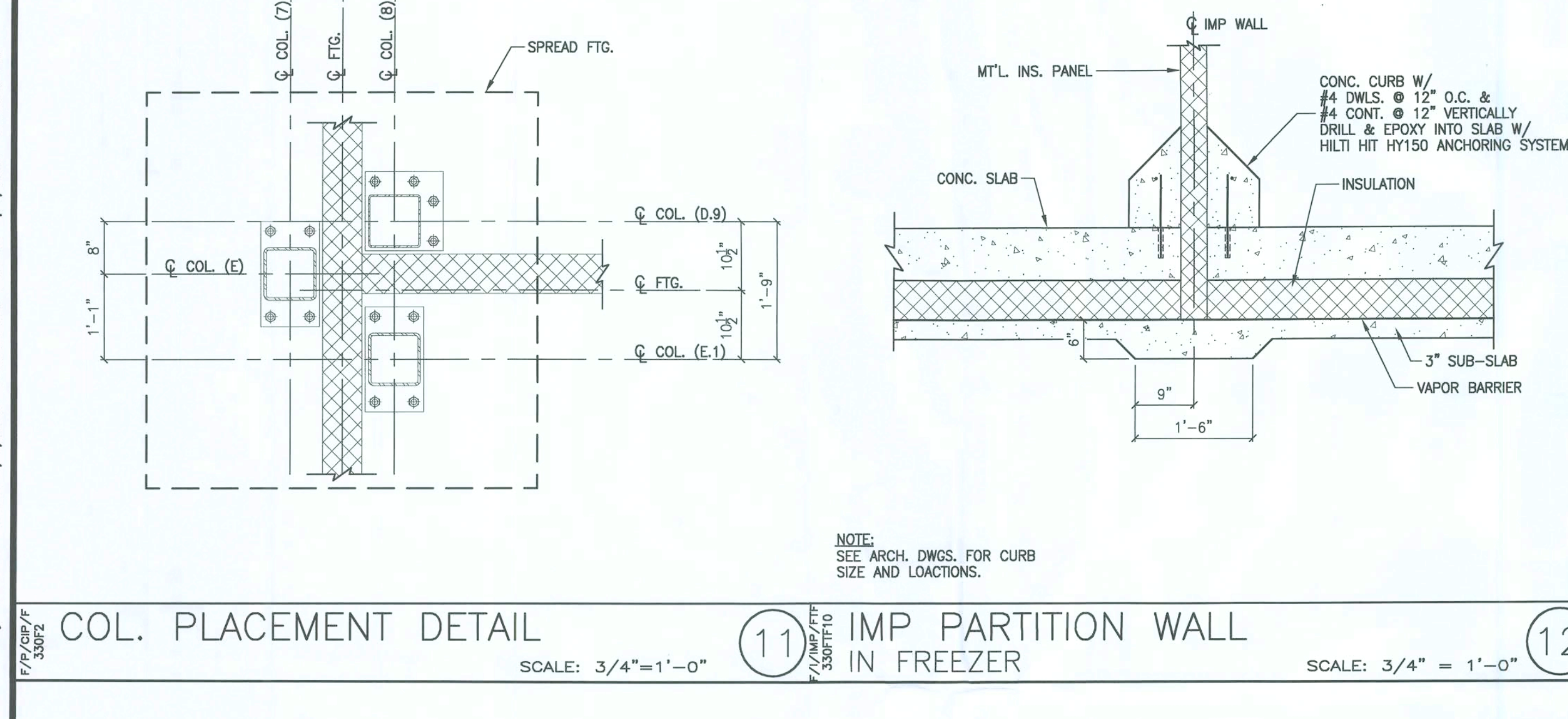
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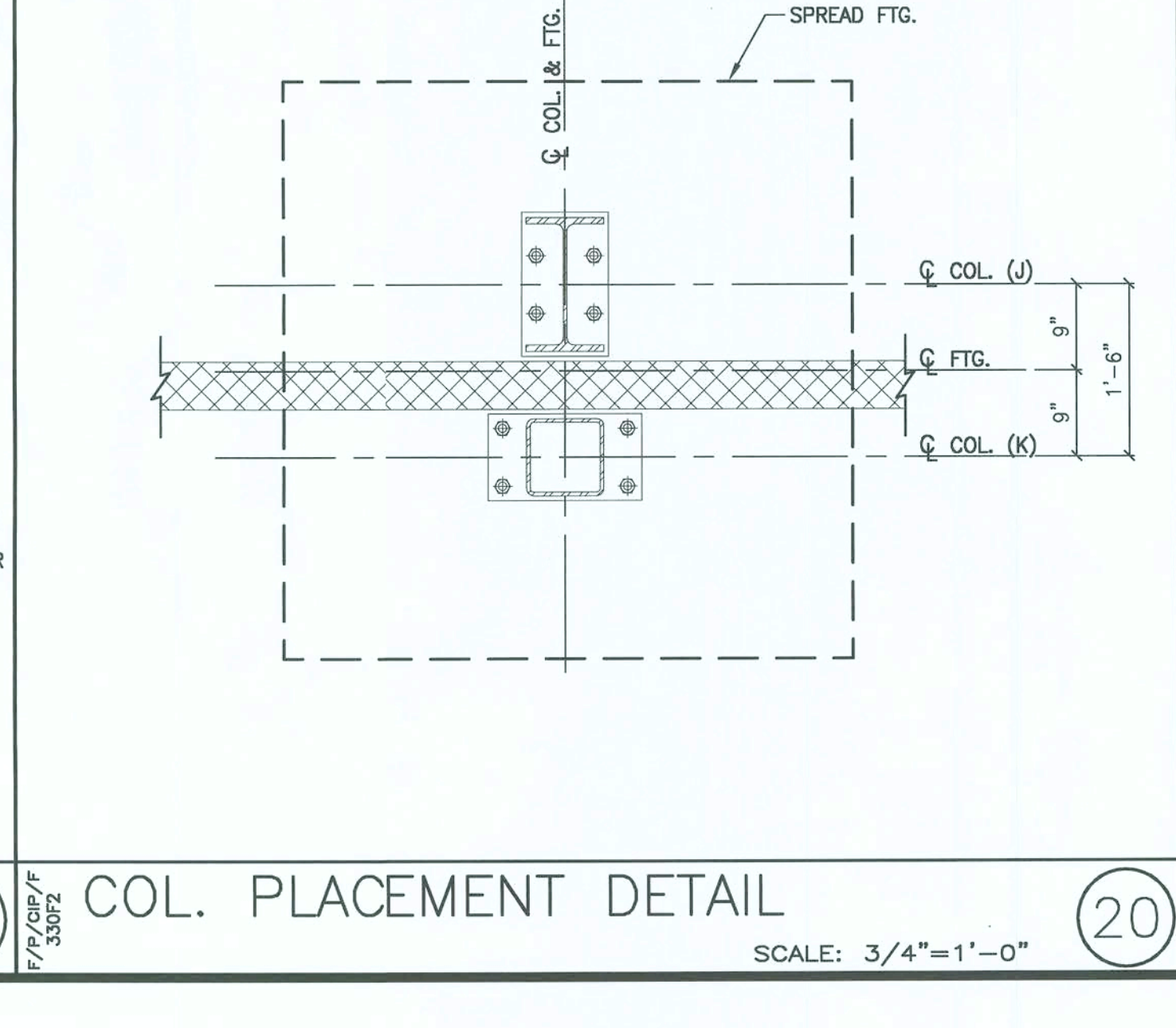
COL. PLACEMENT DETAIL 14 SCALE: 3/4" = 1'-0"



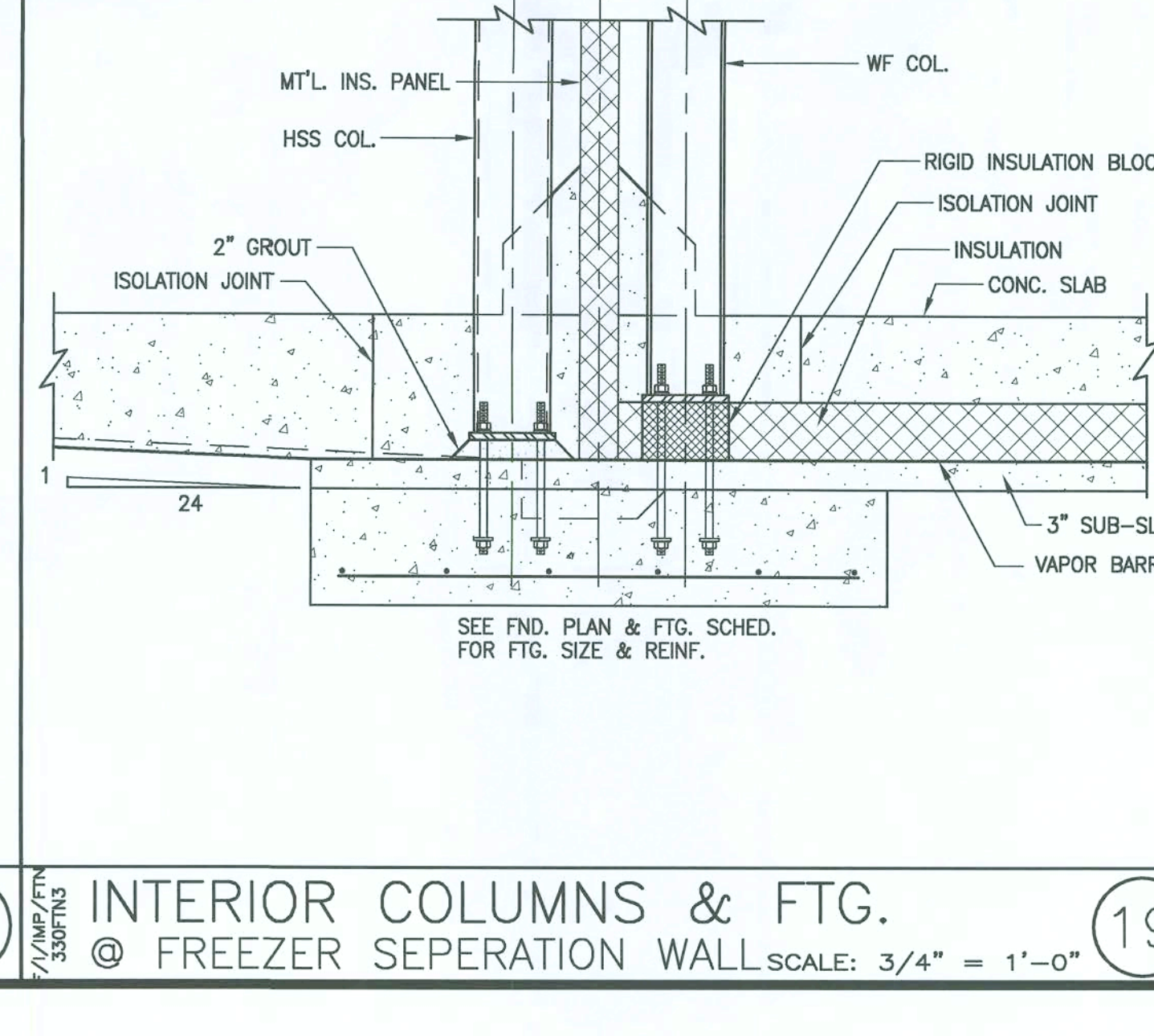
COLUMNS & FTGS. @ IMP PARTITION WALL 13 SCALE: 3/4" = 1'-0"



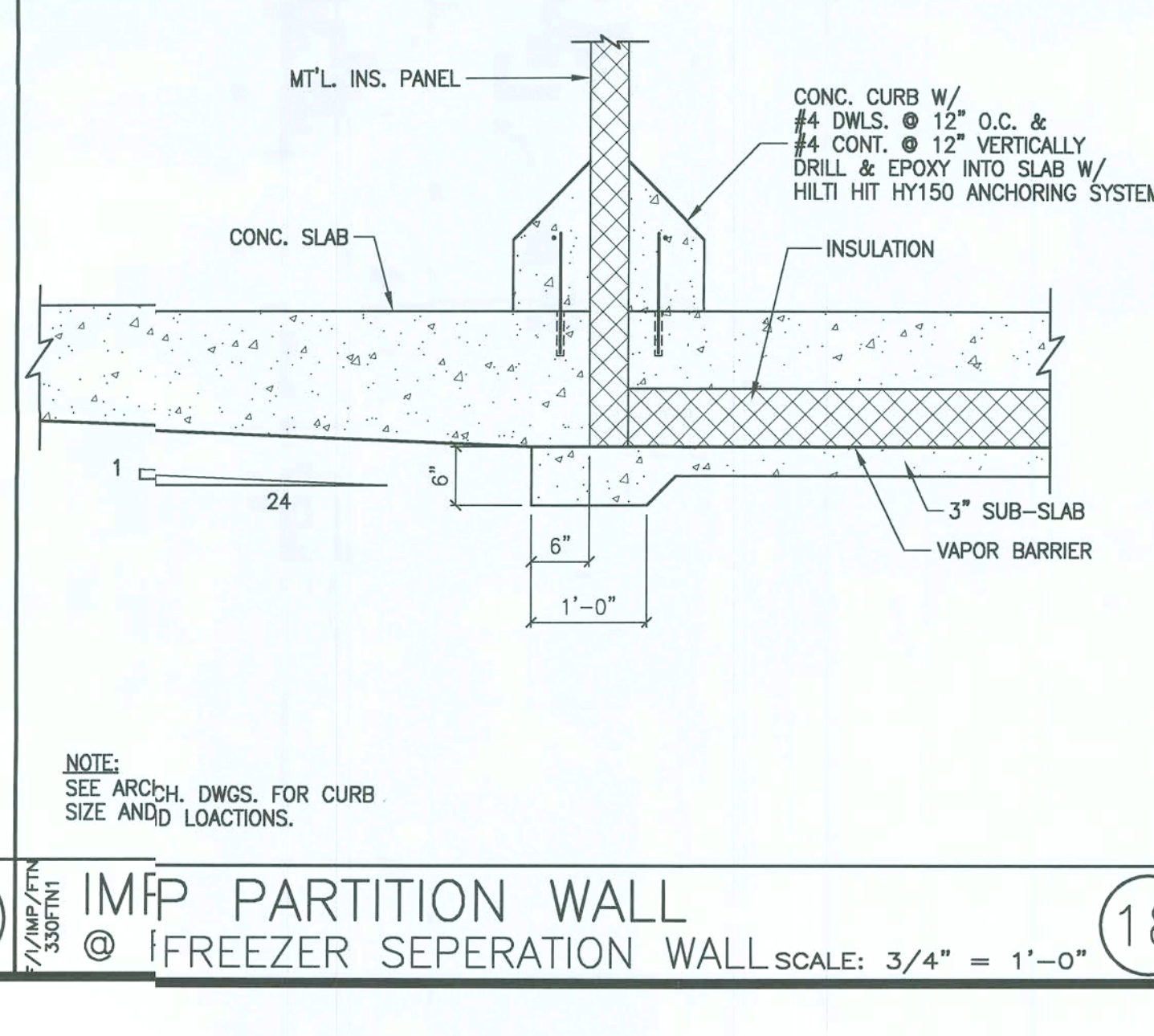
COL. PLACEMENT DETAIL 11 SCALE: 3/4" = 1'-0"



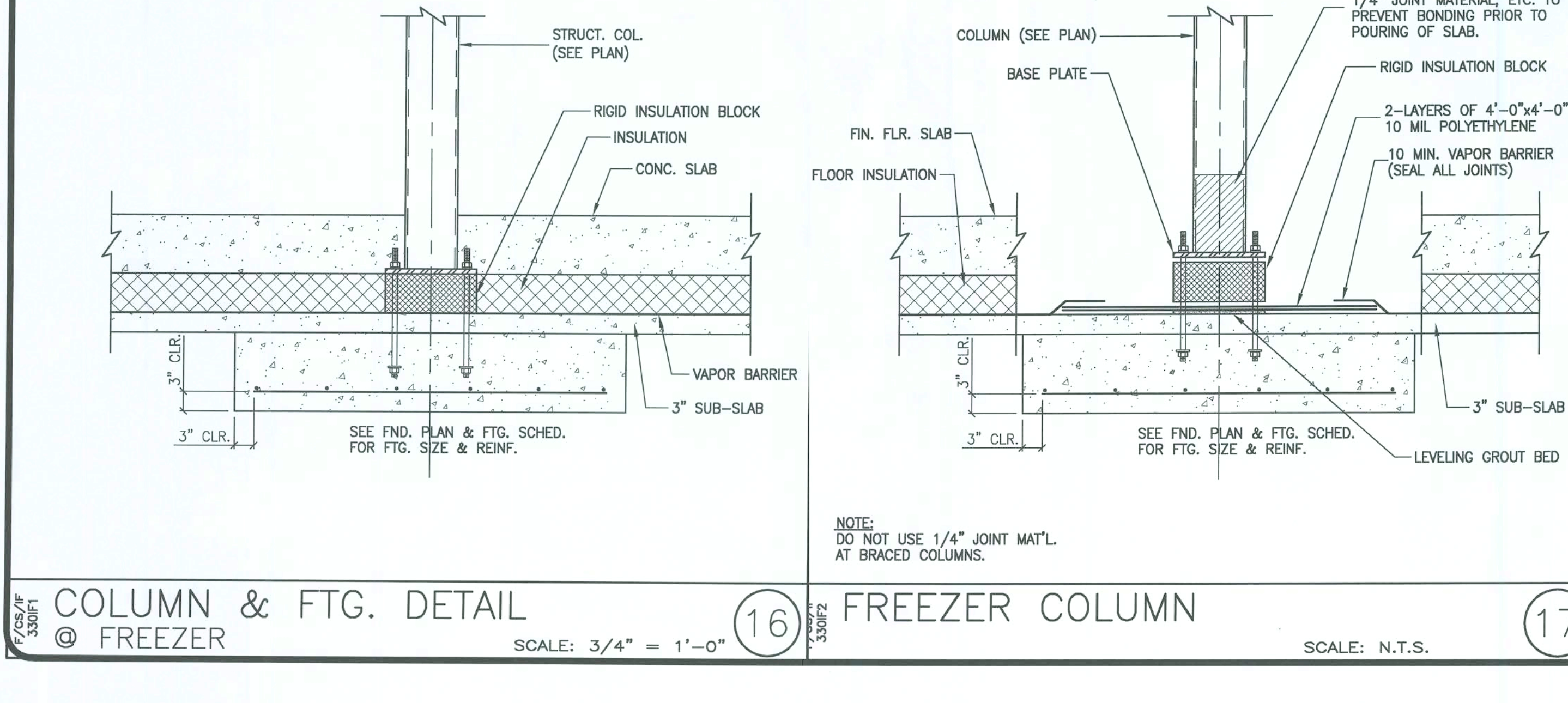
COL. PLACEMENT DETAIL 20 SCALE: 3/4" = 1'-0"



INTERIOR COLUMNS & FTG. @ FREEZER SEPERATION WALL 19 SCALE: 3/4" = 1'-0"

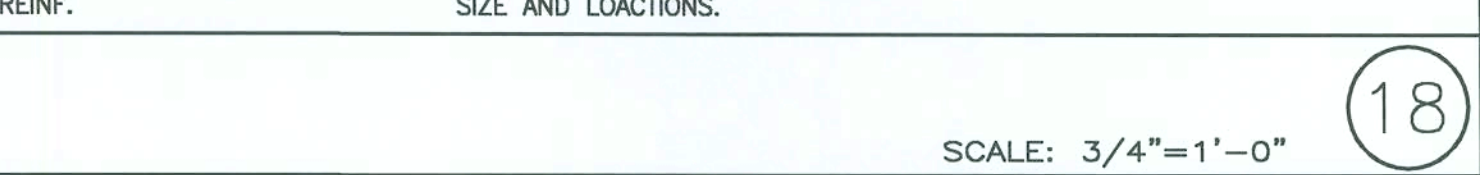
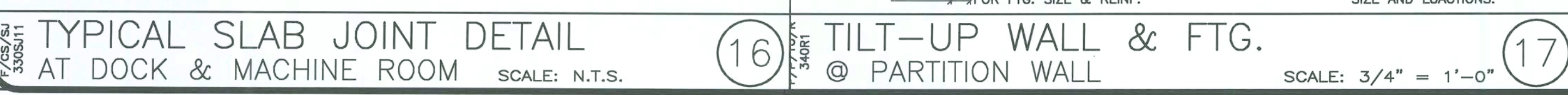
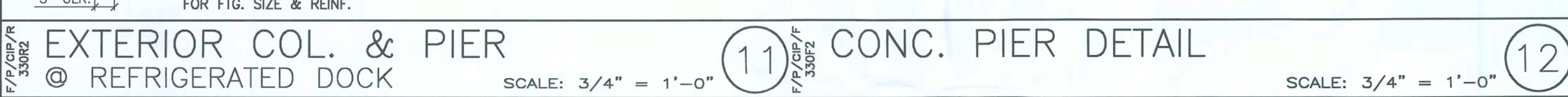
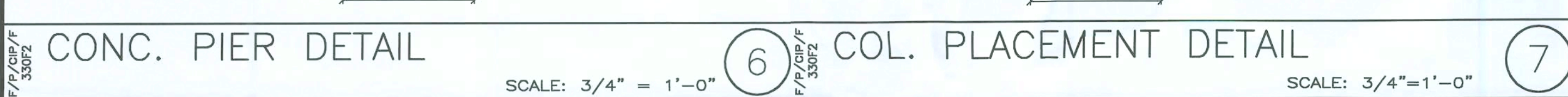
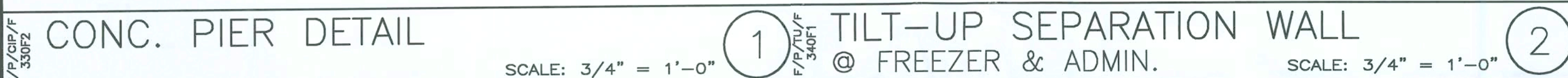


IMP PARTITION WALL @ FREEZER SEPERATION WALL 18 SCALE: 3/4" = 1'-0"

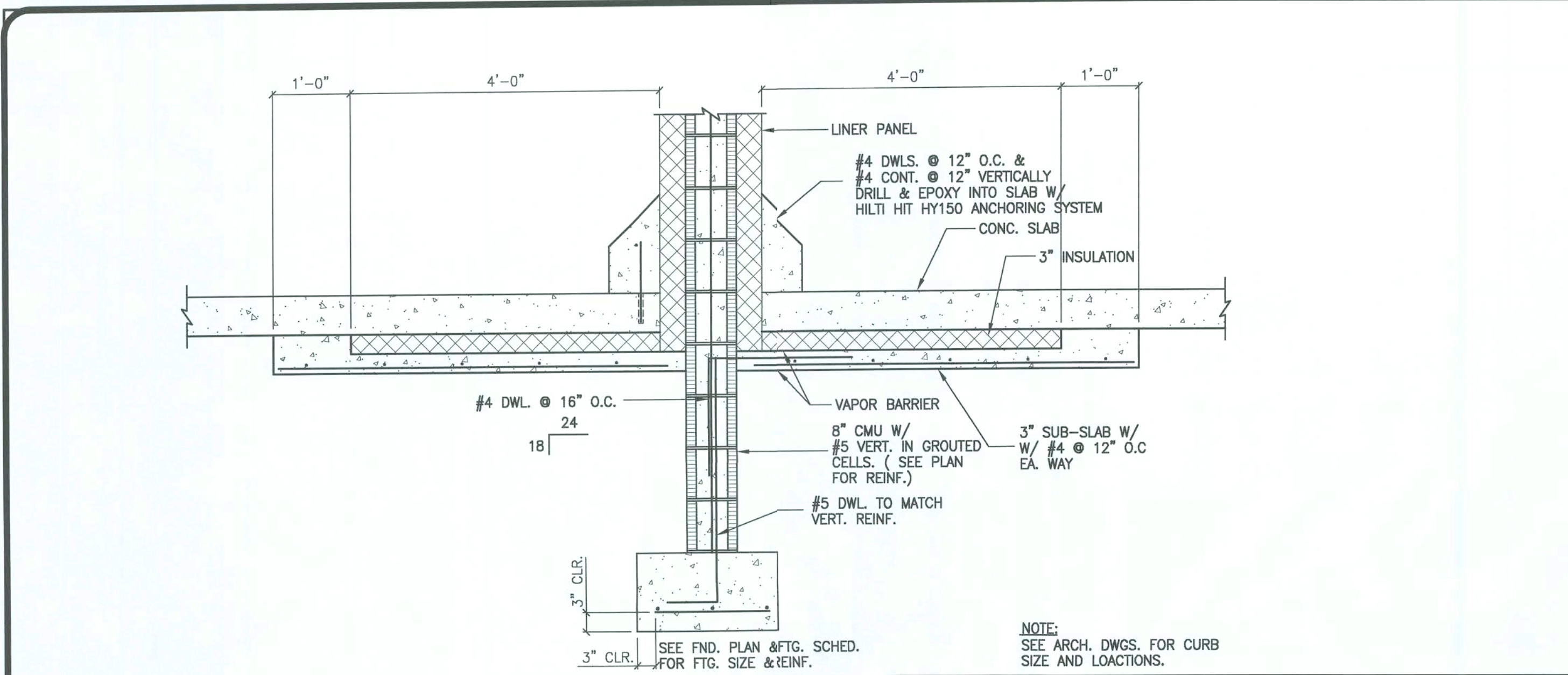


FREEZER COLUMN 16 SCALE: 3/4" = 1'-0"

COLUMN & FTG. DETAIL @ FREEZER 16 SCALE: 3/4" = 1'-0"



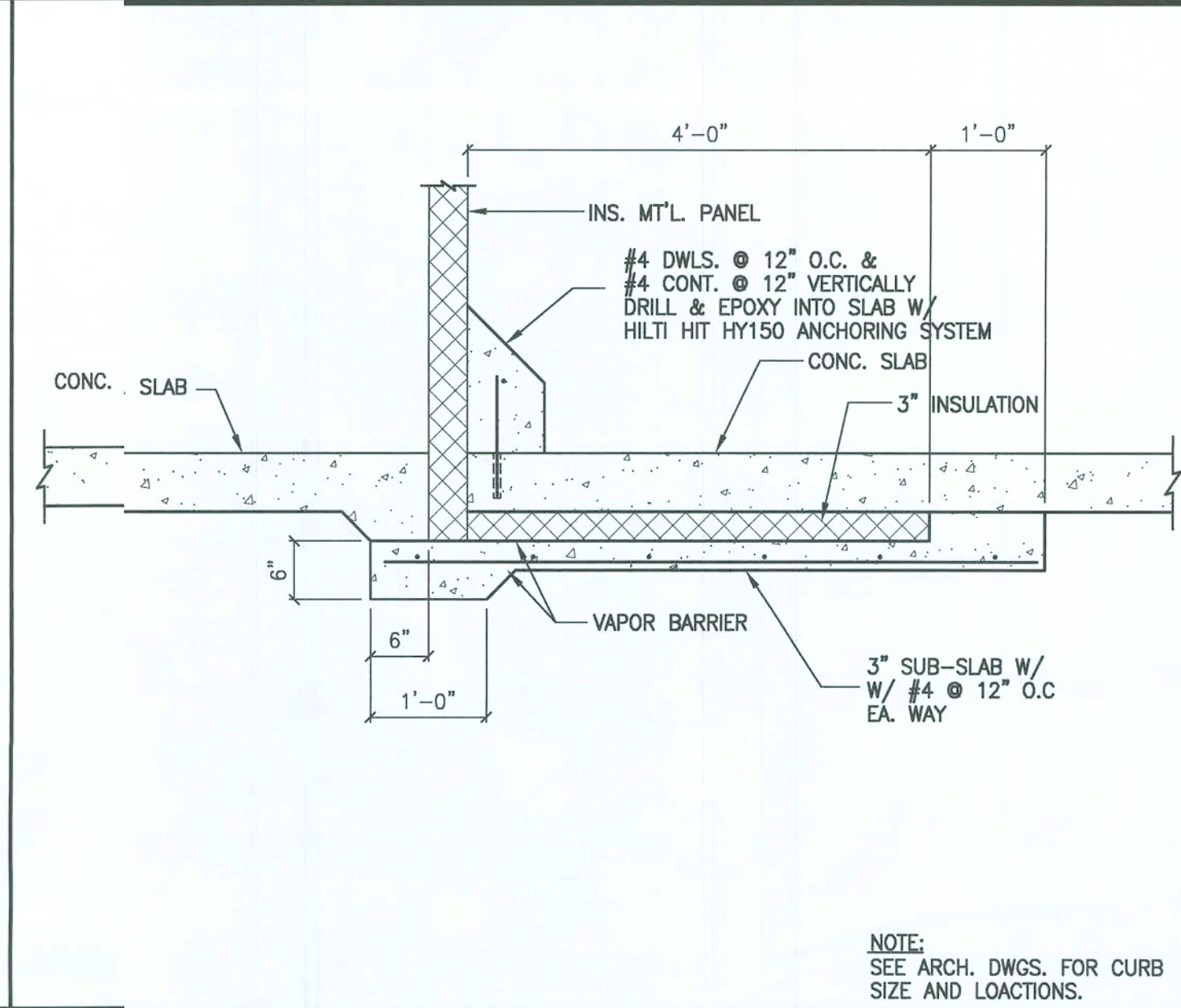
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CMU WALL & FTG.
@ BATT. CHARGING ENTRY

SCALE: 3/4" = 1'-0"

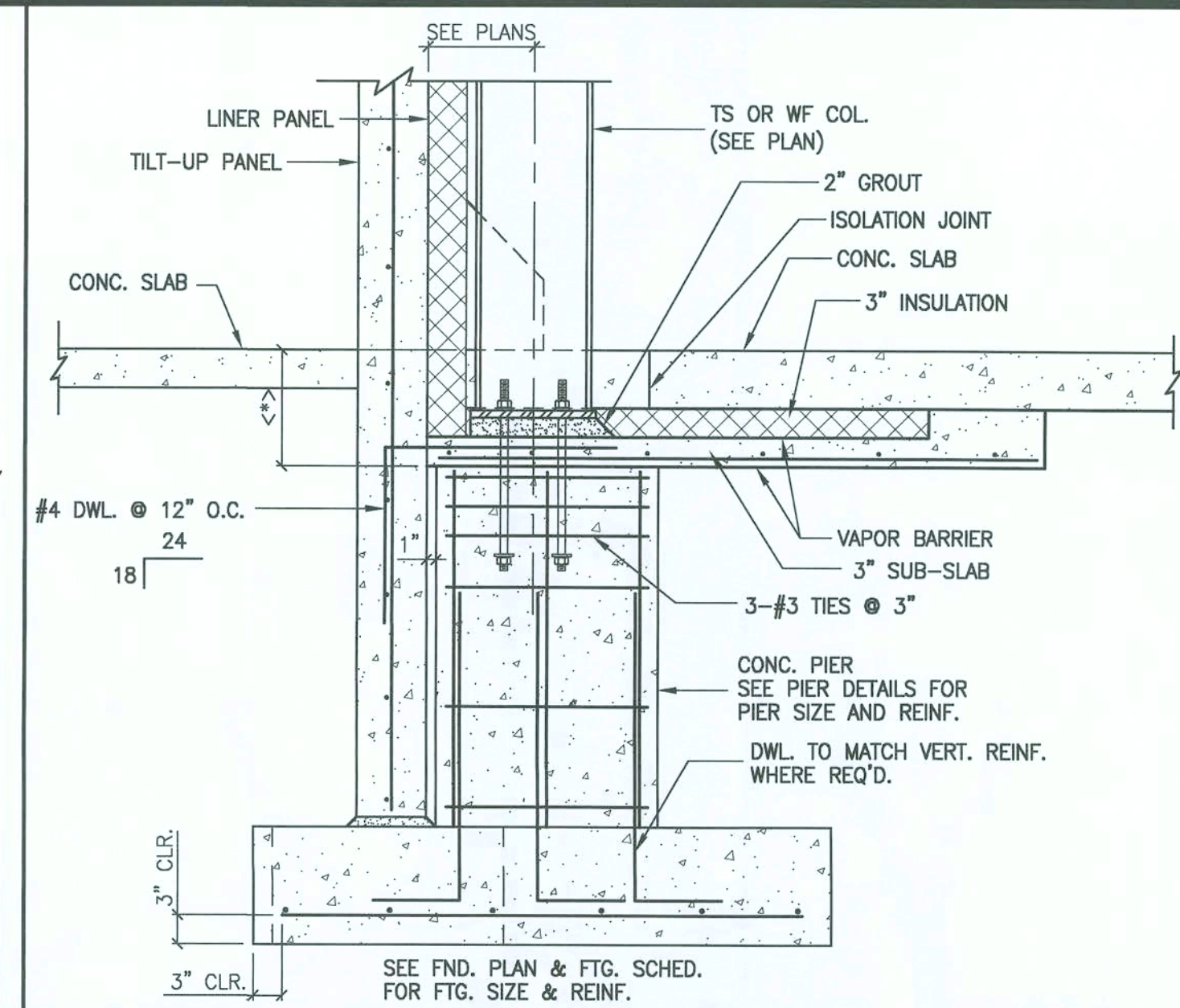
1



PARTITION WALL
@ BATT. CHARGING ENTRY

SCALE: 3/4" = 1'-0"

