

VICINITY MAP NOT TO SCALE	GENERAL NOTES	DRAWIN	G SYMBOLS
SITE		ENTRY	ROOM NAME
ES Landre Contraction Participation of the second sec		101	ROOM NUMBER
North Dr. North Dr. Control of the second seco		D1	DOOR MARK
Sector Se		D	WINDOW MARK
All and a second se		3	DRAWING NOTE
		A	COLUMN LINE MARK
Google			DATUM MARK
		$\boxed{3}$	REVISION NUMBER CLOUD AT LAST REV. ONLY

SITE AND ROOF MEP PLAN

PLUMBING WASTE PLAN

PLUMBING DETAILS

PLUMBING DETAILS

MECHANICAL DETAILS

MECHANICAL/ELECTRICAL ROOF PLAN

MECHANICAL PLAN MECHANICAL SCHEDULES AND DETAILS

LIGHTING PLAN ELECTRICAL PLAN ELECTRICAL RISER AND SCHEDULES

PLUMBING WATER SUPPLY PLAN

PLUMBING RISERS AND DETAILS

PLUMBING RISERS AND DETAILS

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## **CODE INFORMATION**

1.0 APPLICABLE CODES	
BUILDING CODE	2021 INTERNATIONAL BUILDING CODE (IBC) & ICC
FIRE CODE	2021 INTERNATIONAL FIRE CODE (IFC)
ELECTRICAL CODE	2020 NATIONAL ELECTRICAL CODE (NEC)
MECHANICAL CODE	2021 INTERNATIONAL MECHANICAL CODE (IMC)
PLUMBING CODE	2021 INTERNATIONAL PLUMBING CODE (IPC)
FUEL GAS CODE	2021 INTERNATIONAL FUEL GAS CODE (IFGC)
ENERGY CODE	2021 INTERNATIONAL ENERGY CONSERVATION CODE (IEC)
LIFE SAFETY CODE	2012
ACCESSIBILITY CODE	TAS 2012

MEP

ME1.1

ME1.2

P1.1

P1.2 P2.1 P2.2 P3.1 P3.2 M1.1 M2.1

M3.1 E1.1

E2.1 E3.1

## SUBMITTALS:

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The FOLLOWING SUBMITTALS AS A MINIMUM ARE TO BE SUBMITTED TIMEOUSLY:

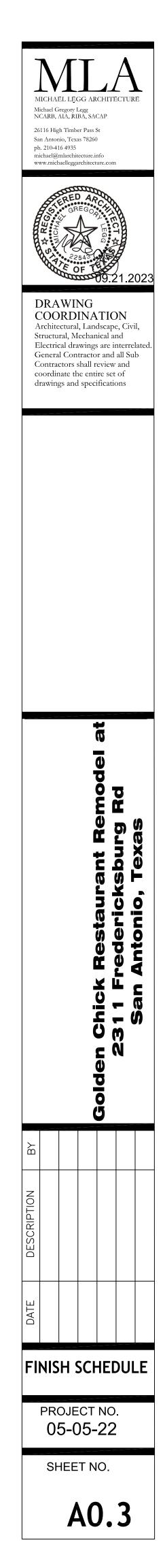
- 1. PLUMBING FIXTURES
- 2. ELECTRICAL PANELS 3. LIGHT FIXTURES
- 4. DOORS AND HARDWARE
- 5. RESTROOM ACCESSORIES 6. FRP, TILE AND LAMINATE SAMPLES
- 7. STONE AND MORTAR SAMPLES
- 8. MILLWORK 9. ACOUSTIC CEILING TILES

CONTRACTOR TO REVIEW AND STAMP AS HAVING BEEN REVIEWED AND IN COMPLIANCE WITH SPECIFICATIONS. SUBMITTALS WILL BE RETURNED WITHOUT THE REVIEW STAMP AND SIGNATURE FROM THE GENERAL CONTRACTOR. PROVIDE AND EMAIL TO THE ARCHITECT ALL ITEMS, ITEMS 2,3,4,TO THE MEP ENGINEER AND ITEM 1 TO THE STRUCTURAL ENGINEER.

- MARK
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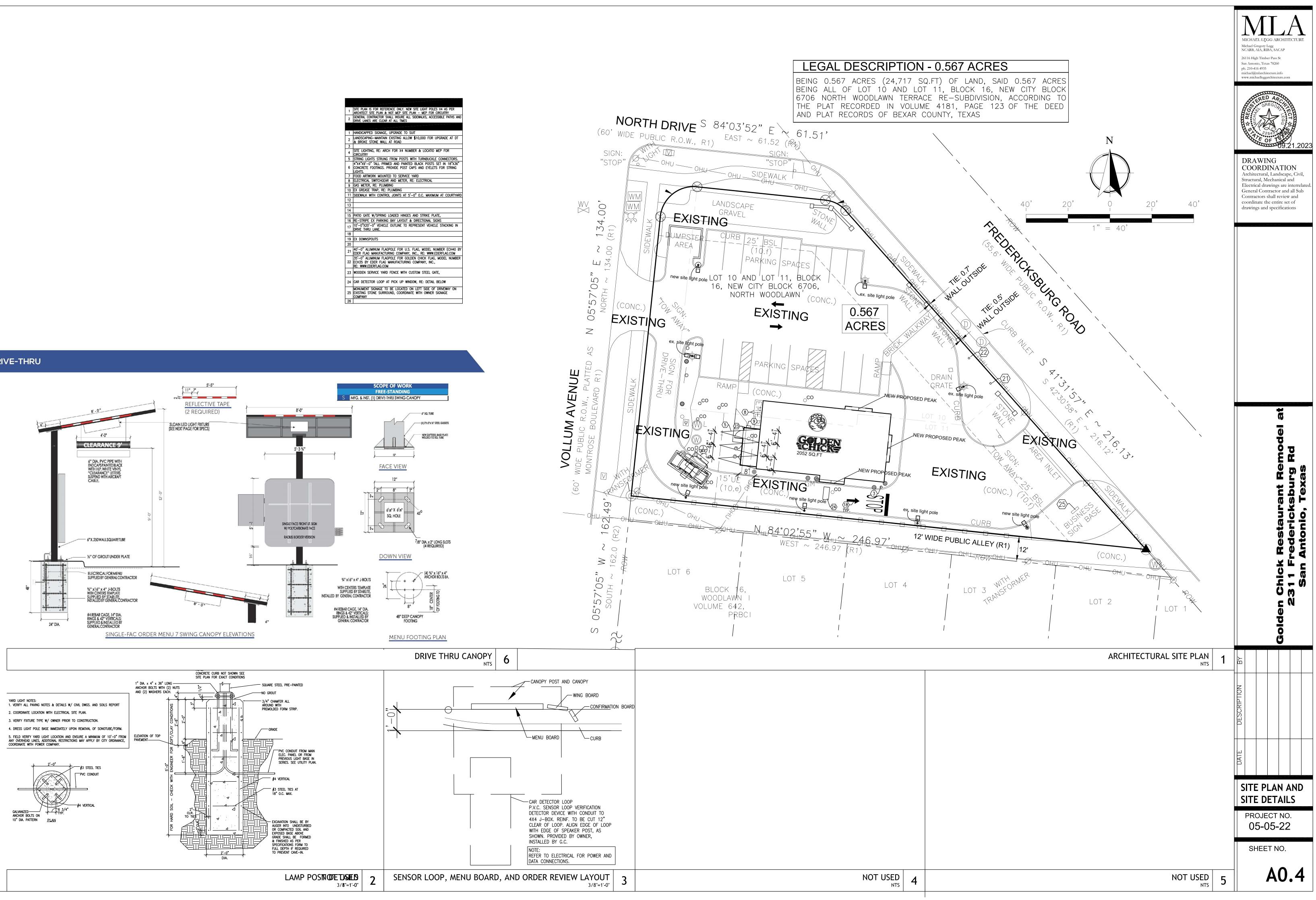
							MICHAEL LEGG Michael Gregory Leg NCARB, AIA, RIBA, 26116 High Timber P San Antonio, Texas 7 ph. 210-416 4935 michael@mlarchitect www.michaelleggarch	g , SACAP Pass St 78260 ture.info nitecture.com
							Electrical drawi General Contra Contractors sha coordinate the e drawings and sp	ings are interre actor and all Su all review and entire set of
PROJECT DATA								
STORIES BUILDING   ONE STORY RESTAURANT LEASE SPACE   SITE DESCRIPTION A	ABBREV	FLOOR AREA CONSTR. <sup>-</sup> 2052 SQ.FT TYPE VB	TYPE SI	PRINKLER SYSTEM OCCUPA A 45	NCY		_	emodel a g Rd
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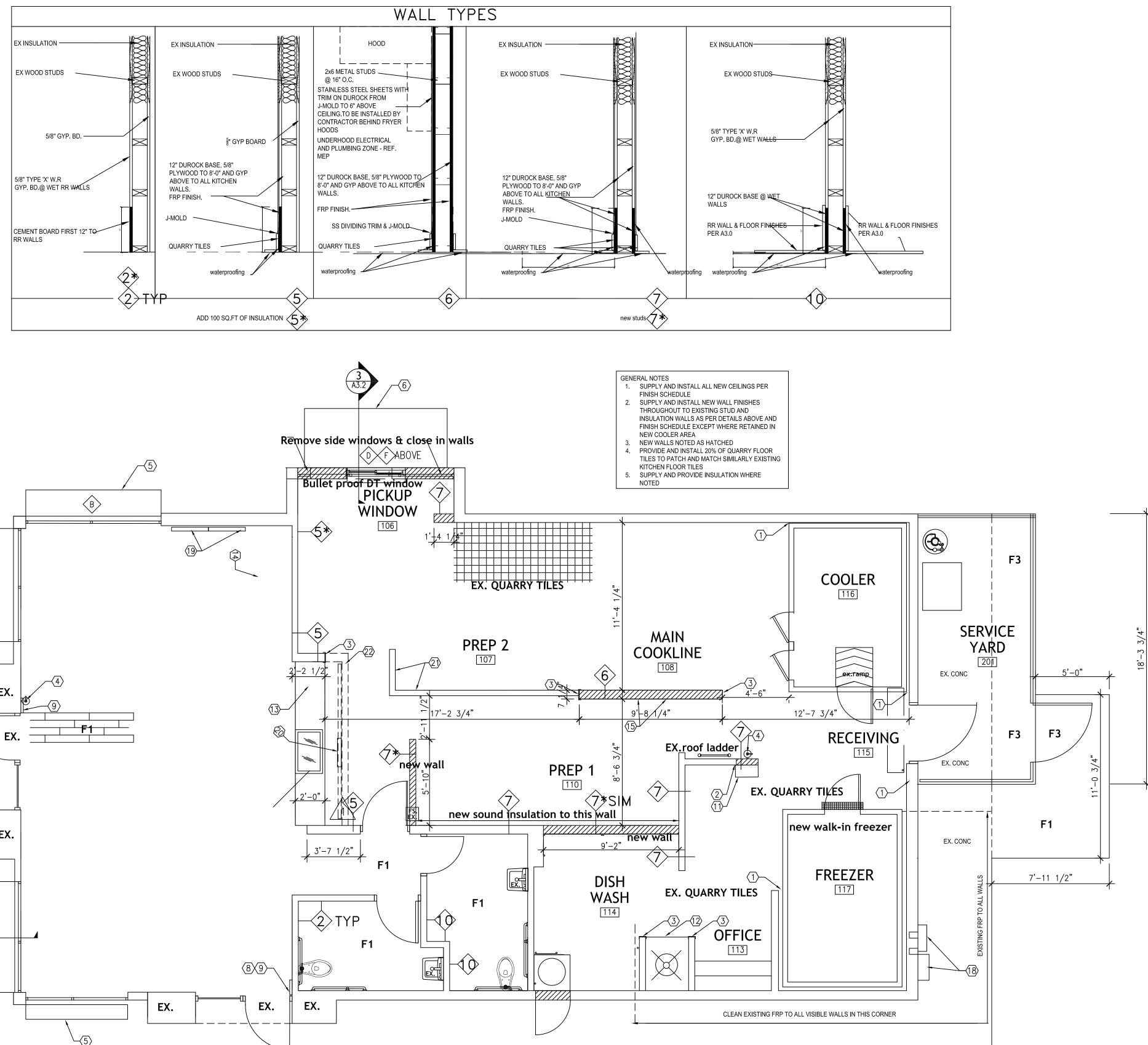
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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	TAG	MATERIAL	MANUFACTURER	MODEL NO.	COLOR			CONTACT	LOCATION
From Normality of the state         Normality of the s	P-1		PPG	3000/01				985-789-6003	FRONT OF HOUSE CEILING HVAC
No.         NUMBER VALL         TO         NUMBER VALL	P-2		VALSPAR	N/A		N/A			RESTROOM DOORS
P       R box (NI       C by (NI <thc (ni<="" by="" th=""> <thc (ni<="" by="" th="">       C by (</thc></thc>	P-3		PPG	N/A		SEMI-GLOSS		985-789-6003 JIM.MONTOUR@PPG.COM	DOOR FRAMES AND 1X4 WOOD TRIM
In Solution         Hubble Path Solution         Pack Path So	P-4	INTERIOR PAINT – GC BEIGE	PPG	N/A	GC BEIGE	SATIN		985-789-6003	LOBBY WALLS
1.5         IN LECK (154)         C. Left alls         V/A         C. Left alls         VAL         Same         Ball All All All All All All All All All	P-5	INTERIOR PAINT – GC YELLOW	PPG	N/A	GC YELLOW	SATIN		985-789-6003 JIM.MONTOUR@PPG.COM	RESTROOM CEILINGS
$L_{22}$ INTEGED From $L = 20 \times 100 \times 100$ (PIN)	P-6	INTERIOR PAINT – GC LIGHT BLUE	PPG	N/A	GC LIGHT BLUE	SATIN		985-789-6003 JIM.MONTOUR@PPG.COM	RESTROOMS, RE: RESTROOM ELEVATIONS
P-F         INTERCT PART - 20. NOV. RUL:         PRO         V/A         CO Desk But         SXTR         Product Part - 20. NOV. RUL:         Product Part - 20. NOV.	P-7	INTERIOR PAINT - GC MEDIUM BLUE	PPG	N/A		SATIN		985-789-6003	RESTROOMS, RE: RESTROOM ELEVATIONS
ACC-         CLINK C.S.OVL.         CRAIN VERTICAL STATUS         VERTICAL STATUS         ALL OLD CONTRACT AND ALL OL	P-8	INTERIOR PAINT – GC DARK BLUE	PPG	N/A	GC DARK BLUE	SATIN		985-789-6003	RESTROOMS, RE: RESTROOM ELEVATIONS
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No2         DUL REE CLEWRE ILLS         OWNER BY REAL ADDRESS STATE WITHELS COST STATE WITHELS COST STATE STATE WITHE WITHE WITHE WITH STATE STATE WITH STATE STATE WITH STATE WI	WC-1	CERAMIC STONE			RUBY	MATTE		CREATIVE MATERIALS CORP. P: 518-713-5395 APICHE@CREATIVEMATERIALS	RE: INTERIOR ELEVATIONS
RC         PORCLAIN III.1         CENTRY INTERVISE IN	WC-2	BULLNOSE CERAMIC TILES		2"X6" RUNNERS BOON & BEAMING		GLOSS		CREATIVE MATERIALS CORP. P: 518-713-5395 APICHE@CREATIVEMATERIALS	RE: INTERIOR ELEVATIONS
RC-4         P3BRG_ASS_REINFORCE_DAVLS         MAILE         F-00         WHT2         FEBLE         RCD TMM ADJ_TMM/SDL PRC         RE         RECAULT TAMAGE ADDRESS           CT-1         GRAVIE         OCTOMERAL         GRAVIE         BLOK TARCE         SERVICE         SERVICE <t< td=""><td>WC-3</td><td>PORCELAIN TILE</td><td></td><td>TILE: 6"x36"</td><td></td><td>N/A</td><td>PROVIDE A BLACK SCHLUTER QUADEC AT ALL</td><td>ALLISON PICHE WITH CREATIVE MATERIALS CORP. P: 518-713-5395 APICHE@CREATIVEMATERIALS</td><td>RE: INTERIOR ELEVATIONS</td></t<>	WC-3	PORCELAIN TILE		TILE: 6"x36"		N/A	PROVIDE A BLACK SCHLUTER QUADEC AT ALL	ALLISON PICHE WITH CREATIVE MATERIALS CORP. P: 518-713-5395 APICHE@CREATIVEMATERIALS	RE: INTERIOR ELEVATIONS
CT-1         CONNECT         OF CRUTHAL         CONTRACT         CONTRACT         CONTRACT         CONTRACT         STREAD         MATE         STREAD         STREAD <t< td=""><td>WC-4</td><td>FIBERGLASS REINFORCED PANELS</td><td>MARLITE</td><td>P-100</td><td>WHITE</td><td>PEBBLE</td><td></td><td></td><td>RE: INTERIOR ELEVATIONS</td></t<>	WC-4	FIBERGLASS REINFORCED PANELS	MARLITE	P-100	WHITE	PEBBLE			RE: INTERIOR ELEVATIONS
C = 1         GRAMIE         CONTRACE         STATE         EUX-MADE         MAILE         MAILE         EUX-MADE         MAILE         MAILE         MAILE			BY GENERAL	2CM LEATHERED			PS I		SERVICE LINE AND
C - 1         SULT OF SUM ALL         SULT OF SUM ALL         SULT OF SUM ALL         MARKAGE SULTS           C - 1         SULT OF SUM ALL         SULT OF SUM ALL         CELING FILS         N         CELING FILS         N           C - 1         SUCT OF SUM ALL         THE FIFCARY GELING FILS         THE SUM OF SUM ALL         THE SUM OF SUM O			CONTRATOR	GRANITE		MATTE			BEVERAGE STATION
C-1         DECREATIVE VINTL CELLING TILE AND GRUD         THE: 24*X24* VENICE CELING GRUD         THE: 24*X24* VENICE CELING GRUD         THE: 24*X24* VENICE CELING GRUD         THE: 24*X24* VENICE CELING ADD ADD ADD ADD ADD ADD ADD ADD ADD ADD	CI-2	SOLID SURFACE		SANDED			,		WINDOW SILLS
C -1         DECORATE VINU, CELLING TLE ADD CRUD, CRUD, TLE ADD CRUD, CRUD, TLE ADD CRUD, CRUD, TLE ADD CRUD, CRUD, TLE ADD CRUD, TRUD, TLE ADD ADD TRUD, TLE ADD CRUD, TRUD, TR									
C-2         CYP BOARD FINISH         BY CONTRACTOR         N/A         PESTROMS, PE: R05           c-3         VINYL CLAD CELING TILE AND GRD         TILE: USG ARD/STRONG         TILE: USG VINYL CRD: PRILUE XX         TILE: WHITE GRD: WHITE         N/A         N/A         BACK OF HOUSE AND DFRICE, PE: R05	C-1		CEILING TILES GRID:	VENICE CEILING TILE GRID: 24"X24" PRELUDE	COPPER GRID: BRONZE	N/A		SERVICE: SCOTT FISCHER 800-419-1130 UDECOR.COM	FRONT OF HOUSE, RE: RCP
C - 3         VIN_ CLAD CELING THE AND GRD         CLEAN ROOM ARVSTRONG         THE: WINTE WIN_ RRO: PRELIDE XL WINTE WINTE RRO: WINTE         N/A         BASE FINISH	C-2	GYP BOARD FINISH	BY CONTRACTOR	N/A	N/A	N/A		SCUTT@WISHIHADTHAT.COM	RESTROOMS, RE: RCP
BASE FINISH           D-1         COAL TRANSPORT SIDP         Saluaria	C-3	VINYL CLAD CEILING TILE AND GRID	GRID:	CLEAN ROOM VINYL GRID:		N/A			BACK OF HOUSE AND OFFICE, RE: RCP
8-2         Questring construction         Description         Description         Automatic construction         Automaticonstendition         Automatic construction <td>R_1</td> <td>COVE TRANSITION STRID</td> <td>Ссні Птер</td> <td></td> <td></td> <td></td> <td>БН Т</td> <td></td> <td>RESTROOM FLOOP TO WALL TRANSITIONS</td>	R_1	COVE TRANSITION STRID	Ссні Птер				БН Т		RESTROOM FLOOP TO WALL TRANSITIONS
F-1         CLEED PARCHANT TUES         CREATE MATERIALS         THE 6'SEC*         SAMAGERS GLD         N/A         THE PATTERN: STADLEED 12' HORZONGLY.         ALLSON PC I, BIT DESCRIE MEDIALS CORP.         FROM C PHOLES.         STADLE BUSINE MEDIALS CORP.         FROM C PHOLES.         FROM C PHOLES.         FROM C PHOLES.         FROM C PHOLES.         <						ANTI-SLIP RICE GRAIN	GROUT: LATICRETE #24 NATURAL GREY EPOXY GROUT	P: 518-713-5395	
Image: Contract of the second of the seco	F-1	GLAZED PORCELAIN TILES	CREATIVE MATERIALS	TII F: 6"x36"	SAUNDERS GOLD	<b>F</b>	TILE PATTERN: STAGGERED 12" HORIZONTALLY	ALLISON PICHE WITH CREATIVE MATERIALS CORP	FRONT OF HOUSE. RESTROOMS
Image: Construct of the state of the sta							GROUT: MAPEI #111 HICKORY	P: 518-713-5395 APICHE@CREATIVEMATERIALSCORP.COM ALLISON PICHE WITH CREATIVE MATERIALS CORP.	
Image: Note of the i	F-3	BRUSHED CONCRETE	BY GENERAL CONTRACTOR		N/A	,	N/A		SERVICE YARD
EF-3       BLACK GLAZED KING KLINKER       AGME BRICK AND TILE       9 5/8" X 2 1/4" X 9/16"       ONYX BLACK       GLAZED       BUT ENDS TOGETHER. PROVIDE PENCIL BULLINGSE TRM AT ALL OUTSIDE CORRERS. MORTARE: SAVANNAH NORY       LIUSTIN HAMILTON WITH AGUE BRICK. CELL: 817-454-0997       EXTERIOR FINISH, RE: DCTERIOR FLICATION WORTARE: SAVANNAH NORY       CELL: 817-454-0997       EXTERIOR FINISH, RE: DCTERIOR FLICATION BUT ENDS TOGETHER. PROVIDE INTERMEDIATE. SAVANNAH NORY       CELL: 817-454-0997       EXTERIOR FINISH, RE: DCTERIOR FLICATION BUT ENDS TOGETHER. PROVIDE INTERMEDIATE. MESH FOR ADDITIONAL IMPACT RESISTANCE AT ALL LOCATIONS BELOW 7"-0".       EXTERIOR FINISH, RE: DCTERIOR FLICATION BUT ENDS TO THERM CI CLASSIC       MARBLE WHITE       FINE       PROVIDE INTERMEDIATE MESH FOR ADDITIONAL IMPACT RESISTANCE AT ALL LOCATIONS BELOW 7"-0".       EXTERIOR FINISH, RE: DCTERIOR FLICATION BUT ENDS TO THERM CI CLASSIC       MARBLE WHITE       FINE       PROVIDE INTERMEDIATE MESH FOR ADDITIONAL IMPACT RESISTANCE AT ALL LOCATIONS BELOW 7"-0".       EXTERIOR FINISH, RE: DCTERIOR FLICATION BUT ENDS TO THERM CI CLASSIC       MARBLE WHITE       FINE       PROVIDE INTERMEDIATE MESH FOR ADDITIONAL IMPACT RESISTANCE AT ALL LOCATIONS BELOW 7"-0".       EXTERIOR FINISH, RE: DCTERIOR FINISH, RE: DCTERIOR FLICATION         EVEN       EXTERIOR FINISH       EXTERIOR FINISH, RE: DCTERIOR FINISH, RE: DC						EXTERIOR FINISHE	s		
EF-4       8" WIDE INTEGRAL COLOR EIFS BAND       STO       STO       STO THERM CI CLASSIC       MARBLE WHITE       FINE       PROVIDE INTERMEDIATE MESH FOR ADDITIONAL IMPACT RESISTANCE AT ALL LOCATIONS BELOW 7'-0".       EXTERIOR FINISH, RE: EXTERIOR ELEVATION         EF-4       8" WIDE INTEGRAL COLOR EIFS BAND       STO       STO THERM CI CLASSIC       MARBLE WHITE       FINE       PROVIDE INTERMEDIATE MESH FOR ADDITIONAL IMPACT RESISTANCE AT ALL LOCATIONS BELOW 7'-0".       EXTERIOR FINISH, RE: EXTERIOR ELEVATION         E								CELL: 214–388–1228 PEGGY@SPIDALLAS.COM	
Image: Second							MORTAR: SAVANNAH IVORY	CELL: 817-454-0997 JRHAMILTON@BRICK.COM	
EP-1       OIL BASED PAINT - PAPRIKA       EDDIE BAUER       EB27-1       PAPRIKA       SEMI-GLOSS       RECEIVING DOOR AND FRAME, CATES, LADDE DOWNSPOLTS, CONDUTS, PIPING, EXPOSED OF DOWNSPOLTS, CONDUTS, PIPING, EXPOSED OF DOWNSPOLTS, CONDUTS, PIPING, EXPOSED OF TINISHES         R-1       SINGLE PLY ROOFING MEMBRANE       DURO-LAST       50 MIL MEMBRANE       WHITE / TAN       RE: SPECIFICATIONS       ROOF AND PARPETS         R-2       PREFINISHED METAL PARAPET CAP       KYNAR       Construction of Contended Yellow       Construction of Contended Yellow       SSC SIGNS & LIGHTING - 1200 N. BELITUNE RD.       PARAPET CAPS AND SIGNAGE ELEMENTS	Lr -4	O WIDE INTEGRAL COLUK EIFS BAND	JU JU						EATENION TINISH, NE. EATERIUR ELEVATIONS
R-1       SINGLE PLY ROOFING MEMBRANE       DURO-LAST       50 MIL MEMBRANE       WHITE / TAN       RE: SPECIFICATIONS       COMMERCIAL ROOFING SYSTEM, RE: SPECIFICATIONS       Record And PARPETS         R-2       PREFINISHED METAL PARAPET CAP       KYNAR       (PREFINISHED YELLOW) GOLDEN CHICK YELLOW       (PREFINISHED YELLOW) GOLDEN CHICK YELLOW       For thick yellow       SSC SIGNS & LIGHTING - 1200 N. BELTLINE RD.       PARAPET CAPS AND SIGNAGE ELEMENTS	EP-1	OIL BASED PAINT - PAPRIKA	EDDIE BAUER	EB27-1	PAPRIKA				RECEIVING DOOR AND FRAME, GATES, LADDER, DOWNSPOUTS, CONDUITS, PIPING, EXPOSED CMU
R-2 PREFINISHED METAL PARAPET CAP KYNAR (PREFINISHED YELLOW) GOLDEN CHICK YELLOW 1200 N. BELTLINE RD.	₽_1				WILITE / TAN		COMMERCIAL RODEING SYSTEM DE SDECIEICATIONS		
					(PREFINISHED YELLOW)	NE. SECUEICATIONS	COMMENCIAL NOULING STATEM, RE: SPECIFICATIONS	1200 N. BELTLINE RD.	PARAPET CAPS AND SIGNAGE ELEMENTS

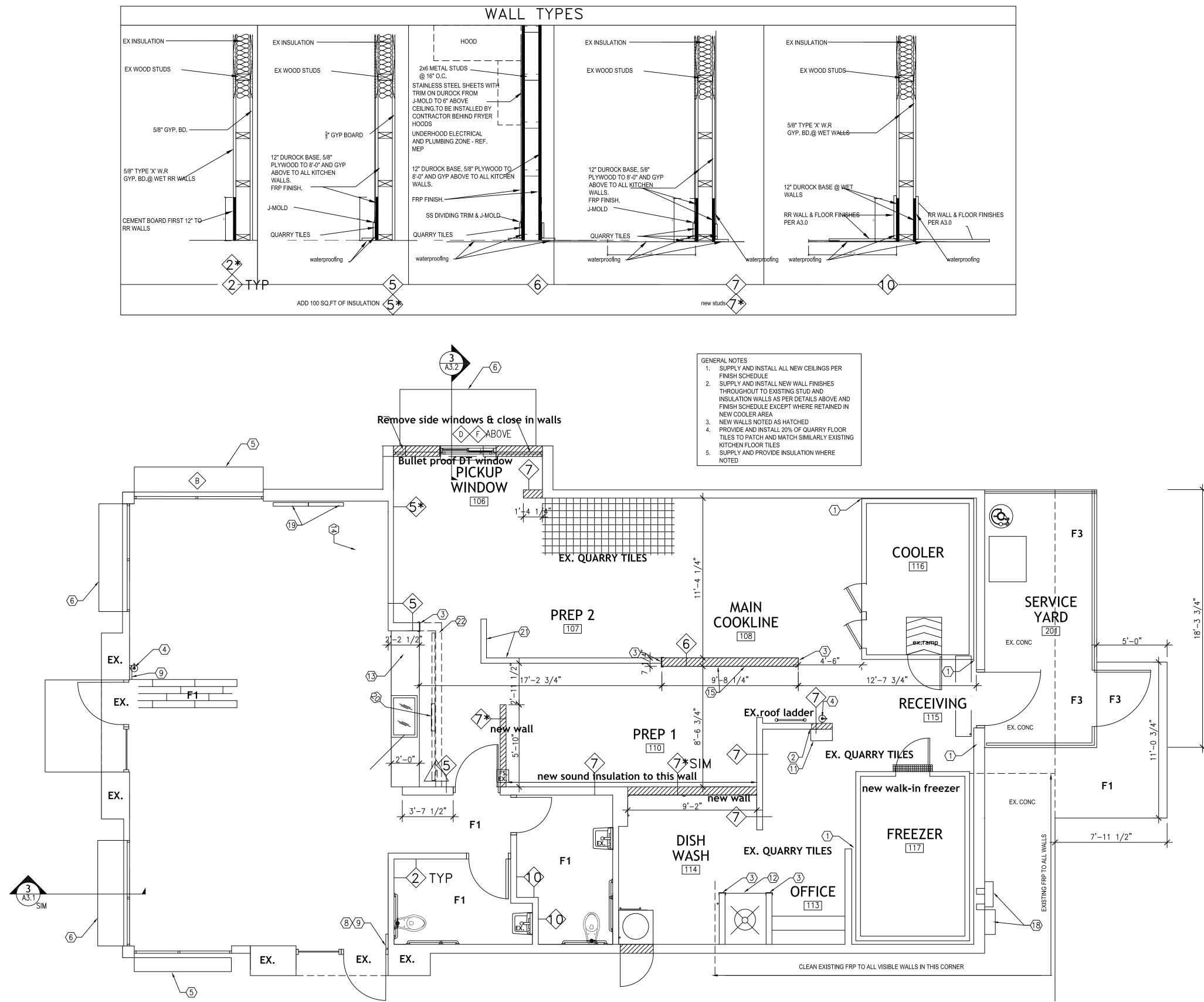


	SITE PLAN IS FOR REFERENCE ONLY. NEW SITE LIGHT PO
	ARCHITECT SITE PLAN & NOT MEP SITE PLAN - MEP FO
2	GENERAL CONTRACTOR SHALL INSURE ALL SIDEWALKS, AC DRIVE LANES ARE CLEAR AT ALL TIMES
I	HANDICAPPED SIGNAGE, UPGRADE TO SUIT
2	LANDSCAPING-MAINTAIN EXISTING ALLOW \$10,000 FOR & BROKE STONE WALL AT ROAD
3	
3  -	SITE LIGHTING, RE: ARCH FOR X4 NUMBER & LOCATI CIRCUITRY
5	STRING LIGHTS STRUNG FROM POSTS WITH TURNBUC
3	4"X4"X9"-0" TALL PRIMED AND PAINTED BLACK POST CONCRETE FOOTINGS. PROVIDE POST CAPS AND EYEL LIGHTS.
7	FOOD ARTWORK MOUNTED TO SERVICE YARD
3	ELECTRICAL SWITCHGEAR AND METER, RE: ELECTRICAL
)	GAS METER, RE: PLUMBING
0	EX GREASE TRAP, RE: PLUMBING
1	SIDEWALK WITH CONTROL JOINTS AT 5'-0" O.C. MAXI
2	
3	
4	
5	PATIO GATE W/SPRING LOADED HINGES AND STRIKE
6	RE-STRIPE EX PARKING BAY LAYOUT & DIRECTIONAL
7	10'-0"X20'-0" VEHICLE OUTLINE TO REPRESENT VEH DRIVE THRU LANE.
8	
9	ex downspouts
0	
1	40'-0" ALUMINUM FLAGPOLE FOR U.S. FLAG, MODEL EDER FLAG MANUFACTURING COMPANY, INC., RE: WW
2	35'-0" ALUMINUM FLAGPOLE FOR GOLDEN CHICK FL ECH35 BY EDER FLAG MANUFACTURING COMPANY, IN RE: WWW.EDERFLAG.COM
3	WOODEN SERVICE YARD FENCE WITH CUSTOM STEEL
4	CAR DETECTOR LOOP AT PICK UP WINDOW, RE: DETA
5	MONUMENT SIGNAGE TO BE LOCATED ON LEFT SIDE EXISTING STONE SURROUND, COORDINATE WITH OWNE COMPANY
6	

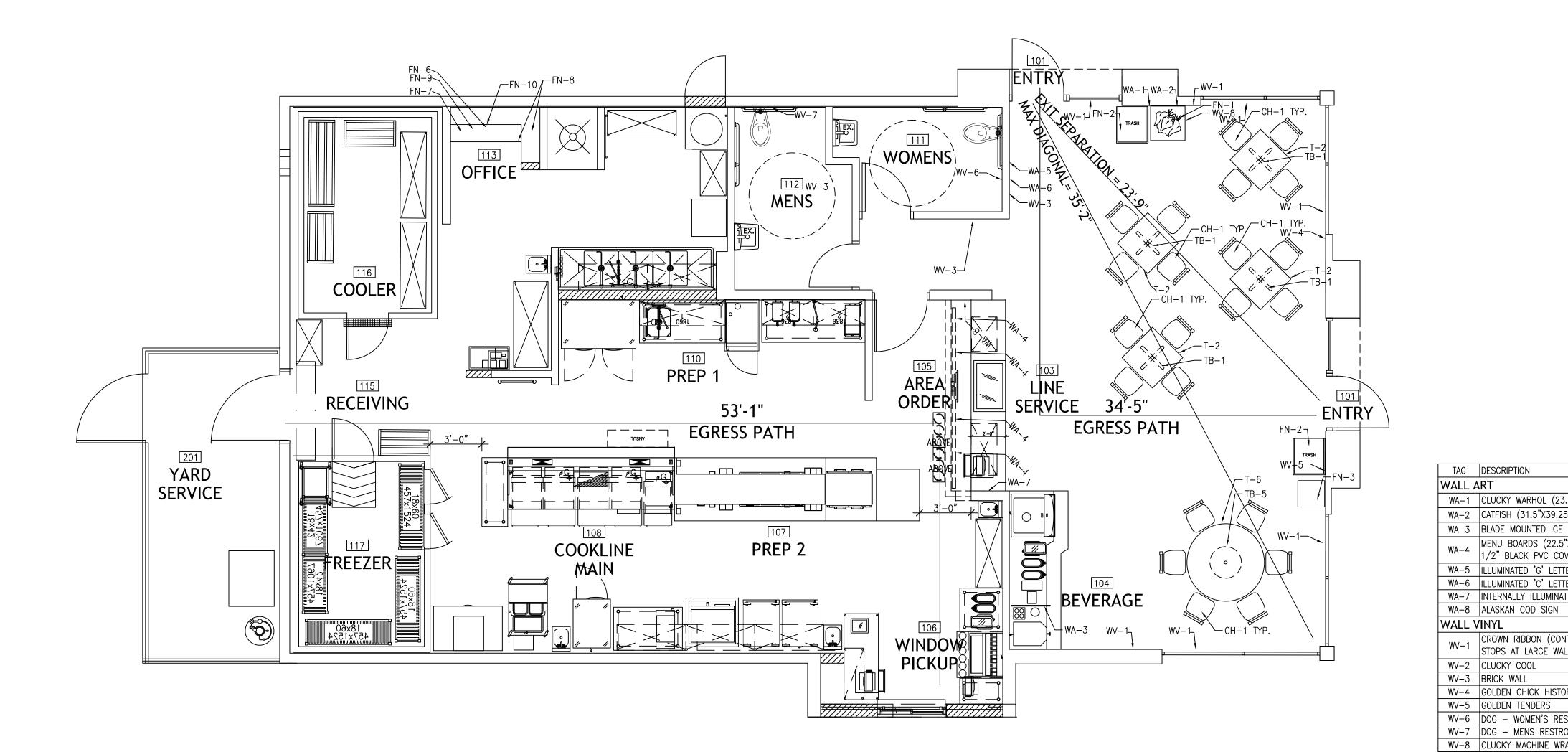
## DRIVE-THRU

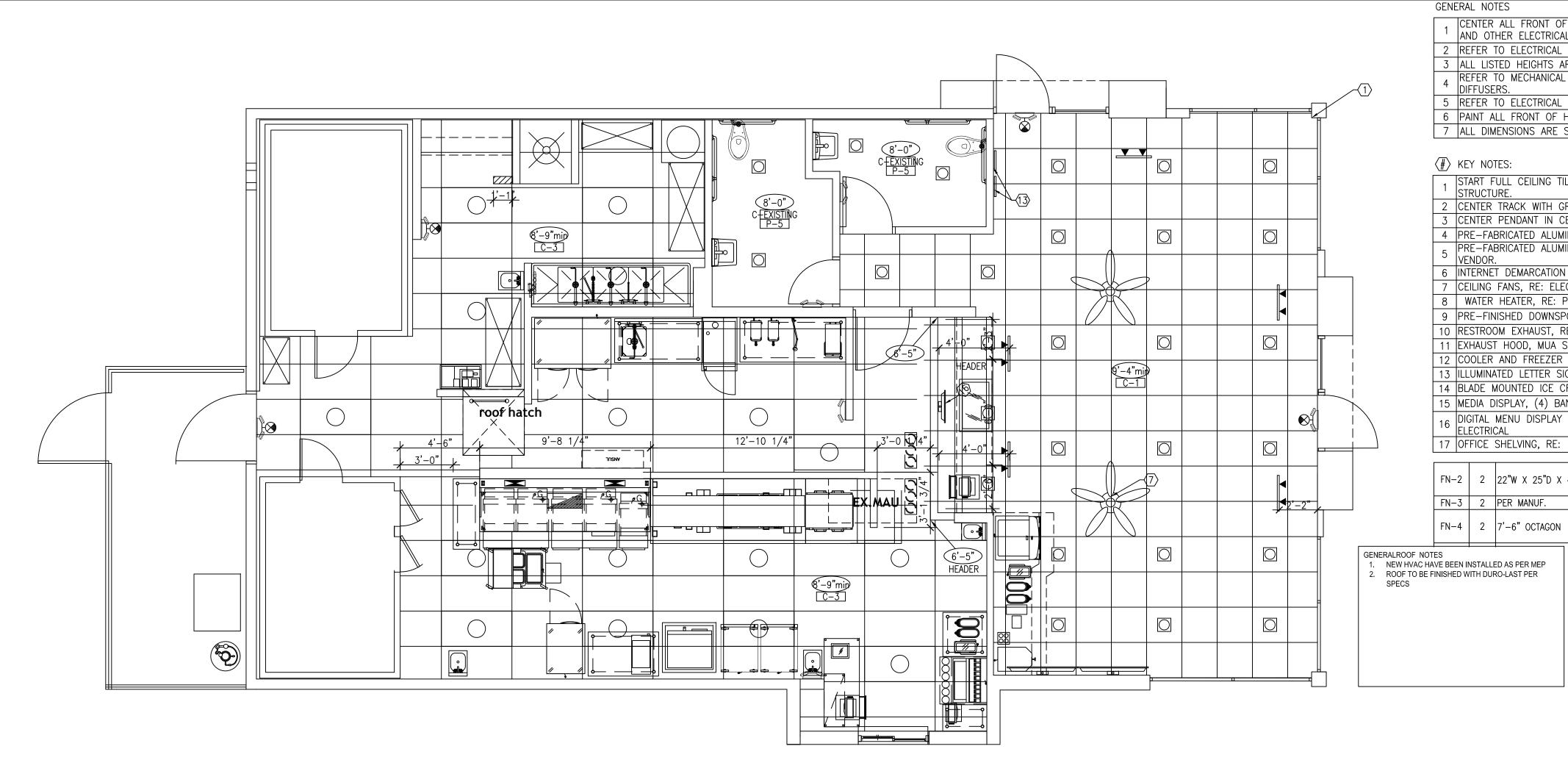




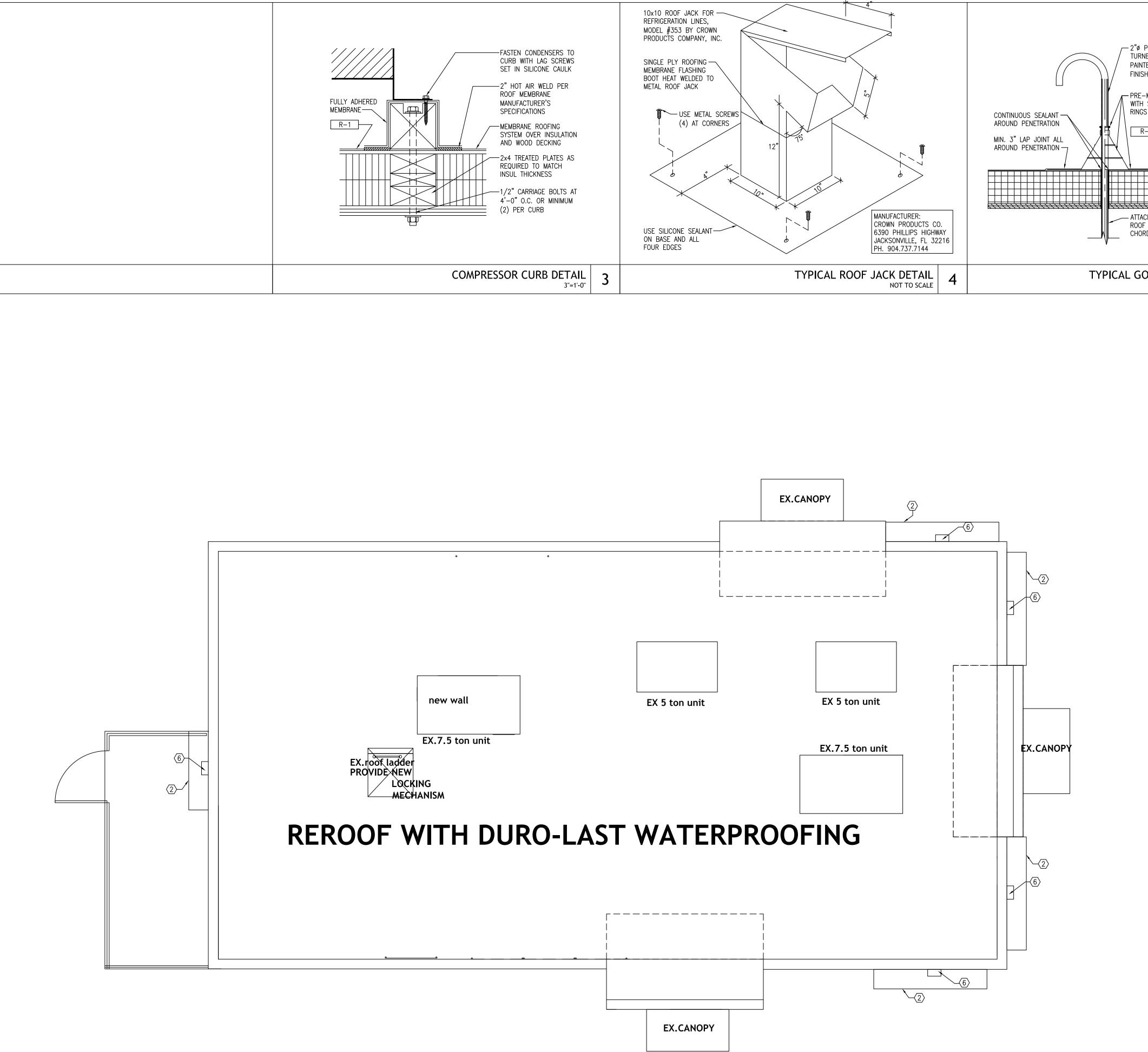


CENER	L NOTES		
1 R	EFER TO FINISH SCHEDULE, FINISH PLAN ANI NISHES	) ELEVATIONS FOR APPLIED	
2 10	ALLS TO STRUCTURAL DECK MUST BE THORC	DUGHLY SEALED AROUND	MICHAEL LEGG ARCHITECTURE
	EFER TO MILLWORK DRAWINGS FOR LOCATION	AND INFORMATION	Michael Gregory Legg NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St
	EFER TO WALL TYPE SCHEDULE ON THIS SHE EFER TO SHEET A2.1 FOR ALL INTERIOR ELE		San Antonio, Texas 78260 ph. 210-416 4935 michael@mlarchitecture.info
	EFER TO SHEET A2.1 FOR ALL INTERIOR ELE		www.michaelleggarchitecture.com
	EY NOTES:		STERED ARC
	AINLESS STEEL CLOSURE STRIP TO SEAL E: K.E.S.		GREGORL
	AINLESS STEEL CORNER GUARD, RE: 3/A AINLESS STEEL END WALL CAP, RE: 3/A3		
FI	RE EXTINGUISHER, VERIFY FINAL LOCATION D INSTALL. PROVIDE 1 ABC AND 1 K TY	WITH FIRE MARSHAL PRIOR	22543 F OF
5 P	RE-FABRICATED ALUMINUM AWNING BY SIG	NAGE VENDOR.	09.21.202
o V	ENDOR. TERNET DEMARCATION BOARD, RE: ELECTR		DRAWING COORDINATION
	CCUPANCY LOAD SIGN, VERIFY EXACT LOC RIOR TO INSTALLATION	ATION WITH FIRE MARSHAL	Architectural, Landscape, Civil, Structural, Mechanical and Electrical drawings are interrelated
	ACTILE 'EXIT ROUTE' SIGN, VERIFY FINAL L RE MARSHAL PRIOR TO INSTALL	OCATION AND WORDING WITH	General Contractor and all Sub Contractors shall review and
RI 10 TI	ECESSED KNOX BOX, MOUNT NO LOWER 1 IAN 6'-0" A.F.F., VERIFY FINAL LOCATION	HAN 5'–0" AND NO HIGHER WITH FIRE MARSHAL PRIOR	coordinate the entire set of drawings and specifications
T	) INSTALL NKLESS WATER HEATER, RE: PLUMBING		
12 M	OP SINK WITH RO SYSTEM ON PLATFORM RDER COUNTER	ABOVE, RE: PLUMBING	
14 B	EVERAGE COUNTER		
16 P	ECTRICAL PANEL, RE: ELECTRICAL RE-FINISHED DOWNSPOUT, RE: 5/A3.4		
111/1	TEEL LADDER MOUNTED TO THE BUILDING	FOR ROOF ACCESS,	
	ECTRICAL SWITCH GEAR, METER AND C.T. EDIA DISPLAY, (4) BANKED TELEVISION, RE	PAINT	
20 D	GITAL MENU DISPLAY ON HEADER ABOVE, ECTRICAL		
21 B	JLKHEAD ABOVE, RE: 7/A3.6		
23 S	JLKHEAD ABOVE, RE: 8/A3.6 ERVICE YARD FENCE AND GATE, RE: 13/A		
24 W	ALLS AROUND FREEZER AND COOLER TO	BE FINISHED WITH FRP.	
	AL NOTES EFER TO FINISH SCHEDULE PLAN AND EL	EVATIONS FOR APPLIED	
F	INISHES EFER TO PLUMBING PLANS FOR ALL FLOO		
2  1	RENCH DRAINS EFER TO STRUCTURAL FOR SLAB SLOPE		
	EY NOTES:		at l
	HRESHOLD, MAX 1/2" TRANSITION, SET IN RENCH DRAIN, FLOOR SINK, FLOOR DRAIN		<b>0</b>
<sub>z</sub> F	E: PLUMBING ROVIDE A 3'-0" SQUARE FLOOR SLOPE ( (4" OF DEF SOOT	CENTERED ON AREA DRAINS,	σο
4 F	/4" SLOPE PER FOOT, RE: STRUCTURAL AISED FREEZER FLOOR, BY K.E.C.		Ĕ Ĕ
	TART TILE FLOORING AT THIS LOCATIONMATERPROOFING MEMBRANE, RE: 2/A3.6		Re lig
7 N	IOP SINK, RE: PLUMBING IILLWORK BASE TO BE BUILT AND PLACED	BY G.C. PRIOR TO FLOOR	ant Re sburg Texas
° A	ND BASE TILE INSTALL.		, tsi
10 F	ront of house floor to wall transit FLOOR FINISH L	TION, RE: 2/A1.3 _EGEND	Restau rederic Antonio
			dest to
		AZED PORCELAIN TILES	
			a Fi
			<u> </u>
		EX. QUARRY TILE	M C M ⊆ N
			Cold
		BRUSHED CONCRETE	Ğ
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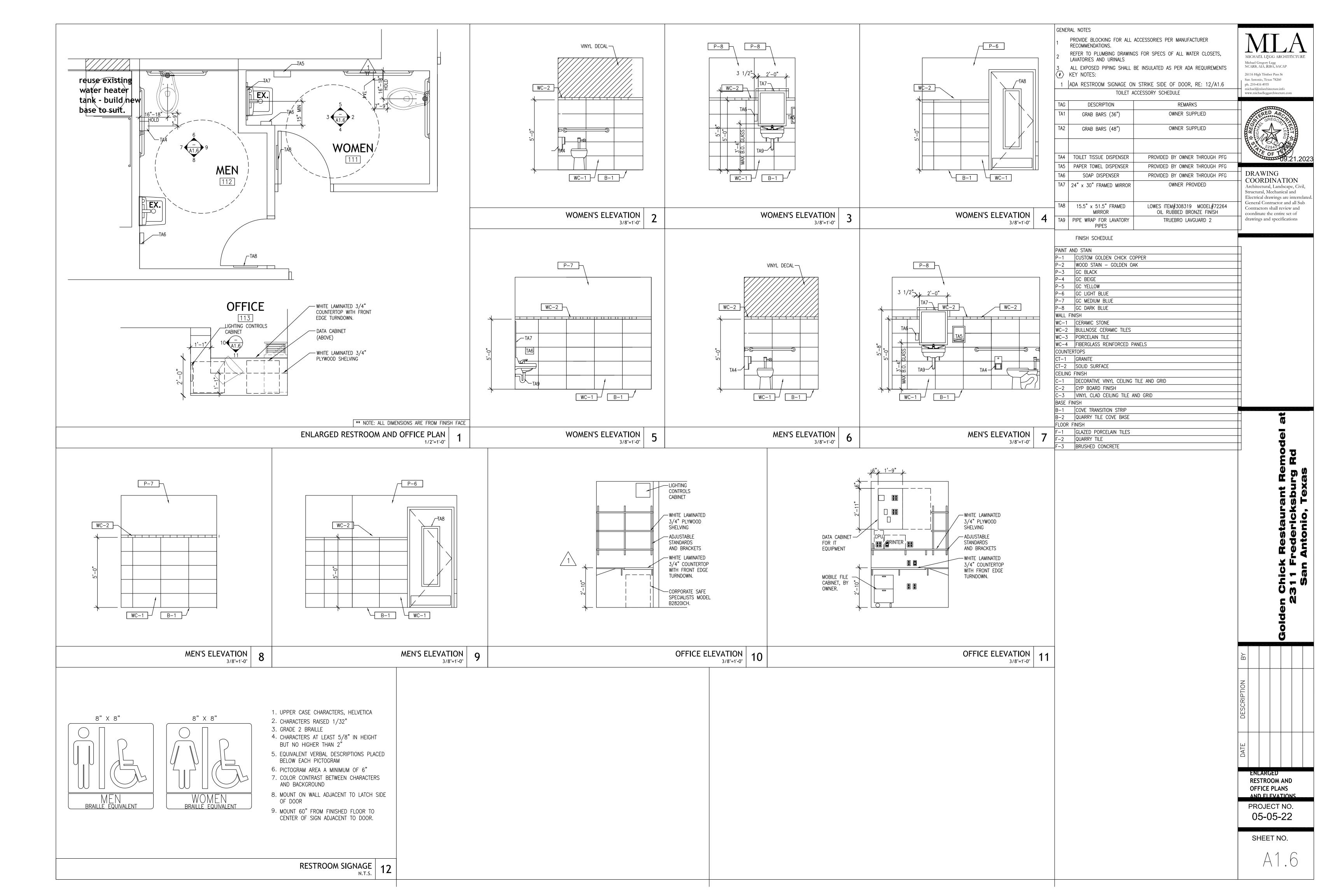




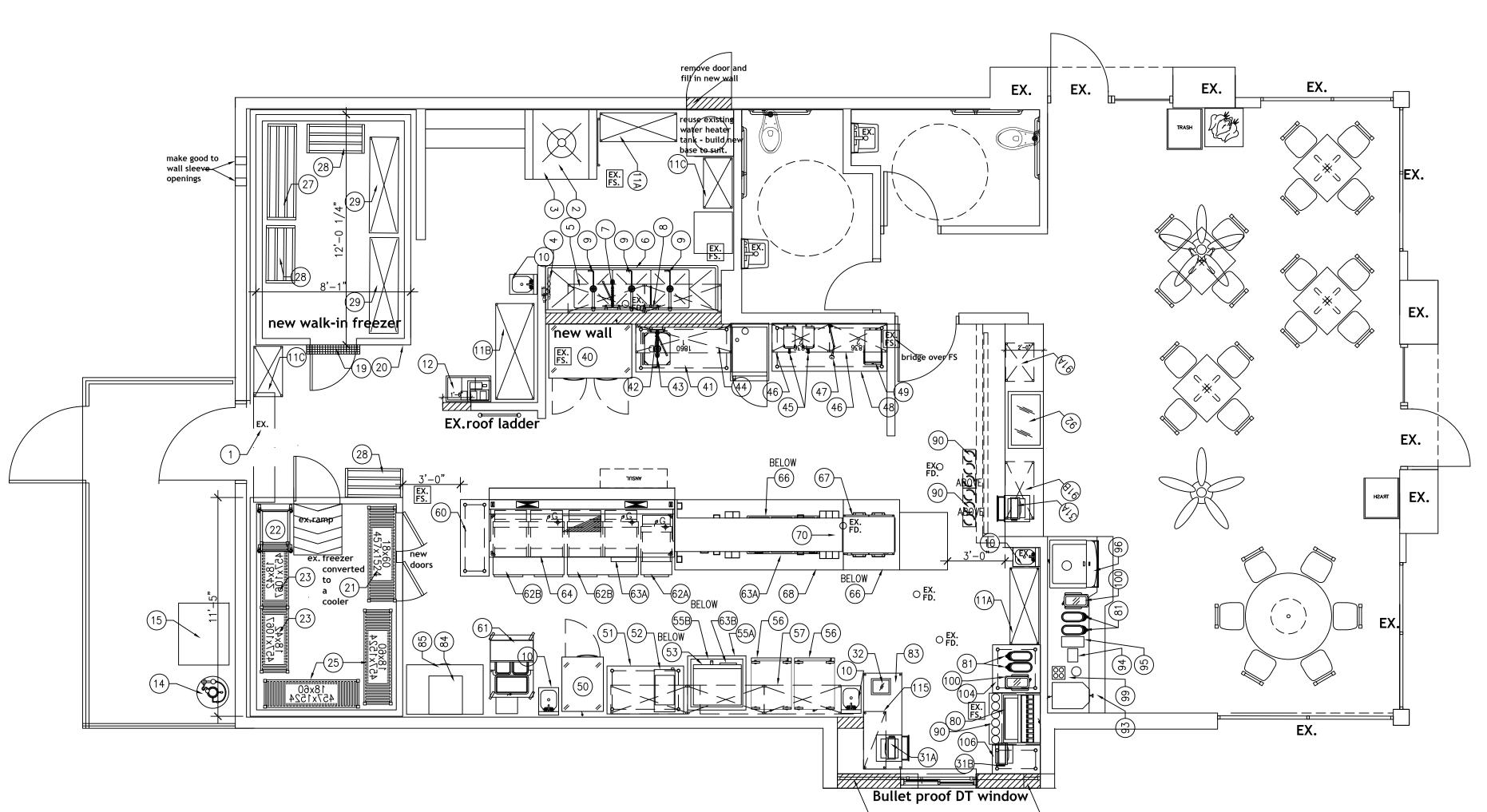
	1     0       2     RI       3     W       AI       BUILDIN       CO	LL DIM THERW EFER ALLS ROUNE NG DA NDITIC RVICE AREA:	IENSIC 1SE TO FIN TO ST D PENI TA NED A YARD:	RUCTURAL DEC ETRATIONS	AND DI	ETAILS	FOR API OROUGH 52 SQ. 1 SQ.	PLIED FINISHES LY SEALED FT. FT.	Micha NCAJ 26116 San A ph. 21 micha	HAEL L <u>E</u> C ael Gregory L RB, AIA, RII 6 High Timbe antonio, Texa 10-416 4935 ael@mlarchite michaellegga	Legg BA, SACA er Pass St as 78260 recture.info	Р	₹E
	INTERIO				4	=	16		REGUL	STERED GR	EGO AL	ANTECT ECT	
		TABLE	E (ROI	JND)x	1	=	6		- 1000 - 1000 - 1000		543 G	9.21.2	2023
									1 CC	RAWI	INAT		.1
	IBC SE EXIT O		JPANT 40 <del>NCY 1</del>	0.20 _OADS	CTOR )"PER UPANT	TOTAL WIE REQU 8	EGRESS DTH JIRED IN.	TOTAL EGRESS WIDTH PROVIDED 148 IN. UPANCY LOAD	Stru Elec Gen Con coor	hitectural, Mo ctrical dra heral Cont htractors s rdinate th wings and	echanic wings a tractor a shall rev ne entire	al and tre interre and all Su riew and e set of	elated.
		#1 #2 #3		34 34 34	IN. IN. IN.			30 30 14	-				
ESCRIPTION T	= #4/ EGRESS	GATE		46 148 IN. F OTES		)		6	-				
LUCKY WARHOL (23.75"X36") ATFISH (31.5"X39.25") LADE MOUNTED ICE CREAM SIGN (BOTTOM 18–24" ABOVE SOFT SERVE) ENU BOARDS (22.5"X38.25") /2" BLACK PVC COVERED WITH MAGNETIC SURFACE. LUMINATED 'G' LETTER SIGN LUMINATED 'C' LETTER SIGN ITERNALLY ILLUMINATED ROASTED CHICKEN SIGN LASKAN COD SIGN	1 T/ 1 L( A) T/ B) T( E/ E/	ACTILE OCATIO ACH G ACTILE ACH E O A C XIT SI	EXIT NS. RADE EXIT XIT, E ORRID GN, SI	SIGNS SHALL LEVEL EXTERIC WITH THE WOF XIT ACCESS DO OR OR HALLWA	DR DOOR RD "EXIT DOR FRC AY THAT	, SHALL M AN IS REC	. BE IDE		-				
NYL         ROWN RIBBON (CONTINUOUS AROUND FRONT OF HOUSE. STARTS AND         TOPS AT LARGE WALL VINYL AND INSIDE CORNERS)         LUCKY COOL         RICK WALL         OLDEN CHICK HISTORY	FURNIS	HING	NOTES	ò									
OLDEN TENDERS OG – WOMEN'S RESTROOM OG – MENS RESTROOM	-	MINIM	JM-34	STANDARD TAB 4 <sup>°°</sup> MAXIMUM IG CLEARANCE				HALL BE 28"	_		at	) ) )	
LUCKY MACHINE WRAP		KNEE	CLEA	RANCE SHALL E				P AND 30" WIDE	-		apc		
FURNISHINGS & EGRESS FLOOR PLAN 1/4"=1'-0" 2	TAG TABLE	QTY Ε <b>ΤΟ</b> Ρ			DESCRIP	ΓΙΟΝ					em	Rd Rd	6
ER ALL FRONT OF HOUSE CAN LIGHTS, STROBES, SPEAKERS, OTHER ELECTRICAL ITEMS IN DECORATIVE CEILING TILES, UNO. R TO ELECTRICAL DRAWINGS FOR ALL ELECTRICAL FIXTURES LISTED HEIGHTS ARE TO BOTTOM OF FIXTURES	T-1		24 <b>"</b> x2	7"	SOLID O	AK PLAN	K W/ NA	ING. 1–1/2" THICK TURAL FINISH.	-		nt R	, 3	exa
R TO MECHANICAL DRAWINGS FOR ALL REGISTERS AND ISERS. R TO ELECTRICAL DRAWINGS FOR ALL LIGHTING FIXITURES.	T-2	4	30"x3	0"	SOLID O	AK PLAN	K W/ NA	ING. 1–1/2" THICK TURAL FINISH.	-		ura	SX	, J
ALL FRONT OF HOUSE SUPPLY AND RETURN GRILLS	T-3	1	36"x3		SOLID O	AK PLAN	K W/ NA	ING. 1–1/2" THICK TURAL FINISH. ING. 1–1/2" THICK	_		stal	eri	onio
NOTES: FULL CEILING TILE IN THIS CORNER. ALIGN GRID WITH	T-4 T-5	1	30"X4		SOLID O	AK PLAN	K W/ NA	TURAL FINISH.	-		ЦС ЦС	red	Ant
TOLE CEIEING HEE IN THIS CONNER. ALIGN OND WITH TURE. ER TRACK WITH GRID TILES. ER PENDANT IN CEILING TILE, ALIGN WITH TABLE BELOW	T-5		24"X4 54" R				•	TURAL FINISH.	-		ick K	₩. 	
FABRICATED ALUMINUM AWNING BY SIGNAGE VENDOR. FABRICATED ALUMINUM CANOPY AND TURNBUCKLES BY SIGNAGE OR. NET DEMARCATION BOARD, RE: ELECTRICAL	T-7	2	72 <b>"</b> H	EXAGON	N.O.F. IN TOP AND	IC. HEXA BASE	GONAL R	TURAL FINISH. ECYCLED PLASTIC BLE AND SEATS. HEX 72"	-		en Ch	231	<b>ภ</b>
IG FANS, RE: ELECTRICAL ER HEATER, RE: PLUMBING FINISHED DOWNSPOUT, RE: 5/A3.4	TABLE	4	22 <b>"</b> X2	2" STANDARD 2" BAR	MODEL: OAK STR	<u>B22—STI</u> EET MAN	) NUFACTUR	ING CROSS BASE	-		solde		
ROOM EXHAUST, RE: MECHANICAL JST HOOD, MUA SUPPLY, AND EXHAUSTS, RE: MECHANICAL ER AND FREEZER LIGHTS, BY K.E.S, INSTALLED BY GC. INATED LETTER SIGNS, RE: A1.2.	- TB-3	1 PAIR	5"X22	" STANDARD	MODEL:	eet man B522—Ai	NUFACTUR DA (2 PE	ING CROSS BASE R TABLE)			9		
MOUNTED ICE CREAM SIGN, RE: A1.2. DISPLAY, (4) BANKED TELEVISION, RE: ELECTRICAL	TB-4 TB-5	1		2" CANTILEVER	BASE N	iodel: e Eet man	<u>3</u> CANTILE	ING CANTILEVER VER ING DISC BASE				_	
AL MENU DISPLAY ON HEADER ABOVE, (1) TELEVISION, RE: IRICAL E SHELVING, RE: 1/A1.6	CHAIR CH-1 CH-2	18	17" X	18"	OAK STR MODEL:	eet man Sl2160	NUFACTUR OAK PLAI	ING CHAIR NK ING BAR HEIGHT	DESCRIPTION				
2       22"W X 25"D X 48"H       TRASH CAN WITH BACKSPLASH MODEL: M8520 – BLACK WITH WHITE LETTERS         2       PER MANUF.       HIGH CHAIRS         2       7'-6" OCTAGON       CALIFORNIA UMBRELLA GROVE SERIES MODEL:	CH-3		48" H	X 17.25" IGH X 27" LONG IGH X 27" LONG	KC BOO MODEL: KC BOO	TH, LLC SINGLE TH, LLC	L2301 OA HIGH BOC HIGH BO						
ALLED AS PER MEP DURO-LAST PER	СН-5 СН-6	2		IGH X 48" LONG IGH X 48" LONG	KC BOO MODEL: KC BOO	TH, LLC SINGLE TH, LLC	LOW BOO	TH	DATE				
	FURNI FN-1	ISHIN 1	GS PER N	IANUF.	CLUCKY					, FU ESS			
									P	ROJE 05-0		10.	
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RCP 1/4"=1'-0" <b>1</b>					_								



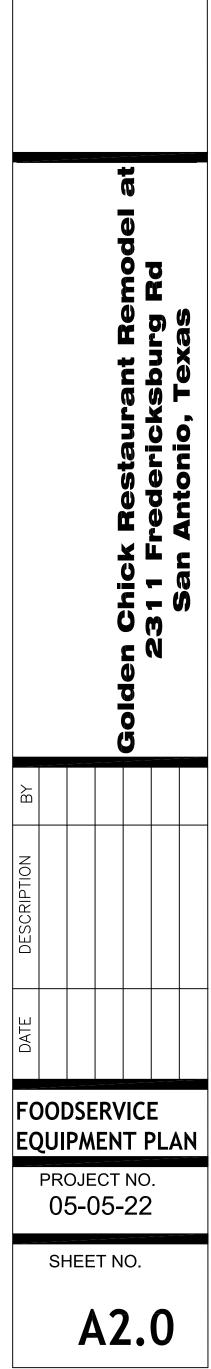
A PIPE/CONDUIT STUB UP RNED DOWN AND SEALED NTED (PRIME AND TWO ISH COATS)	GENERAL NOTES         1       ALL DIMENSIONS ARE SHOWN TO FACE OF STUD WALL.         Image: Construct the state of the st	<text><text><text><text></text></text></text></text>
		Golden Chick Restaurant Remodel at 2311 Fredericksburg Rd San Antonio, Texas
ROOF PLAN 1/4"=1-0"		NOLINA   NOLINA

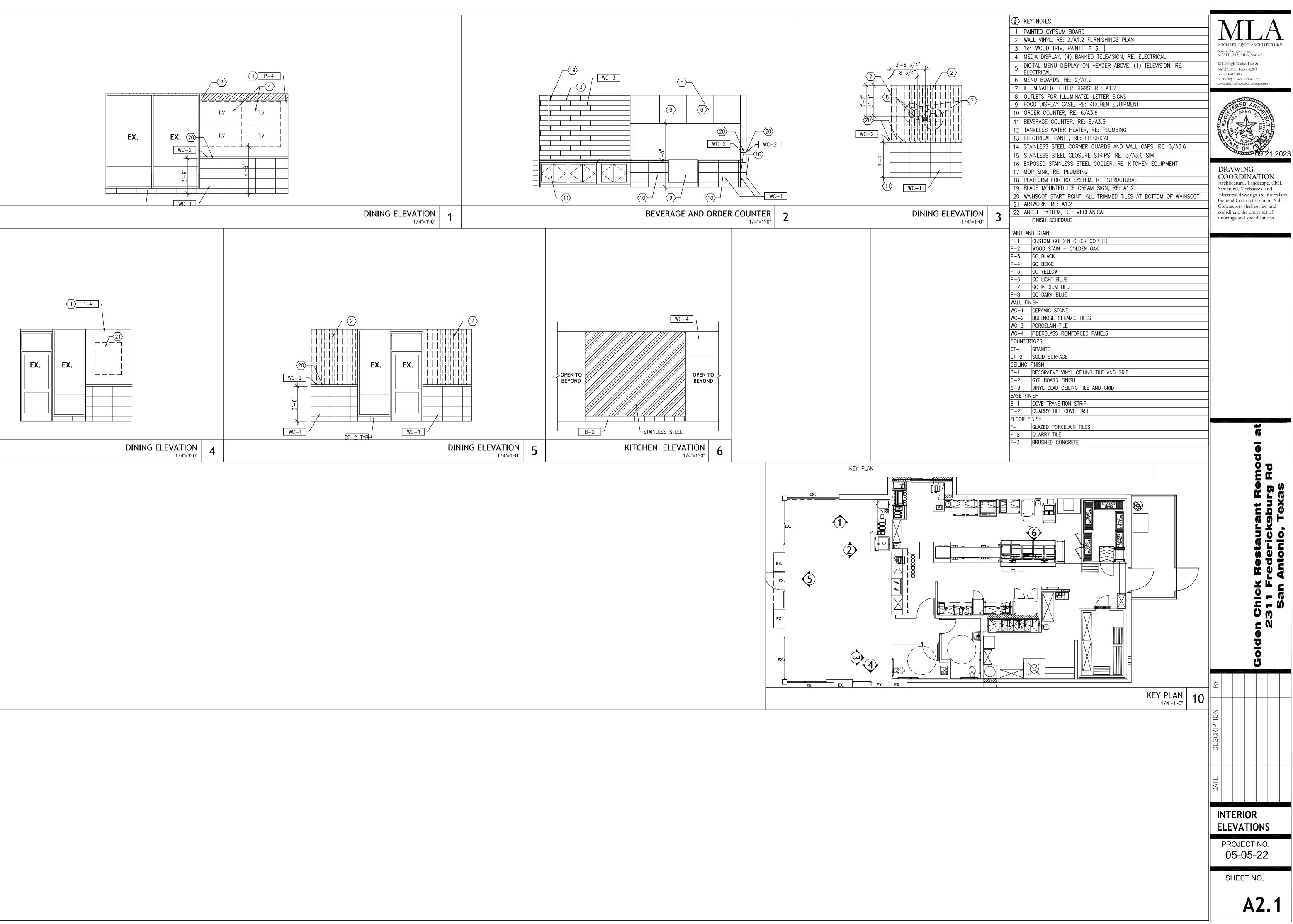


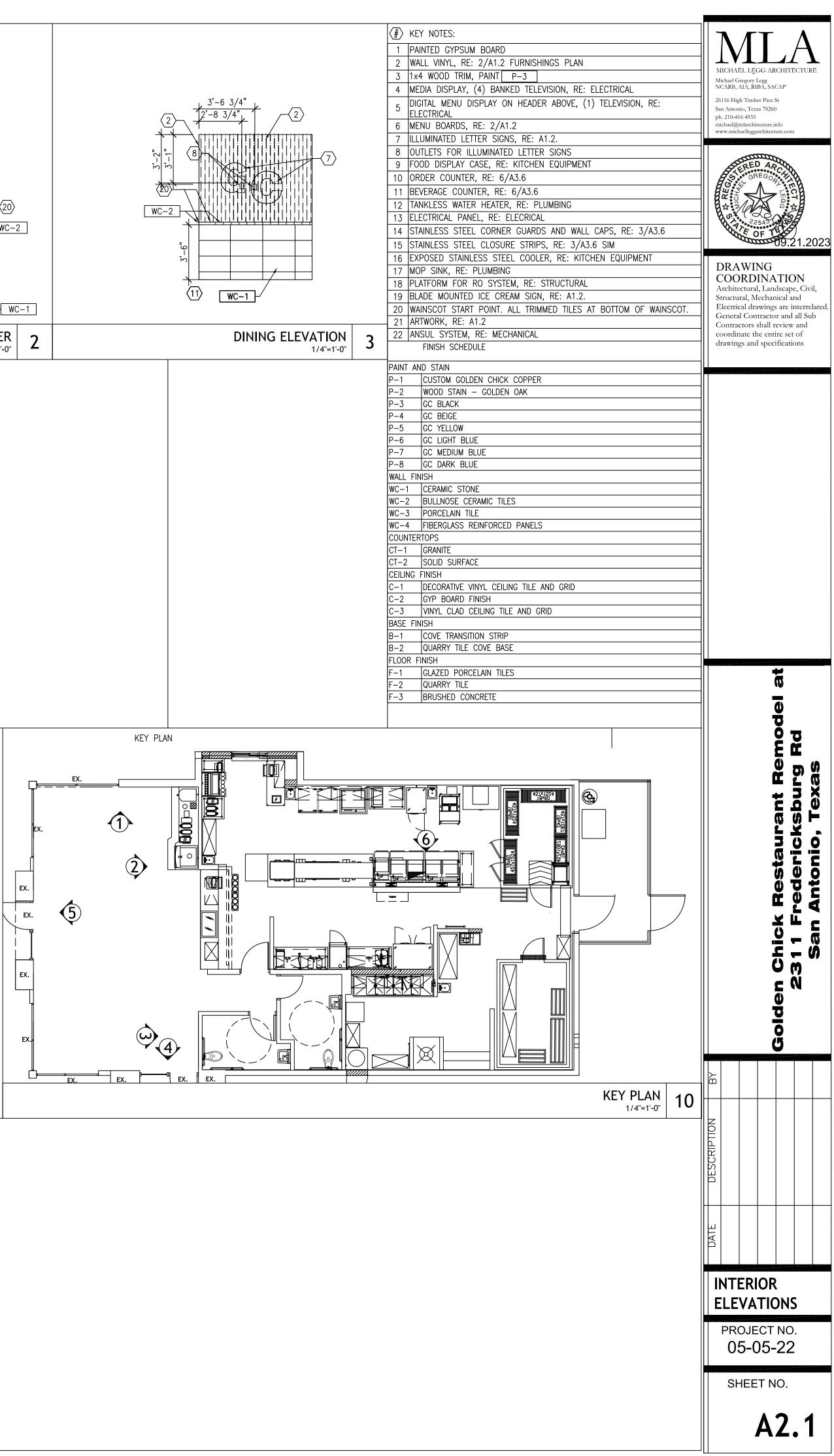
	r SCHEDULE	1	1	1
ITEM ( NO		EQUIPMENT REMARKS	MANUFACTURER	MODEL NUMBER
	· · · · · · · · · · · · · · · · · · ·	existing – MEP notes		
2		WITH 5 GALLON TANK	3M	5598406
<u> </u>	1 MOP SINK AND FAUCET 1 FILTER SYSTEM, COMIBINATION APPLICATIONS	BY PLUMBER	 3M_PURIFICATION	- DD100
+ 	2 WIRE SHIELVING UNIT, WALL MOUNTED	– 1 SHELF EACH	METRO	DP190 18X48
6	1 SINK, NSF, 3 COMP, 16 GAUGE		ADVANCE TABCO	FC-3-2424-18RL
7	1 PRE-RINSE SPRAYER WITH FAUCET	_	T & S BRASS	B-0133-12-CR-8
8	1 FAUCET, WALL MOUNT	_	KROWNE	12-812L
9	3 DRAIN, TWIST HANDLE W/ OVERFLOW	-	KROWNE	22–204
10	4 SINK, HAND WALL MOUNT	_	KROWNE	HS-9L
1A	1 WIRE SHELVING UNITS, DRY STORAGE	4 SHELVES EACH, 4 POSTS 74"	OLYMPIC	18X48
.1B	1 WIRE SHELVING UNITS, DRY STORAGE	4 SHELVES EACH, 4 POSTS 74"	OLYMPIC	18X60
1C	1 WIRE SHELVING UNITS, DRY STORAGE	4 SHELVES EACH, 4 POSTS 74"	OLYMPIC	24X30
.1E	2 WIRE SHELVING UNITS, DRY STORAGE	4 SHELVES EACH, 4 POSTS 74"	OLYMPIC	24X60
2	1 BAG-IN-BOX	BY PEPSI	-	-
3A	– RACK, DUNNAGE, TUBULAR	-	FOCUS FOODSERVICE	FHADR361812
3B	1 RACK, DUNNAGE, TUBULAR	-	FOCUS FOODSERVICE	FHADR481812
4		BY PURVEYOR	-	-
5		BY PURVEYOR	-	-
		BY PLUMBER		
)	1 WALK-IN COOLER/FREEZER 2 SHELVING UNIT, START, PLASTIC LOUVERED	-	BALLY CAMBRO	CUSTOM CBU186064V4580
) )	1 PAN RACK ROLLING CART	-	WINCO	ALRK-20
<u> </u>		-		
3	2 SHELVING UNIT, ADD ON, PLASTIC, LOUVERED	-	CAMBRO	CBA184264V4580
24	1 SHELVING UNIT, ADD ON, PLASTIC, LOUVERED	-	CAMBRO	CBU184264V4580
25	1 SHELVING UNIT, ADD ON, PLASTIC, LOUVERED	_	CAMBRO	CBU185464V4580
00				
20	1 SHELVING UNIT, STARTER, PLASTIC, LOUVERED	-	CAMBRO	CBU184864V4580
27	1 RACK, DUNNAGE, TUBULAR	-	FOCUS FOODSERVICE	FHADR601812
28	1 RACK, DUNNAGE, TUBULAR	-	FOCUS FOODSERVICE	FHADR361812
29	1 WIRE SHELVING UNITS, FREEZER	4 SHELVES EACH, 4 POSTS 74"	OLYMPIC	18X60
310	· · ·	BY OWNER		
31R		BY OWNER		
32		BY OWNER		
40		2DR, RHLH	 CONTINENTAL REGRIGERATOR	2RN
41		INCLUDES SINK BOWL COVER	JERO	VPT3060
42	1 PRE-RINSE SPRAYER WITH FAUCET		T & S BRASS	B-0133-12-CR-B
4.3	1 DRAIN, TWIST HANDLE W/ OVERFLOW	_	KROWNE	22-204
44	1 WIRE SHELVING UNIT, WALL MOUNTED	1 SHELF EACH	METRO	18X60
15		WITH WALL MOUNT BRACKET	BUNN-O-MATIC	43600.0002
46	2 WIRE SHELVING UNIT, WALL MOUNTED	2 SHELVES EACH	METRO	18X36
47	1 FAUCET, POT FILLER, WALL MOUNT		KROWNE	16–181L
48	1 TABLE, WORK	_	PATRIOT F.S. EQUIPMENT	MKW-3072-N
49	1 ICED TEA BREWER		BUNN-O-MATIC	41400.0000
<del>4</del> 9 50	1 FREEZER, REACH-IN			
50	FREEZER, REACH-IN	KH	CONTINENTAL REGRIGERATOR	1FN

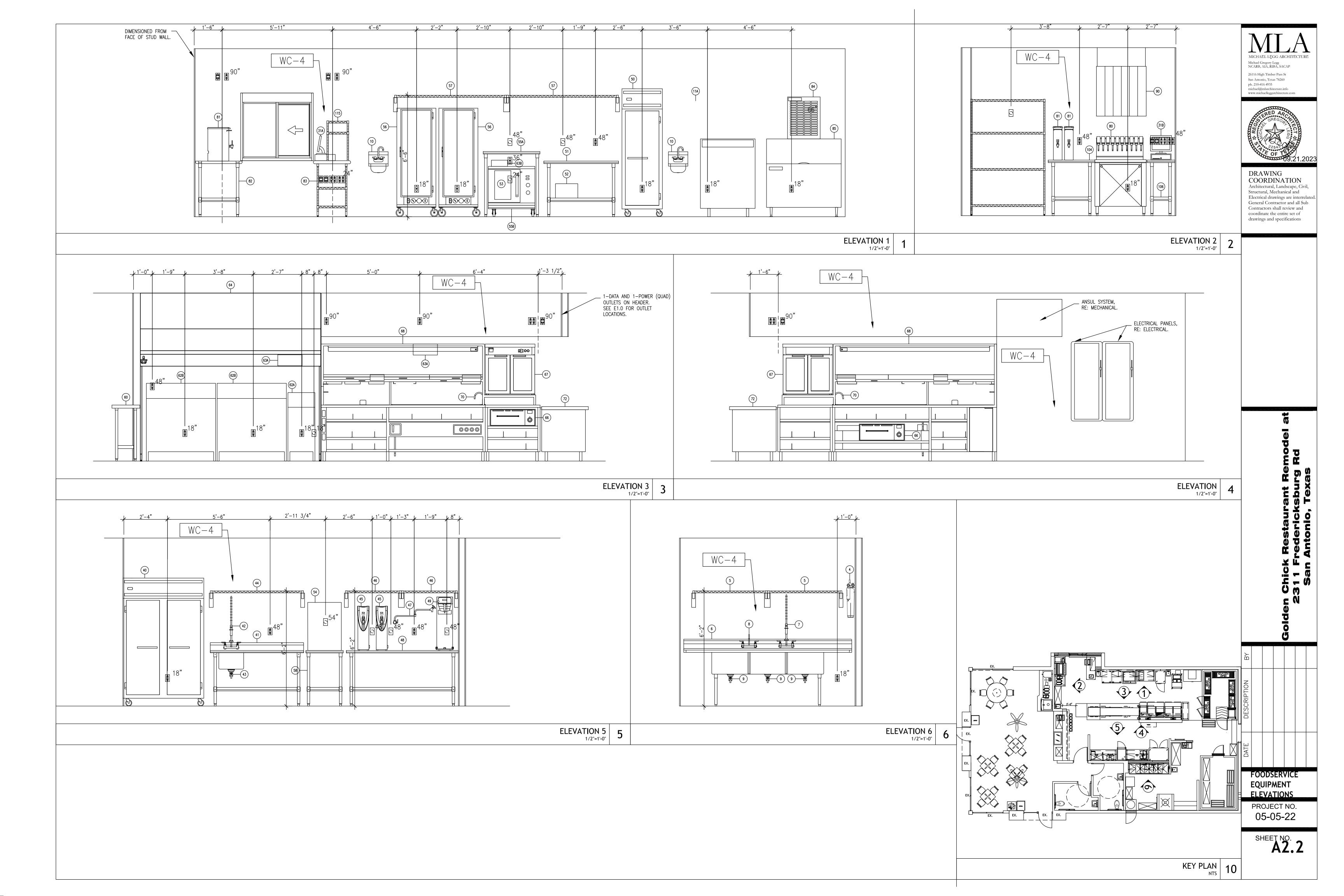


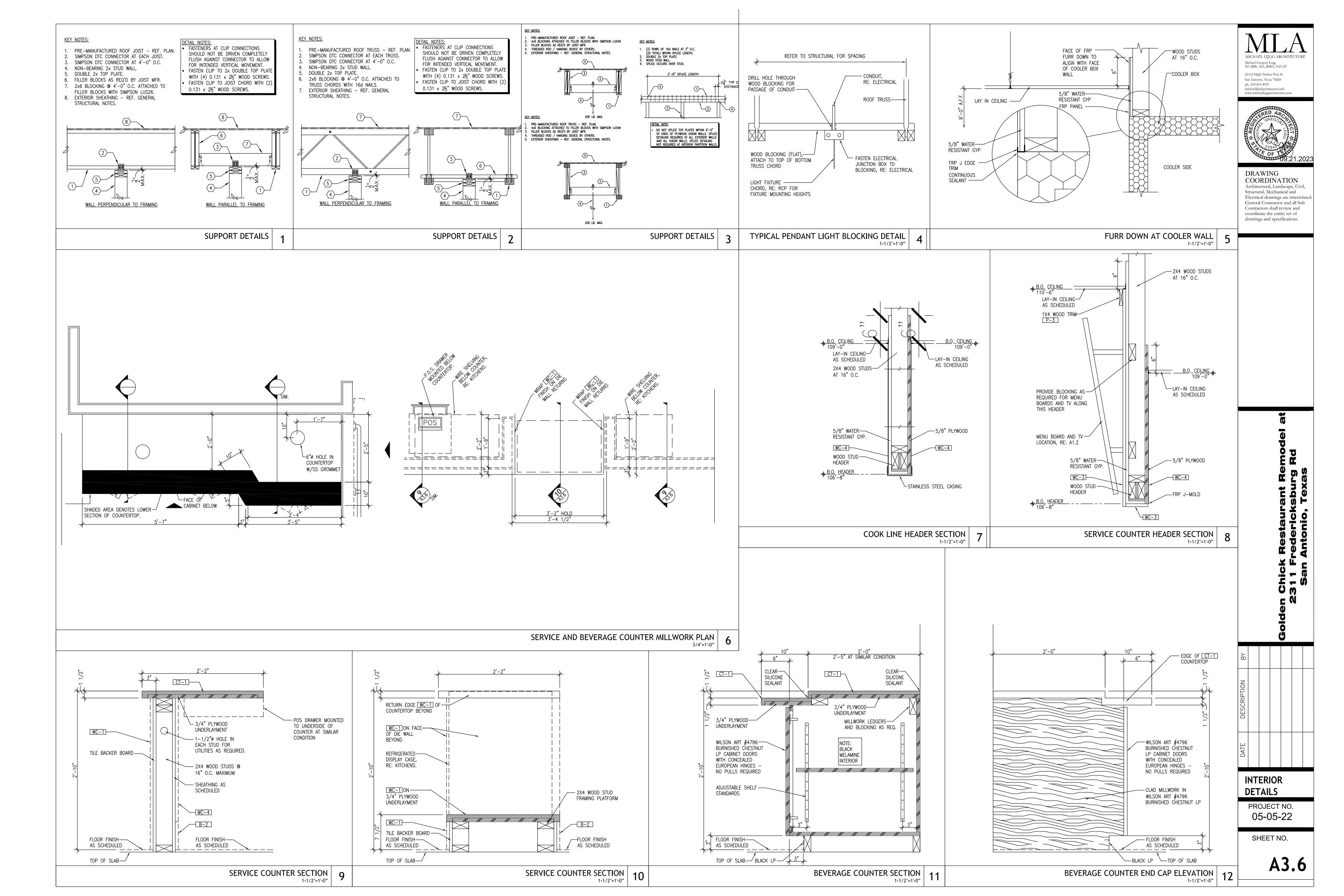
Remove side windows & close in walls

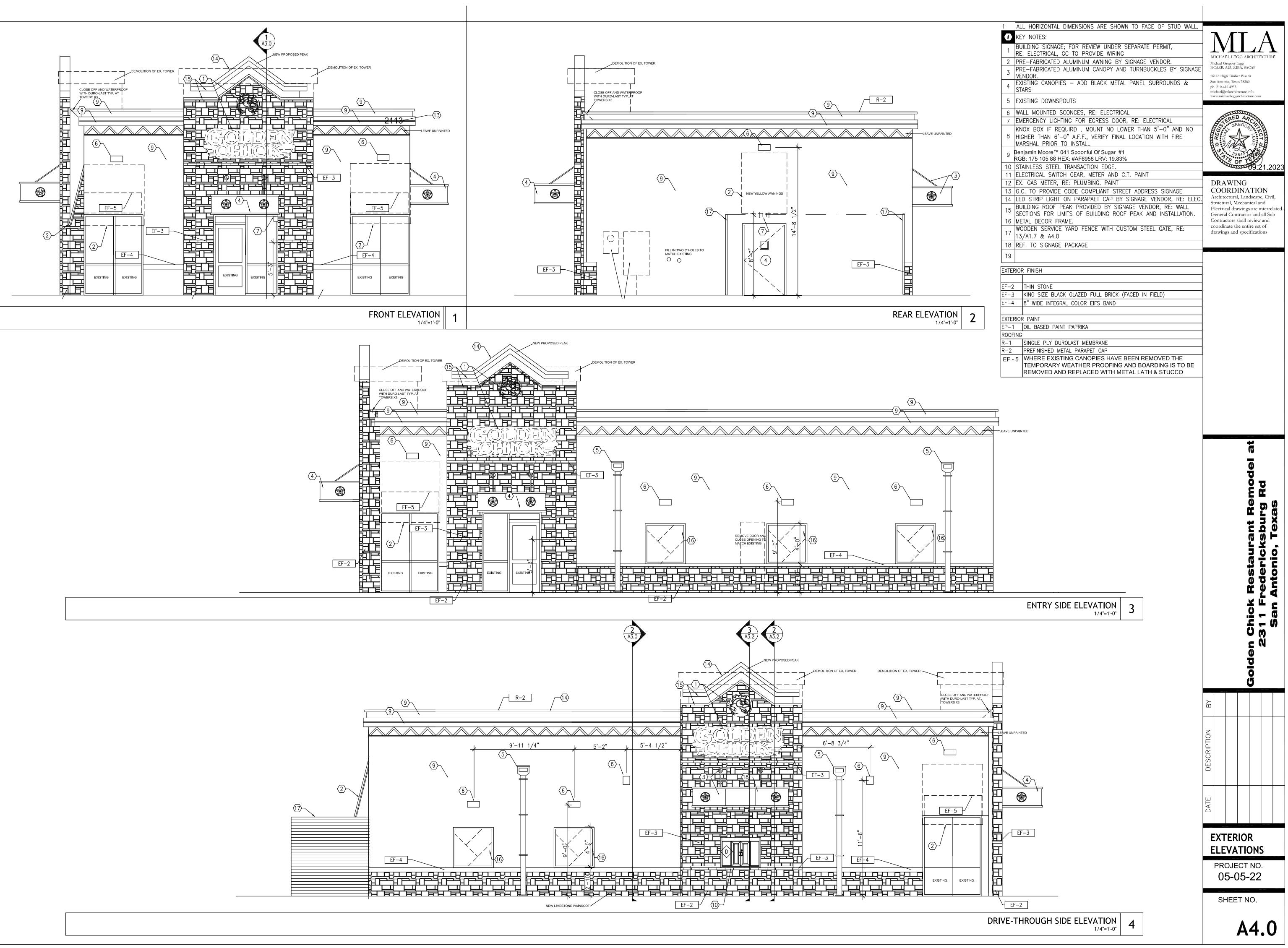


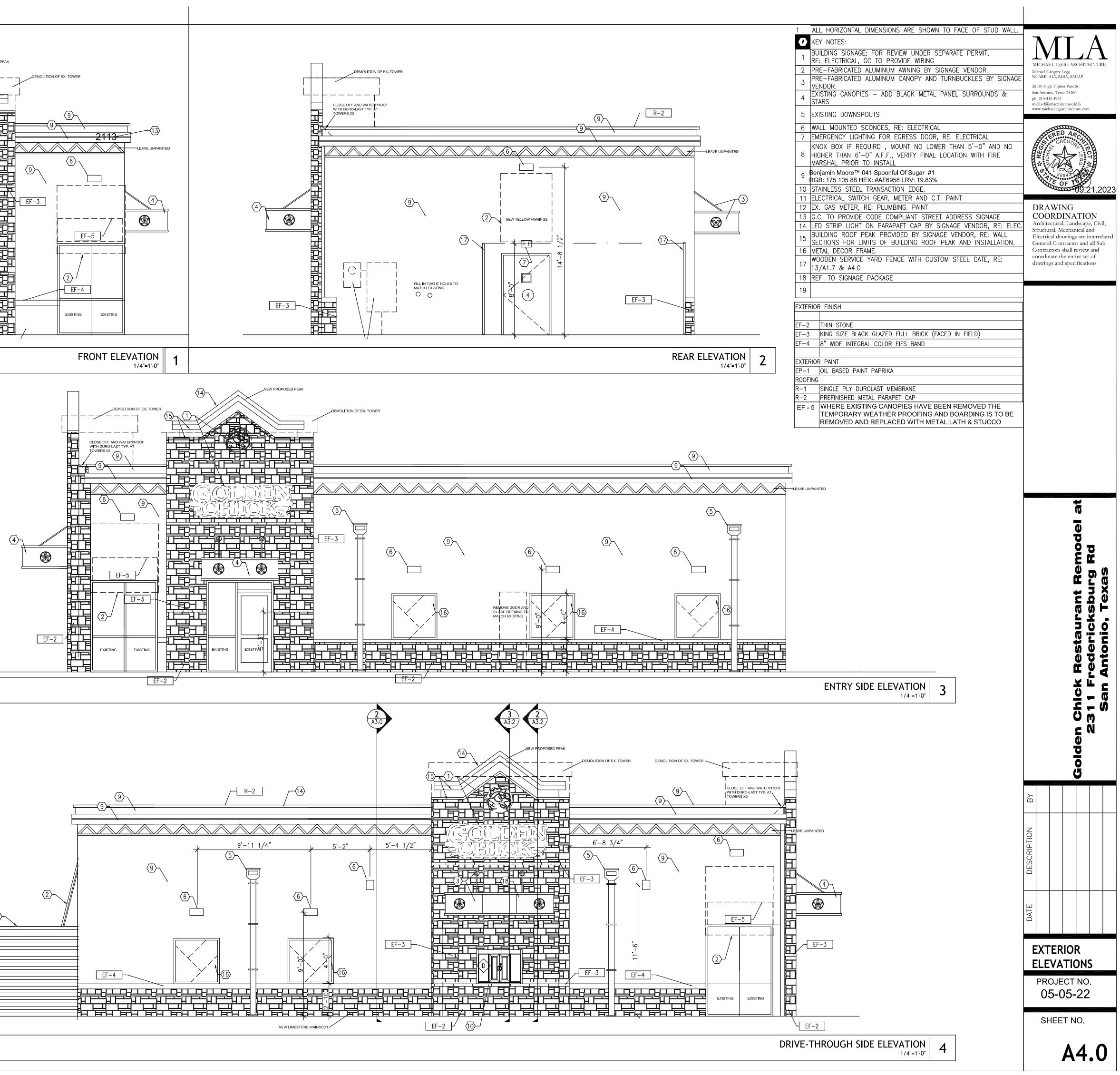


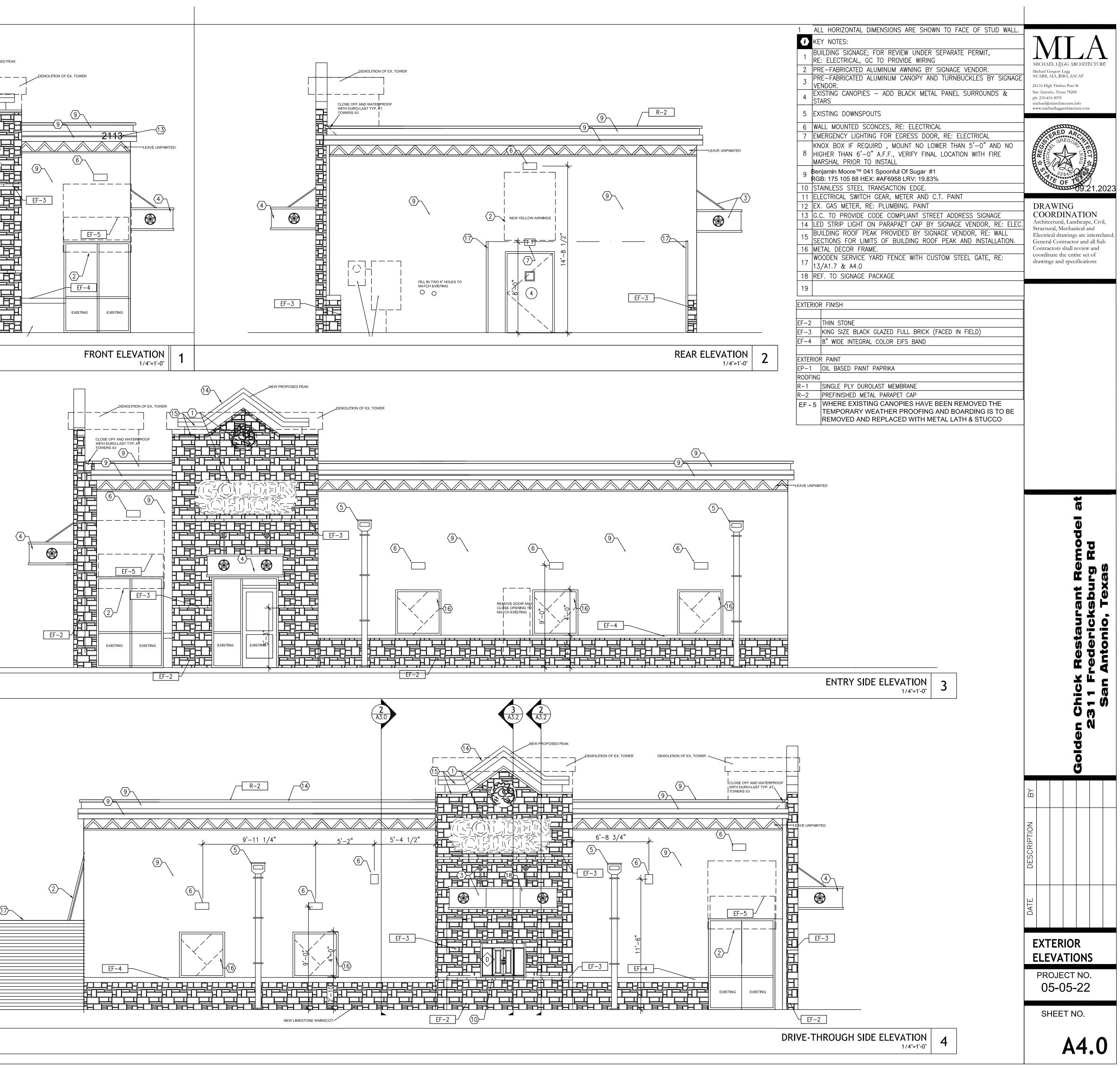












GOLI	DEN CHICK	MASTER SPECIFICATIONS
	E OF CON	
<u>DIVIS</u> Secti Secti Secti Secti	<u>ION 0 – (</u> on 00100 on 00120 on 00300 on 00700	<u>CONTRACT AND BID INFORMATION</u> - Instructions to Bidders - Supplementary Instructions to Bidders - Bid Form - General Conditions - Supplementary Conditions
Secti Secti Secti Secti Secti Secti Secti Secti	on 01100 on 01110 on 01300 on 01320 on 01400 on 01500 on 01580 on 01580 on 01600 on 01700 on 01720	GENERAL REQUIREMENTS- Summary of Work- Work Covered by Contract Documents- Administrative Requirements- Change Order Procedures- Quality Requirements- Temporary Facilities and Controls- Project Identification Signs- Product Requirements- Execution Requirements- Construction Layout- Closeout Submittals
*Refe Secti Secti Secti Secti Secti Secti Secti Secti	on 02010 on 02072 on 02100 on 02200 on 02361 on 02505 on 02511 on 02580 on 02854 on 02930	Documents for balance of Site Construction Specifications - Subsurface Investigation - Selected Demolition - Site Clearing - Excavation, Backfilling, Compaction, and Grading - Termite Control - Concrete Paving, Walks, Curbs, Gutters and Approaches - Asphaltic Concrete Paving - Pavement Marking - Parking Bumpers (Wheel Stops) - Site Furnishings
Secti Secti Secti <u>DIVIS</u> Secti	on 04451 on 04700 I <u>ON 5 – I</u> on 05500	<ul> <li>Concrete Unit Masonry</li> <li>Stone Veneer</li> <li>Thin Brick Veneer</li> <li>METALS</li> <li>Metal Fabrications</li> </ul>
<u>DIVIS</u> Secti Secti Secti Secti Secti <u>DIVIS</u> Secti Secti	<u>ION 6 – 1</u> on 06100 on 06160 on 06170 on 06176 on 06200 on 06410 on 06620 I <u>ON 7 – <sup>-</sup></u> on 07212 on 07240	<ul> <li>Metal Ladders</li> <li><u>MOOD AND PLASTICS</u></li> <li>Rough Carpentry</li> <li>Sheathing (ZIP System)</li> <li>Laminated Veneer Structural Timber</li> <li>Metal-Plate-Connected Wood Trusses</li> <li>Finish Carpentry</li> <li>Custom Cabinets</li> <li>Solid Non-Porous Sheet and Shape Products</li> </ul> <u>THERMAL AND MOISTURE PROTECTION</u> <ul> <li>Board and Batt Insulation</li> <li>Exterior Insulation and Finish Systems</li> <li>Weather Barriers</li> </ul>
Secti Secti <u>DIVIS</u> Secti Secti Secti Secti	on 07530 on 07620 on 07900 <u>ION 8 - 1</u> on 08110 on 08211 on 08214 on 08410 on 08582	<ul> <li>Elastomeric Membrane Roofing</li> <li>Sheet Metal Flashing and Trim</li> <li>Joint Sealers</li> <li>DOORS AND WINDOWS</li> <li>Steel Doors and Frames</li> <li>Flush Wood Doors</li> <li>Metal Faced Flush Wood Door (Eliason)</li> <li>Aluminum Entrances and Storefronts</li> <li>Pass-Thru Window</li> <li>Door Hardware</li> </ul>
Secti DIVIS Secti Secti Secti Secti Secti Secti	on 08800 <u>ION 9 – 1</u> on 09260 on 09300 on 09511 on 09610 on 09729 on 09771 on 09900 <u>ION 10 –</u>	<ul> <li>Glazing</li> <li>FINISHES</li> <li>Gypsum Board Assemblies</li> <li>Tile</li> <li>Suspended Acoustical Ceilings</li> <li>Granite</li> <li>Mural Installation</li> <li>Prefinished Panels</li> <li>Paints and Coatings</li> <li>SPECIALTIES</li> </ul>
Secti Secti Secti <u>DIVIS</u>	on 10442 on 10523 on 10800 I <u>ON 11 -</u>	<ul> <li>Entry Key Cabinet</li> <li>Architectural Signage</li> <li>Fire Extinguishers, Cabinets and Accessories</li> <li>Toilet Accessories</li> <li>EQUIPMENT</li> <li>Food Service Equipment (Installation)</li> </ul>
<u>DIVIS</u> Secti Secti	1 <u>0N 15 –</u> on 15100 on 15400	<u>MECHANICAL SYSTEMS</u> — General Mechanical Requirements — Plumbing — Heating, Ventilating and Air Conditioning
Secti Secti Secti Secti Secti Secti Secti Secti Secti Secti	on 16050 on 16110 on 16120 on 16135 on 16142 on 16143 on 16150 on 16190 on 16195 on 16455 on 16450 on 16510	<ul> <li><u>ELECTRICAL SYSTEMS</u></li> <li>Basic Methods and Requirements</li> <li>Raceways</li> <li>Wires and Cables</li> <li>Electrical Boxes and Fittings</li> <li>Electrical Connections for Equipment</li> <li>Wiring Devices</li> <li>Motor Controllers and Contactors</li> <li>Circuit and Motor Disconnects</li> <li>Overcurrent Protective Devises</li> <li>Supporting Devices</li> <li>Electrical Identification</li> <li>Panelboards, Distribution and Branch Circuit</li> <li>Grounding</li> <li>Interior Building Lighting</li> <li>Fire Alarm and Smoke Detection Systems</li> </ul>

