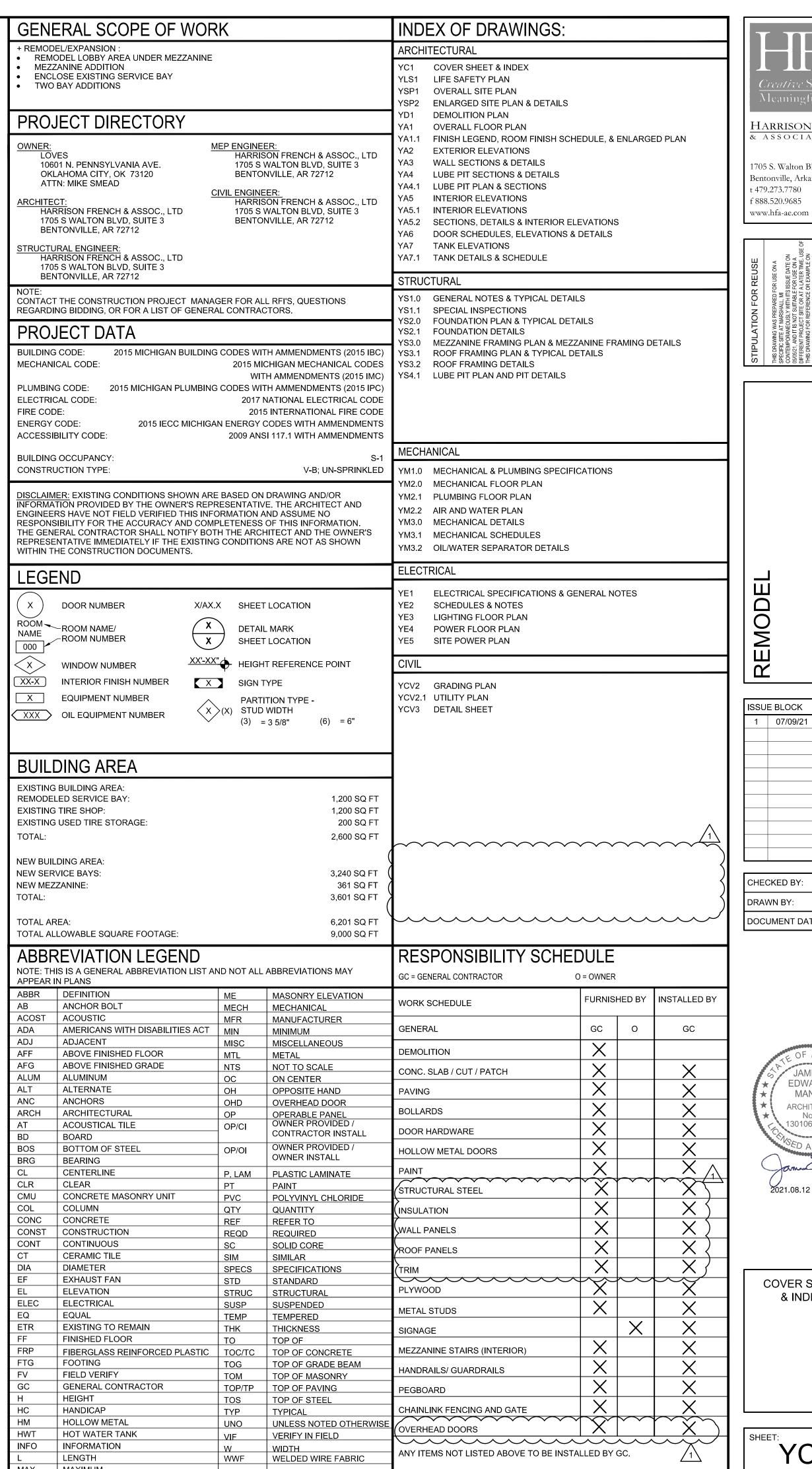




LIGHT MECHANICAL SERVICES ADDITION

STORE #336 18720 PARTELLO RD. MARSHALL, MI 49068





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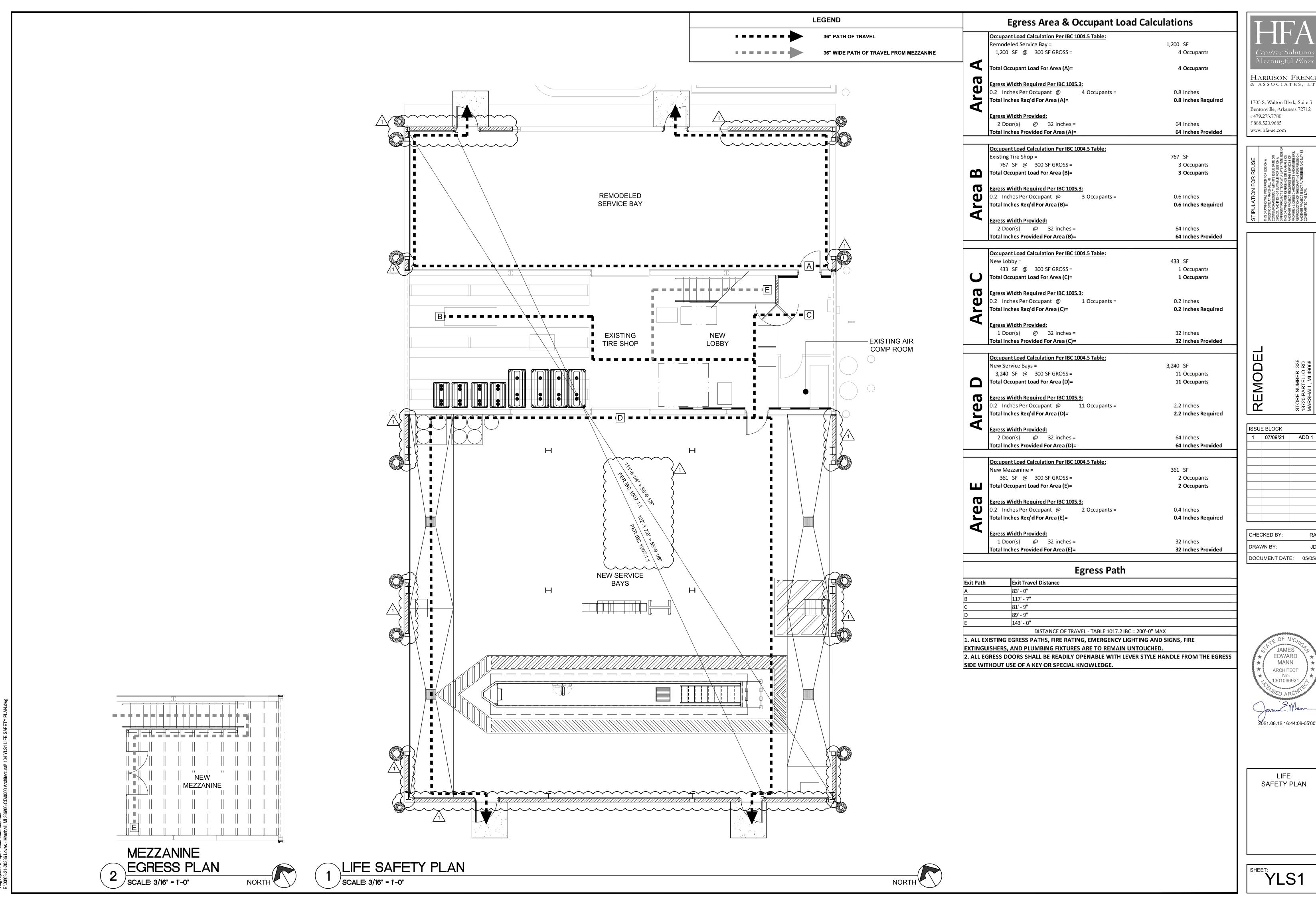
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COVER SHEET & INDEX



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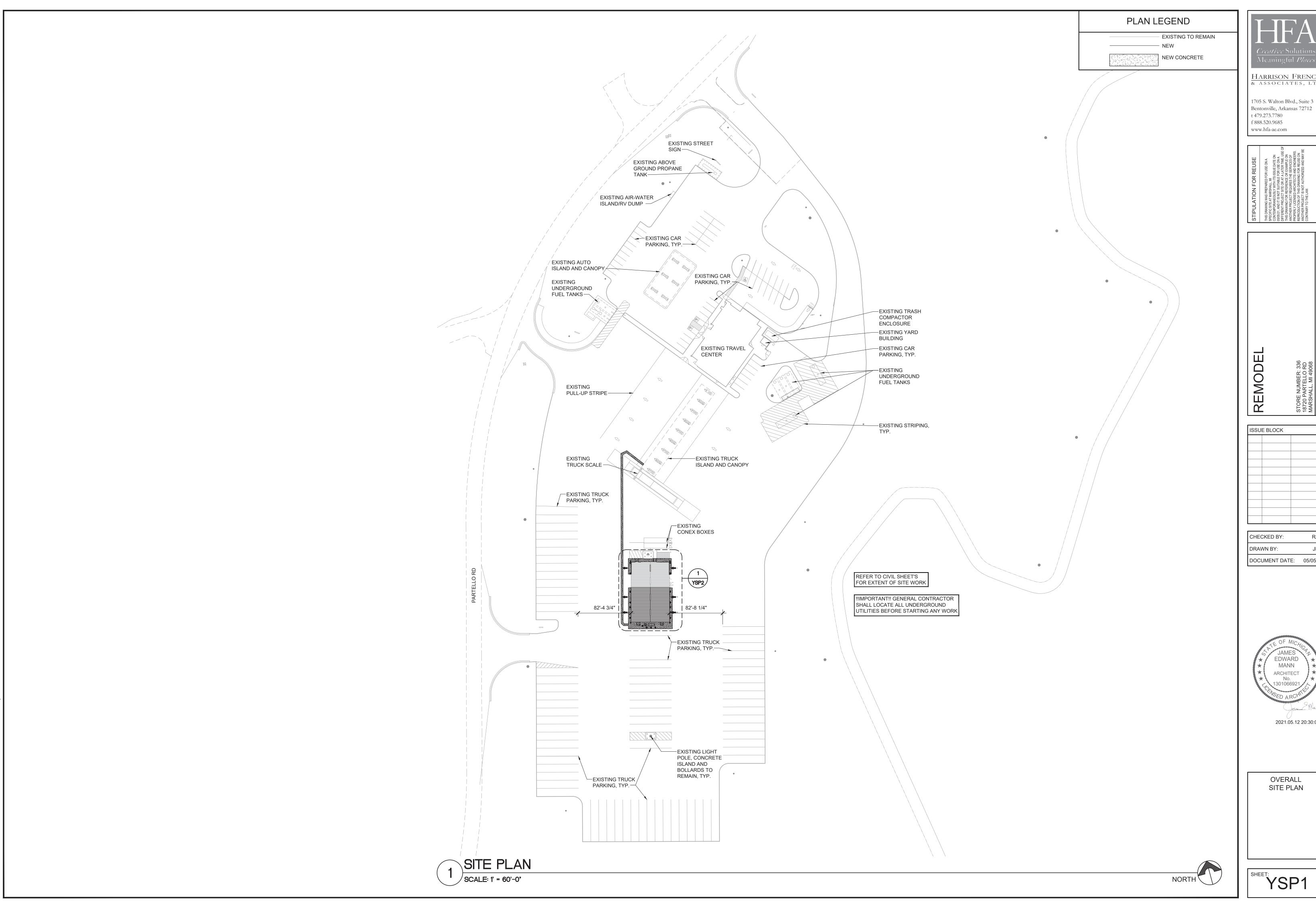
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LIFE SAFETY PLAN

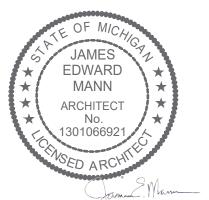
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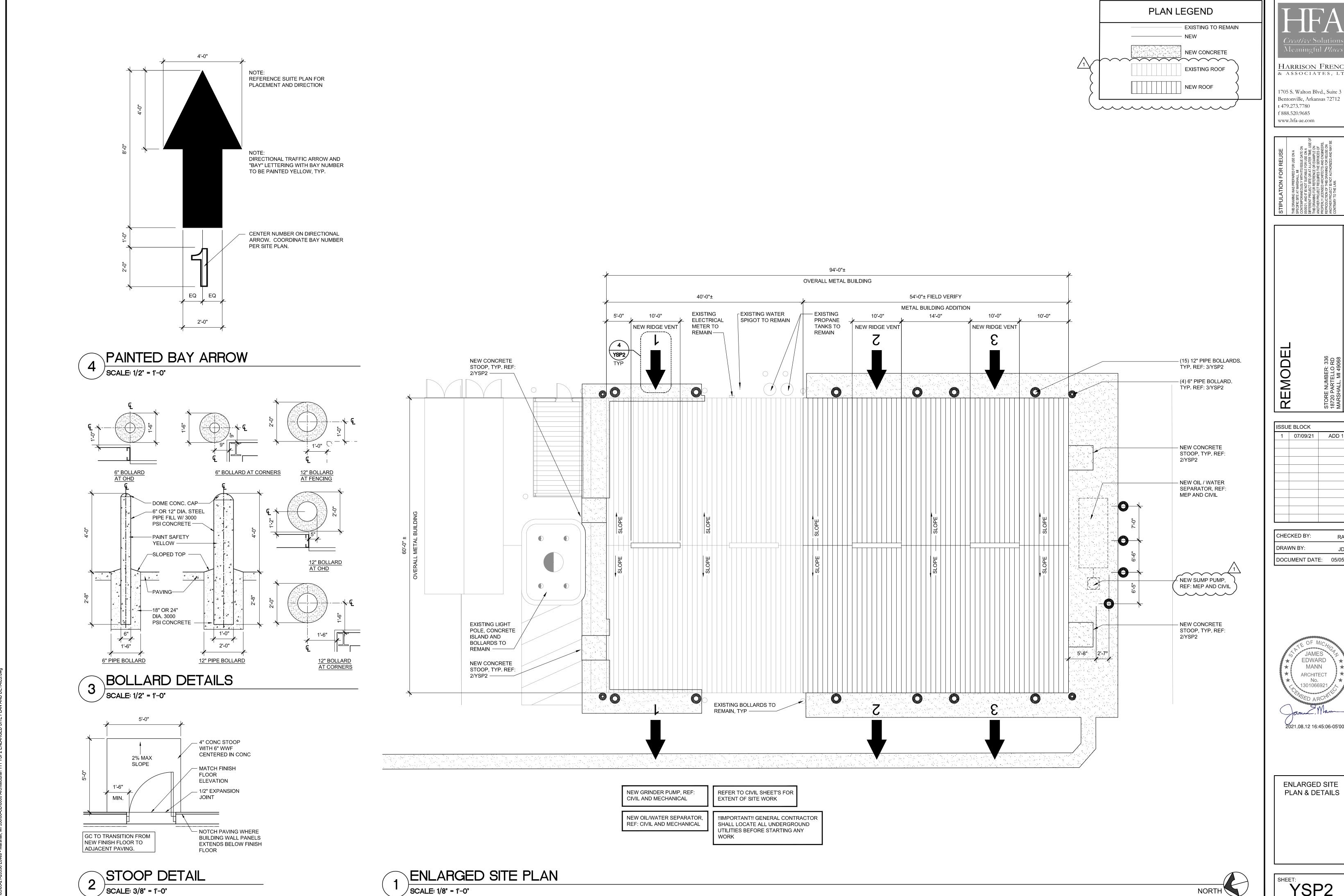
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OVERALL SITE PLAN





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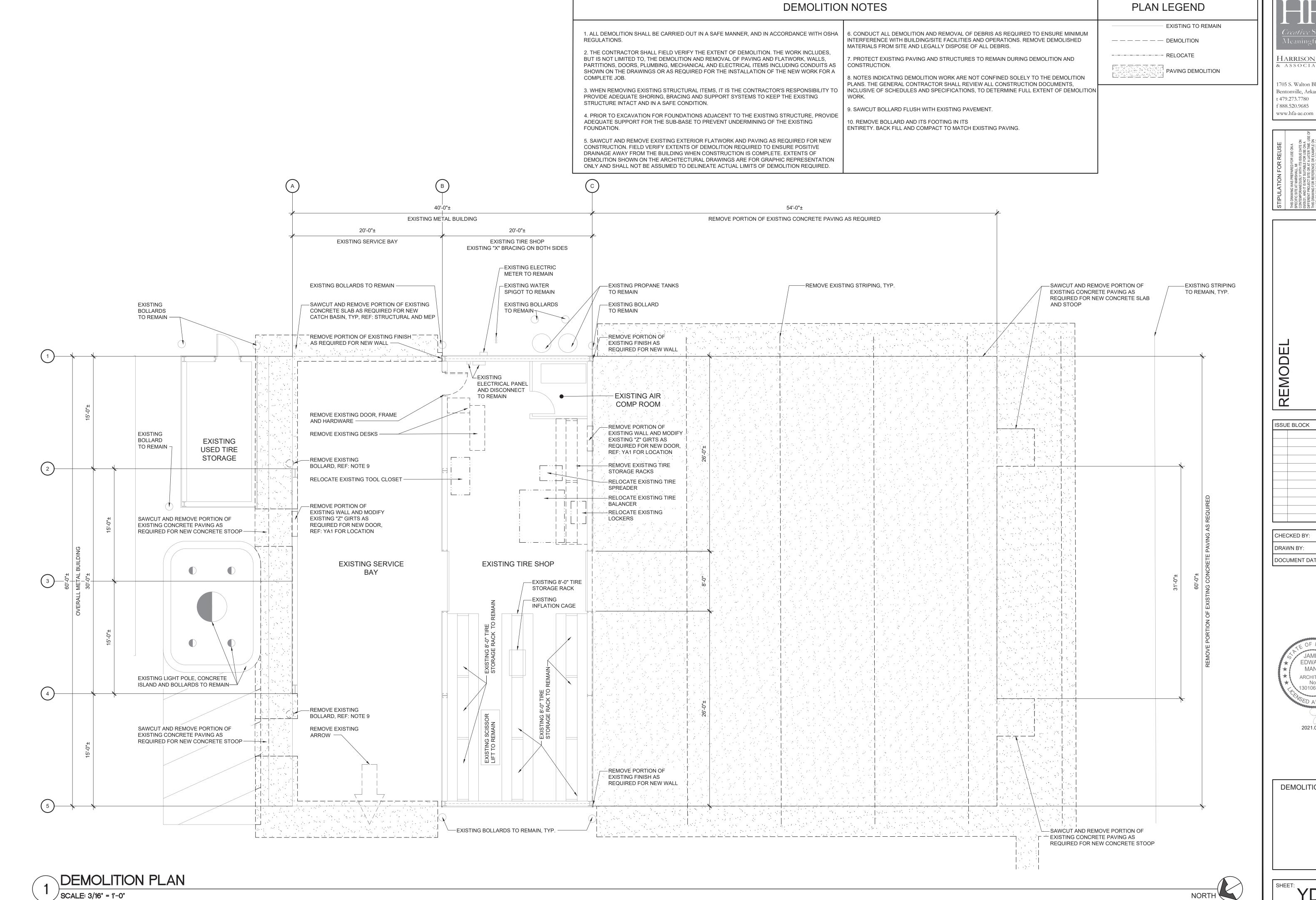
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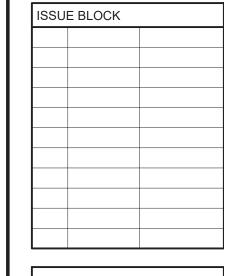
ENLARGED SITE PLAN & DETAILS

YSP2





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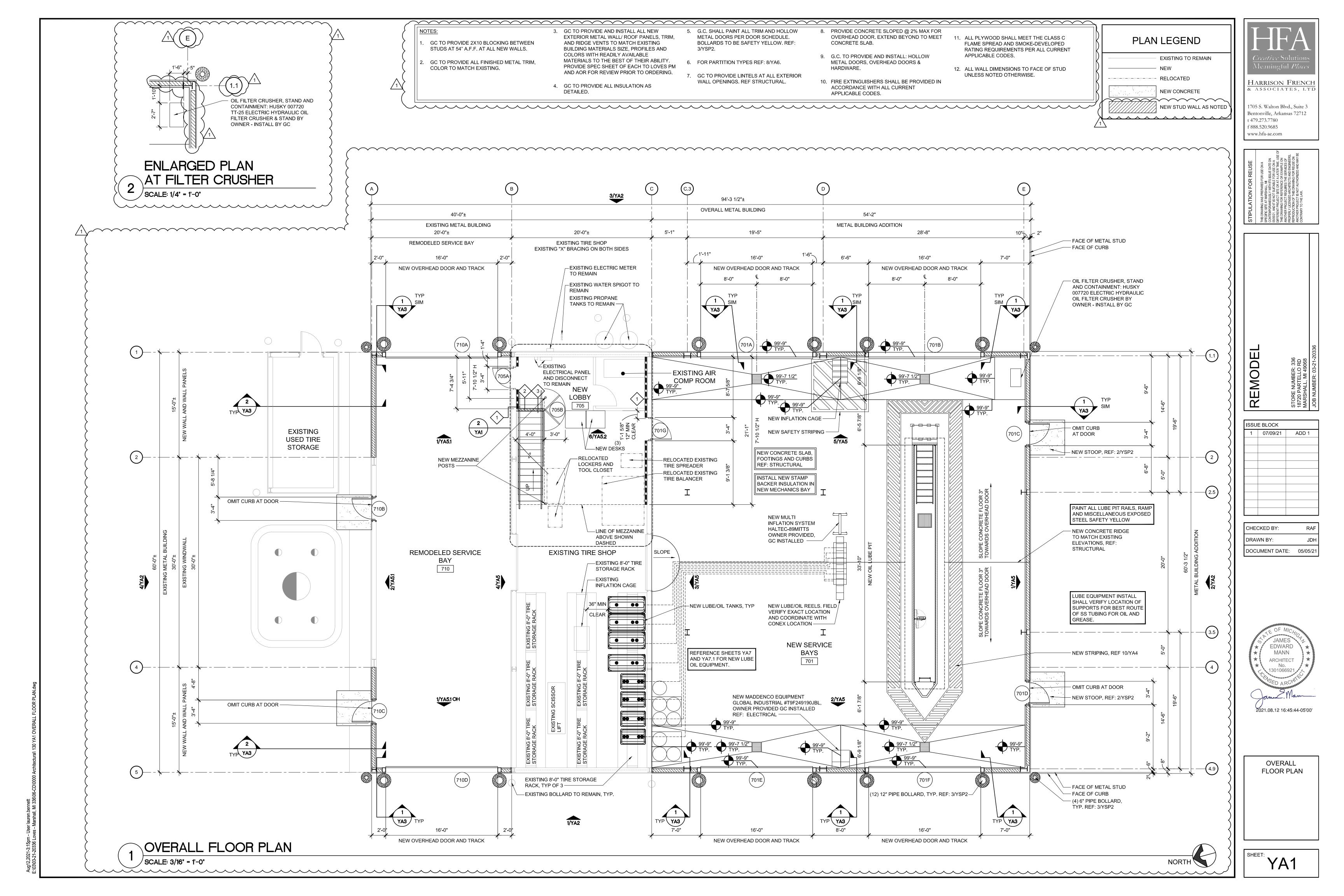


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DEMOLITION PLAN



	ROOM FINISH SCHEDULE 1/32												
		FLOOR	BASE			UBSTRATE				SHES		CEILING	
MARK	DESCRIPTION	FINISH	FINISH	1	2	3	4	1	2	3	4	FINISH	COMMENTS
701	NEW SERVICE BAYS	EXPOSED CONCRETE		3/4" PLYWOOD	3/4" PLYWOOD	3/4" PLYWOOD	ETR	PT-55	PT-55	PT-55		EXPOSED STRUCT.	REF: ELEVATIONS
705	NEW LOBBY	ETR		ETR	3/4" PLYWOOD	OPEN	3/4" PLYWOOD	PT-55	PT-55	PT-55	PT-55	EXPOSED STRUCT.	
707	NEW MEZZANINE	EXPOSED PLYWOOD		PEGBOARD ON PLYWOOD	PEGBOARD ON PLYWOOD		PEGBOARD ON PLYWOOD	PT-55	PT-55		PT-55	EXPOSED STRUCT.	
710	REMODELED SERVICE BAY	ETR		3/4" PLYWOOD	ETR	3/4" PLYWOOD	3/4" PLYWOOD	PT-55		PT-55	PT-55	EXPOSED STRUCT.	REF: ELEVATIONS

M	ATEF	RIAL I	LEGE	ND - I	NTE	RIOF	3

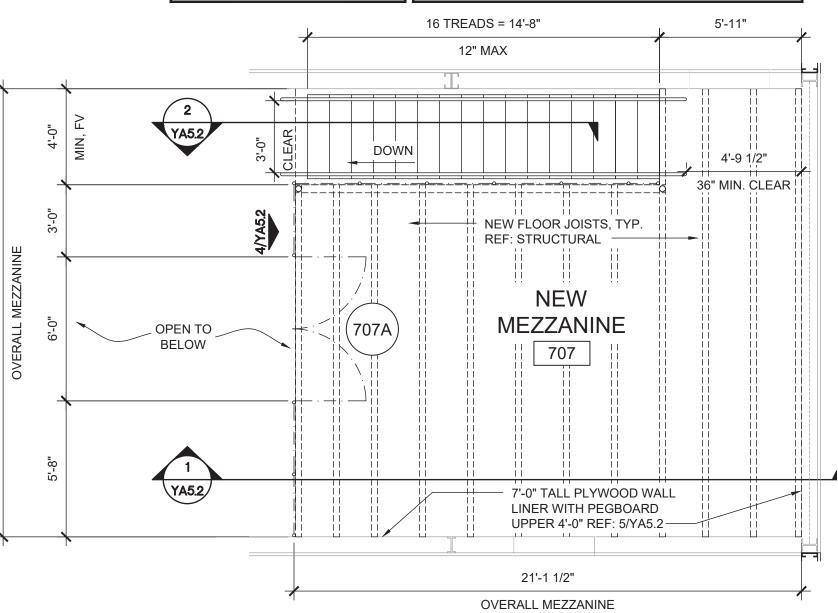
			VIOI V
MARK	DESCRIPTION	MODEL	COMMENTS
BS-1	RUBBER BASE	"ROPPE" BLACK	
LM-54	LAMINATE	"FORMICA" WENGE STRAND 3606-58 - RUN GRAIN HORIZONTAL	BY MILLWORK CONTRACTOR, RUN GRAIN HORIZONTAL
			FRONT FACES BLACK MELAMINE INTERIOR
SS-54	SOLID SURFACE	"CORIAN" COLOR: SILT	CUSTOMER SERVICE DESK TOP & NOSING, WINDOW
			SILLS
PT-53	PAINT	"SHERWIN WILLIAMS" SW 7038 TONY TAUPE - SATIN	
PT-55	PAINT	"SHERWIN WILLIAMS" SW 6990 CAVIAR - SATIN	PLYWOOD WALLS

PLYWOOD WALLS SHEET NOTE:

> INSTALL WATER RESISTANT FIRE RETARDANT TREATED 1X4 AT EVERY VERTICAL AND HORIZONTAL BUTT JOINT, TYPICAL FOR ALL PLYWOOD WALL FINISH.

VERIFY AND COORDINATE LOCATION
OF EXISTING OVERHEAD DOOR TRACKS
FOR UNIMPEDED DOOR OPERATION
WITH NEW MEZZANINE CONSTRUCTION.

PRIOR TO STAIR FABRICATIONS, THE GENERAL CONTRACTORS SHALL FIELD VERIFY THE HEIGHT FROM NOTE: THE MEZZANINE FINISH FLOOR IS 9'-0"H. RISERS ARE 6 3/4"I WITH 11" TREADS. "H THE TOP LANDING TO THE LANDING AT GRADE TO CONFIRM MAXIMUM RISER HEIGHT IS LESS THAN 7 INCHES.



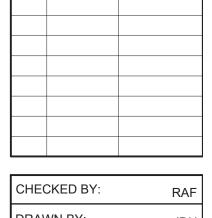
MEZZANINE PLAN SCALE: 1/4" = 1'-0"

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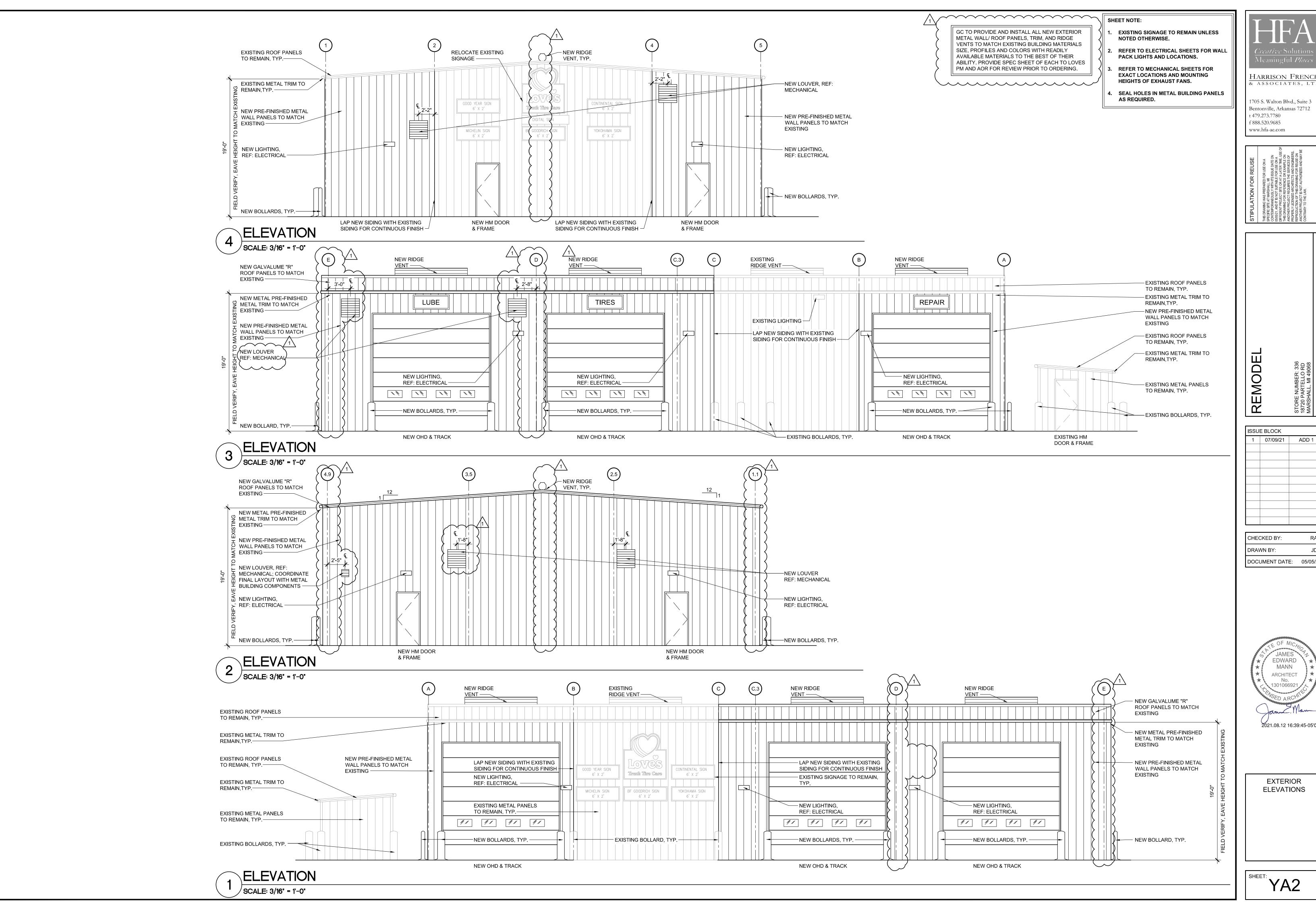
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FINISH LEGEND, ROOM FINISH SCHEDULE, & ENLARGED PLAN

YA1.1



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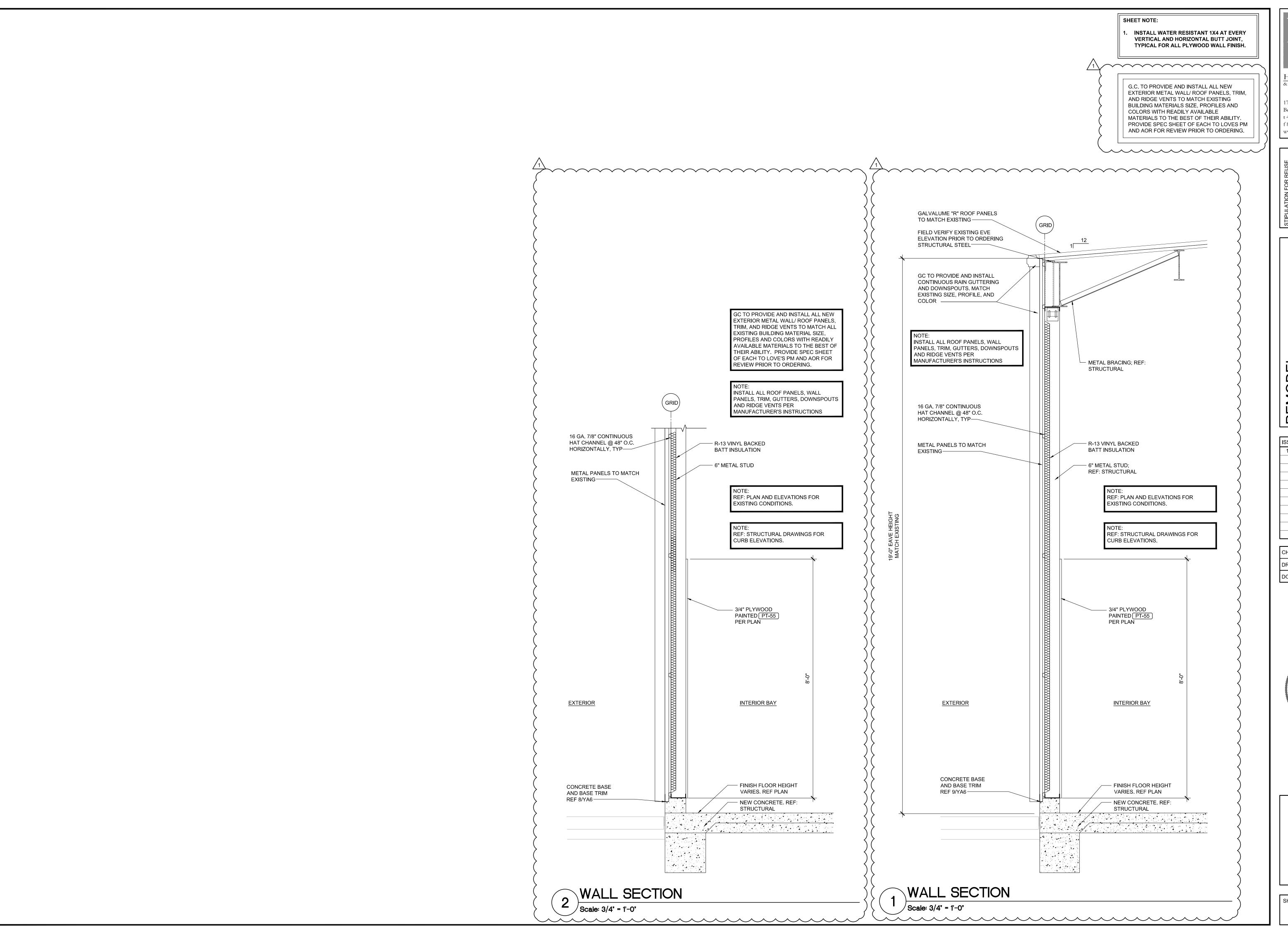
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MANN ARCHITECT 2021.08.12 16:39:45-05'00'