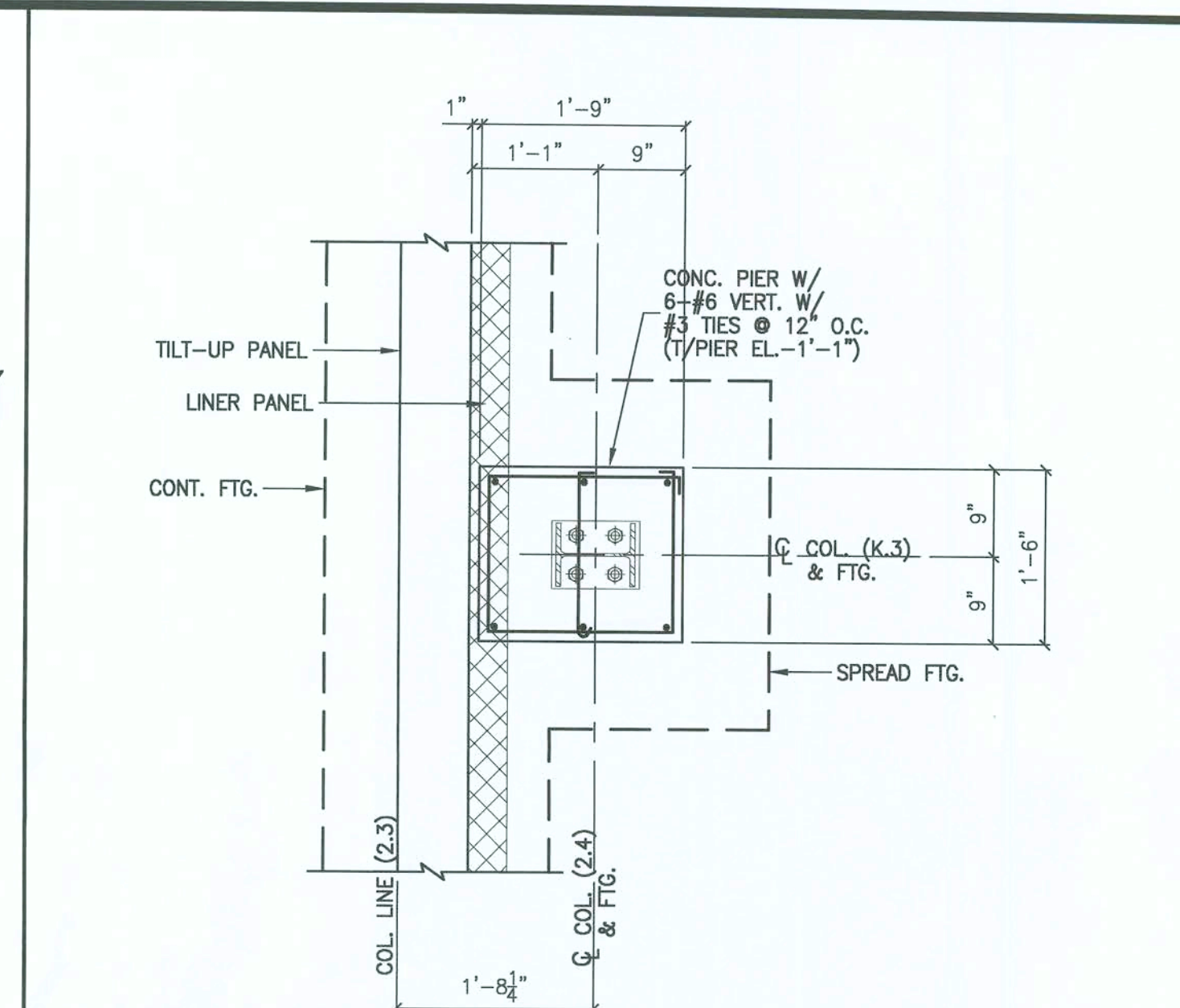
2



COLUMN & PIER SECTION
@ TILT-UP WALL

SCALE: 3/4" = 1'-0"

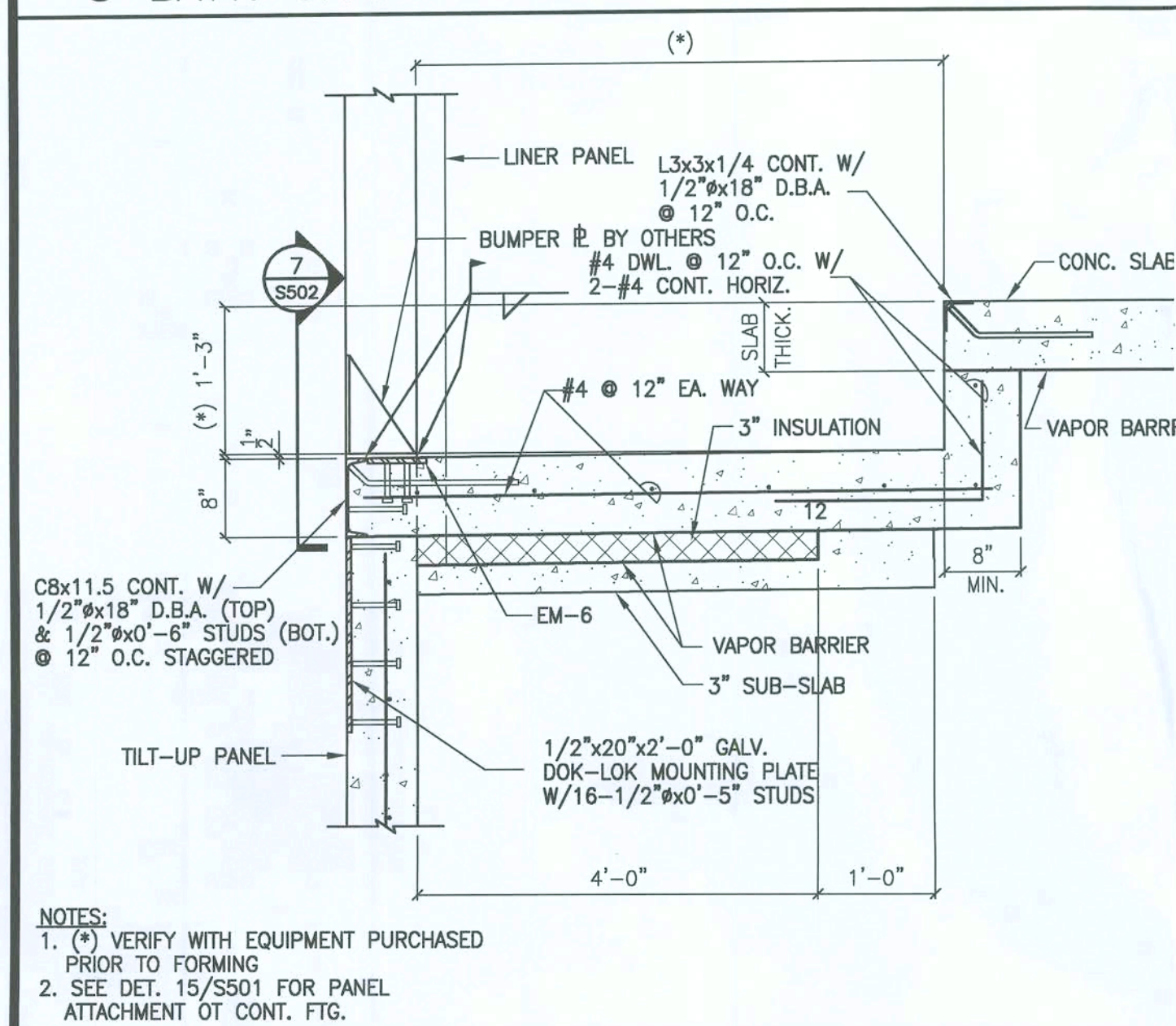
3



CONC. PIER DETAIL

SCALE: 3/4" = 1'-0"

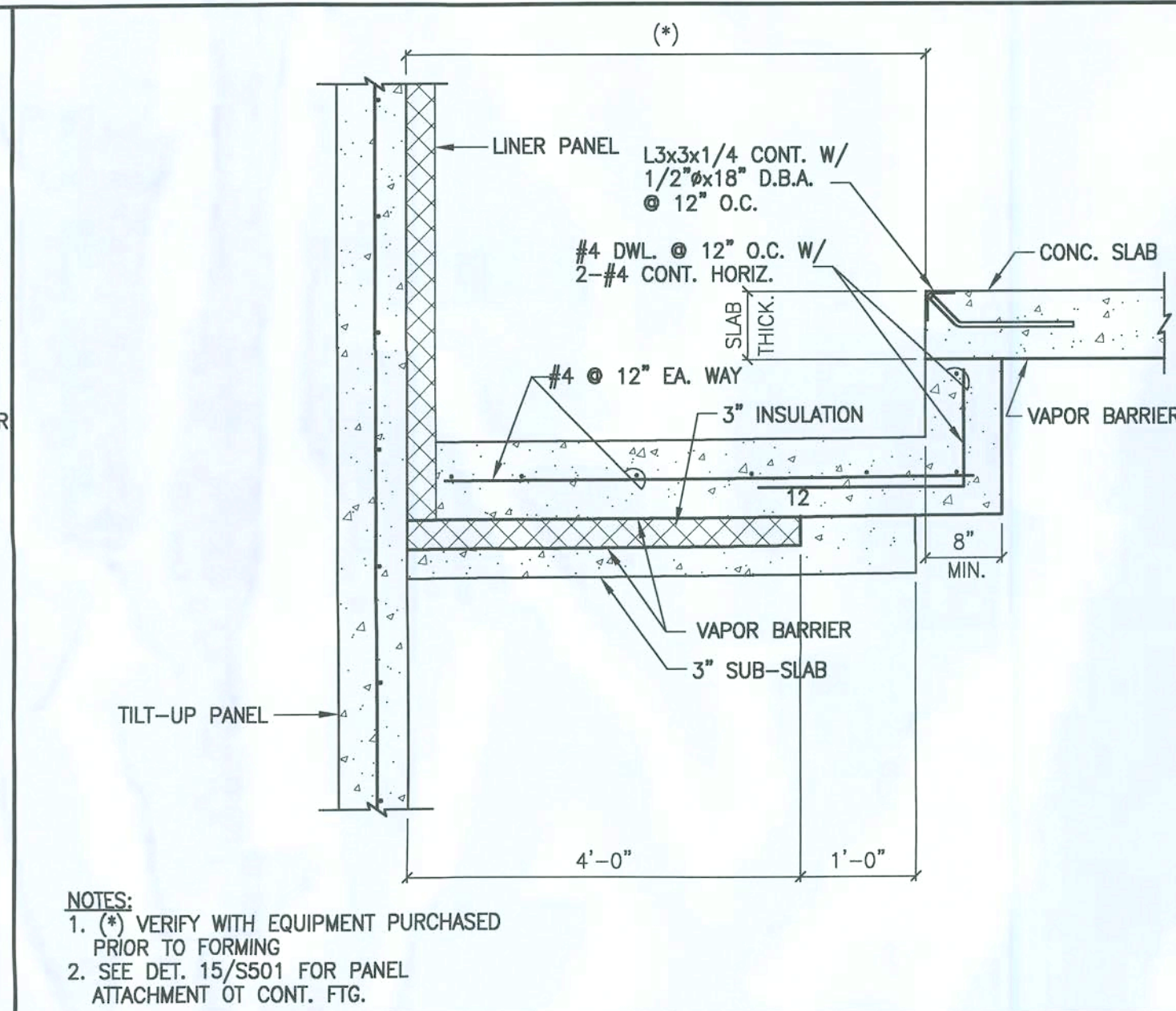
4



SECTION THRU DOCK PIT
@ REFRIGERATED DOCKS

SCALE: 3/4" = 1'-0"

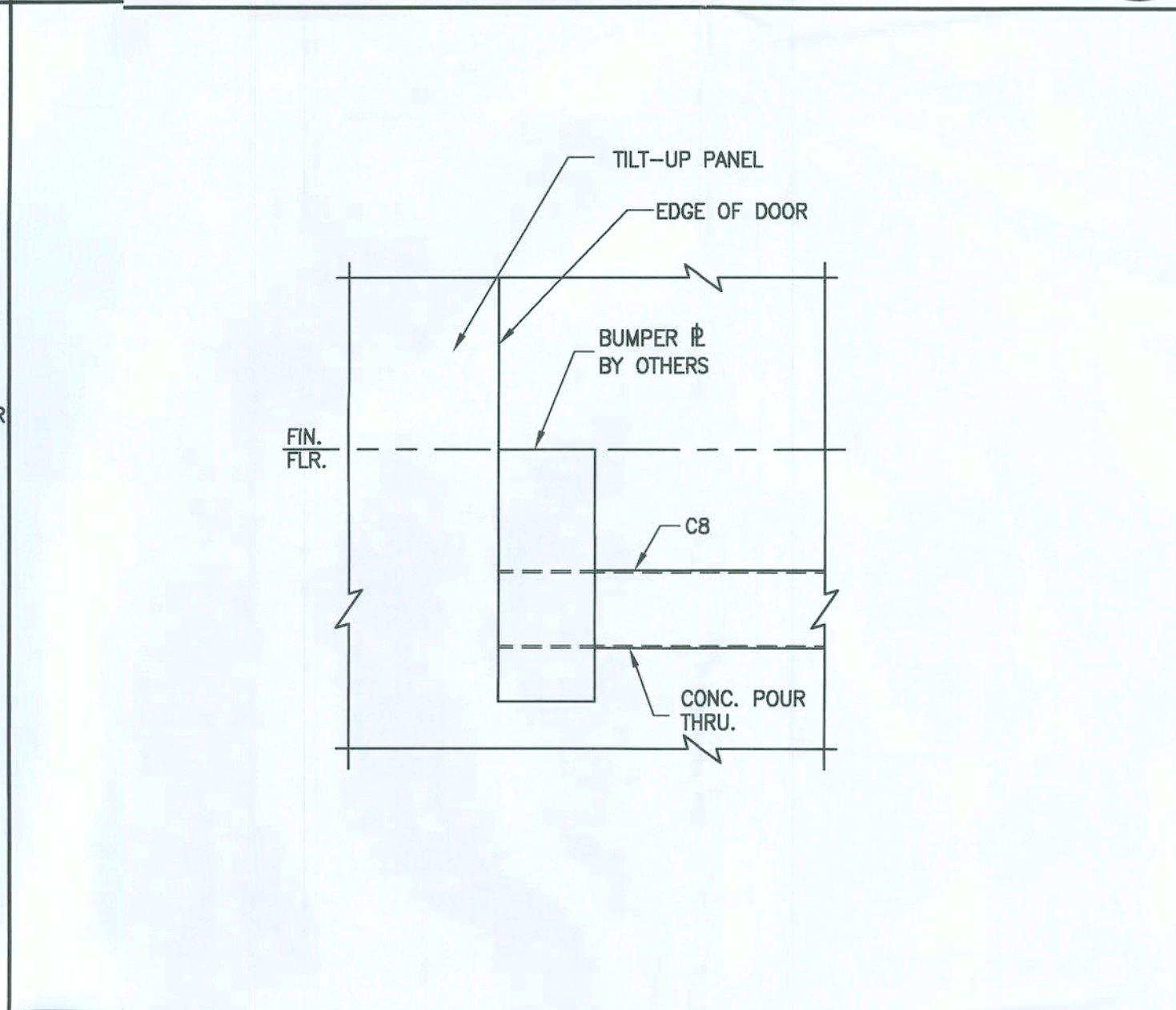
5



SECTION THRU DOCK PIT
@ BTWN. DOCK DOORS

SCALE: 3/4" = 1'-0"

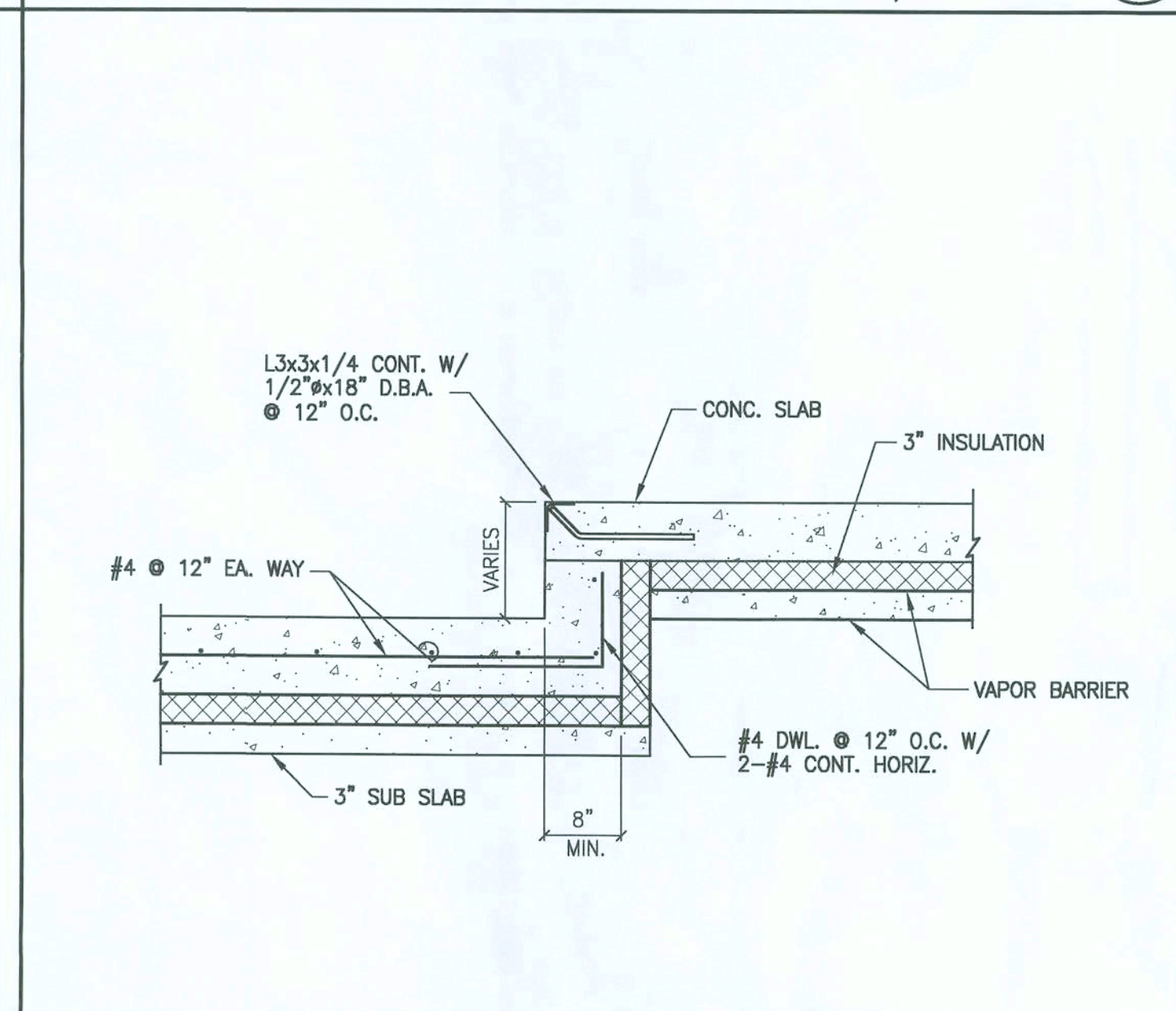
6



ELEVATION @ DOCK PIT

SCALE: 3/4" = 1'-0"

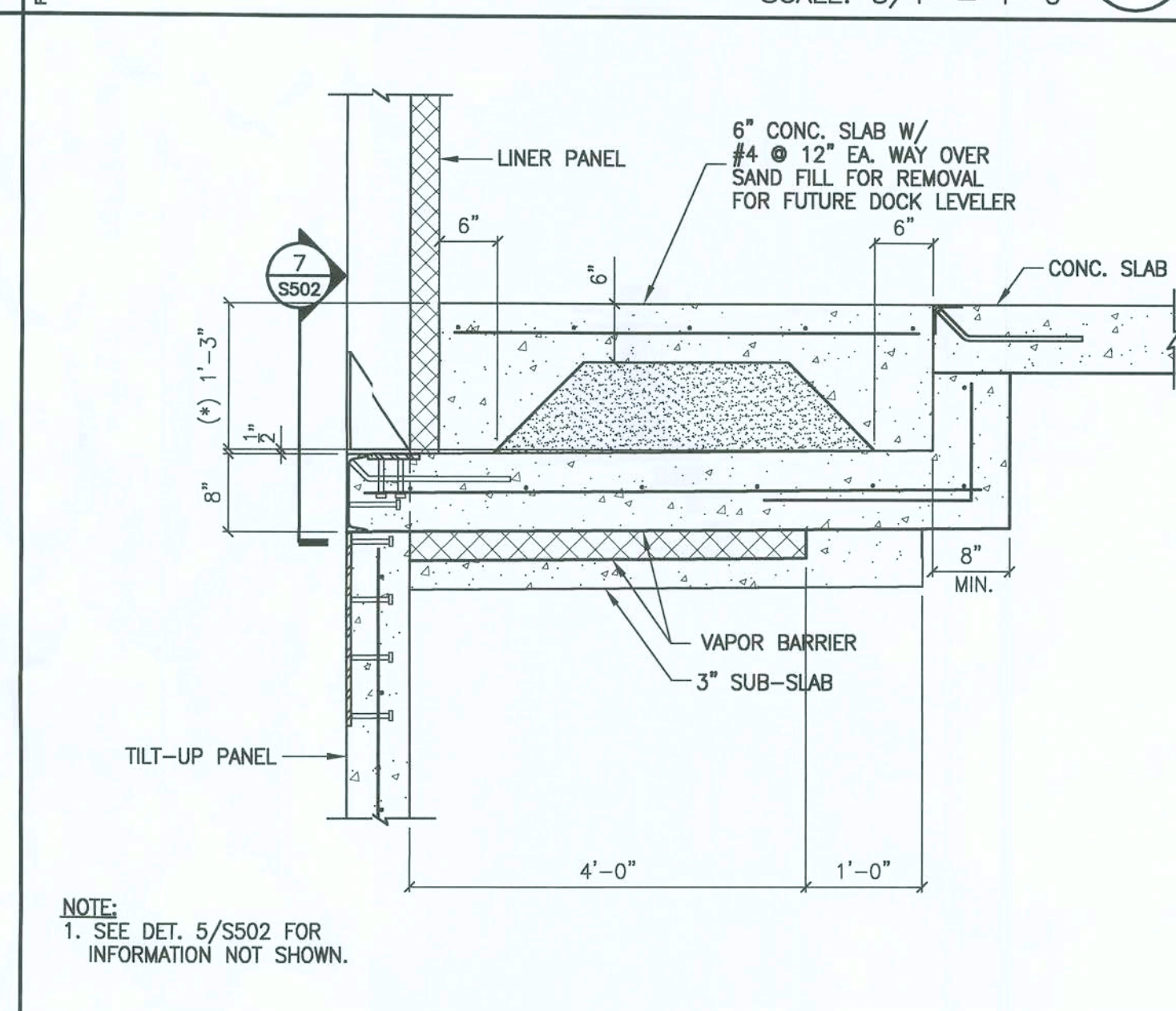
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SECTION THRU DOCK PIT
@ REFRIGERATED DOCKS

SCALE: 3/4" = 1'-0"

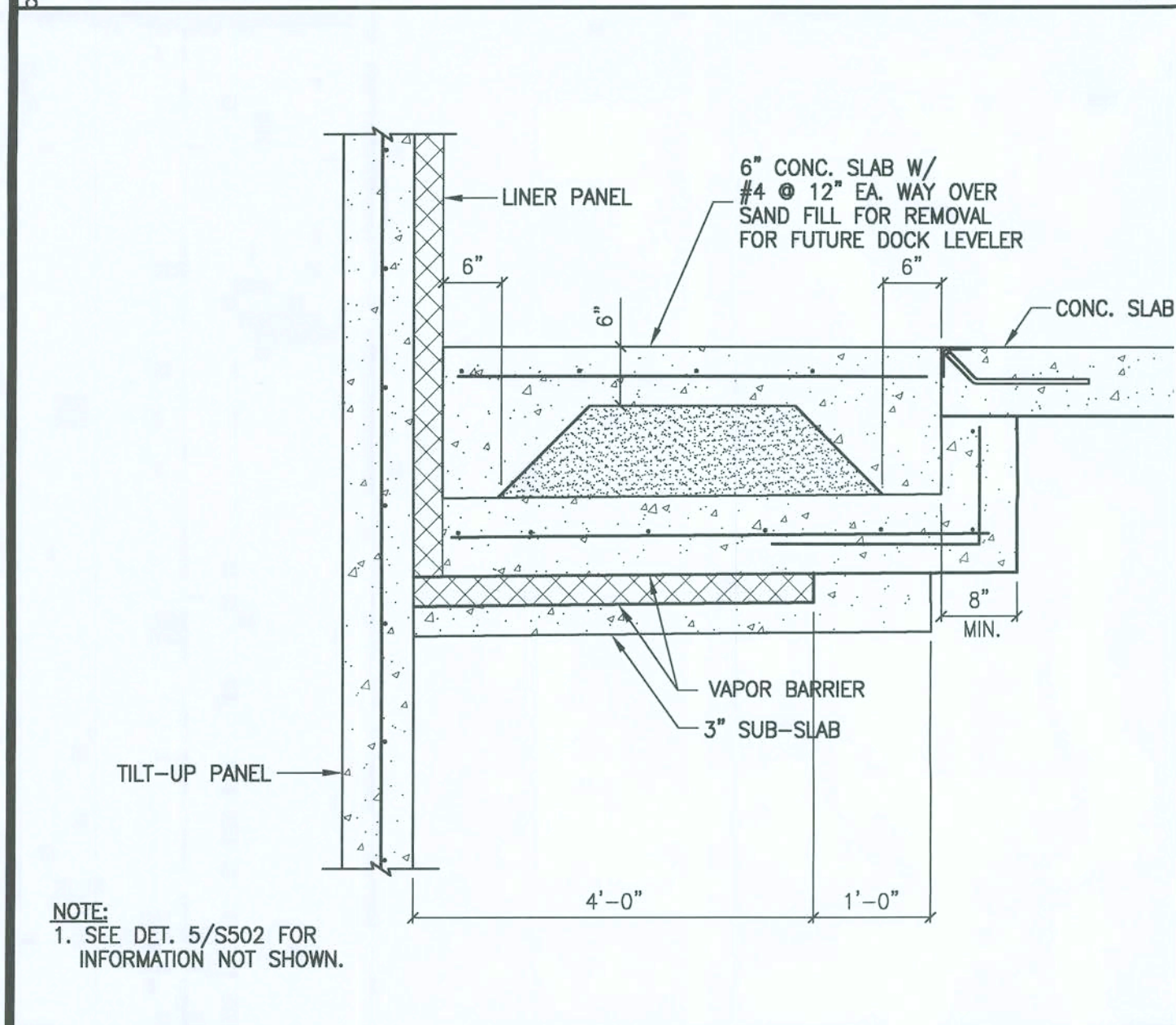
8



SECTION THRU FUTURE PIT
@ DUMPSTER DOOR

SCALE: 3/4" = 1'-0"

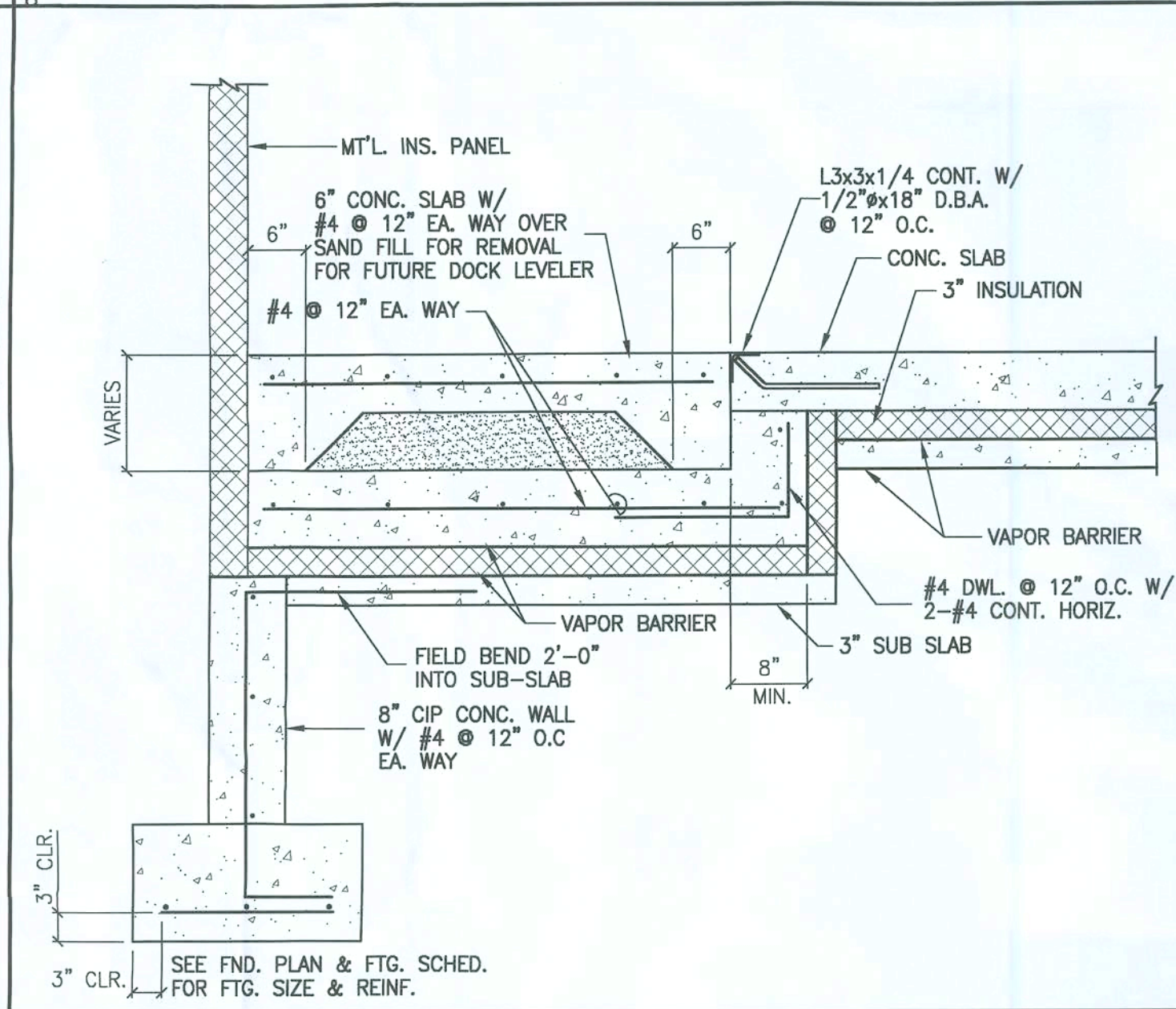
9



SECTION THRU FUTURE PIT
@ BTWN. DOCK DOORS

SCALE: 3/4" = 1'-0"

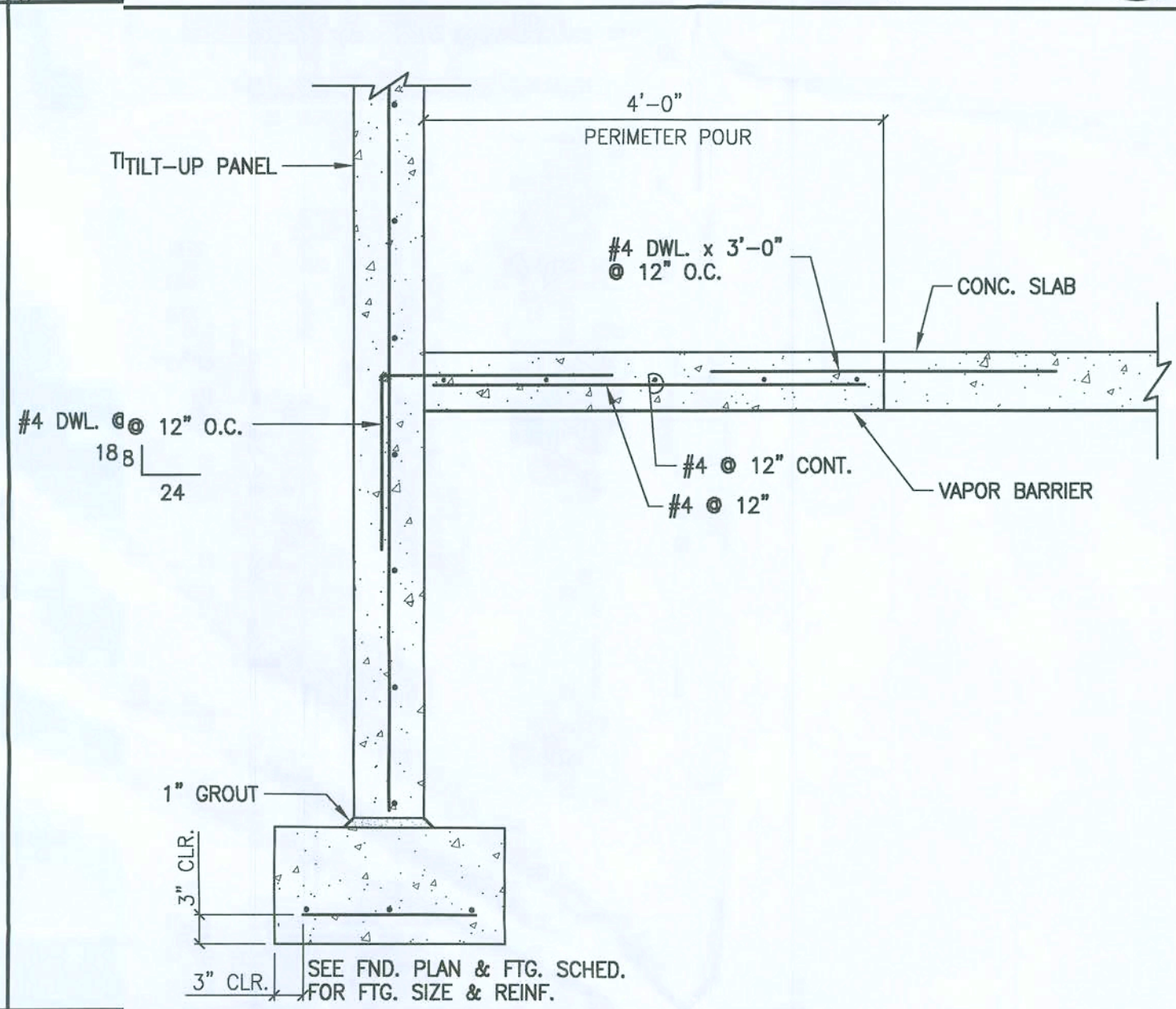
10



EXTERIOR FND. WALL
@ REFRIGERATED DOCK

SCALE: 3/4" = 1'-0"

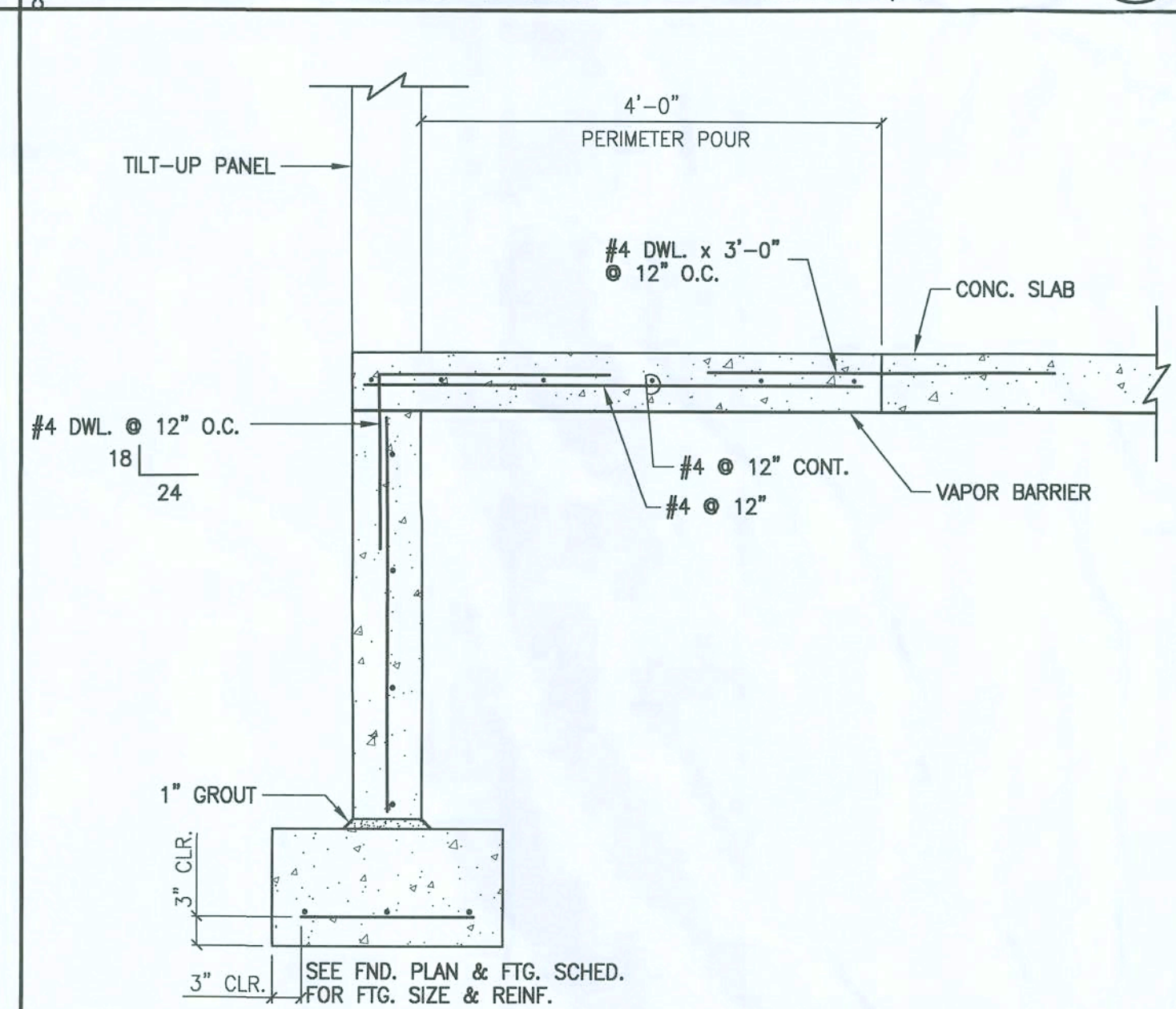
11



EXTERIOR TILT-UP WALL & FTG.