SECTION 00100 - INSTRUCTIONS TO BIDDERS 1. AIA Document A701, latest Edition, "Instructions to Bidders" are included specifications as if herein reprinted in full. a. A copy of AIA A701, latest edition may be obtained from Owner, Ar The American Institute of Architects 1735 New York Avenue. N.W. Washington, D.C. 20006. 2. Contractor shall utilize the following documents, latest edition, in the ne of the project: a. AIA Document A701 - Instructions to Bidders b. AIA Document G702 - Application and Certificate for Payment c. AIA Document G703 - Continuation Sheet d. AIA Document G701 — Change Order e. AIA Document G705 — Certificates of Insurance f. AIA Document G706 — Contractor's Affidavit of Payment of Debts and g. AIA Document A706 — Contractor's Affidavit of Release of Liens h. AIA Document A201 - General Conditions of the Contract for Constru i. AIA Document A101 - Owner Contractor Agreement Form - Stipulated SECTION 00120 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS The following supplements modify, change, delete from, or add to the inst A701, latest Edition) Where any article of the instruction to Bidders is more sub-paragraph, or clause thereof is modified or deleted by these Supplem unaltered provisions of the article, paragraph, sub-paragraph, or clause s 1. Article 1, Paragraph 1.8; add: Bidding is by invitation from the Owne 2. Article 1, add Paragraph 1.10: 1.10 The term "Architect" as used herein, shall be construed to m the Owner will administer the bidding procedures. 3. Article 3, Paragraph 3.1.1 delete and insert the following: Owner will provide each invited Bidder a complete set of electronic file Bidding Documents. Bidding contractor will be responsible for printing 4. Article 4, Paragraph 4.1.1 delete and insert the following: 4.1.1 Bids shall be submitted on forms Identical to the Bid Form prov (1) original with original signature(s). Bids transmitted via facsimile are received by the prescribed deadline, are acceptable. Originals service for next day delivery. 5. Article 4, Paragraph 4.2: Delete this paragraph in it's entirety, as no bid security will be require 6. Article 4, Paragraph 4.4.1: The stipulated time period shall be construed as 90 calendar days. 7. Article 6, Paragraph 6.2: Delete this paragraph in its entirety. 8. Article 7, Paragraph 7.1.1: Bond requirement will be an option reserved by the Owner. 9. Article 7, paragraph 7.2.2: Delete "unless otherwise provided," and substitute "unless otherwise acce the Owner." SECTION 00300 - BID FORM 1. The form of proposal will be furnished separately by the Owner. SECTION 00700 - GENERAL CONDITIONS 1. AIA Document A201, Latest Edition, "General Conditions of the Contr included as part of these specifications same as if herein reprinted a. A copy of AIA A201, may be obtained from Owner; Architect, or direc The American Institute of Architects 1735 New York Avenue, N.W. Washington, D.C. 20006. SECTION 00800 - SUPPLEMENTARY CONDITIONS The following supplements, modify, change, delete from, or add to Genera Where any article of the General Conditions is modified or any paragraph, clause thereof is modified or deleted by these Supplemental Instructions, the article, paragraph, sub-paragraph, or clause shall remain in effect. 1. Article 4, Paragraph 4.2.1: delete and substitute: 4.2.1 All references used throughout these documents requiring the Arch observe, or otherwise use his professional judgment regarding this sole responsibility of the Owner, who may consult with the Architect Owner deems necessary to assure compliance with the Contract Docu 2. Article 7, Paragraph 7.3.6 is further clarified as follows: When the Owner authorizes the Contractor to perform changes or additi and material, and if the Contractor is directed to proceed on the basis labor and material by Change Order, the following allowances will be allo (including Bond and Insurances) & Profit: (1) For the Contractor: To be noted in the General Contractor's (2) Extra work covered by unit prices as requested in the Bid Fo overhead and profit. (3) Superintendent's time shall not be included in T & M extra 3. Article 8, add Paragraph 8.3.4: 8.3.4 The Contractor shall have no claim for an extension of time unles the face of a written Change Order and approved and accepted in such Change Order. Any attempted reservation by the Contractor or claim any extension of time not stated on the face of a written Ch accepted by the Owner shall be null and void. 4. Article 9, Paragraph 9.3.1; add the following: Payment requests must be received by the Owner no later than the and must be accompanied by a lien waiver in full for each participat subcontractor, and supplier seeking payment. Owner will not be require without the required lien waivers. 5. Article 9, Paragraph 9.4: Delete in its entirety. 6. Article 9, Paragraph 9.6.1: Delete and substitute: 9.6.1 Upon receipt of Contractor's Application for Payment, Owner will m Contractor within 15 days or as soon as practical thereafter. 7. Article 9, add Paragraphs 9.10.6 and 9.10.7:

**DIVISION 0 - CONTRACT AND BID INFORMATION** 

9.10.6 Before Owner issues final payment hereunder, the Contractor Owner; (a)an affidavit that all payroll and bills for material and equ indebtedness connected with the work for which the Owner or its p be responsible, have been paid or otherwise satisfied, (b) the conse payment and (c) if required by the Owner, other data establishing all such obligations, such as receipts, releases and waivers of liens Contract Documents, to the extent and in such form as may be de any Subcontractor and/or Material man refuses to furnish a release the Owner, the Contractor may furnish a bond, at its expense, satis indemnify the Owner against such lien. If any such lien remains uns payments are made, the Contractor shall refund to the Owner all may be compelled to pay in discharging such lien, including, without reasonable attorneys' fees.

9.10.7 All waivers and subordination agreements required hereunder shall acceptable to the Owner.

	8. Article11, delete first paragraph of 11.1.1 beginning with "The Contractor" ending with "be liable", and substitute the following:	B. <u>By Owner:</u> Item shall be furnishe
d as part of these	11.1.1 Prior to the commencement of the Work, Contractor shall procure, and Contractor shall maintain, all insurance required under this Paragraph 11.1.1. Contractor shall require each	Contractor/subco labor, material, o
rchitect, or directly from:	Subcontractor to provide coverage adequate to protect Subcontractor and its employees. If the terms of coverage of such policies are unacceptable to Owner, Contractor and/or	storage, uncrate to cover items i
	subcontractor shall revise the coverage or obtain additional coverage as reasonably requested by Owner. Owner's approval of Contractor's and any Subcontractor's insurance shall not	damage. Includ 1. Food Service
egotiation and execution	relieve or limit their liability under the Contract Documents. In the event of the failure of Contractor to furnish and maintain such insurance, then the Owner shall have the right, but	a. Owner shal but not lin
	not the obligation, to take out and maintain such insurance for and in the name of Contractor and Contractor shall pay the cost thereof and furnish all necessary information to	1) Remote
	permit the Owner to take out and maintain such insurance for the account of Contractor. Contractor shall not allow any Subcontractor to commence work on its subcontract until all	shall be not furn
	insurances required of Subcontractor have been obtained. Contractor shall purchase and maintain such insurance as will protect it from claims set forth below which may arise out	2) Owner s fans, cu
d Claims	of or result from Contractor's operations under the Contract Documents, whether such operations be by Contractor or by Subcontractor or by anyone directly or indirectly employed	(a)All dı provic
uction ed Sum	by any of them, or by anyone for whose acts any of them may be liable.	3) Stainless
	9. Article 11; delete paragraph 11.1.2 and substitute the following:	4) Stainless b. Contractor
	11.1.2 The liability insurance purchased and maintained by Contractor pursuant to this paragraph and 11.1.1 shall include the types and be in the minimum amounts as follows:	silicone sec Owner prov
structions to Bidders (AIA odified or any paragraph,	(a) Workman's Compensation	2. Receiving an
mental Instructions the shall remain in effect.	(i) Workers' or workman's compensation — maximum permitted by statue, unlimited if	a. Prior to de be complet
ner, only.	permitted. The policy shall contain a Waiver of Subrogation in favor of Landlord Indemnitees.	1) Tile mus hung ar
	(ii) — Employer's Liability — \$1 million.	and diff board c
nean the "Owner", as	(b) Comprehensive General Liability	2) Contract of Owne
as (add format) of the	Bodily injury and property damage having a combined single limit of \$2 Million and including the following coverage's:	furnishe correct
es (.pdf format) of the and distribution.	<ul> <li>(i) Comprehensive Form</li> <li>(ii) Premises - Operations</li> </ul>	brochure Contract
vided by the Owner, one	(ii) Explosion and Collapse Hazard (iv) Underground Hazard	3) Contract receipt
e or e-mail; provided they shall be sent by overnight	(v) Products — Completed Operations. Hazard (which must be maintained for 2 years commencing with issuances of the final Certificate of Payment)	4) Inspectio responsi
shan be some by eveninght	(vi) Broad Form Contractual Insurance (vii) Broad Form Property Damage (extended to apply to completed operations)	to the the bill
ed	(viii) Independent Contractors (ix) Personal Injury (with employees and contractual exclusions deleted)	5) The Cor
	(c) Automobile Liability (Comprehensive Form) insuring contractor for operations of all	received will be
	owned, hired, and non-owned vehicle limit of \$2 Million.	3. Foodservice a. The Contra
	(d) Umbrella Excess Liability: \$3 Million per occurrence / aggregate.	by Owner's Pull equipm
	10. Article 11, paragraph 11.3:	b. Properly ar recommenc
	Delete all references to Owner furnished property insurance.	c. Provide sili silicone to
ceptable to	The Contractor shall furnish Builders Risk Insurance, including the perils of fire, extended coverage, vandalism, and malicious mischief In an amount of not less than 100% of the	d. Assemble o following e
	insurable value of all the work, and the coverage written on Builders Risk Coverage Form CP0020, Including Causes of Loss Basic Form CP1010 or Causes of Loss - Broad Form	e. Mounting o
	CP1020 or Causes of Loss — Special Form CP1030 or an acceptable inland Marine "All Risk" installation floater form, with a company authorized to do business in the state in which the	the applica designed a should be
	project is located. 11. Article 12, add paragraph 12.2.2.1(a):	f. Installation
	11. Article 12, add paragraph 12.2.2.1(a): 12.2.2.1(a) If during the Contractors one (1) year warranty after completion the Owner requests	standards g. The Contra
ract for Construction" are 1 in full.	that tests be performed to determine if corrections in the Work need to be made, the expense of such tests shall be borne by (a) the Owner, if the results of the tests indicate	to food se terminating
octly from:	that no corrections are necessary, or (b) the Contractor, if the results of the test indicate that corrections are necessary.	of food se h. The Contra
	12. Article 13, paragraph 13.6.1:	water line to be repo
	13.6.1 Interest rate shall be ten percent (10%).	i. The Contra adjacent to
al Conditions (AlA A201),	DIVISION 1 - GENERAL REQUIREMENTS	final conne complete ir
, sub-paragraph, or the unaltered provisions of	SECTION 01100 - SUMMARY OF WORK	j. Sealing of 1) Contract
	1. PROJECT	service 2) Contract
chitect to act, approve,	A. Project Name: <u>Golden Chick Restaurant - Location as Noted on Drawings</u> . B. Owner's Name: GFC Leasing Corporation, LLC.	,
project, will become the t on periodic basis as the		k. Workmansh 1) Graining
cuments.	2. CONTRACT DESCRIPTION A. Contract Type: A single prime contract based on a Stipulated Price as provided By Owner in	directior 2) Cove all
	Bid Package	otherwis I. Fastening:
tions involving extra labor s of the actual cost of	3. WORK RESPONSIBILITY	1) Provide
llowed for Overhead	A. <u>Not In Contract (NIC):</u> Items shown or noted "(NIC)" on the drawings and/or in the specifications shall be furnished and installed by Owner under separate contract, except as described begingther. The Contractor shall receive unlead as required store approximate and	stainless counter-
Bid submittal.	described hereinafter. The Contractor shall receive, unload as required, store, coordinate and accommodate the Owner's contractors during the Work and be responsible to the extent of	2) Whereve stainless
orm, include Contractors	carrying necessary insurance to cover items in case of theft, fire, loss, malicious damage and other miscellaneous damage. Contractor shall provide all conduits, boxes, chases, etc. as indicated on the drawings for a complete installation. Included, but not inclusive, in this	m.Welding: All same comp
	category are:	rubble grou be visible o
work.	1. Food Service Equipment: a. Owner shall furnish, and Owner's vendor shall install food service equipment shown on	used on su n. Grinding, P
ess such time is stated on	food service drawings including, but not limited to the following: 1) Kitchen equipment	shall be ho again to e
writing by the Owner on the right to subsequently	2) Stainless steel tables and shelves	discoloratio removed by
hange Order approved and	<ol> <li>Remote refrigeration units. All refrigeration unit lines, power supply, calibration, etc. shall be installed and performed by the Contractor. The foodservice suppliers will not furnish pre-charged lines.</li> </ol>	homogeneo o. Equipment
	b. All custom fabricated stainless-steel items.	leaks, prop adjust for
26th day of each month	c. Soda System: Contractor is responsible for pipe chases, plumbing and electrical services per plan.	with autom controls ar
iting contractor, ired to make any payment	d. Illuminated Sign Package: Contractor shall be responsible for supplying individual electrical stub—ups at each site sign and/or each wall sign as required per plans and	equipment future refe
	make final connection. e. Prefabricated Aluminum Awnings, Canopies with Turnbuckles and Building Roof Peaks are	p. Testing: Co equipment
	provided and installed by Sign Vendor: Contractor shall be responsible for supplying individual electrical stub-ups for each as required per plans and make final connection.	q. Completion: 1) Contract
make such payment to the	f. Music, Intercom and A/V Systems: Contractor shall supply electrical service and wire	equipme
and call paymont to the	chases with pull strings per plans and coordinate installation with Owner's agent. Contractor to provide adequate wood backing to install all necessary equipment.	2) Contract 3) Contract
	g. Point of Sale and Back Office Systems: All system equipment shall be provided by Owner, including computer cable. All equipment shall be installed by Owner's agent. All	accepta
shall submit to the uipment, and, other	cable and wiring shall be installed in conduit installed by General Contractor as per plans. Contractor to provide 4 hours of carpentry and 4 hours of electrician labor on installation day for any observes that may arise	
property might in any way sent of surety to final	installation day for any changes that may arise. h. Security System: Contractor shall supply electrical service and wire chases with pull	
payment or satisfaction of satising out of the	strings per plans and coordinate installation with Owner's agent. Contractor to provide adequate wood backing to install all necessary equipment.	
designated by the Owner. If a or waiver required by	i. Telephones: Owner's agent will supply and install permanent telephone and jacks. Contractor shall supply and install junction boxes with pull strings per plans for said	
isfactory to the Owner to nsatisfied after all	installation and coordinate with Owner's agent. j. Furnishings and decor shown on architectural drawings including, but not limited to,	
monies that the Owner ut limitation, all costs, and	stools, chairs, booths, tables, and decor. <u>Note</u> : All millwork items shown on architectural drawings including, but not limited to, cabinets, shelving and vanities shall	
	be the responsibility of the Contractor. Contractor shall submit shop drawings of same for approval.	
ll be in the form	k. Water Softener: Contractor shall install and plumb all soft water lines and stub—out for unit hook—up.	

B. <u>By Owner:</u> Items shown or noted "By Owner" on the drawings and/or in the specifications 4. OWNER OCCUPANCY ned by Owner to Contractor/subcontractor for installation by ontractor as part of the construction contract. Contractor shall furnish all A. Owner intends to occupy the Project upon Substantial Completion. Contractor shall cooperate equipment, and tools required to receive, unload, store, protect, move from with Owner to minimize conflict and to facilitate Owner's operations and schedule the Work to assemble, install, and level these items and shall carry necessary insurance accommodate Owner occupancy. in case of theft, fire, loss, malicious damage and other miscellaneous B. Owner reserves right to occupy and to place and install equipment as necessary in completed ded, but not inclusive, in this category are: MICHAEL LEGG ARCHITECTURE areas of building before Substantial Completion, provided such occupancy does not interfere Equipment: with completion of Work. Such placing of equipment and partial occupancy shall not constitute NCARB. AIA. RIBA. SACAP I furnish food service equipment shown on food service drawings including, acceptance of total Work. 26116 High Timber Pass St mited to the following: C. Owner or Owner's agent to prepare Certificate of Substantial Completion for each specific San Antonio, Texas 78260 refrigeration units. All refrigeration unit lines, power supply, calibration, etc. ph. 210-416 4935 portion of Work to be occupied before Owner occupancy. installed and performed by the Contractor. The foodservice suppliers will nichael@mlarchitecture.infc D. Contractor shall obtain Certificate of Occupancy from local building officials before Owner www.michaelleggarchitecture.com nish pre-charged lines. occupancy shall furnish exhaust hoods with integral fire suppression, associated exhaust E. Mechanical and Electrical Systems: urbs, and MUA units. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational. ductwork (type 1 and type 2 hoods), flue caps and duct wrap shall be 2. Required inspections and tests shall have been successfully completed. ided and installed by the Contractor. 3. On occupancy, Owner will provide operation and maintenance of mechanical and electrical s Steel Wall Paneling at cook line, prep line, and dish wash area. systems in occupied portions of Building. s Steel Corner Guards. is responsible for coordination, delivery, handling, storage, installation, leveling, . MISCELLANEOUS PROVISIONS ealing (where applicable), set—up, start—up, start—up, and calibration of all vided equipment. A. Accessibility Compliance: nd unloading of Owner furnished items: Full compliance with Uniform Federal Accessibility Standards (UFAS), and Americans with DRAWING elivery and installation of the Owner's kitchen equipment, the following must Disabilities Act (ADA), prohibiting discrimination on basis of disability by public accommodations, COORDINATION is required for Work of this Project. Architectural, Landscape, Civil, ust be set and clean; Fiberglass Reinforced Panels (FRP) and/or tile shall be Structural, Mechanical and This Project has been designed to and requires full compliance with ADA regulations, whether or nd trimmed; acoustical ceiling grid complete with all light fixtures, ductwork Electrical drawings are interrelated not specific references or notes to regulations are made on Drawings or in Specifications. fusers installed; acoustical ceiling tile shall be installed; and all gypsum wall General Contractor and all Sub eilings shall be finished. Contractors shall review and . PROJECT GENERAL NOTES coordinate the entire set of ctor shall provide motorized, hydraulic forklift at site to assist in the offloading drawings and specifications ner provided kitchen equipment. The Contractor shall inventory the Owner d items delivered to the job site and check each item to ensure that the A. Unless noted otherwise, all work in these drawings and specifications shall be performed by type and model number per the food service plans and kitchen equipment the Contractor. e provided at the beginning of the project has been delivered. The B. The Contractor shall field verify all conditions and dimensions prior to any work and shall be ctor shall notify the Owner immediately if any discrepancies are found. responsible for all work and materials including those furnished by subcontractors. Contractor ctor to provide copies of all delivery tickets, bills of lading, etc. certifying shall accept premises as found, Owner assumes no responsibility for the condition of the of the Owner furnished items. existing site or existing structures at the time of bidding or thereafter. ion of all Owner furnished items upon delivery for evidence of damage is the C. The Contractor is responsible for correcting any errors after the start of construction which sibility of the Contractor. The Contractor shall repair or replace, at no cost has not been brought to the attention of the architect. The means of correcting any error Owner, any damaged equipment received at the job site and not noted on shall first be approved by the Architect and Owner. ı of lading. D. Dimensions take precedence over drawings. DO NOT SCALE DRAWINGS TO DETERMINE ANY LOCATIONS. The architect shall be notified if any discrepancy occurs prior to continuing with ntractor is solely responsible for care of the Owner furnished items once until completion of the contract. Any lost or damage during his possession work. repaired or replaced at no cost to the Owner. E. All plan dimensions are from face of stud or face of masonry unless noted otherwise. equipment installation: F. The Contractor shall report to the Owner and Architect any errors, inconsistencies, or actor shall off load, uncrate and store all food service equipment not installed omissions discovered. agent, set in place, level and scribe to walls, floor and base as required. G. All construction shall comply with the applicable building codes and local restrictions. The nent tight and secure field joints and properly dispose of all packing material. Contractor must comply with the Contractor registration requirements of all governing nchor or fasten to walls, floor, ceiling, and base as per installation authorities dations of the food service equipment manufacturer. H. The general building permits shall be paid for by the Owner. All other permits shall be secured and paid for by the subcontractor directly responsible. All required city, county, cone bead where equipment joins together or abuts wall surfaces. Color of be clear. and/or state licenses shall be acquired and paid for by the individual subcontractor. I. It shall be the responsibility of the Contractor to locate all existing utilities whether shown and secure in place all loose components such as, but not limited to, the examples: tops of base units, shelves, legs, dispensers, etc. herein or not and to protect them from damage. The Contractor shall bear all expense of repair or replacement of utilities or other property damaged by operations in conjunction with f equipment: Equipment which is not provided with legs or casters meeting the prosecution of the work. able requirements should be mounted by the following method: Equipment and constructed to be mounted directly to the floor, without legs or casters, J. The Contractor shall be responsible for and shall replace or remedy any faulty, improper, or sealed around the entire perimeter of the equipment. inferior materials or workmanship which shall appear within one year or as otherwise specified for a specific component after the completion and acceptance of the wok under this of all food service equipment shall comply with all applicable codes and contract required by the local health department. K. The Contractor is to provide blocking as required for mounting of booth tables, wall mounted actor shall provide rough in water, drainage, and other service piping adjacent shelves, cabinets, HC grab bars and partition braces, in addition to other requirements ervice equipment requiring same, capping drain outlets with suitable plugs and specified herein. water and other service with shut-off valves and cocks. After installation ervice equipment, Contractor shall make all final connections. actor shall supply one 14-inch diameter loop of soft copper coil at each CONTRACTOR USE OF SITE AND PREMISES for all applicable food service equipment and related cabinetry that may need ositioned for maintenance or repair. A. Provide access to and from site as required by law and by Owner: actor shall provide rough-in electrical wiring terminated in outlet boxed 1. Emergency Building Exits During Construction: Keep all exits required by code open o food service equipment and, after installation of equipment, shall make all during construction period; provide temporary exit signs if exit routes are temporarily altered. ctions. This includes supplying devices, cord and plugs, etc, as required to 2. Do not obstruct roadways, sidewalks, or other public ways without permit. nstallation. B. Utility Outgaes and Shutdown: Penetrations: 1. Prevent accidental disruption of utility services to other facilities. ctor shall adequately seal with escutcheons and/or sealant all utility and piping and other required openings through walls and floors.

ctor shall seal conduit/outlet penetrations with approved foam insulation.

Where two metal surfaces are butt welded, grain shall run in the same

intersections of vertical and horizontal sheet metal on a 5/8" radius unless se indicated.

nuts, bolts, and screws of American Standard unified screw thread design in steel, only when sanitary fastenings are impossible. In all instances, use -sunk, flat, or oval head fasteners. round head fasteners are not acceptable.

bolt threads are exposed, or may come in contact with a wiping cloth, use steel acorn nuts. welding shall be per AWS standards by electric arc method with rod of

position as parts welded. make welds complete, strong, and ductile with ound off and joints finished smooth, polished, and re-grained. Welds shall not on continuous appearance. All welding shall be of a non-toxic nature when surfaces exposed to unpackaged food.

Polishing, and Finishing: Any material sunken or depressed by welding operation nammered and peened flush with adjacent surfaces and, if necessary, ground liminate low spots. Surfaces showing evidence of warpage and/or burn ion will not be accepted. in all cases, textures from rough grinding shall be y successive finer polishing operations until the grain of the entire surface is ous.

Adjustment: Contractor shall operate all food service equipment, test for per connections, inadequate or faulty performance, calibrate and correct and proper operation. All thermostatically controlled equipment and equipment natic features shall be operated for a sufficient length of time to prove re functioning as intended. all food service plans, shop drawings, and brochures are to remain at the store and be handed over to the Owner for rence

ontractor shall test all water and gas piping built within the food service t for leaks using approved testing procedures.

ctor shall remove all protective coverings, tags, labels, and tape from

ctor shall thoroughly clean and polish Owner furnished items. ctor shall place protective coverings on all equipment after cleaning until final ance of building then shall remove protective coverings.

SECTION 01110 - WORK COVERED BY CONTRACT DOCUMENTS 1.INTENT OF DRAWINGS AND SPECIFICATIONS

A.The Contractor shall complete all Work as provided for in Contract Documents including Drawings and Specifications. Anything mentioned in the Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Project Manual, shall be furnished and installed as if shown and mentioned in both. The Contractor shall furnish all materials or labor required to complete Work shown on the Drawings and called out in the Project Manual, to include labor and material requirements reasonably inferable therefrom as being neces to complete the work, whether each and every single item necessary to completion is sp or detailed or not.

2.CONTRACTOR RESPONSIBILITY FOR WORK REQUIRED

A.The organization of the Specifications into Divisions, Sections and Paragraphs and the arran of the Drawings are not intended to control the Contractor in dividing the Work among Subcontractors or to establish the limits and extent of work to be performed by a parti trade. The Contractor alone is responsible for the completion of the entire work as dra specified, complete in place and in functional or operating conditions. The division of th Project Manual into sections and paragraphs is for convenience only and not for the pur of limiting or restricting the performance of any portion of the Work to any particular to

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#### DIVISION 1 - GENERAL REQUIREMENTS (CONTINUED)

SECTION 01300 - ADMINISTRATIVE REQUIREMENTS

#### 1. PROJECT COORDINATION

- A. Cooperate with the Owner's Project Coordinator regarding allocation of mobilization areas on site; for field offices and sheds, for worker access, traffic, parking facilities and use of temporary utilities and construction facilities.
- B. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
- C. Coordinate field engineering and layout work with Owner's Project Coordinator.
- D. Make the following types of submittals to Architect/Engineer through the Project Coordinator: 1. Requests for interpretation.
- 2. Requests for substitution.
- 3. Shop drawings, product data, and samples.
- E. Make the following types of submittals to Owner through the Project Coordinator: 1. Test and inspection reports.
- 2. Manufacturer's instructions and field reports.
- 3. Applications for payment and change order requests.
- 4. Progress schedules.
- 5. Coordination drawings 6. Closeout submittals.
- 2. PRECONSTRUCTION MEETING
- A. Make arrangements for meetings, prepare agenda with copies for participants and preside at
- meetings.
- B. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, as appropriate to agenda topics for each meeting.
- C. Agenda:
- 1. Execution of Owner-Contractor Agreement. 2. Submission of executed bonds and insurance certificates.
- 3. Distribution of Contract Documents.
- 4. Submission of list of Subcontractors, list of Products, schedule of values, and progress
- schedule 5. Designation of personnel representing the parties to Contract, Major Sub-Contractors and
- Architect/Engineer 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
- 7. Scheduling. C. Record minutes and distribute copies within two days after meeting to participants, with two copies to Owner's Project Coordinator, participants, and those affected by decisions made.

#### 3. SITE MOBILIZATION MEETING

- A. Owner's Project Coordinator will schedule a meeting at the Project site prior to Contractor
- occupancy. B. Attendance Required:
- 1. Contractor and Superintendent.
- 2. Owner's Project Coordinator
- 3. Major Subcontractors.
- C. Agenda:
- 1. Use of premises by Owner and Contractor.
- 2. Owner's requirements and partial occupancy prior to completion.
- 3. Construction facilities and controls provided by Owner.
- 4. Survey and building layout. 5. Security and housekeeping procedures.
- 6. Schedules.
- 7. Application for payment procedures.
- 8. Procedures for testing.
- 9. Procedures for maintaining record documents.
- 10. Requirements for start-up of equipment.
- 11.Inspection and acceptance of equipment put into service during construction period.

#### 4. PROGRESS MEETINGS

- A. Make arrangements for meetings, prepare agenda with copies for participants, preside at
- meetinas. B. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, as
- appropriate to agenda topics for each meeting.
- C. Agenda:
- 1. Review minutes of previous meetings. 2. Review of Work progress.
- 3. Field observations, problems, and decisions.
- 4. Identification of problems which impede planned progress.
- 5. Review of submittals schedule and status of submittals
- 6. Maintenance of progress schedule.
- 7. Corrective measures to regain projected schedules. 8. Planned progress during succeeding work period.
- 9. Maintenance of quality and work standards.
- 10. Effect of proposed changes on progress schedule and coordination.
- 11. Other business relating to Work.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect/Engineer, Owner, participants, and those affected by decisions made.

- 5. CONSTRUCTION PROGRESS SCHEDULE
- A. Within 10 days after joint review, submit complete schedule.
- B. Submit updated schedule with each Application for Payment.
- 6. PROGRESS PHOTOGRAPHS
- A. Submit digital, electronic photograph files with each application for payment, taken not more than 3 days prior to submission of application for payment.
- B. Maintain one set of all photographs at project site for reference; same copies as submitted, identified as such.
- C. Provide photographs of site and construction throughout progress of Work produced by an experienced photographer, acceptable to Architect/Engineer.
- D. In addition to periodic, recurring views, take photographs of each of the following events: 1. Completion of site clearing.
- 2. Excavations in progress.
- 3. Foundations in progress and upon completion.
- 4. Structural framing in progress and upon completion.
- 5. Enclosure of building, upon completion. 6. Final completion, minimum of ten (10) photos.
- E. Views:

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- 1. Provide non-aerial photographs from four cardinal views at each specified time, until Date of Substantial Completion.
- 2. Provide factual presentation. F. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
- 1. Delivery Medium: Via email.
- 2. File Naming: Include project identification, date and time of view, and view identification. 3. PDF File: Assemble all photos into printable pages in PDF format, with 2 to 3 photos per page, each photo labeled with file name; one PDF file per submittal.
- 4. Hard Copy: Printed hardcopy (grayscale) of PDF file.

- . SUBMITTALS FOR REVIEW
- A. When the following are specified in individual sections, submit them 1. Product data.
- 2. Shop drawings.
- 3. Samples for selection.
- B. Submit to Architect/Engineer for review for the limited purpose of with information given and the design concept expressed in the con
- C. Samples will be reviewed only for aesthetic, color, or finish selectio D. After review, provide copies and distribute in accordance with SUB
- record documents purposes described in Section 01780 CLOSEOU

#### 8. SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them 1. Design data.
- 2. Certificates.
- 3. Test reports.
- 4. Inspection reports. 5. Manufacturer's instructions.
- 6. Manufacturer's field reports.
- 7. Other types indicated.
- 9. SUBMITTALS FOR PROJECT CLOSEOUT
- A. When the following are specified in individual sections, submit them
- 1. Project record documents. 2. Operation and maintenance data.
- 3. Warranties.
- 4. Bonds.
- 5. Other types as indicated.
- 10. NUMBER OF COPIES OF SUBMITTALS

#### A. Documents for Review:

- 1. Small Size Sheets, Not Larger Than  $8-1/2 \times 11$  inches: Subn which the Contractor requires, plus one copy which will be reta Project Coordinator.
- 2. Larger Sheets, Not Larger Than 30 x 42 inches: Submit the nu reproductions which Contractor requires, plus one copy which w Project Coordinator.

3. Time records and wage rates paid.

11. SUBMITTAL PROCEDURES

1. GENERAL

2. CHANGE ORDER FORM

3. PRELIMINARY PROCEDURES

A. When the following are specified in individual sections, submit them for review: 1. Product data.	A. Owner's Project Coordinator will issue Change Orders for signatures of parties as provided in GENERAL CONDITIONS.	1. TEMPORARY UTILITIES
2. Shop drawings.	7. CORRELATION OF CONTRACTOR SUBMITTALS	A. Provide and pay for all electrical power, lighting, water, heating required for construction purposes.
<ul><li>3. Samples for selection.</li><li>B. Submit to Architect/Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.</li></ul>	A. Schedule of Values: Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum as shown on Change Order.	<ol> <li>TELEPHONE SERVICE</li> <li>A. Provide, maintain, and pay for telephone and facsimile services</li> </ol>
<ul> <li>C. Samples will be reviewed only for aesthetic, color, or finish selection.</li> <li>D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES and for record documents purposes described in Section 01780 - CLOSEOUT SUBMITTALS.</li> </ul>	B. Progress Schedules: Promptly revise Progress Schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by change, and resubmit.	project mobilization. 3. TEMPORARY SANITARY FACILITIES
. SUBMITTALS FOR INFORMATION	C. Project Record Documents: Promptly enter changes in Project Record Documents.	A. Provide and maintain required facilities and enclosures. Provide mobilization. Maintain daily in clean and sanitary condition.
A. When the following are specified in individual sections, submit them for information:	SECTION 01400 - QUALITY REQUIREMENTS	
1. Design data. 2. Certificates.	1. SUBMITTALS	4. BARRIERS A. Provide barriers to prevent unauthorized entry to construction a
<ol> <li>Test reports.</li> <li>Inspection reports.</li> </ol>	A. Test and Reports: After each test/inspection, promptly submit two copies of report to	of site and to protect existing facilities and adjacent properties construction operations and demolition.
5. Manufacturer's instructions. 6. Manufacturer's field reports.	Architect/Engineer, Owner's Project Coordinator, and to Contractor. 1. Include:	B. Provide barricades and covered walkways required by governing rights—of—way and for public access to existing building.
7. Other types indicated.	a. Date issued. b. Project title and number.	C. Protect non-owned vehicular traffic, stored materials, site, and
. SUBMITTALS FOR PROJECT CLOSEOUT	<ul><li>c. Name of inspector.</li><li>d. Date and time of sampling or inspection.</li></ul>	5. FENCING A. Construction: Contractor's option.
A. When the following are specified in individual sections, submit them at project closeout: 1. Project record documents.	e. Identification of product and specifications section.	<ul> <li>B. Provide 6 foot high fence around construction site; equip with with locks.</li> </ul>
<ol> <li>Operation and maintenance data.</li> <li>Warranties.</li> </ol>	f. Location in the Project. g. Type and Date of test/inspection.	
4. Bonds.	h. Results of test/inspection. i. Conformance with Contract Documents.	<ol> <li>SECURITY</li> <li>A. Provide security and facilities to protect Work, existing facilities,</li> </ol>
5. Other types as indicated.	j. When requested, provide interpretation of results. 2. Test reports are submitted for the limited purpose of assessing conformance with	unauthorized entry, vandalism, or theft.
D. NUMBER OF COPIES OF SUBMITTALS	information given and the design concept expressed in the contract documents. B. Certificates: When specified in individual specification sections, submit certification by the	7. VEHICULAR ACCESS AND PARKING
<ul> <li>A. Documents for Review:</li> <li>1. Small Size Sheets, Not Larger Than 8-1/2 x 11 inches: Submit the number of copies</li> </ul>	manufacturer and Contractor or subcontractor, in quantities specified for Product Data. 1. Indicate material or product conforms to or exceeds specified requirements. Submit	A. Coordinate access and haul routes with governing authorities ar B. Provide and maintain access to fire hydrants, free of obstruction
which the Contractor requires, plus one copy which will be retained by the Owner's Project Coordinator.	supporting reference data, affidavits, and certifications as appropriate.	C. Provide temporary parking areas to accommodate construction not adequate, provide additional off—site parking.
<ol> <li>Larger Sheets, Not Larger Than 30 x 42 inches: Submit the number of opaque reproductions which Contractor requires, plus one copy which will be retained by Owner's Project Coordinator.</li> </ol>	2. REFERENCES AND STANDARDS	8. WASTE REMOVAL
B. Documents for Information: Submit two copies.	A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the current standard, except when more rigid requirements are specified or	A. Provide waste removal facilities and services as required to ma orderly condition. Provide containers with lids and remove trash
<ul> <li>C. Documents for Project Closeout: Make one reproduction of submittal originally reviewed. Submit one extra of submittals for information.</li> <li>D. Samples: Submit the number specified in individual specification sections; one of which will</li> </ul>	are required by applicable codes. B. Should specified reference standards conflict with Contract Documents, request clarification	B. If materials to be recycled or re-used on the project must be suitable non-combustible containers; locate containers holding f
<ul> <li>be retained by Owner's Project Coordinator.</li> <li>After review, produce duplicates.</li> </ul>	from Owner's Project Coordinator before proceeding.	structure unless otherwise approved by the authorities having ju C. Open free-fall chutes are not permitted. Terminate closed chu
2. Retained samples will not be returned to Contractor unless specifically so stated.	3. TESTING AND INSPECTION AGENCIES	with lids.
1. SUBMITTAL PROCEDURES	A. General Contractor shall employ services of an, Owner-approved, independent testing agency to perform specified testing. Employment of agency in no way relieves Contractor of	9. PROJECT IDENTIFICATION
A. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.	obligation to perform Work in accordance with requirements of Contract Documents.	<ul> <li>A. Provide and erect project identification sign of design and cons as indicated.</li> <li>B. No other signs are allowed without Owner permission except the</li> </ul>
B. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.	4. CONTROL OF INSTALLATION	
C. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of	A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.	10.FIELD OFFICES A. Office: Weather tight, with lighting, electrical outlets, heating, c
information is in accordance with the requirements of the Work and Contract Documents. D. For each submittal for review, allow 7 days excluding delivery time to and from the	<ul> <li>B. Comply with manufacturers' instructions, including each step in sequence.</li> <li>C. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more</li> </ul>	equipped with sturdy furniture, drawing rack and drawing display B. Provide space for Project meetings, with table and chairs to ac
Contractor. E. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.	precise workmanship. D. Verify that field measurements are as indicated on shop drawings or as instructed by the	11. REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS
F. When revised for resubmission, identify all changes made since previous submission. G. Submittals not requested will not be recognized or processed.	manufacturer.	A. Remove temporary utilities, equipment, facilities, materials, prior inspection.
H. Do not make requests for deviations from contract documents via shop drawings, product data, or samples. Deviations will not be valid unless specifically approved under specified	5. TOLERANCES	B. Remove underground installations to a minimum depth of 2 fee C. Clean and repair damage caused by installation or use of temp
modification procedures.	A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.	D. Restore existing facilities used during construction to original co
ECTION 01320 - CHANGE ORDER PROCEDURES	B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Owner's Project Coordinator before proceeding.	SECTION 01580 - PROJECT IDENTIFICATION SIGNS
A. GENERAL A. General Conditions of the Contract for Construction, AIA Document A201, Article 7, governs	6. TESTING AND INSPECTION	1. PROJECT SIGN FRAME
the work of this Section.	A. Testing Agency Duties:	A. Within seven days of date of notice to proceed, furnish and er identification signs, in a location directed by the Owner: Sign s
CHANGE ORDER FORM	1. Provide qualified personnel at site. Cooperate with Owner's Project Coordinator and Contractor in performance of services.	supporting a 4'-0" high by 8'-0" wide sheet of 3/4 inch thic Locate post 1'-0" from ends of plywood; 6'-0" centers. Botte
A. Change Orders will be issued on Owner's standard forms. . PRELIMINARY PROCEDURES	<ol> <li>Perform specified sampling and testing of products in accordance with specified standards.</li> <li>Ascertain compliance of materials and mixes with requirements of Contract Documents.</li> </ol>	4'-0" above grade. B. Framework shall receive a fabric sign to be furnished by Owner
A. Proposal Request: If a change to the Work is considered by the Owner, he will issue a	4. Promptly notify Owner's Project Coordinator and Contractor of observed irregularities or non-conformance of Work or products.	Contractor. Installation of sign will be by wrap and staple met spaced on back side.
formal request for Contractor's proposal for changes to the Contract. Request includes: Detailed description of change with supplementary or revised Drawings and Specifications, projected time for executing change, with a stipulation of any overtime work required, and	<ol> <li>5. Perform additional tests and inspections required by Owner's Project Coordinator.</li> <li>6. Submit reports of all tests/inspections specified.</li> </ol>	2. CONTRACTOR SIGNS AND ADVERTISING
period of time during which requested price will be considered valid.	B. Limits on Testing/Inspection Agency Authority:	A. Contractor and principal subcontractors may have company sigr Contractor's expense, if so desired. No other free-standing si
B. Contractor Response: Respond with formal written proposal referencing Architect's request number, job name, date, specific items requested and indicate total amount of change	<ol> <li>Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.</li> <li>Agency may not approve or accept any portion of the Work, may not assume any duties of Contractor and has no authority to stop the Work.</li> </ol>	other than "warning" signs and notices required by law will be the premises.
imposed costs and construction time consideration for each request. Give each numbered request individual response. Do not lump two or more proposals on one response.	C. Contractor Responsibilities: 1. Deliver to agency at designated location, adequate samples of materials proposed to be used	B. If a permit is required, the Contractor is responsible for obtain
CONTRACT CHANGE METHODS	<ul><li>which require testing, along with proposed mix designs.</li><li>2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers'</li></ul>	
A. Work Directive Change: Architect may issue a directive, signed by Owner, instructing Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Directive will describe changes in the Work, and will designate method of	facilities. 3. Provide incidental labor and facilities:	SECTION 01600 - PRODUCT REQUIREMENTS
determining any change in Contract Sum or Contract Time. Promptly execute the change in Work.	a. To obtain and handle samples at the site or at source of Products to be tested/inspected.	A. Product Data Submittals: Submit manufacturer's standard publi to identify applicable products, models, options, and other data
B. Lump Sum Change Order: Will be based on Proposal Request and Contractor's lump sum quotation.	b. To facilitate tests/inspections. c. To provide storage and curing of test samples.	standard data to provide information specific to this Project. B. Shop Drawing Submittals: Prepared specifically for this Project;
C. Unit Price Change Order:	4. Notify Owner's Project Coordinator and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.	characteristics, utility connection requirements, and location of u functional equipment and appliances.
<ol> <li>For pre_determined unit prices and quantities, Change Order will be executed on lump sum basis.</li> <li>For unit costs or quantities of units of work which are not predetermined, execute</li> </ol>	5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.	C. Sample Submittals: Illustrate functional and aesthetic character integral parts and attachment devices. Coordinate sample submit
Work under a work directive change. Changes in Contract Sum or Contract Time will be computed as specified for time and material Change Order.	D. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Owner's Project Coordinator.	1. For selection from standard finishes, submit samples of the manufacturer's standard colors, textures, and patterns
D. Time and Material Change Order: Submit itemized account and supporting data with 10 working days after completion of change; Architect will determine change allowable in	7. DEFECT ASSESSMENT	<ol> <li>NEW PRODUCTS</li> <li>A. Provide new products unless specifically required or permitted b</li> </ol>
Contract Sum and Contract Time as provided in GENERAL CONDITIONS.	A. Replace Work or portions of the Work not conforming to specified requirements.	3. PRODUCT OPTIONS
A. General: Document each quotation for a change in cost or time with sufficient data to	B. If, in the opinion of Owner's Project Coordinator, it is not practical to remove and replace the Work, Owner's Project Coordinator will direct an appropriate remedy or adjust payment.	<ul> <li>A. Products Specified by Reference Standards or by Description On those standards or description.</li> </ul>
allow evaluation of quotation. B. Time and Material Changes: Maintain detailed records of work done. Provide full		<ul> <li>B. Products Specified by Naming One or More Manufacturers: Use manufacturers named and meeting specifications, no options or</li> </ul>
information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.		C. Products Specified by Naming One or More Manufacturers with Submit a request for substitution for any manufacturer not nam
<ul> <li>C. Additional Data: On request, provide additional data to support computations:</li> <li>1. Quantities of products, labor, and equipment. Taxes, insurance and bonds.</li> <li>2. Overhead and profit.</li> </ul>		
3. Justification for any change in Contract Time. 4. Credit for deletions for Contract, similarly documented.		
<ul> <li>D. Additional Costs Claims: Support each claim for additional costs, and for work done on a time and material basis, with additional information:</li> <li>1. Origin and date of claim.</li> </ul>		
2. Dates and times work was performed, and by whom. 3. Time records and wage rates paid		

6. EXECUTION OF CHANGE ORDERS

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

RY FACILITIES AND CONTROLS	<ul> <li>SUBSTITUTION PROCEDURES</li> <li>A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during</li> </ul>	
all electrical power, lighting, water, heating and cooling, and ventilation tion purposes.	<ul> <li>the bidding period. Comply with requirements specified in this section.</li> <li>B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.</li> <li>C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.</li> </ul>	MICHAEL LEGG ARCHITECTURE
d pay for telephone and facsimile services to field office at time of	<ul><li>D. A request for substitution constitutes a representation that the submitter:</li><li>1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.</li><li>2. Will provide the same warranty for the substitution as for the specified product.</li></ul>	MICHAEL LEGG ARCHITECTURE Michael Gregory Legg NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St San Antonio, Texas 78260 ph. 210-416 4935
ACILITIES required facilities and enclosures. Provide at time of project daily in clean and sanitary condition.	<ol> <li>Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.</li> <li>Waives claims for additional costs or time extension which may subsequently become apparent.</li> <li>E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require</li> </ol>	michael@mlarchitecture.info www.michaelleggarchitecture.com
revent unauthorized entry to construction areas, to allow for owner's use ot existing facilities and adjacent properties from damage from ns and demolition. Ind covered walkways required by governing authorities for public or public access to existing building. Wehicular traffic, stored materials, site, and structures from damage.	revision to the Contract Documents. 5. OWNER-SUPPLIED PRODUCTS A. Contractor's Responsibilities: 1. Review Owner reviewed shop drawings, product data, and samples. 2. Receive and unload products at site; inspect for completeness or damage jointly with Owner. 3. Handle, store, install and finish products. 4. Repair or replace items damaged after receipt.	DRAWING
ictor's option. fence around construction site; equip with vehicular and pedestrian gates	<ul> <li>6. TRANSPORTATION AND HANDLING</li> <li>A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.</li> <li>B. Transport and handle products in accordance with manufacturer's instructions.</li> <li>C. Provide equipment and personnel to handle products by methods to prevent soiling,</li> </ul>	COORDINATION Architectural, Landscape, Civil, Structural, Mechanical and Electrical drawings are interrelated. General Contractor and all Sub Contractors shall review and coordinate the entire set of drawings and specifications
facilities to protect Work, existing facilities, and Owner's operations from andalism, or theft. • PARKING • d haul routes with governing authorities and Owner. • access to fire hydrants, free of obstructions. • arking areas to accommodate construction personnel. When site space is • additional off—site parking.	<ul> <li>disfigurement, or damage.</li> <li>7. STORAGE AND PROTECTION <ul> <li>A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.</li> <li>B. Store and protect products in accordance with manufacturers' instructions with labels intact and legible.</li> <li>C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.</li> </ul> </li> </ul>	
al facilities and services as required to maintain the site in clean and ovide containers with lids and remove trash from site. cycled or re—used on the project must be stored on—site, provide tible containers; locate containers holding flammable material outside the rrwise approved by the authorities having jurisdiction. s are not permitted. Terminate closed chutes into appropriate containers	<ul> <li>D. For exterior storage of fabricated products, place on sloped supports above ground.</li> <li>E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.</li> <li>F. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.</li> </ul>	
oject identification sign of design and construction indicated on Drawings		
Illowed without Owner permission except those required by law.		
t, with lighting, electrical outlets, heating, cooling equipment, and furniture, drawing rack and drawing display table. oject meetings, with table and chairs to accommodate 6 persons.		el at
FACILITIES, AND CONTROLS tilities, equipment, facilities, materials, prior to Substantial Completion		pon 5
installations to a minimum depth of 2 feet. Grade site as shown. nage caused by installation or use of temporary work. ities used during construction to original condition.		nt Ren ourg F exas
IDENTIFICATION SIGNS		urar ckst o, Te
date of notice to proceed, furnish and erect one (1) project n a location directed by the Owner: Sign shall consist of 4x4 inch posts nigh by 8'-0" wide sheet of 3/4 inch thick exterior A/C plywood. rom ends of plywood; 6'-0" centers. Bottom of plywood shall be at		Resta °ederić Antoni
eive a fabric sign to be furnished by Owner and installed by General ion of sign will be by wrap and staple method; long staples, closely e.		hick 1 1 Fr San /
D ADVERTISING ipal subcontractors may have company signs on field office, at , if so desired. No other free—standing signs or advertising of any kind signs and notices required by law will be permitted on the site or about ed, the Contractor is responsible for obtaining the permit.		olden Cl 231
REQUIREMENTS		Ğ
tals: Submit manufacturer's standard published data. Mark each copy		
products, models, options, and other data. Supplement manufacturers' vide information specific to this Project. tals: Prepared specifically for this Project; indicate utility and electrical connection requirements, and location of utility outlets for service for and appliances.		SCRIPTION
Illustrate functional and aesthetic characteristics of the product, with tachment devices. Coordinate sample submittals for interfacing work. n standard finishes, submit samples of the full range of the er's standard colors, textures, and patterns.		
unless specifically required or permitted by the Contract Documents.		DATE
Reference Standards or by Description Only: Use any product meeting description.		SPECIFICATIONS
<ul> <li>Naming One or More Manufacturers: Use a product of one of the</li> <li>and meeting specifications, no options or substitutions allowed.</li> <li>Naming One or More Manufacturers with a Provision for Substitutions:</li> </ul>		PROJECT NO.
substitution for any manufacturer not named.		05-05-22

SHEET NO.

**SP.2** 

#### DIVISION 1 - GENERAL REQUIREMENTS (CONTINUED)

SECTION 01700 - EXECUTION REQUIREMENTS

- 1. EXAMINATION
- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Verify that utility services are available, of the correct characteristics, and in the correct
- locations. D. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.
- 2. PREPARATION
- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.
- 3. LAYING OUT THE WORK
- A. Verify locations of survey control points prior to starting work. Protect survey control points
- prior to starting site work; preserve permanent reference points during construction. B. Promptly report to Owner the loss or destruction of any reference point or relocation required
- because of changes in grades or other reasons. C. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
- 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
- 2. Grid or axis for structures.
- 3. Building foundation, column locations, ground floor elevations, and plumbing.
- D. Maintain a complete and accurate log of control and survey work as it progresses.
- 4. CUTTING AND PATCHING
- A. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work
- B. Execute work by methods to avoid damage to other work, and which will provide appropriate surfaces to receive patching and finishing.
- C. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- D. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- E. Restore work with new products in accordance with requirements of Contract Documents.
- F. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- G. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material to full thickness of the penetrated element.
- H. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
- 5. PROGRESS CLEANING
- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space. C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue
- cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site weekly and dispose off-site; do not burn or bury.
- 6. PROTECTION OF INSTALLED WORK
- A. Protect installed work from damage by construction operations.
- B. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials. C. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is
- necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- 7. SYSTEMS STARTUP
- A. Coordinate schedule for start-up of various equipment and systems.
- B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- D. Verify that wiring and support components for equipment are complete and tested.
- E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
- F. Submit a written report that equipment or system has been properly installed and is functioning correctly.
- 8. DEMONSTRATION AND INSTRUCTION
- A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- 9. FINAL CLEANING
- A. Use cleaning materials that are non-hazardous.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces
- C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- D. Clean filters of operating equipment.
- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.
- 10. CLOSFOUT PROCEDURES

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- A. Accompany Owner on preliminary inspection to determine items to be listed for completion or correction in Contractor's Notice of Substantial Completion.
- B. Notify Owner when work is considered ready for Substantial Completion.
- C. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.
- D. Notify Owner when work is considered finally complete.

11. PROJECT SUPERVISION AFTER SUBSTANTIAL COMPLETION

A. Project superintendent shall remain on site through completion of punch list. B. Project superintendent shall be present on site for one week prior to store opening.

- 1. Layout of work. 2. Land-survey work.
- 2. SUBMITTALS
- A. Certificates: Submit a certificate signed by the land surveyor certificates elevation of improvements B. Final Property Survey: Submit 5 copies of the final property survey
- both AutoCAD and PDF formats. C. Project Record Drawings: Submit a record of work performed and required under provisions of Sections 01300 and 01780.
- 3. QUALITY ASSURANCE
- A. Surveyor Qualifications: Engage a land surveyor registered in the s located to perform required land-surveying services. B. Do not begin construction until layout of work is reviewed by the la
- EXAMINATION
- A. Identify existing control points and property line corner stakes.
- B. Verify layout information shown on the Drawings, in relation to the benchmarks, before proceeding to lay out the Work. Locate and pro and control points. Preserve permanent reference points during cons 1. Do not change or relocate benchmarks or control points without Promptly report lost or destroyed reference points or requirements
- points because of necessary changes in grades or locations. 2. Promptly replace lost or destroyed Project control points. Bas original survey control points.
- C. Establish and maintain a minimum of 2 permanent benchmarks on data established by survey control points. 1. Record benchmark locations, with horizontal and vertical data,
- Documents D. Existing Utilities and Equipment: Before beginning site construction, existence and location of underground utilities and other construction invert elevation at points of connection of sanitary sewer, storm sev
- piping. 5. PERFORMANCE
- A. Work from lines and levels established by the property survey. Est markers to set lines and levels as needed to locate each element scale Drawings to determine dimensions.
- 1. Advise sub-contractors of marked lines and levels provided for 2. As construction proceeds, check each major element for line, B. Surveyor's Log: Maintain a surveyor's log of control and other surv
- available for reference. 1. Record deviations from required lines and levels, and advise the that exceed indicated or recognized tolerances are detected. On P
- record deviations that are accepted and not corrected. C. Building Lines and Levels: Locate and lay out batter boards for st foundations, column grids and locations, floor levels, and control lin
- mechanical and electrical work. D. Site Improvements: Locate and lay out site improvements, including grading, fill and topsoil placement, utility slopes, and invert elevation
- E. Existing Utilities: Furnish information necessary to adjust, move, or structures, utility poles, lines, services, or other appurtenances locat construction. Coordinate with local authorities having jurisdiction.
- F. Final Property Survey: Prepare a final property survey showing sign property) for the Project. Include on the survey a certification, sig principal metes, bounds, lines, and levels of the Project are accurat the survey.

- SUBMITTALS
- A. Project Record Documents: Submit documents to Owner with claim Pavment.
- B. Operation and Maintenance Data:
- 1. Submit two copies of preliminary draft or proposed formats and
- before start of Work. Owner will review draft and return one co 2. For equipment, or component parts of equipment put into serv
- operated by Owner, submit completed documents within ten day
- 3. Submit two sets of revised final documents in final form withir inspection.
- C. Warranties and Bonds:
- 1. For equipment or component parts of equipment put into servic Owner's permission, submit documents within ten days after acc 2. Make other submittals within ten days after Date of Substantial
- Application for Payment.
- 3. For items of Work for which acceptance is delayed beyond Dat submit within ten days after acceptance, listing the date of acc of the warranty period.
- 2. PROJECT RECORD DOCUMENTS

schedule for cleaning and maintenance.

SECTION 01720 - CONSTRUCTION LAYOUT	5. OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS	SECTION 02072 - SITE DEMOLITION
<ol> <li>SUMMARY         <ul> <li>A. Section Includes:                 <ul></ul></li></ul></li></ol>	<ul> <li>A. For Each Item of Equipment and Each System:</li> <li>1. Description of unit or system, and component parts.</li> <li>2. Identify function, normal operating characteristics, and limiting conditions.</li> <li>3. Complete nomenclature and model number of replaceable parts.</li> </ul>	1. SECTION INCLUDES a.Removal of existing construction indicated other Sections of these Specifications.
<ol> <li>SUBMITTALS</li> <li>A. Certificates: Submit a certificate signed by the land surveyor certifying the location and elevation of improvements.</li> </ol>	<ul> <li>B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.</li> <li>C. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions.</li> </ul>	<ul> <li>b.Capping and Identifying Utilities</li> <li>c.Protection of persons and property.</li> <li>2. COORDINATION: Contractor is solely responsi of subcontractors and Tenant's staff for work</li> </ul>
<ul> <li>B. Final Property Survey: Submit 5 copies of the final property survey along with electronic files; both AutoCAD and PDF formats.</li> <li>C. Project Record Drawings: Submit a record of work performed and record survey data as required under provisions of Sections 01300 and 01780.</li> </ul>	Include summer, winter, and any special operating instructions. D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting,	3. GENERAL a.Maintain protected access at all times. L b.General: Erect and maintain weatherproof
<ol> <li>QUALITY ASSURANCE</li> <li>A. Surveyor Qualifications: Engage a land surveyor registered in the state where the Project is located to perform required land-surveying services.</li> <li>B. De not begin construction until largent of work is registered by the land surgence.</li> </ol>	balancing, and checking instructions. E. Include manufacturer's printed operation and maintenance instructions. F. Include sequence of operation by controls manufacturer.	temporary partitions to prevent spread of c.Protect existing items, which are not indic d.Existing Utilities: Disconnect, remove, and
<ul> <li>B. Do not begin construction until layout of work is reviewed by the land surveyor.</li> <li>4. EXAMINATION <ul> <li>A. Identify existing control points and property line corner stakes.</li> <li>B. Verify layout information shown on the Drawings, in relation to the property survey and existing</li> </ul> </li> </ul>	G. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance. H. Provide framed information as follows. All information shall be framed in black metal frames.	Mark locations of disconnected utilities. Record Documents. e.Persons: Erect and maintain fences, plan and guards required for protection of wo
<ul> <li>benchmarks, before proceeding to lay out the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.</li> <li>1. Do not change or relocate benchmarks or control points without prior written approval. Promptly report lost or destroyed reference points or requirements to relocate reference points because of necessary changes in grades or locations.</li> </ul>	<ol> <li>Subcontractor list and service company contact information (to be located in office)</li> <li>All warranty information (located in office)</li> <li>Legend and locations of labels on valves and knobs in mechanical room (located in mechanical room)</li> </ol>	f.Property: Use care and appropriate mean part of Work of Contract. Repair, refinis at no additional cost to Tenant. g.Demolish in orderly and careful manner w
<ol> <li>Promptly replace lost or destroyed Project control points. Base replacements on the original survey control points.</li> <li>Establish and maintain a minimum of 2 permanent benchmarks on the site, referenced to data established by survey control points.</li> </ol>	<ol> <li>4. Map of zones for irrigation system located with irrigation controls.</li> <li>6. OPERATION AND MAINTENANCE MANUALS</li> <li>A. Drengra instructions and data by personnel experienced in maintenance and experience</li> </ol>	adjacent property. h.Except where noted otherwise, immediately from site. Do not burn or bury materia i.The General Contractor, immediately followi
<ol> <li>Record benchmark locations, with horizontal and vertical data, on Project Record Documents.</li> <li>Existing Utilities and Equipment: Before beginning site construction, investigate and verify the existence and location of underground utilities and other construction. Verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service</li> </ol>	<ul> <li>A. Prepare instructions and data by personnel experienced in maintenance and operation of described products in the form of an instructional manual.</li> <li>B. Binders: Commercial quality, 8-1/2 x 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent exercises.</li> </ul>	overall dimensions match those shown in the Contractor shall immediately inform t 4. SITE CLEARING
<ul> <li>5. PERFORMANCE</li> <li>A. Work from lines and levels established by the property survey. Establish benchmarks and</li> </ul>	related consistent groupings. C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents. D. Provide tabbed dividers for each separate product and system, with typed description of	a.Remove and legally dispose of above and and/or not indicated to remain, within th b.Remove trees, vegetation, etc, within proje
markers to set lines and levels as needed to locate each element of the Project. Do not scale Drawings to determine dimensions. 1. Advise sub—contractors of marked lines and levels provided for their use. 2. As construction proceeds, check each major element for line, level, and plumb.	product and major component parts of equipment. E. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.	c.Strip topsoil within building and pavement areas; excess shall be removed from site d.Provide protection to improvements to rem
<ul> <li>B. Surveyor's Log: Maintain a surveyor's log of control and other survey work. Make this log available for reference.</li> <li>1. Record deviations from required lines and levels, and advise the Owner when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings,</li> </ul>	<ul> <li>F. Contents: Prepare a Table of Contents for each volume, with each product or system description identified with tabbed dividers, in three parts as follows:</li> <li>1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.</li> </ul>	SECTION 02100 - SITE CLEARING
record deviations that are accepted and not corrected. C. Building Lines and Levels: Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels, and control lines and levels required for mechanical and electrical work. D. Site Improvements: Locate and lay out site improvements, including pavements, stakes for	<ol> <li>Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:</li> <li>a. Significant design criteria.</li> </ol>	<ol> <li>GENERAL         <ol> <li>GENERAL</li> <li>Remove and legally dispose of above and and/or not indicated to remain, within the b. Remove trees, vegetation, etc, within proj</li> </ol> </li> </ol>
<ul> <li>grading, fill and topsoil placement, utility slopes, and invert elevations.</li> <li>E. Existing Utilities: Furnish information necessary to adjust, move, or relocate existing structures, utility poles, lines, services, or other appurtenances located in or affected by construction. Coordinate with local authorities having jurisdiction.</li> </ul>	<ul> <li>b. List of equipment.</li> <li>c. Parts list for each component.</li> <li>d. Operating instructions.</li> </ul>	c. Strip topsoil within building and pavement green areas; excess shall be removed fro d. Provide protection to improvements to re
F. Final Property Survey: Prepare a final property survey showing significant features (real property) for the Project. Include on the survey a certification, signed by the surveyor, that principal metes, bounds, lines, and levels of the Project are accurately positioned as shown on the survey.	e. Maintenance instructions for equipment and systems. f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents. 3. Part 3: Project documents and certificates, including the following:	SECTION 02200 - EXCAVATION, BACKFILLING, CO
SECTION 01780 - CLOSEOUT SUBMITTALS	a. Shop drawings and product data. b. Certificates.	The following are general guidelines for excav- contractor shall follow the specific recommend construction documents. When not specifically shall comply with the provisions herein.
<ol> <li>SUBMITTALS         A. Project Record Documents: Submit documents to Owner with claim for final Application for Payment.     </li> </ol>	<ol> <li>WARRANTIES AND BONDS</li> <li>A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty</li> </ol>	<ol> <li>Excavate for footings; foundations structure be assumed as earth.</li> <li>A. Trim bottoms to leave solid, undisturbe</li> </ol>
<ul> <li>B. Operation and Maintenance Data:</li> <li>1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Owner will review draft and return one copy with comments.</li> </ul>	until the Date of Substantial completion is determined. B. Verify that documents are in proper form, contain full information, and are notarized. C. Co-execute submittals when required.	<ul><li>B. All foundation excavation shall be kept</li></ul>
<ol> <li>For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.</li> <li>Submit two sets of revised final documents in final form within 10 days after final inspection.</li> </ol>	<ul> <li>D. Manual: Bind in commercial quality 8-1/2 x 11 inch three D side ring binders with durable plastic covers.</li> <li>E. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and</li> </ul>	<ul> <li>C. Correct unauthorized excavation in a n</li> <li>2. Excess earth not required for backfill s</li> <li>responsible for topsoil placement and rakin</li> </ul>
<ul> <li>C. Warranties and Bonds:</li> <li>1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.</li> </ul>	name of responsible company principal. F. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.	3. Compact backfill to density of adjacent so Report for other recommendations).
<ol> <li>Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.</li> <li>For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.</li> </ol>	G. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principals.	A. Compact soil to not less than the follo which exhibit a well-defined moisture of accordance with ASTM D1557: and not density, determined in accordance with well-defined moisture-density relationsh
<ol> <li>PROJECT RECORD DOCUMENTS</li> <li>A. Maintain on site one set of the following record documents; record actual revisions to the Work:</li> </ol>	DIVISION 2 - SITEWORK SECTION 02010 - SUBSURFACE INVESTIGATION	B. Under Buildings and Paved Areas: Com of backfill of fill material to 95 percer (Standard Proctor) for cohesive soil or cohesionless soils.
<ol> <li>Drawings.</li> <li>Specifications.</li> <li>Addenda.</li> </ol>	<ol> <li>SUBSURFACE INVESTIGATION</li> <li>A. Geotechnical investigation (subsurface soil tests) for the project site has been performed and</li> </ol>	C. Other Areas: Compact 8 inches of exis material to 90 percent maximum densi percent relative density (Standard Proc
<ol> <li>Change Orders and other modifications to the Contract.</li> <li>Reviewed shop drawings, product data, and samples.</li> <li>Manufacturer's instruction for assembly, installation, and adjusting.</li> <li>Ensure entries are complete and accurate, enabling future reference by Owner.</li> </ol>	a report of that investigation has been completed. The consultants report presents his conclusions on subsurface conditions, based on his interpretations of the data obtained in the investigation. The Contractor acknowledges that he has reviewed the consultants report and any addenda thereto, and that his Bid for excavation operations, including all necessary rock	D. Where soil materials must be moisture to surface, Prevent free water from ap subsequent to compaction operation.
C. Store record documents separate from documents used for construction. D. Record information concurrent with construction progress. E. Specifications: Legibly mark and record at each product section description of actual	removal, is based on subsurface condition as described in that report. It is recognized that a subsurface investigation may not disclose all conditions, as they actually exist between the time of a subsurface investigation and the time of excavation operations. In recognition of these facts, this clause is entered in the Contract to provide a means of equitable additional	<ul> <li>E. Remove and replace, or scarify and ai compaction to specified density.</li> <li>4. Backfill and fill materials</li> </ul>
products installed, including the following: 1. Manufacturer's name and product model and number. 2. Product substitutions or alternates utilized.	compensation for the Contractor if adverse unanticipated conditions are encountered, and to provide a means of rebate to the Owner if the conditions are more favorable than anticipated. B. Requirements:	A. Sand or sand on gravel at engineered on-grade, to underside of crushed sto
<ul> <li>3. Changes made by Addenda and modifications.</li> <li>F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including: <ol> <li>Measured depths of foundations in relation to finish first floor datum.</li> </ol> </li> <li>2. Measured horizontal and vertical locations of underground utilities and appurtenances,</li> </ul>	<ol> <li>Contractor shall refer to all recommendation and findings as set forth in soils geotechnical report. The Owner and/or Architect accept no responsibility for the accuracy of the findings or for the final recommendations. Existing elevations and locations to be joined shall be verified by the contractor before construction. Contractor shall notify the Owner so that modifications can be made before proceeding with the work.</li> </ol>	<ul> <li>B. Earth materials taken from the excavariant fill material, capable of meeting the sprease outside the building 1). Only 1-inch washed gravel, pea graved areas, to top of subgrade.</li> </ul>
referenced to permanent surface improvements. 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.	2. At any point in time during excavation operations that the Contractor encounters conditions that are different than those anticipated by the foundation consultants report, he shall immediately (within 24 hours) bring this fact to the Owners attention. Once a fact of unanticipated conditions has been brought to the attention of the Owner, and the consultant	C. Existing paving, organic material or exi slabs or for filling under pavement.
<ul><li>4. Field changes of dimension and detail.</li><li>5. Details not on original Contract drawings.</li><li>3. OPERATION AND MAINTENANCE DATA</li></ul>	has concurred, immediate negotiations will be undertaken between the Owner and the Contractor to arrive at a change in contract price for additional work or reduction in work because of the unanticipated conditions. The Contractor agrees that his stated unit price would apply for additional or reduced work under the Contract.	D. Granular fill under slabs on grade shal E. Remove rock or gravel larger than 2 i and deleterious matter from ground su
A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts. B. Product Data: Mark each sheet to clearly identify specific products and component parts,		<ol> <li>Grade site to establish required elevatio away from building in final grading.</li> <li>A Storm drainage shall be provided as in</li> </ol>
and data applicable to installation. Delete inapplicable information. C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.		<ul> <li>A. Storm drainage shall be provided as ir with state and local codes and ordinar</li> <li>6. Grade areas to smooth finished surface uniform lovels or clopes between points and</li> </ul>
D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.		uniform levels or slopes between points an
<ul> <li>4. OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES</li> <li>A. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents</li> </ul>		

- ON INCLUDES noval of existing construction indicated on Drawings and/or requ
- ping and Identifying Utilities
- tection of persons and property.
- DINATION: Contractor is solely responsible for coordination of wo bcontractors and Tenant's staff for work of other Sections of t RAL
- ntain protected access at all times. Use of explosives is prohit eral: Erect and maintain weatherproof closures for exterior ope
- nporary partitions to prevent spread of dust, fumes, noise, and tect existing items, which are not indicated to be altered. ting Utilities: Disconnect, remove, and cap designated utility se
- ark locations of disconnected utilities. Identify and indicate cappi cord Documents.
- sons: Erect and maintain fences, planking, bracing, shoring, ligl guards required for protection of workmen and the public.
- perty: Use care and appropriate means to protect construction of Work of Contract. Repair, refinish and/or replace damage no additional cost to Tenant. olish in orderly and careful manner with least possible disturba
- ljacent property. cept where noted otherwise, immediately remove and dispose of
- om site. Do not burn or bury materials on site. General Contractor, immediately following demolition shall measu
- erall dimensions match those shown in the architectural drawing Contractor shall immediately inform the architect. SITE CLEARING
- nove and legally dispose of above and below grade improvement d/or not indicated to remain, within the project limits.
- nove trees, vegetation, etc, within project limits. topsoil within building and pavement area and stockpile for re
- eas: excess shall be removed from site. ide protection to improvements to remain.

## 02100 - SITE CLEARING

- move and legally dispose of above and below grade improvemen d/or not indicated to remain, within the project limits.
- move trees, vegetation, etc, within project limits.
- trip topsoil within building and pavement area and stockpile for r een areas; excess shall be removed from site.
- vide protection to improvements to remain.

02200 - EXCAVATION, BACKFILLING, COMPACTION, AND GRADING

owing are general guidelines for excavation, backfilling, compacti ctor shall follow the specific recommendations made in the soils tion documents. When not specifically addressed in the constru mply with the provisions herein.

- avate for footings; foundations structures, utilities, etc. to indicat assumed as earth.
- Trim bottoms to leave solid, undisturbed base for concrete place earing capacity.
- All foundation excavation shall be kept dry, and protected from
- Correct unauthorized excavation in a manner acceptable to Own
- Excess earth not required for backfill shall be removed from site. nsible for topsoil placement and raking to grade.

pact backfill to density of adjacent soil, as follows, whichever is ort for other recommendations).

- Compact soil to not less than the following percentages of max which exhibit a well-defined moisture density relationship (cohes accordance with ASTM D1557: and not less than the following p density, determined in accordance with ASTM D2049, for soils wi well-defined moisture-density relationship (cohesionless soils).
- Under Buildings and Paved Areas: Compact top 8 inches of exis of backfill of fill material to 95 percent maximum density (Standard Proctor) for cohesive soil or 98 percent relative densi cohesionless soils.
- Other Areas: Compact 8 inches of existing ground surface and naterial to 90 percent maximum density (Standard Proctor) for percent relative density (Standard Proctor) for cohesionless soils
- Where soil materials must be moisture conditioned before compo to surface. Prevent free water from appearing on surface of so subsequent to compaction operation.
- Remove and replace, or scarify and air dry soil material that is compaction to specified density.
- lackfill and fill materials
- Sand or sand on gravel at engineered (clean) earth fill shall be on-grade, to underside of crushed stone underlayment.
- Earth materials taken from the excavation operations and stock fill material, capable of meeting the specified compaction require material in areas outside the building pad. 1). Only 1-inch washed gravel, pea gravel or sand shall be use paved areas, to top of subgrade.
- Existing paving, organic material or existing soils shall not be us slabs or for filling under pavement.
- Granular fill under slabs on grade shall be No. 57, 6, or 67 cr
- Remove rock or gravel larger than 2 inches in any dimension,
- and deleterious matter from ground surface prior to placement
- rade site to establish required elevations. Maintain proper drainc from building in final grading.
- Storm drainage shall be provided as indicated on Civil plan(s) a with state and local codes and ordinances.
- rade areas to smooth finished surfaces free from irregular surf orm levels or slopes between points and existing perimeter grade

A. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended

	SECTION 02361 - TERMITE CONTROL	
quired by work specified in	<ol> <li>SUMMARY         <ul> <li>A. This Section includes the following: Adjust list below to suit Project.</li> </ul> </li> <li>Soil treatment with termiticide.</li> </ol>	MLA
work of this Section with work these Specifications.	<ol> <li>REFERENCES         <ul> <li>A. Title 7, United States Code, 136 through 136y — Federal Insecticide, Fungicide and Rodenticide Act; United States Code; 1947 (Revised 2001).</li> <li>3. REGULATORY REQUIREMENTS</li> </ul> </li> </ol>	MICHAEL LEGG ARCHITECTURE Michael Gregory Legg NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St
hibited. penings. Erect and maintain Id smoke.	<ul> <li>A. Conform to applicable code for requirements for application and comply with EPA regulations.</li> <li>B. Provide certificate of compliance from authority having jurisdiction indicating approval of</li> </ul>	San Antonio, Texas 78260 ph. 210-416 4935 michael@mlarchitecture.info www.michaelleggarchitecture.com
services within demolition areas. pping locations on Project	toxicants. 4. SEQUENCING AND REPORTING A. Apply toxicant immediately prior to installation of vapor barrier under slabs—on—grade.	GREGO
ights, barricades, warning signs	<ul><li>B. Soil Treatment Application Report: Include the following:</li><li>1. Date and time of application.</li></ul>	E C T T
on and property which is not	<ol> <li>Moisture content of soil before application.</li> <li>Brand name and manufacturer of termiticide.</li> </ol>	22543 OF
ged construction and property pance to public and to	<ol> <li>Quantity of undiluted termiticide used.</li> <li>Dilutions, methods, volumes, and rates of application used.</li> </ol>	09.21.2023
f demolished materials away	6. Areas of application. 7. Water source for application. 5. WARRANTY	DRAWING COORDINATION Architectural, Landscape, Civil,
sure the space to confirm the ngs. If discrepancies occur,	<ul> <li>A. Provide five-year installer's warranty against damage to building caused by termites.</li> <li>1. Include coverage for repairs to building and to contents damaged due to building damage. Repair damage and, if required, re-treat.</li> </ul>	Structural, Mechanical and Electrical drawings are interrelated. General Contractor and all Sub Contractors shall review and coordinate the entire set of
ents and structures if any	<ol> <li>Inspect annually and report in writing to Owner. Provide inspection service for three (3) years from Date of Substantial Completion.</li> <li>MANUFACTURERS         <ul> <li>A. Subject to compliance with requirements, manufacturers offering products that may be</li> </ul> </li> </ol>	drawings and specifications
re—use in landscape and green	incorporated into the Work include, but are not limited to, the following: 1. Termiticides: a. Aventis Environmental Science USA LP; Termidor. b. Bayer Corporation; Premise 75. c. Dow AgroSciences LLC; Dursban TC or Equity. d. FMC Corporation, Agricultural Products Group; Talstar, Prevail FT, or Torpedo. e. Syngenta; Demon TC.	
ents and structures if any	<ol> <li>MIXES</li> <li>A. Toxicant Chemicals: EPA approved; synthetically color dyed to permit visual identification of soil treatment.</li> </ol>	
re-use in landscape and	<ul><li>B. Diluent: Recommended by toxicant manufacturer.</li><li>C. Mix toxicant to manufacturer's instructions.</li></ul>	
re-use in lunuscupe unu	<ul> <li>8. EXAMINATION</li> <li>A. Verify that soil surfaces are unfrozen, sufficiently dry to absorb toxicant, and ready to receive treatment.</li> <li>B. Verify final grading is complete.</li> </ul>	
NG	9. SOIL TREATMENT A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities	
ction and grading. The Is report and/or Civil ruction documents, contractor	having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label. B. Preparation:	
ated depth. All excavation shall	<ol> <li>General: Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.</li> </ol>	
acement. See Soils Report for	<ol> <li>Delete paragraph below if no soil treatment.</li> <li>Soil Treatment Preparation: Loosen, rake, and level soil to be treated except previously</li> </ol>	a
n freezing.	compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.	e e
vner. ite. General Contractor	C. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following on that a continuous beginned and votical termiticidal barrier or treated concentration of termiticidates and votical termiticidates and the second se	Rd Rd
is greater: (Refer to Soils	following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly. Revise five subparagraphs below to suit Project.	ar Re Arg
aximum density for soils,	<ol> <li>Slabs-on-Grade: Under ground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.</li> </ol>	ant sbu Tey
esive soils) determined in percentages of relative which will not exhibit a	<ol> <li>Foundations: Adjacent soil including soil along the entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating the slab, and around interior column footers, piers, and chimney bases; also, along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.</li> </ol>	staur srick nio,
xisting surface and each layer	3. Crawlspaces: Soil under and adjacent to foundations as previously indicated. Treat adjacent areas including around entrance platform, porches, and equipment bases. Apply overall	Res ede
nsity (Standard Proctor) for	treatment only where attached concrete platform and porches are on fill or ground. Examples of masonry voids are the insides of hollow masonry units and behind masonry veneer. 4. Masonry: Treat voids.	A T C
d each layer of backfill of fill or cohesive soils or 85 ils.	<ol> <li>Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.</li> <li>D. Insert requirements here for crawlspaces used as plenum spaces only after seeing Evaluations for cautionary information.</li> </ol>	Chic 311 Sar
npaction, uniformly apply water soil materials during or	<ul> <li>B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.</li> <li>E. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until</li> </ul>	en 0 23
is too wet to permit	ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions. F. Post warning signs in areas of application. G. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading,	<b>PIO</b>
be used under floor slabs	<ul> <li>Iandscaping, or other construction activities following application.</li> <li>H. Apply extra treatment to structure penetration surfaces such as pipe or ducts, and soil penetrations such as grounding rods or posts.</li> </ul>	<b>5</b>
ckpiled on site as acceptable lirements, may be used as fill used in utility trenches in	I. Do not permit soil grading over treated work.	
used for filling under building		
crushed stone per ASTM D448.		DESC
, debris, waste, obstructions, t of fills.		
nage ways to direct water		DATE
and installed in accordance		
ırface changes. Compact with Ides		SPECIFICATIONS
		PROJECT NO. 05-05-22
		SHEET NO.
		SP.3

#### DIVISION 2 - SITEWORK (CONTINUED)

SECTION 02505 - CONCRETE PAVING, WALKS, CURBS, GUTTERS AND APPROACHES

- 1. SECTION INCLUDES
- A. Concrete pedestrian traffic surfaces (walks, ramps, etc.)
- B. Concrete vehicular traffic surfaces
- C. Concrete curbs and gutters D. Concrete traffic approaches
- 2. REFERENCE PUBLICATIONS AND STANDARDS
- A.Governing Authority: Applicable standards and regulations of state and municipal agencies having governing authority over the work specified in this section shall take priority over items specified herein and shown on the drawings unless the requirements set forth herein require a superior quality work.
- B.Material Standards: American Society for Testing Materials (ASTM)
- C.Concrete Standards: American Concrete Institute (ACI): ACI\_617 "Standard Specifications for Concrete Pavement and Bases" ACL\_395 "Manual of Standard Practice for Detailing Reinforced Concrete"
- 3. SUBMITTALS
- A.Testing Laboratory Reports: Furnish three copies of the test reports to the Owner indicating results of the cylinder test.
- 4. BASIC MATERIALS
- A.Concrete and Reinforcing Steel: As Specified in CAST\_IN\_PLACE CONCRETE
- 5. MISCELLANEOUS MATERIALS
- A. Air Entraining Agent: ASTM C0260, Master Builders or equal.
- B. Dispersing Admixture: ASTM C\_494, Master Builders or equal. C. Curing Compound: ASTM C\_309, No. 40W by A. C. Horn Company or equal.
- D. Joint Filler: ASTM D1751, pre-molded fiber filler, unless shown otherwise on the drawings. E. Joint Sealer: ASTM D\_1190, Code 2351.
- 6. CONCRETE MIX DESIGN

A. Contractor shall employ and pay for, as a part of the contract price, the services of an Owner approved independent testing laboratory to determine actual design mix to be used, based on the following: All concrete: 3000 psi at 28 days, unless noted otherwise.