> **EXTERIOR ELEVATIONS**



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JOB NUMBER: 03-21-20336

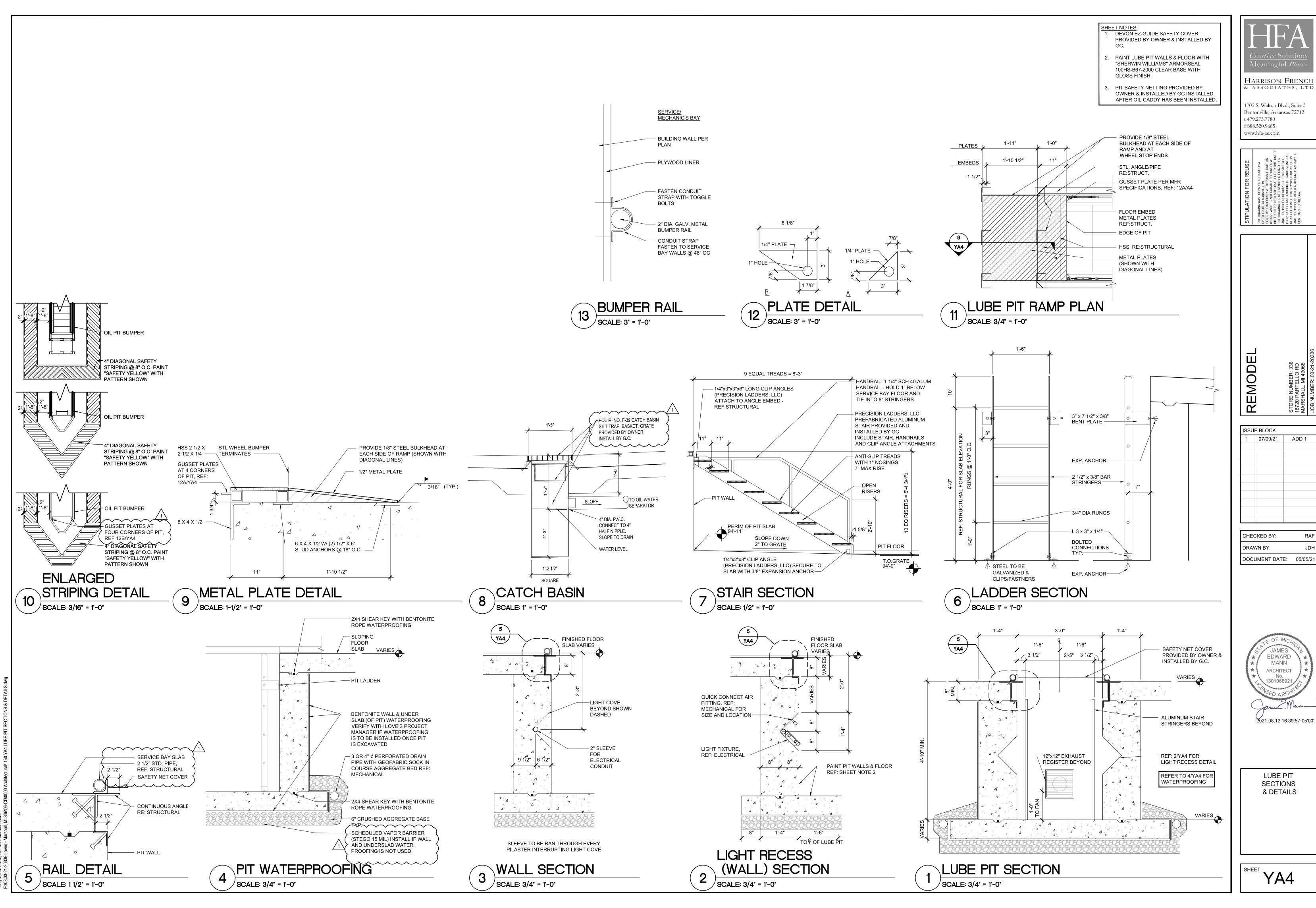
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WALL SECTIONS & DETAILS

SHEET: YA3



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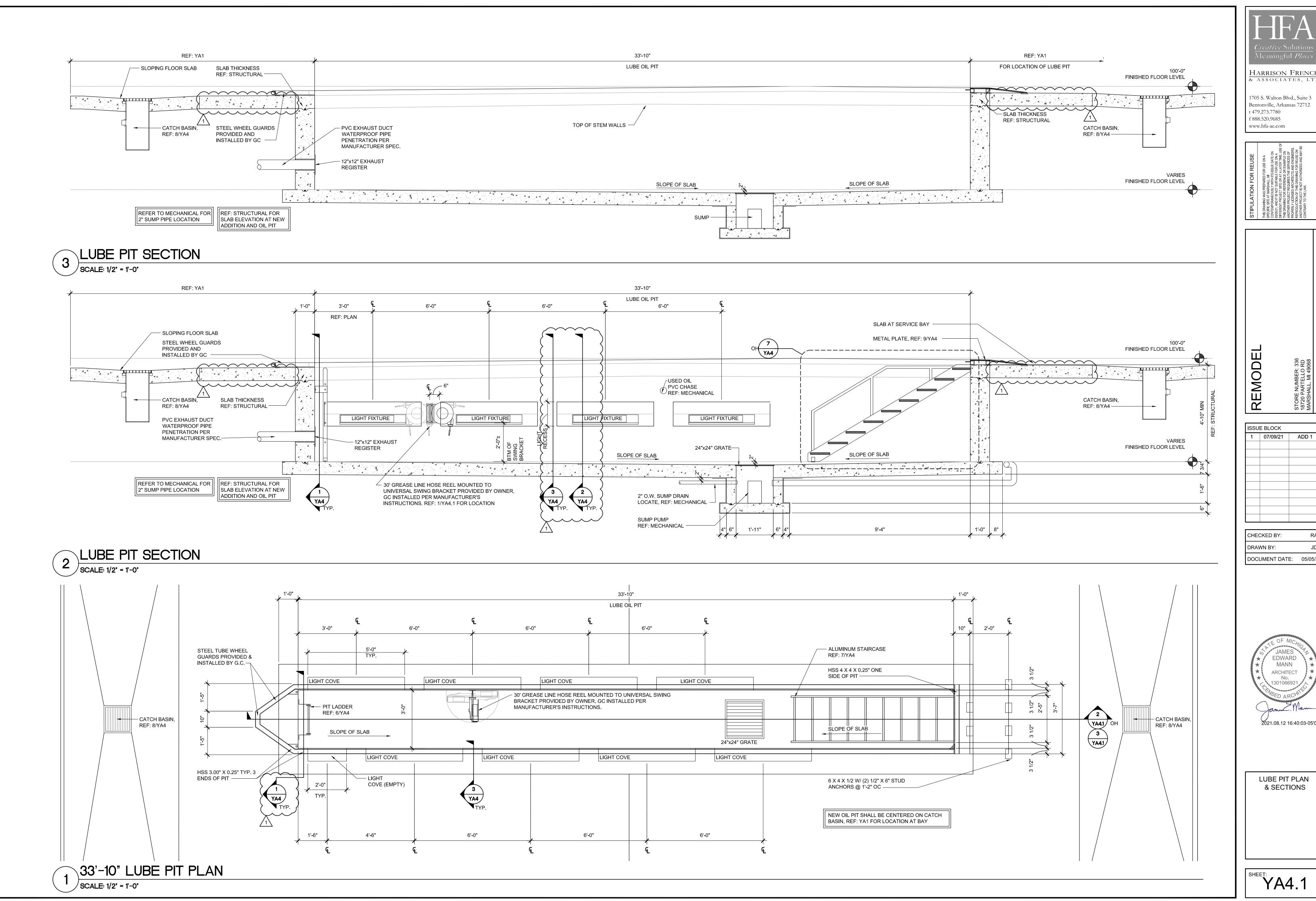
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> MANN ARCHITECT

LUBE PIT SECTIONS & DETAILS

YA4



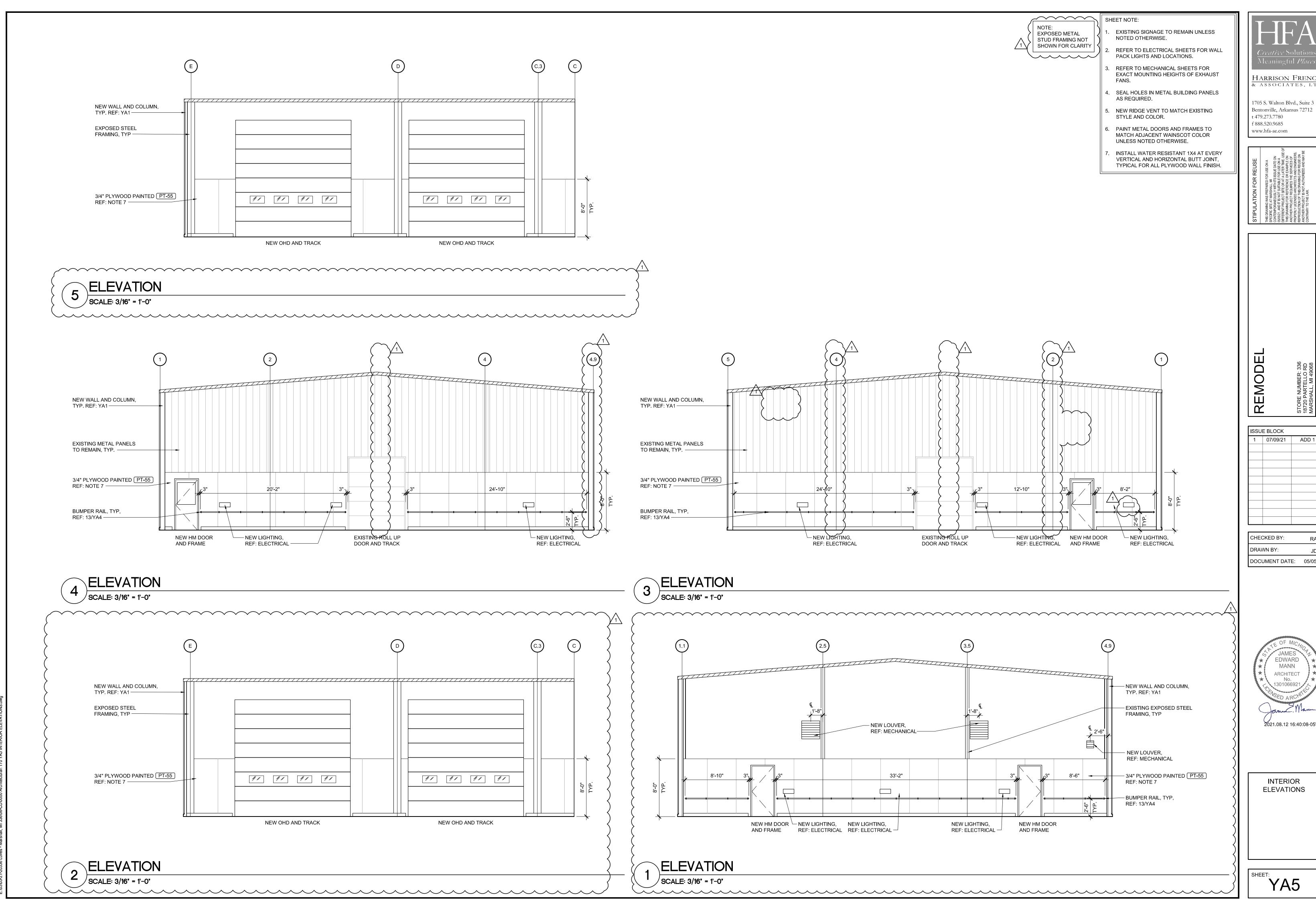
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ARCHITECT 2021.08.12 16:40:03-05'00'

LUBE PIT PLAN & SECTIONS

YA4.1



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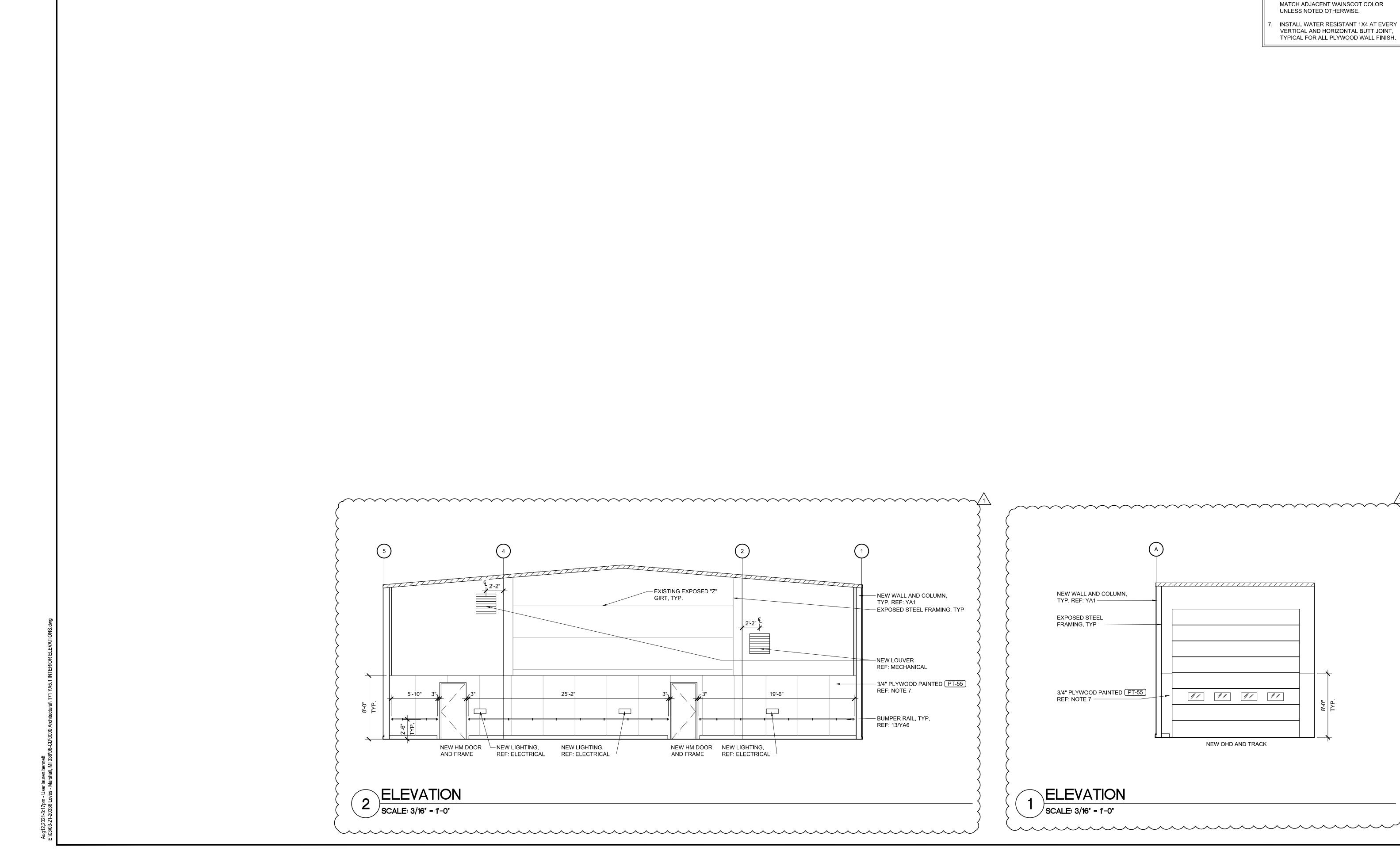
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DOCUMENT DATE: 05/05/21

MANN ARCHITECT 2021.08.12 16:40:08-05'00'

INTERIOR **ELEVATIONS**

YA5



SHEET NOTE:

1. EXISTING SIGNAGE TO REMAIN UNLESS NOTED OTHERWISE.

2. REFER TO ELECTRICAL SHEETS FOR WALL PACK LIGHTS AND LOCATIONS.

3. REFER TO MECHANICAL SHEETS FOR EXACT MOUNTING HEIGHTS OF EXHAUST

LIAPPICON EPENCH

NOTE:

EXPOSED METAL

STUD FRAMING NOT

SHOWN FOR CLARITY

FANS.

AS REQUIRED.

STYLE AND COLOR.

SEAL HOLES IN METAL BUILDING PANELS

NEW RIDGE VENT TO MATCH EXISTING

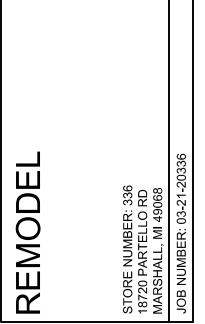
6. PAINT METAL DOORS AND FRAMES TO

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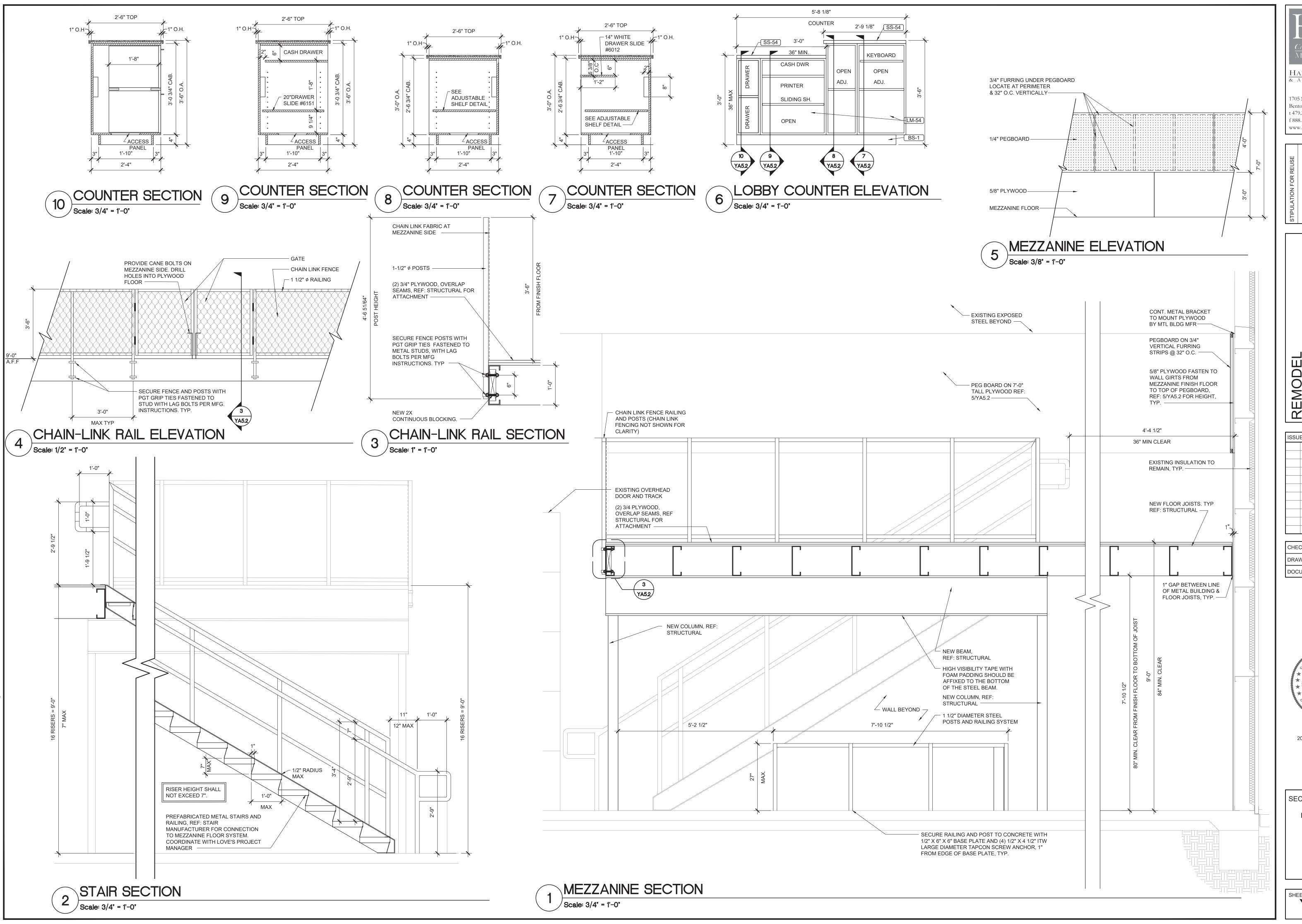
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	DOCUMENT DATE:	05/05/21



INTERIOR ELEVATIONS

YA5.1



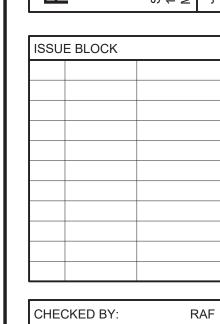
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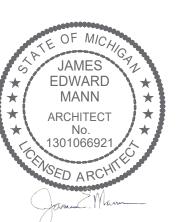
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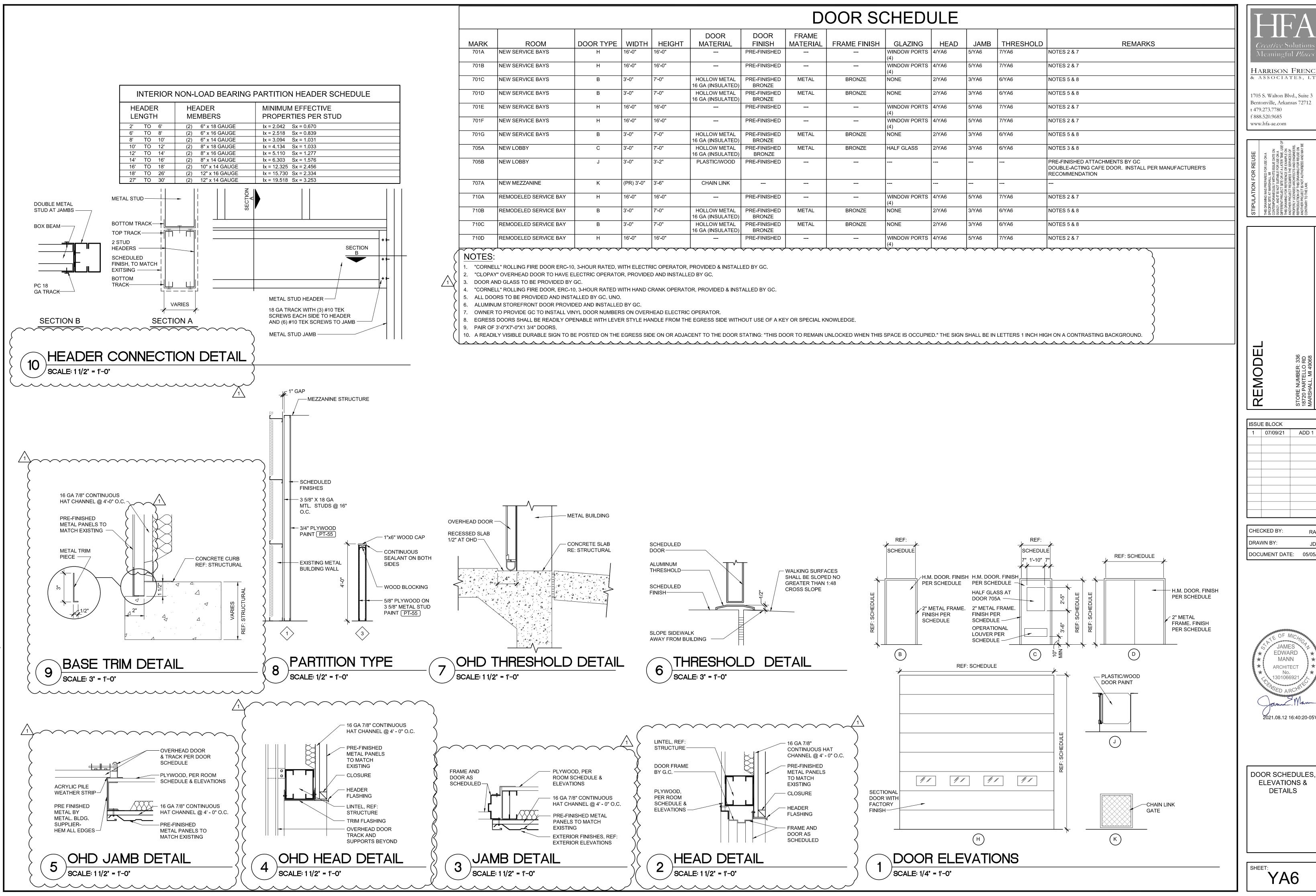
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SECTIONS, DETAILS & INTERIOR ELEVATIONS

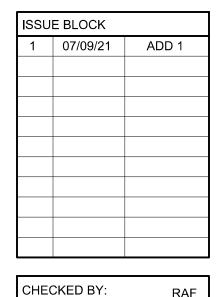
YA5.2





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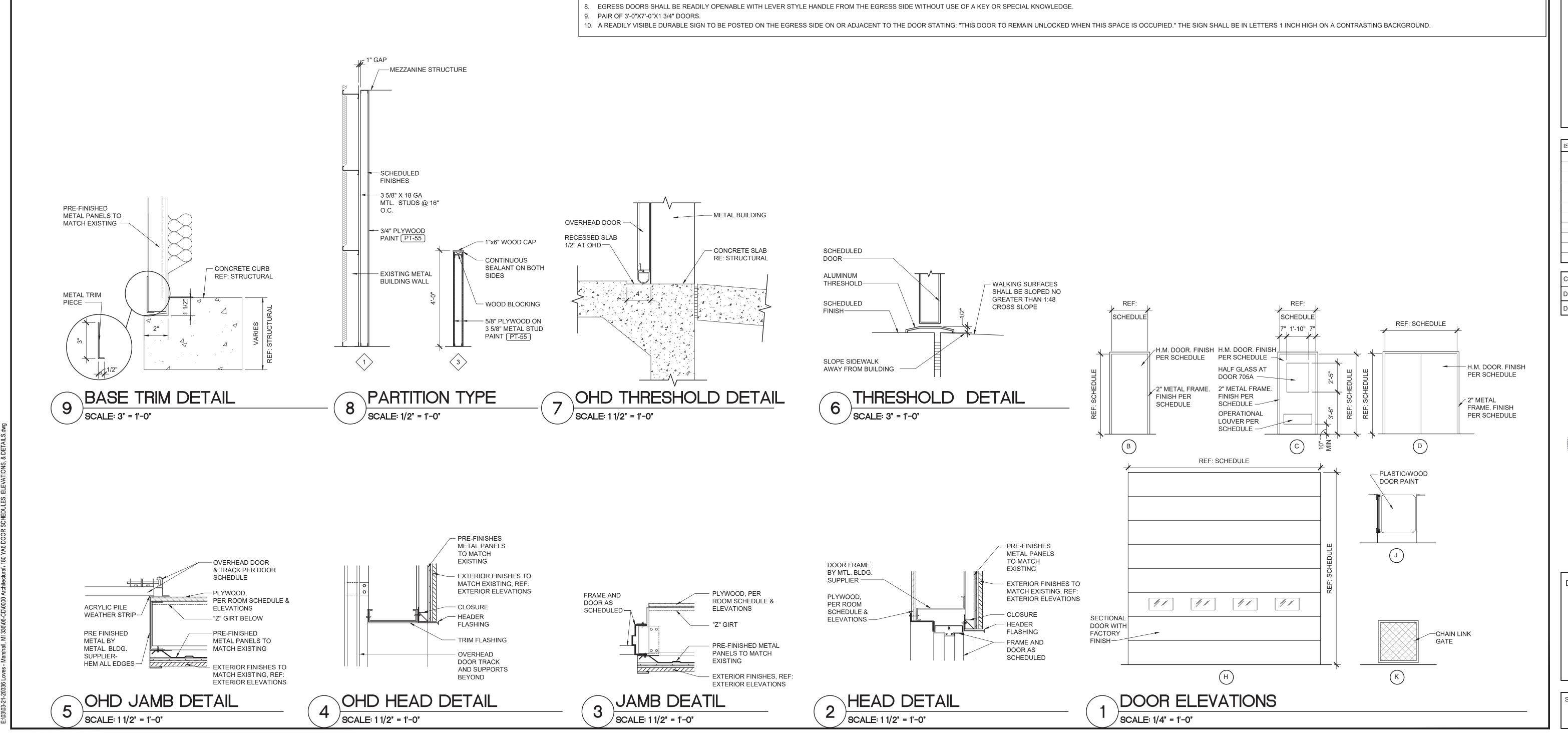


DOOR SCHEDULES, **ELEVATIONS & DETAILS**

YA6



- 4. "CORNELL" ROLLING FIRE DOOR, ERC-10, 3-HOUR RATED WITH HAND CRANK OPERATOR, PROVIDED & INSTALLED BY MBM.
- 5. ALL DOORS TO BE PROVIDED AND INSTALLED BY GC UNO.
- 6. ALUMINUM STOREFRONT DOOR PROVIDED AND INSTALLED BY GC.
- 7. OWNER TO PROVIDE GC TO INSTALL VINYL DOOR NUMBERS ON OVERHEAD ELECTRIC OPERATOR.

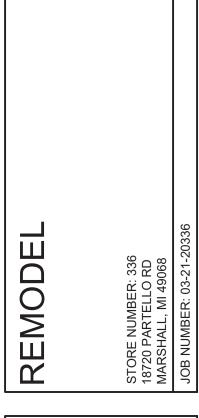


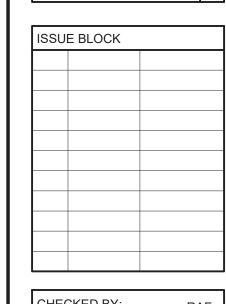


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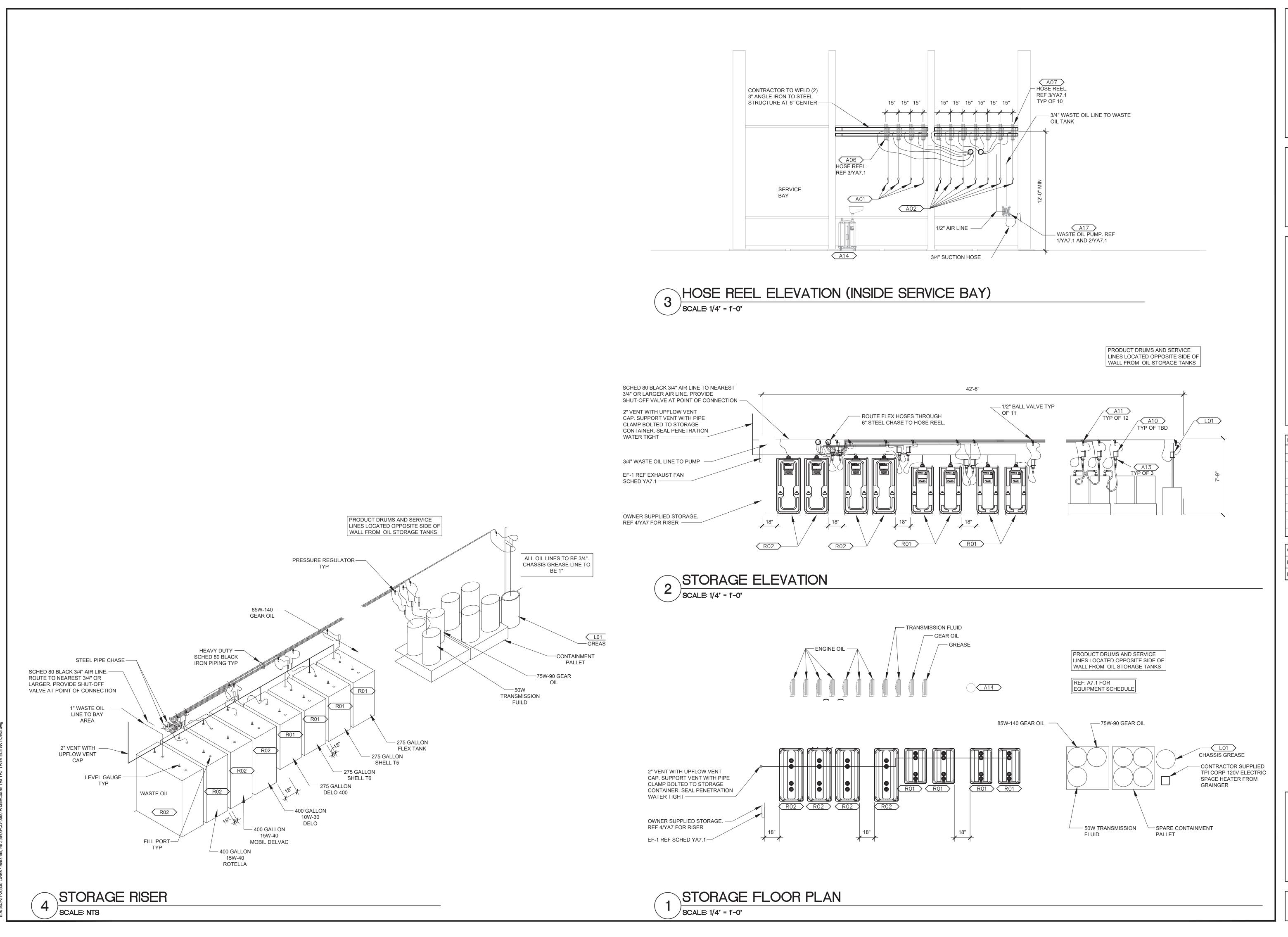


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DOOR SCHEDULES, ELEVATIONS & DETAILS

YA6



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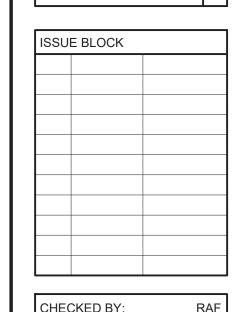
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		,



TANK ELEVATIONS

SHEET: YA7

MARK	AREA SERVED	MANUFACTURER	CFM	V/PH/HZ	ACCESSORIE
		MODEL#	ESP	HP OR W	NOTES
		MOUNTING		RPM	
EF-1	STORAGE	CONTINENTAL	250	115/1/60	
		AMP 200-2-11	0.125"	74 W	BD,DS
		WALL		2665	1,2,3

ACCESSORIES:

BD BACKDRAFT DAMPER
DS DISCONNECT SWITCH

NOTES:

 MANUFACTURER AND MODEL NUMBER LISTED ABOVE REPRESENT A STANDARD. APPROVED MANUFACTURERS ARE COOK, CONTINENTAL, CARNES, ACME, PENN, GREENHECK, AND BROAN.

BOTTOM OF FAN SHALL BE MOUNTED AT 66" A.F.F.
 FAN SHALL BE CONTINUOUS RUN. REF ELECTRICAL

HHA
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REMODEL STORE NUMBER: 336 18720 PARTELLO RD MARSHALL, MI 49068 JOB NUMBER: 03-21-20336			
	REMODEL	STORE NUMBER: 336 18720 PARTELLO RD MARSHALL, MI 49068	JOB NUMBER: 03-21-20336

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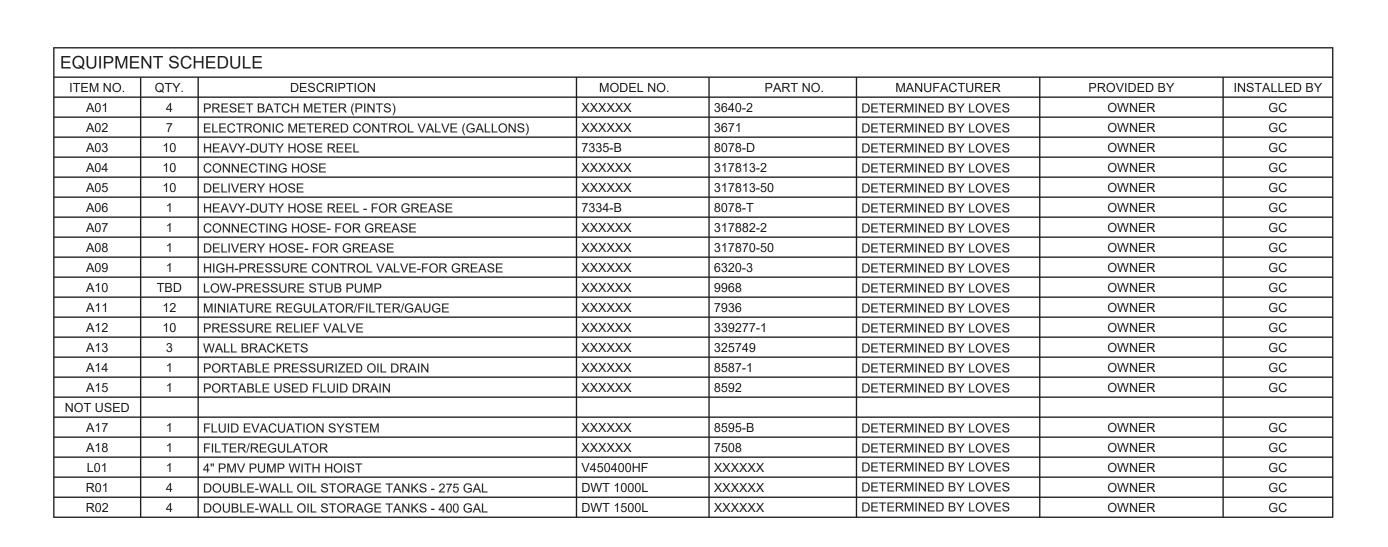
TANK DETAILS & SCHEDULES

JMP DETAIL

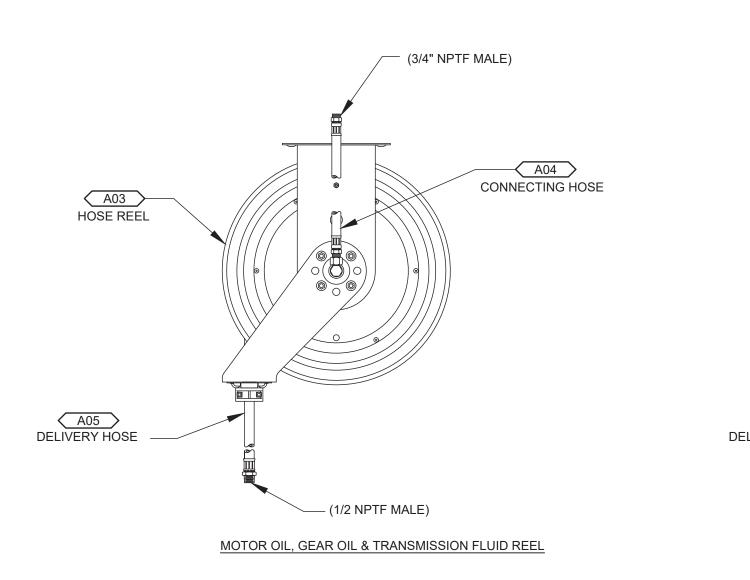
— AIR DISCHARGE NOTE: DIRECT DISCHARGE AWAY FROM BAY AREA

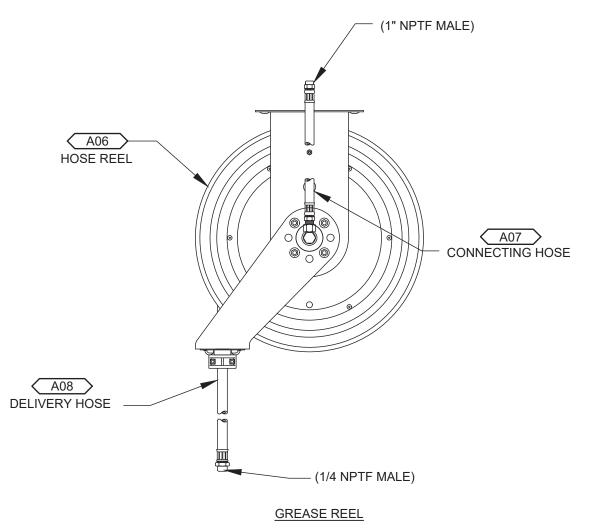
1	DIAPHRAGM	PUMP	DETAIL
	SCALE: NTS		

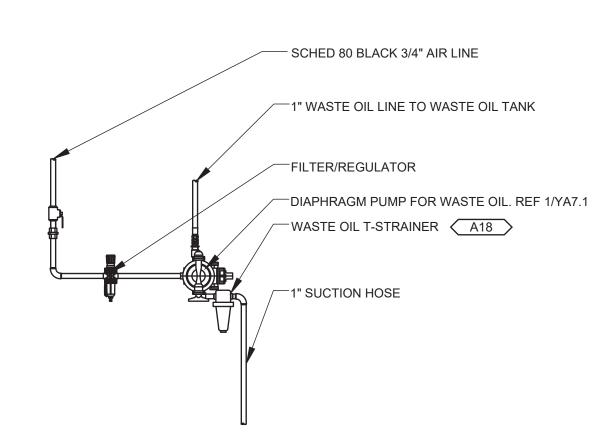
USED OIL DISCHARGE













MP PIPING PLAN

- User jaime.howard - Marshall MI 336\06-CD\0000 Architectural\ 191 Y.