SCALE: 3/4" = 1'-0"

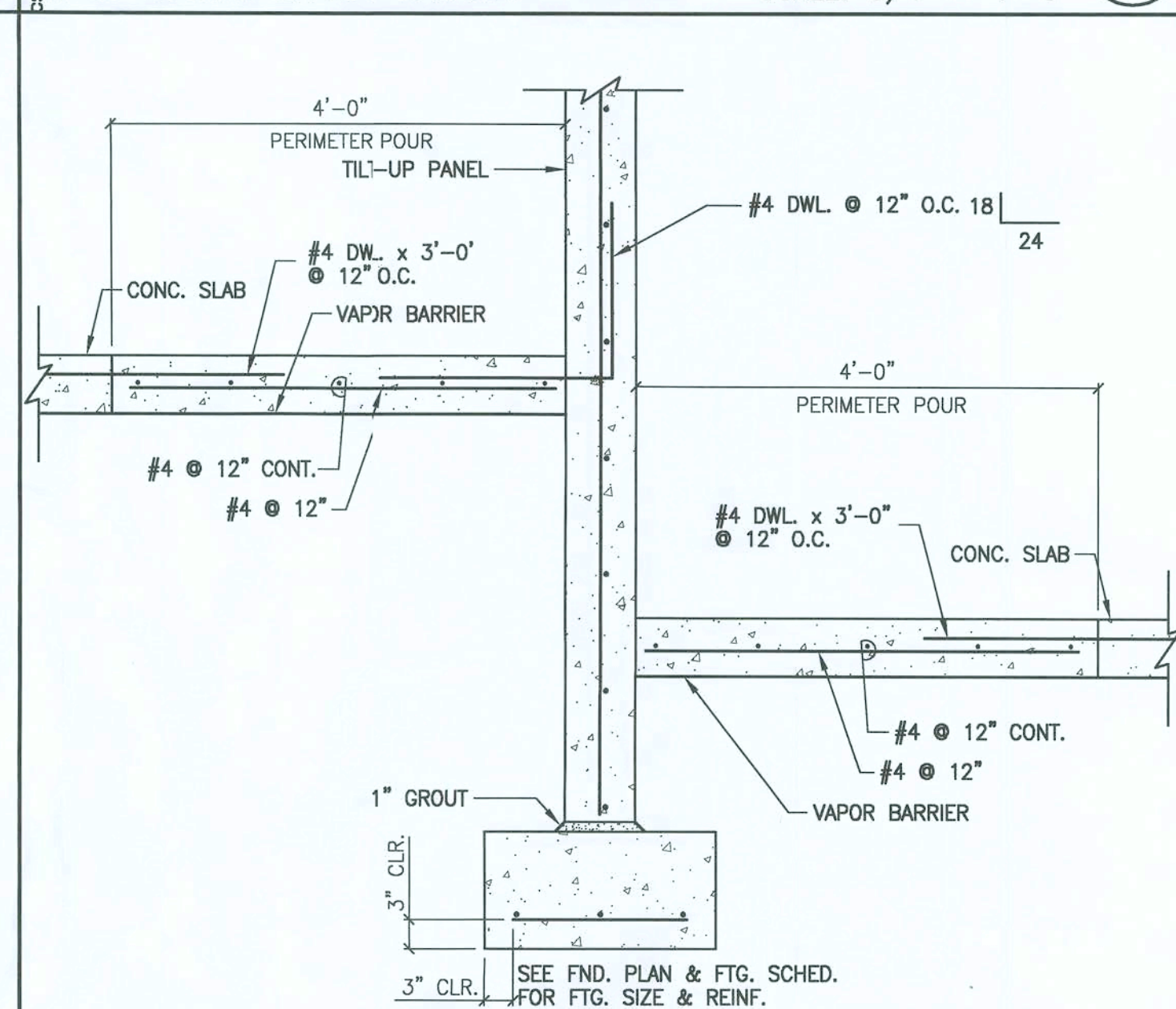
12



EXTERIOR TILT-UP WALL
@ DOOR OPNG.

SCALE: 3/4" = 1'-0"

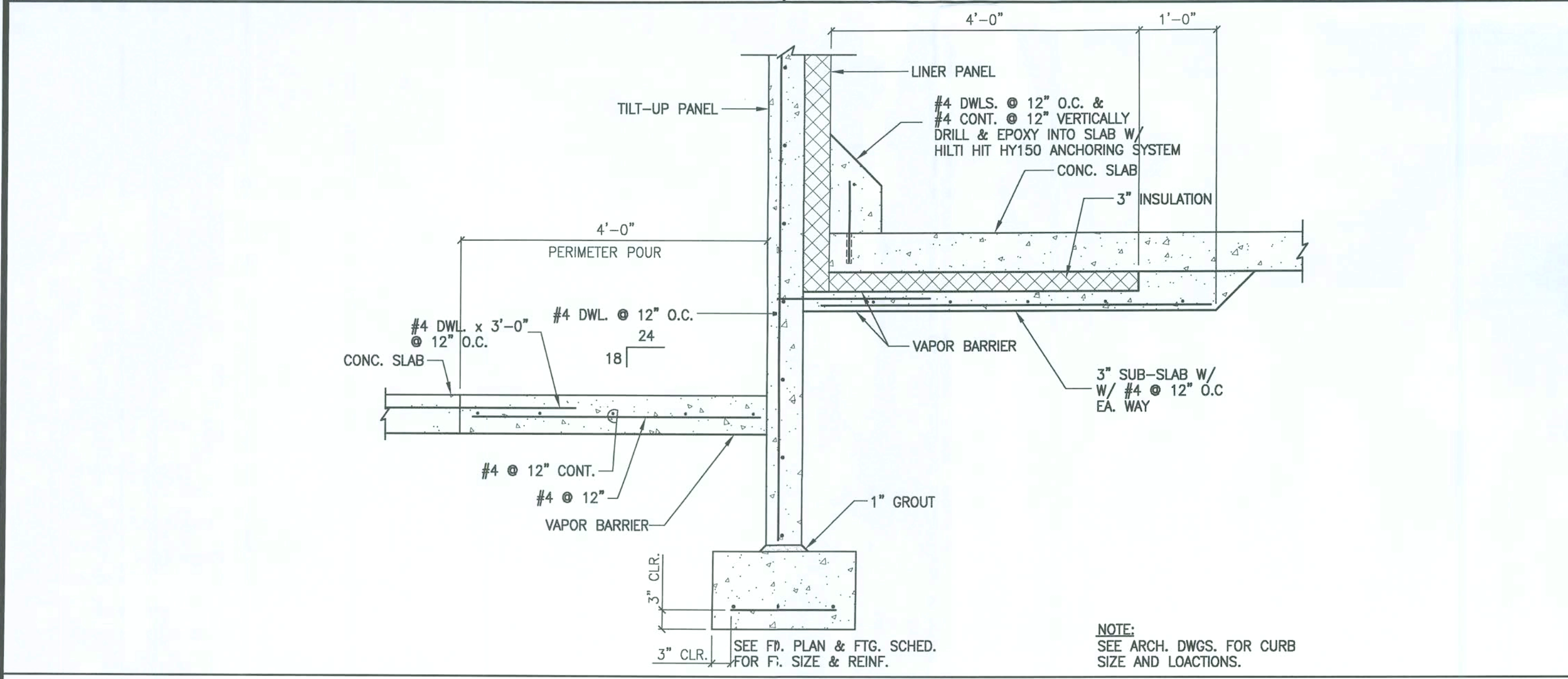
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INTERIOR TILT-UP WALL & FTG.

SCALE: 3/4" = 1'-0"

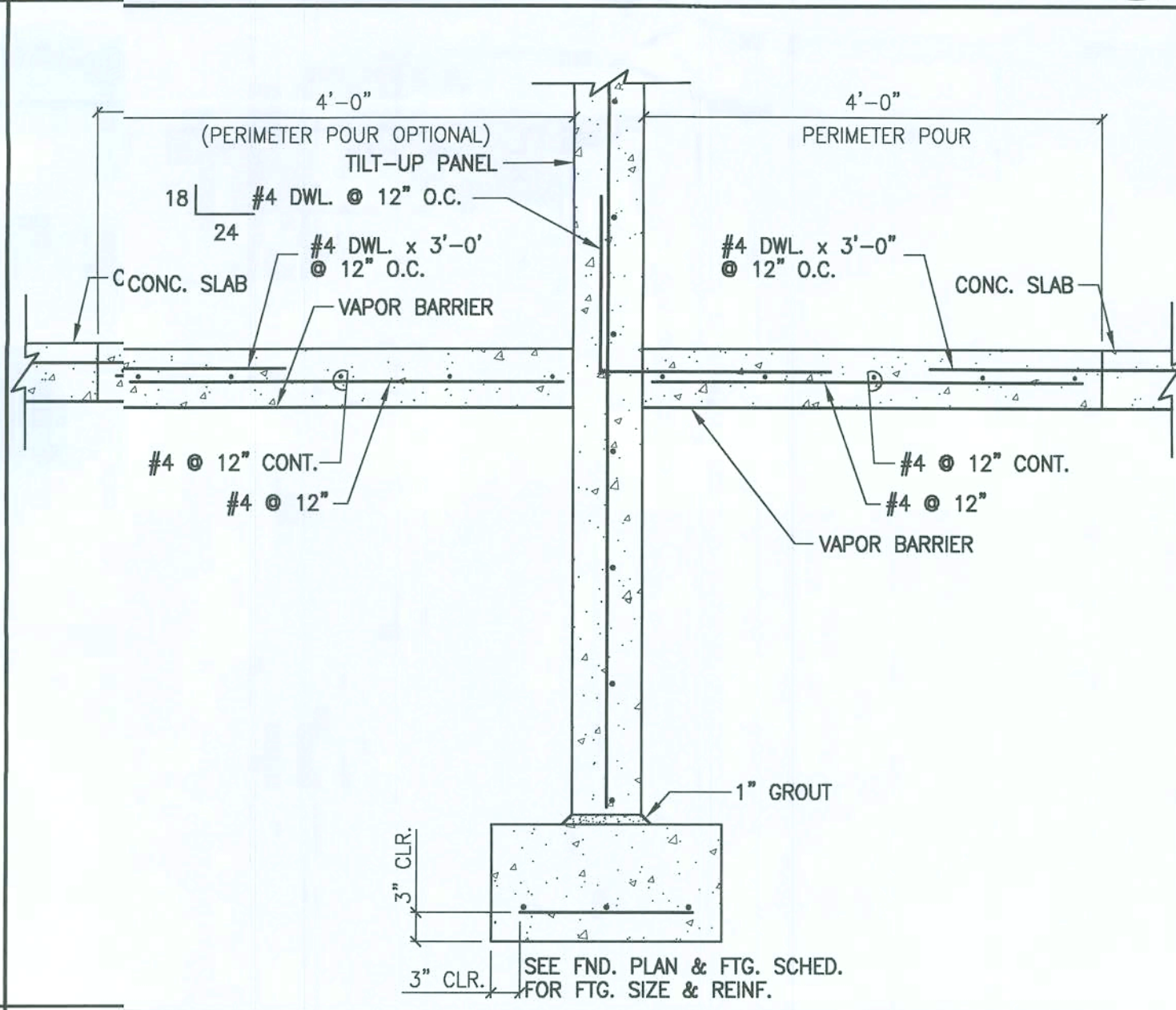
14



INTERIOR TILT-UP WALL
@ USDA

SCALE: 3/4" = 1'-0"

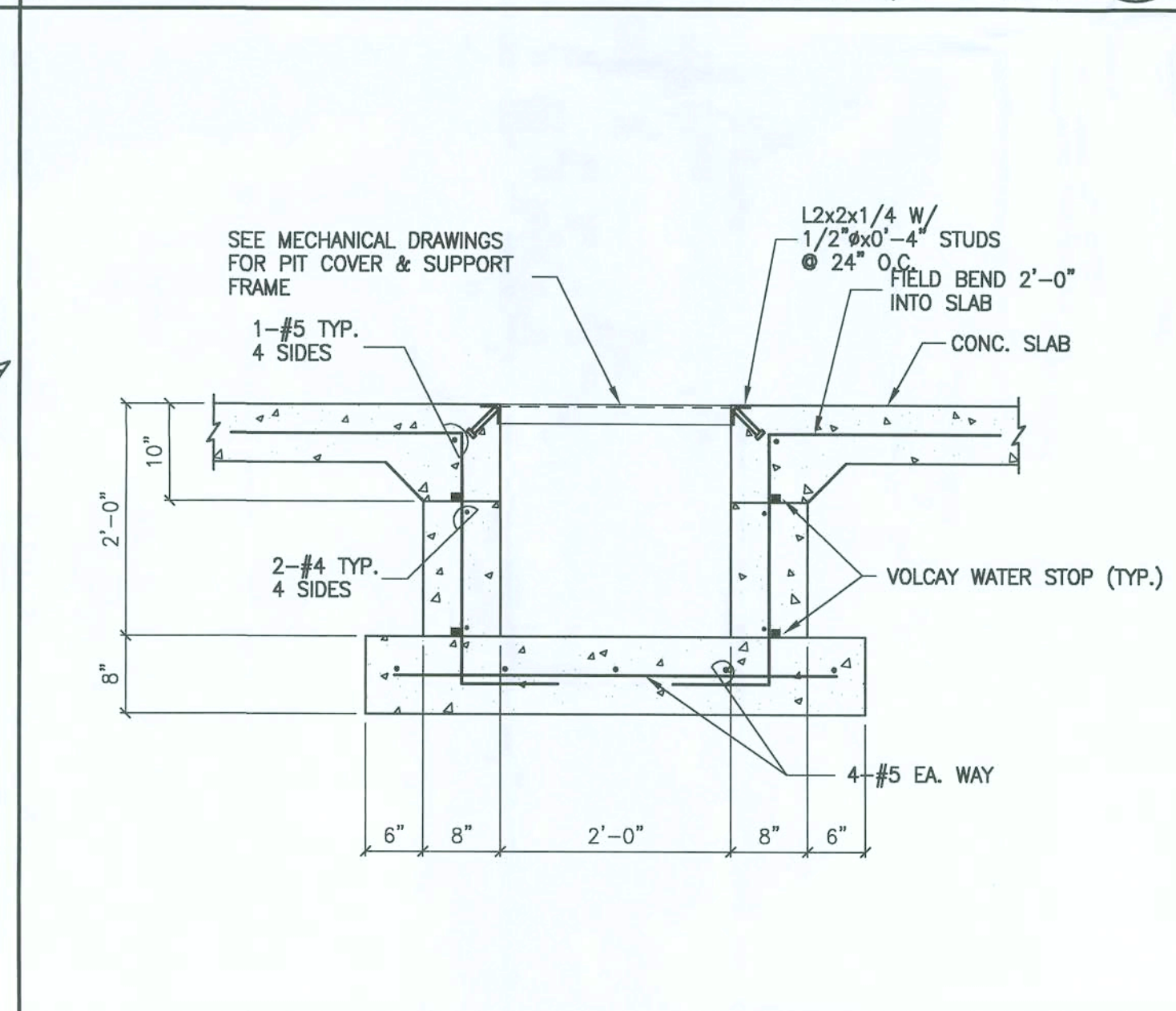
15



INTERIOR TILT-UP WALL & FTG.

SCALE: 3/4" = 1'-0"

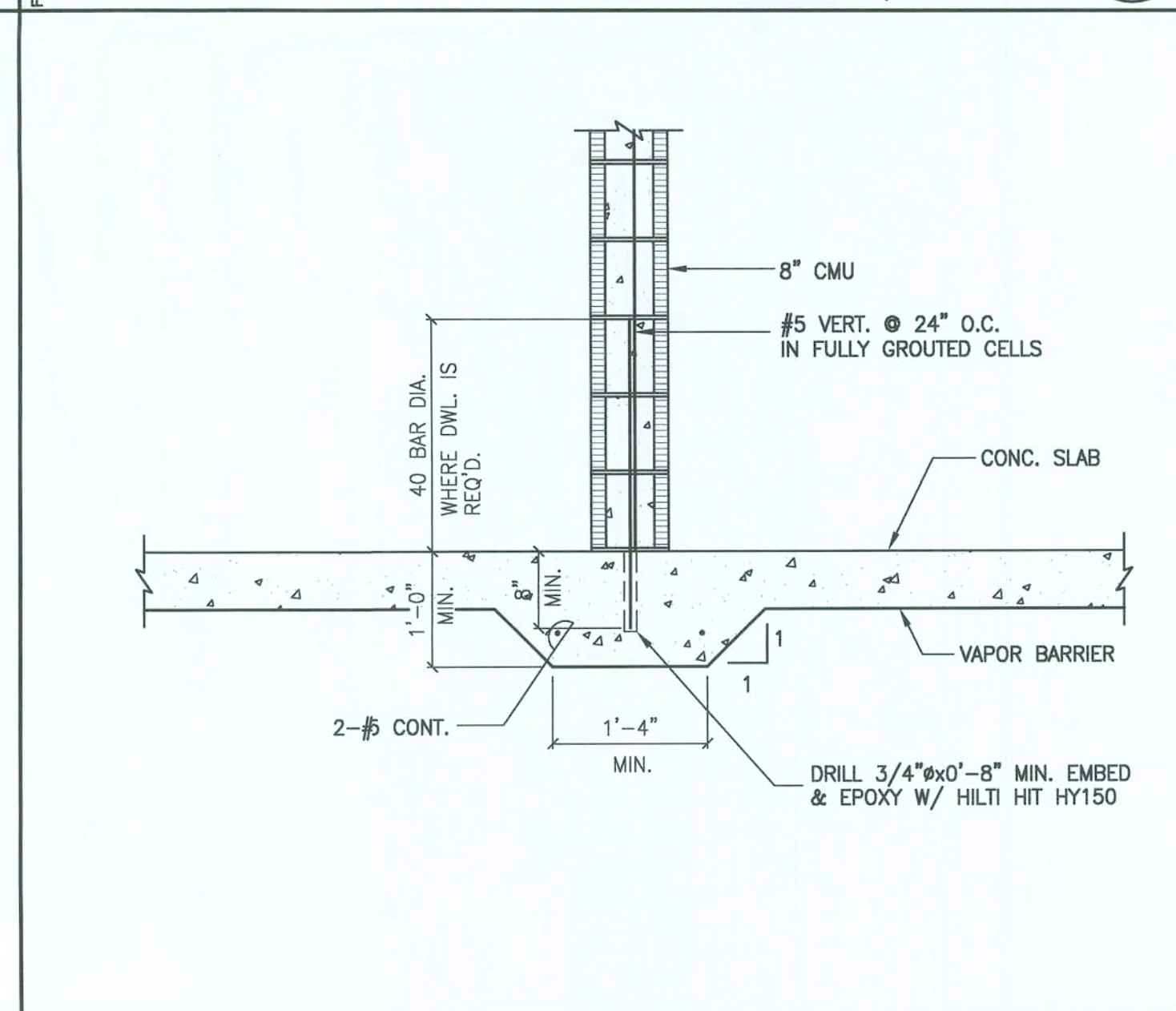
16



SCRUBBER DUMP DETAIL

SCALE: 3/4" = 1'-0"

17



INTERIOR CMU WALL
THICKENED SLAB

SCALE: 3/4" = 1'-0"

18

UNITED STATES COLD STORAGE, INC
NEW FACILITY
LAKE CITY, FLORIDA

THE STELLAR GROUP
FLORIDA
REGISTERED PROFESSIONAL ENGINEER
NO. 12500
FLORIDA
REGISTERED PROFESSIONAL ARCHITECT
NO. 12500

5/8/07

FOUNDATION SECTIONS AND DETAILS

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REV.	DATE	BY	DESCRIPTION
A	5/8/07	DLP	FOUNDATION PERMIT ISSUE

JOB NO. 710-03019
DRAWN: DLP
CHECKED: REK
SCALE: AS NOTED

S502
DRAWING NO.