- 7. INSPECTION OF SUBGRADE
- Alnspect subgrades prepared as specified elsewhere in these Specifications and report any deficiencies to the Owner before beginning work. Commencement of work shall indicate acceptance of subgrades by this Contractor.
- 8. CONSTRUCTION
- A. General: Deliver and place concrete as specified in CAST\_IN\_PLACE CONCRETE. B. Curbs and Gutters:
- 1. Configurations: Construct to cross\_sectional details shown on drawings and at indicated locations. Curbs may be fully formed or pulled and troweled to configurations shown on the drawings.
- 2. Reinforcement: Reinforce as indicated on the drawings with continuous reinforcing bars lapped 30 bar diameters and securely tied at all splices. Metal chairs shall be used to hold the reinforcing steel in the proper plane.
- 3. Expansion Joints: Construct  $\frac{1}{2}$  wide expansion joints with joint filler across lengths of curb at all tangent points and at not more than twenty foot intervals. Construct one inch wide expansion joints with joint filler between curbs and concrete paving. All fixed objects, such as buildings, poles, pipes, catch basins, etc., within or abutting the concrete shall be separated from the concrete by expansion joints.
- 4. Finishing: Finish surfaces with dense uniform texture equal to burlap drag and cross\_score
- with 1/4" deep cross joints at ten foot intervals with edges smoothed 1/8". 5. Joints: Fill expansion joints with joint filler except for space 3/4" deep at surface. After concrete has set, clean the open joint above filler and fill with joint sealer in accordance with instructions of sealer manufacturer.
- C. Traffic Approaches and Vehicular Traffic Surfaces: 1. Configuration: Construct to cross-sectional details shown on drawings and at indicated
- locations. 2. Reinforcement: Reinforce with #3 minimum size reinforcing bars 18 inches on center both
- ways, unless otherwise indicated or noted on the drawings 3. Expansion and Construction Joints: At intentional points for stoppage of concrete placing,
- use expansion joints. At unintentional points of stoppage of concrete placing, use continuation of reinforcing through joints. Construct  $\frac{1}{2}$  inch wide expansion joints with joint filler at locations shown on the drawings or at not more than twenty foot intervals each way if not shown. Construct ½ inch wide expansion joints with joint filler between curbs and concrete paving. All fixed objects, such as buildings, poles, pipes, catch basins, etc., within or abutting the concrete shall be separated from the concrete by expansion
- 4. Joint Filling and Sealing: Fill expansion joints with joint filler except for space 3/4" deep at surface. After concrete has set, clean the open joint above filler and fill with joint sealer in accordance with instructions of sealer manufacturer.
- 5. Finishing: Vibrate, screed and float concrete to level and test the surface, which shall not vary over 1/4" in ten feet when tested with ten foot straight edge. Finish surface to gritty texture with burlap drag or straight continuous strokes with a stiff bristle push broom. Finish all edges smooth with 1/8" or 1/4" radius.
- D. Walks:
- 1. Configurations: Construct to cross-sectional details shown on drawings and at indicated locations.
- 2. Sand Cushion: Concrete shall be placed over a sand cushion placed on the stabilized subarade as shown on the drawinas or a minimum of 4" thick if not shown on the drawings.
- 3. Reinforcing: Reinforce with 6 x 6 x W1.4, WWF, minimum reinforcing unless otherwise indicated or noted on the drawings.
- 4. Expansion Joints: Construct expansion joints as detailed in locations shown on the drawings.
- 5. Finishing: Finish surfaces not noted on the drawings to be finished otherwise to a "broom" or "burlap drag" gritty surface. Tool all joints and all edges to provide a smooth border to each section or division of the walk. Finish all vertical surfaces in a manner that leaves the exposed surfaces free of "honeycombing" and form marks. Any damaged surfaces shall be repaired and stone-rubbed to match adjacent finished surfaces.
- 9. CURING CONCRETE

A. Apply a white\_pigmented type curing compound at a uniform rate of approximately 200 sq. ft./ gallon, or as recommended by curing compound manufacturer as soon as the finishing operation has been completed and the concrete has lost its water sheen. The curing procedure must protect the concrete, including all exposed surfaces against loss of moisture and rapid temperature change for a period of not less than four days from the beginning of the curing operation and without damage to, or marking of the finished concrete surface. Traffic shall not be allowed on finished concrete for a minimum period of seven days.

10. TESTING

A. Independent Testing Laboratory: Contractor shall employ and pay for, as a part of the contract price, the services of an Owner\_ approved independent testing laboratory to perform concrete cylinder testing. Test cylinders shall be taken and cured by the Contractor and tested by the testing laboratory for each different class of concrete poured in any one day. Cylinders shall be taken in accordance with ASTM C31, and cured and tested in accordance with ASTM C39. One set of three cylinders is required for each 50 cubic yards of concrete or less, placed in any one day. One cylinder shall be tested at 7 days, one cylinder shall be tested at 28 days and one cylinder shall be held as a spare from each set of three cylinders as specified above.

- B. Contractor Tests:
- 1. Slump Tests: Slump tests shall be taken by the Contractor when cylinders are taken, and shall show maximum slump 5" and minimum slump 3".
- 2. Air Entrainment: Air content by volume: 5% to 7% based on measurements made in concrete mixtures at point of discharge at job site at time slump tests are made. Air content by volume shall be determined in accord with ASTM C231.
- 11. CLEANING CONCRETE
- A. Concrete approaches, sidewalks and related work shall be hosed down with water, scrubbed with fiber brushes, allowed to dry and be left broom clean and in condition acceptable to the Owner.

SECTION 02511 - ASPHALTIC CONCRETE PAVING

- 1. SECTION INCLUDES A. Paving base
- B. Base Course and surface course
- 2. REFERENCE STANDARDS
- A. American Association of State Highway Officials (AASHO) B. American Society for Testing Materials (ASTM)
  - C. Governing Authority: Applicable publications of governing bodies I

3. SUBMITTALS

- A. Submit design mix test reports to Owner per SUBMITTAL requireme 4. MATERIALS
- A. Sub-Base: If required; as shown on the site plan (SP) drawings sections of these specifications
- B. Base Course (Binder): Unless otherwise shown on the drawings; aggregate and asphalt as determined by "design mix" C. Surface Course: Unless otherwise shown on the drawings: uniforr and fine aggregate (pea gravel will not be acceptable), mineral fi
- determined by "design mix". D. Design Mixes: Contractor employ and pay for the services of an independent testing laboratory to determine design mixes for base including asphalt bitumen content; ASTM D2172, latest edition, ent
- 5. GRADE CONTROL
- A. Establish and maintain lines and grades shown on drawings by me stakes.

of Bitumen from Bituminous Paving Mixtures"

6. TRANSPORTATION

A. Transport paving mixes from approved mixing plant to site in tig bottoms previously cleaned of foreign materials. Vehicles shall be heat losses. Cover each load to prevent cooling and loss of ingr

7. PLACING

- A. General: Thickness shown on Civil drawings. Unless otherwise sh asphaltic concrete in two courses; first a coarse graded base cou graded surface course. Apply base course to prepared sub-base has been primed with asphalt MC-1, application temperature 50 of 0.15 to 0.40 gal/sq yd. Apply surface course to base course a tack coat of asphalt RC-2, application temperature 100 to 175 0.05 to 0.25 gal/sq yd. Place each course under temperature degrees F
- B. Means: Dump and spread mixture on primed base with spreading that after compaction, surface will be smooth, of uniform density for typical cross-section shown. Other placing means may be p C. Time and Temperature: Place and initially roll during daylight how
- temperature; between 225 and 325 degrees F D. Protection of Curbs and Gutters: Prevent splattering of adjacent paving and structures. Hand spreading may be employed where
- E.Finish Grades: Approximately 6 inches below adjacent concrete side except as specifically shown otherwise on the drawings; true to a within 1/4 inch in 10 feet when checked with a straight edge.
- 8. ROLLING

allowed.

- A. General: After rolling with medium weight steel-wheeled roller, roll wheel, or tandem rollers longitudinally at sides and proceed toward overlapping on successive trips by at least half width of rear whe roller shall be slightly different in length.
- B. Compression and Roller Marks: Roll until no further compression marks are eliminated. If required, roll diagonally in each direction second diagonal rolling crossing line of first rolling. C. Prevention of Mixture Adhesion to Roller: Keep wheels moistened
- of water will not be permitted. Do not permit rollers to stand of been fully compacted and which has not cooled to atmospheric
- D. Displacement: Keep movement of roller slow enough to avoid dis Correct any displacement at once by use of rakes and addition E.Precautions: Prevent dropping of oil, gasoline and grease on paver F.Hand Operations: Thoroughly compact edges of pavement along cu manholes, valve boxes and similar places not accessible to roller hand-operated vibrating rollers or mechanical tampers.

9. SPECIAL TESTING

- A. Extraction and Gradation Test: ASTM D2172 for each type.
- B. Field-In-Place Density Test: ASTM D1188 for each type. C. Thickness Test: Determine by test borings. Make one test for surface. If average thickness is deficient by no more than 1/4
- thickness is deficient by more than 5/8 inch, installation will be If average thickness is deficient by more than 1/4 inch, or if any determination is deficient by more than 5/8 inch, pavement thick meet requirements. Deficient areas shall be defined, removed and design thickness by methods acceptable to the Owner.

SECTION 02580 - PAVEMENT MARKING

- 1. GENERAL
- a. Marking paint shall conform to AASHTO M248 (chlorinated rubber-a wide stripes (or symbols as indicated) in one coat of 125 sq. ft. white. Handicapped details shall comply with the latest provisions of
- Disabilities Act and local accessibility standards. b. Dust, clay, silt, and excess sand shall be removed by sweeping fro prior to application of paint.

SECTION 02854- PARKING BUMPERS (WHEEL STOPS)

- 1. SECTION INCLUDES
- A. Parking bumper (wheel stop)
- 2. WHEEL STOPS
- A. Precast concrete, semi\_circular or beveled square in cross\_section 8" wide, with holes for three dowels cast through each unit, and drainage slots.
- 3. DOWELS
- A. Not less than 2 3/4" round X 12" long (minimum) steel dowe wheel stop manufacturer.
- 4. GENERAL A. Install wheel stops in locations and in accord with details shown
- 5. INSTALLATION A. Countersink steel dowels to a point 1/2" to 3/4" below the top and set in such a manner as to avoid chipping or cracking the
- and seal reveal with silicone caulking flush. 6. CLEAN\_UP
- A. Upon completion of work of this section, remove related debris f

	SECTION 02930- SITE FURNISHINGS 1. SECTION INCLUDES	DIVISION 3 - CONCRETE SECTION 03300 - CAST-IN-PLACE CONCRETE
	A. Bollards	<ol> <li>SCOPE</li> <li>A. The Contractor shall furnish labor, materials, and equipment nec</li> </ol>
s having jurisdiction over the	B. Bicycle Racks 2. RELATED REQUIREMENTS	of cast—in—place concrete, and all necessary items as shown on anchor bolts for columns, items specified herein, and items requir installation.
ements.	A. Section 03300 — Cast—in—Place Concrete: Bollard infill and underground encasement. B. Section 05500 — Metal Fabrications: Anchors to attach site furnishings to mounting surfaces.	2. REFERENCES: A. The ACI "Manual of Concrete Practice" and the CRSI "Manual of
igs and specified in other	3. SUBMITTALS	apply unless modified herein. 3. MATERIALS
s; uniform mix of coarse	A. See Section 01300 — Administrative Requirements, for submittal procedures. B. Shop Drawings: Indicate plans for each unit or groups of units, elevations with model	A. Cement: The cement used shall be Portland Cement, conforming One brand shall be used for the complete project.
orm mix of coarse aggregate filler and asphalt as	number, overall dimensions; construction, and anchorage details.	B. High early strength concrete may be used at General Contractor's
an Owner-approved ase and surface courses; entitled, "Quantitative Extraction	<ul> <li>4. WARRANTY</li> <li>A. See Section 01780 - Closeout Submittals, for additional warranty requirements.</li> </ul>	<ul> <li>C. Aggregates:</li> <li>1. Coarse aggregate shall conform to ASTM C-33 specifications with n The material shall consist of crushed stone, gravel, or other hard, pieces.</li> </ul>
	5. MANUFACTURERS	<ol> <li>Fine aggregate shall conform to ASTM C-33 and may be natural so sand.</li> </ol>
means of line and grade tight vehicles with metal	<ul> <li>A. Steel Pipe Bollards:</li> <li>1. FairWeather Site Furnishings: <u>www.fairweathersf.com</u>.</li> <li>2. Huntco Supply, LLC: <u>www.huntco.com</u>.</li> </ul>	<ul> <li>D. Admixtures:</li> <li>1. Air entrainment agents conforming to ASTM C-260 shall be used weather and may be used in all concrete on this project. Air entr be used to produce 3% to 6% air by volume in the concrete.</li> <li>2. High-range water reducing admixture (Super Plasticizer) meeting reduce to produce a state of the concrete.</li> </ul>
be suitably insulated to avoid ingredients.	3. Substitutions: See Section 01600 - Product Requirements.	494 may be used at the discretion of the Contractor. E. Concrete Sealers:
shown on the drawings, place course, and second a fine ase (when applicable) which	B. Outdoor Bicycle Racks: The Wagner Companies — Serpentine Rack Model SR9G; www.wagnercompanies.com	1. Materials: a. Base Sealer: Micro Guard Concrete Clear Waterproofing Seale
0 to 120 degrees F, at a rate rse to which has been applied 175 degrees F, at rate of	6. METAL FURNISHINGS	F. Water: Water used for mixing of concrete shall be potable. G. Reinforcing Bars: All reinforcing bars shall conform to ASTM A6
e conditions of 40 to 90 Jing and finishing machine, so	<ul> <li>A. Metal Furnishings, General:</li> <li>1. Steel components: Plates, bars, and shapes complying with ASTM A36/A36M and tubing complying with ASTM A500/A500M; cleaned, treated, and powder coated.</li> </ul>	bars shall be free of loose and/or excessive rust or other materi bond.
sity and meets requirements proposed. hours. Mixture placing	a.Color: As shown on drawings.	H. Expansion Joint Material: Expansion joint material shall conform I. Mill Tests: Reports may be required on any and all material at
nt curbs, gutter, concrete e machine is impractical.	7. BOLLARDS	discretion and direction. Costs of these reports shall be borne by J. No fly ash or calcium chloride shall be used on this project.
sidewalks, and/or curbs, grades shown and straight No "bird baths" will be	<ul><li>A. Steel Pipe Bollards: Concrete filled steel pipe.</li><li>1. Shape: Round.</li></ul>	4. CONCRETE QUALITY
	2. Model: B-40220-Schedule 40. 3. Diameter: 5 inches.	A. Strength: All cast—in—place concrete shall have a maximum w per cubic foot and minimum strength at 28 days (ultimate streng
roll with pneumatic, three ward center of pavement,	<ul><li>4. Height above grade: 42 inches.</li><li>5. Materials:</li></ul>	B. Proportioning of the Concrete Mixture: 1. The proportion of the aggregate to cement for any concrete shall a mixture which will work readily into the corners and angles of th
wheels. Alternate trips of on can be obtained and roller tion with tandem roller with	a.Steel Pipe: ASTM A53/A53M, standard weight. b.Factory Finish: Primed. c.Color: As selected by Architect from manufacturer's standard range.	reinforcement with the method of placing employed on the work, bu materials to segregate or excess free water to collect on the surfa 2. The materials used for the concrete shall be measured by weigh
ed with water; excessive use	6. Mounting: Permanent Embed.	be 4". 3. Measure, batch, mix and deliver concrete with pigments, where n
on pavement which has not c temperature. displacement of mixture.	8. BICYCLE RACKS	manufacturer's written instructions. C. Tests:
n of fresh mixture. avement. curbs, headers, aprons, er with lightly oiled	<ul> <li>A. Exterior Bicycle Racks: Device allows user provided lock to simultaneously secure one wheel and part of the frame on each bicycle parked or racked.</li> <li>1. Style: Serpentine rack formed from a continuous round pipe.</li> <li>2. Capacity:(As shown on drawings) bicycles.</li> </ul>	<ol> <li>The Contractor shall assist testing laboratory to receive, mark, consider accordance with ASTM C-39. The test report by the laboratory shall of the concrete sampled, date, slump, air content and other necessal laboratory shall send electronic copies of the reports to the Owner</li> <li>Routine tests of concrete shall consist of:         <ul> <li>a. Slump test for each load of ready-mixed concrete.</li> </ul> </li> </ol>
	<ul><li>3. Mounting, Ground: Surface flange.</li><li>4. Finish: Hot-dipped galvanized, maintenance-free, and weather-resistant.</li></ul>	<ul> <li>b. Compressive strength test for each day's pour and/or concrete poured. This test shall conform to ASTM C-31 and</li> </ul>
r each 5,000 sq ft of paving '4 inch, and no individual be held to meet requirements.	5. Color: As selected by Architect from manufacturer's standard range. 6. Accessories: Surface flange cover.	5. INSPECTIONS A. Owner's Approval: The Contractor shall notify the Owner 48 ho
any individual thickness ickness will be held to not	9. EXAMINATION	placement of concrete. The forms, steel and other conditions mu placement of concrete.
and replaced, or adjusted to	A. Verify that mounting surfaces, preinstalled anchor bolts, or other mounting devices are	6. MIXING AND PLACING CONCRETE
	properly installed and ready to receive site furnishing items. B. See Section 05500 — Metal Fabrications for anchors to attach site furnishings to mounting surfaces.	<ul> <li>A. All concrete for this project shall be from an approved central idelivery shall conform to ASTM C-94.</li> <li>B. Concrete shall be conveyed from the mixer to the place of final</li> </ul>
-alkyd), Type III. Apply as 4" t. per gallon. Color shall be	C. Do not begin installation until unacceptable conditions are corrected.	which will prevent the separation or loss of materials. C. Concrete shall be deposited as nearly as practicable in its find
of the Americans with from pavement to be marked	A. Install site furnishings in accordance with approved shop drawings, and manufacturer's	segregation due to re—handling or flowing. When concreting is or carried on as a continuous operation until the placing of the pan completed.
	<ul> <li>B. See Section 03300 - Cast-In-Place Concrete for bollard infill and underground encasement.</li> <li>C. Provide level mounting surfaces for site furnishing items.</li> </ul>	D. Concrete shall be maintained in a moist condition for seven (7) one of the following methods: a. Wet coverings
	<ul> <li>D. Install bicycle racks level, plumb, square, and correctly located as indicated on the drawings.</li> <li>E. Surface Flange Installation: Anchor bicycle racks securely in place with ½ inch by 4-inch anchor bolts through flange holes.</li> </ul>	b. Spraying c. Curing compound 1. Curing method shall be compatible with floor coatings or coverin 2. Ashford formula may be used in lieu of curing compound (Part
tion, 8'_0" long X 6" high X nd two 6 inch x 3/4 inch		be applied according to manufacturer's recommendations. F. Adequate precautions shall be taken for cold weather or hot wea 306 or ACI 305).
owels as recommended by		<ol> <li>FORM WORK AND CONSTRUCTION DETAILS</li> <li>A. Forms</li> <li>1. Forms shall conform to shapes, lines and dimensions of the mention of the mention of the state of the</li></ol>
n on the drawings.		the plans and shall be sufficiently tight to prevent the leakage of r properly braced or tied together so as to maintain position and sha 2. Form material shall be of: a. Plywood: APA Plyform conforming to PS 174
op surface of the wheel stop e concrete during installation,		<ul> <li>b. Metal Forms</li> <li>3. Before placing the concrete and reinforcing steel, the contact surf be thoroughly wetted with water or coated with approved form oil. applied with a brush or spray so as to cover the form evenly with coating material used to coat formwork to facilitate the removal the coating material used to coat formwork to facilitate the removal the coating material used to coat formwork to facilitate the removal the coating material used to coat formwork to facilitate the removal the coating material used to coat formwork to facilitate the removal the coating material used to coat formwork to facilitate the removal the coating material used to coat formwork to facilitate the removal the coating material used to coat formwork to facilitate the removal the coating material used to coat formwork to facilitate the removal the coating material used to coat formwork to facilitate the removal the coating material used to coat formwork to facilitate the removal the coating material used to coating material u</li></ul>
from premises.		softening or permanent staining of the concrete surface. B. Removal of Forms: Forms not required for structural support r as concrete has hardened sufficiently to resist damage during ren

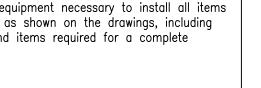
8. FINISHES

A. Steel trowel finish shall be applied to all floor slabs in the building, unless otherwise

B. Light broom finish perpendicular to traffic shall be applied to all exterior walkways. 3/4" transverse contraction joint shall be formed with a tool designed for that purpose at equal intervals not exceeding the width of the walkway. All edges adjoining the final ground line shall be rounded with a 1/4" edger. Expansion joints shall not exceed 20'.

C. Concrete Sealer:

- 1. Concrete Clear Sealer: a. Concrete to be sealed must have aged a minimum of 28 days prior to sealer installation
- b. Immediately prior to applying concrete sealer, the concrete must be thoroughly cleaned. The surface should be swept then scrubbed using rotary floor machine. The surface must be rinsed after cleaning until the rinse water is completely clean. After drying, it should be inspected closely, and additional or spot cleaning should be performed if necessary.
- c. Surfaces must be properly prepared as prescribed in manufacturer's instructions. Surrounding areas and adjacent surfaces must be masked or protected from overspray, spills, tracking, and equipment contact. The work area should be roped off and closed to traffic.
- d. Immediately prior to use, the liquid material must be thoroughly power mixed as described in manufacturer's instructions. Application must be made full strength (un-thinned) at the coverage rate recommended and with equipment recommended by manufacturer's instructions.
- e. Sealer must be applied thinly and uniformly. A wet edge should be maintained and overlap controlled. Material should not be over-applied or allowed to puddle or collect in joint indentations. f. Sealer must be allowed to dry completely, normally a minimum of 12 to 48 hours,
- before it is subjected to temperatures below 42 degrees Fahrenheit or to water from any source.
- D. Variation in concrete slabs shall not exceed 1/8" in ten feet from true grade.
- E. All exposed concrete, except walkways and floor slabs, shall have a rubbed finish, satisfactory to the Owner's Project Coordinator. "White Washing" by use of separately mixed grout will not be permitted.
- 9. SHOP DRAWINGS
- A. The Contractor shall prepare and submit for review shop drawings according to the requirements of the General Conditions.
- 10. REINFORCEMENT
- A. Reinforcement shall be accurately placed and securely supported on metal or plastic chairs



SI "Manual of Standard Practice" shall

, conforming to ASTM C 150, Type 1

I Contractor's discretion.

ations with maximum size No. 57. other hard, strong, durable, uncoated be natural sand or manufactured

hall be used in concrete exposed to ject. Air entraining admixtures shall

r) meeting requirements of ASTM C

proofing Sealer, # AD702.

to ASTM A615 - Grade 60. All other materials which will prevent

shall conform to ASTM D1751.

all material at the Engineer's be borne by the Contractor.

this project.

a maximum weight of 150 pounds Iltimate strength of 3000 psi).

concrete shall be such as to produce angles of the forms and around the work, but without permitting the on the surface. red by weight. Maximum slump shall

ents, where noted, in accordance with

eive, mark, cure, and test cylinders in laboratory shall identify the location other necessary information. The to the Owner and Contractor.

our and/or each 50 cubic yards of STM C-31 and consist of 4 cylinders.

Owner 48 hours prior to schedule conditions must be approved prior to

oved central mixing plant. Mixing and

place of final deposit by methods

Ible in its final position to avoid oncreting is once started, it shall be ing of the panel or section is

for seven (7) days after placing by

igs or coverings. npound (Part 3). This material shall

her or hot weather concreting. (ACI

ns of the members as called for on leakage of mortar. They shall be sition and shape.

contact surfaces of all forms shall ed form oil. The form oil shall be m evenly without excess drip. Form he removal thereof shall not cause

ural support may be removed as soon age during removal of forms.

**SPECIFICATIONS** PROJECT NO. 05-05-22 SHEET NO. **SP.4** 





DRAWING COORDINATION Architectural, Landscape, Civil, Structural, Mechanical and Electrical drawings are interrelated General Contractor and all Sub Contractors shall review and coordinate the entire set of drawings and specifications

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#### DIVISION 4 - MASONRY

- SECTION 04220 CONCRETE UNIT MASONRY
- 1. SECTION INCLUDES
- A. Concrete unit masonry B. Horizontal masonry wall reinforcement.
- C. Building in bolts, anchors, nailers, angles, inserts, conduits, piping, flashings, etc. furnished and located by other trades.
- 2. REFERENCE STANDARDS
- A. American Society for Testing Materials (ASTM) B. International Masonry Industry All—Weather Council (IMIAC)
- 3. MOCK-UP

A. Construct masonry mock-up, 4 feet long by 4 feet wide, which includes masonry anchor accessories, sill flashings, and corner condition.
B. Locate where directed by Owner.

- C. Mock-up may remain as part of the Work.
- 4. MATERIALS
- A. Masonry Units: High pressure steam cured (air dried units will NOT be acceptable), load bearing, hollow units conforming to ASTM C90, Type I, medium weight; load bearing solid units conforming to ASTM C90, Type 1, medium weight. Testing of lightweight aggregates for drying shrinkage shall be as stipulated in ASTM C331. Units shall be of dimensions that will lay up to 8\_inch modules. Units shall include special finishes, shapes and sizes as shown on the drawings and/or required to complete the work.
- B. Masonry Unit Sizes: Standard 8 x 8 x 16 inch and 4 x 8 x 16 inch units as shown on the drawings.
- 5. ACCESSORIES
- A. Joint Reinforcement: Hohmann & Bernard, Inc., Fort Worth, Texas, "Lox-All truss mesh", 3/16" side rods and galvanized No. 9 cross rods. Provide special shapes as required for intersections. Widths shall be 2" less than total masonry thickness.
- B. Polyethylene tubing, ¼ inch diameter with internal screen.
- C. Miscellaneous: As shown on the drawings or as required to provide masonry installations which are well tied (anchored) to building frame. Consult with Architect prior to bidding if clarification of this requirement is needed.
- 6. MORTAR
- A. Type: ASTM C270 with minimum compressive strength of 1800 p.s.i., Type M or S; color standard gray to match block. Masonry cement will not be allowed.
   B. Materials:
- 1.Portland Cement: ASTM C150, Type 1, one brand only.
- 2.Hydrated Lime: ASTM C207, Type S

3.Sand: Well screened, clean, hard, siliceous particles free from loam, alkali, salt, organic matter and other impurities and shall be composed of grains of varying sizes, all of which shall pass an eight-mesh screen, and shall be uniformly graded from coarse to fine. 4.Water: City tap water.

- 7. GROUT (if shown on the drawings)
- A. Grout Mix for reinforced masonry: ASTM C476 with minimum compressive strength of 3000 psi at 28 days. Provide coarse aggregate conforming to ASTM C404 (max. size 3/8") for coarse grout mix. Grout shall have slump of 10-1/2 to 11 inches at the time of placement.
- 8. PRODUCT DELIVERY, STORAGE AND HANDLING
- A. Store mortar materials on dunnage in a dry place. Masonry units stores above ground on level platforms. Cover and protect units and accessories as necessary from elements.
- 9. CONDITIONS
- A. Hot\_Weather Installation: Masonry erected when the ambient air has a temperature of more than 90 F., in the shade, and has a relative humidity of less than 50 percent shall be protected from direct exposure to wind and sun for 48 hours after installation, and rain for 12 hours after installation. Masonry surfaces shall be kept moist with water gently spraying the surface, covering work with burlap, which is kept wet, or by other approved means. Such protection shall be continued until mortar has set for 3 days or until lowering temperatures or increased humidity in the air make such protection unnecessary.
- B. Cold\_Weather Installation: No frozen work shall be built upon. Before erecting masonry during temperatures below 40 F., a written statement shall be submitted, and approval received of the methods proposed to heat the masonry materials and protect the masonry from freezing as required below. No masonry shall be laid at temperatures below 35 F. unless authorized in writing. Cold-weather installation shall be in accordance with IMIAC recommended practices and guide specifications for masonry construction.
- 10. PREPARATION (MORTAR)

A. Mortar materials shall be accurately measured and mixed with as much water as may be necessary to produce the wettest workable consistency possible. Mortar shall be placed in final position within 2\_1/2 hours after mixing. Mortar not used or that has started to set within this time interval shall be discarded. Mortar that has stiffened within the above time interval, because of evaporation of moisture from the mortar, shall be re-tempered to restore its workability.

- 11. SCAFFOLDING
- A. Provide scaffolding necessary for masonry work and make same available to other trades required to execute work in conjunction with masonry work.
   B. Design and engineering of formwork and scaffolding as well as its construction shall be the
- responsibility of the Contractor. Adequately shore block beams, and similar members to safely support all loads and lateral pressures liable to come on the construction. Provide clean-out openings at each vertical bar at bottom course or in foundation wall when wall is erected in more than 5-foot lifts.
- 12. MASONRY CONSTRUCTION
- A. General: No unit having film of water or frost on its surfaces shall be laid. Masonry shall be laid plumb, true to line, with level courses accurately spaced. Bond pattern shall be kept plumb throughout. Corners and reveals shall be plumb and true. Vertical joints shall be shoved tight. Each unit shall be adjusted to final position while mortar is still soft and plastic. Any unit that is disturbed after mortar has stiffened shall be removed and re-laid with fresh mortar.
- B. Laying Units: Do not wet before laying. Cut units with power masonry saws, either dry or wet cut. Lay units in a ½ running bond so that vertical joints between units will be located over the center of the units in the next course below and in alignment from bottom to top of wall. Units shall be full bedded in mortar under both face shells. Fill all head-joints solidly with mortar for a distance in from the face of the unit or wall not less than the thickness of the longitudinal face shell. No cells shall be left open in the face surfaces.
- C. Grouting (if shown on the drawings): Where shown on the drawings, pour interior grout spaces, except those blocked out with wood in order to provide the openings through wall, full of grout. Grout lifts shall not exceed 4'0". Slushing with mortar is not permitted. Grout shall be caused to flow into all voids and surround rebar. Puddle with sticks \_ not trowel blades. Except at finishing course, stop all grout pours approximately 1" below top of the last course. Where it is necessary, for construction purposes to stop a longitudinal run of masonry, stop by racking back according to bond. Provide a suitable dam to retain grout. After grout has set, remove wood blocking at openings.
- D. Cutting and Fitting: Wherever possible, full units of the proper size shall be used in lieu of cut units. Cut edges shall be clean, true, and sharp. Openings shall be carefully cut, formed, or otherwise neatly made by masonry mechanic for recessed items and for electrical, plumbing, or other mechanical installations so that wall plates, cover plates, or escutcheons required by the installation will completely conceal the openings and will have bottoms in alignment with lower edge of masonry joints.

E. Reinforcement:

1.All CMU walls shall be reinforced horizontally with reinforcing spaced 16" o.c. vertically, maximum. Lay reinforcing on wall and cover with mortar, then bed unit as herein specified. At corners, reinforcing is to be provided in every horizontal course, with inside rod cut and bent to form corner. Provide reinforcing one course above and below all openings. Reinforcement placed as to assure a 5/8" mortar cover measured from the outside face of the joint. Side rods shall be lapped at least 6" at splices.

- vertically. Interlocking of units not permitted. E Control Joints: Make adoquate provisions throughout the research of f
- F. Control Joints: Make adequate provisions throughout the masonry work for expansion and contraction. Install control joint filler as required, extending from top of bearing surface to top of wall, reinforcing shall not run through. Control joints shall be watertight at exterior joints.
- G. Embedded Items: Openings around flush\_mounted electrical outlet boxes in wet locations shall be pointed flush with mortar including flush joint above the box. Anchors, ties, wall plugs, accessories, flashings, pipe sleeves, and other items required to be built in shall be built in as the masonry work progresses. Anchors, ties and joint reinforcement shall be fully embedded in mortar.

- H. Stopping and Resuming Work: Step back ½ masonry unit length in each TOOTH. Clean exposed surfaces of set masonry and remove loose ma mortar prior to laying fresh masonry.
   I. Jointina:
- 1.Type: Tool slightly concave; mortar thoroughly compacted and pressed aga Tool when mortar is thumbprint hard. Finish tooled joints to uniformly straid surfaces, smooth and free of tool marks.
- 2.Width: Equal to the difference between the actual and nominal dimensions height or length, but in no case shall the average width of any three adjace 1/4 nor more than  $\frac{1}{2}$  inch. Vertical joints shall be of the same width excervariations required to maintain bond.
- 13. POINTING AND CLEANING
- A. Completely remove mortar daubs or splashings from masonry surfaces to before setting or hardening. All defects in joints of masonry to be exp out as necessary, filled with mortar, and tooled concave. Masonry surfaces cleaned, other than removing excess surface mortar, until mortar in join Leave masonry surfaces clean, free of mortar daubs and dirt, and with throughout.
- 14. PROTECTION OF WORK
- A. Protect surfaces of masonry not being worked on at all times. When r imminent, cover the tops of exposed masonry with a strong non\_stainin membrane well secured in place and in a manner that will prevent mois accumulating within the unfinished wall. Make adequate provisions durin prevent damage by wind.

SECTION 04451 - STONE VENEER

- REFERENCE STANDARDS
   A. American National Standards Institute (ANSI): A118.4HTF, A118.11 and Al Specifications for Polymer-Modified Mortar required for adhering manufacture
- cement board, concrete, or concrete masonry applications. B. American Society for Testing Materials (ASTM): ASTM C39, C91, C150, C. Brick Institute of America (BIA): "Technical notes on brick construction"

2. INTENT

- A. This specification generally outlines requirements for stone veneer install intended to modify, amend, or otherwise change system manufacturer's intended; manufacturer's specifications govern.
   B. Adhered exterior stone veneer:
- Stone veneer as referenced herein (also reference "Finish Schedule" as i drawings for stone veneer type, size, thickness, finish profile and manuf
   Bonded with a premium polymer-modified, rapid-setting, non-sag, large over:
- 3. A cementitious backer board (with joint reinforcement of 4" wide polym resistant) mesh tape) over wall sheathing (with integral water-resistive
- Grout tone veneer joints per manufacturer's written instructions.
   A final penetrating sealer shall be applied to stone after installation is

3. WARRANTY

- A. Manufacture's Special Warranty:
- Provide manufacturer's written 50-year Limited Warranty for Stone Vene B. Installers Warranty:
- 1. Provide Installer's written warranty for a period of 5-years from the da completion and acceptance of the project, against all defects in materia
- . MANUFACTURER
- A. The drawings were prepared, and portions of this specification written o the products of various manufacturers. It is not the intent to limit con Products with equal characteristics by other manufacturers are acceptable of these specifications.
- 5. MANUFACTURED UNITS
- A. Stone Veneer Manufacturer, patterns, blends, and colors as noted on B. Provided manufacturer's standard corner units at all exterior corners.
- 6. MORTAR / BONDING ADHESIVE
- A. Mapei Ultraflex LFT premium, large, and heavy tile mortar bonding adhe stone veneer installation.
- 7. CEMENTITIOUS TILE BACKER BOARD
- A. USG "Durock" brand Cement Backer Board with Edgeguard; 1/2 —inch

8. GROUT

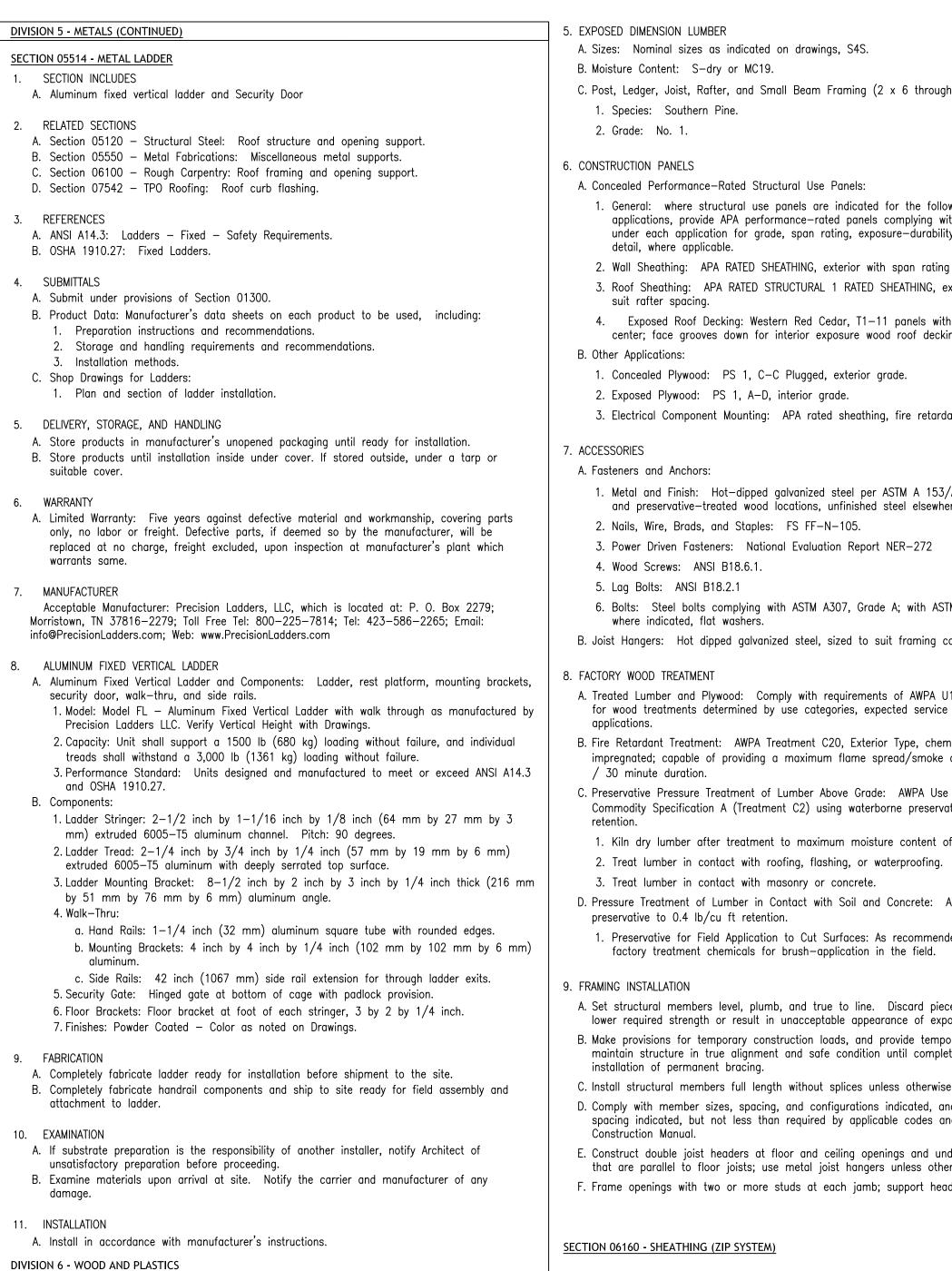
- A. Grout: Rapid-Setting, "All-in-One" Grout Replacement for Sanded and Un
   1) Mapei Ultracolor Plus FA with DropEffect™ technology is an ultra-prer fast-setting, polymer-modified, color-consistent, non-shrinking, efflore
   2) Color: Grout color as noted on drawings.
- 9. ACCESSORIES
- A. Water for Mortar mixing shall be clean and potable.
- B. Flashing:
  1) Flashing shall be installed at wall penetrations and terminations of the veneer. Assure that all flashing and kickouts are corrosion resistant, i Stone Veneer system and installed in accordance with building code r Division 07 Flashing, and Weather Barrier Sections for specified flashing
- Division 07 Flashing, and Weather Barrier Sections for specified flashing
  2)For exterior framed walls, base flashing and weep screeds should be
  4 inches above grade or a minimum of 2 inches above paved surface
  distance can be reduced to ½ inch for paved walking surfaces support
- foundation that supports the wall. C. Sealer: Mapei UltraCare Penetrating Plus SB sealer to protection veneer stains.
- 10. DELIVERY AND STORAGE
- A. Deliver materials in original unopened packages and store in enclosed s protection from damage and exposure to the elements. Remove damage materials from premises.
- 11. TEMPERATURE CONDITIONS
- A. Do not apply mortar when ambient temperature is 50°F or lower, or whe below 50°F is anticipated within 48 hours after application. B. When ambient temperature exceeds 100 deg F or 90 deg F with a win
- o. when amplient temperature exceeds 100 deg F or 90 deg F with a wi 8 mph, do not spread mortar beds more than 48 inches ahead of mai veneer.
- 12. ACCESSORY APPLICATION
- A. Set level and plumb to straight lines, securely locate Cement Backer—Bo common to trade to develop uniform thickness. Space fasteners not o single—flanged accessories; staggered on double—flanged accessories; no
- 13. PREPARATION (MORTAR)
- A. Accurately measure and mix mortar materials per manufacturer's writter instructions. Place mortar in final position within 2 hours after mixing; used or that has started to set within this time.
- 14. INSTALLATION
- A. General: Erect stone veneer in accordance with supplier's written instru having water or frost film on surfaces. Arrange pattern to provide vari throughout stonework. Set in full mortar setting bed to support stone surface. Adjust each unit to final position while mortar is soft and pla disturbed after mortar has stiffened and relay with fresh mortar.
- B. Mortar: Apply mortar with sufficient material and pressure to form full backer board and then crossrake. Bring finish to true even surface with by trade practice. Cover a maximum of ten square feet at one time.

course; DO NOT asonry units and	C. Stone Units: Press stone veneer units firmly into position in soft mortar bed. Apply equal pressure across unit; jiggle each piece slightly to bond firmly causing mortar to extrude	13. INSTALLATION
ainst edges of units. ight and true lines and	slightly around edges of units. Minimum width of corner units is four inches. A. Cutting and Fitting: Carefully cut, form, or otherwise neatly make openings for recessed items and for electrical, plumbing, or other mechanical installations so that wall plates, cover plates, or escutcheons will completely conceal openings and will have bottoms in alignment with lower	A. General: Erect thin brick veneer in accordance with supplier's units having water or frost film on surfaces. Arrange pattern t throughout stonework. Set in full mortar setting bed to suppor surface. Adjust each unit to final position while mortar is soft
s of the units in either ent joints be less than ept for inconspicuous	<ul> <li>edge of stone joints.</li> <li>B. Embedded Items: Point openings around flush_mounted electrical outlet boxes in wet locations flush with mortar including flush joint above box. Build in anchors, ties, wall plugs, accessories, flashings, pipe sleeves, and other items as the stonework progresses.</li> <li>C. Grouting the Joints: Clipped joints; mortar thoroughly compacted and pressed against edges of units. Tool when mortar is thumbprint hard.</li> <li>D. Apply penetrating sealer to entire stone surface once mortar is allowed to fully cure.</li> </ul>	disturbed after mortar has stiffened and relay with fresh mortan B. Mortar: Apply mortar with sufficient material and pressure to for backer board and then crossrake. Bring finish to true even su by trade practice. Cover a maximum of ten square feet at on C. Thin Brick Units: Press thin brick veneer units firmly into posit equal pressure across unit; jiggle each piece slightly to bond fin
that will be exposed bosed shall be raked faces shall not be nts has hardened. tight mortar joints	<ul> <li>14. CLEANING AND CURING</li> <li>A. Completely remove mortar daubs or splashings from exposed manufactured stone surfaces before setting. Clean manufactured stone surfaces, other than removing excess surface mortar, only after mortar has hardened. Leave surfaces clean, free of mortar daubs, dirt, stain, and discoloration, including scum from cleaning operations, and with tight joints. Do not use metal tools and metal brushes for cleaning.</li> </ul>	<ul> <li>slightly around edges of units. Minimum width of corner units</li> <li>D. Cutting and Fitting: Carefully cut, form, or otherwise neatly may and for electrical, plumbing, or other mechanical installations so or escutcheons will completely conceal openings and will have be edge of stone joints.</li> <li>E. Embedded Items: Point openings around flush_mounted electric flush with mortar including flush joint above box. Build in anch accessories, flashings, pipe sleeves, and other items as the store.</li> </ul>
rain or snow is ng waterproof sture from ng construction to	15. PROTECTION OF WORK A. Protect surfaces of manufactured stone not being worked. When rain or snow is imminent, cover tops of exposed walls with strong non-staining waterproof membrane, well secured in place, in a manner to prevent moisture from accumulating within unfinished wall. Make provisions to prevent damage by wind.	<ul> <li>F. Grouting the Joints: After the thin brick veneer has been applied grout bag to fill the joints with grout, forcing grout into any vorgrout onto the face of the thin brick veneer. Any grout that a brick veneer should be cleaned away per manufacturer's written</li> <li>G. Grouting the Joints: Finish joints within the thin brick veneer as brick veneer manufacturer's installation instructions with a concornated in Drawings.</li> </ul>
NSI 118.15HTF actured stone veneer to	<u>SECTION 04470 - THIN BRICK VENEER</u> 1. REFERENCE STANDARDS	<ol> <li>CLEANING AND CURING</li> <li>A. Completely remove mortar daubs or splashings from exposed th setting. Clean thin brick surfaces, other than removing excess mortar has hardened. Leave surfaces clean, free of mortar da discoloration, including scum from cleaning operations, and with metal tools and metal brushes for cleaning.</li> </ol>
C207, C270 and C1780. " lation. It is not specifications for uses	<ul> <li>A. American National Standards Institute (ANSI): A118.4HTF, A118.11 and ANSI 118.15HTF Specifications for Polymer-Modified Mortar required for adhering manufactured stone veneer to cement board, concrete or concrete masonry applications.</li> <li>B. American Society for Testing Materials (ASTM): ASTM C39, C67, C91, C150, C216, C270. C1088 and C1780.</li> <li>C. Brick Institute of America (BIA): "Technical notes on brick construction"</li> </ul>	<ol> <li>PROTECTION OF WORK</li> <li>A. Protect surfaces of thin brick veneer not being worked. When cover tops of exposed walls with strong non-staining waterproof place, in a manner to prevent moisture from accumulating withi provisions to prevent damage by wind.</li> </ol>
	2. INTENT	
indicated in the facturer); e format stone mortar	<ul> <li>A. This specification generally outlines requirements for thin brick veneer installation. It is not intended to modify, amend, or otherwise change system manufacturer's specifications for uses intended; manufacturer's specifications govern.</li> <li>B. Adhered Exterior Thin Brick veneer system:</li> </ul>	
er—coated (alkali barrier and air barrier);	1. Thin Brick veneer as referenced herein (also reference "Finish Schedule" as indicated in the drawings for brick veneer type, size, thickness, finish profile and manufacturer);	
complete. eer.	<ol> <li>Bonded with a premium polymer-modified, rapid-setting, non-sag, large format stone mortar with grouted joints over;</li> <li>A cementitious backer board (with joint reinforcement of 4" wide polymer-coated (alkali resistant mesh tape) over wall sheathing (with integral water-resistive barrier and air barrier).</li> <li><u>Note:</u> A leveling component shall be installed in a location within wall assembly per manufacturer's requirements "only as necessary" for the thin brick veneer to be installed absolutely true and plum in both the vertical and horizontal direction.</li> </ol>	
ate of substantial	3. WARRANTY	
als and workmanship.	A. Manufacture's Special Warranty: 1. Provide manufacturer's written 25—year Warranty for the adhered Thin Brick Veneer wall assembly.	
on the basis of using ompetitive bidding. ble under the conditions	B. Installers Warranty: 1. Provide Installer's written warranty for a period of 5—years from the date of substantial completion and acceptance of the project, against all defects in materials and workmanship.	
drawings.	<ul> <li>MANUFACTURER</li> <li>A. The drawings were prepared, and portions of this specification written on the basis of using the products of various manufacturers. It is not the intent to limit competitive bidding. Products with equal characteristics by other manufacturers are acceptable under the conditions of these specifications.</li> </ul>	
esive for all synthetic	<ol> <li>MANUFACTURED UNITS</li> <li>A. Thin Brick Veneer – Manufacturer, patterns, blends, and colors as noted on drawings.</li> <li>B. Provided manufacturer's standard corner units at all exterior corners.</li> </ol>	
thickness. Insanded Grouts.	<ol> <li>MORTAR / BONDING ADHESIVE</li> <li>A. Mapei Ultraflex LFT premium, large, and heavy tile mortar bonding adhesive for all synthetic stone veneer installation.</li> </ol>	
mium, fine—aggregate, rescence—free grout.	<ul> <li>7. CEMENTITIOUS TILE BACKER BOARD</li> <li>A. USG "Durock" brand Cement Backer Board with Edgeguard; 1/2 —inch thickness.</li> <li>8. ACCESSORIES</li> </ul>	
	A. Water for Mortar mixing shall be clean and potable. B. Flashing:	
e Synthetic Stone integrated with the requirements. Refer to ng materials. installed a minimum of ces. The minimum orted by the same against most common	<ol> <li>Flashing shall be installed at wall penetrations and terminations of the Synthetic Stone veneer. Assure that all flashing and kickouts are corrosion resistant, integrated with the Stone Veneer system and installed in accordance with building code requirements. Refer to Division 07 Flashing, and Weather Barrier Sections for specified flashing materials.</li> <li>For exterior framed walls, base flashing and weep screeds should be installed a minimum of 4 inches above grade or a minimum of 2 inches above paved surfaces. The minimum distance can be reduced to ½ inch for paved walking surfaces supported by the same foundation that supports the wall.</li> <li>Leveling Component: Cementitious Mortar</li> <li>Mapei Planitop Fast 330 is a Rapid-setting, fiber-reinforced cementitious levelling mortar for exterior and interior walls; applied at a thickness from 3 to 30 mm to smooth out irregularities.</li> <li>Grout: Rapid-Setting, "All-in-One" Grout Replacement for Sanded and Unsanded Grouts.</li> <li>Mapei Ultracolor Plus FA with DropEffect™ technology is an ultra-premium, fine-aggregate,</li> </ol>	
shelter providing ged or deteriorated	fast-setting, polymer-modified, color-consistent, non-shrinking, efflorescence-free grout. 2)Color: Grout color as noted on drawings. 9. DELIVERY AND STORAGE	
nen drop in temperature ind velocity greater than inufactured stone	<ul> <li>A. Deliver materials in original unopened packages and store in enclosed shelter providing protection from damage and exposure to the elements. Remove damaged or deteriorated materials from premises.</li> <li>10. TEMPERATURE CONDITIONS</li> </ul>	
oard units in manner over 8 inches OC for o joints in straight runs.	<ul> <li>A. Do not apply mortar when ambient temperature is 50°F or lower, or when drop in temperature below 50°F is anticipated within 48 hours after application.</li> <li>B. When ambient temperature exceeds 100 deg F or 90 deg F with a wind velocity greater than 8 mph, do not spread mortar beds more than 48 inches ahead of manufactured stone veneer.</li> </ul>	
n installation discard mortar not	<ol> <li>ACCESSORY APPLICATION         <ul> <li>A. Set level and plumb to straight lines, securely locate Cement Backer-Board units in manner common to trade to develop uniform thickness.</li> <li>B. Space fasteners not over 8 inches OC for single-flanged accessories; staggered on double-flanged accessories; no joints in straight runs.</li> </ul> </li> </ol>	
uctions. Do not lay units iable joint sizes over entire bearing astic. Remove any unit	<ol> <li>PREPARATION (MORTAR)</li> <li>A. Accurately measure and mix mortar materials per manufacturer's written installation instructions. Place mortar in final position within 2 hours after mixing; discard mortar not used or that has started to set within this time.</li> </ol>	
keys on cementitious thin limits established		

SECTION 05500 - METAL FABRICATIONS written instructions. Do not lay to provide variable joint sizes SUMMARY ort stone over entire bearing and plastic. Remove any unit A. Section Includes: Work of this Section consists of installing all materials furnished under this Section, including all equipment, labor, services, and incidental items required to complete MICHAEL LEGG ARCHITECTUR form full keys on cementitious Work as shown on Drawings and specified in this Section. Michael Gregory Legg NCARB, AIA, RIBA, SACAP Irface within limits established 1. Miscellaneous Framing and Supports for Work in other Sections to include applications ne time. where framing and supports are not specified in other Sections. 26116 High Timber Pass St tion in soft mortar bed. Apply 2. Steel Pipe Bollards for Site. San Antonio, Texas 78260 3. Chain Support. irmly causing mortar to extrude ph. 210-416 4935 4. Gates at Dumpster Area. is four inches. michael@mlarchitecture.info www.michaelleggarchitecture.com ake openings for recessed items SUBMITTALS o that wall plates, cover plates, bottoms in alignment with lower A. Welder certificates signed by Contractor certifying welders comply with requirements of this Section cal outlet boxes in wet locations hors, ties, wall plugs, 5. QUALITY ASSURANCE onework progresses. ed to the wall surface, use a A. Qualifications: oids. Be careful not to smear Welding and Welders: accidentally gets on the thin a. Qualify welding processes and welding operators in accordance with AWS DI .1. Structural instructions. Welding Code - Steel; DI .3, Structural Welding Code Sheet Steel; and DI .2, Structural 21 2023 recommended by the thin Welding Code - Aluminum. ave tooled joint as detailed and b. Certify each welder has satisfactorily passed AWS qualification tests for welding processes DRAWING involved and if pertinent, has undergone recertification. COORDINATION Architectural, Landscape, Civil, 4. MATERIALS Structural, Mechanical and nin brick veneer surfaces before Electrical drawings are interrelated A. Ferrous Metals: surface mortar, only after General Contractor and all Sub . Metal Surfaces — General: For fabrication of miscellaneous metal work which will be exposed t aubs, dirt, stain, and Contractors shall review and view, use only materials which are smooth and free of surface blemishes including pitting, seam i tight joints. Do not use coordinate the entire set of marks, roller marks, rolled trade names, and roughness. drawings and specifications 2. Steel Plates, Shapes and Bars: ASTM A36. 3. Steel Tubina: Cold-formed. ASTM A500: Grade A. unless otherwise indicated or required fo design loading. 4. Steel Tubing: Hot-formed, ASTM A501 for exterior installations and where indicated, provide with rain or snow is imminent. hot-dip galvanized coating per ASTM A53. membrane, well secured in 5. Brackets, Flanges and Anchors: Cast or formed metal of same type material and finish as hin unfinished wall. Make supported rails, unless otherwise indicated. 6. Concrete Inserts: a. Threaded or wedge-type; galvanized ferrous castings, either malleable iron, ASTM A47. or cast steel. ASTM ~7 b. Provide bolts, washers and shims as required, hot dip galvanized, ASTM AI 53. B. Chain: 3/4 in. proof coil chain. C. Grout: Non shrink Nonmetallic Grout: a. Premixed, factory packaged, non-staining, non-corrosive, non-gaseous grout complying with CE CRD-C621. b. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this Section. D. Fasteners: . General: a. Provide hot-dipped galvanized fasteners for exterior use or where built into exterior walls. b. Select fasteners for type, arade, and class required. 2. Bolts and Nuts: Regular hexagon-head-type, ASTM A307, Grade A. 3. Lag Bolts: Square-head-type, FS FF-B-561 4. Machine Screws: Cadmium plated steel, FS FF-S-92. 5. Wood Screws: Flat head carbon steel, FS FF-S-I 11 6. Plain Washers: Round, carbon steel, FS FF-W-92. 7. Drilled-In Expansion Anchors: Comply with FS FF-S-325, Group III (anchors, expansion, non-drilling), Type I (internally threaded tubular expansion anchor); and machine bolts complying with FS FF-B-575. Grade 5. 8. Toggle Bolts: Tumble-wing-type, FS FF-B-588, type, class, and style as required. 9. Lock Washers: Helical-spring-type carbon steel, FS FF-W-84. 5. FABRICATION A. General: 1. Form metal fabrications from materials of size, thickness, and shapes indicated, but not less than that needed to comply with performance requirements indicated. 2. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. 3. Use type of materials indicated or specified for various components of each metal fabrication 4. Form exposed Work true to line and level with accurate angles and surfaces and straight sharp 5. Shear and punch metals cleanly and accurately; remove burrs. 6. Ease exposed edges to radius of approximately 1/32 in. 7. Form bent-metal comers to smallest radius possible without causing grain separation or a v F otherwise impairing Work. 8. Remove sharp or rough areas on exposed traffic surfaces. **J () ()** 9. Weldina: sta eri oni a. Weld corners and seams continuously, complying with AWS recommendations. b. Exposed Connections: Grind exposed welds smooth and flush to match and blend with adjoining surfaces. 10.Anchorage: a. Provide for anchorage of type indicated, coordinated with supporting structure. b. Fabricate and space anchoring devices to provide adequate support for intended use. B. Miscellaneous Framing and Supports: 1. Provide miscellaneous steel framing and supports which are not part of structural steel Ü framework, as required to complete Work. 2. Fabricate miscellaneous units to sizes, shapes, and profiles indicated or, if not indicated, of required dimensions to receive adjacent other Work to be retained by framina. 3. Except as otherwise indicated, fabricate from structural steel shapes. plates, and steel bars of welded construction using mitered joints for field connection. 4. Cut, drill and tap units to receive hardware and similar items. C. Pipe Bollards: Fabricate pipe bollards from Schedule 80 steel pipe. 6. INSTALLATION A. General: . Fastening to In-Place Construction: a. Provide anchoraae devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction. b. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors as required. 2. Cutting, Fitting, and Placement: a. Perform as required for installation of miscellaneous metal fabrications. b. Set Work accurately in location, alignment, and elevation, level. true and free of rack. measured from established lines and levels. c. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry, or similar construction. d. Fit exposed connections accurately together to form tight hairline joints. e. Weld connections which are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. f. Grind exposed joints smooth and touchup shop paint coat. g. Do not weld, cut, or abrade surfaces of exterior units which have been hot dip aalvanized after fabrication and are intended for bolted or screwed field connections. 5. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with heavy coat of bituminous paint or zinc 😽 chromate primer. 7. ADJUSTING AND CLEANING A. Touch-Up Painting. **SPECIFICATIONS** 1. Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting. 2. Apply by brush or spray to provide mm. 2.0 mit DFT. PROJECT NO. 05-05-22 SHEET NO.

**DIVISION 5 - METALS** 

**SP.5** 



SECTION 06100 - ROUGH CARPENTRY

1. SECTION INCLUDES

- A. Structural wall, and roof framing and sheathing.
- C. Miscellaneous framing and concealed wood blocking for support of toilet and bath accessories, wall cabinets, wood trim, and tables.
- 2. REFERENCES
- A. AWPA C20 Structural Lumber -- Fire Retardant Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.
- B. AWPA U1 Use Category System: User Specification for Treated Wood; American
- Wood-Preservers' Association; 2005.
- C. PS 1 Construction and Industrial Plywood; National Institute of Standards and Technology
- (Department of Commerce); 1995. D. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.
- E. SPIB (GR) Grading Rules; Southern Pine Inspection Bureau, Inc.; 2002.
- F. WCLB (GR) Standard Grading Rules for West Coast Lumber No. 17; West Coast Lumber
- Inspection Bureau; 2004. G. WWPA G-5 - Western Lumber Grading Rules; Western Wood Products Association; 2005.
- 3. QUALITY ASSURANCE
- A. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.
- B. Exposed—to—View Rough Carpentry: Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.
- C. Preservative—Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
- 4. DIMENSION LUMBER FOR CONCEALED APPLICATIONS
- A. Sizes: Nominal sizes as indicated on drawings, S4S unless rough lumber is specifically indicated otherwise.
- B. Moisture Content: S-dry or MC19.
- C. Stud Framing (2 x 2 through 2 x 6 ):
- 2. Species: Douglas Fir, Southern, Western Cedars, or Sitka Spruce. 3. Grade: No. 2.
- D. Joist, Rafter, and Small Beam Framing (2 x 6 through 4 x 16 ):
- 1. Species: Douglas Fir, Southern Pine, Spruce-Pine-Fir (south), Western Cedars, or Western Woods.
- E. Miscellaneous Blocking, Furring, and Nailers:

- C. Post, Ledger, Joist, Rafter, and Small Beam Framing (2 x 6 through
- 1. General: where structural use panels are indicated for the follow applications, provide APA performance-rated panels complying wi under each application for grade, span rating, exposure-durabilit
- 2. Wall Sheathina: APA RATED SHEATHING, exterior with span rating 3. Roof Sheathing: APA RATED STRUCTURAL 1 RATED SHEATHING, e
- 4. Exposed Roof Decking: Western Red Cedar, T1-11 panels with
- center; face grooves down for interior exposure wood roof deckir
- 3. Electrical Component Mounting: APA rated sheathing, fire retarda
- 1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/

- 6. Bolts: Steel bolts complying with ASTM A307, Grade A; with ASTM
- A. Treated Lumber and Plywood: Comply with requirements of AWPA L for wood treatments determined by use categories, expected service
- B. Fire Retardant Treatment: AWPA Treatment C20, Exterior Type, chem impregnated; capable of providing a maximum flame spread/smoke
- C. Preservative Pressure Treatment of Lumber Above Grade: AWPA Use Commodity Specification A (Treatment C2) using waterborne preserva
- 1. Kiln dry lumber after treatment to maximum moisture content
- 3. Treat lumber in contact with masonry or concrete. D. Pressure Treatment of Lumber in Contact with Soil and Concrete:
- 1. Preservative for Field Application to Cut Surfaces: As recommend factory treatment chemicals for brush-application in the field.
- A. Set structural members level, plumb, and true to line. Discard piec
- B. Make provisions for temporary construction loads, and provide tempo maintain structure in true alignment and safe condition until complet
- C. Install structural members full length without splices unless otherwise D. Comply with member sizes, spacing, and configurations indicated, an spacing indicated, but not less than required by applicable codes an
- E. Construct double joist headers at floor and ceiling openings and und
- F. Frame openings with two or more studs at each jamb; support head
- 1. SUMMARY A.Section Includes
- 1. Wall sheathing with integral water-resistive barrier and air barrier.

#### 2. REFERENCES

- A. ASTM International (ASTM):
- 1. ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Hardware
- 2. ASTM E96/E96M Standard Test Methods for Water Vapor Transmis
- 3. ASTM E119 Standard Test Methods for Fire Tests of Building Cons
- 4. ASTM E2357 Standard Test Method for Determining Air Leakage
- B. International Code Council (ICC):
- 1. ICC IBC International Building Code
- C. ICC Evaluation Service, Inc. (ICC-ES):
- 1. AC38 Acceptance Criteria for Weather Resistive Barriers
- 2. ICC-ES AC116 Acceptance Criteria for Nails and Spikes
- 3. ICC-ES AC148 Acceptance Criteria For Flexible Flashing Materials
- 4. ICC-ES AC310 Acceptance Criteria for Water-Resistive Membranes Wood-based Structural Sheathing, Used as Water-Resistive Barriers
- 5. ICC-ES ESR-1539 Power Driven Staples and Nails for Use in Eng Non-Engineered Connections
- 6. ICC-ES NER-272 Power Driven Staples and Nails for Use in All Construction

3. SUBMITTALS

- A. Product Data: For each type of sheathing product specified.
- B. Evaluation Reports: From ICC-ES, for wood sheathing and seam tap C. Product Certifications: From manufacturer, indicating that sheathing
- ICC-ES AC310. D. Florida Building Code Supplement: Submit documentation indicating the
- requirements of Florida Building Code for projects in that state. E. Warranty: Executed copy of manufacturer special warranties.

4. QUALITY ASSURANCE

- A. Provide wall sheathing products meeting requirements for water-resist with ICC-ES AC310.
- B. Florida Building Code Compliance: Provide sheathing complying with I product and installation requirements for locations in Florida and outsid zone.
- 5. DELIVERY, STORAGE, AND HANDLING
- A. Comply with manufacturer's written instructions for protection of shea weather prior to installation.

- Xref ...\3.20 X-Ref\x-tb.dwa
- 2. Grade: No. 2.
- 1. Lumber: S4S, No. 2 or Standard Grade.

- B. Preservative and Fire Retardant treatment of wood.

	6. WARRANTY A.Special Manufacturer's Warranty: Manufacturer's standard 30 year warranty following date of Substantial Completion.	6. FABRICATION A. LVL shall be m supervision of c
ugh 4 x 16 ),:	<ul> <li>7. MANUFACTURERS</li> <li>A.Basis-of-Design Product: Provide sheathing products manufactured by Huber Engineered Woods LLC, Charlotte NC; Phone: (800) 933-9220; Website: www.zipsystem.com.</li> </ul>	continuous proc B. LVL shall be m to the length o or scarf joints.
llowing concerled types of	<ol> <li>8. PERFORMANCE REQUIREMENTS         A.Fire-Test-Response Characteristics:         1. Exterior Fire-Test Exposure: ASTM E108, Class A, when covered with approved Class A     </li> </ol>	C. Adhesives shall D. Preservative Tre concrete or ext E Protection: Ind
llowing concealed types of with requirements designated ility classifications, edge	<ul> <li>2. Fire-Resistance Ratings: Where indicated, provide assemblies tested for fire resistance per ASTM E119.</li> </ul>	7. STORAGE AND PR A. Contractor rece
ing to suit stud spacing. exterior with span rating to	B.Air-Barrier Assembly Air Leakage: Less than 0.04 cfm/sq. ft. at 1.57 lbf/sq. ft. per ASTM E2375.	harmful weather manufacturer.
vith grooves 6 inches on cking locations.	C.Water—Vapor Permeance, Facer: Minimum 12 perms, ASTM E96/E96M. D.Weather Exposure: Manufacturer warranty applies for maximum allowable exposure period of 180 days.	8. ERECTION A. Compliance: Com product catalog
rdant treated.	<ol> <li>WOOD PANEL PRODUCTS         A.Single Source Limitations: Provide wall sheathing by a single manufacturer.         B.Oriented Strand Board: DOC PS 2, made with binder containing no added urea formaldehyde.     </li> </ol>	B. General: Handl 1. Minor Misfit amount of rea errors which p authorization C. Install per the
3/A 153M for high humidity here.	<ol> <li>WALL SHEATHING WITH INTEGRAL WATER-RESISTIVE BARRIER AND AIR BARRIER         A.Oriented-Strand-Board Wall Sheathing: Exposure 1 sheathing with factory-laminated water-resistive barrier facer with printed fastener location symbols.         I. Basis-of-Design Product: Provide Huber Engineered Woods LLC; ZIP System Sheathing.         Span Rating, Panel Grade and Performance Category: Not less than 32/16; Structural 1; 1/2 Performance Category.     </li> </ol>	notches not sho 9. PROTECTION OF A. Keep protective initial building h humidity of buil
STM A563 hex nuts and, conditions.	<ul> <li>3. Edge Profile: Square edge.</li> <li>4. Facer: Medium-density, phenolic-impregnated sheet material qualifying as a Grade D weather-resistive barrier in accordance with ICC AC38.</li> <li>a. Provide fastener spacing symbols on facer for 16-inch and 24-inch on center spacing.</li> </ul>	SECTION 06176 - MET 1. SECTION INCLUDES A. Shop fabricated
111 Has Ostasan, Sustam	11. FASTENERS A.Fasteners, General: Size and type complying with manufacturer's written instructions for Project	B. Bridging, bracin 2. SYSTEM DESCRIPT
U1 — Use Category System ce conditions, and specific	conditions and requirements of authorities having jurisdiction. B.Corrosion Resistance: Hot-dip zinc coating, ASTM A153/A153M.	A. Design roof live minimum cord
emical treatment pressure e development rating of 25	C.Nails, Brads, and Staples: ICC AC116 and ICC AC201. D.Power-Driven Fasteners: ICC-ES-1539 or NER-272.	3. SUBMITTALS A. Shop Drawings: camber, and fro
se Category UC3B, rvative to 0.25 lb/cu ft	E.Wood Screws: ASME B18.6.1. 12. SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIAL	B. Product Data: F bracing. C. Calculations: Pr
of 19 percent. g.	A.Self—Adhering Seam and Flashing Tape: Pressure—sensitive, self—adhering, cold—applied, seam tape consisting of polyolefin film with acrylic adhesive, meeting ICC—ES AC148, and tested as part of an assembly meeting performance requirements.	in design of th
AWPA Treatment C2 using	<ol> <li>Basis—of—Design Product: Provide Huber Engineered Woods; ZIP System Tape.</li> <li>Thickness: 0.012 inch.</li> </ol>	4. QUALITY ASSURAN A. Perform Work in 1. Lumber Gro
ended by manufacturer of	B.Liquid—Applied Flashing Membrane: Gun—grade, cold—applied, silyl—terminated polyether (STPE) liquid flashing membrane compatible with sheathing/weather barrier and self—adhering seam and flashing tape, and tested as part of an assembly meeting performance requirements. Follow manufacturer's recommendation for integration with ZIP System Tape.	2. Plywood Gr B. Truss Design, F HET-80, PCT-8 C. Design joists ur
ieces with defects that would xposed members.	<ol> <li>Basis-of-Design Product: Provide Huber Engineered Woods; ZIP System Liquid Flash.</li> <li>Hardness, Shore A, ASTM C 661: 40 to 45.</li> </ol>	design of this 5. PLATE CONNECTED
nporary bracing sufficient to pletion of erection and	<ul> <li>13. EXAMINATION</li> <li>A.Examine framing spacing and alignment to determine if work is ready to receive sheathing. Proceed with sheathing work once conditions meet requirements.</li> </ul>	A. Lumber Grading B. Wood Members: minimum moist
ise specifically detailed. and fastener size and and AFPA Wood Frame	14. SHEATHING INSTALLATION A.Install sheathing panels in accordance with manufacturer's written instructions, requirements of	C. Steel Connector D. Truss Bridgin
under wall stud partitions herwise detailed. eaders on cripple studs.	applicable Evaluation Reports, and requirements of authorities having jurisdiction. B.Air and Moisture Barrier: Coordinate sheathing installation with flashing and joint sealant sequencing and installation and with adjacent building air and moisture barrier components to provide complete, continuous air- and moisture- barrier.	6. ACCESSORIES A. Wood Framing t B. Fasteners: Galva C. Bearing Plates:
	<ul> <li>C.Do not bridge expansion joints; allow joint spacing equal to spacing of structural supports.</li> <li>D.Install panels with laminated facer to exterior. Stagger end joints of adjacent panel runs. Support all panel edges. Space square-edged panels 0.125 inch (3 mm).</li> <li>E.Attach sheathing panels securely to substrate with manufacturer-approved fasteners in</li> </ul>	7. FABRICATION A. Fabricate trusse
	compliance with the following: 1. ICC-ES ESR-1539 or ICC-NES NER-272 for power-driven fasteners.	B. Brace wood tru 8. ERECTION
	<ol> <li>IBC: Table 2304.9.1 Fastening Schedule.</li> <li>Structural General Notes and Wood Shear Wall Schedule.</li> <li>F.Apply ZIP System Tape at all panel seams, penetrations, and facer defects or cracks to form</li> </ol>	A. Install trusses i plumb, in corre B. Make provisions
t—Dip) on Iron and Steel	continuous weathertight surface. Apply tape according to manufacturer's written instructions and requirements of ICC-ES applicable to tape application.	C. Do not field cu D. Place headers of
mission of Materials Construction and Materials	G.Apply liquid—applied flashing membrane at penetrations, gaps, and cracks to form continuous weather tight surface. Apply liquid membrane according to manufacturer's written instructions. Follow manufacturer's recommendation for integration with ZIP System Tape.	E. Frame openings
e of Air Barrier Assemblies	SECTION 06170 - LAMINATED VENEER STRUCTURAL TIMBER 1. SECTION INCLUDES	
	A. Laminated Veneer Lumber (LVL) framing members. B. Hardware and connectors	
ls nes Factory—bonded to	<ol> <li>QUALITY ASSURANCE</li> <li>A. Manufacturer Qualifications: Manufacturer experienced in Laminated Veneer Structural Timber production, and capable of providing field service representation during construction.</li> </ol>	
rs Engineered and	3. REFERENCE STANDARDS A. ASTM D2559 Standard Specification for Adhesives for Structural Laminated Wood Products for	
ll Types of Building	Use Under Exterior (Wet Use) Exposure Conditions. B. ASTM D5456 Specification for Evaluation of Structural Composite Lumber Products. C. National Design Specification for Wood Construction (NDS). D. Materials shall comply with ESR Report #ESR-2993.	
tape. ng products comply with that products comply with	<ul> <li>4. SUBMITTALS <ul> <li>A. Submit per SUBMITTALS Section for acceptance prior to start of fabrication. Show lumber combinations (AITC and AWPA combination symbols for identification), details, methods and sequences of assembly, erection diagrams and instructions for use in field.</li> <li>B. Manufacturer's Product and Material Safety Data Sheets, for all specified products.</li> <li>C. Shop Drawings: Submit data showing product components, including finish.</li> </ul> </li> </ul>	
sistive barrier in accordance	5. MATERIALS A. Basis for Design: RedBuild RedLam Timber.	
h Florida Building Code tside of high velocity wind	<ul> <li>B. Douglas Fir, Larch or Hemlock, touch sanded, E = 2.0E6 psi, Fb = 2900 psi; sizes, shapes and profiles as indicated in Contract Documents.</li> <li>C. Grade Stamps: All RedLam LVL materials shall comply with NES Report No. NER-481 or CCMC Report No. 11161-R.</li> </ul>	
heathing products from	D. Hardware: Furnish connections for joining members to each other and/or supports.	
		1

manufactured in a plant listed in the above reference an approved third-party inspection agency. It shall rocess with all grain parallel with the length of the m

- manufactured in a continuous process from wood fibe of the member and then fed into a press. All mem
- hall be of waterproof type conforming to the requireme reatment: Pressure treat members or portions of m
- exterior to conform to AWPA standard C-28; retention
- ndividually wrap each member
- PROTECTION OF MATERIALS
- ceive, unload and store materials. Store materials pro her conditions and at temperature and humidity condi
- Comply with manufacturer's product data, including pro log installation instructions and product carton instruct ndle with non-marking slings. Erect in accord with a sfits: Correction of minor misfits by moderate use c reaming, chipping or cutting is considered part of ere
- prevent proper assembly of parts by these measure of corrective measures prior to assembly. e Contract Documents and manufacturer's recommend shown on the contract documents shall not be permit
- OF COMPLETED WORK
- ive wrappings in place until members are enclosed wit heat or cooling to desired level. To minimize check ouilding rapidly.

METAL PLATE CONNECTED WOOD TRUSSES

- IDES
- ted wood trusses for roof framing. cing, and anchorage.
- PTION
- live and dead load: as indicated on drawings with defl size of 2 inches x 6 inches nominal.
- s: Indicate framing system, sizes and spacing of trus framed openings. Submit design calculations.
- Provide truss configurations, bearing and anchor det
- Provide structural calculations by a registered profess this Work and licensed in the state of the project.

ANCE

- in accordance with the following agencies: Grading Agency: Certified by ALSC.
- Grading Agency: Certified by APA.
- Fabrication, and Installation: In accordance with Truss -80 including Supplement, TPI-85 including Supplemer
- under direct supervision of a Professional Structural Work and licensed in the state of the project.
- TED WOOD TRUSSES
- ing Rules: NFPA ers: No. 2 KD Southern Yellow Pine, 15 percent maxim
- isture content; single top and bottom chord. Finger tors: ASTM A446 steel, Grade B, hot dip galvanized
- ging: Type, size and spacing recommended by truss
- for Openings: In accordance with Section 06100. Ivanized steel, type to suit application.
- : Galvanized.
- sses to achieve structural requirements specified. russes in accordance with TPI BWT-76.
- in accordance with manufacturer's instructions. Set rect position.
- ons for erection loads and temporary bracing.
- cut or alter structural members without approval of A
- and supports to frame openings required. ngs between trusses with lumber in accordance with

	SECTION 06200 - FINISH CARPENTRY	
iced reports under the I be manufactured in a	1. SECTION INCLUDES A. Finish carpentry items.	
members. iber with all strands oriented mbers are to be free of finger	2. REFERENCES	
nents of ASTM D2559.	A. AWI/AWMAC (QSI) — Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2006, 8th Ed.,	MICHAEL LEGG ARCHITECTURE
members in contact with on 0 .3 lb/cu ft. of wood.	Version 2.0. B. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties Preservative Treatment by Pressure	Michael Gregory Legg NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St
	Processes; American Wood-Preservers' Association; 2002. 3. QUALITY ASSURANCE	San Antonio, Texas 78260 ph. 210-416 4935 michael@mlarchitecture.info
related from our our to	A. Perform work in accordance with AWI Architectural Woodwork Quality Standards Illustrated, Custom grade.	www.michaelleggarchitecture.com
rotected from exposure to ditions recommended by	4. DELIVERY, STORAGE, AND HANDLING	ERED ARCAN
	A. Protect work from moisture damage.	
product technical bulletins,	5. LUMBER MATERIALS A. Softwood Lumber:	
accepted shop drawings.	<ol> <li>Southern Yellow Pine #2, C&amp;BTR</li> <li>Texture: Surfaced smooth, both sides.</li> </ol>	09.21.2023
of drift pins, and moderate erection. Immediately report res to Architect for	B. Hardwood Lumber: 1. Poplar or White Oak, or as indicated on the drawings	DRAWING
ndations. Holes, cuts or	2. Texture: Surfaced smooth, both sides.	COORDINATION Architectural, Landscape, Civil, Structural, Mechanical and
nitted.	6. ADHESIVE A. Adhesive: Type recommended by laminate manufacturer to suit application.	Electrical drawings are interrelated. General Contractor and all Sub
within building. Gradually bring	7. FASTENERS	Contractors shall review and coordinate the entire set of drawings and specifications
cking, do not reduce relative	A. Hot dipped galvanized for exterior and high humidity locations, untreated steel elsewhere. B. Concealed Joint Fasteners: Threaded steel.	8 1
	8. WOOD TREATMENT	
	A. Wood Preservative by Pressure Treatment (PT Type): AWPA Treatment C2 using water borne preservative with 0.25 percent retainage.	
	9. FABRICATION	
	A. Shop assemble work for delivery to site, permitting passage through building openings. B. When necessary to cut and fit on site, provide materials with ample allowance for cutting.	
eflection limited to 1/240;	Provide trim for scribing and site cutting.	
	10. INSTALLATION A. Set and secure materials and components in place, plumb and level.	
usses, loads and truss	B. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.	
etails, and bridging and	11. ERECTION TOLERANCES	
ssional engineer experienced	A. Maximum Variation from True Position: 1/16 inch. B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.	
	12. SCHEDULE	
	A. Exterior: 1. Standing and Running Trim: Source and Running Trim:	
	a. Species and Grade: Western Red Cedar, WWPA or WCLIB, B & Better — 1 & 2 Clear Vertical Grain b. Texture: Surfaced	
uss Plate Institute BWT-76, nent, QST-88. I Engineer experienced in	c. Furnish surfaced lumber for trim indicated to receive painted or stained finish. B. Interior:	ät
r Engliteer experienced in	1. Standing and Running Trim and Rails — Transparent Finish: a. Quality Standard: Comply with AWI 300 Premium Grade	
	b. Backs: Back out or groove backs of flat trim members, kerf backs of other wide flat members except for members with ends exposed in finished work.	<b>D</b>
imum and 7 percent r scarfing not permitted.	c. Casings: Assemble in plant except where limitation of access to place of installation requires field assembly.	Rd O
manufacturer.	d. Moldings: 1) Assemble in plant to maximum extent possible	
	<ul> <li>2) Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.</li> <li>e. Wood Species: White Oak</li> </ul>	L H L L H
	<ul> <li>a. Quality Standard: Comply with AWI 300 Custom Grade</li> </ul>	an Sb Te
	b. Backs: Back out or groove backs of flat trim members, kerf backs of other wide, flat members except for members with ends exposed in finished work.	o, cki
	c. Casings: Assemble in plant except where limitation of access to place of installation requires field assembly.	sta eri
	d. Moldings: 1) Assemble in plant to maximum extent possible.	jt je
	2) Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.	Ai Ai
et members level and	e. Wood Species: Poplar 3. Wood Shelves:	an I
Architect/Engineer.	<ul> <li>a. Solid wood for opaque finish (lumber boards, edge-glued where required to produce widths indicated):</li> <li>1) Grade: Custom</li> </ul>	ů d n
Section 06110.	<ul> <li>1) Grade: Custom</li> <li>2) Lumber Species: Poplar</li> <li>b Papel product for transporent finish (wood veneer laminated over various cores);</li> </ul>	c Ñ
	<ul> <li>b. Panel product for transparent finish (wood veneer laminated over various cores):</li> <li>1) Grade: Premium</li> <li>2) Lumber Species: White Oak</li> </ul>	olde
	3) Matching of adjacent veneer leaves: Book Match	O
	<ul> <li>4) Veneer matching within panel face: Running Match</li> <li>5) Edge Treatment: Lumber matching wood veneer face for species and cut.</li> <li>6) Edge Treatment: Weed veneer matching veneer face for species and cut.</li> </ul>	5
	6)Edge Treatment: Wood veneer matching veneer face for species and cut. c. High Pressure Decorative Laminate: 1)Grade: Premium	B
	<ul> <li>a) Graae: Premium</li> <li>2) Laminate Cladding — Horizontal Surfaces: High pressure decorative laminate, provide materials and products resulting in colors and textures of exposed laminate surfaces</li> </ul>	
	matching Architect's samples. 3) Grade: GP-50	RIPTION
	4)Grain Direction: Parallel to longest dimension 5)Edge Treatment: Same as laminate cladding on horizontal surfaces.	
	<ul> <li>6) Edge Treatment: Lumber edge for transparent finish matching wood species and cut on cabinet surfaces.</li> </ul>	DESC
		DATE
		SPECIFICATIONS
		PROJECT NO.
		05-05-22
		SHEET NO.

SP.6

#### **DIVISION 6 - WOODS AND PLASTICS (CONTINUED)**

#### SECTION 06410 - CUSTOM CABINETS

- 1. SECTION INCLUDES A. Specially fabricated cabinet units and hardware.
- 2. REFERENCES
- A. ANSI A135.4 American National Standard for Basic Hardboard; 2004.
- B. ANSI A208.1 American National Standard for Particleboard; 1999.
- C. AWI/AWMAC (QSI) Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2006, 8th Ed., Version 2.0.
- D. GSA CID A-A-1936 Adhesive, Contact, Neoprene Rubber; Federal Specifications and
- Standards; Revision A, 1996 E. NEMA LD 3 - High-Pressure Decorative Laminates; National Electrical Manufacturers
- Association; 2005.
- F. PS 1 Construction and Industrial Plywood; National Institute of Standards and Technology (Department of Commerce); 1995.
- 3. QUALITY ASSURANCE
- A. Perform work in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Custom quality, unless other quality is indicated for specific items.
- 4. LUMBER MATERIALS
- A. Hardwood Lumber: NHLA; Graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Grade I/Premium; average moisture content of 5-10 percent; species as follows:
- 3. Exposed Surfaces: As specified on the drawings.
- 4. Semi-Exposed Surfaces: As specified on the drawings.
- 5. Concealed Surfaces: Species poplar.
- 5. PANEL MATERIALS
- A. Exposed Surfaces: NIST PS 1; APA A-A Grade, plain-sliced face veneer as indicated on drawings.
- B. Hardboard: AHA A135.4; Pressed wood fiber with resin binder, Class 1 Tempered, 1/4 inch thick, smooth two sides (S2S); use for drawer bottoms, dust panels, and other components indicated on drawings.
- 6. ACCESSORIES
- A. Adhesive: Type recommended by fabricator to suit application.
- B. Fasteners: Size and type to suit application.
- C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel, or chrome-plated finish in exposed locations.
- D. Concealed Joint Fasteners: Threaded steel.
- E. Grommets: Standard plastic, painted metal, or rubber grommets for cut-outs, in color to match adjacent surface.
- 7. HARDWARE
- A. Adjustable Shelf Supports: Standard back-mounted system using surface mounted metal shelf standards and coordinated cantilevered shelf brackets, satin chrome finish, for nominal 1 inch spacing adjustments.
- B. Drawer and Door Pulls: Top Knobs M1165 Nouveau III Square Black Knobs
- C. Cabinet Locks: First Watch 1385-VB, Keyed cylinder, master keyed, steel with oil rubbed bronze finish.
- D. Catches: L-EP592-P, 15 lb Double Magnetic Catch, Bronze.
- E. Drawer Slides:
- 1. Type: Standard extension.
- 2. Static Load Capacity: Commercial grade.
- 3. Mounting: Side mounted.
- 4. Stops: Integral type.
- F. Hinges: Wurth FE12-STB 1 ½" Piano Hinge, Statuary Bronze.
- 8. FABRICATION
- A. Cabinet Style: Flush overlay.
- B. Drawer Construction Technique: Dovetail joints.
- C. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- D. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- E. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for
- cutting. Provide matching trim for scribing and site cutting.
- F. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
- 1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
- 2. Cap exposed plastic laminate finish edges with material of same finish and pattern.
- G. Matching Wood Grain: Comply with requirements of quality standard for specified Grade and as follows:
- 1. Provide center matched panels at each elevation.
- 2. Provide sequence matching across each elevation.
- 3. Carry figure of cabinet fronts to toe kicks.
- H. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.
- 9. INSTALLATION
- A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- B. Use fixture attachments in concealed locations for wall mounted components.
- C. Use concealed joint fasteners to align and secure adjoining cabinet units and countertops. D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.
- E. Secure cabinets to floor using appropriate angles and anchorages.
- F. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.
- 10. ADJUSTING
- A. Adjust installed work. B. Adjust moving or operating parts to function smoothly and correctly.
- SECTION 06620 SOLID NON-POROUS SHEET AND SHAPE PRODUCT
- 1. REFERENCE STANDARDS
- A. American Society of Testing Materials (ASTM): ASTM E84 B. Underwriter's Laboratories (UL)
- 2. SUBMITTALS
- A. Submit Shop Drawings to Architect, based on details shown on the Drawings. Show design load parameters, dimensions, adjacent construction, materials, thicknesses, fabrication details, required clearances, tolerances, colors, finishes, methods of support, integration of components, and anchorages. Detail to serve as installation drawings. Architect's acceptance is required prior to start of fabrication and/or shipment.
- WARRANTY

Xref ...\3.20 X-Ref\x-tb.dwa

- A. Provide manufacturer's standard ten-year warranty against manufacturing defects.
- 4. PRODUCTS
- A. Sheet Products (countertops): Manufacturer noted on finish schedule in drawings; 3/8 inch thick sheets, continuous length with bull-nose edge with integral back and side splash, and 3/4 inch exterior grade APA Fir plywood backing.
- B. <u>Patterns and Colors:</u> As noted on finish schedule in drawings.

- A. Contractor is responsible for dimensions, detailing, fabrication, fitti this section.
- B. Protect components during shipping and delivery by appropriate bo components from storage damage by retaining shipping protection
- C. Verify that substrate is ready to receive work and dimensions are Drawings prior to fabrication. Beginning of fabrication means dime and acceptance of substrates.
- D. Install fabrications in accord with accepted shop drawings and fabrications
- **DIVISION 7 THERMAL AND MOISTURE PROTECTION**
- SECTION 07212 BOARD AND BATT INSULATION
- 1. SECTION INCLUDES
- A. Board insulation at cavity wall construction and perimeter foundatio B. Batt insulation in exterior wall and ceiling construction. C. Batt insulation for filling perimeter window and door shim spaces and roof.
- 2. REFERENCES
- A. ASTM C 578 Standard Specification for Rigid, Cellular Polystyrer B. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket The
- Frame Construction and Manufactured Housing; 2001. C. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Po Insulation Board; 2006.
- D. ASTM D 2842 Standard Test Method for Water Absorption of Rid E. ASTM E 84 - Standard Test Method for Surface Burning Character
- 2005 F. ASTM E 136 - Standard Test Method for Behavior of Materials in
- 750 Degrees C; 2004.
- 3. BOARD INSULATION MATERIALS A. Foundation Insulation: Expanded Polystyrene Board Insulation: ASTM
- characteristics:
- 1. Flame Spread Index: 75 or less, when tested in accordance w 2. Smoke Developed Index: 450 or less, when tested in accordan
- 3. Board Size: 48 x 96 inch.
- 4. Board Thickness: 1 inch.
- 5. Water Absorption: 4 percent by volume, maximum, when tested 2842
- 6. Board Density: 0.7 lb/cu ft.
- 7. Compressive Resistance: 5 psi. 8. Thermal Conductivity (k factor) at 25 degrees F: 0.28.
- 9. Approved manufacturers:
- a. AFM Corp: www.r-control.com.
- b. Diversifoam Products: www.diversifoam.com.

- c. Grace Construction Products: www.na.graceconstruction.com.
- 4. BATT INSULATION MATERIALS

(1) Changes in roof line.

d. Where substrate changes occur

(2) Changes in building shape and/or structural system.

