



PORT OF TACOMA

MAINTENANCE SHOP REMODEL 1990 CONTRACT NO. 680

PROJECT ENGINEER:

ADAMS, HODSDON
AND BESSETTE, INC.
2215 NORTH 30th
SUITE #210
TACOMA, WA 98403

CONSULTANTS :

MMA, ARCHITECTS

ARNOLD BOGUE & ASSOC., MECHANICAL

NORTHWEST UTILITY CONSULTANTS, INC.
ELECTRICAL

GROVER WAY, P.E., GEOTECHNICAL

PORT COMMISSION:

ROBERT G. EARLEY

JACK A. FABULICH

JOHN A. McCARTHY

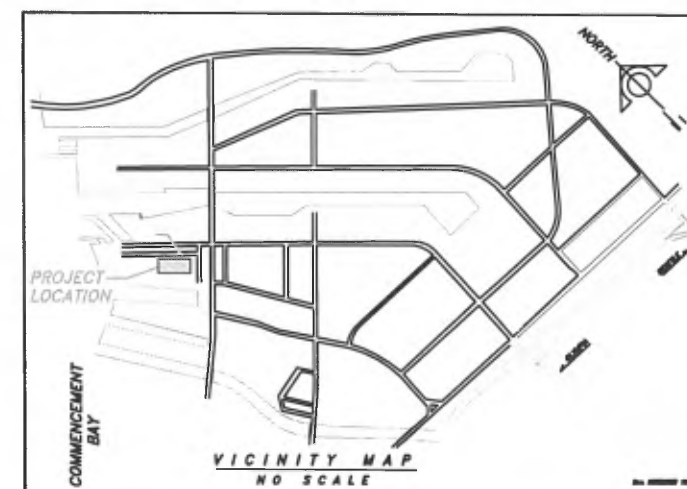
PATRICK O'MALLEY

NED SHERA

PORT STAFF:

JOHN J. TERPSTRA
EXECUTIVE DIRECTOR

CURTIS RATCLIFFE, P.E.
CHIEF ENGINEER



PORT OF TACOMA
P.O. BOX 1837 TACOMA, WASHINGTON 98401
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CIVIL STRUCTURAL ENGINEERS LAND PLANNERS
2215 NORTH 30th SUITE 210 TACOMA, WA 98403
(206) 383-5422 FAX: (206) 383-5572



APPROVED

CHIEF ENGINEER

DATE

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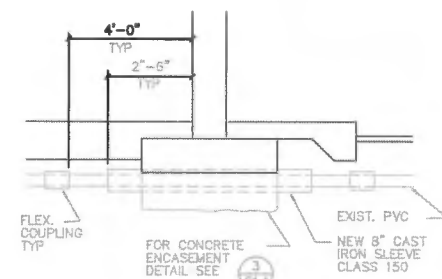
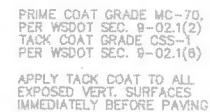
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MARK REVISION

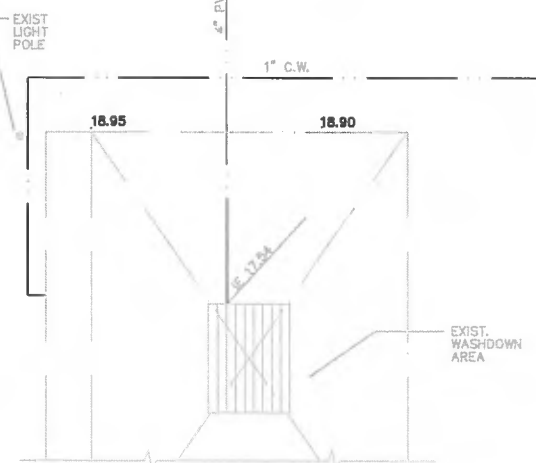
BY APP. DATE

COVER SHEET
MAINTENANCE SHOP REMODEL 1990

DRAWING No. EP-4360-4
CONTRACT No. 680
SHEET No. OF

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NOT TO SCALE

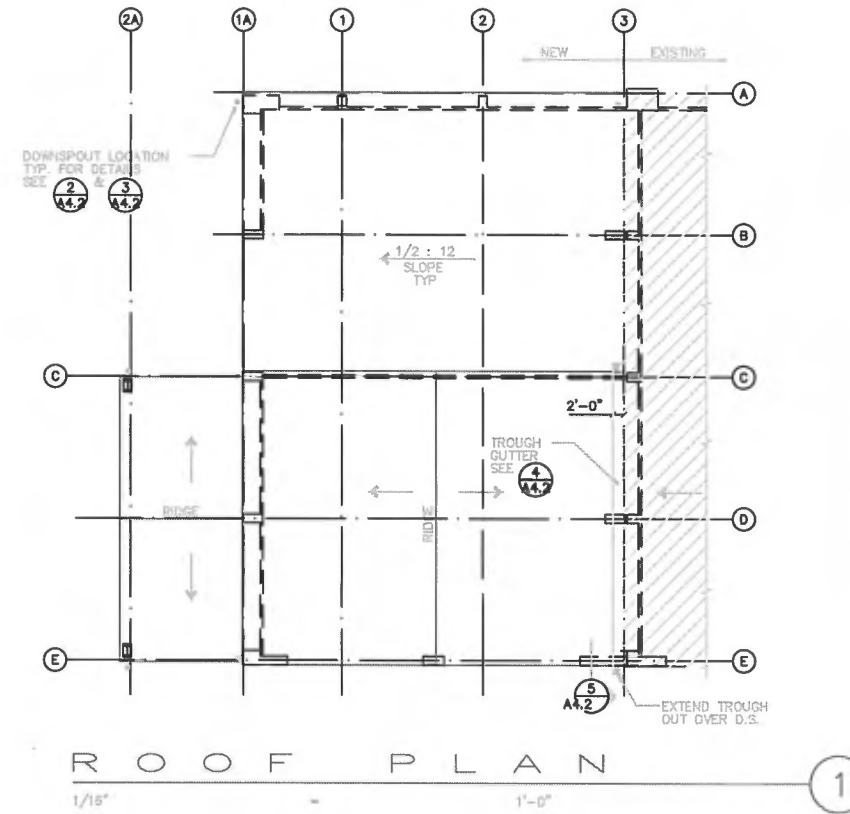
$$3/B'' \rightarrow 1^+ \rightarrow 0^+$$


1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 1988 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AND STANDARD PLANS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AS PREPARED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) AND THE WASHINGTON STATE CHAPTER OF AMERICAN PUBLIC WORKS ASSOCIATION (APWA). 1988 APWA AMENDMENTS TO THE APWA AND CITY OF TACOMA AMENDMENTS ARE AVAILABLE AT NO CHARGE AT THE TACOMA MUNICIPAL BUILDING, CONSTRUCTION DIVISION. STATE STANDARD SPECIFICATIONS ARE AVAILABLE THROUGH WSDOT, BY MAIL AT PRE-CONTRACT SECTION, MAIL STOP KFD, OLYMPIA, WA 98504, OR BY PHONE (206) 755-7252.
2. STORM DRAINAGE PIPE SHALL BE CONCRETE ANSI/ASTM C14 CLASS 2 AND SANITARY SEWER PIPE SHALL BE PVC ASTM D. 3034 SDR.35. SIZES AND SLOPES AS NOTED ON THE PLANS.
3. PAYMENT SHALL BE SAWDUT AS SHOWN ON THE PLANS, RESTORATION WORK SHALL EQUAL OR EXCEED ORIGINAL CONDITIONS TO THE STANDARDS OF THE CITY OF TACOMA. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL CONSTRUCTION DEBRIS AND SPOILS RESULTING FROM THIS WORK.
4. LOCATION OF BURIED UTILITIES SHOWN ARE APPROXIMATE ONLY. CONTRACTOR SHALL VERIFY THE LOCATION AND PRESENCE OF ALL UTILITIES, WHETHER SHOWN OR NOT, PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL CONTACT ALL UTILITIES AGENCIES AT LEAST 10 DAYS PRIOR TO START OF WORK. CONTRACTOR SHALL CONFORM TO WSDOT STANDARD PLAN B-28 WITH B-29, FRAME AND GRATES.

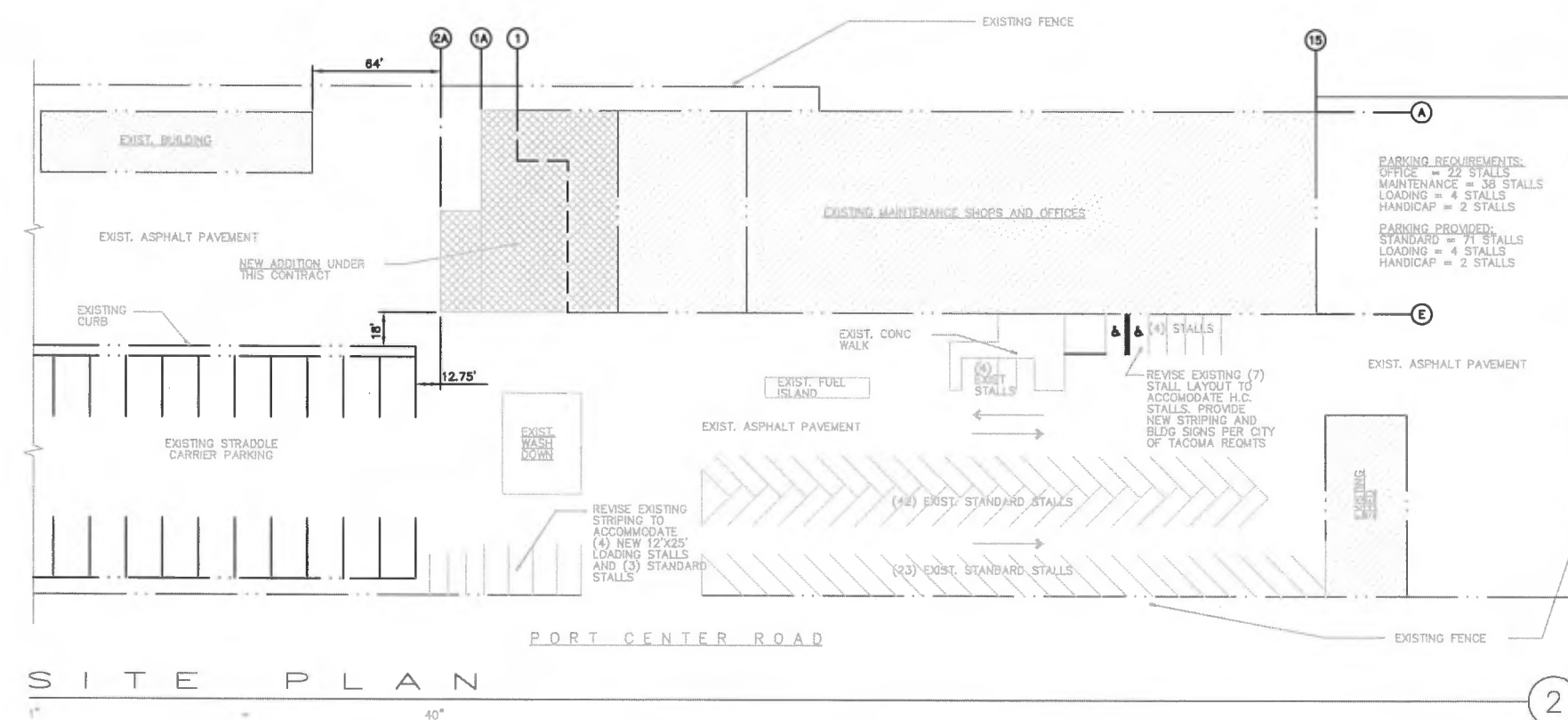
5. EXISTING ASPHALT PAVEMENT ON SITE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A PROPER MANNER. MEET LINE WITH EXISTING PAVEMENT SHALL BE NEATLY TRIMMED OR SAWCUT. ANY DISPOSAL FEES INCURRED BY THE CONTRACTOR SHALL BE CONSIDERED INCIDENTAL COSTS TO THE WORK PERFORMED.
6. IF WORKERS ENTER ANY TRENCH OR OTHER EXCAVATION FOUR FEET OR MORE IN DEPTH THAT DOES NOT MEET THE OPEN PIT REQUIREMENTS OF SECTION 2-09.3 (3)(b), IT SHALL BE SHORED AND CRIBBED. THE CONTRACTOR ALONE SHALL BE RESPONSIBLE FOR WORKER SAFETY AND THE CITY ASSUMES NO RESPONSIBILITY. ALL TRENCH SAFETY SYSTEMS SHALL MEET THE REQUIREMENTS OF THE WASHINGTON INDUSTRIAL SAFETY AND HEALTH ACT, CHAPTER 49.17 RCW.
7. PORT OF TACOMA DATUM, ALL ELEVATIONS.
8. VERIFY INVERT ELEVATION PRIOR TO CONSTRUCTION.
9. SEE SHEET A1.1 FOR SITE DEMOLITION PLAN.
10. REMOVING EXISTING PIPE, CATCH BASINS AND CLEANOUTS SHALL INCLUDE DISPOSAL AND BACKFILLING WITH NATIVE SOIL BY THE CONTRACTOR.
11. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER THE FLEXIBLE COUPLING CONNECTION (FEMCO TYPE LD OR EQUAL) DETAILS AND MATERIAL SPECIFICATION FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.

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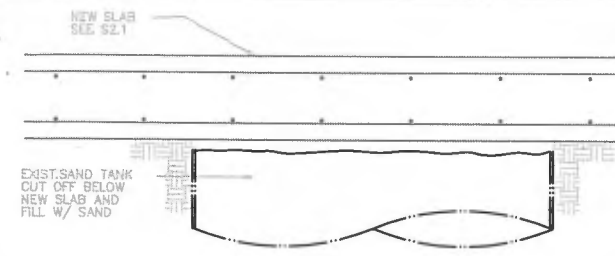
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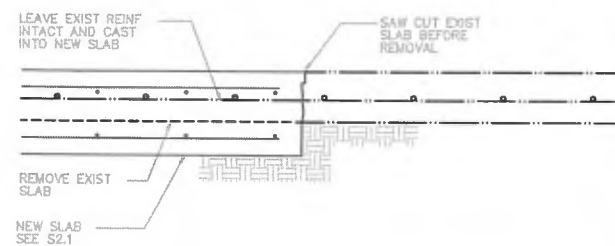
ROOF PLAN 1



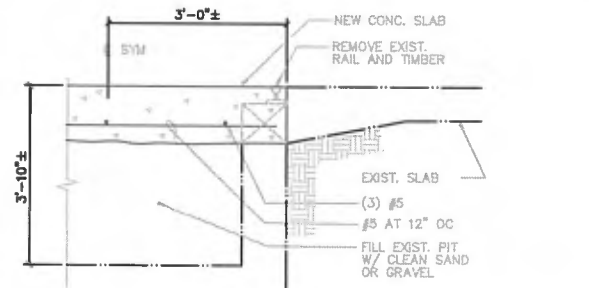
SITE PLAN 2



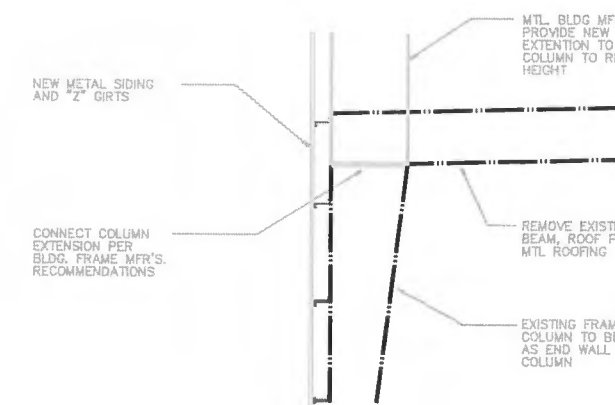
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3/4" 1'-0"



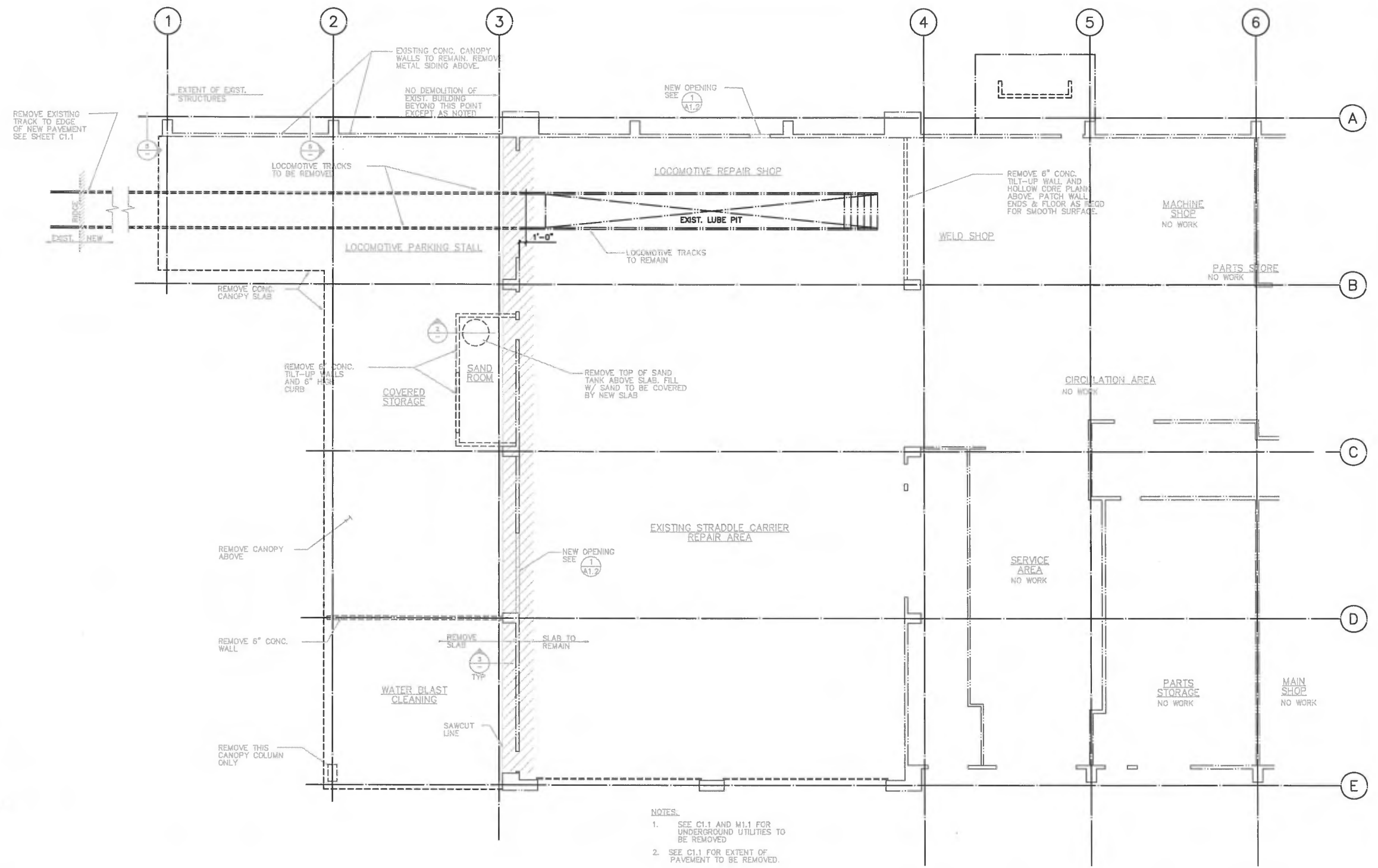
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3/4" 1'-0"



SECTION 4
3/4" 1'-0"



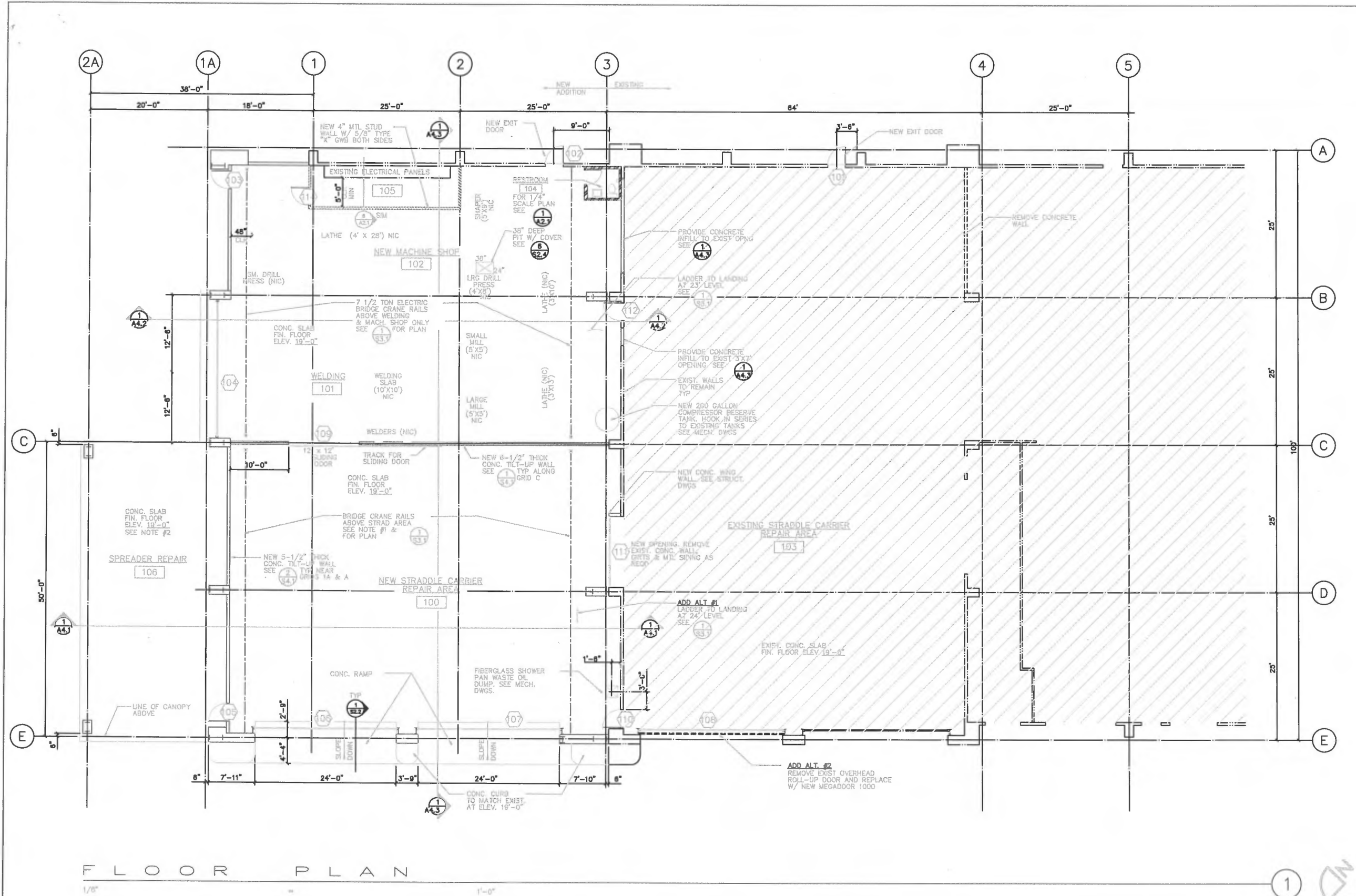
SECTION 5
1/4" 1'-0"



DEMOLITION PLAN FOR EXISTING STRUCTURES

1/8" 1'-0"

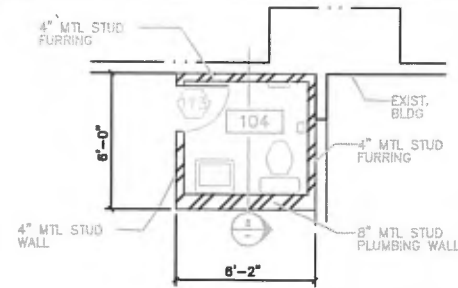
- NOTES:
1. SEE C1.1 AND M1.1 FOR UNDERGROUND UTILITIES TO BE REMOVED.
 2. SEE C1.1 FOR EXTENT OF PAVEMENT TO BE REMOVED.