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PLUMBING SPECIFICATIONS				PLUMBING NOTES		PLUMBING FIXTURE SPECIFICATIONS	
PART I - GENERAL		PART II - PRODUCTS		VERIFY THAT ELECTRICAL FACILITIES ARE COMPATIBLE WITH EQUIPMENT.		WC-1 WATER CLOSET - AMERICAN STANDARD MODEL 2257.103 AFWALL ELONGATED, WALL MOUNTED VITREOUS CHINA TOILET, TOILET RATED FOR 1.6-GALLONS PER FLUSH, PROVIDE SLOAN RYAL 111 EXPOSED LEVER OPERATED FLUSH VALVE. PROVIDE OLSONITE 95-SS EXTRA HEAVY DUTY PLASTIC SEAT FOR ELONGATED BOWL. LESS COVER WITH CONCEALED CHECK AND STAINLESS STEEL HINGE POST, TOILET AND SEAT COLOR WILL BE WHITE. PROVIDE ZURN CARRIER WITH NEOPRENE FIXTURE GASKET.	
1.01 DESCRIPTION		GENERAL: PROVIDE ALFIXTURES AND TRIM AS SCHEDULED ON THE DRAWINGS. ALL EXPOSED METAL PARTS SHALL BE POLISHED CHROMIUM PLATED BRASS. COLORS SHALL BE WHITE. COMPARABLE ITEMS OF THE FOLLOWING MANUFACTURERS ARE CONSIDERED EQUAL.		E. ESCUTCHEONS: PROVIDE ESCUTCHEONS ON ALL FINISHED SURFACES WHERE EXPOSED PIPING, BARE OR INSULATED, PASS THROUGH FLOORS, WALLS, OR CEILINGS, EXCEPT IN BOILER, UTILITY OR EQUIPMENT ROOMS. FASTEN ESCUTCHEONS SECURELY TO PIPE OR PIPE COVERING.		WC-2 WATER CLOSET - AMERICAN STANDARD MODEL 2257.103 AFWALL ELONGATED, WALL MOUNTED VITREOUS CHINA TOILET, TOILET RATED FOR 1.6-GALLONS PER FLUSH, PROVIDE SLOAN RYAL 111 EXPOSED LEVER OPERATED FLUSH VALVE. PROVIDE OLSONITE 95-SS EXTRA HEAVY DUTY PLASTIC SEAT FOR ELONGATED BOWL. LESS COVER WITH CONCEALED CHECK AND STAINLESS STEEL HINGE POST, TOILET AND SEAT COLOR WILL BE WHITE. PROVIDE ZURN CARRIER WITH NEOPRENE FIXTURE GASKET.	
THIS WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:		FIXTURES: KOHLER, AMERICAN STANDARD, CRANE, ELJER.		F. PIPE HANGERS: PVC PIPES SHALL BE SUPPORTED BY SPLIT RING TYPE, ADJUSTABLE SWIVEL RING HANGERS. HANGERS FOR COPPER PIPES SHALL BE COPPER PLATED OR PLASTIC COATED. PIPE HANGERS SHALL BE COMPLETE WITH RODS AND SUPPORTS, PROPORTIONED TO THE SIZE OF PIPE TO BE SUPPORTED.		UR-1 URINAL - AMERICAN STANDARD MODEL 6501.010 WASHBROOK VITREOUS CHINA URINAL, URINAL RATED FOR 1.0-GALLON PER FLUSH, PROVIDE SLOAN ROYAL 186 EXPOSED LEVER OPERATED FLUSH VALVE, URINAL COLOR WILL BE WHITE, MOUNT URINAL 24" FROM FINISH FLOOR TO LIP OF URINAL, PROVIDE ZURN CARRIER. (PROVIDE CLEANOUT)	
TRENCH EXCAVATION, PUMPING, BACKFILLING AND COMPACTION FOR UNDERGROUND PIPING AND PLUMBING.		STAINLESS STEEL FIXTURES: AMTEKCO, ELKAY AND JUST.		3.03 TESTS		UR-2 URINAL - AMERICAN STANDARD MODEL 6501.010 WASHBROOK VITREOUS CHINA URINAL, URINAL RATED FOR 1.0-GALLON PER FLUSH, PROVIDE SLOAN OPTIMA 186 ES-S EXPOSED SENSOR OPERATED FLUSH VALVE WITH SLOAN MODEL EL-154 120V TO 24V TRANSFORMER, MOUNT URINAL 17" FROM FINISH FLOOR TO LIP OF URINAL, URINAL COLOR TO BE WHITE. PROVIDE ZURN CARRIER. (PROVIDE CLEANOUT)	
DOMESTIC SOIL, WASTE AND VENT PIPING.		SEATS: OLSON, CHURCH, BENEKE, BEMIS AND FIXTURE MANUFACTURERS.		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.		L-1 LAVATORY - AMERICAN STANDARD 0355.012 LUCERNE WALL MOUNTED 20" x 18" VITREOUS CHINA LAVATORY WITH 4" CENTERSET, UNIT TO BE PROVIDED WITH T&S MODEL B-2711 SINGLE LEVER POLISHED CHROME FAUCET WITH MCGUIRE CHROME PLATED 17 GA. CST BRASS BODY ADJUSTABLE "P" TRAP WITH CLEANOUT AND MCGUIRE 3/8" ANGLE LOOSE KEY STOPS WITH ANNEALED VERTICAL TUBES AND CHROME PLATED BRASS ESCUTCHEON PLATES. LAVATORY COLOR TO BE WHITE. PROVIDE ZURN CONCEALED ARM TYPE CARRIER. (PROVIDE CLEANOUT)	
DOMESTIC HOT AND COLD WATER PIPING CONNECTIONS TO FIXTURES.		ELECTRIC WATER COOLERS AND DRINKING FOUNTAINS: SUNROCK, OASIS, ELKAY, HAWS, HALSEY TYLOR.		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.		L-2 LAVATORY - AMERICAN STANDARD 0355.012 LUCERNE WALL MOUNTED 20" x 18" VITREOUS CHINA LAVATORY WITH 4" CENTERSET, UNIT TO BE PROVIDED WITH T&S MODEL B-2711 SINGLE LEVER POLISHED CHROME FAUCET WITH MCGUIRE CHROME PLATED 17 GA. CST BRASS BODY ADJUSTABLE "P" TRAP WITH CLEANOUT AND MCGUIRE 3/8" ANGLE LOOSE KEY STOPS WITH ANNEALED VERTICAL TUBES AND CHROME PLATED BRASS ESCUTCHEON PLATES. LAVATORY COLOR TO BE WHITE. PROVIDE ZURN CONCEALED ARM TYPE CARRIER. (PROVIDE CLEANOUT)	
FIXTURES INCLUDING ELECTRIC WATER COOLERS.		STAINLESS STEEL FLOODDRAINS: KUSEL, SCHERPING.		C. FIXTURES: TEST EACH FIXTURE FOR SOUNDNESS, STABILITY OF SUPPORT, AND SATISFACTORY OPERATION OF ALL ITS PARTS.		S-1 COUNTERTOP SINK - ELKAY MODEL LR-3321 DOUBLE COMPARTMENT 33" x 21" STAINLESS STEEL SINGLE LODGE SELF-RIMMING SINK, SINK TO BE CONSTRUCTED OF 18 GAUGE, TYPE 304 STAINLESS STEEL, SINK TO BE FURNISHED WITH ELKAY MODEL LK2318HS FAUCET WITH SPRAY, ELKAY LK-35 STRAINER, MCGUIRE 17 GAUGE CAST BRASS P-TRAP WITH CLEANOUT, MCGUIRE MODEL H2166 1/2" x 3/8" ANGLED LOOSE KEY STOPS WITH ANNEALED VERTICAL TUBES AND CHROME PLATED BRASS ESCUTCHEON PLATES.	
JOINTS, FITTINGS, HANGERS, SLEEVES, ESCUTCHEONS, ETC.		FLUSH VALVES: SLOAN		3.04 STERILIZATION		S-2 COUNTERTOP SINK - ELKAY MODEL LR-2522 SINGLE COMPARTMENT 25" x 22" STAINLESS STEEL SINGLE LODGE SELF-RIMMING SINK TO BE CONSTRUCTED OF 18 GA. TYPE 304 STAINLESS STEEL, SINK TO BE FURNISHED WITH ELKAY MODEL BRASS P-TRAP WITH CLEANOUT, MCGUIRE MODEL H2166 1/2" x 3/8" ANGLED LOOSE KEY STOPS WITH ANNEALED VERTICAL TUBES AND CHROME PLATED BRASS ESCUTCHEON PLATES.	
LEAD FLASHING.		SHALL BE AS SCHEDULED ON THE DRAWINGS.		A. GENERAL REQUIREMENTS: AFTER TESTS ARE COMPLETED AND APPROVED BY THE CONTRACTOR, FILL ALL WATER SUPPLY SYSTEMS WITH A SOLUTION CONTAINING 50 PPM OF AVAILABLE CHLORINE AND ALLOW TO STAND FOR A PERIOD OF 4 HOURS BEFORE BEING FLUSHED WITH CLEAN WATER, STERILIZE IN ACCORDANCE WITH LOCAL CODES. THEN DELIVER TO THE ENGINEER A DATED LETTER CERTIFYING STERILIZATION.		S-3 HAND SINK - AMTEKCO MODEL DH-22, 16" x 19" x 10" DEEP, 18 GA. STAINLESS STEEL WALL MOUNTED SINK WITH SOAP DISPENSER, PROVIDE SINK WITH SLOAN MODEL ETF-600 WITH A FLOW RATE OF 0.5 GPM, AND ADA COMPLIANT. ALL SINKS AND FAUCETS TO BE NSF CERTIFIED.	
GREASE TRAPS AND INTERCEPTORS.		PIPING SHALL BE AS SPECIFIED IN PIPE SPECS BELOW.		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.		S-4 SCULLERY SINK - AMTEKCO MODEL C-2-2424 24" x 24" x 11" COMPARTMENT STAINLESS STEEL SINK, SINK TO BE CONSTRUCTED OF 18 GAUGE, TYPE 304-NICKEL BEARING STAINLESS STEEL, SINK TO BE FURNISHED WITH ELKAY MODEL GOOSENECK FAUCET WITH BWH-6 6" WRIST BLADE, (2) T&S B3912 ROTARY LEVER OPERATED DRAIN OUTLET STRAINER, MCGUIRE 17 GAUGE SACT BRASS P-TRAP WITH CLEANOUT, MCGUIRE MODEL H2166 1/2" x 3/8" ANGLED LOOSE KEY STOPS WITH ANNEALED VERTICAL TUBES AND CHROME PLATED BRASS ESCUTCHEON PLATES.	
ACID NEUTRALIZING TANK.		LEAD:		C. JOINTS AND CONNECTIONS:		SS-1 JANITOR'S RECEPTOR - FIAT TSB-100 PRECAST TERRAZZO, 24" x 24" x 12" WITH STAINLESS STEEL CAP, PROVIDE BRASS DRAIN WITH NICKEL BRONZE STRAINER, FIAT MODEL 830-AA CHROME PLATED FITTING WITH VACUUM BREAKER, INTEGRAL STOPS, ADJUSTABLE WALL BRACKET, HOSE THREAD ON SPOUT, FIAT MODEL 832-AA 30"x5/8" HOSE AND HOSE BRACKET AND POWER FIAT 889-CC 24" LONG x 3" WIDE STAINLESS STEEL MOP HANGER.	
RELATED WORK: PIPING SYSTEMS REQUIRING FIXED LOCATIONS AND SLOPES SHALL TAKE PRIORITY OVER THOSE, WHICH DO NOT HAVE BOTH REQUIREMENTS. THE FOLLOWING WORK IS SPECIFIED IN OTHER SECTIONS OF THESE SPECIFICATIONS.		PIPE: CLASS D FOR SL AND WASTE CONNECTIONS, CONFORMING TO FED. SPEC. WW-P-325.		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.		SS-2 JANITOR'S RECEPTOR - AMERICAN STANDARD MODEL 7692.008 "JAKEWELL" ENAMELED CAST IRON SERVICE SINK TYPE SINK, SINK TO BE PROVIDED WITH WALL HANGER BRACKET, MODEL 8379.018 RIM GUARD, MODEL 8341.076 EXPOSED YORK MOUNT FAUCET WITH VACUUM BREAKER AND STOPS IN SHANKS, AND 7796.030 ENAMELED CAST IRON "P" TRAP STANDARD TO WALL WITH CLEANOUT AND STRAINER FOR 3" IRON PIPE.	
FIRE PROTECTION SPRINKLERS: FIRE PROTECTION SPRINKLERS		CAULKING: FED. SPEC.QQ-L-156, TYPE 1.		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.		EWC-1 LEAD FREE ELECTRIC WATER COOLER WITH A 8.0 GPM UNIT TO USE HFC-134a REFRIGERANT, PROVIDE UNIT WITH SAFETY BUBBLER, FRONT PUSH BAR ON/OFF AND ONE PIECE STAINLESS STEEL BASIN WITH INTEGRAL DRAIN GRID, UNIT TO BE MECHANICALLY OPERATED, PROXIMITY WALL SUPPORT BRACKET, PROVIDE POWDER COATED FINISH WITH 3 YEAR WARRANTY.	
AIR CONDITIONING AND HEATING: HEATING, VENTILATING & AIR CONDITIONING		SHEET: WEIGHT NOT LESS THAN FOUR (4) LBS. PER SQUARE FOOT, CONFORMING TO FED. SEC. QQ-L-201, GRADE A.		C. JOINTS AND CONNECTIONS:		FD-1 FLOOR DRAIN - ZURN MODEL Z-415-ZN, DRAIN TO BE DURA-COAT CAST IRON WITH FLANGE, INTEGRAL REVERSIBLE CLAMPING RING COLLAR, SEEPAGE OPENINGS AND HAVE A SATIN NICKEL IRONZE FINISHED STRAINER AND VANDAL PROOF SCREWS, DRAIN TO BE PROVIDED WITH TRAP PRIMER CONNECTION, PROVIDE CAST IRON P-TRAP.	
TOILET ROOM ACCESSORIES: TOILET ROOM ACCESSORIES		CALCULING: FED. SPEC.QQ-L-156, TYPE 1.		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.		FD-2 FLOOR DRAIN - ZURN MODEL Z-415-ZN, DRAIN TO BE DURA-COAT CAST IRON WITH FLANGE, INTEGRAL REVERSIBLE CLAMPING RING COLLAR, SEEPAGE OPENINGS AND HAVE A SATIN NICKEL IRONZE FINISHED STRAINER AND VANDAL PROOF SCREWS, PROVIDE CAST IRON P-TRAP.	
FORCE MAIN: SEWAGE TREATMENT PLANT, INFLUENT STRUCTURE, PUMPING STATIONS, AND ON-SITE PROCESS WASTE LINES		SOLDERING NIPPLES: 10 BRASS PIPE CONFORMING TO ASTM STD. SPEC. B-43, AND OF FOLLOWING WEIGHTS:		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.		FD-3 FLOOR DRAIN - ZURN MODEL Z-508 12" CAST IRON DRAIN, DRAIN TO HAVE DURA-COAT COATING AND SUPPLIER WITH FLANGE, INTEGRAL CLAMPING RING COLLAR, SEEPAGE OPENING AND HAVE A 9" DIAMETER HEAVY DUTY CAST IRON GRATE, PROVIDE DEEP SEAL CAST IRON P-TRAP IN OUTLET SIZE INDICATED ON DRAWINGS.	
PROCESS WASTE LINES BEYOND THE BUILDING AND SEWAGE TREATMENT FACILITIES: SEWAGE TREATMENT PLANT, INFLUENT STRUCTURE, PUMPING STATIONS, AND ON-SITE PROCESS WASTE LINES		DIAMETER IN INCHES		C. JOINTS AND CONNECTIONS:		FD-4 FLOOR DRAIN - KUSEL MODEL KE-100 304 STAINLESS STEEL WITH STAINLESS STRAINER BASKET, SOLID STAINLESS STEEL TOP AND FIXED OUTLET STRAINER, PROVIDE UNIT WITH KUSEL STAINLESS STEEL P-TRAP TO MATCH OUTLET SIZE INDICATED ON DRAWINGS.	
WELL: DEEP WELL, PUMP AND PUMP FOR EXISTING DEEP WELL		WEIGHT IN OUNCES		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.		FCD-1 FLOOR CLEANOUT - ZURN MODEL 1444 DURA-COAT CAST IRON BODY WITH AIR TIGHT ASBS THREADID PLUG, PROVIDE TOP TO ALLOW FOR BODY FINISH.	
WATER STORAGE TANK: GROUND STORAGE TANK & AERATOR		1-1/4 6		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.		FCD-2 FLOOR CLEANOUT - KUSEL STAINLESS STEEL TYPE CLEANOUT WITH SEALING STAINLESS STEEL COVER AND NYLON PLUG.	
EXCAVATION & BACKFILL: EXCAVATION AND BACKFILL		1-1/2 8		C. JOINTS AND CONNECTIONS:		COOG CLEANOUT ON GRADE - ZURN MODEL 1444 CAST IRON BODY WITH AIR TIGHT ASBS SURROUNDING TOP.	
POWER WIRING: ELECTRICAL		2 14		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.		HD-1 HUB DRAIN - CAST IRON RUNNEL AS MANUFACTURED BY ZURN.	
MATERIALS AND EQUIPMENT: ALL MATERIALS SHALL BE NEW AND FIRST CLASS IN EVERY RESPECT, AS FAR AS IS PRACTICAL, SIMILAR PRODUCTS SHALL BE BY ONE MANUFACTURER.		PIPE SIZE		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.		EWS-1 EMERGENCY SHOWER - GAURDIAN MODEL GBF1909-FC20-YEL. BARRIER-FREE COMBINATION SHOWER AND EYE / FACE WASH UNIT, UNIT TO BE PROVIDED WITH ARMSTRONG - LYNWOOD MODEL RADA Z358-20 MIXING VALVE, MIXING VALVE SHALL MAINTAIN 60 TO 100 F TEMPERATURE WITH MINIMUM WATER FLOW OF 0.40 GPM AND A MAXIMUM FLOW OF 24.0 GPM.	
INDUSTRY STANDARDS: WHERE COMPLIANCE WITH AN INDUSTRY, SOCIETY, OR ASSOCIATION STANDARD IS SPECIFIED OR INDICATED, CERTIFICATION OF SUCH COMPLIANCE SHALL BE SUBMITTED WITH SHOP DRAWINGS.		INSIDE DIAMETER		C. JOINTS AND CONNECTIONS:		EWS-2 EMERGENCY SHOWER - GAURDIAN MODEL GFR1205 FREEZE-PROOF SHOWER AND EYE/FACE WASH WITH ARMSTRONG RADA Z358-20 MIXING VALVE, MIXING VALVE SHALL MAINTAIN 60 TO 100 F TEMPERATURE WITH MINIMUM WATER FLOW OF 0.40 GPM AND A MAXIMUM FLOW OF 24.0 GPM.	
1.03 SUBMITTALS		LENGTH		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.		EWS-3 EMERGENCY SHOWER - GAURDIAN MODEL GFR1902 FREEZE-PROOF SHOWER AND EYE/FACE WASH WITH ARMSTRONG RADA MODEL Z358-20 MIXING VALVE, MIXING VALVE SHALL MAINTAIN 60 TO 100 F TEMPERATURE WITH MINIMUM WATER FLOW OF 0.4 GPM AND 240 GPM MAX. FLOW, PROVIDE HEAT TRACE FOR ALL PIPING BELOW WEEF VALVE.	
MANUFACTURER'S SUBMITTALS: REFER TO SECTION ENTITLED "BASIC MECHANICAL MATERIALS AND METHODS" SUBMIT SHOP DRAWINGS OR CATALOG DATA FOR THE ENGINEER'S REVIEW AND RECEIVE APPROVAL BEFORE PURCHASING OR INSTALLING EQUIPMENT. THIS INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:		1 LB. -12 OZ.		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.		TD-1 TRENCH DRAIN - 6" WIDE PRE-SLOPED POLY TYPE TRENCH DRAIN SEE DRAWING P503/#1 FOR OVERALL LENGTH AND CONFIGURATION, TRENCH TO BE PROVIDED WITH FORK RATED FRAME AND GRATE ASSEMBLY, PROVIDE UNIT WITH P-TRAP IN OUTLET SIZE AND PIPING MATERIAL INDICATED ON DRAWINGS, TRENCH EQUAL TO ZURN Z-886	
PIPING WHERE REVISED FROM DRAWINGS.		1 LB.-8 OZ.		C. JOINTS AND CONNECTIONS:		BFP-1 BACKFLOW PREVENTER - WITS MODEL #009QT 2 1/2"	
FLOOR DRAINS AND ROOF DRAINS.		2" 4-1/2"		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.			
PLUMBING FIXTURES INCLUDING ELECTRIC WATER COOLERS.		3" 4-1/2"		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.			
FIXTURE SUPPLIES, TRAPS AND STOP VALVES AND APPURTENANCES.		4" 4-1/2"		C. JOINTS AND CONNECTIONS:			
GREASE TRAPS.		WIPING SOLDER: COMPOSITION SN35, FED. SPEC. QQ-S-571D.		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.			
PIPE HANGERS.		2.07 DRAINAGE SPECIALTIES		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.			
INSULATION.		GENERAL: AS SPECIFIED IN FIXTURE SPECIFICATIONS.		C. JOINTS AND CONNECTIONS:			
ACID NEUTRALIZING TANK.		FLOOR DRAINS: AS SPECIFIED IN FIXTURE SPECIFICATIONS.		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.			
ACID RESISTANT PIPE AND FITTINGS.		FLOOR CLEANOUTS: AS SPECIFIED IN FIXTURE SPECIFICATIONS.		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.			
WHERE COMPLIANCE WITH AN INDUSTRY, SOCIETY OR ASSOCIATION STANDARD IS SPECIFIED OR INDICATED, CERTIFICATION OF SUCH COMPLIANCE SHALL BE MADE WITH SHOP DRAWINGS.		WALL CLEANOUTS: AS SPECIFIED IN FIXTURE SPECIFICATIONS.		C. JOINTS AND CONNECTIONS:			
1.04 STORAGE OF MATERIALS:		2.08 PIPE HANGERS: AS SPECIFIED IN FIXTURE SPECIFICATIONS.		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.			
PIPE AND FITTINGS MAY BE STORED AT THE SITE PROVIDED THEY ARE STORED IN SUCH A MANNER AS TO PROTECT THEM FROM DAMAGE AND PROHIBIT ENTRANCE OF DIRT AND CONSTRUCTION DEBRIS. USE OF THE SITE SHALL COMPLY WITH GENERAL CONDITIONS AND SUCH OTHER PROVISIONS OF CONTRACT DOCUMENTS AS MAY LIMIT OR RESTRICT SAID USE.		2.09 PIPE SLEEVES: AS SPECIFIED IN FIXTURE SPECIFICATIONS.		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.			
		2.10 ESCUTCHEONS: AS SPECIFIED IN FIXTURE SPECIFICATIONS.		C. JOINTS AND CONNECTIONS:			
		2.11 INSULATION		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.			
		AS SPECIFIED IN INSULATION SPECIFICATION SCHEDULE.		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.			
		2.12 GREASE TRAPS		C. JOINTS AND CONNECTIONS:			
		SHALL BE AS SCHEDULED ON THE DRAWINGS.		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.			
		PART III - EXECUTION		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.			
		3.01 INSPECTION		C. JOINTS AND CONNECTIONS:			
		EXAMINE AREAS TO RECEIVE PIPING FOR:		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.			
		DEFECTS THAT ADVERSELY AFFECT EXECUTION AND QUALITY OF WORK.		B. DRAINAGE AND VENT PIPING: ALL DRAINAGE, VENT AND INSIDE CONDUCTOR PIPING SHALL BE TESTED BEFORE FIXTURES ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER TO A MINIMUM OF 15" HEAD AND ALLOWING IT TO STAND THIS FILLED FOR 24 HOURS. PROVIDE NECESSARY TEST TEES AND PLUGS TO TEST THE SYSTEM IN SECTIONS. REMAKE ALL LEAKING JOINTS.			
		DEVIATIONS BEYOND ALLOWABLE TOLERANCES FOR PIPING CLEARANCES.		C. JOINTS AND CONNECTIONS:			
		CHECK LOCATION OF ROUGH-IN WORK TO ASSURE MATCH WITH FIXTURES.		A. GENERAL REQUIREMENTS: TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. TEST PRIOR TO COVERING OR CONCEALING PIPING.			

UNITED STATES COLD STORAGE, INC.

NEW FACILITY
LAKE CITY, FLORIDA

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REV.	DATE	BY	DESCRIPTION
1	05/23/07	LRA	PERMIT ISSUE
2	06/27/07	LRA	OWNER REVIEW

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SPECIFICATION PIPE/WORK INSULATION -1A	
PIPE INSULATION (ISULATION TYPES) TABLE 1	
ITEM	DESCRIPTION
INS-TYPE1	PREFORMED FLEXIBLE ELASTOMERIC PIPE INSULATION: COMPLY WITH ASTM C-54, TYPE I, AND ASTM E-84 FOR FLAME SPREAD RATE OF 25 OR LESS AND SMOKE DEVELOPED RATING OF 50 & LESS, FOR 1" THICKNESS. K VALUE OF 0.30 AT 75°F MEAN TEMPERATURE, EQUAL TO AR AMFLEX, CLOSED CELL UBE AND PIPE INSULATION. UTILIZE ADHESIVE RECOMMENDED BY INSULATION MANUFACTURER FOR JOINTS AND SEAM.
INS-TYPE2	PREFORMED POLYISOCYANURATE PIPE INSULATION: COMPLY WITH ASTM E-84 RR FLAME SPREAD RATE OF 25 OR LESS AND SMOKE DEVELOPED RATING OF 50 OR LESS FOR 1 1/2" THICKNESS AND LESS. K VALUE OF 0.19 AT 75°F. COMPRESSIVE STRENGTH OF 25 PSI. EQUAL TO DOW TRIMER 2000. UTILIZE ADHESIVES RECOMMENDED BY THE INSULATION MANUFACTURER FOR JOINTS AND SEAMS.
INS-TYPE3	PREFORMED CALCIUM SILICATE PIPE INSULATION: INORGANIC HYDROUS CALCIUMSILICATE WITH NON-ASBESTOS FIBROUS REINFORCEMENT COMPLYING WITH ASTM C533 TYPE I, AND ASTM E84 FOR FLAX SPREAD RATE OF 25 OR LESS AND SMOKE DEVELOPED RATING OF 50 OR LESS. K VALUE OF 0.41 AT 200°F. EQUAL TO JOHN'S MANVILLE THERMO 12 GOLD FORM PIPE INSULATION. WIRE INSULATION TO PIPE UTILIZING STAINLESS STEEL WIRE OR METAL BANDS.
INS-TYPE4	PREFORMED FOAMGLAS PIPE INSULATION: COMPLYING WITH ASTM C552-00,INSULATION SHALL BE NON COMBUSTIBLE EQUAL TO PITTSBURG CORNING FOAMGLAS PREFORMED SECTIONAL INSULATION WIRE INSULATION TO PIPE UTILIZING STAINLESS STEEL WIRE OR METAL BANDS.
JACKET J-1	PVC JACKET 30 MIL THICK, UV RESISTANT WHITE IN COLOR. PREFABRICATED SAPHES FOR FITTINGS, JOINTS, VALVES, ETC. USE ADHESIVE RECOMMENDED BY THE JACKET MANUFACTURER. SOLVENT WELD ALL OINTS AND SEAMS. LAP SEAMS 1-1/2", LAP JOINTS 3". INSTALL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
JACKET J-2	EMBOSSED ALUMINUM JACKET 0.016" THICK COMPLYING WITH ASTM-B209, 300,ALLOY, H-14 TEMPER. USE 0.007" THICK ALUMINUM BANDS TO FASTEN JACKET TO INSULATION. USE 2" OVERLAP ON SEAMS AND JINTS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
JACKET J-3	PLAIN STAINLESS STEEL JACKET 0.0149 THICK COMPLYING WITH ASTM-A666, 304 STAINLESS STEEL C/W 3/4" WIDE BANDS .02" THICK TO FASTEN JACKET TO INSULATION. USE " OVERLAP ON SEAMS AND JOINTS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
VB-1	VAPOR BARRIER FILM: DOW SARAN 560 INDUSTRIAL FILM, 6 MIL THICK. SEAL SEAMS AND JOINTS WITH PRESSURE SENSITIVE TAPE RECOMMENDED BY THE PRODUCT MANUFACTURER.

SPECIFICATION PIPEWORK INSULATION -1B	
PIPE INSULATION (INSULATION THICKNESS) TABLE 2	
SERVICE	INSULATION TYPE
INSULATION TYPE	INSULATION JACKET
PIPE SIZE (INCHES)	INSULATION THICKNESS (INCHES)
1/2"	3/4"
1"	1"
1-1/4" to 2"	2-1/2" to 6"
2-1/2" to 6"	8" to 12"
CW, HW, HW RECIRC.	INS-TYPE1
CW, HW, HW RECIRC. IN COOLERS	INS-TYPE1
COMPRESSED AIR, ALAD AND CA IN COOLERS ONLY	INS-TYPE2
STEAM	INS-TYPE3
CR	INS-TYPE3
HPHWS, HWHWR	INS-TYPE1
RWL	INS-TYPE1
CHWS, CHWR, CHGS, CHGR	INS-TYPE2
INS-TYPE4	INS-TYPE4
GENERAL INSTALLATION NOTES	
1. REVIEW TABLE 1 FOR INSULATION TYPES	
2. REVIEW TABLE 3 FOR JACKET TYPES AND LOCATIONS WHERE J1, J2 AND J3 JACKETS MAY BE USED.	
3. PROVIDE DOUBLE LAYER OF INSULATION TO THICKNESS SHOWN	
4. OFFSET ALL LATERAL AND LONGITUDINAL JOINTS	
5. THICKNESS OF INSULATION SHALL LIMIT SURFACE TEMPERATURE OF INSULATION TO 139°F MAXIMUM	
6. THE TEMPERATURE OF THE THERMAL FLUID SHALL BE ASSUMED AT 600°F	
7. PROVIDE 5 WATTS PER FOOT TRACING ON ALL PIPEWORK COMPLETE WITH TEMPERATURE CONTROLLER	

SPECIFICATION PIPEWORK INSULATION -1C	
PIPE INSULATION (INSULATION INSTALLATION NOTES) TABLE 3	
STEAM AND CONDENSATE	1. USE J1 JACKET IN ALL LOCATIONS OVER THAN BOILER ROOMS, MECHANICAL ROOMS AND FINAL CONNECTIONS TO HOSE STATIONS AND EQUIPMENT IN PROCESS AREAS 2. USE J2 JACKET IN BOILER ROOMS, MECHANICAL EQUIPMENT ROOMS AND OUTDOOR APPLICATIONS 3. USE J3 JACKET FOR FINAL CONNECTS TO HOSE STATIONS & PROCESS EQUIPMENT IN PROCESS AREAS. JACKET SHALL EXTEND FROM EQUIPMENT TO 10'-00" ABOVE FINISHED FLOOR
HOT WATER SUPPLY AND RECIRCULATION HIGH PRESSURE HOT WATER COLD WATER	1. USE J1 JACKET IN ALL LOCATIONS OVER THAN FINAL CONNECTIONS TO HOSE STATIONS AND EQUIPMENT IN PROCESS AREAS 2. USE J3 JACKET FOR FINAL CONNECTS TO HOSE STATIONS & PROCESS EQUIPMENT IN PROCESS AREAS. JACKET SHALL EXTEND FROM EQUIPMENT TO 10'-00" ABOVE FINISHED FLOOR 3. COVER INSULATION ON CW WITH VAPC BARRIER VB-1.
HOT WATER HYDRONICS SUPPLY AND RETURN CHILLED WATER SUPPLY AND RETURN CHILLED GLYCOL SUPPLY AND RETURN	1. USE J1 JACKET IN INDOOR APPLICATIONS 2. USE J2 JACKET IN OUTDOOR APPLICATIONS 3. COVER INSULATION ON CHWS, CHWR, HGS AND CHGR WITH VAPOR BARRIER VB-1.
RAINWATER LEADERS	1. USE J1 JACKET IN ALL LOCATIONS OVER 10'-00 VERTICAL DROP IN PROCESS AREAS 2. USE J3 JACKET TO 10'-00" ABOVE RISHED FLOOR 3. COVER INSULATION WITH VAPOR BARRR VB-1.
THERMAL FLUID	1. USE J2 JACKET IN BOILER ROOMS, MECHANICAL EQUIPMENT ROOMS AND OUTDOOR APPLICATIONS 2. USE J3 JACKET IN PROCESS AREAS.
GENERAL INSTALLATION NOTES	
A. USE PREFORMED INSULATION WITH PREFABRICATED SECTIONS FOR FITTINGS AND VALVES. IF FABRICATED SECTIONS ARE RT AVAILABLE, MITER AND/OR FABRICATE FROM LARGER SIZED INSULATION TO INSULATION THICKNESS SPECIFIED.	
B. BUTT ALL JOINTS TOGETHER FIRMLY AND SEAL WITH TAPE OR ADHESIVE ACCORDING TO MANUFACTURERS' RECOMMENDATIONS.	
C. ALL FITTINGS AND VALVES TO BE COVERED WITH THE SAME JACKETING AS PIPING. (NO HAND APPLIED SEALER).	
D. CONTROL VALVES AND REGULATORS SHALL NOT BE INSULATED. SEAL PIPE INSULATION INDEPENDENTLY OF VALVES TO ABLE REMOVAL OF VALVE WITHOUT DAMAGE TO VAPOR BARRIER OF PIPE INSULATION.	
E. INSULATION COVERS ON ALL SHUTOFF VALVES MUST BE TRIMMED AND VAPOR SEALED TO ALLOW ACCESS TO PACKING NTS AND SCREWED BONNETS.	
F. PROVIDE STAINLESS STEEL SHEET METAL SADDLES, GAUGE AS REQUIRED TO PROTECT INSULATION FROM BEING CRUSHED/AT EACH HANGER OR STAND. INSULATION CONTRACTOR SHALL SEAL AND GLUE THE SADDLES TO THE INSULATION JACKET TO AVOID MOISTURE ACCUMULATION.	
G. PIPE HANGERS AND SUPPORTS MUST NOT PENETRATE INSULATION. WHERE PIPE WEIGHT WILL CRUSH OR DEFORM THE SULATION, INSTALL INSULATING BLOCKS TO CARRY WEIGHT. SADDLE SHALL BE SIZED TO DISTRIBUTE WEIGHT TO BELOW MANUFACTURERS MAXIMUM LOAD RECOMMENDATIONS.	
H. NO INSULATION SHALL BE APPLIED UNTIL ALL PIPES AND EQUIPMENT HAVE BEEN PRESSURE TESTED, DRIED AND PROVE TIGHT, BALANCED, AND ACCEPTED BY THE ENGINEER AND ALL WELD AREAS AND EXPOSED BARE METAL INCLUDING PIPE THREADS HAS BEEN CLEANED AND PRIMED.	
J. INSULATION ON ALL COLD SURFACES WHERE VAPOR BARRIER JACKETS ARE USED WILL BE APPLIED WITH A CONTINUOUS/BROKEN VAPOR SEAL. HANGERS, SUPPORTS, ANCHORS, ETC. THAT ARE SECURED DIRECTLY TO COLD SURFACES MUST BE ADEQUATELY INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION.	
K. CONTRACTOR SHALL SUBMIT MATERIAL DATA SHEETS AND RECEIVE APPROVAL BEFORE STARTING WORK DO NOT USE GLAS FIBER INSULATION.	
L. USE SELF ADHESIVE PIPE MARKERS TO IDENTIFY ALL PIPE SERVICES AND FLOW DIRECTION PER ASME A 13.1	
M. INSTALL INSULATION TO PREVENT LATERAL AND LONGITUDINAL JOINT SEPARATION WHEN PIPEWORK EXPANDS TO OPERATE TEMPERATURE	
N. INSULATION SHALL BE CONTINUOUS THROUGH ALL WALLS. COORDINATE WITH MECHANICAL UTILITIES AND PLUMBING CONTICTOR TO ENSURE SLEEVES ARE CORRECTLY SIZED	
O. WHERE INSULATION PASSES THROUGH RATED FIRE WALL PROVIDE INSULATION TO MATCH THE FIRE RATING OF THE WALL I ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS	

PIPING SPECIFICATION PS-4a	
DOMESTIC WATER- (CW, HW, HW AND HWR)	
SYSTEM	UP TO 100 PSIG
PRESSURE	UP TO 120 DEGREES FAHRENHIT
TEMPERATURE	4" AND LARGER
SIZE	SCHEDULE 40 CARBON STEEL TO ASTM A53 GR B SEAMLESS, GALVANIZED VICTAULIC FLEXIBLE GALVANIZED STEEL
PIPE	ASTM B 88
JOINTING	95-5 TIN-ANTIMONY SOLDER TO ASTM B62 GR 95 1A
FITTINGS	COPPER PRESSURE FITTINGS WROUGHT COPPER SOLDER JOINT FITTINGS TO ASTM B16.22 CAST COPPER ALLOY FITTINGS TO ASTM B16.18
FLANGES	CLASS 150 BRONZE, SOLDER JOINT TO ASME B16.24
UNIONS	CAST COPPER ALLOY, HEXAGONAL STOCK BODY, METAL-TO-METAL SEATING, SOLDER JOINT OR THREADED ENDS TO MSS-SP-123
BALL VALVES	VALVES SHALL BE 600 WOG ASTM B584 BRONZE BODY WITH FULL PORTING, STAINLESS STEEL BALL AND STEM, REINFORCED TEFLOM SEATS, PITE PACKING AND PACKING ADJUSTMENT NUT. VALVES SHALL COMPLY WITH MSS-SP-110. EQUAL TO CRANE 9303 (THREADED) OR 9323-S (SOLDER ENDS).
CHECK VALVE	VALVES SHALL BE CL125 ASTM B62 BRONZE T- PATTERN BODY WITH BRONZE INTEGRAL SEAT, FREE ROTATING BRONZE DISC, AND SCREWED CAP. VALVES SHALL COMPLY WITH MSS-SP-80. EQUAL TO CRANE 1707 (THREADED) OR 1707S (SOLDER ENDS).
STRAINER	STRAINERS SHALL BE Y-TYPE CL125 ASTM B62 BRONZE BODY WITH STRAIGHT THREAD CAP, MACHINED SCREEN SEAT, AND 20 MESH T304 STAINLESS STEEL SCREENS. EQUAL TO TITAN YSS5-BZ (THREADED) OR YSS6-BZ (SOLDER ENDS).
DRAIN VALVES	BRASS BODY, THREADED OR SOLDER CONNECTION, AND HOSE THREAD CONNECTION WATTS SERIES BD.
BUTTERFLY VALVES	NOT APPLICABLE
PRESSURE GAUGE	4" DIA LIQUID FILLED, 304SS CASE, WHITE DIAL WITH BLACK FIGURES AND GRADUATIONS, IN PSI, POLYCARBONATE WINDOW, BRONZE BOURDON TUBE, SNUBBER 1/4" NPT CONNECTION, ACCURACY 1% OF FULL SCALE PER ASME B40.1 EQUAL TO THERICE SERIES 700. RANGE TO EQUAL TWO TIMES SYSTEM WORKING PRESSURE. USE 1/4" BALL VALVE FOR ISOLATION.
THERMOMETER	7", ALUMINUM CASE, ACRYLIC WINDOW, ALCOHOL FILLED TUBE, SCALE WITH WHITE BACKGROUND, BLACK NUMBERS AND GRADUATIONS, ACCURACY OF + 1 SCALE DIVISION, ADJUSTABLE BASE, RANGE 0-200 DEGREES F. 3/4" NPT CONNECTION, EQUAL TO THERICE NO 700 SERIES. SELECT INSERTION LENGTH AND 304SS THERMOWELL TO SUIT PIPE SIZE AND INSULATION THICKNESS.
NOTES:	1 SLOPE PIPE IN DIRECTION OF FLOW 1" / 40' DOWN. PROVIDE MANUAL DRAIN VALVES AT SYSTEM DRIP LEGS. 2 PERFORM A HYDROSTATIC PRESSURE TEST ON THE SYSTEM AT 1 1/2 TIMES WORKING PRESSURE BUT NOT LESS THAN 150 PSIG FOR 2 HOURS, WITH MAX PRESSURE LOSS OF 2 PSI. 3 CONNECTIONS TO ALL DISSIMILAR METALS SHALL BE MADE WITH DIELECTRIC ISOLATED COUPLINGS

PIPE & FITTINGS SPECIFICATION (PS-7c)	
SERVICE	PROCESS DRAIN, WASTE AND VENT PIPING
PRESSURE	GRAVITY
LOCATION	ABOVE AND BELOW GROUND
SIZE	2" AND SMALLER
SLOPE (MIN.)	1/4" PER FOOT
PIPE & FITTINGS	CAST IRON NO-HUB PIPE AND FITTINGS CONFORMING TO LATEST VERSION OF OF FEDERAL SPECIFICATION WW-P-401 F, ASTM A-888, CISPI 301.
JOINTS	JOINT GASKETS SHALL CONFORM TO ASTM C-564 AND CISPI HSN.
TESTING	TEST PIPING USING REQUIREMENTS OF LOCAL OR STATE CODE OR BY MEANS OF THE WATER TEST TEST WITH A WATER HEIGHT OF 10'-0" OR 4.3 PSI.
NOTES:	1 BEDDING, COMPACTION AND BACKFILL SHALL CONFORM TO LOCAL AND STATE CODES, CISPI AND MANUFACTURES RECOMMENDATIONS. 2 FOR VENT AND ABOVE GROUND PIPING, REFER TO ABOVE GROUND PIPING SPECIFICATION THIS DRAWING. 3 USE OF NO-HUB PIPING MEETING THE ABOVE MENTIONED APPLICABLE CODES IS ACCEPYTABLE.