<ol> <li>INSTALLATION         <ul> <li>A. Contractor is responsible for dimensions, detailing, fabrication, fitting, and alignment of work of this section.</li> </ul> </li> </ol>	<ol> <li>Manufacturer's Detail:         <ul> <li>a. EIFS most current published information shall be followed for standard detail treatments.</li> <li>b. Non-standard detail treatments shall be as recommended by manufacturer, approved by Project Designer and be part of the Contract Documents.</li> </ul> </li> </ol>	<ul> <li>14. APPLICATION</li> <li>A. General: Installation shall</li> <li>B. Drainage Accessories and</li> <li>1. Install drainage tracks</li> </ul>
<ul> <li>B. Protect components during shipping and delivery by appropriate boxing, crating, etc. Protect components from storage damage by retaining shipping protection in place until installation.</li> <li>C. Verify that substrate is ready to receive work and dimensions are as indicated on the Drawings prior to fabrication. Beginning of fabrication means dimensions have been verified and acceptance of substrates.</li> </ul>	<ol> <li>Building Code Conformance: EIFS shall be acceptable for use on this project under the building code having jurisdiction.</li> <li>In Florida locations, install complete system in complete accordance with FL-8605.1, NOA No. 15-0609.13, to include all detailing, composition, impact mesh and fastening system.</li> </ol>	2. Install water—resistive t weatherboard fashion t C. Insulation Board 1. Install Wind—lock faster
D. Install fabrications in accord with accepted shop drawings and fabricator's instructions.	4. SUBMITTALS A. General: Submit Samples, Evaluation Reports, Warranties and Certificates in accordance with	Wind-lock Corporation gypsum sheathing mini
DIVISION 7 - THERMAL AND MOISTURE PROTECTION	Division 01 General Requirements Submittal Section. B. Samples: Submit samples for approval. Samples shall be of materials specified and of suitable	mm) into wood and th 4' (610 mm x 1219 r 2. Install insulation board
SECTION 07212 - BOARD AND BATT INSULATION 1. SECTION INCLUDES	size as required to accurately represent each color and texture used on project. Prepare each sample using same tools and techniques for actual project application. Maintain and make	3. Rasp irregularities off D. Apply primer to base coar
A. Board insulation at cavity wall construction and perimeter foundation wall. B. Batt insulation in exterior wall and ceiling construction.	available, at job site, approved samples. 5. QUALITY ASSURANCE	manufacturer's product do project.
C. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof. 2. REFERENCES	<ul> <li>A. Qualifications:</li> <li>1. All EIFS assembly materials must be manufactured or sold by a single-source manufacturer and must be purchased direct from the manufacturer or its authorized distributor.</li> <li>2. Manufacturer: Shall have marketed Exterior Insulation and Finish Systems in United States</li> </ul>	E. Reinforcing Mesh: Embed mesh. F. Finish Coat: Apply finish c finish coat to surfaces to
A. ASTM C 578 — Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2005a. B. ASTM C 665 — Standard Specification for Mineral—Fiber Blanket Thermal Insulation for Light	for at least ten (10) years and be an active member in good standing of EIMA. 3. Applicator:	SECTION 07260 - WEATHER BAR
Frame Construction and Manufactured Housing; 2001. C. ASTM C 1289 — Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal	a. Must possess a current manufacturer's certificate of education. b. Must be experienced and competent in installation of plaster—like materials. B. Regulatory Reguirements:	1. SECTION INCLUDES A. Vapor Barrier must have
Insulation Board; 2006. D. ASTM D 2842 — Standard Test Method for Water Absorption of Rigid Cellular Plastics; 2001.	1. Insulation Board: Shall be produced and labeled under a third party quality program as required by applicable building code.	1. Permeance of less th E 96
E. ASTM E 84 — Standard Test Method for Surface Burning Characteristics of Building Materials; 2005.	6. DELIVERY, STORAGE, AND HANDLING	2. ASTM E 1745 Class A
<ul> <li>F. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2004.</li> <li>3. BOARD INSULATION MATERIALS</li> </ul>	<ul> <li>A. Delivery: Deliver materials in original packaging with manufacturer's identification.</li> <li>B. Store materials in a cool, dry location, out of sunlight, protected from weather and other harmful environment, and at a temperature above 40F (4C) and below 110F (43C) in accordance with manufacturer's instructions.</li> </ul>	B. Air Barriers: Materials t exterior walls and roof, with ICC—ES Acceptance
A. Foundation Insulation: Expanded Polystyrene Board Insulation: ASTM C 578; with the following characteristics:	7. PROJECT / SITE CONDITIONS	2. SHEET SEAL MATERIALS A. Vapor Retarder: Stego V
1. Flame Spread Index: 75 or less, when tested in accordance with ASTM E 84. 2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E 84.	<ul> <li>A. Installation Ambient Air Temperature: Minimum of 40F (4C) and rising, and remain so for 24 hours thereafter.</li> <li>B. Substrate Temperature: Do not apply materials to substrates whose temperature are below 40F</li> </ul>	applications. B. Air Barrier: Commercial
<ul> <li>3. Board Size: 48 x 96 inch.</li> <li>4. Board Thickness: 1 inch.</li> </ul>	<ul> <li>(4C) or contain frost or ice.</li> <li>C. Inclement Weather: Do not apply materials during inclement weather unless appropriate</li> </ul>	C. Moisture Barrier: 30 lb f
5. Water Absorption: 4 percent by volume, maximum, when tested In accordance with ASTM D 2842.	protection is employed. D. Sunlight Exposure: Avoid, when possible, installation of the materials in direct sunlight.	3. ACCESSORIES A. Vapor Retarder Seam To
6. Board Density: 0.7 lb/cu ft. 7. Compressive Resistance: 5 psi.	Application of Acrylic Finishes in direct sunlight in hot weather may adversely affect aesthetics. E. Materials shall not be applied if ambient temperature exceeds 120F (49C) or falls below 40F (4C) within 24 hours of application. Protect materials from uneven and excessive evaporation	1. Permeance less than 2. Stego Tape by Stego
8. Thermal Conductivity (k factor) at 25 degrees F: 0.28. 9. Approved manufacturers:	during hot, dry weather. F. Prior to installation, the substrate shall be inspected for surface contamination, or other	B. Air Barrier Seam Tape: 1. Permeance less than
a. ÁFM Corp: www.r-control.com. b. Diversifoam Products: www.diversifoam.com.	defects that may adversely affect the performance of the materials and shall be free of residual moisture.	2. Tyvek Seam Tape C. Pipe Boots
c. Grace Construction Products: www.na.graceconstruction.com. 4. BATT INSULATION MATERIALS	<ol> <li>WARRANTY</li> <li>A. Warranty: Upon request, at completion of installation, provide manufacturer's Standard Limited Warranty and Colorfast Technology fade—resistant warranty.</li> </ol>	1. Construct pipe boots per manufactur
A. Batt Insulation: ASTM C 665; preformed batt; friction fit, conforming to the following: 1. Combustibility: Non-combustible, when tested in accordance with ASTM E 136, except for	9. MANUFACTURERS A. Manufacturer: Parex USA, Inc., 4125 E. La Palma Ave., Suite 250, Anaheim, CA 92807.	4. INSTALLATION A. Install materials in accor
facing, if any. 2. Thermal Resistance:	Technical Support (800.226.2424). B. Components: Obtain components from authorized distributors. No substitutions or additions of	
a. Walls: R—21 High Density Fiberglass b. Roof: R—30	other materials are permitted without prior written permission from the EIFS manufacturer for this project.	SECTION 07530 - ELASTOMERIC 1. SECTION INCLUDES
<ul><li>3. Facing: aluminum foil or kraft-paper faced one side.</li><li>4. Approved manufacturers:</li></ul>	10. MATERIALS A. Secondary Water-Resistive Barrier	A. Elastomeric roofing meml B. Insulation, flat and taperd
a. CertainTeed Corporation: www.certainteed.com.	<ol> <li>A code compliant water-resistive barrier and means of drainage.</li> <li>B. Grooved Insulation Board: In compliance with manufacturer's requirements for Standard System</li> </ol>	C. Prefabricated flashings, c
b. Johns Manville Corporation: www.jm.com. c. Owens Corning Corp: www.owenscorning.com.	EIFS. 1. Produced and labeled under a third party quality program as required by applicable building code; and produced by a manufacturer approved by Parex USA.	D. Fasteners, adhesives, and E. Traffic Protection.
5. ACCESSORIES	<ol> <li>Shall conform to ASTM C578 and ASTM E2430, Type I and the Parex USA specification for Molded Expanded Polystyrene Insulation board.</li> </ol>	2. REFERENCES
A. Tape: Bright aluminum self—adhering type, mesh reinforced, 2 inch wide. B. Insulation Fasteners: Impaling clip of unfinished steel with washer retainer and clips, to be	<ol> <li>Thickness: 1.5 in, minimum (38 mm) after rasping.</li> <li>Profile: Minimum 1/4 inch wide by 1/8 inch deep vertical grooves spaced a maximum of</li> </ol>	A. ASTM C 1289 — Standar Insulation Board; 2006.
adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.	12 inches on the back face of the board. C. Base Coats: 1. Parex 121 Dry HI: High Impact basecoat & adhesive. Copolymer based, blend of cement	B. NRCA ML104 - The NRC/ Association; Fifth Edition,
C. Adhesive: Type recommended by insulation manufacturer for application.	and proprietary ingredients, requires the addition of water. D. Reinforcing Mesh:	C. UL (RMSD) — Roofing Mo edition.
6. BOARD INSTALLATION AT FOUNDATION PERIMETER A. Install boards vertically on foundation perimeter.	1. 355 Standard Mesh: Weight 4.5 oz. per sq. yd. (153 g/sq m); coated for protection against alkali. Standard reinforcement of Parex EIFS, or for use with High Impact 358.14	3. QUALITY ASSURANCE
B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.	Mesh, or Ultra High Impact 358.20 Mesh. 2. 356 Short Detail Mesh: Reinforcing mesh used for backwrapping and details. 3. 352 Self Adhesive Detail Mesh: Reinforcing mesh used for complex details.	A. Perform work in accordations.
7. BATT INSTALLATION A. Install insulation in accordance with manufacturer's instructions.	<ul> <li>4. 358.20 Ultra High Impact 20 Mesh: Weight 20 oz. per sq. yd. (678 g/sq m) Reinforcing mesh used with a Standard System; to achieve ultra-high impact strength.</li> </ul>	4. SUBMITTALS
B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation. C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.	5. 357 Corner Mesh: Reinforcing mesh used as corner reinforcement; required when using Ultra-High Impact 20 Mesh.	A. Submit under provisions B. Manufacturer's data shee
D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.	<ol> <li>Locations: From Ground level to 7'-0" aff use 358.20 Ultra High Impact 20 Mesh; from 7'-0" aff to top of parapet use 355 Standard Mesh, unless required otherwise by Florida product approval requirements.</li> </ol>	<ol> <li>Preparation instructions and</li> <li>Storage and handling require</li> </ol>
E. Install insulation in walls with faced side facing the building interior.	E. Primer: 1. 310 Primer: 100% acrylic based coating to prepare surfaces for acrylic or elastomeric	3. Installation methods.
F. Tape insulation batts in place. G. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.	finishes. F. Finish	4. Maintenance requirements. C. Manufacturer's Certifica
SECTION 07240 - EXTERIOR INSULATION AND FINISH SYSTEMS	1. Parex AquaSol: 100% acrylic polymer based finish, enhanced DPR acrylic finish with hydrophobic and photocatalytic properties. Finish type, texture and color as noted on the drawings.	D. Installer Certification: ( approved, authorized, or of Master or Elite design
1. SECTION INCLUDES	G. Water: Clean, cool, potable water H. Portland Cement: ASTM C150, Type I or Type I—II.	E. Manufacturer's warrar
A. Manufacturer's requirements for the proper design, use, and installation of a Class PB Water-Drainage Exterior Insulation and Finish System.	11. ACCESSORIES A. Mechanical fasteners and washers:	5. ENVIRONMENTAL REQUIREM
2. REFERENCES	<ol> <li>Wind-lock Wind Devil 2 fasteners, non-thermal bridging polypropylene plastic plates and corrosion-resistant screws.</li> </ol>	A. Do not apply roofing me B. Do not apply roofing me
A. ASTM E84: Test Method for Surface Burning Characteristics of Building Materials. B. ASTM E119: Standard Test Method for Fire Tests of Building Construction and Materials. C. ASTM E331: Test Method for Water Penetration by Uniform Static Air Pressure Difference.	<ul> <li>B. Sealant System:</li> <li>1. Sealant for expansion joints between panelized EIFS sections shall be ultra-low modulus designed for minimum 100% elongation and minimum 50% compression and as selected by</li> </ul>	110 degrees F. C. Do not apply roofing me
D. ASTM E2430: Standard Specification For Expanded Polystyrene ("EPS") Thermal Insulation Boards For Use In Exterior Insulation and Finish Systems ("EIFS")	Project Designer. 2. Sealant for perimeter seals around window and door frames and other wall penetrations	expected or occurring. D. Do not expose materials
E. ASTM E2486: Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS)	shall be low modulus, designed for minimum 50% elongation and minimum 25% compression, and as selected by Project Designer.	weatherproofed the same
3. ASSEMBLY DESCRIPTION	<ol> <li>Sealants shall conform to ASTM C 920, Grade NS.</li> <li>Perimeter seal joints shall be a minimum width of 1/2 in (12.7 mm).</li> <li>Sealant backer rod shall be closed-cell polyethylene foam.</li> </ol>	6. WARRANTY A. Provide manufacturer's st
A. Standard WaterMaster LCR — GX : Exterior Insulation and Finish System (EIFS) with drainage consisting of Grooved Expanded Polystyrene Insulation (EPS) Board, Mechanical Fasteners, Base Coat with embedded Reinforcing Fabric Mesh, [Primer], and Finish Coat. This system is	<ul> <li>6. Apply sealant to tracks or base coat of EIFS.</li> <li>7. Refer to EIFS manufacturer's current bulletin for listing of sealants which have been tested</li> </ul>	15-year NDL warranty at include loss of consequer
installed over a code compliant water—resistive barrier. B. Functional Criteria:	and have been found to be compatible with EIFS materials. 8. Color shall be as noted on the drawings.	exclusions for ponding w of the roof, the warranty Manufacturer's Quality As
1. General: a. Insulation Board: At system termination, completely encapsulate insulation board edges by	12. EXAMINATION	B. Notice of Award: Contract ten days prior to the be
mesh reinforced base coat, substrate or drainage track (limited to terminations at foundation). The use of and maximum thickness of insulation board shall be in	<ul> <li>A. Compliance: Comply with manufacturer's instructions for installation.</li> <li>B. Substrate Examination: Examine prior to installation of EIFS assembly materials per manufacturer's written instructions.</li> </ul>	to Owner a copy of the accepted by Manufacturer
accordance with applicable building codes and EIFS manufacturer's requirements. b. Flashing: Flashing shall be continuous and watertight. Flashing shall be designed and installed to prevent water infiltration behind the cladding. Refer to Division 07 Flashing	C. Sealants and Backer Rod: To be installed, where required, in accordance with the sealant manufacturer's specifications and published literature, and using the sealant manufacturer's	7. APPROVED MANUFACTURER
Section for specified flashing materials. c. The configuration of the water—resistive barrier, drainage plane and flashing and EIFS	recommended primers. D. Advise Contractor of discrepancies preventing proper installation of the EIFS materials. Do not	A. Duro-Last Roofing, Inc., 800-248-0280; Contact:
materials, must allow for the egress of incidental moisture. 2. Impact Resistance Classification:	proceed with the work until unsatisfactory conditions are corrected.	www.duro-last.com
a. Standard Impact Resistance, 25-49 in-Ibs (2.8 - 5.6 J) Impact Range b. Medium Impact Resistance, 50-89 in-Ibs (5.7-10.1 J) Impact Range a High Impact Resistance, 20-150 in-Ibs (10.2-17.0 J) Impact Range	A. Mix materials in accordance with manufacturer's instructions.	8. ROOFING A. Elastomeric Membrane Ro
c. High Impact Resistance, 90—150 in—Ibs (10.2—17.0 J) Impact Range d. Ultra High Impact Resistance, >150 in—Ibs (> 17.0 J) Impact Range 3. Expansion Joints: Continuous expansion joints shall be installed at the following locations in		A. Elastomenic Membrane RC     1. Duro-Last Roofing Membra     PVC.
accordance with manufacturer's recommendations: a. At substrate expansion joints.		2. Properties:
b. Where EIFS abuts other materials. c. Where significant structural movement occurs, such as at		a. 50 mil nominal thic b. 50 mil nominal thic

nall conform to this specification and manuf and Water-Resistive Barrier cks back-wrap mesh, or edge-wrap mesh

- ve barrier in accordance with manufacturer' to provide continuity of watershedding.
- steners to secure insulation board to the tion instructions. For exterior grade gypsum ninimum screw penetration of framing mem three full threads through steel. Minimum mm) piece of insulation board.
- ard without gaps in a running bond pattern off insulation board. coat after drying. Primer may be omitted
- data sheets for the specified finish coat
- bed into the wet base coat, abutting edges
- coat to match specified finish type, textu to receive sealant. Keep finish out of seal
- BARRIERS
- nave all of the following qualities: than 0.01 Perms [grains/(ft<sup>2</sup> \*hr \* in.Hg
- Ils to stop passage of air through exterior of, and joints around frames of openings ince Criteria AC-38.
- go Wrap Vapor Barrier (15-mil) by Stego I
- rcial Wrap as manufactured by Dupont Tyvek
- Ib felt for horizontal applications
- Tape:
- han 0.3 perms per ASTM F 1249 or ASTM tego Industries LLC
- han 0.3 perms per ASTM F 1249 or ASTM
- oots from vapor barrier material, pressure se turer's instructions.

cordance with manufacturer's instructions.

## RIC MEMBRANE ROOFING

- embrane, mechanically fastened conventiona pered.
- corners, parapets, stacks, vents, and rela
- and other accessories required for a compl
- idard Specification for Faced Rigid Cellular
- NRCA Roofing and Waterproofing Manual; Nat ion, with interim updates.
- Materials and Systems Directory; Underwrite
- ordance with NRCA Roofing and Waterproofing
- ns of Section 01330.
- heets on each product to be used, including
- and recommendations. quirements and recommendations.
- ificates: Certify products meet or exceed s : Certification from the roofing system mai or licensed by manufacturer to install roofin signation.
- ranties.

## EMENTS

- membrane during unsuitable weather. nembrane when ambient temperature is bel
- membrane to damp or frozen deck surface
- rials vulnerable to water or sun damage in ame day.
- standard written full roofing system repair at no additional cost, covering materials quential damages due to failure of the root ı water or biological growth. Upon warrant ranty shall be turned over to the Contractor Assurance Specialist.
- tractor shall submit a "Notice of Award" to beginning of a particular roof application. the filed Notice of Award which has been s turer prior to the start of work under this
- RERS
- nc., 525 Morley Dr. P. O. Box 3301 ; Saqi tact: Jim Miller, Email: <u>corporateaccounts@du</u>
- Roofing Systems:
- mbrane conforming to ASTM D 4434, Type
- thickness at roof deck. No exceptions
- b. 50 mil nominal thickness at parapets. No exceptions.
- c. Exposed Face Color: White on all Horizontal roof surfaces vertical surfaces. No exceptions

ufacturar'a writtan instanction	B. Roofing Assembly Requirements:	
ufacturer's written instructions.	<ol> <li>Roof Covering External Fire-Resistance Classification: UL Class A.</li> <li>Insulation Thermal Value (R), minimum: R-30; provide insulation of thickness required.</li> </ol>	
r's instructions making all laps	C. Acceptable Insulation Types:	
wall in accordance with n sheathing and glass mat	1. Two layers of 2.6-inch thick EnergyGuard roof insulation, glass fiber reinforced polyisocyanurate	MICHAEL LEGG ARCHITECTURE
embers shall be $3/4$ in (19	foam roof insulation (Total R value Min. R-30). Run second layer perpendicular to the first layer to minimize joint overlap. Provide tapered insulation, crickets, and saddles to form counter slopes indicated on Drawings.	Michael Gregory Legg NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St
m eight (8) fasteners per 2' x	siopes indicated on prawings.	26116 High Timber Pass St San Antonio, Texas 78260 ph. 210-416 4935
rn and interlocked at corners. if it is not required by the	9. ACCESSORIES	michael@mlarchitecture.info www.michaelleggarchitecture.com
t or otherwise specified for the	A. Sheet Flashing: Duro-Last white 40-mil reinforced PVC Duro-Last Parapet Flashing membrane with 28" tabs.	
s tight, to completely conceal	B. Prefabricated Flashing: Prefabricated white stack flashings for pipes, wind screen support pipes, and curbs, corners of Duro-Last white 40-mil reinforced PVC sheet membrane. Stack	GREGON HIN
kture, and color. Do not apply ealant joint gaps.	flashings to be installed using stainless steel Panduit bands and Duro-Caulk Plus.	THE FE
	C. Prefabricated inside and outside corner of Duro-Last white 40-mil reinforced PVC sheet membrane.	
	D. Pillow block to be supplied by Install 'Roof Top Blox' adjustable piping support under all gas and condensate piping, Ph: (860) 979-0345; www.rooftopblox.com.	OF 14009.21.2023
	E. New 4" x 4" wolmanized block support to be installed underneath condensing unit. A slipsheet should be to be installed under the womanized block. High wind locations to have	DRAWING
lg)] per ASTM F 1249 or ASTM	metal support rack. See roof plan. F. Sealants and Adhesives: Duro-Caulk Plus, pitch pocket filler, Sure Bond 240 mastic as	COORDINATION
r walls, joints between	supplied by Duro-Last Roofing Inc. G. Slip Sheet and Cover Boards: Slip sheet or cover boards, of type required by roof	Architectural, Landscape, Civil, Structural, Mechanical and Electrical drawings are interrelated
in exterior walls to comply	membrane manufacturer for the application.	General Contractor and all Sub Contractors shall review and
	H. Termination Bars: Standard rigid exterior vinyl bar, 1.5 inches (38 mm) wide with slotted holes 6 inches (152 mm) on center.	coordinate the entire set of drawings and specifications
Industries LLC for underslab	I. Scuppers: Prefabricated Duro-Last® Vinyl-Coated Metal Flange Scuppers with single skirt. J. Dome Strainer: See Plumbing Fixture Schedule in Drawings. Proper sized drain boot should	
ek for vertical wall applications.	also be installed using Duro-Caulk Plus and CDR ring. K. Edge Detail: Exceptional Metals Fascia bar and cover, prefabricated Drip Edge, prefabricated	
	Gravel Stop, 2-Piece Snap-On Compression LG Metal Edge. Aluminum 40 Gauge - Finish and Size as indicated on drawings.	
E 96	L. Vinyl Coated Metal: 24 gauge, hot-dipped galvanized, grade 90 metal with a minimum of 17 mil of Duro-Last membrane laminated to one side.	
	M. ATR hub: made of 24 gauge Vinyl coated metal to be installed around refrigeration lines N. Fasteners: #14 Heavy-Duty factory-coated steel fasteners and metal and plastic plates	
E 96	meeting corrosion—resistance provisions in FMG 4470, designed for fastening membrane to substrate.	
	0. Two-Way Roof Vents: As recommended by roof membrane manufacturer and installed with a minimum of 1 vent for each 1,000 square-feet of roof area. Vents will be white.	
sensitive tape and/or mastic	P. Roof Trac III walkway pads by Duro-Last Roofing - 30" x 60" and 60 "x 60 "gray, non-skid, maintenance-free Roof Trac III walkway pads to be installed at mechanical	
	equipment, roof hatch and roof ladder as shown on roof plan.	
	Q. Duro—Guard plenum vent.	
	<ol> <li>SUBSTRATE BOARD (NOTED ON DRAWINGS AS PROTECTION BOARD):</li> <li>A. Duro-Guard "DEXCELL" Glass Mat ¼" thick as manufactured by Duro-Last.</li> </ol>	
nal application.	11. EXAMINATION A. Verify that surfaces and site conditions are ready to receive work.	
elated details.	B. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.	
plete roofing installation.	C. Verify deck surfaces are dry and free of snow or ice.	at
	D. Verify that roof openings, curbs, and penetrations through roof are solidly set.	
Polyisocyanurate Thermal	12.INSULATION - UNDER MEMBRANE A. Roof insulation shall be installed with approved fasteners and distribution plates placed	ס
ational Roofing Contractors	according to the manufacturer's most recent published specifications for the use under the	0 H H H
iters Laboratories Inc.; current	manufacturer's system and for issuance of the warranty. B. Attachment of Insulation:	
	<ol> <li>Mechanically fasten insulation to deck in accordance with roofing manufacturer's instructions.</li> <li>C. Stagger insulation boards 50% from row to row.</li> </ol>	
ing Manual and manufacturer's	D. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.	je provinski je pr
ing manaal and manufacturers	E. Separation Layer: Install substrate board directly over the roofing insulation in accordance with	ra Ks
	roof membrane manufacturer's requirements. F. Do not apply more insulation than can be covered with membrane in same day.	au ic
ling:	13. MEMBRANE APPLICATION	er
	A. Install the roofing system to comply with manufacturer's most recent published specifications.	Ante
	B. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.	ш с с ХШ с
specified requirements.	C. Mechanical Attachment: Apply membrane and mechanical attachment devices in accordance with manufacturer's instructions.	an 1 cl
nanufacturer that Installer is ofing system having the status	D. On all parapet locations, wrap parapet with new pre-manufactured parapet flashings by manufacturer and terminate on exterior of wall.	<b>v</b> - <b>v</b>
anny system having the status	E. Around roof penetrations, seal flanges and flashings with flexible flashing.	U M S N
	14. WALKWAYS	
	A. Install walkways in accordance with roof membrane manufacturer's requirements.	plo
pelow 40 degrees F or above	B. Install at roof hatches, access doors, rooftop ladders and all other traffic concentration points regardless of traffic frequency. Provided in areas receiving regular traffic to service rooftop units or where a passageway over the surface is required.	<b>0</b> 5
ce or when precipitation is	C. Do not install walkways over flashings or fields seams until field inspections by roof membrane manufacturer have been completed.	
quantities greater than can be		
	<ul><li>15. FASCIA/DRIP EDGE/GRAVEL STOP</li><li>A. Provide fascia bar and cover, drip edge and gravel stop.</li></ul>	
air and/or replacement	B. Seal joints between individual sections.	TION
and labor. Warranty shall of system and contain no aty inspection and acceptance	C. Manufactured Roof Specialties: Coordinate installation of copings, counter flashing systems, gutters, downspouts, and roof expansion assemblies specified in Section 07600.	SCRIP
nty inspection and acceptance or on behalf of Owner by a	16. PILLOWBLOCKS	DESC
Manufacturer at least (10)	A. Install "Pillowblock" stackable pipe support under all gas and condensate piping.	
. Contractor will then provide signed and conditionally section.	B. Install Pillowblock units on top of a compatible slipsheet membrane.	
<b>उट्ट</b> राणा.	17. PARAPET WALLS	DATE
ıginaw, MI 48601; Toll Free Tel:	A. Contractor shall encapsulate all parapet walls using 50 mil Duro—Tuff 'Charcoal Gray' single ply membrane roofing system and a 6" white skirt that is fabricated of a weft inserted,	
<u>Juro-last.com;</u> Web:	low-shrink, anti-wicking polyester fabric and has a thermoplastic coating of PVC material laminated to both sides as manufactured by Duro-Last Roofing, Inc. in accordance with	
	Duro-Last Roofing, Inc. published specifications.	SPECIFICATIONS
	18. PROTECTION	PROJECT NO.
III or IV, fabric reinforced,	A. Protect installed roofing and flashings from construction operations. B. Where traffic must continue over finished roof membrane, protect surfaces using durable	05-05-22
	materials.	
es and Duro—Tuff Light Tan on		SHEET NO.
<b>,</b>		
		SP.7

- DIVISION 7 THERMAL AND MOISTURE PROTECTION (CONTINUED)
- SECTION 07620 SHEET METAL FLASHING AND TRIM
- 1. SECTION INCLUDES
- A. Fabricated sheet metal items, including flashings, counter flashings, gutters, and downspouts
- 2. REFERENCES
- A. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum; American Architectural Manufacturers Association: 1998.
- B. ASTM A 653/A 653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2005a.
- C. ASTM B 209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2004.
- D. ASTM B 209M Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric); 2004.
- E. ASTM D 226 Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2005.
- F. ASTM D 4586 Standard Specification for Asphalt Roof Cement. Asbestos-Free: 2000. G. SMACNA (ASMM) - Architectural Sheet Metal Manual: Sheet Metal and Air Conditioning
- Contractors' National Association; 2003.
- 3. SHEET MATERIALS
- A. Galvanized Steel: ASTM A 653/A 653M, with G90/Z275 zinc coating; minimum 0.02 inch thick base metal.
- 4. ACCESSORIES
- A. Fasteners: Same material and finish as flashing metal, with soft neoprene washers. B. Primer: Zinc chromate type.
- C. Plastic Cement: ASTM D 4586, Type I.
- 5. FABRICATION
- A. Form sections true to shape, accurate in size, square, and free from distortion or defects. B. Fabricate cleats of same material as sheet, minimum 4 inches wide, interlocking with sheet.
- C. Form pieces in longest possible lengths.
- D. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- E. Form material with flat lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- F. Fabricate corners from one piece with minimum 18 inch long leas; seam for rigidity, seal with sealant.
- G. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.
- 6. GUTTER AND DOWNSPOUT FABRICATION
- A. Gutters: Profile as indicated.
- B. Downspouts: Profile as indicated.
- C. Gutters and Downspouts: Size for rainfall intensity determined by a storm occurrence of 1 in 5 years in accordance with SMACNA Architectural Sheet Metal Manual. All gutters and downspouts shall be seamless.
- D. Twenty (20) gauge
- E. Accessories: Profiled to suit gutters and downspouts.
- 1. Anchorage Devices: In accordance with SMACNA requirements.
- 2. Gutter Supports: Brackets.
- 3. Downspout Supports: Brackets.
- F. Finish: Powder coated, pre-finished to match metal roofing.
- G. Seal metal joints.
- 7. INSTALLATION
- A. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
- B. Apply plastic cement compound between metal flashings and felt flashings. C. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- D. Secure gutters and downspouts in place using concealed fasteners.
- E. Slope autters 1/4 inch per foot minimum.
- SECTION 07900 JOINT SEALERS
- 1. SECTION INCLUDES
- A. Sealants and joint backing.
- 2. ENVIRONMENTAL REQUIREMENTS
- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.
- 3. SEALANTS
- A. Sealants and Primers General: Provide only products having lower volatile organic compound (VOC) content than required by the more stringent of the South Coast Air Quality Management District Rule No.1168.
- B. General Purpose Exterior Sealant: Polyurethane; ASTM C 920, Grade NS, Class 25, Uses M. G, and A; single component.
- 1. Color: Standard colors matching finished surfaces.
- 2. Applications: Use for:
- a. Control, expansion, and soft joints in masonry.
- b. Joints between concrete and other materials. c. Joints between metal frames and other materials.
- d. Under exterior door sills.
- e. Other exterior joints for which no other sealant is indicated.
- C. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C 834, Type OP, Grade NF
- single component, paintable.
- 1. Color: Standard colors matching finished surfaces.
- 2. Applications: Use for: a. Interior wall and ceiling control joints.
- b. Joints between door and window frames and wall surfaces.
- c. Other interior joints for which no other type of sealant is indicated.
- D. Restroom/Tile Sealant: White silicone; ASTM C 920, Uses I, M and A; single component, mildew resistant.
- 1. Applications: Use for:
- a. Joints between plumbing fixtures and floor and wall surfaces.
- E. Interior Floor Joint Sealant: Polyurethane, self-leveling; ASTM C 920, Grade P, Class 25, Uses T, M and A; single component.
- 1. Color: Standard colors matching finished surfaces.
- 2. Applications: Use for: a. Expansion joints in floors.
- F. Silicone Sealant: ASTM C 920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, solvent curing, non-sagging, non-staining, fungus resistant, non-bleeding.
- 1. Color: Clear. 2. Applications: Use for:
- a. Equipment sealant in Food Service areas.
- 4. ACCESSORIES

Xref ...\.3.20 X-Ref\x-tb.dwa

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials. C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC;
- oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

- 5. PREPARATION
- A. Remove loose materials and foreign matter which might impair adhee
- B. Clean and prime joints in accordance with manufacturer's instruction C. Perform preparation in accordance with manufacturer's instructions
- D. Protect elements surrounding the work of this section from damage
- 6. INSTALLATION
- A. Perform work in accordance with sealant manufacturer's requirements surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C 1193.
- C. Measure joint dimensions and size joint backers to achieve width-to-
- dimension, and surface bond area as recommended by manufacturer. D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges,
- F. Apply sealant within recommended application temperature ranges. sealant cannot be applied within these temperature ranges.
- G. Tool joints concave

#### DIVISION 8 - DOORS AND WINDOWS

- 1. SECTION INCLUDES
- A. Steel doors and frames.
- 2. REFERENCES

- A. ANSI/ICC A117.1 American National Standard for Accessible and Us Facilities; International Code Council; 2003.
- B. ANSI A250.3 Test Procedure and Acceptance Criteria for Factory-Ap Surfaces for Steel Doors and Frames; 1999.
- C. ANSI A250.8 SDI-100 Recommended Specifications for Standard Sta 2003 D. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Pa
- Steel Doors and Frames; 1998 (R2004).
- E. ASTM A 653/A 653M Standard Specification for Steel Sheet, Zinc-( Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2005a
- F. DHI A115 Series Specifications for Steel Doors and Frame Preparati and Hardware Institute; 2000 (ANSI/DHI A115 Series).
- G. NAAMM HMMA 840 Guide Specifications for Installation and Storage and Frames; The National Association of Architectural Metal Manufactu
- H. UL (BMD) Building Materials Directory; Underwriters Laboratories Inc.
- I. UL 10C Standard for Positive Pressure Fire Tests of Door Assembli 3. SUBMITTALS

5. PREPARATION A. Remove loose materials and foreign matter which might impair adhesion of sealant.	SECTION 08211 - FLUSH WOOD DOORS 1. SECTION INCLUDES	11. INSTALLATION A. Install in accord with m tolerances.
<ul> <li>B. Clean and prime joints in accordance with manufacturer's instructions.</li> <li>C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.</li> <li>D. Protect elements surrounding the work of this section from damage or disfigurement.</li> </ul>	A. Flush wood doors; flush configuration; non-rated and acoustical. 2. REFERENCES	12. ADJUSTING A. Adjust for smooth and
<ol> <li>INSTALLATION</li> <li>A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.</li> </ol>	A. AWI/AWMAC (QSI) — Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2006, 8th Ed., Version 2.0.	SECTION 08410 - ALUMINUM E
<ul> <li>B. Perform installation in accordance with ASTM C 1193.</li> <li>C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.</li> <li>D. Install bond breaker where joint backing is not used.</li> <li>E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.</li> <li>F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.</li> </ul>	<ul> <li>3. DELIVERY, STORAGE, AND HANDLING</li> <li>A. Package, deliver and store doors in accordance with specified quality standard.</li> <li>B. Accept doors on site in manufacturer's packaging. Inspect for damage.</li> <li>C. Protect doors with resilient packaging. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.</li> </ul>	<ol> <li>ENGINEERING DESIGN         <ul> <li>A. Structural Properties: required by governing deflection of L/175.</li> <li>B. Thermal Movement: contraction of compo F without causing han detrimental effects.</li> </ul> </li> </ol>
G. Tool joints concave.	<ul> <li>4. WARRANTY</li> <li>A. Interior Doors: Provide manufacturer's warranty for the life of the installation.</li> <li>B. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.</li> </ul>	C. Water Leakage: Fabr of water, other than 2. SUBMITTALS
DIVISION 8 - DOORS AND WINDOWS SECTION 08110 - STEEL DOORS AND FRAMES	5. MANUFACTURERS	A. Submit shop drawings develop to serve as i fabrication.
<ol> <li>SECTION INCLUDES         <ul> <li>A. Steel doors and frames.</li> <li>REFERENCES</li> </ul> </li> </ol>	<ul> <li>A. Wood Veneer Faced Doors:</li> <li>1. Assa Abloy Graham: www.grahamdoors.com.</li> <li>2. Eggers Industries: www.eggersindustries.com.</li> <li>3. Substitutions: See Section 01600 - Product Requirements.</li> </ul>	3. MANUFACTURER A. The Drawings were pr products of Kawneer competitive bidding.
<ul> <li>A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003.</li> <li>B. ANSI A250.3 - Test Procedure and Acceptance Criteria for Factory-Applied Finish Painted Steel Surfaces for Steel Doors and Frames; 1999.</li> <li>C. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003.</li> <li>D. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998 (R2004).</li> </ul>	<ol> <li>DOORS AND PANELS         <ul> <li>A. All Doors: See drawings for locations and additional requirements.</li> </ul> </li> <li>Quality Level: Premium Grade, in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Section 1300.</li> <li>Wood Veneer Faced Doors: Species Noted on Drawings, plain-sliced., 5-ply unless otherwise indicated.</li> <li>B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.</li> </ol>	acceptable under the 4. STOREFRONT FRAMING A. System: Trifab 450 (4 insulating glass, exter 6063_T5 alloy. B. Interior Reinforcing: required. C. Fasteners: Manufactu electrolytic action.
<ul> <li>E. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2005a.</li> <li>F. DHI A115 Series - Specifications for Steel Doors and Frame Preparation for Hardware; Door and Hardware Institute; 2000 (ANSI/DHI A115 Series).</li> <li>G. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors</li> </ul>	<ol> <li>Provide solid core doors at all locations.</li> <li>DOOR FACINGS         <ul> <li>A. Wood Veneer Facing for Transparent Finish: Species as specified above, veneer grade as specified by quality standard, plain sliced, book veneer match, running assembly match; unless</li> </ul> </li> </ol>	D. Finish: Anodized Alur noted on the drawing 5. DOORS AND HARDWARE A. Doors: Kawneer "Ser
and Frames; The National Association of Architectural Metal Manufacturers; 1999. H. UL (BMD) — Building Materials Directory; Underwriters Laboratories Inc.; current edition. I. UL 10C — Standard for Positive Pressure Fire Tests of Door Assemblies; 1998.	<ul> <li>a) a specified by quality standard, plain sleed, book vencer match, running assembly match, alless otherwise indicated.</li> <li>1. Vertical Edges: Any option allowed by quality standard for grade.</li> <li>8. DOOR CONSTRUCTION</li> </ul>	6063_T5 alloy. B. Fasteners: Manufactu electrolytic action. C. Hardware: Refer to D. Weatherstripping and
<ul> <li>3. SUBMITTALS <ul> <li>A. See Section 01300 - Administrative Requirements for submittal procedures.</li> <li>B. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.</li> </ul> </li> <li>4. MANUFACTURERS <ul> <li>A. Steel Doors and Frames:</li> </ul> </li> <li>1. Assa Abloy Ceco: www.assaabloydss.com.</li> <li>2. Steeleraft, www.eteeleraft.com</li> </ul>	<ul> <li>A. Fabricate doors in accordance with door quality standard specified.</li> <li>B. Fit door edge trim to edge of stiles after applying veneer facing.</li> <li>C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.</li> <li>D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.</li> <li>1. Exception: Doors to be field finished.</li> </ul>	<ol> <li>FABRICATION         <ul> <li>A. Storefront Framing: carefully and accurate with gasket of non-h manufacturer's recom liquid butyl compound horizontal member. required for installation</li> </ul> </li> </ol>
<ol> <li>Steelcraft: www.steelcraft.com.</li> <li>DOORS AND FRAMES         <ul> <li>A. Requirements for All Doors and Frames:</li> </ul> </li> </ol>	E. Provide edge clearances in accordance with AWI Quality Standards Illustrated Section 1700. 9. INSTALLATION	and tools without use B. Doors: Fabricate doo fasten by means of
<ol> <li>Accessibility: Comply with ANSI/ICC A117.1.</li> <li>Door Top Closures: Flush with top of faces and edges.</li> <li>Door Edge Profile: Beveled on both edges.</li> </ol>	A. Install doors in accordance with manufacturer's instructions and specified quality standard. B. Use machine tools to cut or drill for hardware. C. Coordinate installation of doors with installation of frames, hardware and glazing.	mechanism in top rai type with bulb type g weatherstrip on one s 7. PREPARATION
<ul> <li>4. Door Texture: Smooth faces.</li> <li>5. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.</li> <li>6. Hardware Preparation: In accordance with DHI A115 Series, with reinforcement welded in place, in addition to other requirements specified in door grade standard.</li> <li>7. Finish: Factory primed, for field finishing.</li> </ul>	<ul> <li>10. INSTALLATION TOLERANCES</li> <li>A. Conform to specified quality standard for fit and clearance tolerances.</li> <li>B. Conform to specified quality standard for maximum diagonal distortion.</li> </ul>	A. Where aluminum surfo aluminum by one of 1. Paint incompatible 2. Paint incompatible of aluminum metal lead pigmentation. 3. Non-absorptive gas
<ul> <li>6. STEEL DOORS <ul> <li>A. Interior Doors, Non-Fire-Rated:</li> </ul> </li> <li>1. Grade: ANSI A250.8 Level 2, physical performance Level B, Model 1, full flush.</li> <li>2. Thickness: 1-3/4 inches.</li> </ul>	SECTION 08214 - METAL FACED FLUSH WOOD DOORS (ELIASON)         1. SCOPE OF WORK         A. Metal faced flush solid core wood doors         B. Hardware for doors	4. Caulking between a 5. If drainage from in method No. 2 abov 8. INSTALLATION A. General: Install true
<ul> <li>7. STEEL FRAMES <ul> <li>A. General:</li> </ul> </li> <li>1. Comply with the requirements of grade specified for corresponding door. <ul> <li>a. Frames for Steel Doors: Comply with frame requirements specified in ANSI A250.8 for Level 1, 16 gage.</li> </ul> </li> </ul>	<ul> <li>2. RELATED SECTIONS</li> <li>A. Finish Carpentry: SECTION 06200</li> <li>B. Standard Steel Frames: SECTION 08113</li> <li>C. Finish Hardware: SECTION 08710</li> </ul>	Install free from sags stresses to which the B. Hardware: Fit in acc and quietly after adju inspection. Install the and fasten with color
<ul> <li>2. Finish: Same as for door.</li> <li>B. Door Frames: Fully welded.</li> <li>8. FINISH MATERIALS <ul> <li>A. Primer: Rust—inhibiting, complying with ANSI A250.10, door manufacturer's standard.</li> </ul> </li> <li>9. INSTALLATION <ul> <li>A. Install in accordance with the requirements of the specified door grade standard and NAAMM</li> </ul> </li> </ul>	<ul> <li>SUBMITTALS         <ul> <li>A. General: Submit per SUBMITTALS Section.</li> <li>B. Shop Drawings: Show configuration and dimensions of door components, hardware types and locations and finishes. Include product data and manufacturer's installation instructions.</li> <li>Detail to serve as installation drawings. Owner's acceptance is required prior to start of fabrication and/or shipment.</li> </ul> </li> </ul>	C. Glass and Glazing: S
HMMA 840. B. Coordinate frame anchor placement with wall construction. C. Coordinate installation of hardware.	<ul> <li>C. Operation and Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.</li> <li>4. MAINTENANCE MATERIALS</li> </ul>	1. SECTION INCLUDES A. Flush-mount pass-thru 2 RELATED SECTIONS
	<ul> <li>A. Provide special wrenches and tools applicable to each different or special hardware component along with maintenance tools and accessories supplied by hardware component manufacturer.</li> <li>5. COORDINATION OF WORK</li> </ul>	A. Section 07620 - Sheet B. Section 07920 - Joint 3 REFERENCES A. ASTM A 240 - Heat-Re
	<ul> <li>A. After acceptance of Shop Drawings, furnish Contractor with templates required for preparation of frames at place of manufacture.</li> <li>6. WARRANTY</li> </ul>	and Strip for Pressure B. ASTM A 653 — Steel Sł by the Hot—Dip Process C. ASTM B 209 — Aluminu
	A. Manufacturer's standard one year warranty. 7. MANUFACTURER	D. ASTM B 221 - Aluminu E. ASTM C 1048 - Heat- 4 SUBMITTALS
	A. The Drawings were prepared, and this Specification written on the basis of using the products of Eliason Corporation, Easy Swing Door Division, Kalamazoo, Michigan. Such is intended to establish minimum quality standards, not to limit competitive bidding. Products with equal or superior characteristics by other manufacturers are acceptable under conditions of the Specifications.	<ul> <li>A. Comply with Section 01.</li> <li>B. Product Data: Submit fabrication, finish, and i fabrication, finish, and i c. Shop Drawings: Submit and details, indicating of hardware, finish, electric D. Samples: Submit manu</li> </ul>
	8. DOOR TYPE A. Easy Swing, Model EHH—3, medium weight, dual swing doors.	E. Warranty: Submit manu 5. DELIVERY, STORAGE, AND F
	<ul> <li>9. MATERIALS</li> <li>A. Core: Manufacturer's standard 7-ply exterior grade plywood</li> <li>B. Face Finish: Full length 20-gauge Stainless Steel panel, both faces.</li> <li>C. Edge Caps and Base Plates: 304 #4 stainless steel.</li> <li>D. Hardware: Manufacturer's standard "Hidden Hardware".</li> <li>E. Window: 9" x 30" flush acrylic ADA vision panel.</li> </ul>	<ul> <li>A. Delivery: Deliver materia packaging, with labels c</li> <li>B. Storage: Store materia instructions.</li> <li>C. Handling: Protect materia</li> </ul>
	<ol> <li>DELIVERY STORAGE AND HANDLING</li> <li>A. Scheduling: Deliver to job site at least two weeks prior to date scheduled for installation, but not before building is enclosed and proper conditions of temperature and humidity are being maintained.</li> </ol>	6. MANUFACTURER A. Ready Access, Inc., 181 621-5045. Phone (630) E-Mail ready@ready-acc
	<ul> <li>B. Packaging: Crate or package doors and hardware to protect them during transit, delivery and storage, each package marked or tagged with corresponding door number as it appears on Door Schedule.</li> <li>Storage: Store doors and hardware at building site under cover. Place doors on at least 4-inch wood sills or on floors in manner that will prevent damage. Do not use non_vented plastic or canvas shelters. Remove wet cartons immediately. Provide 1/4-inch space between doors to promote air circulation.</li> </ul>	

7. FLUSH-MOUNT PASS-THRU WINDOWS A. Flush-Mount Pass-Thru Windows: 275 Single Panel Manual Open/Self-Closing Slider Window. manufacturer's instructions. Conform to AWI requirements for fit 1. Service Opening: As noted on construction documents. 2. Door Operation: a. Open: Manual. . Close: Manual or self-closing. nd balanced door movement 3. Door Type: Sliding, 1 door panel. MICHAEL LEGG ARCHITECTU 4. Opening Direction: As noted on Construction Documents 5. Frame: Extruded aluminum, ASTM B 221, Alloy 6063-T6 and 6063-T52. Michael Gregory Legg NCARB, AIA, RIBA, SACAP 6. Aluminum Sheet: ASTM B 209. Alloy 5005-AQ-H34. M ENTRANCES AND STOREFRONTS 26116 High Timber Pass St Finish: Statuary Bronze San Antonio, Texas 78260 8. Galvanized Steel Sheet: ASTM A 653, G90. ph. 210-416 4935 9. Bottom Sill: Angled downward, track-free. michael@mlarchitecture.info es: Fabricate and install work of this Section to withstand wind loads 10. Security Lock: Aluminum bar extrusion with sliding spring-loaded locking clip. www.michaelleggarchitecture.com ning laws, ordinances, regulations and codes and with a maximum Fasteners: Stainless steel rivets and hex-head zinc-plated self-threading machine screws. 12. Handle: Black Delrin handle with pressed-in stainless steel spring pins. Stainless steel handle mounting bracket. Stainless steel spring-loaded mounting base. Fabricate and install systems to provide for expansion and/or 13. Glazing: 5/16" Safety Glass, clear ponent materials as will be caused by temperature range of 150 degrees Silicone Glazing Sealant: Dow Corning 999A. harmful buckling, opening of joints, undue stresses on fasteners, or other 8. FABRICATION Fabricate and install systems to deny water leakage; defined as appearance A. Assembly: Factory assembled; factory glazed. nan condensation, on room side face of any part of systems. 9. ALUMINUM FINISH ngs of system proposed. Base on details shown on Drawings, and A. Anodized: Finish to match Aluminum Storefront system. as installation Drawings. Owner's acceptance is required prior to start of DRAWING 10. EXAMINATION COORDINATION A. Examine areas to receive pass-thru windows. Notify Architect of conditions that would Architectural, Landscape, Civil, adversely affect installation or subsequent use. Do not proceed with installation until prepared, and this Specification written on the basis of using the Structural, Mechanical and unsatisfactory conditions are corrected. eer Company, Inc., Norcross, Georgia. It is not the intent to limit Electrical drawings are interrelate Products of equal characteristics by other manufacturers are General Contractor and all Sub 11. PREPARATION the conditions of these specifications. Contractors shall review and A. Ensure openings to receive pass-thru windows are plumb, level, square, accurately aligned, coordinate the entire set of correctly located, and in tolerance. drawings and specifications (4\_1/2 inch) for single glazing, interior application, and Trifab 451 for 12. INSTALLATION terior application, flush glazed, extruded aluminum having properties of A. Install pass-thru windows in accordance with manufacturer's instructions. B. Install pass—thru windows plumb, level, square, true to line, and without warp or rack. If required by Engineering design; rolled steel, 16 gauge or heavier if C. Install pass-thru window components weathertight. D. Anchor pass-thru windows securely in place to supports. Use attachment methods permitting acturer's standard; either stainless steel or carbon steel plated against adjustment for construction tolerances, irregularities, alignment, and expansion and contraction. E. Separate aluminum from other metal surfaces with bituminous coatings or other means Juminum Finish conforming to AA-M12C22A31 and AAMA 607.1; color as approved by Architect. ings. F. Sheet Metal Flashina: Install sheet metal flashing as specified in Section 07620. G. Joint Sealants: Install joint sealants as specified in Section 07900. "Series 190 \_ Panic Guard", extruded aluminum having properties of 13. ADJUSTING A. Adjust doors to be weather tight in closed position. acturer's standard; either stainless steel or carbon steel plated against B. Adjust doors and operating hardware to function properly and for smooth operation without binding. to hardware schedule. and Sill Sweeps: Manufacturer's standard type to suit application. 14. CLEANING A. Clean pass—thru windows promptly after installation in accordance with manufacturer's instructions. Fabricate and assemble in shop to greatest extent possible. Cut B. Remove excess joint sealant in accordance with sealant manufacturer's instructions. rately. Use compression joints between vertical and horizontal mullions, C. Do not use harsh cleaning materials or methods that would damage glazing or finish. -hardening butyl compound. Place standard water dam, in accord with ommendation, between vertical and horizontal members and seal with 15. PROTECTION und. Provide vision and spandrel areas with drainage to outdoors in A. Protect installed pass-thru windows to ensure that, except for normal weathering, pass-thru Sizes of components and necessary field connections and fastenings windows will be without damage or deterioration at time of substantial completion. ation; permit easy assembly by means of standard construction equipment use of special apparatus or appliances. doors with tight, hairline joints where rails are fitted against stiles. and of tensioned steel tie-rods in top and bottom rails. Provide adjusting rail to provide for minor clearance adjustments. Glass stops; snap-in glazing strips. Weatherstripping; pile. Provide adjustable pile e stile at meeting stiles of pairs of doors. urfaces contact steel, other incompatible metals or concrete, protect of the following: ble metal or concrete with coating of heavy-bodied bituminous paint. ble metal with prime coat of zinc chromate primer followed by two coats etal paint or other suitable protective coating; exclude those containing gaskets. aluminum and incompatible metals. incompatible metal passes over aluminum, paint incompatible metal by bove. rue to line, plumb, level, square, and in proper planes with other work. sags, waves, buckles, or other objectionable defects. Anchor to resist the work shall normally be subjected. accord with manufacturer's instructions. Install doors to operate smoothly adjustment. Adjust door-closing devices immediately prior to final thresholds in two full beads of sealant compound (one along each edge) olor matching machine screws and expansion shields. One anchor will be 24 inches of threshold length. Specified in other Sections. RU WINDOWS thru windows. eet Metal Flashing and Trim. bint Sealants. -Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, ire Vessels Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) ninum and Aluminum—Alloy Sheet and Plate. inum and Aluminum—Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes. t—Treated Flat Glass——Kind HS, Kind FT Coated and Uncoated Glass. 01300 - Administrative Requirements. nit manufacturer's product data, including materials, components, nd installation instructions. omit manufacturer's shop drawings, including plans, elevations, sections, dimensions, tolerances, materials, fabrication, glazing, fasteners, ctrical wiring diagrams, options, and accessories. anufacturer's samples of standard finishes. nanufacturer's standard warranty. HANDLING terials to site in manufacturer's original, unopened containers and clearly identifying product name and manufacturer. rials in clean, dry area indoors in accordance with manufacturer's aterials and finish from damage during handling and installation. SPECIFICATIONS 1815 Arthur Drive, West Chicago, Illinois 60185. Toll Free (800) 630) 876-7766. Fax (630) 876-7767. Web Site www.ready-access.com. -access.com. PROJECT NO. 05-05-22 SHEET NO. **SP.8** 

DIVISION 8 - DOORS AND WINDOWS (CONTINUED) SECTION 08710 - DOOR HARDWARE A. Glass. 1. SECTION INCLUDES A. Hardware for wood and hollow steel doors. 2. REFERENCES 2. REFERENCES A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003. B. BHMA A156.1 thru 156.21 - Builders Hardware Manufacturers Association, Inc.; 2006 C. DHI A115 Series - Specifications for Steel Doors and Frame Preparation for Hardware; Door and Hardware Institute; 2000. D. DHI A115W Series - Specifications for Wood Door and Frame Preparation for Hardware; Door and Hardware Institute; 2000. E. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute; 2004. F. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors; Door 2002. and Hardware Institute; 1996. 3. SUBMITTALS A. See Section 01300 - Administrative Requirements, for submittal procedures. barrier: B. Shop Drawings: 1. Indicate locations and mounting heights of each type of hardware, schedules, catalog cuts, electrical characteristics, and connection requirements. 2. Submit manufacturer's parts lists and templates. C. Samples: 4. SUBMITTALS 1. Submit 1 sample of hinge, latch set, lockset, closer, and closer illustrating style, color, and finish. 2. Samples will be returned to supplier. D. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance. E. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware F. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in 5. QUALITY ASSURANCE Owner's name and registered with manufacturer. 4. COORDINATION A. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware. 5. GENERAL REQUIREMENTS FOR DOOR HARDWARE PRODUCTS A. Provide products that comply with the following: 1. Applicable provisions of Federal, State, and local codes. select) 2. Provide products from the manufacturers and finish listed in the schedule located in the construction documents. No substitution allowed without written approval. B. Finishes: Identified in schedule located in the construction documents. 6. KEYING A. Door Locks: Master keyed. 1. Include construction keying and control keying with removable core cylinders. B. Supply keys in the following quantities: 1.4 master keys. a. Stamp all permanent master keys with a set number and "DO NOT DUP" 2.4 construction keys. 3.4 control keys and 4 extra cylinder cores. 4.2 change keys for each lock. 5. Identify permanent keys in envelopes and deliver to the Owner. 6. Re-key entire building per Owner's direction.

7. KEY CABINET

A. Cabinet Construction: Sheet steel construction, piano hinged door with cylinder type lock master keyed to building system.

- B. Cabinet Size: Size for project keys plus 50 percent growth.
- C. Hooks for 100 keys.

D. Horizontal plastic strips for key hook labelling with clear plastic strip cover over labels. E. Finish: Baked enamel, color as selected.

- 8. EXAMINATION
- A. Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings.
- 9. INSTALLATION
- A. Install hardware in accordance with manufacturer's instructions and applicable codes. B. Use templates provided by hardware item manufacturer.
- C. Mounting heights for hardware from finished floor to center line of hardware item: 1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames.'
- 2. For wood doors: Comply with DHI "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- 10. ADJUSTING
- A. Adjust work under provisions of Section 01700.
- B. Adjust hardware for smooth operation.

SECTION 08800 - GLAZING

- 1. SECTION INCLUDES
- B. Glazing compounds and accessories.
- A. 16 CFR 1201 Safety Standard for Architectural Glazing Materials; B. ASTM C 864 - Standard Specification for Dense Elastomeric Compre Blocks, and Spacers; 2005.
- C. ASTM C 920 Standard Specification for Elastomeric Joint Sealants D. ASTM C 1036 - Standard Specification for Flat Glass; 2001
- E. ASTM C 1048 Standard Specification for Heat-Treated Flat Glassand Uncoated Glass; 2004.
- F. ASTM C 1193 Standard Guide for Use of Joint Sealants: 2005a.
- G. ASTM E 2190 Standard Specification for Insulating Glass Unit Peri
- 3. PERFORMANCE REQUIREMENTS
- A. Provide glass and glazing materials for continuity of building enclosu
- 1. In conjunction with vapor retarder and joint sealer materials desc 2. To maintain a continuous air barrier and vapor retarder through from glass pane to heel bead of alazing sealant.
- A. See Section 01300 Administrative Requirements, for submittal pro B. Product Data on Glass Types: Provide structural, physical and envir
- size limitations, special handling or installation requirements. C. Product Data on Glazing Compounds: Provide chemical, functional,
- characteristics, limitations, special application requirements. Identify D. Certificates: Certify that products meet or exceed specified requirer
- A. Perform Work in accordance with GANA Glazing Manual and FGMA Se installation methods.
- 6. FLAT GLASS MATERIALS
- A. Clear Float Glass: Clear, fully tempered.
- 1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear
- 2. Comply with ASTM C 1048.
- 3. 6 mm minimum thick.
- B. Safety Glass: Clear; fully tempered with horizontal tempering. 1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear
- select) and ASTM C 1048.
- 2. Comply with 16 CFR 1201 test requirements for Category II.
- 7. SEALED INSULATING GLASS MATERIALS
- A. Insulated Glass Units: Double pane, Low E, with glass to elastomer 1. Durability: Certified by an independent testing agency to comply 2. Purge interpane space with dry hermetic air.
- 3. Total unit thickness of 1 inch minimum.
- 8. GLAZING COMPOUNDS
- A. Butyl Sealant: Single component; ASTM C 920, Grade NS, Class 12-Shore A hardness of 10 to 20; black color; non-skinning.
- B. Silicone Sealant: Single component; neutral curing; capable of wate properties; non-bleeding, non-staining; ASTM C 920, Type S, Grade and G: cured Shore A hardness of 15 to 25; color as selected.
- 9. GLAZING ACCESSORIES
- A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness. Length of 0.1 inch for each square foot of glazing or minimum 4 rabbet space minus 1/16 inch x height to suit glazing method a
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, Minimum 3 inch long x one half the height of the glazing stop x self adhesive on one face.
- C. Glazing Tape: Preformed butyl compound with integral resilient tube Shore A durometer hardness; coiled on release paper; size as recon manufacturer; black color.
- 8. Manufacturers: a. Pecora Corporation: www.pecora.com.
- b. Tremco, Inc: www.tremcosealants.com.
- c. Substitutions: Refer to Section 01600 Product Requirements D. Glazing Gaskets: Resilient silicone extruded shape to suit glazing of
- C 864 Option I; black color.
- E. Glazing Clips: Manufacturer's standard type.
- 10. PREPARATION
- A. Prime surfaces scheduled to receive sealant.
- B.Install sealants in accordance with ASTM C 1193 and FGMA Sealant C. Install sealant in accordance with manufacturer's instructions.
- 11. INSTALLATION EXTERIOR WET/DRY METHOD (PREFORMED TAPE AND
- A. Cut glazing tape to length and set against permanent stops, 3/16corners by butting tape and dabbing with butyl sealant.
- B. Apply heel bead of butyl sealant along intersection of permanent st perimeter seal between glass and frame to complete the continuity
- C. Place setting blocks at 1/4 points with edge block no more than
- D. Rest glazing on setting blocks and push against tape and heel beau pressure to attain full contact at perimeter of pane or glass unit.
- E. Install removable stops, with spacer strips inserted between glazing
- inch below sight line. Place glazing tape on glazing pane or unit line
- F. Fill gap between glazing and stop with sealant to depth equal to bi not more than 3/8 inch below sight line.
- G. Apply cap bead of sealant along void between the stop and the glas with sight line. Tool or wipe sealant surface smooth.
- 12. INSTALLATION INTERIOR DRY METHOD (TAPE AND TAPE)
- A. Cut glazing tape to length and set against permanent stops, project above sight line.
- B. Place setting blocks at 1/4 points with edge block no more than C. Rest glazing on setting blocks and push against tape for full contact
- unit. D. Place glazing tape on free perimeter of glazing in same manner de
- E. Install removable stop without displacement of tape. Exert pressure continuous contact.
- F. Knife trim protruding tape.
- 13. CLEANING
- A. Remove glazing materials from finish surfaces.
- B. Remove labels after Work is complete. C. Clean glass and adjacent surfaces.
- 14. PROTECTION
- A. After installation, mark pane with an 'X' by using removable plastic mark heat absorbing or reflective glass units.

	DIVISION 9 - FINISHES	
	SECTION 09260 - GYPSUM BOARD ASSEMBLIES 1. SECTION INCLUDES	<ol> <li>GYPSUM BOARD INSTALLATION</li> <li>A. Comply with ASTM C 840 and manufacturer's instructions. Install to especially in highly visible locations.</li> </ol>
	A. Metal stud wall framing.	B. Single-Layer Non-Rated: Install gypsum board in most economical edges occurring over firm bearing.
ls; current edition.	B. Fire rated walls. C. Acoustic insulation.	C. Fire—Rated Construction: Install gypsum board in strict compliance authority.
pression Seal Gaskets, Setting	D. Tile / Base backer board. E. Cementitious backer unit a hood wall.	D. Cementitious Backing Board: Install over steel framing members at indicated, in accordance with ANSI A108.11 and manufacturer's instru
ints; 2005.	F. Gypsum wallboard. G. Joint treatment and accessories.	E. Installation on Metal Framing: Use screws for attachment of all gyp F. Installation on Wood Framing: For rated assemblies, comply with re
ss——Kind HS, Kind FT Coated	<ol> <li>REFERENCES</li> <li>A. ANSI A108.11 – American National Standard for Interior Installation of Cementitious Backer</li> </ol>	authority. For non-rated assemblies, install as follows: 1. Single-Layer Applications: Screw attachment.
a. Performance and Evaluation;	Units; 1999 (R2005). B. ANSI A118.9 — American National Standard Specifications for Test Methods and Specifications	G. Moisture Protection: Treat cut edges and holes in moisture resistan sealant.
renormance and Evaluation,	for Cementitious Backer Units; 1999 (R2005). C. ASTM C 475/C 475M — Standard Specification for Joint Compound and Joint Tape for Finishing	12. INSTALLATION OF TRIM AND ACCESSORIES A. Control Joints: Place control joints consistent with lines of building
losure vapor retarder and air	Gypsum Board; 2002. D. ASTM C 645 - Standard Specification for Nonstructural Steel Framing Members; 2004a.	1. Not more than 30 feet apart on walls and ceilings over 50 feet long. B. Corner Beads: Install at external corners, using longest practical le
lescribed in other sections.	E. ASTM C 754 — Standard Specification for Installation of Steel Framing Members to Receive Screw—Attached Gypsum Panel Products; 2004.	13. JOINT TREATMENT
ghout the glazed assembly	<ul> <li>F. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board; 2005.</li> <li>G. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs;</li> </ul>	<ul> <li>A. Finish all gypsum board in accordance with ASTM C 840 <u>"Level 4" fi</u></li> <li>B. Tape, fill, and sand exposed joints, edges, and corners to produce receive finishes.</li> <li>1. Feather coats of joint compound so that camber is maximum 1/32 ir</li> </ul>
procedures. nvironmental characteristics,	2004. H. ASTM C 1047 — Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2005. I. ASTM C 1396/C 1396M — Standard Specification for Gypsum Board; 2004.	<ul> <li>2. Taping, filling, and sanding is not required at surfaces behind adhesive fixed cabinetry.</li> <li>14. TOLERANCES</li> </ul>
al, and environmental tify available colors. irements.	<ul> <li>J. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 2005.</li> <li>METAL FRAMING MATERIALS</li> </ul>	A. Maximum Variation of Finished Gypsum Board Surface from True Flat feet in any direction.
	A. Non-Loadbearing Framing System Components: ASTM C 645; galvanized sheet steel, of size and properties necessary to comply with ASTM C 754 for the spacing indicated, with maximum	
Sealant Manual for glazing	deflection of wall framing of L/240 at 5 psf. 1. Exception: The minimum metal thickness and section properties requirements of ASTM C 645 are waived provided steel of 40 ksi minimum yield strength is used, the metal is continuously	SECTION 09300 - TILE
	dimpled, the effective thickness is at least twice the base metal thickness, and maximum stud heights are determined by testing in accordance with ASTM E 72 using assemblies specified by	1. SECTION INCLUDES A. Tile for floor applications.
lear, Quality Q3 (glazing	ASTM C 754. 2. Studs: "C" shaped with flat or formed webs with knurled faces.	B. Tile for wall applications. C. Backer board as tile substrate.
	3. Runners: U shaped, sized to match studs. 4. Ceiling Channels: C shaped.	D. Waterproofing membrane E. Ceramic trim.
_	B. Furring Channels: USG furring channels, 7/8" deep, roll formed, hat_shaped sections of galvanized steel.	2. REFERENCES
lear, Quality Q3 (glazing	C. Ceiling Hangers: Type and size as specified in ASTM C 754 for spacing required. D. Partition Head to Structure Connections: Provide track fastened to structure with legs of	A. ANSI A108 Series/A118 Series/A136.1 — American National Standard Installation of Ceramic Tile (Compendium); 2005.
	sufficient length to accommodate deflection, for friction fit of studs cut short and fastened as indicated on drawings.	B. TCA (HB) — Handbook for Ceramic Tile Installation; Tile Council of N
ner edge seal.	4. GYPSUM BOARD MATERIALS A. Manufacturers:	3. QUALITY ASSURANCE A. Maintain one copy of TCA Handbook and ANSI A108 Series/A118 Ser
ply with ASTM E 2190.	<ol> <li>BPB America Inc: www.bpb-na.com.</li> <li>G-P Gypsum Corporation: www.gp.com/gypsum.</li> <li>National Gypsum Company: www.nationalgypsum.com.</li> </ol>	<ol> <li>DELIVERY, STORAGE, AND HANDLING</li> <li>A. Protect adhesives from freezing or overheating in accordance with m</li> </ol>
12-1/2, Uses M and A;	<ul> <li>4. USG: www.usg.com.</li> <li>B. Gypsum Wallboard: ASTM C 1396/C 1396M. Sizes to minimize joints in place; ends square cut.</li> </ul>	5. EXTRA MATERIALS A. Provide 10 sq. ft of each size, color, and surface finish of tile spec
ater immersion without loss of	1. Regular Type: a. Application: Use for vertical surfaces, unless otherwise indicated.	6. TILE
de NS, Class 25, Uses M, A,	<ul> <li>b. Edges: Tapered.</li> <li>2. Fire Resistant Type: Complying with Type X requirements; UL or WH rated.</li> </ul>	A. Refer to finish schedule on the construction documents for material
ss, ASTM C 864 Option I. 4 inch x width of glazing and pane weight and area.	<ul> <li>a. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X.</li> <li>b. Thickness: 5/8 inch.</li> <li>c. Edges: Tapered.</li> </ul>	<ul> <li>7. TRIM AND ACCESSORIES</li> <li>A. Trim: Matching bullnose, surface bullnose, cove base, and cove cer in sizes coordinated with field tile.         <ol> <li>Applications: Use in the following locations:</li></ol></li></ul>
s, ASTM C 864 Option I. x thickness to suit application,	3. Ceiling Board: Special sag—resistant type. a. Application: Ceilings, unless otherwise indicated.	b. Inside Corners: Jointed. c. Floor to Wall Joints: Cove base.
ube spacing device; 10 to 15 commended by glass	b. Thickness: 1/2 inch. c. Edges: Tapered.	2. Manufacturer: Same as for tile.
commended by gluss	C. Water-Resistant Gypsum Backing Board: ASTM C 1396/C 1396M; ends square cut. 1. Application: Vertical surfaces behind thinset tile and pre-finished fiberglass panels in wet areas.	8. ADHESIVE MATERIALS A. Organic Adhesive: ANSI A136.1, thinset bond type; use Type I in ar
	<ol> <li>Core Type: Regular and Type X, as indicated.</li> <li>Thickness: 5/8 inch.</li> </ol>	moisture exposure. B. Epoxy Adhesive: ANSI A118.3, thinset bond type.
nts. 1 channel retaining slot; ASTM	4. Edges: Tapered.	9. MORTAR MATERIALS
,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,	<ul> <li>5. TILE / BASE BACKER BOARD</li> <li>A. Tile backer board panels: 5/8" thick, non-structural, fiberglass-faced, silicone treated moisture barrier, mold resistant gypsum core panel, "DensShield" tile backer board.</li> <li>B. Joint Reinforcement: 2-inch-wide, coated fiberglass mesh tape.</li> <li>C. Fasteners: Screws, 1-1/4-inch corrosion, resistant; type specified by panel manufacturer for</li> </ul>	<ul> <li>A. Mortar Bed Materials: Portland cement, sand, latex additive and wat</li> <li>B. Mortar Bond Coat Materials: <ol> <li>Dry-Set Portland Cement type: ANSI A118.1.</li> <li>Latex-Portland Cement type: ANSI A118.4.</li> <li>Epoxy: ANSI A118.3.</li> </ol> </li> </ul>
ınt Manual.	system used. 6. CEMENTITIOUS BACKER BOARD AT HOOD WALLS A. Cementitious Backer Board: ANSI A118.9, aggregated portland cement panels with glass fiber	10. GROUT MATERIALS A. Standard Grout: Any type specified in ANSI A118.6 or A118.7.
D SEALANT) 16 inch below sight line. Seal	mesh embedded in front and back surfaces, 5/8 inch thick. 7. ACCESSORIES	B. Furan Grout: ANSI A118.5, furan resin type.
stop with frame ensuring full	A. Acoustic Insulation: ASTM C 665; preformed glass fiber, friction fit type, unfaced. B. Finishing Accessories: ASTM C 1047, galvanized steel, unless otherwise indicated.	A. Cleavage Membrane: 4 mil thick polyethylene film.
ity of the air and vapor seal. n 6 inches from corners.	1. Types: As detailed or required for finished appearance. C. Joint Materials: ASTM C 475 and as recommended by gypsum board manufacturer for project	B. Reinforcing Mesh: 2 x 2 inch size weave of 16/16 wire size; welde C. Waterproofing:
ead of sealant with sufficient t.	conditions. 1. Tape: 2—inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.	1.Install under tile at all wet locations — Nobleseal 30 mil membran conforming to ANSI A118—10.
ng and applied stops, 1/4 it with tape flush with sight	<ul><li>2. Tape: 2-inch wide, creased paper tape for joints and corners, except as otherwise indicated.</li><li>3. Ready-mixed vinyl-based joint compound.</li></ul>	12. EXAMINATION A. Verify that sub-floor surfaces are smooth and flat within the toleral
bite of frame on glazing, but	D. Screws: ASTM C 1002; self—piercing tapping type. 8. EXAMINATION	of work and are ready to receive tile. B. Verify that wall surfaces are smooth and flat within the tolerances s
glazing, to uniform line, flush	<ul> <li>A. Verify that project conditions are appropriate for work of this section to commence.</li> <li>9. FRAMING INSTALLATION</li> <li>A. Metal Framing: Comply with ASTM C 754 and manufacturer's instructions.</li> </ul>	work, are dust-free, and are ready to receive tile. C. Verify that sub-floor surfaces are dust-free and free of substances bonding of setting materials to sub-floor surfaces.
jecting 1/16 inch (1.6 mm)	B. Studs: Space studs as indicated. 1. Extend partition framing as indicated.	D. Verify that concrete sub-floor surfaces are ready for tile installation emission rate and alkalinity; obtain instructions if test results are no recommended by tile manufacturer and setting materials manufacturer
n 6 inches from corners.	<ul> <li>2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.</li> </ul>	13. PREPARATION
ntact at perimeter of pane or	3. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs with continuous	A. Protect surrounding work from damage. B. Vacuum clean surfaces and damp clean.
described above. ure on tape for full	bridging. C. Wall Furring, Direct Attachment: Install asphalt felt protection strip between each furring	C. Seal substrate surface cracks with filler. Level existing substrate su flatness tolerances.
	channel and wall. Attach 7/8" hat channel horizontally to wall at 24" o.c. with concrete stub nails spaced 24" o.c. staggered on alternate wing flanges. D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.	D. Install cementitious backer board in accordance with ANSI A108.11 a instructions. Tape joints and corners, cover with skim coat of dry-edge.
	<ul> <li>ACOUSTIC ACCESSORIES INSTALLATION</li> <li>A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.</li> <li>B. Acoustic Sealant: Install in accordance with manufacturer's instructions.</li> </ul>	E. Prepare substrate surfaces for adhesive installation in accordance wi instructions.
	B. Acoustic Sequent. Instan in accordance with manufacturer's Instructions.	
tic tape or paste; do not		

	14. INSTALLATION – GENERAL	
TALLATION         840 and manufacturer's instructions. Install to minimize butt end joints, sible locations.         ted:       Install gypsum board in most economical direction, with ends and firm bearing.         on:       Install gypsum board in strict compliance with requirements of listing         Board:       Install over steel framing members at exhaust hood walls as noce with ANSI A108.11 and manufacturer's instructions.         Framing:       Use screws for attachment of all gypsum board.         Framing:       For rated assemblies, comply with requirements of listing rated assemblies, install as follows:         s:       Screw attachment.         Treat cut edges and holes in moisture resistant gypsum board with         IM AND ACCESSORIES         e control joints consistent with lines of building spaces and as follows:         apart on walls and ceilings over 50 feet long.         II at external corners, using longest practical lengths.         ard in accordance with ASTM C 840 "Level 4" finish.         exposed joints, edges, and corners to produce smooth surface ready to compound so that camber is maximum 1/32 inch.         ding is not required at surfaces behind adhesive applied ceramic tile and         # Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10	<ol> <li>INSTALLATION - GENERAL         <ul> <li>A. INSTALLATION - GENERAL</li> <li>A. Install waterproofing membrane at all wet areas in accordance with manufacturer's instructions and TCA Handbook recommendations.</li> <li>B. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and TCA Handbook recommendations.</li> <li>C. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.</li> <li>D. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.</li> <li>E. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.</li> <li>F. Form internal angles square and external angles bullnosed.</li> <li>G. Sound tile after setting. Replace hollow sounding units.</li> <li>H. Keep expansion joints free of adhesive or grout. Apply sealant to joints.</li> <li>I. Allow tile to set for a minimum of 48 hours prior to grouting.</li> <li>J. Grout tile joints. Use standard grout unless otherwise indicated.</li> <li>K. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.</li> </ul> </li> <li>INSTALLATION - FLOORS - THIN-SET METHODS         <ul> <li>A. Over interior concrete substrates, install in accordance with TCA Handbook Method F111, with cleavage membrane, unless otherwise indicated.</li> <li>B. Cleavage Membrane: Lap edges and ends.</li> <li>C. Mortar Bed Thickness: 1-1/4 inch.</li> </ul> </li> <li>INSTALLATION - WALL TILE         <ul> <li>A. Over tile bocker board units install in accordance with TCA Handbook Method F111, with cleavage membrane, unless otherwise indicated.</li></ul></li></ol>	Architectural, Landscape, Civil, Structural, Mechanical and Electrical drawings are interrelated General Contractor and all Sub Contractors shall review and coordinate the entire set of drawings and specifications
	A. Over tile backer board units install in accordance with TCA Handbook Method W223, organic adhesive.	
	18. CLEANING A. Clean tile and grout surfaces.	
ions.	SECTION 09511 - SUSPENDED ACOUSTICAL CEILINGS	
ons. substrate.	1. SECTION INCLUDES	
ane	A. Suspended metal grid ceiling system. B. Acoustical units.	
	2. REFERENCES	
18 Series/A136.1 — American National Standard Specifications for the c Tile (Compendium); 2005.	A. ASTM C 635 — Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay—in Panel Ceilings; 2004.	
k for Ceramic Tile Installation; Tile Council of North America, Inc.; 2006.	<ul> <li>B. ASTM C 636 - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 2004.</li> <li>C. ASTM E 580 - Standard Practice for Application of Ceiling Suspension Systems for Acoustical</li> </ul>	
TCA Handbook and ANSI A108 Series/A118 Series on site.	<ul> <li>C. ASTM E 580 - Standard Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint; 2002.</li> <li>D. ASTM E 1264 - Standard Classification for Acoustical Ceiling Products; 1998 (Reapproved</li> </ul>	
D HANDLING m freezing or overheating in accordance with manufacturer's instructions.	2005).	
	<ol> <li>3. EXTRA MATERIALS</li> <li>A. See Section 01600 - Product Requirements, for additional provisions.</li> </ol>	
each size, color, and surface finish of tile specified.	B. Provide five percent of total acoustical unit area of each type of acoustical unit for Owner's use in maintenance of project.	÷.
ule on the construction documents for material selections.	4. ACOUSTICAL UNITS A. Manufacturers:	
ose, surface bullnose, cove base, and cove ceramic shapes as scheduled	<ol> <li>Refer to Finish Schedule on drawings for various product manufacturers.</li> <li>B. Acoustical Units – General: ASTM E 1264, Class A.</li> </ol>	
with field tile. e in the following locations:	1. Models as scheduled on the construction documents.	
ıllnose. Jointed. nts: Cove base.	5. SUSPENSION SYSTEM(S) A. Manufacturers:	rg as
ame as for tile.	1. USG; Product Donn DX: www.usg.com. B. Suspension Systems — General: ASTM C 635; die cut and interlocking components, with	ex pr
ISI A136.1, thinset bond type; use Type I in areas subject to prolonged	stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required. 6. ACCESSORIES	, T ,
I A118.3, thinset bond type.	A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.	ric nio
Desting conset, and later addition and water	<ul> <li>B. Perimeter Moldings: Same material and finish as grid.</li> <li>1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of</li> </ul>	de
Portland cement, sand, latex additive and water. terials:	grid.	Area
Cement type: ANSI A118.1. Cement type: ANSI A118.4. 18.3.	7. INSTALLATION — SUSPENSION SYSTEM A. Install suspension system in accordance with ASTM C 636, ASTM E 580, and manufacturer's	
	instructions and as supplemented in this section. B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.	ů – ů
type specified in ANSI A118.6 or A118.7. 118.5, furan resin type.	C. Install after major above—ceiling work is complete. Coordinate the location of hangers with other work.	L N N
	D. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.	qe
4 mil thick polyethylene film. x 2 inch size weave of 16/16 wire size; welded fabric, galvanized.	E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.	CO DO
all wet locations — Nobleseal 30 mil membrane waterproofing A118—10.	<ul> <li>F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.</li> <li>G. Support fixture loads using supplementary hangers located within 6 inches of each corner, or</li> </ul>	
	support components independently. H. Do not eccentrically load system or induce rotation of runners.	
surfaces are smooth and flat within the tolerances specified for that type dy to receive tile.	I. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.	Z
ces are smooth and flat within the tolerances specified for that type of and are ready to receive tile. surfaces are dust-free and free of substances which would impair	<ol> <li>Use longest practical lengths.</li> <li>Overlap and rivet corners.</li> </ol>	RIPTIO
surfaces are dust-free and free of substances which would impair aterials to sub-floor surfaces. sub-floor surfaces are ready for tile installation by testing for moisture	8. INSTALLATION - ACOUSTICAL UNITS	DESCH
kalinity; obtain instructions if test results are not within limits manufacturer and setting materials manufacturer.	A. Install acoustical units in accordance with manufacturer's instructions. B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.	
vork from damage.	C. Fit border trim neatly against abutting surfaces. D. Install units after above—ceiling work is complete.	
es and damp clean. e cracks with filler. Level existing substrate surfaces to acceptable	E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents. F. Cutting Acoustical Units:	DAT
acker board in accordance with ANSI A108.11 and board manufacturer's	1. Make field cut edges of same profile as factory edges.	
ints and corners, cover with skim coat of dry-set mortar to a feather faces for adhesive installation in accordance with adhesive manufacturer's		SPECIFICATIONS
Tacco for autresive installation in accordance with danesive manufacturer s		PROJECT NO.
		05-05-22
		SHEET NO.
		SP.9

DIVISION 9 - FINISHES (CONTINUED)

SECTION 09610 - GRANITE

- 1. SECTION INCLUDES
- A. Granite slabs
- B. AdhesiveC. Protection of completed work
- 2. REFERENCE STANDARDS
- A. American National Standards Institute (ANSI): A136.1 Organic adhesives for installation of
- ceramic tile. B. American Society of Testing Materials (ASTM): ASTM C615 Granite building stone.
- C. Tile Council of America (TCA): Handbook for ceramic tile installation.
- 3. SAMPLES
- A. Submit two 12-inch x 12-inch samples to the Architect for acceptance.
- 4. MANUFACTURER
- A. The drawings were prepared, and portions of this specification written on the basis of using the products distributed by company noted on finish schedule in the drawings.
- 5. MATERIALS
- A. Granite: ASTM C615, fine rubbed, slab, color specified on Finish Schedule of the drawings.
- B. Adhesives: Water resistive type as recommended by granite manufacturer; thinset bond type.
- C. Grout: Non-sanded, Latex-Portland Cement Grout; color to be selected by Owner.
   D. Sealer: Multi-Seal "Marble Sealer" as distributed by Dal-Tile Corporation, Richardson, Texas.
- E. Cleaning Solution: Type recommended by granite manufacturer which will not harm stone, sealer, or adjacent surfaces.
- F. Extra Materials: Provide 20 of each size and type of stone unit specified.
- 6. ENVIRONMENTAL REQUIREMENTS
- A. Maintain materials and surrounding air to a minimum 50 degrees F prior to, during, and 48 hours after completion of work.
- 7. SURFACE PREPARATION
- A. Use filler to patch cracks, small holes, and for minor leveling in substrate.B. Apply conditioner/sealer to surfaces as recommended by adhesive manufacturer.
- 8. EXAMINATION
- A. Verify that surfaces are ready to receive work of this section. Beginning of installation means acceptance of substrate.
- 9. INSTALLATION
- A. Preparation: Establish lines, levels, and pattern; protect from disturbance.

B. Adhesive: Apply to prepared substrate in accord with manufacturer's instructions and the TCA Handbook for Ceramic Tile Installation. Ensure full adhesive contact for permanent bond to substrate.

C. Slabs: Clean stone prior to installation. Lay in slabs as large as possible, in patterns and/or directions shown on Drawings. Fit neatly to vertical interruptions. Place units with 1/16 inch joints. Provide expansion space at walls and other obstructions. Remove excessive adhesive from surface as work progresses. Sound units after setting. Replace hollow sounding units. Joints must be free of any debris or foreign matter before grouting. Joints shall be thoroughly filled and wiped flush. D. Sealer: Allow tile to set 72 hours after grouting prior to application of sealant. Apply two coats of sealer in accord with manufacturer's printed specifications and instructions.

- 10. PROTECTION AND CLEANING
- A. Protect work, adjacent work, and materials by suitable covering. Upon completion of work, remove spots from floors and other surfaces.

SECTION 09729 - MURAL INSTALLATION

- 1. SECTION INCLUDES
- A. Surface preparation and installation by GC.
- 2. REFERENCES
- A. ASTM E84 Standard Test Method for Surface Burning Characteristics of 3. REGULATORY REQUIREMENTS
- A. Conform to applicable code for flame and smoke ratings of 25/50 when Federally specified limits for flame, smoke development and flash over m to ASTM—E84 and NFPA286 tests.
- 4. DELIVERY, STORAGE, AND PROTECTION
- A. Inspect roll materials on site to verify acceptance.
- B. Protect packaged adhesive from temperature cycling and cold temperatur
- C.Do not store roll goods on end.
- 5. ENVIRONMENTAL REQUIREMENTS
- A. Do not apply materials when surface and ambient temperatures are outsi ranges required by the adhesive or mural product manufacturer.
- B. Maintain these conditions 24 hours before, during, and after installation covering.

#### 6. MATERIALS

- A. Wall Murals: 3M Scotch Print Graphics. Printed on 8620 base film and Murals are By Owner, which means the murals are furnished by Owner a
- B. Adhesive: Type recommended by covering manufacturer to suit application Adhesives and primers must contain mildew inhibitors.
- C. Substrate Filler: As recommended by adhesive and covering manufacture substrate.
- D. Substrate Cleaner: 3M brand adhesive cleaner and wax remover, Part 7. EXAMINATION
- A. Verify that substrate surfaces are primed and painted and are ready to r conform to requirements of the covering manufacturer.
- B. Measure moisture content of surfaces using an electronic moisture meter. coverings unless moisture content of surfaces are below 12 percent.
- C. Verify flatness tolerance of surfaces does not vary more than 1/8 inch a rate greater than 1/16 inch/foot.

#### 8. PREPARATION

- A. G.C. to examine all substrata, correct defects, and complete all work that substrata before beginning of wallcovering installation. G.C. is responsible acceptable wall surface for wall mural installation. Gypsum wall board leve Level 5.
- 1. Level 5: All joints and interior angles shall have tape embedded in joint commediately wiped with a joint knife leaving at thin coating of joint comport interior angles. Two separate coats of joint compound shall be applied over one separate coat of joint compound shall be applied over interior angles. accessories shall be covered with three separate coats of joint compound. joint compound trowel applied, or a material manufactured especially for the in accordance with manufacturer's recommendations, applied to the entire shall be smooth and free of tool marks and ridges. Note: It is recommendation of finish pelow in regard to painting.
- B. Sand and wipe wall to remove excess drywall dust.
- C. For new drywall construction prior to application of wallcovering, wall sho compatible primer to Latex paint (two coats). Finish coat to be Semi-gl
- D. After finishing drywall, ensure that all surfaces are completely flat and areas or indentations as the vinyl will telegraph any bad areas.
- E. Drying and curing time for substrate painting manufacturer MUST be obse paints should be allowed to dry a minimum of 72 hours prior to mural of 72-hour air drying period is to be complete 28 days prior to restaurant
- F. Use only a pencil for marking walls and back of wallcovering. Do not pen, they will bleed through the surface.
- G. When using solvent for cleaning substrate, it is essential that proper prec as established by the solvent manufacturer for handling of such materials
- H. Clean substrates with adhesive cleaner per manufacturer's written directio lint—free cloth before solvent evaporates from surface.
- I. After cleaning, all materials should be handled with mechanical devices cloth gloves.
- J. Surface Appurtenances: Remove or mask electrical plates, hardware, light escutcheons, and fittings prior to preparing surfaces or finishing.
- K. Vacuum clean surfaces free of loose particles. Ensure the flat surfaces molding above and below this area are free of all dust and debris.9. INSTALLATION
- A. Apply adhesive and covering in accordance with manufacturer's instruction
- B. Apply adhesive to wall surface immediately prior to application of coverir
- C. Use covering in pattern sequence.
- D. Razor trim edges on flat worktable. Do not razor cut on gypsum board
- E. Apply covering smooth, without wrinkles, gaps, or overlaps. Eliminate air full bond to substrate surface. Butt edges tight.
- F. Horizontal seams are not acceptable.
- G. Do not seam within 2 inches of internal corners or within 6 inches of
- H. Edges of graphics must be trimmed perfectly straight at a 90-degree of that seams align properly when applied to the wall surface.
- I. Remove excess adhesive while wet from seam before proceeding to next clean with dry cloth.