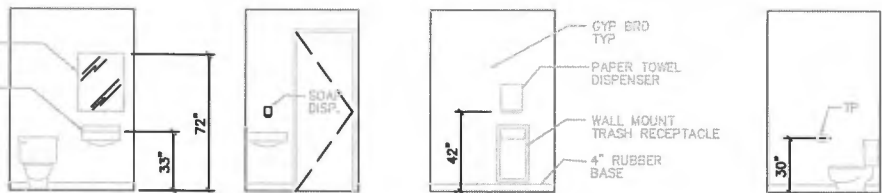
- PROJECT INFORMATION**
- GENERAL**
1. PROJECT LOCATION: 602 PORT CENTER ROAD, TACOMA
 2. OWNER ADDRESS: P.O. BOX 1837, TACOMA, WA 98401
 3. LEGAL DESCRIPTION: SEE SHEET C1.1.
 4. SCOPE OF PROJECT: ALTERATIONS TO EXISTING STRADDLE CARRIER SERVICE AREA, DEMOLITION OF EXISTING STORAGE CANOPY, ADDITION OF NEW STRADDLE CARRIER AND SPREADER REPAIR CANOPY.
 5. NEW ADDITION SIZE: 67'-5" X 100'-0" = 6141.6 SF
 6. NEW CANOPY SIZE: 20'-0" X 50'-0" = 1000 SF
- DESIGN CRITERIA**
1. BUILDING CODE: 1988 U. B. C.
 2. OCCUPANCY: I - EXIST. STRAD. AREA H4
II - NEW STRAD. AREA H4
III - NEW WELDING AND MACHINE SHOP B2
 3. ZONING: M3
 4. SETBACKS: NONE REQUIRED
PROVIDED: S.W. = 21.5', N.E. = 24.5',
N.W. = 75.0', S.E. = 48.22'
 5. FIRE PROTECTION: SPRINKLED, FIRE ALARM SYSTEM
 6. CONSTRUCTION TYPE: III-N
 7. HEATING: RADIANT GAS SYSTEM W/ MAKE-UP AIR.
BUILDING TEMPERATURE TO BE MAINTAINED AT 48°F OR LESS.
 8. PARKING: SEE 2 A1.0

- WALL LEGEND**
- EXISTING WALL
 - NEW WALL

- NOTES:**
1. CRANE RAIL AND SUPPORTING COLUMNS TO BE CAPABLE OF SUPPORTING 20 TON BRIDGE CRANE.
 2. SLAB TO BE LEVEL TO WITHIN 1/16" IN 10'-0".
 3. ALL NEW CONCRETE SLAB AREAS TO HAVE DRY-SHAKE, METALLIC-AGGREGATE SURFACE HARDENER.
 4. NIC = NOT IN CONTRACT



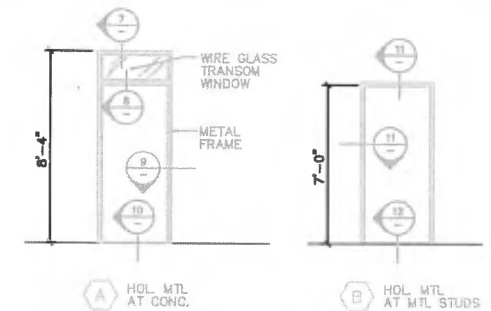
RESTROOM PLAN



RESTROOM ELEVATIONS

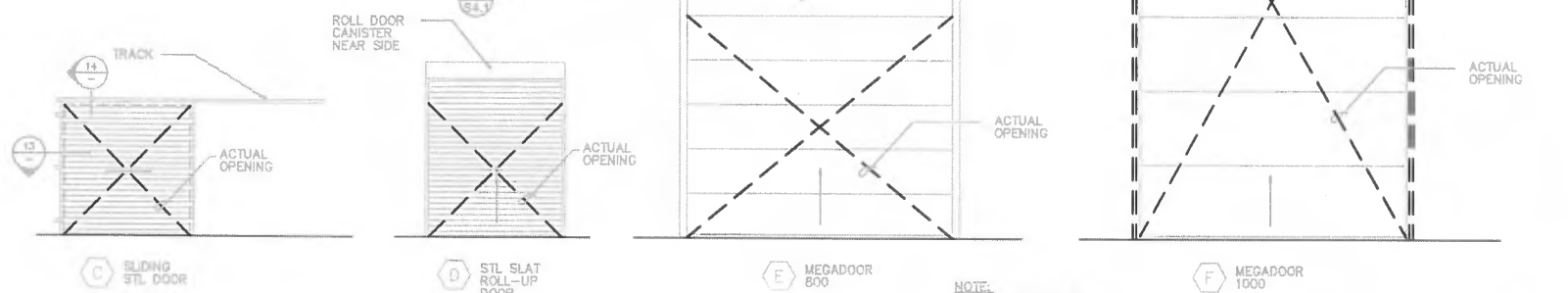
DOOR & FRAME SCHEDULE

NO.	LOCATION				DOOR DATA										FRAME DATA		NOTES	NO.
	FROM ROOM	TO ROOM	NO	NO	TYPE	W	H	T	MAT'L	FINISH	CORE	LABEL	HRDWR GROUP	CONSTRUCTION	MAT'L	FINISH		
101	EXTERIOR	-	STRAD REPAIR	103	A	3'-0"	7'-0"	1 3/4"	HOL. MTL	ENAMEL	MINERAL		HW-1	HOL. MTL	ENAMEL			101
102	EXTERIOR	-	MACHINE SHOP	102	A	3'-0"	7'-0"	1 3/4"	HOL. MTL	ENAMEL	MINERAL		HW-1	HOL. MTL	ENAMEL			102
103	EXTERIOR	-	MACHINE SHOP	102	A	3'-0"	7'-0"	1 3/4"	HOL. MTL	ENAMEL	MINERAL		HW-1	HOL. MTL	ENAMEL			103
104	EXTERIOR	-	WELDING	101	E	24'-0"	20'-0"	-	FABRIC	FAC. FIN.	-			STEEL	-			104
105	SPREADER REP.	106	STRAD REPAIR	100	A	3'-0"	7'-0"	1 3/4"	HOL. MTL	ENAMEL	MINERAL		HW-1	HOL. MTL	ENAMEL			105
106	EXTERIOR	-	STRAD REPAIR	100	F	24'-0"	43'-0"	-	FABRIC	FAC. FIN.	-			STEEL	-			106
107	EXTERIOR	-	STRAD REPAIR	100	F	24'-0"	43'-0"	-	FABRIC	FAC. FIN.	-			STEEL	-			107
108	EXTERIOR	-	STRAD REPAIR	103	F	24'-0"	43'-0"	-	FABRIC	FAC. FIN.	-			STEEL	-		ADD ALT. #2	108
109	STRAD REPAIR	100	WELDING	101	C	12'-0"	12'-0"	1 1/4"	GALV. STL	FAC. FIN.	20 GA.	1 HRL		STEEL	-		PROVIDE FUSIBLE LINK	109
110	STRAD REPAIR	103	STRAD REPAIR	100	A	3'-0"	7'-0"	1 3/4"	HOL. MTL	ENAMEL	MINERAL	3/4 HR	HW-5	HOL. MTL	ENAMEL		CLASS "C" LABEL	110
111	STRAD REPAIR	103	STRAD REPAIR	100	D	12'-0"	14'-0"	1 1/4"	GALV. STL	FAC. FIN.	20 GA.	1 HRL		STEEL	-		PROVIDE FUSIBLE LINK	111
112	STRAD REPAIR	103	WELDING	101	A	3'-0"	7'-0"	1 3/4"	HOL. MTL	ENAMEL	MINERAL	3/4 HR	HW-5	HOL. MTL	ENAMEL		CLASS "C" LABEL	112
113	MACHINE SHOP	102	RESTROOM	104	B	2'-8"	7'-0"	1 3/4"	HOL. MTL	ENAMEL	MINERAL		HW-2	HOL. MTL	ENAMEL			113
114	MACHINE SHOP	102	ELECTRICAL RM	105	B	3'-0"	7'-0"	1 3/4"	HOL. MTL	ENAMEL	MINERAL	1 HRL	HW-3	HOL. MTL	ENAMEL			114



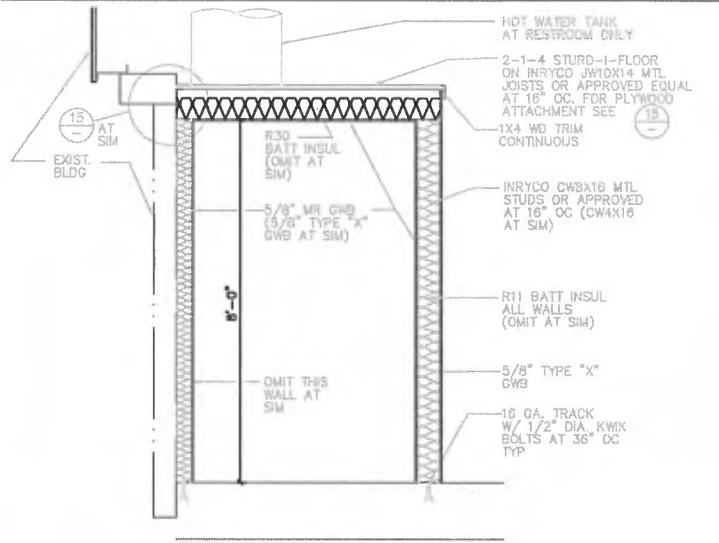
MAN DOORS

1/4" = 1'-0"



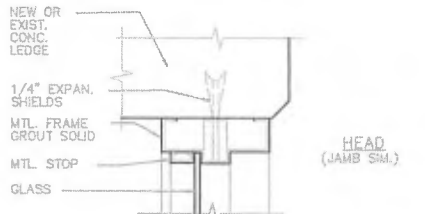
OVERHEAD DOORS

1/8" = 1'-0"



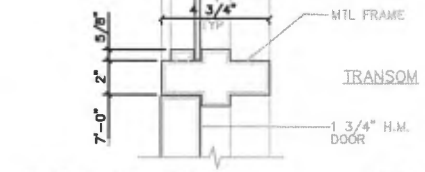
SECTION 6

1/2" = 1'-0"



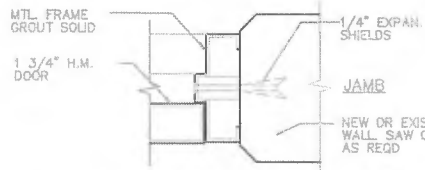
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3" = 1'-0"



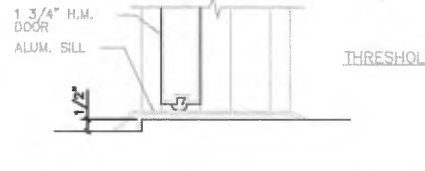
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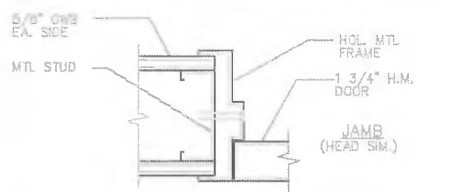
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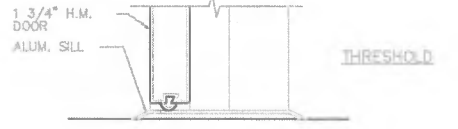
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3" = 1'-0"



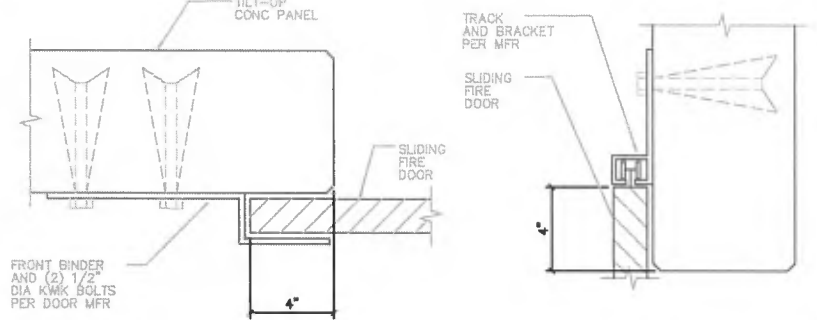
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3" = 1'-0"



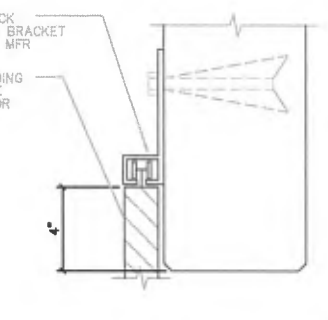
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3" = 1'-0"



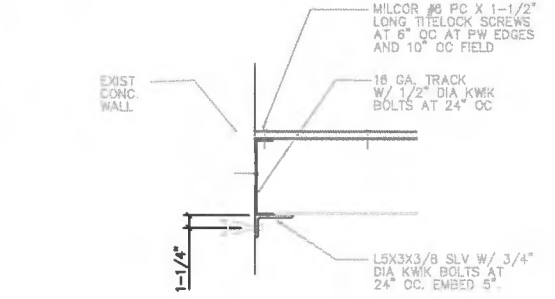
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3" = 1'-0"



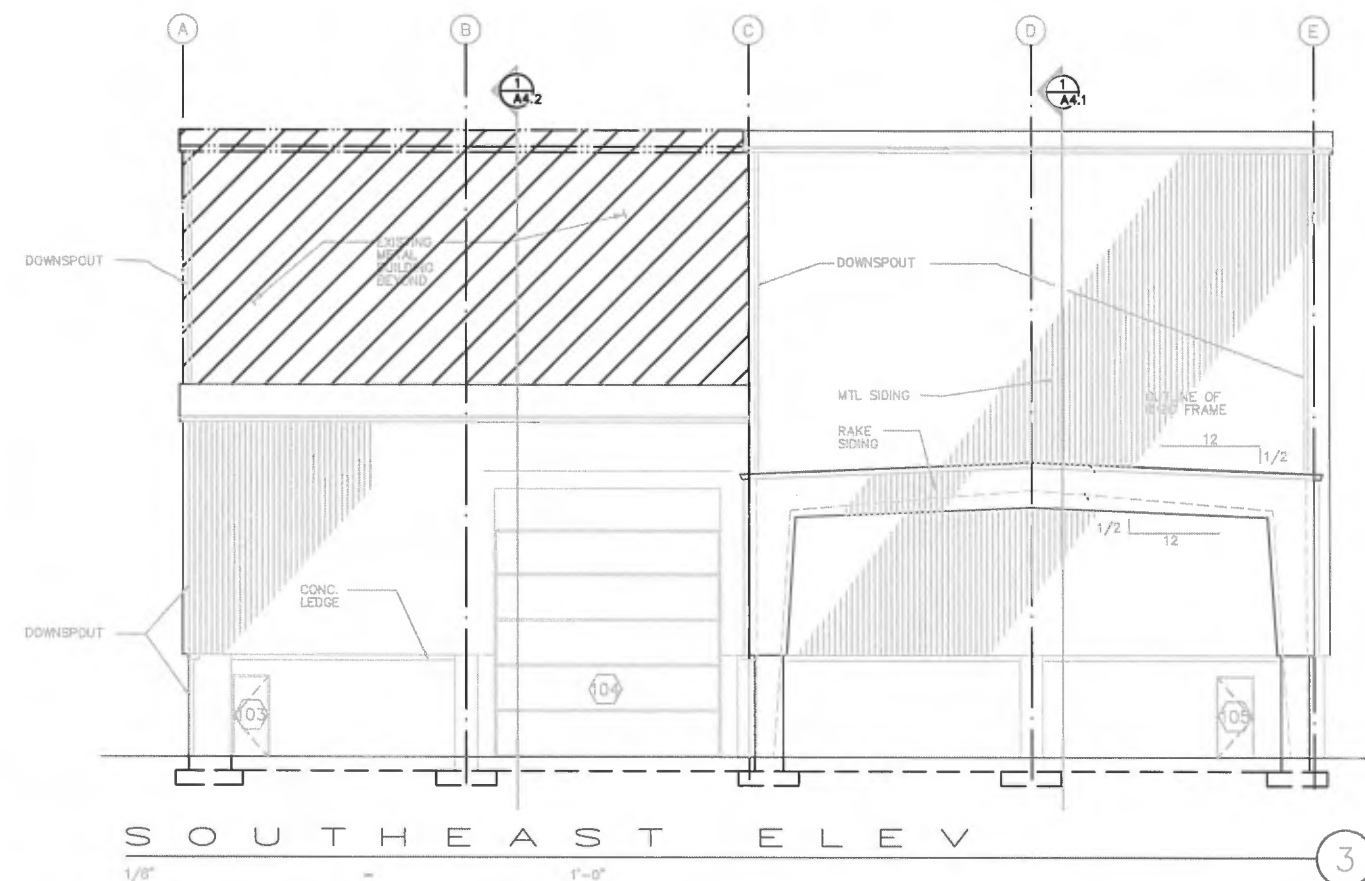
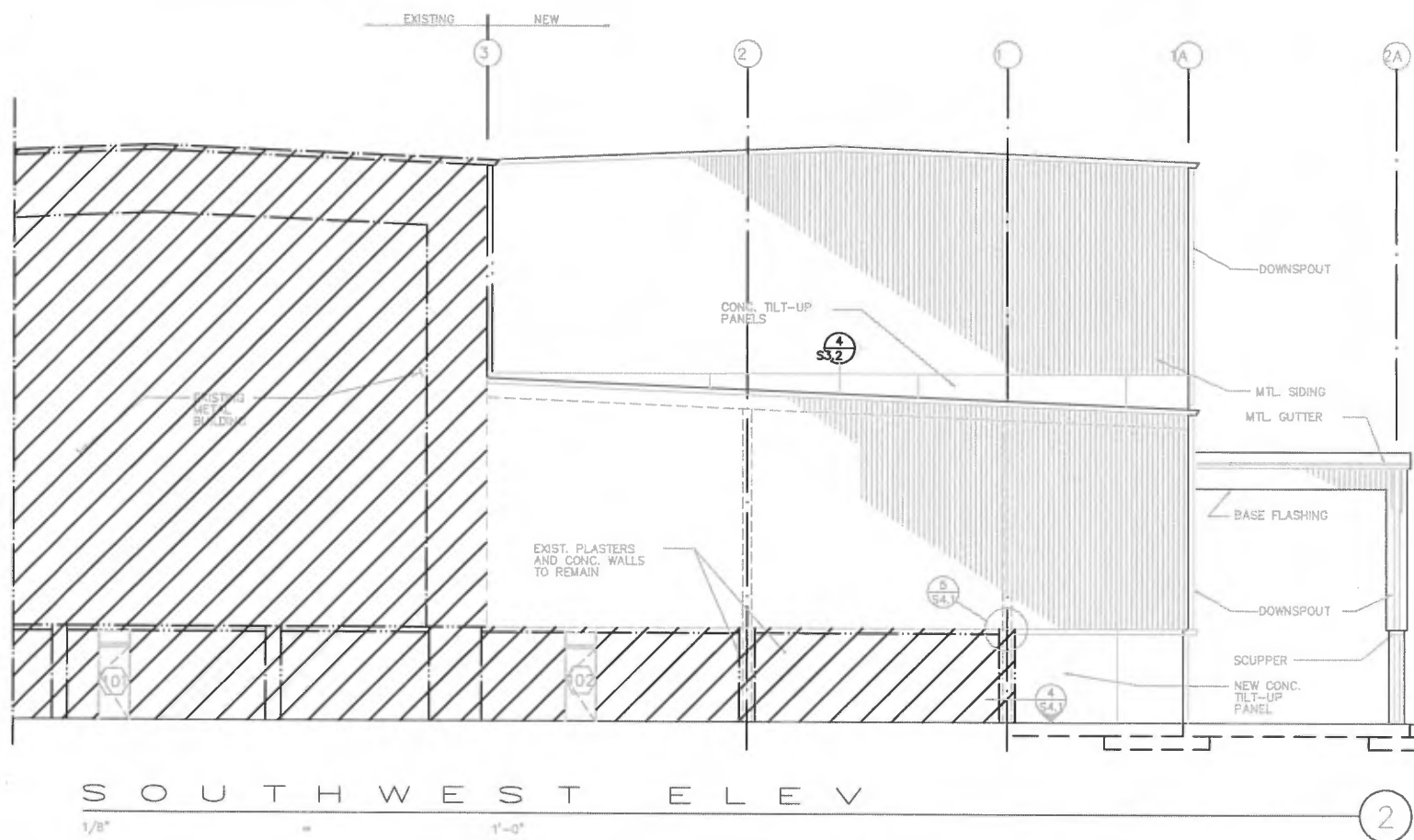
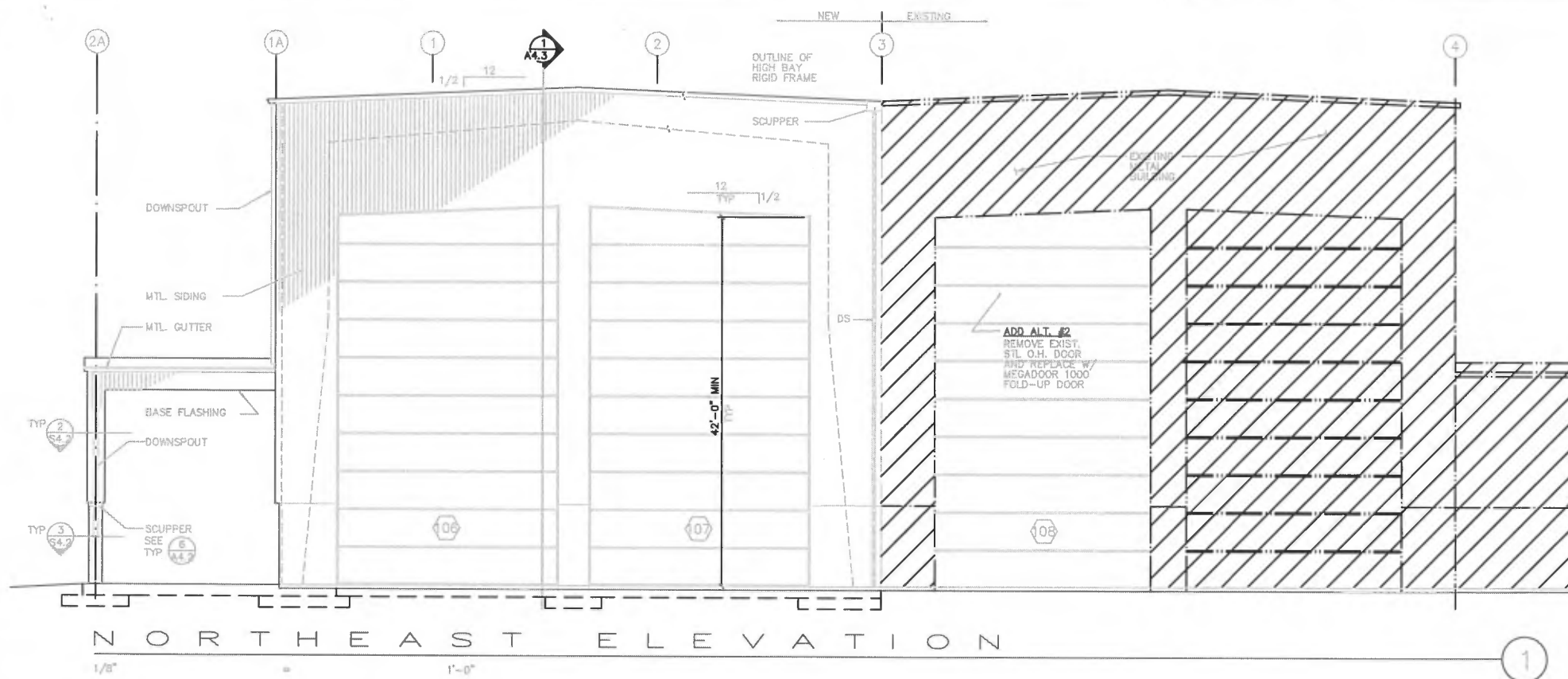
SECTION 14

3" = 1'-0"



SECTION 15

3" = 1'-0"