PIPE & FITTINGS SPECIFICATION (PS-7i)	
SERVICE	SANITARY DRAIN, WASTE AND VENT PIPING
PRESSURE	GRAVITY
LOCATION	ABOVE AND BELOW GROUND
SIZE	2" AND SMALLER
SLOPE (MIN.)	1/4" PER FOOT
PIPE & FITTINGS	PVC SCHEDULE 40 TYPE DWV PIPE AND FITTINGS CONFORMING TO ASTM D-1784, ASTM D-1785, ASTM D-2665 AND NSF STANDARD 14.
JOINTS	SLOVENT WELD WITH PRIMER CONFORMING TO ASTM SOLVENT CEMENT SHALL CONFORM TO ASTM D-2564.
TESTING	TEST PIPING USING REQUIREMENTS OF LOCAL OR STATE CODE OR BY MEANS OF THE WATER TEST TEST WITH A WATER HEIGHT OF 10'-0" OR 4.3 PSI.
NOTES:	1 BEDDING, COMPACTION AND BACKFILL SHALL CONFORM TO LOCAL AND STATE CODES AND MANUFACTURERS RECOMMENDATIONS. 2 THE USE OF FOAM CORE TYPE PIPE AND FITTINGS IS NOT PERMITTED. 3 THE USE OF PVC DWV PIPING IN PLENUM AREAS IS PROHIBITED UNLESS PIPING MEETS OR EXCEEDS SMOKE AND FLAME SPREAD REQUIREMENTS 4

ELECTRIC WATER HEATER SCHEDULE											
MARK	LOCATION	STORAGE CAPACITY	RECOVERY GPH	ELEMENT KW	ELEMENT QUANTITY	E.W.T. ° F	E.W.T. ° F	ELECTRICAL V / # / Hz	RELIEF SIZE	MANUF.	MODEL
EWH-1	JANITOR RM# 304	60	30	4.5	2	60	140	480 / 3 / 60	3/4"	A.O. SMITH	DEN-60
EWH-2	STORAGE RM# 802	60	30	4.5	2	60	140	480 / 3 / 60	3/4"	A.O. SMITH	DEN-60
EWH-3	MAINTENANCE RM# 202	80	30	6	2	60	140	480 / 3 / 60	3/4"	A.O. SMITH	DEN-80
NOTES: 1 NON-SIMULTANIOUS OPERATION OF ELEMENTS. 2 VERIFY ELECTRICAL REQUIREMENTS PRIOR TO EQUIPMENT PURCHASE. 3. INSTALL AS PER MANUFACTURERS RECOMMENDATIONS.											

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1.1 SCOPE

1.1.1 THE NOTES, TOGETHER WITH OTHER PROJECT SPECIFICATIONS REFERENCED HEREIN, PIPING DRAWING, AND DIAGRAMS (PAID), ESTABLISH THE REQUIREMENTS FOR FIELD FABRICATION, ERECTION, EXAMINATION, INSPECTION & TESTING, CLEANING & FLUSHING OF PIPING SYSTEMS AND THEIR COMPONENTS FOR SPECIFIC SERVICES.

1.1.2 INTENT IS NOT TO SUBSTITUTE THE CODES AND STANDARDS REFERENCED, BUT TO SUPPLEMENT, AMEND OR LIMIT THEM AS REQUIRED.

1.1.3 THE PIPING MATERIAL SPECIFICATION, PIPING AND INSTRUMENT DIAGRAMS, AND SERVICE INDEX ARE TO BE USED FOR SPECIFIC SERVICES

1.2 CODES AND STANDARDS

1.2.1 ALL PIPING MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS AND ADDENDA OF THE APPLICABLE CODES AND STANDARDS LISTED BELOW:

ANSI – AMERICAN NATIONAL STANDARD INSTITUTION
ASTM – AMERICAN SOCIETY FOR TESTING AND MATERIALS
ASME – AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AWWA – AMERICAN WATER WORKS ASSOCIATION
MSS – MANUFACTURER STANDARDIZATION SOCIETY OF THE VALVE AND FITTING INDUSTRY
3-A – SANITARY STANDARDS, INTERNATIONAL ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, INC.
AWS – AMERICAN WELDING SOCIETY

1.2.2 PIPING SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING STANDARDS:
ASTM-B31.7 – UNFIRED PRESSURE VESSEL CODE
ASTM-B31.1 – POWER PIPING (GENERAL PIPING)
ASTM-B31.3 – PROCESS PIPING
ASTM-B31.5 – REFRIGERATION PIPING (REFRIGERATION SYSTEM)
ASTM-B31.4 – FUEL PIPING
ASTM-B31.9 – SERVICE PIPING
3-A – SANITARY STANDARDS, MILK AND FOOD PRODUCTS

1.2.3 UNLESS OTHERWISE NOTED, ALL UNDERGROUND FERROUS (CAST IRON & BLACK STEEL) PIPES SHALL BE COATED AND/OR WRAPPED IN ACCORDANCE WITH THE STANDARD OF AWWA C-203.

1.2.4 ALL STEEL BUTT-WELDING FITTINGS SHALL CONFORM DIMENSIONALLY TO ANSI B16.9, WITH WALL THICKNESS AT LEAST EQUAL TO THAT OF THE PIPE. WHERE THE FITTING IS HEAVIER THAN THE PIPE, INDICATING WELDING ALIGNMENT TO ANSI CODE IS NOT POSSIBLE, ENDS OF FITTINGS SHALL BE BEVELED TO MEET CODE REQUIREMENTS.

1.2.5 PIPE IN SIZES 48" AND SMALLER SHALL CONFORM DIMENSIONALLY TO ANSI B36.10 FOR CARBON STEEL. PIPE WALL THICKNESS SHALL BE AS INDICATED IN THE PIPING MATERIAL SPECIFICATIONS.

1.2.6 ALL STEEL SCREWED AND SOCKET WELDING FITTINGS SHALL CONFORM TO ANSI B16.11.

2.0 PRODUCTS NOTES

2.1 MATERIALS NOTES

2.1.1 PIPING MATERIAL SPECIFICATIONS WILL BE USED AS ASSIGNED ON THE DRAWINGS AND SPECIFICATIONS. ANY DEVIATIONS FROM THE PIPING MATERIAL SPECIFICATIONS WILL BE NOTED ON THE PIPING DRAWINGS.

2.1.2 MATERIALS COVERED BY THE ABOVE SPECIFICATIONS SHALL BE NEW, FREE FROM DEFECTS AND IMPERFECTIONS.

2.1.3 MATERIALS WHICH ARE NOT COVERED BY DETAILED SPECIFICATION SHALL BE STANDARD PRODUCT OF APPROVED MANUFACTURERS AND SUITABLE FOR INTENDED SERVICE.

2.1.4 FULL LENGTHS OF PIPES SHALL BE USED WHEREVER POSSIBLE. SHORT LENGTHS OF PIPES WITH COUPLINGS WILL NOT BE PERMITTED.

2.1.5 LONG RADIUS WELD ELBS SHALL BE USED WHEREVER POSSIBLE. SHORT RADIUS ELBS WILL NOT BE USED UNLESS A WRITTEN APPROVAL IS SECURED FROM ENGINEER.

2.1.6 THE VALVE TYPE, GATE, GLOBE, CHECK, BUTTERFLY, BALL, ETC., SHALL BE AS INDICATED ON PIPING AND INSTRUMENT DIAGRAMS OR PER THE VALVE SPECIFICATIONS FOR SERVICE & FUNCTION. VALVE MATERIALS AND END CONNECTIONS SHALL BE PROVIDED AS SPECIFIED IN PIPING MATERIAL SPECIFICATION.

2.1.7 SHUTOFF VALVES ON BOTH SIDES OF A CONTROL VALVE AND THE BY-PASS VALVE SHALL TAKE THE SAME SPECIFICATION AS THE LINE WITH THE HIGHEST RATING.

2.1.8 VALVE TRIM MATERIAL SHALL BE MANUFACTURER'S STANDARD FOR SERVICE SPECIFIED.

2.1.9 VALVES REQUIRING SPECIAL TRIM OR OTHER FEATURES NOT IN AGREEMENT WITH THE PIPING MATERIAL SPECIFICATION WILL BE NOTED ON THE PIPING AND INSTRUMENT DIAGRAMS.

2.1.10 WHERE A VENT LINE, DRAIN LINE, ETC. CONNECTS TO A PROCESS LINE THAT HAS SPECIAL TRIM VALVES, ALL VALVES IN THE CONNECTING LINE SHALL HAVE THE SPECIAL TRIM.

2.1.11 CHAIN WHEELS OR EXTENSION STEMS SHALL BE PROVIDED FOR VALVE USED IN NORMAL PLANT OPERATION WHEN BOTTOM HAND WHEEL IS IN EXCESS OF 7'-0" ABOVE NORMAL WORKING LEVEL. CHAIN WHEELS OR EXTENSION STEMS MAY BE BUT ARE NOT NECESSARILY SHOWN ON PIPING DRAWING, BUT ARE REQUIRED.

2.1.12 GEAR OPERATORS SHALL BE CONSIDERED FOR VALVES, ONLY WHEN FREQUENT OR RAPID OPERATION IS REQUIRED UNDER UNIT OPERATIONS. GEAR OPERATORS WILL BE REQUIRED FOR BLOCK VALVES LARGER THAN 10".

2.1.13 A MANUFACTURER'S NAME AND FIGURE NUMBER SHOWN IN PIPING MATERIAL SPECIFICATION DOES NOT REPRESENT A PREFERENCE. THE INTENT IS TO INDICATE QUALITY, DESIGN, MATERIALS, AND CONSTRUCTION REQUIREMENTS. EQUIVALENT ITEMS NOT SPECIFIED BY NAME / MODEL SHALL BE SUBMITTED FOR APPROVAL.

2.1.14 PRESSURE AND TEMPERATURE LIMITS FOR VALVES WITH NONMETALLIC SEATING OR LINING MATERIALS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION FOR INTENDED SERVICE.

2.1.15 STEEL OR STAINLESS STEEL FLANGES AGAINST 125 LBS. CAST IRON FLANGES SHALL BE FLAT FACE.

2.1.16 GASKET FOR FLAT FACE FLANGES SHALL BE OF THE FLAT FACE TYPE.

2.1.17 WHERE VALVE LININGS EXTEND OVER FLANGE FACING, NO GASKET IS REQUIRED.

2.2 WELDING

2.2.1 WELDING PROCEDURES, WELDERS, AND WELDING OPERATORS SHALL BE QUALIFIED IN ACCORDANCE WITH THE ASME BOILER AND PRESSURE VESSEL CODE, SECTION IX AND APPLICABLE ASTM B31 CODE FOR PRESSURE PIPING.

2.2.2 ALL WELDING PROCEDURES AND WELDERS SHALL BE QUALIFIED IN COMPLIANCE WITH STANDARD WELDING PROCEDURE QUALIFICATION TEST AND WELDER QUALIFICATION TEST FOR PIPE WELDING.

2.2.3 BUTT-WELDING ENDS SHALL BE PREPARED FOR WELDING ACCORDING TO THE APPLICABLE ASTM B31 CODE. BUTT WELDS MADE IN THE EFFECTIVE STRAIGHT RUN OF PIPE, BOTH UP AND DOWNSTREAM OF ANY MEASURING DEVICE SHALL BE GROUND FLUSH WITH THE INSIDE PIPE DIAMETER. THE GROUND JOINTS SHALL BE INSPECTED AND APPROVED BY A FIELD REPRESENTATIVE PRIOR TO FURTHER FABRICATION OR INSTALLATION.

2.2.4 ALL PIPE ENDS SHALL BE SQUARE AND SMOOTH PRIOR TO WELDING. ALL CHAMFERING SHALL BE DONE BY MACHINING, GRINDING OR FLAME CUTTING.

2.2.5 WELDING SHALL NOT BE USED TO JOIN DISSIMILAR METALS. ALL SUCH JOINTS SHALL BE FLANGED OR THREADED ACCORDING TO THE PIPING MATERIAL SPECIFICATION. DIELECTRIC FITTINGS OR FLANGES SHALL BE UTILIZED.

2.2.6 TACK WELDS SHALL BE MADE BY QUALIFIED WELDERS. TACK WELDS WHICH ARE NOT REMOVED, WILL BE MADE WITH AN ELECTRODE WHICH IS THE SAME AS THE ELECTRODE TO BE USED FOR THE FIRST PASS. TACK WELDS WHICH HAVE CRACKED WILL BE REMOVED.

2.2.7 ALL COMPONENTS (PIPES, FITTINGS, FLANGES AND VALVES) SHALL BE FITTED UP AND RESTRAINED TO ENSURE THAT THE ROOT GAP IS MAINTAINED AT A CLEARANCE OF MINIMUM OF 1/16" AND MAXIMUM OF 1/8" FOR STEEL BUTT WELDING ENDS.

2.2.8 WELDED CONNECTIONS SHALL BE MADE WITH FULL PENETRATION WELDS. BRANCH PIPE REINFORCEMENT WELDING JOINTS SHALL HAVE A MINIMUM THROAT FILLET WELD EQUAL TO THE THICKNESS OF THE THINNER MATERIALS BEING JOINED.

2.2.9 ALIGNMENT: THE INSIDE DIAMETER OF PIPING COMPONENTS TO BE JOINED SHALL BE ALIGNED AS ACCURATELY AS IS PRACTICABLE WITHIN EXISTING TOLERANCES OF DIAMETERS, WALL THICKNESS, AND OUT OF ROUNDNESS. ALIGNMENT SHALL BE PRESERVED DURING WELDING. WHERE ENDS ARE JOINED AND THE INTERNAL MISALIGNMENT EXCEEDS 1/16", IT IS EASIER TO PREPARE THE COMPONENT WITH THE WALL EXTENDING INTERNAL BE INTERNALLY TRIMMED SO THAT ADJOINING INTERNAL SURFACES ARE APPROXIMATELY FLUSH. HOWEVER TRIMMING SHALL NOT RESULT IN PIPING COMPONENT WALL THICKNESS LESS THAN MINIMUM DESIGN THICKNESS AND THE CHANGE IN CONTOUR SHALL NOT EXCEED 30".

2.2.10 NO WELDING SHALL BE DONE IF THERE IS IMPINGEMENT OF ANY RAIN, OR HIGH WINDS ON THE WELD AREAS EXCEPT WHEN SUITABLE PROTECTION OR EFFECTIVE SHIELD AGAINST THE RAIN OR WIND IS PROVIDED.

2.2.11 SPECIAL PRECAUTIONS SHALL BE TAKEN AT ALL TIMES DURING FABRICATION AND ERECTION TO PREVENT ENTRANCE OF ANY FOREIGN MATTER INTO PIPING OR EQUIPMENT. LOOSE RUST, SLAG, WELD SPATTER, DIRT, OIL, GREASE AND OTHER FOREIGN SUBSTANCES SHALL BE REMOVED FROM INTERIOR SURFACES OF PIPING PRIOR TO CONNECTING PIPING TO EQUIPMENT. PRIOR TO FABRICATION IN SHOP OR FIELD, ALL SURFACES FOR WELDING SHALL BE CLEANED TO BRIGHT METAL AND FREE OF PAINT, OIL, RUST OR OTHER FOREIGN MATTER FOR A DISTANCE OF AT LEAST 2 TIMES THE NOMINAL DIAMETER FROM THE JOINT. AFTER FABRICATION OPEN ENDS OF PIPE LINES SHALL BE CAPPED OR PLUGGED TO KEEP OUT DIRT AND OTHER MATERIALS UNTIL PIPE LINES ARE CONNECTED TO EQUIPMENT.

2.2.12 COMPLETED PIPING SHALL BE CLEANED WITH AIR, STEAM AND WATER FLUSHED TO SATISFACTION OF OWNER, ENGINEER, AND THIRD PARTY REPRESENTATIVE BEFORE FINAL CONNECTION TO EQUIPMENT. AFTER COMPLETION OF ANY TESTING WHERE NON-POTABLE SOLUTIONS ARE USED, ALL PARTS OF INSTALLATIONS SHALL BE THOROUGHLY CLEANED.

2.2.13 PROTECT ROOF MEMBRANE WHEN WELDING ON THE ROOF. DAMAGE TO THE ROOF MEMBRANE WILL BE REPAIRED BY THE ROOFING CONTRACTOR AT THIS CONTRACTORS EXPENSE.

2.3.1 FLANGED JOINTS SHALL BE ARRANGED SO THAT IT IS NOT NECESSARY TO UNDOILY STRAIN THE ASSOCIATED PIPE OR EQUIPMENT TO DISMANTLE THE JOINT.

2.3.2 ALL FLANGE JOINTS SHALL BE MADE PERFECTLY SQUARE AND TIGHT WITH THE BOLT HOLES ALIGNED SO THAT THERE IS NO BOLT BINDING. FLANGES SHALL NOT BE ALIGNED BY FORCING OR SPRINGING.

2.3.3 FLANGE BOLTING ARRANGEMENTS SHALL BE MADE SO THAT THE BOLTS HOLES STRADDLE THE CENTERLINE OF THE PIPE.

2.3.4 ALL BOLT HOLES SHALL BE FITTED WITH LOCKING WASHERS AND SHALL SHOW A MINIMUM OF TWO COMPLETE THREADS BEYOND THE NUT AFTER TIGHTENING.

2.3.5 DURING ASSEMBLY, ALL BOLTS SHALL BE COATED WITH AN APPROVED ANTI-SEIZE COMPOUND AND FITTED WITH SPRING WASHERS OR A SIMILAR LOCKING DEVICE.

2.3.6 AFTER ASSEMBLY, ALL FLANGED JOINTS SHALL BE DEGREASED AND RE-PAINTED WITH PRIMER.

2.4 THREADED JOINTS

2.4.1 THE PIPE ASSEMBLY SHALL BE ARRANGED SO THAT:

ALL JOINTS MAY BE DISMANTLED FOR MAINTENANCE WITHOUT FORCING OR SPRINGING THE PIPING.

THERE IS ADEQUATE SPACE AROUND THE JOINT TO USE APPROPRIATE TOOLS TO ENSURE THAT THE JOINT IS PROPERLY MADE.

2.4.2 THE THREAD SHALL BE MADE WITH UNIFORM TAPERED THREADS PROPERLY CUT WITH SHARP, CLEAN DIES.

BEFORE ASSEMBLY:

THE CUT THREAD SHALL BE DEGREASED TO REMOVE CUTTING LUBRICANT.

THE INSIDE OF THE PIPE SHALL BE THOROUGHLY CLEANED OF ALL BURRS OR FOREIGN MATERIAL.

2.4.3 DURING ASSEMBLY, THE JOINT SHALL BE MADE PERFECTLY TIGHT WITH AN APPROVED FOOD GRADE SEALANT. UNION TYPE COUPLINGS SHALL BE COATED WITH AN APPROVED TYPE OF ANTI-SEIZE COMPOUND. TEFLON TAPE OR ANY DERIVATIVE IS NOT ACCEPTABLE.

2.4.4 AFTER ASSEMBLY, ALL THREADED JOINTS SHALL BE DEGREASED AND RE-PAINTED WITH PRIMER IN ACCORDANCE WITH THE SPECIFICATION FOR PIPING AND EQUIPMENT PAINTING.

3.0 EXECUTION

3.1 PREPARATION

3.1.1 CONTRACTOR SHALL CAREFULLY CHECK AND BECOME FAMILIAR WITH THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS AND DETAILS AND MAKE NOTE OF ALL LOCATIONS WHERE WALLS, PARTITIONS, CEILINGS, STRUCTURAL MEMBERS, ETC. ARE CALLED FOR TO BE FURRED OR CLOSED IN.

3.1.2 MODIFICATIONS TO THE ARRANGEMENT OF PIPING SYSTEMS MAY BE REQUIRED TO SUIT STRUCTURAL CONDITIONS OR TO AVOID INTERFERENCE WITH THE WORK OF OTHER TRADES. CONTRACTOR SHALL FURNISH ALL OFFSETS, ADDITIONAL DETAIL FITTINGS, ETC., AS REQUIRED TO MEET THE INSTALLATION CONDITIONS WHETHER DETAILED ON THE PLANS OR NOT.

3.1.3, ANY QUESTIONABLE INFORMATION IN THE SPECIFICATIONS AND DRAWINGS, SHALL BE CALLED TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE FOR CLARIFICATION BEFORE PROCEEDING WITH FABRICATION OR ERECTION OF THE PARTS AFFECTED. IF, IN THE OPINION OF THE CONTRACTOR, ANY ADDITIONAL DETAIL DRAWINGS ARE NECESSARY, THE CONTRACTOR SHALL PREPARE THEM AT HIS OWN EXPENSE, TOGETHER WITH A BILL OF MATERIALS.

3.2 INSTALLATION

3.2.1 WHENEVER PRACTICABLE, PIPING SHALL BE GROUPED AND RUN OVERHEAD. SPECIFIC ELEVATIONS SHALL BE ESTABLISHED FOR ALL PIPING RUNNING IN ANY ONE DIRECTION AND AT ANOTHER SPECIFIC ELEVATION FOR PIPING RUNNING AT RIGHT ANGLES TO PROVIDE FOR BRANCH CONNECTIONS AND CROSSING OF LINES.

3.2.2 PIPING AT PUMP NOZZLES SHALL BE ARRANGED TO PERMIT REMOVAL OF PUMP OR DRIVE WITHOUT REMOVING BLOCK VALVES.

3.2.3 PERMANENT STRAINERS SHALL BE PROVIDED AS INDICATED ON PIPING AND INSTRUMENT DIAGRAMS.

3.2.4 ALL PIPING SHALL BE ARRANGED AND ALIGNED IN ACCORDANCE WITH THE DRAWINGS. REFERENCE ELEVATIONS GIVEN WAS BASED ON PLANT BENCHMARK ELEVATION. DIMENSIONS WHERE NOTED MUST BE HELD AS CLOSELY AS POSSIBLE. ALL DIMENSIONS ARE TO BE FIELD CHECKED FOR ACCURACY BEFORE PIPE IS FABRICATED. DO NOT SCALE DRAWINGS.

3.2.5 RUN PIPING IN WALL CHASES, PIPE SHAFT, CEILINGS, RECESSES, ETC., WHERE PROVIDED.

3.2.6 DO NOT MITER PIPES TO FORM ELBOWS, NOTCHING STRAIGHT PIPE RUNS TO FORM FULL FIXED TEES OR ANY SIMILAR CONSTRUCTION METHOD.

3.2.7 BENDING OF PIPE TO FORM ELBOWS IS NOT BE PERMITTED. BENDING OF TUBING MAY BE PERMITTED PROVIDED IT HAS BEEN REVIEWED AND APPROVED BY OWNER'S ENGINEER AND:

THE BEND RADIUS IS AT LEAST 5 TIMES THE PIPE DIAMETER.

THE BEND IS FREE OF ANY FLATTENING, WRINKLING, THINNING OR DIAMETER REDUCTION.

THE ELBOWS ARE STRESS RELIEVED AFTER BENDING BY AN APPROVED HEAT TREATMENT METHOD.

3.2.8 DRAWINGS IN GENERAL ARE TO SCALE. IN ORDER TO CLARIFY THE WORK, HOWEVER, SOME OF THE PIPING MAY BE SHOWN ON THE DRAWINGS NOT TO SCALE, THE CONTRACTOR SHALL USE DIMENSIONS AND GRADES, WHERE GIVEN. ALL DIMENSIONS, SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR BEFORE FINAL CONNECTIONS ARE FABRICATED. REPORT ANY CONFLICTS TO THE ENGINEER. DO NOT SCALE DRAWINGS.

3.2.10 INSTALLATION OF PIPING SYSTEMS SHALL BE COORDINATED WITH THE OTHER WORKED / OR WITH EXISTING FACILITIES, TO AVOID BLOCKING BUILDING OPENINGS, LIGHT FIXTURES, ETC. PIPING SHALL NOT INTERFERE WITH ACCESS TO VALVES OR EQUIPMENT AND SHALL NOT OBSTRUCT PASSAGEWAYS.

3.2.11 LINES SHALL NOT BE EXTENDED BY MEANS OF DEAD END BRANCH FOR THE PURPOSE OF PROVIDING SUPPORT.

3.2.12 ALL PIPES SHALL BE CUT TO EXACT MEASUREMENT TO BE INSTALLED WITHOUT FORCING, (EXCEPT WHERE COLD SPRINGING IS SPECIFICALLY CALLED FOR). AFTER CUTTING, ENDS SHALL BE REAMED AND CLEANED TO ELIMINATE FOREIGN MATTER.

3.2.13 CUTTING OR OTHER WEAKENING OF THE BUILDING STRUCTURE TO FACILITATE PIPING INSTALLATION WILL NOT BE PERMITTED.

3.2.14 ALL PIPE PENETRATIONS THROUGH WALLS SHALL BE THROUGH A SLEEVE WHICH IS WHICH IS SEALED AND DOES NOT RESTRAIN PIPE MOVEMENT. ALL PENETRATIONS THROUGH EXTERNAL WALLS OF THE BUILDINGS SHALL BE FINISHED IN AN APPROVED MANNER.

PIPE PENETRATIONS SHALL NOT BE USED FOR SUPPORT OR RESTRAINT UNLESS THE WALL HAS BEEN SPECIFICALLY DESIGNED TO ACCEPT THE ADDITIONAL LOADS. EACH PIPING MATERIAL PIPE PASSES THROUGH THE WALLS, THE PIPE PENETRATION SHALL ENSURE CONTINUITY OF THE INSULATION AND VAPOR BARRIER.

PIPES PASSING THROUGH FIRE RATED WALLS MUST BE FIRE STOPPED IN AN APPROVED MANNER TO MAINTAIN THE INTEGRITY OF THE FIRE RATINGS.

3.2.15 PIPING COMPONENTS (VALVES, FITTINGS OR JOINTS) SHALL NOT BE PLACED WITHIN 12" OF ANY WALL, FLOOR CEILING PENETRATION. SUCH FITTINGS SHALL NOT BE CONCEALED WITHIN ANY WALL, FLOOR OR CEILING.

3.2.16 COLD NIPPLES SHALL NOT BE PERMITTED; NIPPLES WITH A SHOULDER LENGTH OF LESS THAN 1-1/2" MUST BE OF SAME SCHEDULE AS CONNECTED PIPE.

3.2.17 UNLESS OTHERWISE SHOWN ON THE DRAWINGS, INSTALL ALL SUPPLY PIPING TO COILS, PUMPS AND OTHER EQUIPMENT INCLUDING VALVES AND STRAINERS THEREIN, AT LINE SIZE. IF A REDUCTION IS REQUIRED AT A PUMP OR CONTROL VALVE, THE REDUCER SHALL BE INSTALLED BETWEEN THE INLET AND OR OUTLET OF THE PUMP VALVE.

3.2.18 USE ECCENTRIC REDUCING FITTINGS OR ECCENTRIC REDUCING COUPLINGS TO PREVENT POCKETING OF LIQUID OR NON-CONDENSABLES.

3.2.19 REDUCTIONS IN LINE SIZE SHALL BE MADE WITH BUTT-WELDING REDUCERS, SWAGE NIPPLES, SCREWED OR SOCKET WELD REDUCERS. DO NOT USE BUSHINGS.

3.2.20 ALL PIPE SYSTEMS SHALL BE DESIGNED FOR EXPANSION AND / OR CONTRACTION UNDER START UP, OPERATING, SHUT-DOWN, AND STEAM-OUT CONDITIONS, WITHOUT OVER-STRESSING PIPING, VALVES OR EQUIPMENT.

3.2.21 PIPE ANCHORS, GUIDES, HANGERS AND SUPPORTS SHALL BE PROVIDED AS REQUIRED AND IN ACCORDANCE WITH PIPING DRAWINGS AND PIPE SUPPORT DETAILS.

3.2.22 SANITARY PIPING AT EQUIPMENT SHALL BE ARRANGED TO FACILITATE COMPLETE AND EASY REMOVAL OF EQUIPMENT, WHERE NECESSARY. REMOVAL OF PIECES WITH UNION OF FLANGE TYPE SYSTEMS SHALL BE INSTALLED AT EQUIPMENT NOZZLES.

3.2.23 SYSTEM COMPONENTS WHICH REQUIRE OBSERVATION OPERATION OR MAINTENANCE SUCH AS VALVES, TRAPS, GAUGES, CONTROLS, STRAINERS, DRIP ROCKETS, CLEANOUTS, UNIONS AND FLANGES, ETC. SHALL BE LOCATED SO AS TO BE READILY ACCESSIBLE.

3.2.24 INSTALL ALL VALVES WITH STEMS IN EITHER AN UPRIGHT (PREFERRED) OR HORIZONTAL POSITION. CONTROL VALVES SHALL BE INSTALLED WITH TOP WORKS UPWARD UNLESS SPECIFICALLY SHOWN OTHERWISE.

3.2.25 CHECK VALVES SHALL BE INSTALLED HORIZONTALLY, OR IN A VERTICAL LINE WITH UPWARD FLOW ONLY.

3.2.26 ALL PIPING VALVES SHALL BE FREE DRAINING IN THEIR INSTALLED POSITION.

3.2.27 CLEANING THE USE OF COMPANION FLANGES IN PIPING SHALL BE LIMITED TO CONNECTIONS AT FLANGED EQUIPMENT AND DISSIMILAR METALS. FIELD JOINTS MAY BE FLANGED WHERE EXPEDIENT AND ECONOMICAL TO AVOID FIELD WELDING OF JOINT REQUIRING HEAT TREATMENT AND EXAMINATION.

3.2.28 THE LOCATION OF FLANGED JOINTS ARE SHOWN ON PIPING DRAWINGS, STRADDLE THE CENTER LINES OF PIPE UNLESS OTHERWISE SHOWN AND NOTED. EACH PIPING MATERIAL SPECIFICATION DESCRIBES THE TYPE OF FLANGES TO BE USED TOGETHER WITH THE MATERIAL, FACING ETC.

3.2.29 VENTS AND DRAINS SHALL BE PROVIDED FOR PIPING AND EQUIPMENT AS INDICATED ON PIPING AND INSTRUMENTATION DIAGRAMS AND AS REQUIRED FOR THE PURPOSE OF FILLING AND DRAINING SYSTEMS FOR TESTING, START-UP, SHUT-DOWN AND IN BY-PASS PIPING. VENTS AND DRAINS SHALL BE PROVIDED IN ADDITION TO THOSE SHOWN ON PIPING AND INSTRUMENTATION DIAGRAMS WHEN THE PHYSICAL ARRANGEMENT OF PIPING RESULTS IN HIGH AND LOW POINTS THAT CANNOT BE VENTED OR DRAINED THROUGH CONNECTION SHOWN.

3.2.30 ALL DRAINS EMPTYING INTO OPEN OUTLET SHALL BE PROVIDED.

3.2.31 PUMP CASING VENTS AND DRAINS SHALL BE PROVIDED.

3.2.32 COMPRESSIBLE FLUID CONNECTIONS SHALL BE MADE EITHER ON TOP OR SIDE OF MAIN LINE, NEVER OFF THE BOTTOM.

3.2.33 VENT, DRAIN AND SAMPLE CONNECTIONS ON PIPING SHALL BE 3/4" UNLESS OTHERWISE NOTED ON PIPING AND INSTRUMENT DRAWINGS.

3.2.34 VENTS AND DRAINS ON ALL LINES WITH SOCKET WELD VALVES TO HAVE PIPE NIPPLE WITH ONE END PLAN AND ONE END THREADED WITH CAP.

3.2.35 INSTRUMENT CONNECTIONS ON PIPING AND EQUIPMENT SUCH AS LOCAL MOUNTED PRESSURE AND TEMPERATURE INSTRUMENTS, GAGE GLASS AND LEVEL CONTROLS, SHALL BE ACCESSIBLE FROM GRADE, PLATFORMS OR LADDERS.

3.2.36 SEAL WELDING IS NOT PERMITTED ON SCREWED THERMOMETERS AND THERMOCOUPLES.

3.2.37 PLATFORMS SHOULD BE PROVIDED FOR ACCESS WHEN THE LOWER CONNECTIONS OF THE GAGES AND/OR LEVEL CONTROL ON THE PROCESS TANK OR VESSEL ARE 10'-0" AND MORE ABOVE FINISHED SURFACE.

3.2.38 ALL CONTROL VALVES SHALL BE ACCESSIBLE FROM GRADE OR PERMANENT PLATFORMS AND CONVENIENTLY LOCATED FOR OPERATION.

3.2.39 RELIEF VALVES SHALL BE IN AN UPRIGHT VERTICAL POSITION. WHEN DISCHARGING TO ATMOSPHERE, PROVIDE A 3/4" DIAMETER HOLE AT LOW POINT AND CHAMFER OUTLET PIPE END AT 30 DEGREE ANGLE.

3.2.40 PRESSURE RELIEF VALVE DISCHARGING LINES, VENTING NON TOXIC, NON FLAMMABLE GASES OR MEDIA BELOW 140°F TO ATMOSPHERE, SHALL TERMINATE A MINIMUM OF 10' ABOVE ANY SERVICE PLATFORM WITHIN A RADIUS OF 40' OF THE OUTLET. FOR TOXIC AND FLAMMABLE GASES THE CONTRACTOR SHALL SUBMIT A PROPOSED ARRANGEMENT FOR APPROVAL WITH THE OWNER.

3.2.41 INSTRUMENTS (I.E. PRESSURE GAUGES, THERMOMETERS, ETC.) WHERE SHOWN ON THE DRAWINGS / ARE SHOWN IN THEIR APPROXIMATE LOCATIONS. EXACT LOCATIONS SHALL CONSIDER VISIBILITY AND ANY SPECIAL INSTALLATION REQUIREMENTS, AND SHALL BE AS APPROVED BY OWNER'S REPRESENTATIVES. ANY RELOCATION REQUIRED BECAUSE CONTRACTOR FAILED TO OBTAIN APPROVAL SHALL BE DONE AT CONTRACTOR'S EXPENSE.

3.2.42 DRIP LEGS WITH STEAM TRAPS ARE TO BE PROVIDED UPSTREAM OF ALL PRESSURE REDUCING STATIONS, OR TEMPERATURE CONTROL STATIONS, AT LOW POINT OF PIPING SYSTEM AND AT THE END OF HEADERS AND MAINS.

3.2.43 INSULATION FOR ALL PIPING AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE INSULATION SPECIFICATION, NO LOOSE FIBER, WRAP TYPE, OR FIBERGLASS INSULATION SHALL BE PERMITTED ON SITE.

4.0 PIPE SUPPORTS

4.1.1 WELDING

WELDING OF PIPE SUPPORTS WHICH ARE WELDED TO THE PIPE DIRECTLY SHALL CONFORM TO THE SAME REQUIREMENTS AS FOR THE PIPE CONNECTION. ALL WELDING SHALL CONFORM TO THE STANDARD OF LATEST EDITION OF AWS.