I				
	SECTION 09771 - PREFINISHED PANELS	12. SCHEDULE — SURFACES TO BE FINISHED A. Do Not Paint or Finish the Following Items:	3. Gypsum Wallboard Sherwin Williams:	
	<ol> <li>SECTION INCLUDES         A. Prefinished panel system for adhesive mounting.     </li> </ol>	<ol> <li>Items fully factory—finished unless specifically noted.</li> <li>Fire rating labels, equipment serial number and capacity labels.</li> </ol>	1st Coat: S–W ProMar 200 Interior Latex Primer, B28W8200 2 <sup>nd</sup> Coat: S–W ProMar 200 Latex Semi-Gloss, B31W2200 Series	λ / Τ λ
	2. MANUFACTURERS	B. Mechanical and Electrical: Use paint systems defined for the substrates to be finished. 1. Paint all insulated and exposed pipes, conduit, boxes, hangers, brackets, collars and supports,	3 <sup>rd</sup> Coat: Same as 2 <sup>nd</sup> Coat Glidden Professional:	
cs of Building Materials.	A. The Marlite Corporation, Dover, Ohio	mechanical equipment, and electrical equipment occurring in finished areas, unless otherwise indicated.	1st Coat: 1000 Hi—Hide water —Based Primer—Sealer 2 <sup>nd</sup> Coat: Glidden Professional Ultra Hide 150 Latex Eggshell 1412	MICHAEL LEGG ARCHITECTURE Michael Gregory Legg NCARB, AIA, RIBA, SACAP
	B. Crane Composites (Kemlite), Channahon, IL.	<ol> <li>Paint shop-primed items occurring in finished areas.</li> <li>Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are</li> </ol>	3 <sup>rd</sup> Coat: Same as 2 <sup>nd</sup> Coat	26116 High Timber Pass St San Antonio, Texas 78260
when tested to ASTM E84. /er must be met according	<ol> <li>FIBERGLASS REINFORCED PANEL (FRP)</li> <li>A. Thickness: 3/32"</li> </ol>	<ol> <li>Paint interior surfaces of air ducts and convector and baseboard neating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.</li> <li>Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match</li> </ol>	4. Ferrous Metal and Exposed Gas Lines, Doors, Door Frames Sherwin Williams:	ph. 210-416 4935 michael@mlarchitecture.info www.michaelleggarchitecture.com
	B. Finish: Pebble	face panels.	1st Coat: S—W DTM Acrylic Semi—Gloss, B66—200 Series 2 <sup>nd</sup> Coat: Same as 1 <sup>St</sup> Coat	
	C. Color: As scheduled D. Moldings: Solid vinyl, wide profile and match the color of the panels.	C. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.	2"" Coat: Same as 1°° Coat Glidden Professional: 1st_Coat: Devoe Coatings DEVFLEX 4216 HP Semi-Gloss	GREGOLARCH
eratures.	E. Closures: solid vinyl, wide profile an match the color of the panels.	13. TENTATIVE PAINT LIST: Where any particular application is not mentioned in this list, Contractor	2 <sup>nd</sup> Coat: Same as 1 <sup>St</sup> Coat	
	4. STAINLESS STEEL PANEL	shall figure on application of manufacturer's specification for application which is consistent with types and qualities listed herein. Colors are indicated on drawings.	5. At Dissimilar Metals	
	A. Type: 20 gauge, #304.	EXTERIOR SURFACES	Sherwin Williams: 1st Coat: SW Hi-Mil Sher-Tar Epoxy, B60B40 / B60V40	09.21.2023
outside the temperature	<ol> <li>INSTALLATION</li> <li>A. Install in accordance with manufacturer's instructions.</li> </ol>	1. Wood Trim — "Painted"	Glidden Professional: 1st Coat: Devoe Coatings Tru-Glaze 4508 Chemical Resistant Epoxy Coating,	DRAWING
tion of adhesive and	B. Use the adhesives recommended by the panel manufacturer unless prohibited by local regulations; obtain manufacturer's approval of alternative adhesives.	Sherwin Williams: 1 <sup>St</sup> Coat: S—W Exterior Latex Wood Primer, B42W8041	4508-XXXXH/ 4508-9999H	COORDINATION Architectural, Landscape, Civil,
	C. Avoid contamination of panel faces; clean as necessary and replace if not possible to repair to original condition.	2 <sup>nd</sup> Coat: S–W) 0 VOC Acrylic Satin B66–660 Series 3 <sup>rd</sup> Coat: Same as 2 <sup>nd</sup> Coat		Structural, Mechanical and Electrical drawings are interrelated.
and 3M overlaminate.	D. Install stainless steel panels with a one inch ship lap.	Glidden Professional:		General Contractor and all Sub Contractors shall review and coordinate the entire set of
ner and installed by GC.	SECTION 09900 - PAINTS AND COATINGS	1 <sup>SL</sup> Coat: Glidden Professional 6001 Hydrosealer Primecoat 2 <mark>nd</mark> Coat: Devoe Coatings 4212 DEVFLEX HP Eggshell		drawings and specifications
lication to substrate.	1. SECTION INCLUDES	3 <sup>rd</sup> Coat: Same as 2 <sup>nd</sup> Coat		
acturers; compatible with	A. Surface preparation. B. Field application of paints, stains, varnishes, and other coatings.	2. Natural Woods — "Stained" Sherwin Williams:		
art No. 8984.	<ol> <li>DELIVERY, STORAGE, AND HANDLING</li> <li>A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.</li> </ol>	1 <sup>St</sup> Coat: S—W WoodScapes House Stain Exterior Polyurethane		
	B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand	SemiTransparent Stain, A15T5 2 <sup>Nd</sup> Coat: Same as 1 <sup>St</sup> Coat -rd		
y to receive work and	code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.	3 <sup>rd</sup> Coat: Marine Varnish, Satin finish Glidden Professional:		
meter. Do not apply	C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.	1 <sup>St</sup> Coat: Glidden Professional 2710 WOODPRIDE Exterior Oil/AlkydSemi—Transparent Deck & Siding Stain		
	<ol> <li>ENVIRONMENTAL REQUIREMENTS</li> <li>A. Do not apply materials when surface and ambient temperatures are outside the temperature</li> </ol>	2 <sup>nd</sup> Coat: Same as 1 <sup>st</sup> Coat 3 <sup>rd</sup> Coat: Glidden Professional 1907 WOODPRIDE Spar Urethane		
inch in 10 feet nor vary at	ranges required by the paint product manufacturer. B. Provide lighting level of 80 ft candles measured mid—height at substrate surface.			
	4. SUBMITTALS	3. Ferrous Metals and Exposed Gas Lines Sherwin Williams:		
k that penetrates the	A. Prepare two (2) color/texture samples for each color for each type of substrate to be painted or stained per SUBMITTALS.	1st Coat: S-W ) 0 VOC Acrylic Satin, B66-660 Series 2 <sup>Nd</sup> Coat: Same as 1 <sup>St</sup> Coat		
sible to provide an d level of finish is to be	B. Make samples not less than twelve inches (12") square. C. Submit manufacturer's printed literature on each coating system to be used.	Glidden Professional: 1st Coat: Devoe Coatings 4212 DEVFLEX HP Eggshell		
nt compound and shall be	5. EXTRA MATERIALS A. Supply 1 gallon of each color; store where directed.	2 <sup>Nd</sup> Coat: Same as 1 <sup>St</sup> Coat		
over all flat joints and gles. Fastener heads and	B. Label each container with color in addition to the manufacturer's label.	4. Unit Masonry Sherwin Williams:		
und. A thin skim coat of for this purpose and applied	<ol> <li>MANUFACTURERS</li> <li>A. Paint and Coating manufactures shall be as scheduled herein and on the drawings.</li> </ol>	1st Coat: S—W Loxon Concrete & Masonry Interior/Exterior Latex Primer, A24W8300		
tire surface. The surface mended that the prepared ish paint. See section C	7. PAINTS AND COATINGS — GENERAL A. Paints and Coatings: Ready mixed, except field—catalyzed coatings. Prepare pigments to a	2 <sup>nd</sup> Coat: S—W DTM Acrylic Semi—Gloss, B66—200 Series		at
isii puint. See section c	soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.	3 <sup>rd</sup> Coat: Same as 2 <sup>nd</sup> Coat Glidden Professional:		Δ
	B. Volatile Organic Compound (VOC) Content:	1st Coat: Fill with Glidden Professional Concrete Coatings Block Filler 3010—1200 to DFT of 9.0 to 13.6 Mils. Ensure coverage is consistent.		Ď –
I shall be painted with ni-gloss Latex paint.	<ol> <li>Provide coatings that comply with the most stringent requirements specified in 40 CFR 59, Subpart D——National Volatile Organic Compound Emission Standards for Architectural Coatings.</li> </ol>	2 <sup>nd</sup> Coat: Finish with Glidden Professional Fortis 450 Exterior 100% Acrylic Satin 6403 rd		Ba Ba
ind smooth with no raised	8. EXAMINATION	3 <sup>rd</sup> Coat: Same as 2 <sup>nd</sup> Coat		
e observed. All air-drying	A. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.	5. Pre-Painted Equipment (Rooftop Equipment, Transformers, Etc.) Sherwin Williams:		it H Xa
ural application. The urant opening.	B. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:	1st Coat: S—W DTM Acrylic Semi—Gloss, B66—200 Series 2 <sup>nd</sup> Coat: Same as 1 <sup>st</sup> Coat		rant ksbu , Te)
not use ballpoint or marking	1. Wood: 15 percent, measured in accordance with ASTM D 4442. 9. PREPARATION	Glidden Professional: 1st_Coat: Devoe Coatings 4216.DEVFLEX HP Semi-Gloss		
r precautionary measures,	A. Surfaces: Correct defects and clean surfaces which affect work of this section. B. Marks: Seal with shellac those which may bleed through surface finishes.	2 <sup>nd</sup> Coat: Same as 1 <sup>st</sup> Coat		itau irici
iterials, be observed.	C. Impervious Surfaces: Remove mildew by scrubbing with solution of tetra—sodium phosphate and bleach. Rinse with clean water and allow surface to dry.	6. Pre-Primed Metal Doors and Frames		Rest rede Antoi
rections; wipe dry with a	D. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime	Sherwin Williams: 1st Coat: S—W DTM Acrylic Semi—Gloss, B66—200 Series		A D A
ces or while wearing clean,	defects after repair. Gypsum ceiling surfaces in all Public areas are required to have a Level 5 finish surface; do not start painting until surface finish level is verified. Beginning of painting gypsum indicates acceptance of surface.	2 <sup>ND</sup> Coat: Same as 1 <sup>ST</sup> Coat Glidden Professional:		ХЩС
light fixture trim,	E. Aluminum Surfaces to be Painted: Remove surface contamination by steam or high-pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer	1st Coat: Devoe Coatings 4216.DEVFLEX HP Semi—Gloss 2 <sup>nd</sup> Coat: Same as 1 <sup>st</sup> Coat		hic Sa
faces and the crown	immediately following cleaning. F. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with	7. Stucco & EIFS		Ū M Ū
	solvent. Apply coat of etching primer. G. Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter,	7. Stucco & Elf'S Sherwin Williams: 1st Coat: S—W Loxon Concrete & Masonry Interior/Exterior Latex Primer		
uctions	dirt, and rust. Prime paint entire surface; spot prime after repairs. H. Interior Wood Items to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal	A244W8300 2 <sup>nd</sup> Coat: S—W ConFlex High Build Coating, A5—400 Series		
uctions. overing.	H. Interior Wood Items to Receive Upaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.	3 <sup>rd</sup> Coat: Same as 2 <sup>nd</sup> Coat		0
, ,	<ul> <li>I. Interior Wood Items to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer</li> </ul>	Glidden Professional: 1st Coat: Glidden Professional Hydrosealer 6001 primecoat		
poard surfaces.	has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.	2 <sup>nd</sup> Coat: Glidden Professional Fortis 450 Exterior 100% Acrylic Satin 6403 3 <sup>rd</sup> Coat: Same as 2 <sup>nd</sup> Coat		
e air pockets and ensure	J. Wood Doors to be Field Finished: Seal wood door top and bottom edge surfaces with clear sealer.			
	K. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces. 10. APPLICATION	INTERIOR SURFACES		
of external corners.	A. Apply products in accordance with manufacturer's instructions.	1. Wood Trim — "Painted" Sherwin Williams:		
ee angle. This will ensure	B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.	1st Coat: S—W Multi—Purpose Interior/Exterior Latex Primer B51W8020 Series 2 <sup>nd</sup> Coat: S—W DTM Acrylic, Semi—Gloss, B666—200 Series		DESC
next covering sheet. Wipe	C. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.	3 <sup>rd</sup> Coat: Same as 2 <sup>nd</sup> Coat		
mpe	D. Sand wood and metal surfaces lightly between coats to achieve required finish. E. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before	Glidden Professional: 1st Coat: Glidden Professional 3210 Gripper Multi-Purpose Primer nd		
	set. Wipe excess from surface. F. Coverage coats noted herein are minimum requirements. Contractor shall provide additional	2 <sup>nd</sup> Coat: Devoe Coatings 4216 HP Semi—Gloss 3 <sup>rd</sup> Coat: Same as 2 <sup>nd</sup> Coat		DATE
	coats as needed for complete coverage. 11. FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT	2. Wood Trim - "Stained"		
	A. Painting mechanical and electrical work is limited to items exposed in occupied spaces unless noted otherwise.	2. wood mm — Stained Sherwin Williams: 1st Coat: Minwax Pre—Stain Wood Conditioner, 154—8866		
	B. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.	2 <sup>nd</sup> Coat: S—W WoodClassics Oil Stain, A49 Series		SPECIFICATIONS
	components una paint separately.	3 <sup>rd</sup> Coat: S—W WoodClassics Waterborne Polyurethane Varnish, A68F90 Series, Satin		PROJECT NO.
		Glidden Professional: 1st Coat: Minwax Pre-Stain Wood Conditioner, 154-8866 nd		05-05-22
		2 <sup>Nd</sup> Coat: Glidden Professional 1700 WOODPRIDE Interior Wood Finishing Stain 3 <sup>rd</sup> Coat: Glidden Professional 1902 WOODPRIDE Interior Polyurethane Satin Varnish		
				SHEET NO.
				SP.10

**DIVISION 10 - SPECIALTIES** 

SECTION 10410 - ENTRY KEY CABINET

- 1. SECTION INCLUDES
- A. Knox Rapid Entry System
- 2. SUBMITTALS
- A. See Section 01300 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide descriptions, applications, installation instruction.
- C. Shop Drawings: Indicate sizes, shapes and types of materials; finishes, anchors and connections.

D. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and reaistered with manufacturer.

- 3. DELIVERY. STORAGE. AND HANDLING
- A. Order key boxes from manufacturer using original authorization/order form signed by authority having jurisdiction.
- B. Deliver key boxes to site in good condition, in original unopened packaging, and with labels
- intact. Inspect materials upon delivery and replace damaged or contaminated materials. C. Key boxes shall be shipped to contractor. Keys shall be shipped directly to authority having jurisdiction.
- 4. MANUFACTURERS
- A. The Knox Company, Phoenix, AZ; (800)522-566; 3200 Series-Surface Mounted Hinged Door Model; <u>www.knoxbox.com</u>
- 5. MANUFACTURED UNITS
- A. Basis of Design Manufacturer: Knox-Box Model 3200 Surface Mounted heavy duty with tamper switch. 1/2" solid plate door and 1/4" steel case in aluminum finish, or as required by authority having jurisdiction.
- B. Assembly: 1. Factory assemble.
- 2. Shop fabricate to the greatest extent possible.
- 6. INSTALLATION
- A. Install in accordance with manufacturer's instructions.
- B. Locate Key Box as shown on drawings.

SECTION 10442 - ARCHITECTURAL SIGNAGE

- 1. DESIGN AND FABRICATION
- A. All patterns for fabrication, regardless of production technique, method, or process specified, shall be approved by the Owner prior to production in order to ensure conformity to design with regard to letter form and height, wording, spelling, capitalization, punctuation, letter spacing, leading and layout or composition.
- 2. MANUFACTURER
- A. Interior Signage: The drawings were prepared and this specification written on the basis of using the products of Kroy Sign Systems, Scottsdale, Arizona.
- B. Street Address Signage: The drawings were prepared and this specification written on the basis of using the products of WestOn Letters, North Hollywood, CA.
- C. It is not the intent to limit competitive bidding. Products with equal characteristics by other manufacturers are acceptable under the conditions of these specifications.
- GENERAL
- A. Regulatory signage series opaque acrylic, matte finish plaques, with front surface hot stamp graphics, in low profile frame. Configuration shown on drawings to conform with Americans with Disabilities Act requirements.
- B. Provide one sign (unit) for each restroom door opening for public facilities.
- C. Street Address Signage: Lettering to be 6" tall, University Roman Bold, Color: Medium Bronze,  $\frac{3}{4}$  inch standoffs. Lettering to be ordered from: http://www.westonletters.com/index\_23.php?catID=23&file=HN-Styles.htm
- 4. INSTALLATION
- A. Installation shall be started at the time established by the General Contractor. However, no sign work shall be permitted in the building before the building is completely enclosed and all painting and work of other trades is finished.
- B. Install signs in accord with approved shop drawings. Install true to line, plumb, level, square, in proper planes with other work and free from objectionable defects. Anchor to adeauately resist all normally subjected stresses.

SECTION 10523 - FIRE EXTINGUISHERS, CABINETS AND ACCESSORIES

### 1. SECTION INCLUDES

- A. Fire extinguishers and cabinets.
- B. Accessories.
- 2. REFERENCES

A. NFPA 10 - Standard for Portable Fire Extinguishers; National Fire Protection Association; 2007. B. UL (FPED) - Fire Protection Equipment Directory; Underwriters Laboratories Inc.; current edition.

- 3. MANUFACTURERS
- A. Fire Extinguishers, Cabinets and Accessories: 1. Larsen's Manufacturing Co: www.larsensmfg.com.
- 4. FIRE EXTINGUISHERS
- A. Fire Extinguishers General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
- 1. Provide extinguishers labeled by Underwriters Laboratories Inc. for the purpose specified and
- indicated
- B. Dry Chemical Type Fire Extinguishers: Stainless steel tank, with pressure gage.
- 1. Class B:C. 2. Size 10.
- 3. Size and classification as scheduled.
- 4. Model: MP10
- 5. Bracket: B2
- 6. Quantity: 1, as located on drawings.
- C. Wet Chemical Type 1. Class K
- 2. Size 2.5 Gallon
- 3. Model: WC 2 1/2
- 4. Bracket: 864
- 5. Quantity: 2, locate per local Fire Official direction
- 5. ACCESSORIES

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- A. Cabinets: Larsen's #2409-R2, Vertical Duo Clear, #4 Stainless Steel for public locations. B. Extinguisher Brackets: Formed steel, chrome-plated, for kitchen locations.
- 6. INSTALLATION
- A. Install in accordance with manufacturer's instructions. B. Secure rigidly in place.

SECTION 10800 - TOILET ACCESSORIES

- 1. All toilet accessories are furnished and installed by Contractor. Coordinate and wood blocking.
- 2. Install fixtures, accessories and items in accordance with manufacturer's in affected, at heights or locations for the handicapped as indicated or speci 3. Install true, plumb and level, securely and rigidly anchored to substrate.
- 4. See Schedule on drawings for accessories.

#### **DIVISION 11 - EQUIPMENT**

- SECTION 11400 FOOD SERVICE EQUIPMENT (INSTALLATION)
- . SECTION INCLUDES
- A. Installation of Owner provided food service equipment.
- B. Equipment shall be furnished, assembled, and set in place under separat utility connection by General Contractor.
- 2. RELATED SECTIONS
- A. Mechanical and Electrical services and final connections to equipment.
- 3. OWNER / CONTRACTOR RESPONSIBILITIES
- A. Owner will provide equipment manufacturer's installation instructions for
- B. Owner will provide equipment manufacturer's operation and maintenance C. Coordinate size of access and route to place of installation.
- D. Owner Provided (By Owner):
- 1. Equipment scheduled on the drawings.
- 2. Mechanical refrigeration systems, including compressor units, condens and control valves.
- 3. Motor starters.
- 4. Walk—in refrigerator/freezer thermostats.
- 5. Stainless steel trim strips, supports and connections, attachment devi E. Contractor Provided: Refrigerant System Installation 1. Refrigerant Lines: Type "L" hard copper tubing.
- 2. Fittings: Wrought copper or brass designed for use with high temper
- 3. Piping Joints: Made with silver solder (Sil-Fos). 4. Piping: Properly suspended from an anchor to the structure with adju
- o.c. maximum. 5. Suction Lines: Size to have maximum pressure drop of two pounds temperature systems, one pound in low temperature system.
- 6. Liquid Lines: Sized to give maximum pressure to prevent trapping of on all suction lines to be Armaflex insulation by Armstrong - 1" thic 1-1/2" thick at low temp. Refrigerant lines in PVC or EMT conduit
- ends with Dow Corning 3-6548 silicone RTV foam. 7. Evacuation and Charging: After completion of the pressure test, the evacuated using an approved auxiliary vacuum pump. Connections for accordance with manufacturer's recommendations.
- 4. DELIVERY, HANDLING AND STORAGE
- A. Delivery: Upon receiving equipment, check crates/cartons identification
- P.O.; assure correct item has been received. B. Handling: Uncrate equipment in organized manner. Take care not to m
- accessories, assembly and operating instructions, and warranty cars. Kee and tags on equipment until after connections are made. Assemble in in accord with manufacturer's directions, taking care to make sure faste components are aligned and square.
- C. Storage: Store equipment clear of floor in manner to prevent warping,
- 5. INSTALLATION
- A. Install items in accord with manufacturer's instructions and fabricator's in accord with local governing Health, Building, and Safety, and Fire Prot
- Regulations and NEMA, UL, AGA, ASME and NFPA. B. Electrolysis: Insulate to prevent electrolysis between dissimilar metals.
- achieve clean joint without crevices. C. Equipment

- 1. General: Set in place and position per kitchen equipment plan; ready After utility hookups are made, level and secure dish tables to slope Completely close and seal gaps, joints and seams between fixtures/e ceilings and floors with stainless steel trim strips and/or clear silicond use sealant in joints or seams over 3/16 inch wide.
- 2. Refrigerant Piping: Install copper tubing and fittings. Cut with pipe with sizing tool. Expose piping to view as required by American Sta Mechanical Refrigeration. For exposed areas or accessible furred ceil copper tubing. Run exposed tubing in such manner as to prevent d in areas; otherwise run tubing in pipe or conduit.
- a. Suction Lines: Size to give max pressure drop from evaporator to high temp system and 1 lb. For freezer system, allowing gas veloc 750 rpm in horizontal runs and 1500 rpm in vertical risers. Size max pressure drop of 3 lbs. from receiver to evaporator. b. Tubing Runs: Grade to prevent trapping of oil.

TON 10800 - TOILET ACCESSORIES	DIVISION 15 - MECHANICAL SYSTEMS
toilet accessories are furnished and installed by Contractor. Coordinate rough—in, openings id wood blocking.	SECTION 15100 - GENERAL MECHANICAL REQUIREMENTS
stall fixtures, accessories and items in accordance with manufacturer's instructions, and where fected, at heights or locations for the handicapped as indicated or specified herein. stall true, plumb and level, securely and rigidly anchored to substrate. se Schedule on drawings for accessories.	<ol> <li>Scope of Work:</li> <li>a. The work to be accomplished under this Section of Specifications includes the furnishing of all labor, materials, supervision and equipment for the complete installation of air conditioning, heating, ventilating, plumbing, fire protection together with all the necessary</li> </ol>
	auxiliaries and appurtenances. Generally the work shall consist of, but is not limited to, items listed in the following paragraphs. b. Air Conditioning and Heating: Factory built air conditioning and heating units of the single zone roof top and split system units, filters, fans, motors, drives, hoods, etc.
ION 11400 - FOOD SERVICE EQUIPMENT (INSTALLATION) ECTION INCLUDES Installation of Owner provided food service equipment.	<ul> <li>c. Air Distribution System: Sheet metal ductwork, volume dampers, splitter dampers, turning vanes, air control devices, grilles, registers, diffusers, flexible duct, install per SMACNA Standards. Fiberglass duct board is <u>not</u> an acceptable alternative.</li> <li>d. Plumbing: Soil, waste and vent piping, domestic hot and cold water distribution, hot water</li> </ul>
Equipment shall be furnished, assembled, and set in place under separate contract, with final utility connection by General Contractor.	generators, fixtures, grease traps, vents, condensate lines of HVAC and miscellaneous equipment, underfloor or overhead soda, refrigerant line conduit and/or roof leaders. e. Miscellaneous Supply and exhaust fans, make-up air units, temperature controls, thermal
Nechanical and Electrical services and final connections to equipment.	insulation, apparatus foundations and supports, pipe hangers and supports and all necessary tools, accessories and appliances as required to make all systems complete and operative.
Owner will provide equipment manufacturer's installation instructions for Contractor's use. Owner will provide equipment manufacturer's operation and maintenance data for Contractor's use.	<ol> <li>Products and Execution:</li> <li>a. Electrical Provisions for Mechanical Work: Except for such items as are normally wired up at their point of manufacture and so delivered, and unless specifically noted to the contrary</li> </ol>
<ul> <li>Coordinate size of access and route to place of installation.</li> <li>Dwner Provided (By Owner): <ul> <li>Equipment scheduled on the drawings.</li> </ul> </li> <li>Mechanical refrigeration systems, including compressor units, condensers, evaporator coils, and control valves.</li> <li>Motor starters.</li> <li>Walk-in refrigerator/freezer thermostats.</li> <li>Stainless steel trim strips, supports and connections, attachment devices, and accessories.</li> </ul>	herein, the Electrical Subcontractor will do all electric wiring of every character' for power supply. Control wiring shall be furnished and Installed by the Electrical Subcontractor. This Subcontractor shall erect all motors in place ready for connection. Except for such items as are normally supplied with starters installed (HVAC units, dishwashers, etc) at their point of manufacture. All other starters not furnished with equipment to be furnished and installed by Electrical Contractor. The Electrical Subcontractor will mount all such starters, as directed, furnishing supporting structures where necessary. The Owner and other Contractors shall furnish with each item requiring electrical connections, the necessary instructions and wiring
Contractor Provided: Refrigerant System Installation . Refrigerant Lines: Type "L" hard copper tubing. 2. Fittings: Wrought copper or brass designed for use with high temperature solder. 5. Piping Joints: Made with silver solder (Sil—Fos).	diagrams to the Electrical Subcontractor. The Electrical Subcontractor shall refer to the specifications to determine the scope of the work b. Chases and Openings: Various divisions, however, the locations of all inserts and openings shall be determined and coordinated with other divisions in ample time to avoid cutting new
<ul> <li>Piping: Properly suspended from an anchor to the structure with adjustable hangers 6' o.c. maximum.</li> <li>Suction Lines: Size to have maximum pressure drop of two pounds in medium</li> </ul>	construction. c. Roof Flashing of Ducts and Curbs: Division 7, however, plumbing vent flashing and counter flashing shall be provided under this Division and per roof manufacturer recommendations.
<ul> <li>backer Energy stems, one pound in low temperature system.</li> <li>Liquid Lines: Sized to give maximum pressure to prevent trapping of oil. Rigid insulation on all suction lines to be Armaflex insulation by Armstrong - 1" thick at medium temp., 1-1/2" thick at low temp. Refrigerant lines in PVC or EMT conduit to be sealed at both ends with Dow Corning 3-6548 silicone RTV foam.</li> </ul>	<ul> <li>d. Openings in Roof Deck: Where piping, ducts, vents or any other mechanical apparatus penetrates roof deck and opening is not specifically shown on structural drawings, obtain Architect's approval of location and size. Have roof deck installer do cutting and pay installer cost of cutting opening.</li> </ul>
. Evacuation and Charging: After completion of the pressure test, the system shall be evacuated using an approved auxiliary vacuum pump. Connections for evacuations to be in accordance with manufacturer's recommendations.	3. Permits, Fees and Code Regulations: a. Permits: Obtain all permits required to do this work and pay any fees required to such
LIVERY, HANDLING AND STORAGE elivery: Upon receiving equipment, check crates/cartons identification labels with receiving .0.; assure correct item has been received.	permits. b. Regulations: Conform to all State and Local Ordinances and Rulings applicable to this work and in effect at the time the work is performed. Approval of various insuring and inspection authorities shall be obtained. When requested, competent evidence of compliance, with
andling: Uncrate equipment in organized manner. Take care not to misplace loose parts, ccessories, assembly and operating instructions, and warranty cars. Keep utility hookup notes nd tags on equipment until after connections are made. Assemble in workmanship manner accord with manufacturer's directions, taking care to make sure fasteners are tight and components are aligned and square.	applicable codes, shall be furnished. c. Conflicts: If a conflict exists between the drawings and/or specifications and any above mentioned authority, the Contractor shall advise the Architect/Engineer in writing five (5) days prior to presenting Proposal or stand any cost required to meet regulations.
corage: Store equipment clear of floor in manner to prevent warping, twisting, or sagging.	<ul><li>4. Structural and Space Condition:</li><li>a. The specifications and accompanying drawings are intended to encompass a system that will</li></ul>
TALLATION stall items in accord with manufacturer's instructions and fabricator's shop drawings. Install accord with local governing Health, Building, and Safety, and Fire Protection Codes and egulations and NEMA, UL, AGA, ASME and NFPA. ectrolysis: Insulate to prevent electrolysis between dissimilar metals. Provide sealant to chieve clean joint without crevices.	not interfere with the structural, electrical and architectural design of the building, and which will fit into the several available spaces. As it is not within the scope of the drawings to show all necessary offsets and obstructions of structural conditions, it shall be the responsibility of the Contractor to install his work in such a manner that it will conform to the structure, avoid obstructions and interferences with other trades, preserve headroom, and
quipment . General: Set in place and position per kitchen equipment plan; ready for utility hook up. After utility hookups are made, level and secure dish tables to slope toward dishwasher. Completely close and seal gaps, joints and seams between fixtures/equipment and walls, ceilings and floors with stainless steel trim strips and/or clear silicone sealant. Do not	keep openings and passageways clear. b. Do not run piping or ductwork, or locate equipment (with respect to switchboards, panelboards, power panels, motor control centers or dry type transformers) within 42" in front of equipment, over equipment or within 36" horizontally of same space.
use sealant in joints or seams over 3/16 inch wide. . Refrigerant Piping: Install copper tubing and fittings. Cut with pipe cutters and reshape with sizing tool. Expose piping to view as required by American Standard Safety Code for	5. Drawings: a. The drawings as prepared are diagrammatic but shall be followed as closely as actual
Mechanical Refrigeration. For exposed areas or accessible furred ceiling spaces, use hard copper tubing. Run exposed tubing in such manner as to prevent damage from activities in areas; otherwise run tubing in pipe or conduit. a. Suction Lines: Size to give max pressure drop from evaporator to machine of 2 lb. For	construction of the project and the work of the trades will permit. Changes from the drawings necessary to fit the work of various trades, to conform to equipment actually being installed, or to conform to the rules of authorities having jurisdiction shall be made without additional cost to the Owner.
high temp system and 1 lb. For freezer system, allowing gas velocities of not less than 750 rpm in horizontal runs and 1500 rpm in vertical risers. Size liquid lines to give max pressure drop of 3 lbs. from receiver to evaporator.	6. As-built Drawings: a. Provide and keep up-to-date, a complete record set of blue line prints which shall be
<ul> <li>b. Tubing Runs: Grade to prevent trapping of oil.</li> <li>c. Ties: Secure suction and liquid lines for each system together, except when run through conduit; 24 inch intervals with black plastic electrical tape.</li> <li>d. Insulation: Insulate refrigerant suction lines outside of refrigerated compartments back to compressors.</li> </ul>	corrected daily with dated notations, and shall show every change from the original Contract drawings. This set of prints shall be kept on the job site and shall be used only as a record set.
e. Hangers and Supports: Provide adjustable hangers, anchors or straps required for proper support of piping not run in conduit. Space hangers not to exceed 10 feet o.c. and	7. Protection of Materials: a. Take such precautions as are necessary to protect all equipment and materials from damage.
closer where required for proper support of small piping. Provide insulated refrigerant piping with approved type sleeves at hanger points. . Walk—In Cooler Freezer Boxes: Transit level floor screens prior to wall and ceiling panel	8. Workmanship:
erection. Seal wall and/or ceiling penetrations for electrical conduits and refrigeration lines, etc., to prevent frost and condensate build-up. Electrical conduits; on exterior of box. Oil Separators: Provide low temperature operations of system, return line connected to top	a. Labor shall be performed in a workmanlike manner by mechanics skilled in their particular trades.
of crankcase above oil level. Provide exposed oil return lines with shut—off valves of packless stem type. Evaporator Coils: Support by hangers utilizing fish plates on top of walk—in unit a full 4	9. Materials and Equipment:
inches clear from underside of ceiling panels.	a. All materials shall be new and of the best quality. Where manufacturer's names and model numbers are mentioned in the specifications, it is intended to set a standard of quality and shall not be construed to limit competition unless specifically stated in drawings or to discriminate against "equal" products of other manufacturer. The words "or approved equal" are to follow each material specification where a substitution will be considered. Any proposed substitution must be submitted for comparison and it is understood that the Engineer shall be the sole Judge in the matter.
	10. Vibrations and Noise:
	a. Each of the various pieces of equipment shall operate without objectionable vibration or noise. All rotating equipment shall be in static and dynamic balance and shall be mounted, supported and fastened so that no equipment vibration will be transmitted to the building. The specific size of vibration isolation shall be in accordance with manufacturer's recommendation and shall be submitted to the Architect for approval. If, in the opinion of the Architect, objectionable vibration or transmission thereof to the building occurs, the Contractor shall execute remedial measures as may be necessary to eliminate such unsatisfactory operating conditions at the Contractor's expense.
	11. Operating Instructions:
	<ul> <li>a. Brochures: Written instructions, assembled and bound in brochures, shall be furnished in triplicate for operating and maintaining all equipment furnished under this Division of the Specifications. Instructions shall include all normal adjustments, a list of lubricating points with the type and frequency of lubrication required. Parts lists shall be furnished.</li> <li>b. Demonstration: Upon completion and acceptance of work by the Owner, the Contractor shall be provided to instruct the operating personnel in the operation of the entire installation. Two sessions shall be held, one for summer operation and one for winter operation, both in the</li> </ul>
	<ul> <li>respective seasons.</li> <li>c. Equipment location and Use: Provide, in triplicate, suitably bound operating book containing all equipment, its location, use and description, and building schematics. Submit to Architect for approval before printing in final form.</li> <li>d. Contractor shall instruct manager on the programming of all thermostats. This shall be a hands-on explanation. Contactor shall also provide manager with booklet showing programming instructions.</li> </ul>
	12. Final Inspections:
	a. Schedule: Upon completion of Contract, there shall be a final inspection of the completed installation. Prior to this inspection, all work under this Division shall have been completed, tested, balanced, and adjusted and in final operating condition.

tested, balanced, and adjusted and in final operating condition. b. Personnel: A qualified person representing the Contractor must be present at this final inspection to demonstrate the system and prove the performance of the equipment.

Cutting and Patching:

Where cutting and patching becomes necessary to permit the installation of any work under this Contract, or should it become necessary to repair any defects that may appear in patching up to the expiration of the guarantee, such cutting shall be done under the supervision of the Owner by the trade of Subcontractor whose work is to be disturbed. After the necessary work has been completed, the trade of Subcontractor whose work has been disturbed shall repair damage. The cost of all cutting and patching shall be paid by the trade of Subcontractor requiring it to be done.

#### Excavations and Backfilling:

Provide necessary excavating and backfilling for the installation of work specified in this Division. Trenches for underground piping and conduits shall be excavated to required depths with bell holes provided as necessary to ensure uniform bearing. Care should be taken to excavate below depth, and any excavation below depth shall be refilled with sand or gravel firmly compacted. Where rock or hard objects are encountered, they shall be excavated to a grade size inches (6") below as specified. After the pipe has been installed, tested and approved, the trenches shall be backfilled to grade with approved material, well—tamped or paddled compactly in place. Do not proceed with backfill operations until piping has been inspected by the Owner or by the local inspector of the municipality in which the work is being performed. Do not perform backfilling operations except in the presence of the Owner or inspector. All piping outside the building shall be installed below the frost line. Where streets, sidewalks, etc. are disturbed, cut or damaged by this work, the expense of repairing same in a manner approved by the Owner shall be of part of this Contract.

#### Guarantee:

The guarantee provision of this specification requires prompt replacement of all defective workmanship and materials occurring within one year of job acceptance. This includes all work required to remove and replace the defective item and to make all necessary adjustments to restore the entire installation to its original specified operating condition and finish at the time of acceptance.

## DN 15400 - PLUMBING

- ope of Work:
  - Furnishing of all labor, materials, tools, transportation services, etc. necessary to complete the installation of the plumbing system and as described in these specifications, as illustrated
- on the accompanying drawings, or as directed by the Architect. All hot and cold water systems with complete connections from the water meter to all olumbing fixtures and equipment requiring water connections. These systems will be complete with controls, valves, equipment, devices and insulation.
- All soil, waste, and vent systems outside and inside the building and sewer connections to Municipal system as indicated on drawinas. Furnish and set plumbing fixtures, including all the required trim and supports.
- Trenching, pipe bedding and backfilling. All rough—in and final connection to equipment in the Kitchen and Service areas, if indicated on the drawings, including necessary traps and miscellaneous items as required. Coordinate w/ Owner and K.E.C.
- Furnish all final plumbing connections to heating and air conditioning equipment, and kitchen equipment including condensate drains, indirect waste and gas piping. See Food Service drawings for requirements.
- Meters and Utility Connections: ter: Coordinate work with the Landlord and the local water company. Furnish all labor and/or aterial (not furnished by the water company), which is required to connect to existing line d/or set meter. Install all permanent water supply lines from the point of connection and mplete the work as shown, all in accordance with the requirements of the local water utility. ner shall pay tap fees. (If required) Plumbing Contractor shall pay all work related inspection
- ees by authority having jurisdiction. wer Connections: Coordinate work with the Landlord and/or local utility company. All work and Iterials shall be in strict accordance with the requirements of the local governing authority. o fees shall be paid by Owner (if required). Plumbing Contractor shall pay all work related pection fees by authority having jurisdiction (if required).
- s: Coordinate work with local utility and furnish all labor and/or materials (not furnished by ity) which is required to provide a working utility for Owner, inclusive of meter and/or julator. Furnish system from tapping point to and in the building as required and shown on wings. Owner shall pay tap fees. Plumbing Contractor shall pay all work related inspection

Gas piping to heating, ventilating and air conditioning equipment, and cookline appliances.

Shop Drawings:

Within 15 days after award of Contract, and before any plumbing materials are delivered to the job site, submit to the Owner complete digital shop drawings in accordance with the provisions of Section 01300 of these specifications, including all plumbing fixtures, trim, drains, cleanouts, piping, valves, insulation, hangers, supports, equipment and devices proposed to be furnished and installed. Shop drawings shall not be reviewed unless they bear the review stamp of the General Contractor.

Product Handling:

In the event of damage, immediately make all repairs and replacements necessary to the approval of, and at no additional cost to the Owner.

Examination of the Site:

All Contractors submitting proposals for this work shall first examine the site and all conditions, including Local rules and regulations, thereon and /or therein. All proposals shall have taken into consideration all conditions that may affect the work under this Contract. Lack of this information will not be considered as justification for extra cost or allowances to the Contract price.

## Guarantee:

- All work performed under this section shall be guaranteed to be free of defective materials and workmanship for a period of one year after final acceptance of the work by the Owner. Upon notice received from the Owner, Architect or Engineer, of failure of any part of the guaranteed equipment during the guaranty periods, the Contractor, at no additional cost to the Owner, shall promptly replace the affected part or parts with new parts. All labor required to perform guaranteed shall be included as part of the complete warranty.
- Products:
- Description
- , Waste and Vent Piping: See plans for specifications.
- oda Sleeves: See plans for specifications.
- and Cold Water Piping: See plans for specifications.

## ndensate Drain Piping:

- See plans for specifications.
- Contractor shall furnish and install line sized condensate drains on cooler/freezer evaporator coils; with trap assembly and 2" air gap above drain as shown on the drawings. Freezer condensate piping shall be wrapped with heat tape with a minimum rating of 10 watts per ineal foot for its entire length within the freezer compartment.
- rect and Indirect Waste Piping: See plans for specifications.

- Gas piping including tap and service shall be included. Coordinate meter location with local authority
- Underground gas piping shall be Schedule 40 black steel pipe with long radius steel welding fittings. Protect pipe and fittings with manufacturer available wrapping tape applied in accordance with the manufacturer's recommendation. Other type of pipe protection of eauivalent auality will be optional with this Contractor. Installation of gas service piping and material shall meet with local gas company's approval.
- Gas piping above ground: See plans for specifications. Gas piping shall supply HVAC units and kitchen equipment if indicated on drawings by this
- Contractor Moisture traps shall be installed on each piping drop for HVAC units, water heater and kitchen equipment.

Insulation

b. See plans for specifications c. As much of the insulation as possible shall be slipped on to the piping as the piping is being connected in order to avoid cutting the insulation. All butt ends and any necessary longitudinal joints shall be sealed with rubber based adhesive. Fixtures: a. See plans for specifications. Flashings: a. All piping and vents passing through roof shall be flashed watertight with six pound to the square foot lead using sleeve flashing with base extending at least 12 inches in each direction beyond the outside diaphragm of the pipe. Turn sleeve down a minimum of 1-1/2" into top of vent pipe with lead fitting snugly Inside of pipe. All gas vent caps shall be fitted with lead fitting snugly inside of pipe. All vent caps shall be vandal proof. Verify approved flashing material and methods with roofing contractor to ensure a complete job. See details on architectural sheets. Cleanouts: a. See plans for specifications. 10. Equipment: a. Water Heater, Furnished and installed by Plumbing Contractor: Size, capacity, type and manufacturer as indicated by drawinas. The water heater shall be provided with all temperature and safety controls including ASME and ANSI Z21.22 rated temperature and pressure relief valve, gas pressure regulator (if required), drain valve, expansion tank, etc. Plumber shall make water, gas and relief line connections with cutoff valves and dielectric unions in water and gas lines. b. Valves, Cocks and Faucets: Unless specifically indicated elsewhere, the valves shall be designed for not less than 126 lbs. working pressure. The valves shall have suitable valve body patterns for connection to the pipe for which they will operate. All valves with rising stems shall have back seats for packing under pressure. Cutoff valves underneath lavatories, tank type water closets, sanitary sinks and water coolers shall be chrome plated angle stop valves with soft annealed chrome plated copper connection pipes and chrome plated escutcheon plates. Gas Cocks for all Equipment: See drawings for requirements. Water cutoff valve shall be bronze solder joint, 125 lb. WOG with rising stems. Exterior hose cocks and valve fixtures to be non-freeze type, supply shut-off valves if indicated on plans. 11. Execution: All piping shall be run concealed except where shown otherwise on drawings. Valves, traps, cleanouts and other apparatus shall be installed in an inconspicuous location. Soil, waste and vent offsets and house drains shall be installed with a minimum, uniform grade of 1/4" to the foot, unless otherwise indicated or required by local codes. Hot and cold water lines shall be at least 6" apart where piping is parallel All water lines shall be run overhead and down partition walls unless no wall is provided; then run lines under slab to point of termination. All lines shall be concealed unless noted otherwise on plans. b. Hangers and Supports: PEX piping shall be supported at intervals not to exceed 6'-0" and at each change in horizontal or vertical direction. Hanger attachment to structure shall be as required by the manufacturer. Copper piping shall be supported at intervals not to exceed 7'-0'' and at each change in horizontal or vertical direction. Hanger attachment to structure shall be as required. Gas piping shall be supported at intervals not to exceed 8'-0" and at each change in horizontal or vertical direction. Attachment to structure to be as required. Hanger rods shall be standard bolt steel with machine screw threads, 3/8" diameter minimum.

a. All Water Pipes, Rain Leaders and etc, shall be insulated. Piping shall be insulated to prevent

excessive heat loss and to prevent condensation and sweating.

All piping underground shall be firmly bedded on the body of the pipe, and bell holes provided at each bell. All piping shall be installed in graded trench. Excavate, backfill and support piping as herein before specified. c. Plumbing Fixtures:

Furnish and install all plumbing fixtures complete with all equipment fittings, trimmings and accessories, as specified. All fixtures shall be Grade A. The name or trademark of the manufacturer shall be printed or

pressed on all closets and lavatories, and a label, which cannot be removed without destroying it, containing the manufacturer's name or trademark and the quality or class of the fixtures. shall be affixed to oil fixtures and not removed until after the work has been accepted. Exposed piping to fixtures shall be a product of the fixture manufacturer or approved equal

and shall be: a. Water: Chromium plated iron pipe size red brass.

b. Waste: Chromium plated tubing, except waste connections to kitchen or scullery sinks. Stops as manufactured by the fixture manufacturer, with metal—to—metal seat, shall be provided for all fixtures and equipment. Refer to schedule on drawinas for manufacturers and model numbers used as guide specifications. Numbers ns listed represent the complete workable outfits with all brass trim as necessary. Fixtures shall be white unless otherwise noted.

. Fixtures furnished by this Contractor or by the Owner shall be fitted with necessary water supplies, stops and traps with cleanout plugs under this section of the specifications. d. Tests:

The plumbing system and associated system shall be subject to constant inspection and final approval of the code authorities having jurisdiction. Tests, in addition to these included in this section, required to show code compliance, shall be performed as directed.

The soil, waste and vent lines of the sanitary systems shall be subjected to a water pressure test of not less than 10 feet of water head pressure or 54 pounds of air pressure for a duration of not less than 2 hours. During the pressure tests each joint shall be inspected for leaks. The lines shall be tested as an entire system, but all the underground and concealed lines shall be given the above test and approved before the lines are covered.

The domestic water piping system shall be subjected to a water pressure test of not less than 150 PSI for duration of not less than 2 hours. The water piping shall be tested as an entire system, but all underground and concealed lines shall be given the above test and approved before the lines are covered.

The gas system, from the meter connection and throughout the new work, shall be subjected to an air pressure test of not less than 50 PSI for a duration of not less than 4 hours and at the same time each joint and connection shall be tested by applying soap suds to each joint. The gas piping shall be tested as an entire system, but all underground and concealed lines shall be given the above test and approved before being covered. Further, each exposed joint shall be tested with soapsuds after the gas has been admitted into the system.

Should the Contractor refuse or neglect to make any tests necessary to satisfy the Owner, his representative or coding officials, that he has carried out the true intent and meaning of the specifications, the Owner may take such tests and charge the expense thereof to the Contractor.

e. Cleaning and Protection: The Contractor shall remove from the job site all debris and leftover materials for which he is responsible, clean all fixtures and equipment and repair any blemishes in the finish. The Contractor shall be held responsible for replacing fixtures where damage results from failure to provide protection during installation.

Flush Out Pipes: After the plumbing piping has been installed, inspected and approved, the piping system shall be flushed to remove any foreign matter from the pipes with chlorine or HTH solution to sanitize the new piping or as required by the local authorities. f. Maintenance:

The Contractor, throughout the guarantee period, shall maintain all parts of the plumbing fixtures and associated equipment. One month after final acceptance of the building by the Owner. the Contractor shall go over all the fixtures and test all working parts end put everything in good working order. All fixtures, including traps, shall be thoroughly cleaned and all parts put in good working order.

DRAWING COORDINATION Architectural, Landscape, Civil, Structural, Mechanical and Electrical drawings are interrelate General Contractor and all Sub Contractors shall review and coordinate the entire set of drawings and specifications

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MICHAEL LEGG ARCHITECTURE

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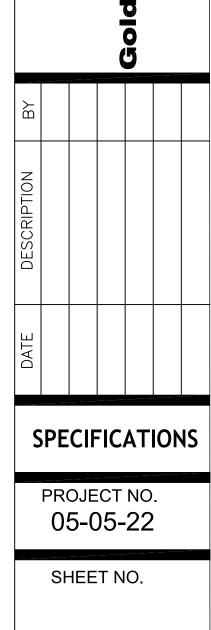
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1. Th
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C.Air Co 1. All

A.The drawings are diagrammatic to the extent that they may not indicate all offsets, bends, special fittings and exact locations.

B.Piping, ductwork, apparatus and equipment shall be installed to avoid obstructions, preserve headroom, keep openings and passageways clear, and make all operating equipment accessible for maintenance.

C.Governing Codes and Standards:

1. Install all work in accordance with the rules and regulations of the Standards of Safety, adopted and approved by the Insurance Underwriters and the latest standards recognized

by ASHRAE and SMACNA and in accordance with local code. 2. In case of conflict between said codes and the drawings, the codes shall govern in all cases; however, notify Owner, before making such change.

3. Examinations of Drawings and Site:

A.Before commencing the work, the Contractor shall carefully study the drawings, specifications and site. He shall definitely determine in advance the methods of installing and connecting the apparatus, the means for getting the equipment into place, and shall make himself similar with all of the requirements of the Contract. Equipment shall physically fit the area allocated with ample access for service.

B.The Contractor shall refer any discrepancies to the Architect for decision before proceeding with the work

4. Submittals:

A.Materials List: The Contractor shall submit a digital submittal of equipment brochures in index form within fifteen (15) days after contract is signed. All equipment and material submittals shall be submitted at one time. The drawings submitted shall bear the stamp of approval of the Contractor as evidence that the drawings have been checked by the Contractor and comply with the requirements of the Contract drawings and specifications.

#### 5. Guarantee:

A.Furnish written certified guarantee, in acceptable form, to the Owner, against defective workmanship, materials, and operating equipment; further, guarantee to rebalance and adjust entire system or any part thereof, as required for perfect operation for a period of at least one (1) year after acceptance, including cost of refrigerant charge. Repair, replace and make satisfactorily operative any and all defective items and, work holding Owner free from any cost and liability in connection therewith for the term of guarantee. The manufacturer shall provide a warranty on his unit compressors for a period of five (5) years.

6. Coordination of Other Trades:

A.The work under this section shall be coordinated with other trades to maintain a rapid and smooth construction progress with a minimum of interference.

#### 7. Painting:

A.Apply one (1) coat of Zinc Chromate, or Rustoleum to bare metal surfaces of supports, etc. color to match unit's color or as directed by Architect or Owner.

8. Clean-up:

A.All equipment and exposed surfaces shall be left smooth and clean. All plate work shall be polished and the entire premises shall be cleaned of unused materials, rubbish, and debris and grease spots.

#### 9. Products:

A.General

1. All Equipment shall be the capacity and type shown on the Equipment Schedule on the drawings and shall as manufactured by one of the manufacturers designated on that schedule or shall be an equal approved in advance by the Architect.

B.Sheetmetal Work

1. Sheetmetal: Prime steel sheets, hot dipped galvanized of the following gauges:

- (a) Up to 12" wide or diameter, #26
  (b) 13" to 30" wide or diameter, #24
- (c)  $31^{\circ}$  to  $60^{\circ}$  wide or diameter, #22

(d) Partitions forming plenum or suction chambers, #18 gauge with 1-1/2" x

1-1/2" x 3/16" galvanized iron angle and rivets for seam connection and stiffening. (e) Exposed round duct shall be dual wall insulated pipe manufactured of spiral lock seams, with minimum gage per the appropriate SMACNA Tables and per manufacturer's recommendations.

2. Duct Construction:

(a) Longitudinal Joints: Pittsburgh corner seams or snap lock.

(b) Transverse Joints: Government locks riveted at corners, constructed of metal one gauge heavier than that jointing duct sections. Ducts under 20" may be jointed with transverse capstrips.

(c) Supports: Except as otherwise specified, all duct hangers shall be constructed of 3/4" No. 16 galvanized strap, spacing not to exceed eight foot intervals. Where duct hangers exceed six feet in length, provide adequate sway bracing. All vertical ducts shall be supported on angle iron brackets.

(d) Elbows: Made for an easy flow of air for minimum friction, inside radius equal to width of duct. Provide elbows with approved duct turns where indicated on plans or where space does not permit required radius.

(e) Flexible Connection: At all fans, connections shall be Neoprene coated glass fiber cloth ends which are to be turned into abutting ends of sheetmetal or angle iron frames so as to form a gasket to form an air tight joint.

3. Workmanship and construction shall meet and exceed the standards as set forth by SMACNA

#### C.Grilles, Registers and Diffusers:

1. Sizes: As indicated on drawings.

Supply diffusers: As indicated on drawings.
 Return Air Registers: As indicated on drawings.

#### D.Duct Insulation:

1. Insulate all supply, make-up air and return air ducts with foil-faced blanket, see plans for additional Information. (Not required for exposed Spiral, Round duct).

2. Maximum 25 flame spread 50 smoke developed.

11. Execution:

#### A.Installation of Equipment: 1. General:

- (a) Install all equipment where indicated on the approved Contract drawings.
   (b) Avoid interference with structure and the work of other trades: <u>do not cut</u> into
- load carrying members without the specific approval of the Architect. (c) Temperature control system shall be as shown on the drawings.

- B. Acceptance:
  1. The system shall not be considered for acceptance until the Mechanical Sub completed work and demonstrated to the representative of the Owner, prope the system and strict compliance with the specifications, particularly in refer following articles of these specifications,
  - (a) Testing
  - (b) Cleaning(c) Instructions and Operating Manuals
  - d) Training of Operating Personnel
  - e) As-Built Drawings
  - ) Guarantee Certificates
  - (g) Start up and Test Document(h) Independent Air Balance Report

### Air Conditioning Unit Start-up and Test:

All air conditioning equipment shall be started and checked by the manufact service personnel. The manufacturer shall correct any problems arising with The manufacturer shall provide a checklist or report on the operation of the which shall be forwarded to the Architect.

D.Guarantee:

 The guarantee provision of this specification requires prompt replacement of workmanship and materials occurring within one year of job acceptance. This work required to remove and replace the defective item and to make all ne adjustments to restore the entire installation to its original specified operatir and finish at the time of acceptance.

12. Exhaust Hood and Fan System:

- A.Kitchen hoods and fans complete with roof mounting curbs; collars and damper furnished, to the job site by the Owner. Kitchen supply and exhaust, all comple mounting curbs; collars and dampers will be furnished with the kitchen equipme installed as part of the General Contract. The Contractor will hang the hoods, and fans, and furnish and install all interconnecting sheet metal ductwork as, ro and per hood manufacturer's cut sheets.
- 13. Testing, Adjusting and Balancing:
- A. The testing, adjusting and balancing of the air conditioning and hood system of performed by an independent technical firm employed directly by the Owner and part of the Mechanical Contractor's scope of work. The Air Conditioning Contract provide and coordinate the services of qualified responsible mechanics and other required to correct, repair or replace all deficient items or conditions found dur and balancing period.

or has	DIVISION 16 - ELECTRICAL SYSTEMS	7. EQUIPMENT REQUIREMENTS	1. Coordination drawings shall show major elements, components, and systems of mechanical	
ion of the	SECTION 16050 - BASIC METHODS AND REQUIREMENTS 1. RELATED DOCUMENTS	A. Equipment voltage ratings shall be in accordance with the requirements indicated on the drawings or as specified.	equipment and materials in relationship with other building components. Prepare drawings to an accurate scale of $1/4$ "=1'-0" or larger. Indicate the locations of all equipment and materials, including clearances for installing and maintaining insulation, servicing and maintaining equipment,	
	A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work of this section.	B. Prior to bid, written approval shall be obtained by the Contractor for any equipment that differs from those specified on the drawings and specifications. The Contractor shall be prepared to submit samples of the equipment when requested at no cost to the	valve stem movement, and similar requirements. Indicate movement and positioning of large equipment into the building during construction. G. Submittals for individual systems and equipment assemblies which consist of more than	MICHAEL LEGG ARCHITECTU
	<ul> <li>B. Furnish and install all electrical wiring, systems, equipment and accessories in accordance with the specifications and drawings. Capacities and ratings of motors, cable, panelboards, etc., and arrangement for specified items in general are shown on drawings.</li> </ul>	Architect/Engineer. 1. The Contractor shall furnish drawings showing all installation details, shop drawings, technical data and other pertinent information as required to determine that the equipment is equivalent in purfile and function to the associated	one item or component shall be made for the system or assembly as a whole. Partial submittals will not be considered for approval. Submittals shall be submitted for all applicable products and materials specified in each individual section of these specifications.	Michael Gregory Legg NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St San Antonio, Texas 78260
	C. All ampacities herein specified or indicated on the drawings are based on copper conductors, with the conduit and raceways accordingly sized. Aluminum conductors are not permitted.	<ul><li>quality and function to the equipment specified.</li><li>2. Approval by the Architect/Engineer of the equal equipment does not relieve the Contractor of the responsibility of furnishing and installing the equipment at no additional cost to the Owner.</li></ul>	<ul> <li>H. Make submittals for the equipment and materials in accordance with the following:</li> <li>1. Mark the submittals, "SUBMITTED UNDER SECTION".</li> </ul>	ph. 210-416 4935 michael@mlarchitecture.info www.michaelleggarchitecture.com
actory pment.	<ol> <li>MINIMUM REQUIREMENTS</li> <li>A. References to the National Electrical Code (NEC), Underwriters Laboratories, Inc. (UL), and</li> </ol>	3. Any other items required for the satisfactory installation of the equal equipment shall be furnished and installed at no additional cost to the Owner. This includes but shall not be limited	<ol> <li>Submittals shall be marked to show specification reference including the section and paragraph numbers.</li> </ol>	STERED ARCIN
nent,	National Fire Protection Association (NFPA) are a minimum installation requirement standard. Design drawings and other specification sections shall govern in those instances where requirements are greater than those specified in NEC.	to additions or changes to branch circuits, circuit protective devices, conduits, wire, feeders, controls, panels and correlation with other work, subject to the jurisdiction and approval of the Architect/Engineer.		
ective es all tion	<ul> <li>B. The rules and regulations of the Federal, State, local, civil authorities and utility companies in force at the time of execution of the contract shall become a part of this specification.</li> </ul>	C. Catalogue numbers, where given, are intended to give a basis for design, quality and function. Any other incidental equipment needed for a complete and functional installation	manufacturer's name, model or catalog numbers, catalog information, technical data sheets, shop drawings, pictures, nameplate data and test reports as required. Provide any additional information specifically requested in the individual specification section or on the drawings.	
	C. No work shall be done unless the Superintendent of the Contractor is on the job site. Work shall be properly protected, all rubbish removed promptly, and exposed work shall be carefully cleaned prior to final acceptance.	shall be provided at no additional cost. D. EQUIPMENT PROTECTION: Equipment and material shall be protected during shipment and storage against physical damage, dirt, moisture, cold and rain.	<ul> <li>b. Elementary and interconnection wiring diagrams for fire alarm, sound system, TV system and other communication systems and equipment assemblies. All terminal points and wiring shall be identified on wiring diagrams.</li> </ul>	DRAWING COORDINATION
e roof age and curbs	<ul> <li>D. The term "provide" shall include labor, materials, and equipment necessary to furnish and install, complete and operable, the item or system indicated.</li> <li>E. In decisions arising from discrepancies, interpretation of Drawings and Specifications,</li> </ul>	E. During installation, equipment, controls, controllers, circuit protective devices, etc., shall be protected against entry of foreign matter; and be vacuum cleaned both inside and outside before testing, operating and painting.	c. Parts list which shall include those replacement parts recommended by the equipment manufacturer, quantity of parts, current price and availability of each part.	Architectural, Landscape, Ci Structural, Mechanical and Electrical drawings are interr General Contractor and all S Contractors shall review and
by code	substitutes, and other pertinent matters, the decision of the Owner's representative's approval shall be final. 3. SPECIFICATIONS AND DRAWINGS	F. Damaged equipment shall be, as determined by the Architect/Engineer, placed in first class operating condition or be returned to the source of supply for repair or replacement.	I. A Fee will be charged for Engineering review of drawings received after the time allotted as described in "D" above or for plans that have been rejected two or more times due to non-compliance or incompleteness. The fee will be determined by the	coordinate the entire set of drawings and specifications
	A. Plans show location of fixtures and equipment and are intended to depict the general intent of the work in scope, layout and quality of workmanship. They are not intended to show in minute detail every or all accessories intended for the purpose of executing	<ul> <li>G. Painted surfaces shall be protected with factory installed removable heavy kraft paper, sheet vinyl or equal.</li> <li>I. Democrack a sister as any installed materials shall be as fisished with the same available of the same set of th</li></ul>	Architect/Engineer and will accompany the re-submittal in the form of a cashiers check or money order made payable to the Engineer.	
not be nnel as	the work, but it is understood that such details are a part of this work. B. Where Drawings and Specifications conflict, it shall be the responsibility of this Contractor	<ul> <li>H. Damaged paint on equipment and materials shall be refinished with the same quality of paint and workmanship as used by the manufacturer so repaired areas are not obvious.</li> <li>8. WORK PERFORMANCE</li> </ul>	J. The General Contractor will certify that all mechanical shop drawings are in conformance with the plans and specifications. Deviations from the plans and specifications shall be noted, and the specific area of the deviation clouded and in contrasting color (green)	
testing	to bring such conflict to the attention of the Architect/Engineer for clarification. In general, the Architectural Drawings shall take precedence over the Mechanical Drawings with reference to building construction. All changes from the Drawings necessary to make the work conform with the building as constructed and to fit the work of other trades or	A. Arrange, phase and perform work to assure electrical service for other buildings at all times.	with a complete explanation for the reasons for the deviation. Any redesign of the system shall be Certified by a Professional Engineer, and will be accompanied by the fees as described in "F" above.	
	to conform to the rules of authorities having jurisdiction, shall be made by the Contractor at his own expense. C. Keep a record of the locations of concealed work and of any field changes in Contract	<ul> <li>B. New work shall be installed and connected to existing work neatly and carefully. Disturbed or damaged work shall be replaced or repaired to its prior conditions.</li> <li>C. Coordinate location of equipment and conduit with other trades to minimize interferences.</li> </ul>	K. Carefully examine all shop drawings and mark—up as necessary before submitting to the Architect/Engineer for review. The consultant will only consider shop drawings bearing the contractor's stamp of approval.	
	Drawings and Specifications for each trade and, upon completion of the job, supply "As—Built" Drawings and Specifications showing in pencil on sepia reproducibles, any deviations from the original Drawings, indicating in the Specifications each manufacturer's	<ul> <li>D. Obtain and pay for all required installation inspections and deliver certificates approving installations to the Owner unless directed otherwise.</li> <li>COMPARENT INSTALLATION AND REQUIREMENTS.</li> </ul>	L. The engineer's review shall not relieve the contractor from the responsibility for deviations from drawings and specifications. The engineer's review shall be construed to apply only to general arrangement and shall not relieve the contractor from the responsibility for the correctness of details and dimensions and provision of the correct equipment.	
	name underlined or inserted whose product was used on the job. These Drawings shall indicate dimensions of buried utility lines from building walls. One set of sepia reproducibles of the original tracings will be furnished upon request for this purpose.	<ul> <li>9. EQUIPMENT INSTALLATION AND REQUIREMENTS</li> <li>A. Equipment location shall be as close as practical to locations shown on the drawings. Where architectural features govern location of work, refer to architectural drawings.</li> </ul>	M. The contractor shall retain copies of all reviewed shop drawings on the job site for reference.	
	<ol> <li>STANDARDS</li> <li>A. All material and equipment shall be listed, labeled or certified by Underwriters Laboratories, Inc., where such standards have been established. Equipment and material</li> </ol>	<ul> <li>B. Working spaces shall not be less than specified in the National Electrical Code for all voltages specified.</li> </ul>	N. In addition to the requirement of SUBMITTALS, the Owner reserves the right to request the manufacturer to arrange for the Owner's representative(s) to see typical active systems in operation, when there has been no prior experience with the manufacturer or the type of	
	which are not covered by UL Standards will be accepted provided equipment and material is listed, labeled, certified or otherwise determined to meet safety requirements of a nationally recognized testing laboratory. Equipment of a class which no nationally	<ul> <li>C. Inaccessible Equipment:</li> <li>1. Where the Owner/Architect/Engineer determines that the Contractor has installed equipment not conveniently accessible for operation and maintenance, equipment shall be removed and reinstalled</li> </ul>	equipment being submitted. 12. CUTTING, PATCHING, EXCAVATION, BACKFILL, AND LAYOUT	
	recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe, will be considered if inspected or tested in accordance with national industrial standards, such as NEMA, or ANSI. Evidence of compliance shall include certified test reports and	as directed at no additional cost to the Owner. 2. "Conveniently accessibility" is defined as being capable of being reached without the use of	<ul> <li>A. Provide openings and excavation required for the installation of the electrical work. Patch work and backfill as required. Finished work shall match the existing adjoining work.</li> </ul>	
	definitive shop drawings. B. Definitions:	ladders, or without climbing or crawling under or over obstacles such as motors, pumps, belt guards, transformers, piping, and duct work.	<ul> <li>B. Verify all conditions affecting the work to be performed under this contract.</li> <li>C. Carefully verify measurements at the site, determine the exact location of chases and openings required. Provide sleeves, inserts, and hangers as required. No columns,</li> </ul>	at
	1. Listed: Equipment is "listed" if of a kind mentioned in a list which: a. Is published by a nationally recognized laboratory which makes periodic inspection	D. Equipment and Material:	beams, joists, building foundations nor any other structural building component shall be cut, drilled or disturbed in any way. Conflicts shall immediately be brought to the attention of the Architect/Engineer.	Ð
	of production of such equipment. b. States that such equipment meets nationally recognized standards or has been tested and found safe for use in a specified manner. 2. Labeled: Equipment is labeled if:	<ol> <li>New equipment and material shall be installed, unless otherwise specified.</li> <li>Equipment and material shall be designed to assure satisfactory operation and operating life for environmental conditions where being installed. NEC and other code requirements shall apply to the installation in areas requiring special protection such as explosion-proof, watertight and</li> </ol>	D. All excavation on sites containing existing buildings and existing services, shall be done with hand shovel to avoid damage to existing services. Where hand shovel is not practical extreme caution shall be taken when performing excavation. The contractor will be resposible for locating any existing utilities. Any damage incurred by the Contractor	emo Bd
	a. It embodies a valid label, symbol, or other identifying mark of a nationally recognized testing laboratory such as Underwriters Laboratories, Inc.	weatherproof construction.	shall be repaired by the Contractor in a manner approved by the Architect/Engineer at no cost to the Owner and with no extension of time limitation.	מ צ׳
	<ul> <li>b. The laboratory makes periodic inspections of the production of such equipment.</li> <li>c. The labeling indicates compliance with nationally recognized standards or tests to determine safe use in a specified manner.</li> </ul>	<ul><li>E. Utility Services:</li><li>1. Determine utility connection requirements and include in the base bid all costs to the Owner for utility service.</li></ul>	<ul> <li>13. EXPERIENCE</li> <li>A. The Contractor performing this work shall be a licensed, reputable firm, regularly performing the type of work incorporated in this project and who also maintains, as part</li> </ul>	rant ksbu
	3. Certified: Equipment is "certified" if:	2. Include all costs for temporary service, temporary routing of service or any other requirements of a temporary nature associated with the utility service.	of the firm, a service department with qualified personnel who regularly perform this type of work. The Contractor shall, upon request, show evidence of at least three jobs of similar character and size installed within the preceding two years.	ric
	a. Equipment has been tested and found by a nationally recognized testing laboratory to meet nationally recognized standards or to be safe for use in a specified manner.	F. Continuity of Service:	14. ELECTRICAL WORK FOR MECHANICAL SYSTEMS A. Factory installed starters, controllers, and control equipment mounted in manufactured	lest
	b. Production is periodically inspected by a nationally recognized testing laboratory. c. It bears a label, tag, or other record of certification.	1. No service shall be interrupted or changed without permission from the Architect and the Owner. Written permission shall be obtained before any work is started.	<ul> <li>A. Factory installed statters, controllers, and control equipment mounted in manufactured mechanical equipment necessary for mechanical equipment operation shall be furnished under Division 15 Mechanical.</li> <li>B. Power wiring for motors and installation of starters shall be under Division 16 Electrical.</li> </ul>	X T T T T T
	4. Nationally recognized Testing Laboratory: A testing laboratory which is approved, in accordance with OSHA regulations, by the Secretary of Labor.	2. When interruption of services is required, all persons concerned shall be notified and a prearranged time agreed upon.	<ul> <li>C. Temperature, humidity, pressure and similar controls essential to the operation of mechanical systems, and wiring and conduit thereof, including interlock wiring, shall be under Division 15 of Specifications, installed in accordance with requirements of Division</li> </ul>	Chic 311
	<ol> <li>QUALIFICATIONS (PRODUCTS AND SERVICES)</li> <li>A. Manufacturers Qualifications: The manufacturer shall regularly and presently produce, as one of the manufacturer's principal products, the equipment and material specified for</li> </ol>	<ul> <li>G. Concrete Work:</li> <li>1. Provide all cast-in-place concrete shown on the documents unless noted otherwise. Concrete work shall conform to all applicable Division 2 and 3 specification sections.</li> </ul>	16. D. Motors shall be furnished under Division 15 Mechanical of capacity required to operate equipment specified, but shall not be less than that specified.	c Ñ
	<ul> <li>this project, and shall have manufactured the item for at least five years, unless otherwise noted elsewhere in the specifications or on the drawings.</li> <li>B. Product Qualification:</li> </ul>	<ol> <li>Provide all anchor bolts, metal shapes and templates required to be cast in concrete or used to form concrete for support of electrical equipment.</li> </ol>	<ul> <li>E. All low voltage (120V and under) temperature control wiring for Division 15 equipment shall be provided under by Division 15, installed in accordance with requirements of Division 16.</li> </ul>	<b>PIO</b>
	1. Manufacturer's product shall have been in satisfactory operation on three installations of similar size and type, as this project, for approximately three years.	10. EQUIPMENT IDENTIFICATION A. In addition to the requirements of the National Electrical Code, install an identification	F. Division 15 shall provide conduit when required for control wiring, installed in accordance with Division 16 requirements.	
	2. The Owner reserves the right to require the contractor to submit a list of installations where the products have been in operation before approval of said products.	nameplate which will clearly indicate information required for use and maintenance of items such as switchboard, panelboards, cabinets, safety switches, separately enclosed circuit breakers, motor starters, communications systems cabinets, control devices and other significant equipment.	15. MOTORS A. All motors shall be furnished and installed under Division 15 Mechanical and shall be wired under Division 16 Electrical.	
	C. Service Qualifications: There shall be a permanent service organization maintained or trained by the manufacturer which will render satisfactory service to this installation within four hours of receipt of notification that service is needed. Submit name and address of service organizations.	<ul> <li>B. Nameplates shall be laminated white phenolic resin with a black core with engraved lettering, a minimum of 3/16-inch high. Nameplates that are furnished by manufacturer as a standard catalog item, or where other method of identification is herein specified, are exceptions. Hand written marker is not acceptable.</li> </ul>	<ul> <li>16. REMOVAL OF RUBBISH</li> <li>A. Contractor shall keep premises free from accumulations of waste material or rubbish caused by his employees or work. At completion of work, he shall remove all his tools, scaffolding, surplus materials, and rubbish from building and site. He shall leave</li> </ul>	CRIPTION
	<ol> <li>MANUFACTURED PRODUCTS</li> <li>A. Materials and equipment furnished shall be of current production by manufacturers</li> </ol>	<ul> <li>11. SHOP AND ERECTION DRAWINGS AND SAMPLES</li> <li>A. The Architect/Engineer's approval shall be obtained for all equipment and material before</li> </ul>	premises and his work in a clean orderly condition acceptable to the Architect/Engineer.	DES
	regularly engaged in the manufacture of such items, for which replacement parts should be available. Items not meeting this requirement, but which otherwise meet technical specifications, and merits of which can be established through reliable test reports or physical examination of representative samples, will be considered.	<ul> <li>delivery to the job site. Delivery, storage or installation of equipment or material which has not had prior approval will not be permitted at the job site. Submittals shall be made for all equipment and systems as indicated in the respective specification section.</li> <li>B. All submittals shall include adequate descriptive literature, catalog cuts, shop drawings and</li> </ul>	<ul> <li>A. All equipment provided under this section shall operate under all conditions of load free of objectionable sound and vibration. Sound and vibration conditions considered objectionable shall be corrected in an approved manner.</li> </ul>	
	<ul> <li>B. When more than one unit of the same class of equipment is required, such units shall be the product of a single manufacturer.</li> <li>C. Equipment Assemblies and Components:</li> </ul>	other data necessary for the Architect/Engineer to ascertain that the proposed equipment and materials comply with specification and drawing requirements. Catalog cuts submitted for approval shall be legible and clearly identify equipment being submitted.	<ul> <li>B. Vibration and sound control shall be by means of approved vibration eliminators or sound attenuators in a manner as specified and as recommended by the manufacturer.</li> <li>18. CLEANING AND ADJUSTMENTS</li> </ul>	
	1. All components of an assembled unit need not be products of the same manufacturer, however, the assembled unit shall be the responsibility of a single manufacturer and warranted as	C. Shop and erection drawing submittals shall conform to the requirements of the General Conditions and Division-1 specifications except as modified herein.	A. Upon completion of the work, Contractor shall clean and re—lamp all light fixtures, clean and identify all equipment, adjust and test all equipment and apparatus which he has	SPECIFICATIO
	such. 2. Manufacturers of equipment assemblies, which include components made by others, shall assume complete responsibility for the final assembled unit.	D. Submit required and/or requested shop and erection drawings, for review by Architect/Engineer before ordering or installing any equipment or material. Equipment or material ordered or installed before Architect/Engineer review may not be accepted and may have to be removed from the project if deemed ungeceptable.	installed and make certain such apparatus and mechanisms are in proper working order and ready to test. B. During construction protect all conduit and equipment from damage and dirt. Cap the	PROJECT NO.
	3. Components shall be compatible with each other and with the total assembly for the intended service.	may have to be removed from the project if deemed unacceptable. E. Shop drawings shall consist of manufacturer's scale drawings, cuts or catalogs, including descriptive literature which shall clearly indicate the construction, material, physical	<ul> <li>During construction protect on conduit and equipment from duringe and dirt. Cup the open ends of all conduit and equipment.</li> <li>19. STORAGE OF MATERIALS</li> </ul>	05-05-22
	4. Constituent parts which are similar shall be the product of a single manufacturer. D. All factory wiring shall be identified on the equipment being furnished and on all wiring	dimensions, wiring diagrams and complete operating data clearly marked for each item. Data of general nature will not be accepted. F. Shop drawings shall be digitally submitted no later than 60 days after the contract has	<ul> <li>A. All materials stored on site shall be properly protected from injury or deterioration.</li> <li>Materials shall not be stored in contact with ground or floor.</li> <li>B. Do not remove manufacturer's packing materials until ready to install. Materials showing</li> </ul>	SHEET NO.
	diagrams.	been awarded.	B. Do not remove manufacturer's packing materials until ready to install. Materials showing signs of corrosion, improper handling or storage shall be replaced at no cost to the	

#### DIVISION 16 - ELECTRICAL SYSTEMS (CONTINUED)

SECTION 16050 - BASIC METHODS AND REQUIREMENTS (CONTINUED)

- 20. WATERPROOFING
- A. Where any work pierces waterproofing including waterproof concrete, the method of installation shall be as approved by the Owner before the work is done.
- B. Provide all necessary sleeves, caulking and flashing required to make openings absolutely watertight. Waterproof flashing materials shall be compatible with base materials.
- 21. TESTS
- A. Contractor shall make all tests required to establish the adequacy, quality, safety, completed status and satisfactory operation of all systems to the satisfaction of the Architect/Engineer. Provide all instruments, labor and services necessary to conduct tests.
- 22. INSTRUCTIONS
- A. Fully instruct Owner's personnel in the care and operation of electrical systems, including all communications, sound and fire alarm systems and furnish a letter to the Architect/Engineer advising the particular person(s) who have received such instruction.
- 23. GUARANTEE
- A. Equipment shall be started, tested, adjusted, and placed in satisfactory operating condition. Furnish a letter addressed to the Architect/Engineer advising that the completed systems have been installed in accordance with the Plans and Specifications and that they are in proper operating condition. The Owner shall receive a written quarantee covering all defects in workmanship and material for a period of one year from date of final acceptance. Any defects appearing within this year period shall be repaired without additional cost to the Owner.
- 24. ACCEPTANCE
- A. Before requesting final inspection:
- 1. Complete all work required. If any items are held in abeyance as incomplete for final inspection, list such items together with explanation for delay.
- 2. Submit statement that equipment is properly installed, adjusted, tested and operation is satisfactory.
- 3. Certify in writing to the Architect/Engineer that the Owner's representative has been instructed as to the care and operation of the system and that cataloa service and maintenance information has been turned over to the Architect/Engineer.
- 4. Submit copy of written guarantee.
- 5. Submit copy of other data as may be outlined in these specifications.
- B. Copies of the above data shall be submitted to the Architect/Engineer prior to requesting final inspection.
- 25. SINGULAR NUMBER
- A. Where any device or part of equipment is referred to in these specifications in the singular number (such as "the switch"), such reference shall be deemed to apply to as many such devices as are required to complete the installation as shown on the drawinas.

SECTION 16110 - RACEWAYS

- 1. RELATED DOCUMENTS
- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work of this section.
- B. This section is a Division-16 Basic Electrical Materials and Methods section, and is part of each Division-16 section making reference to electrical raceways specified herein.
- 2. DESCRIPTION OF WORK
- A. Extent of raceway work is indicated by drawings and schedules. Types of raceways specified in this section include the following:
- 1. Electrical metallic tubing (EMT).
- 2. Liquid tight flexible metal conduit
- 3. Rigid metal conduit.
- 4. Flexible metal conduit.
- 5. Rigid non-metallic conduit.
- 3. QUALITY ASSURANCE
- A. Manufacturers: Firms regularly engaged in manufacture of raceway systems of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects with electrical raceway work similar to that required for this project. C. Codes and Standards:
- 1. NEMA Compliance: Comply with applicable requirements of NEMA Standards Publications pertaining to raceways.

2. UL Compliance and Labeling: Comply with applicable requirements of UL safety standards pertaining to electrical raceway systems. Provide raceway products and components which have been UL-listed and labeled.

3. NEC Compliance: Comply with applicable requirements of NEC pertaining to construction and installation of raceway systems.

4. SUBMITTALS

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- A. Product Data: Submit manufacturer's technical product data, including specifications and installation instructions, for each type of raceway system required. Include data substantiating that materials comply with requirements.
- 5. METAL CONDUIT AND TUBING
- A. General: Provide metal conduit, tubing, and fittings of types, grades, sizes, and weights (wall thicknesses) for each service indicated.
- B. Rigid Steel Conduit: Provide rigid steel, zinc-coated, threaded type conforming to FS WW-C-581, ANSI C80.1 and UL 6.
- C. Rigid Metal Conduit Fittings: Cast malleable iron, galvanized or cadmium plated, conforming to FS W-F-408, ANSI C80.4.
- 1. Use compression type fittings for connections.
- 2. Use compression type fittings for other miscellaneous connections.
- D. Electrical Metallic Tubing (EMT): FS WW-C-563, ANSI C80.3 and UL 797.
- E. EMT Fittings: FS W-F-408, ANSI C80.4. Die cast or malleable iron.
- 1. Use compression fittings for raintight connections.
- 2. Use compression type for concrete type connections.
- 3. Use compression type fittings for miscellaneous connections.
- F. Liquid-Tight Flexible Metal Conduit: Provide liquid-tight flexible metal conduit; construct of single strip, flexible, continuous, interlocked, and double-wrapped steel; galvanized inside and outside; coat with liquid-tight jacket of flexible polyvinyl chloride (PVC). Shall be Sealtite or equal.
- G. Liquid-Tight Flexible Metal Conduit Fittings: FS W-F-406, Type 1, Class 3, Style G. Provide cadmium plated, malleable iron fittings with compression type steel ferrule and neoprene gasket sealing rings, with insulated, or non-insulated throat.
- H. Flexible Metal Conduit: FS WW-C-566 and UL 1. Formed from continuous length of spiral wound, interlocked zinc-coated strip steel.
- I. Flexible Metal Conduit Fittings: Provide conduit fittings for use with flexible steel conduit of threadless hinged clamp type.

- 6. NONMETALLIC CONDUIT
- A. General: Provide nonmetallic conduit, ducts, and fittings of typ each service indicated. Where types and grades are not indicat determined by Installer to fulfill wiring requirements which compl for raceways.
- B. Electrical Plastic Conduit:

- C. PVC Conduit and Tubing Fittings: NEMA TC 3, mate and match and material.
- MANUFACTURERS
- A. Subject to compliance with requirements, provide conduit bodies Appleton Electric; Div of Emerson Electric Co.
- Arrow-Hart Div; Crouse-Hinds Co.
- Bell Electric Div; Square D Co.
- Gould, Inc.
- Killark Electric Mfg. Co.
- 0-Z/Gedney Div; General Signal Co.
- Spring City Electrical Mfg. Co., or equivalent.
- INSPECTION
- A. Examine areas and conditions under which raceways are to be which will support raceways. Notify Contractor in writing of co proper completion of the work. Do not proceed with work until have been corrected in manner acceptable to Installer.
- INSTALLATION OF RACEWAYS
- A. General: Install raceways as indicated; in accordance with man installation instructions, and in compliance with NEC, and NECA' Installation". Install units plumb and level, and maintain manufo clearances.
- Coordinate with other work including wires/cables, boxes, and p interface installation of electrical raceways and components with
- 10. INSTALLATION OF CONDUITS
- A. General: Install concealed conduits in new construction work, e above hung ceilings. Run conduits concealed in existing work specifically indicated on the drawings.

- b. Moist or humid atmosphere where condensate can be expec c. Corrosive atmosphere.
- d. Subjected to water spray or dripping oil, water, or grease, 7. Use hot-dipped galvanized conduit where conduit is routed outdoors
- weather.

## 8. Electrical contractor will be responsible for the following for all under

- a. Trenching and Excavation b. Backfill
- c. Compaction

#### 9. MC cable may be used only where approved for use by the owner, a authority having jurisdiction and approved by the Engineer. Where used, concealed and supported in accordance with NEC.

- C. Cut conduits straight, properly ream, and cut threads for heavy
- D. Field bend conduit with benders designed for purpose so as not internal diameter.
- E. Minimum conduit size shall be 1/2" unless noted otherwise. He minimum 3/4".
- F. Fasten conduit terminations in sheet metal enclosures by two (2 with bushings. Install locknuts inside and out side enclosure.
- G. Conduits are not to cross pipe shafts, or ventilating duct openin H. Keep conduits a minimum distance of 6" from parallel runs of other sources of heat. Wherever possible, install horizontal race steam piping.

horizontal or cross runs in building partitions or side walls.

1. In no case shall conduit be exposed to view in areas accessible to the public nor in any

kitchen or other food services areas. The contractor shall be responsible for obtaining written

approval for all and any exposed conduit routing prior to installation. Any non-approved exposed

conduit will be subject to removal and re-routing by the contractor at no additional expense to

the owner. The contractor shall be responsible for coordinating all conduit installation with

structural members, sprinkler piping, ductwork, lighting, etc.

L. Exposed Conduits:

		1
. Straight Terminal Connectors: One piece body, female end with clamp and deep slotted nachine screw for securing conduit, and male threaded end provided with locknut.	2. Install any approved exposed conduits and extensions from concealed conduit systems neatly, parallel with, or at right angles to walls of building.	<u>SEC</u>
2. 450 or 900 Terminal Angle Connectors: Two-piece body construction with removable upper section, female end with clamp and deep slotted machine screw for securing conduit, and male hreaded end provided with locknut.	<ul> <li>3. Install exposed conduit work as not to interfere with ceiling inserts, lights or ventilation ducts or outlets.</li> <li>4. Support all conduits by use of hangers, clamps, or clips. Support conduits on each side of bends and on spacing not to exceed following: up to 1": 6'-0"; 1-1/4" and over:</li> </ul>	
6. NONMETALLIC CONDUIT	8'-0". All conduits shall be adequately supported to prevent any noticable deflection, vibration or rattle. M. Conduit Fittings:	
A. General: Provide nonmetallic conduit, ducts, and fittings of types, sizes, and weights for each service indicated. Where types and grades are not indicated, provide proper selection determined by Installer to fulfill wiring requirements which comply with provisions of NEC	<ol> <li>Construct locknuts for securing conduit to metal enclosure with sharp edge for digging into metal, and ridged outside circumference for proper fastening.</li> </ol>	2.
for raceways. B. Electrical Plastic Conduit:	2. Bushings for terminating conduits smaller than $1-1/4$ " are to have flared bottom and ribbed sides, with smooth upper edges to prevent injury to cable insulation.	1.
. Heavy Wall Conduit: Schedule 40, 90 C, UL—rated, construct of polyvinyl chloride and conforming to NEMA TC—2, for direct burial, or normal above ground use, UL—listed and in conformity with NEC Article 347, ANSI C33.91.	<ol> <li>Install insulated type bushings for terminating conduits 1-1/4" and larger. Bushings are to have flared bottom and ribbed sides. Upper edge to have phenolic insulating ring molded into bushing.</li> </ol>	2.
C. PVC Conduit and Tubing Fittings: NEMA TC 3, mate and match to conduit or tubing type and material.	<ul><li>4. All bushings of standard or insulated type to have screw type grounding terminal.</li><li>5. Miscellaneous fittings such as reducers, chase nipples, 3-piece unions, split couplings,</li></ul>	4.
7. MANUFACTURERS	and plugs to be specifically designed for their particular application. N. Concealed Conduits:	1.
<ul> <li>A. Subject to compliance with requirements, provide conduit bodies of one of the following:</li> <li>Appleton Electric; Div of Emerson Electric Co.</li> </ul>	<ol> <li>Metallic raceways installed underground or in floors below grade, or outside are to have conduit threads painted with corrosion inhibiting compound before couplings are assembled. Draw up coupling and conduit sufficiently tight to ensure watertightness.</li> </ol>	2.
Arrow-Hart Div; Crouse-Hinds Co. Bell Electric Div; Square D Co. Gould, Inc.	<ol> <li>Conduit in concrete slabs: Separate conduits by not less than diameter of largest conduit to ensure proper concrete bond. Conduits must have a minimum of three-quarter inch (3/4") concrete cover.</li> </ol>	4.
Killark Electric Mfg. Co.	3. Embedded conduit diameter is not to exceed one-third (1/3) of slab thickness.	0.
0—Z/Gedney Div; General Signal Co. Spring City Electrical Mfg. Co., or equivalent.	Conduit shall not be run in slabs less than 3 inches thick. O. Underground Duct Banks and Underground Conduits: All underground conduits shall be	
<ul> <li>A. Examine areas and conditions under which raceways are to be installed, and substrate</li> </ul>	installed per the National Electrical Code, in accordance with standard industry practices and in accordance with other sections of these specifications. Conduits in duct banks shall be neatly and securely installed in straight lines with manufactured elbows used for all turns and bends. Provide all required trenching, excavation, backfill, compaction,	
which will support raceways. Notify Contractor in writing of conditions detrimental to proper completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.	supports, manholes, etc. for a complete installation. Trenching, excavation, backfill and compaction shall be performed in accordance with applicable Division 2 and Division 3 sections of these specifications.	
<ol> <li>INSTALLATION OF RACEWAYS</li> <li>A. General: Install raceways as indicated; in accordance with manufacturer's written</li> </ol>	P. Low Voltage Control:	
installation instructions, and in compliance with NEC, and NECA's "Standards of Installation". Install units plumb and level, and maintain manufacturer's recommended clearances.	1. Mechanical contractor (Division 15) to provide and install all necessary wire and raceway (EMT conduit) for low voltage control such as thermostats, timers etc., unless specifically shown otherwise on the drawings. Raceways shall be installed in accordance with Division 16 sections. Final wire connections shall be by mechanical	
<ul> <li>B. Coordinate with other work including wires/cables, boxes, and panel work, as necessary to interface installation of electrical raceways and components with other work.</li> <li>0. INSTALLATION OF CONDUITS</li> </ul>	contractor. 11. INSTALLATION OF RACEWAYS AND WIREWAYS	
A. General: Install concealed conduits in new construction work, either in walls, slabs, or above hung ceilings. Run conduits concealed in existing work where practical or specifically indicated on the drawings.	A. General: Mechanically assemble metal enclosures, and raceways for conductors to form continuous electrical conductor, and connect to electrical boxes, fittings and cabinets as to provide effective electrical continuity and rigid mechanical assembly.	
. Mechanically fasten together metal conduits, enclosures, and raceways for conductors to form continuous electrical conductor. Connect to electrical boxes, fittings, and cabinets to provide electrical continuity and firm mechanical assembly.	<ol> <li>Avoid use of dissimilar metals throughout system to eliminate possibility of electrolysis. Where dissimilar metals are in contact, coat all surfaces with corrosion inhibiting compound before assembling.</li> </ol>	4.
2. Avoid use of dissimilar metals throughout system to eliminate possibility of electrolysis. Where Iissimilar metals are in contact, coat surfaces with corrosion inhibiting compound before Issembling.	<ol> <li>Install expansion fittings in all raceways wherever structural expansion joints are crossed.</li> <li>Make changes in direction of raceway run with proper fittings, supplied by raceway</li> </ol>	
3. Install miscellaneous fittings such as reducers, chase nipples, 3—piece unions, split couplings, and plugs that have been specifically designed and manufactured for their particular application.	manufacturer. No field bends of raceway sections will be permitted. 4. Properly support and anchor raceways for their en tire length by structural materials.	1.
nstall expansion fittings in raceways every 200' linear run or wherever structural expansion joints are crossed.	<ul> <li>Raceways are not to span any space unsupported. Supporting conduits from ceiling grid, other conduits, ductwork or other non-structural members will not be permitted.</li> <li>Use boxes as supplied by raceway manufacturer wherever junction, pull or devices</li> </ul>	2.
B. Conduit Installation: Follow minimum requirements in all areas as follows:	boxes are required. Standard electrical "handy" boxes, etc. shall not be permitted for use with surface raceway installations.	2.
. Use rigid steel galvanized conduit in service splines, where exposed to weather or subject to saturation with liquids, or subject to possible physical damage from vehicles or heavy machinery.		
2. Use steel EMT above hung ceilings in offices, corridors, toilets, and lab areas, and in spaces vith exposed ceilings.	12. COMMUNICATIONS SYSTEMS RACEWAY A. Communications systems raceways shall be provided for each telephone, data, security,	3.
3. Use rigid steel conduit or PVC heavy wall (Schedule 40) when raceways run below grade, under loors on grade or in concrete. All bends and elbows greater than 45 degrees shall be galvanized igid steel conduit or schedule 80 pvc. All risers to cabinets and boxes when conduit is to be	sound, ITV, and fire alarm outlet or device indicated on the drawings. Conduit shall be as indicated on the drawings and as required for each system.	
exposed shall be rigid steel conduit. 4. Conduit in walls to recessed panels and boxes shall be in accordance with NEC. PVC up to irst point of termination with 4'—0" maximum in wall and EMT above 4'—0".		
5. Use flexible conduit in movable partitions and from outlet boxes to lighting fixtures, and final 24" of connection to motors, control items or any equipment subject to movement or vibration, and in cells of precast concrete panels.		
5. Use liquid—tight flexible conduit where subjected to one or more of the following conditions:		1. loc
a. Exterior location. b. Moist or humid atmosphere where condensate can be expected to accumulate.		2.
c. Corrosive atmosphere. d. Subjected to water spray or dripping oil, water, or grease, including kitchen areas. 7. Use hot-dipped galvanized conduit where conduit is routed outdoors or in anyway exposed to		loc flar 3.
veather. 3. Electrical contractor will be responsible for the following for all underground conduits:		cor
a. Trenching and Excavation b. Backfill		4. ma sha
c. Compaction 9. MC cable may be used only where approved for use by the owner, approved by the local authority having jurisdiction and approved by the Engineer. Where used, MC cable shall be concealed and supported in accordance with NEC.		5. and cop
		6. THI
<ul> <li>C. Cut conduits straight, properly ream, and cut threads for heavy wall conduit deep and clean.</li> <li>D. Field hand conduit with headers designed for surpose as as not to distort per vary.</li> </ul>		
D. Field bend conduit with benders designed for purpose so as not to distort nor vary internal diameter.		
<ul> <li>E. Minimum conduit size shall be 1/2" unless noted otherwise. Homeruns shall be a minimum 3/4".</li> <li>F. Fasten conduit terminations in sheet metal enclosures by two (2) locknuts, and terminate</li> </ul>		
with bushings. Install locknuts inside and out side enclosure.		1. ma
<ul> <li>H. Keep conduits a minimum distance of 6" from parallel runs of flues, hot water pipes or other sources of heat. Wherever possible, install horizontal raceway runs above water and steam piping.</li> </ul>		pro req sty
I. Use of running threads at conduit joints and terminations is prohibited. Where required, use 3-piece union or split coupling.		
<ul> <li>J. Complete installation of electrical raceways before starting installation of cables/wires within raceways.</li> <li>K. Install conduits so as not to damage or run through structural members. Avoid</li> </ul>		
motan conducts to as not to damage of run through structural members. Avoid		1

SECTION 16120 - WIRES AND CABLES

- RELATED DOCUMENTS
- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. This section is a Division-16 Basic Electrical Materials and Methods section, and is part of each Division-15 and -16 section making reference to electrical wires and cables specified herein
- 2. DESCRIPTION OF WORK
- A. Extent of electrical wire and cable work is indicated by drawings and schedules. B. Types of electrical wire, cable, and connectors specified in this section include the following:
- Copper conductors.
- 2. Fixture wires.
- 3. Elexible cords and cables
- Wirenut connectors.