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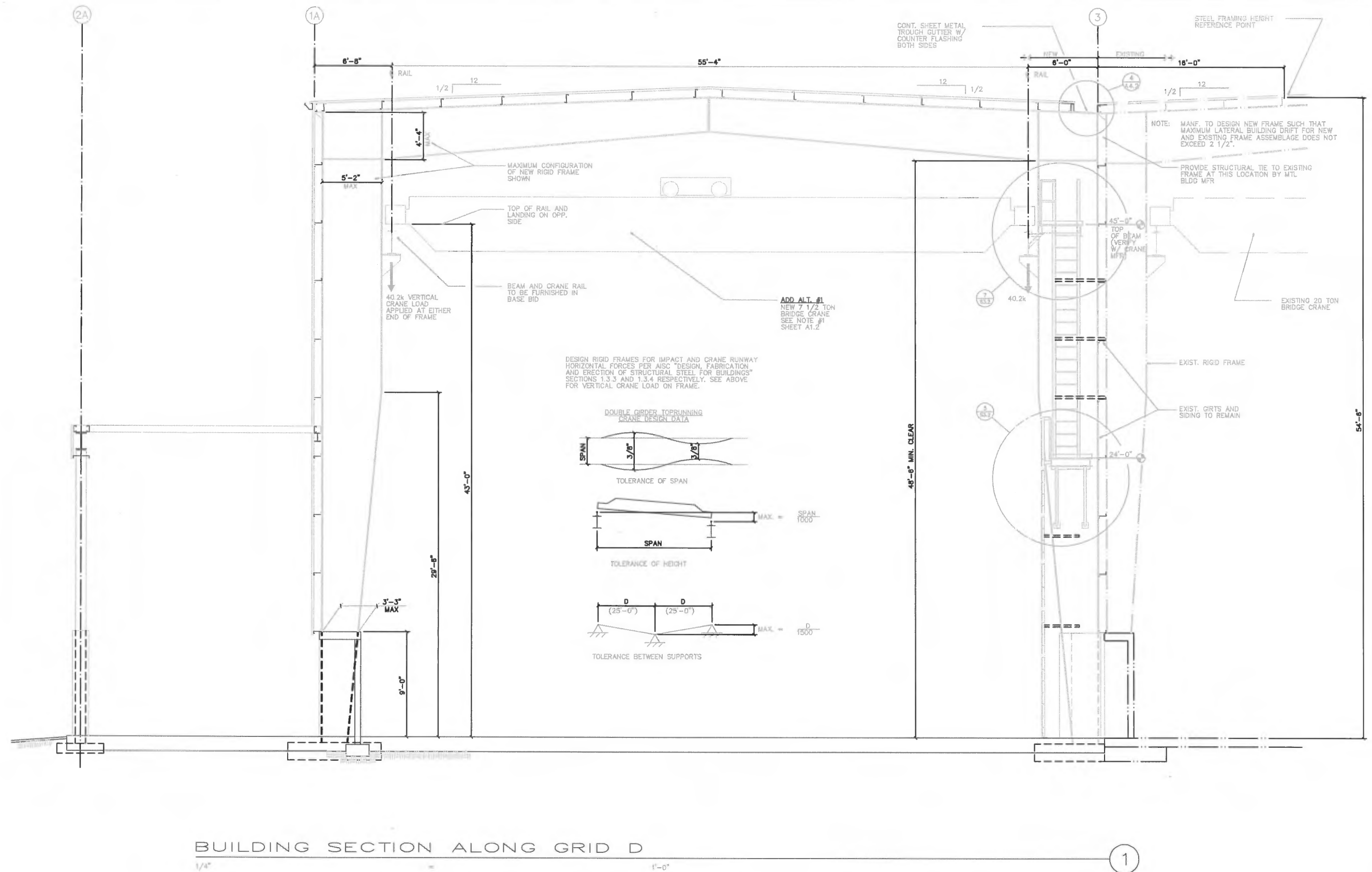
ELEVATIONS
MAINTENANCE SHOP REMODEL 1990

DRAWING No. EP-4360-4

CONTRACT No. 680

SHEET No. A3.1 OF 7

89172
STRADA31



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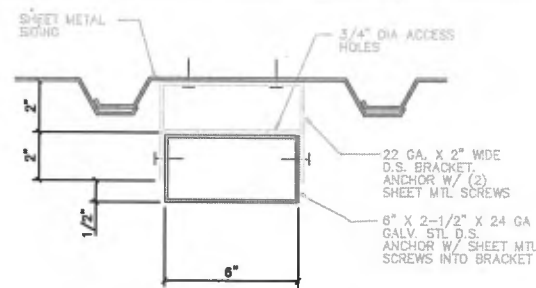
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BUILDING SECTION
MAINTENANCE SHOP REMODEL 1990

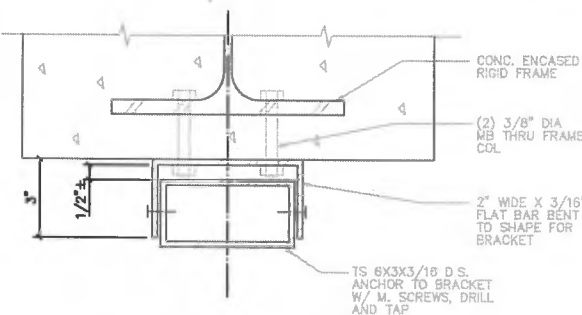
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CONTRACT No. 680
SHEET No. A4.1 OF 8

89172
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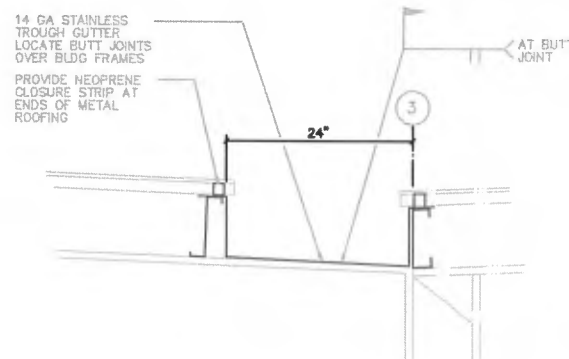
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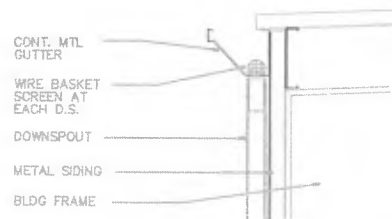


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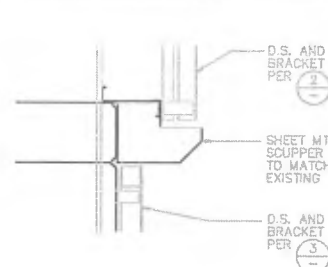
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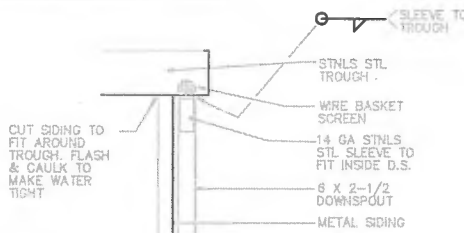
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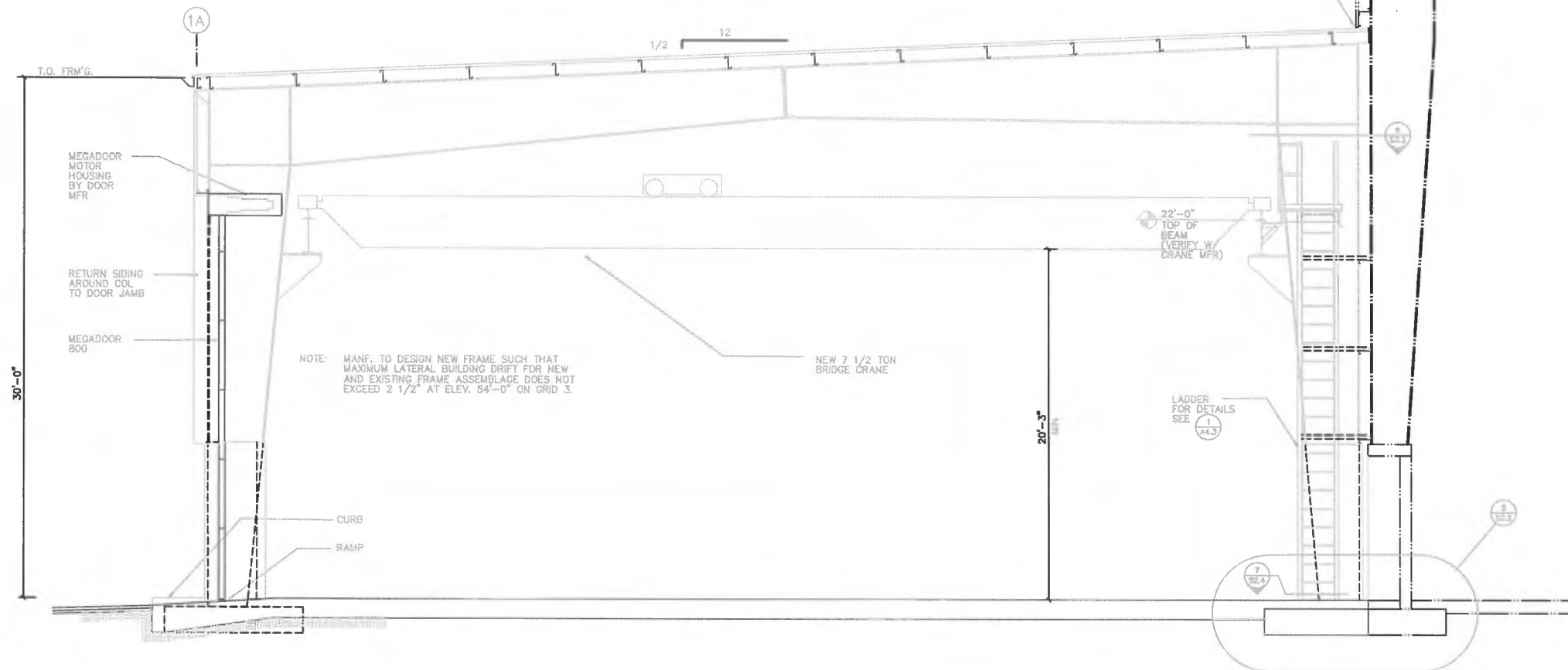
SECTION 5



SECTION 6



SECTION 7



BUILDING SECTION ALONG GRID B

1/4" 1'-0"

1



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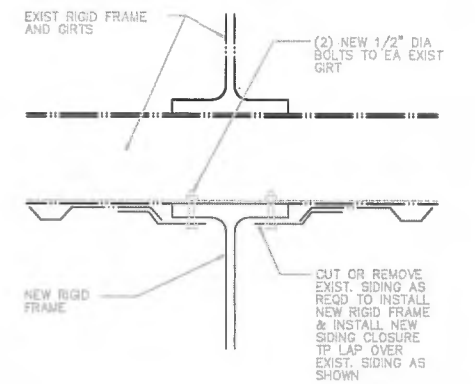
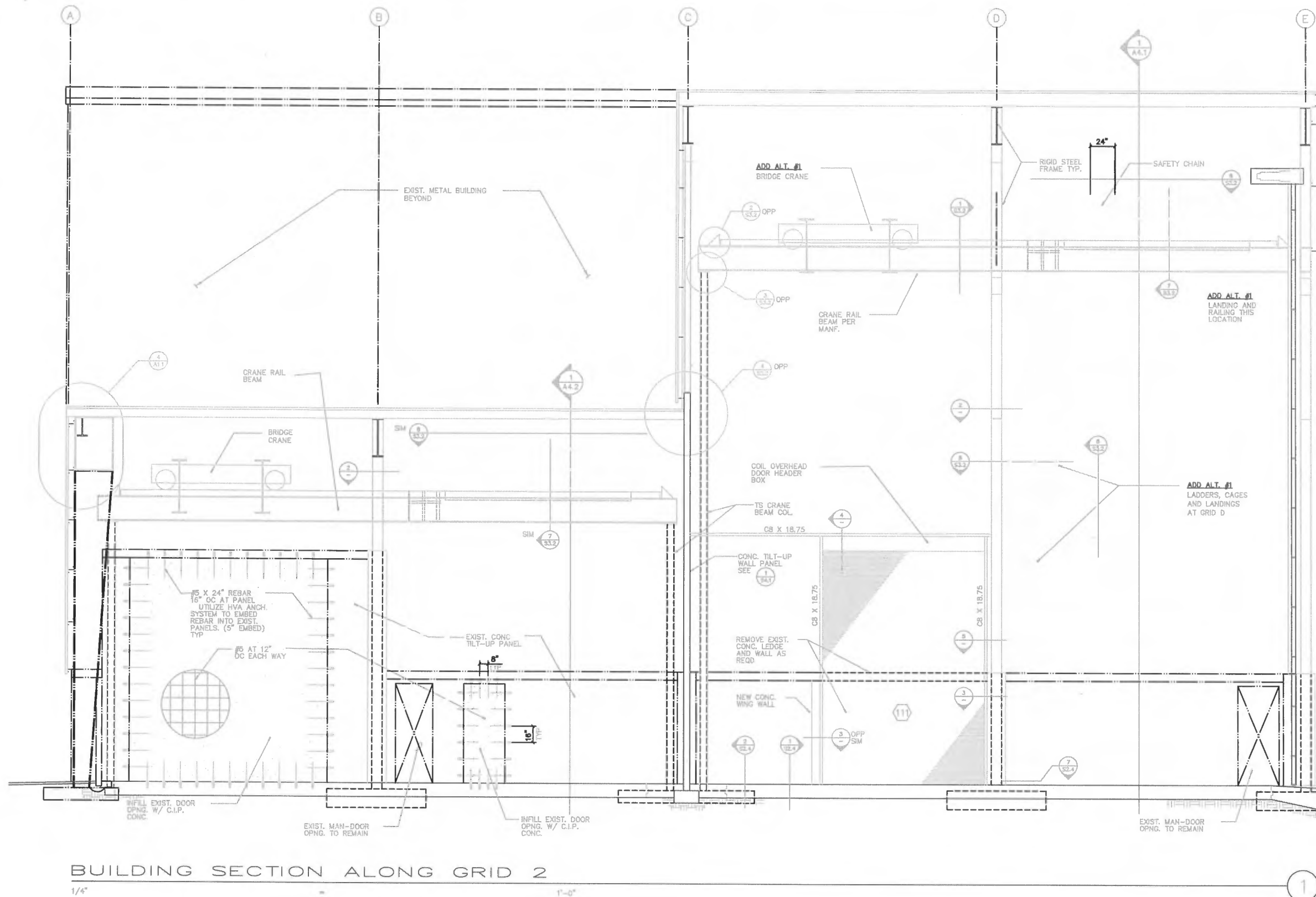
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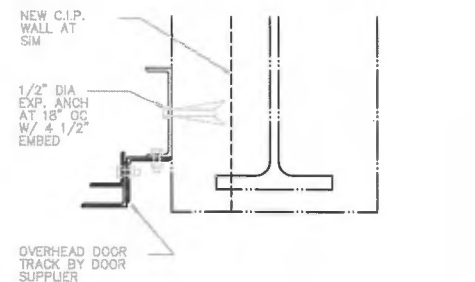
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MAINTENANCE SHOP REMODEL 1990

DRAWING No: EP-4360-4
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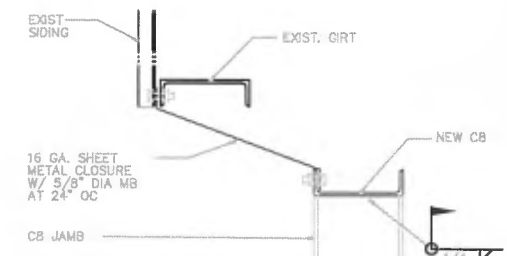
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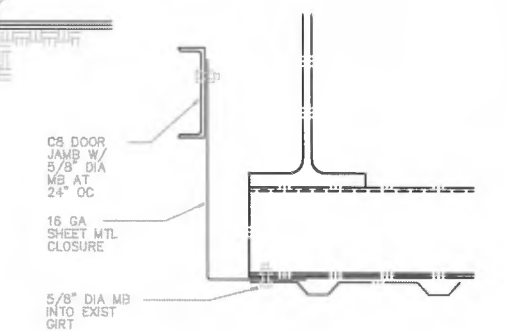
SECTION 2
1 1/2" = 1'-0"



SECTION 3
1 1/2" = 1'-0"



SECTION 4
1 1/2" = 1'-0"



SECTION 5
1 1/2" = 1'-0"

BB172 STRADA43

1.0 STRUCTURAL NOTES

THESE STRUCTURAL NOTES SUPPLEMENT THE SPECIFICATIONS. ANY DISCREPANCY FOUND AMONG THE DRAWINGS, SPECIFICATIONS, THESE NOTES, AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ENGINEER WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE CONTRACTOR'S RISK. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE DIMENSIONS AMONG ALL DRAWINGS PRIOR TO PROCEEDING WITH ANY WORK OR FABRICATION. THE CONTRACTOR IS RESPONSIBLE FOR ALL BRACING AND SHORING DURING CONSTRUCTION.

1.1 BIDDERS WARRANTY

BY THE ACT OF SUBMITTING A BID FOR THE PROPOSED CONTRACT, THE CONTRACTOR WARRANTS THAT:

- 1.1.1. THE CONTRACTOR AND ALL SUBCONTRACTORS HE INTENDS TO USE HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS AND STRUCTURAL NOTES AND HAVE FOUND THEM COMPLETE AND FREE FROM AMBIGUITIES AND SUFFICIENT FOR THE PURPOSE INTENDED; FURTHER THAT,
- 1.1.2. THE CONTRACTOR HAS CAREFULLY EXAMINED THE SITE OF THE WORK AND THAT FROM HIS OWN INVESTIGATIONS, HE HAS SATISFIED HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK, AS TO THE CHARACTER, QUALITY, QUANTITIES OF MATERIAL AND DIFFICULTIES TO BE ENCOUNTERED, AS TO THE EXTENT OF EQUIPMENT AND OTHER FACILITIES NEEDED FOR THE PERFORMANCE OF THE WORK AND AS TO THE GENERAL AND LOCAL CONDITIONS, AND OTHER ITEMS WHICH MAY IN ANY WAY AFFECT THE WORK OR ITS PERFORMANCE, FURTHER THAT,
- 1.1.3. THE CONTRACTOR AND ALL WORKMEN HE INTENDS TO USE ARE SKILLED AND EXPERIENCED IN THE TYPE OF CONSTRUCTION REPRESENTED BY THE DRAWINGS AND DOCUMENTS BID UPON; FURTHER THAT,
- 1.1.4. NEITHER THE CONTRACTOR NOR ANY OF HIS EMPLOYEES, AGENTS, INTENDED SUPPLIERS, OR SUBCONTRACTORS HAVE RELIED UPON ANY VERBAL REPRESENTATIONS ALLEGEDLY AUTHORIZED OR UNAUTHORIZED FROM THE OWNER OR HIS EMPLOYEES OR AGENTS, INCLUDING THE ARCHITECT OR ENGINEERS, IN ASSEMBLING THE BID FIGURES; FURTHER THAT,
- 1.1.5. THE BID FIGURE IS BASED SOLELY UPON THE CONSTRUCTION CONTRACT DOCUMENTS AND PROPERLY ISSUED WRITTEN ADDENDA AND NOT UPON ANY OTHER WRITTEN OR VERBAL REPRESENTATIONS.

1.2 CODES

- 1.2.1. ALL METHODS, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 1989 UNIFORM BUILDING CODE (UBC) AS AMENDED AND ADOPTED BY THE CITY OF TACOMA.
- 1.2.2. ALL REFERENCE TO OTHER CODES, ACI, ASTM, ETC., SHALL BE FOR THE LATEST OR MOST CURRENT EDITION AVAILABLE.

1.3 DESIGN CRITERIA

1.3.1. UNIFORM LOADS:

LOADS	LIVE LOAD	DEAD LOAD
ROOF	25 PSF*	ACTUAL
SLAB ON GRADE	200 PSF	ACTUAL

* 15% INCREASE IN STRESSES FOR WOOD FRAMING ALLOWED FOR SNOW LIVE LOAD

1.3.2. CONCENTRATED LOADS:

MECHANICAL UNITS OR OTHER CONCENTRATED LOADS ON ROOF OR FLOOR AS INDICATED. IT SHALL BE THE RESPONSIBILITY OF EACH MANUFACTURER OF ALL PRE-ENGINEERED SYSTEMS (TRUSSES, ETC.) TO DESIGN THEIR SYSTEM FOR THESE LOADS. SLAB ON GRADE DESIGNED FOR CONCENTRATED WHEEL LOADS. SEE PLAN.

1.3.3. LATERAL LOADS:

ALLOW 33-1/3% INCREASE IN STRESSES FOR WIND AND SEISMIC FORCES. LATERAL FORCES ARE TRANSMITTED BY FRAME ACTION OR ROD BRACING TO FOOTINGS WHERE ULTIMATE DISPLACEMENT IS RESISTED BY PASSIVE PRESSURE OF EARTH AND SLIDING FRICTION OF EARTH. OVERTURNING IS RESISTED BY THE DEAD LOAD OF THE STRUCTURE.

- 1.3.3.1. WIND: WIND DESIGN SHALL BE IN ACCORDANCE WITH SECTION 2311 OF THE 1985 UBC.

BASIC WIND SPEED: 80 MPH

EXPOSURE: C

IMPORTANCE FACTOR: 1.0

1.4 SOIL DATA

ALLOWABLE SOIL PRESSURE 3200 PSF USED FOR FOOTING DESIGN PER "SOILS INVESTIGATION: MAINTENANCE BUILDING ADDITION, PORT OF TACOMA, BY GROVER C. WAY CONSULTING ENGINEERS, DATED OCTOBER 31, 1989.

1.5 INSPECTION - SEE SPECIFICATIONS

1.6 SHOP DRAWINGS

SUBMIT SUFFICIENT COPIES OF SHOP DRAWINGS TO ENGINEER FOR THE FOLLOWING:

- 1.6.1. REINFORCING STEEL
- 1.6.2. STRUCTURAL STEEL
- 1.6.3. PRE-ENGINEERED BLDG

2.0 SITE WORK

2.1 EXCAVATION

EXCAVATE FOOTINGS DOWN TO DEPTH ON DRAWINGS OR TO FIRM UNDISTURBED MATERIAL. AREAS OVER-EXCAVATED SHALL BE BACKFILLED WITH LEAN CONCRETE ($f_c=2,000$ PSI), AND SHALL BE AT THE CONTRACTOR'S EXPENSE. SEE DRAWINGS FOR TYPICAL DETAIL SHOWING FOUNDATION WALL CROSSING PIPELINES. SEE CIVIL DRAWINGS FOR APPROXIMATE LOCATION OF EXISTING PIPELINES.

2.2 BACKFILL AND COMPACTION

BACKFILL AGAINST WALLS SHALL NOT BE PLACED UNTIL AFTER THE REMOVAL OF ALL FORMS, SCREDS, OTHER WOOD DEBRIS AND MATERIAL SUBJECT TO ROT OR CORROSION. USE ONLY MATERIALS APPROVED FOR BACKFILL. IN AREAS UNDER SLABS OR FOOTINGS, MATERIAL OTHER THAN PEA GRAVEL SHOULD BE GRANULAR IN NATURE, PLACED IN 8 INCH LIFTS AND COMPACTED TO AT LEAST 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY AASHO COMPACTION TEST PROCEDURE T-180. THE FILL SHOULD BE LIMITED TO CLEAN, GRANULAR MATERIAL. PEA GRAVEL FILL WHERE SPECIFIED ON DRAWINGS SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3/8" DIAMETER.