YA7.1

GENERAL LOADING NOTES

 Building Code: 2. Gravity Loads:

Location

Dead Load Live Load Uniform Slab-on-Grade 100 psf 20 psf 20 psf

2015 International Building Code

Ground Snow Load, Pg 25 psf Flat Roof Snow Load, Pf 25 psf *Uniform dead load includes actual structural weights.

3. Wind Load: Ultimate Design Wind Speed, Vult (3-second gust) 115 mph Risk Category II

 Wind Exposure C • Internal Pressure Coefficient (GCp) = ±0.18

	NOMINAL COMPONENTS AND CLADDING WIND PRESSURES (PSF)				
ROOF	SU	RFACE PR	ESSURE (p	sf)	
AREA	10 sf	20 sf	50 sf	100 sf	
NEGATIVE ZONE 1	-33.3	-33.3	-33.3	-33.3	
NEGATIVE ZONE 2	-38.5	-37.7	-36.7	-35.9	
NEGATIVE ZONE 2'	-51.5	-46.8	- 40.6	-35.9	
NEGATIVE ZONE 3	+16.0	+16.0	+16.0	+16.0	
NEGATIVE ZONE 3'	- 46.3	-4 5.5	-44.5	- 43.7	
POSITIVE ALL ZONES	-72.3	-64.5	-54.1	-46.3	

		AL COM		
<u>WALLS</u>	SURF.	ACE PRI	ESSURE	AT (H)
AREA	10 sf	100 sf	200 sf	500 sf
NEGATIVE ZONE 4	-30.4	-26.3	-25.1	-23.4
NEGATIVE ZONE 5	-37.5	-29.2	-26.7	-23.4
POSITIVE ZONE 4 & 5	+28.1	+24.0	+22.7	+21.1
			·	·

h=20.33'	(TYP.)	(TYP
h=20.33'		5 5 4

Note that Linear Interpolation is allowed between the areas listed above. See section above for Wind Speed, Exposure Factor and Risk Category. These wind pressure shall be used for the design of exterior component and cladding materials not specifically designed and detailed by the Structural Engineer of Record.

 Risk Category II • Seismic Importance Factor, (I_E) = 1.0 Site Coefficient • $S_S = 0.115$ • $S_1 = 0.052$

• $S_{DS} = 0.123$ • $S_{D1} = 0.083$ Site Class D Seismic Design Category B Geotechnical Report-

A. Geotechnical Investigation Preformed By: KEBS, Inc. B. Project Number 04-D-75650 C. Date of Report February 28th, 2005

GENERAL SOIL PREPARATION AND FOUNDATION NOTES

- Foundations have been designed in accordance with the Geotechnical Report prepared for this project. A copy of this report is available for inspection in the specifications.
- 2. All excavation, fill, compaction and grading of the site shall be in accordance with the specifications and the recommendations contained in the geotechnical report(s).
- At the locations where utility trenches cross the building line, 5" of each trench centered on the building line shall be
- backfilled with a compacted, low-permeability clay.
- 4. Continuous and spread footings foundations -
- A. Design Bearing pressure is 1,500 psf (net) for foundations bearing on native soils or new structural fill per Geotech Report. Bearing materials shall be verified by a licensed geotechnical engineer.
- B. All foundations are designed and detailed with formed sides. If the contractor elects to use earth formed sides, one inch shall be added to each side to provide adequate cover over the reinforcing at the contractors expense.
- C. Moisture Content in footing excavations shall be maintained until footing is placed. Footings shall be poured
- as soon as practical after excavations are completed.
- Do not backfill foundation walls until the restraining slabs or adequate bracing are in place. All backfill shall be placed and compacted in accordance with the specification.
- 6. Exterior slabs shall slope away from the structure a minimum of 1/4" per foot unless otherwise noted.
- 7. Bottom of footings shall bear a minimum of 42" below adjacent finished grade.
- 8. Re: Geotechnical Report for requirements of lean concrete backfill or over-excavation/backfill at footing locations.

CAST-IN-PLACE CONCRETE NOTES

- 1. The concrete requirements are -
- A. 28 Day concrete compressive strengths -

Mix Location	Min. FC(PSI)	Max. Slump (in)	Max. W/C Ratio	Max. Aggregate ASTM C33	Air Content	Cement Type
Foundations Slab-on-Grade	4000 4000	5 4	0.50 0.45	1 1/2" No. 57 1" No. 67	5% to 7% None	II II

*All Mixes exposed to freeze/thaw shall be air entrained, air content 6%, ±1%.

B. Concrete clear cover over reinforcing shall be in accordance with the current addition of ACI 318 listed below unless otherwise noted -

Location	Clear Cover (inches)
Cast against earth Exposed to earth or weather #6 and larger Exposed to earth or weather #5 and smaller Slabs not exposed to weather Slabs-on-grade (cover from top of slab)	3 2 1 1/2 1 1 1/2

CAST-IN-PLACE CONCRETE NOTES CONTINUED

- 2. Concrete reinforcing shall meet the following -
- A. Reinforcing bars shall conform to the requirements of ASTM A615 Grade 60. Reinforcing bars required to be welded shall conform to the requirements of ASTM A706 Grade 60. Welding of reinforcing other than specified is prohibited.
- B. All reinforcing shall be continuous, Continuous bars shall lap in accordance with table"A" on sheet S002, unless otherwise noted.
- C. Provide corner bars in outside face of all foundations and walls equal in size and spacing to main horizontal reinforcing.
- Extend inside face reinforcing of all foundations and walls to outside face and bend to a standard 90 degree hook.
- D. Provide 2-#5 each side of each opening thru walls or slabs unless noted otherwise. Bars to extend 2'-0" past opening. E. Shop Drawings shall be submitted with reinforcing steel detailed in accordance with the current addition of ACI 318.
- 3. Forming and embedment shall meet the following -
- A. All foundations are designed and detailed with formed sides. If the contractor elects to use earth formed sides, one inch shall be added to each side to provide adequate cover over the reinforcing at the contractors expense.
- B. All exposed edges of concrete shall be chamfered 3/4" inside forms or tolled to 3/4" radius on slabs unless otherwise
- C. Slabs-on-Grade shall have construction joints and control joints (sawed joints) located as shown on the drawings. Contractor shall locate slab joints on shop drawings.
- D. At the contractors option, either the sawed or keyed construction joint may be used. The keyed joint shall be used to terminate any placement.
- E. Where necessary, vertical construction joints shall be located within the center one-third of the span. All joints shall be thoroughly cleaned and purposely roughened to 1/4" prior to placing adjacent concrete. Joints in exposed concrete shall be used with a maximum spacing of 50'.
- F. The contractor shall be responsible for the design of all forming, temporary bracing and shoring.
- G. No aluminum shall be embedded in concrete. Conduit and piping embedded in concrete shall be spaced a minimum of four diameters and the outside diameter shall be less than 30% of the member thickness placed between layers of reinforcing.
- 4. Curing for concrete surfaces not in contact with forms: One of the following procedures shall be applied immediately after completion of placement and finishing.
- A. Ponding or continuous sprinkling.
- B. Application of absorptive mats or fabric kept continuously wet.
- C. Application of waterproof sheet materials, conforming to specifications for waterproof sheet materials for curing concrete (ASTM C171).
- D. Application of a curing compound conforming to "specifications for liquid membrane forming compounds for curing concrete" (ASTM C309). The compound shall be applied in accordance with the recommendations of the manufacturer immediately after any water sheen which may develop after finishing has disappeared from the concrete surface. It shall not be used on any surface against which additional concrete is to be bonded unless it is proven that the curing compound will not prevent bond, or unless positive measures are taken to remove it completely from areas to receive bonded applications. Curing shall be continued at least 7 days.
- E. Perform adequate slab moisture emission tests per ASTM F1869-04 to confirm that emission levels meet the covering manufacturer's specification before placing the covering. These tests should not be conducted until the buildings closed in and the HVAC equipment run sufficiently to create temperature/humidity environment that is representative of the typical conditions the covering will experience.
- 5. All vapor retarder's shall be Stego Wrap 15-Mill Class A vapor retarder or approved equal unless more stringent requirements are shown in specifications. 6 mil visqueen is not approved equal.
- 6. Epoxy anchors shall be Hilti HAS Rods embed with Hilti HIT-HY 200 adhesive. Anchor rod size and embedment shall be as indicated in the details.

CONCRETE COLD WEATHER REQUIREMENTS

In cold weather, all heating equipment and protective enclosures shall be on the job ready for use when concrete is placed. Such equipment shall be adequate for the purpose of heating the concrete materials and protecting the concrete in accordance with the following requirements:

- 1. Whenever the temperature of the surrounding atmosphere is 40°F or lower, or there is a probability of it falling below 40°F, all aggregates and water shall be pre-heated and all forms, fill and ground with which the concrete is in contact or is calculated to come in contact with, shall be defrosted. Steel reinforcement and aggregates shall be protected by adequate means to prevent formation of an ice film.
- 2. All concrete placed in the forms shall have a temperature between 60°F and 80°F and adequate means shall be provided by enclosures and heating equipment for maintaining a temperature of at least 72°F for the first seven days and at least 50°F for as much more time as may be necessary, as determined by the engineer, to ensure the proper curing of the concrete.
- 3. Canvas or other protective covering shall be kept clear of all concrete in order to permit free circulation of air around all
- 4. The contractor is to protect the soil from freezing during the construction period, this includes footings that have been cast.
- 5. Whenever the temperature of the surrounding atmosphere is 40°F to 50°F, no concrete work shall be done unless approved by the structural engineer.

STRUCTURAL STEEL NOTES

1. Structural steel shall meet the following requirements unless otherwise noted on the drawings -

Туре	ASTM	Grade	Fy(Min (psi)
Structural shapes (except angles)	A992	50	50,000
Steel Angles, Plates, & Rods	A36		36,000
Structural Tubing	A500	В	46,000
(Optional)	A500	С	50,000
Anchor Bolts	F1554	36	36,000
Structural Bolts	A325		

- 2. Structural steel connections -
- A. Connection bolts shown in drawings are 3/4" diameter A325 bearing type "N" unless noted otherwise
- B. All bolts shall be snug tight by a impact wrench.

walls, columns, and over tops of all slabs.

- C. All welding shall be in accordance with latest AWS code. All welds shall use E70XX electrodes.
- 3. Steel framing connections shall be tightened and columns shall be plumbed and grouted below the base plate in place before decking is attached to frame.
- 4. No holes shall be cut thru steel beams in field unless approved in writing.
- 5. All exposed steel shall be hot dipped galvanized.

STEEL DECK NOTES

- 1. Steel roof deck shall comply with the Steel Deck Institute requirements.
- 2. Contractor shall take necessary precautions to prevent damage to the deck during construction. Damaged deck must be
- 3. Deck spans exceeding those in the "Construction Load Tables" published by the S.D.I. may require special precautions
- 4. End laps shall be 2" minimum and occur at a support.
- 5. Frame all openings thru deck over 10" in either dimension with angle 3 x 3 x 1/4 each side of opening.
- 6. No point loads (such as duct or pipe hangers, grid ceiling hangers, ect.) shall be placed on or attached to the deck.
- 7. Steel roof deck shall be 1 1/2" deep, 22 ga. (type B) wide rib metal decking (see plan for locations). Decking shall have yield strength of 33,000 psi. Decking shall receive finish per specification. Decking shall be continuous over a minimum of three supports. Each deck unit shall be attached to supporting members and adjacent panels as follows - REF. 1/YS3.2

36" Panel

No. of end and support 5/8" puddle welds No. of equally spaced #10 tek screws between supports in sidelaps

8. The deck shall be supported by structural steel beams or joists at edges with a continuous (ref detail for size) REF. 2/YS3.2 along the boundaries welded/anchored to the angle unless otherwise noted.

COLD FORMED METAL FRAMING NOTES (CFMF)

- 1. All exterior or load bearing walls shall be constructed of steel "C" studs of the size shown in the plans and shall conform to AISI specifications. Minimum section properties shall meet steel stud manufacturers association's published section properties.
- 2. Minimum width of the studs shall be 1 5/8", and the lip of the "C" portion shall be a minimum of 1/2".
- 3. Stud track shall be 16 ga. minimum or as indicated in details and shall be anchored as follows:

Hilti DX-35, 0.157" dia. X-U, Track pins @ 24" o.c. (or approved equal)

Simpson Strong-Tie Titen HD Screw Anchors 1/2" dia. with 4" embedment @ 32" o.c. (or approved equal) Optional - Simpson Strong-Tie PDPA Powder Actuated Fastener 0.157" dia. with min. 1 1/2" embedment @ 12" o.c. (or approved equal)

- 4. Steel studs shall be installed in accordance with the manufacturer's recommendations. Horizontal bridging shall be placed at 4'-0" o.c. or as per manufacturer's recommendation if less than 4'-0".
- 5. A minimum yield strength of 33KSI (33,000 psi) with the exception that 16 ga. and heavier studs shall have a minimum
- yield strength of 50KSI (50,000 psi).

6. Minimum thickness values of framing specified in gage values on drawings are as follows:

MINIMUM DESIGN	DESIGN	INSIDE CORNER	GAGE NO.						
THICKNESS (Mils)	THICKNESS (IN.)	RADIUS (IN.)	(REFERENCE ONLY)						
18	0.0188	0.0843	25						
27	0.0283	0.0796	22						
30	0.0312	0.0781	20-DRYWALL						
33	0.0346	0.0764	20-STRUCTURAL						
43	0.0451	0.0712	18						
54	0.0566	0.0849	16						
68	0.0713	0.1069	14						
97	0.1017	0.1525	12						
· Minimum Thickness ren	presents 95% of the thick	nees and is the minimum	accentable thickness de						

NOTE: Minimum Thickness represents 95% of the thickness and is the minimum acceptable thickness delivered to the job site based on Section A3.4 of the AISI Specification.

7. Typical light gage metal framing nomenclature established by the American Iron and Steel Institute (AISI) is as follows:

<u>600\$162-43</u>								
V		T						
MEMBER DEPTH	MEMBER SHAPE	RETURN LIP DIMENSION	MINIMUM DESIGN THICKNESS (MILS)-					
362 = 3.625"	S = STUD/JOIST	125 = 1.25"	(SEE SCHEDULE					
600 = 6.00"	T = TRACK	150 = 1.50"	ABOVE)					
800 = 8.00"	U = U-CHANNEL	162 = 1.625"	,					
1000 = 10.00"	F = FURRING CHANNEL	200 = 2.00"						

MISCELLANEOUS NOTES

- 1. Reproduction of structural contract documents as shop drawings, erection plans, fabrication plans or details if not authorized and, if submitted, will be rejected without checking. A license to use any portion or all the CAD files for the limited purpose of assisting contractor's preparation of shop drawings for submittal under the construction contract may be purchased from HFA-AE under a standard form of agreement for \$1,000.
- 2. Concrete pads for mechanical and electrical equipment on floors shall be 3 1/2" high unless otherwise noted and reinforced with #3 bars on 12" centers each way, 1 1/2" from top of slab. When the pad exceeds 10" in thickness, reinforce with #3 bars on 12" centers each way top and bottom. Anchor pad to slab with #4 dowels at 24" o.c. each way cast or epoxied into
- 3. Contractor shall supply all items for attaching mechanical and electrical equipment to the building structure to resist all loads including seismic forces. Attachment shall be made so as not to overstress structural members. Coordinate the attachments and locations of the equipment with the structural shop drawings. Re: to mechanical and electrical drawings for additional
- 4. Substitution of expansion anchors for embedded anchors as shown on the drawings will not be permitted unless approved by
- 5. The contractor shall provide the following additional services -
- A. Verification of all dimensions, elevations, opening sizes, and mechanical equipment weights prior to starting work.
- B. Provide temporary bracing and shoring as required for stability during construction.
- C. Verification of all floor depressions and offsets with architectural drawings.
- D. Remove all abandoned foundations, utilities, pipelines, etc. that interfere with new construction.
- E. Review and approve all shop drawings prior to submittal noting changes made which do not comply with design drawings.
- 6. Plans, sections, and details are not to be scaled for determination of quantities, lengths, or fit of materials.
- 7. See architectural, mechanical and electrical drawings for size and location of all openings, sleeves, curbs, pads, inserts, etc. not shown on structural drawings. Before fabrication of materials, coordinate with mechanical and electrical requirements.
- 8. Construction documents consist of these drawings and a separate book of specifications. The drawings and specifications are complimentary, neither is meant to stand alone for any portion of the work described herein. Any conflict between drawings and specifications shall be reported immediately to the architect.

ACI	AMERICAN CONCRETE	LBS.	POUNDS
AOI	INSTITUTE	LG.	LONG
AISC	AMERICAN INSTITUTE OF	LU. LLH	LONG LEG HORIZONTAL
	STEEL CONSTRUCTION	LLV	LONG LEG VERTICAL
A.B.	ANCHOR BOLT	LLV LONG.	LONGITUDINAL
AESS	ARCHITECTURALLY EXPOSED	MAX.	MAXIMUM
^	STRUCTURAL STEEL	MBM	METAL BUILDING
A.F.F. ARCH.	ABOVE FINISH FLOOR	IVIDIVI	MANUFACTURER
ARCH. ASTM	ARCHITECT AMERICAN SOCIETY OF	MECH.	MECHANCIAL
ASTM	TESTING MATERIALS	MFR.	MANUFACTURER
BAL.	BALANCE	MIN.	MINIMUM
B.F.F.	BELOW FINISHED FLOOR	MISC.	MISCELLANEOUS
B.L.	BLOCK LINTEL	MTL.	METAL
BLDG.	BUILDING	N.I.C.	NOT IN CONTRACT
BM.	BEAM	N.S.	NEAR SIDE
B.O.D.	BOTTOM OF DECK	N.T.S.	NOT TO SCALE
BOTT.	BOTTOM	No.	NUMBER
BRG.	BEARING	0.C.	ON CENTER
_	CENTERLINE	O.D.	OUTSIDE DIAMETER
C.J.	CONTRACTION JOINT	O.F.	OUTSIDE FACE
CLR.	CLEAR	O.H.	OPPOSITE HAND
CMU	CONCRETE MASONRY UNIT	OPNG.	OPENING
COL.	COLUMN	PAF	POWDERED ACTUATED
CONC	CONCRETE	FAF	FASTENER
CONN.	CONNECTION	P.M.E.J.	
CONST.	CONSTRUCTION	PCF	POUNDS PER CUBIC FOOT
CONT	CONTINUOUS	PED	PEDESTAL
CTRD.		PL	PLATE
	CENTERED DEFORMED BAR ANCHOR	PLF	
D.B.A.	DEGREE	PROJ.	PROJECTION
		PSF	POUNDS PER SQUARE FOO
	DIAMETER	PSI	POUNDS PER SQUARE INCH
DIM.	DIMENSION	QTY.	QUANTITY
DN	DOWN	R.O.	ROUGH OPENING
do	DITTO	RE:	REFER
DTL.	DETAIL	R.	RADIUS
	DRAWING	REINF.	
DWL.	DOWEL	REQ'D	
EA.	EACH	RTU	
	EACH FACE	S.D.S.	
E.J.	EXPANSION JOINT	SCHED.	
	EDGE OF DECK	SECT.	
E.O.S.	EDGE OF SLAB	SIM.	
EL.	ELEVATION		STEEL JOIST INSTITUTE
EQ.	EQUAL		SLAB-ON-GRADE
EW	EACH WAY		
EXIST.	EXISTING	SPA.	
EXP.	EXPANSION	SPECS	
F.F.E.	FINISH FLOOR ELEVATION	STD.	
FLR.	FLOOR	STIFF.	
FDN.	FOUNDATION	STL.	
FTG.	FOOTING	T&B	
F.S.	FAR SIDE	T.O.	
G.B.	GRADE BEAM	T.O.P.	
GA.	GAUGE	TOC	TOP OF CONCRETE
GALV.	GALVANIZED	TOF	TOP OF FOOTING
HK.	HOOK	TOW	
	HORIZONTAL	TRANS.	TRANSVERSE
H.S.A.	HEADED STUD ANCHOR	TYP.	TYPICAL
l.F.	INSIDE FACE	U.N.O.	
	INTERNATIONAL BUILDING CODE	VEDT	\ /CDTIOAI

INTERNATIONAL BUILDING CODE

JOIST BEARING ELEVATION

KIPS PER SQUARE INCH

INFORMATION

JOIST

JOINT

INFO.

JBE

JST.

WEIGHT

WORK POINT

EXTENDED END

WELDED WIRE FABRIC

WITH

WWF

DRAWN BY: OCUMENT DATE: 05/05/21

CHECKED BY:

ISSUE BLOCK

07/09/21 ADD 1

Harrison French

& ASSOCIATES, LT

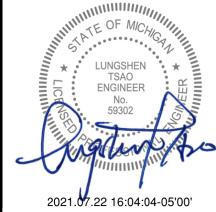
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GENERAL NOTES & **TYPICAL DETAILS**

YS1.0

Т	TABLE "A" REINFORCEMENT TENSION LAPS, EMBEDMENT LENGTHS AND HOOK LENGTHS fy=60000 PSI									
	fc = 3,000 PSI					fc	= 4,000 P	SI		
BAR SIZE	LAP CLASS	SP	LICE	HOOK LENGTH	BAR SIZE	LAP CLASS	SPI	_ICE	HOOK LENGTH	
DAN SIZE	LAP CLASS	TOP	OTHER	HOOK LENGTH	OOR LENGTH BAR SIZE LAP CLA	LAP CLASS	TOP	OTHER	HOOK LENGTH	
#3	Α	20"	16"	8"	#3	Α	18"	14"	7"	
#3	В	27"	21"	0	#3	В	23"	18"] '	
#4	Α	28"	22"	44"	44	Α	25"	19"	9"	
#4	В	36"	28"	11"	#4	В	32"	25"		
#5	Α	36"	27"	12"	#5	Α	31"	24"	10"	
#3	В	46"	36"	13"	#5	В	40"	31"	12"	
#6	Α	43"	33"	16"	#6	А	37"	28"	1.4"	
#6	В	56"	43"	16"	#6	В	48"	37"	14"	
#7	Α	62"	48"	40"	47	Α	54"	42"	16"	
#1	В	81"	62"	18"	#7	В	70"	54"	16"	

- 1. LENGTHS SHOWN CONFORM WITH NON-SEISMIC PROVISIONS OF THE CURRENT EDITION OF ACI 318 FOR UNCOATED BARS NOT ENCLOSED BY CLOSELY SPACED SPIRALS OR TIES. DEVELOPMENT OF REINFORCEMENT NOT COVERED BY THE TABLE SHALL CONFORM WITH THE CURRENT
- . BAR CLEAR SPACING IS THE CENTER TO CENTER BAR SPACING MINUS TWO BAR DIAMETERS WHEN ALL BARS ARE LAPPED AT THE SAME LOCATION. THE BAR CLEAR SPACING IS TWICE THE CENTER TO CENTER BAR SPACING MINUS TWO BAR DIAMETERS. WHEN ALL BARS ARE EMBEDDED AT THE SAME LOCATION, THE BAR CLEAR SPACING IS THE CENTER TO CENTER BAR SPACING MINUS ONE BAR DIAMETER.
- 3. CLASS A LAP LENGTHS APPLY WHEN BAR LAPS ARE STAGGERED TO LAP HALF THE BARS AT THE SAME LOCATION OR WHEN BARS ARE LAPPED AT A LOCATION OF MINIMUM STRESS IN THE BARS.
- 4. LAP AND EMBEDMENT LENGTHS SHOWN APPLY WHEN BAR MINIMUM CONCRETE COVER OVER BARS CONFORMS WITH VALUES GIVEN IN THE
- 5. CLASS A LAP AND EMBEDMENT LENGTH HAVE THE SAME VALUE.
- 6. CLASS B LAP LENGTHS APPLY WHEN ALL BARS ARE SPLICED AT A LOCATION OF MAXIMUM STRESS IN THE BARS.

TABLE FOR "CONCRETE COVER". THESE COVER VALUES CONFORM WITH THE CURRENT EDITION OF ACI 318.

- 7. HOOK LENGTH GIVEN IS THE STRAIGHT LINE DISTANCE FROM THE LOCATION OF MAXIMUM STRESS IN THE BAR TO THE OUTSIDE END OF THE HOOK. MULTIPLY LENGTHS GIVEN BY 0.7 FOR HOOKS WITH SIDE COVER NORMAL TO THE HOOK. NOT LESS THAN 2 1/2 INCHES AND FOR 90 DEGREE HOOKS COVER ON BAR EXTENSION BEYOND HOOK NOT LESS THAN 2 INCHES.
- 8. TOP BARS ARE HORIZONTAL REINFORCEMENT PLACED SO THAT MORE THAN 12 INCHES OF CONCRETE IS CAST BELOW THE REINFORCEMENT.
- 9. MULTIPLY LAP AND EMBEDMENT LENGTHS BY 2.0 FOR BARS WITH CLEAR SPACING OF TWO BAR DIAMETERS OR LESS OR CONCRETE COVER OF ONE BAR DIAMETER OR LESS.
- 10. MINIMUM CONCRETE COVER FROM FACE OF MEMBER TO EDGE BAR SHALL NOT BE LESS THAN TWO AND ONE HALF BAR DIAMETERS.

SPECIAL INSPECTION NOTES

IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 17 OF THE BUILDING CODE, THE OWNER SHALL EMPLOY QUALIFIED PERSONNEL TO PERFORM THE FOLLOWING SPECIAL INSPECTIONS AND REPORT THE FINDINGS TO THE ENGINEER AND BUILDING OFFICIAL. THIS DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY TO PERFORM WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOTIFY THE INSPECTOR 48 HOURS IN ADVANCE OF ALL INSPECTIONS.

STATEMENT OF SPECIAL INSPECTION (PER INTERNATIONAL BUILDING CODE 2015)

SOURCE AND FIELD QUALITY CONTROL REQUIREMENTS ARE ALSO STATED IN THE SPECIFICATIONS. COMPLY WITH THE MORE STRINGENT OF THE SPECIFICATIONS AND THESE REQUIREMENTS FOR SPECIAL INSPECTION.

SPECIAL INSPECTIONS SHALL BE PERFORMED FOR THIS FACILITY IN ACCORDANCE WITH THE STATEMENT OF SPECIAL INSPECTIONS PER IBC 2015 SECTION 1705 AND ARE IN ADDITION TO THOSE REQUIRED BY IBC 2015 SECTION 110.

SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON(S) WHO SHALL DEMONSTRATE COMPETENCE, FOR INSPECTION OF THE TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.

SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE PROJECT MANAGER, AND TO THE ENGINEER OF RECORD, DISTRIBUTED ON A REGULAR BASIS. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS PERFORMED IN CONFORMANCE WITH APPROVED CONSTRUCTION DOCUMENTS, OR INDICATE DISCREPANCIES. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE PROJECT MANAGER AND ENGINEER OF RECORD.

SUBMIT A FINAL REPORT DOCUMENTING ALL SPECIAL INSPECTIONS FOR EACH TYPE OF CONSTRUCTION, INCLUDE RESOLUTIONS AND/OR CORRECTIONS FOR ANY NOTED DISCREPANCIES. FINAL REPORT SHALL BE SIGNED AND SEALED BY A REGISTERED

SUBCONTRACTOR RESPONSIBILITY:

EACH SUBCONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND OR SEISMIC FORCE-RESISTING SYSTEM OR WIND OR SEISMIC FORCE RESISTING COMPONENT LISTED SHALL SUBMIT A WRITTEN SUBCONTRACTOR'S STATEMENT OF RESPONSIBILITY TO THE PROJECT MANAGER AND TO THE ENGINEER OF RECORD PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR

- SUBCONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN THE FOLLOWING: 1. ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE QUALITY ASSURANCE PLAN.
- 2. ACKNOWLEDGEMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE APPROVED CONSTRUCTION
- 3. PROCEDURES FOR EXERCISING CONTROL WITHIN THE SUBCONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF THE REPORTS.
- 4. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) WITHIN THE

FOR ITEMS REQUIRING PERIODIC INSPECTION: INSPECT WORK PERFORMED ON THE FIRST DAY ANY CONSTRUCTION ACTIVITY REQUIRING SPECIAL INSPECTION. INSPECT WORK ON A PERIODIC BASIS THEREAFTER FOR THE DURATION OF THE ACTIVITY.

FOR ITEMS REQUIRING CONTINUOUS INSPECTION: INSPECT WORK ON A FULL-TIME BASIS, AND BE PRESENT IN THE AREA FOR THE DURATION OF THE ACTIVITY.

INSPECTION OF FABRICATORS

THE SPECIAL INSPECTOR SHALL VERIFY THAT THE FABRICATOR MAINTAINS DETAILED FABRICATION AND CONTROL PROCEDURES THAT PROVIDE A BASIS FOR INSPECTION CONTROL OF THE WORKMANSHIP AND THE FABRICATOR'S ABILITY TO CONFORM WITH APPROVED CONSTRUCTION DOCUMENTS AND REFERENCED STANDARDS PRIOR TO THE START OF WORK.

SPECIAL INSPECTOR SHALL REVIEW THE PROCEDURES FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE CODE REQUIREMENTS FOR THE FABRICATOR'S SCOPE PRIOR TO THE START OF WORK.

FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE PROJECT MANAGER AND TO THE ENGINEER OF RECORD STATING

THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AT COMPLETION OF WORK.

STEEL CONSTRUCTION (REFERENCE IBC-2015, SECT 1705.2.1 - REFER TO AISC 14TH ED CHAPTER N)

MATERIAL VERIFICATION OF STRUCTURAL STEEL

(1) IDENTIFICATION MARKING TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS,

(2) SUBMITTAL OF MANUFACTURER'S CERTIFIED MILL TEST REPORTS TO ENGINEER OF RECORD.

FOR THE FOLLOWING TABLES:

O- OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.