C. Applications of electrical wire, cable, and connectors required for project are as follows: For motor-branch circuits.

- 2. For power distribution circuits
- 3. For lighting circuits
- 4. For appliance and equipment circuits
- 3. QUALITY ASSURANCE
- A. Manufacturers: Firms regularly engaged in manufacture of electrical wire and cable products of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience with projects utilizing electrical wiring and cabling work similar to that required for this project
- C. NEC Compliance: Comply with NEC requirements as applicable to construction, installation and color coding of electrical wires and cables.
- D. UL Compliance: Comply with applicable requirements of UL Std 83, "Thermoplastic-Insulated Wires and Cables", and Std 486A, "Wire Connectors and Soldering Lugs for Use with Copper Conductors".
- E. UL Compliance: Provide wiring/cabling and connector products which are UL-listed and laheled
- F. NEMA/ICEA Compliance: Comply with NEMA/ICEA Std Pub/ No.'s WC 5. "Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy", and WC-30, "Color Coding of Wires and Cables", pertaining to electrical power type wires and cables.
- G. IEEE Compliance: Comply with applicable requirements of IEEE Stds 82, "Test Procedures for Impulse Voltage Tests on Insulated Conductors", and Std 241, "IEEE Recommended Practice for Electric Power Systems in Commercial Buildings" pertaining to wiring systems
- H. ASTM Compliance: Comply with applicable requirements of ASTM B1, 2, 3, 8, and D-753. Provide copper conductors with conductivity of not less than 98% at 20oC (68oF). AVAILABLE MANUFACTURERS
- A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
- Wire and Cable:
  - a. American Wire and Cable Co.
  - b. Anaconda-Ericsson Inc; Wire and Cable Div. c. Belden Div; Cooper Industries
- . Connectors:
  - a. AMP, Inc.
  - b. Appleton Electric Co.
  - c. Burndy Corporation
  - d. Thomas and Betts Corp.
- 3. WIRES, CABLES, AND CONNECTORS
- A. General: Provide electrical wires, cables, and connectors of manufacturer's standard materials, as indicated by published product information; designed and constructed as recommended by manufacturer, for a complete installation, and for application indicated. Except as otherwise indicated, provide copper conductors with conductivity of not less than 98% at 20oC (68oF).
- B. Building Wires: Provide factory-fabricated wires of sizes, ampacity ratings, and materials for applications and services indicated. Where not indicated, provide proper wire selection as determined by Installer to comply with project's installation requirements, NEC and NEMA standards. Select from the following UL types, those wires with construction features which fulfill project requirements:

Type THW, THHN, THWN, THHW, THHN/THWN: Unless otherwise indicated, all conductors for dry locations requiring a conductor temperature rating 75oC (167oF) or less. Insulation shall be flame retardant, moisture and heat resistant, thermoplastic. Conductor shall be annealed copper.

2. Type THWN, THHW, THHN/THWN: Unless otherwise indicated, all conductors for wet or dry locations requiring a conductor temperature rating of 75oC (167oF) or less. Insulation shall be flame retardant, moisture and heat resistant thermoplastic. Conductor shall be annealed copper.

3. Type THHN, THHW: Unless otherwise indicated, all conductors for dry locations requiring a conductor temperature rating of 90oC (194oF) or less. Insulation shall be flame retardant, moisture and heat resistant thermoplastic. Conductor shall be annealed copper.

Conductors for use at 600 volts or below shall be 600 volt rated. Wire No. 12 and smaller may be solid or stranded and wire No. 10 and larger shall be stranded only. Stranded conductors shall terminate in crimp type lugs.

5. Motor circuit branch wiring and associated control wiring: Provide type THHN insulation in dry and damp locations. Provide type THHW insulation in wet locations. All motor wiring to be stranded copper.

. Wiring in fluorescent fixture channels: Provide conductors with a 90C temperature rating, type THHN or TFFN insulation.

- C. Cables: Provide UL-type factory-fabricated cables of sizes, ampacity ratings, and materials and jacketing/sheathing as indicated for services indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements, NEC and NEMA standards.
- D. Connectors:

General: Provide UL-type factory-fabricated, metal connectors of sizes, ampacity ratings, materials, types and classes for applications and for services indicated. Where not indicated, provide proper selection as determined by Installer to comply with project's installation requirements, NEC and NEMA standards. Select from the following, those types, classes, kinds, and styles of connectors to fulfill project requirements:

•	Туре:	Pressure.	
	~		

- b. Class: Insulated.
- c. Kind: Copper (for Cu to Cu connection).
- d. Style: Butt connection.
- e. Style: Elbow connection.
- f. Style: Combined "T" and straight connection.
- g. Style: "T" connection.
- h. Style: Split-bolt parallel connection.
- i. Style: Tap connection
- j. Style: Piatail connection.
- k. Style: Wirenut connection.

- 6. INSTALLATION OF WIRES AND CABLES A. General: Install electrical cables, wires, and wiring connectors as indicated, in compliance with applicable requirements of NEC, NEMA, UI, and NECA's "Standard of Installation", and in accordance with recognized industry practices.
- B. Coordinate wire/cable installation work including electrical raceway and equipment installation work, as necessary to properly interface installation of wires/cables with other work.
- C. Pull conductors simultaneously where more than one conductor is being installed in the same raceway.
- D. Use pulling compound or lubricant, where necessary; compound used must not deteriorate conductor or insulation.
- E. Use pulling means including, fish tape, cable, rope and basket weave or wire/cable grips which will not damage cables or raceway. Any cable damaged during installation shall be completely replaced.
- F. Keep conductor splices to minimum. No joints shall be made in conductor except at outlet boxes or splice boxes. Newly installed conductors shall not be spliced unless specifically noted on the drawings.
- G. Install splices and tapes which possess equivalent-or-better mechanical strength and insulation ratings than conductors being spliced.
- H. Use splice and tap connectors which are compatible with conductor material.
- I. Tighten electrical connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std 486A and B.
- J. At least eight inches (8") of slack wire shall be left in every outlet box whether it be in use, or left for future use. K. Color code wiring as follows:

120/208 volt, 3 phase, 4 wire: phase A-black, phase B-red, phase C-blue, neutral-white; ground conductor-green.

- L. Wire and cable boxes and reels shall bear the date of manufacture and must not bear dates by more than one year preceeding contract date.
- M. Minimum conductor sizes, except as specifically identified on the drawings, shall be as
- No. 12 Branch circuits of any kind, except as specified otherwise below.

No. 14 - Signal systems, fire alarm system, unless specifically noted otherwise. No. 10 — Exit light circuits, emergency circuits, security lighting, security systems circuits and exterior light circuits.

- 7. FIELD QUALITY CONTROL
- A. Prior to energization, test wires and cables for electrical continuity and for short-circuits.

MICHAEL LEGG ARCHITECTUR NCARB. AIĂ. ŔIBĂ. SACAI 26116 High Timber Pass S San Antonio, Texas 78260 ph. 210-416 4935 nichael@mlarchitecture.infc ww.michaelleggarchitecture.com DRAWING COORDINATION Architectural, Landscape, Civil, Structural, Mechanical and Electrical drawings are interrelated General Contractor and all Sub Contractors shall review and coordinate the entire set of drawings and specifications

**SPECIFICATIONS** PROJECT NO. 05-05-22 SHEET NO. **SP.13** 

SECTION 16135 - ELECTRICAL BOXES AND FITTINGS

- 1. RELATED DOCUMENTS
- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division—1 Specification sections, apply to work of this section.
- B. This section is a Division-16 Basic Electrical Materials and Methods section, and is a part of each Division-16 section making reference to electrical wiring boxes and fittings specified herein.
- 2. DESCRIPTION OF WORK
- A. Extent of electrical box and associated fitting work is indicated by drawings and schedules.B. Types of electrical boxes and fittings specified in this section include the following:
- 1. Outlet boxes
- 2. Junction boxes
- 3. Pull boxes
- 4. Floor boxes
- 5. Bushings
- 6. Locknuts
- 7. Knockout closures
- 8. Manholes and handholes
- 3. QUALITY ASSURANCE
- A. Manufacturers: Firms regularly engaged in manufacture of electrical boxes and fittings, of types, sizes, and capacities required, whose products have been in satisfactory use in similar service for not less than 3 years.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects utilizing electrical boxes and fittings similar to those required for this project.
- C. NEC Compliance: Comply with NEC as applicable to construction and installation of electrical wiring boxes and fittings.
- D. UL Compliance: Comply with applicable requirements UL 50, UL 514-Series, and UL 886 pertaining to electrical boxes and fittings. Provide electrical boxes and fittings which are UL-listed and labeled.
- E. NEMA Compliance: Comply with applicable requirements of NEMA Stds/Pub No.'s OS1, OS2, and Pub 250 pertaining to outlet and device boxes, covers, and box supports.
- 4. FABRICATED MATERIALS
- A. Outlet Boxes: Provide galvanized coated flat rolled sheet-steel outlet wiring boxes, of shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations. Construct outlet boxes with mounting holes, and with cable and conduit-size knockout openings in bottom and sides. Provide boxes with threaded screw holes, with corrosion-resistant cover and grounding screws for fastening surface and device type box covers, and for equipment type grounding.

1. Outlet Box Accessories: Provide outlet box accessories as required for each installation, including box supports, mounting ears and brackets, wallboard hangers, box extension rings, fixture studs, cableclamps and metal straps for supporting outlet boxes, which are compatible with outlet boxes being used to fulfill installation requirements for individual wiring situations. Choice of accessories is Installer's code-compliance option.

B. Device Boxes: Provide galvanized coated flat rolled sheet-steel non-gangable device boxes, of shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations. Construct device boxes for flush mounting with mounting holes, and with cable-size knockout openings in bottom and ends, and with threaded screw holes in end plates for fastening devices. Provide cable clamps and corrosion-resistant screws for fastening cable clamps, and for equipment type grounding.

1. Device Box Accessories: Provide device box accessories as required for each installation, including mounting brackets, device box extensions, switch box supports, plaster ears, and plaster board expandable grip fasteners, which are compatible with device boxes being utilized to fulfill installation requirements for individual wiring situations. Choice of accessories is Installer's code-compliance option.

- C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering outlet boxes which may be incorporated in the work include, but are not limited to, the following:
- 1. Appleton Electric;
- 2. Bell Electric;
- 3. Eagle Electric Mfg. Co.; Inc.
- 4. Midland-Ross Corp.
- 5. OZ/Gedney; General Signal Co.
- 6. Pass and Seymour, Inc.
- 7. RACO Div.; Harvey Hubbell Inc.
- 8. Thomas & Betts Co.
- D. Raintight Outlet Boxes: Provide corrosion-resistant cast-metal raintight outlet wiring boxes, of types, shapes and sizes, including depth of boxes, with threaded conduit holes for fastening electrical conduit, cast-metal face plates with spring hinged watertight caps suitably configured for each application, including face plate gaskets and corrosion-resistant plugs and fasteners.
- E. Available Manufacturers: Subject to compliance with requirements, manufacturers offering raintight outlet boxes which may be incorporated in the work include, but are not limited to, the following:
- 1. Appleton Electric;
- 2. Crouse-Hinds Co.
- 3. Bell Electric;
- 4. Harvey Hubbell, Inc.
- 5. OZ/Gedney; General Signal Co.
- 6. RACO Div.

# F. Junction and Pull Boxes: Provide galvanized code-gage sheet steel junction and pull boxes; with screw-on covers; of types, shapes and sizes, to suit each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws, and washers.

- G. Available Manufacturers: Subject to compliance with requirements, manufacturers offering junction and pull boxes which may be incorporated in the work include, but are not limited to, the following:
- 1. Appleton Electric; Emerson Electric Co.
- 2. Arrow-Hart Div.; Crouse-Hinds Co.
- 3. Bell Electric; Square D Company
- 4. OZ/Gedney; General Signal Co.
- 5. Spring City Electrical Mfg. Co.
- H. Available Manufacturers: Subject to compliance with requirements, manufacturers offering floor boxes which may be incorporated in the work include, but are not limited to, the following:
- 1. Arrow-Hart Div.; Crouse-Hinds Co.
- 2. Harvey Hubbell, Inc.
- 3. Midland-Ross Corp.
- 4. Spring City Electrical Mfg. Co.

- Bushings, Knockout Closures, and Locknuts: Provide corrosion-resistan closures, conduit locknuts and malleable iron conduit bushings, offset and sizes, to suit respective installation requirements and applications.
- J. Available Manufacturers: Subject to compliance with requirements, mar bushings, knockout closures, locknuts, and connectors which may be in work include, but are not limited to, the following:
- 1. Arrow—Hart Div.; Crouse—Hinds Co.
- 2. Appleton Electric Co.; Emerson Electric Co.
- 3. Bell Electric; Square D Co.
- 4. Midland-Ross Corp.
- 5. OZ/Gedney Co.; General Signal Co.
- K. Manholes and Handholes: Manholes and handholes for exterior use sh concrete with steel traffic rated covers, as manufactured by Brooks or and handholes shall be the size necessary for the number of conduits indicated on the drawings which will enter the enclosure, plus the nece the spare conduits and the associated estimated conductor fill. Provid appropriate drainage and knockouts for conduits and other necessary covers shall be engraved with the appropriate identification, such as "E
- 5. INSTALLATION OF ELECTRICAL BOXES AND FITTINGS
- A. General: Install electrical boxes and fittings as indicated, in accordance written instructions, applicable requirements of NEC and NECA's "Stando and in accordance with recognized industry practices to fulfill project r
- B. Coordinate installation of electrical boxes and fittings with wire/cable, raceway installation work.
- C. Provide weathertight boxes and fittings for interior and exterior location weather or moisture.
- D. Provide knockout closures to cap unused knockout holes where blanks
   E. Install electrical boxes in those locations which ensure ready accessibili electrical wiring.
- F. Avoid installing boxes back—to—back in walls. Provide not less than separation.
- G. Position recessed outlet boxes accurately to allow for surface finish th H. Fasten electrical boxes firmly and rigidly to substrates, or structural s
- attached, or solidly embed electrical boxes in concrete or masonry. I. Each circuit in pull box shall be marked with a tag guide denoting pa
- connect to.
- J. Manholes and handholes shall be installed for all underground conduit minimum number of manholes and handholes shall be as indicated on contractor shall provide any additional handholes or manholes necessar installation, code compliance or due to voluntary or required re-routing conduits at no additional cost to the Owner.

### SECTION 16142 - ELECTRICAL CONNECTIONS FOR EQUIPMENT

- RELATED DOCUMENTS
- A. Drawings and general provisions of Contract, including General and Su and Division—1 Specification sections, apply to work of this section.
- B. This section is a Division-16 Basic Electrical Materials and Methods se each Division-15 and 16 section making reference to electrical connec specified herein.
- 2. DESCRIPTION OF WORK
- A. Extent of electrical connections for equipment is indicated by drawings Electrical connections are hereby defined to include connections used power to equipment.
- B. Applications of electrical power connections specified in this section in
- 1. From electrical source to motor starters
- 2. From motor starters to motors.
- 3. To lighting fixtures.
- 4. To grounds including earthing connections.
- 5. To equipment of communication, CCTV and alarm systems.
- C. Electrical connections for equipment, not furnished as integral part of especified in Division-15 and other Division-16 sections, and are work of D. Motor starters and controllers, not furnished as integral part of equipment.
- applicable Division-16 sections, and are work of this section.
- E. Refer to Division-15 specification sections and drawings for motor star furnished integrally with equipment; not work of this section. Connecti is work of this section.
- F. Junction boxes and disconnect switches required for connecting motors units of equipment are specified in applicable Division-16 sections, and section.
- G. Raceways and wires/cables required for connecting motors and other equipment are specified in applicable Division-16 sections, and are we
- H. Refer to other Division-16 and Division-15 sections for low voltage on two work of this section.
- 3. QUALITY ASSURANCE
- A. Manufacturers: Firms regularly engaged in manufacture of electrical conterminals, of types and ratings required, and ancillary connection mate electrical insulating tape, soldering fluxes, and cable ties, whose produce satisfactory use in similar service for not less than 5 years.
- B. Installer's Qualifications: Firm with at least 2 years of successful insta with projects utilizing electrical connections for equipment similar to the project.
- C. NEC Compliance: Comply with applicable requirements of NEC as to t and installation of electrical power connections (terminals and splices), motor starters, and disconnect switches.
- D. IEEE Compliance: Comply with Std 241, "IEEE Recommended Practice to Systems in Commercial Buildings" pertaining to connections and termine
- E. ANSI Compliance: Comply with applicable requirements of ANSI/NEMA of standards pertaining to products and installation of electrical connection
- F. UL Compliance: Comply with UL Std 486A, "Wire Connectors and Sold with Copper Conductors", including, but not limited to, tightening of ele torque values indicated. Provide electrical connection products and mo UL-listed and labeled.
- G. ETL Compliance: Provide electrical connection products and materials and labeled.

n and Pull Boxes: Provide galvanized code-gage sheet steel junction and pull rew-on covers; of types, shapes and sizes, to suit each respective location an

international lange langet	4. ACCEPTABLE MANUFACTURERS	SECTION 16143 - WIRING DEVICES	B. Floor Service Outlets: Provide flush type floor service receptacle outlets and fittings of	
sistant box knockout fset connections, of types ions.	A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the	1. RELATED DOCUMENTS A. Drawings and general provisions of Contract, including General and Supplementary Conditions	types and ratings indicated. Construct of die cast aluminum, satin finish and of the size necessary for the slab thickness provided. Provide one or two gang box as indicated on the drawings with 20-ampere, 125-volt, duplex receptacle, NEMA configuration 5-20R for	
, manufacturers offering be incorporated in the	following: 1. AMP Incorporated	and Division-1 Specification sections, apply to work of this section. B. This section is a Division-16 Basic Electrical Materials and Methods section, and is part of	power, unless indicated otherwise. Provide data or telephone outlets as indicated with a $3/4$ " diameter bushed hole for data and a standard telephone outlet for telephone. Boxes shall be sized as required for the number of outlets and number of conductors to enter	
	2. Appleton Electric Co.	each Division—16 section making reference to wiring devices specified herein. 2. DESCRIPTION OF WORK	and leave the box. Provide brass cover plate with snap cover which shall be a protective cover which will prevent breakage of the installed wiring devices. Provide brass tile or carpet flange as required.	MICHAEL L <u>E</u> GG ARCHITECTURE Michael Gregory Legg NCARB, AIA, RIBA, SACAP
	<ol> <li>Arrow-Hart Div., Crouse-Hinds Co.</li> <li>Burndy Corporation</li> </ol>	A. The extent of wiring device work is indicated by drawings and schedules. Wiring devices are defined as single discrete units of electrical distribution systems which are intended to carry but not utilize electric energy.	8. TELEPHONE/DATA OUTLETS	26116 High Timber Pass St San Antonio, Texas 78260
	5. General Electric Co.	B. Types of electrical wiring devices in this section include the following:	A. Provide blank bone colored nylon, impact resistant wallplate for all indicated unused telephone/data outlets.	ph. 210-416 4935 michael@mlarchitecture.info www.michaelleggarchitecture.com
	<ol> <li>Gould, Inc.</li> <li>Harvey Hubbell Inc.</li> </ol>	<ol> <li>Receptacles, including surge suppression type if applicable.</li> <li>Ground-fault circuit interrupters</li> </ol>	9. INSTALLATION OF WIRING DEVICES	RED AS
e shall be pre-cast	8. Square D Company	3. Switches	A. Install wiring devices as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.	GREGO 94
ks or equal. Manholes Iduits and conductors necessary capacity for	9. Thomas and Betts Corp.	4. Wallplates	<ul> <li>B. Coordinate with other work, including painting, electrical boxes and wiring work, as necessary to interface installation of wiring devices with other work.</li> </ul>	
Provide manholes with the sary access. Traffic as "ELECTRIC".	<ol> <li>MATERIALS AND COMPONENTS</li> <li>A. General: For each electrical connection indicated, provide complete assembly of materials,</li> </ol>	<ul> <li>5. Plugs and connectors</li> <li>6. Time Switches / Time Clocks</li> </ul>	<ul> <li>C. Install wiring devices only in electrical boxes which are clean; free from excess building materials, dirt, and debris.</li> </ul>	SEREGORIA GREGORIA CONTROL CON
US ELECTRIC.	including but not necessarily limited to, pressure connectors, terminals (lugs), electrical insulating tape, electrical solder, electrical soldering flux, heat—shrinkable insulating tubing, cable ties, solderless wirenuts, and other items and accessories as needed to complete	<ul> <li>3. QUALITY ASSURANCE</li> <li>A. Installer's Qualifications: Firm with at least 2 years of successful installation experience on</li> </ul>	D. Install galvanized steel wallplates on any exposed surface mounted devices.	DRAWING
rdance with manufacturer's Standard of Installation",	splices and terminations of types indicated. B. Metal Conduit, Tubing, and Fittings:	projects utilizing wiring devices similar to those required for this project. B. NEC Compliance: Comply with NEC as applicable to installation and wiring of electrical	<ul><li>E. Install wallplates after painting work is completed.</li><li>F. Tighten connectors and terminals, including screws and bolts, in accordance with equipment</li></ul>	COORDINATION Architectural, Landscape, Civil, Structural, Mechanical and
ject requirements. ble, wiring devices, and	1. General: Provide metal conduit, tubing, and fit tings of types, grades, sizes, and weights (wall thicknesses) indicated for each type service. Where types and grades are not indicated, provide	wiring devices. C. UL Compliance: Comply with applicable requirements of UL 20, 486A, 498, and 943	manufacturer's published torque tightening values for wiring devices. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Stds 486A and B. Use properly scaled torque indicating	Electrical drawings are interrelated. General Contractor and all Sub Contractors shall review and
cations exposed to	proper selection as determined by Installer to fulfill wiring requirements and comply with NEC requirements for raceways. Provide products complying with Division—16 basic electrical materials	pertaining to installation of wiring devices. Provide wiring devices which are UL-listed and labeled.	hand tool. G. Contractor to provide ground fault protective type receptacles for any location within 2'-0"	coordinate the entire set of drawings and specifications
anks have been removed.	and methods section "Raceways", and in accordance with the following listing of metal conduit, tubing, and fittings:	D. IEEE Compliance: Comply with applicable requirements of IEEE Std 241, "Recommended Practice for Electric Power Systems in Comercial Buildings", pertaining to electrical wiring	of sinks or other source of water. Feed through protection from one ground fault protected receptacle on a circuit is not acceptable.	
ssibility to enclosed	a. Rigid steel conduit. b. Rigid metal conduit fittings.	systems. E. NEMA Compliance: Comply with applicable portions of NEMA Stds Pub/No. WD 1,	H. Mounting height of boxes for devices as shown on legend, unless otherwise noted on the plan. Refer to architectural drawings to avoid interferences with millwork. Where two or more devices are shown at the same location use going how and one face plate. Verify	
nan 24" (600 mm)	c. Electrical metallic tubing. d. EMT fittings.	"General-Purpose Wiring Devices", WD 2, "Semiconductor Dimmers for Incandescent Lamps", and WD 5, "Specific,-Purpose Wiring Devices".	more devices are shown at the same location, use gang box and one face plate. Verify all device locations with Owner prior to rough—in. Exact device locations may be adjusted by the Owner to avoid interferences or for general convenience at no additional cost to the	
sh thickness. ral surfaces to which	e. Liquid-tight flexible metal conduit. f. Liquid-tight flexible metal conduit fittings. a. Elevible metal conduit	F. FS Compliance: Comply FS W-C-596 (Series) and FS W-S-896 (Series) pertaining to electrical power connectors and toggle switches.	Owner. I. Floor boxes shall be installed flush with the slab and shall strictly follow manufacturer's	
g panels which they	g. Flexible metal conduit. h. Flexible metal conduit fittings.	<ol> <li>SUBMITTALS</li> <li>A. Product Data: Submit manufacturer's data on electrical wiring devices.</li> </ol>	installation instructions. Boxes shall be installed at right angles to the building lines and multiple boxes shall be in—line straight and even. Boxes observed to be installed crooked shall be removed and reinstalled.	
duit installations. The	C. Wires, Cables, and Connectors:	5. ACCEPTABLE MANUFACTURERS	10. PROTECTION OF WALLPLATES AND RECEPTACLES	
d on the drawings. The essary for ease of	1. General: Provide wires, cables, and connectors complying with Division—16 basic electrical materials and methods section "Wires and Cables".	A. Manufacturers: Subject to compliance with requirements, provide wiring devices of one of the following (for each type and rating of wiring device):	A. Upon installation of wallplates and receptacles, advise Contractor regarding proper and cautious use of convenience outlets. At time of Substantial Completion, replace those	
outing of the underground	2. Wires/Cables: Unless otherwise indicated, provide wires/cables (conductors) for electrical connections which match, including sizes and ratings, of wires/cables which are supplying electrical	1. Hubbell	items which have been damaged, including those burned and scored by faulty plugs.	
	power. Provide copper conductors with conductivity of not less than 98% at 20oC (68oF). 3. Connectors and Terminals: Provide electrical con nectors and terminals which mate and match,	<ol> <li>Arrow-Hart Div.</li> <li>General Electric Co.</li> </ol>	<ul><li>11. GROUNDING</li><li>A. Provide equipment grounding connections for wiring devices, unless otherwise indicated.</li></ul>	
	including sizes and ratings, with equipment terminals and are recommended by equipment manufacturer for intended applications.	4. Eagle Electric Co.	Tighten connections to comply with tightening torques specified in UL Std 486 A to assure permanent and effective grounds.	
l Supplementary Conditions n.	6. INSPECTION A. Inspect area and conditions under which electrical connections for equipment are to be	5. Leviton 6. Pass — Seymour	12. TESTING	
ds section, and is part of onnections for equipment	installed and notify Contractor in writing of conditions detrimental to proper completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected	7. Time Switches: Tork, Intermatic or Paragon	A. Prior to circuitry, test wiring for electrical continuity, for short-circuits and for grounding. Ensure proper polarity of connections is maintained. Subsequent to energization, test wiring devices to demonstrate compliance with requirements.	
	in a manner acceptable to Installer. 7. INSTALLATION OF ELECTRICAL CONNECTIONS	6. FABRICATED WIRING DEVICES		at
vings and schedules. sed for providing electrical	A. Install electrical connections as indicated; in accordance with equipment manufacturer's written instructions and with recognized industry practices, and complying with applicable	A. General: Provide factory-fabricated wiring devices, in types, colors, and electrical ratings for applications indicated and which comply with NEMA Stds Pub/No. WD 1. Provide bone color devices and bone colored nylon, impact resistant coverplates, except as other wise	<ul> <li>13. WARRANTY</li> <li>A. All wiring devices, including any dimmers or dimming systems, shall have a minimum one year parts and labor warranty.</li> </ul>	qe
on include the following:	requirements of UL, NEC, and NECA's "Standard of Installation", to ensure that products fulfill requirements.	indicated; color selection shall be verified prior to ordering by Contractor with Architect/Engineer.		Ö Pr
	B. Coordinate with other work, including wires/cables, raceway and equipment installation, as necessary to properly interface installation of electrical connections for equipment with other work.	B. Receptacles:		l S B B B B B B B B B B B B B B B B B B B
	C. Connect electrical power supply conductors to equipment conductors in accordance with equipment manufacturer's written instructions and wiring diagrams. Mate and match	<ol> <li>Heavy-Duty Duplex: Provide specification grade duplex receptacles, 2-pole, 3-wire, grounding, 20-amperes, 125-volts, with metal plaster ears, design for side and back wiring with spring loaded, screw activated pressure plate, with NEMA configuration 5-20R</li> </ol>		H H
	conductors of electrical connections for proper interface between electrical power supplies and installed equipment.	unless otherwise indicated. Hubbell or equal. 15 amp rated receptacles may be used on circuits with two or more receptacles in accordance with NEC.		Irant ksbul
	D. Provide the following electrical work as work of this section, complying with requirements of Division 15 sections:	2. Ground-Fault Interrupters: Provide "feed-thru" type ground-fault circuit interrupters, with heavy-duty duplex receptacles, capable of protecting connecting downstream receptacles on single circuit, and of being installed in a 2-3/4" deep outlet box without adapter,		tau rich nio,
t of equipment, are work of this section.	1. Power supply wiring from power source to power connection on chiller, fans, air handling units, pumps, duct heaters, water heaters, air compressor, air dryer, and unit control panels. Include	grounding type UL—rated Class A, Group 1, rated 20 amperes, 120—volts, 60 Hz; with solid—state ground—fault sensing and indication; with 5 milliamperes ground—fault trip		Rest
quipment, are specified in	starters, disconnects, time clocks, receptacles and required electrical devices, except where specified as furnished, or factory—installed, by manufacturer. Make all final electrical connections.	level; equip with NEMA configuration 5—20R. Device must have a positive trip identification and reset. Provide bone color device.		Re Antec
r starters and controllers nnections to this equipment	E. Maintain existing electrical service and feeders to occupied areas and operational facilities, unless otherwise indicated, or when authorized otherwise in writing by Owner, or	3. Special Receptacles: Special configuration receptacles shall be standard NEMA plug configuration as specified on the drawings or as required. Provide heavy duty, specification grade receptacles, with black nylon face and brushed satin stainless steel		Ϋ́Ē c
notors and other electrical s, and are work of this	Architect/Engineer. Provide temporary service during interruptions to existing facilities. When necessary, schedule momentary outages for replacing existing wiring systems with new	cover plate.		Sa Sa
her electrical units of	wiring systems. When that "cutting—over" has been successfully accomplished, remove, relocate, or abandon existing wiring as indicated.	<ol> <li>Snap: Provide general-duty flush single-pole, quiet type toggle switches, 20-amperes, 120-277 volts AC, with mounting yoke insulated from mechanism, equip with plaster ears,</li> </ol>		О m с N
e work of this section. ge control system wiring;	F. Cover splices with electrical insulating material equivalent to, or of greater insulation resistivity rating, than electrical insulation rating of those conductors being spliced. No new conductors shall be spliced unless specifically noted on the drawings.	switch handle, and side-wired screw terminals.		de l
ge control system winnig,	G. Prepare cables and wires, by cutting and stripping covering armor, jacket, and insulation properly to ensure uniform and neat appearance where cables and wires are terminated.	2. 2-way: Provide general-duty flush double-pole AC quiet switches, 20-amperes, 120-277 volts AC, with mounting yoke insulated from mechanism, equip with plaster ears, switch handles, side-wired screw terminals, with break-off tab features, which allows wiring with		
cal connectors and	Exercise care to avoid cutting through tapes which will remain on conductors. Also avoid "ringing" copper conductors while skinning wire.	separate or common feed. 3. Three-way: Provide general-duty flush 3-way AC quiet type switches, 20-amperes,		
materials, including products have been in	H. Trim cables and wires as short as practicable and arrange routing to facilitate inspection, testing, and maintenance.	120-277 volts AC, with mounting yoke insulated from mechanism, equip with plaster ears, lock type switch handles, sidewired screw terminals, with break-off tab features, which allows wiring with separate or common feed.		
installation experience to that required for this	I. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturers published torque tightening values for equipment connectors. Accomplish tightening by utilizing proper torquing tools, including torque screwdriver, beam-type torque	<ul> <li>4. Four-way: Provide general-duty flush 4-way AC quiet switches, 20-amperes, 120-277 volts AC, with mounting yoke insulated from mechanism, equip with plaster ears, switch</li> </ul>		
to type products used	wrench, and ratchet wrench with adjustable torque settings. Where manufacturer's torquing requirements are not available, tighten connectors and terminals to comply with torquing	volts AC, with mounting yoke insulated from mechanism, equip with plaster ears, switch handles, side—wired screw terminals, with break—off tab features, which allows wiring with separate or common feed.		RIPTION
ces), for junction boxes,	values contained in UL's 486A. J. Provide flexible conduit for motor connections, and other electrical equipment connections,	5. Touch Snap: Provide soft-touch snap switches, cap able of effortless-fingertip operation; single-pole AC quiet, with lighted rocker switch hangles; sidewired screw terminals for		DESCR
stice for Electric Power erminations.	where subject to movement and vibration. K. Provide liquid-tight flexible conduit for connection of motors and other electrical equipment where subject to movement and vibration, and also where connections are subjected to one	connecting copper-clad aluminum wire, 20-amperes, 120-277 volts rating. Equip with plaster ears.		
EMA and ANSI/EIA nections for equipment.	where subject to movement and vibration, and also where connections are subjected to one or more of the following conditions:	6. Switches to be bone color with bone colored nylon, impact resistant coverplate. D. Combination Devices: Provide general-duty 3-way quiet switch, 20-amperes, 120-277		ш
Soldering Lugs for Use of electrical connectors to	<ol> <li>Exterior location.</li> <li>Moist or humid atmosphere where condensate can be expected to accumulate.</li> </ol>	volts AC, with toggle switch handle, and 3-wire grounding receptacle, 20 amperes, 120-volts, equip with plaster ears, and with break-off tab feature which allows wiring with separate or common feed, with NEMA configuration 5-20R.		DATE
id materials which are	3. Corrosive atmosphere.	E. Incandescent Lamp Dimmers: Provide branch lighting solid-state AC dimmer controls for incandescent fixtures; wattage as indicated.		
rials which are ETL-listed	<ol> <li>Water spray.</li> <li>Dripping oil, grease, or water, including kitchen areas.</li> </ol>	F. Time Switches, Time Clocks: Unless otherwise specifically noted on the drawings provide electro-mechanical 24 hour dial type time switch with day omitting capability and 24 hour		SPECIFICATIONS
	8. FIELD QUALITY CONTROL	reserve timing motor. Provide with a positive manual on—off switch, voltage as required or specified on the drawings, minimum 40 amps per pole, minimum double pole, double throw.		PROJECT NO.
	A. Upon completion of installation of electrical connections, and after circuitry has been energized with rated power source, test connections to demonstrate capability and compliance with requirements. Ensure that direction of rotation of each motor fulfills	Provide additional poles as required or specified on the drawings. Time switches shall be Tork or equal by Intermatic or Paragon.		05-05-22
	compliance with requirements. Ensure that direction of rotation of each motor fulfills requirement. Correct malfunctioning units at site, then retest to demonstrate compliance.	7. WIRING DEVICE ACCESSORIES		SHEET NO.
		A. Wallplates: Provide wallplates for single and combination wiring devices, of types, sizes, and with ganging and cutouts as required. Select plates which mate and match wiring devices to which attached. Construct with metal screws for securing plates to devices; screw		
		heads colored to match finish of plates. Provide plates possessing the following additional construction features:		SP.14
		1. Material and Finish: Bone colored nylon, impact resistant.		

#### DIVISION 16 - ELECTRICAL SYSTEMS (CONTINUED)

SECTION 16150 - MOTOR CONTROLLERS AND CONTACTORS

- 1. RELATED DOCUMENTS
- A. Drawings and general provisions of Contract including General and Division 1 Specification Sections, apply to work of this section.
- 2. SCOPE
- A. The work, apparatus and materials which shall be furnished under these specifications and accompanying drawings shall include all items specified hereinafter and shown on the drawings. All other materials necessary for the complete installation shall be furnished and installed by the Contractor to provide complete electrical systems as indicated on the drawings and as specified herein.
- B. Coordinate all required interlocks with Division 15. Motor starters shall contain the necessary auxiliary contacts and control coil voltage to interface with the HVAC temperature control system and fire alarm control system.
- 3. DESCRIPTION OF WORK

- A. Extent of motor controller work is indicated by drawings and schedules. Types of motor
- controllers specified in this section include the following:
- 1. Manual motor starters.
- 2. Combination disconnect/FVNR motor starters.
- 4. QUALITY ASSURANCE
- A. Manufacturers: General Electric, Square D, Allen Bradley.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects with electrical motor controller work similar to that required for this project.
- C. Codes and Standards:
- 1. NEMA Compliance: Comply with applicable requirements of NEMA Standards Publications pertaining to motor controllers 2. UL Compliance and Labeling: Comply with applicable requirements of UL safety standards
- pertaining to motor controllers. Provide motor controllers and components which have been UL-listed and labeled.
- 3. NEC Compliance: Comply with applicable requirements of NEC pertaining to construction and installation of motor controllers.
- 5. SUBMITTALS
- A. Product Data: Submit manufacturer's technical product data, including specifications and installation instructions, for each type of motor controller required. Include data substantiating that materials comply with requirements.
- 6. INDIVIDUAL MOTOR CONTROLLERS
- A. Manual motor starters for 115 volts, single phase motors one horsepower and smaller, shall be single pole, horsepower rated switches with thermal overload units and heaters. Starters shall be Allen-Bradley Bulletin 609, General Electric CR-101 or Square D Class 2510 with stainless steel cover plates.
- B. Magnetic full voltage starters for three phase motors shall be three pole, horsepower rated, magnetically operated with three thermal overload units and heaters. Starters shall be Allen-Bradley Bulletin 509, General Electric CR-306 or Square D Class 8536. Provide Hand-Off-Auto selector switch, pilot lights to indicate starter's position (Amber - Red -Green), a minimum of two normally open and two normally closed auxiliary contacts, control power transformer fused on primary and secondary, control coil, and three overload heaters with reset button. Provide control power and coil voltage as required for interlock with the HVAC temperature control system and fire alarm system. Starters shall be the Nema size indicated on the drawings but shall be a minimum size one.
- C. Combination magnetic, full voltage starters for three phase motors shall be three pole horsepower rated, magnetically operated contacts, with three thermal overload units and heaters. A three pole horsepower rated, fusible disconnect switch shall also be included integral within the enclosure. Provide fuses sized as recommended by the motor manufacturer. Starters shall be Allen-Bradley Bulletin 512, General Electric CR-308 or Sauare D Class 8538. Provide Hand-Off-Auto selector switch, pilot lights to indicate starter's position (Amber - Red - Green), a minimum of two normally open and two normally closed auxiliary contacts, control power transformer fused on primary and secondary, control coil, and three overload heaters with reset button. Provide control power and coil voltage as required for interlock with the HVAC temperature control system and fire alarm system. Starters shall be the Nema size indicated on the drawings but shall be a minimum size one.
- D. Provide enclosure type suitable for the environment in which it is installed. Enclosure shall be interlocked so the door cannot be opened without turning the unit off. This interlock shall be capable of being defeated by properly trained personnel.
- 7. MOTOR CONTROLLERS, CONTACTORS AND ASSOCIATED CONTROLS
- A. Unless otherwise indicated, motor controllers shown on the drawings shall be furnished and installed under this section. The full load current and starting characteristics of each motor shall be verified for proper selection of motor over load devices. The Contractor shall furnish and install all steel shapes, etc., necessary for a support of all motor controllers.
- B. Unless otherwise indicated, all control devices, such as thermostats, firestats, etc., shall be installed in place and wired under other sections of the specifications. Coordinate required starter auxiliary contacts and coil voltages for a properly operational system.
- C. Motor controllers shall be installed in accordance with all applicable NEC installation requirements.
- 8. IDENTIFICATION OF EQUIPMENT
- A. Identification shall be provided for all motor controllers installed by the Contractor. Identification shall consist of white laminated plastic plates with black engraved letters.

#### SECTION 16170 - CIRCUIT AND MOTOR DISCONNECTS

- 1. RELATED DOCUMENTS
- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

B. Division-16 Basic Electrical Materials and Methods section, apply to work of this section.

- 2. DESCRIPTION OF WORK
- A. Extent of circuit and motor disconnect switch work is indicated by drawings and schedules. B. Types of circuit and motor disconnect switches in this section include the following:
- 2. Equipment disconnects.
- 3. Appliance disconnects.
- 4. Motor-circuit disconnects.
- C. Wires/cables, raceways, and electrical boxes and fittings required in connection with circuit and motor disconnect work are specified in other Division-16 Basic Electrical Materials and Methods sections.
- 3. QUALITY ASSURANCE
- A. Manufacturers: Firms regularly engaged in manufacture of circuit and motor disconnect switches of types and capacities required whose products have been in satisfactory use in similar service for not less than 3 years.
- B. Installer's Qualifications: Firm with at least 3 years of successful installation experience with projects utilizing circuit and motor disconnect work similar to that required for this project.
- C. NEC Compliance: Comply with NEC requirements pertaining to construction and installation of electrical circuit and motor disconnect devices.
- D. UL Compliance: Comply with requirements of UL 98, "Enclosed and Dead-Front Switches". Provide circuit and motor disconnect switches which have been UL-listed and labeled.
- E. NEMA Compliance: Comply with applicable requirements of NEMA Stds Pub No. KS 1, "Enclosed Switches" and 250, "Enclosures for Electrical Equipment (1000 Volts Maximum)".

- . SUBMITTALS
- A. Product Data: Submit manufacturer's data on circuit and motor
- B. Wiring Diagrams: Submit power and control wiring diagrams for c disconnects including connections to power and control panels, and
- 5. ACCEPTABLE MANUFACTURERS
- A. Available Manufacturers: Subject to compliance with requirements, circuit and motor disconnects which may be incorporated in the w 4. General Electric Co.
- 5. Square D Company
- 6. ITE/Seimens
- 6. FABRICATED SWITCHES
- A. Heavy-Duty Safety Switches: Provide surface-mounted, heavy-duty enclosed safety switches, of types, sizes and electrical characterist non-fusible type as indicated, amperes as indicated, 60 Hz, 3-blo neutral; and incorporating quick-make, quick-break type switches; blades are visible in OFF position with door open. Equip with open integral part of enclosure base and whose operating position is ea padlockable in OFF position; construct current carrying parts of hig with silver-tungsten type switch contacts, and positive pressure type Provide NEMA Type 3R enclosures, where applicable. Provide groun volt rated switches for 208Y/120 volt systems and 600 volt rated volt systems.
- 1. Fuses: Provide fuses for safety switches, as recommended by equipment to be protected, of classes, types, and ratings neede requirements for service indicated. Provide R-clips for all fuse
- . INSTALLATION OF CIRCUIT AND MOTOR DISCONNECT SWITCHES
- A. Install circuit and motor disconnect switches as indicated, complyir written instructions, applicable requirements of NEC, NEMA, and NEC Installation", and in accordance with recognized industry practices.
- B. Coordinate circuit and motor disconnect switch installation work wi cable work, as necessary for proper interface.
- C. Install disconnect switches for use with motor-driven appliances, of controllers within sight of controller position unless otherwise indica
- D. Provide a nameplate indicating the equipment served and protected
- 8. GROUNDING
- A. Provide equipment grounding connections, sufficiently tight to assur effective ground, for electrical disconnect switches where indicated. 9. FIELD QUALITY CONTROL
- A. Subsequent to completion of installation of electrical disconnect sw and demonstrate capability and compliance with requirements. Wh malfunctioning units at project site, then retest to demonstrate co
- B. Painting: repair all scratches to factory painted and primed finish touch-up paint.

#### SECTION 16180 - OVERCURRENT PROTECTIVE DEVICES

and replace with new units and retest.

- RELATED DOCUMENTS
- A. Drawings and general provisions of Contract, including General and and Division-1 Specification sections, apply to work of this section
- B. This section is a Division-16 Basic Electrical Materials and Methods each Division-16 section making reference to overcurrent protective
- 2. DESCRIPTION OF WORK
- A. Extent of overcurrent protective device work is indicated by drawin B. Types of overcurrent protective devices in this section include the 1. Circuit Breakers:
- a. Air, molded—case, for installation in panels.
- b. Air. molded-case, for individual, separately enclosed mounting c. For installation in existing panels.
- 2. Fuses:
- a. Class RK5, dual-element time-delay.
- C. Refer to other Division-16 sections for cable/wire and connector

conjunction with overcurrent protective devices; not work of this se QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of overcur types, sizes, and ratings required, whose products have been in sa service for not less than 5 years.
- B. Installer: Qualified with at least 5 years of successful installation
- with electrical installation work similar to that required for project. C. NEC Compliance: Comply with NEC requirements as applicable to installation of overcurrent protective devices.
- D. UL Compliance: Comply with applicable requirements of UL 489, Breakers and Circuit-Breaker Enclosures", and UL 198D, "High-Inte Fuses". Provide overcurrent protective devices which have been UL
- E. NEMA Compliance: Comply with applicable requirements of NEMA and SG 3 pertaining to molded-case and low-voltage power type
- F. FS Compliance: Comply with Federal Specification W-C-375B/GEN molded-case circuit breakers.
- SUBMITTALS
- A. Product Data: Submit manufacturer's data on overcurrent protectiv amperes, voltages and current ratings, interrupting ratings, current inductive and non-inductive loads, time-current trip characteristics requirements.
- B. Maintenance Stock, Fuses: For types and ratings required, furnish amounting to one unit for every 5 installed units, but not less tha 5. ACCEPTABLE MANUFACTURERS
- A. Available Manufacturers: Subject to compliance with requirements, products which may be incorporated in the work include, but are following:
- 1. Circuit Breakers: General Electric Co, Square D Co., ITE/Seim 2. Fuses:Bussmann Div.; McGraw-Edison Co., Gould, Inc., Cefco
- 6. CIRCUIT BREAKERS
- A. General: Except as otherwise indicated, provide circuit breakers ar of types, sizes, ratings, and electrical characteristics indicated, which manufacturer's standard design, materials, components, and constru published product information, and as required for a complete inst
- B. Molded-Case Circuit Breakers: Provide factory assembled, moldedframe size indicated; rated 600 volts or 240 volts as required, 60 interrupting ratings as shown on drawings. Provide breakers with instantaneous magnetic trips in each pole, and with fault-current ratings as indicated. Construct with overcenter, trip-free, togglewith auick-make, auick-break action and positive handle trip indice permitted. Provide push-to-trip button on cover for mechanical Construct breakers for mounting and operating in any physical pos ambient temperature of 40oC. Provide breakers with mechanical connector lugs, AL/CU rated. Circuit breakers shall have the shor indicated on the drawings or as required for the short circuit curre
- C. Molded-Case Circuit Breakers for Installation in Panelboards: Shall specifications as in Part B above. Shall be manufactured by the same manufacturer as the panelboard.

disconnect switches. circuit and motor	D. Provide all accesories indicated on the drawings, including accesories indicated on the panel schedules, such as shunt trips, ground fault protection, undervoltage trips, etc. Accessories shall be manufactured by the same manufacturer as the circuit breaker.	E. Sleeves and the following 1. Wall and
ind feeders.	<ul> <li>E. All circuit breakers used to protect heating, ventilation or air conditioning circuits shall be listed HACR type.</li> <li>7. FUSES</li> </ul>	and sizes concrete t neoprene screws.
s, manufacturers offering work include the following:	<ul> <li>A. General: Except as otherwise indicated, provide fuses of types, sizes, ratings, and average time/current and peak let-through current characteristics indicated, which comply with manufacturer's standard design, materials, and construction in accordance with published product information, and with industry standards and configurations.</li> <li>R. Class, PK5, Dugl. Element Time, Delay, Eugas: Provide, UL, Class, PK5, dugl. element.</li> </ul>	F. U-Channel equipment, 9/16" dia. fittings whic
	B. Class RK5 Dual-Element Time-Delay Fuses: Provide UL Class RK-5 dual element time-delay fuses rated 600 V, 60 Hz, amperes as required by the manufacturer of the equipment being protected, with 200,000 RMS symmetrical interrupting current rating for protecting motors.	1. Fixture ha 2. Channel h 3. Thinwall c
uty type, sheet-steel istics indicated; fusible or	<ol> <li>INSTALLATION OF OVERCURRENT PROTECTIVE DEVICES</li> <li>A. Install overcurrent protective devices as indicated, in accordance with manufacturer's written</li> </ol>	4. Rigid conc
blades, 4—poles, solid s; construct so that switch perating handle which is easily recognizable, and is	instructions and with recognized industry practices to ensure that protective devices comply with requirements. Comply with NEC and NEMA standards for installation of overcurrent protective devices. B. Coordinate with other work, including electrical wiring work, as necessary to interface	5. Conduit ha 6. U-bolts G. Available Ma
high—conductivity copper, type reinforced fuse clips. ounding kit. Provide 240 ed switches for 277Y/480	installation of overcurrent protective devices with other work. C. Fasten circuit breakers without causing mechaincal stresses, twisting or misalignment being exerted by clamps, supports, or cabling.	channel sys following: 1. Greenfield
the manufacturer of the ded to fulfill electrical e holders.	<ul> <li>D. Set field-adjustable circuit breakers for trip settings as indicated, subsequent to installation of units.</li> <li>E. Install fuses, if any, in fused circuit breakers.</li> </ul>	2. Midland-R 3. OZ/Gedne
ying with manufacturer's	<ol> <li>ADJUST AND CLEAN</li> <li>A. Inspect circuit-breaker operating mechanisms for malfunctioning and, where necessary, adjust units for free mechanical movement.</li> </ol>	4. Power-Str 5. Unistrut D H. Pipe Sleeves
NECA's "Standard of s. with electrical raceway and	<ol> <li>FIELD QUALITY CONTROL</li> <li>A. Prior to energization of overcurrent protective devices, test devices for continuity of circuitry and for short-circuits. Correct malfunctioning units, and then demonstrate compliance with requirements.</li> </ol>	1. Sheet Met joint, weld following o
and motors and icated.	SECTION 16190 - SUPPORTING DEVICES	2. Steel Pipe 3. Iron Pipe:
ted.	1. RELATED DOCUMENTS	4. Plastic Pip
sure a permanent and ed.	<ul> <li>A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.</li> <li>B. This section is a Division-16 Basic Electrical Materials and Methods section, and is a part of each Division-16 section making reference to electrical supporting devices specified herein.</li> </ul>	I. Sleeve Seals exterior wall to ensure w
switches, energize circuitry Where possible, correct compliance; otherwise remove	<ol> <li>DESCRIPTION OF WORK</li> <li>A. Extent of supports, anchors, sleeves, and seals is indicated by drawings and schedules</li> </ol>	5. INSTALLATION OF A. Install hange written instr comply with
h with factory supplied	<ul> <li>A. Extent of supports, anchors, siecves, and seals is indicated by ardwings and schedules and/or specified in other Division-16 sections.</li> <li>B. Types of supports, anchors, sleeves, and seals specified in this section include the following:</li> <li>2. Clevis hangers</li> </ul>	B. Coordinate v interface ins other struct
	<ul> <li>3. C-clamps</li> <li>4. I-beam clamps</li> </ul>	electrical pip C. Install hange structure. together on
nd Supplementary Conditions ion.	5. One-hole conduit straps	and in com
ods section, and is part of tive devices specified herein.	6. Round steel rods 7. Lead expansion anchors	SECTION 16195 - EL
ings and schedules.	8. Toggle bolts	1. RELATED DOCU
e following:	<ol> <li>9. Wall and floor seals</li> <li>C. Supports, anchors, sleeves, and seals furnished as part of factory-fabricated equipment, are specified as part of that equipment assembly in other Division-16 sections.</li> </ol>	A. Drawings an and Division B. Division-16
ling.	<ol> <li>QUALITY ASSURANCE</li> <li>A. Manufacturers: Firms regularly engaged in manufacture of supporting devices, of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than 3 years.</li> </ol>	section. 2. DESCRIPTION C A. Extent of el
r work required in section.	B. NEC Compliance: Comply with NEC requirements as applicable to construction and installation of electrical supporting devices.	B. Types of ele 1. Electrical 2. Operation
current protective devices, of satisfactory use in similar	<ul> <li>4. MANUFACTURED SUPPORTING DEVICES</li> <li>A. General: Provide supporting devices which comply with manufacturer's standard materials, design and construction in accordance with published product information, and as required for complete installation; and as herein specified. Where more than one type of supporting</li> </ul>	3. Equipmer 3. QUALITY ASSUF A. Manufacture
n experience on projects ct. o construction and	device meets indicated requirements, selection is Installer's option. B. Supports: Provide supporting devices of types, sizes, and materials indicated; and having the following construction features:	of types red less than 3 B. NEC Complic markers for
, "Molded—Case Circuit hterrupting—Capacity Class K	<ol> <li>Clevis Hangers: For supporting 2" rigid metal con duit; galvanized steel; with 1/2" dia. hole for round steel rod; approximately 54 pounds per 100 units.</li> </ol>	C. UL Compliar Systems", p
UL-listed and labeled. Std Pub Nos. AB 1, AB 2,	<ol> <li>Reducing Couplings: Steel rod reducing coupling, 1/2" x 5/8"; black steel; approximately 16 pounds per 100 units.</li> </ol>	4. ACCEPTABLE M A. Available Ma
e circuit breakers. EN pertaining to	<ol> <li>C-Clamps: Black malleable iron; 1/2" rod size; approximately 70 pounds per 100 units.</li> <li>I-Beam Clamps: Black steel, 1-1/4" x 3/16" stock; 3/8" cross bolt; flange width 2"; approximately 52 pounds per 100 units.</li> </ol>	electrical ide limited to, t 1. Brady, W 5. ELECTRICAL IDI
ctive devices, including: nt limitations, internal cs curves, and mounting	<ol> <li>One-Hole Conduit Straps: For supporting 3/4" rigid metal conduit; galvanized steel; approximately 7 pounds per 100 units.</li> <li>Hexagon Nuts: For 1/2" rod size; galvanized steel; approximately 4 pounds per 100 units.</li> </ol>	A. General: Ex categories c specified for
sh additional fuses, than one unit of each.	7. Round Steel Rod: Black steel; 1/2" dia.; approximately 67 pounds per 100 feet. 8. Offset Conduit Clamps: For supporting 2" rigid metal conduit; black steel; approximately	each applica 6. ENGRAVED PLA A. General: Pl
s, manufacturers offering e not limited to, the	200 pounds per 100 units. C. Anchors: Provide anchors of types, sizes, and materials indicated, with the following construciton features:	in sizes and and wording indicated, p because of
pimens D	<ol> <li>Lead Expansion Anchors: 1/2", approximately 38 pounds per 100 units.</li> <li>Toggle Bolts: Springhead; 3/16" x 4", approximately 5 pounds per 100 units.</li> </ol>	<ol> <li>Thickness</li> <li>Fasteners</li> <li>where screw</li> </ol>
and ancillary components, which comply with struction in accordance with	<ul> <li>D. Available Manufacturers: Subject to compliance with requirements, manufacturers offering anchors which may be incorporated in the work include, but are not limited to, the following:</li> <li>1. Abbeon Cal Inc.</li> </ul>	7. LETTERING AND A. General: Co identification numbers, le
nstallation. ed-case circuit breakers of 60 Hz, 3-poles with	2. Ackerman Johnson Fastening Systems, Inc.	by manufac electrical sy
h permanent thermal and t limiting protection, ampere	<ol> <li>3. Elcen Metal Products Co.</li> <li>4. Ideal Industries, Inc.</li> </ol>	8. APPLICATION A A. General Inst
e—type operating mechanisms lication. Handle ties are not I tripping circuit breakers.	4. Ideal Industries, Inc. 5. Joslyn Mfg. and Supply Co.	1. Install ele
position and operating in an I screw type removable	6. McGraw Edison Co.	written instr 2. Coordinat install identi
nort circuit interrupting rated urrent available.	7. Rawlplug Co., Inc.	3. Regulatio identification
II meet the same e same manufacturer as the	8. Star Expansion Co. 9. Expansion Bolt Co.	

nd Seals: Provide sleeves and seals, of types, sizes, and materials indicated, with ing construction features:

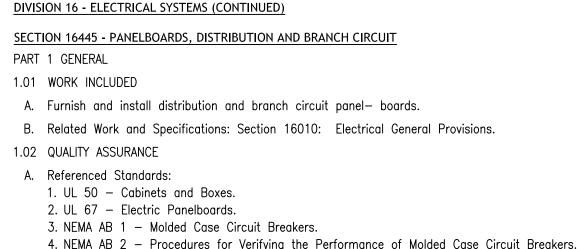
- Floor Seals: Provide factory-assembled watertight wall and floor seals, of types zes indicated; suitable for sealing around conduit, pipe, or buting passing through floors and walls. Construct seals with steel sleeves, malleable iron body, sealing grommets and rings, metal pressure rings, pressure clamps, and cap
- Strut Systems: Provide U-channel strut system for supporting electrical 12-gage hot-dip galvanized steel, of types and sizes indicated; construct with holes. 8" o.c. on top surface, with standard finish, and with the following hich mate and match U-channel.
- hangers
- hangers
- conduit clamps nduit clamps
- hangers
- Manufacturers: Subject to compliance with requirements, manufacturers offering systems which may be incorporated in the work include, but are not limited to, the
- eld Mfg. Co.; Inc.
- -Ross Corp.
- Iney Div.; General Signal Corp.
- Strut Div.: Van Huffel Tube Corp.
- Div.; GTE Products Corp.
- ves: Provide pipe sleeves of one of the following: Metal: Fabricate from galvanized sheet metal; round tube closed with snaplock velded spiral seams, or welded longitudinal joint. Fabricate sleeves from the gage metal: 3" and smaller, 20-gage; 4" to 6", 16-gage; over 6", 14-gage.
- ipe: Fabricate from Schedule 40 galvanized steel pipe; remove burrs.
- be: Fabricate from cast—iron or ductile—iron pipe; remove burrs.
- Pipe: Fabricate from Schedule 80 PVC plas tic pipe; remove burrs.
- eals: Provide sleeves for piping which penetrates foundation walls below grade, or valls. Calk between sleeve and pipe with non-toxic, UL-classified calking material watertight seal.
- OF SUPPORTING DEVICES
- ngers, anchors, sleeves, and seals as indicated, in accordance with manufacturer's structions and with recognized industry practices to insure supporting devices vith requirements. Comply with requirements of NECA and NEC for installation of devices.
- with other electrical work, including raceway and wiring work, as necessary to installation of supporting devices with other work. Coordinate support locations with ictural and mechanical trades. Supports shall not be attached to mechanical or piping, conduit, ductwork, ceiling grid system or any other non-structural member.
- ngers, supports, clamps, and attachments to support piping properly from building Arrange for grouping of parallel runs of horizontal conduits to be supported on trapeze type hangers where possible. Install supports with spacings indicated mpliance with NEC requirements.

## ELECTRICAL IDENTIFICATION

- CUMENTS
- and general provisions of Contract, including General and Supplementary Conditions on-1 Specification sections, apply to work of this section. 6 Basic Electrical Materials and Methods section apply to work specified in this
- N OF WORK
- electrical identification work is indicated by drawings and schedules.
- electrical identification work specified in this section include the following:
- cal power, control, and communication conductors.
- tional instructions and warnings. nent/system identification signs.
- URANCE
- irers: Firms regularly engaged in manufacture of electrical identification products required, whose products have been in satisfactory use in similar service for not 3 years
- pliance: Comply with NEC as applicable to installation of identifying labels and for wiring and equipment.
- liance: Comply with applicable requirements of UL Std 969, "Marking and Labeling pertaining to electrical identification systems.
- MANUFACTURERS
- Manufacturers: Subject to compliance with requirements, manufacturers offering identification products which may be incorporated in the work include, but are not , the following:
- W.H. Co. IDENTIFICATION MATERIALS
- Except as otherwise indicated, provide manufacturer's standard products of and types required for each application. Where more than single type is for an application, selection is Installer's option, but provide single selection for lication
- PLASTIC-LAMINATE SIGNS
- Provide engraving stock melamine plastic laminate, complying with FS L-P-387, and thicknesses indicated, engraved with engraver's standard letter style of sizes ling indicated, white face and black core plies (letter color) except as otherwise punched for mechanical fastening except where adhesive mounting is necessary of substrate.
- ess: 1/8", except as otherwise indicated.
- ners: Self-tapping stainless steel screws, except contact-type permanent adhesive rews cannot or should not penetrate substrate. AND GRAPHICS
- Coordinate names, abbreviations and other designations used in electrical tion work, with corresponding designations shown, specified or scheduled. Provide lettering, and wording as indicated or, if not otherwise indicated, as recommended facturer or as required for proper identification and operation/maintenance of systems and equipment.
- AND INSTALLATION
- stallation Requirements
  - electrical identification products as indicated, in accordance with manufacturer's structions and requirements of NEC.
  - ination: Where identification is to be applied to surfaces which require finish, ntification after completion of painting. ations: Comply with governing regulations and requests of governing authorities for tion of electrical work.

9. OPERATIONAL IDENTIFICATION AND WARNINGS

A. General: Wherever reasonably required to ensure safe and efficient operation and maintenance of electrical systems, and electrically connected mechanical systems and general systems and equipment, including prevention of misuse of electrical facilities by unauthorized personnel, install self-adhesive plastic signs or similar equivalent identification, instruction or warnings on switches, outlets and other controls, devices and doors of electrical enclosures. Where detailed instructions or explanations are needed, provide MICHAEL LEGG ARCHITECTURE plasticized tags with clearly written messages adequate for intended purposes. Michael Gregory Legg NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St 10. EQUIPMENT/SYSTEM IDENTIFICATION San Antonio, Texas 78260 ph. 210-416 4935 A. General: Install engraved plastic-laminate sign on each major unit of electrical equipment michael@mlarchitecture.info in building; including central or master unit of each electrical system including www.michaelleggarchitecture.com communication/ control/signal systems, unless unit is specified with its own self-explanatory identification or signal system. Except as otherwise indicated, provide single line of text, 1/2" high lettering, on 1-1/2" high sign (2" high where 2 lines are DED AD required), black lettering in white field. Provide text matching terminology and numbering of the contract documents and shop drawings. Provide signs for each unit of the following categories of electrical work: 1. Switchboard, panelboards, electrical cabinets, disconnect switches and enclosures 2. Access panel/doors to electrical facilities 3. Transformers DRAWING 4. Intercom system master station COORDINATION 5. TV/audio monitoring master station Architectural, Landscape, Civil, Structural, Mechanical and 6. Fire alarm master station Electrical drawings are interrelate General Contractor and all Sub 7. Each switch in main switchboard Contractors shall review and coordinate the entire set of 8. Communications systems terminal cabinets; sound, CCTV, clock, telephone, etc. drawings and specifications B. Install signs at locations indicated or, where not otherwise indicated, at location for best convenience of viewing without interference with operation and maintenance of equipment. Secure to substrate with fasteners, except use adhesive where fasteners should not or cannot penetrate substrate. 0 7 Έď SPECIFICATIONS PROJECT NO. 05-05-22 SHEET NO.



- 5. NEMA FU 1 Low Voltage Cartridge Fuses.
- 6. NEMA KS 1 Enclosed Switches. 7. NEMA PB 1 — Panelboards.
- 1.03 SUBMITTALS
- A. The following information shall be submitted to the Engineer: 1. Breaker layout drawing with dimensions indicated and nameplate designation
- 2. Component list
- 3. Conduit entry/exit locations 4. Assembly ratings including:
- a. Short-circuit rating
- b. Voltage
- c. Continuous current 5. Cable terminal sizes
- PART 2 PRODUCTS
- 2.01 ENCLOSURE
- A. Cabinet:
- 1. Construct cabinets in accordance with UL 50. Use painted galvanized sheet steel 16-gauge or more. 2. Provide a minimum 4-inch gutter wiring space on each side.
- 3. Reinforce cabinets and securely support bus bars and over-current devices to prevent vibration and breakage in handling
- 4. Provide standard conduit knockouts in cabinet ends. 5. Finish cabinets of surface-mounted panelboards to match doors and trim as specified below
- 6. Panelboards mounted outdoors shall be weatherproof, and shall have a door behind door type construction.
- 7. Panelboards mounted in wet or corrosive areas shall have NEMA 4X stainless steel enclosures
- 8. Panelboards mounted shall be NEMA 12 enclosures for areas classified as NEMA 12.
- B. Doors and Trim: 1. Fabricate doors and trim from cold-rolled sheet steel.
- 2. Equip doors with flush-type combination catch and key lock.
- 3. Key all locks alike. Fasten trim for flush-mounted panelboards to cabinets by an
- approved means which permits both horizontal and vertical adjustment. 4. Trim for surface-mounted panelboards must fit the cabinet with no overhang.
- 5. Apply a finish to trim and doors consisting of two coats of enamel over a rust-inhibiting prime coat.
- 2.02 BUS
- A. Material:
- 1. Provide tin plated, copper bus bars, 98 percent IACS conductivity, full-sized throughout their length. 2. Use buses with silver-plated contact surfaces.
- 3. Include a tin plated copper bus bar around bus in panelboard rated not less than 25 percent of the main bus capacity.
- 4. Full size (100% rated) insulated neutral bus shall be included in the panel board, shown with neutral. 200% rated neutral bus shall be supplied for panels designated on the drawinas.
- 5. The ground and neutral bus shall be at least one terminal screw for each circuit.
- 6. Provide through feed or sub feed lugs where indicated.
- 7. Provide lugs and connection points on phase, neutral and ground bus suitable for copper 8. Spaces for future circuit breakers shall be bussed for the maximum devices that can be
- B. Size bars as indicated and brace them to withstand the available symmetrical short circuit
- current. C. Installation:
- 1. Install buses in allotted spaces so that devices can be added without additional machining, drilling or tapping. 2. Mount neutral bars, as required, on the opposite end of the main lugs.
- 2.03 PROTECTIVE DEVICES
- A. Circuit Breakers: Provide circuit breakers for the specified service with the number of poles and ampere ratings indicated. 1. Provide breakers which are quick-make and quick-break on both manual and automatic
- operation. 2. Use a trip-free trip indicating breaker.
- 3. Incorporate inverse time characteristic by bimetallic overload elements and instantaneous characteristic by magnetic trip. Where indicated, provide ground fault circuit breakers (GFCB).
- 4. For 2-pole and 3-pole breakers, use the common-trip type so that an overload or fault
- on one pole will trip all poles simultaneously. Handle ties are not acceptable. 5. Unless otherwise indicated, provide circuit breakers with the following interrupting ratings:
- a. Each circuit breaker used in 120/208 Volt panelboards shall have an interrupting capacity of not less than 10,000 Amps, RMS symmetrical.
- b. Each circuit breaker used in 120/240 Volt panelboards shall have an interrupting capacity of not less than 10,000 Amps, RMS symmetrical.
- c. Each circuit breaker used in 277/480 Volt and 480 Volt panelboards shall have an interrupting capacity of not less than 22,000 Amps, RMS symmetrical.
- d. GFCI (ground fault circuit interrupter) shall be provided for circuits where shown on the drawings. GFCI units shall be 1 Pole, 120 Volt, molded case, bolt-on breakers, incorporating a solid state ground fault interrupter circuit insulated and isolated from the breaker mechanism. The unit shall be UL listed Class A Group I device (5 milliamp sensitivity, 25 millisecond trip time) and an interrupting capacity of 10,000 Amps, RMS. e. Circuit breakers shall be as manufactured by the panelboard manufacturer.
- 6. Connect breakers to the main bus by means of a solidly bolted connection.
- 7. Use breakers which are interchangeable, capable of being operated in any position within the panel. 8. Independently mount breakers so that a single unit can be removed from the front of the
- panel without disturbing or removing main bus, other units or other branch circuit connections.
- 9. Provide individual breaker handle lock for all circuits that supply exit signs, emergency lights, and fire alarm panels.
- 10.Provide GFI circuit breakers for heat trace circuit. The rating shall be as per NEC.
- B. Surge Suppressor 1. The panelboard shall be provided with externally mounted, transient voltage surge suppression.
- C. Service Entrance
- 1. The panelboard shall have a connection for housing and grounding neutral conductor. 2. Provide a UL label for the panelboard.
- 2.04 CIRCUIT IDENTIFICATION

Xref ...\3.20 X-Ref\x-tb.dwa

- A. Directory: 1. For each panelboard, provide a directory frame mounted inside the door with a
- heat-resistant transparent face and a directory card for identifying the load served. 2. Type directory as specified in Section 16010.
- B. Nameplate: 1. Provide a black on white nameplate on the face of the panelboard using the following as an example:

- 2.05 LISTING
- A. UL 67 Electric Panelboards.
- 2.06 ACCEPTABLE MANUFACTURERS
- A. Acceptable manufacturers are Culter Hammer, Square-D, General
- PART 3 EXECUTION
- 3.01 INSTALLATION
- A. Install panelboards in the locations as shown and as recommend
- B. In wet and corrosive areas, including outdoor locations, inst unistrut support to provide clearance behind the mounting surfac
- C. In wet and corrosive areas, including outdoor locations, connect
- the enclosure and to the lower 30 percent of the sides.
- D. All conduit connections shall be by use of Myers hub.
- 3.02 MOUNTING HEIGHT
- A. Install the panelboards such that the center of the switch or position will not be more than 6-1/2 feet above the floor or w 3.03 SPECIAL REQUIREMENTS
- A. All copper items, including wiring, terminal blocks, lugs, conne plated copper.
- B. All steel shall be primed and painted as specified. Galvanized ite C. All hardware, including nuts, bolts, washers, screws, anchor bolt
- made of 316 stainless steel.
- D. The minimum requirements of painting procedure shall be followed 1. Surface preparation per SSPC-SP6. 2. Primer: Tnemec 66, Epoxoline – one coat 4 dry mils.
- 3. Finish Coat: Tnemec Series 72, Edura Shield one coat
- gray). 4. Undercoat Finish: Tnemec Tar 46-413-2 coats 40 dry mils

- RELATED DOCUMENTS
- A. Drawings and general provisions of Contract, including General and Division—1 Specification sections, apply to work of this sec
- B. Division-16 Basic Electrical Materials and Methods section apply
- 2. DESCRIPTION OF WORK
- A. Extent of grounding work is indicated by drawings and schedule
- B. Types of grounding specified in this section include the followin 1. Solid grounding
- C. Applications of grounding work in this section including the follo 1. Underground metal water piping
- 2. Metal building frames

- 3. Grounding electrodes
- 4. Grounding rods
- 5. Service equipment
- 6. Enclosures
- 7. Equipment
- QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of elec and fittings, of types and ratings required, and ancillary ground stranded cable, copper braid and bus, ground rods and plate e have been in satisfactory use in similar service for not less th
- B. Installer: Qualified with at least 3 years of successful installation with electrical grounding work similar to that required for project
- C. NEC Compliance: Comply with NEC requirements as applicable of electrical aroundina systems, associated equipment and wirin products which are UL-listed and labeled.
- D. UL Compliance: Comply with applicable requirements of UL Sta pertaining to electrical grounding and bonding.

<ul> <li>2.05 LISTING</li> <li>A. UL 67 – Electric Panelboards.</li> <li>2.06 ACCEPTABLE MANUFACTURERS</li> </ul>	F. All ground connections shall be made on surfaces which have been cleaned of all paint, dirt, oil, etc., so that connections are bare metal to bare metal contact. All ground connections shall be tight and shall be made with U.L. listed grounding devices, fittings, bushings, etc.	11. Ballasts shall have a 12. Ballasts shall operate output if compo
A. Acceptable manufacturers are Culter Hammer, Square—D, General Electric, Siemens.	G. Duplex receptacles of any amperage shall be grounding type and shall have a separate grounding contact. A separate jumper shall be installed between the grounding terminal on the device and the metallic box. The Contractor may provide U.L. listed self-grounding	13. Ballasts shall carry a 14. Ballasts shall be man
PART 3 EXECUTION 3.01 INSTALLATION	receptacles in lieu of providing the separate jumper. H. Single and duplex receptacles shall have all grounded metal mechanically bonded together.	C. Fusing all fluorescent ba supplied with automatical
<ul> <li>A. Install panelboards in the locations as shown and as recommended in NEMA PB1.1.</li> <li>B. In wet and corrosive areas, including outdoor locations, install panelboard enclosures on unistrut support to provide clearance behind the mounting surface.</li> </ul>	Pressure bonding only is not acceptable. I. Single and duplex receptacles will be installed with the grounding contacts down.	D. H.I.D. Lamp Ballasts: Pr indicated; with high power low-noise feature and w
C. In wet and corrosive areas, including outdoor locations, connect conduits to the bottom of the enclosure and to the lower 30 percent of the sides.	<ul> <li>J. Hospital grade or high abuse type which will be installed with the ground contacts up.</li> <li>1. Shop equipment receptacles shall be installed with the ground contacts up.</li> <li>K. In all cases where flexible metallic conduit, nonmetallic rigid conduit or liquid tight flexible</li> </ul>	E. Lamps: Provide lamps of lamp type with ballast for
<ul><li>D. All conduit connections shall be by use of Myers hub.</li><li>3.02 MOUNTING HEIGHT</li><li>A. Install the panelboards such that the center of the switch or circuit breaker in the highest</li></ul>	<ul><li>conduit is used, a green wire ground conductor shall be used to provide ground continuity between the equipment of device and the conduit raceway system.</li><li>L. Provide a separate green wire ground conductor for each branch circuit originating from</li></ul>	operate for the expected General Electric, Phillips, 1. Fluorescent lamps shal
position will not be more than 6-1/2 feet above the floor or working platform. 3.03 SPECIAL REQUIREMENTS A. All copper items, including wiring, terminal blocks, lugs, connectors, bus, etc., shall be tin	each panelboard. This ground shall be used to ground the device or load fed, and shall be bonded to components of the raceway system, such as junction boxes, starter or disconnect switch enclosures, equipment cases, etc. The green wire ground conductor shall terminate in the panelboard at the green wire ground bus. Ground conductors for branch	2. Lamp and ballast com Lamps shall start insta
plated copper. B. All steel shall be primed and painted as specified. Galvanized items shall also be painted.	circuits shall be of size indicated in NEC, except minimum size ground conductor shall be No. 12 AWG. M. Each branch feeder originating at the switchboard(s) shall have a green wire ground	not be acceptable and 3. All lamp types and col
<ul> <li>C. All hardware, including nuts, bolts, washers, screws, anchor bolts, door hinges, etc., shall be made of 316 stainless steel.</li> <li>D. The minimum requirements of painting procedure shall be followed:</li> </ul>	conductor originating at the ground bus in the switchboard and terminating at the green wire ground bus in the panelboard. This green wire ground conductor shall be of size indicated in NEC except in no instance smaller than No. 8 AWG.	7. INSTALLATION OF INTERIOR LIG A. Install interior lighting fix
<ol> <li>Surface preparation per SSPC-SP6.</li> <li>Primer: Tnemec 66, Epoxoline – one coat 4 dry mils.</li> <li>Finish Coat: Tnemec Series 72, Edura Shield – one coat 1.5 dry mils (ANSI 61 light gray).</li> </ol>	<ul> <li>N. The green wire ground conductor is in addition to the neutral conductor and in no case shall the neutral conductor serve as the grounding means.</li> <li>O. Multiple conductors in a single lug not permitted. Each grounding conductor shall terminate in its own terminal lug.</li> </ul>	fixture manufacturer's wr of Installation", NEMA sto lighting fixtures fulfill req
4. Undercoat Finish: Tnemec Tar 46-413-2 coats 40 dry mils total.	SECTION 16510 - INTERIOR BUILDING LIGHTING	<ul> <li>B. Coordinate with other electronic interior lighting fixtures w</li> <li>C. Fasten fixtures securely</li> </ul>
SECTION 16450 - GROUNDING	1. RELATED DOCUMENTS	plumb and level. Provid structural support where
<ol> <li>RELATED DOCUMENTS</li> <li>A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.</li> </ol>	<ul> <li>A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.</li> <li>B. Division-16 Basic Electrical Materials and Methods section apply to work specified in this section.</li> </ul>	conduits, ceiling grid or D. Coordinate fixture installo communication systems
<ul><li>B. Division-16 Basic Electrical Materials and Methods section apply to work of this section.</li><li>2. DESCRIPTION OF WORK</li></ul>		8. ADJUST AND CLEAN
<ul><li>A. Extent of grounding work is indicated by drawings and schedules.</li><li>B. Types of grounding specified in this section include the following:</li></ul>	<ul> <li>2. DESCRIPTION OF WORK</li> <li>A. Extent of interior lighting fixture work is indicated by drawings and schedules.</li> <li>B. Types of interior lighting fixtures in this section include the following:</li> </ul>	A. Clean interior lighting fix B. Protect installed fixtures
1. Solid grounding C. Applications of grounding work in this section including the following:	1. Fluorescent 2. Incandescent	9. FIELD QUALITY CONTROL A. Upon completion of insto
<ol> <li>Underground metal water piping</li> <li>Metal building frames</li> </ol>	3. High Intensity Discharge 4. LED	been energized, apply ele requirements. where pos demonstrate compliance;
<ol> <li>Grounding rods</li> <li>Grounding rods</li> </ol>	<ul> <li>C. Applications of interior lighting fixtures required for project including the following:</li> <li>1. General lighting</li> </ul>	retesting. B. At the time of Substanti
<ol> <li>Service equipment</li> <li>Enclosures</li> </ol>	<ol> <li>Supplementary lighting</li> <li>Task lighting</li> </ol>	observed to be noticeabl Architect/Engineer.
7. Equipment 3. QUALITY ASSURANCE	4. Emergency lighting	C. Refer to Division-1 secti fixtures, where used for
A. Manufacturers: Firms regularly engaged in manufacture of electrical connectors, terminals and fittings, of types and ratings required, and ancillary grounding materials, including stranded cable, copper braid and bus, ground rods and plate electrodes, whose products have been in satisfactory use in similar service for not less than 3 years.	<ul> <li>3. QUALITY ASSURANCE</li> <li>A. Manufacturers: Firms regularly engaged in manufacture of interior lighting fixtures of types and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.</li> </ul>	10. GROUNDING A. Provide tight equipment
B. Installer: Qualified with at least 3 years of successful installation experience on projects with electrical grounding work similar to that required for project.	B. Installer: Qualified with at least 3 years of successful installation experience on projects with interior lighting fixture work similar to that required for project.	
C. NEC Compliance: Comply with NEC requirements as applicable to materials and installation of electrical grounding systems, associated equipment and wiring. Provide grounding products which are UL—listed and labeled.	C. NEC Compliance: Comply with NEC as applicable to installation and construction of interior building lighting fixtures.	SECTION 16520 - EXTERIOR BUILD
D. UL Compliance: Comply with applicable requirements of UL Standards Nos. 467 and 869 pertaining to electrical grounding and bonding.	D. NEMA Compliance: Comply with applicable requirements of NEMA Std Pub Nos. LE 1 and LE 2 pertaining to lighting equipment.	1. RELATED DOCUMENTS A. Drawings and general pro
E. IEEE Compliance: Comply with applicable requirements of IEEE Standard 142 and 241 pertaining to electrical grounding.	<ul> <li>E. ANSI/IES Compliance: Comply with ANSI 132.1 pertaining to interior lighting fixtures.</li> <li>F. ANSI/UL Compliance: Comply with ANSI/UL standards pertaining to interior lighting fixtures for hazardous locations.</li> </ul>	and Division-1 Specificat B. Division-16 Basic Electric section.
4. SUBMITTALS	G. UL Compliance: Provide interior lighting fixtures which have been UL-listed and labeled.	2. DESCRIPTION OF WORK
<ul> <li>A. Product Data: Submit manufacturer's data on grounding systems and and accessories.</li> <li>B. Shop Drawings: Submit layout drawings of grounding systems and accessories including, but not limited to, ground wiring, copper braid and bus, ground rods, and plate electrodes.</li> </ul>	H. CBM Labels: Provide fluorescent—lamp ballasts which comply with Certified Ballast Manufacturers Association standards and carry the CBM label.	A. Extent of exterior lighting B. Types of exterior lighting 1. LED
<ul><li>5. ACCEPTABLE MANUFACTURERS</li><li>A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering</li></ul>	<ul> <li>4. SUBMITTALS</li> <li>A. Product Data: Submit manufacturer's data on interior building lighting fixtures, lamps and</li> </ul>	<ol> <li>High Intensity Discharge</li> <li>Fluorescent</li> </ol>
grounding products which may be incorporated in the work include, but not limited to, the following: 1. Burndy Corp.	ballasts. Lighting fixtures shall be in strict accordance with the fixture schedule. Substitutions will not be accepted without formal written prior approval. Requests for review of substitutions shall be submit a minimum of 10 days prior to bid. Any other requests will be rejected.	C. Applications of exterior li 1. Outdoor supplementary lightin
<ol> <li>Crouse-Hinds Co.</li> <li>Electrical Components Div.; Gould Inc.</li> </ol>	B. Shop Drawings: Submit fixture shop drawings in booklet form with separate sheet for each fixture, assembled in luminaire "type" alphabetical order, with proposed fixture and accessories clearly indicated on each sheet.	<ol> <li>Site Lighting</li> <li>QUALITY ASSURANCE</li> </ol>
<ol> <li>Thomas and Betts Corp.</li> <li>GROUNDING SYSTEMS</li> </ol>	5. ACCEPTABLE MANUFACTURERS	A. Manufacturers: Firms re and ratings required, who not less than 5 years.
<ul> <li>A. Materials and Components:</li> <li>1. General: Except as otherwise indicated, provide electrical grounding systems indicated;</li> </ul>	A. Manufacturers/Catalog Numbers: Subject to compliance with requirements, provide fixtures manufactured by manufacturers as indicated on the fixture schedule. Catalog numbers	B. Installer: Qualified with with exterior lighting fixtu
with assembly of materials, including, but not limited to, cables/wires, connectors, terminals (solderless lugs), grounding rods/electrodes and plate electrodes, bonding jumper braid, surge arresters, and additional accessories needed for complete installation. Where more	given on the fixture schedule are intended to provide the general description of the required fixture and its quality. Additional accessories, mounting hardware, options, etc., not specifically described by the catalog number but required for a properly operating and	C. NEC Compliance: Compl building lighting fixtures. G. UL Compliance: Provide
than one type unit meets indicated requirements, selection is Installer's option. Where materials or components are not indicated, provide products complying with NEC, UL, IEEE, and established industry standards for applications indicated.	installed fixture or as described by additional notation on the drawings or in the specifications, shall be provided.	H. CBM Labels: Provide ba standards and carry the
B. Conductors: Unless otherwise indicated, provide electrical grounding conductors for grounding connections matching power supply wiring materials and sized according to NEC.	<ul> <li>6. INTERIOR LIGHTING FIXTURES</li> <li>A. General: Provide lighting fixtures, of sizes, types, and ratings indicated; complete with, but</li> </ul>	4. SUBMITTALS A. Product Data: Submit n
C. Ground Rods: Solid copper or copper clad steel, minimum 3/4" dia. x 10'. Provide longer rods if necessary for required resistivity.	not necessarily limited to, housings, lamps, lamp holders, reflectors, ballasts, starters and wiring.	and ballasts to Architect. B. Shop Drawings: Submit
<ul> <li>D. Electrical Grounding Connection Accessories: Provide electrical insulating tape, heat-shrinkable insulating tubing, welding materials, bonding straps, as recommended by accessories manufacturers for type services indicated.</li> </ul>	<ol> <li>Fluorescent-Lamp Ballasts: Provide energy saving high frequency electronic fluorescent-lamp ballasts, capable of operating 32 watt, octic, T-8 lamp types; with high power factor, rapid-start, and low-noise features; Type 1; Class P; sound-rated A, and with internal thermal protection. All flourescent fixture ballasts shall be of the same</li> </ol>	shop drawings in booklet "type" alphabetical order, sheet to Architect. Provid lamp and ballast type ar
<ul> <li>7. INSPECTION</li> <li>A. Installer must examine areas and conditions under which electrical grounding connections</li> </ul>	manufacturer and type. Ballasts shall also meet the following requirements: 2. Operate lamps at 20 KHZ or higher with no detectable flicker.	5. ACCEPTABLE MANUFACTURER A. Manufacturers/Catalog No
are to be made and notify Contractor in writing of conditions detrimental to proper completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.	3. Ballast manufacturer shall have been producing electronic ballasts in the U.S. for more than five years with a low failure rate.	manufactured by manufa given on the fixture sche fixture and its quality. specifically described by
<ul> <li>8. INSTALLATION OF ELECTRICAL GROUNDING</li> <li>A. General: Install electrical grounding systems where shown, in accordance with applicable portions of NEC with NECA's "Standard of Installation" and in accordance with recognized</li> </ul>	<ol> <li>Ballasts shall be approved and listed by UL.</li> <li>Ballasts shall comply with all applicable state and federal efficiency standards.</li> </ol>	installed fixture or as de specifications, shall be p
portions of NEC, with NECA's "Standard of Installation", and in accordance with recognized industry practices, to ensure that products comply with requirements and serve intended functions. B. Coordinate with other electrical work as necessary to interface installation of electrical	<ol> <li>Ballasts shall comply with FCC and NEMA limits governing electromagnetic and radio frequency interference and shall not interfere with operation of other normal electrical equipment.</li> </ol>	<ol> <li>EXTERIOR LIGHTING FIXTURE</li> <li>A. General: Provide lighting not necessarily limited to wiring</li> </ol>
<ul> <li>Coordinate with other electrical work as necessary to interface installation of electrical grounding system work with other work.</li> <li>C. Install clamp—on connectors only on thoroughly cleaned metal contact surfaces, to ensure</li> </ul>	<ol> <li>Ballasts shall meet all applicable ANSI and IEEE standards regarding harmonic distortion and surge protection, but in no case shall have total harmonic distortion exceeding 20%.</li> </ol>	wiring. B. H.I.D-Lamp Ballasts: Pr capable of operating the
electrical conductivity and circuit integrity. D. All ground connections to water service entrance shall be installed to be exposed and	<ol> <li>Ballasts shall not be affected by lamp failure and shall yield normal published expected lamp life.</li> </ol>	and low-noise features; protection. All HID fixture quartz restrike feature w
visible for inspection at all times. Insulation shall not be installed over ground connections. E. A water pipe, by itself, is not an adequate grounding electrode and must be supplemented	9. Lamp current crest factor shall not exceed 1.7.	full brightness and shall temperature rating.
by dual grounding electrodes, a minimum of 8 feet apart, and effectively bonded together. The supplemental ground shall be per Code with the "Footing type electrode" taking precedence when possible.	10.Ballasts shall operate at an input frequency of 60 HZ and an input voltage of that indicated on the drawings for the fixture voltage.	C. LED: Provide internal driv Schedule for distribution D. Emergency Lighting: Prov ahead of lighting control

e a power factor above 0.95.