3.0 STRUCTURAL CONCRETE

3.1. GENERAL

ALL CONCRETE SHALL BE HARD ROCK CONCRETE MEETING REQUIREMENTS FOR "ULTIMATE STRENGTH TYPE CONCRETE," PER ACI-301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS." PROPORTIONING OF INGREDIENTS FOR EACH CONCRETE MIX SHALL BE BY METHOD 2 OR THE ALTERNATE PROCEDURE GIVEN IN ACI-301. PLACE CONCRETE PER ACI-304 AND CONFORM TO ACI-604 (308) WINTER CONCRETING AND ACI-605 (305) FOR HOT WEATHER CONCRETING. USE INTERIOR MECHANICAL VIBRATORS WITH 7,000 RPM MINIMUM FREQUENCY. DO NOT OVER-VIBRATE. CONCRETE SHALL BE PLACED MONOLITHICALLY BETWEEN CONSTRUCTION OR CONTROL JOINTS. PROTECT ALL FRESHLY PLACED CONCRETE FROM PREMATURE DRYING, EXCESSIVE HOT OR COLD TEMPERATURE FOR SEVEN DAYS AFTER POURING. PROVIDE ENGINEER WITH PROPOSED CONSTRUCTION OR CONTROL JOINT LOCATIONS FOR HIS APPROVAL.

3.2. STRENGTH

TWENTY-EIGHT DAY COMPRESSIVE STRENGTHS SHALL BE:

	PSI	SLUMP
SLABS	4000	3" ± 1"
TILT UP WALLS/PANELS	4000	3" ± 1"
BEAMS, COLUMNS, VERTICALLY FORMED WALLS	4000	3" ± 1"
FOOTINGS	3000	4" ± 1"

THESE SLUMPS MAY BE INCREASED IF A PROPER ADDITION OF ADMIXTURE OR ADMIXTURES IS ADDED TO ALLOW HIGHER SLUMP AND GREATER WORKABILITY WITHOUT CHANGING THE WATER CONTENT OF THE ORIGINAL APPROVED MIX DESIGN. ADMIXTURES CONTAINING CHLORIDES ARE NOT PERMITTED UNLESS APPROVED BY THE ENGINEER.

3.3 MATERIALS

- 3.3.1. CEMENT MUST CONFORM TO ASTM 150, TYPE I OR TYPE I-III. ENGINEER'S APPROVAL IS NEEDED FOR USE OF TYPE III CEMENT.

- 3.3.2. COARSE AND FINE AGGREGATE TO CONFORM TO ASTM C33.

3.4. WATER REDUCING ADMIXTURES

- 3.4.1. WATER REDUCING ADMIXTURE: MUST CONFORM TO ASTM C494. ADMIXTURES SHALL BE INCORPORATED INTO ALL CONCRETE IN EXACT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

- 3.4.2. SYNERGIZED PERFORMANCE SYSTEMS: CONCRETE USING ADMIXTURES TO PRODUCE FLOWABLE CONCRETE MAY BE USED WITH ENGINEER'S APPROVAL. DESIGN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

- 3.4.3. AIR ENTRAINMENT: CONFORMING TO ASTM C260 AND ASTM C494, ENTRAIN 6% PLUS/MINUS 1% BY VOLUME IN ALL EXPOSED CONCRETE. SEE SPECIFICATIONS.

- 3.4.4. NO OTHER ADMIXTURES PERMITTED UNLESS APPROVED BY THE ENGINEER.

3.5. REINFORCING STEEL

DETAIL, FABRICATE, AND PLACE PER ACI-315 AND ACI-318. SUPPORT REINFORCEMENT WITH APPROVED CHAIRS, SPACERS, OR TIES.

- 3.5.1. DEFORMED BAR REINFORCEMENT: ASTM A-615-GR 80
- 3.5.2. WELDED DEFORMED BAR REINFORCEMENT: ASTM A706 GR 60 OR ASTM A615 GR 40
- 3.5.3. WELDED WIRE FABRIC: ASTM A-185 & ASTM A-82
- 3.5.4. DEFORMED BAR ANCHORS: ASTM A-496

3.6. GROUT FOR BEARING PLATE

SHALL BE MASTERFLOW 928 FOR STATIC LOADS AND EMBECO 838 FOR DYNAMIC LOADS. BOTH GROUTS SHALL BE MANUFACTURED BY MASTER BUILDERS. "APPROVED EQUAL" GROUTS MUST BE NON-BLEEDING, NON-GAS GENERATING, NON-EXPANSIVE GROUTS.

3.7. TILT-UP CONCRETE WALLS

- 3.7.1. TYPICAL AND SPECIAL REINFORCEMENT SHOWN ON PANEL ELEVATIONS IS DESIGNED FOR FORCES OCCURRING AFTER PANEL IS IN PLACE AND TIED TO ROOF AND FLOOR DIAPHRAGMS. USE STRONGBACKS AND EXTRA REINFORCEMENT AS REQUIRED AND DIRECTED BY PANEL ERECTOR FOR ERECTION PURPOSES.

- 3.7.2. REINFORCEMENT SHOWN ON PANEL ELEVATIONS IS SPECIAL REINFORCEMENT WHICH REPLACES TYPICAL REINFORCEMENT WHERE SHOWN.

- 3.7.3. ALL PANEL DIMENSIONS ON FOUNDATION PLANS ARE TO CENTER LINES OF CONNECTIONS. DO NOT SCALE PANEL ELEVATIONS.

- 3.7.4. DO NOT CUT OR DRILL ANY HOLES IN PANELS WITHOUT APPROVAL OF ENGINEER UNLESS SHOWN OR INDICATED ON STRUCTURAL DRAWINGS.

- 3.7.5. SEE SPECIFICATIONS FOR FINISHES, CURING, ETC.

3.9 GROUT

- 3.9.1. 24 HOUR COMPRESSIVE STRENGTH SHALL BE 3000 PSI PER ASTM C109.

- 3.9.2. 7 DAY COMPRESSIVE STRENGTH SHALL BE 6000 PSI.

- 3.9.3. VOLUME CHANGE (ALL AGES) SHALL BE +2% -0% PER ASTM C827.

- 3.9.4. SETTING TIME SHALL BE 45 MINUTES (INITIAL-MIN), 8 HOURS (FINAL-MAX) PER ASTM C191.

- 3.9.5. FLUIDITY PER CRD-C 621 SHALL BE 124-145.

- 3.9.6. INSTALLATION SHALL BE PER MANUFACTURER'S INSTRUCTIONS.

5.0 METALS

5.1. WELDING

- 5.1.1. ALL WELDING SHALL BE IN ACCORDANCE WITH THE "STRUCTURAL WELDING CODE," ANSI/AWS D1.1-88.

- 5.1.2. ALL WELDING SHALL BE BY CERTIFIED WELDERS, USE E60 OR E70 ELECTRODES.

- 5.1.3. NO WELDING OF REINFORCING STEEL SHALL BE ALLOWED EXCEPT WHERE SHOWN. ALL WELDING OF REINFORCEMENT SHALL BE PER ANSI/AWS D1.4-79.

5.2. STRUCTURAL STEEL

- 5.2.1. ALL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE AISC, "MANUAL OF STEEL CONSTRUCTION," LATEST EDITION.

- 5.2.2. STEEL SHAPES AND PLATES SHALL BE ASTM A-36.

- 5.2.3. PIPE COLUMNS SHALL BE OF SIZE AS SHOWN AND PER ASTM A-53, TYPE E OR S, GRADE B ($F_y = 36$ KSI).

- 5.2.4. TUBE COLUMNS SHALL BE OF THE SIZE SHOWN AND PER ASTM A500, GRADE B ($F_y = 46$ KSI).

- 5.2.5. BOLTS SHALL BE ASTM A-307, OR AS NOTED.

- 5.2.6. EXPANSION ANCHORS SHALL BE HILTI CONCRETE ANCHORS AS MANUFACTURED BY HILTI CORPORATION OF THE TYPE NOTED ON THE DRAWINGS.

- 5.2.7. METAL PROTECTION: ALL STEEL EXPOSED TO WEATHER, MOISTURE, SOIL, OR AS NOTED SHALL BE GALVANIZED PER ASTM A-123 WITH 1.25 OZ. OF ZINC SPECTER PER SQUARE FOOT OF SURFACE AREA. ALL OTHER STEEL SURFACES TO BE SHOP PAINTED AFTER FABRICATION.

5.3. PRE-ENGINEERED BUILDINGS (SEE SPECIFICATIONS)

- 5.3.1. PRE-ENGINEERED BUILDING SHALL BE DESIGNED AND MANUFACTURED BY BUTLER, OR APPROVED EQUAL.

- 5.3.2. STEEL FRAME MANUFACTURER SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT FOR THE STRUCTURAL DESIGN AND FABRICATION OF THE COMPLETE PRE-ENGINEERED BUILDING PACKAGE INCLUDING RIGID FRAMES, ROOF BRACING, OTHER SECONDARY WALL AND ROOF FRAMING, ROOFING, SIDING AND GUTTERS. SEE SPECIFICATIONS.

- 5.3.3. BAY SPACINGS, PLAN DIMENSIONS, COLUMN LOCATIONS, EAVE HEIGHTS AND ROOF SLOPE SHALL BE AS NOTED ON THE DRAWINGS.

- 5.3.4. DESIGN LOADS (SEE SPECIFICATIONS.)

- 5.3.5. ENGINEERED DRAWINGS

- 5.3.5.1. THE METAL BUILDING MANUFACTURER SHALL FURNISH TO THE DESIGNER AND STRUCTURAL ENGINEER A SET OF COMPLETE DESIGN DRAWINGS (CAN BE SHOP AND ERECTION DRAWINGS IF COMPLETE), STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF WASHINGTON.

- 5.3.5.2. AFTER AWARDED THE CONTRACT, COPIES OF THE STRUCTURAL ANALYSIS SHALL BE SUBMITTED BY THE MANUFACTURER TO THE DESIGNER AND STRUCTURAL ENGINEER.

- 5.3.5.3. THE METAL BUILDING MANUFACTURER SHALL SUPPLY THE DESIGNER, STRUCTURAL ENGINEER AND CONTRACTOR PRIOR TO THE CONCRETE FOUNDATION WORK AND ANCHOR BOLT SIZE AND PLACEMENT PLAN.

- 5.3.5.4. THE METAL BUILDING MANUFACTURER SHALL BE A MEMBER OF THE METAL BUILDINGS MANUFACTURER'S ASSOCIATION (MBMA). THE MANUFACTURER SHALL FURNISH DESIGN CALCULATIONS AND DRAWINGS STAMPED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF WASHINGTON.

- 5.3.5.5. IT SHALL BE THE RESPONSIBILITY OF THE BUILDING MANUFACTURER TO PROVIDE ADDITIONAL CLIPS, ANCHORS, LIGHT GAUGE FRAMING, ETC. AS REQUIRED TO INTEGRATE HIS STANDARD BUILDING COMPONENTS WITH ARCHITECTURAL CANOPIES, SOFFITS, CONCRETE WALLS, ROOF BRACING, ETC. SEE ALSO SHOP DRAWINGS REQUIREMENTS.

5.3.6. PRE-ENGINEERED BUILDING MATERIALS

- 5.3.6.1. ALL STRUCTURAL STEEL SECTIONS AND WELDED PLATE MEMBERS SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH AISC, "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS," LATEST EDITIONS.

- 5.3.6.2. ALL LIGHT GAUGE COLD-FORMED, STRUCTURAL MEMBERS AND EXTERIOR COVERINGS SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH THE LATEST ADDITION OF THE AISI, "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".

- 5.3.6.3. STEEL RIGID FRAMES AND OTHER BUILT-UP PRIMARY FRAMING SHALL BE FABRICATED FROM HOT ROLLED STEEL PLATE PER ASTM A500-72 TO A MINIMUM YIELD STRENGTH OF 42,000 PSI.

- 5.3.6.4. LIGHT GAUGE I AND C PURLINS, GIRTS AND SECONDARY FRAMING SHALL BE COLD FORMED UTILIZING HOT ROLLED STEEL COIL MEETING THE CHEMICAL REQUIREMENTS OF ASTM A570-72. SPECIFIED MINIMUM YIELD STRENGTH IS 50,000 PSI.

- 5.3.6.5. STEEL ROOF AND WALL SHEETING (SEE SPECIFICATIONS)

- 5.3.6.6. FOUNDATION ANCHOR BOLTS AND TENSION RODS USED FOR WALL AND ROOF BRACING SHALL BE FABRICATED FROM A36 MATERIAL.

- 5.3.6.7. MACHINE BOLTS ARE PER ASTM A307 SPECIFICATIONS AND HIGH STRENGTH BOLTS SHALL MEET ALL REQUIREMENTS OF A325 SPECIFICATIONS.

6'-11" 11'-6" 6'-11"

15'-0"

AXLE LOAD = 31.94K TYP.

15'-0"

6'-5"

2'-0"

7'-4"

2'-0"

VALMET STRADDLE CARRIER

15'-0"

REAR AXLE LOAD = 48K

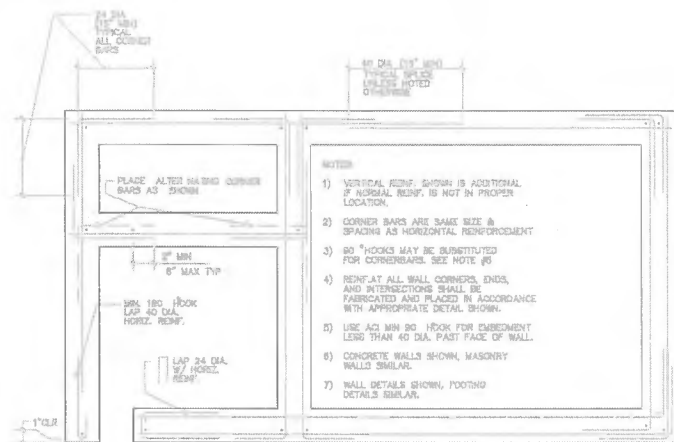
FRONT AXLE LOAD = 141.9K (LOADED)

VALMET FORK LIFT TRUCK (TD4212)

WHEEL LOAD PLAN

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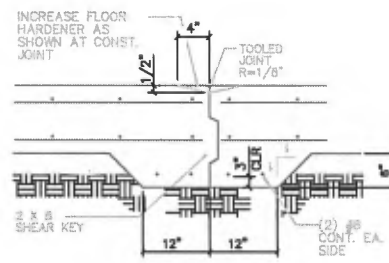
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TYPICAL REINF. PLACING DETAIL

NO SCALE

1

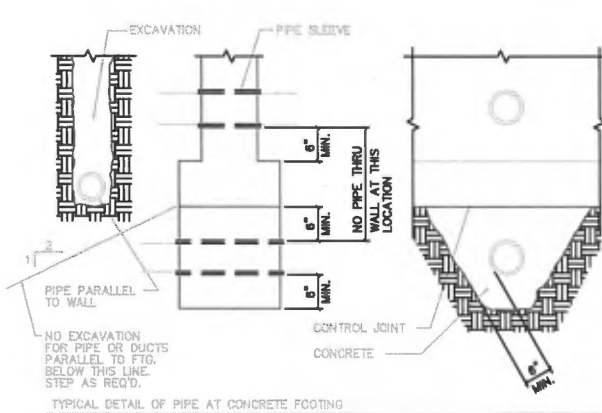


TYPICAL CONSTRUCTION JOINT

SECTION

NO SCALE

2



SECTION

NO SCALE

3



PORT OF TACOMA
P.O. BOX 1837 TACOMA, WASHINGTON 98401
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2215 NORTH 3201 JUNE 210 VICTORIA, B.C. V8N 4A3
(250) 363-2422 FAX: (250) 363-2572



APPROVED

CHIEF ENGINEER

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STRUCTURAL NOTES

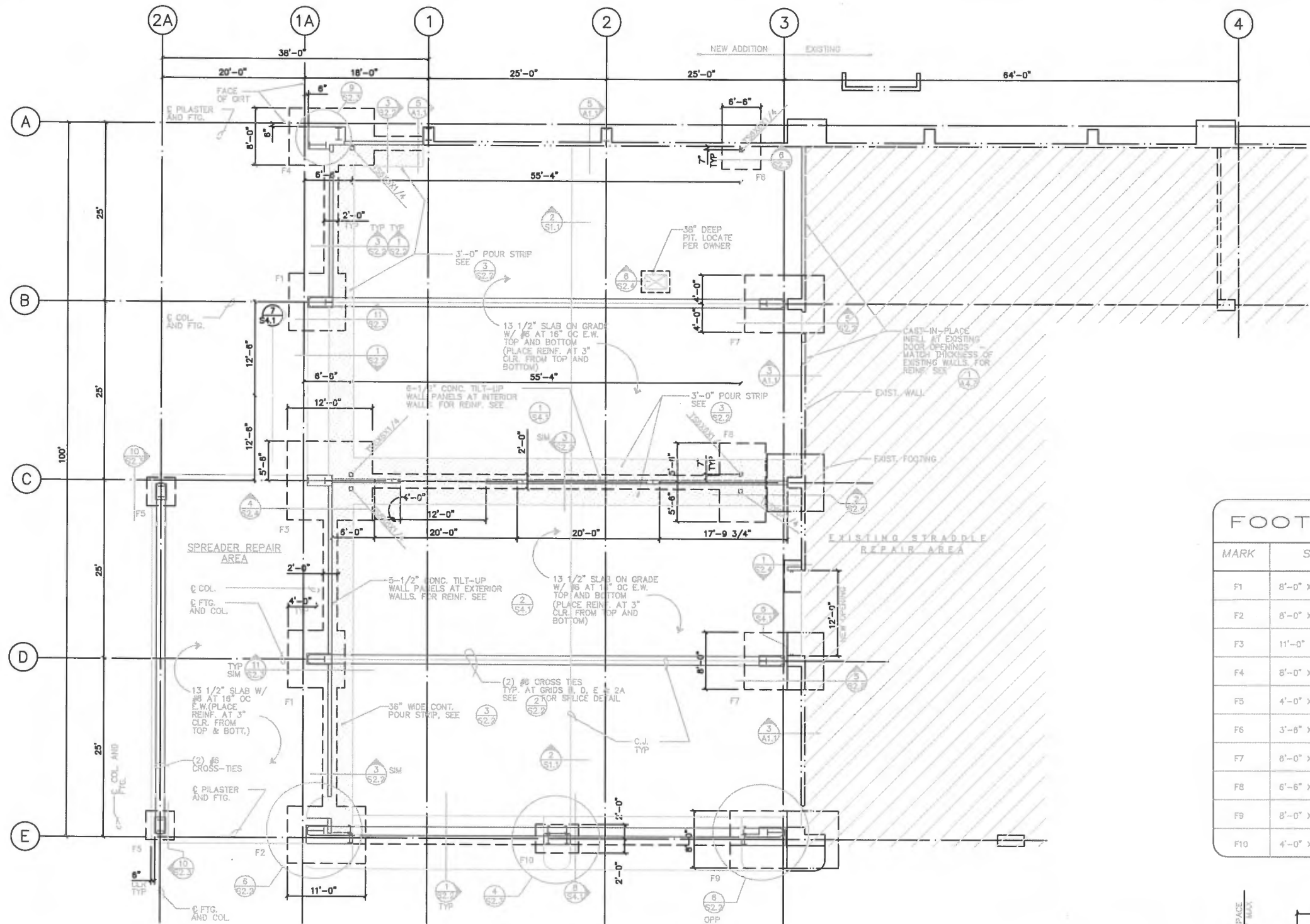
MAINTENANCE SHOP REMODEL 1990

DRAWING No. **FP-4360-4**

CONTRACT No. **680**

SHEET No. **S11** OF **8**

89172
STRADS11



FOUNDATION PLAN

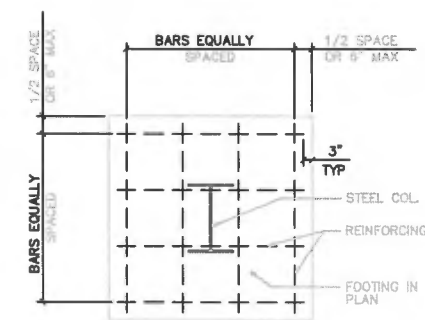
1/8"

1'-0"

1



FOOTING SCHEDULE 3			
MARK	SIZE	REINFORCEMENT	REMARKS
F1	8'-0" X 8'-0" X 18"	(8) #5 EACH WAY	
F2	8'-0" X 11'-0" X 18"	(8) #5 LONG DIRECTION (11) #5 SHORT DIRECTION	
F3	11'-0" X 12'-0" X 18"	(11) #5 EACH WAY	
F4	8'-0" X 12'-0" X 18"	(8) #5 LONG (11) #5 SHORT	
F5	4'-0" X 4'-0" X 10"	(3) #5 EACH WAY	
F6	3'-8" X 6'-6" X 12"	(4) #5 EACH WAY	
F7	8'-0" X 8'-0" X 18"	(8) #5 LONG (8) #5 SHORT	REMOVE EXIST. PORTION OF FTG TO MAKE ROOM FOR NEW FTG EXTENSION ON ADDITION SIDE OF BLDG. LEAVE EXIST. REINF. CAST INTO NEW FTG.
F8	6'-6" X 11'-0" X 12"	(6) #5 LONG (11) #5 SHORT	CAST NEW FOOTING ADJACENT TO EXISTING FOOTING.
F9	8'-0" X 8'-0" X 18"	(8) #5 EACH WAY	REMOVE EXIST. PORTION OF FTG TO MAKE ROOM FOR NEW FTG EXTENSION ON ADDITION SIDE OF BLDG. LEAVE EXIST. REINF. CAST INTO NEW FTG.
F10	4'-0" X 6'-6" X 12"	(3) #5 LONG (4) #5 SHORT	

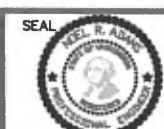


FOR SIZE AND REINFORCEMENT OF FOOTINGS SEE SCHEDULE ABOVE



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(206) 383-2422 FAX: (206) 383-2575



APPROVED

CHIEF ENGINEER

JWS/DRR
DRAWN BY DATE CHECKED BY DATE
AS-BUILT BY DATE PROJ. ENGR. DATE

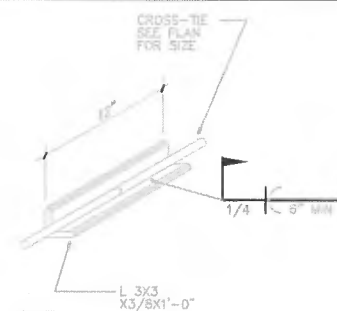
MARK	REVISION	BY	APP.	DATE

FOUNDATION PLAN
MAINTENANCE SHOP REMODEL 1990

DRAWING No. FP-4360-4
CONTRACT No. 680
SHEET No. S2.1 OF 8

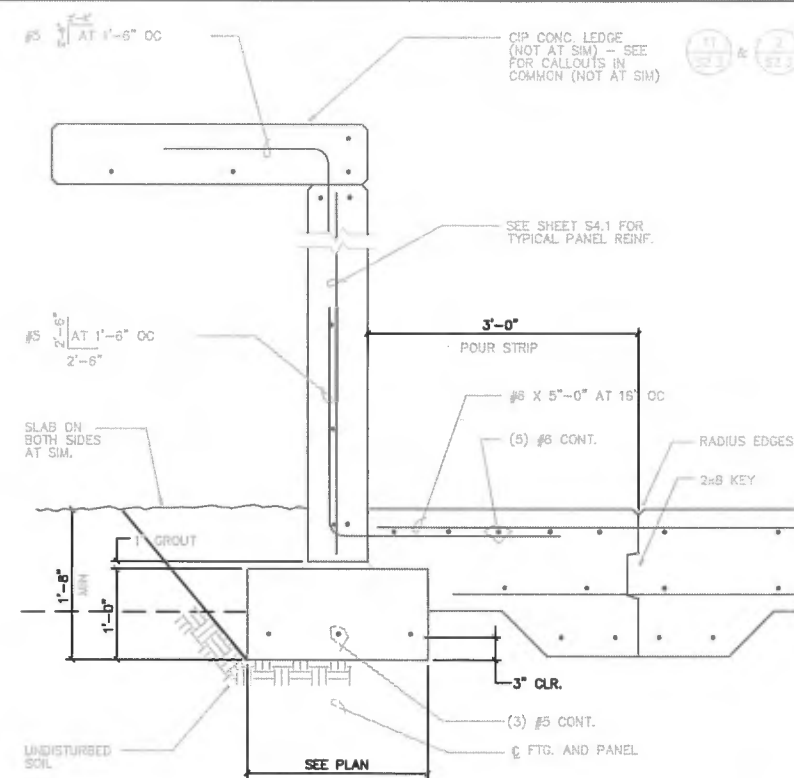
59172
STRADS21

3/4" 1'-0"



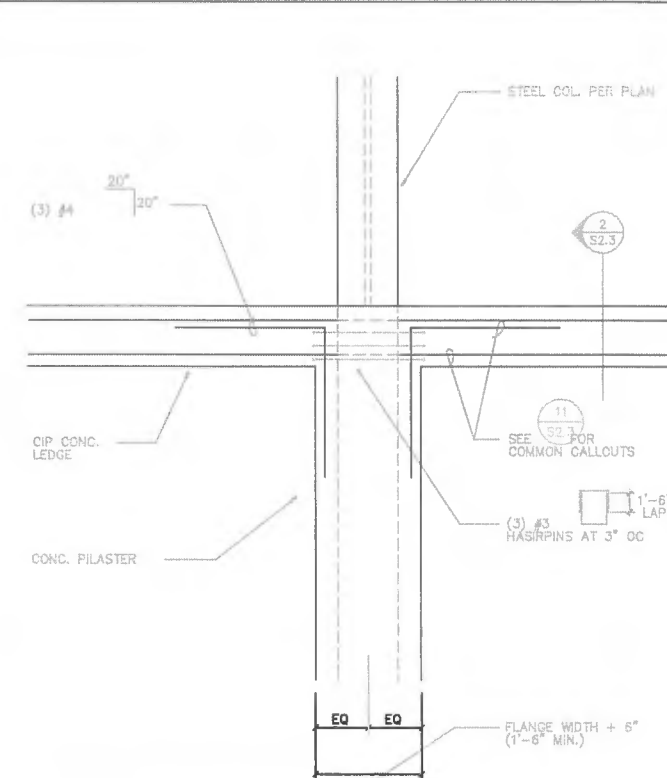
NOTE:
STAGGER SPLICES 36" MIN.