4.1.2 FABRICATION

ALL SUPPORTS, INCLUDING ANCHOR BOLTS, SHALL BE FABRICATED TO THE DIMENSIONS AND MATERIALS CONFORMING TO PIPE SUPPORT DETAIL DRAWINGS UNLESS SPECIFIED OTHERWISE ON THE PIPING DRAWINGS. EACH SUPPORT SHALL BE FABRICATED AND ASSEMBLED SO THAT IT CANNOT BE DISENGAGED BY MOVEMENT OF THE SUPPORTED PIPING.

4.1.3 ERECTION

PIPE SUPPORTS SHALL BE PROPERLY LEVELED AND PLUMBED AS INDICATED ON PIPING DRAWINGS / AND PIPE SUPPORT DETAIL SHEETS. SHIMS AND WEDGES MAY BE EMPLOYED FOR LEVELING AND ALIGNMENT OF THE SUPPORTS ON THE GRADE. RIGID TEMPORARY FRAMES OR OTHER SUITABLE DEVICES MAY BE USED SUPPORTING PIPING BEFORE INSTALLATION OF PIPE SUPPORTS. SUCH FRAMES SHALL BE RIGID SO AS NOT TO MISALIGN THE PIPING SYSTEM.

4.1.4 SUPPORTS PERMITTING PIPE MOVEMENT

SUPPORTS PERMITTING PIPE MOVEMENT SHALL BE ASSEMBLED TO ALLOW THE NECESSARY MOVEMENT OF PIPE AS CAUSED BY THERMAL EXPANSION AND CONTRACTION IN ACCORDANCE WITH THE PIPING DRAWINGS. REFER TO SPECIFICATIONS AND DETAILS ON DRAWINGS.

4.1.5 BRACING

THE FIRST NIPPLE AND VALVE OF SMALL CONNECTIONS INCLUDING INSTRUMENT CONNECTIONS TO PIPING, VESSEL OR EQUIPMENT SHALL BE BRACED TO PREVENT DAMAGE / BREAKAGE.

NOTE: FOR 2" AND SMALLER PIPING, ADDITIONAL PIPE SUPPORTS MAY BE REQUIRED TO IMPROVE THE STABILITY OF THE PIPING AFTER APPROVAL OF OWNER'S ENGINEER OR TO COMPLY WITH SUPPORT DETAILS REQUIRED BY THESE DOCUMENTS OR BY CODE.

5.0 QUALITY CONTROL FOR WELDING

5.1 INSPECTION AND MAINTENANCE OF WELDING MACHINE

WELDING MACHINES SHALL BE PERIODICALLY INSPECTED AT LEAST ONCE A MONTH.

THIS INSPECTION AND MAINTENANCE SHALL BE DONE MAINLY TO CHECK ELECTRICAL INSULATION, INTERNAL TROUBLES OF THE MACHINES, LUBRICATION, AND ADJUSTMENT OF ELECTRIC CURRENT FOR THE MACHINES.

ALL WELDING MACHINES SHALL BE NUMBERED FOR QUANTITY AND QUALITY CONTROL PURPOSE AND TEST PRESSURES HAVE BEEN APPROVED BY THE OWNER'S ENGINEER OR DESIGNATED THIRD PARTY INSPECTOR.

7.4 RETEST

REPAIRS OR ADDITIONS MADE AFTER THE PRESSURE TEST, SHALL BE RETESTED HYDROSTATICALLY OR PNEUMATICALLY WITH THE APPROVAL OF THE OWNER'S ENGINEER OR THIRD PARTY REPRESENTATIVE AT CONTRACTORS EXPENSE.

8.0 RECORDS

FABRICATION DETAILS AND RESULTS OF INSPECTION OF PIPING SHALL BE RECORDED ON THE PIPING DRAWINGS AND ATTACHED INSPECTION RECORD SHEETS.

10 IDENTIFYING DEVICES AND LABELS

10.1 SUBMITTALS

A. PRODUCT DATA FOR IDENTIFICATION MATERIALS AND DEVICES
B. SAMPLES OF COLOR, LETTERING STYLE, AND OTHER GRAPHIC REPRESENTATION REQUIRED FOR EACH IDENTIFICATION MATERIAL AND DEVICE.
C. VALVE SCHEDULES: SUBMIT VALVE SCHEDULES FOR EACH PIPING SYSTEM. REPRODUCE ON STANDARD-SIZED BOND PAPER. TABULATE VALVE NUMBER, PIPING SYSTEM ABBREVIATION, (AS SHOWN ON TAG), LOCATION OF VALVE (ROOM OR SPACE), AND VARIATIONS FOR IDENTIFICATION MARK VALVES INTENDED FOR EMERGENCY SHUTOFF AND SIMILAR SPECIAL USES, FURNISH EXTRA COPIES (IN ADDITION TO MOUNTED COPIES) FOR MAINTENANCE MANUALS.

10.2 QUALITY ASSURANCE

A. COMPLY WITH ASME A13.1 FOR LETTERING SIZE, LENGTH OF COLOR FIELD, COLORS AND VIEWING ANGLES OF IDENTIFICATION DEVICES.

10.3 SEQUENCING AND SCHEDULING

A. COORDINATE INSTALLATION OF IDENTIFYING DEVICES AFTER COMPLETION OF COVERING AND PAINTING WHERE DEVICES ARE APPLIED TO SURFACES. INSTALL IDENTIFYING DEVICES PRIOR TO INSTALLATION OF ACOUSTICAL CEILINGS AND SIMILAR CONCEALMENT.

10.4 EQUIPMENT NAMEPLATES

10.4.1 METAL OR ENGRAVED PLASTIC

10.4.2 NAMEPLATE PERMANENTLY FASTENED TO EQUIPMENT AND HAVING DATA ENGRAVED OR STAMPED.

10.4.3 DATA: MANUFACTURER, PRODUCT NAME, MODEL NUMBER, SERIAL NUMBER, CAPACITY, OPERATING AND POWER CHARACTERISTICS, LABELS OR TESTED COMPLIANCES, AND ESSENTIAL DATA.

10.4.4 LOCATION: AN ACCESSIBLE AND VISIBLE LOCATION

10.4.5 SUBMIT SAMPLES FOR APPROVAL

10.5 PLASTIC PIPE MARKERS: MANUFACTURERS STANDARD PRE-PRINTED, SEMI-RIGID SNAP-ON, COLOR-CODED PIPE MARKERS CONFORMING TO ASME A13.1.

10.6 PRESSURE-SENSITIVE PIPE MARKERS: MANUFACTURERS STANDARD PRE-PRINTED COLOR-CODED, PRESSURE SENSITIVE VINYL PIPE MARKERS, WITH PERMANENT ADHESIVE CONFORMING TO ASME A13.1.

10.7 PIPES SMALLER THAN 6 INCHES: FULL-BAND PIPE MARKERS, EXTENDING 360 DEGREES AROUND PIPE AT EACH LOCATION.

10.8 PLASTIC PIPE MARKERS: MANUFACTURERS STANDARD PRE-PRINTED, SEMI-RIGID SNAP-ON, COLOR-CODED PIPE MARKERS CONFORMING TO ASME A13.1.

10.9 PRESSURE-SENSITIVE PIPE MARKERS: MANUFACTURERS STANDARD PRE-PRINTED COLOR-CODED, PRESSURE SENSITIVE VINYL PIPE MARKERS, WITH PERMANENT ADHESIVE CONFORMING TO ASME A13.1.

10.10 ARROWS: EITHER INTERMEDIATELY WITH PIPING SYSTEM SERVICE LETTERING (TO ACCOMMODATE BOTH DIRECTIONS), OR AS SEPARATE UNIT, ON EACH PIPEMARKER TO INDICATE DIRECTION OF FLOW.

10.11 PLASTIC TAPE: MANUFACTURER'S STANDARD COLOR-CODED, PRESSURE SENSITIVE, SELF-ADHESIVE, VINYL TAPE AT LEAST 3-MILS THICK.

10.12 LITERING: USE PIPING SYSTEM TERMS AS INDICATED AND ABBREVIATE ONLY AS NECESSARY FOR EACH APPLICATION LENGTH.

10.13 LITERING: USE PIPING SYSTEM TERMS AS INDICATED AND ABBREVIATE ONLY AS NECESSARY FOR EACH APPLICATION LENGTH.

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574.1 GENERAL

574.2 TEST MEDIA SHALL BE WATER EXCEPT THAT PLANT AIR, MAY BE USED IF APPROVED BY OWNER OR THIRD PARTY REPRESENTATIVE.

574.3 NO INSULATION SHOULD BE INSTALLED BEFORE TESTING. IF INSULATION IS APPLIED BEFORE TESTING, ALL WELDS AND SCREWED CONNECTIONS SHALL BE LEFT EXPOSED UNTIL TESTING IS COMPLETED.

574.4 TEST MEDIA SHALL BE WATER EXCEPT THAT PLANT AIR, MAY BE USED IF APPROVED BY OWNER OR THIRD PARTY REPRESENTATIVE.

574.5 NO INSULATION SHOULD BE INSTALLED BEFORE TESTING. IF INSULATION IS APPLIED BEFORE TESTING, ALL WELDS AND SCREWED CONNECTIONS SHALL BE LEFT EXPOSED UNTIL TESTING IS COMPLETED.

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574.8 TEST MEDIA SHALL BE WATER EXCEPT THAT PLANT AIR, MAY BE USED IF APPROVED BY OWNER OR THIRD PARTY REPRESENTATIVE.

574.9 NO INSULATION SHOULD BE INSTALLED BEFORE TESTING. IF INSULATION IS APPLIED BEFORE TESTING, ALL WELDS AND SCREWED CONNECTIONS SHALL BE LEFT EXPOSED UNTIL TESTING IS COMPLETED.

574.10 TEST MEDIA SHALL BE WATER EXCEPT THAT PLANT AIR, MAY BE USED IF APPROVED BY OWNER OR THIRD PARTY REPRESENTATIVE.

574.11 NO INSULATION SHOULD BE INSTALLED BEFORE TESTING. IF INSULATION IS APPLIED BEFORE TESTING, ALL WELDS AND SCREWED CONNECTIONS SHALL BE LEFT EXPOSED UNTIL TESTING IS COMPLETED.

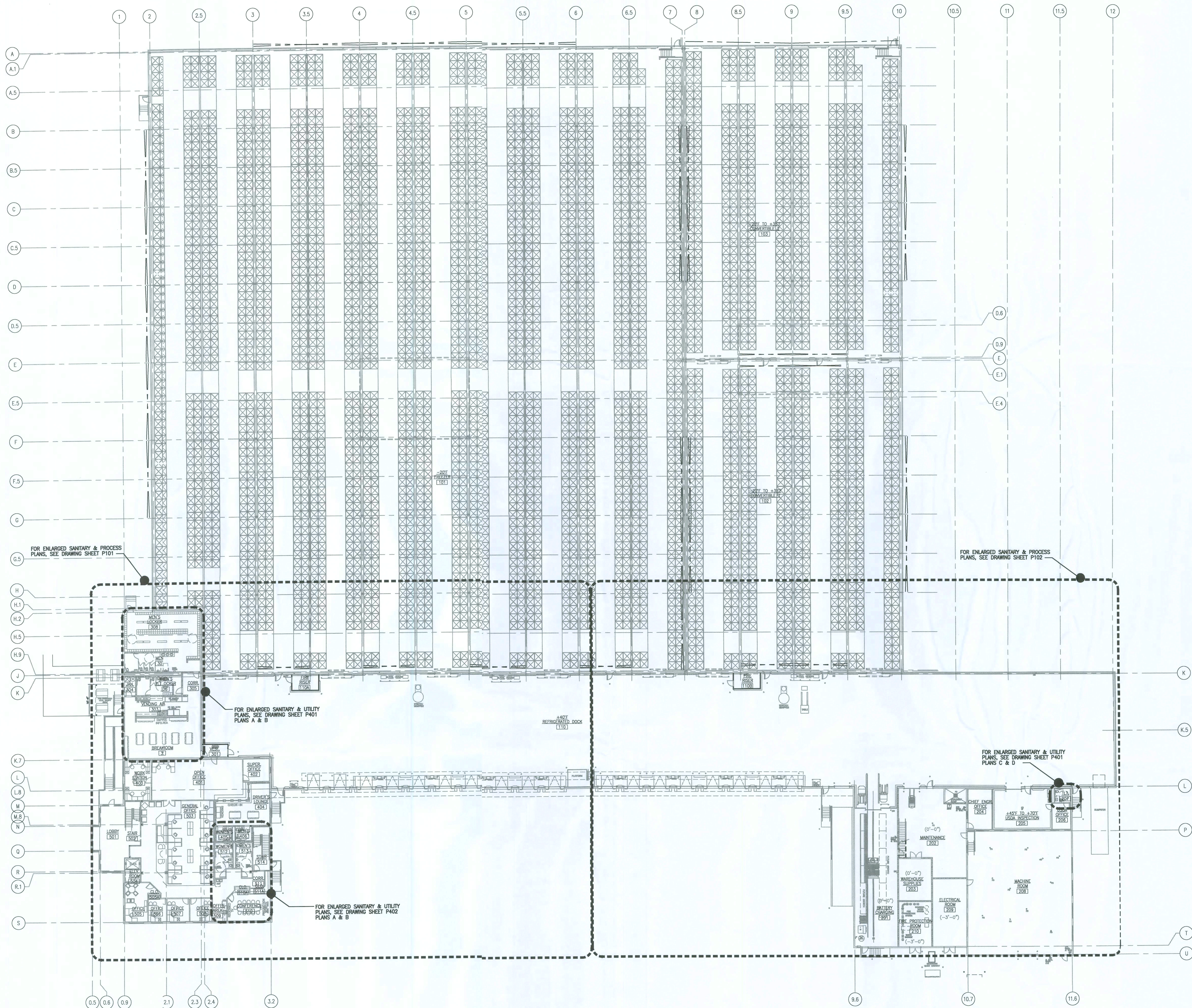
574.12 TEST MEDIA SHALL BE WATER EXCEPT THAT PLANT AIR, MAY BE USED IF APPROVED BY OWNER OR THIRD PARTY REPRESENTATIVE.

574.13 NO INSULATION SHOULD BE INSTALLED BEFORE TESTING. IF INSULATION IS APPLIED BEFORE TESTING, ALL WELDS AND SCREWED CONNECTIONS SHALL BE LEFT EXPOSED UNTIL TESTING IS COMPLETED.

574.14 TEST MEDIA SHALL BE WATER EXCEPT THAT PLANT AIR, MAY BE USED IF APPROVED BY OWNER OR THIRD PARTY REPRESENTATIVE.

574.15 NO INSULATION SHOULD BE INSTALLED BEFORE TESTING. IF INSULATION IS APPLIED BEFORE TESTING, ALL WELDS AND SCREWED CONNECTIONS SHALL BE LEFT EXPOSE

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OVERALL FLOOR PLAN

SCALE: 1" = 20'-0"



[Signature]
05-71-07

UNITED STATES COLD STORAGE, INC.
NEW FACILITY
LAKE CITY, FLORIDA

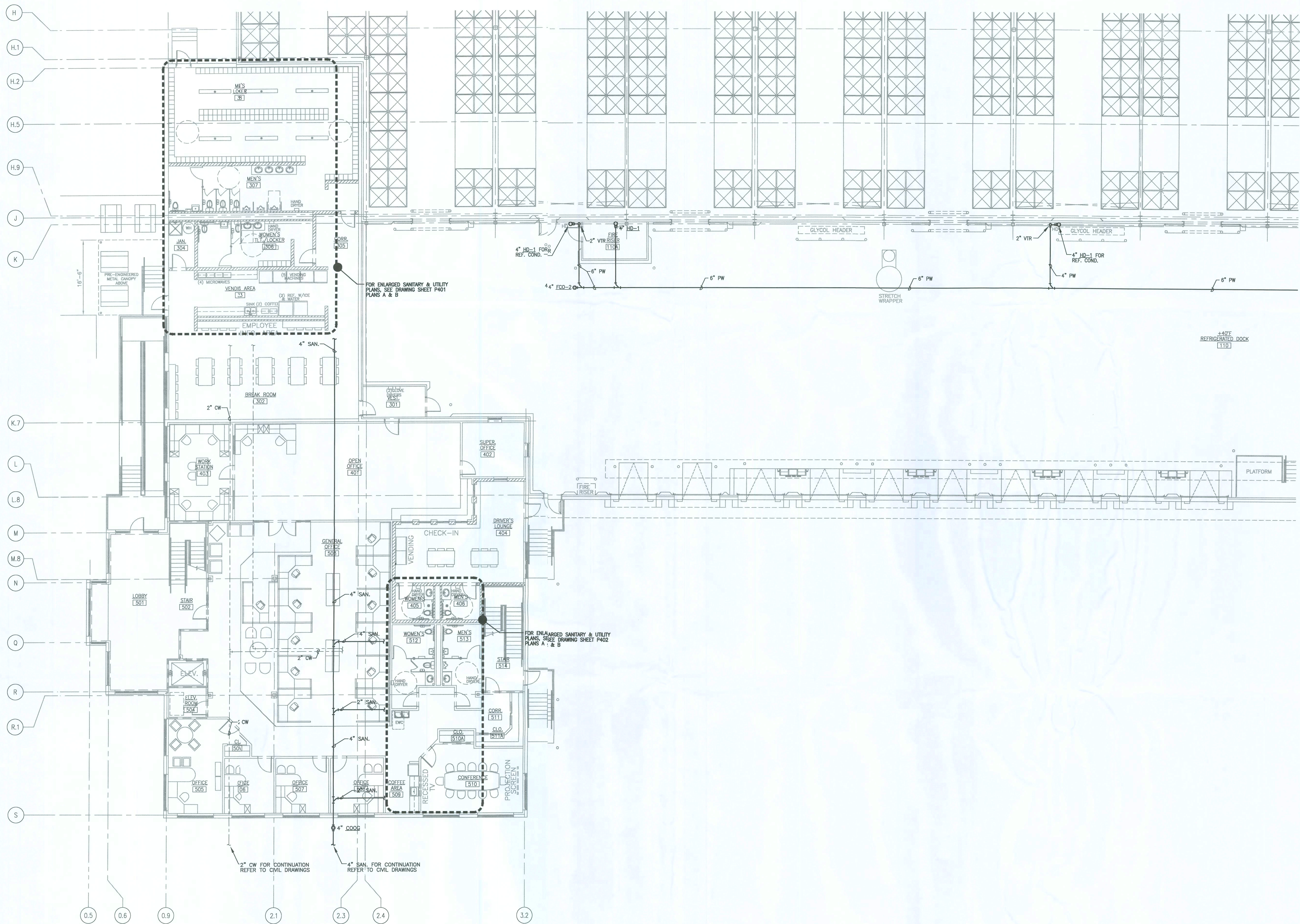
OVERALL
FLOOR
PLAN

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REV.	DATE	BY	DESCRIPTION
B	05/22/07	LRA	PERMIT ISSUE
A	04/27/07	LRA	OWNER REVIEW

JOB NO. 710 03019
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P100
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ENLARGED SANITARY &
PROCESS PIPING FLOOR PLAN

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

0' 2' 4' 8' 16'

FOR CONTINUATION SEE DRAWING P102

UNITED STATES COLD STORAGE, INC
NEW FACILITY
LAKE CITY, FLORIDA

ENLARGED
SANITARY &
PROCESS
PIPING
FLOOR
PLAN

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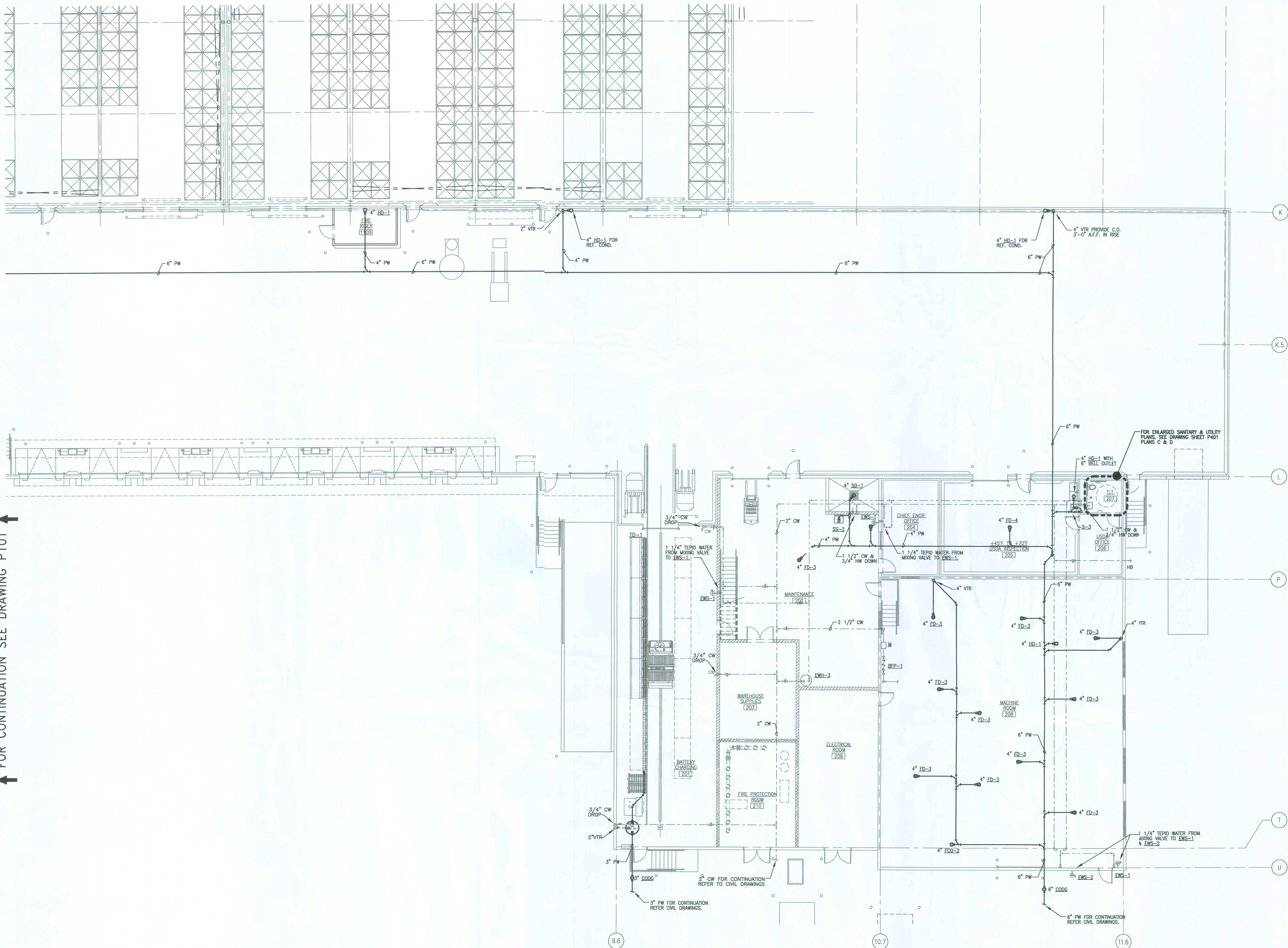
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P101
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↑ FOR CONTINUATION SEE DRAWING P101



ENLARGED SANITARY &
PROCESS PIPING FLOOR PLAN

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

0' 2' 4' 8' 16'



UNITED STATES COLD STORAGE, INC
NEW FACILITY
LAKE CITY, FLORIDA

ENLARGED
SANITARY &
PROCESS
PIPING
FLOOR
PLAN

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B	05/22/07	LRA	OWNER REVIEW

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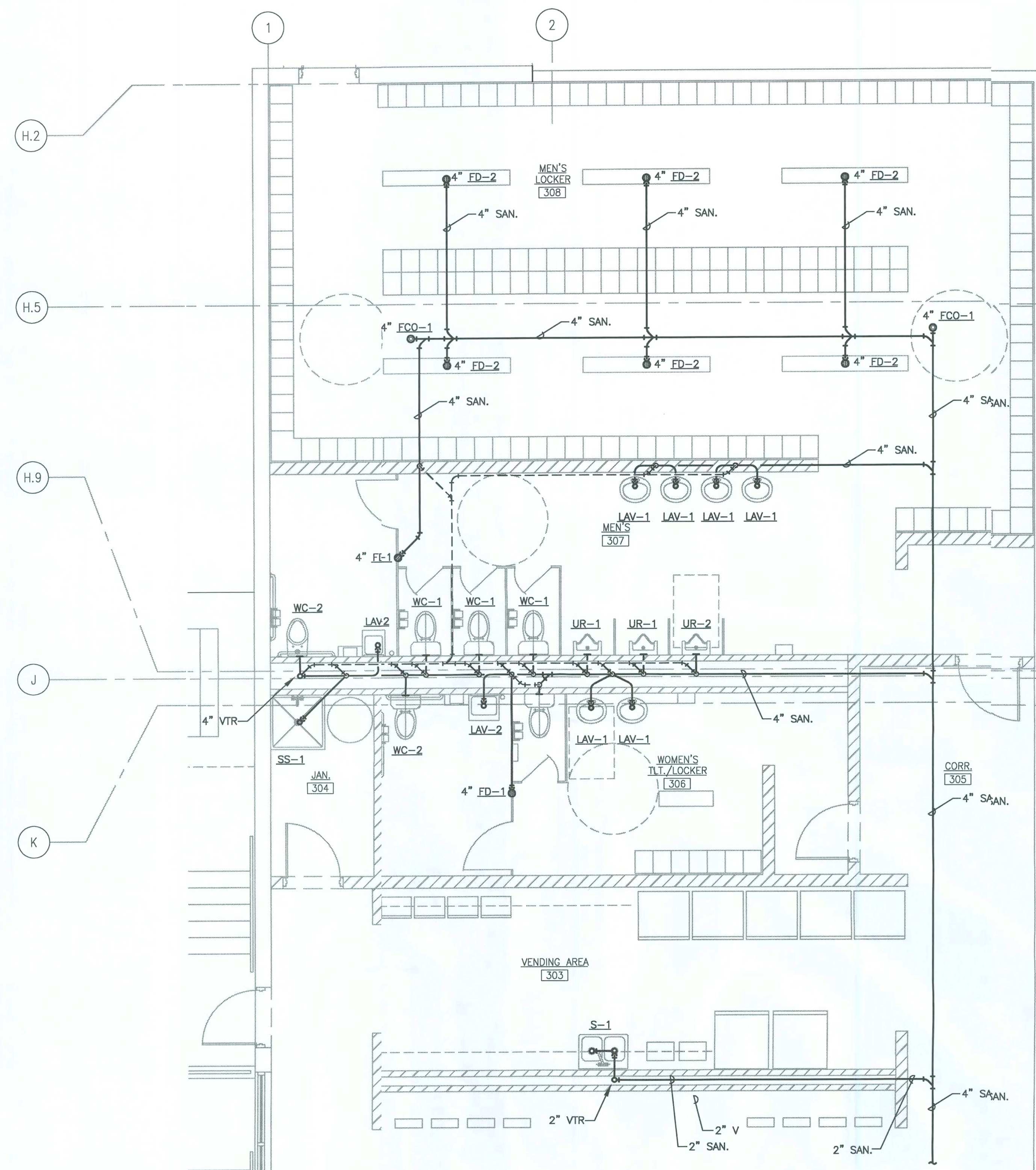
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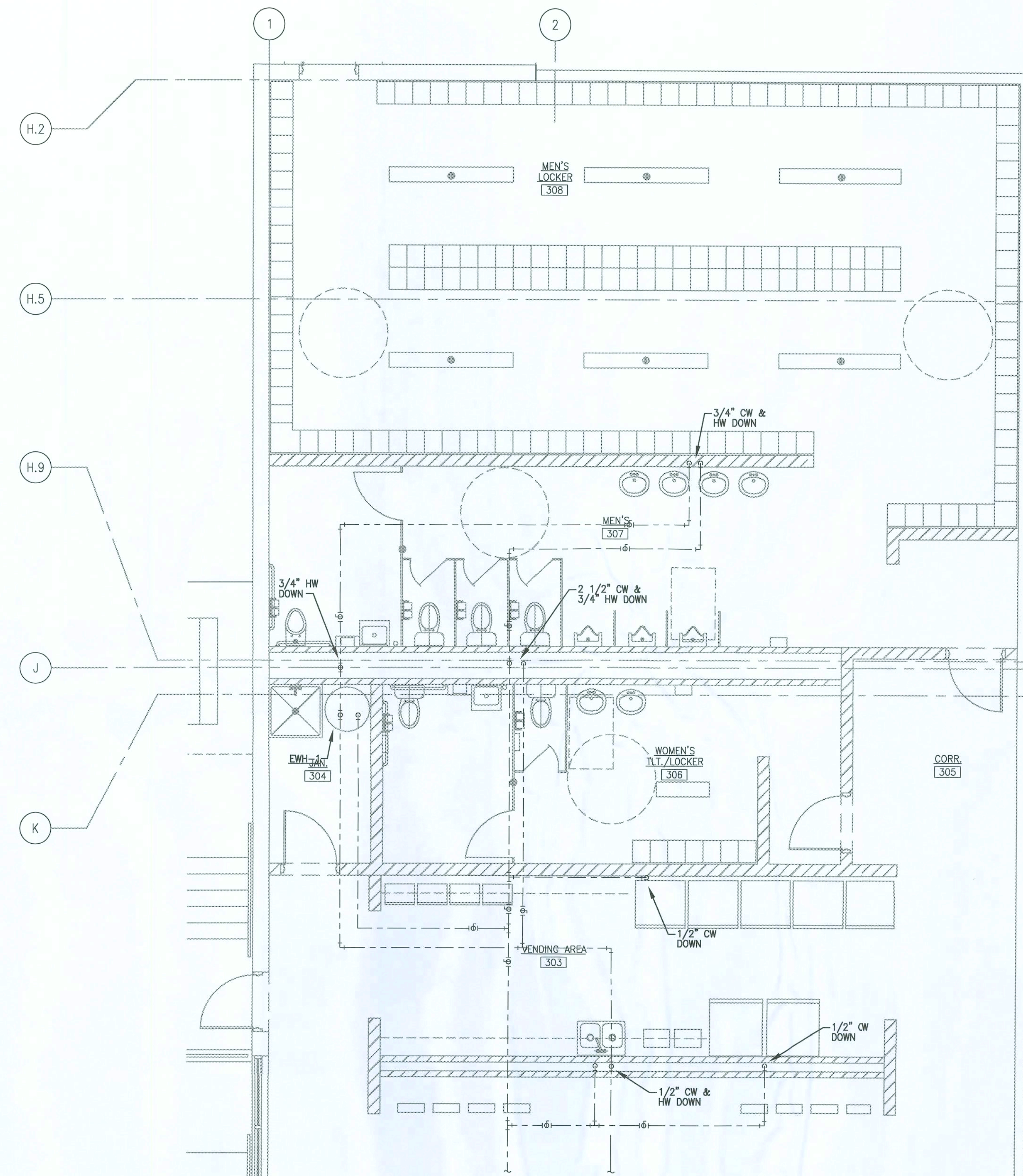
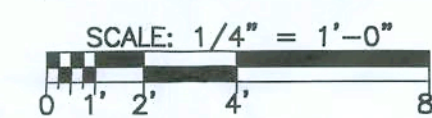
P102
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Stellar
OPERATING AS THE STELLAR GROUP
2800 HARTLEY ROAD, SUITE 200
FLORIDA, 33509-1000
TEL: 256-260-2900
WWW.STELLAR.NET
FLORIDA LICENSE NO. A-0000112
FLORIDA PROFESSIONAL ENGINEER