- ate as a parallel circuit allowing remaining mpanion lamps fail.
- 'a minimum three year warranty, including nanufactured by Magnetek, Motorola or app

ballasts shall be fused. Fuses may be tically resetting thermal overloads internal

- Provide energy saving ballasts, capable c power factor, fixture to have quartz restrike with internal thermal protection, class H by Advanced, Valmont, Magnetek or appr
- ps of the wattage and types specified on t for a complete operational, energy saving cted lamp and ballast life. Lamps shall be ips, or Osram/Sylvania.
- shall be rapid start, T—8, medium bi—pin, 00 average rated hours.
- ombinations shall have no noticeable flicke nstantaneously and illuminate immediately. and the lamp and/or ballast shall be repla
- color shall be verified with the lighting co

LIGHTING FIXTURES

- fixtures at locations and heights as indice written instructions, applicable requirement standards, and with recognized industry p requirements.
- electrical work as appropriate to properly es with other work.
- ely to building structural support; and ensu ovide all required mounting hardware and s ere necessary. Fixtures shall not be supp or any other non-structural building memb
- tallation with mechanical duct work, diffuse ns devices, etc., to avoid any interferences
- fixtures of dirt and debris upon completio res from damage during remainder of cons
- nstallation of interior lighting fixtures, and / electrical energy to demonstrate capability possible, correct malfunctioning units at s nce; otherwise, remove and replace with ne
- antial Completion, replace lamps in interior eably dimmed after Contractor's use and t
- sections for the replacement/restoration of for temporary lighting prior to time of Sub

ent grounding connections for each interior

JILDING LIGHTING

- provisions of Contract, including General c ication sections, apply to work of this sec
- ctrical Materials and Methods section apply
- hting fixture work is indicated by drawings Iting fixtures in this section include the foll
- lighting fixtures required for project inclu hting
- regularly engaged in manufacture of exte whose products have been in satisfactory
- ith at least 3 years of successful installation fixture work similar to that required for pr mply with NEC as applicable to installation
- vide exterior lighting fixtures which are ULballasts which comply with Certified Ballas the CBM label.
- manufacturer's data on exterior lighting
- mit dimensioned drawings of exterior lightin oklet form with separate sheet for each fix der, with proposed fixture and accessories rovide photometric data for each fixture type e and manufacturer.
- Numbers: Subject to compliance with re nufacturers as indicated on the fixture sche schedule are intended to provide the gener Additional accessories, mounting hardwa by the catalog number but required for a described by additional notation on the d provided.
- URES
- nting fixtures, of sizes, types, and ratings to, housings, lamps, lamp holders, reflec
- Provide energy saving high intensity disch the associated lamp type for its rated life es; Type 1; Class P; sound-rated A, and w ture ballasts shall be of the same manufa where indicated on the drawings. Ballasts hall be suitable for the exterior environmen
- driver, lamps dimmable from 100% to 0%, ion types, and voltage.
- Provide emergency battery pack with minim

- IRERS

	7. LIGHTING POLES AND STANDARDS	
lamps to maintain full	A. EPA: Equivalent for projected area. B. Provide brackets for mounting luminaire.	
g labor allowance.	C. Refer to Lighting Fixture Schedule for pole height, thickness, color and type. D. Provide handhole with minimum clear opening of 2 1/2—inches by 5—inches with gasketed	
proved equal.	cover (w/matching finish) secured with stainless steel screws.	MICHAEL LEGG ARCHITECTURE Michael Gregory Legg
eleted if the ballast is to the ballast.	<ol> <li>INSTALLATION OF EXTERIOR LIGHTING FIXTURES</li> <li>A. Install exterior lighting fixtures at locations and heights as indicated, in accordance with</li> </ol>	NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St
f operating lamp types where indicated and	fixture manufacturer's written instructions, applicable requirements of NEC, NECA's "Standard of Installation", NEMA standards, and with recognized industry practices to ensure that	San Antonio, Texas 78260 ph. 210-416 4935 michael@mlarchitecture.info
insulation. H.I.D. ballasts oved equal.	lighting fixtures fulfill requirements. B. Coordinate with other electrical work as appropriate to properly interface installation of	www.michaelleggarchitecture.com
the drawings. Coordinate g lighting system which will	exterior lighting fixtures with other work. C. Fasten fixtures securely to required structural supports; and check to ensure that solid	RED APO
e as manufactured by	pendant fixtures are plumb.	GREGO SI
32 watt, 3500K, 85 CRI,	<ol> <li>ADJUST AND CLEAN</li> <li>A. Clean exterior lighting fixtures of dirt and debris upon completion of installation.</li> </ol>	
r or delayed starting.	B. Protect installed fixtures from damage during remainder of construction period.	22543 0 0 1
Any delay in starting will aced.	10. FIELD QUALITY CONTROL A. Upon completion of installation of exterior lighting fixtures, and after building circuitry, apply	09.21.2023
nsultant prior to ordering.	electrical energy to lighting fixtures to demonstrate capability and compliance with requirements. Where possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.	DRAWING COORDINATION Architectural, Landscape, Civil, Structural, Mechanical and
ated, in accordance with	B. At the time of Substantial Completion, replace lamps in exterior lighting fixtures which are observed to be noticeably dimmed after Contractor's use and testing, as judged by Owner.	Electrical drawings are interrelated. General Contractor and all Sub
ts of NEC, NECA's "Standard ractices to ensure that	Furnish stock or replacement lamps amounting to 15% (but not less than one lamp in each case) of each type and size lamp used in each type fixture. Deliver replacement stock as directed to Owner's storage space.	Contractors shall review and coordinate the entire set of drawings and specifications
interface installation of	C. Refer to Division—1 sections for the replacement/restoration of lamps in exterior lighting fixtures, where used for temporary lighting prior to time of Substantial Completion.	
re that pendant fixtures are steel channel to supplement	D. Inspect each installed luminaire for damage. Replace damaged luminaires and components.	
orted from ductwork, piping, ber.	<ol> <li>GROUNDING</li> <li>A. Provide tight equipment grounding connections for each exterior lighting fixture installation.</li> </ol>	
ers, return grilles, 5.	B Ground steel poles per NEC 250.	
on of installation	SECTION 16721 - FIRE ALARM AND SMOKE DETECTION SYSTEMS	
struction period.	1. SECTION INCLUDES	
	A. A combination addressable and hard wired fire alarm and smoke detection system.	
after building circuitry has and compliance with	<ol> <li>REFERENCES.</li> <li>A. NFPA 70 - National Electrical Code - 2017.</li> </ol>	
ite, then retest to w units, and proceed with	B. NFPA 72 — National Fire Alarm Code — 2009.	
lighting fixtures which are	D. NFPA 101 - Life Safety Code - 2009.	
esting, as judged by	E. ANSI All7.I—1986 American National Standard for Buildings and Facilities Providing Accessibility and Usability for Physically Handicapped People.	
lamps in interior lighting ostantial Completion.	F. American With Disabilities Act of 1990 and applicable sections of the Uniform Federal Accessibility Standard.	
	3. REGULATORY REQUIREMENTS	
lighting fixture installation.	A. System: UL listed.	a
	<ul> <li>B. Conform to requirements of NFPA 101 and the Local Fire Marshall.</li> <li>4. DESCRIPTION OF SYSTEM</li> </ul>	de
	A. The system shall be an addressable, microprocessor based fire alarm control system with	
	transient protection on each circuit and walk-through test capability. The system shall have the capability to control and supervise all the addressable devices and	BA C
	non-addressable appliance and auxiliary control circuits. Each component of the system shall be UL listed for its use. The system shall have a Dynamic LCD display and be located in a constantly attended location while the building is occupied.	
and Supplementary Conditions tion.	5. QUALIFICATIONS	t F Xa
to work specified in this	A. Manufacturer: Company specializing in smoke detection and fire alarm systems with five (5)	Te an
and askedulas	years documented experience. B. Installer: Company specializing in smoke detection and fire alarm systems with five (5)	ο Č Č
and schedules. Iowing:	years documented experience with projects of equivalent scope of work and size and certified by the Florida State Licensing Board as fire alarm installing contractor. The actual installer shall be liscensed to install fire alarm systems and shall be certified by the system manufacturer to install the system. Proof of certification and liscensure shall be	sta leri
	provided upon request. 6. SUBMITTALS	Re
uding the following:	A. Submit six (6) copies shop drawings and product data.	Х Щ С Г Ч
	B. Provide complete point to point wiring diagrams, data sheets, and equipment ratings, layout, dimensions, and finishes. Indicate the location of surge protection devices.	
	C. Submit manufacturer's installation instructions.	υ Č μ
rior lighting fixtures of types use in similar service for	D. Submit manufacturer's certificate that the system meets or exceeds specified requirements — certification per NFPA 72.	<u> </u>
on experience on projects	E. Submit copy of Contractor's license before work begins.	000
oject. and construction of exterior	F. Submit battery calculations indicating the required battery, including the specified spare capacity.	
-listed and labeled.	G. Submit voltage drop calculations.	5
st Manufacturers Association	H. Provide training for four (4) people on the operation, maintenance, and repair of the system at the Contractor's expense. Training shall be certified by the manufacturer and be at different times for each person. Include transportation, room and board where needed.	
fixtures, lamps, BUG rating,	<ul> <li>PROJECT RECORD DRAWINGS</li> <li>A. Contractor shall provide five (5) sets of as-built drawings to the Owner upon completion of project</li> </ul>	PTION
ng fixture. Submit fixture ture, assembled in luminaire	project. B. As-builts shall include the location of end-of-line devices, surge protection devices and	
clearly indicated on each pe. Clearly indicate fixture	exact conduit and wire routing. Numbers and types or conductors shall be indicated for each circuit.	DESC
quirements, provide fixtures edule. Catalog numbers		
ral description of the required re, options, etc., not		DATE
properly operating and Irawings or in the		
indicated, complete with but		SPECIFICATIONS
ndicated; complete with, but tors, ballasts, starters and		
arge lamp type ballasts, ; with high power factor,		PROJECT NO. 05-05-22
with internal thermal cturer and type. Provide		00-00-22
s shall operate the lamp at it, including the appropriate		SHEET NO.
Refer to Light Fixture		
um 90 minutes and wired		SP.16
		JF.10

#### DIVISION 16 - ELECTRICAL SYSTEMS (CONTINUED)

SECTION 16721 - FIRE ALARM AND SMOKE DETECTION SYSTEMS (CONTINUED)

- 8. OPERATION AND MAINTENANCE DATA
- A. Provide seven (7) copies of operation and maintenance data prior at the completion of construction for all point devices, CPUs, and all other equipment.
- B. Include operating instructions, and maintenance and repair procedures.
- C. Provide manufacturer representative's letter stating that the system is operational.
- D. Maintain system for a minimum of one (1) year, after complete acceptance by the Owner, in accordance with NFPA 72 and 72E
- E. Provide, at the end of the first year after construction completion, a yearly certification as outlined by the State Fire Marshal's Rule 4A-48.
- 9. DELIVERY, STORAGE, AND HANDLING A. Products shall be delivered to job site in manufacturers original shipping packages. B. Provide storage and protection of products, as needed.
- 10. MANUFACTURERS
- A. Notifier System AFP300.
- B. Equal by EST.
- C. Equal by ADT
- NOTE : Approval of manufacturer's equipment does not any way relieve the Contractor from meeting the performance criteria as outlined in the Plans and Specifications.
- 11. FIRE ALARM CONTROL PANEL (FACP)
- A. Control panel construction shall be modular with solid state, microprocessor based electronics and shall conform to all requirements made necessary by the Local Fire Marshall. It shall display only those primary controls and displays essential to operation during a fire alarm condition. Keyboards or keypads shall not be required to operate the system during fire alarm conditions. A local audible device shall sound during alarm. trouble or supervisory conditions. This audible device shall sound differently during each condition to distinguish one (1) condition from another without having to view the panel. This audible device shall also sound during each keypress to provide an audible feedback to ensure that the key has been pressed properly. The panel shall be complete with all required cards for the points necessary for all the devices indicated, plus capability for expansion to 30% more points, minimum. Provide the necessary hard wired circuits for all the indicating appliance and auxiliary control devices. Provide a two spare indicating appliance circuits in addition to the required indicating appliance circuits to serve the appliances shown on the drawings.
- 1. Provide Voice Evacuation System as required by Local Codes or jurisdiction. Provide microphone, pre-recorded voice message and amplifier and other required devices for a voice annunciated system. Pre-recorded message shall be capable of being revised and re-recored. Confirm exact message required by the local fire marshal prior to installation
- B. The following primary controls shall be visible through a front access panel:
- 1. Eighty character liquid crystal display. Individual red system alarm LED.
- 2. Individual yellow supervisory service LED. Individual yellow trouble LED.
- 3. Green "power on" LED.
- 4. Alarm acknowledge key.
- 5. Supervisory acknowledge key
- 6. Trouble acknowledge key.
- 7. Alarm silence key.
- 8. System reset key.
- C. The control shall provide the following:
- 1. Setting of time and date.
- 2. LED testing. Alarm, trouble, and abnormal condition listing.
- 3. Enabling and disabling of each monitor point separately.
- 4. Activation and deactivation of each control point separately.
- 5. Changing operator access levels
- 6. Walk test enable.
- 7. Running diagnostic functions.
- 8. Displaving software revision level.
- 9. Displaying historical logs.
- 10. Displaying card status.
- 11.Point listing.
- 12. Speaker silence switch.
- D. For maintenance purposes, the following lists shall be available from the point lists menu.
- 1. All points listed by address.
- 2. Monitor point list.
- 3. Signal/speaker list.
- 4. Auxiliary control list.
- 5. Feedback point list.
- 6. Pseudo point list.
- 7. LED/switch status list.
- 12. DEVICES AND ACCESSORIES
- A. Manual Station: Semi-flush mounted, supervised, normally open single action manual station. Manual stations shall be single action and shall be constructed of cast metal or lexan with raised white lettering and a smooth high gloss finish. The station shall have a hinged front with key lock. stations which utilize screwdrivers, Allen wrenches, or other commonly available tools shall not be accepted. Stations shall be keyed alike with the fire alarm control panel. When the station is operated, the handle shall lock in a protruding manner to facilitate quick visual identification of the activated station. Stations shall be the addressable type.
- B. Heat Detector: Easy installation, low profile with wide base to cover mounting plate and box. Detectors shall be white and have a dangling disk to indicate element operation. Detectors will be fixed temperature with thermostats rated at 135 degrees F, except when the plans call for a 194 or 200 degrees F rating. The detector shall be the addressable type for use with an addressable system and shall be UL listed for this purpose.
- 1. Heat detectors installed in hazardous environments shall be the explosion proof type.
- C. Smoke Detectors: NFPA 72E; photoelectric type with plug-in base, supervised visual indication of detector actuation, suitable for mounting on four inch (4") outlet box.
- 1. Detectors shall be listed to U.L. Standard 268 and shall be documented compatible with the control equipment to which it is connected. Detectors shall be listed for this purpose by Underwriters Laboratories, Inc. The detectors shall obtain their operatina power from the fire alarm panel supervised detection loop. The operating voltage shall be 24 VDC (nominal). Removal of the detector head shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal to be generated at the control panel. Detectors shall be the addressable type for use on an addressable type system.
- 2. Each detector shall have a flashing status indicating LED for visual supervision. When the detector is actuated, the flashing LED will latch on steady and at full brilliance. The detector may be reset by actuating the control panel reset switch.
- 3. To minimize nuisance alarms, voltage and RF transient suppression techniques shall be employed as-well-as a smoke verification circuit and an insect screen. The detector design shall provide full solid-state construction and compatibility with other normally open fire alarm detection loop devices (heat detectors, pull stations, etc.). The detector head shall be easily disassembled to facilitate cleaning.

- D. Horns/Speakers: Moisture repellent, fire retardant speaker or ho frequency response with minimal distortion. Horn/Speakers shall be use as a fire alarm indicating appliance. Horn/Speakers shall all alarm sound. Outdoor speakers shall be weatherproof and listed fire alarm indicationg appliance.
- 1. Sound Level: 87 dB at 10 feet not to exceed 120 dbA
- E. Visual Flashing Lamps (Xenon Strobe): Visual indicating appliances shall be comprised of xenon flashtube and be entirely solid state. These devices shall be UL listed and be capable of either ceiling or wall mounting. The lexan lens shall be pyramidal in shape to allow better visibility. Separate alarm indicating circuits shall be provided for strobes. The maximum strobe pulse duration shall be 0.2 seconds with a maximum duty cycle of 40 percent. The intensity shall be a minimum 100 candela and the flash rate shall be at least 1 Hz but not to exceed 3 Hz. Strobe must meet current ADA requirements.
- F. Audio/Visual Alarm Indicating Appliance: Audio/Visual units shall provide a common enclosure for the fire alarm audible and visual alarm devices. The housing shall be designed to accommodate either horns, bells, chimes, or speakers. The unit shall be complete with a tamper resistant, pyramidal shaped lexan lens with "Fire" lettering visible from a 180 degree field of view. The front panel or bezel which is constructed of cast metal maybe inverted so that the lens is below the audible device. The lamp assembly shall incorporate a built-in reflector for more efficient light propagation and a special shock-mounting arrangement to resist 'Bulb failure due to vibration. Lamp shall be provided with a 4 wire connection to insure properly supervised in/out system connection. Unit shall be complete with all mounting hardware including backbox. Audio/Visual unit shall be UL Listed for its intended purpose. The visual flashing lamps shall meet the specification indicated above in Part F
- 1. Minimum dB: 87 dB at 10 feet per UL 464.
- G. Duct Smoke Detectors: Duct smoke detectors shall be of the solid state photoelectric type and shall operate on the light scattering photodiode principle. The detectors shall be designed to ignore invisible airborne particles or smoke densities that are below the factory set alarm point. No radioactive materials shall be used. Detectors shall be the addressable type for use on an addressable type system. Detectors shall be provided with the capability of performing automatic fan shutdown either directly from the detector or via the main control panel. All required wiring and supervision shall be provided for all required fan shutdown. Provide all relays and supervise relays as required.
- H. Provide all required auxiliary control circuits for hood fire suppression system supervision, appliance shutdown, door release, hood supply fan shutdown, gas shutdown, dampers, valve closure and other required control functions indicated on the drawings or otherwise specified. All auxiliary control circuits shall be indicated on the annunciator as a separate zone or shall be addressable so the device can be identified quickly and accurately.
- I. Provide wall mounted, magnetic door holder/automatic door release devices. Door holder shall have a minimum 25 lbs. holding force.
- 13. BATTERY BACK-UP
- A. The system shall be battery back—up for 24 hours with five (5) minutes of alarm capabilities (per NFPA 72) with all system indicating appliances operating, including strobes. Provide battery with 30% spare capacity for the potential addition of indicating appliances.
- 14. LIGHTNING PROTECTION A. Provide surge protection on all circuits.
- B. Provide lightning protection at all points entering and leaving the building (including
- walkways) and at the FACP location shown on the drawings. The 120 volt power circuit shall be provided with lightning protection.
- C. Surge protection shall be manufactured and listed for use with the fire alarm system. 15. ENTIRE BUILDING
- A. All pull stations, heat detectors, and smoke detectors shall, when placed in an alarm mode, sound the building general alarm, flash strobe lights, shutdown AHUs, release door holders, and annunciate the address of the initiating device or the zone of any of the existing hard wired devices to the FACP.
- B. All pull stations, heat detectors, smoke detectors, and duct smoke detectors shall, when placed in a trouble mode, indicate the address of the device or zone of any existing device experiencing trouble to the FACP.
- C. Duct smoke detectors shall be hardwired interlocked to shutdown their respective units on alarm or detection of smoke. Duct smoke detectors shall sound a supervisory signal to the FACP and shall not sound the general alarm.
- D. The system shall be fully programmed and completely operational prior to acceptance. The FACP and CPU shall have the capability to be fully programmable by Owner's personnel.
- E. The Manufacturer shall provide the necessary documentation and training to allow the Owner's personnel to maintain and change software.
- F. Program data shall be stored in non-volatile memory with battery back-up. Program data shall not be lost due to temporary outages, surges, dips, etc.
- 16. INSTALLATION OF FIRE ALARM AND DETECTION SYSTEMS
- manufacturer's written instructions and complying with applicable portions of NEC and NECAs "Standard of Installation" and NFPA-72E.
- B. Wiring Systems and Materials
- 1. Wiring shall be in accordance with requirements of the National Electrical Code and NFPA Regulation 72. The fire alarm system, including components, conduit, boxes and wiring shall be completely installed and wiring and conduit shall be properly tagged and color coded. The Electrical Contractor shall make final connections as shown and required by the equipment manufacturer's wiring instructions.
- 2. Color Code The color codes of the fire alarm cabling shall conform with the followina:
- a. Speaker Red (+) and Black (-). b. Pull Station/Heat/Smoke Detector - Blue and Yellow.
- c. Fan shut-down White.
- d. Visual Flashing Lamps (Xenon Strobes) Purple and Orange.
- e. Spare wires Any different color, must be same throughout the building. 3. All wiring to be installed in conduit with continuous ground.
- 4. All junction box covers shall be painted red. All lengths of conduits shall have at least one red stripe.
- 5. AHU shutdown relays and equipment control relays shall be mounted within three (3) feet of controlled device. AHU shutdown relays shall be wired on a separate circuit.
- 6. Visual flashing lamps and speakers shall be wired on alternate circuits to provide coverage in the event of the failure of one circuit. Provide the required number of circuits for the indicated number of alarm indicating devices.
- C. Provide conduit, wire and circuit breakers to connect fire alarm control panels to emergency circuit. The fire alarm circuit breaker shall be accessible to authorized personnel only and shall be marked FIRE ALARM CIRCUIT CONTROL. Provide handle lock for circuit breaker handle.
- D. Provide a disable switch for system speakers at the Fire Alarm Control Panel. Label switch 'ALARM SILENCE SWITCH'. (If the switch is left in the disable position during normal system operation, a trouble signal shall sound at the control panel.). 17. QUALITY ASSURANCE
- A. NEC Compliance comply with NEC as applicable to construction and installation of fire alarm and detection system components and accessories.
- B. UL Compliance and Labeling Provide fire alarm and detection system components which are UL listed and labeled. Installation is to be by a UL listed installer.
- C. Misc. compliance The fire alarm system is to be installed in accordance with the equipment manufacturer's written instructions and comply with all applicable portions of the NECAs "Standard Installation" and all local codes and ordinances.

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A. Install fire alarm and detection systems as indicated, in accordance with equipment

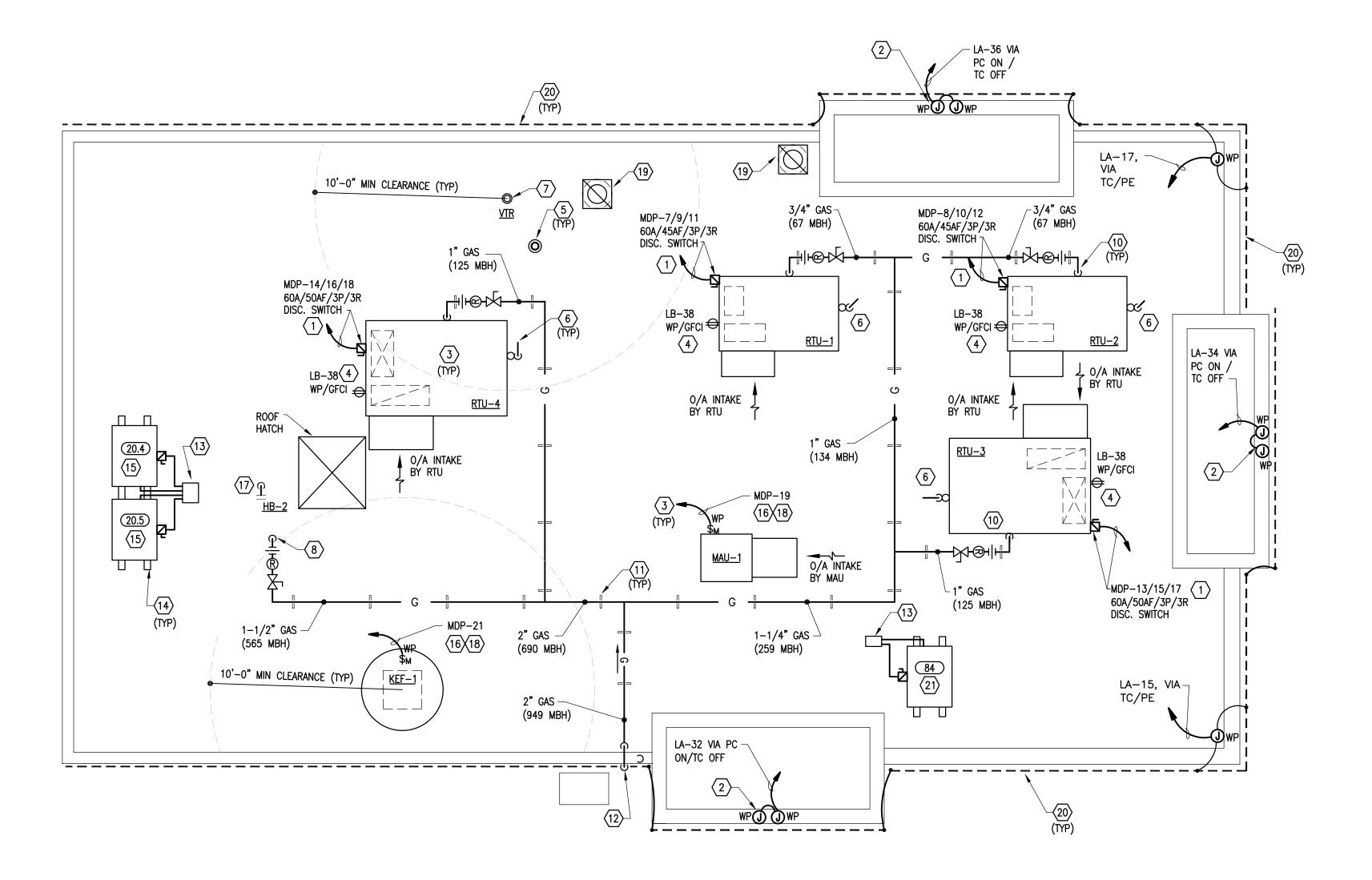
18. FIELD QUALITY CONTROL

A. Inspect relays and signals for malfunctioning, and where necessary adjust units for proper operation to fulfill project requirements. Any fine adjustment shall be performed by specially trained personnel in direct employ of manufacturer of the fire alarm detection system equipment. The Manufacturer's representative shall perform a quality inspection off the final installation and, in the presence of the Electrical Contractor, Architect/Engineer, and Owner's Representatives, shall perform a complete functional test of the system. A system certification verifying the proper system operation shall be required prior to acceptance by the Owner.

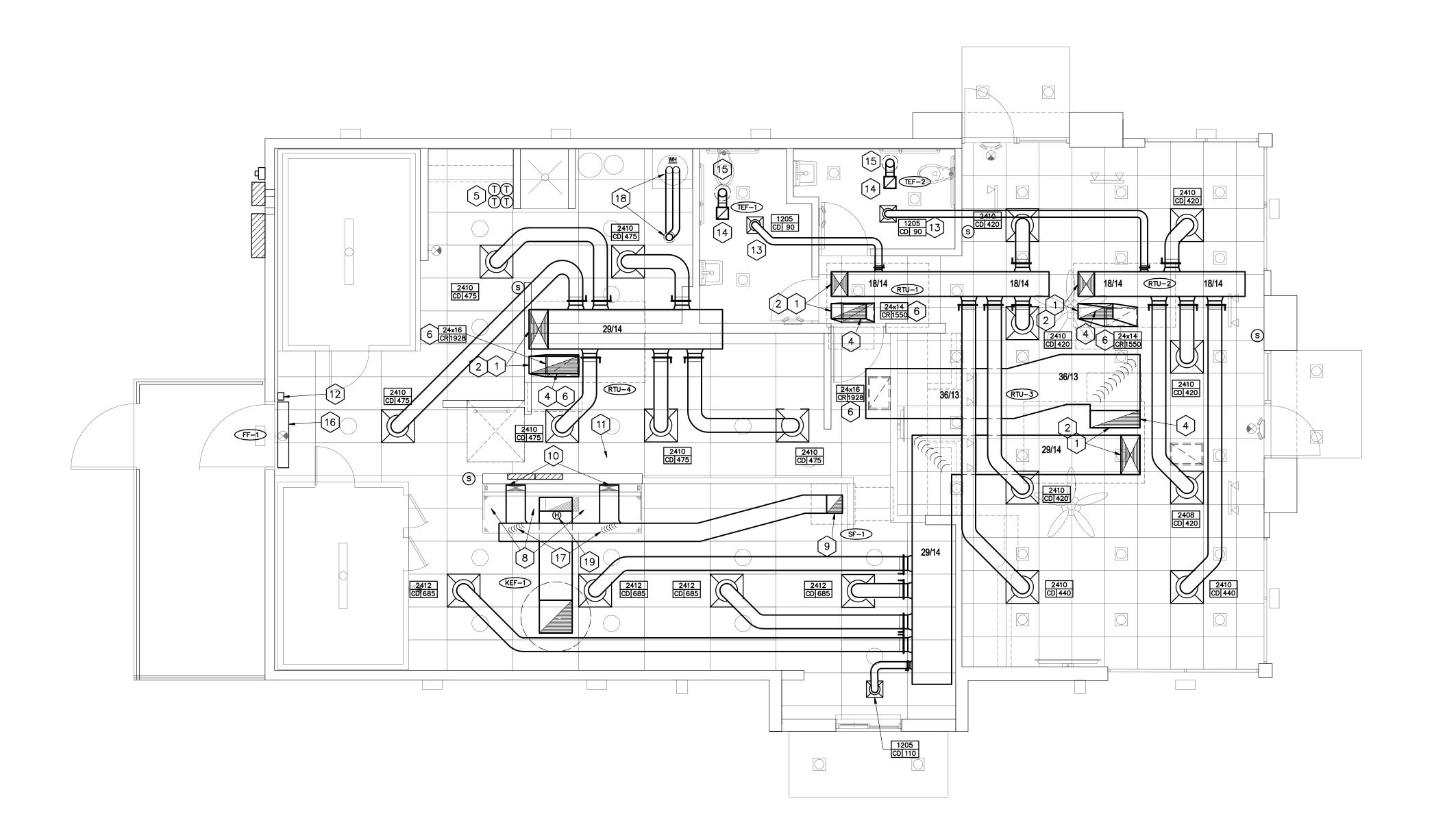
19. SYSTEM GUARANTEE

- A. All components, parts, and assemblies supplied by the Manufacturer shall be guaranteed against defects in materials and workmanship for a period of twelve (12) months commencing the date of substantial completion. Warranty service shall be provided by a gualified factory trained representative of the equipment manufacturer. Service response time shall be a maximum of four (4) hours before arrival to site.
- B. Testina: The Contractor shall perform all electrical and mechanical tests required by the equipment manufacturer's form and National Fire Protection Association - 72H. All test and report costs shall be in the contract price. A checkout report shall be prepared by the installation technicians and submitted in triplicate, one (1) copy of which will be reaistered with the equipment manufacturer. The report shall include, but not be limited to:
- 1. A complete list of equipment installed and wired.
- 2. Indication that all equipment is properly installed and functions and conforms with these specifications.
- 3. Test result of individual initiating devices and indicating appliances.
- 4. Serial numbers, locations by zone and model number for each installed detector.
- 5. Response time on thermostats and flame detectors (if used).
- 6. Technician's name, certificate number and date.
- Documentation: After completion of the tests and adjustments listed above, the Contractor shall submit the following information to the Owner.
- 1. A copy of the test report described in this specification and a Certificate of Compliance prepared as per National Fire Protection Association Standard 72A Chapter 2, Section 2-2.4, and State Fire Marshal's Rule 4A-48 to be complete at final test.
- 2. Affixed to FACP a standard service tag, as described in rule 4A-48 for fire alarm contractors by the Office of the State Fire Marshal.
- 3. Final tests and inspection shall be held in presence of the Owners' representatives and to their satisfaction. The Contractor shall supply personnel and required auxiliary equipment for this test without additional cost to the Owner.
- 4. To assure that wire size, power supply, number of devices on a circuit, etc. are suitable to support 100% of devices being in alarm or operated simultaneously, this test shall include the following:
- a. Place all sensors and monitor modules in alarm. Each shall display it's address and alarm condition. At least the first ten (10) devices on each circuit shall also have their alarm LEDs lighted.
- b. Operate all control modules for the alarm or operated condition. Each module shall display it's address and condition.
- c. Reset all alarmed and operated devices. The panel shall display the address or zone of any off-normal devices.
- d. Test a representative number of sensors for alarm verification by momentarily testing for alarm. The sensor shall not initiate an alarm. Then, test by placing the sensor in alarm such that it remains in alarm for the selected verification time. The sensor shall initiate an alarm.
- e. Acceptance of the system shall also require a demonstration of the stability of the system. This shall be adequately demonstrated if the system operates for a ninety (90) day test period without any unwarranted alarms. Should unwarranted alarm(s) occur, the Contractor shall readjust or replace the detector(s) and begin another ninety (90) day test period. As required by the Engineer the Contractor shall recheck the detectors using the fire test after each readjustment or replacement of detectors. This test shall not start until the Owner has obtained beneficial use of the building under tests.
- f. If the requirements provided in the paragraph above are not completed within thirty (30) days after beginning the tests described therein, the Contractor shall replace the system with another acceptable manufacturer and the process repeated until acceptance of the equipment by the Owner.
- g. Before final acceptance of work; the Contractor shall deliver seven (7) copies of a composite "Operating and Shop Maintenance Manual." Each manual shall contain. but not be limited to:
- h. A statement of guarantee including date of termination and name and phone number of the person to be called in the event of equipment failure.
- i. Individual factory issued manuals containing all technical information on each piece of equipment installed. In the event that such manuals are not obtainable from the factory, it shall be the responsibility of the Contractor to compile and include them. Advertising brochures or operational instructions shall not be used in lieu of the required technical manuals.
- j. One (1) copy of all approved shop drawings, instruction sheets, operating instructions, and spare parts bulletins.
- k. A training session, for personnel selected by the Owner, shall be presented by a fully qualified, trained representative of the equipment manufacturer who is thoroughly knowledgeable of the specific installation.
- I. Provide a written description of standard control panel functions and user instructions at each FACP. These instructions shall be written in standard laymen's English so that an unfamiliar operator can accomplish basic functions such as reset.
- D. Warranty : All equipment and systems shall be warranted by the Contractor for a period of one (1) year following the date of final acceptance. The warranty shall include parts, labor, prompt field service, pick-up, and delivery.
- 1. Provide one (1) year of testing as per National Fire Protection Association 72, which shall consist of:
- 2. At the end of the one year warranty period provide a Test and Written report which certify that all initiating devices have been tested and which indicate the result of the inspection as required by the Owner. Provide the required certification tag. Problems discovered during this testing and inspection shall be covered under the warranty. It is the contractor's responsibility to perform this testing prior to the end of the one year warranty or provide an extended warranty if the test is performed after the warranty period was scheduled to expire.

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	CENEDAL NOTES	<u>λ τι</u>
	GENERAL NOTES WEATHERPROOF JUNCTION BOX FOR EXTERIOR SIGNAGE. VERIFY EXACT LOCATION WITH THE OWNER PRIOR TO INSTALLATION. INSTALLATION PER NEC	MICHAEL LEGG ARCHITECTURE
	AND LOCAL AHJ. FIELD FABRICATED ROOF JACK FOR REFRIGERATION PIPING AND POWER	Michael Gregory Legg NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St
-	CONDUIT(S) SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. REFER TO ARCHITECTURAL DETAILS FOR DIRECTION. THE MC, EC AND GC SHALL COORDINATE FOR A COMPLETE INSTALLATION.	San Antonio, Texas 78260 ph. 210-416 4935 michael@mlarchitecture.info www.michaelleggarchitecture.com
-		DRAWING COORDINATION
	KEYED NOTES	Architectural, Landscape, Civil, Structural, Mechanical and Electrical drawings are interrelated.
-	. FACTORY PROVIDED AC UNIT CONTROL PANEL. (VERIFY LOCATION). HACR BREAKER / DISCONNECT SWITCH FURNISHED WITH EQUIPMENT. VERIFY LOCATION & NUMBER OF SIGNS WITH SIGN VENDOR. RUN SIGN	General Contractor and all Sub Contractors shall review and coordinate the entire set of
	CIRCUITS THROUGH CONTACTOR, CONTROLLED THROUGH PHOTOCELL/TIMECLOCK. PROVIDE FLUSH MOUNTED WEATHERPROOF J-BOX ON EXTERIOR FACE OF WALL. PROVIDE DISCONNECTING MEANS PER NEC	drawings and specifications THE SEAL APPEARING ON THIS
	AND LOCAL AUTHORITY HAVING JURISDICTION. G.C. SHALL COORDINATE FINAL LOCATIONS FOR ALL ROOFTOP EQUIPMENT PRIOR TO ROUGH-IN.	DOCUMENT WAS AUTHORIZED BY G.G. MALONEY, JR. P.E. 63180 ON NOV 22, 2023 ALTERATION OF SEALED DOCUMENTS WITHOUT
	WP/GFI SERVICE RECEPTACLE FURNISHED WITH RTU. CONTRACTOR SHALL CIRCUIT TO PANEL.	PROPER NOTIFICATION OF THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.
	MANUFACTURER'S AVAILABLE CONCENTRIC COMBUSTION AIR VENTS FOR THE GAS FIRED WATER HEATER BELOW. COORDINATE THE ROOF PENETRATION, FLASHING AND COUNTER-FLASHING WITH THE GENERAL	22 November 2023
	CONTRACTOR. DISCHARGE CONDENSATE PIPING FROM THE MECHANICAL UNIT TO THE ROOF AT A MINIMUM PITCH OF 1/4" PER FOOT IN THE DIRECTION OF FLOW. PROVIDE COPPER TRAP AND DRAIN PIPING.	THE OF TELL
	<ul> <li>FIELD COORDINATE LOCATION OF EXISTING VTR. THE LOCATION SHALL BE A MINIMUM OF 10'-0" FROM ANY OUTDOOR AIR INTAKE.</li> </ul>	G.G. MALONEY, JR.
-	ROUTE GAS PIPING DOWN THRU ROOF. PROVIDE WEATHER TIGHT SEAL AT PIPE PENETRATION. NOT USED.	CISTER C
	0. GAS CONNECTION TO UNIT COMPLETE WITH GAS COCK, UNION, GAS PRESSURE REGULATOR & 6" DIRT LEG.	NH/M/k
	1. ALL PIPING INSTALLED ON THE ROOF SHALL BE SUPPORTED WITH PRE-MANUFACTURED ADJUSTABLE PIPE SUPPORTS AT MAXIMUM 5'-0" ON	MALONEY ASSOCIATES CONSULTING ENGINEERS, INC F-1400 1228 TRAILWOOD DR HURST, TEXAS 76093 (817) 268-0383
-	CENTER AND EVERY CHANGE OF DIRECTION. 2. ROUTE GAS LINE UP FROM GAS METER. GENERAL DISTRIBUTION OF NATURAL GAS PIPING SHALL BE 2.0 PSI MEDIUM PRESSURE. GAS PIPING TO BE ROUTED	ASSO ENGINE 8 TRAILV (817)
	UP AND OVER PARAPET. 3. PREMANUFACTURED PIPE PORTAL FOR ROOF PENETRATIONS. THE MC, EC AND GC SHALL COORDINATE FOR A COMPLETE INSTALLATION.	ONEY 30LTING 1221 HUR
	4. REMOTE CONDENSING UNIT SHALL BE INSTALLED ON MANUFACTURER APPROVED SLEEPERS. FIELD COORDINATE THE COMPLETE INSTALLATION. 5. INTERWIRE SERVICE FROM COMPRESSOR AND TIMECLOCK TO BLOWER COIL	
	FOR AUTOMATIC DEFROST SYSTEM TO STOP COMPRESSOR BLOWER COIL FANS AND START HEATERS IN COIL. RUN CONDUIT ABOVE CEILING. THESE ITEMS ARE NOT PRE-WIRED AND WILL REQUIRE CONNECTIONS BY	MALONEY-ENG.COM
	ELECTRICIAN AND FIELD WIRING. 6. CONTRACTOR SHALL PROVIDE ALL ELECTRICAL CONNECTIONS, WIRING AND CONDUITS NECESSARY FOR THE INTERLOCKING OF KITCHEN EXHAUST FANS	ALONEY.
	AND MAKEUP AIR UNIT THROUGH THE KITCHEN CONTROL PANEL. 7. ROUTE 3/4" HOT WATER UP THROUGH ROOF & CONNECT TO HOSE BIBB MOUNTED ON THE ROOF. REFER TO THE WATER PLUMBING PLAN FOR	
	<ul> <li>CONTINUATION OF PIPING BELOW THE ROOF.</li> <li>8. WEATHERPROOF MOTOR RATED SWITCH, 2#10,#10G., IN 3/4"C. DOWN TO PRE-WIRED ELECTRICAL CONTROL PANEL ON KITCHEN HOOD.</li> </ul>	
-	9. PROVIDE RESTROOM EXHAUST VENT CAP SIMILAR TO LOREN COOK PR-8. INSTALL COMPLETE WITH MANUFACTURER AVAILABLE ROOF CURB, BACKDRAFT	
	DAMPER AND BIRD SCREEN. 0. LED ACCENT LIGHT, PROVIDED BY SIGN COMPANY. COORDINATE ROUGH-IN AND CONNECTION REQUIREMENTS, ELEVATION AND LOCATION WITH ARCHITECTURAL	
-	DRAWINGS AND SIGN COMPANY. NO EXPOSED CONDUITS ON ROOF. 1. PROVIDE ALL INTERCONNECTION WIRING BETWEEN ICE MACHINE AND ICE MACHINE REMOTE CONDENSING UNIT PER MANUFACTURER'S INSTRUCTIONS.	
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MEP ROOF PLAN 1/4"=1'-0" <b>1</b>		



	GENERAL NOTES		IV	1		A
Α.	OUTDOOR AIR INTAKES SERVING MECHANICAL EQUIPMENT SHALL BE INSTALLED A MINIMUM OF 10'-0" HORIZONTAL CLEARANCE FROM THE DISCHARGE OF ANY EXHAUST FAN, COMBUSTION EXHAUST OR PLUMBING VENT.		-	L LEGG egory Legg IA, RIBA,		ECTURE
B.	PROVIDE VIBRATION ISOLATION DEVICES AND FLEXIBLE DUCT/ PIPING CONNECTIONS TO MOVING MACHINERY NOT INTERNALLY ISOLATED.	26 Sa	116 High	1 Timber Pa o, Texas 78	iss St	
C. D.	DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.	mi	chael@n	nlarchitectu nelleggarchi		1
<b>E</b> .	PIPING, SPRINKLER HEADS, AND OTHER CEILING MOUNTED APPURTENANCES FOR A COMPLETE INSTALLATION.		COO	WINC RDIN xtural, La	ATIC	
E.	LOCATIONS FOR THERMOSTATS AND REMOTE SENSORS SHALL BE FIELD COORDINATED TO AVOID INTERFERENCE WITH WALL-MOUNTED DECOR OR PROXIMITY TO HEAT PRODUCING EQUIPMENT.	St E	tructura lectrica	al, Mech	anical a 1gs are i	nd nterrelate
F.	HVAC AND RESTROOM EXHAUST DUCTWORK SHALL BE INSTALLED AS HIGH AS POSSIBLE UNDER THE ROOF STRUCTURE.	C co	ontrac oordina	tors shal ate the e s and sp	l review ntire set	and of
G.	RECTANGULAR, ROUND, AND FLEXIBLE DUCTWORK SHALL BE SIZED AS SHOWN ON THESE DRAWINGS; AND SHALL BE FABRICATED AND INSTALLED ACCORDING TO THE MOST RECENTLY PUBLISHED SMACNA STANDARDS. JOINTS, SEAMS, AND	THE	e sea	l appe	ARING	ON TH
Н.	CONNECTIONS SHALL BE SECURELY FASTENED & SEALED BY APPROVED METHODS.	G.G ON	. MAL NOV	ONEY, 27, 201	P.E. 23 23 AL	RIZED E 3319 .TERATION WITHON
	ALLOWABLE LENGTH OF FLEXIBLE DUCT SHALL BE 5'-0". FLEXIBLE DUCTS SHALL BE CONNECTED TO BRANCH RUNS AND FITTINGS WITH A PANDUIT-TYPE BAND, AND SHALL NOT BE ATTACHED DIRECTLY TO THE AIR DEVICE COLLAR. PROVIDE TITUS "FLEXRIGHT" ELBOW BRACES AT ELS, SECURED WITH NYLON CABLE TIES.	PR RES OF	OPER SPONS FENSE	NOTIFI SIBLE E E UNDI	CATION NGINEE ER THI	I OF THE ER IS A E TEXA ICE AC
I.	SUPPLY, RETURN, RESTROOM EXHAUST, AND MAKEUP AIR DUCT CONSTRUCTION SHALL BE GALVANIZED STEEL. GAUGES, SWAY BRACING AND SUSPENSION SHALL CONFORM TO SMACNA STANDARDS. SEAL SEAMS AND JOINTS AIR AND WATERTIGHT. FLEXIBLE ALUMINUM DUCTWORK OR FIBERGLASS DUCTBOARD IS NOT ALLOWED (UNO).		27 /	Nover BBBBBB ATE	nber NNN OF. Te	
J.	PITCH HORIZONTAL GREASE AND CONDENSATE DUCTWORK UNIFORMLY BACK TOWARDS THE RESPECTIVE HOOD OR APPLIANCE AT A MINIMUM 1/4" PER FOOT (NOT TO EXCEED 50'-0").		Winning PRC		IALONE	· · · · · ·
K.	REFER TO MANUFACTURER SHEETS FOR THE HOOD CONTROL WIRING DIAGRAM FOR OPERATION OF THE KITCHEN HOOD EQUIPMENT.	1	No contraction of the second sec	SSION		CINE
L.	REPLACE THE AIR FILTERS AT THE ROOFTOP UNITS WITH 2" THICK PLEATED MERV 7 THROW AWAY TYPE AIR FILTERS AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO AIR BALANCE AND STORE TURNOVER.		TES	) INC -1400	10 DR	onfey
М.	DUCTWORK SERVING THE DINING AREA SHALL BE ROUTED THROUGH MANUFACTURED BLOCK OUTS IN THE STRUCTURAL JOISTS. REFER TO THE ARCHITECTURAL BUILDING SECTIONS FOR ADDITIONAL INFORMATION.	1	SOCIA	CONSULTING ENGINEERS, INC F-1400	1228 TRAILWOOD DR HURST, TEXAS 76053	(817) 268-03
N.	DUCTWORK SERVING THE BACK OF HOUSE AND RESTROOM AREAS SHALL BE ROUTED BELOW THE STRUCTURE, HELD TIGHT TO THE BOTTOM OF THE JOISTS. REFER TO THE	1	EY AS:	ING EN	1228 TR IURST,	-
0.	ARCHITECTURAL BUILDING SECTIONS FOR ADDITIONAL INFORMATION. RUNOUT DUCT DIAMETER TO DIFFUSERS SHALL BE SAME SIZE, INSIDE CLEAR, AS RELATED DIFFUSER NECK DIAMETER.	1	ALONE		I	
		]	Ď	ະວັ 		WO
(#)	KEYED NOTES					Y-ENG.C
1.	SUPPLY AND RETURN DUCTS DOWN FROM THE RTU CONNECTIONS THRU ROOF. COORDINATE ROOF WORK WITH THE OWNER'S ROOFING WARRANTY. FIRST 10'-0" OF SUPPLY AND RETURN DUCTWORK SHALL BE INTERNALLY LINED FOR ACOUSTIC CONTROL.					MALONEY-ENG.COM
	PROVIDE FACTORY AVAILABLE SMOKE DETECTOR INTERLOCKED TO SHUT DOWN THE RESPECTIVE MECHANICAL UNIT UPON ACTIVATION.					
3.	WALL MOUNTED REMOTE ZONE TEMPERATURE SENSOR SHALL BE MOUNTED AT 48" AFF. THE TEMPERATURE SENSING ELEMENT SHALL BE WIRED BACK TO RESPECTIVE PROGRAMMABLE THERMOSTAT IN MGR'S OFFICE. COORDINATE PLACEMENT WITH WALL DECOR AND EQUIPMENT. FIELD VERIFY WITH THE OWNER'S REPRESENTATIVE FOR THE FINAL LOCATION PRIOR TO INSTALLATION.		Z		P	
	INSTALL THE FACTORY AVAILABLE HUMIDITY SENSOR IN THE RETURN AIR PATH. THERMOSTAT IN OFFICE SHALL BE WALL MOUNTED AT 48" A.F.F. AND PROPERLY		P			4
	LABELED WITH THE ROOFTOP UNIT. RETURN GRILLE AIR QUANTITY LISTED IS FOR PARTIAL RETURN DURING STANDARD		RP	•	- 0	Sex
7.	OPERATING HOURS. RETURN DUCTS ARE SIZED FOR FULL RETURN DURING NIGHT SETBACK CONDITIONS. REFER TO SHEET M2.0 FOR AIR BALANCE REPORT ON DESIGN AIRFLOW RATES. ROUTE THE PVC CONCENTRIC COMBUSTION AIR INTAKE/ EXHAUST PIPING FROM		00		<b>d</b> SX	, Te
	THE WATER HEATER(S) TO TERMINATION LOCATIONS ON THE ROOF. INSTALL WITH THE MINIMUM ELBOWS AND OFFSETS AS NECESSARY FOR A COMPLETE INSTALLATION PER THE WATER HEATER MANUFACTURER'S REQUIREMENTS, TERMINATED WITH THE VERTICAL CONCENTRIC VENT KIT.		AL FL			tonio
	THE UL LISTED FRYER HOOD IS MANUFACTURED WITH AN INTEGRAL STAINLESS STEEL EXHAUST CHASE TOPPED WITH AN EXTENSION COLLAR FOR THE DUCT CONNECTION IN THE FIELD. RISER SHALL BE THE SAME SIZE AS THE COLLAR CONNECTION. OFFSET RISER AS REQUIRED BEFORE ROUTING UP THROUGH THE ROOF TO THE EXHAUST		<b>CHANICAL</b>			Anto
	FAN. FIELD COORDINATE THE REQUIRED TRANSITIONS OF EXHAUST DUCT FROM COMBUSTIBLE MATERIALS TO MAINTAIN THE MINIMUM CLEARANCES REQUIRED PER APPLICABLE CODE(S) AND FIRE WRAP MANUFACTURER'S INSTRUCTIONS. SEE		HA			San
9.	ALSO M4.1 THRU M4.4 SERIES OF DRAWINGS. ROUTE MAKEUP AIR DUCTWORK DOWN FROM THE UNIT CONNECTION. DUCT SHALL BE SAME SIZE AS UNIT OPENING. PROVIDE FLEXIBLE CONNECTION AND TRANSITION AS		MEC		: 0	
10.	SAME SIZE AS UNIT OPENING. PROVIDE FLEXIBLE CONNECTION AND TRANSITION AS REQUIRED. THE UL LISTED FRYER HOOD IS MANUFACTURED WITH AN INTEGRAL STAINLESS STEEL		2	7	5	
	MAKEUP AIR CHASE TOPPED WITH AN EXTENSION COLLAR FOR THE DUCT CONNECTION IN THE FIELD. RISER SHALL BE THE SAME SIZE AS THE COLLAR CONNECTION. REFER TO THE MECHANICAL HOOD SHEETS, M4.1 THRU M4.4 SERIES OF DRAWINGS FOR ADDITIONAL INFORMATION.			Č		
11.	THE COMPLETE FIRE SUPPRESSION SYSTEM SHALL BE FURNISHED AND INSTALLED BY A CERTIFIED SUBCONTRACTOR UNDER THE GENERAL CONTRACTOR.	BҮ				
12.	WALL MOUNTED MANUAL PULL STATION FOR KITCHEN HOOD FIRE SUPPRESSION SYSTEM ACTIVATION AND GAS SUPPLY SHUT-OFF TO BE FURNISHED WITH HOOD PACKAGE AND INSTALLED BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL					
	CONTRACTOR SHALL PROVIDE WIRING, A RECESSED JUNCTION BOX AND CONDUIT FOR PULL STATION WIRING. FIRE SUPPRESSION SUBCONTRACTOR SHALL VERIFY APPROVED LOCATION WITH THE LOCAL AUTHORITY AND COORDINATE THE COMPLETE	PTION				
	INSTALLATION WITH ALL OTHER TRADES. AIR DEVICE IN HARD LID CEILING SHALL BE INSTALLED COMPLETE WITH INTEGRAL	SCRI				
	OPPOSED BLADE DAMPER FOR MANUAL VOLUME ADJUSTMENT. NEW CEILING MOUNTED CABINET EXHAUST FAN. INTERLOCK WITH LIGHT SWITCH. COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR.	Ы О Ц				
15.	EXTEND THE 6"Ø RESTROOM EXHAUST RISER UP TO THE ROOF MOUNTED GRAVITY VENT. FIELD VERIFY ANY REQUIRED TRANSITIONS OR OFFSETS TO AVOID THE EXISTING					
	STRUCTURE. MOUNT THE FLY FAN ON THE WALL ABOVE THE DOOR. COORDINATE THE COMPLETE INSTALLATION WITH OTHER TRADES. CONTROL FAN WITH DOOR MOUNTED LIMIT	DATE				
17.	SWITCH MODEL J0028. AIR EXTRACTOR, TITUS AG-45 1" BLADE SPACING FOR DUCTS UP TO 18", TITUS AG-225		SCA	LE:		
18.	FOR DUCTS 19" TO 36". PROVIDE FIXES SPLITTER FOR DUCTS LARGER THAN 36". EXTEND FLUE AND COMBUSTION AIR DUCT FULL SIZE OVER AND UP THRU ROOF WITH WH MANUFACTURER'S STANDARD CONCENTRIC FLUE/COMBUSTION AIR CAP. EXTEND			NO1	ED	
	WH MANUFACTURER'S STANDARD CONCENTRIC FLUE/COMBUSTION AIR CAP. EXTEND MINIMUM 10' FROM OA INTAKES. FP THERMAL SENSOR IN GREASE DUCT.		PR	OJE	CT N	0.
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MECHANICAL FLOOR PLAN

## TEST AND BALANCE NOTES

- THE GENERAL CONTRACTOR SHALL SUBCONTRACT TO AN INDEPENDENT AIR TEST AND BALANCE CONTRACTOR FOR THE TESTING, ADJUSTING AND BALANCING OF ALL ENVIRONMENTAL SYSTEMS SHOWN OR SPECIFIED ON THE CONTRACT DOCUMENTS. THIS SHALL INCLUDE EQUIPMENT OPERATION IN COOLING, HEATING, AND DEHUMIDIFCATION OPERATIONAL MODES. THE WORK SHALL BE PERFORMED BY A FIRM CERTIFIED BY EITHER AABC OR NEBB. A DIGITAL TRANSMITTAL OF THE FINAL REPORT, SUBMITTED ON CERTIFYING AGENCY FORMS, SHALL BE SUBMITTED TO THE COWNER'S CONSTRUCTION MANAGER FOR APPROVAL. THE REPORT SHALL BEAR THE CERTIFICATION SEAL OF THE TAB SUPERVISOR IN CHARGE. THE REPORT SHALL CONTAIN ALL AIR SIDE BALANCING DATA, INSTRUMENTS USED AND THEIR LATEST CALIBRATION DATES, PERSON(S) PERFORMING THE WORK AND A WRITTEN GUARANTEE THAT TAB WORK WAS PERFORMED IN ACCORDANCE WITH THE CERTIFYING AGENCY STANDARDS AND PROCEDURES. THE TEST AND BALANCE REPORT SHALL INCLUDE OPERATIONAL DATA FOR EVERY COMPONENT OF THE COMPLETE
- MECHANICAL SYSTEM INCLUDING HVAC EQUIPMENT, HVAC AIR DEVICES, KITCHEN FANS, RESTROOM FANS, ETC. THIS DATA SHALL INCLUDE THE BALANCED OPERATING DATA FOR EQUIPMENT AS COMPARED TO THE DESIGN AIR BALANCE SCHEDULE ON THIS SHEET. FOR CLARIFICATION. THE ENGINEER OF RECORD WILL NOT BE ABLE TO REVIEW THE INSTALLED MECHANICAL
- SYSTEMS FOR POTENTIAL OPERATIONAL ISSUES OR INSTALLATION DEFICIENCIES WITHOUT THE FULL AND COMPLETE TEST AND BALANCE REPORT.

## O/A VENTILATION SCHEDULE

L								
ſ	AREA SERVED	VEN	TILATION (OCCUPA	NCY)	VENTILATION (AREA)			
		# OF PEOPLE	CFM/PERSON	CFM	SQUARE FEET	CFM/SF	CFM	
	DINING	46	7.5	345	815	0.18	147	
	RESTROOMS	-	-	-	165	-	-	
	KITCHEN	-	-	-	902	-	-	
	SUBTOTALS			345			147	
			TOTAL O/A REQUIRED		492	CFM		

NOTES: 1. CALCULATIONS ARE BASED ON ASHRAE 62.1.

2. OUTDOOR AIR DEMAND IS: - 492 CFM

OUTDOOR AIR PROVIDED IS: + 2320 CFM \_\_\_\_\_

OUTDOOR AIR DIFFERENCE IS: + 1828 CFM

## AIR BALANCE SCHEDULE

MARK		DINING		KITCHEN					
MARK	S/A	0/A	E/A	S/A	0/A	E/A			
RTU-1	1800	450	-	-	-	-			
RTU-2	1800	450	-	-	-	-			
RTU-3	-	-	-	2850	710	-			
RTU-4	-	-	-	2850	710	-			
KEF-1	-	-	-	-	-	2500			
TEF-1	-	-	100	_	-	-			
TEF-2	-	-	100	_	-	-			
MAU-1	-	-	-	-	600	-			
TOTAL	3600	900	200	5700	2020	2500			
	DINING PRESSURIZATION (O/A) - (E/A) = +700 KITCHEN PRESSURIZATION (O/A) - (E/A) = -480								
	NET BUILDING PRESSURIZATION (DINING + KITCHEN)= +220								

#### PACKAGED ROOI MARK RTU-1 SERVING DINING MANUFACTURER CARRIEF MODEL NO. 48GCDN06K3 6W4F0 GAS/ELE TYPE OPERATING WEIGHT, LBS. 826 LENGTH, WIDTH, HEIGHT 75x47x4 \_--/13.-MINIMUM IEER/SEER2 VOLTS/ PH/ HZ 208/3/6 Ļ MCA (AMPS) 32 MOCP (AMPS) 45 1800 SUPPLY AIR CFM OUTSIDE AIR CFM 450 ESP ("W.G.) 0.8 2216 FAN RPM MOTOR BHP 1.14 5.0 NOMINAL SIZE TONS TOTAL CAPACITY (MBH) 58.2 SENS CAP (MBH) 44.1 OUTSIDE AIR DB/WB, \*F. 105 80/67 ENTER AIR DB/WB, 'F. GAS TYPE OF HEAT HEATING INPUT (MBH) 67 HEATING OUTPUT (MBH) 54 OUTSIDE AIR DB/WB, \*F. 17 LEAVING AIR DB/WB, \*F. 101.9 1-11

NOTES:

PROVIDE A FACTORY AVAILABLE UN-INSULATED 14" HIGH FLAT ROOF CURB THAT SHALL BE FIELD ASSEMBLED AND SHIMMED SUCH THAT THE TOP OF THE CURB SETS LEVEL. ROOF CURBS TO BE INSTALLED BY THE GENERAL CONTRACTOR, AND FIELD INSULATED BY THE MECHANICAL CONTRACTOR.

FROSTAT, HIGH WIND CLIPS.

SENSORS AND LOW VOLTAGE CONTROL WIRING SHALL BE INSTALLED BY THE MECHANICAL CONTRACTOR. PROVIDE WITH REMOTE TEMPERATURE SENSOR AND PROGRAMMABLE 24/7 THERMOSTAT CAPABLE OF AUTOMATIC COOLING/ HEATING CHANGEOVER.

PER IECC, PROVIDE ENTHALPY ECONOMIZER SECTION WITH MOTORIZED OUTSIDE AIR DAMPER. 6. PROVIDE FACTORY AVAILABLE RETURN AIR SMOKE DETECTOR(S), CAPABLE OF SHUTTING DOWN THE ROOFTOP UNIT UPON ACTIVATION. PROVIDE FACTORY INSTALLED NON-FUSED ELECTRICAL DISCONNECT AND CONVENIENCE RECEPTACLE. RECEPTACLE SHALL BE

I 7. FIELD WIRED BY THE E.C. AND POWERED SEPARATELY FROM THE UNIT.

8. PROVIDE BOTTOM ENTRY SINGLE POINT ELECTRICAL POWER CONNECTION. 9. UNIT SELECTION IS BASED ON R-410A REFRIGERANT AND HIGH EFFICIENCY OPERATION.

10. CONTACT MR. KEN REVILLA (CARRIER) AT (954)218–0070 OR KEN.REVILLA@CARRIER.COM FOR PRICING AND TO VERIFY FINAL EQUIPMENT SELECTION PRIOR TO ORDERING.

11. PROVIDE UNIT WITH CARRIER HUMIDIMIZER DEHUMIDIFICATION OPTION AND KELE HC-201 HUMIDISTAT THAT MOUNTS ON RETURN AIR DUCT. THE HUMIDISTAT SHALL BE DIRECT WIRED BACK TO THE UNIT.

AIR DEVICE SCHEDULE										
MARK	FACE SIZE	TYPE	MOUNTING TYPE	MAXIMUM N.C.	DIRECTION	MANUFACTURER	MODEL	NOTES		
CD	24x24	SUPPLY	LAY-IN	30	4-WAY	TITUS	TMS-AA	1,2,4		
GD	12x12	SUPPLY	SURFACE	30	4-WAY	TITUS	OMNI	1,3,4		
KD	24X24	SUPPLY	LAY-IN	30	1-WAY	TITUS	PAS	1,3,4,5		
CR	24x24	RETURN	LAY-IN	30	1-WAY	TITUS	50F	1,2		
KR	24X24 RETURN		LAY-IN	30	1-WAY	TITUS	PAR	1,3		
NOTES: (NOT AL	I MAY APPLY)									

<u>NOTES</u>: (NOT ALL MAY APPLY)

1. PROVIDE NECESSARY MOUNTING HARDWARE AND ACCESSORIES AS REQUIRED FOR INTENDED INSTALLATION. 2. FRONT OF HOUSE AIR DEVICE(S) SHALL BE FACTORY FINISHED WHITE, INSTALLED WITH FIELD APPLIED PAINT GRIP FINISH FOR FINAL PAINTING BY OTHERS.

3. RESTROOM AND BACK OF HOUSE AIR DEVICE(S) SHALL BE FACTORY FINISHED WHITE.

4. AIR DEVICE(S) SHALL BE INSTALLED WITH MANUFACTURER AVAILABLE MOLDED INSULATION BACKING. FIELD FABRICATED INSULATION BACKING IS NOT ALLOWED (UNLESS FIRST APPROVED BY THE OWNER'S CONSTRUCTION MANAGER).

KITCHEN SUPPLY DIFFUSERS SHALL NOT BE INSTALLED WITH PATTERN CONTROLLERS.

FAN SCHEDULE											
MARK SERVICE CFM E.S.P. "WG RPM MOTOR HP VOLTS/ PH MANUFACTURER MODEL TYPE WEIGHT NOTES											NOTES
KEF-1	FRYER BANK HOOD EXH	2500	0.94	1596	1.00	115/1	CAPTIVEAIRE	DU85HFA	ROOF UPBLAST FAN	92	1,2,5,6
SF-1	FRYER BANK HOOD MAU	600	0.50	819	1.00	115/1	CAPTIVEAIRE	A1-G10	ROOF MAKEUP AIR UNIT	197	1,2,6
TEF-1	RESTROOM	100	0.25	585	0.06	115/1	CAPTIVEAIRE	CFA-D150-CA	CEILING CABINET FAN	11	3,4,6
TEF-2	RESTROOM	100	0.25	585	0.06	115/1	CAPTIVEAIRE	CFA-D150-CA	CEILING CABINET FAN	11	3,4,6
IEF-2       RESTROOM       TOO       0.25       585       0.06       T15/1       CAPTIVEAIRE       CFA-D150-CA       CEILING CABINET FAN       T1       3,4,6         NOTES:       (NOT ALL MAY APPLY)       1.       PROVIDE INTERLOCK SWITCH BETWEEN KITCHEN HOOD EXHAUST FAN AND MAU-1. COORDINATE REQUIRED WORK WITH THE ELECTRICAL CONTRACTOR.       4.       FACTORY EQUIPPED WITH INTERNAL BACKDRAFT DAMPER.         2.       WEATHER PROOF DISCONNECT SWITCH AND INTERNAL WIRING SHALL BE FACTORY INSTALLED.       5.       PROVIDE FACTORY AVAILABLE GREASE BOX.         6.       CONTACT MR. DAVID LOSCHEN (CAPTIVEAIRE) AT 214.220.3999 OR REG45@CAPTIVEAIRE.COM FOR       6.											

MAR	MARK				
FF-	-1	REAF			
NOTES:					
1.	INSTAL	L COMPL			
2.	UNIT S	SHALL HA			
3.	OWNER	r furnis			

FTO	FTOP UNIT SCHEDULE								
	RTU-2	RTU-3	RTU-4						
; R	DINING	KITCHEN	KITCHEN						
R	CARRIER	CARRIER	CARRIER						
3M5-	48GCDN06K3M 5-6W4F0	48GCEM08K2M 5-6F1F0	48GCEM08K2M 5-6F1F0						
EC	GAS/ELEC	GAS/ELEC	GAS/ELEC						
	826	1239	1239						
42	75x47x42	89x60x50	89x60x50						
.4	/13.4	14.6/	14.6/						
60	208/3/60	208/3/60	208/3/60						
	32	44	44						
	45	50	50						
	1800	2850	2850						
	450	710	710						
	0.8	0.8	0.8						
	2151	841	841						
	1.05	1.33	1.33						
	5.0	7.5	7.5						
	58.2	87.1	87.1						
	44.2	66.9	66.9						
	105	105	105						
,	80/67	80/67	80/67						
	GAS	GAS	GAS						
	67	125	125						
	54	103	103						
	17	17	17						
	101.9	107.0	107.0						
	1–11	1–10	1-10						

PROVIDE WITH LOW AMBIENT CONTROLS, CONDENSER COIL HAIL GUARD, HINGED ACCESS PANELS, CRANK CASE HEATER, AND

	М	ECHANICAL LEGEND			
SYMBOL	ABBR.	DESCRIPTION			
$\square$	CD	CEILING DIFFUSER - SUPPLY			
	CD	CEILING DIFFUSER BELOW DUCT - SUPPLY			
$\square$	SAD	RISER - SUPPLY AIR DUCT			
	SAD	DROP — SUPPLY AIR DUCT			
	CR	CEILING REGISTER - RETURN			
	CR	CEILING REGISTER BELOW DUCT - RETURN			
	RAD	RISER — RETURN AIR DUCT			
ГЛ ИЛ	RAD	DROP – RETURN AIR DUCT			
	CE	CEILING REGISTER — EXHAUST			
	CE	CEILING REGISTER BELOW DUCT – EXHAUST			
	EAD	RISER – EXHAUST AIR DUCT			
£3	(L)	LINED DUCTWORK			
	VD	MANUAL VOLUME DAMPER			
	FC	FLEXIBLE CONNECTION			
		NEW DUCT			
CFM		AIR DEVICE DESIGNATION			
1	TSTAT	PROGRAMMABLE THERMOSTAT			
S	SENS	REMOTE TEMPERATURE SENSOR			
\$	SD	SMOKE DETECTOR			
$\oplus$	POC	POINT OF CONNECTION			
	CFM	CUBIC FEET PER MINUTE			
	S/A	SUPPLY AIR			
	0/A	OUTSIDE AIR			
	E/A	EXHAUST AIR			
	S.P.	STATIC PRESSURE			
	FOH	FRONT OF HOUSE			
	BOH	BACK OF HOUSE			

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MECHANICAL GENERAL NOTES	ſ	MECHANICAL GENERAL NOTES (CONT)	MICHAEL LEGG ARCHITECTURE
E: FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE DRAWINGS ESSENTIALLY DIAGRAMMATIC AND ALTHOUGH SIZES AND LOCATIONS OF	18.	ALL KITCHEN MAKEUP AIR DUCTWORK, AND HVAC SUPPLY AND RETURN DUCTWORK SHALL BE INSTALLED AS FOLLOWS:	Michael Gregory Legg NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St
IPMENT ARE DRAWN TO SCALE WHEREVER POSSIBLE, THE CONTRACTOR LL MAKE USE OF ALL DATA IN ALL OF THE CONTRACT DOCUMENTS AND IFY THIS INFORMATION PRIOR TO ORDERING, FABRICATING OR INSTALLING MATERIALS. MECHANICAL CONTRACTOR SHALL PROVIDE COMPLETE INFORMATION AND	•	CONCEALED DUCTWORK WITHIN THE BUILDING SHALL BE EXTERNALLY WRAPPED AND SECURED WITH MINIMUM R-8.0, 2" INSULATION WITH VAPOR BARRIER PER THE 2021 INTERNATIONAL MECHANICAL CODE, WITH LOCAL AMENDMENTS. INSULATION SHALL HAVE MAXIMUM RATINGS OF 25 FLAME SPREAD, 50 SMOKE DEVELOPED.	San Antonio, Texas 78260 ph. 210-416 4935 michael@mlarchitecture.info www.michaelleggarchitecture.com
PERATE WITH THE OTHER CONTRACTOR SHALL PROVIDE COMPLETE INFORMATION AND PERATE WITH THE OTHER CONTRACTORS AND TRADES AS REQUIRED FOR COMPLETION AND COORDINATION OF THE COMPLETE PROJECT. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ADMINISTERING	•	EXPOSED DUCTWORK WITHIN THE BUILDING SHALL BE INTERNALLY LINED AND PINNED WITH MINIMUM R-6.0, $1-1/2$ " INSULATION WITH VAPOR BARRIER PER	DRAWING COORDINATION Architectural, Landscape, Civil, Structural Machanical and
WARRANTIES ON EQUIPMENT WHICH THEY FURNISH AND INSTALL. VIDE WRITTEN WARRANTY TO REPLACE ALL FAULTY MATERIALS AND/OR		THE 2021 INTERNATIONAL MECHANICAL CODE WITH LOCAL AMENDMENTS. INSULATION SHALL HAVE MAXIMUM RATINGS OF 25 FLAME SPREAD, 50 SMOKE DEVELOPED. EXPOSED DUCTWORK SHALL BE INSTALLED COMPLETE WITH FACTORY APPLIED PAINT GRIP FINISH, SUITABLE FOR FINAL FIELD APPLIED	Structural, Mechanical and Electrical drawings are interrelated. General Contractor and all Sub Contractors shall review and
OR, AT NO COST TO TENANT, FOR A PERIOD OF ONE YEAR FROM DATE ACCEPTANCE. PROVIDE 5 YEAR COMPRESSOR WARRANTY FOR AC UNITS. RANTIES SHALL BEGIN ON THE DATE OF SUBSTANTIAL COMPLETION.	•	PAINT BY THE GENERAL CONTRACTOR. DUCT CONSTRUCTION SHALL BE OF GALVANIZED STEEL. GAUGES, SWAY	coordinate the entire set of drawings and specifications
OUTDOOR AIR INTAKE BY MECHANICAL EQUIPMENT SHALL HAVE A MINIMUM -0" HORIZONTAL CLEARANCE FROM THE DISCHARGE OF ANY EXHAUST FAN, GAS EXHAUST OR PLUMBING VENT.		BRACING (AS REQUIRED) AND SUSPENSION SHALL CONFORM TO SMACNA STANDARDS. SEAL ALL SEAMS AND JOINTS AIR AND WATERTIGHT. FLEXIBLE ALUMINUM DUCTWORK OR FIBERGLASS DUCTBOARD IS NOT ALLOWED (UNO).	THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY G.G. MALONEY, P.E. 23319 ON NOV 27, 2023 ALTERATION
VIDE VIBRATION ISOLATION DEVICES AND FLEXIBLE DUCT/ PIPING NECTIONS TO ALL MOVING MACHINERY NOT INTERNALLY ISOLATED.	19. •	ALL KITCHEN EXHAUST DUCTWORK SHALL BE INSTALLED AS FOLLOWS: TYPE I COOKLINE GREASE EXHAUST DUCTWORK SHALL BE ETL LISTED, UL	OF SEALED DOCUMENTS WITHOUT PROPER NOTIFICATION OF THE RESPONSIBLE ENGINEER IS AN
DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. MECHANICAL CONTRACTOR SHALL COORDINATE ALL DUCT AND DIFFUSER ATIONS WITH LIGHT FIXTURES AS REQUIRED FOR A COMPLETE	•	COMPLIANT CORROSION RESISTANT FACTORY BUILT DUCT AND FITTINGS. PITCH ALL HORIZONTAL GREASE DUCTWORK UNIFORMLY BACK TOWARDS THE HOOD AT 1/4" PER FOOT (NOT TO EXCEED 50'-0").	OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.
ALLATION. MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL TRACTOR AND OTHER TRADES ALL REQUIRED OPENINGS AND ETRATIONS. ALL REQUIRED OPENINGS IN FOUNDATIONS, FLOORS, WALLS	•	EACH GREASE EXHAUST DUCT RISER BETWEEN THE HOOD COLLAR AND EXHAUST FAN SHALL BE OF THE SAME SIZE AS THE RESPECTIVE FIELD CUT HOOD COLLAR SIZE, UNO. REFER TO THE HOOD SHEETS FOR THE HOOD COLLAR SIZES AS SPECIFIED BY THE HOOD MANUFACTURER.	
ROOF SHALL BE CONSTRUCTED INTO THE STRUCTURE WITH THE USE OF EVES, CURBS, ETC. CUTTING AND PATCHING SHALL BE HELD TO A MUM.	•	ALL KITCHEN EXHAUST DUCTWORK AND FITTINGS SHALL BE FURNISHED WITH THE EXHAUST HOOD PACKAGE, AND INSTALLED COMPLETE BY THE MECHANICAL CONTRACTOR.	C.G. MALONEY
ITEMS PROJECTING THROUGH THE ROOF SHALL BE FLASHED THROUGH BS OR PIPE SEALS A MINIMUM OF 12" ABOVE THE ROOF. THE PIPE BS AND SEALS SHALL BE INSTALLED BY THE ROOFING CONTRACTOR. URE THAT AMPLE BOOT OPENINGS ARE PROVIDED TO ACCOMMODATE ANY CTRICAL CONDUIT PENETRATIONS REQUIRED FOR POWER.	20.	ROOF CURBS FOR EXHAUST FANS AND THE MAKEUP AIR UNIT SHALL BE FACTORY FABRICATED OF FULL WELDED STEEL CONSTRUCTION WITH WOOD NAILER, AND FURNISHED WITH THE HOOD AND FAN PACKAGE. VERIFY REQUIREMENTS FOR THE ROOF CURBS WITH THE EQUIPMENT SUPPLIER. THE	Aloney
RDINATE THE INSTALLATION AND FINISH OF ALL SUPPLY AND RETURN AIR CES. AIR DEVICES LOCATED IN DINING AREAS SHALL BE PAINTED PER THE HITECTURAL DRAWINGS FINISH SCHEDULE.	21.	GENERAL CONTRACTOR SHALL FLASH ROOF CURBS AND SHIM DEAD LEVEL. COORDINATE EXACT SIZE AND LOCATION OF ROOF OPENINGS WITH THE STRUCTURAL FRAMING. CUTTING OF STRUCTURAL MEMBERS IS NOT PERMITTED. ROOF CURBS FOR ROOFTOP UNITS SHALL BE FACTORY FABRICATED OF FULL	CIATES CIATES F-1400 VOOD DR VOOD DR X5 76053 268-0383 268-0383
RMOSTATS AND REMOTE SENSORS SHALL BE LOCATED AT 48" A.F.F. CT LOCATIONS SHALL BE FIELD COORDINATED TO AVOID INTERFERENCE I WALL-MOUNTED WORK AND HEAT PRODUCING EQUIPMENT.	21.	WELDED STEEL CONSTRUCTION WITH WOOD NAILER, AND FURNISHED WITH THE RTU PACKAGE. VERIFY REQUIREMENTS FOR THE ROOF CURBS WITH THE EQUIPMENT SUPPLIER. THE GENERAL CONTRACTOR SHALL FLASH ROOF CURBS AND SHIM DEAD LEVEL. COORDINATE EXACT SIZE AND LOCATION OF ROOF	ASSO( ENGINE TRAILV (817)
RMOSTATS SHALL BE RTU MANUFACTURER AVAILABLE 24/7 AUTOMATIC NGEOVER TYPE TO SEQUENCE HEATING AND COOLING. SET POINT RANGE LL BE 10°F BETWEEN FULL HEATING AND FULL COOLING. ADJUSTABLE		OPENINGS WITH THE STRUCTURAL FRAMING. CUTTING OF STRUCTURAL MEMBERS IS NOT PERMITTED.	MALONEY A CONSULTING E 1228 HURS
PERATURE DIFFERENTIAL SHALL BE $1-1/2$ °F. THERMOSTAT CONTROL RANGE LL BE 55°F TO 85°F. CONTROLS SHALL HAVE CAPABILITY OF TERMINATING TING AT NO HIGHER THAN 70°F AND COOLING AT NO LOWER THAN 75°F.	22.	THE KITCHEN HOOD PACKAGE WILL BE PROVIDED WITH END CABINET(S) HOUSING THE FIRE SUPPRESSION TANKS, HOOD EXHAUST FAN SWITCHES, AND LIGHT SWITCHES.	
FTOP UNITS SHALL BE SET TO RUN IN "FAN CONTINUOUS" MODE DURING UPIED HOURS. DURING NIGHT SET-BACK HOURS, THE ROOFTOP UNITS LL RUN IN "FAN AUTO" MODE. CONTRACTOR SHALL COORDINATE ESSARY CONTROL WIRING REQUIREMENTS WITH THE MANUFACTURER TO OMPLISH THIS CONTROL SEQUENCE WITHOUT THE USE OF A MANUAL	23.	THE GREASE EXHAUST DUCT RISERS BETWEEN THE HOOD COLLARS AND EXHAUST FANS SHALL BE OF THE SAME SIZE AS THE RESPECTIVE HOOD COLLAR SIZE, UNO. REFER TO THE MANUFACTURER SHEETS IN THE KITCHEN EQUIPMENT DRAWING SET FOR THE HOOD COLLAR SIZES AS PROVIDED BY THE HOOD MANUFACTURER.	WALONEY-ENG.CC
CH ON THE SUB-BASE. HANICAL CONTRACTOR TO FURNISH AND INSTALL 4" HIGH BLACK OVER	24. 25.	REFER TO MANUFACTURER SHEETS FOR THE HOOD CONTROL WIRING DIAGRAM FOR OPERATION OF THE KITCHEN HOOD EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND	
TE LAMINATE NAMEPLATE WITH 2" LETTERS VISIBLE ADJACENT TO CONNECT SWITCH FOR ROOFTOP UNITS AND ROOF MOUNTED FANS.	20.	REPLACING THE AIR FILTERS AT THE ROOFTOP UNITS WITH 2" THICK MERV 8 THROW AWAY TYPE AIR FILTERS AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO AIR BALANCE AND STORE TURNOVER.	
NECTION BY ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUIT AND WIRING FINAL CONNECTION BY MECHANICAL CONTRACTOR. FLEXIBLE DUCTS SHALL BE INSTALLED IN CONCEALED SPACES ONLY.	26.	A FULL MECHANICAL AIR TEST AND BALANCE REPORT SHALL BE PERFORMED BY AN INDEPENDENT CONTRACTOR.	
MAXIMUM ALLOWABLE LENGTH OF FLEXIBLE DUCT SHALL BE 5'-0". ALL (IBLE DUCTS SHALL BE CONNECTED TO BRANCH RUNS AND FITTINGS WITH ANDUIT-TYPE BAND, AND SHALL NOT BE ATTACHED DIRECTLY TO THE AIR		MECHANICAL CONTRACTOR SHALL BE ON SITE AND PRESENT AT THE DATE OF STORE TURNOVER.	Rd ES
CE COLLAR.	28.	PER 2021 INTERNATIONAL MECHANICAL CODE WHEN REQUIRED, EACH SINGLE SYSTEM PROVIDING HEATING OR COOLING AIR IN EXCESS OF 2000 CUBIC FEET PER MINUTE SHALL BE EQUIPPED WITH AN AUTOMATIC SHUTOFF. AUTOMATIC SHUTOFF SHALL BE ACCOMPLISHED BY INTERRUPTING THE POWER SOURCE OF THE AIR MOVING EQUIPMENT DEVICES WHICH WILL DETECT PRODUCTS OF COMBUSTION OTHER THAN HEAT, AND WHICH COMPLY WITH THE I.B.C., SHALL BE LABELED BY AN APPROVED AGENCY FOR AIR DUCT INSTALLATION AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. SUCH DEVICES SHALL BE COMPATIBLE WITH THE OPERATING VELOCITIES, PRESSURES, TEMPERATURES AND HUMIDITIES OF THE SYSTEM WHERE FIRE DETECTION OR ALARM SYSTEMS ARE PROVIDED FOR THE BUILDING, SMOKE DETECTORS SHALL BE SUPERVISED BY SUCH SYSTEMS.	AL SCHEDUL estaurant R ericksburg onio, Texas
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_	MECHANICAL GENERAL NOTES		MECHANICAL GENERAL NOTES (CONT)	MICHAEL LEGG ARCHITECTURE	•
1.	NOTE: FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND ALTHOUGH SIZES AND LOCATIONS OF EQUIPMENT ARE DRAWN TO SCALE WHEREVER POSSIBLE, THE CONTRACTOR SHALL MAKE USE OF ALL DATA IN ALL OF THE CONTRACT DOCUMENTS AND VERIFY THIS INFORMATION PRIOR TO ORDERING, FABRICATING OR INSTALLING ANY MATERIALS.	18. •	ALL KITCHEN MAKEUP AIR DUCTWORK, AND HVAC SUPPLY AND RETURN DUCTWORK SHALL BE INSTALLED AS FOLLOWS: CONCEALED DUCTWORK WITHIN THE BUILDING SHALL BE EXTERNALLY WRAPPED AND SECURED WITH MINIMUM R-8.0, 2" INSULATION WITH VAPOR BARRIER PER THE 2021 INTERNATIONAL MECHANICAL CODE, WITH LOCAL AMENDMENTS. INSULATION SHALL HAVE MAXIMUM RATINGS OF 25 FLAME SPREAD, 50 SMOKE	Michael Gregory Legg NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St San Antonio, Texas 78260 ph. 210-416 4935 michael@mlarchitecture.info www.michaelleggarchitecture.com	
2. 3. 4.	THE MECHANICAL CONTRACTOR SHALL PROVIDE COMPLETE INFORMATION AND COOPERATE WITH THE OTHER CONTRACTORS AND TRADES AS REQUIRED FOR THE COMPLETION AND COORDINATION OF THE COMPLETE PROJECT. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ADMINISTERING ALL WARRANTIES ON EQUIPMENT WHICH THEY FURNISH AND INSTALL. PROVIDE WRITTEN WARRANTY TO REPLACE ALL FAULTY MATERIALS AND/OR LABOR, AT NO COST TO TENANT, FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE. PROVIDE 5 YEAR COMPRESSOR WARRANTY FOR AC UNITS.	•	DEVELOPED. EXPOSED DUCTWORK WITHIN THE BUILDING SHALL BE INTERNALLY LINED AND PINNED WITH MINIMUM R-6.0, 1-1/2" INSULATION WITH VAPOR BARRIER PER THE 2021 INTERNATIONAL MECHANICAL CODE WITH LOCAL AMENDMENTS. INSULATION SHALL HAVE MAXIMUM RATINGS OF 25 FLAME SPREAD, 50 SMOKE DEVELOPED. EXPOSED DUCTWORK SHALL BE INSTALLED COMPLETE WITH FACTORY APPLIED PAINT GRIP FINISH, SUITABLE FOR FINAL FIELD APPLIED PAINT BY THE GENERAL CONTRACTOR.	DRAWING COORDINATION Architectural, Landscape, Civil, Structural, Mechanical and Electrical drawings are interrela General Contractor and all Sub Contractors shall review and coordinate the entire set of drawings and specifications	ted.
5.	WARRANTIES SHALL BEGIN ON THE DATE OF SUBSTANTIAL COMPLETION. ALL OUTDOOR AIR INTAKE BY MECHANICAL EQUIPMENT SHALL HAVE A MINIMUM 10'-0" HORIZONTAL CLEARANCE FROM THE DISCHARGE OF ANY EXHAUST FAN, RTU GAS EXHAUST OR PLUMBING VENT.	•	DUCT CONSTRUCTION SHALL BE OF GALVANIZED STEEL. GAUGES, SWAY BRACING (AS REQUIRED) AND SUSPENSION SHALL CONFORM TO SMACNA STANDARDS. SEAL ALL SEAMS AND JOINTS AIR AND WATERTIGHT. FLEXIBLE ALUMINUM DUCTWORK OR FIBERGLASS DUCTBOARD IS NOT ALLOWED (UNO).	THE SEAL APPEARING ON TH DOCUMENT WAS AUTHORIZED G.G. MALONEY, P.E. 23319 ON NOV 27, 2023 ALTERAT	ΒY
7.	PROVIDE VIBRATION ISOLATION DEVICES AND FLEXIBLE DUCT/ PIPING CONNECTIONS TO ALL MOVING MACHINERY NOT INTERNALLY ISOLATED. ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.	19. •	ALL KITCHEN EXHAUST DUCTWORK SHALL BE INSTALLED AS FOLLOWS: TYPE I COOKLINE GREASE EXHAUST DUCTWORK SHALL BE ETL LISTED, UL COMPLIANT CORROSION RESISTANT FACTORY BUILT DUCT AND FITTINGS.	OF SEALED DOCUMENTS WITHO PROPER NOTIFICATION OF T RESPONSIBLE ENGINEER IS OFFENSE UNDER THE TEX ENGINEERING PRACTICE AG	UT HE AN AS
8.	THE MECHANICAL CONTRACTOR SHALL COORDINATE ALL DUCT AND DIFFUSER LOCATIONS WITH LIGHT FIXTURES AS REQUIRED FOR A COMPLETE INSTALLATION.	•	PITCH ALL HORIZONTAL GREASE DUCTWORK UNIFORMLY BACK TOWARDS THE HOOD AT 1/4" PER FOOT (NOT TO EXCEED 50'-0").	27 November 202.	
	THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AND OTHER TRADES ALL REQUIRED OPENINGS AND PENETRATIONS. ALL REQUIRED OPENINGS IN FOUNDATIONS, FLOORS, WALLS AND ROOF SHALL BE CONSTRUCTED INTO THE STRUCTURE WITH THE USE OF SLEEVES, CURBS, ETC. CUTTING AND PATCHING SHALL BE HELD TO A MINIMUM.	•	EACH GREASE EXHAUST DUCT RISER BETWEEN THE HOOD COLLAR AND EXHAUST FAN SHALL BE OF THE SAME SIZE AS THE RESPECTIVE FIELD CUT HOOD COLLAR SIZE, UNO. REFER TO THE HOOD SHEETS FOR THE HOOD COLLAR SIZES AS SPECIFIED BY THE HOOD MANUFACTURER. ALL KITCHEN EXHAUST DUCTWORK AND FITTINGS SHALL BE FURNISHED WITH THE EXHAUST HOOD PACKAGE, AND INSTALLED COMPLETE BY THE MECHANICAL CONTRACTOR.	G.G. MALONEY	
	ALL ITEMS PROJECTING THROUGH THE ROOF SHALL BE FLASHED THROUGH CURBS OR PIPE SEALS A MINIMUM OF 12" ABOVE THE ROOF. THE PIPE CURBS AND SEALS SHALL BE INSTALLED BY THE ROOFING CONTRACTOR. ENSURE THAT AMPLE BOOT OPENINGS ARE PROVIDED TO ACCOMMODATE ANY ELECTRICAL CONDUIT PENETRATIONS REQUIRED FOR POWER. COORDINATE THE INSTALLATION AND FINISH OF ALL SUPPLY AND RETURN AIR	20.	ROOF CURBS FOR EXHAUST FANS AND THE MAKEUP AIR UNIT SHALL BE FACTORY FABRICATED OF FULL WELDED STEEL CONSTRUCTION WITH WOOD NAILER, AND FURNISHED WITH THE HOOD AND FAN PACKAGE. VERIFY REQUIREMENTS FOR THE ROOF CURBS WITH THE EQUIPMENT SUPPLIER. THE GENERAL CONTRACTOR SHALL FLASH ROOF CURBS AND SHIM DEAD LEVEL.	OVE ERS	
12.	DEVICES. AIR DEVICES LOCATED IN DINING AREAS SHALL BE PAINTED PER THE ARCHITECTURAL DRAWINGS FINISH SCHEDULE. THERMOSTATS AND REMOTE SENSORS SHALL BE LOCATED AT 48" A.F.F. EXACT LOCATIONS SHALL BE FIELD COORDINATED TO AVOID INTERFERENCE WITH WALL-MOUNTED WORK AND HEAT PRODUCING EQUIPMENT.	21.	COORDINATE EXACT SIZE AND LOCATION OF ROOF OPENINGS WITH THE STRUCTURAL FRAMING. CUTTING OF STRUCTURAL MEMBERS IS NOT PERMITTED. ROOF CURBS FOR ROOFTOP UNITS SHALL BE FACTORY FABRICATED OF FULL WELDED STEEL CONSTRUCTION WITH WOOD NAILER, AND FURNISHED WITH THE RTU PACKAGE. VERIFY REQUIREMENTS FOR THE ROOF CURBS WITH THE EQUIPMENT SUPPLIER. THE GENERAL CONTRACTOR SHALL FLASH ROOF CURBS AND SHIM DEAD LEVEL. COORDINATE EXACT SIZE AND LOCATION OF ROOF	MALONEY ASSOCIATES CONSULTING ENGINEERS, INC F-1400 1228 TRAILWOOD DR HURST, TEXAS 76053 (817) 268-0383	
13.	THERMOSTATS SHALL BE RTU MANUFACTURER AVAILABLE 24/7 AUTOMATIC CHANGEOVER TYPE TO SEQUENCE HEATING AND COOLING. SET POINT RANGE SHALL BE 10°F BETWEEN FULL HEATING AND FULL COOLING. ADJUSTABLE TEMPERATURE DIFFERENTIAL SHALL BE $1-1/2°F$ . THERMOSTAT CONTROL RANGE SHALL BE 55°F TO 85°F. CONTROLS SHALL HAVE CAPABILITY OF TERMINATING HEATING AT NO HIGHER THAN 70°F AND COOLING AT NO LOWER THAN 75°F.	22.	OPENINGS WITH THE STRUCTURAL FRAMING. CUTTING OF STRUCTURAL MEMBERS IS NOT PERMITTED. THE KITCHEN HOOD PACKAGE WILL BE PROVIDED WITH END CABINET(S) HOUSING THE FIRE SUPPRESSION TANKS, HOOD EXHAUST FAN SWITCHES, AND LIGHT SWITCHES.		
14.	ROOFTOP UNITS SHALL BE SET TO RUN IN "FAN CONTINUOUS" MODE DURING OCCUPIED HOURS. DURING NIGHT SET-BACK HOURS, THE ROOFTOP UNITS SHALL RUN IN "FAN AUTO" MODE. CONTRACTOR SHALL COORDINATE NECESSARY CONTROL WIRING REQUIREMENTS WITH THE MANUFACTURER TO ACCOMPLISH THIS CONTROL SEQUENCE WITHOUT THE USE OF A MANUAL SWITCH ON THE SUB-BASE.	23.	THE GREASE EXHAUST DUCT RISERS BETWEEN THE HOOD COLLARS AND EXHAUST FANS SHALL BE OF THE SAME SIZE AS THE RESPECTIVE HOOD COLLAR SIZE, UNO. REFER TO THE MANUFACTURER SHEETS IN THE KITCHEN EQUIPMENT DRAWING SET FOR THE HOOD COLLAR SIZES AS PROVIDED BY THE HOOD MANUFACTURER. REFER TO MANUFACTURER SHEETS FOR THE HOOD CONTROL WIRING DIAGRAM	MALONEY-ENG.COM	
15.	MECHANICAL CONTRACTOR TO FURNISH AND INSTALL 4" HIGH BLACK OVER WHITE LAMINATE NAMEPLATE WITH 2" LETTERS VISIBLE ADJACENT TO DISCONNECT SWITCH FOR ROOFTOP UNITS AND ROOF MOUNTED FANS.	25.	FOR OPERATION OF THE KITCHEN HOOD EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND		
16.	LINE VOLTAGE WIRING, ALL CONDUIT DISCONNECT SWITCHES AND FINAL CONNECTION BY ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUIT AND WIRING AND FINAL CONNECTION BY MECHANICAL CONTRACTOR.	26.	REPLACING THE AIR FILTERS AT THE ROOFTOP UNITS WITH 2" THICK MERV 8 THROW AWAY TYPE AIR FILTERS AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO AIR BALANCE AND STORE TURNOVER. A FULL MECHANICAL AIR TEST AND BALANCE REPORT SHALL BE PERFORMED		
17.	ANY FLEXIBLE DUCTS SHALL BE INSTALLED IN CONCEALED SPACES ONLY. THE MAXIMUM ALLOWABLE LENGTH OF FLEXIBLE DUCT SHALL BE 5'-O". ALL FLEXIBLE DUCTS SHALL BE CONNECTED TO BRANCH RUNS AND FITTINGS WITH A PANDUIT-TYPE BAND, AND SHALL NOT BE ATTACHED DIRECTLY TO THE AIR DEVICE COLLAR.	27. 28.	BY AN INDEPENDENT CONTRACTOR.         MECHANICAL CONTRACTOR SHALL BE ON SITE AND PRESENT AT THE DATE OF STORE TURNOVER.         PER 2021 INTERNATIONAL MECHANICAL CODE WHEN REQUIRED, EACH SINGLE SYSTEM PROVIDING HEATING OR COOLING AIR IN EXCESS OF 2000 CUBIC	JLES Remo	
			FEET PER MINUTE SHALL BE EQUIPPED WITH AN AUTOMATIC SHUTOFF. AUTOMATIC SHUTOFF SHALL BE ACCOMPLISHED BY INTERRUPTING THE POWER SOURCE OF THE AIR MOVING EQUIPMENT DEVICES WHICH WILL DETECT PRODUCTS OF COMBUSTION OTHER THAN HEAT, AND WHICH COMPLY WITH THE I.B.C., SHALL BE LABELED BY AN APPROVED AGENCY FOR AIR DUCT INSTALLATION AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. SUCH DEVICES SHALL BE COMPATIBLE WITH THE OPERATING VELOCITIES, PRESSURES, TEMPERATURES AND HUMIDITIES OF THE SYSTEM WHERE FIRE DETECTION OR ALARM SYSTEMS ARE PROVIDED FOR THE BUILDING, SMOKE DETECTORS SHALL BE SUPERVISED BY SUCH SYSTEMS.	CAL SCHEDL Restaurant dericksburg ntonio, Texa	

PRICING AND TO VERIFY FINAL EQUIPMENT SELECTIONS PRIOR TO ORDERING.