NOTE:
WELD GR60 REINF. IN ACCORDANCE
WITH ANSI/AWS D1.4-79 OR USE
ASTM A706 REINF. AS ALTERNATE



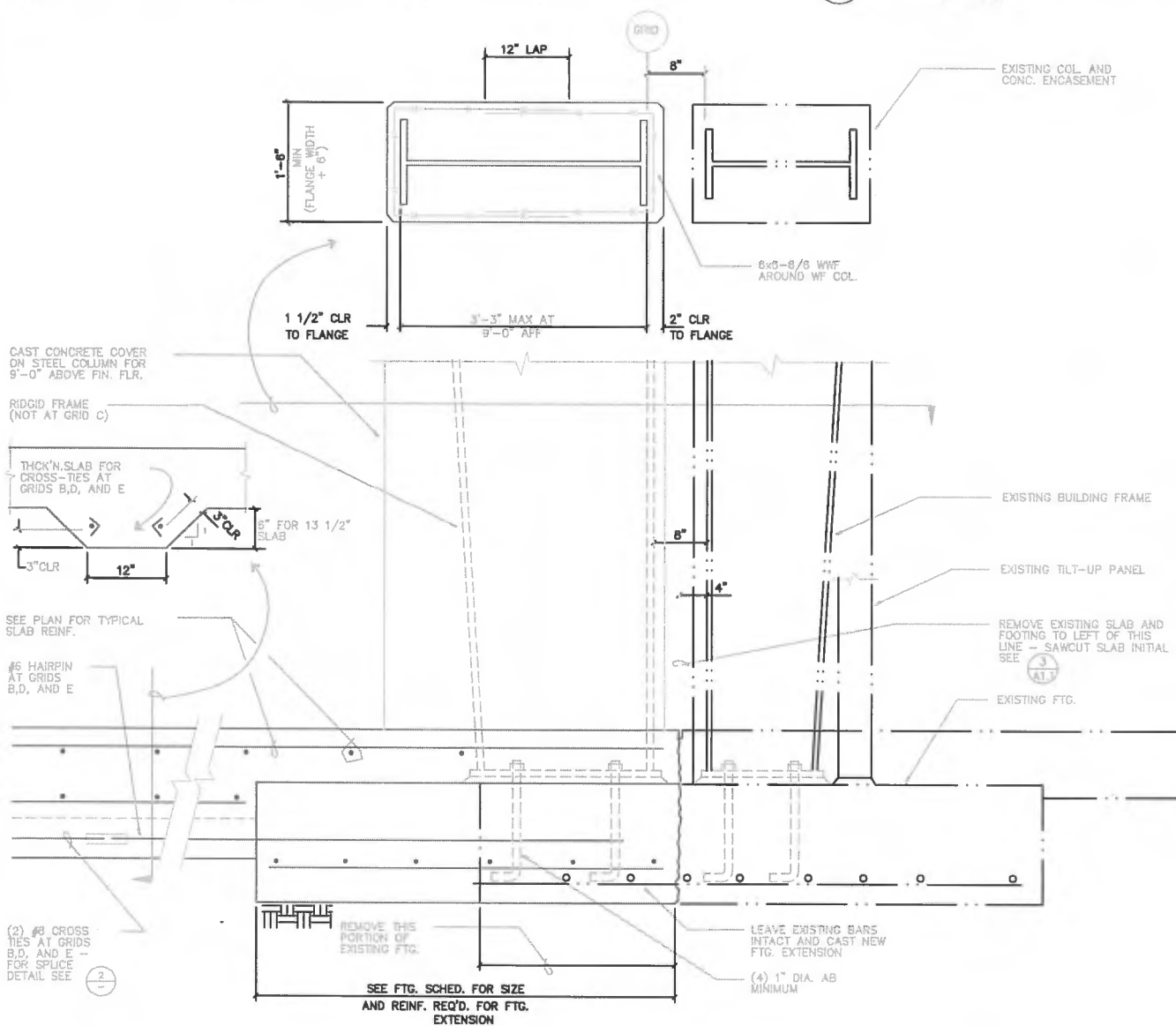
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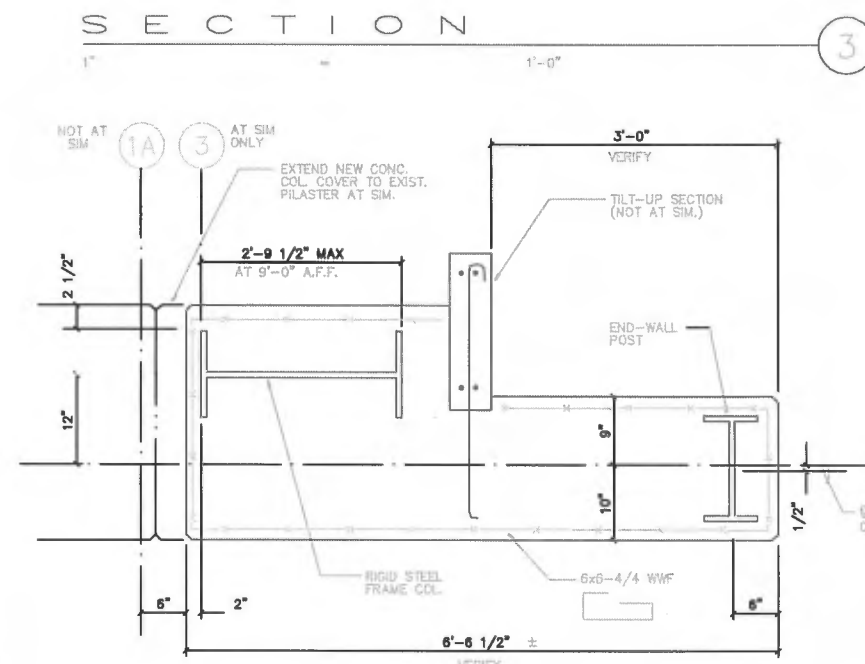


S E C T I O N

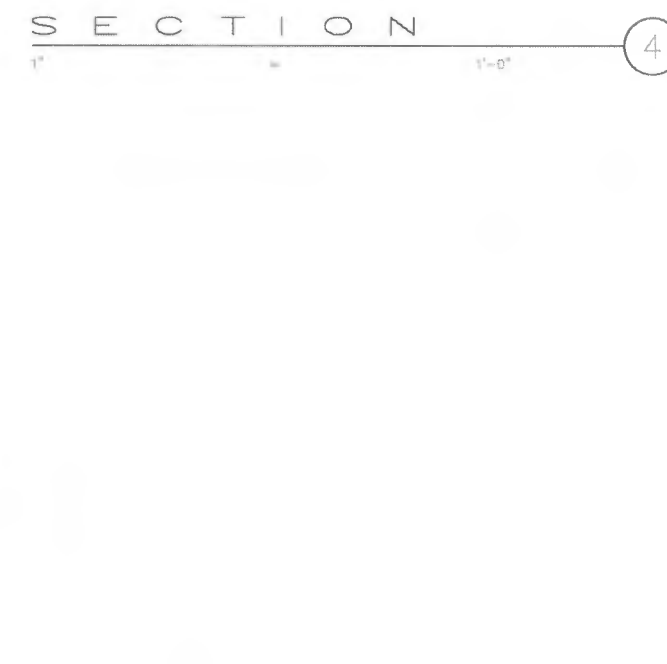
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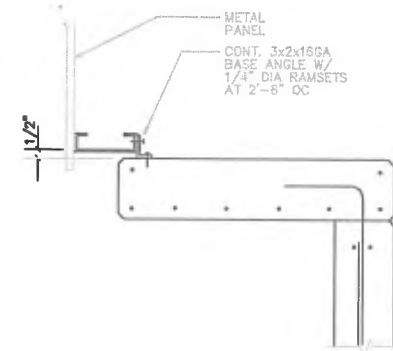


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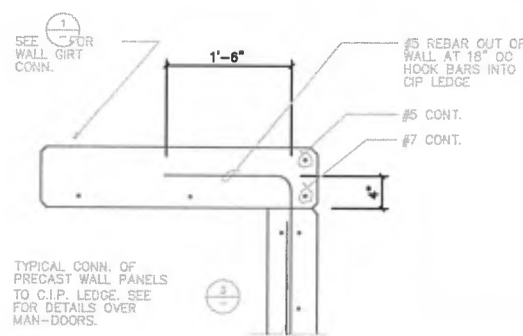
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S E C T I O N

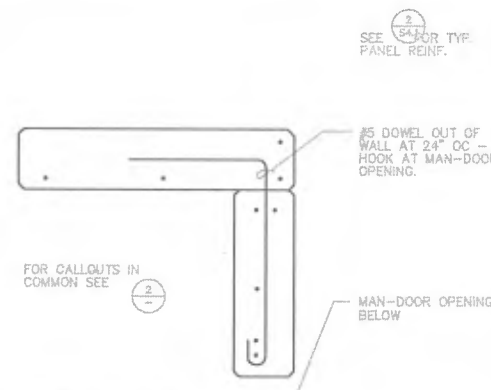
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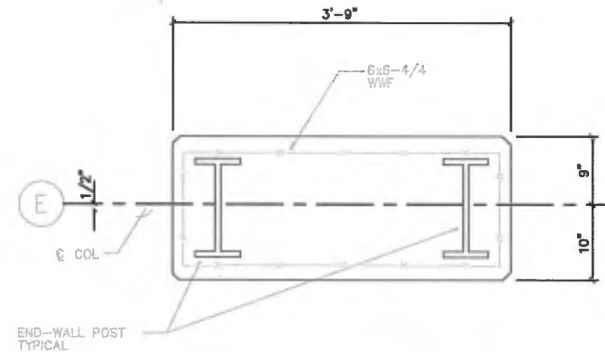
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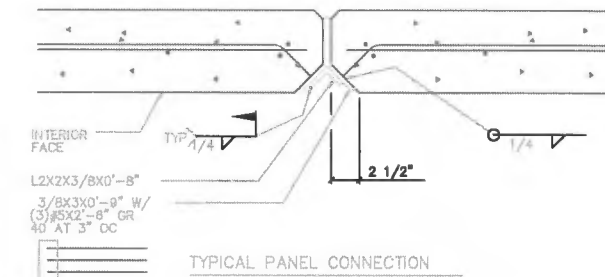
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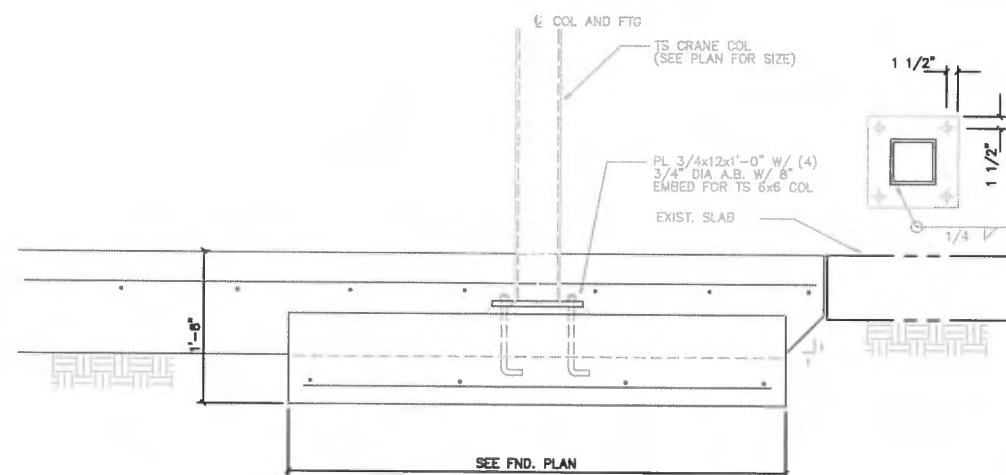
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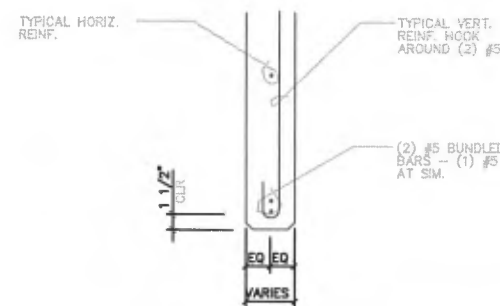
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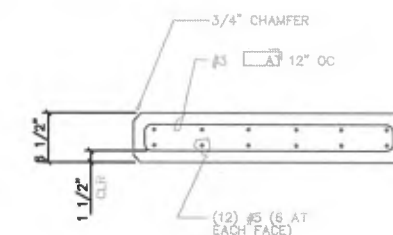
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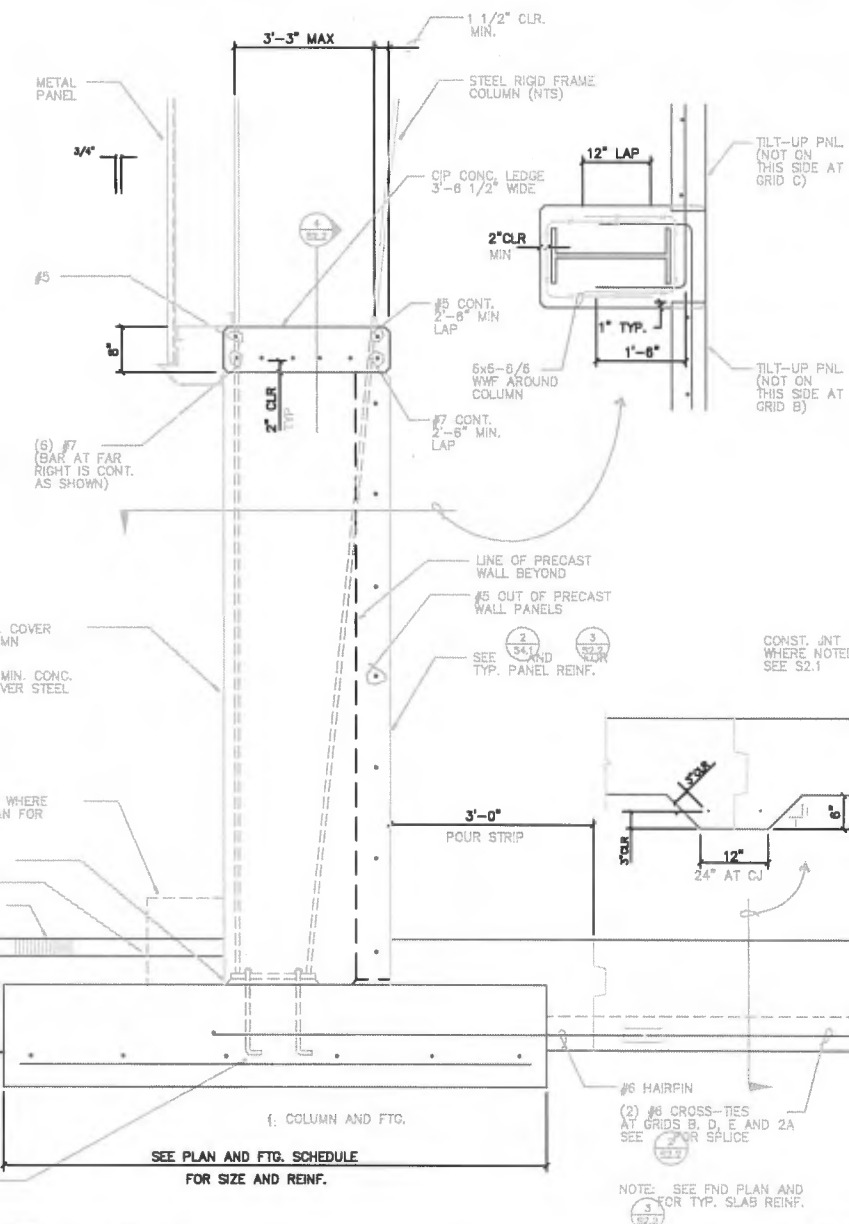
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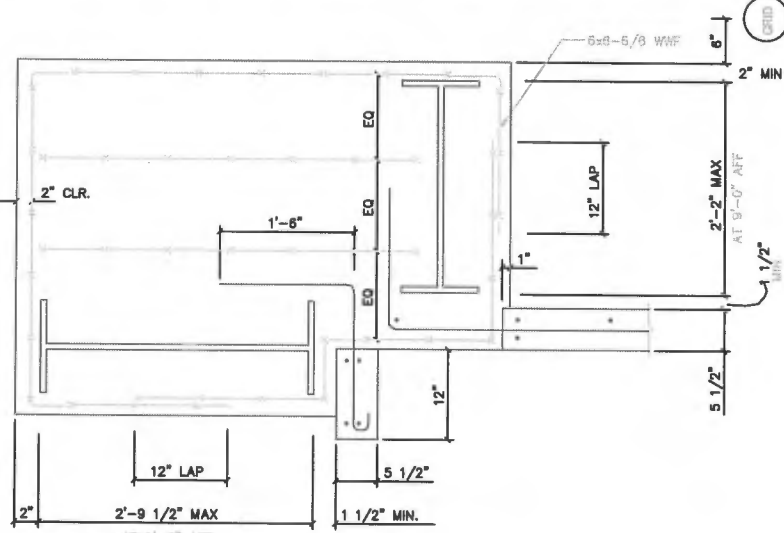
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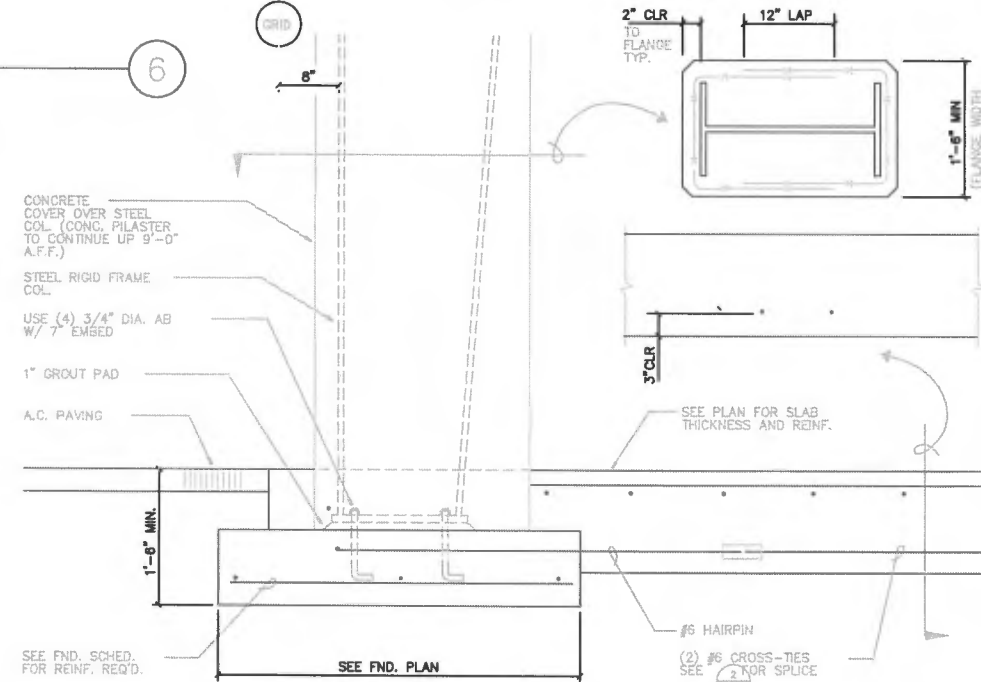
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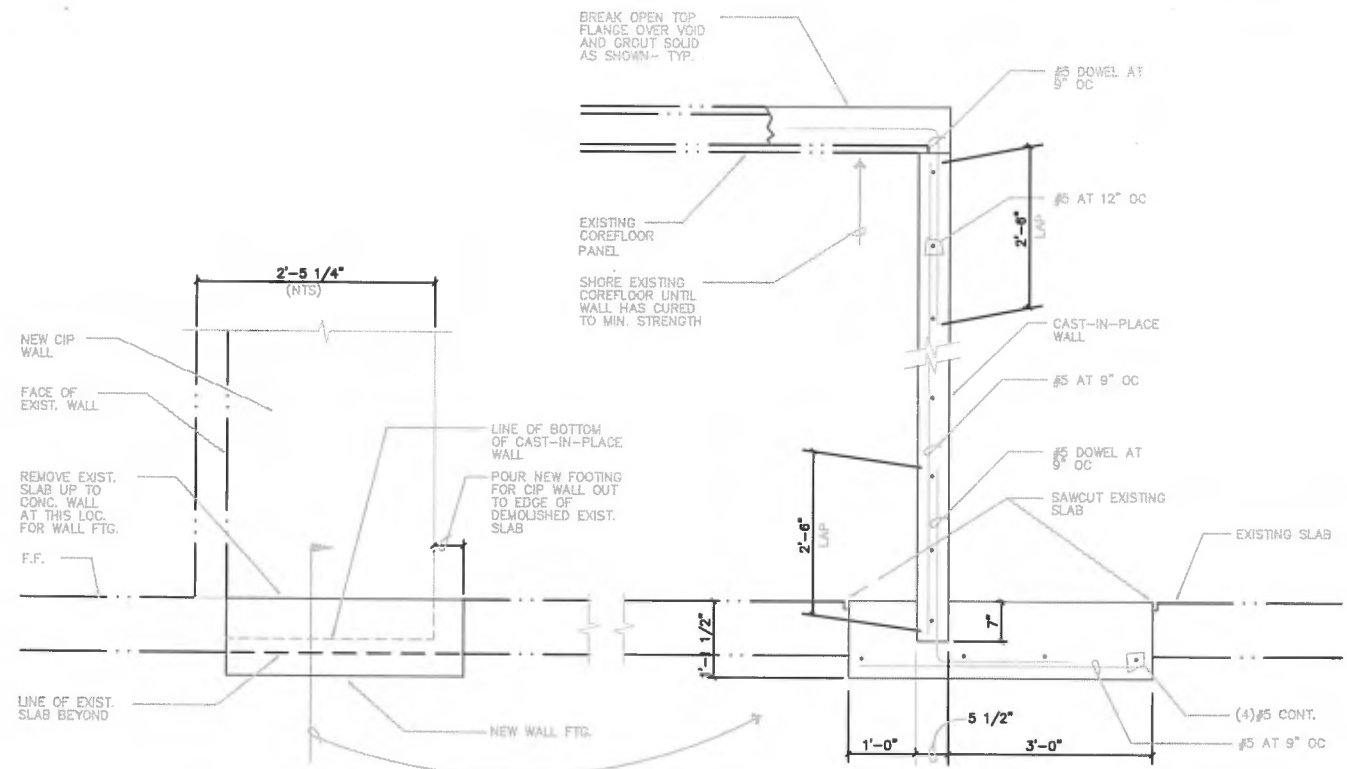
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SECTION 9
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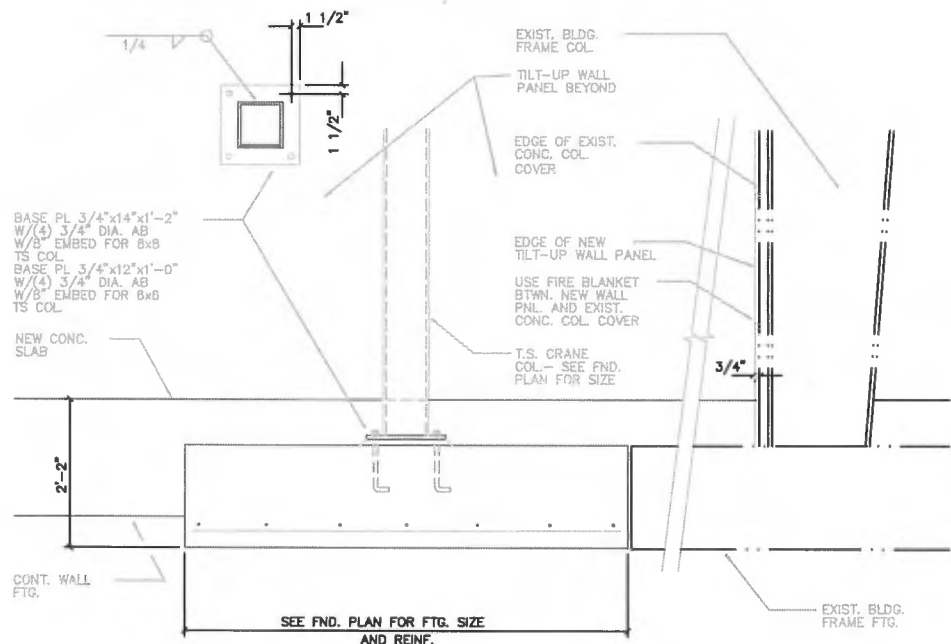