P- PERFORM THESE TASKS FOR EACH WELDED/BOLTED JOINT OR STEEL MEMBER

OILS (IBC 2015 - TABLE 1705.6 - REQUIRED VERIFICATION AND INSPECTIONS)		
ERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODIC DURING TASK LISTED
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		х
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		х
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.		х
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	х	
PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		х

VI	ERIFICATION AND INSPECTIONS	REFERENCE STANDARD	CONTINUOUS	PERIODIC
1.	REINFORCING STEEL	VERIFY PRIOR TO PLACING CONCRETE THAT REINFORCING IS OF SPECIFIED TYPE, GRADE AND SIZE; THAT IT IS FREE OF OIL, DIRT AND REUST; THAT IT IS LOCATED AND SPACED PROPERLY; THAT HOOKS, BENDS TIES, STIRRUPS AND SUPPLIMENTAL REINFORCEMENT ARE PLACED CORRECTLY, THAT LAP LENGTHS, STAGGER ANDOFFSETS ARE PROVIDED; AND THAT ALL MECHANICAL CONNECTIONS ARE INSTALLED PER THE MANUFACTURES INSTRUCTIONS AND/OR EVALUATION REPORT.	-	X
2.	CAST-IN BOLTS & EMBEDS	INSPECTION OF ANCHORS OR EMBEDS CAST IN CONCRETE IS REQUIRED WHEN ALLOWABLE LOADS HAVE BEEN INCREACED OR WHERE STRENGTH DESIGN IS USED.		Х
3.	POST-INSTALLED ANCHORS OR DOWELS	ALL POST-INSTALLED ANCHORS/DOWELS SHALL BE SPECIALLY INSPECTED AS REQUIRED BY THE APPROVED ICC-ES REPORT.		Х
4.	USE OF REQUIRED DESIGN MIX	VERIFY THAT ALL MIXES USED COMPLY WITH THE APPROVED CONSTRUCTION DOCUMENTS; ACI 318: CH. 4, 5.2-5.4; AND IBC 1904.3, 1932.2, 1913.3.	-	Х
5.	CONCRETE SAMPLING FOR STRENGTH TESTS, SLUMP, AIR CONTENT, AND TEMPERATURE		х	
6.	CONCRETE PLACEMENT		Х	
7.	CURING TEMPERATURE AND TECHNIQUES	VERIFY THAT THE AMBIENT TEMPERATURE FOR CONCRETE IS KEPT AT >50°F FOR AT LEAST 7 DAYS AFTER PLACEMENT. HIGH-EARLY-STRENGTH CONCRETE SHALL BE KEPT AT >50°F FOR AT LEAST 3 DAYSACCLERATED CURING METHODS MAY BE USED (SEE ACI 318: 5.11.3). THE ABMIENT TEMPERATURE FOR SHOTCRETE SHALL BE >40°F FOR THE SAME PERIOD OF TIME AS NOTED FOR CONCRETE. SHOTCRETE SHALL BE KEPT CONTINUOUSLY MOIST FOR AT LEAST 24 HOURS AFTER SHOTCRETING. ALL CONCRETE MATERIALS, REINFORCEMENT, FORMS, FILLERS, AND GROUND SHALL BE FREE FROM FROST. IN HOT WEATHER CONDITIONS ENSURE THAT APPROPRIATE MEASURES ARE TAKEN TO AVOID PLASTIC SHRINKAGE CRACKING AND THAT THE SPECIFIED WATER/CEMENT RATIO IS NOT EXCEEDED.	-	X
8.	FORMWORK	VERIFY THAT THE FORMS ARE PLACED PLUMB AND CONFORM TO THE SHAPES, LINES, AND DIMENSIONS OF THE MEMBERS AS REQUIRED BY THE APPROVED CONSTRUCTION DOCUMENTS.		Х
9.	REINFORCEMENT COMPLYING WITH ASTM A 615 IN SPECIAL MOMENT FRAMES, SPECIAL STRUCTURAL WALLS AND COUPLING BEAMS	VERIFY THAT ASTM A 615 REINFORCING STEEL USED IN THESE AREAS COMPLIES WITH ACI318: 21.15.2 BY MEANS OF CERTIFIED MILL TEST REPORTS. IF THIS REINFORCING STEEL IS TO BE WELDED CHEMICAL TESTS SHALL BE PERFORMED IN ACCORDANCE WITH ACI 318: 3.5.2.		Х

AISC 360-10. TABLE N5.4-1 (INSPECTION TASKS PRIOR TO WELDING)		
INSPECTION TASKS PRIOR TO WELDING	QC	QA
WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	Р	Р
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	Р	Р
MATERIAL IDENTIFICATION (TYPE/GRADE)	0	0
WELDER IDENTIFICATION SYSTEM	0	0
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) • JOINT PREPARATION • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION) • BACKING TYPE AND FIT (IF APPLICABLE)	0	O
CONFIGURATION AND FINISH OF ACCESS HOLES	0	0
FIT-UP OF FILLET WELDS • DIMENSIONS (ALIGNMENT, GAPS AT ROOT) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION)	0	0
CHECK WELDING EQUIPMENT	0	-

INSPECTION TASKS DURING WELDING	QC	QA	
USE OF QUALIFIED WELDERS	0	0	
CONTROL AND HANDLING OF WELDING CONSUMABLES PACKAGING EXPOSURE CONTROL	o	0	
NO WELDING OVER CRACKED TACK WELDS	0	0	
ENVIRONMENTAL CONDITIONS • WIND SPEED WITHIN LIMITS • PRECIPITATION AND TEMPERATURE	o	o	
WPS FOLLOWED SETTINGS ON WELDING EQUIPMENT TRAVEL SPEED SELECTED WELDING MATERIALS SHIELDING GAS TYPE/FLOW RATE PREHEAT APPLIED INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.) PROPER POSITION (F, V, H, OH)	o	O	
WELDING TECHNIQUES INTERPASS AND FINAL CLEANING EACH PASS WITHIN PROFILE LIMITATIONS EACH PASS MEETS QUALITY REQUIREMENTS	О	O	

AISC 360-10. TABLE N5.4-2 (INSPECTION TASKS DURING WELDING)

INSPECTION TASKS AFTER WELDING	QC	QA
WELDS CLEANED	0	0
SIZE, LENGTH AND LOCATION OF WELDS	Р	Р
WELDS MEET VISUAL ACCEPTANCE CRITERIA CRACK PROHIBITION WELD/BASE- METAL FUSION CRATER CROSS SECTION WELD PROFILES WELD SIZE UNDERCUT POROSITY	P	P
ARC STRIKES	Р	Р
K-AREA	Р	Р
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	Р	Р
REPAIR ACTIVITIES	Р	Р
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	Р	Р

INSPECTION TASKS PRIOR TO BOLTING	QC	QA
MFRs CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	0	Р
FASTENERS MARKED IN ACCORDANCE W/ ASTM REQUIREMENTS	0	0
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM THE SHEAR PLANE)	O	О
PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	0	0
CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	0
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	Р	0
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	0	0

AISC 360-10 TABLE N5.6-2 (INSPECTION TASKS DURING BOLTING)			
INSPECTION TASKS DURING BOLTING	QC	QA	
FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	0	0	
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	0	0	
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	0	0	
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	0	0	

AISC 360-10 TABLE N5.6-3 (INSPECTION TASKS AFTER BOLTING)		
INSPECTION TASKS AFTER BOLTING	QC	QA
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	Р	Р

VERIFICATION AND INSPECTIONS - CONT'D	VERIFICATION AND INSPECTIONS - CONT'D CONTINUOUS					
1. MATERIAL VERIFICATION OF COLD-FORMED STEEL DECK:	,	1				
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.		х				
b. MANUFACTURER'S CERTIFIED TEST REPORTS.		х				
2. INSPECTION OF WELDING:						
a. COLD-FORMED STEEL DECK.						
1) FLOOR AND ROOF DECK WELDS.						
b. REINFORCING STEEL:						
1) REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT.	х					
2) SHEAR REINFORCEMENT.	х					
3) OTHER REINFORCING STEEL.						
3. INSPECTION OF ROOF DECK ATTACHMENTS						
1) FLOOR AND ROOF DECK WELDS.		х				
2) FLOOR AND ROOF DECK SCREWS AND PINS.		х				





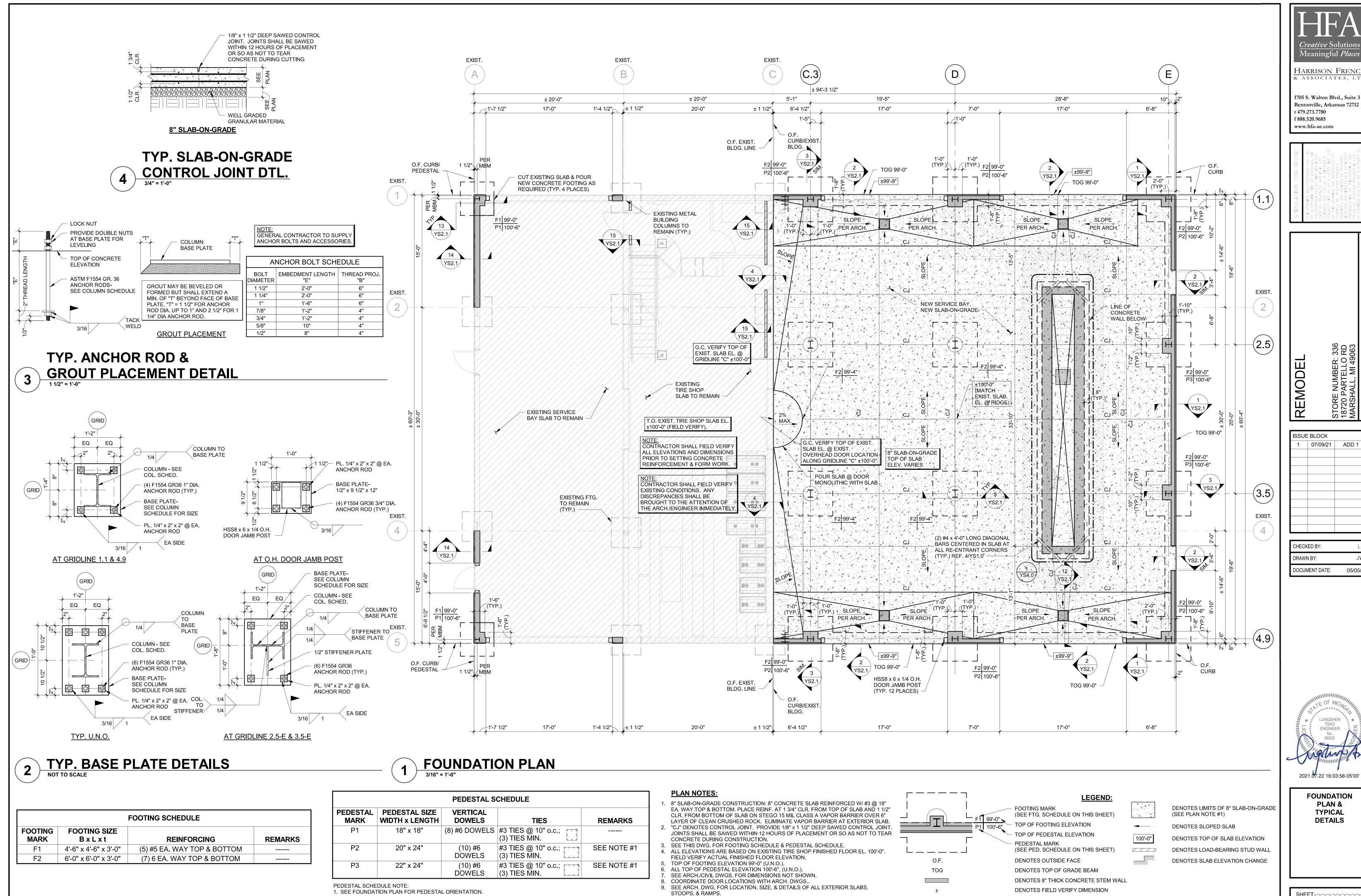
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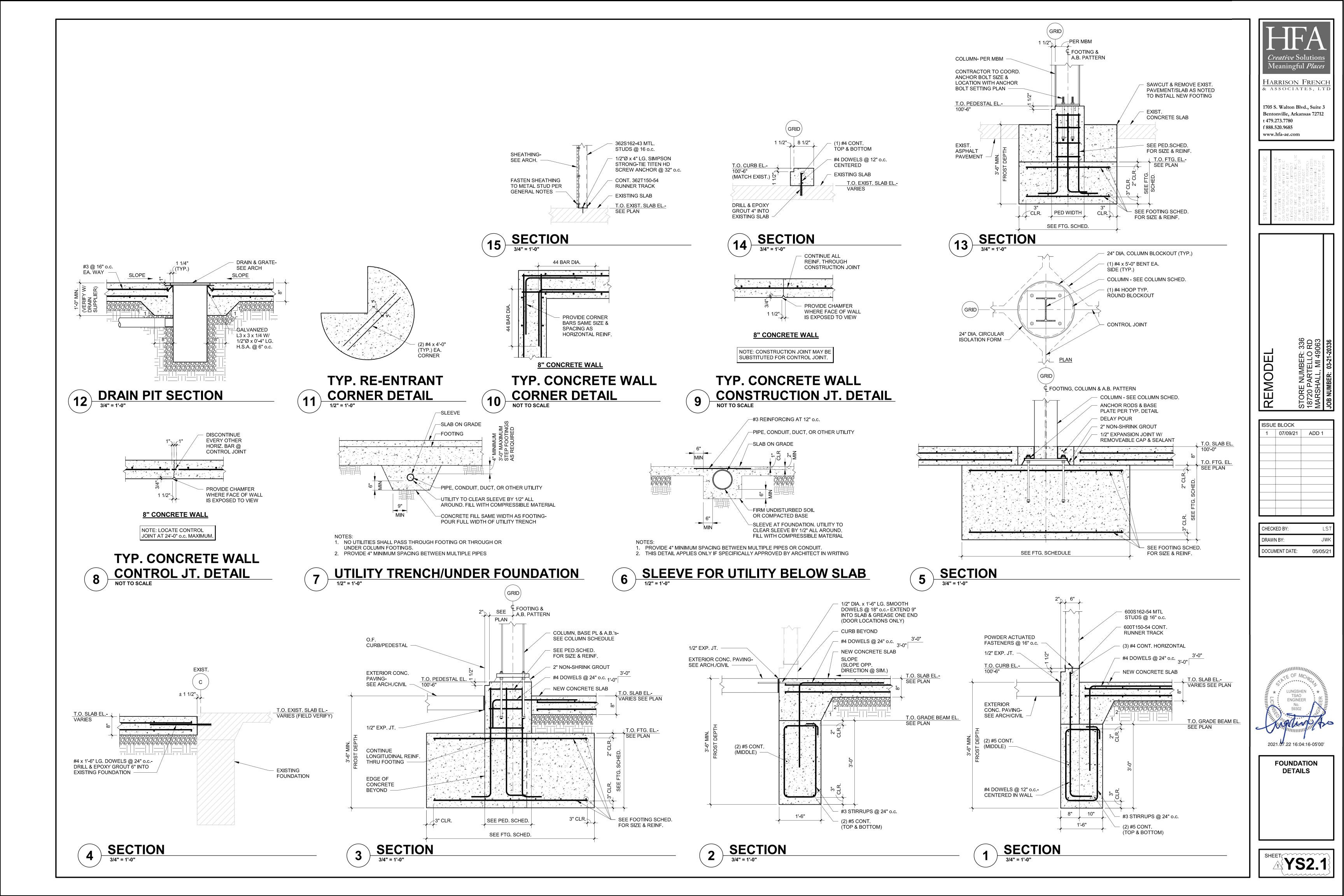
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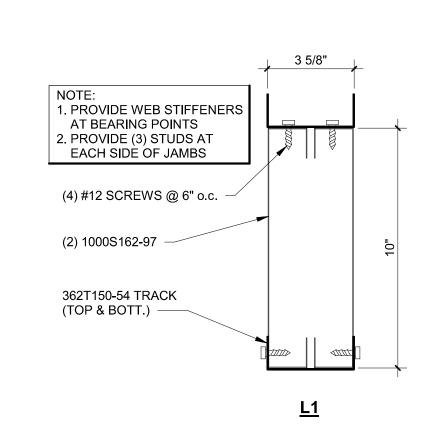
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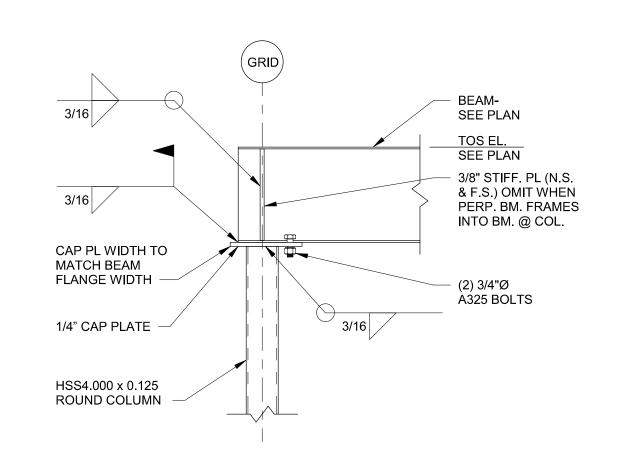
FOUNDATION PLAN & **TYPICAL DETAILS**

YS2.0

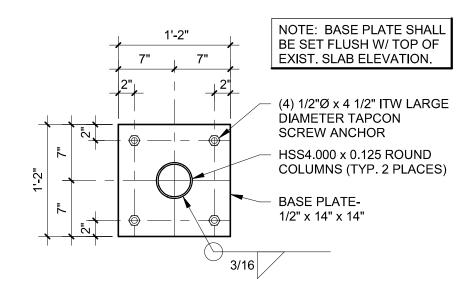




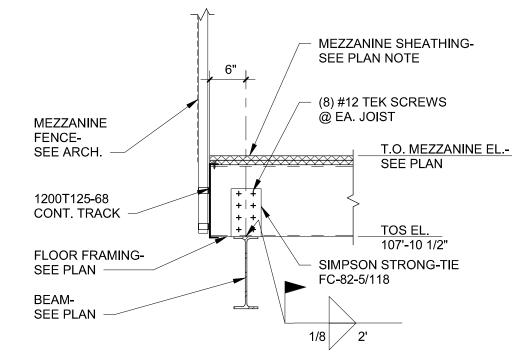
TYP. MTL. STUD BOX LINTEL DETAIL NOT TO SCALE



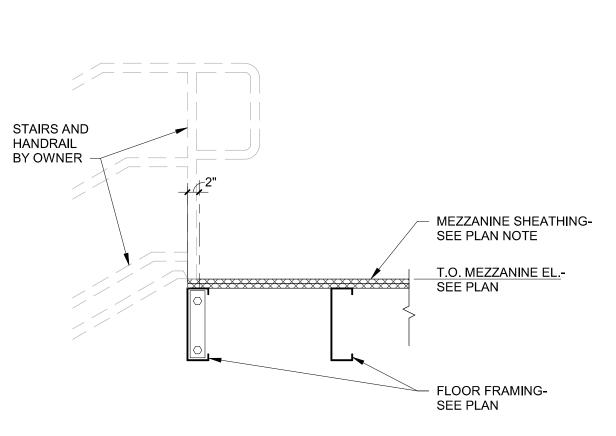








SECTION3/4" = 1'-0"



MEZZANINE SHEATHING-SEE PLAN NOTE

FLOOR FRAMING-

SEE PLAN —

T.O. MEZZANINE EL.-SEE PLAN

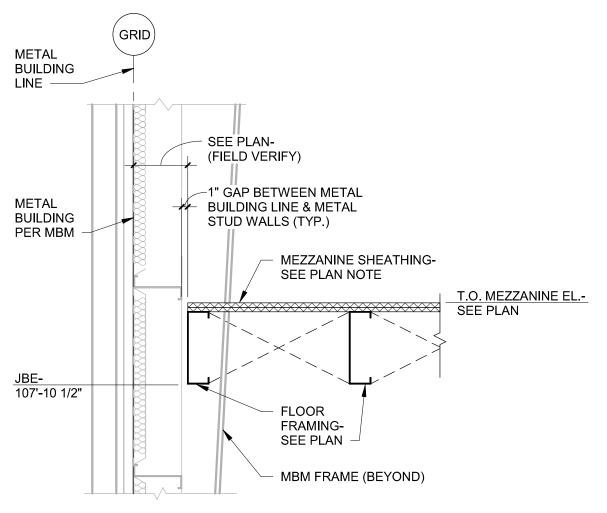


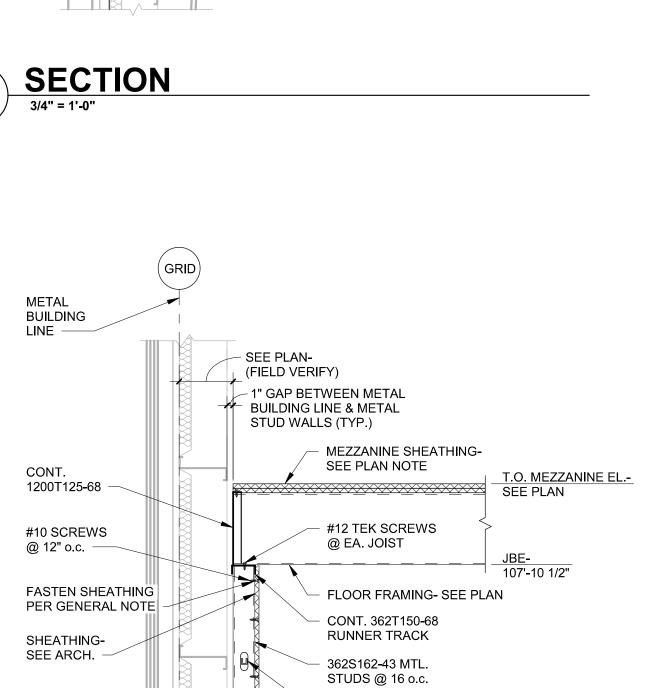
MEZZANINE

FENCE-

SEE ARCH.

JBE-107'-10 1/2"

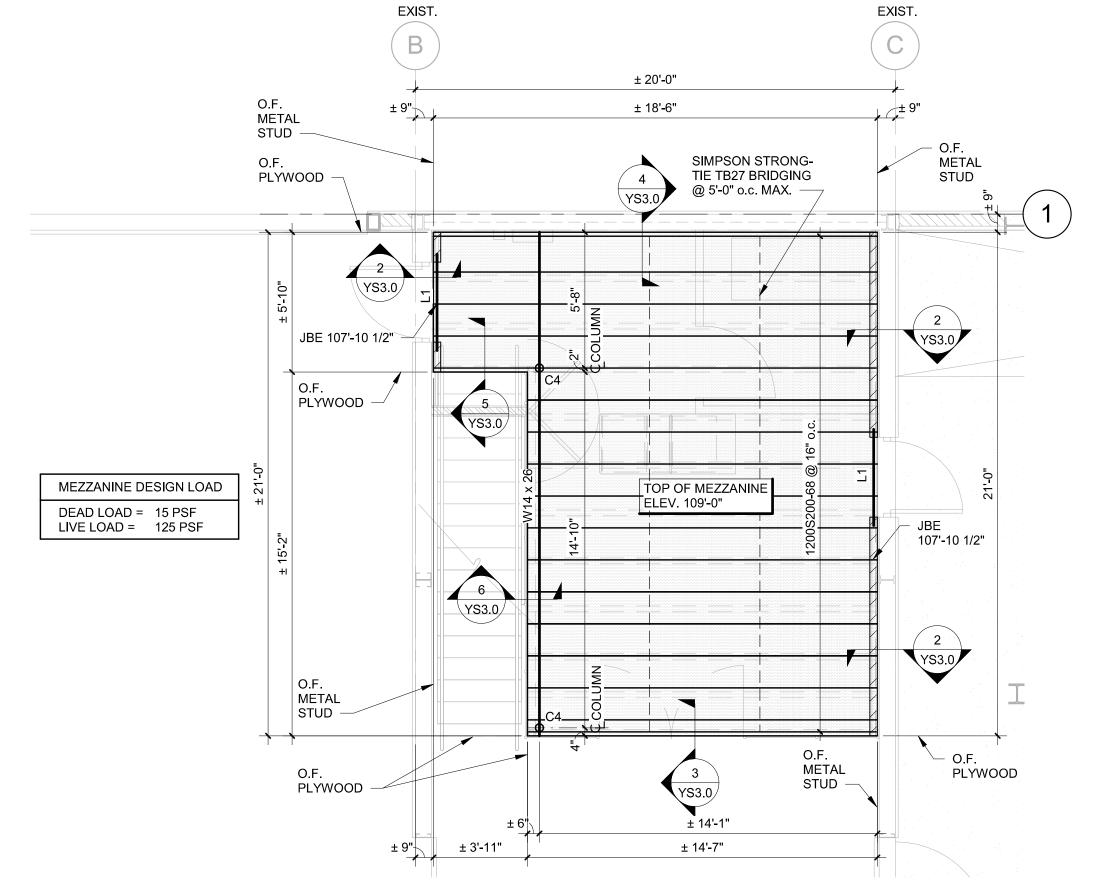




BRIDGING- SEE LIGHT GAUGE

STEEL GENERAL NOTE #8 (TYP.)







LEGEND: O.F. DENOTES OUTSIDE FACE

DENOTES JOIST BEARING ELEVATION DENOTES LOAD-BEARING STUD WALL

DENOTES EXTENTS OF MEZZANINE FLOOR DECK

> DENOTES FIELD VERIFY DIMENSION DENOTES SIMPSON STRONG-TIE

----TB27 BRIDGING DENOTES HSS4.000 x 0.125 ROUND COLUMNS W/ 1/2" x 14" x 14" BASE PLATE AND (4) 1/2" x 4 1/2" ITW LARGE

DIAMETER TAPCON SCREW ANCHOR. DENOTES LINTEL (SEE DETAIL 9/YS3.0)

PLAN NOTES:

- 1. MEZZANINE FLOOR DECK SHALL BE (2) LAYERS OF 3/4" TONGUE & GROOVE PLYWOOD SHEATHING. ATTACH FIRST LAYER TO FLOOR FRAMING WITH #10 FLAT HEAD SELF DRILLING SCREWS @ 12" o.c. & ATTACH SECOND LAYER OF SHEATHING
- TO FIRST LAYER WITH GLUE & #10 WOOD SCREWS @ 12" o.c.. 2. ALL ELEVATIONS ARE BASED ON EXISTING FINISH FLOOR EL. 100'-0". FIELD VERIFY
- ACTUAL FINISH FLOOR ELEVATION. 3. ALL JOISTS ARE SPACED 24" o.c. MAXIMUM, FIELD ADJUST AS REQUIRED.
- 4. SEE DWG. YS1.0 FOR GENERAL NOTES & TYPICAL DETAILS.
- 5. SEE FOUNDATION PLAN & ARCHITECTURAL DWGS. FOR DIMENSIONS NOT SHOWN. 6. COORDINATE JOIST BEARING ELEVATION W/ METAL BUILDING MANUFACTURER.



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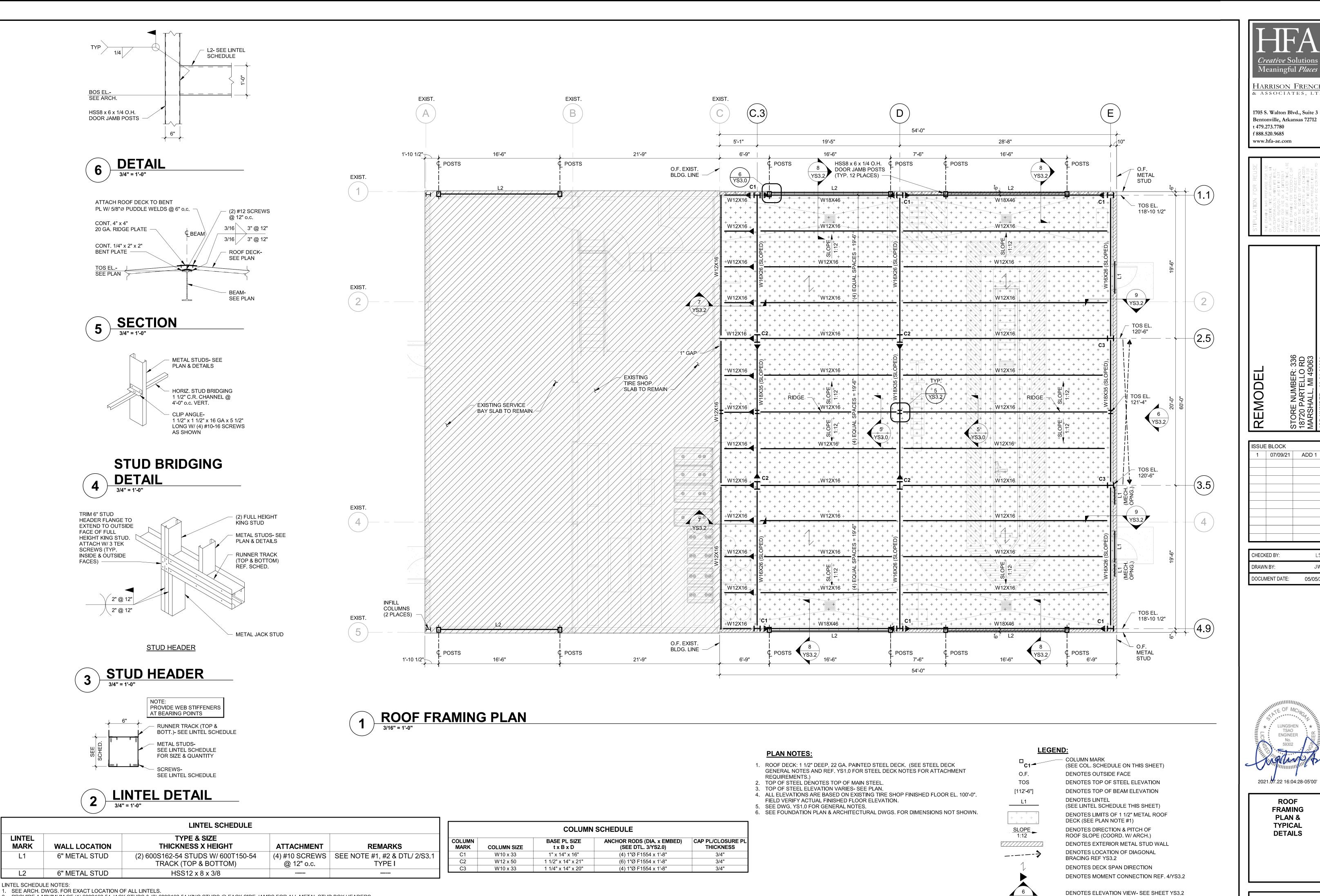
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MEZZANINE FRAMING PLAN & **MEZZANINE FRAMING DETAILS**







2. PROVIDE A MINIMUM OF (1) 600S162-54 JACK STUDS & (2) 600S162-54 KING STUDS @ EACK SIDE JAMBS FOR ALL METAL STUD BOX HEADERS.

3. SEE DTL. 6/YS3.1 FOR HEADER TO JAMB POST CONNECTION. REF ARCH. FOR BOTTOM OF STEEL ELEVATION.

YS3.1

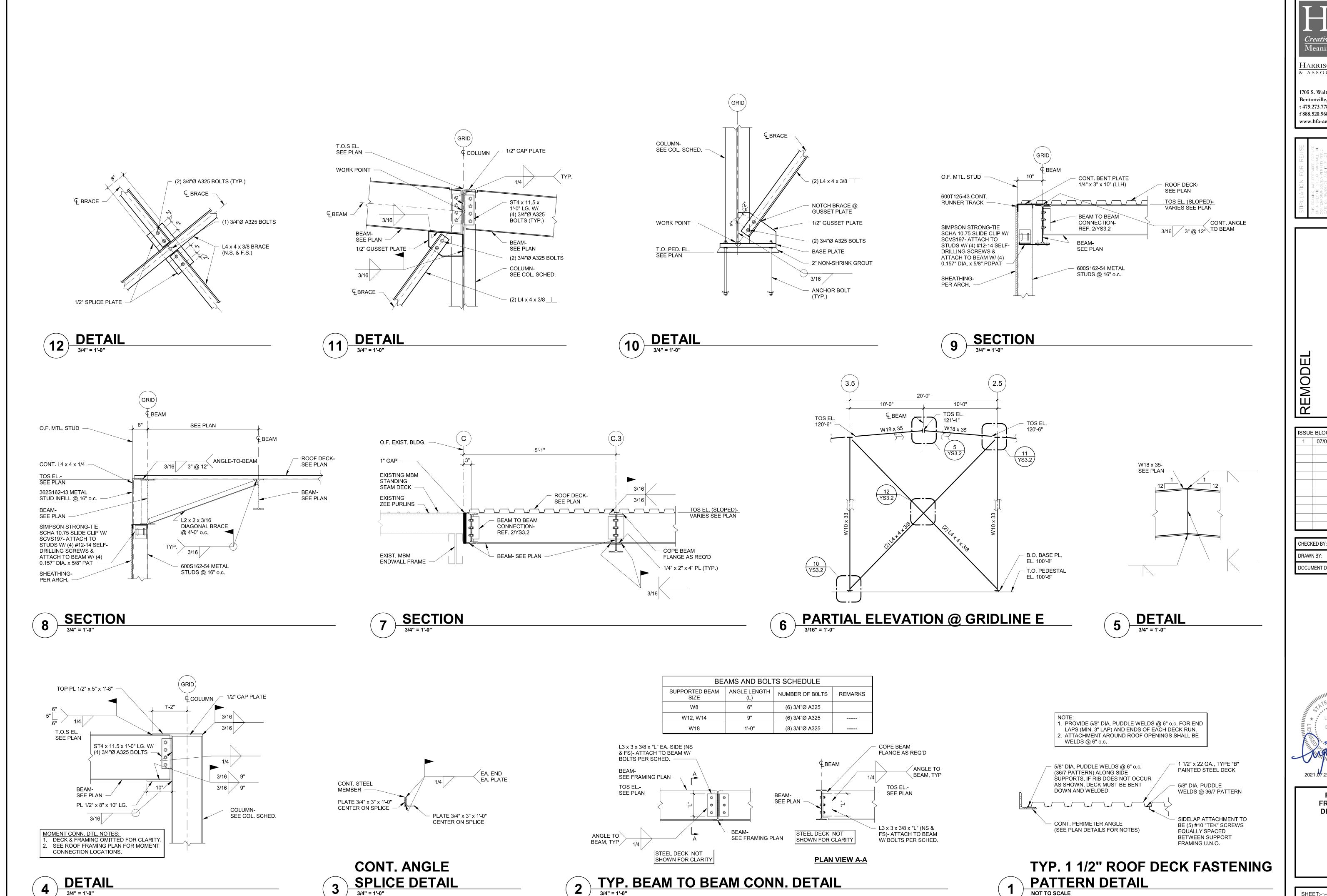
\YS3.2*/*

ROOF

PLAN &

TYPICAL

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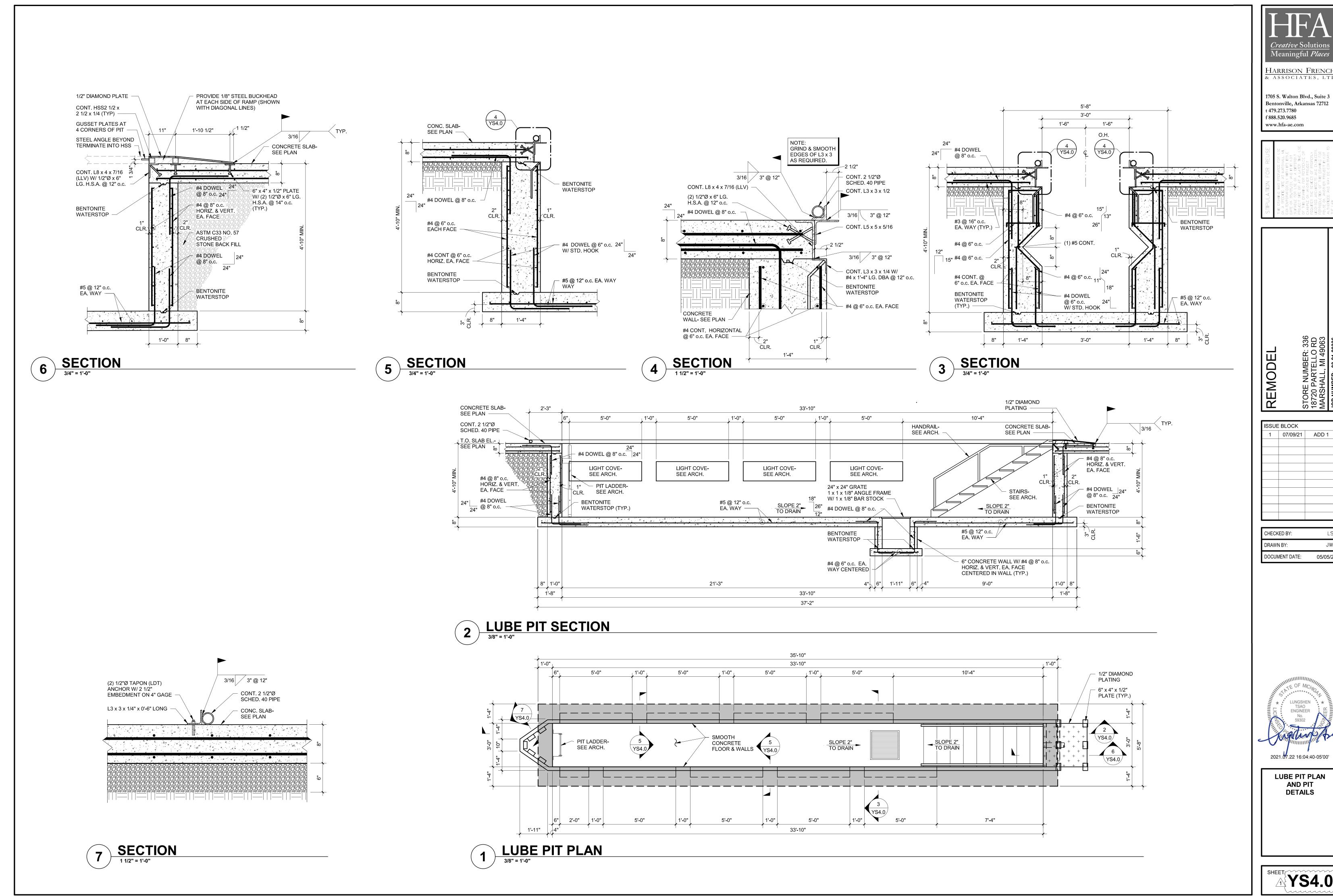
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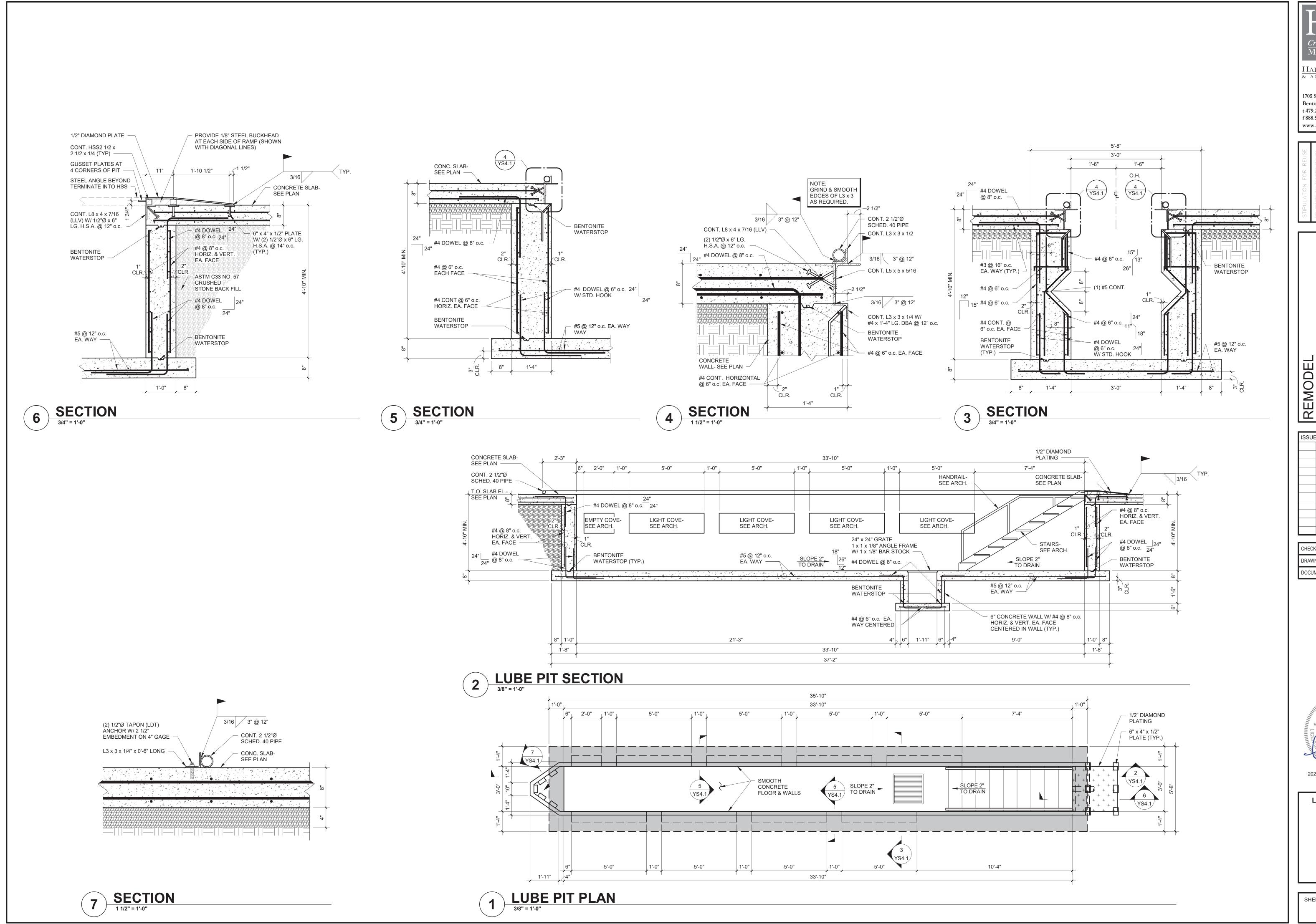
ROOF FRAMING DETAILS

YS3.2





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LUBE PIT PLAN AND PIT DETAILS

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Y**S4.1**

15A 1-1 GENERAL REQUIREMENTS

REQUIREMENTS UNDER DIVISION ONE AND THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THESE SPECIFICATIONS SHALL BE A PART OF THIS SECTION. CONTRACTOR SHALL BECOME THOROUGHLY ACQUAINTED WITH ITS CONTENTS AS TO REQUIREMENTS THAT AFFECT THIS DIVISION OR SECTION. THE WORK REQUIRED UNDER THIS SECTION INCLUDES MATERIAL, EQUIPMENT. APPLIANCES, TRANSPORTATION, SERVICES, AND LABOR REQUIRED TO COMPLETE THE ENTIRE SYSTEM AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.