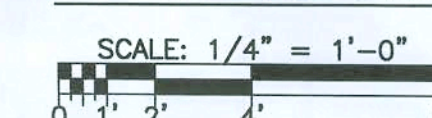
W. J. [Signature]
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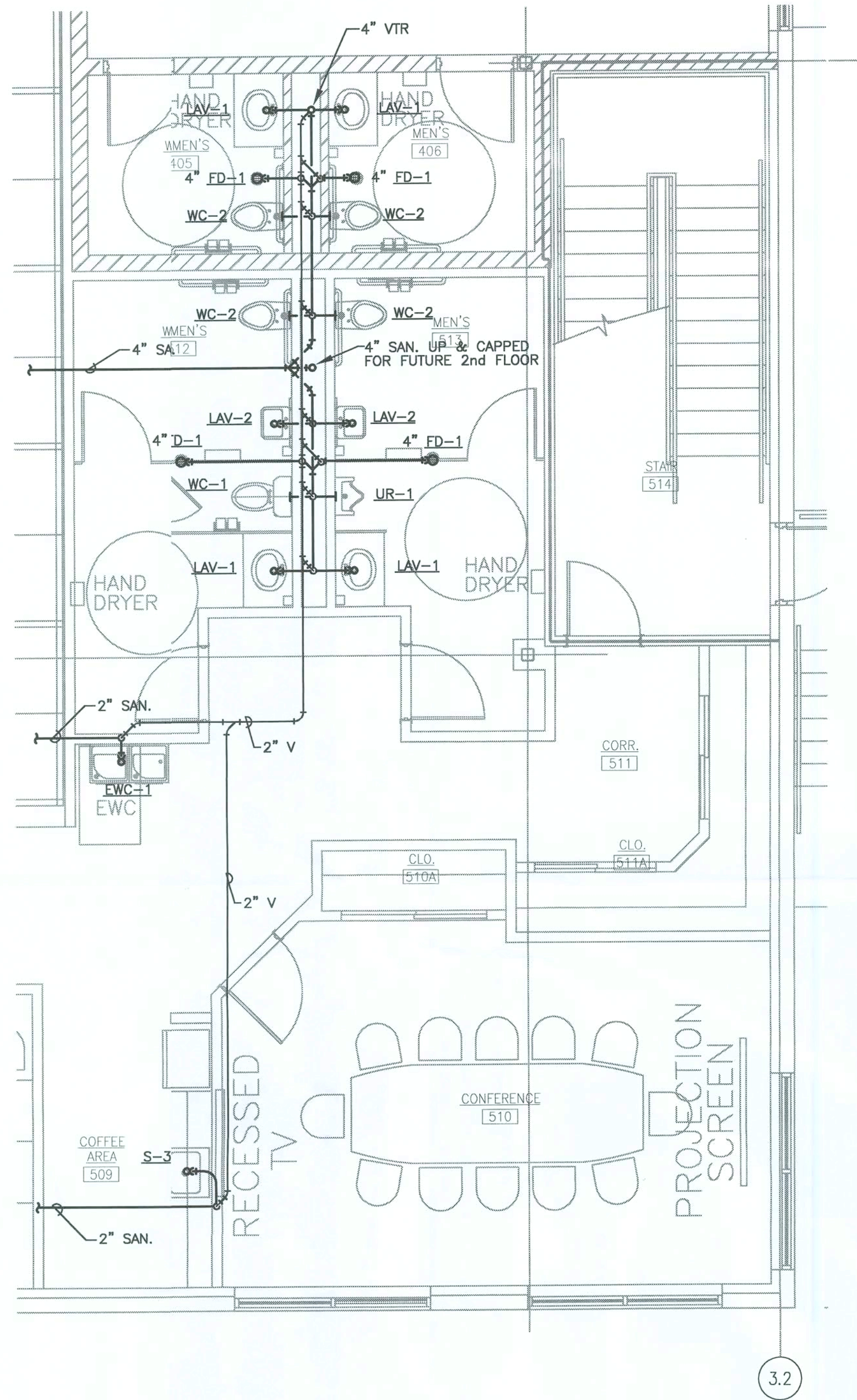
(1) ENLARGED SANITARY FLOOR
PLAN ROOMS #303-308



(B) ENLARGED UTILITY FLOOR
PLAN ROOMS #303-308

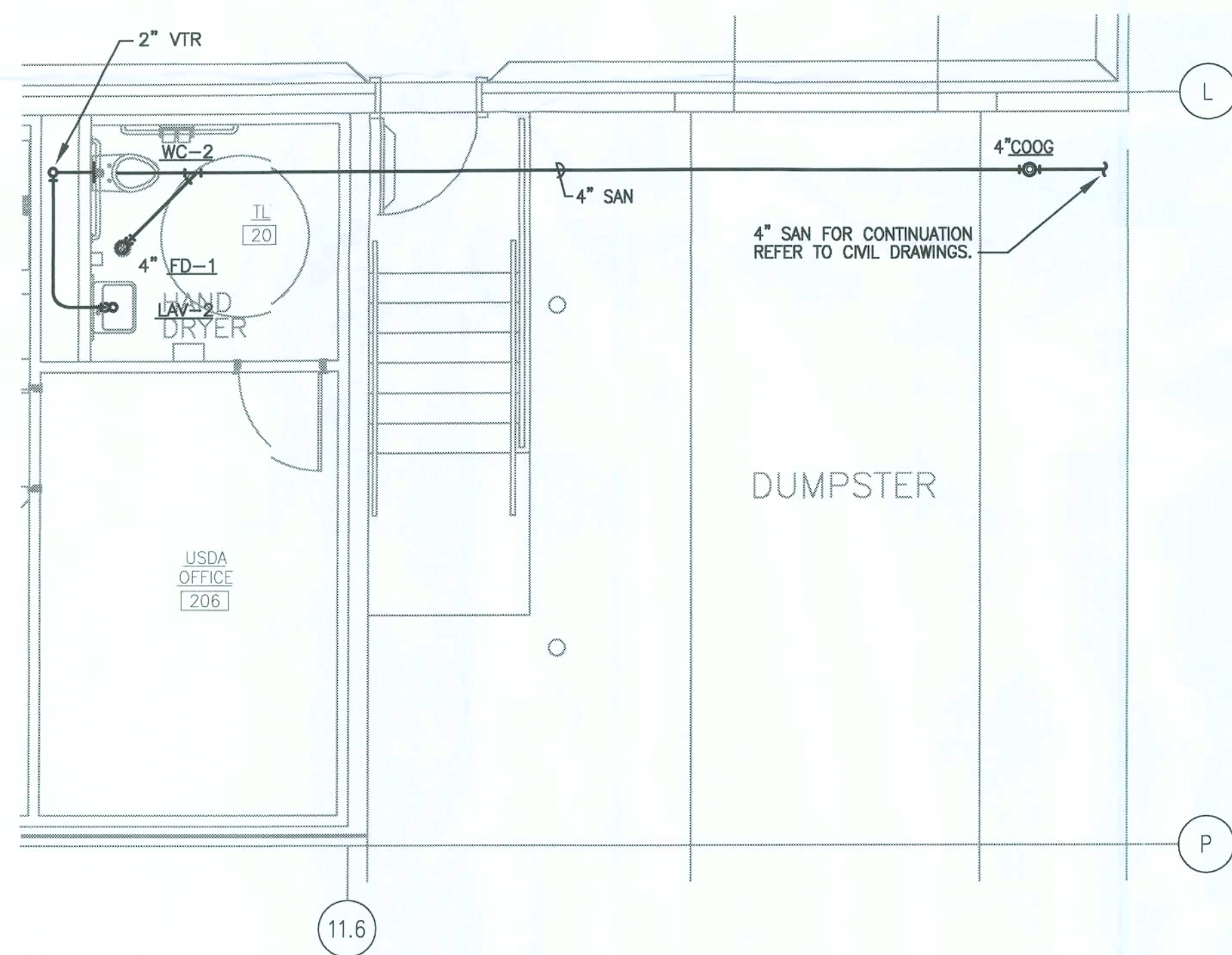


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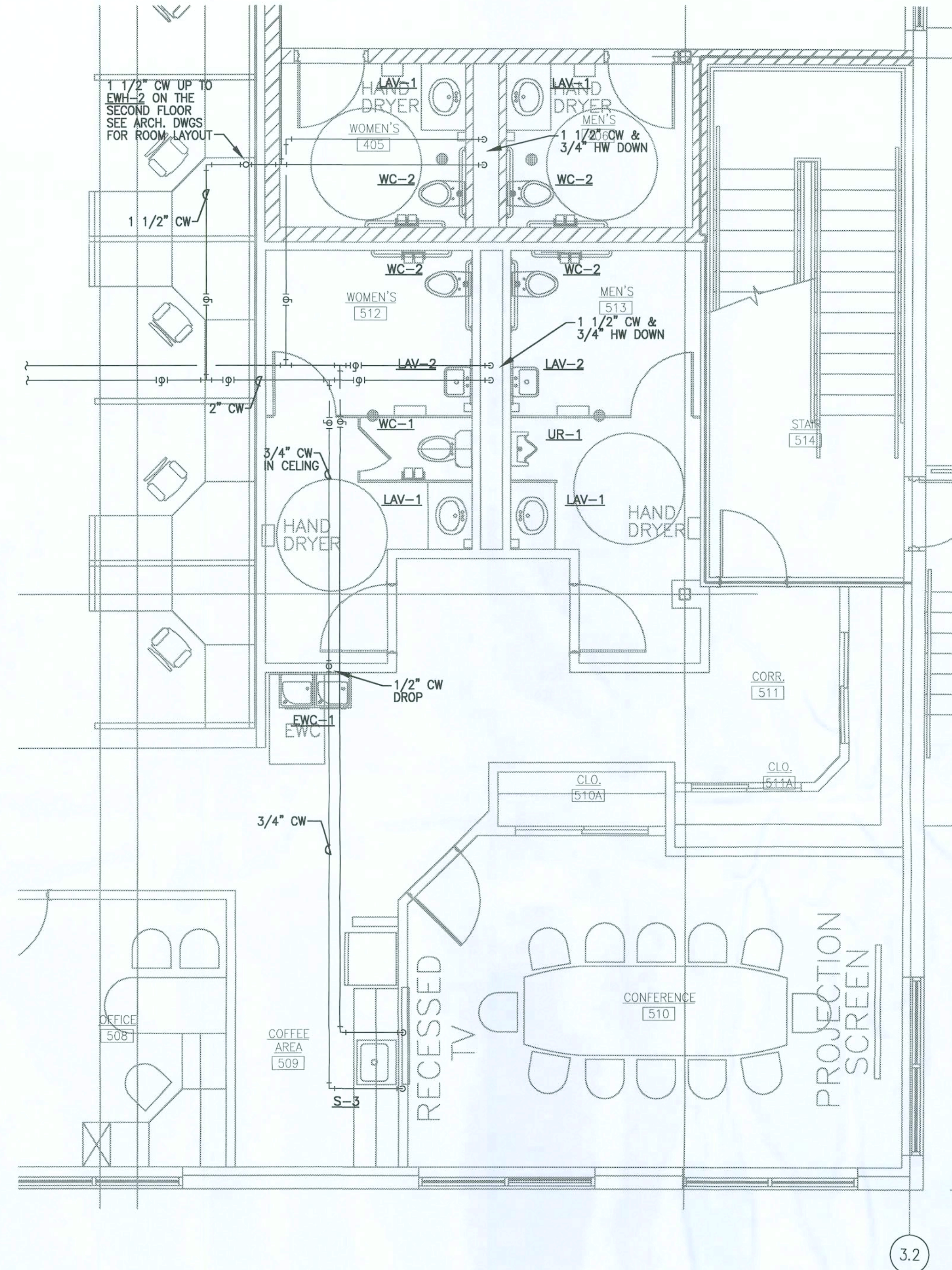
(A) ENLARGED SANITARY FLOOR PLAN

SCALE: 1/4" = 1'-0"



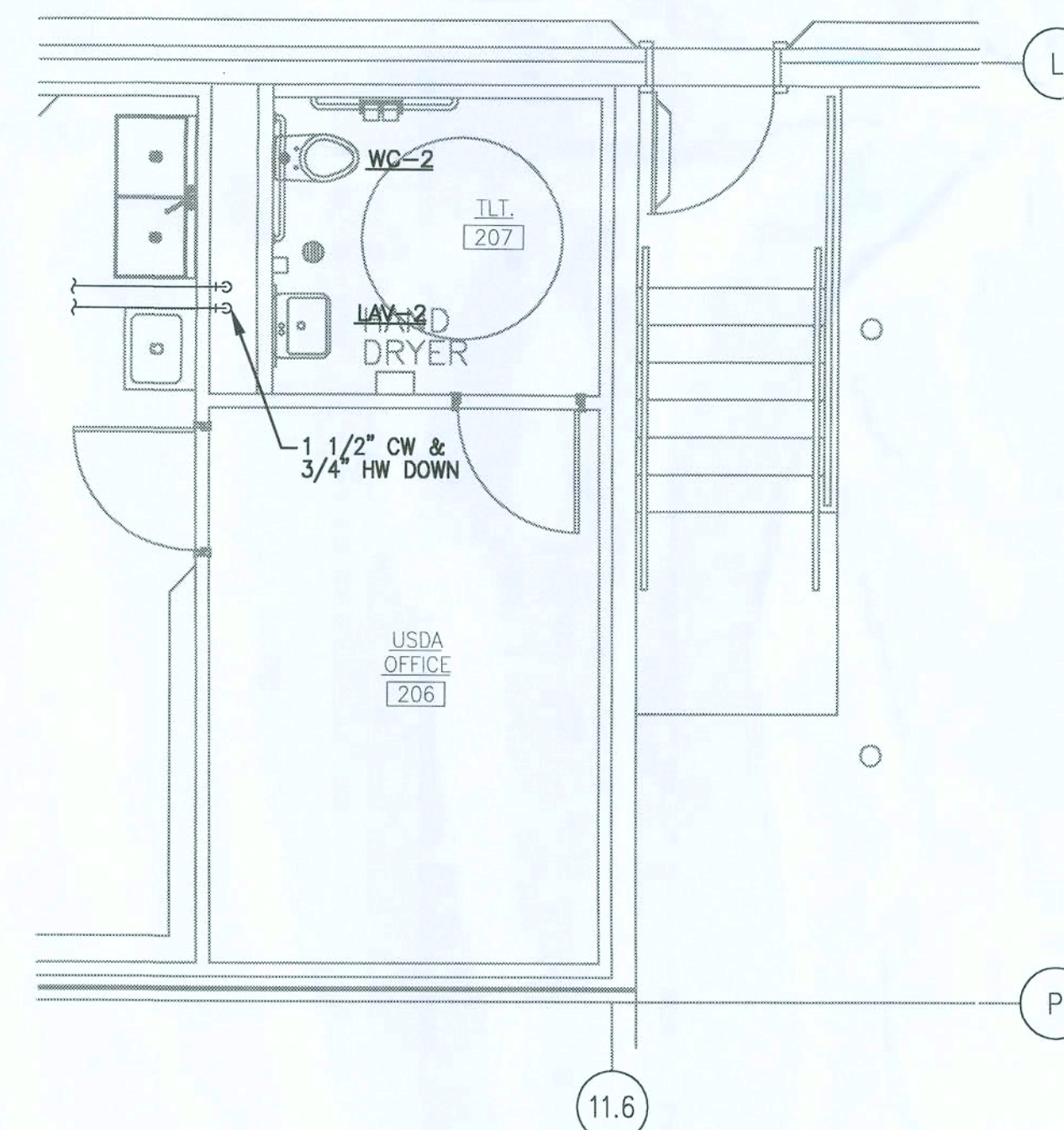
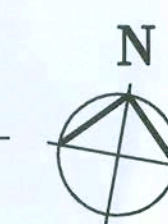
(C) ENLARGED SANITARY FLOOR PLAN

SCALE: 1/4" = 1'-0"



(B) ENLARGED UTILITY FLOOR PLAN

SCALE: 1/4" = 1'-0"



(D) ENLARGED UTILITY FLOOR PLAN

SCALE: 1/4" = 1'-0"



W. L. L. V.
05-22-07

UNITED STATES COLD STORAGE, INC
NEW FACILITY
LAKE CITY, FLORIDA

ENLARGED
SANITARY
& UTILITY
FLOOR
PLANS

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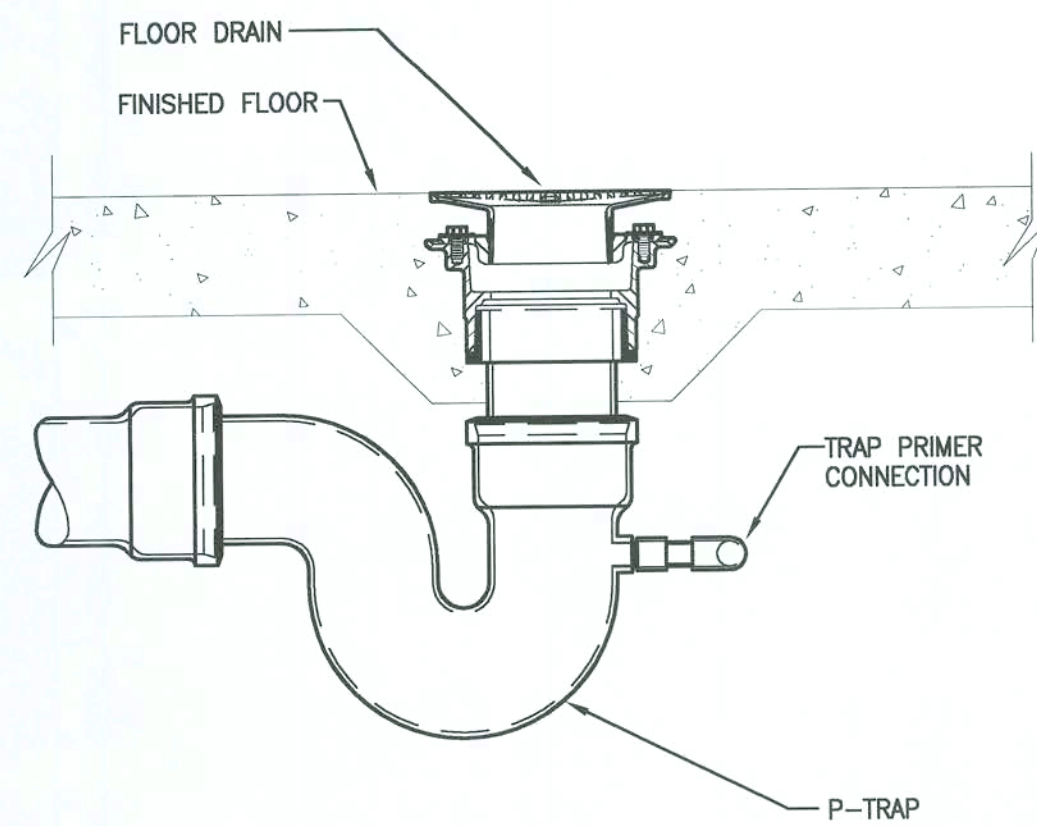
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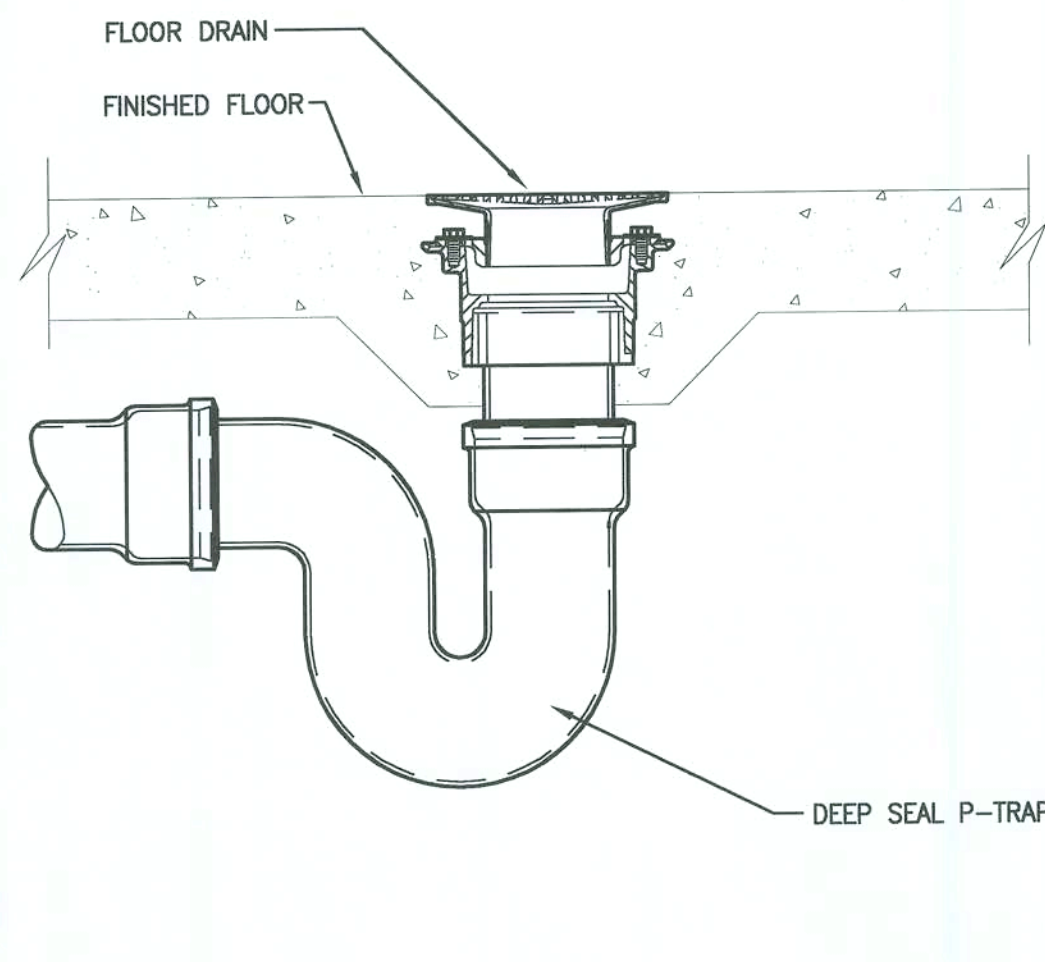
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FLOOR DRAIN (FD-1)

SCALE: N.T.S.

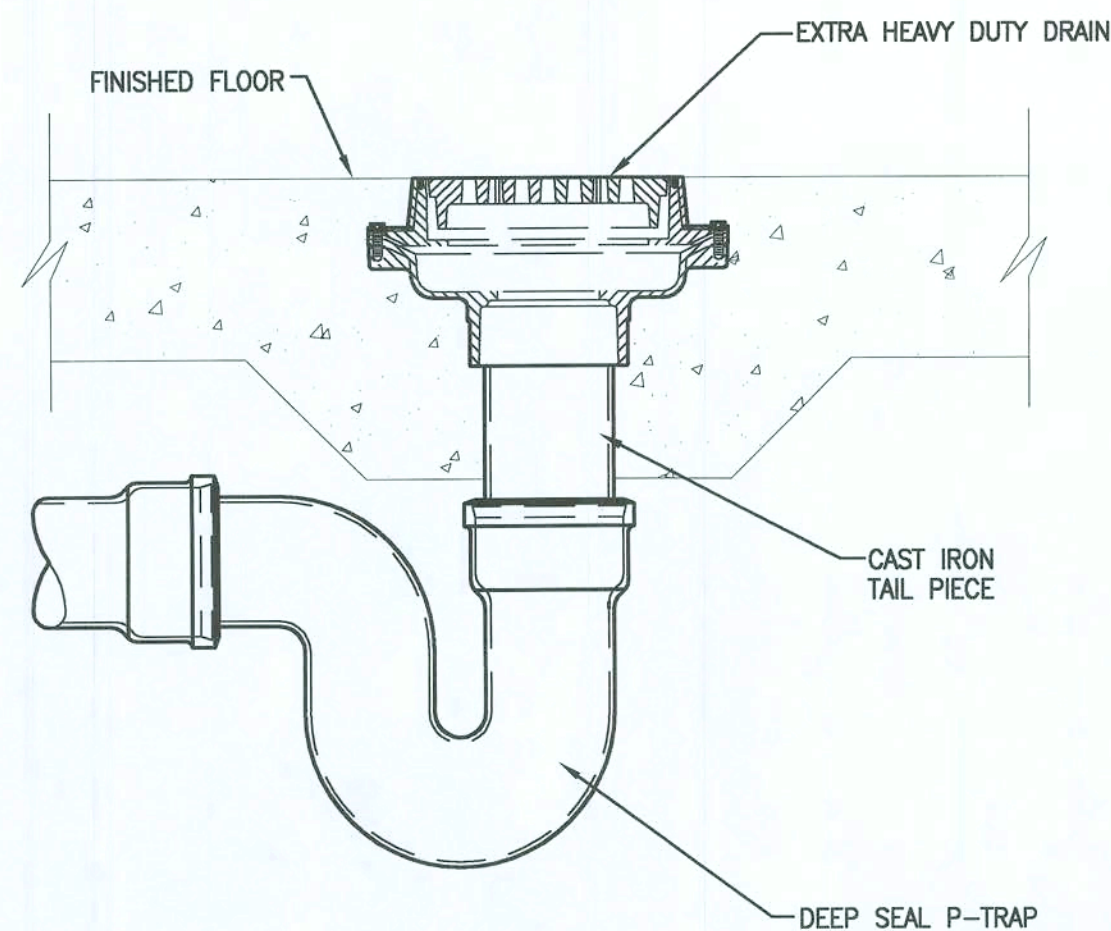
1



FLOOR DRAIN (FD-2)

SCALE: N.T.S.

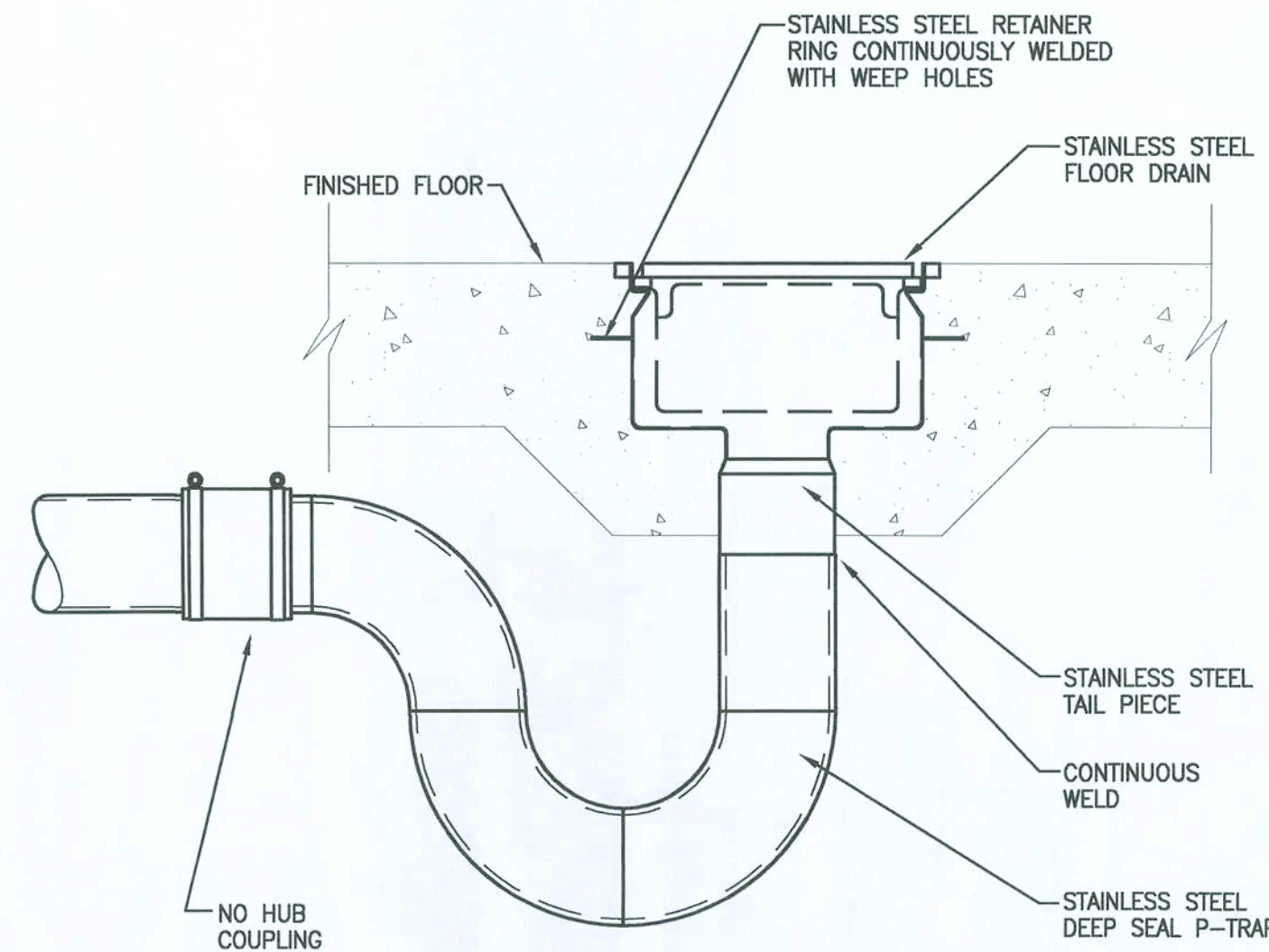
2



FLOOR DRAIN (FD-3)

SCALE: N.T.S.

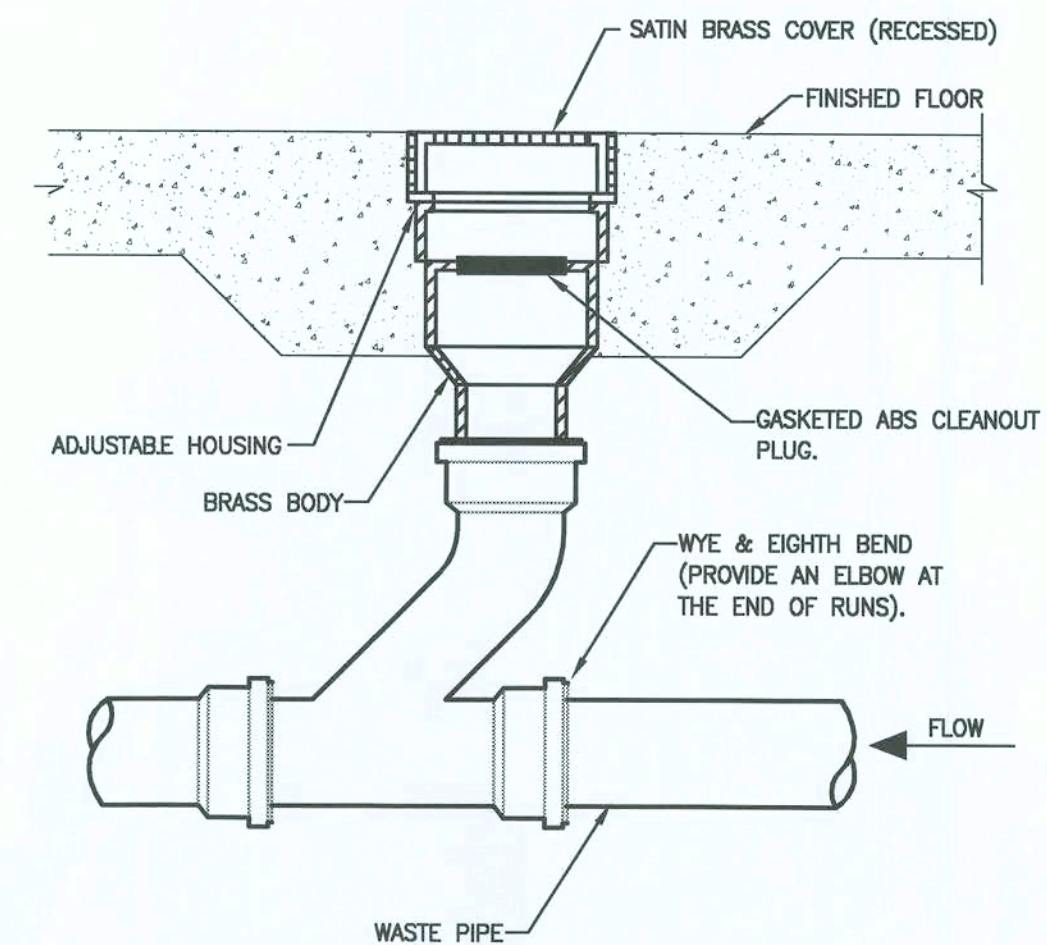
3



FLOOR DRAIN (FD-4)

SCALE: N.T.S.

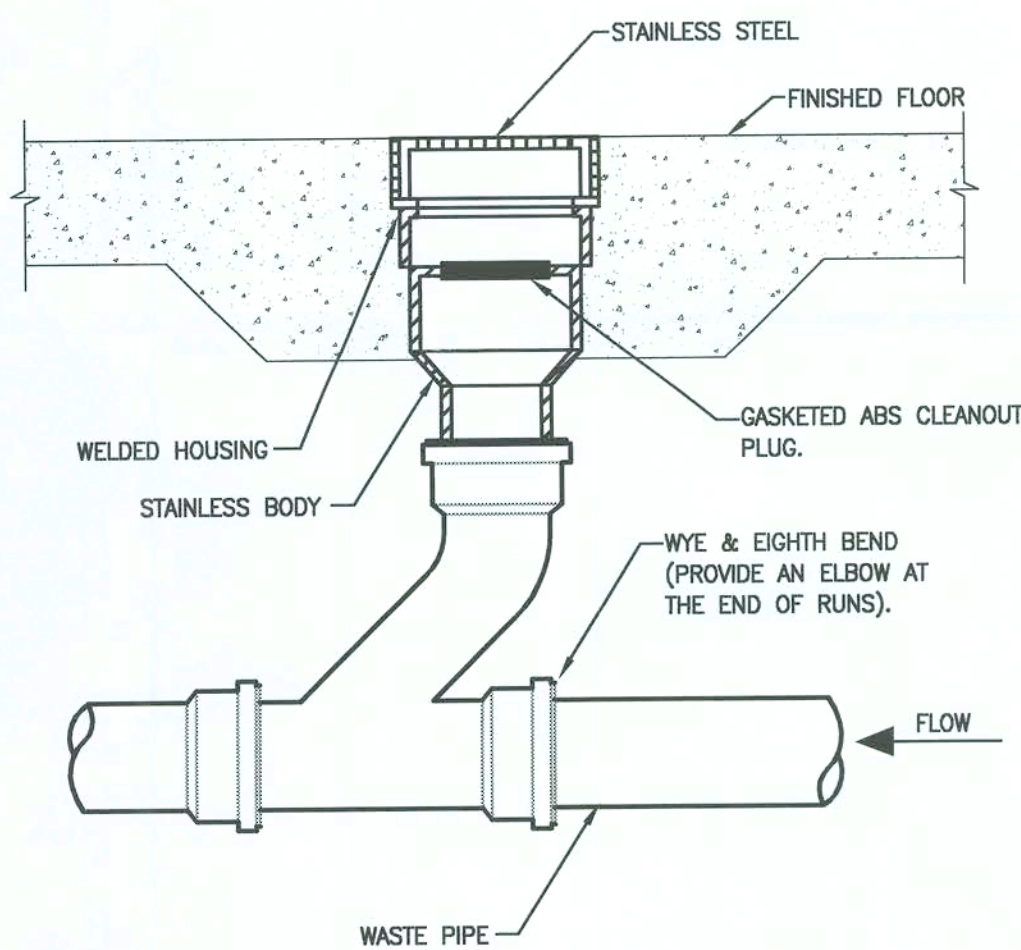
4



FLOOR CLEANOUT (FCO-1)

SCALE: N.T.S.