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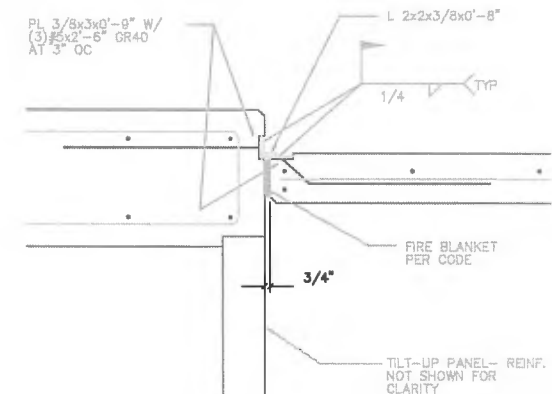
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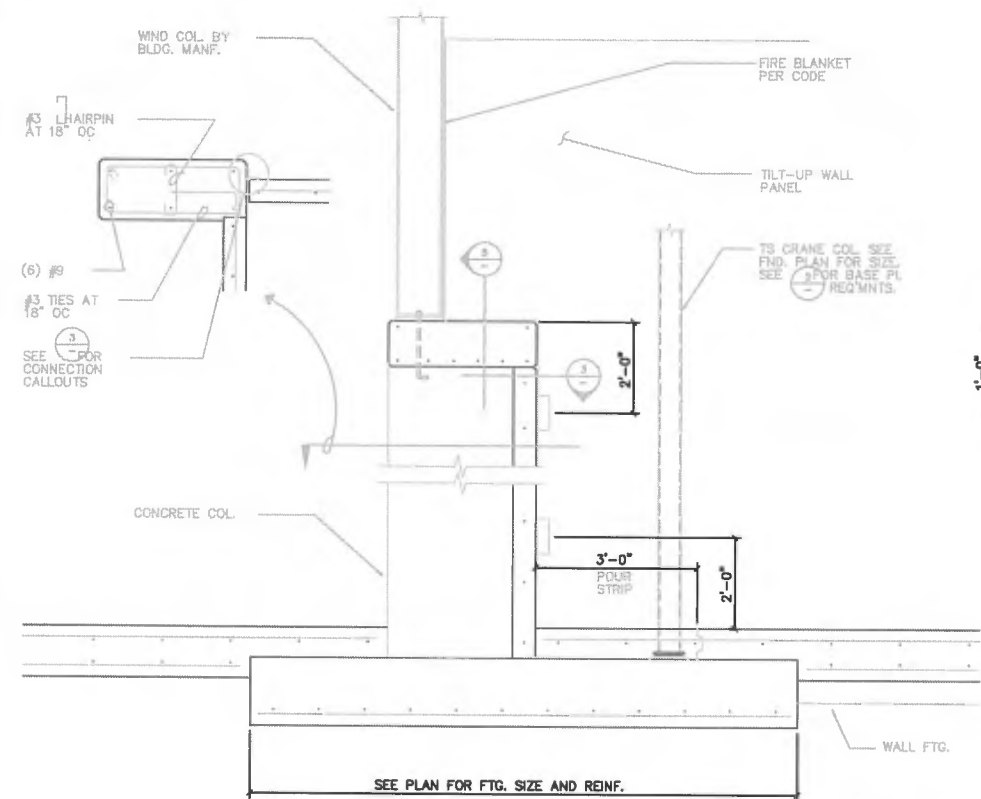
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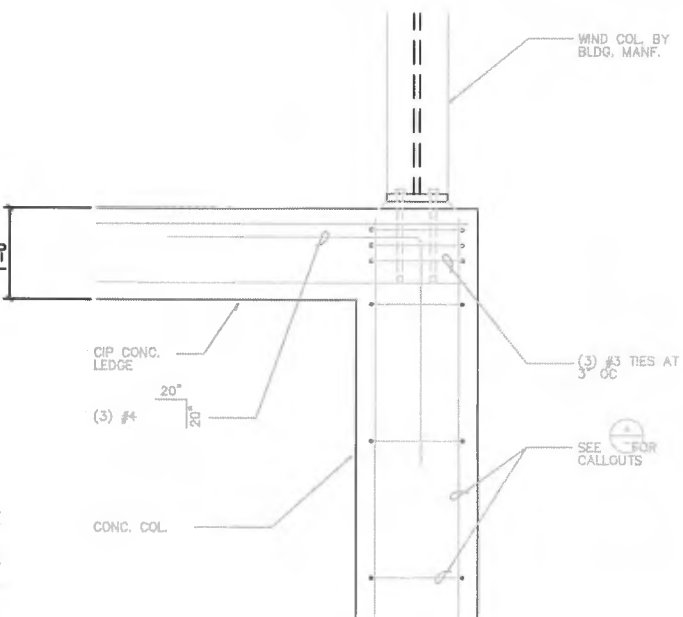
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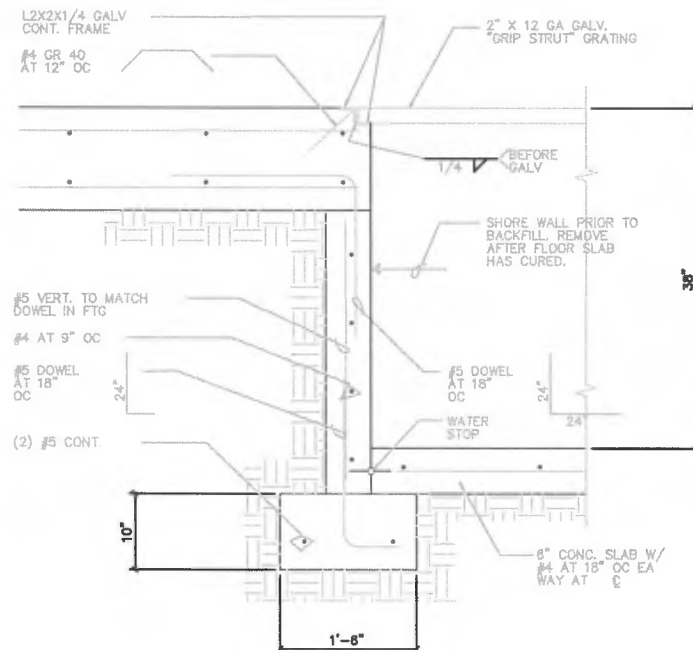
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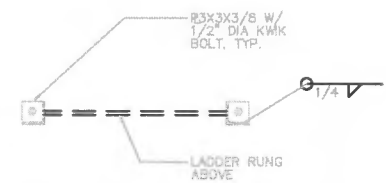
SECTION

1'-0\"/>



SECTION

1'-0\"/>



SECTION

1'-0\"/>



PORT OF TACOMA
P.O. BOX 1837 TACOMA, WASHINGTON 98401
(206) 383-5841

CONSULTANTS
AHBL
CIVIL - STRUCTURAL ENGINEERS - LAND PLANNERS
2215 NORTH 30th AVE. SUITE 210 TACOMA, WA 98403
(206) 383-2422 FAX: (206) 383-2872



APPROVED

CHIEF ENGINEER

DATE

DRR

DRAWN BY

DATE

CHECKED BY

DATE

AS-BUILT BY

DATE

PROJ. ENGR.

DATE

MARK

REVISION

BY

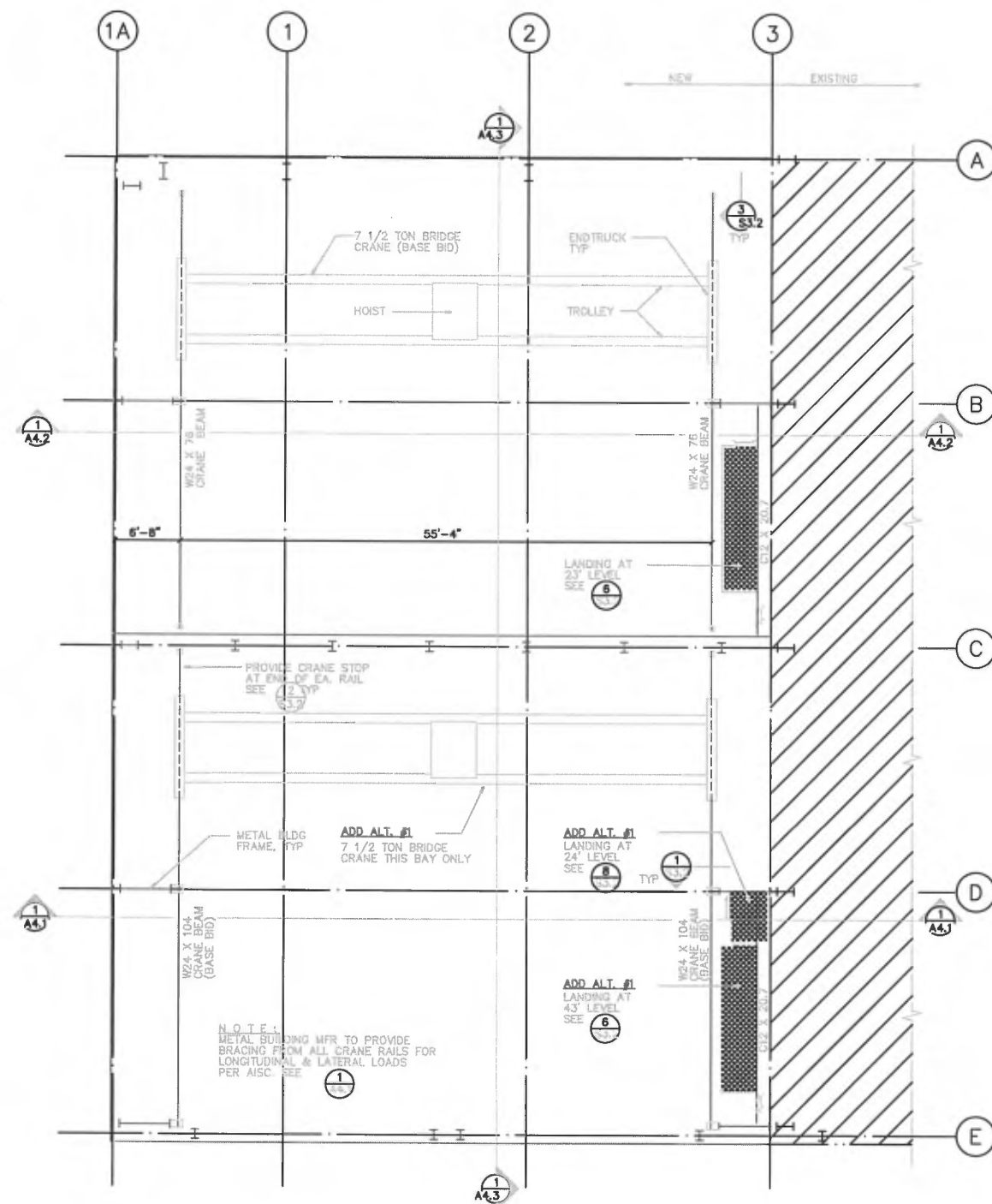
APP.

DATE

FOUNDATION DETAILS
MAINTENANCE SHOP REMODEL 1990

DRAWING No. **FP-4360-4**
CONTRACT No. **680**
SHEET No. **S2.4** OF **8**

89172
STRADS24

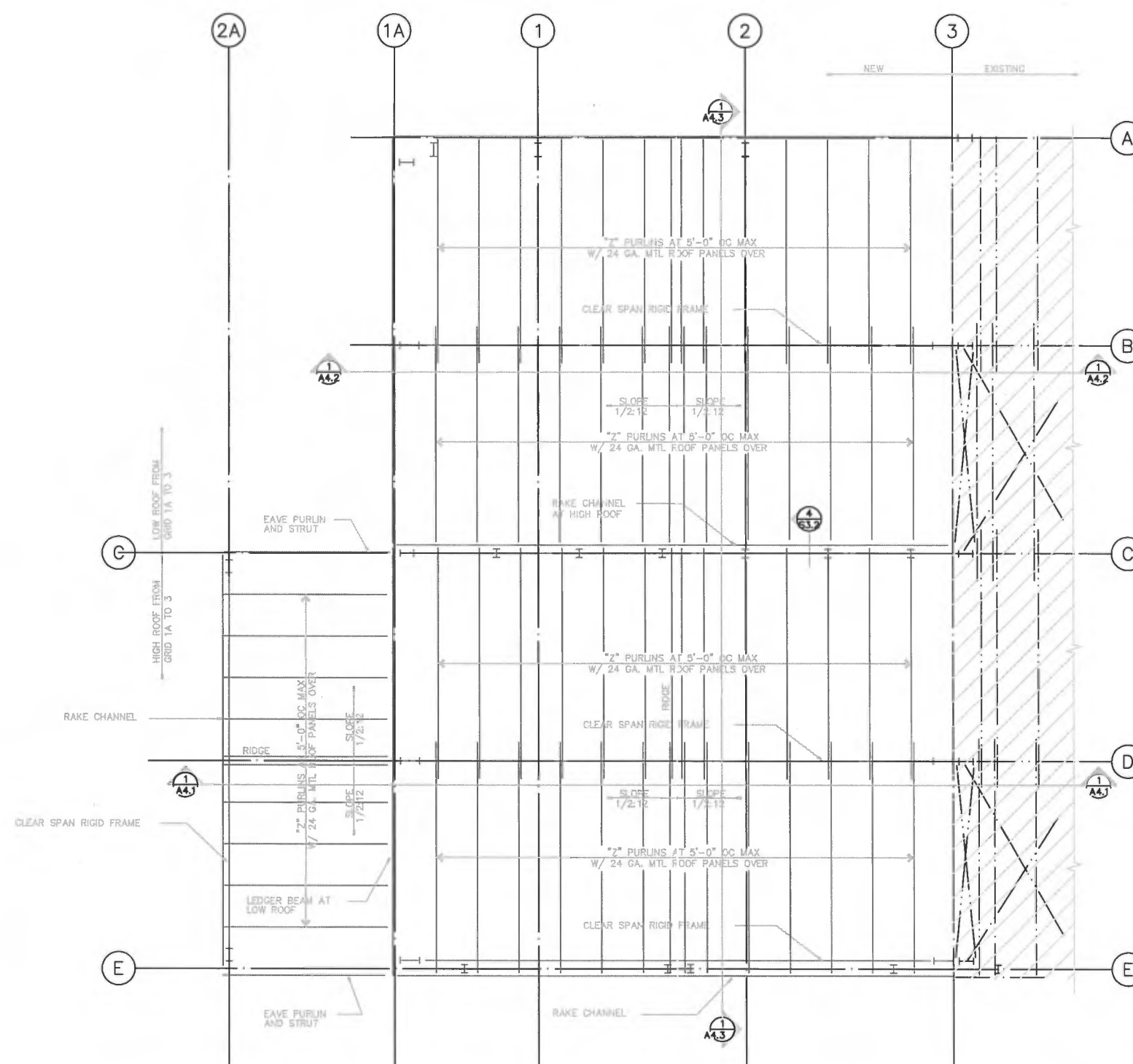


CRANE RAIL PLAN

1/8"

1'-0"

1



ROOF FRAMING PLAN

1/8"

1'-0"

2



PORT OF TACOMA
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CHIEF ENGINEER

DATE

JWS

DRAWN BY DATE

AS-BUILT BY DATE

CHECKED BY DATE

PROJ. ENGR. DATE

MARK

REVISION

BY

APP.

DATE

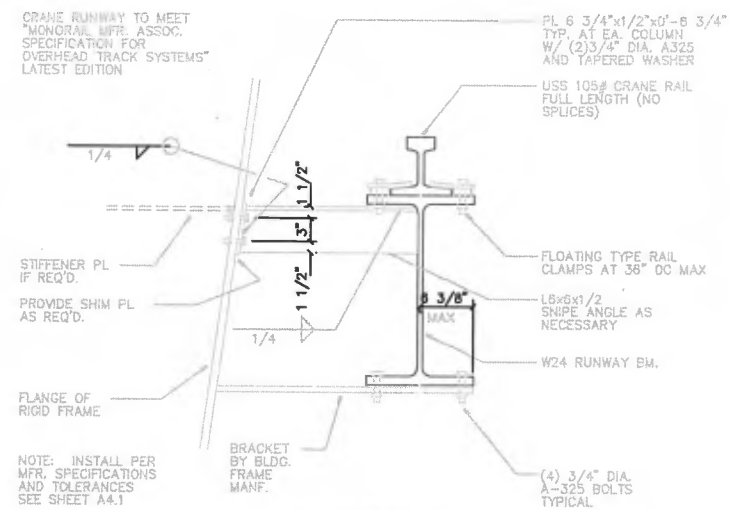
ROOF FRAMING PLAN
MAINTENANCE SHOP REMODEL 1990

DRAWING No. EP-4360-4

CONTRACT No. 680

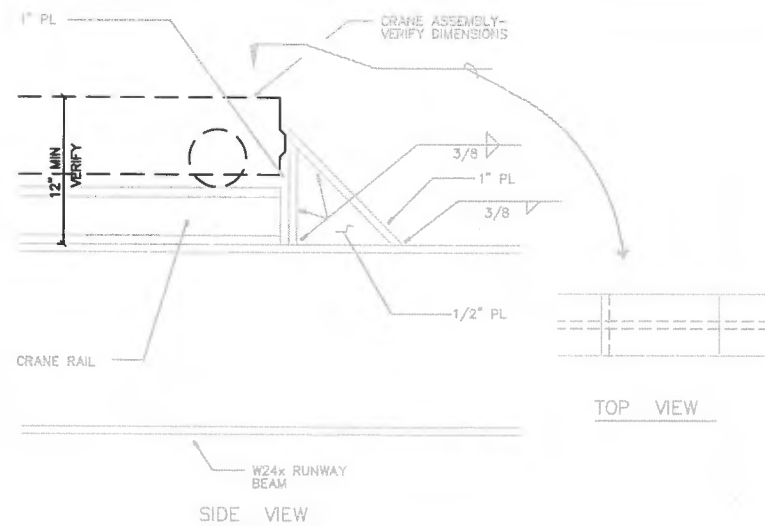
SHEET No. 331 OF 8

89172
STRAD531



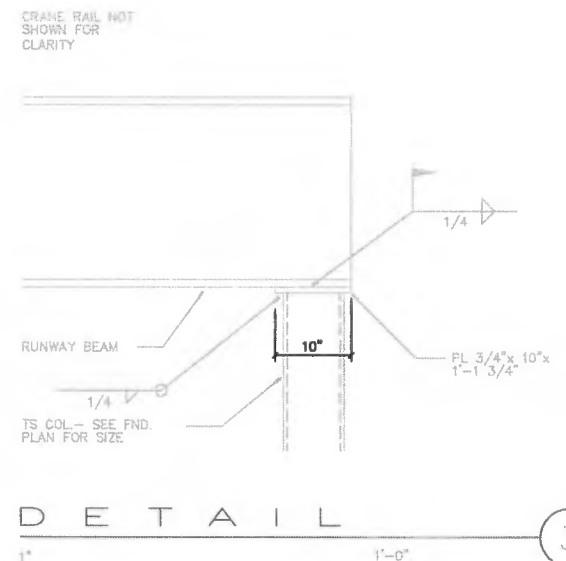
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1" = 1'-0" 1

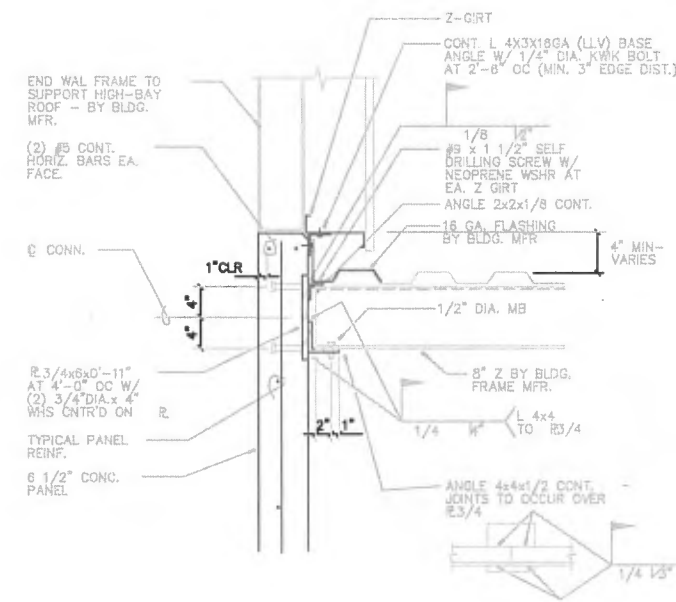


DETAIL

1" = 1'-0" 2

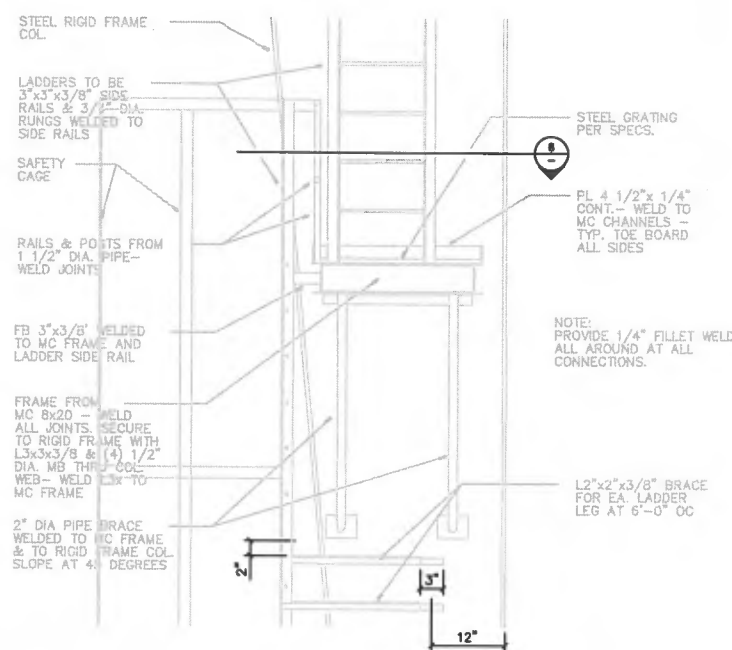


DETAIL



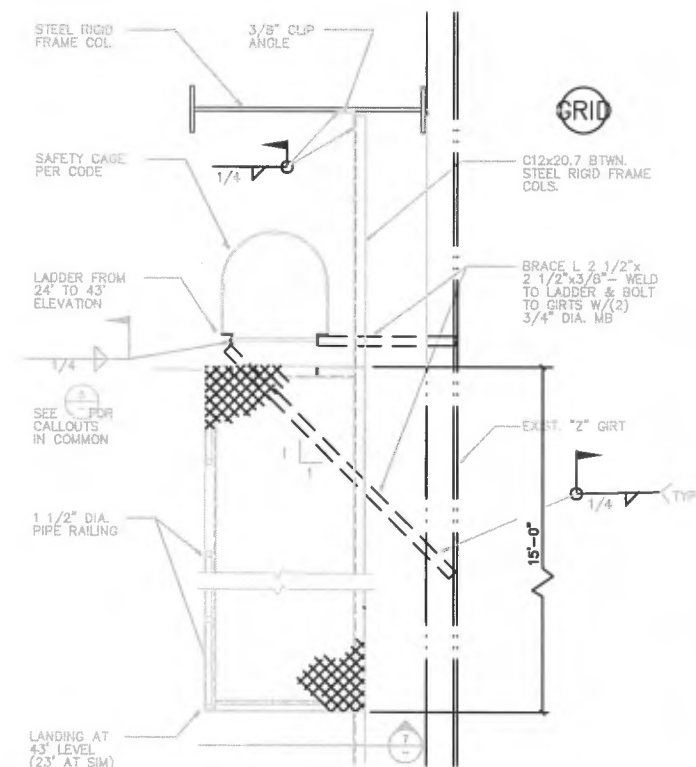
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1" = 1'-0" 4