THE SPECIFICATIONS AND DRAWINGS FOR THE PROJECT ARE COMPLEMENTARY, AND PORTIONS OF THE WORK DESCRIBED IN ONE, SHALL BE PROVIDED AS IF DESCRIBED IN BOTH. IN THE EVENT OF DISCREPANCIES, NOTIFY THE ENGINEER AND/OR OWNER AND REQUEST CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK INVOLVED.

15A 1-2 INSPECTION OF SITE

PRIOR TO SUBMITTING BID, VISIT THE SITE OF THE PROPOSED WORK AND BECOME FULLY INFORMED AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE DONE. FAILURE TO DO SO WILL NOT BE CONSIDERED SUFFICIENT JUSTIFICATION TO REQUEST OR OBTAIN EXTRA COMPENSATION OVER AND ABOVE THE CONTRACT PRICE.

15A 1-3 MATERIAL AND WORKMANSHIP

PROVIDE NEW MATERIAL, EQUIPMENT, AND APPARATUS UNDER THIS CONTRACT UNLESS OTHERWISE STATED HEREIN, OF BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE, AND FREE FROM ANY DEFECTS. MODEL NUMBERS LISTED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS ARE NOT NECESSARILY INTENDED TO DESIGNATE THE REQUIRED TRIM, WRITTEN DESCRIPTIONS OF THE TRIM GOVERN MODEL

WORK PERFORMED UNDER THIS CONTRACT SHALL PROVIDE A NEAT AND "WORKMANLIKE" APPEARANCE WHEN COMPLETED, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER. WORKMANSHIP SHALL BE THE FINEST POSSIBLE BY EXPERIENCED MECHANICS. INSTALLATIONS SHALL COMPLY WITH APPLICABLE CODES AND LAWS.

THE COMPLETE INSTALLATION SHALL FUNCTION AS DESIGNED AND INTENDED WITH RESPECT TO EFFICIENCY, CAPACITY, NOISE LEVEL, ETC. ABNORMAL NOISE CAUSED BY RATTLING EQUIPMENT, PIPING, DUCTS, AIR DEVICES, AND SQUEAKS IN ROTATING COMPONENTS WILL NOT BE ACCEPTABLE. IN GENERAL, MATERIALS AND EQUIPMENT SHALL BE OF COMMERCIAL SPECIFICATION GRADE IN QUALITY. LIGHT DUTY AND RESIDENTIAL TYPE EQUIPMENT WILL NOT BE ACCEPTED.

REMOVE FROM THE PREMISES WASTE MATERIAL PRESENT AS A RESULT OF WORK. INCLUDING CARTONS. CRATING. PAPER, STICKERS, AND/OR EXCAVATION MATERIAL NOT USED IN BACKFILLING, ETC. CLEAN EQUIPMENT INSTALLED UNDER THIS CONTRACT TO PRESENT A NEAT AND CLEAN INSTALLATION AT THE TERMINATION OF THE WORK.

REPAIR OR REPLACE PUBLIC AND PRIVATE PROPERTY DAMAGED AS A RESULT OF WORK PERFORMED UNDER THIS CONTRACT TO THE SATISFACTION OF AUTHORITIES AND REGULATIONS HAVING JURISDICTION.

15A 1-4 COORDINATION

COORDINATE WORK WITH THAT OF OTHER TRADES SO THAT THE VARIOUS COMPONENTS OF THE SYSTEMS WILL BE INSTALLED AT THE PROPER TIME, WILL FIT THE AVAILABLE SPACE, AND WILL ALLOW PROPER SERVICE ACCESS TO THOSE ITEMS REQUIRING MAINTENANCE. COMPONENTS WHICH ARE INSTALLED WITHOUT REGARD TO THE ABOVE SHALL BE RELOCATED AT NO ADDITIONAL COST TO THE OWNER.

UNLESS OTHERWISE INDICATED. THE GENERAL CONTRACTOR WILL PROVIDE CHASES AND OPENINGS IN BUILDING CONSTRUCTION REQUIRED FOR INSTALLATION OF THE SYSTEMS SPECIFIED HEREIN. CONTRACTOR SHALL FURNISH THE GENERAL CONTRACTOR WITH INFORMATION WHERE CHASES AND OPENINGS ARE REQUIRED. KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT, AND EXECUTE WORK IN A MANNER AS TO NOT INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.

FIGURED DIMENSIONS SHALL BE TAKEN IN PREFERENCE TO SCALE DIMENSIONS. CONTRACTOR SHALL TAKE HIS OWN MEASUREMENTS AT THE BUILDING, AS VARIATIONS MAY OCCUR. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ERRORS THAT COULD HAVE BEEN AVOIDED BY PROPER CHECKING AND INSPECTION.

PROVIDE MATERIALS WITH TRIM THAT WILL PROPERLY FIT THE TYPES OF CEILING, WALL, OR FLOOR FINISHES ACTUALLY INSTALLED. MODEL NUMBERS LISTED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS ARE NOT INTENDED TO DESIGNATE THE REQUIRED TRIM.

15A 1-5 ORDINANCES AND CODES

WORK PERFORMED UNDER THIS CONTRACT SHALL, AT A MINIMUM, BE IN CONFORMANCE WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES HAVING JURISDICTION. EQUIPMENT FURNISHED AND ASSOCIATED INSTALLATION WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN STRICT COMPLIANCE WITH CURRENT APPLICABLE CODES ADOPTED BY THE LOCAL AHJ INCLUDING ANY AMENDMENTS AND STANDARDS AS SET FORTH BY THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), UNDERWRITERS LABORATORIES (UL), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME), AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS (ASHRAE), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AMERICAN SOCIETY OF TESTING MATERIALS (ASTM) AND OTHER NATIONAL STANDARDS AND CODES WHERE APPLICABLE. WHERE THE CONTRACT DOCUMENTS EXCEED THE REQUIREMENTS OF THEIR REFERENCED CODES, STANDARDS, ETC., THE CONTRACT

DOCUMENTS SHALL TAKE PRECEDENCE.

PROCURE AND PAY FOR PERMITS AND LICENSES REQUIRED 15A 1-13 PENETRATIONS FOR THE ACCOMPLISHMENT OF THE WORK HEREIN DESCRIBED. WHERE REQUIRED. OBTAIN. PAY FOR AND FURNISH CERTIFICATES OF INSPECTION TO OWNER. CONTRACTOR WILL BE HELD RESPONSIBLE FOR VIOLATIONS OF THE LAW.

15A 1-6 PROTECTION OF EQUIPMENT AND MATERIALS

STORE AND PROTECT FROM DAMAGE EQUIPMENT AND MATERIALS DELIVERED TO JOB SITE. COVER WITH WATERPROOF, TEAR-RESISTANT, HEAVY TARP OR POLYETHYLENE PLASTIC AS REQUIRED TO PROTECT FROM PLASTER, DIRT, PAINT, WATER, OR PHYSICAL DAMAGE. EQUIPMENT AND MATERIAL THAT HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITIES WILL BE REJECTED, AND CONTRACTOR IS OBLIGATED TO FURNISH NEW EQUIPMENT AND MATERIAL OF A LIKE KIND.

KEEP PREMISES ROOM CLEAN FROM FOREIGN MATERIAL CREATED DURING WORK PERFORMED UNDER THIS CONTRACT. PIPING, EQUIPMENT, ETC., SHALL HAVE A NEAT AND CLEAN APPEARANCE AT THE TERMINATION OF THE

PLUG OR CAP OPEN ENDS OF DUCTWORK AND PIPING SYSTEMS WHILE STORED OR INSTALLED DURING CONSTRUCTION WHEN NOT IN USE TO PREVENT THE ENTRANCE OF DEBRIS INTO THE SYSTEMS.

KEEP THE MANUFACTURER PROVIDED PROTECTIVE COVERINGS ON FLOOR DRAINS, FLOOR SINKS, AND TRENCH DRAINS DURING CONSTRUCTION. REMOVE COVERINGS AT THE TERMINATION OF THE WORK AND POLISH EXPOSED SURFACES.

15A 1-7 OPERATION AND MAINTENANCE INSTRUCTIONS

COLLECT AND COMPILE A COMPLETE BROCHURE OF FIXTURES, MATERIALS, AND EQUIPMENT FURNISHED AND INSTALLED ON THIS PROJECT. INCLUDE OPERATIONAL AND MAINTENANCE INSTRUCTIONS, MANUFACTURER'S CATALOG SHEETS, WIRING DIAGRAMS. PARTS LISTS, APPROVED SHOP DRAWINGS, AND DESCRIPTIVE LITERATURE FURNISHED BY THE MANUFACTURER. INCLUDE AN INSIDE COVER SHEET THAT LISTS THE PROJECT NAME, DATE, OWNER, ARCHITECT, ENGINEER, GENERAL CONTRACTOR, SUBCONTRACTOR, AND AN INDEX OF CONTENTS.

SUBMIT COPIES OF LITERATURE BOUND IN APPROVED BINDERS TO THE ARCHITECT AND OWNER AT THE TERMINATION OF THE WORK. PAPER CLIPS, STAPLES, RUBBER BANDS, AND MAILING ENVELOPES ARE NOT CONSIDERED APPROVED BINDERS. FINAL APPROVAL OF PLUMBING SYSTEMS WILL BE WITHHELD UNTIL THIS EQUIPMENT BROCHURE IS DEEMED COMPLETE BY THE ARCHITECT, ENGINEER, AND OWNER.

15A 1-8 WARRANTIES

WARRANT EACH SYSTEM AND EACH ELEMENT THEREOF AGAINST ALL DEFECTS DUE TO FAULTY WORKMANSHIP, DESIGN OR MATERIAL FOR A PERIOD OF 12 MONTHS FROM DATE OF SUBSTANTIAL COMPLETION, UNLESS SPECIFIC ITEMS ARE NOTED TO CARRY A LONGER WARRANTY IN THE CONSTRUCTION DOCUMENTS OR MANUFACTURER'S STANDARD WARRANTY EXCEEDS 12 MONTHS. REMEDY ALL DEFECTS, OCCURRING WITHIN THE WARRANTY PERIOD(S), AS STATED IN THE GENERAL CONDITIONS AND DIVISION 1.

WARRANTIES SHALL INCLUDE LABOR AND MATERIAL. MAKE REPAIRS OR REPLACEMENTS WITHOUT ANY ADDITIONAL COSTS TO THE OWNER.

PERFORM THE REMEDIAL WORK PROMPTLY, UPON WRITTEN NOTICE FROM THE ENGINEER OR OWNER.

AT THE TIME OF SUBSTANTIAL COMPLETION, DELIVER TO THE OWNER ALL WARRANTIES. IN WRITING AND PROPERLY EXECUTED, INCLUDING TERM LIMITS FOR WARRANTIES EXTENDING BEYOND THE ONE YEAR PERIOD, EACH WARRANTY INSTRUMENT BEING ADDRESSED TO THE OWNER AND STATING THE COMMENCEMENT DATE AND TERM.

15A 1-9 CUTTING AND PATCHING

PERFORM CUTTING OF WALLS, FLOORS, CEILINGS, ETC. AS REQUIRED TO INSTALL WORK UNDER THIS SECTION. DO NOT CUT OR DISTURB STRUCTURAL MEMBERS WITHOUT PRIOR APPROVAL FROM THE ARCHITECT. CUT HOLES AS SMALL AS POSSIBLE. GENERAL CONTRACTOR SHALL PATCH WALLS, FLOORS, ETC. AS REQUIRED BY WORK UNDER THIS SECTION. PATCHING SHALL MATCH THE ORIGINAL MATERIAL AND CONSTRUCTION. REPAIR AND REFINISH AREAS DISTURBED BY WORK TO THE CONDITION OF ADJOINING SURFACES IN A MANNER SATISFACTORY TO THE ARCHITECT.

15A 1-10 ROUGH-IN

COORDINATE WITHOUT DELAY ROUGHING-IN WITH GENERAL CONSTRUCTION. CONCEAL PIPING AND CONDUIT ROUGH-IN EXCEPT IN UNFINISHED AREAS AND WHERE OTHERWISE

15A 1-11 STRUCTURAL STEEL

STRUCTURAL STEEL USED FOR PIPE SUPPORTS, EQUIPMENT SUPPORTS, ETC., SHALL BE NEW, CLEAN, AND CONFORM TO ASTM DESIGNATION A-36.

SUPPORT PLUMBING AND MECHANICAL EQUIPMENT AND PIPING FROM THE BUILDING STRUCTURE. DO NOT SUPPORT PLUMBING EQUIPMENT FROM CEILINGS, OTHER MECHANICAL OR ELECTRICAL COMPONENTS, AND OTHER NON-STRUCTURAL ELEMENTS.

15A 1-12 ACCESS DOORS

PROVIDE ACCESS DOORS IN CEILINGS AND WALLS WHERE INDICATED OR REQUIRED FOR ACCESS TO CONCEALED VALVES AND EQUIPMENT INSTALLED UNDER THIS SECTION. PROVIDE CONCEALED HINGES, SCREWDRIVER-TYPE LOCK, ANCHOR STRAPS; MANUFACTURED BY MILCOR, ZURN, TITUS, OR EQUAL. OBTAIN ARCHITECT'S APPROVAL OF TYPE, SIZE, LOCATION, AND COLOR BEFORE ORDERING.

SEAL FLOOR, EXTERIOR WALL AND ROOF PENETRATIONS WATER AND WEATHER TIGHT WITH APPROPRIATE NON-SHRINK, NON-HARDENING COMMERCIAL CONSTRUCTION SEALANT. SEAL ROOF PENETRATIONS WITH 4 POUND PER SQUARE FOOT LEAD FLASHING. PROVIDE A SLEEVE, AND SEAL NON-FIRE-RATED FLOOR AND WALL PENETRATIONS WITH FIBERGLASS PACKING AND SILICONE CAULK (FOR ACOUSTICAL INSULATION).

COORDINATE FIRE RATING REQUIREMENTS AND LOCATIONS WITH THE ARCHITECT. SEAL PENETRATIONS OF FIRE-RATED ASSEMBLIES WITH 3M # CP-25 FIRE BARRIER CAULK (PROVIDE THICKNESS AND METHOD AS REQUIRED AND RECOMMENDED BY MANUFACTURER) TO MAINTAIN THE FIRE RESISTANCE RATING OF FIRE-RATED ASSEMBLIES.

SEAL EXTERIOR WALL PENETRATIONS BELOW GRADE WITH CAST IRON WALL PIPES AND MODULAR MECHANICAL SLEEVE SEALS, MANUFACTURED BY THUNDERLINE/LINK SEAL, CALPICO, INC AND METRAFLEX.

PROVIDE SLEEVES FOR HORIZONTAL PIPE PASSING THROUGH OR UNDER FOUNDATION. SLEEVES SHALL BE CAST IRON SOIL PIPE TWO NOMINAL PIPE SIZES LARGER THAN THE PIPE SERVED.

PROVIDE SLEEVES FOR VERTICAL PIPE PASSING THROUGH SLAB ON GRADE. SLEEVES SHALL BE SCHEDULE 40 PVC PIPE, TWO NOMINAL PIPE SIZES LARGER THAN THE PIPE SERVED. SEAL WATER-TIGHT WITH SILICONE CAULK.

15B: HEATING, VENTILATION, AND AIR CONDITIONING

15B 1-1 DUCTWORK

ALL DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS CORRESPONDING TO THE SYSTEM PRESSURE. DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR A TWO-INCH PRESSURE RATING AND SEAL CLASS B.

INSTALL VTR'S, EXHAUST FANS, AND FLUES A MINIMUM OF 5'-0" FROM PARAPET OR OUTSIDE WALL AND 10'-0" MINIMUM FROM EQUIPMENT WITH OUTSIDE AIR INTAKE.

15B 1-2 ELECTRICAL WIRING

LINE VOLTAGE WIRING SHALL BE FURNISHED BY ELECTRICAL CONTRACTOR. LINE VOLTAGE CONTROL AND INTERLOCK WIRING FOR MECHANICAL SYSTEMS SHALL ALSO BE FURNISHED BY ELECTRICAL CONTRACTOR. LOW VOLTAGE CONTROL WIRING SHALL BE BY THE DIVISION 15 CONTRACTOR. PROVIDE WIRING DIAGRAMS TO THE ELECTRICAL CONTRACTOR AS REQUIRED FOR PROPER EQUIPMENT HOOKUP. COORDINATE WITH THE ELECTRICAL CONTRACTOR THE ACTUAL WIRE SIZING AMPS FOR MECHANICAL EQUIPMENT (FROM THE EQUIPMENT NAMEPLATE) TO ENSURE PROPER INSTALLATION.

ALL TEMPERATURE SENSORS, FAN SWITCHES, AND SPEED CONTROLS SHALL BE INSTALLED 43" ABOVE THE FLOOR FOR

15B 1-3 FINAL TESTING AND ADJUSTMENTS

AIR BALANCE SHALL BE PERFORMED BY AN INDEPENDENT AIR BALANCE CONTRACTOR. BALANCE EACH SUPPLY, RETURN, OUTSIDE AIR DEVICE WITHIN 5% OF REQUIREMENTS AND FURNISH A REPORT TO THE CONSTRUCTION MANAGER. THE ENTIRE HVAC SYSTEM MUST BE FULLY OPERABLE, BALANCED, AND APPROVED BY OWNER'S REPRESENTATIVE ON THE DAY TENANT OPENS FOR BUSINESS.

ADJUST THERMOSTATS AND CONTROL DEVICES TO OPERATE AS INTENDED. ADJUST BURNERS, PUMPS, FANS, ETC. FOR PROPER AND EFFICIENT OPERATION. CERTIFY TO ARCHITECT THAT ADJUSTMENTS HAVE BEEN MADE AND THAT SYSTEM IS OPERATING SATISFACTORILY. CALIBRATE, SET AND ADJUST AUTOMATIC TEMPERATURE CONTROLS. CHECK PROPER SEQUENCING OF INTERLOCK SYSTEMS, AND OPERATION OF SAFETY CONTROLS.

15C: PLUMBING

15C 1-1 PIPING MATERIALS

MATERIALS SPECIFIED OR NOTED ON THE DRAWINGS ARE SUBJECT TO THE APPROVAL OF LOCAL CODE AUTHORITIES. VERIFY APPROVAL BEFORE INSTALLING ANY MATERIAL OR JOINING METHOD.

GAS PIPING: GAS PIPING SHALL BE BLACK STEEL, STANDARD WEIGHT, SCHEDULE 40 ASTM A53. PIPING 2" AND SMALLER SHALL BE WELDED OR THREADED WITH MALLEABLE IRON FITTINGS. PIPING 2 1/2" AND LARGER SHALL BE WELDED WITH BUTT-WELDED FITTING. FITTINGS SHALL CONFORM TO ASME B16.3, MALLEABLE IRON OR ASTM A 234, FORGED STEEL WELDED TYPE.

COMPRESSED AIR PIPING: COMPRESSED AIR PIPING SHALL BE BLACK STEEL, STANDARD WEIGHT, SCHEDULE 40 ASTM A53. PIPING 2" AND SMALLER SHALL BE WELDED OR THREADED WITH MALLEABLE IRON FITTINGS. PIPING 2 1/2" AND LARGER SHALL BE WELDED WITH BUTT-WELDED FITTING. FITTINGS SHALL CONFORM TO ASME B16.3, MALLEABLE IRON OR ASTM A 234, FORGED STEEL WELDED TYPE. EXTERIOR PIPING SHALL HAVE EPOXY PAINT.

15C 1-3 PIPING INSTALLATION

GENERAL: CLEAN PIPE THOROUGHLY PRIOR TO INSTALLATION. REAM ENDS OF PIPE TO REMOVE BURRS. CUT PIPE ACCURATELY TO MEASUREMENTS TAKEN ON THE JOB. INSTALL WITH ADEQUATE CLEARANCE FOR INSTALLATION OF COVERINGS WHERE REQUIRED. PIPE SHALL NOT BE SPRUNG OR BENT. NEATLY ALIGN PIPE, CONNECT IT SECURELY, AND SUPPORT IT FROM THE BUILDING STRUCTURE WITH HANGERS AS SPECIFIED BELOW. PROVIDE CHROME-PLATED ESCUTCHEONS ON PIPES PASSING THROUGH CEILINGS, FLOORS OR WALLS OF FINISHED SPACES. RUN PIPES FREELY THROUGH FLOOR AND WALL PENETRATIONS USING PIPE SLEEVES. DO NOT GROUT IN PLACE UNLESS REQUIRED FOR STRUCTURAL FIRE INTEGRITY. INSTALL PIPE CONCEALED IN FINISHED SPACES WHEREVER POSSIBLE. USE A DIELECTRIC UNION WHERE FERROUS AND COPPER PIPE CONNECT. DIELECTRIC UNION SHALL HAVE A ZINC STEEL BODY, A THREADED NYLON INSERT, AND INSULATING PRESSURE GASKET. NO FERROUS METAL-TO-COPPER CONNECTION MADE WITHOUT INSULATING UNIONS WILL BE ALLOWED.

HANGER & SUPPORTS: PIPE HANGERS SHALL BE AS DESCRIBED IN THE SPECIFICATIONS BY B-LINE OR EQUAL BY ANVIL, MICHIGAN, TRUSCON, OR UNISTRUT. CONNECT HANGERS TO THE STRUCTURE WITH SIDE BEAM CONNECTORS AND ALL THREAD HANGER RODS. PROVIDE ENGINEERED SUPPORT STRUTS BETWEEN JOISTS AND OTHER STRUCTURAL MEMBERS AS REQUIRED TO PROVIDE A RIGID HANGING INSTALLATION. DO NOT HANG PIPES FROM OTHER PIPES, CONDUIT OR DUCTWORK. PROVIDE HANGER RODS AND SPACE HANGERS AT INTERVALS AS REQUIRED.

15C 1-4 EXTERIOR UTILITY CONNECTIONS

TERMINATE DOMESTIC WATER, STORM, AND SEWER LINES AT A POINT APPROXIMATELY FIVE FEET FROM THE BUILDING WALL, OR AS SHOWN ON THE DRAWINGS. MAKE CONNECTION TO THE VARIOUS SERVICES PROVIDED BY OTHERS AND COORDINATE CONNECTION REQUIREMENTS WITH CIVIL ENGINEER. VERIFY THAT INSTALLATION WILL TIE INTO THE VARIOUS SERVICED PROVIDED BY OTHERS AT THE INDICATED INVERT ELEVATION POINT PRIOR TO INSTALLATION. IF THE INSTALLATION WILL NOT TIE INTO THE INDICATED INVERT ELEVATION POINT WHILE MAINTAINING PROPER FALL, NOTIFY ARCHITECT AND CIVIL ENGINEER SO THAT AN ALTERNATIVE MAY BE DETERMINED.

PROVIDE SERVICE PIPING AND ACCESSORIES REQUIRED TO COMPLETE UTILITY CONNECTIONS THAT ARE NOT FURNISHED BY THE SERVING UTILITY.

15C 1-5 SYSTEM TESTING AND ADJUSTING

UPON COMPLETION OF EACH PHASE OF THE INSTALLATION, TEST EACH SYSTEM IN CONFORMANCE WITH LOCAL CODE REQUIREMENTS AND AS NOTED BELOW. FURNISH LABOR AND EQUIPMENT REQUIRED TO TEST PLUMBING WORK INSTALLED UNDER THIS CONTRACT, AND ASSUME COSTS INVOLVED IN MAKING THE TESTS, AND REPAIRING AND/OR REPLACING DAMAGE RESULTING THEREFROM.

NOTIFY THE ARCHITECT AND THE AUTHORITY HAVING JURISDICTION, THREE (3) WORKING DAYS PRIOR TO MAKING PLUMBING SYSTEM TESTS. LEAVE CONCEALED WORK UNCOVERED UNTIL THE REQUIRED TESTS HAVE BEEN COMPLETED, BUT IF NECESSARY DUE TO CONSTRUCTION PROCEDURE, TESTS ON PORTIONS OF THE WORK MAY BE MADE, AND WHEN SATISFACTORY, THE WORK MAY BE CONCEALED. TEST PIPING BEFORE INSULATION IS INSTALLED, AND BEFORE BACKFILL. PIPES, JOINTS, FLANGES, VALVE STEMS, ETC., SHALL BE LEAK TIGHT. REPAIR OR REPLACE SYSTEM DEFECTS WITH NEW MATERIALS. CAULKING OF DEFECTIVE JOINTS, CRACKS OR HOLES WILL NOT BE PERMITTED. REPEAT TESTS AFTER DEFECTS HAVE BEEN ELIMINATED. MAKE TESTS IN THE PRESENCE OF THE ADMINISTRATIVE AUTHORITY AND/OR THE OWNER'S AUTHORIZED REPRESENTATIVE.



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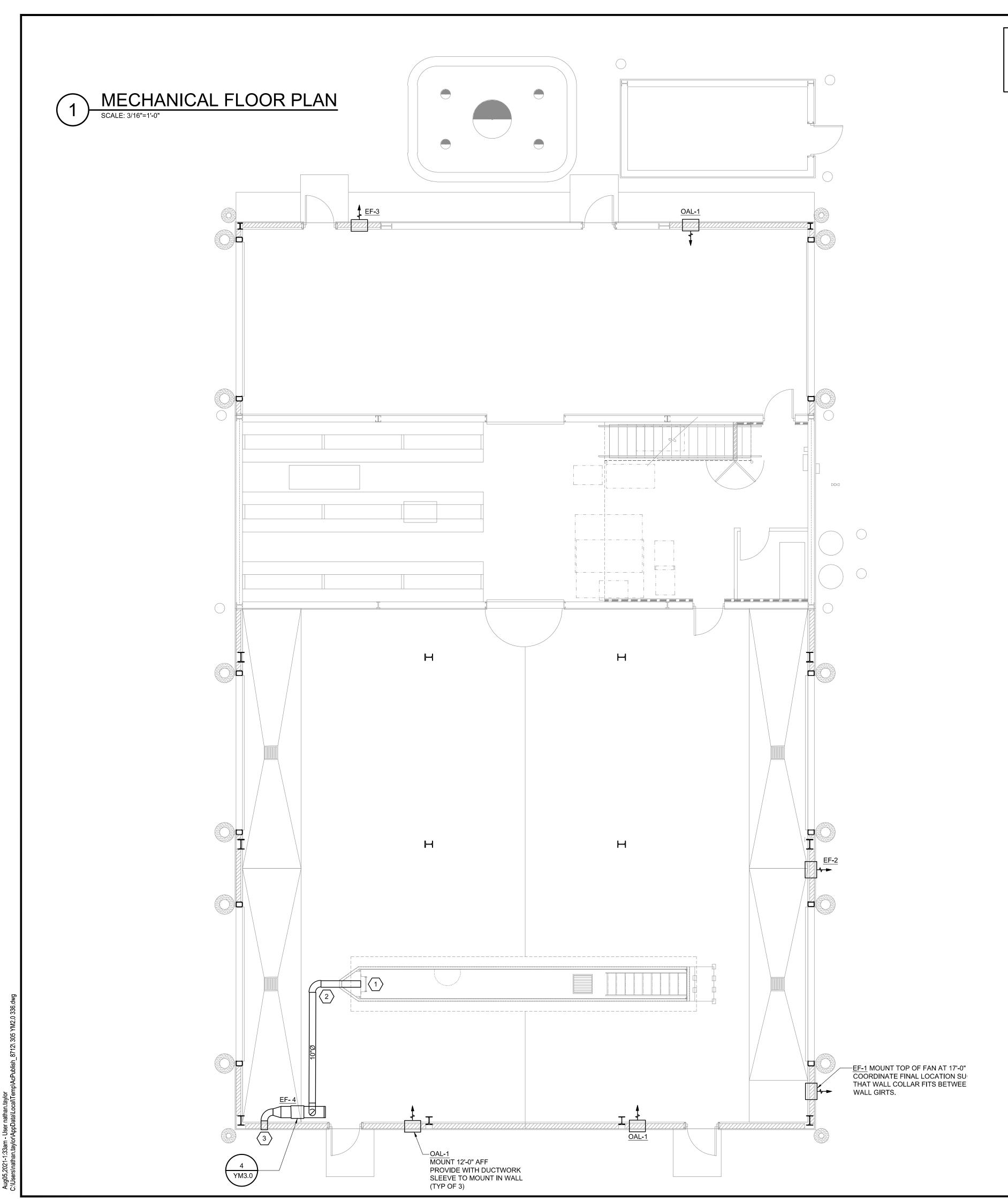


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MECHANICAL & PLUMBING **SPECIFICATIONS**

EACH SUBCONTRACTOR IS RESPONSIBLE FOR HAVING A THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO ACQUAINT HIMSELF WITH THIS KNOWLEDGE DOES NOT RELIEVE THE RESPONSIBILITY OF PERFORMING HIS WORK PROPERLY. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED BECAUSE OF CONDITIONS THAT OCCUR DUE TO

FAILURE TO FAMILIARIZE WORKERS WITH THIS KNOWLEDGE.



EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. CONTRACTOR SHALL CAREFULLY COORDINATE NEW WORK AND DEMOLITION WITH ALL OTHER DISCIPLINES AND EXISTING CONDITIONS.

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HVAC NOTES

- 1. EACH CONTRACTOR IS RESPONSIBLE FOR HAVING THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS AS THEY RELATE TO THIS WORK. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED DUE TO LACK OF THIS KNOWLEDGE.
- PROVIDE ALL MATERIALS FOR A COMPLETE INSTALLATION IN ALL RESPECTS READY FOR INTENDED USE AND IN STRICT ACCORDANCE WITH STATE AND LOCAL CODES AND
- VERIFY ALL EXISTING CONDITIONS PRIOR TO STARTING WORK. NOTIFY ARCHITECT/ENGINEER OF ANY CONFLICTS THAT MIGHT ARISE FROM FIELD CONDITIONS.

MANUFACTURER'S RECOMMENDATIONS.

KEYNOTES

- 8"Ø PVC VENT STUB OUT WITH BOTTOM OF VENT 12" AFF. INSTALL EXHAUST GRILLE TYPE "A" IN LUBE PIT AREA. SEE AIR DEVICE SCHEDULE ON YM-3.1. LOCATE GRILLE FLUSH WITH WALL CENTERED ON PVC VENT.
- PIT AREA VENTILATION SYSTEM DUCTWORK; PROVIDE AND INSTALL SCHEDULE 40 PVC ROUND DUCTWORK UNDERSLAB AS INDICATED. COORDINATE DUCTWORK WITH UNDERGROUND PIPING AND FOOTINGS, SLOPE DUCTWORK BACK TO LUBE PITS
- B. HOODED WALL CAP FIELD PAINTED TO MATCH BUILDING EXTERIOR AT 10-FT ABOVE GRADE.



Meaningful *Places*

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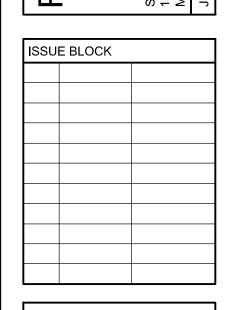
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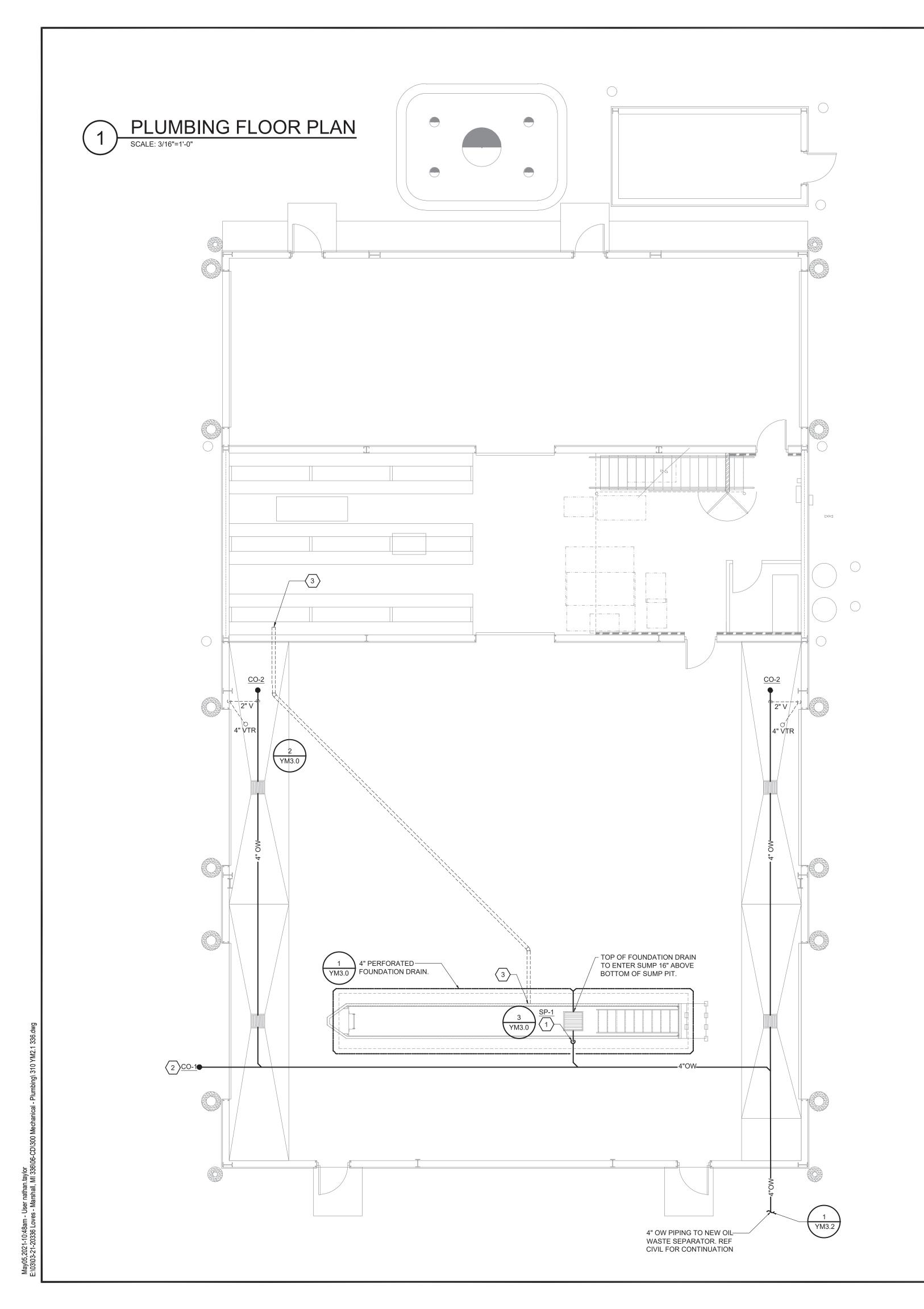


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MECHANICAL FLOOR PLAN

YM2.0



EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. CONTRACTOR SHALL CAREFULLY COORDINATE NEW WORK AND DEMOLITION WITH ALL OTHER DISCIPLINES AND EXISTING CONDITIONS.

EACH SUBCONTRACTOR IS RESPONSIBLE FOR HAVING A THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO ACQUAINT HIMSELF WITH THIS KNOWLEDGE DOES NOT RELIEVE THE RESPONSIBILITY OF PERFORMING HIS WORK PROPERLY. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED BECAUSE OF CONDITIONS THAT OCCUR DUE TO FAILURE TO FAMILIARIZE WORKERS WITH THIS KNOWLEDGE.