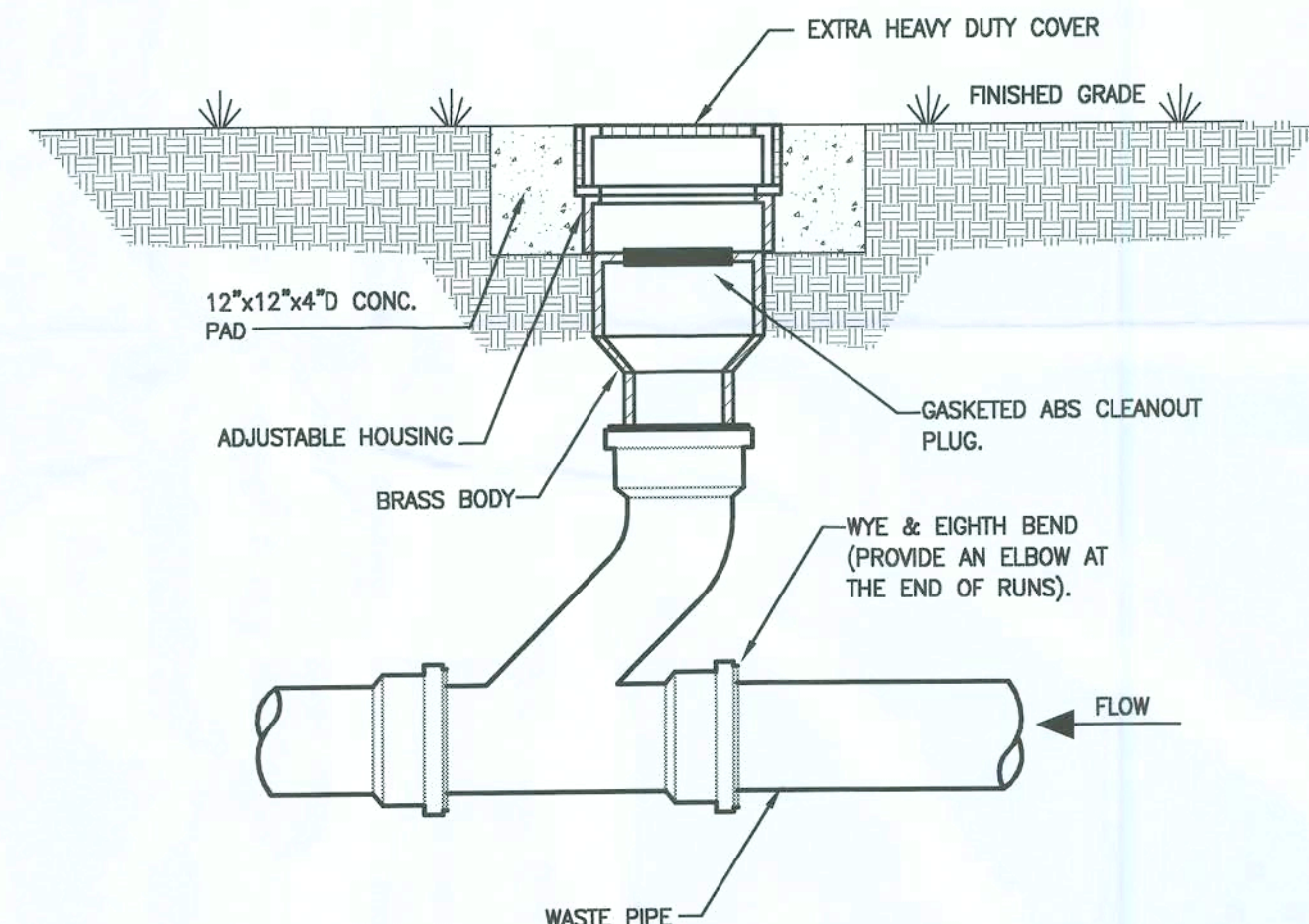
5



FLOOR CLEANOUT (FCO-2)

SCALE: N.T.S.

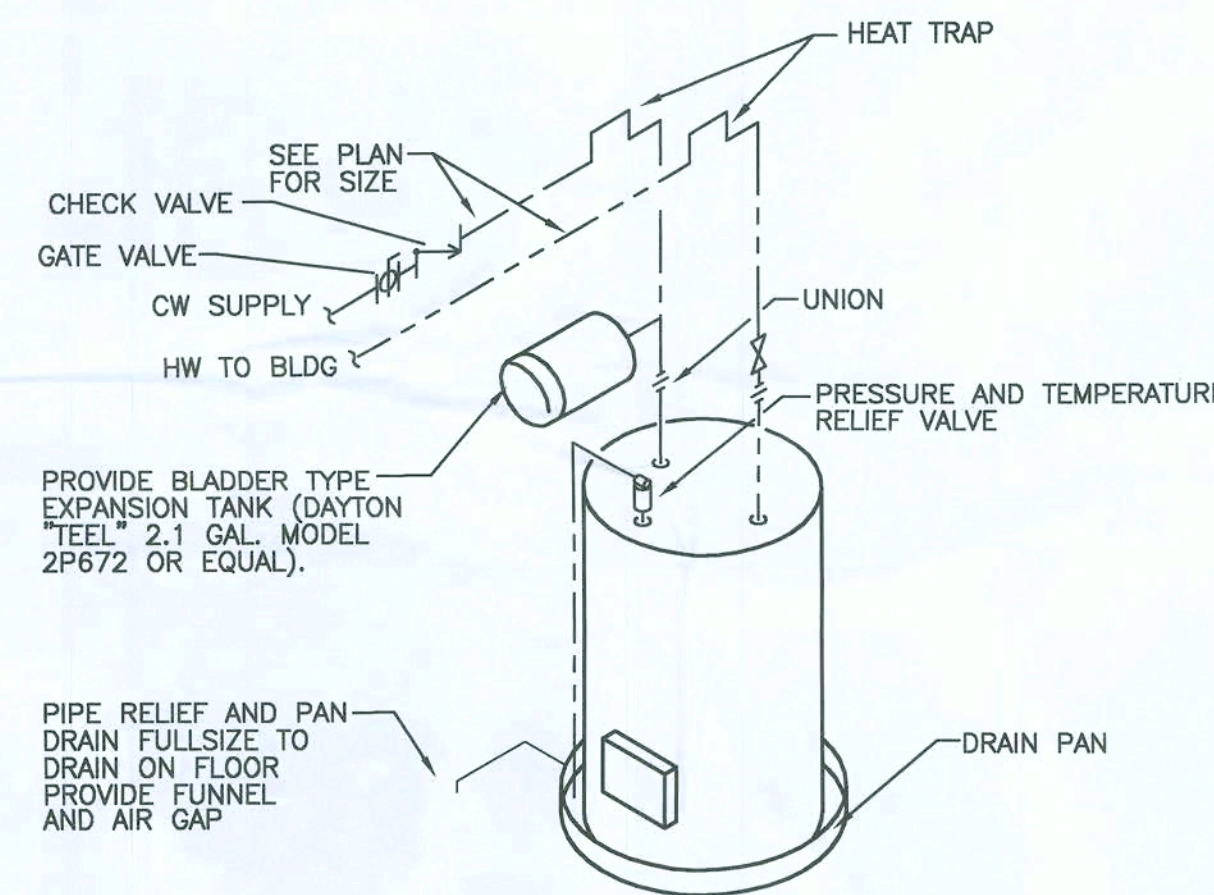
6



CLEANOUT ON GRADE (COOG)

SCALE: N.T.S.

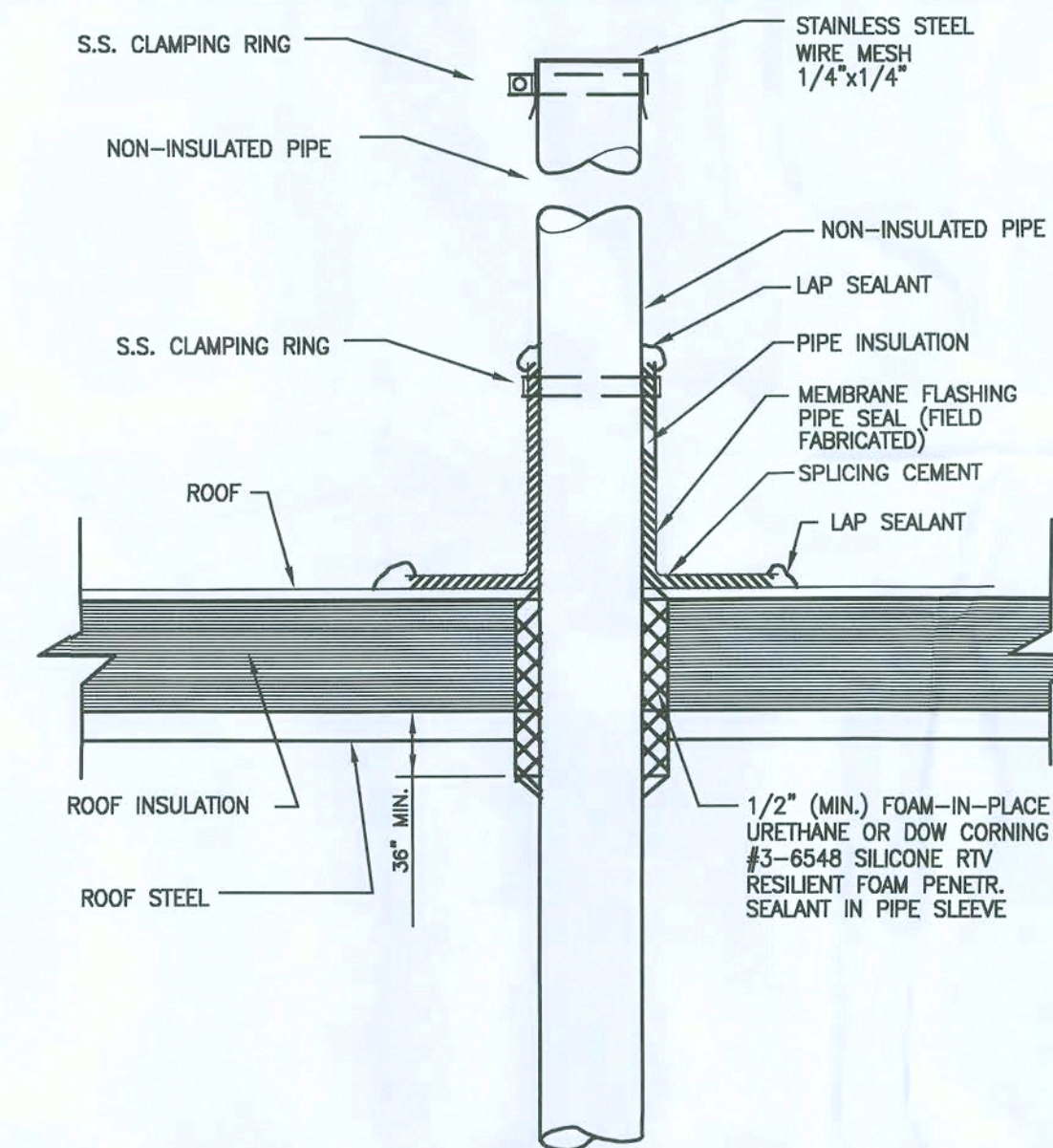
7



ELECTRIC WATER HEATER PIPING DETAIL

SCALE: N.T.S.

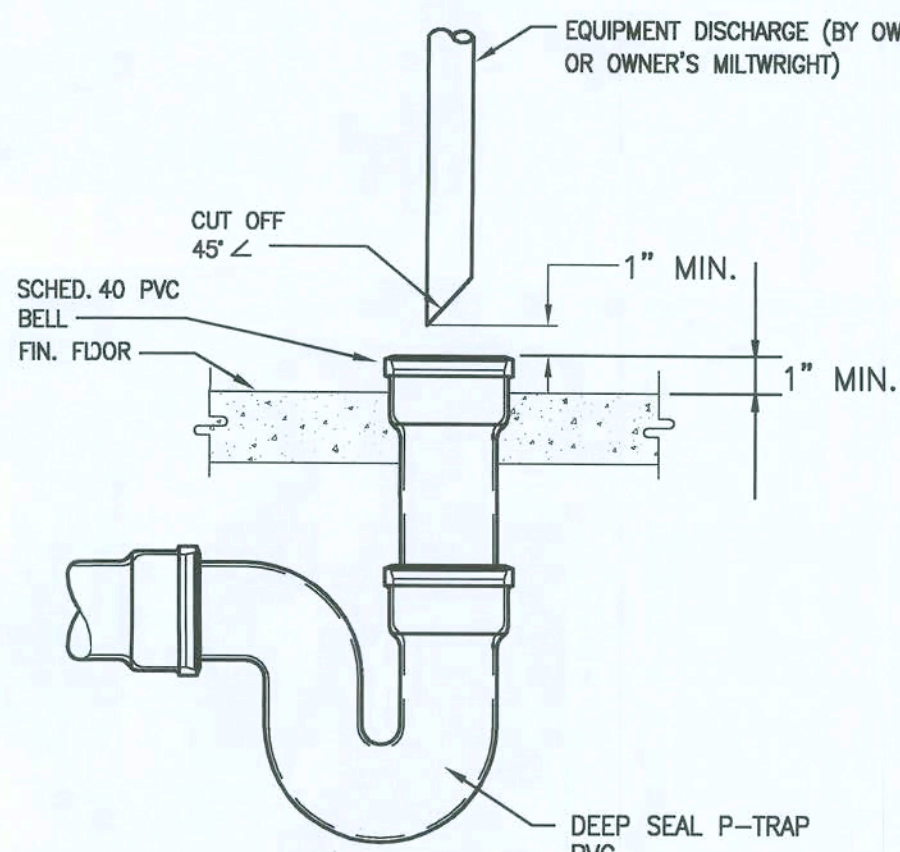
8



VENT THRU ROOF

SCALE: N.T.S.

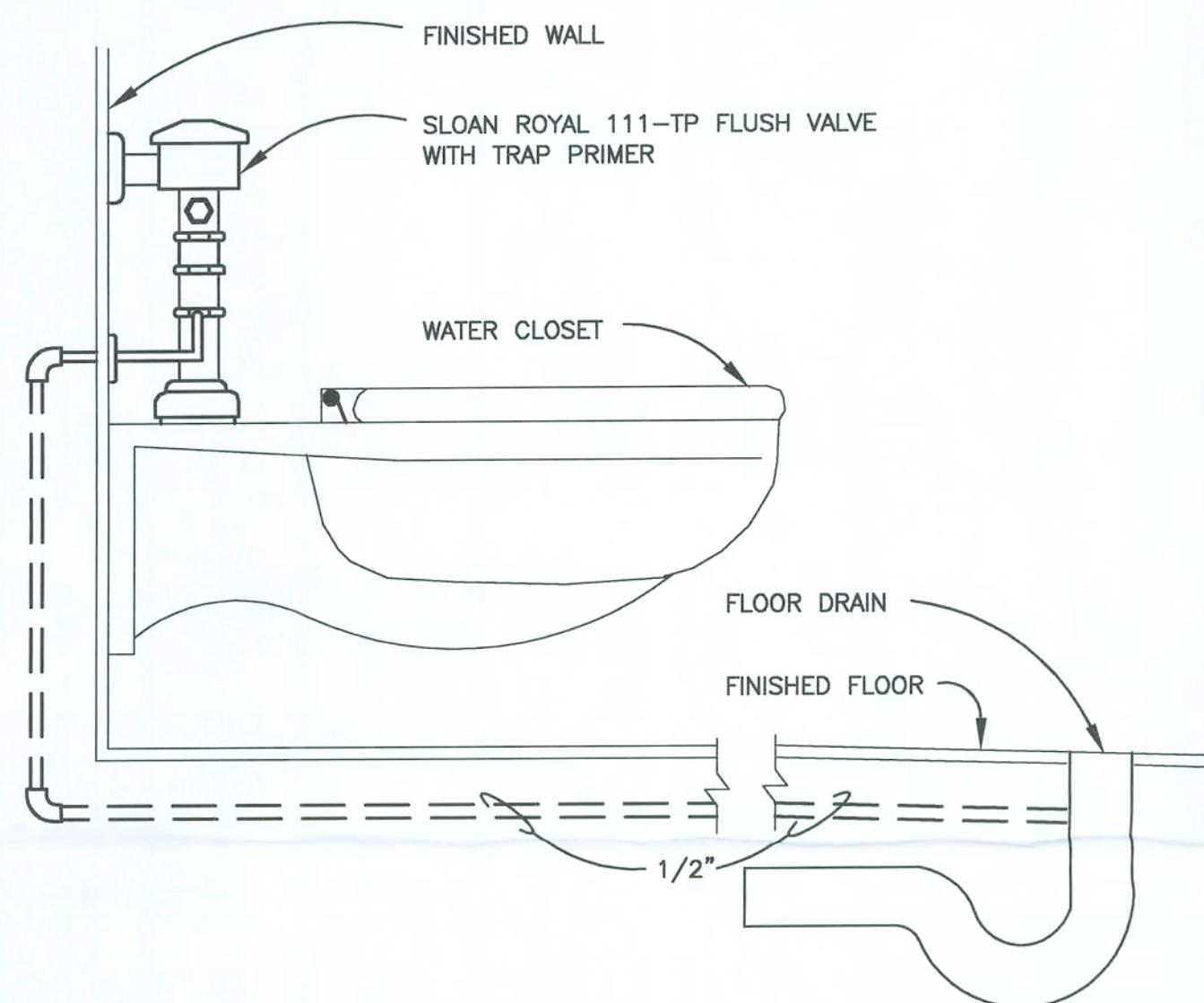
9



HUB DRAIN (HD-1)

SCALE: N.T.S.

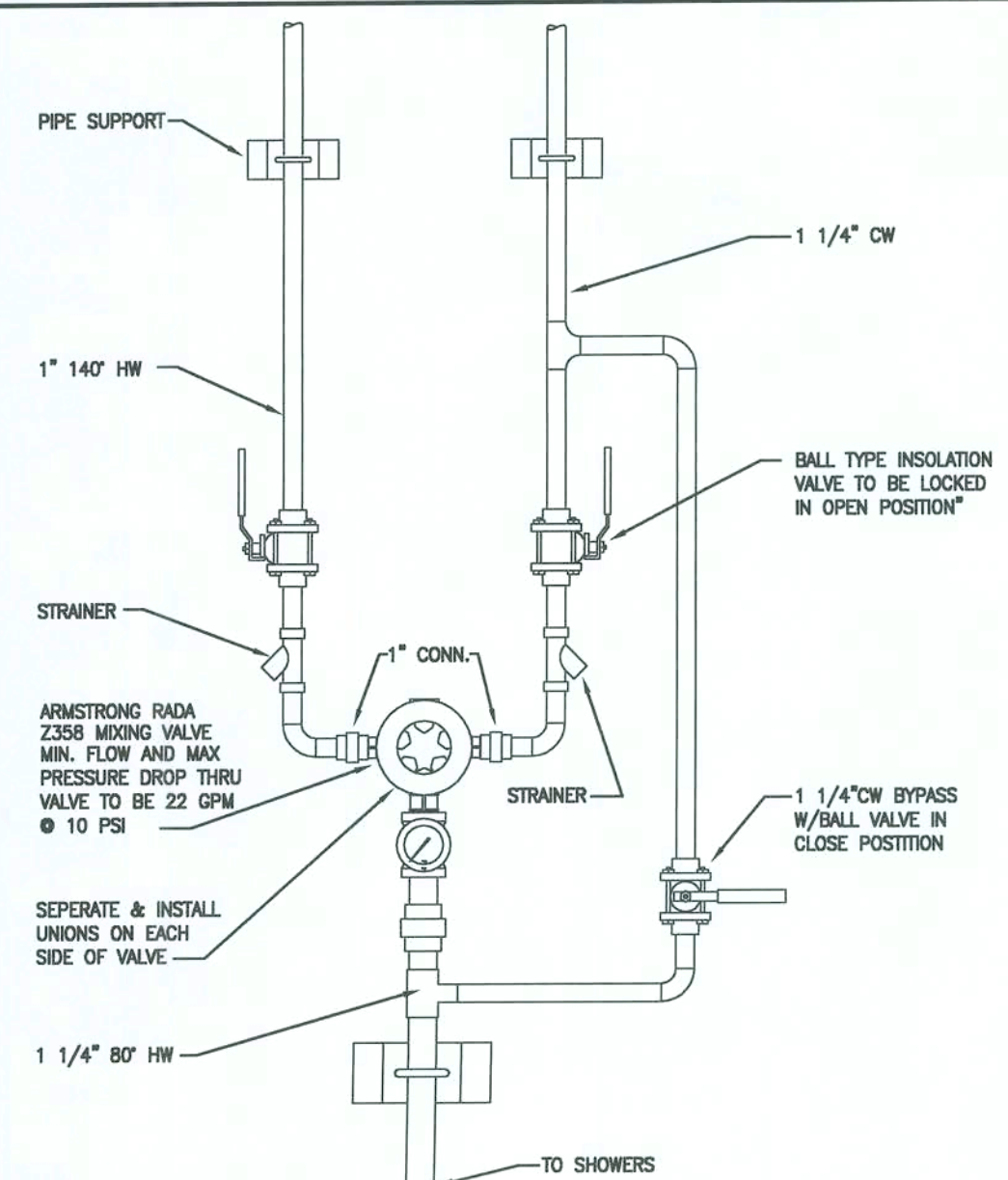
10



TRAP PRIMER DETAIL

SCALE: N.T.S.

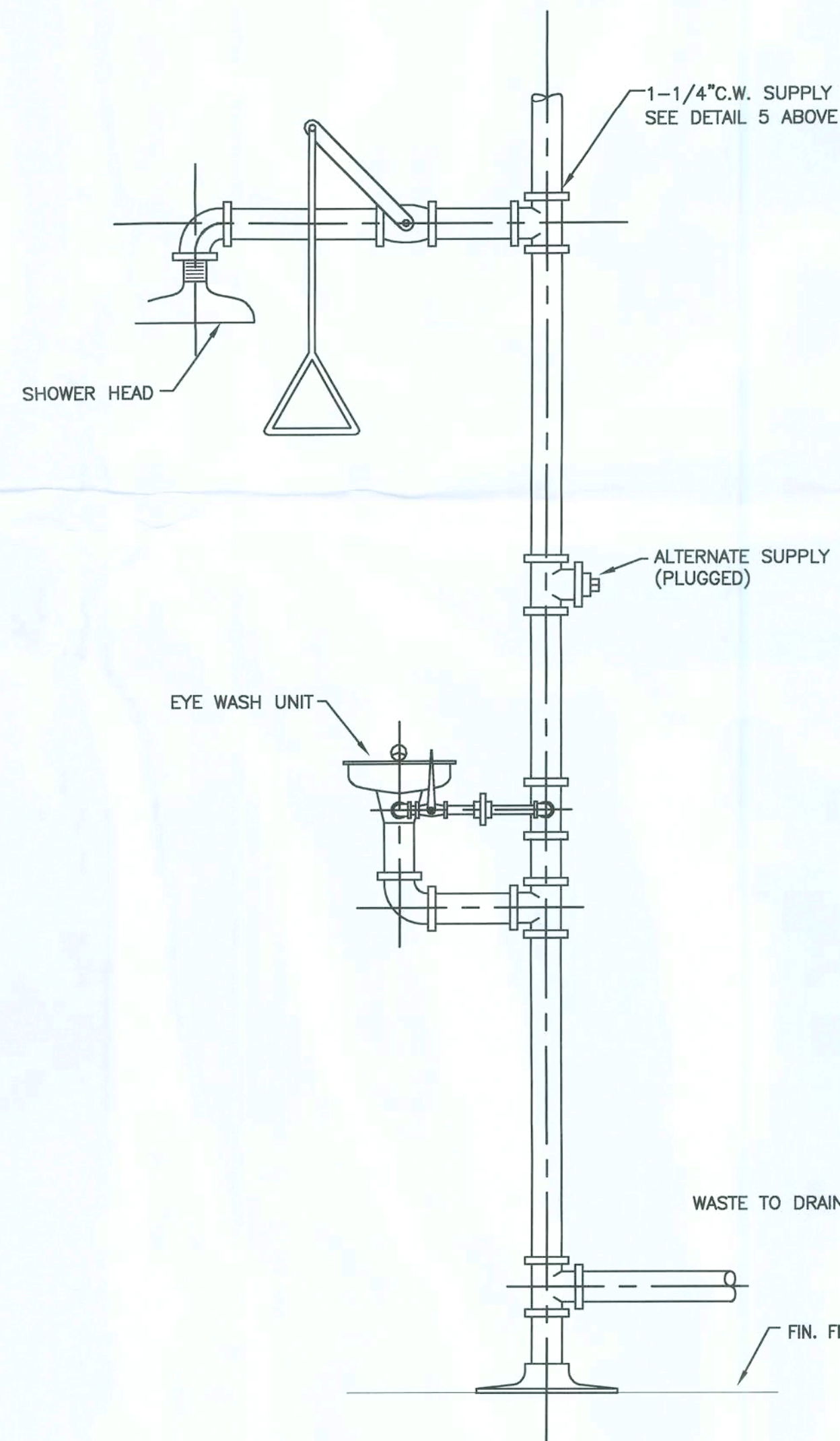
11



EMERGENCY SHOWER TEPID WATER

SCALE: N.T.S.

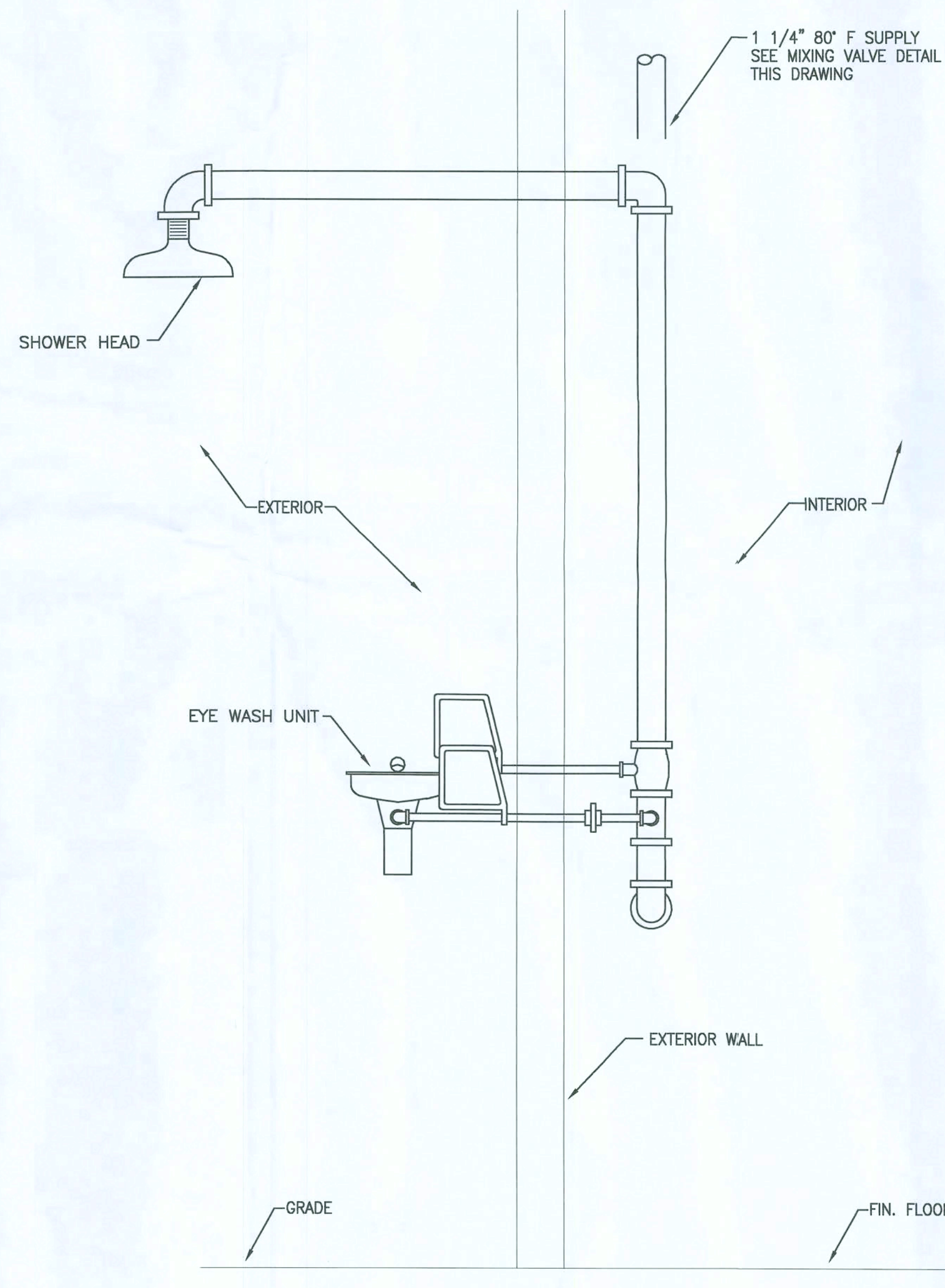
16



EMERGENCY SHOWER, EYE/
FACE WASH (EWS-1)

SCALE: N.T.S.

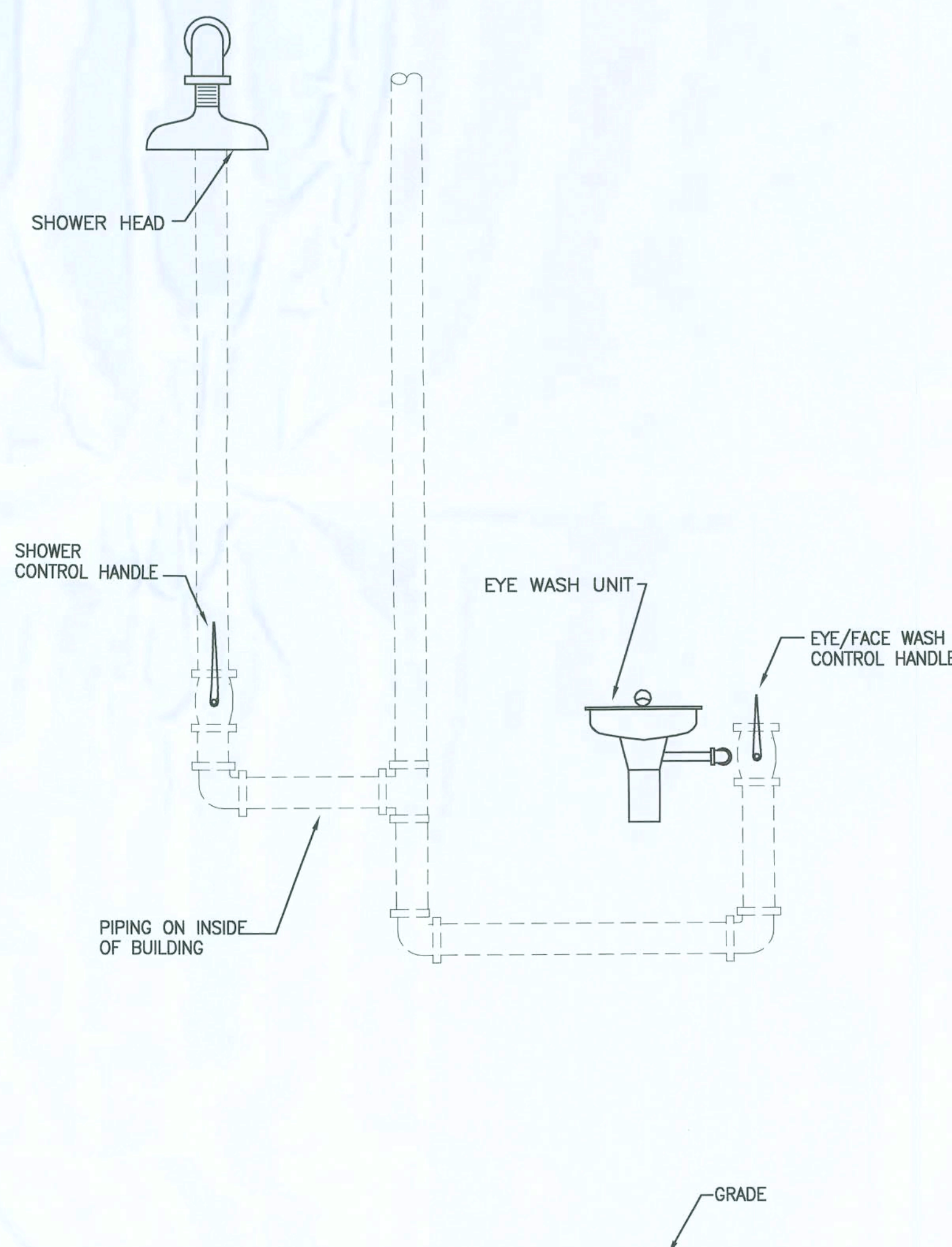
17



EMERGENCY SHOWER, EYE/FACE WASH (EWS-2)

SCALE: N.T.S.

20



ELEVATION

SECTION

UNITED STATES COLD STORAGE, INC

NEW FACILITY

LAKE CITY, FLORIDA

DETAIL SHEET

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REV	DATE	BY	PERMIT	ISSUE	OWNER	REVIEW	DESCRIPTION
1	05/22/07	LRA	LRA				
2	05/22/07	LRA	LRA				

JOB NO. 710 03019

DRAWN: LRA

CHECKED: JDP

SCALE: NONE

P501
DRAWING NO.

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