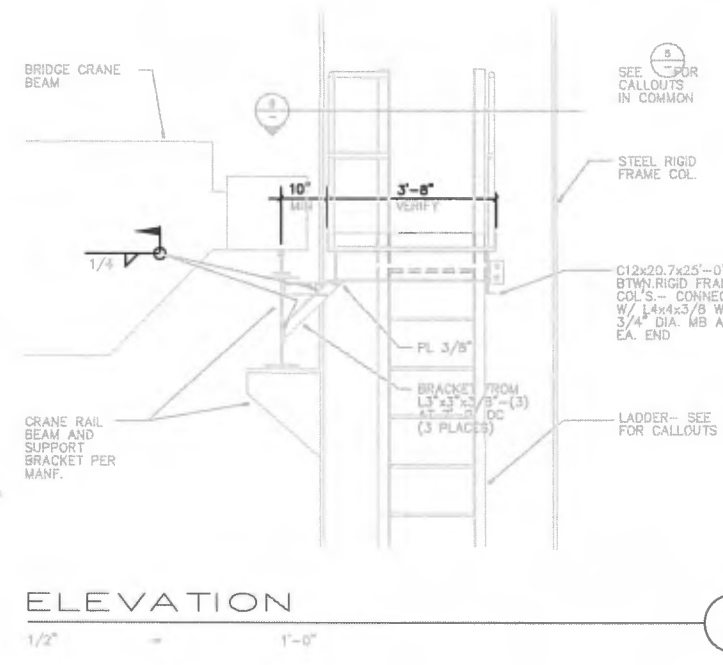
ELEVATION

1/2" = 1'-0" 5



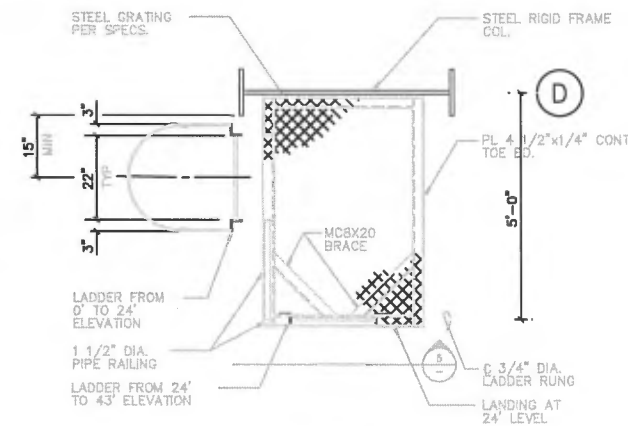
PLAN

1/2" = 1'-0" 6



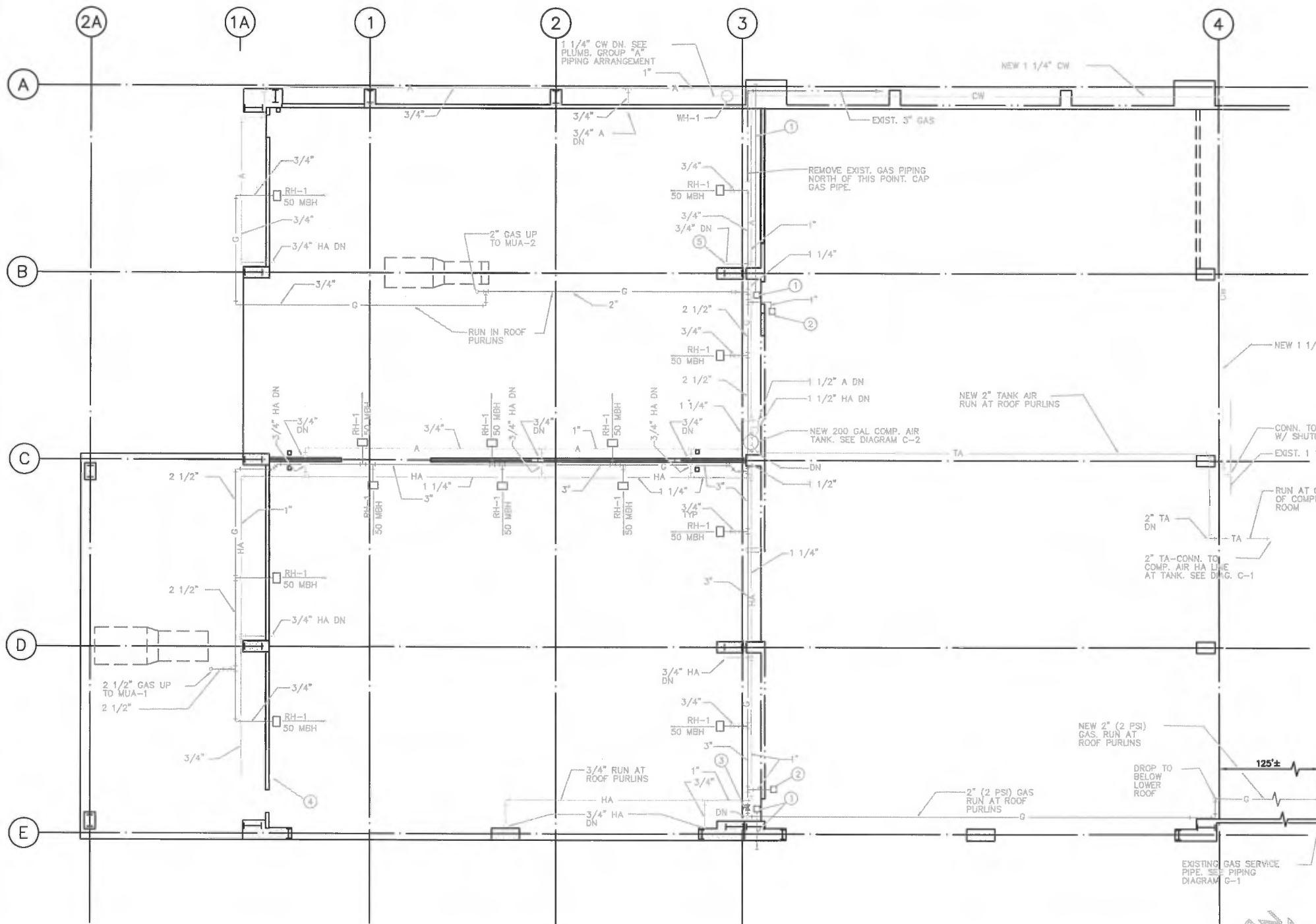
ELEVATION

1/2" = 1'-0" 7



PLAN

1/2" = 1'-0" 8

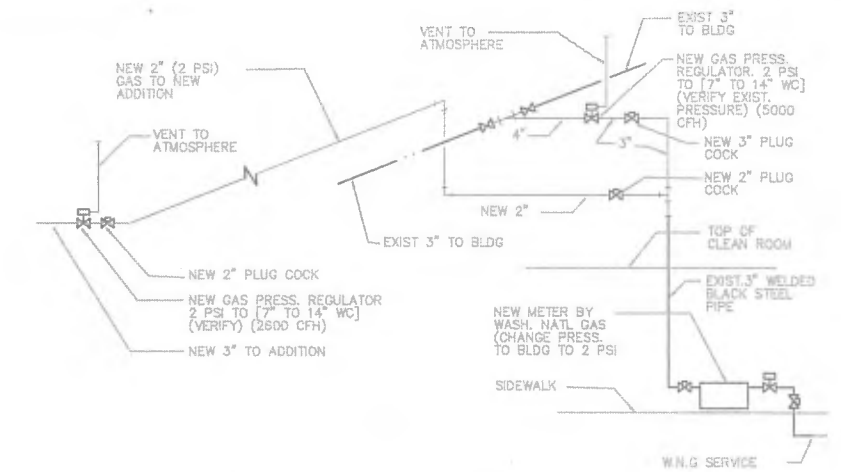


LEGEND

PIPING PLAN

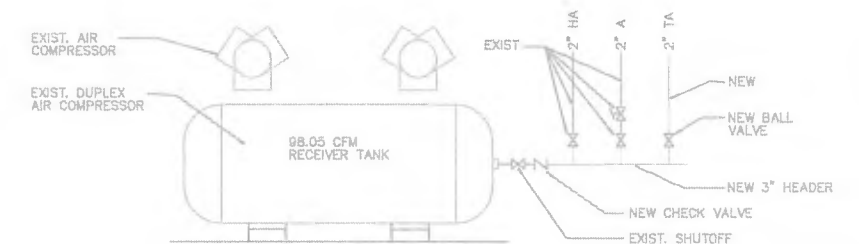
1/8"

1'-0"



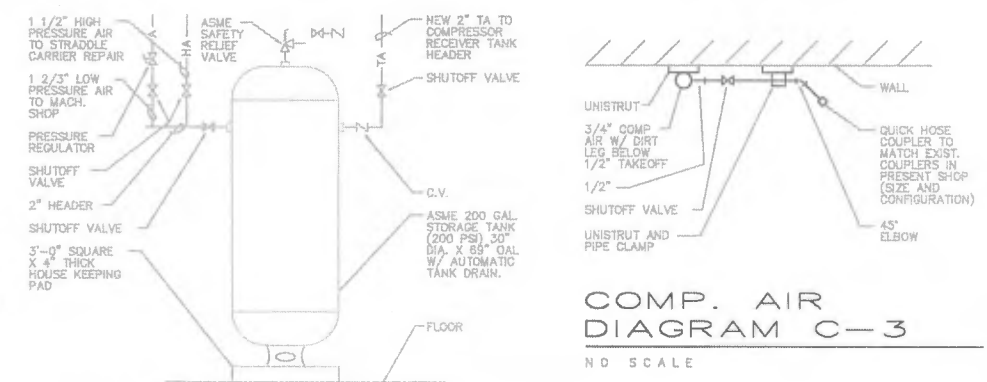
GAS PIPING DIAGRAM G-1

NO SCALE



COMP. AIR DIAGRAM C-1

NO SCALE



COMP. AIR DIAGRAM C-2

NO SCALE

COMP. AIR DIAGRAM C-3

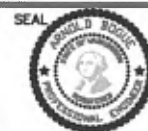
NO SCALE



PORT OF TACOMA
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(206) 383-5841

CONSULTANTS

ARNOLD BOGUE &
ASSOCIATES
33236 2nd PL SW
FEDERAL WAY, WA 98003



APPROVED

CHIEF ENGINEER

DATE

JWS

DRAWN BY DATE

CHECKED BY DATE

AS-BUILT BY DATE

PROJ. ENGR. DATE

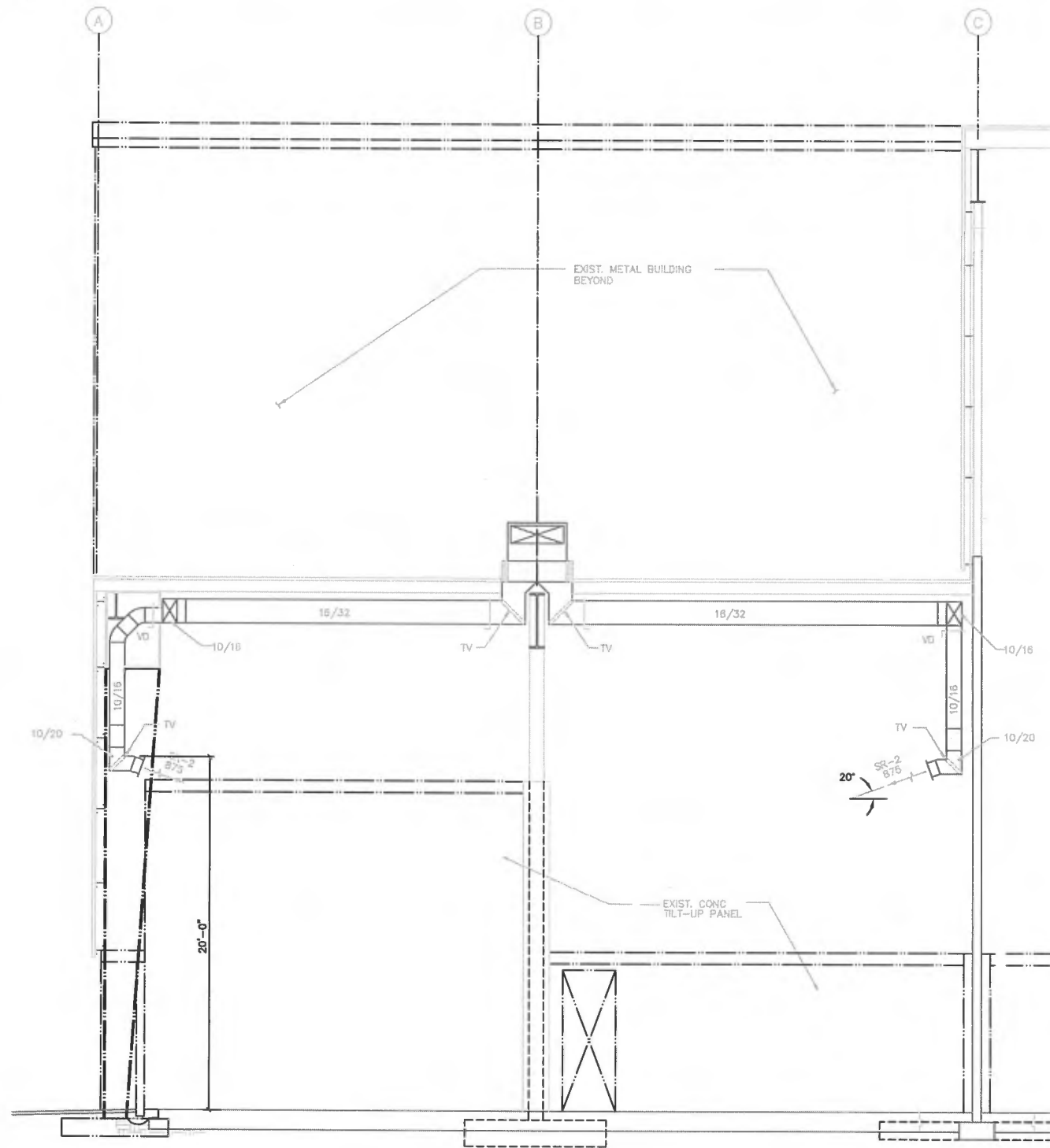
MARK REVISION

BY APP. DATE

PIPING PLAN
MAINTENANCE SHOP REMODEL 1990

DRAWING No. **FP-4360-4**
CONTRACT No. **680**
SHEET No. **M12** OF **5**

89172
STRADM12



BUILDING SECTION ALONG GRID 2

1/4"

1'-0"

1



PORT OF TACOMA
P.O. BOX 1937 TACOMA, WASHINGTON 98401
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FEDERAL WAY, WA 98003



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CHIEF ENGINEER

DATE

DRAWN BY DATE

CHECKED BY DATE

AS-BUILT BY DATE

PROENGR. DATE

MARK REVISION

BY APP. DATE

BUILDING SECTION
MAINTENANCE SHOP REMODEL 1990

DRAWING No: **EP-4360-4**
CONTRACT No: **680**
SHEET No: **M2.3** OF **5**

89172
STRACM23



PANELBOARD "L"

SQUARE D NOOD PANELBOARD
208Y/120 V, 3 PHASE, 4 WIRE, SN

225A/3 POLE MAIN CIRCUIT BREAKER

DESIGNATION	AWG	VA	BRKR	CKT
EF-1 FAN - STRAD REPAIR	10	828	20/1	1
EF-1 FAN - STRAD REPAIR	10	828	20/1	3
EF-1 FAN - STRAD REPAIR	10	828	20/1	5
EF-1 FAN - STRAD REPAIR	10	828	20/1	7
ELEC ROOM EXHAUST FAN	12	200	20/1	9
LTG- STRAD REPAIR FLU.	12	688	20/1	11
STRAD REPAIR FLU.	12	516	20/1	13
MACH/WELD FLU	12	922	20/1	15
MACH/WELD FLU	12	922	20/1	17
TOILET RM	12	200	20/1	19
SPARE CIRCUIT BREAKER	10	1127	20/1	21
RF-1 FAN - STRAD REPAIR	10	1127	20/1	23
RF-1 FAN - STRAD REPAIR	10	1127	20/1	25
RF-2 FAN - WELD/MACHINE	10	1127	20/1	27
RF-2 FAN - WELD/MACHINE	10	1127	20/1	29
RF-2 FAN - WELD/MACHINE	10	1127	20/1	31
RF-2 FAN - WELD/MACHINE	10	1127	20/1	33
INFRARED UNITS-WELD/MACH	12	100	20/1	35
INFRARED UNITS-STRAD REPAIR	12	100	20/1	37
SPARE CIRCUIT BREAKER			20/1	39
SPARE CIRCUIT BREAKER			20/1	41

PANEL CONNECTED LOAD: 23.7 kVA

$$\frac{23,742 \text{ VA}}{208\text{V}(1.73)} = 65.9 \text{ A}$$

EXISTING PANELBOARD "A"

NOTE: PROVIDE NEW BRANCH CKT BRKRS EXCEPT AS INDICATED

SQUARE D "I-LINE" PANELBOARD
480 V, 3 PHASE, 3 WIRE

400 A MAIN LUGS ONLY

DESIGNATION	AWG	KVA	BRKR	CKT
STORAGE AREA 15 LIGHTS (EXISTING CIRCUIT)	10	5	30/3	1
				3
				5
SUBFEED TO PNL P1	4/0	160.3	225/3	7
				9
				11
SUBFEED TO PNL P2 THRU 45 KVA TRANSFORMER	2	9.1	60/3	13
				15
				17
SPARE CIRCUIT BREAKER			30/3	19
				21
				23
BRIDGE CRANE WELDING/MACHINE	6	10	60/3	25
				27
				29
60 A WELDING RECEPTACLES WELDING AREA	6	16	60/3	31
				33
				35
60 A WELDING RECEPTACLES WELDING AREA	6	16	60/3	37
				39
				41

PANEL CONNECTED LOAD: 300.8 kVA

$$\frac{300,800 \text{ VA}}{480\text{V}(1.73)} = 362 \text{ A}$$

ELECTRICAL LEGEND

- HIGH INTENSITY DISCHARGE LIGHTING FIXTURE - SEE LIGHTING FIXTURE SCHEDULE
- FLUORESCENT LIGHTING FIXTURE
- ⚡ WP SINGLE POLE SWITCH MOUNTED +48", EXCEPT NOTED WP = WEATHERPROOF INSTALLATION IN CAST BOX WITH COVER
- ⚡ WP GFCI DUPLEX RECEPTACLE, 20A, 125V, MOUNTED +48" EXCEPT NOTED WP = WEATHERPROOF INSTALLATION IN CAST BOX WITH COVER GFCI = GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE
- ⚡ 60A, 480V, 3 PHASE, 4 WIRE WELDING RECEPTACLE APPLETON AEE 8324, OR EQUAL MOUNT +48"
- ⚡ 32A, 480V, 3 PHASE, 4 WIRE WELDING RECEPTACLE MIPCO CEE-17 333FC, OR EQUAL MOUNT +48"
- HEAVY DUTY UNFUSED DISCONNECT SWITCH, 30A, 480V, EXCEPT NOTED
- HEAVY DUTY FUSED DISCONNECT SWITCH, 60A, 480V, NEMA 3R ENCLOSURE PROVIDE DUAL ELEMENT FUSES PER EQUIPMENT MANUFACTURER'S RECOMMENDATION
- 500 T ELECTRIC BASEBOARD HEATER, 120V, 500 WATTS WITH INTEGRAL THERMOSTAT. MOUNT +12" TO BOTTOM. MARKEL CAT. No. E2302/T2201
- CIRCUIT IN CONDUIT
- CIRCUIT IN IMC CONDUIT INSTALLED UNDER CONCRETE SLAB

GENERAL NOTES

- THE ELECTRICAL DRAWINGS ARE NOT COMPLETE WITHOUT THE ACCOMPANYING SPECIFICATION. SEE THE SPECIFICATION FOR FURTHER DESCRIPTION AND REQUIREMENTS OF THE WORK.
- SAWCUT EXISTING ASPHALT PAVING BEFORE EXCAVATING OR TRENCHING. PROVIDE TRENCH, BACKFILL AND NEW ASPHALT PAVING PER SPECIFICATIONS AND DETAIL. SEE SHEET E2.3.
- BOND ALL EQUIPMENT ENCLOSURES TO SYSTEM GROUND WITH 8 AWG COPPER MINIMUM. PROVIDE LARGER BONDING CONDUCTORS WHERE REQUIRED BY CODE.
- PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH 120V AND 277V CIRCUIT, INCLUDING HID AND FLUORESCENT LIGHTING CIRCUITS.

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	LAMPS	REMARKS
A	HIGH PRESSURE SODIUM HIGH BAY ENCLOSED AND GASKETED	GE FILTERGLOW FGL01S4A611E2F	(1)1000W METAL HALIDE	277 V W/ FUSING & POWERHOOK
B	HIGH PRESSURE SODIUM HIGH BAY ENCLOSED AND GASKETED	GE FILTERGLOW FGS40S4M614E7F	(1)400W METAL HALIDE	277 V W/ FUSING & POWERHOOK
C	FLUORESCENT SURFACE WRAPAROUND	METALUX CAT. NO. W-240A-120V	(2) F40 CW	ACRYLIC LENS 120 V
D	FLUORESCENT OPEN INDUSTRIAL COLD WEATHER BALLAST	METALUX CAT. NO. 8TDCVM-240-120V-POR-CEP-CW	(4) F40 CW	CLOSED TOP PORCELAIN FINISH
E	EMERGENCY EGRESS LUMINAIRE W/ INTEGRAL BATT & CHARGER	DUAL-LITE INDUSTRIAL MOD NO. AS-80-BX-3-C-ACON	(3) 7.2W SEALED BEAM	120 V / 12 V
EX	EMERGENCY EXIT SIGN WITH INTEGRAL BATTERY & CHARGER	LITHONIA CAT. NO. XSW1G-EL-DC12	(2) 20T 61/2 (2) #68 12V	120 V / 12 V

NOTE: FLUORESCENT BALLASTS FOR LIGHTING FIXTURE TYPES "C" AND "D" SHALL BE ENERGY SAVING ELECTROMAGNETIC. INPUT POWER TO 2-LAMP BALLAST WITH SPECIFIED LAMPS SHALL NOT EXCEED 86 WATTS.