GENERAL NOTES

- WITH THE LATEST EDITION OF THE PREVAILING STATE
- AND FIXTURES.
- WITH INSTALLATION IN ACCORDANCE WITH ASTM D-232.1; ALL FITTINGS SHALL BE APPROVED SANITARY TYPE.
- ALL FIXTURES ARE PROVIDED WITH STANDARD TRAP AND CLEANOUT (NOT SHOWN).
- ALL WORK SHALL BE PROPERLY TESTED, BALANCED, CLEANED AND DISINFECTED. PROVIDE A ONE YEAR WARRANTY FROM DATE OF FINAL INSPECTION ON ALL PARTS AND LABOR.
- ALL WASTE PIPING 3"Ø AND SMALLER SHALL BE SLOPED AT 1/4" PER FT. PIPING LARGER THAN 3"Ø SHALL BE SLOPED AT
- REFER TO PLUMBING FIXTURE SCHEDULE FOR FIXTURE SPECIFICATIONS.
- UNDERFLOOR PLUMBING IS SHOWN SCHEMATICALLY FOR MODIFICATIONS TO ROUTING MAY BE REQUIRED.
-). CONTRACTOR SHALL VERIFY LOCAL CODE REQUIREMENTS FOR INDIRECT CONNECTIONS FOR FOOD PREP AREAS. DEPARTMENT.
- 2. CONTRACTOR SHALL PROVIDE 4" PVC SLEEVES THRU THE ROOF AS REQUIRED BY THE ROOF MOUNTED CONDENSING UNITS; REFER TO ARCHITECTURAL ROOF PLAN FOR THE LOCATIONS.
- B. CONTRACTOR SHALL PROVIDE AND INSTALL APPROPRIATE SLEEVES AND/OR CAULKING AT ALL PENETRATIONS TO ENSURE FIRE RATING IS MAINTAINED.
- 2. PROVIDE CLEANOUT 3' FROM BUILDING EXTERIOR.
- 3. 4" PVC SLEEVE STUB UP 6" AFF AT PARTY WALL END AND 42" ABOVE PIT FLOOR AT LUBE PIT END - COORDINATE FINAL LOCATION WITH STRUCTURAL PEDESTALS.

- ALL PLUMBING WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE BASE BUILDING SPECIFICATION AND MECHANICAL/PLUMBING AND BUILDING CODES AS WELL AS ALL REGULATIONS THAT MAY APPLY. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE THE MORE STRINGENT STANDARD
- INSTALL ALL REQUIRED CLEANOUTS TO CLEAR EQUIPMENT
- SANITARY AND VENT PIPING SHALL BE SCHEDULE 40 PVC
- 1/8" PER FT.
- VIEWING PURPOSES ONLY; DURING INSTALLATION FIELD
- TERMINATE PLUMBING VENTS AT A MINIMUM OF 10 FEET FROM ALL AIR HANDLING EQUIPMENT INTAKE VENTS.
- CONNECTIONS SHALL BE PROVIDED WITH A MINIMUM 1" AIR GAP. UNLESS REQUIRED OTHERWISE BY LOCAL HEALTH
- . CONDENSATE PIPING SHALL BE TYPE "L" HARD DRAWN SEAMLESS COPPER TUBE.

KEYNOTES

- 1. PUMP DISCHARGE (PD) TO EXIT SUMP PIT AT 16" ABOVE BOTTOM OF SUMP PIT. REF ARCH DETAILS. MAKE CONNECTION TO PUMP WITH HOSE COUPLING FOR QUICK REMOVAL.

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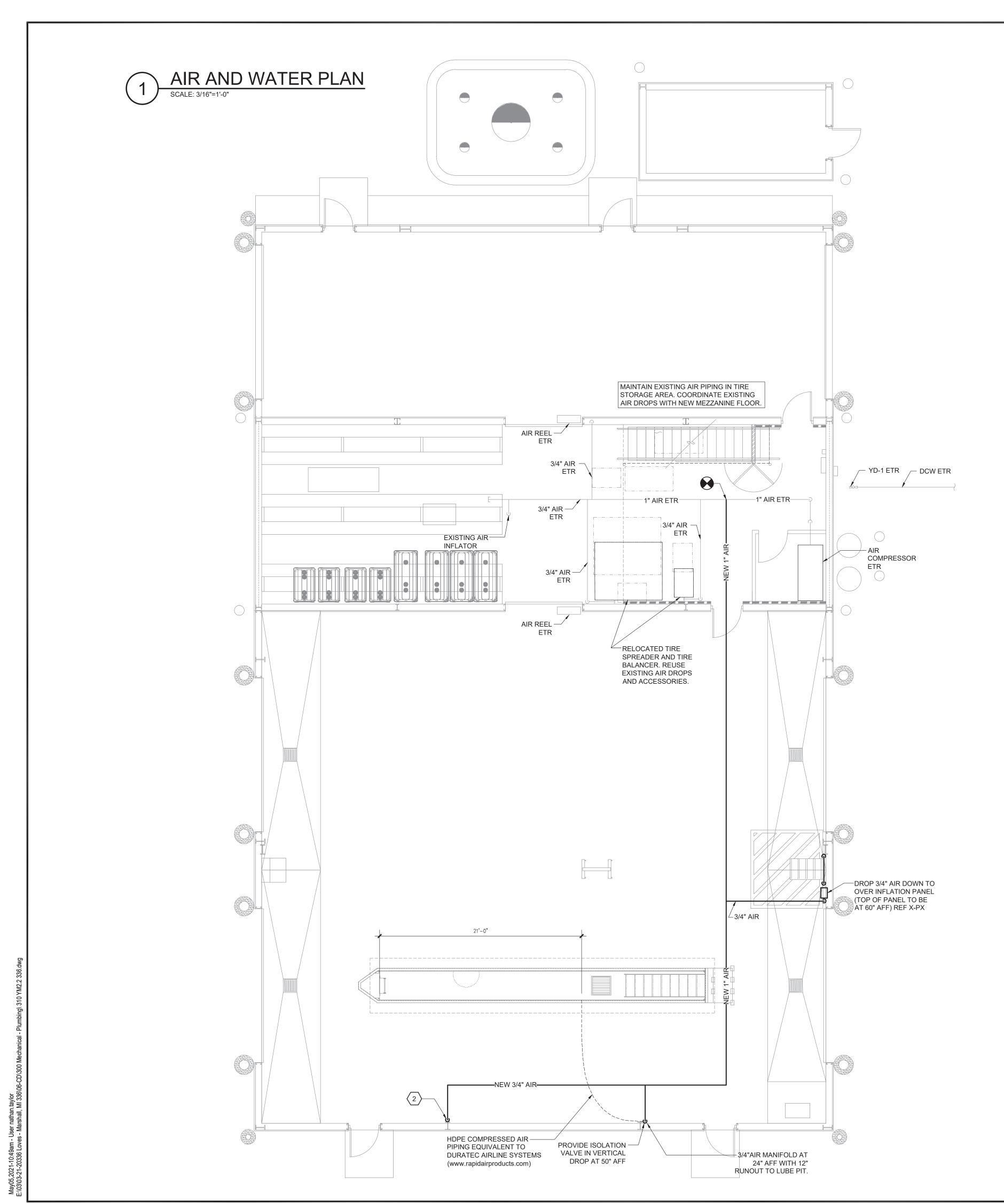
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PLUMBING FLOOR PLAN

YM2.1



EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. CONTRACTOR SHALL CAREFULLY COORDINATE NEW WORK AND DEMOLITION WITH ALL OTHER DISCIPLINES AND EXISTING CONDITIONS.

EACH SUBCONTRACTOR IS RESPONSIBLE FOR HAVING A THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO ACQUAINT HIMSELF WITH THIS KNOWLEDGE DOES NOT RELIEVE THE RESPONSIBILITY OF PERFORMING HIS WORK PROPERLY. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED BECAUSE OF CONDITIONS THAT OCCUR DUE TO FAILURE TO FAMILIARIZE WORKERS WITH THIS KNOWLEDGE.

GENERAL NOTES

- 1. ALL PLUMBING WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE BASE BUILDING SPECIFICATION AND WITH THE LATEST EDITION OF THE PREVAILING STATE MECHANICAL/PLUMBING AND BUILDING CODES AS WELL AS ALL REGULATIONS THAT MAY APPLY. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE THE MORE STRINGENT STANDARD SHALL APPLY.
- CONTRACTOR SHALL PROVIDE AND INSTALL APPROPRIATE SLEEVES AND/OR CAULKING AT ALL PENETRATIONS TO ENSURE FIRE RATING IS MAINTAINED.
- PLUMBING/PIPING IS SHOWN SCHEMATICALLY FOR VIEWING PURPOSES ONLY. DURING INSTALLATION FIELD MODIFICATIONS TO ROUTING MAY BE REQUIRED.
- ALL COMPRESSED AIR PIPING SHALL BE ASTM A53 SCHEDULE 40 STEEL WITH MALLEABLE IRON FITTINGS AND THREADED JOINTS

KEYNOTES

- EXISTING PIPING AND PIPING ACCESSORIES TO REMAIN UNLESS SHOWN OTHERWISE. FIELD VERIFY EXACT LOCATION.
- 3/4" COMPRESSED AIR LINE DOWN; SECURE TO WALL/COLUMN WITH PIPE CLAMPS (SEE DETAIL7/YM3.0 FOR ADDITIONAL INFORMATION.)

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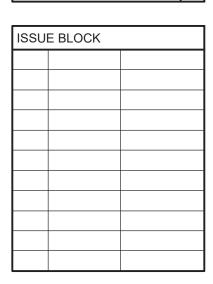
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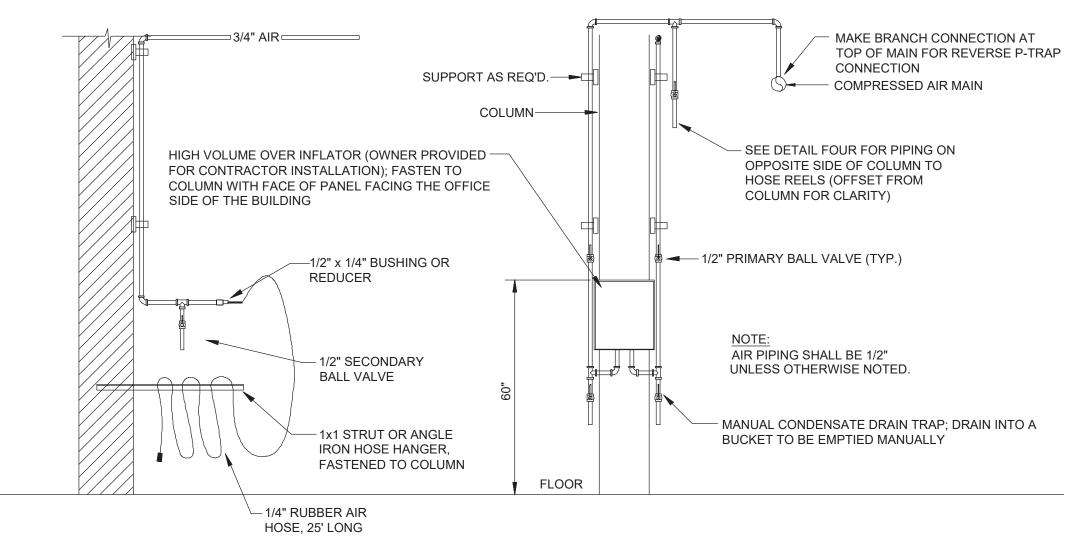


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AIR AND WATER PLAN

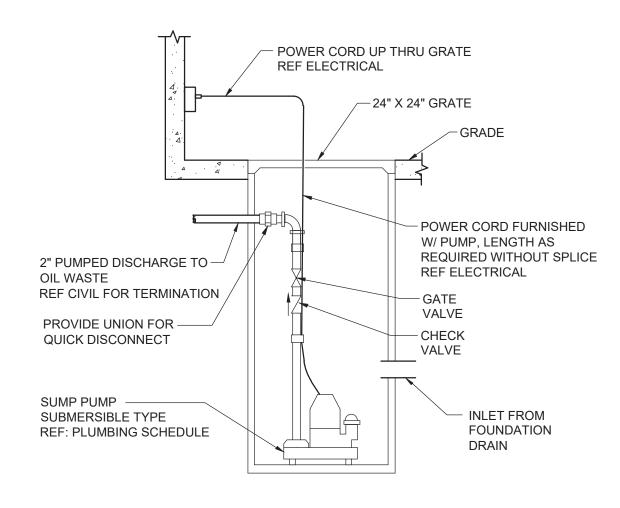
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ELEVATION AT AIR REELS



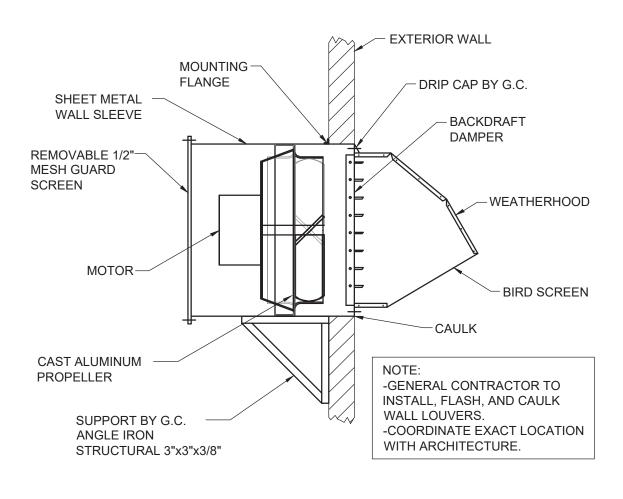
PRIMARY BALL VALVE IS OPENED, ALLOWING COMPRESSED AIR TO FLOW THROUGH TO TIRE. PRESSURE GAUGE ON THE REGULATOR INDICATES PRESSURE BEING SUPPLIED. PRIMARY VALVE IS CLOSED AND THE GAUGE INDICATES BACK-FEED PRESSURE IN THE TIRE. IN AN OVER-INFLATION OR DANGEROUS TIRE SCENARIO, THE PRIMARY VALVE IS CLOSED AND THE SECONDARY BALL VALVE IS OPENED, ALLOWING AIR TO EVACUATE FROM THE TIRE.

ELEVATION AT REMOTE INFLATION STATION



ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. PIT EXCAVATION IS BY PLUMBING CONTRACTOR. LOCATE FLOATS AT ELEVATIONS RECOMMENDED BY PUMP MANUFACTURER. LOCATE AND ARRANGE SO THAT COVER AND PUMPS CAN BE REMOVED.



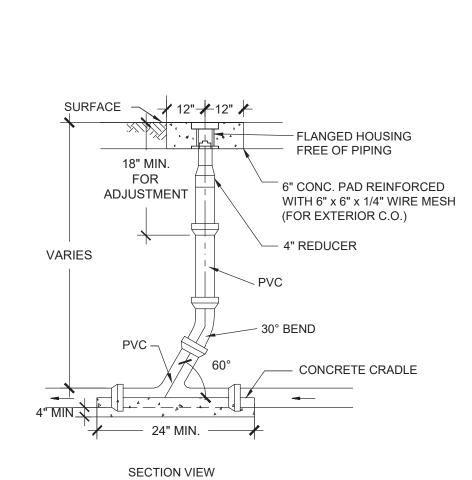


WALL EXHAUST FAN DETAIL

111/1/1/1/1/1/ THREADED RODS (BY CONTRACTOR) DUCT STRAPPING (TYP TO BUILDING STRUCTURE. VIBRATION ISOLATORS PROVEDED WITH FAN GIRTS (TYP)-VIBRATION ISOLATOR-IN LINE EXHAUST AIR FAN MOUNT. SUSPEND WITH THREADED ROD (BY CONTRACTOR) WITH DUCT SHALL BE THE SAME -VIBRATION ISOLATORS (PROVIDED BY OWNER) HEIGHT AND WIDTH AS THE INSIDE DIMENSIONS OF THE SQUARE HOUSING FRAME -- DUCT TO BRICK VENT LOUVER: FLARE OUT THE DUCTWORK COORDINATE LOCATION WITH 90° TO EASILY SCREW TO ARCHITECTURAL ELEVATIONS. FACE OF UNIT. — FLEXIBLE DUCT CONNECTOR (TYP) MANUAL DAMPER (TYP)-COLUMN PROVIDE AIR FLOW SWITCH IN - 8"Ø SHEETMETAL DUCT TO PIT EXHAUST. SEE ELECTRICAL EXHAUST FAN; SECURE TO DRAWINGS FOR CONTROL WALL 8-FT ON CENTER (TYP) DIAGRAM. AIR SWITCH TO BE CLEVLNAD CONTROLS MODEL #AFS-222 OR EQUAL. MOUNT AT 8"Ø PVC DUCT TO LUBE PIT (TYP)

TIRE SHOP EXHAUST

FAN SECTION



1. COVER SHALL HAVE A LOCKING LID MARKED "SEWER". 2. DESIGN BASIS IS JAY R. SMITH MODEL 4250; REFER TO SPECIFICATIONS

OR OUTFALL GEOTEXTILE SOCK (SEE NOTE 3 & 4) 1. TOP OF PERFORATED PIPE MUST BE AT OR BELOW THE TOP OF FOOTING. 2. BACKFILL MUST BE SIZED AT LEAST ONE SIEVE SIZE (ROCK SIZE) LARGER THAN DIMENSIONS OF PERFORATIONS, OTHERWISE A GEOTEXTILE WRAP AROUND THE PIPE IS REQUIRED. 3. FOR NATIVE SOIL WITH HIGH SAND CONTENT, A GEOTEXTILE BETWEEN THE BACKFILL AND NATIVE SOIL SHOULD BE USED. FOR NATIVE SOIL WHERE THE CLAY CONTENT EXCEEDS 50% OR THE SILT CONTENT EXCEEDS 40%, A GEOTEXTILE IS NOT REQUIRED AROUND THE PIPE. 4. FOR NATIVE SOIL WITH LESS THAN 50% PASSING THE NO. 200 SIEVE, THE APPARENT OPENING SIZE (AOS) OF THE FABRIC SHOULD BE AT LEAST A NO. 30 SIEVE. FOR NATIVE SOIL WITH MORE THAN 50% PASSING THE NO. 200 SIEVE, THE AOS OF THE FABRIC SHOULD BE AT LEAST A NO. 50 SIEVE.

TOP OF PIPE (SEE NOTE 1)

4" Ø PERFORATED

SLOPE DRAIN TO SUMP

DRAIN PIPE

FOUNDATION & SUBSURFACE DRAIN INSTALLATION

GEOTEXTILE WRAP

(SEE NOTE 3 & 4)

COARSE GRAVEL

(SEE NOTE 2)

WEATHERPROOFING (PROVIDED BY OTHERS)

NATIVE SOIL

EACH SUBCONTRACTOR IS RESPONSIBLE FOR HAVING A THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO ACQUAINT HIMSELF WITH THIS KNOWLEDGE DOES NOT RELIEVE THE RESPONSIBILITY OF PERFORMING HIS WORK PROPERLY. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED BECAUSE OF CONDITIONS THAT OCCUR DUE TO FAILURE TO FAMILIARIZE WORKERS WITH THIS KNOWLEDGE



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MECHANICAL DETAILS

YM3.0

FAN SCHEDULE											
MARK	AREA SERVED	MANU.	MODEL		FAN		EL	EC.	NOTES		
				CFM	RPM	ESP	V/PH/HZ	HP			
EF-1	MECHANIC'S BAY	PENNBARRY	P16RA	3130	1500	0.15	120/1/60	1/2	A, C		
EF-2	MECHANIC'S BAY	PENNBARRY	P16RA	3130	1500	0.15	120/1/60	1/2	A, C		
EF-3	MECHANIC'S BAY	PENNBARRY	P16RA	3130	1500	0.15	120/1/60	1/2	A, C		
EF-4	LUBE PIT	PENNBARRY	SX085SCGP	200	1300	0.4	120/1/60	1/6	C, D, E, F		
	•	•	•								

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MECHANICAL SCHEDULES

ALLOWED BECAUSE OF CONDITIONS THAT OCCUR DUE TO FAILURE TO FAMILIARIZE WORKERS WITH THIS KNOWLEDGE. SHEET: YM3.1

GENERAL INFORMATION: 1. UNITS PROVIDED BY OWNER, INSTALLED BY CONTRACTOR.

A. FAN SHALL BE SWITCHED. REF ELEC.

B. PROVIDE MANUFACTURER INTEGRAL DISCONNECT, GRAVITY BACKDRAFT DAMPER, AND BIRD SCREEN.

C. PROVIDE MANUFACTURER INTEGRAL DISCONNECT, GRAVITY BACKDRAFT DAMPER, BIRD SCREEN, AND WEATHER HOOD.

D. PROVIDE WITH PLUG TYPE DISCONNECT

E. WIRE TO RUN CONTINUOUS

F. PROVIDE WITH 12" X 12" BRICK VENT

PUMP SCHEDULE MANUFACTURER/ WORKING GPM DISCHARGE MOTOR ELEC NOTES FLUID PRESSURE (FT) HP VOLT/PH MODEL SP-1 ZOELLER MIGHTY MATE 53 SUBMERSIBLE SUMP PUMP OIL/WATER 10 17 1/3 115/1 1

1. PROVIDE WITH DISCHARGE CHECK VALVE AND DECOUPLING UNION.

			SPE	CIALTY PUMBLING SCHEDULE	
MARK	FIXTURE	MAUNFACTURER	MODEL	DESCRIPTION	
CO-1	EXTERIOR CLEANOUT	JAY R. SMITH	4250	HEAVY DUTY DURACOAT CAST IRON BODY WITH DOUBLE FLANGE HOUSING	
				AND SCORIATED CAST IRON COVER WITH LIFTING DEVICE SECURED WITH	
				COUNTERSUNK SCREWS.	
CO-2	INTERIOR CLEANOUT	JAY R. SMITH	4221	HEAVY DUTY CAST IRON BODY AND DRAME WITH ROUND ADJUSTABLE TOP, AND SCORIATED	
				CAST IRON COVER SECURED WITH COUNTERSUNK SCREWS	
	NOTES:				

1. NOT ALL FIXTURES LISTED MAY BE USED ON PLANS

2. ALL FLOOR DRAINS, FLOOR SINKS, AND ROOF DRAINS SHALL BE PROVIDED AND INSTALLED BY THE PLUMBING CONTRACTOR.

3. SEE SPECIFICATION SECTION SHEET M1.

	AIR DEVICE SCHEDULE													
				NECK	MODULE	MAX. AIRFLOW	STATIC PRESSURE	THROW @50	MAXIMUM		THROW			
MARK	MANUFACTURER	MODEL	SERVICE	SIZE (IN.)	SIZE	RATE (CFM)	DROP (IN H2O)	FPM (FT)	NC RATING	PATTERN	DIRECTION	MATERIAL	BORDER	NOTES
Α	NAILOR	6145H-HD-AL	EXHAUST	10"Ø	12"X12"	300	0.02					ALUMINUM	SURFACE	1-5

1. BORDER TYPES SHALL BE COMPATIBLE WITH ARCHITECTURAL CEILING TYPE FOR THE ROOM IN WHICH THE AIR DEVICE IS LOCATED.

2. SEE HVAC PLANS FOR LOCATION AND AIR QUANTITIES OF EACH AIR DEVICE.

3. ALL AIR DEVICES SHALL BE TESTED IN ACCORDANCE WITH ASHRAE STANDARD 70-91.

4. NC VALUES ARE BASED UPON A 10 dB ROOM ATTENUATION.

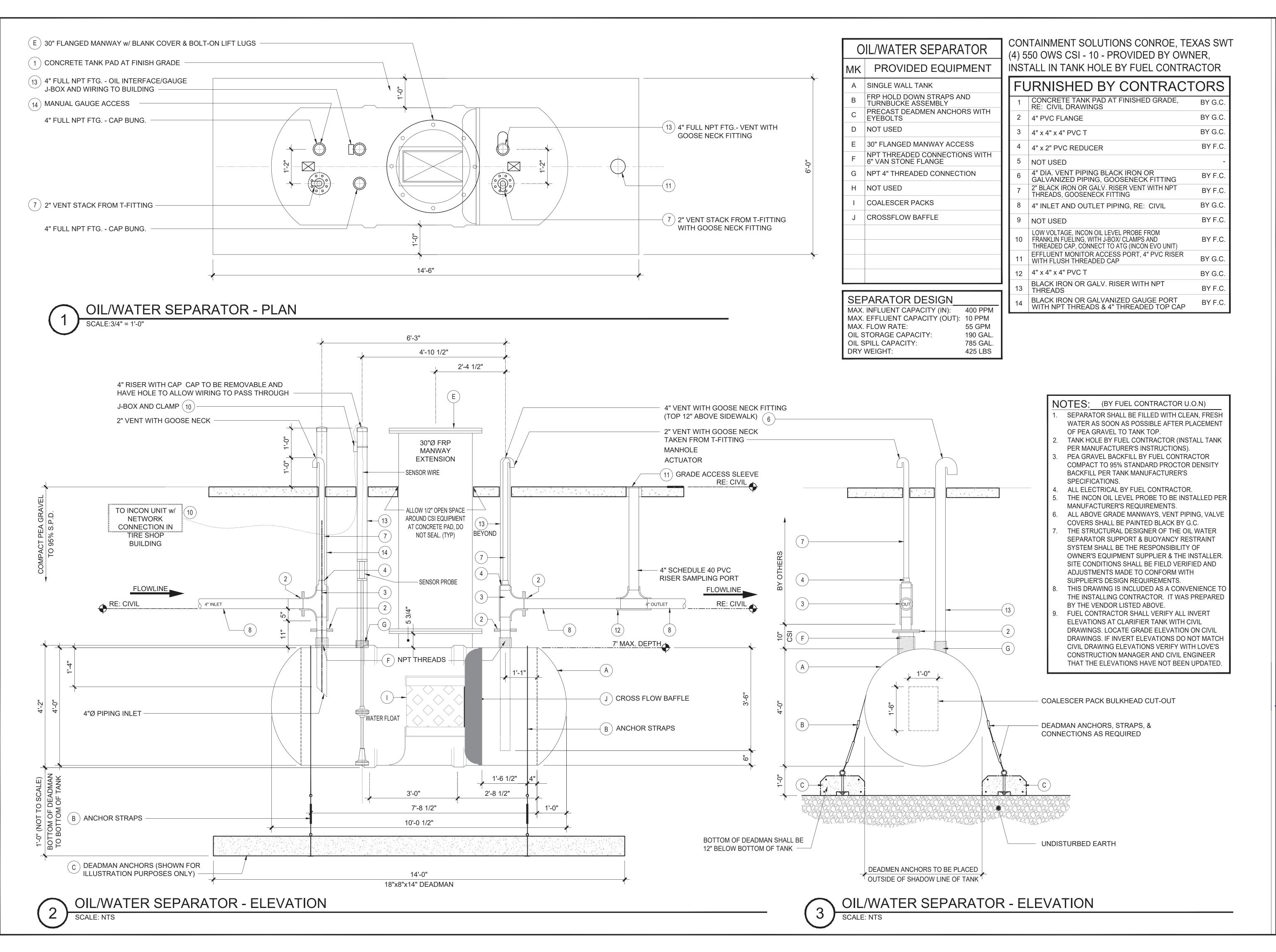
5. OWNER PROVIDED AND CONTRACTOR INSTALLED. REFER TO SPECIFICATIONS

LOUVER SCHEDULE													
				NECK		MAX. AIRFLOW	STATIC PRESSURE	FREE	AIR				
MARK	MANUFACTURER	MODEL	LOCATION	SIZE (IN.)	TYPE	RATE (CFM)	DROP (IN H2O)	AREA (SQ. FT.)	VELOCITY	NOTES			
OAL-1	NAILOR	1606CDAF	SERVICE BAY	30"X30"	DRAINABLE	1700	0.08	2.72	625	1-2			

1. PROVIDE WITH ALUMINUM BIRD SCREEN.

2. PROVIDE WITH KYNAR/HLAR (70% PVDF) FINISH; COLOR TO BE SELECTED BY ARCHITECT.

EACH SUBCONTRACTOR IS RESPONSIBLE FOR HAVING A THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO ACQUAINT HIMSELF WITH THIS KNOWLEDGE DOES NOT RELIEVE THE RESPONSIBILITY OF PERFORMING HIS WORK PROPERLY. NO ADDITIONAL COMPENSATION SHALL BE



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REMODEL

STORE NUMBER: 336
18720 PARTELLO RD
MARSHALL, MI 49068
JOB NUMBER: 03-21-20336

CHECKED BY: JKR
DRAWN BY: NCT

ISSUE BLOCK

DOCUMENT DATE: 05/05/21

2021.05.06 05:47:18-05'00'

OIL/WATER SEPARATOR DETAILS

YM3.2

GENERAL SPECIFICATIONS

INTRODUCTION

THE CONTRACTING FOR INSTALLATION OF THE ELECTRICAL SYSTEM WILL BE ACCOMPLISHED IN THE FIELD AT THE DIVISION LEVEL. THESE SPECIFICATIONS ARE TO AID IN PREPARATION OF DIVISION LEVEL STORE PLANS AND CONTRACT DOCUMENTS. IN CASE OF A CONFLICT BETWEEN THIS SPECIFICATION AND THE CONTRACT DOCUMENTS PROVIDED BY THE DIVISION CONSTRUCTION MANAGER, THE DIVISION'S PLANS AND SPECIFICATIONS SHALL PREVAIL.

THE FOLLOWING DEFINITIONS APPLY TO THIS PROJECT

FURNISH - TO SUPPLY THE MATERIAL NECESSARY TO PERFORM THE TASK INSTALL - TO SUPPLY THE LABOR NECESSARY TO COMPLETE THE TASK. PROVIDE - TO FURNISH AND INSTALL MATERIAL AND LABOR TO COMPLETE THE TASK.

1. SCOPE

- 1.1 E.C. TO PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT (U.N.O.) REQUIRED TO EXECUTE WORK PER NEC AND ALL APPLICABLE ELECTRICAL CODES IN FORCE AT THE TIME OF PROJECT COMPLETION.
- 1.2 THIS WORK INCLUDES, BUT IS NOT LIMITED TO: ELECTRICAL SERVICE AND DISTRIBUTION SYSTEMS, PANELBOARDS, DISCONNECT SWITCHES, LIGHTING FIXTURES, POWER AND CONTROL WIRING WITH FINAL CONNECTIONS TO ALL EQUIPMENT REQUIRED FOR A COMPLETE SYSTEM.
- 1.3 E.C. TO VERIFY TYPE OF POWER SERVICE AVAILABLE (UNDERGROUND OR OVERHEAD) AND MAXIMUM SHORT CIRCUIT CURRENT PRIOR TO SUBMITTING A PROPOSAL
- 1.4 E.C. TO PROVIDE PANELBOARD NAMEPLATES. PROVIDE LAMINATED PLASTIC NAMEPLATES WITH 3/4 INCH MINIMUM CONTRASTING-COLOR ENGRAVED LETTERS IDENTIFYING EACH PANELBOARD.

2. INSTALLATION

- 2.1 THE INSTALLATION SHALL COMPLY WITH ALL LAWS IN EFFECT AT THE TIME OF CONSTRUCTION APPLYING TO ELECTRICAL INSTALLATION, AND WITH THE $\,$ REGULATIONS OF THE NEC, WHERE SUCH REGULATIONS DO NOT CONFLICT WITH THE LAWS IN EFFECT, AND WITH THE PUBLIC UTILITY COMPANY FURNISHING THE SERVICE.
 - 2.1.1 THE E.C. SHALL UPGRADE THESE SPECIFICATIONS AS REQUIRED TO MEET COMPLIANCE WITH ALL APPLICABLE CODES IN EFFECT; HOWEVER, WHERE THESE SPECIFICATIONS MAKE STIPULATIONS OVER AND ABOVE THE MINIMUM REQUIREMENTS OF APPLICABLE CODES, THE CONTRACTOR SHALL NOT DOWN-GRADE THESE SPECIFICATIONS TO MINIMUM CODE REQUIREMENTS WITHOUT PRIOR WRITTEN APPROVAL FROM
- 2.2 E.C. SHALL PROVIDE ALL REQUIRED ELECTRICAL CONDUIT AND WIRING FOR ALL MOTORS, MOTOR STARTERS AND ELECTRICAL CONTROLS, U.N.O. E.C. SHALL MAKE ALL LINE VOLTAGE ELECTRICAL CONNECTIONS AS REQUIRED FOR HVAC SYSTEMS.

- 2.5.1 ALL WORK SHALL BE COMPLETED IN A NEAT AND WORKMAN-LIKE MANNER. THE E.C. SHALL CONTACT THE EOR SHOULD THIS PLAN REQUIRE MODIFICATION TO
- 2.5.2 ALL CONDUCTORS SHALL BE RUN IN APPROVED METALLIC RACEWAY OR CONDUIT AND SHALL BE UNIFORMLY COLOR CODED THROUGHOUT THE ENTIRE SYSTEM. SPLICES, TAPS, AND TERMINALS SHALL BE MADE ONLY IN J BOXES, OUTLET BOXES AND PANELBOARDS.
- 2.5.3 THE E.C. SHALL ENSURE THE CONDUCTORS UTILIZED ARE IN KEEPING WITH GOOD PRACTICE FOR THE CIRCUIT/PROTECTIVE DEVICES EMPLOYED. THE NEUTRAL CONDUCTOR (WHERE USED) SHALL HAVE THE SAME AMPACITY AS THE ASSOCIATED PHASE.
- 2.5.4 THE E.C. SHALL ENSURE THAT CIRCUIT AMPACITY AND SHORT CIRCUIT/OVERLOAD PROTECTION IS APPROPRIATE FOR THE EQUIPMENT BEING INSTALLED. UL LISTING CONDITIONS SHALL BE OBSERVED.
- 2.5.5 TO COMPLY WITH NEC/UL LISTING CONDITIONS, ROOFTOP UNITS MAY BE SHOWN WITH FUSED
- 2.5.5.1 ALL FUSES SERVING MOTOR LOADS WILL BE OF THE DUAL ELEMENT TYPE.
- 2.5.5.2 DUE TO DIFFERENT INTERRUPTING CHARACTERISTICS, PANELBOARD CIRCUIT BREAKERS MAY BE
- RATED HIGHER THAN THE DUAL ELEMENT FUSES THEY SUPPLY TO ENSURE SUFFICIENT STARTING

3. TESTING AND INSPECTION

- 3.1.1 THE E.C. SHALL TEST, PRIOR TO ENERGIZING FOR THE FIRST TIME ALL PIECES OF ELECTRICAL EQUIPMENT TO ASSURE THEY HAVE THE PROPER PHASE TO PHASE AND PHASE TO GROUND INSULATION AND TO BE FREE OF SHORTS. AFTER ENERGIZING, EACH LUMINAIRE SHALL BE LIT
- 3.1.2 THE VARIOUS CIRCUITS SERVED FROM THE PANELBOARDS VARY IN LOADING. THE E.C. SHALL CAREFULLY BALANCE THE LOAD ON EACH LEG OF AT 100%, THE INITIAL UNBALANCE SHALL NOT EXCEED 10%.

4 INDUSTRY-STANDARDS

4.1 THE FOLLOWING IS A LIST OF ABBREVIATIONS USED IN THE ELECTRICAL NOTES AND

.NATIONAL ELECTRIC CODE, REF. COVERSHEET FOR APPLICABLE VERSION .NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION UNDERWRITERS LABORATORIES, INC. HEATING, VENTILATING AND AIR CONDITIONING INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS GROUND FAULT CIRCUIT INTERRUPTER AMPERES INTERRUPTING CAPACITY LINI ESS NOTED OTHERWISE

A. NAMEPLATES: PROVIDE LAMINATED PLASTIC NAMEPLATES WITH 3/4 INCH MINIMUM CONTRASTING COLOR ENGRAVED

S. ATTACH HANGERS AND SUPPORTS TO STRUCTURE OVERHEAD BY METHODS APPROVED AT JOB SITE. DO NOT USE FASTENERS WHICH PENETRATE THE ROOF DECK.

. CONDUIT AND EQUIPMENT SUPPORTS: HANGERS SHALL BE SERIES P3000 OR P3300 CHANNELS BY UNISTRUT DEPENDING ON LOAD AND SPAN INVOLVED. USE PIPE HANGERS BY MINERALLAC , OR CADDY CLIPS BY ERICO ONLY WHERE IMPRACTICAL TO

GENERAL CONTRACTOR ..GROUND ..ISOLATED GROUND

WEATHER PROOF COVERPLATE WEATHER RESISTANT RECEPTACLE ..EXISTING TO REMAIN .RELOCATED

ELECTRICAL CONTRACTOR

PART 1 - GENERAL

- 1.1 SUMMARY
- A. SECTION INCLUDES: WIRE AND CABLE
- CONDUIT.
- 3. OUTLET BOXES AND CONDUIT FITTINGS. WIRING DEVICES.
- THE PUBLICATIONS LISTED BELOW FORM A PART OF THIS SPECIFICATION TO THE EXTEN REFERENCED. PUBLICATIONS ARE REFERENCED WITHIN THE TEXT BY THE BASIC DESIGNATION

WIRING METHODS

A. BRANCH CIRCUIT SWITCHES: HEAVY DUTY, SPECIFICATION GRADE RATED 20A 120/277V AS

B. RECEPTACLES: STRAIGHT BLADE NYLON GROUNDING, BACK OR SIDE WIRED, HEAVY DUTY,

B.2. DUPLEX RECEPTACLE, 20A 125V (5-20R) ISOLATED GROUND - HUBBELL #IG5262GY OR

C.2. GALVANIZED STEEL PLATES WHERE DEVICES ARE INSTALLED ON EXPOSED FITTINGS OR

C.4. WEATHER-PROOF, WHILE-IN USE COVER FOR ALL WEATHER RESISTANT, 20A, DUPLEX

D.3. UNLESS OTHERWISE NOTED, ISOLATED GROUND RECEPTACLES AND COVER PLATES

SHALL MATCH THE TYPE AND COLOR AS OTHER DEVICES INSTALLED IN THAT ROOM OR

A. INSTALL SPECIFIED MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

1. INSTALL CONDUIT CONCEALED, EXCEPT IN UNFINISHED AREAS AND WHERE INDICATED ON

2. CLEAN PVC CONDUIT PER MANUFACTURER'S RECOMMENDATIONS BEFORE APPLICATION OF

4. PAINT METALLIC CONDUIT UNDER CONCRETE SLAB OR WHERE INSTALLED IN CONTACT WITH EARTH. APPLY TWO 6 MIL COATS OF PVC OR ASPHALT PAINT CONTINUOUSLY ALONG ENTIRE

LENGTH OF CONDUIT PRIOR TO INSTALLATION BELOW GRADE. DO NOT RUN CONDUIT IN

5. INSTALL FLEXIBLE METAL CONDUIT OR LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTIONS TO AIR COMPRESSORS, HVAC EQUIPMENT, MOTORS AND OTHER VIBRATING

7. DO NOT INSTALL CONDUIT UNDER SLAB UNLESS INDICATED ON DRAWINGS. CONDUIT INSTALLED BELOW SLAB SHALL BE GALVANIZED RIGID METAL (GRC), INTERMEDIATE METAL CONDUIT (IMC), OR SCHEDULE 40 PVC.

8. ROUTE ABOVE GRADE CONDUIT PARALLEL OR PERPENDICULAR TO BUILDING LINES.

10. INSTALL DOUBLE LOCKNUT AND BUSHINGS WHEN TERMINATING GRC OR IMC CONDUIT,

GALVANIZED RIGID METAL CONDUIT (GRC): PERMITTED FOR GENERAL EXPOSED OR CONCEALED WORK ABOVE OR BELOW GRADE.

2. INTERMEDIATE METAL CONDUIT (IMC): PERMITTED FOR GENERAL EXPOSED OR CONCEALED

3. ELECTRICAL METALLIC TUBING (EMT): PERMITTED FOR GENERAL EXPOSED OR CONCEALED WORK ABOVE GRADE.

4. POLYVINYL CHLORIDE RIGID NONMETALLIC CONDUIT (PVC) UNLESS NOTED OTHERWISE ON

DRAWINGS: PERMITTED FOR BELOW_GRADE USE WHEN PERMITTED BY LOCAL GOVERNING

TO FOLIPMENT IN DRY AREAS NOT PERMITTED FOR GENERAL EXPOSED OR CONCEALED

WORK. FOR CONNECTION OF RECESSED LIGHT FIXTURES IN SUSPENDED CEILINGS AND

LIQUID TIGHT FLEXIBLE METAL CONDUIT: PERMITTED EXPOSED IN LENGTHS OF 6 FEET OR LESS FOR VIBRATING EQUIPMENT IN DAMP LOCATIONS WHERE RIGID CONNECTIONS ARE

A. REPLACE OUTLETS OR DEVICES IMPROPERLY LOCATED OR INSTALLED. SET OUTLETS AND DEVICES PLUMB OR HORIZONTAL AND EXTEND TO, BUT NOT PROJECT ABOVE, FINISHED

A. PROTECT INSTALLED PRODUCTS FROM DAMAGE UNTIL COMPLETION OF CONSTRUCTION

C. INSTALL RECEPTACLES SO THAT THE GROUND PRONG IS IN THE DOWN POSITION.

B. UNLESS OTHERWISE NOTED, RECEPTACLES, SWITCHES, AND OTHER WIRING DEVICES SHALL

7. MC CABLE: PERMITTED ONLY WHERE CONCEALED INSIDE PARTITIONS AND ABOVE FINISHED

CEILINGS. CABLE EXPOSED ON WALLS OR IN OPEN BAR JOIST AREAS WILL NOT BE PERMITTED. CUT CABLE WITH MANUFACTURER'S RECOMMENDED ARMOR STRIPPING TOOL.

MAINTAIN MINIMUM OF 6 INCHES CLEARANCE AT FLUES AND HEAT SOURCES.

BETWEEN SWITCHES OR PROVIDE SEPARATE BOXES AND SEPARATE COVERPLATES FOR EACH CIRCUIT.

B. WHERE SWITCHES ARE GANGED, PROVIDE PERMANENTLY INSTALLED STEEL BARRIERS

3. COORDINATE FLASHINGS WHERE CONDUIT PENETRATES ROOF MEMBRANE.

6. COORDINATE INSTALLATION OF CONDUIT IN MASONRY WORK.

EXCEPT WHERE CONDUIT TERMINATES IN THREADED HUB.

WORK ABOVE OR BELOW GRADE.

NOT BE MOUNTED BACK-TO-BACK.

3.3 WIRING DEVICES

3.4 PROTECTION

11. INSTALL INSULATED THROAT BUSHINGS ON ALL PVC CONDUIT RUNS.

CONNECTION OF OTHER EQUIPMENT SUBJECT TO VIBRATION.

NOT SUITABLE UNLESS OTHERWISE INDICATED ON DRAWINGS.

PROVIDE MANUFACTURERS APPROVED CONNECTORS.

A.4. SINGLE POLE OCCUPANCY SENSOR - LEVITON #OSSMT-MD-G OR EQUAL

B.1. DUPLEX RECEPTACLE, 20A 125V (5-20R) - HUBBELL #HBL5262GY OR EQUAL

B.4. DUPLEX RECEPTACLE, 20A, 125V (5-20R) GFCI AND WEATHER RESISTANT -

RECEPTACLES SHALL BE HUBBELL #WP26E OR EQUAL.

D.1. UNLESS OTHERWISE NOTED, WIRING DEVICES SHALL BE GRAY.

D.2. UNLESS OTHERWISE NOTED, COVER PLATES SHOULD BE SILVER.

B.3. DUPLEX RECEPTACLE, 20A 125V (5-20R) GFCI - HUBBELL #GF15GYLA OR EQUAL

C.1. 302/304 STAINLESS STEEL COVER PLATES FOR FLUSH MOUNTED EQUIPMENT.

C.3. BLANK 302/304 STAINLESS STEEL COVER PLATES ON ALL BOXES WITHOUT DEVICE

A.1. SINGLE POLE - HUBBEL #HBL1221GY OR EQUAL

A.2. 3-WAY - HUBBEL #HBL1223GY OR EQUAL.

A.3. 4-WAY - HUBBEL #HBL1224GY OR EQUAL

SPECIFICATION GRADE AS FOLLOWS:

HUBBELL#GFTR15GY OR EQUAL.

D. COLORS

3.2 CONDUIT

A. INSTALLATION:

3.1 INSTALLATION - GENERAL

SOLVENT CEMENT

- B. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA): 1. NFPA 70 - NATIONAL ELECTRICAL CODE (NEC).
- C. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA):
- D. UNDERWRITERS LABORATORIES (UL): 1. UL 1569 - METAL CLAD CABLES.

PART 2 - PRODUCTS

2.1 WIRE AND CABLE

- A. ELECTRICAL COMPONENTS AND DEVICES: LISTED AND LABELED AS DEFINED IN NFPA 70 ARTICLE 100, BY A NATIONALLY RECOGNIZED TESTING AGENCY AND MARKED FOR USE.
- WIRE AND CABLE SHALL BEAR THE LABEL OF A NATIONALLY RECOGNIZED TESTING LABORATORY AND SHALL CONFORM TO STANDARDS ESTABLISHED FOR SUCH MATERIALS BY NATIONALLY RECOGNIZED AGENCIES.
- PROVIDE CODE GAUGE, SOFT ANNEALED COPPER WIRE, NOT LESS THAN 98 PERCENT CONDUCTIVITY AND OF 600 VOLT CLASS.
- CONDUCTORS:
- 1. INSULATION TYPE SHALL BE ONE OF THE FOLLOWING:
- b. THWN. c. XHHW

a. THHN.

- d. XHHW-2.
- TYPE: a. #10 AND SMALLER - SOLID.
- b. #8 AND LARGER STRANDED
- INTERLOCKED ARMOR METAL CLAD (MC) CABLE: CONTRACTOR'S OPTION AS ALLOWED BY AUTHORITIES HAVING JURISDICTION. MC CABLE SHALL HAVE THE FOLLOWING CHARACTERISTICS:
- 1. ALUMINUM MC-LITE OR STANDARD MC.
- 2. MINIMUM SIZE CONDUCTOR, #12 AWG COPPER, INCLUDING GREEN INSULATED EQUIPMENT GROUND, SIZED IN ACCORDANCE WITH THE NEC.
- OVERALL MOISTURE RESISTANT TAPE. 4. GALVANIZED STEEL OR ALUMINUM INTERLOCKED CLADDING.
- 5. MANUFACTURED IN ACCORDANCE WITH UL 1569.
- WIRE SMALLER THAN #12 AWG NOT PERMITTED UNLESS OTHERWISE NOTED. #14 AWG, TYPE MTW OR TFF PERMITTED FOR SIGNAL AND PILOT CONTROL CIRCUITS UNLESS OTHERWISE

G. COLOR CODE G.1. 240/120V

- G.1.1. NEUTRAL: WHITE
- G.1.2. PHASE: A BLACK, B RED
- G.1.3. GROUND: GREEN
- G.1.4. ISOLATED GROUND GREEN W/ YELLOW TRACER G.2. 208/120V
- G.2.1. NEUTRAL: WHITE
- G.2.2. PHASE: A - BLACK, B - RED, C - BLUE
- G.2.3. GROUND: GREEN
- G.2.4. ISOLATED GROUND GREEN W/ YELLOW TRACER
- COLOR CODE #6 AWG AND SMALLER PHASE AND NEUTRAL CONDUCTORS BY CONTINUOUS OUTER COVERING. CONDUCTORS #4 AWG AND LARGER MAY BE COLOR CODED BY TAPE. TAPE SHALL HAVE MINIMUM OF TWO COMPLETE WRAPS AROUND CONDUCTOR AT 6 INCHES FROM TERMINATIONS, SPLICES, AND JUNCTION POINTS.
- IDENTIFY CIRCUIT NUMBERS WITH SYNTHETIC CLOTH OR PLASTIC LABELS AT SPLICE AND JUNCTION POINTS

2.2 CONDUIT

2.1 INSTALLATION

ABOVE GRADE WITH SEALANT

- YPES SHALL BE AS FOLLOWS AND SHALL BEAR THE LABEL OF A NATIONALLY
- 1. GALVANIZED RIGID METAL CONDUIT (GRC): HOT DIP GALVANIZED.
- 2. INTERMEDIATE METAL CONDUIT (IMC): HOT DIP GALVANIZED.
- 3. ELECTRICAL METALLIC TUBING (EMT): HOT DIP GALVANIZED.
- 4. SCHEDULE 40 HEAVY WALL POLYVINYL CHLORIDE (PVC). 5. FLEXIBLE METAL CONDUIT: ZINC COATED STEEL OR ALUMINUM.
- 6. LIQUID TIGHT FLEXIBLE STEEL CONDUIT WITH PVC JACKET.

RECOGNIZED TESTING LABORATORY:

MC CABLE: STEEL OR ALUMINUM CLADDING. 2.3 OUTLET BOXES AND CONDUIT FITTINGS

- A. OUTLET BOXES AND CONDUIT FITTINGS SHALL BEAR THE LABEL OF A NATIONALLY RECOGNIZED TESTING LABORATORY AND BE RATED FOR ENVIRONMENTAL CONDITIONS WHERE INSTALLED.
- B. BOXES: COMPLY WITH NEC IN REGARD TO MAXIMUM ALLOWABLE NUMBER OF CONDUCTORS . INTERIOR BOXES: HOT DIP GALVANIZED, 4 INCHES MINIMUM OCTAGON OR SQUARE, UNLESS OTHERWISE NOTED. PROVIDE SINGLE OR MULTIPLE GANG OUTLET BOXES AS REQUIRED FOR
- FLUSH INSTALLATION IN DRYWALL CONSTRUCTION. PROVIDE MASONRY BOXES FOR OUTLETS INSTALLED FLUSH IN CONCRETE UNIT MASONRY. PROVIDE SINGLE SURFACE MOUNTED OUTLET BOXES FOR UTILITY TYPE BOXES. 2. EXTERIOR BOXES: PROVIDE MASONRY BOXES FOR OUTLETS INSTALLED FLUSH IN
- CONCRETE UNIT MASONRY. 3. OUTLET BOXES: SUITABLE FOR SUPPORTING LIGHTING FIXTURES IF INTENDED FOR THAT PURPOSE. . CONDUIT FITTINGS:
- 1. EMT FITTINGS FOR DRY LOCATIONS: DIECAST OR STEEL SET SCREW TYPE.
- 2. EMT FITTINGS FOR WET OR DAMP LOCATIONS: STEEL COMPRESSION TYPE. 3. GRC, IMC, OR EMT BOX CONNECTORS FOR WET OR DAMP LOCATIONS: WEATHER-TIGHT

MATERIALS AND METHODS

- 4. THREADLESS GRC OR IMC FITTINGS: NOT PERMITTED
- GRC OR IMC CONNECTORS FOR DRY LOCATIONS. 6. PVC FITTINGS: SOLVENT WELD TYPE FOR PVC CONDUIT

- A. INSTALL SPECIFIED MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS INDICATED ON B. CUTTING AND PATCHING: WHERE CUTTING IS REQUIRED THROUGH WALLS, FLOORS, OR CEILINGS, MAKE OPENINGS NO
- LARGER THAN REQUIRED AND REPAIR AFFECTED SURFACES TO MATCH ADJACENT SURFACES. C. ELECTRICAL EQUIPMENT SUPPORTS: SUPPORT ELECTRICAL EQUIPMENT WITH HANGERS AND SUPPORTS SPECIFIED ABOVE OR IN ANOTHER APPROVED MANNER WHERE DETAILS ARE NOT INDICATED. D. SLEEVES: INSTALL WHERE CONDUITS PASS THROUGH CONCRETE FLOORS. CAULK SLEEVES THROUGH OUTSIDE WALLS
- E. FASTENING AND ANCHORING: FASTEN CONDUIT STRAPS, DISCONNECT SWITCHES, PANELBOARDS, AND OTHER EQUIPMENT SECURED TO WALLS AND SLABS WITH CADMIUM PLATED SCREWS OR BOLTS AND LEAD CINCH ANCHORS OR EXPANSION BOLTS AND INSTALL IN HOLES DRILLED WITH PROPER SIZE MASONRY DRILL. PROPERLY SIZE ANCHORS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR LOAD TO BE SUPPORTED
- TORQUE ALL CONDUCTOR CONNECTION TO MANUFACTURER'S RECOMMENDED VALUES. INSPECT PANELBOARDS FOR PHYSICAL DAMAGE, PROPER ALIGNMENT, ANCHORAGE, AND GROUNDING. CHECK PROPER INSTALLATION AND TIGHTNESS OF CONNECTIONS FOR CIRCUIT BREAKERS, FUSIBLE SWITCHES, AND FUSES.
- 2.2 GROUNDING A. GENERAL: GROUND ALL METALLIC CONDUITS, SUPPORTS, CABINETS, EQUIPMENT, SYSTEM NEUTRALS, METAL BUILDING STRUCTURES, AND OTHER IN BRAWNING TO BE GROUNDED IN ACCORDANCE WITH THE NEC AND OTHER APPLICABLE
- B. EQUIPMENT GROUNDING 1. MAKE CONDUITS ELECTRICALLY CONTINUOUS USING PROPER FITTINGS, CONNECTIONS, GROUNDING BUSHINGS, ETC. 2. WHERE GALVANIZED RIGID METAL CONDUIT (GRC) PENETRATES THE GRADE OUTDOORS OR PENETRATES THE SLAB, INSTALL INSULATING GROUNDING BUSHINGS.
- 3. INSTALL AN INSULATED EQUIPMENT GROUND WIRE AS SHOWN ON DRAWINGS C. METAL UNDERGROUND COLD WATER PIPE: CONNECT TO ELECTRICAL SYSTEM IF AVAILABLE AND PERMITTED BY LOCAL CODES, INSTALL JUMPERS AROUND WATER METERS, VALVES, OR OTHER DEVICES WHICH MIGHT CAUSE AN INTERRUPTION

D. CONCRETE ENCASED ELECTRODES: WHERE INDICATED ON THE DRAWINGS, FURNISH AND INSTALL ELECTRODES, JUMPERS

E. GROUND RODS: IF GROUND RODS ARE REQUIRED, INSTALL TWO 5/8 INCH MINIMUM DIAMETER COPPERWELD RODS DRIVEN

VERTICALLY NOT LESS THAN 12 FEET APART AND EACH WITH 8 FEET OF LENGTH IN CONTACT WITH THE SOIL.

AND APPROVED FITTINGS IN ACCORDANCE WITH GROUNDING ELECTRODE DETAIL.

- . UPON COMPLETION OF INSTALLATION, PERFORM CONTINUITY TESTS ON POWER AND EQUIPMENT BRANCH CIRCUIT CONDUCTORS. INSPECT WIRE AND CABLE FOR PHYSICAL DAMAGE. VERIFY PROPER PHASING
- MEASURE GROUND RESISTANCE FROM SYSTEM NEUTRAL CONNECTION AT SERVICE ENTRANCE TO CONVENIENT GROUND POINT ON BUILDING WATER PIPE USING SUITABLE GROUND TESTING EQUIPMENT.
- TEST RECEPTACLES WITH CIRCUIT TESTER TO ENSURE PROPER POLARITY, GROUNDING, AND CONTINUITY OF CIRCUITS.
- LOAD TEST GFCI RECEPTACLES.

PANELBOARDS

PART 1 - GENERAL

- 1.1 SUMMARY
- A. SECTION INCLUDES: LIGHTING/APPLIANCE PANELBOARDS.
- B. RELATED REQUIREMENTS: 1. SECTION 16050 - BASIC ELECTRICAL MATERIALS
- AND METHODS. GROUNDING.
- 1.2 REFERENCES
- A. NATIONAL ELECTRICAL CODE (NFPA-70), AND INTERIM AMENDMENTS IN EFFÈCT
- 1.3 QUALITY ASSURANCE
- A. COMPLY WITH NATIONAL ELECTRICAL CODE. B. COMPLY WITH LOCAL AND STATE, UTILITY REGULATIONS AND LAWS.
- 1.4 SYSTEM DESCRIPTION A. ELECTRICAL SYSTEM VOLTAGES: THE FOLLOWING VOLTAGES SHALL APPLY UNLESS OTHERWISE
- 1. RECEPTACLE AND SMALL POWER SYSTEMS: 208Y/120 VOLT, 3 PHASE, 4 WIRE WYE, 60 HZ, SOLID GROUNDED NEUTRAL.

PART 2 - PRODUCTS

- 2.1 MANUFACTURERS A. PANELBOARDS MANUFACTURED BY ONE OF THE FOLLOWING, UNLESS OTHERWISE INDICATED ON
 - DRAWINGS 1. CUTLER HAMMER
 - GENERAL ELECTRIC
 - 3. SIEMENS (ITE).
- SQUARE D.
- B. EQUIPMENT SHALL BEAR NAME AND TRADEMARK OF MANUFACTURER AS LISTED ABOVE. C. SUBSTITUTIONS: NOT PERMITTED.
- 2.2 LIGHTING/APPLIANCE PANELBOARDS A. PANELBOARDS: INSTALL AS SCHEDULED ON DRAWINGS, INCLUDING VOLTAGE, AMPERAGE, BUS BRACING, AND INTERRUPTING RATINGS.
- 1. MAIN LUGS ONLY (MLO), MAIN CIRCUIT BREAKER (MCB), OR MAIN FÜSIBLE SWITCH (MFS) PANELBOARD AND BRANCH DEVICES AS INDICATED ON SCHEDULE
- 2. BRANCH CIRCUIT PROTECTIVE DEVICES PLUG ON OR BOLTED TYPE THERMAL MAGNETIC CENTER TRIP CIRCUIT BREAKERS FOR SINGLE HANDLE COMMON TRIP. TANDEM OF HALF SIZED CIRCUIT BREAKERS OR LOAD CIRCUIT BREAKER AMP INTERRUPTING CAPACIT (AIC) NO LESS THAN VALUES INDICATED ON DRAWINGS. CIRCUIT BREAKERS FEEDING EMERGENCY LIGHTS, NIGHT LIGHTS, TIME CLOCK MOTORS, ETC. WILL BE EQUIPPED WITH
- DRAWINGS, OR REQUIRED BY NFPA 70 3. CABINETS: ZINC COATED SHEET STEEL WITH KNOCK OUTS, LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY, TRIMS AND DOORS TO HAVE SUITABLE PRIMER COAT AND FINISH COAT (MANUFACTURER'S STANDARD COLOR, TRIMS TO BE FITTED WITH HINGED DOORS HAVING COMBINED LOCK AND LATCH. LOCKS WILL BE KEYED ALIKE AND FURNISHED WITH TWO KEYS
- DIRECTORY HOLDER: CONTRACTOR PROVIDE LEGIBLE TYPEWRITTEN CIRCUIT DIRECTORY PROPERLY IDENTIFYING LOAD(S) ON EACH CIRCUIT MOUNTED UNDER CLEAR PLASTIC COVER. BRANCH CIRCUITS SHALL BE CONNECTED EXACTLY AS INDICATED ON PANEL SCHEDULE.

PART 3 - EXECUTION

A. EXAMINE SURFACES AND ADJACENT AREAS IN

FOR EACH PANELBOARD.

- WHICH WORK UNDER THIS SECTION IS TO BE PERFORMED. REPORT IN WRITING TO OWNER'S INSTRUCTION MANAGER PREVAILING CONDITIONS THAT MAY ADVERSELY AFFECT SATISFACTORY EXECUTION OF WORK, DO NO PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
- THE EXISTING CONDITIONS AND THE CONTRACTOR SHALL THEN, AT HIS EXPENSE, BE RESPONSIBLE FOR CORRECTING ALL UNSATISFACTORY AND DEFECTIVE WORK ENCOUNTERED.
- 3.2 INSTALLATION A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS INDICATED ON DRAWINGS.

B STARTING WORK CONSTITUTES ACCEPTANCE OF

SAFETY SWTICHES

PART 1 - GENERAL

A. SECTION INCLUDES:

- SAFETY DISCONNECT SWITCHES. 1.2 REFERENCES THE PUBLICATIONS LISTED BELOW FORM A PART OF THIS SPECIFICATION TO THE EXTENT REFERENCED
- PUBLICATIONS ARE REFERENCED WITHIN THE TEXT BY THE BASIC DESIGNATION ONLY. B. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
- (1000 VOLTS MAXIMUM).
- PART 2 PRODUCTS 2.1 SAFETY SWITCHES
- A. SWITCH INTERIOR DEAD-FRONT CONSTRUCTION WITH HINGED ARC SUPPRESSOR AND SWITCH BLADES WHICH ARE FULLY VISIBLE IN THE OFF POSITION AND WITH DOOR OPEN.

1. NEMA 250 - ENCLOSURES FOR ELECTRICAL EQUIPMENT

- SWITCH MECHANISM: . QUICK-MAKE AND QUICK-BREAK OPERATING HANDLE AND MECHANISM WITH A DUAL COVER INTERLOCK TO PREVENT UNAUTHORIZED OPENING OF THE SWITCH DOOR IN THE "ON" POSITION OR CLOSING THE SWITCH
- MECHANISM WHILE THE DOOR IS OPEN. PROVIDE ELECTRICAL INTERLOCK SWITCH TO DE-ENERGIZE CONTROL WIRING AS REQUIRED.
- AMPERES OR LESS SHALL BE RATED FOR 75 DEGREES C 4. PROVIDE OPERATING HANDLE WITH PROVISIONS FOR INSTALLATION OF A PADLOCK IN "OFF" OR "ON"

3. LINE AND LOAD TERMINALS OF THE DEVICE RATED 100

C. RATINGS: 1. SWITCHES HORSEPOWER RATED FOR 600 VOLTS, 60 HZ, HEAVY-DUTY TYPE. 2. WHERE SWITCHES ARE INDICATED TO BE FUSED,

FURNISH WITH PROVISIONS FOR FUSES.

1. NEMA 1, CODE GAUGE SHEET STEEL WITH HINGED COVER, EXCEPT WHERE EXPOSED TO WEATHER. 2. IF EXPOSED TO WEATHER, PROVIDE NEMA 3R ENCLOSURE.

PART 3 - EXECUTION

D. ENCLOSURES:

- 3.1 INSTALLATION
- ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. APPLICABLE CODES SHALL TAKE PRECEDENCE OVER DRAWING DETAILS. B. PROVIDE PROPERLY SIZED GROUNDING LUG AND

TERMINATIONS FOR ALL SAFETY SWITCHES.

GENERAL NOTES

- PROVIDE SEALS AT RACEWAY PENETRATIONS AS FOLLOWS:
- A. FIRE RATED WALLS: SEAL WITH SEALANT HAVING A T-RATING TO MATCH OR EXCEED WALL RATING.
- B. EXTERIOR: REFER TO ARCHITECTURAL DOCUMENTS FOR SEALING REQUIREMENTS AT ALL EXTERIOR MOUNTED DEVICES, FIXTURES, ENCLOSURES, AND RACEWAY PENETRATIONS
- PROVIDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR (SIZE PER NEC) IN PVC TYPE CONDUIT, POWER CIRCUITS, ISOLATED GROUND CIRCUITS, OR AS SHOWN ON PLANS. CONDUIT SHALL BE SIZED PER NEC BASED ON THWN 600 VOLT COPPER SINGLE CONDUCTORS, PLUS THE EQUIPMENT GROUNDING CONDUCTOR.
- WIRING DEVICES: DEVICE MOUNTING HEIGHTS ARE FROM FINISHED FLOOR TO CENTER OF OUTLET BOX UNLESS NOTED OTHERWISE ON PLANS. COORDINATE THE STANDARD MOUNTING HEIGHTS WITH MASONRY A. SWITCHES +46" B. RECEPTACLES +20"
- C. VOICE/DATA +20" WIRING SHALL INCLUDE FINAL CONNECTION TO ALL EQUIPMENT IN CONFORMANCE WITH EQUIPMENT SUPPLIER
- WIRING DIAGRAMS CONTRACTOR IS RESPONSIBLE FOR PROVIDING COMPLETE PANELBOARD IDENTIFICATION SCHEDULES.
- BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG UNLESS NOTED OTHERWISE IN SCHEDULES. WHERE 20A BRANCH CIRCUITS HAVE #8 AND LARGER WIRE SPECIFIED, #10 AWG WIRE SHALL BE USED FOR THE FINAL CONNECTION (15-FT MAXIMUM).
- WHERE BRANCH CIRCUITS ARE GROUPED, SIZE CONDUIT AND DERATE CURRENT CARRYING CONDUCTORS PER NEC. PROVIDE HANDLE TIES ON ALL MULTIWIRE BRANCH CIRCUITS

TO MEET NEC REQUIREMENTS.

THE JOB PRIOR TO ROUGH-IN

PLANS.

- 9. CONDUITS EXTENDING BEYOND EXTERIOR WALL: STUB OUT 2'-0" BELOW GRADE TO 5'-0" BEYOND EXTERIOR WALLS UNLESS NOTED OTHERWISE, COORDINATE LOCATION AND PROVIDE CONNECTION TO SITE CONDUITS.
- SUPPORTS FROM STRUCTURE: NO ATTACHMENT OF ANY TYPE SHALL BE MADE TO BRIDGING OR JOIST WEB MEMBERS. UTILIZE ONLY THE TOP AND BOTTOM CHORDS FOR SUPPORTING THE ELECTRICAL SYSTEM INSTALLATIONS. DO NOT INSTALL EQUIPMENT OR CONDUITS DIRECTLY
- WHERE GROUPED CONDUITS ARE INSTALLED WITHIN THE JOIST SPACE, COORDINATE WITH SPRINKLER CONTRACTOR PRIOR TO INSTALLATION IN ORDER TO MAINTAIN REQUIRED CLEARANCES FROM SPRINKLERS

UNDER SKYLIGHT WELLS UNLESS INDICATED OTHERWISE ON

- COORDINATE OUTLET BOX LOCATIONS WITH METAL SIDING TO MINIMIZE CUTTING OF SIDING. ALL MOUNTING HEIGHTS TO CENTERLINE OF ITEM UNLESS OTHERWISE NOTED. VERIFY ALL OUTLET LOCATIONS ON
- LABEL THE FRONT OF EACH RECEPTACLE COVERPLATE WITH PANEL DESIGNATION AND CIRCUIT NUMBER USING CLEAR THERMAL TRANSFER (FLECTRIC DYMO) LABELS WITH 1/8" HIGH BLACK LETTERS (OR CONTRASTING COLOR IF PLATES ARE BLACK OR BROWN). LABELS SHALL BE SUITABLE FOR INDOOR/OUTDOOR USE. LABEL THE BACK OF EACH LIGHT SWITCH COVERPLATE WITH PANEL DESIGNATION AND CIRCUIT NUMBER USING A FINE BLACK PERMANENT MARKER.
- ALL PIPING, CONDUIT, AND OUTLET BOXES (ELECTRIC, VOICE, DATA, ETC.) IN THE RATED WALLS OR CEILING SHALL BE CONSTRUCTED OF NON-COMBUSTABLE MATERIAL. OUTLET BOXES (ELECTRICAL, VOICE, DATA, ETC.) SHALL BE LIMITED TO TWO OUTLET BOXES PER STUD SPACE OUTLET BOXES ON OPPOSITE SIDES OF THE RATED WALLS SHALL BE
- 8. LABEL EACH RECEPTACLE COVERPLATE 'COMPUTER' USING CLEAR THERMAL TRANSFER (ELECTRONIC DYMO) LABELS WITH 1/8" HIGH LETTERS. THE COLOR OF ISOLATED GROUND RECEPTACLES AND

COVERPLATES SHALL MATCH THOSE OF OTHER DEVICES ON

FOR ISOLATED GROUND CIRCUITS, PROVIDE AN ISOLATED GROUND CONDUCTOR THROUGHOUT THE LENGTH OF THE CIRCUIT IN ADDITION TO THE PHASE, NEUTRAL, AND GROUND CONDUCTORS

ALL ELECTRICAL SERVICE AND DISTRIBUTION EQUIPMENT, PANELBOARDS, DISCONNECT SWITCHES AND LIGHTING FIXTURES TO BE FURNISHED BY THE ACCOUNT VENDOR,

CONTACT: JOE STOLL 8170 LACKLAND ROAD ST. LOUIS, MO 63114 PHONE: 314-573-2080 FAX: 314-573-0003

EMAIL: LOVES@GRAYBAR.COM

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SYMBOL LEGEND

(SYMBOLS APPLY ONLY WHEN USED ON DRAWINGS)

EMERGENCY FIXTURE

SWITCH, SINGLE POLE

SWITCH, 3-WAY

SWITCH, 4-WAY

SWITCH, KEYED

SWITCH. DIMMER

SWITCH, VARIABLE SPEED

SWITCH, MANUAL MOTOR

PIR DIMMER WALL SWITCH OCC

DUAL-TECH WALL SWITCH OCC SENSOR, MANUAL ON, AUTO OF

CEILING OCC. SENSOR

RECEPTACLE. DUPLEX

RECEPTACLE, DUPLEX,

GROUND FLUSH FLOOR

RECEPTACLE, DUPLEX

ISOLATED GROUND

ISOLATED GROUND

5-15R, UNO

_5-15R. UNO

MOUNTED HORIZONTALLY

POWER PACK

LOW TEMPERATURE, ULTRASONIC

RECEPTACLE, DUPLEX FLUSH FLOOR

RECEPTACLE, DUPLEX ISOLATED

RECEPTACLE, DOUBLE DUPLEX

RECEPTACLE, DOUBLE DUPLEX

RECEPTACLE, SIMPLEX TWIST LOCK,

RECEPTACLE, SIMPLEX TWIST LOCK,

RECEPTACLE, DUPLEX TWIST LOCK,

RECEPTACLE, DUPLEX TWIST LOCK,

(WALL MOUNTED/CEILING MOUNTED)

WALL MOUNTED/CEILING MOUNTED

WALL MOUNTED/CEILING MOUNTED)

EQUIPMENT CONNECTION POINT

PROVIDED WITH EQUIPMENT)

UNDERGROUND CONDUIT RUN

FLUSH MOUNTED PANELBOARD

TELEPHONE / DATA BOX

OW VOLTAGE CABLE

ELEPHONE, FLUSH FLOOR

BOX FOR OTHER

TELEPOWER POLE

SMOKE DETECTOR

HORN / STROBE

DOOR HOLD OPEN

CONDENSER FANS

ELECTRIC DEFROST

HBA DIGITAL TIMER SWITCH - TD200

PUSH BUTTON

MOTOR

BUZZER

 \bigcirc

DH

ED

EACH SUBCONTRACTOR IS RESPONSIBLE FOR HAVING A

THOROUGH KNOWLEDGE OF ALL DRAWINGS AND

SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO

ACQUAINT HIMSELF WITH THIS KNOWLEDGE DOES NOT RELIEVE THE RESPONSIBILITY OF PERFORMING HIS WORK

PROPERLY. NO ADDITIONAL COMPENSATION SHALL BE

ALLOWED BECAUSE OF CONDITIONS THAT OCCUR DUE TO

FAILURE TO FAMILIARIZE WORKERS WITH THIS KNOWLEDGE.

SURFACE MOUNTED PANELBOARD

LOW VOLTAGE CIRCUITRY

CIRCUIT, CONCEALED

CIRCUIT, EXPOSED

CONDUIT SLEEVE

ISOLATED GROUND, L5-15R, UNO

RECEPTACLE, SPECIAL

RECEPTACLE, SIMPLEX

ALARM JUNCTION BOX

ALARM JUNCTION BOX,

FOR REMOTE TEST/RESET

NON-FUSED DISCONNECT

FUSED DISCONNECT

UNCTION BOX

RECEPTACLE, PLUG-MOLD

ISOLATED GROUND, L5-15R, UNO

SENSOR, MANUAL ON, AUTO OFF

ILTRASONIC CEILING OCC. SENSOR

(S)3

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 \Box

(WALL MOUNTED/CEILING MOUNTED)

HARRISON FRENCE & ASSOCIATES, LT 1705 S. Walton Blvd., Suite 3 Bentonville, Arkansas 72712 t 479.273.7780

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ISSUE BLOCK

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ELECTRICAL SPECIFICATIONS & GENERAL

GROUNDING AND BONDING A. INSULATED GROUNDING BUSHING: STEEL WITH FEED-THRU LUGS. . INSULATED EQUIPMENT GROUND WIRE: COPPER.