PANELBOARD "P1"

SQUARE D "I-LINE" PANELBOARD
480 V, 3 PHASE, 3 WIRE

225 A MAIN LUGS ONLY

DESIGNATION	AWG	KVA	BRKR	CKT
MAKE-UP AIR UNIT MUA-1 STRAD REPAIR	10	8.8	30/3	1
				3
				5
MAKE-UP AIR UNIT MUA-2 WELDING/MACHINE	10	6.1	30/3	7
				9
				11
				13
SPARE CIRCUIT BREAKER			30/3	15
				17
SPARE CIRCUIT BREAKER			30/3	19
				21
				23
				25
SPARE CIRCUIT BREAKER			60/6	27
				29
				31
30A WELDING RECEPTACLES-STRAD/SPREADER REPAIR	10	8	30/3	33
				35
60A WELDING RECEPTACLES-STRAD REPAIR	6	16	60/6	37
				39
				41
60A WELDING RECEPTACLES-STRAD/SPREADER REPAIR	6	16	60/6	43
				45
				47
OVERHEAD DOOR OPERATOR SOUTH STRAD REPAIR AREA	10	12.6	30/3	49
				51
				53
OVERHEAD DOOR OPERATOR SOUTH STRAD REPAIR AREA	10	12.6	30/3	55
				57
				59

PANEL CONNECTED LOAD: 160.7 kVA

$$\frac{160,700 \text{ VA}}{480\text{V}(1.73)} = 193.3 \text{ A}$$

PANELBOARD "P2"

SQUARE D TYPE NEHB PANELBOARD
480 V, 3 PHASE, 4 WIRE, SN

60 A MAIN CIRCUIT BREAKER
TYPE CHB-HID BRANCH CIRCUIT BREAKERS

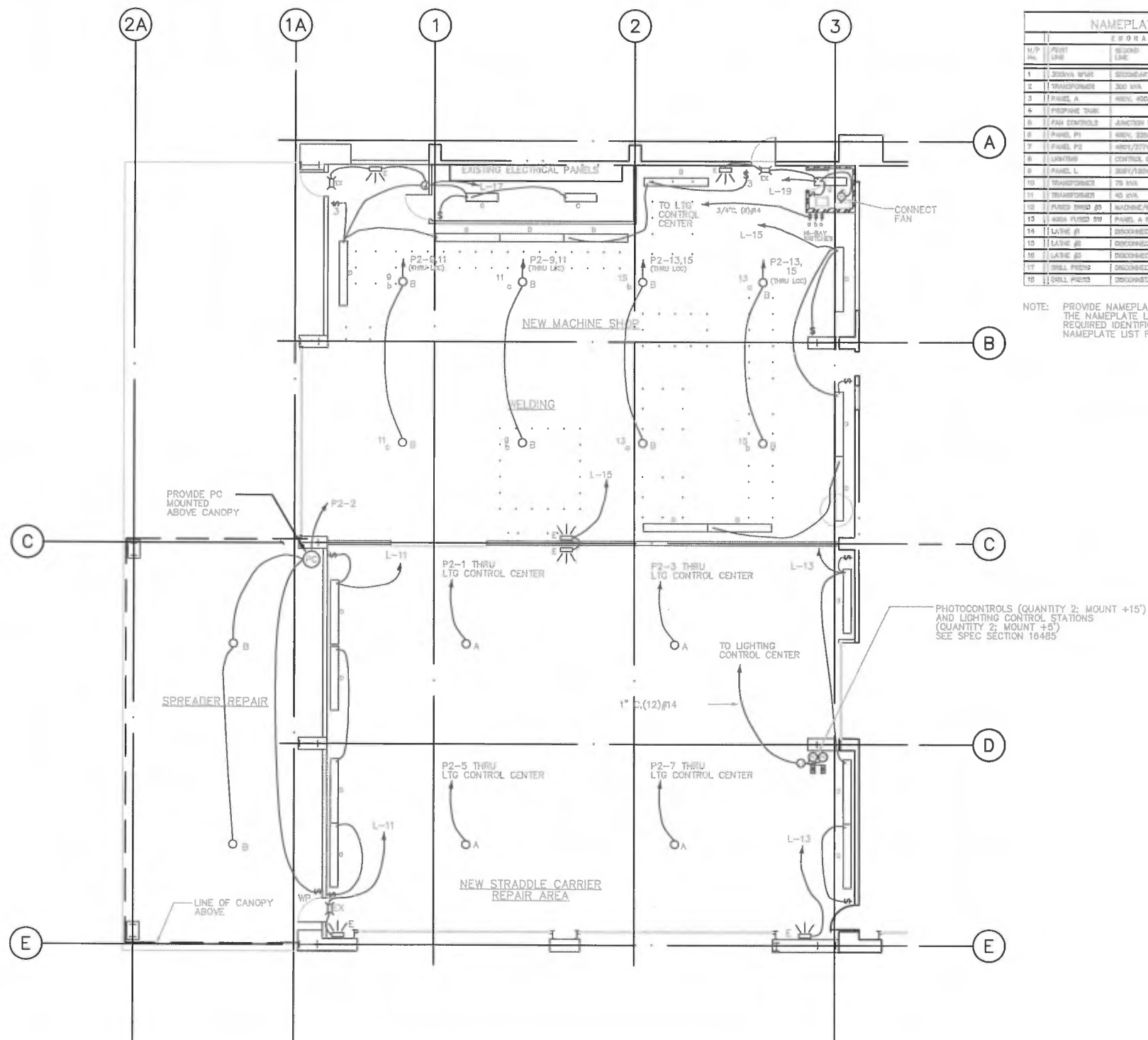
DESIGNATION	AWG	VA	BRKR	CKT
LTG-S. STRAD REPAIR HI-BAY	12	1090	20/1	1
LTG-S. STRAD REPAIR HI-BAY	12	1090	20/1	3
LTG-S. STRAD REPAIR HI-BAY	12	1090	20/1	5
LTG-S. STRAD REPAIR HI-BAY	12	1090	20/1	7
LTG-MACHINE/WELDING HI-BAY	12	938	20/1	9
LTG-MACHINE/WELDING HI-BAY	12	938	20/1	11
LTG-MACHINE/WELDING HI-BAY	12	938	20/1	13
LTG-MACHINE/WELDING HI-BAY	12	938	20/1	15
SPARE CIRCUIT BREAKER			20/1	17
SPARE CIRCUIT BREAKER			20/1	19
SPARE CIRCUIT BREAKER			20/1	21
SPARE CIRCUIT BREAKER			20/1	23
SPARE CIRCUIT BREAKER			20/1	25
SPARE CIRCUIT BREAKER			20/1	27
SPARE CIRCUIT BREAKER			20/1	29
SPARE CIRCUIT BREAKER			20/1	31
SPARE CIRCUIT BREAKER			20/1	33
SPARE CIRCUIT BREAKER			20/1	35
SPARE CIRCUIT BREAKER			20/1	37
SPARE CIRCUIT BREAKER			20/1	39
SPARE CIRCUIT BREAKER			20/1	41

PANEL CONNECTED LOAD: 9.1 kVA

$$\frac{9050 \text{ VA}}{480\text{V}(1.73)} = 10.9 \text{ A}$$

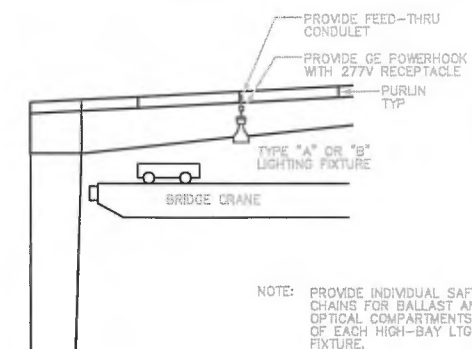
APPROVED

CHIEF ENGINEER

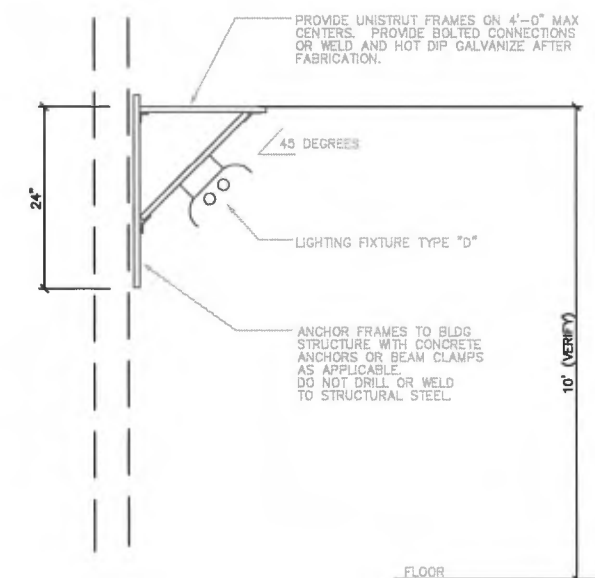


NAMEPLATE SCHEDULE				NAMEPLATE SCHEDULE			
N/P NO.	FIRST LINE	SECOND LINE	THIRD LINE	LOCATION	N/P NO.	FIRST LINE	SECOND LINE
1	200VA 50VA	SECONDARY WIND	480 VOLT, 3 PHASE	FROM 800 BUS	19	CHAPER	DISCONNECT
2	TRANSFORMER	200 VA	480-240/120V	200 VA 50VA	20	SHALL HALL	DISCONNECT
3	PANEL A	480V 400A	750 FROM 800V	PHASELOCKED "A"	21	SHALL HALL	DISCONNECT
4	PROFANE TRAIL			STARTED	22	WATER HEATER	DISCONNECT
5	FAN CONTROLS	ANCHOR BOX	120 V		23	WATER HEATER	DISCONNECT
6	PANEL P1	480V 200A	750 FROM PNL A	PHASELOCKED "A"	24	WATER HEATER	DISCONNECT
7	PANEL P2	480V 200A	750 FROM PNL A	PHASELOCKED "A"	25	WATER HEATER	DISCONNECT
8	WATER HEATER	CONTROL CENTER	480V/277V	L-15	26	WATER HEATER	DISCONNECT
9	PANEL L	480V/277V 200A	750 FROM PNL A	PHASELOCKED "A"	27	WATER HEATER	DISCONNECT
10	TRANSFORMER	20 VA	480-240/120V	20 VA 50VA	28	WATER HEATER	DISCONNECT
11	TRANSFORMER	20 VA	480-240/120V	20 VA 50VA	29	WATER HEATER	DISCONNECT
12	TRANSFORMER	20 VA	480-240/120V	20 VA 50VA	30	WATER HEATER	DISCONNECT
13	TRANSFORMER	20 VA	480-240/120V	20 VA 50VA	31	WATER HEATER	DISCONNECT
14	TRANSFORMER	20 VA	480-240/120V	20 VA 50VA	32	WATER HEATER	DISCONNECT
15	TRANSFORMER	20 VA	480-240/120V	20 VA 50VA	33	WATER HEATER	DISCONNECT
16	TRANSFORMER	20 VA	480-240/120V	20 VA 50VA	34	WATER HEATER	DISCONNECT
17	TRANSFORMER	20 VA	480-240/120V	20 VA 50VA	35	WATER HEATER	DISCONNECT
18	TRANSFORMER	20 VA	480-240/120V	20 VA 50VA	36	WATER HEATER	DISCONNECT

NOTE: PROVIDE NAMEPLATES IN ACCORDANCE WITH SPECIFICATIONS. THE NAMEPLATE LIST ABOVE IS A PARTIAL LISTING OF THE REQUIRED IDENTIFICATIONS. SUBMIT FINAL COMPLETE NAMEPLATE LIST FOR APPROVAL BEFORE ENGRAVING.



DETAIL - LIGHTING FIXTURE TYPES "A" & "B" INSTALLATION



DETAIL - LIGHTING FIXTURE TYPE "D" INSTALLATION

ELECTRICAL LIGHTING PLAN

1/8"

1'-0"



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CONSULTANTS
NORTHWEST UTILITY
CONSULTANTS, INC.
1402 47th AVENUE EAST
TACOMA, WA 98424
206-922-6661



APPROVED

CHIEF ENGINEER

DATE

NUC
DRAWN BY
DATE
AS-BUILT BY
DATE

PF
CHECKED BY
DATE
PROJ. ENGR.
DATE

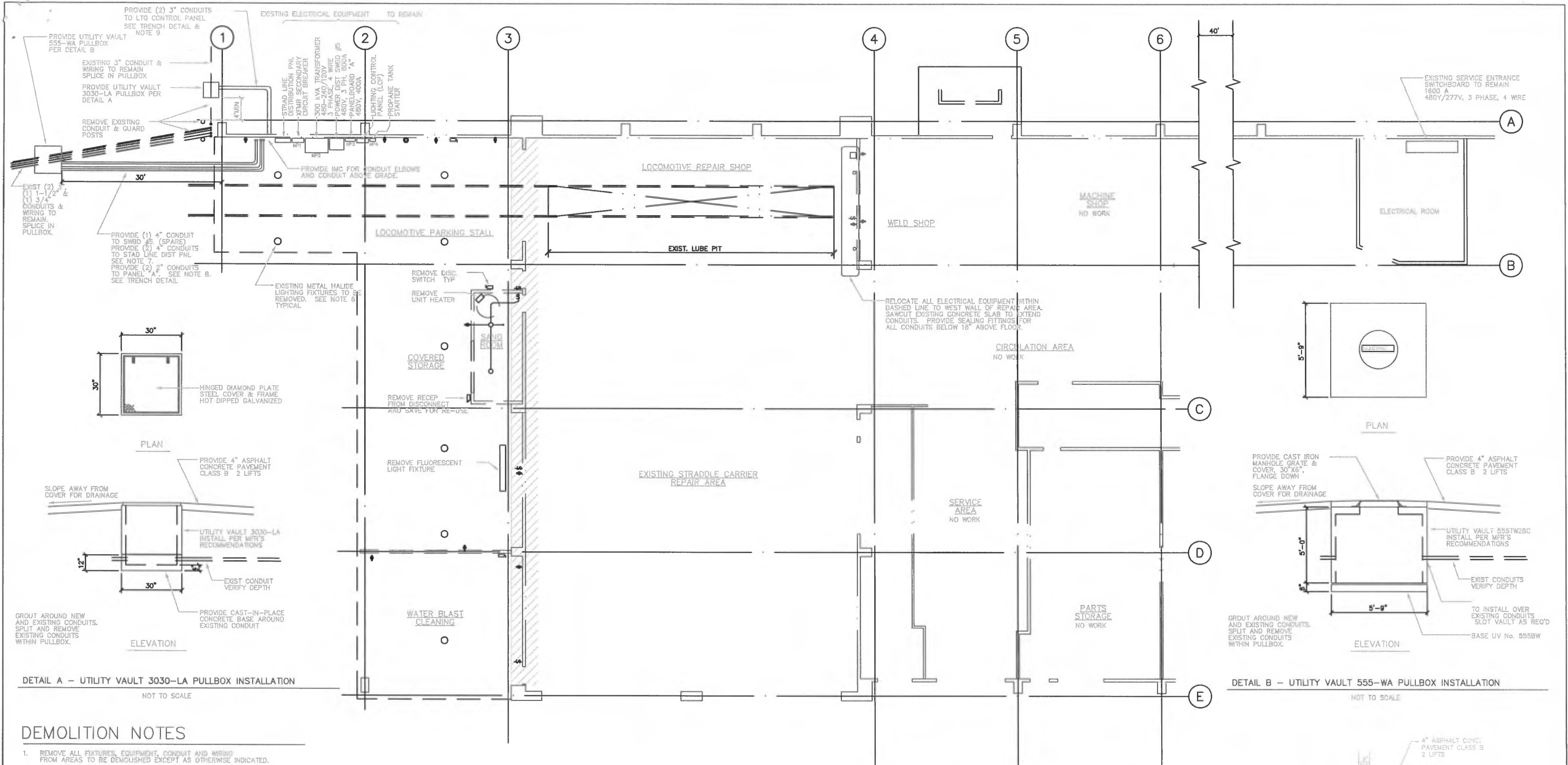
MARK
REVISION

BY
APP.
DATE

ELECTRICAL
LIGHTING PLAN
MAINTENANCE SHOP REMODEL 1990

DRAWING No. **EP-4360-4**
CONTRACT No. **680**
SHEET No. **E2.1** OF **6**

89172
STRADE21



DETAIL A - UTILITY VAULT 3030-LA PULLBOX INSTALLATION
NOT TO SCALE

DETAIL B - UTILITY VAULT 555-WA PULLBOX INSTALLATION
NOT TO SCALE

DEMOLITION NOTES

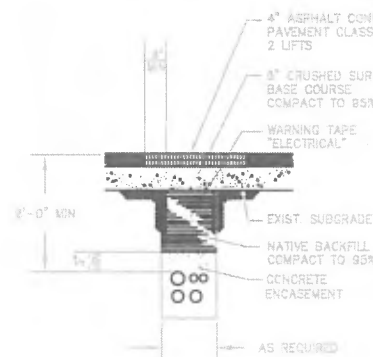
1. REMOVE ALL FIXTURES, EQUIPMENT, CONDUIT AND WIRING FROM AREAS TO BE DEMOLISHED EXCEPT AS OTHERWISE INDICATED.
2. REMOVE CONDUIT TO NEAREST OUTLET OR PULL BOX.
3. REMOVE WIRING TO SOURCE OF SUPPLY.
4. LABEL CIRCUIT BREAKERS SERVING REMOVED CIRCUITS "SPARE"
5. TEMPORARILY REMOVE 300 KVA TRANSFORMER AND SWITCHBOARD NO. 5 TO ALLOW REMOVAL OF EXISTING CONCRETE SLAB. REINSTALL EQUIPMENT AND RECONNECT AFTER NEW SLAB IS PLACED AND SET.
6. SURPLUS REMOVED LIGHTING FIXTURES TO PORT OF TACOMA. DELIVER TO CARPENTER SHOP AT NORTH END OF BUILDING. ALL OTHER REMOVED EQUIPMENT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE LEGALLY DISPOSED OF OFF-SITE.
7. PROVIDE (16) 1/0 AWG AND (10) 6 AWG IN EACH OF TWO 4" CONDUITS BETWEEN PULLBOX AND STRAD LINE DISTRIBUTION PNL. (VERIFY EXISTING WIRING SIZES BEFORE ORDERING OR INSTALLING.)
8. PROVIDE (4) 4 AWG AND (4) 8 AWG IN 2" CONDUIT BETWEEN PULLBOX AND PANEL "A". (VERIFY EXISTING WIRING SIZES BEFORE ORDERING OR INSTALLING.)
9. PROVIDE (12) 6 AWG, (3) 8 AWG, (3) 10 AWG AND (9) 10 AWG GROUNDS BETWEEN LCP AND PULLBOX.

DEMOLITION PLAN FOR EXISTING ELECTRICAL

1/8"

1'-0"

1



DETAIL C - CONDUIT TRENCH
NOT TO SCALE



PORT OF TACOMA
P.O. BOX 1937 TACOMA, WASHINGTON 98401
(206)383-5841

CONSULTANTS
NORTHWEST UTILITY CONSULTANTS, INC.
1402 47th AVENUE EAST
TACOMA, WA 98424
206-922-6661



APPROVED

CHIEF ENGINEER

DATE

DRAWN BY DATE

AS-BUILT BY DATE

CHECKED BY DATE

PROJ. ENGR. DATE

MARK REVISION

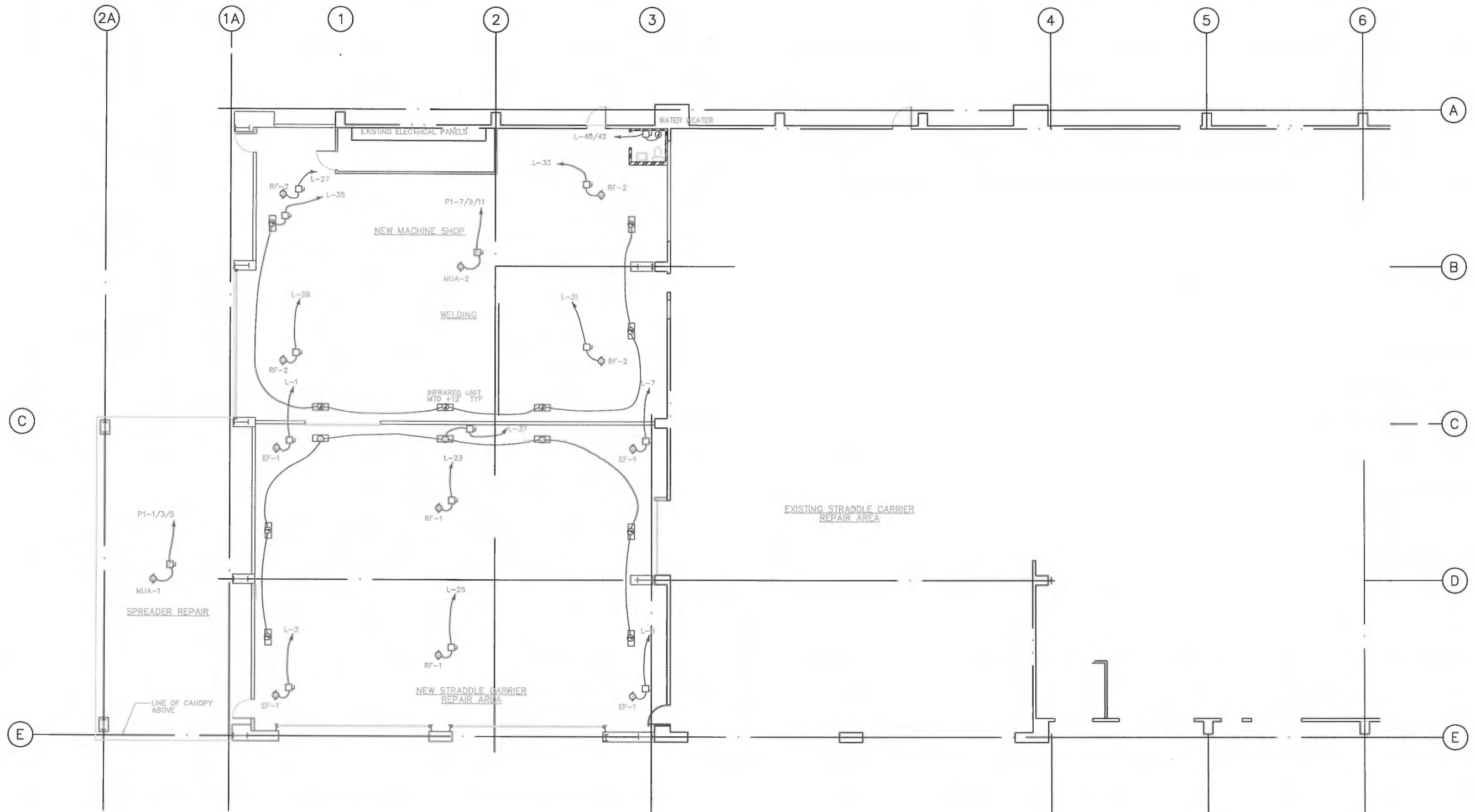
BY APP. DATE

2 ISSUED FOR BID PF 2/2

ELECTRICAL DEMO PLAN
MAINTENANCE SHOP REMODEL 1990

DRAWING No. **EP-4360-4**
CONTRACT No. **680**
SHEET No. **E2.3 OF 6**

89172
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M E C H A N I C A L C O N N E C T I O N S P L A N

1/8"

1'-0"



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APPROVED

CHIEF ENGINEER _____
DATE _____

PF DRAWN BY	1/90 DATE	PF CHECKED BY	2/2/90 DATE
AS-BUILT BY	DATE	PROJ. ENGR.	DATE

MARK	REVISION	BY	APP.	DATE
2	ISSUED FOR BID	PF		2/2
1	ISSUED FOR BLDG PERMIT	PF		1/9

MECH CONNECTIONS PLAN
MAINTENANCE SHOP REMODEL 1990

DRAWING No. EP-4360-4
CONTRACT No. 680
SHEET No. E2.4 OF 6

89172
STRADE24