PART 1 - GENERAL

A. SECTION INCLUDES:

ELECTRICAL IDENTIFICATION

2. HANGERS AND SUPPORTS

4. GROUNDING AND BONDING

1.2 ELECTRICAL IDENTIFICATION

HANGERS AND SUPPORTS

1.4 CONDUIT SLEEVES

3. CONDUIT SLEEVES

1.1 SUMMARY

PRODUCTS

A. SLEEVES: GALVANIZED, BLACK STEEL OR SCHEDULE 40 PVC PIPE.

			LIGHTING FIXTURE SCHEDU	E				
TYPE	MANUFACTURER	CATALOG #	DESCRIPTION	VOLTS	WATTS	MOUNTING	REMARKS	FURNISHED BY
ЕМ3	LITHONIA	ELA LED T WP M12	EMERGENCY LIGHT	9.6	1	CEILING / WALL	REMOTE EMERGENCY FIXTURE HEADS	OWNER
GG	US LED	DS-402U-2-UNV-QB3-NC-1-L	LED WALL PACK	120	42.5	WALL	WALL PACK	OWNER
JB	LITHONIA	JEBL 18L 50K 80CRI WH	IP65 RATED LED HIGH BAY	120	136	PENDANT	PENDANT MOUNT AT 18'-0" TO BOTTOM OF FIXTURE	OWNER
MI	BODINE	ELI-S-250	EMERGENCY LIGHTING INVERTER	120	250	SURFACE		OWNER
T8	EATON	8SNLED-LD5-64HL-UNV-L850-CD1-LOV-U	8' LINEAR LED STRIP LIGHT - HIGH OUTPUT	120	124	SURFACE	MOUNT TO BOTTOM OF STRUCTURE	OWNER
T8E	EATON	8SNLED-LD5-64HL-UNV-L850-CD1-EL14W-LOV-U	8' LINEAR LED STRIP LIGHT - HIGH OUTPUT, EMERGENCY	120	124	SURFACE	MOUNT TO BOTTOM OF STRUCTURE	OWNER
Х	LITHONIA	LHQM LED R HO M6	EMERGENCY LIGHT	120	5	CEILING / WALL	EMERGENCY FIXTURE WITH 90 MINUTE BATTERY BACK-UP	OWNER
TD	COOPER	PDR7733326-4VT3-LD5-4-WPC-UNV-L850-CD1-S W/ VT3-SS-SBK	VAPORTIGHT LED FIXTURE / MOUNTING BRACKET	120	31	SURFACE	USE CEILING MOUNT BRACKET	OWNER
TDE	COOPER	PDR7733326-4VT3-LD5-4-WPC-UNV-EL10W-L850 W/ VT3-SS-SBK	EMERGENCY VAPORTIGHT LED FIXTURE / MOUNTING BRACKET	120	31	SURFACE	USE CEILING MOUNT BRACKET	OWNER

L	Т						XIS VELI							208Y/120V, 3	3PH, 4W A M.C.B.
SER	VES: TIRE SHOP													42,	,000 AIC
100	ATION: BELOW MEZZANINE													SURFACE	
FED	FROM: UTILITY													GROU	ND BAR
														ISOLATED GROU	ND BAR
CK	LOAD SERVED	WIRE	BRKF	R PL	PHA	SE A	PHA	SE B	PHA	SE C	PL	BRKR	WIRE	LOAD SERVED	СК
1	air compressor (10)		90	3	5.54	0.70					1	20		air dryer (10)	2
3				-			5.54	1.00			1	20	12	TIRE SPREADER (9)	4
5				T-]				5.54	1.00	1	20		inflation cage (10)	6
7	TIRE BALANCER (9)	10	30	3	1.60	0.60			-	-	2	50	6	WELDER (N)	8
9				T-			1.60	0.60	1		-				10
11				-]				1.60	0.72	1	20		receptacles (10)	12
13	WELDER (9)	6	50	2	4.20	0.54					1	20		receptacles (10)	14
15	208V/1PH			T-		-	4.20	0.20]		1	20		bldg sign (10)	16
17	spare (11)		20	1]				0.00	0.70	1	20		bldg sign (10)	18
19	WELDER (N)	6	50	2	0.60	0.24					1	20		door sign (10)	20
21	208V/1PH			-			0.60	0.72]		1	20		ig rec - computer station (10)	22
23	WELDER (N)	6	50	2]				0.60	0.72	1	20		ltg - parking lot (10)	24
25	208V/1PH			1-	0.60	8.63					3	100		PANEL LT3 (N,14)	26
27	WELDER (9)	6	50	2			0.60	8.01]		-				28
29	208V/1PH			T -]				0.60	8.54	-				30
	TOTA	L CON	NECT	ED	23.2		23.1		20.0		K٧	'A			
	TOTA	L CON	NECT	ED	193.7		192.3		166.8] AN	1PS			
		TOT	AL LO	AD	66.3		KVA		184.1] AN	1PS			
	PER NEC ARTICLE 220				67.7		KVA		187.8		1	1PS			

LOC	ATION: BELOW MEZZANINE													SURFACE N	1UON
FED FROM: PANEL LT										1D BA					
														O. CO.	
CK	LOAD SERVED	WIRE	BRKR	PL	PHA	SE A	PHASE B	Т	PHA	SE C	PL	BRKR	WIRE	LOAD SERVED	
1	LTG - OIL PIT (N,15)	12	20	1	0.26	0.56					2	20	12	ADO-1 (N)	
3	LTG - INT EMERGENCY (N)	12	20	1			0.65 0.5	6			-			208V/1PH	
5	LTG - SERVICE BAY (N)	12	20	1					1.09	0.56	2	20	12	ADO-2 (N)	\top
7	LTG - WORKBAY WALLPACKS (N)	12	20	1	0.27	0.56		'			-			208V/1PH	\top
9	LTG - WORKBAY WALLPACKS (N)	12	20	1			0.27 0.8	6			1	20	12	EF-1 (N)	
11	LTG - MECHANICS BAY (N)	12	20	1			,		0.95	0.86	1	20	12	EF-2 (N)	
13	MADDENCO (N)	12	20	1	0.36	0.86				•	1	20	12	EF-3 (N)	
15	LTG - SHOP (N)	12	20	1			0.99 1.2	0			1	20	12	OIL PIT SUMP PUMP (N,4,15)	1
17	REC - SERVICE BAY (N)	12	20	1			,		0.90	0.10	1	20	12	LUBE PIT RELAY PILOT (N,3)	
19	REC - DESK (N)	12	20	1	0.36	1.20					1	20	12	PUMP STATION (N,2)	- 1
21	REC - MECHANICS BAY (N)	12	20	1			0.72 0.0	0			1	20		SPARE (N)	
23	REC - MECHANICS BAY (N)	12	20	1			'		0.72	0.00	1	20		SPARE (N)	
25	REC - EXTERIOR (N)	12	20	1	0.72	0.00				•	1	20		SPARE (N)	
27	REC - SERVICE BAY (N)	12	20	1		•	1.08 0.0	0			1	20		SPARE (N)	1
29	SPARE (N)		20	1			<u>'</u>		0.00	0.00	1	20		SPARE (N)	;
31	LTG - EXTERIOR (N)	12	20	1	0.43	0.56				•	2	20	12	ADO-3 (N)	
33	SPARE (N)		20	1			0.00 0.5	6			-			208V/1PH	;
35	EF-4 (N)	12	20	1					0.86	0.56	2	20	12	ADO-4 (N)	- ;
37	SPARE (N)		20	1	0.00	0.56		•		•	-			208V/1PH	7
39	SPARE (N)		20	1		•	0.00 0.5	6			2	20	12	ADO-5 (N)	4
41	SPARE (N)		20	1					0.00	0.56	-			208V/1PH	4
43	SPARE (N)		20	1	0.00	0.56					2	20	12	ADO-6 (N)	4
45	SPARE (N)		20	1			0.00 0.5	6			-			208V/1PH	4
47	SPARE (N)		20	1					0.00	1.38	2	20	12	OIL FILTER CRUSHER (N,2)	
49	SPACE				0.00	1.38					-			208V/1PH	,
51	SPACE						0.00 0.0	0						SPACE	;
53	SPACE								0.00	0.00				SPACE	,
	TOTAL	CON	NECT	ED	8.63		8.01		8.54		K۷	/A			
	TOTAL	CON	NECT	ED	71.9		66.8		71.2		A٨	AMPS			
TOTAL LOAD				AD	25.2		KVA		69.9		AMPS				
PER NEC ARTICLE 220 FEEDER LOAD				27.1		KVA		75.2		A۱	/IPS				
100%					0.10		100%		0.10		JK۷	/A			
125%					0.00		125%		0.00		JK۷	/A			
LIGHTING					4.90		125%	-	6.13		JK۷				
MOTORS							100%	-	15.7		K۷				
	RI		ΓACLE		4.50		*	-	4.50		∫KV				
			KITCH				100%	-	0.00		∫KV				
			RATIO				100%	-	0.00		K۷				
HVAC - COOLING**					0.00		100%	-	0.00		K۷				
			- HEA		0.00		0%	_	0.00		JK۷				
	LAR	GEST	MOT	OR	2.76		25%	-	0.69		∫KV				
									27.1		KV	/Α			

NEW

PANELBOARD

PANELBOARD NOTES ()

- (1) TERMINATE GROUND ON ISOLATED GROUND BUS.
- (2) INSTALL LOCKING DEVICE FURNISHED WITH PANELBOARD (LOCK-OFF FOR MAINTENANCE).
- (3) INSTALL LOCKING DEVICE FURNISHED WITH
- (4) GFI BREAKER FOR PERSONNEL PROTECTION (5 mA).

PANELBOARD (LOCK-ON FOR CRITICAL LOAD).

- (1)
- (5) GFI BREAKER FOR EQUIPMENT PROTECTION (30 mA).
- (6) CONDUCTOR SIZE HAS BEEN INCREASED FOR VOLTAGE DROP. SIZE EQUIPMENT GROUNDING CONDUCTOR PROPORTIONALLY PER NEC.
- (7) FACTORY WIRED TO LOAD.
- (8) THRU CONTACTOR.

208Y/120V, 3PH, 4W

100A M.C.B.

- (9) EXISTING CIRCUIT BREAKER TO REMAIN. VERIFY CONDITION OF CIRCUIT BREAKER TO ENSURE THAT IT IS OPERATIONAL AND MEETS ALL U.L. RATINGS.
- (10) EXISTING CIRCUIT TO REMAIN.
- (11) PROVIDE HANDLE LOCK OFF DEVICE TO LOCK
 "SPARE" CIRCUIT BREAKER IN THE "OFF" POSITION.
 IF CIRCUIT BREAKER IS IDENTIFIED AS "EXISTING",
 FIELD VERIFY CIRCUIT BREAKER INDICATED IS NOT
 CONNECTED TO ANY LOAD AND UPDATE
 PANELBOARD CIRCUIT DIRECTORY IDENTIFYING
 CIRCUIT AS "SPARE".
- (12) TRACE EXISTING CIRCUIT, IDENTIFY LOAD AND PROVIDE COMPLETE TYPEWRITTEN PANELBOARD IDENTIFICATION SCHEDULE AND PLACE ON INTERIOR OF PANELBOARD DOOR. IF CIRCUIT IS A "SPARE" THEN REFER TO PANELBOARD NOTE (11).
- MULTIWIRE BRANCH CIRCUIT.
- (14) REFER TO ONE-LINE DIAGRAM FOR WIRE SIZES.

(13) PROVIDE LISTED HANDLE TIE AS INDICATED FOR

- (15) ROUTE CIRCUIT THROUGH LUBE PIT CONTROL RELAY.
- (N) NEW

ALL SWITCHBOARDS AND PANELBOARDS SHALL HAVE A COMMERCIALLY PRODUCED PERMANENT LABEL APPLIED TO WARN OF POTENTIAL ARC FLASH HAZARDS, IN ACCORDANCE WITH NEC 110.16 AND NFPA 70E. LABELING MAY BE COMPLETED BY EQUIPMENT MANUFACTURER, EQUIPMENT VENDOR/SUPPLIER, OR THE CONTRACTOR. THE CONTRACTOR SHALL VERIFY THAT ALL SWITCHBOARDS AND PANELBOARDS ARE PROPERLY LABELED IN THE FIELD.

EXISTING CIRCUITRY IS BASED ON ORIGINAL BUILDING PLANS. IF EXISTING CIRCUITS TO REMAIN ARE NOT AS SHOWN ON THE PANELBOARD SCHEDULES, ARRANGE NEW CIRCUITS BASED UPON PRESENT LOCATION OF EXISTING CIRCUITS TO REMAIN SHOWN IN LOWERCASE.

EACH SUBCONTRACTOR IS RESPONSIBLE FOR HAVING A

SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO ACQUAINT HIMSELF WITH THIS KNOWLEDGE DOES NOT

RELIEVE THE RESPONSIBILITY OF PERFORMING HIS WORK PROPERLY. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED BECAUSE OF CONDITIONS THAT OCCUR DUE TO FAILURE TO FAMILIARIZE WORKERS WITH THIS

THOROUGH KNOWLEDGE OF ALL DRAWINGS AND

KNOWLEDGE.

EC SHALL MATCH TYPE AND AIC RATINGS OF EXISTING CIRCUIT BREAKERS AND MAINTAIN SERIES RATING OF BREAKERS.



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STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON A
SPECIFIC SITE AT MARSHALL, MI
CONTREMPORANEOUSLY WITH ITS ISSUE DATE ON
95/05/21, AND IT IS NOT'S UITABLE FOR USE ON A
DIFFERENT PROJECT SITE OR AT A LATER TIME. USE CI
THIS DRAWING FOR RETERENEOR OF EXAMINE ON
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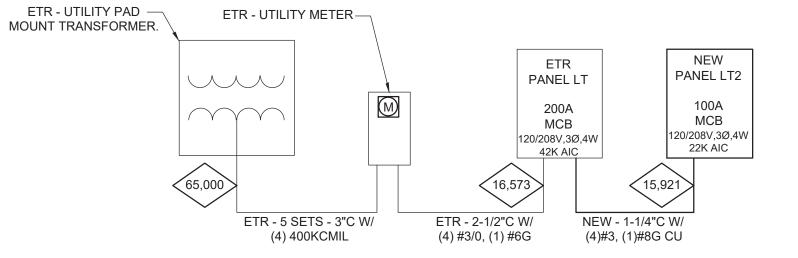
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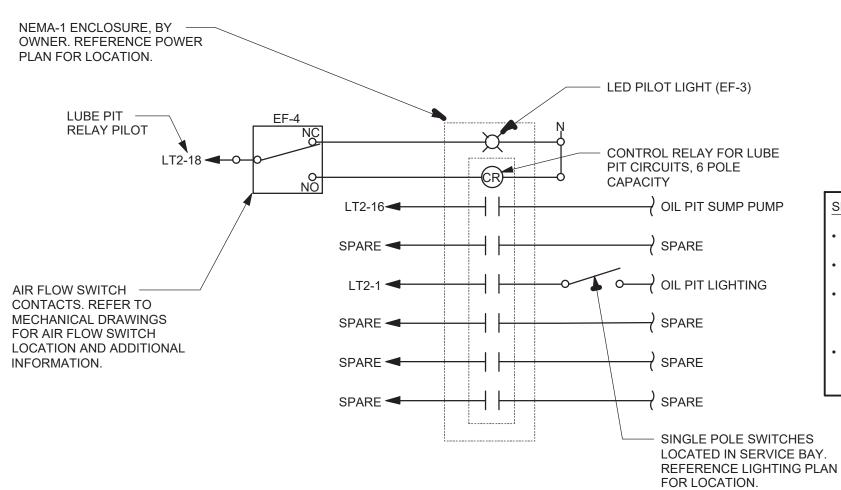


SCHEDULES & NOTES

YE2







LUBE PIT CONTROL RELAY DETAIL

SEQUENCE OF OPERATIONS:
ROUTE OIL PIT LIGHTING AND POWER CIRCUITS THROUGH LUBE PIT CONTROL RELAY.
CONTROL RELAY SHALL BE CONNECTED TO THE AIR FLOW SWITCH CONTACT.
IN THE EVENT THAT THE OIL PIT EXHAUST FAN MALFUNCTIONS, THE LED PILOT LIGHT WILL ILLUMINATE TO SHOW THAT THE EXHAUST FAN HAS MALFUNCTIONED.
IF THE EXHAUST FAN MALFUNCTIONS THE CONTROL RELAY WILL TERMINATE POWER TO THE LUBE PIT.



SECTION VIEW

PIT

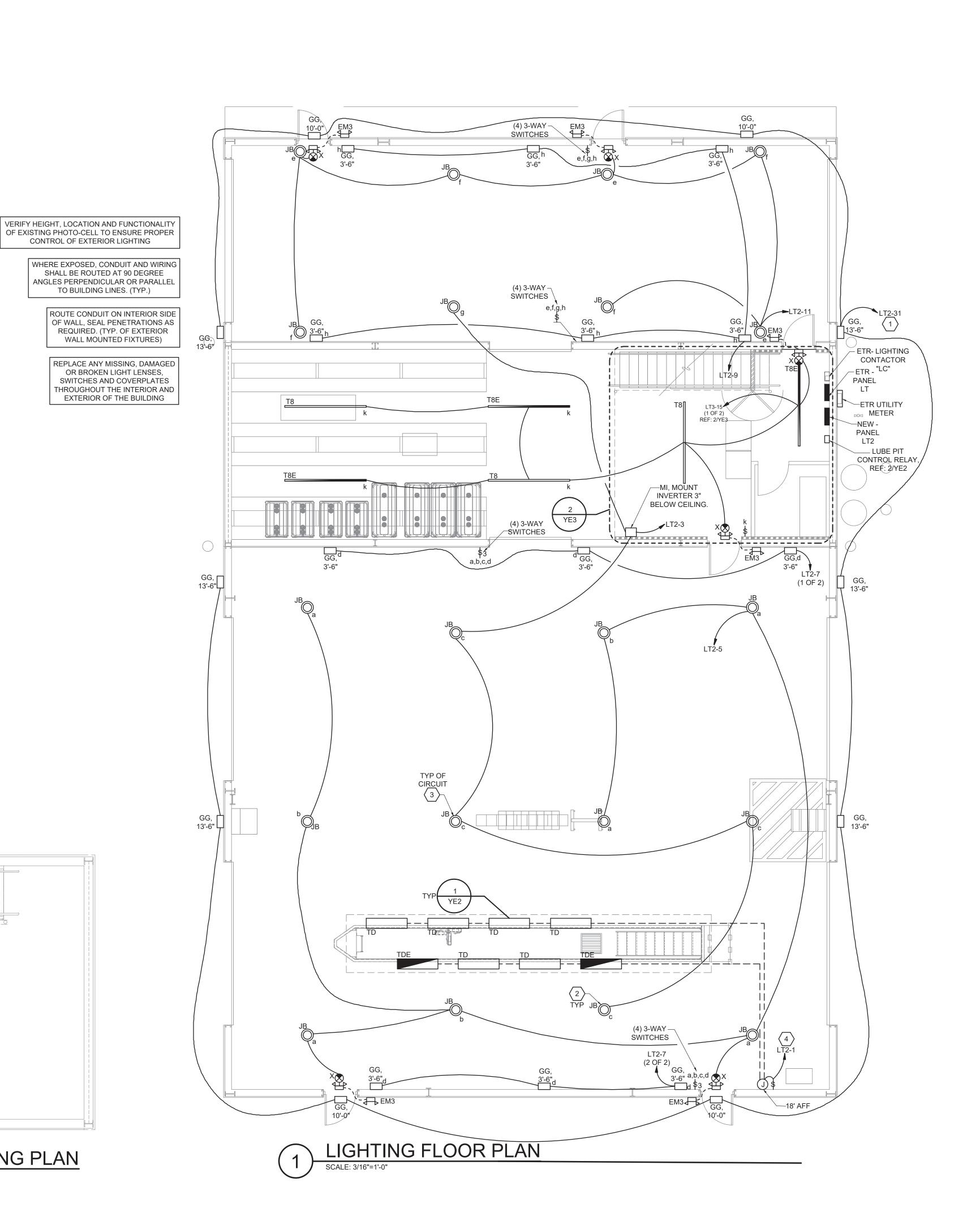
ROUTE CONDUIT AS FAR

BACK IN LIGHT COVE AS

POSSIBLE AND TERMINATE AT

ENDS OF FIXTURES

LIGHT COVE



LIGHTING NOTES

- 1. EXIT SIGN MOUNTING
- A. WALL FIXTURE: CENTER 12" ABOVE DOOR OPENING.
- B. CEILING/PENDANT FIXTURE: ON CEILING OR AT
- HEIGHT SPECIFIED ON DRAWINGS.

 C. THE USE OF TRITIUM BASED RADIOACTIVE EXIT
- SIGNAGE SHALL NOT BE ALLOWED.

 EMERGENCY LIGHT INSTALLATION FIXTURE MOUNTING
- A. WALL FIXTURE: 12" BELOW FINISHED CEILING OR +10'-0" IN AREAS OF EXPOSED STRUCTURE
- UNLESS NOTED OTHERWISE.

 B. PENDANT FIXTURE: BOTTOM CHORD OF

STRUCTURE OR AT HEIGHT SPECIFIED ON

- C. REMOTE HEAD FIXTURE: HEADS CENTERED ABOVE DOOR OPENING +9'-0" UNLESS NOTED OTHERWISE.
- ELECTRICAL CONNECTION

DRAWINGS.

- A. REFER TO MANUFACTURER'S WRITTEN INSTRUCTIONS. ALLOW BATTERY TO CHARGE CONTINUOUSLY FOR A MINIMUM OF 168 HOURS BEFORE INITIAL TESTING.
- B. AFTER EMERGENCY LIGHT HAS BEEN POWERED, DO NOT TURN OFF FOR EXTENDED PERIODS OF TIME
- 3. EXIT SIGNS AND EMERGENCY LIGHTS SHALL BE FED FROM THE SAME BRANCH CIRCUIT AS THAT SERVING THE NORMAL LIGHTING IN THAT AREA AND CONNECTED AHEAD OF ANY LOCAL SWITCHES OR TIME CLOCKS.

. EMERGENCY EXIT ILLUMINATION SHALL BE SUPPLIED

FROM STORAGE BATTERY THAT IS TO PROVIDE 90
MINUTES OF CONTINUED ILLUMINATION IN CASE OF
PRIMARY POWER LOSS.

5. PROVIDE SEPARATE BOXES FOR GANGED SWITCHES

6. CONTRACTOR SHALL BE RESPONSIBLE FOR

- ON SEPARATE BRANCH CIRCUITS.
- ASSURING THAT ALL NEW LIGHT FIXTURES WORK PROPERLY. REPORT DEFECTIVE OR DAMAGED COMPONENTS TO OWNER.

 CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS TO MAINTAIN REPANCH CIRCUITS TO
- MATERIALS TO MAINTAIN BRANCH CIRCUITS TO EXISTING LIGHT FIXTURES THAT ARE TO REMAIN. WHERE EXISTING CIRCUITS ARE ROUTED IN AREAS BEING DEMOLISHED, RE-ROUTE IN NEW CONSTRUCTION AND RECONNECT.
- CONTRACTOR SHALL FURNISH AND INSTALL UNISTRUT AS REQUIRED TO MOUNT FIXTURES TO STRUCTURAL MEMBERS.
- O. CONDUIT AND WIRING IN AREAS WHERE EXPOSED SHALL BE ROUTED AT 90 DEGREE ANGLES PERPENDICULAR OR PARALLEL TO BUILDING LINES.

X KEYNOTES

- ROUTE CIRCUIT THROUGH EXISTING LIGHTING CONTACTOR.
- MOUNT TO BOTTOM OF STRUCTURE. PROVIDE UNISTRUT AND ALL ALL NECESSARY HARDWARE TO ATTACH LIGHTS AS NEEDED.
- ROUTE CIRCUIT THROUGH MINI-INVERTER LOCATED IN BELOW MEZZANINE. E.C. SHALL PROVIDE ALL WIRING REQUIRED FOR DIMMING BETWEEN LIGHT FIXTURES AND INVERTER.
- 4. ROUTE CIRCUIT THROUGH LUBE PIT CONTROL RELAY. REFERENCE LUBE PIT CONTROL RELAY DETAIL FOR ADDITIONAL INFORMATION.



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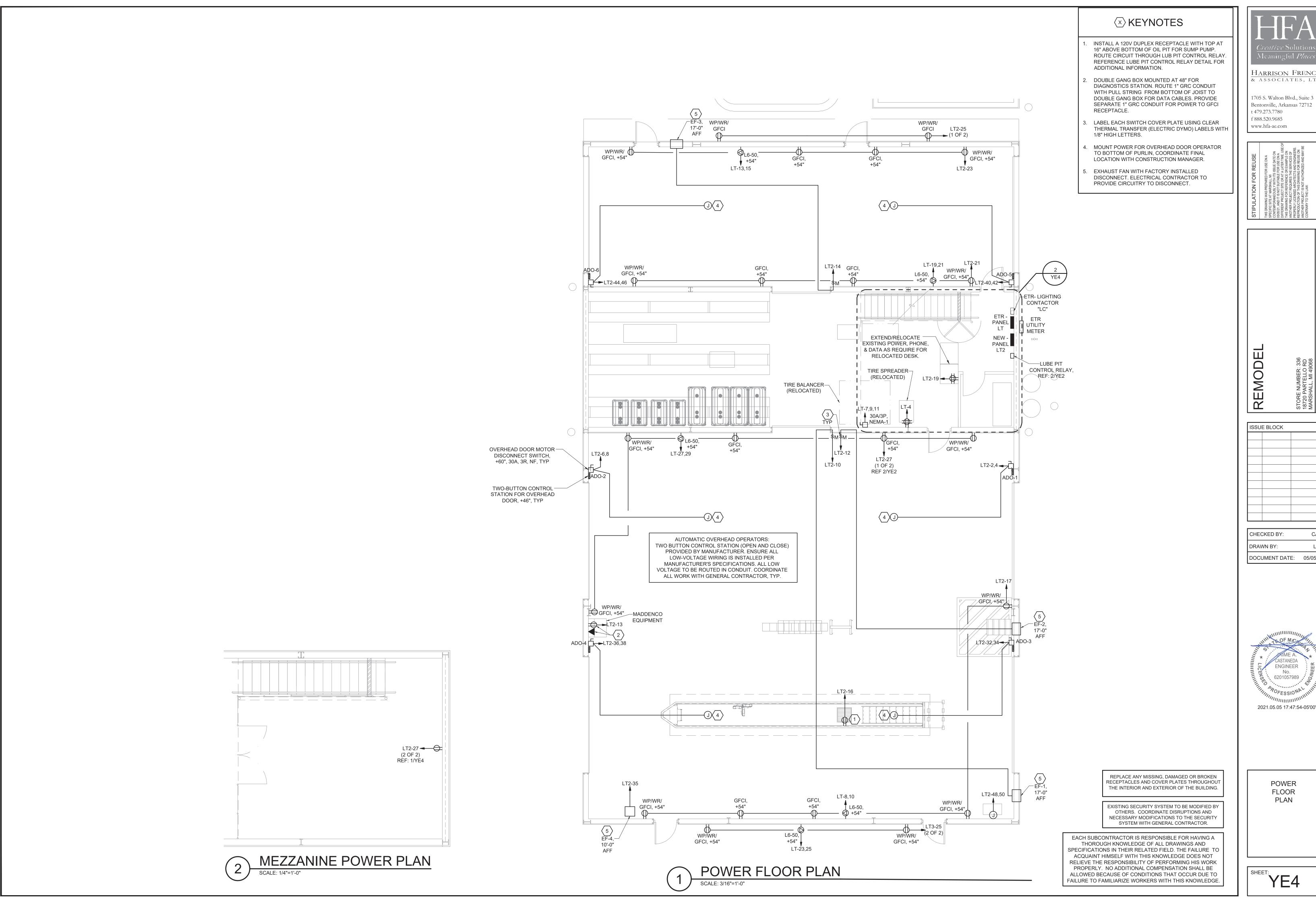
LIGHTING FLOOR PLAN

YE3

(2 OF 2) REF: 1/YE3

MEZZANINE LIGHTING PLAN

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



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FOR ADDITIONAL
INFORMATION SITE PLAN

SCALE: 1" = 70'-0"

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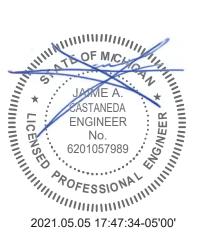
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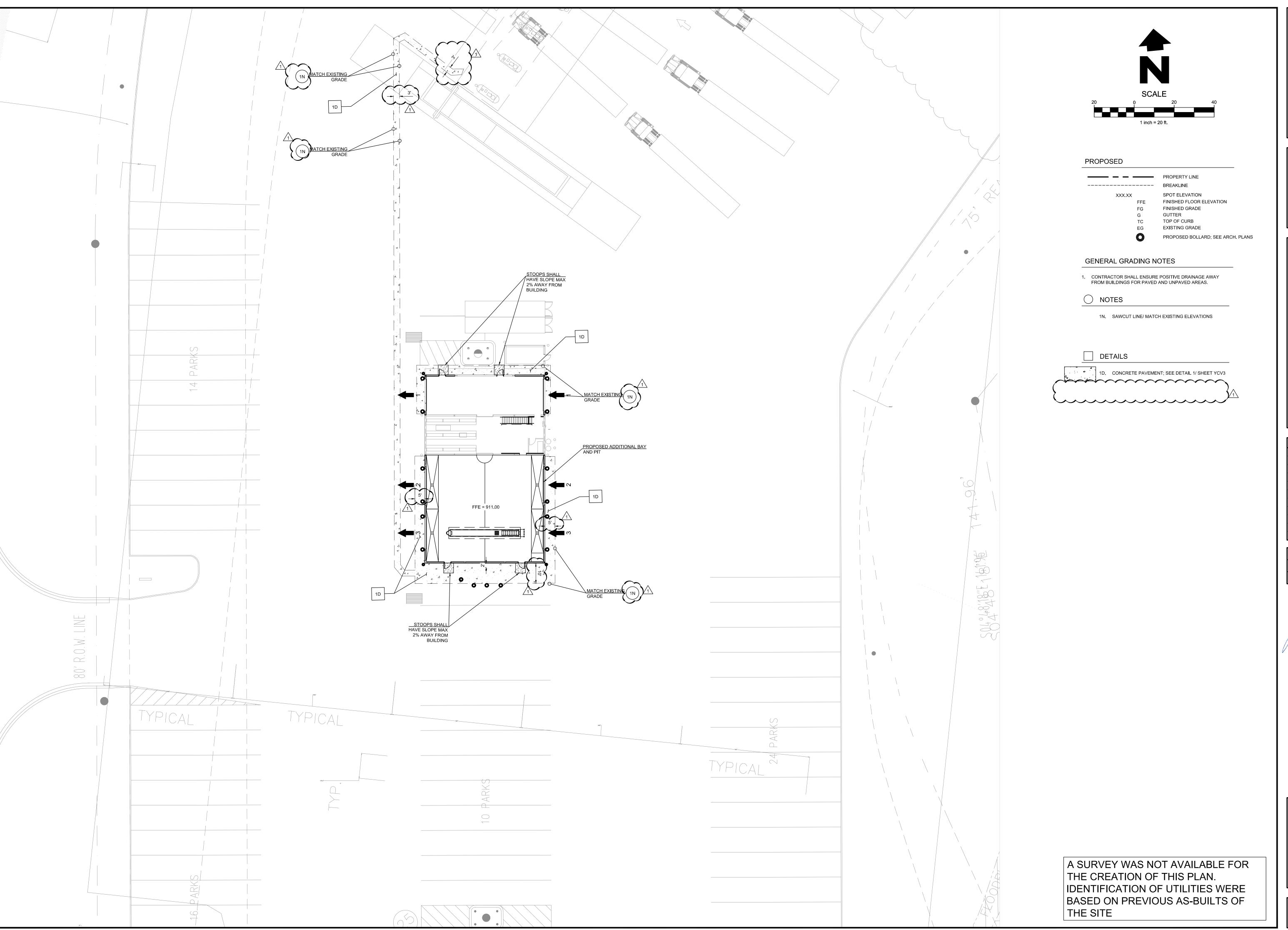
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SITE POWER PLAN

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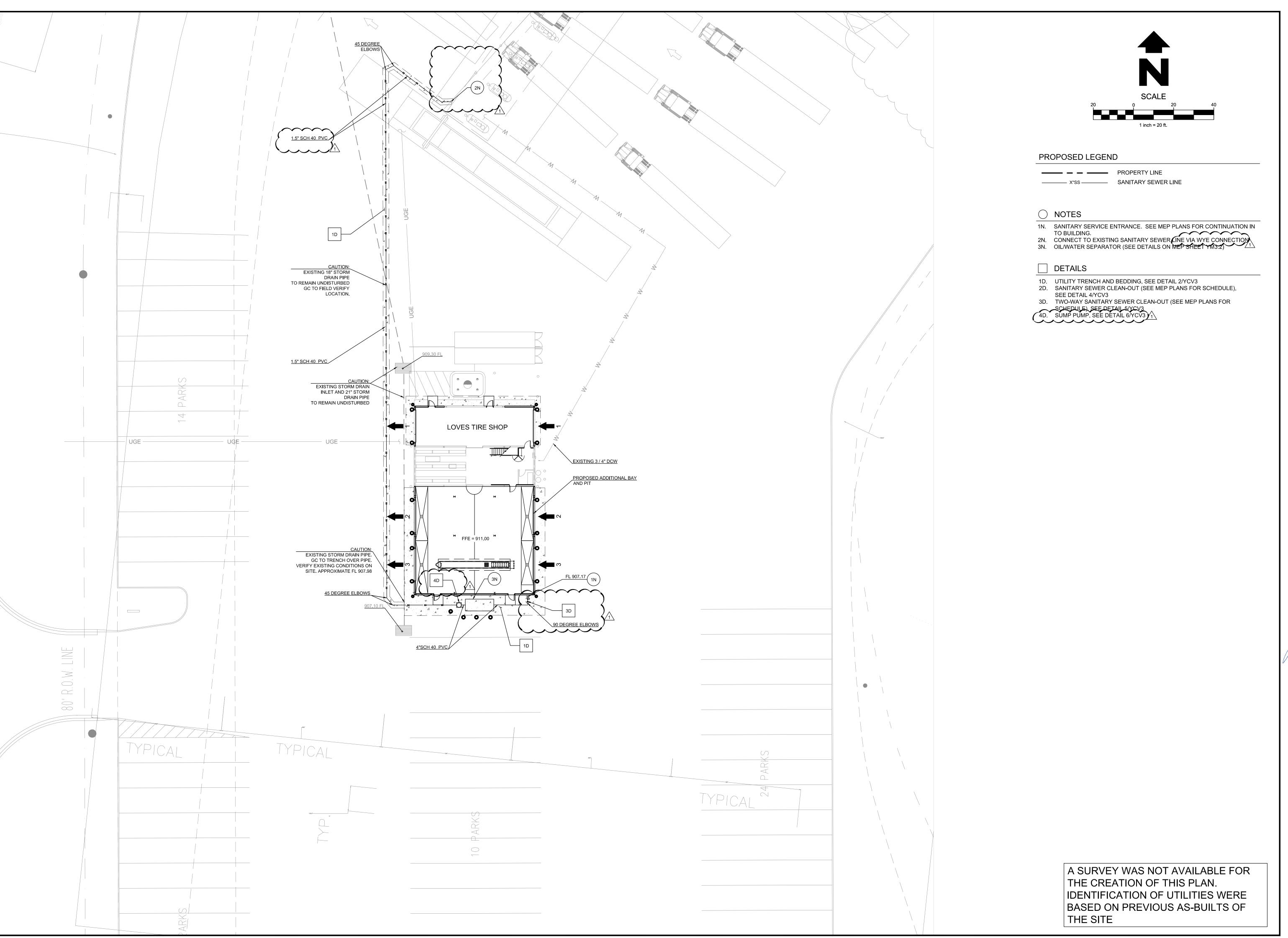
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GRADING PLAN

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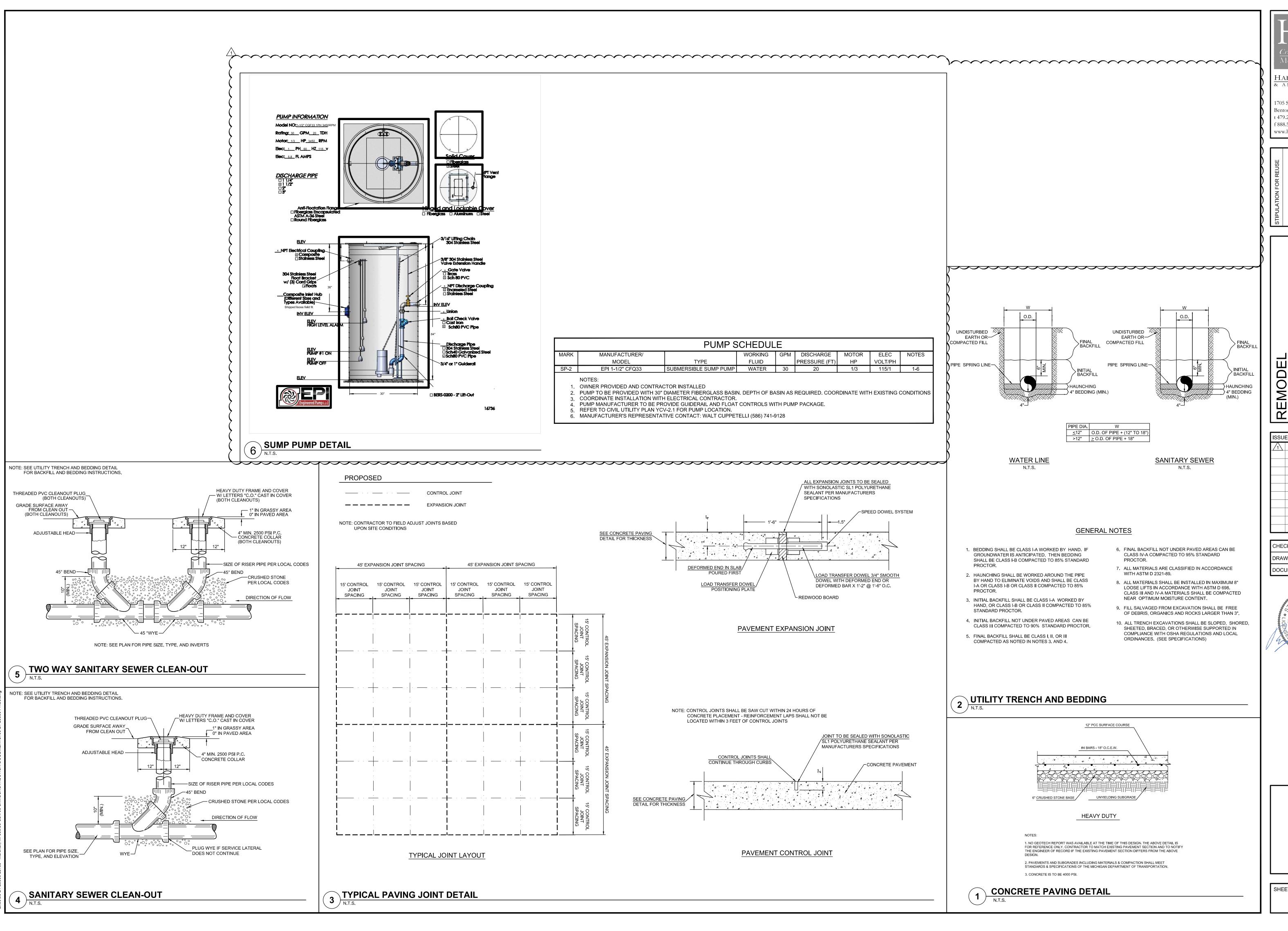
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UTILITY PLAN

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DETAIL SHEET

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