3. PLUG TYPE DISCONNECT SHALL BE FACTORY INSTALLED.

FLY FAN SCHEDULE CFM VOLTS/ PH MCA/MOCP MANUFACTURER LENGTH MODEL TYPE WEIGHT NOTES SERVICE WALL MNTD, DOWNBLAST 42 R SERVICE DOOR 48" 1442 115/1 5.1 STD248-1U 1,2,3 MARS LETE WITH MANUFACTURER AVAILABLE DOOR LIMIT MICRO SWITCH.

AVE A LOUVERED FACE.

SHED WITH KITCHEN EQUIPMENT PACKAGE, INSTALLED BY MECHANICAL CONTRACTOR.

RTU RTU RTUrtu-NOTES:

	Н	vac seq	UENCE O	F OPERA	TION		
ARK	SERVICE	FUNCTION	START TIME	COOLING SETPOINT(*F)	HEATING SETPOINT(*F)	Humidity Setpoint(%RH)	NOTES
U–1	DINING (MAIN)	OCCUPIED	9:30 AM	72	72	50	1 THRU 4
0-1		UNOCCUPIED	11:00 PM	78	65	60	I INKU 4
U-2	DINING (ENTRY)	OCCUPIED	9:35 AM	72	72	N/A	1 THRU 4
0-2		UNOCCUPIED	11:00 PM	78	65	177	I INKU 4
U-3	KITCHEN (DRIVE THRU)	OCCUPIED	9:25 AM	70	70	N/A	1 THRU 3
0-3		UNOCCUPIED	11:00 PM	78	65	177	T THKU J
U-4	KITCHEN (REAR)	OCCUPIED	9:20 AM	70	70	50	1 THRU 3
0-4	KITCHEN (KEAK)	UNOCCUPIED	11:00 PM	78	65	60	

1. UNIT FAN SHALL RUN ON AUTO DURING OCCUPIED HOURS, AND CYCLE ON DEMAND DURING UNOCCUPIED HOURS.

2. UPON A CALL FOR COOLING: • COMPRESSORS TO CYCLE TO MAINTAIN THE SPACE SETTING, WITH THE GAS HEATER LOCKED OUT.

- THERE SHALL BE A 2°F DEAD BAND (ADJUSTABLE) BETWEEN THE 1ST AND 2ND STAGE OF COOLING.
- THERE SHALL BE A 5 MINUTE (ADJUSTABLE) TIME DELAY BETWEEN THE 1ST AND 2ND STAGE OF COOLING. 3. UPON A CALL FOR HEATING:

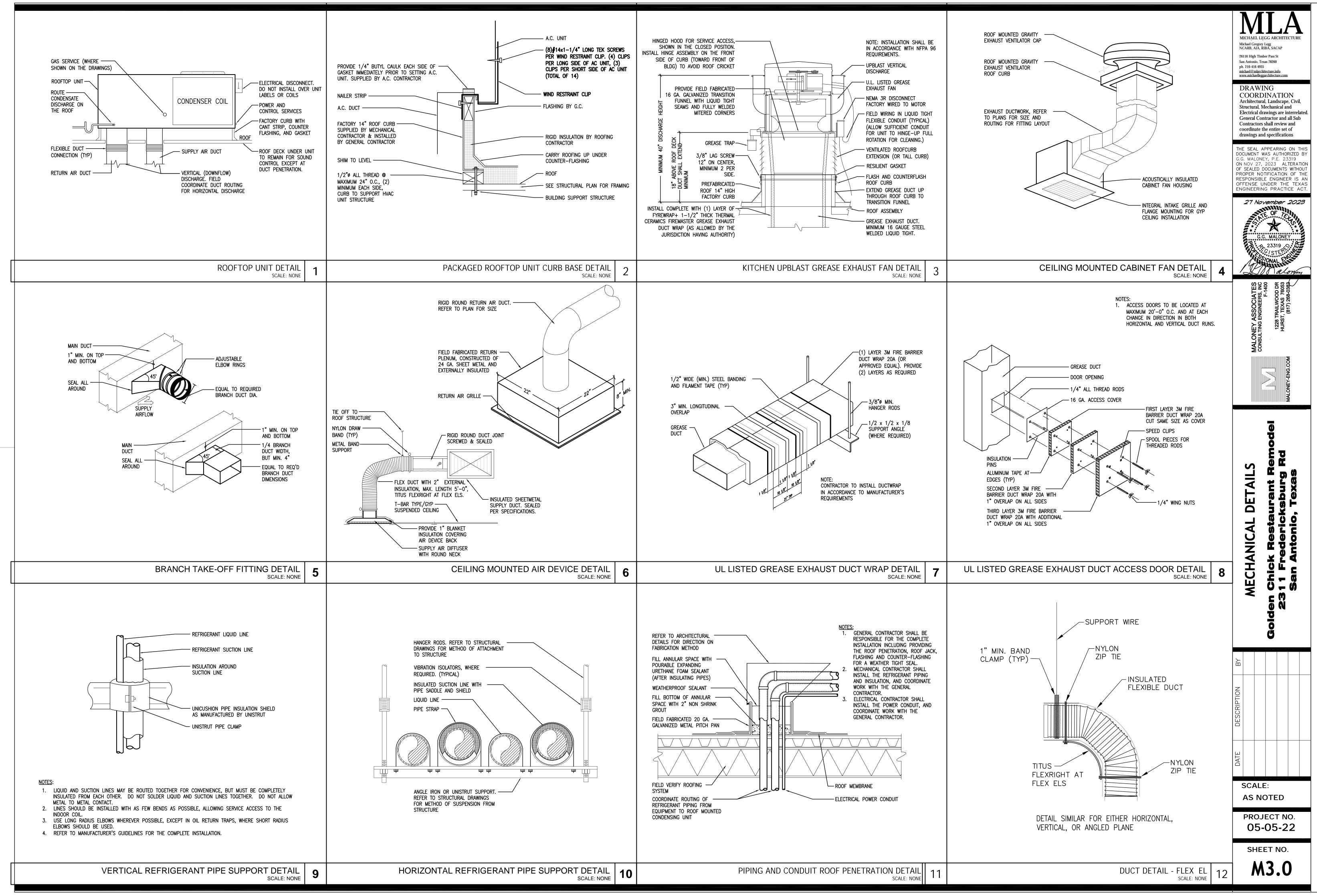
• GAS FURNACE TO CYCLE TO MAINTAIN THE SPACE SETTING, WITH THE COMPRESSORS LOCKED OUT.

• THERE SHALL BE A 2'F DEAD BAND (ADJUSTABLE) BETWEEN THE 1ST AND 2ND STAGE OF HEATING. • THERE SHALL BE A 5 MINUTE (ADJUSTABLE) TIME DELAY BETWEEN THE 1ST AND 2ND STAGE OF HEATING.

4. UPON A CALL FOR HUMIDITY CONTROL:

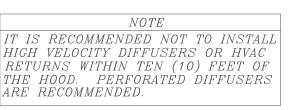
• DURING OCCUPIED TIMES WHEN THE TEMPERATURE SETPOINT IS SATISFIED HOWEVER THE HUMIDISTAT SENSES HUMIDITY ABOVE THE SET POINT, THE HOT GAS REHEAT SYSTEM SHALL ACTIVATE TO REDUCE THE SPACE HUMIDITY TO BELOW SET POINT. • DURING UNOCCUPIED TIMES WHEN THE TEMPERATURE SETPOINT IS SATISFIED HOWEVER THE HUMIDISTAT SENSES HUMIDITY ABOVE THE SET POINT, THE HOT GAS REHEAT SYSTEM SHALL ACTIVATE TO REDUCE THE SPACE HUMIDITY TO BELOW SETPOINT.

# ANIC XZA Т U Ű – Ű ME SCALE: AS NOTED PROJECT NO. 05-05-22 SHEET NO. M2.0



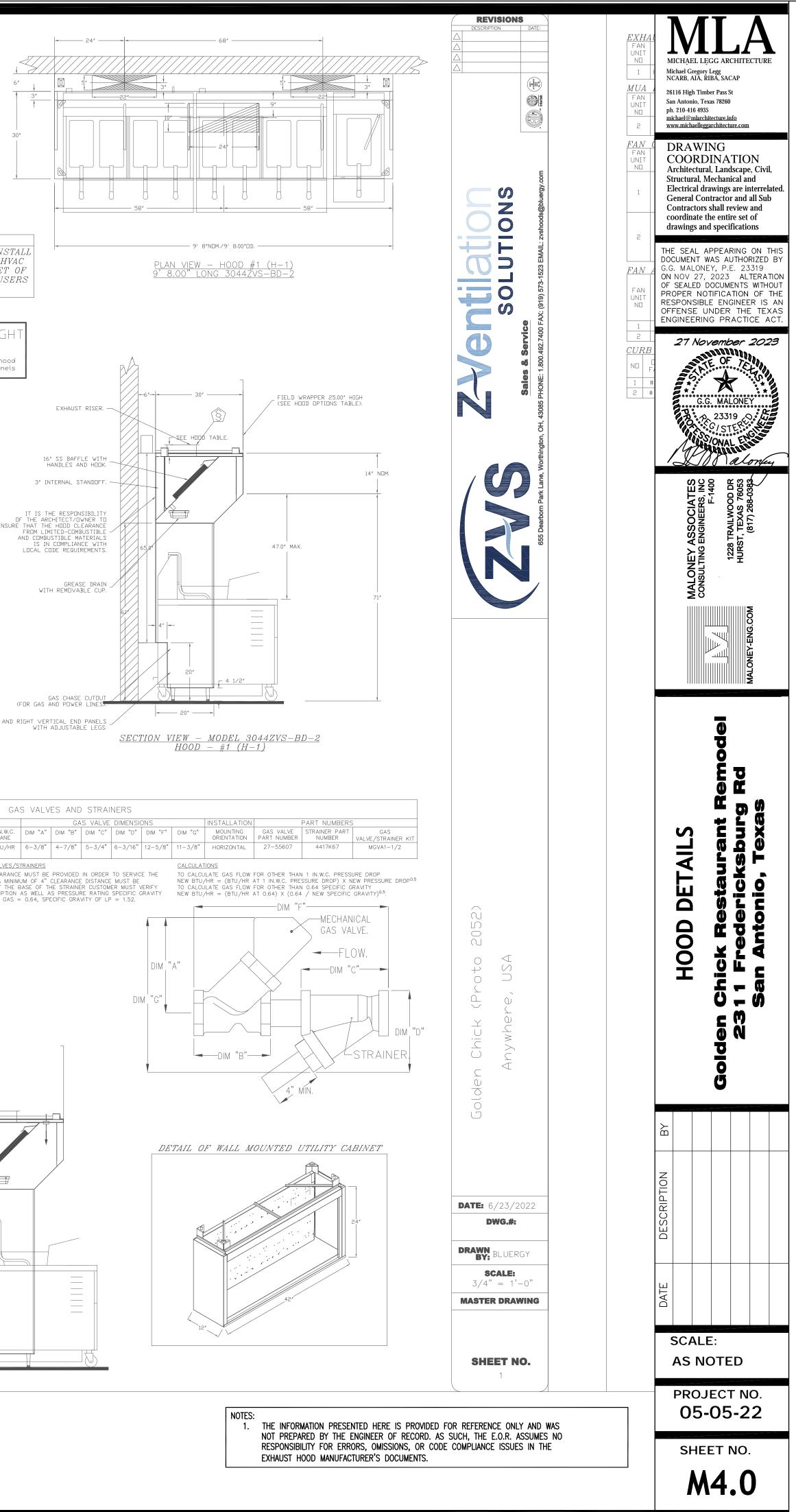
Store         The         EAR TRADEOR         PART LESCRETURE         PACTORY         EST           VILUES         0 - 0 - 43-02/25 ALCCE, LINDER ASSUMUT - ALC CULINDER AND TUMING TUR VICUANICAL DAS         1         0           0 - 0 - 43-02/25 ALCCE, DADOTE COR, METAL, TD FIT NEW LASSE-FORED ANSJ. NOZZLES, 4002400.         7         0           0 - 0 - 0 - 0 - 0 - 01/04/05 REARCET TARK BRANKET FOR FIRE SYSTEM TARK INSTALLATION UTULTY COBJECTS.         2         0           0 - 0 - 0 - 0 - 0 - 01/04/05 REARCET TARK BRANKET FOR FIRE SYSTEM TARK INSTALLATION UTULTY COBJECTS.         2         0           0 - 0 - 0 - 0 - 0 - 01/04/05 REARCET TARK BRANKET FOR FIRE SYSTEM TARK INSTALLATION UTULTY COBJECTS.         2         0           0 - 0 - 0 - 0 - 0 - 01/04/05 REARCET TARK BRANKET FOR FIRE SYSTEM TARK INSTALLATION UTULTY COBJECTS.         2         0           0 - 0 - 0 - 0 - 0 - 01/04/05 REARCET TARK BRANKET REARCE AREA         0 <th></th> <th>AG</th> <th><i>RMATION</i> Type</th> <th></th> <th>FILTER(</th> <th></th> <th></th> <th>ENCY @ 7 RONS</th> <th>QTY</th> <th></th> <th>IGHT(S) TYPE</th> <th>WIRE GUARD</th> <th>LOCATION</th> <th>SIZE</th>		AG	<i>RMATION</i> Type		FILTER(			ENCY @ 7 RONS	QTY		IGHT(S) TYPE	WIRE GUARD	LOCATION	SIZE
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First         Tod         TYPE         SIZE         SUPPLIED BY           1         FS-1         MECHANICAL         13.00         Z-VENTLATION SOLUTIONS         SIZE         PRILE         PRILE <td>1</td> <td></td> <td></td> <td></td> <td>3,</td> <td>0/3.0</td> <td></td> <td></td> <td>WALL</td> <td></td> <td></td> <td></td> <td></td> <td></td>	1				3,	0/3.0			WALL					
PARE         SYSTEM         PARTS         LIST         KEY           FIGURE         TAG         KEY VUMBER - PART ESCREPTION         0/11 W         0	FIRE SYSTEM			SIZE		SUPPL	IED BY		*	*FIELI	) veri	FY C	JAS VA	ALVE
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Image: Deck, R-H02, CARTEDGE DETECTION INCLUDED, ANSULE MART # 29493.       Image: Deck, R-H02, CARTEDGE DETECTION INCLUDED, ANSULE MART # 24943.       Image: Deck, R-H02, CARTEDGE DETECTION INCLUDED, ANSULE MART # 24943.         Image: Deck, R-H02, CARTEDGE DETECTION INCLUDED, ANSULE MART # 2496, MACDLA # 20-24916.       Image: Deck, R-H02, STA MCR05WITCH KT- INCLUDES & SWITCH: SWITCH ANSULE MART # 437155.       Image: Deck, R-H02, STA MCR05WITCH KT- INCLUDES & SWITCH: SWITCH ANSULE MART # 437155.       Image: Deck, R-H02, STA MCR05WITCH, KT- INCLUDES & SWITCH: SWITCH ANSULE MART # 437155.         Image: Deck, R-H03, R-H03, RCH05WITCH, CH: INFO: MART # 419348.       Image: Deck, R-H03, R-H03, R-H03, R-H03, R-H03, R-H14, H03, R-H14, H04, H04, R-H14, H04, H04, R-H14, H04, H04, H04, H04, H04, H04, H04, R-H14, H04, R-H14, H04, R-H14, H04, R-H14, H04, R-H14, H04, R-H14, H04, H04, H04, H04, H04, H04, R-H14, H04, R-H14, H04, R-H14, H04, R-H14, H04, R-H14, H04, H04, H04, H04, H04, H04, H04, H0			1 - 1 - AT - 3	.0 TANK(#1	B) - 3.0	GALLON	SS TANK							
ID       10       - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10			DEM, R-102, CAR	TRIDGE DE	TECTION	INCLUDE	D, ANSUL	PART # 7	9493.			SEMBLY,	1	
1       Dual_ELECTRIC SWITCH, DNE STANDARD SWITCH, DNE ALARM DUTY SWITCH ANSUL PART # 437155,       1       0         11       PACELA # 08-437155.       1       0         12       12       12       HOSE HUSE.       1       0         13       13       13       0       1       0         13       13       14       0       0         14       14       0       1       0         15       14       0       14       0         15       16       14       0       0         16       14       0       14       0         143400       0001270.       140340       1002121       245       11       0         143400       0001270.       14340       1002121       245       112       1       0         15       16       14       14340       112       1       0       1       0         16       14       14340       100227       12       14340       10       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1			10 - 10 - TLINH	LINK - 1	EST LIN	IK (1 TES	T LINK) AI	NSUL PART					-	
1       FS-1       IIII = - 419337 NDZZLE - 2W NDZZLE, DUCT (REPLACES ANSUL PART# 419348, CAS PART#       1       0         1       16 - 16 - 419337 NDZZLE - 1N NDZZLE, PLENUK/APPLIANCE (REPLACES ANSUL PART# 41935), PART#       2       0         20 - 20 - 419340 NDZZLE - 260 NDZZLE, APPLIANCE (REPLACES ANSUL PART# 41935), PART#       2       0         24 - 24 - 419341 NDZZLE - 260 NDZZLE, APPLIANCE (REPLACES ANSUL PART# 41935), PART#       2       0         24 - 24 - 419341 NDZZLE - 260 NDZZLE, APPLIANCE (REPLACES ANSUL PART# 419352, CAS       3       0         25 - 25 - 26 - 418569 NDZZLE ADAPTOR - SWIVEL NDZZLE ADAPTOR (REPLACES CAS PART # 419552, CAS       3       0         26 - 26 - 0SA-3/8 OUIX SEAL - 3/8' (UL).       7       0       7       0         27 - 27 - 0PSA-1/2 PULLEY SEAL - 1/2' HOID SEAL (UL) ANSUL PART # 423253, MACDLA       1       0       0         38 - 30 - 30 - 30 - 30 - 30 - 30 - 30 -			DUAL ELECTRIC MACOLA # 08-43	SWITCH, E 37155.	INE STAN	IDARD SW								
Image: Second State       Image: Second State<	1	ES-	13 - 13 - 4193 419337) A000126	37 NOZZLE 7.	- 2W N	NOZZLE, 1				,				
Aligodus Aduulez/U.       Aligodus Aduulez/U.       Aligodus Aduulez/U.         24 - 42 - 419341 NADOLEZIL.       260 NDZZLE - 260 NDZZLE ADAPTOR - SWIVEL NUZZLE ADAPTOR (REPLACES CAS PART # 419352, CAS PART # 419369)       3       0         25 - 25 - 418569 NUZZLE ADAPTOR - SWIVEL NUZZLE ADAPTOR (REPLACES CAS PART # 419569)       5       0         26 - 26 - 05A-32/8 QUIK SEAL - 32/8' (UL).       7       0         27 - 0F8A-1/2 PULLEY SEAL - 1/2' HODD SEAL (UL) ANSUL PART # 42353, MACOLA       1       0         28 - 28 - 5-DET DETECTOR - SERIES (SCISSOR LINKAGE) ANSUL PART # 433547/435548 (OLD       5       0         30 - 30 - ANS-500FL FUSIBLE LINK - 500DEG F, R-102 AND PIRANHA, ANSUL PART # 439527.       5       0         34 - AP8 - A REMOTE PULL STATION - RED COMPOSITE (WITHOUT WIRE ROPE) 434618 (OLD       1       0         33 - 3 - PE-LT PULLEY ELBOW - LOW TEMP. PULLEY ELBOW, SET SCREW TYPE ANSUL PART       0       10         35 - 35 - PE-LT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART       1       0         36 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART       1       0         36 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART       1       0         36 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART       1       0         36 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COM	Ĩ		CAS PART# 4193 20 - 20 - 4193	335) A00012 40 NDZZLE	265.									
A0001274.3026 - 26 - 26 - 26 - 26 - 26 - 28 - 3/8 'ULX SEAL - 3/8 'ULX7027 - 27 - 0PSA-1/2 PULLEY SEAL - 1/2' HODD SEAL (UL) ANSUL PART # 423253, MACDLA1028 - 28 - S-DET DETECTOR - SERIES (SCISSUR LINKAGE) ANSUL PART # 435547/435548 (OLD5030 - 30 - ANS-500FL FUSIBLE LINK - 500DEG F, R-102 AND PIRANHA, ANSUL PART # 439232.5034 - 34 - RPS-A REMDTE PULL STATION - RED COMPOSITE (WITHOUT WIRE ROPE) 434618 (OLD10MACDLA # 06-4355.10101035 - 35 - PE-LT PULLEY ELBOW - LOW TEMP. PULLEY ELBOW, SET SCREW TYPE ANSUL PART01036 - 36 - PE-LT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART1036 - 36 - PE-LT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART10WOTES-1036 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART1010-36 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART110-101036 - 37 - BELD DETECTOR - SERIES SUPPLIED BY CASRELDCATE NUZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC MAXIMUM 9 ELBOWS, TEES, AND NUZZLES SUPPLIED BY CASJUB NAME: GOLDEN- FACTORY PIPING EXTENDS A MAXIMUM DE 6' ABOVE THE TOP DE THE HODD.JUB NAME: GOLDEN- FACTORY PIPING EXTENDS A MAXIMUM DE 6' ABOVE THE TOP DE THE HODD.JUB NAME: GOLDEN SIZE, NOT THE OVERALL APPLIANCE SIZE.JUB NAME: GOLDEN RISER # 1 SIZE: ANS HODD # 1 METAL- APPLIANCE DIM			24 - 24 - 4193	341 NOZZLE	- 260	NOZZLE,	APPLIANCE	E (REPLAC	ES ANSL	JL PART# 41	9352, CAS		3	
# 32-79768.       1       0         28 - 28 - S-DET DETECTUR - SERIES (SCISSUR LINKAGE) ANSUL PART # 435547/435548 (DLD       5       0         30 - 30 - ANS-500FL FUSIBLE LINK - 500DEG F, R-102 AND PIRANHA, ANSUL PART # 439232.       5       0         34 - 34 - RPS-A REMDTE PULL STATION - RED COMPOSITE (WITHOUT WIRE RDPE) 434618 (DLD       1       0         MACDLA # 06-4835).       35 - 0       35 - 0       1       0         35 - 35 - PE-LT PULLEY ELBOW - LOW TEMP. PULLEY ELBOW, SET SCREW TYPE ANSUL PART       0       10         36 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART       1       0         NOTES       -       FIELD PIPE DROPS AS SHOWN SLEEVING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.       -       1       0         -       MAXIMUM 9 ELBOWS IN SUPPLY LINE.       -       MAXIMUM 9 ELBOWS IN SUPPLY LINE.       -       -         -       MAXIMUM 72 INCHES OF AGENT LINE FROM TANK TO FIRST NOZZLE COVERING A RANGE, FRYER, OR WOK TO REFLECT GENERAL PIPING REQUIREMENTS.       -       IF APPLICABLE, PRE-PIPED CHARBROILER DROPS ARE SHIPPED LODSE.       -       -         -       FACTORY PIPING EXTENDS A MAXIMUM OF 6* ABOVE THE TOP OF THE HOOD.       JOB NAME: GOLDEN       SYSTEM SIZE: ANS HOOD # 1 9* 8.00° RISER, NOT THE OVERALL APPLIANCE SIZE.       SYSTEM SIZE: ANS HOOD # 1 9* 8.00°			A0001274.					LE ADAPTI	JR (REP	PLACES CAS	PART # 4185	69)		
# #17369/4344800; MAULLA # US-417369.       -       -       -       -         30 - 30 - ANS-500FL FUSIBLE LINK - 500DEG F, R-102 AND PIRANHA, ANSUL PART # 439232.       5       0         34 - 34 - RPS-A REMOTE PULL STATION - RED COMPOSITE (WITHOUT WIRE ROPE) 434618 (OLD       1       0         35 - 35 - PE-LT PULLEY ELBOW - LOW TEMP. PULLEY ELBOW, SET SCREW TYPE ANSUL PART       0       10         # 415570; MACOLA # 11-415671.       -       0       10         36 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART       0       10         36 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART       1       0         NOTES       -       FIELD PIPE DROPS AS SHOWN       -       -         SLEEVING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.       -       -       -         -       MAXIMUM 9 ELBOWS IN SUPPLY LINE.       -       -       -         -       MAXIMUM 72 INCHES OF AGENT LINE FROM TANK TO FIRST NOZZLE       JOB NAME: GOLDEN         -       FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.       JOB NAME: GOLDEN         -       APPLIANCE DIMENSIONS LISTED REPRESENT THE CODKING SURFACE       SYSTEM SIZE: ANS HOOD # 1 9' 8.00"         -       APPLIANCE DIMENSIONS LISTED REPRESENT THE CODKING SURFACE       SYSTEM SIZE: ANS HOOD # 1 9' 8.00" <td></td> <td></td> <td># 32-79768.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>)</td> <td></td> <td></td>			# 32-79768.									)		
MACULA #06-4835).       1       0         35 - 35 - PE-LT PULLEY ELBOW - LOW TEMP. PULLEY ELBOW, SET SCREW TYPE ANSUL PART       0       10         36 - 36 - PE-LT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART       0       10         36 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART       1       0         NOTES       -       FIELD PIPE DROPS AS SHOWN SLEEVING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.       -       RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.         -       MAXIMUM 9 ELBOWS IN SUPPLY LINE.       -       MINIMUM 72 INCHES OF AGENT LINE FROM TANK TO FIRST NOZZLE COVERING A RANGE, FRYER, OR WOK TO REFLECT GENERAL PIPIDIG REQUIREMENTS.       JOB NAME: GOLDEN         -       IF APPLICABLE, PRE-PIPED CHARBROILER DROPS ARE SHIPPED LODSE.       JOB NAME: GOLDEN         -       FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.       JOB NAME: GOLDEN         -       APPLIANCE DIMENSIONS LISTED REPRESENT THE CODKING SURFACE       SYSTEM SIZE: ANS HOOD # 1 9' 8.00" RISER # 1 SIZE: 1 HOOD # 1 9' 8.00"			30 - 30 - ANS-	500FL FUS	SIBLE LI	NK - 500						<u></u>	5	0
36 - 36 - PE-HT PULLEY ELBOW - HIGH TEMP PULLEY ELBOW, COMPRESSION TYPE, ANSUL PART     1     0       NOTES     - FIELD PIPE DROPS AS SHOWN SLEEVING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.     -     -       - RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.     -     MAXIMUM 9 ELBOWS IN SUPPLY LINE.       - MAXIMUM 9 ELBOWS IN SUPPLY LINE.     -     -     MAXIMUM 72 INCHES OF AGENT LINE FROM TANK TO FIRST NOZZLE COVERING A RANGE, FRYER, OR WOK TO REFLECT GENERAL PIPING REQUIREMENTS.       - IF APPLICABLE, PRE-PIPED CHARBROILER DROPS ARE SHIPPED LOOSE.     -     JOB NAME: GOLDEI       - APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE     SYSTEM SIZE: ANS HOOD # 1 9' 8.00' RISER # 1 SIZE:			MACOLA #06-48	35). _T PULLEY	ELBOW									
<ul> <li>FIELD PIPE DROPS AS SHOWN SLEEVING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.</li> <li>RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.</li> <li>MAXIMUM 9 ELBOWS IN SUPPLY LINE.</li> <li>MINIMUM 72 INCHES OF AGENT LINE FROM TANK TO FIRST NOZZLE COVERING A RANGE, FRYER, OR WOK TO REFLECT GENERAL PIPING REQUIREMENTS.</li> <li>IF APPLICABLE, PRE-PIPED CHARBROILER DROPS ARE SHIPPED LOOSE.</li> <li>FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.</li> <li>APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.</li> </ul>			36 - 36 - PE-	HT PULLEY	ELBOW	- HIGH	TEMP PULL	EY ELBOW	, COMPR	RESSION TYP	E, ANSUL PAF	RT.	1	0
<u>SPECIFICATIONS</u> LEGEND – FIRE	- FIEL SLEE RELC SALA - MAXI - MININ COVE - IF A - FACT SIZE	EVINO JCATE MANJ MUM ERINO PPLI TORY JANC	MACOLA #06-48 35 - 35 - PE- # 415670, MACO 36 - 36 - PE- # 423251, MACO PE DROPS AS 5, ELBOWS, TE E NOZZLES IF DERS, ETC. 9 ELBOWS IN 72 INCHES OF 5 A RANGE, FR CABLE, PRE-PI PIPING EXTEN CABLE, PRE-PI PIPING EXTEN THE OVERAL	35). LT PULLEY LA # 11-41 HT PULLEY LA # 10-4' SHOWN ES, AND FLOW P SUPPLY AGENT YER, OR PED CHA DS A MA LISTED	ELBOW 5671. ELBOW 5771. NOZZI ATTER LINE, LINE, WOK ARBROI AXIMUM REPRE	- LOW 1 - HIGH 1 - HIGH 1 - HIGH 1 N IS B - ROM T TO REF LER DF OF 6" - SENT	TEMP. PULL TEMP PULL PPLIED LOCKED ANK TO FLECT G ABOVE	EY ELBOW EY ELBOW BY CAS BY SHE FIRST ENERAL E SHIPF THE TI	, SET S , COMPR L VINO NOZZL PIPIN PED LO JP OF	SCREW TYPE RESSION TYP G, E NG REQUI DOSE. THE HOD	ANSUL PART E, ANSUL PAR REMENTS.	J S H H H	0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	GOLDE ZE: AN 9' 8,00 SIZE: METAL
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WITH UNDERWRITERS LABORATORIES, INC. (UL)       IB       3       GALLUN         THE SYSTEM SHALL BE CAPABLE OF AUTOMATIC DETECTION AND ACTUATION       2       DEM AUTOM         VITH LOCAL OR REMOTE MANUAL ACTUATION       3       DEM REGUL	FOR MEC	HANIC:	AL OR ELECTRICAL Shing agent shall	GAS LINE BE A POT	SHUT-DF ASSIUM	CARBONA	CATIONS. TE, POTASS	SIUM				5	5 ANS ANS	ULEX L ULEX L
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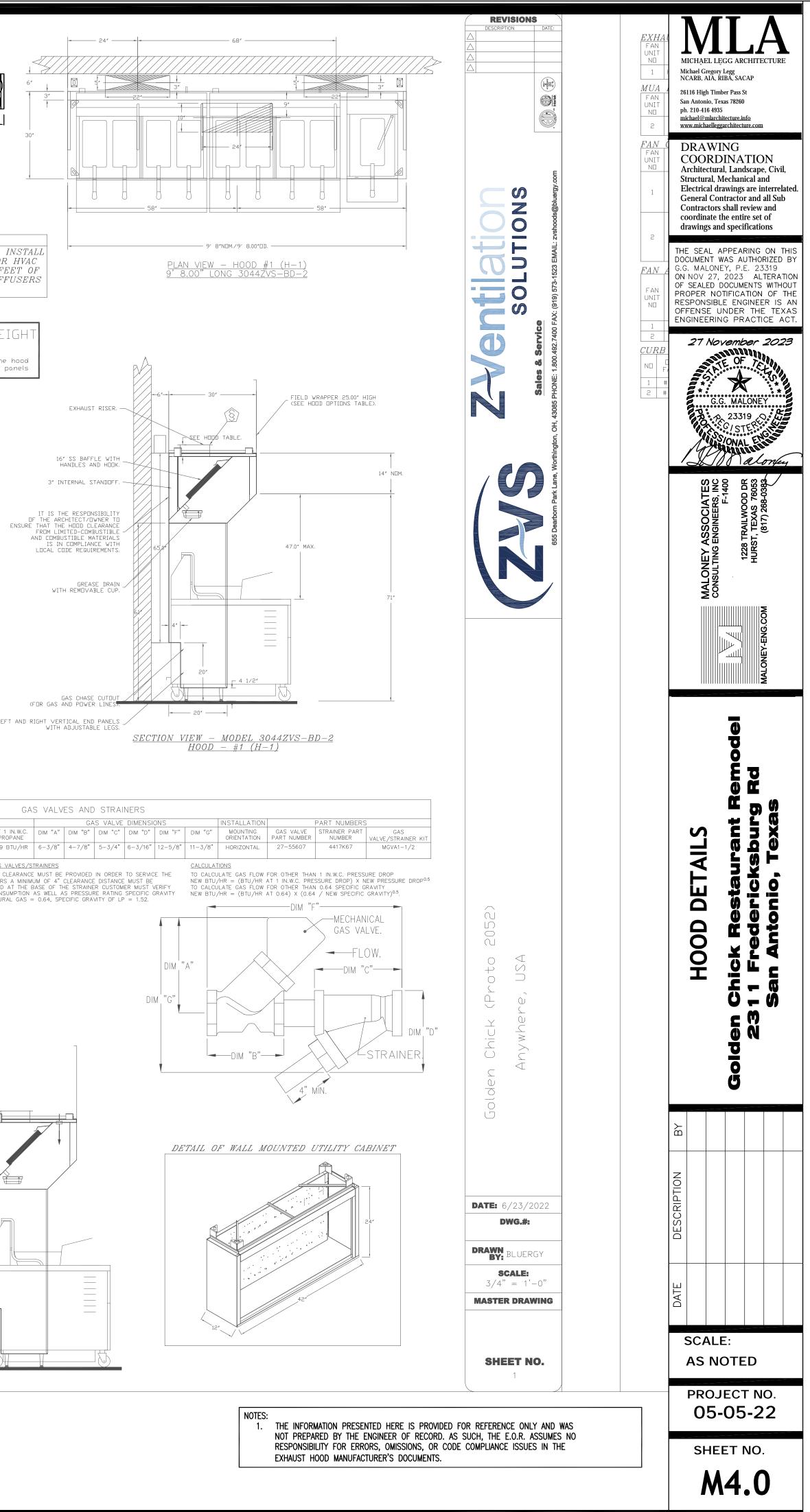
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J     1500     -0.621"     WHERE EXPOSED     ALUNE       UTILITY CABINET(S)     FIRE     FIRE       V     SIZE     FIRE     SWITCHES       SIZE     TYPE     SIZE     MDDEL #       QUANTITY     PIPING     WEIGHT	1500     -0.621"     WHERE EXPOSED     ALUNE     ALUNE       UTILITY CABINET(S)       FIRE SYSTEM     ELECTRICAL     SWITCHES       SIZE     TYPE     SIZE     MDDEL #     QUANTITY       T     12% x24%     ANSUL P=102     20/20     YES	T	VEL SP	CONSTRUCTION	END R				
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T 12" TYPE SIZE MDDEL # QUANTITY PIPING WEIGHT	T 12"x48"x24" ANSUL P-102 20/20			UTIL	ITY CABINE	T(S)	SMITCHES	FIRE	HOOD
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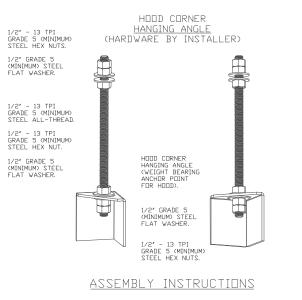


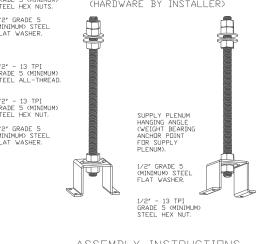
/ERIFY CEILING HEIGH<sup>-</sup> / // Height required to verify that the hood will fit and to size the enclosure panels

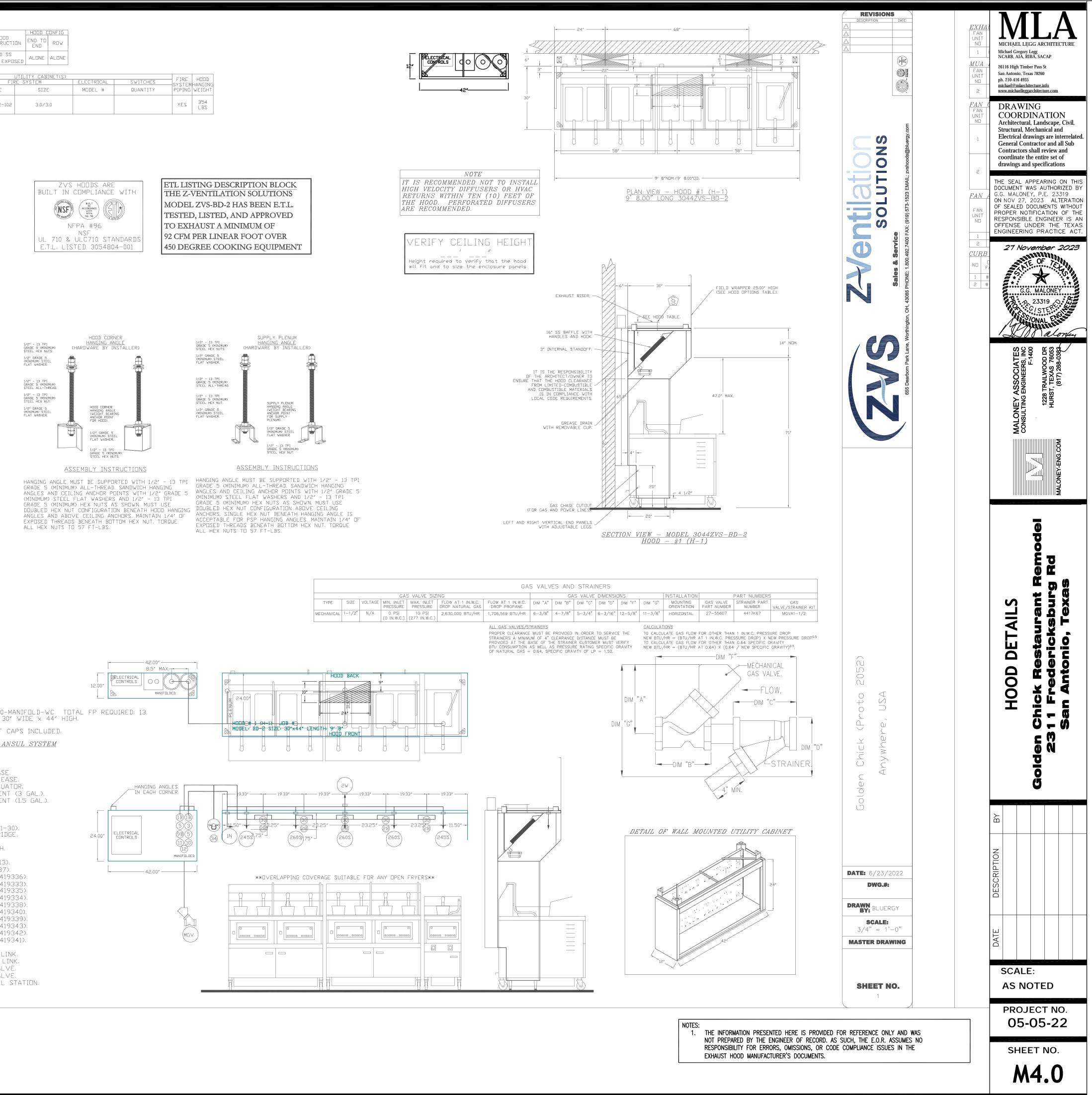
### EXHAUST RISER. —









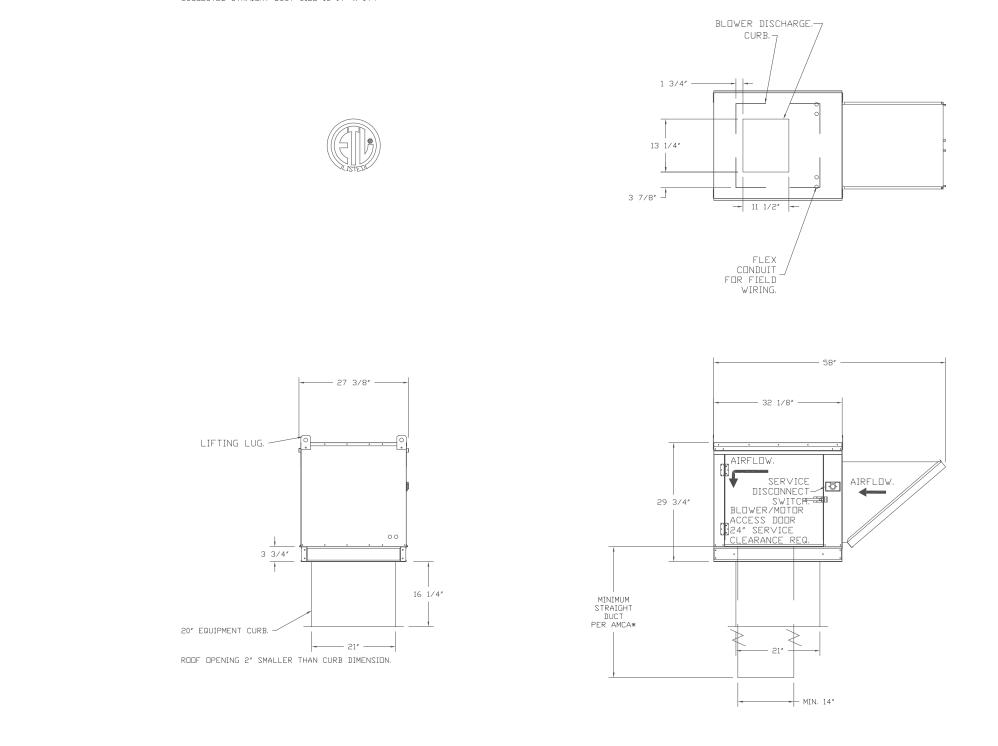


JNIT ND	TAG	QTY	FAN	UNIT ME	IDEL #	MANUFA	CTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCI VELI	
1	KEF-1	1	Z	VS-DU85	ihfa	Z-VENT	ILATION	2500	0.940	1591	TEAD-ECM	1.000	0.7300	1	115	11.6	791	FF
ſIJĄ	FAN	INFO	RMATION	r		I	I		1	1	1							
FAN JNIT ND	TAG	QTY		UNIT ME	IDEL #	BLOWER	HDUSI	NG MII CF			RPM	MDTE ENCI		IP BH	IP PHA	SE VOL	T FLA	1
2	SF-1	1		ZVS-A1-	G10	G10D	A1	-	600	0.50	0 795	TEAD-I	ECM 1.0	00 0.3	99 1	115	11.6	1
AN	OPTIC	DNS				·		·					·	·	·			
FAN JNIT ND	TAG	QTY					DESCR	IPTION										
		1	GREASE I	30X														
1	KFF-1	1	FAN BASE	CERAMI	C SEAL - I	NSTALLED	AT PLA	NT - FOR	GREASE	DUCTS								
	KEF-I	1	ECM WIRI	NG PACK	AGE – PWM	SIGNAL F	ROM ECP	MD3 PREV	VIRE (TEL	.CO MOTO	IR), CCV F	ROTATIC	IN					
		1	2 YEAR F	PARTS W	ARRANTY													
		1	SIZE 1 U	NTEMPER	ED COMMERC	IAL DOWN	DISCHAR	RGE FOR	BELT DRI	VE AHUS								
		1	GRAVITY	BACKDRA	AFT DAMPER	FOR SIZE	1 HOUSI	ING										
2	SF-1	1	ECM WIRI Rotation	I WIRING PACKAGE-SUPPLY – PWM SIGNAL FROM ECPMO3 PREWIRE (TELCO MOTOR), CW ATION														
		1	2 YEAR PARTS WARRANTY															
AN	ACCE.	SSORI	'ES															
FAN			EXHAUST	-		_Y												
JNIT ND	TAG	GREA: CUP	SE GRAVIT DAMPER		SIDE DISCHARGE	GRA∨ITY DAMPER	MOTORIZ DAMPER		-									
1	KEF-1	YES							-									
2	SF-1					YES			1									
	4.55	EMBL	IES															
			1110															
	ON																	

2 # 2 SF-1 29 LBS CURB 21.000"V X 21.000"L X 20.000"H ALDNG LENGTH, RIGHT.

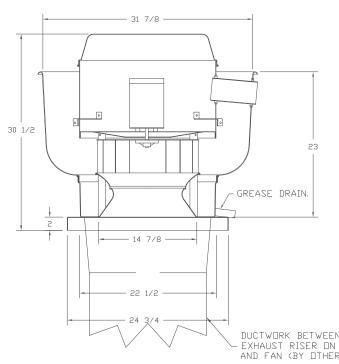
FAN #2 ZVS-A1-G10D - SUPPLY FAN (SF-1) 1. DIRECT DRIVE UNTEMPERED SUPPLY UNIT WITH 10' BLOWER IN SIZE #1 HOUSING WITH SPEED CONTROL, DISCONNECT SWITCH. 2. INTAKE HODD WITH EZ FILTERS-LOW CFM. 3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT. 4. DOWN DISCHARGE CONSTRUCTION FOR SIZE 1 UNTEMPERED BELT DRIVE AHUS. 5. GRAVITY BACK DRAFT DAMPER, 16' WIDE X 18' HIGH, STANDARD GALVANIZED CONSTRUCTION, 1 1/4' REAR FLANGE, FOR SIZE 1 UNTEMPERED FAN HOUSING (5181). 6. ECM WIRING PACKAGE FOR SUPPLY MOTORS WITH PVM SIGNAL FROM ECPM03 PREVIRE. 7. HINGED DOUBLE WALL INSULATED DODR ASSEMBLY (BURNER/BLOWER SECTION). 8. 2 YEAR PARTS WARRANTY

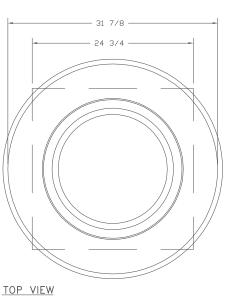
# \*NDTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THRDAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THRDAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 14" × 14".



97         18.6           MOCP         WEIGHT (LBS)         SONES           25A         217         21		IGHT .BS)	S	ONES	
MUCP (LBS) SUNES		Э7		18.6	
MUCP (LBS) SUNES					
25A 217 21	MOCP		-	SONES	``
	25A	217		21	

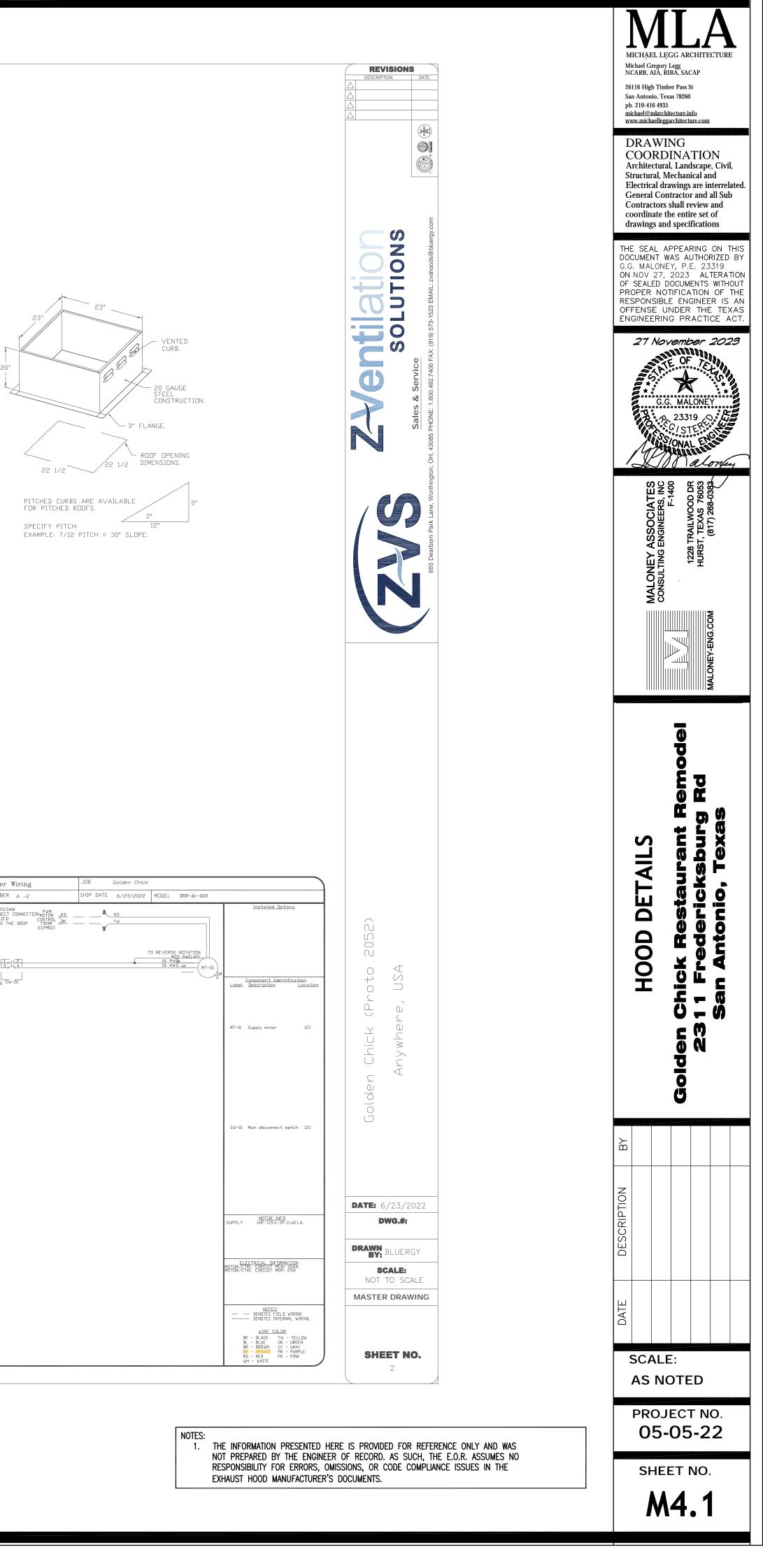


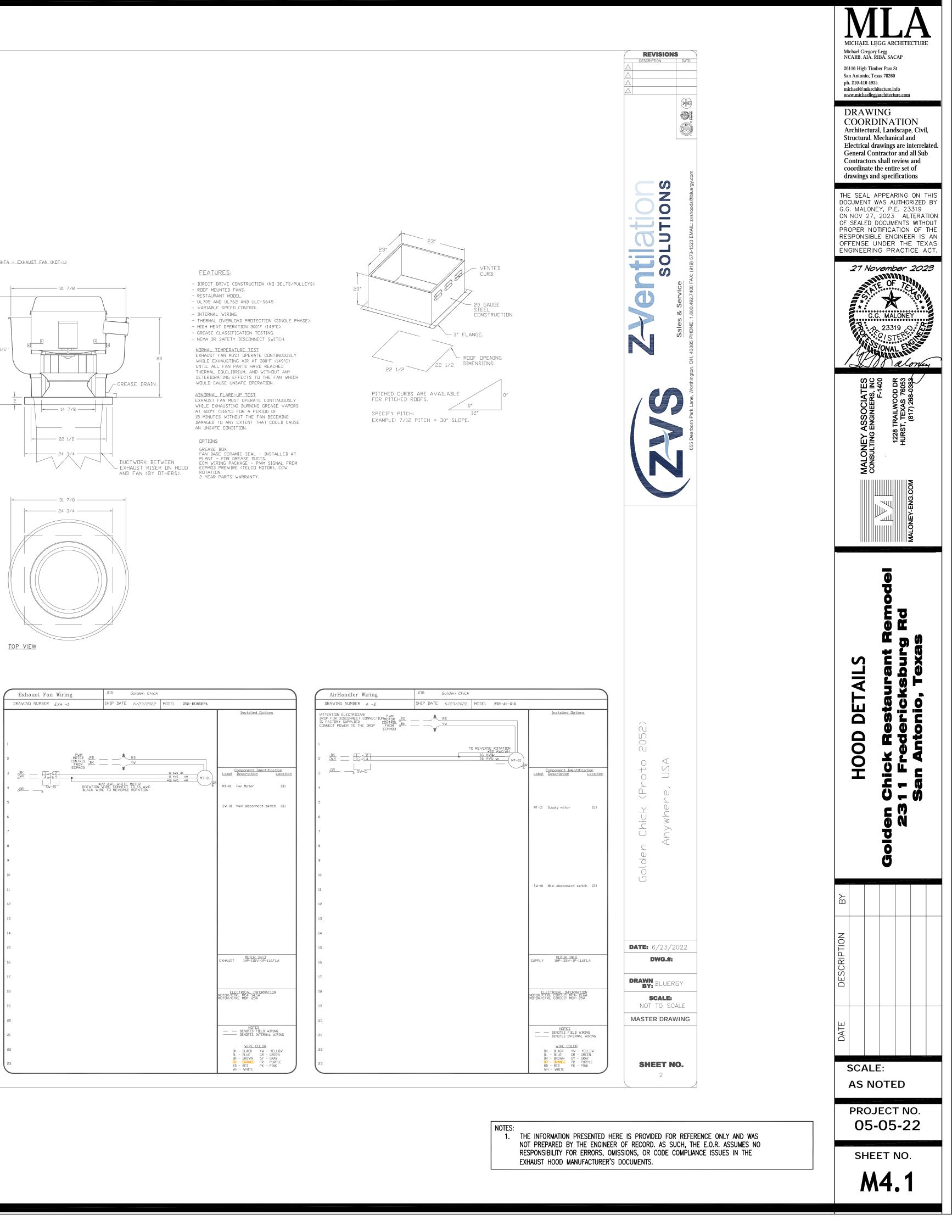






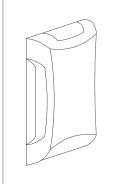
- NEMA 3R SAFETY DISCONNECT SWITCH.





2	ELF	CTRICAL	PACKAGE				
	ND	TAG	PACKAGE #	LOCATION	SWITCH	IES	OPTION
					LOCATION	QUANTITY	
	1	ECP-1	SC-111010MA	WALL UTILITY CABINET LEFT	02 - FACE MOUNT RIGHT SIDE OF HOOD HOOD # 1	1 FAN	SMART CONTROLS THERMOSTATIC CONTROL W/ RELAY ON/OFF WITH SUPPLY

ROOM TEMPERATURE SENSOR

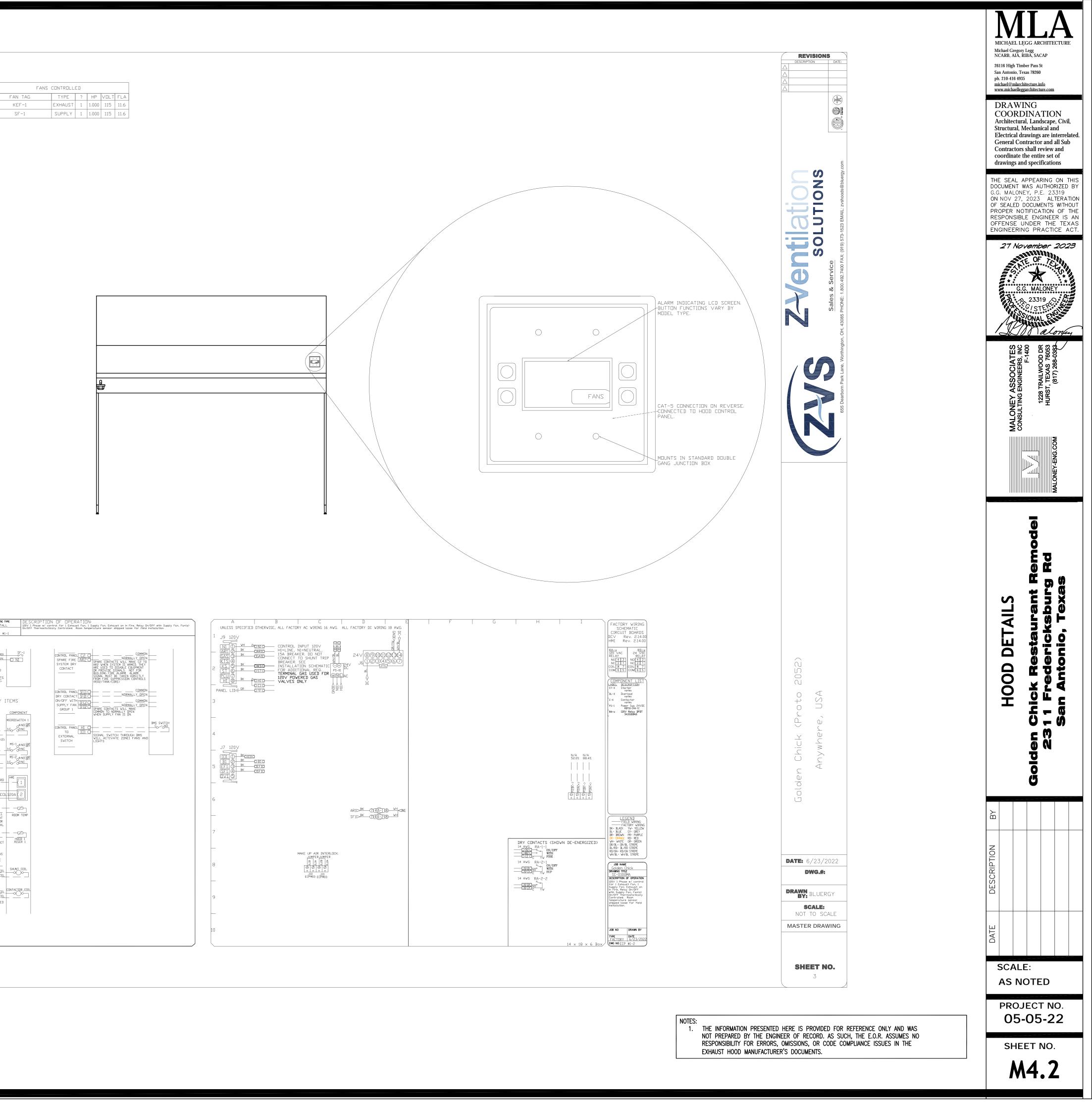


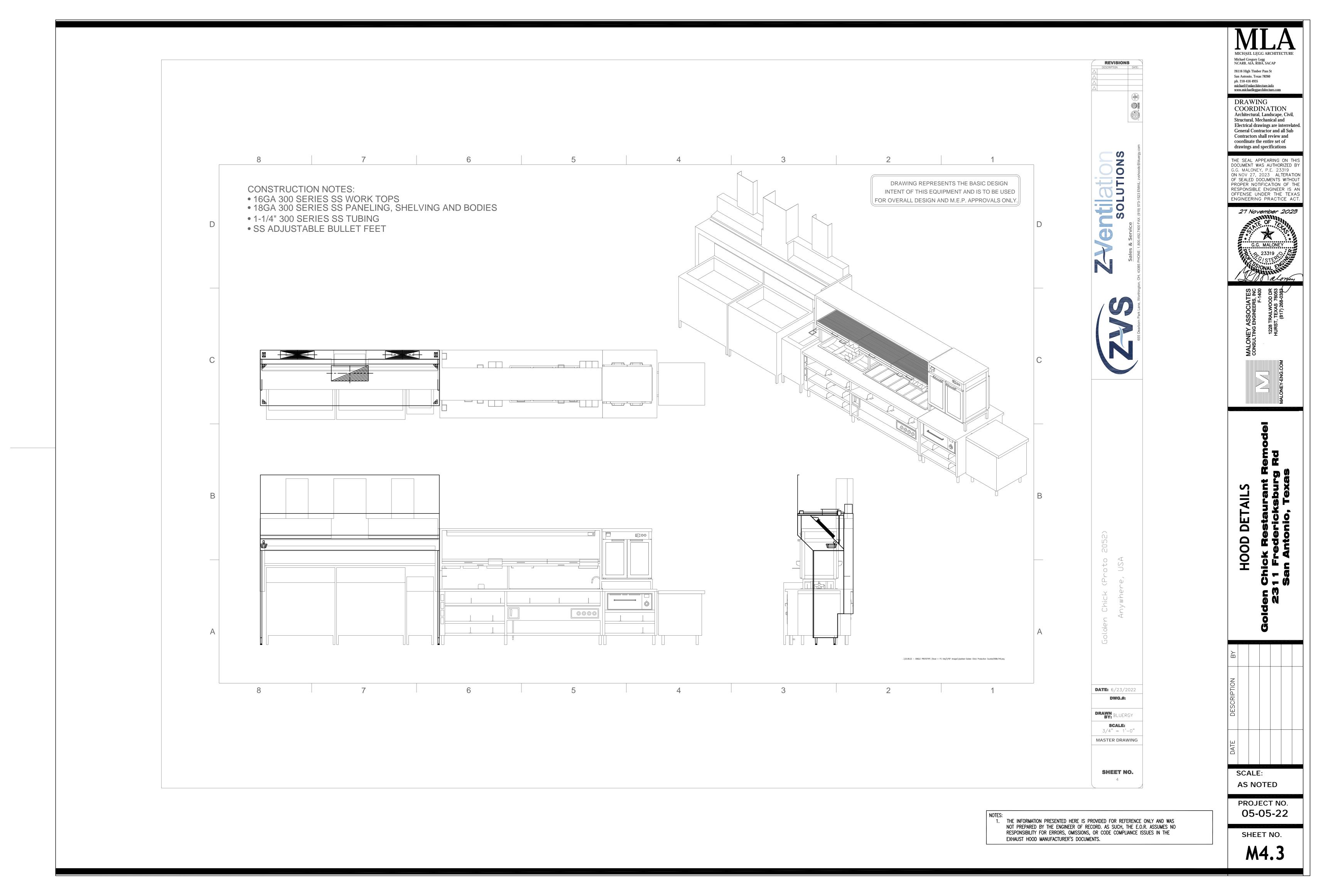
The Room Temperature sensor is a 10K Ohm Thermistor. The sensor provides constant room temperature to the controller. It should be installed on a wall somewhere in the space but not directly under the hood or close to an appliance so that the reading is not affected by heat.

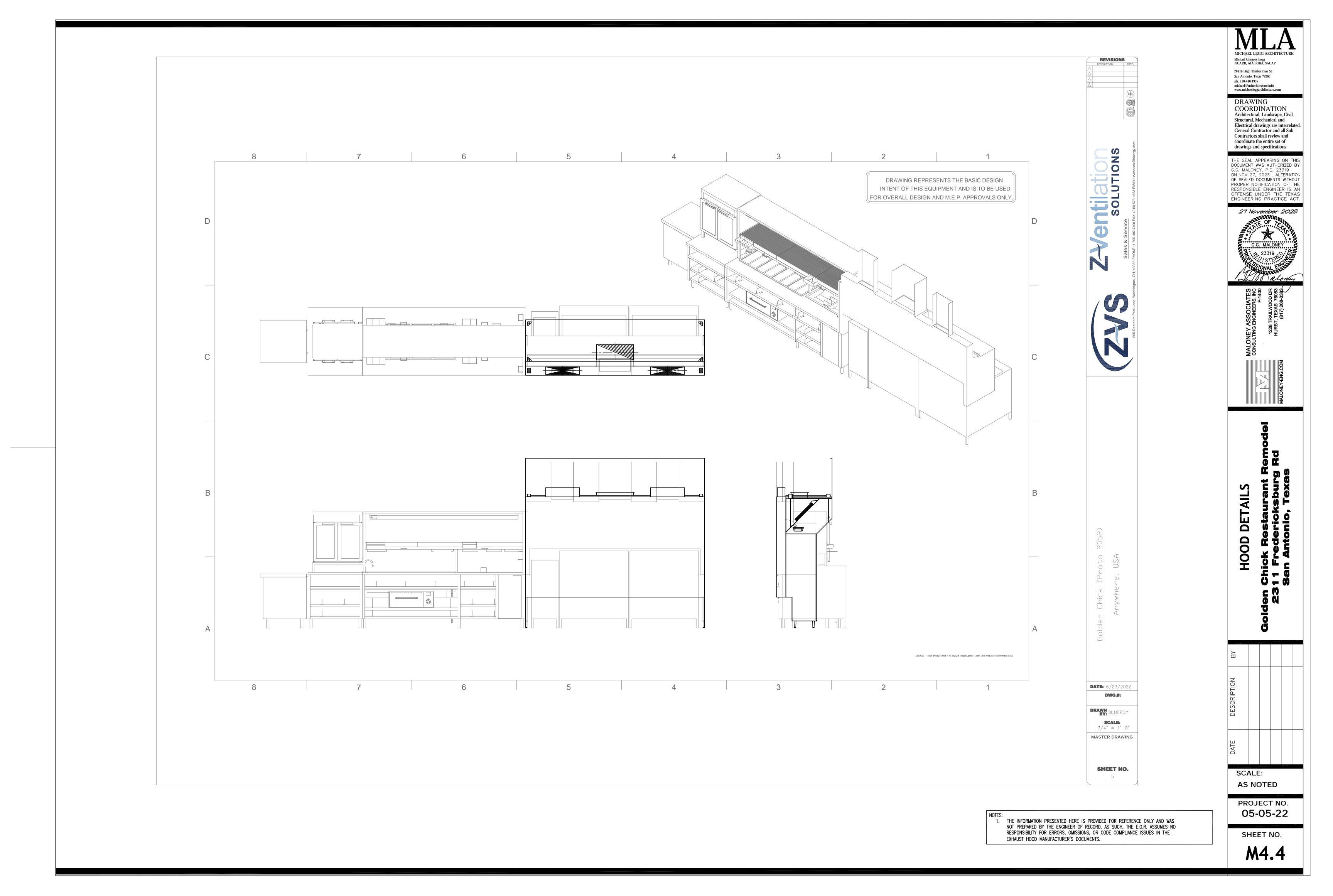
Typically a system will have one room temperature sensor. However, systems configured with 2 fan zones have the option to be ordered with 2 room temperature sensors, one for each zone. They should be mounted in the space accordingly.

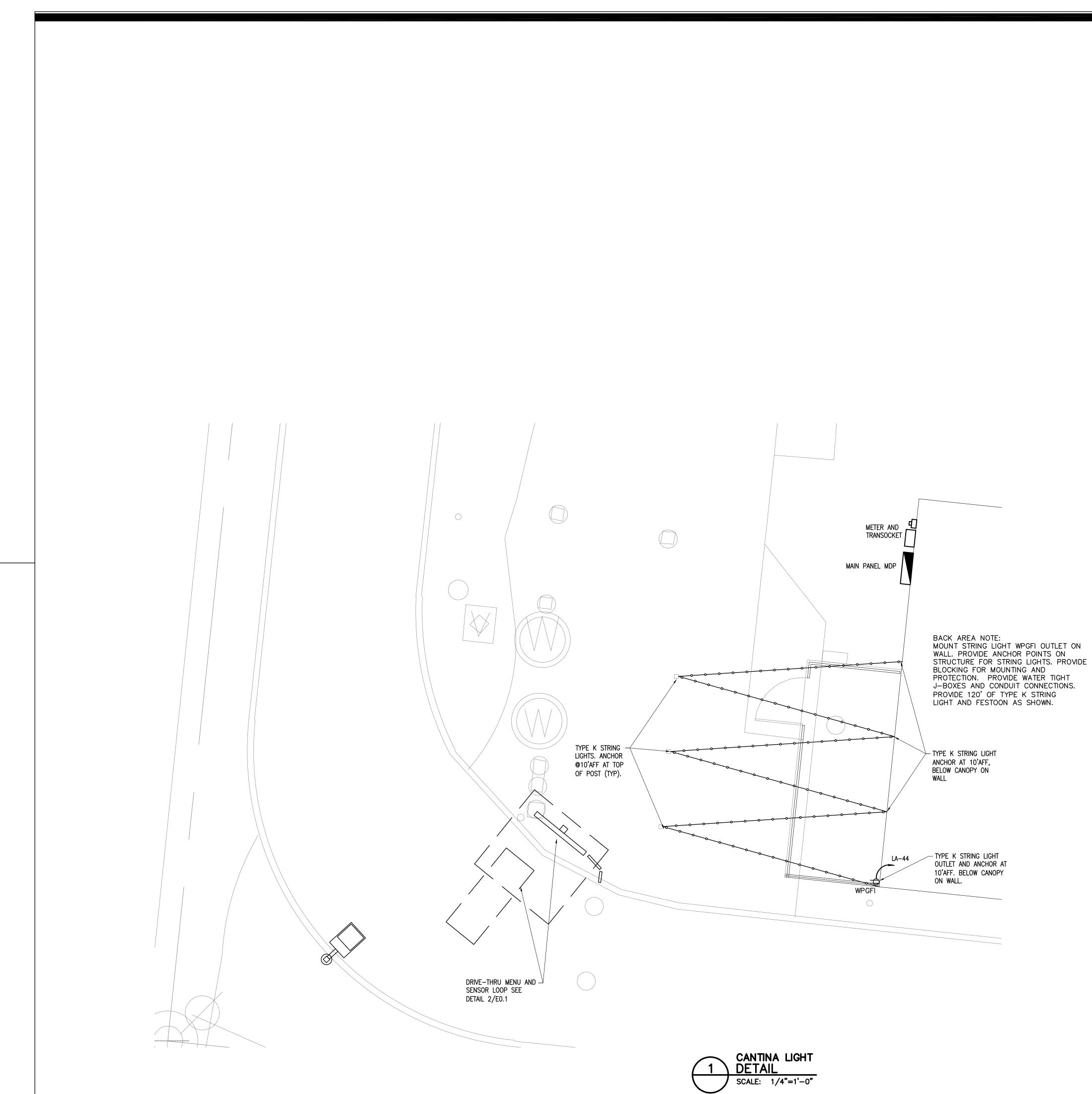
JOB NO	MODEL NUMBER SC-111010	)MA	DRAWN BY	SCHEMATIC TYPE INSTALL	DES
	JOB NAME Golden Chick		DATE	DWG NO	120V : On/Of
BREAKER PANEL TO PR BREAKER PANEL TO PR Responsibility: BREAKER SIZE SHOWN IS BREAKER PANEL	IMARY CONTROL PANEL Electrician	SUPPLY FAN MI INTERLOCK CI	129V HOT SV_NEUTRAL JST HAVE ITS DW JNDUIT WIRE TO JNDUIT DRDP. JT REQUIRED FOR E MAKE-UP AIR S	M METAL PROVIDED	SF-1
BREAKER 1PH       120 V       5     15 A       CONTROL POWER.       6       .	Ground DI	Control pan		L	5
7 BREAKER PAN	EL TO FANS	CONTROL PANEL		COMF	PONENT
Responsibility:           8         BREAKER PANEL           9         BREAKER 1PH           115V	Electrician <u>HOT</u> <u>NEUTRAL</u> <u>Ground</u> <u>Cond</u> <u>FANS</u> <u>PDWER</u> TD <u>Ground</u> <u>CM</u> FANS	C1	Ē CI TO COMMON (I Ē ARI TO NORMALI) TO ARI SHOULD HAV TINUITY WHEN ARME		
10	HOTPDWER_TD <u>Ground</u> PDWER_TD <u>Ground</u> ECM_FANS	IF MORE THAN INE FIRE SYSTEM, VIRE IN SERIES AS SHOWN ARIO		MS-2	
13 14 CONTROL PAN Responsibility: 15 PRIMARY PANEL	Electrician FANS	TD U4 CAT REMOTE MOUNTED F SVITCHES CONTROL PAREL TIA O TO TIB O VIR KITCHEN TEMP SEN	-5 CONNECTION PLACE END OF LINE N EMPTY JACK. PN: 	PLUG EDL120A EDL120A RD. INSTALL FRDM HEAT	(1) [2] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [
SPEED SIGNAL PROPER HING	E. ALLOW FOR NIDEC MOTOR K ON STP FOR BK TO GR ING. (EXHAUST ONLY) GONAL IS POLARITY GONAL IS POLARITY ZIEHL MOTOR BK TO BK		RCES. DO NOT INST. THE CEILING GRID, 	SEE MANUAL. 	
SPEED SIGNAL PROPER HING	E, ALLOW FOR BK TO GR K DN STP FOR BK TO GR ING. (EXHAUST ONLY) IGNAL IS POLARITY IGNAL IS POLARITY ZIEHL MOTOR	CONTROL PANEL ST C SIGNAL FOR NIC EXTERNAL ST SHUNT TRIP IN CONTROL PANEL KS C		ANS	
22 23 24		EXTERNAL KS	TERMINAL IS DE- FIRE CONDITION.		_

FANS CONTROLLED										
FAN TAG	TYPE	?	ΗP	VOLT	FLA					
KEF-1	EXHAUST	1	1.000	115	11.6					
SF-1	SUPPLY	1	1.000	115	11.6					

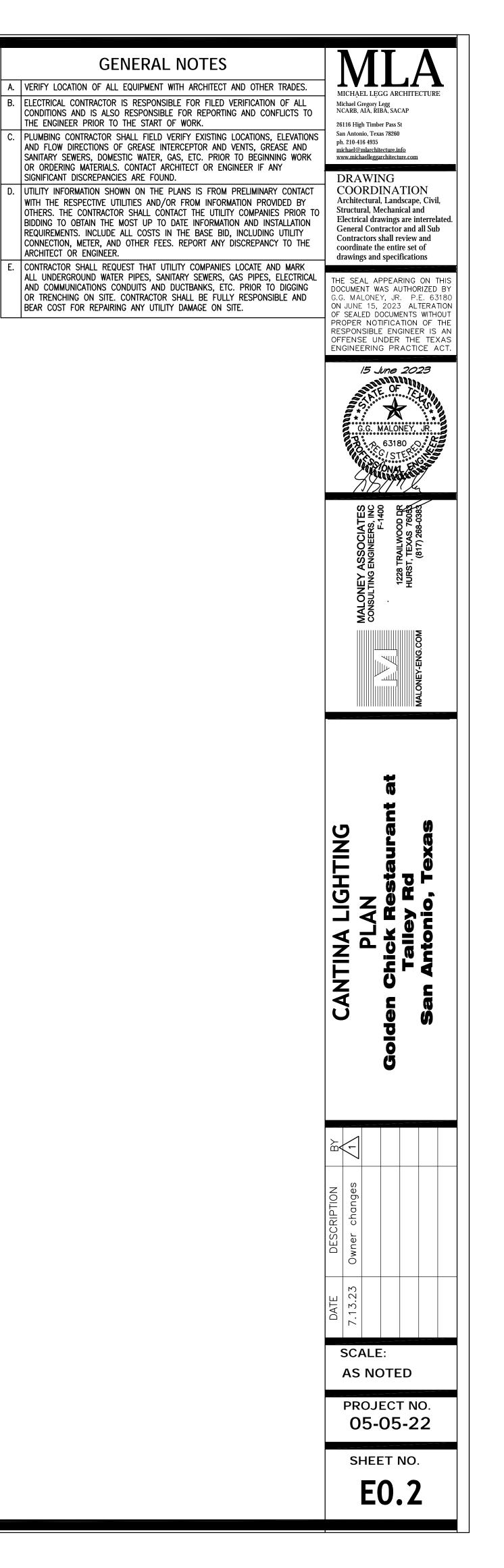


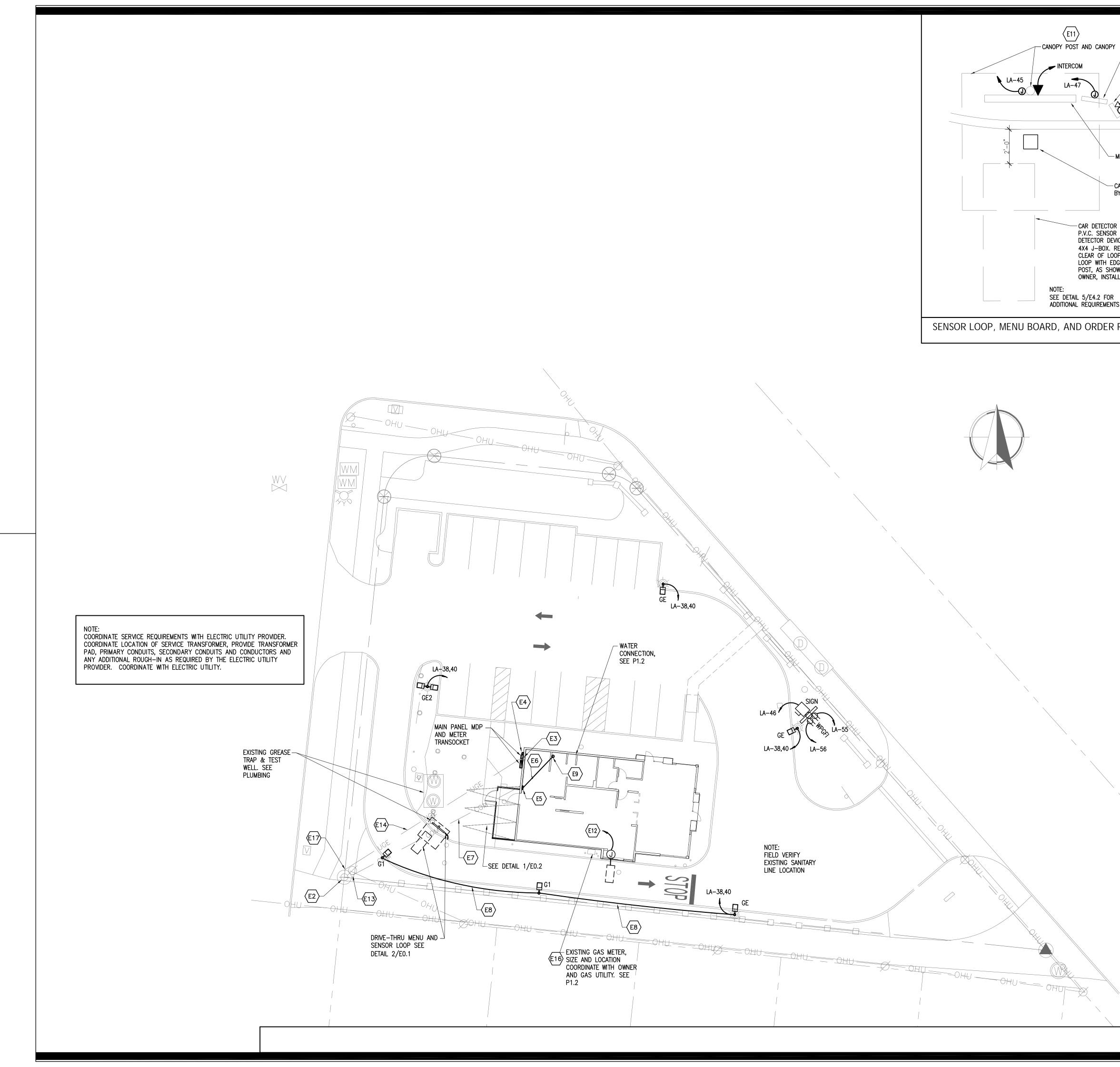




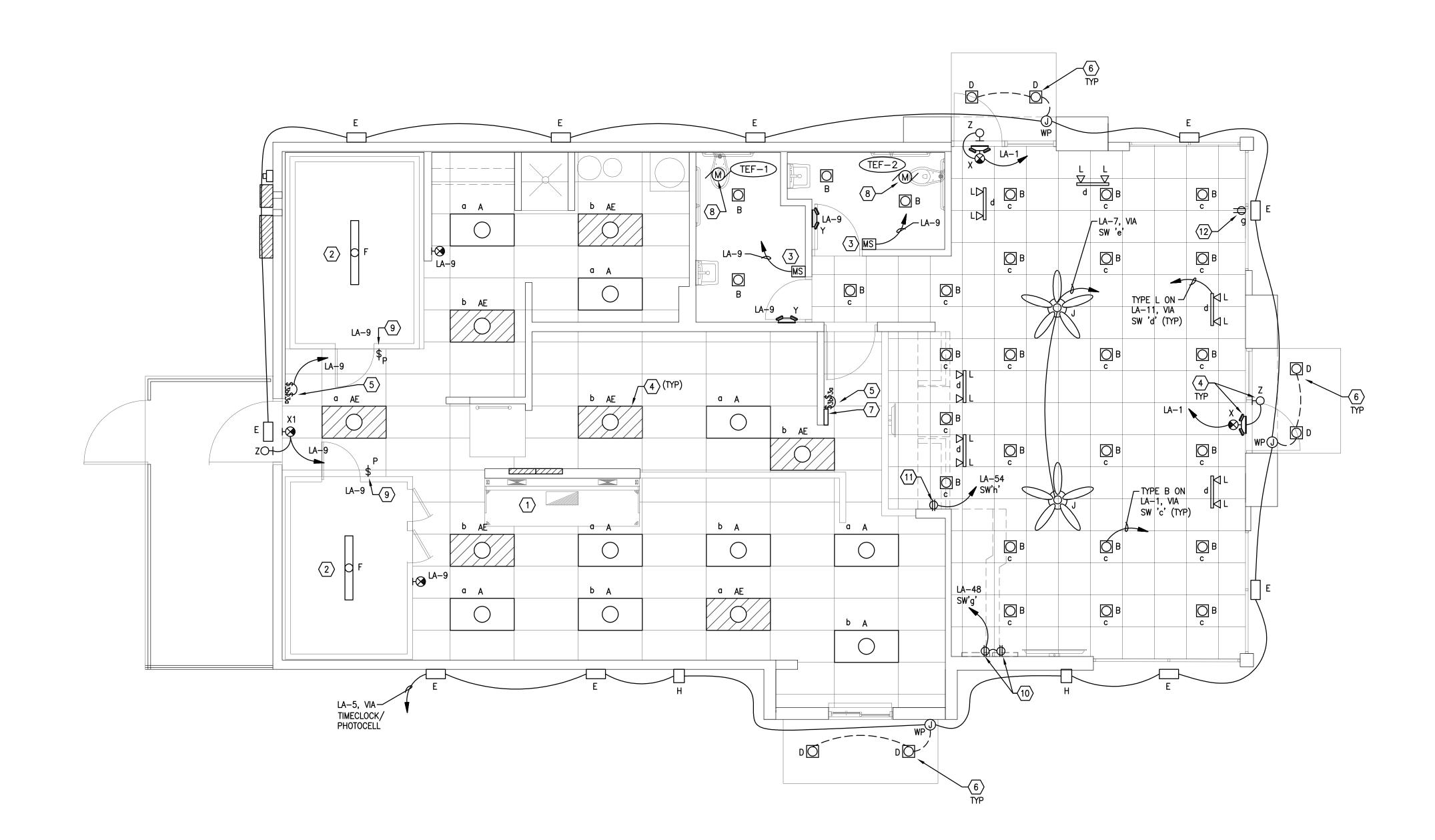








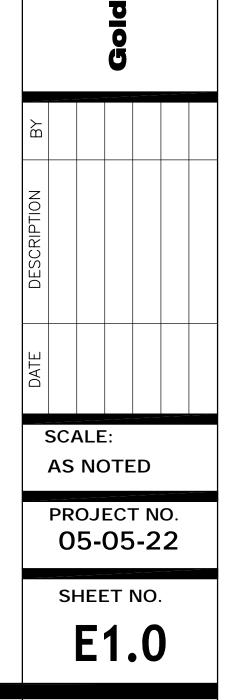
		GENERAL NOTES	ΜΙΔ
YWING BOARD	A. B.	VERIFY LOCATION OF ALL EQUIPMENT WITH ARCHITECT AND OTHER TRADES. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR FILED VERIFICATION OF ALL	MICHAEL LEGG ARCHITECTURE Michael Gregory Legg
CONFIRMATION BOARD		CONDITIONS AND IS ALSO RESPONSIBLE FOR REPORTING AND CONFLICTS TO THE ENGINEER PRIOR TO THE START OF WORK.	NICLARE, AIA, RIBA, SACAP 26116 High Timber Pass St San Antonio, Texas 78260
(E11)	C.	PLUMBING CONTRACTOR SHALL FIELD VERIFY EXISTING LOCATIONS, ELEVATIONS AND FLOW DIRECTIONS OF GREASE INTERCEPTOR AND VENTS, GREASE AND SANITARY SEWERS, DOMESTIC WATER, GAS, ETC. PRIOR TO BEGINNING WORK	ph. 210-416 4935 michael@mlarchitecture.info www.michaelleggarchitecture.com
DATA DATA LA-47	D.	OR ORDERING MATERIALS. CONTACT ARCHITECT OR ENGINEER IF ANY SIGNIFICANT DISCREPANCIES ARE FOUND. UTILITY INFORMATION SHOWN ON THE PLANS IS FROM PRELIMINARY CONTACT	DRAWING COORDINATION
		WITH THE RESPECTIVE UTILITIES AND/OR FROM INFORMATION PROVIDED BY OTHERS. THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES PRIOR TO	Architectural, Landscape, Civil, Structural, Mechanical and Electrical drawings are interrelated.
-MENU BOARD		BIDDING TO OBTAIN THE MOST UP TO DATE INFORMATION AND INSTALLATION REQUIREMENTS. INCLUDE ALL COSTS IN THE BASE BID, INCLUDING UTILITY CONNECTION, METER, AND OTHER FEES. REPORT ANY DISCREPANCY TO THE	General Contractor and all Sub Contractors shall review and coordinate the entire set of
MENU DUARD	Ε.	ARCHITECT OR ENGINEER. CONTRACTOR SHALL REQUEST THAT UTILITY COMPANIES LOCATE AND MARK ALL UNDERGROUND WATER PIPES, SANITARY SEWERS, GAS PIPES, ELECTRICAL	drawings and specifications
CANOPY LIGHT FIXTURE, BY CANOPY SUPPLIER		AND COMMUNICATIONS CONDUITS AND DUCTBANKS, ETC. PRIOR TO DIGGING OR TRENCHING ON SITE. CONTRACTOR SHALL BE FULLY RESPONSIBLE AND BEAR COST FOR REPAIRING ANY UTILITY DAMAGE ON SITE.	THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY G.G. MALONEY, JR. P.E. 63180 ON JUNE 15, 2023 ALTERATION
		DEAR COST FOR REPAIRING ANT UTILITY DAMAGE ON SITE.	OF SEALED DOCUMENTS WITHOUT PROPER NOTIFICATION OF THE RESPONSIBLE ENGINEER IS AN
R LOOP R LOOP VERIFICATION		ELECTRICAL KEYED NOTES	OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.
VICE WITH CONDUIT TO REINF. TO BE CUT 12" OOP. ALIGN EDGE OF	E1.	NOT USED	15 June 2023
DGE OF SPEAKER OWN. PROVIDED BY ALLED BY G.C.	50	EXISTING ELECTRIC UTILITY COMPANY POLED MOUNTED TRANSFORMER. VERIFY	
R	E2. E3.	EXACT LOCATION AND REQUIREMENTS WITH ELECTRIC COMPANY. UNDERGROUND ELECTRICAL SERVICE ENTRANCE COPPER FEEDER. PROVIDE (1)	G.G. MALONEY, JR.
		SET OF 4#500KCMIL IN EXISTING 4" CONDUIT. REFER TO ELECTRICAL ONE-LINE RISER DIAGRAM, DRAWING 4/E2.0 FOR ADDITIONAL REQUIREMENTS.	NONAL FILLER
R REVIEW LAYOUT		ELECTRIC UTILITY COMPANY METER-TRANSOCKET. VERIFY EXACT LOCATION AND REQUIREMENTS WITH ELECTRIC UTILITY COMPANY. 10"x10"x5/8" FIRE RESISTANT PLYWOOD INTERNET DEMARCATION BOARD.	NJ8 Kaa
		MOUNT TIGHT TO CEILING ABOVE SHELVING WITHIN BACK STORAGE ROOM. EXTEND (1)2" E.C. WITH PULL WIRE FROM INTERNET DEMARCATION IN	CIATE EERS, IN F-14 WOOD I MOOD I 268-03
		STORAGE TO ABOVE CEILING IN OFFICE. EXISTING 2" PVC EMPTY CONDUIT WITH PULLWIRE FOR UNDERGROUND SERVICE ENTRANCE TO INTERNET DEMARCATION BOARD MOUNTED ABOVE SHELVING	MALONEY ASSOCIATES CONSULTING ENGINEERS, INC F-1400 1228 TRAILWOOD DR HURST, TEXAS 760383 (817) 268-0383
		TIGHT TO CEILING WITHIN BACK STORAGE AREA. VERIFY EXACT ROUTING AND REQUIREMENTS WITH INTERNET COMPANY.	
	E8.	CONDUIT ROUTING FOR SITE LIGHTING IS SHOWN FOR SCHEMATIC PURPOSES ONLY. CONTRACTOR SHALL VERIFY SITE CONDITIONS AND SHALL INSTALL THE	MALO
	E9.	CONDUITS IN THE SHORTEST ROUTE BETWEEN FIXTURES. CONDUIT STUB LOCATION ABOVE CEILING IN OFFICE FOR INTERNET.	VIII VIII VIII VIII VIII VIII VIII VII
		WEATHERPROOF JUNCTION BOX FOR DRIVE-THRU MENU BOARD.	MALONEY-ENG.COM
		WEATHERPROOF JUNCTION BOX FOR POWER AND DATA FOR DRIVE-THRU MENU BOARD. 1" CONDUIT WITH PULL TAPE TO DRIVE-THRU SENSOR CONTROLLER. CONDUIT	WALC
		UP IN WALL SPACE TO ABOVE CEILING IN AN ACCESSIBLE LOCATION WITH PULL STRING. OWNER'S VENDOR WILL RUN THE WIRE AND MAKE ALL FINAL CONNECTIONS.	
	E13	EXISTING DATA/COMM SERVICE CONNECTION POINT. FIELD VERIFY LOCATION AND ROUTING OF CONDUIT AND TERMIATION POINTS. COORDINATE ROUGH—IN REQUIREMENTS WITH DATA/COMM COMPANIES.	at
	E14	EXISTING 4" NMC, ELECTRIC SERVICE, PROVIDE CONDUIT AND CONDUCTORS AS REQUIRED BY UTILITY. COORDINATE ROUGH—IN REQUIREMENTS WITH ELECTRIC UTILITY.	as LAN
	E15	NOT USED.	
	E16	EXISTING GAS METER LOCATION, COORDINATE GAS SERVICE SIZE AND LOCATION WITH OWNER AND GAS UTILITY. SEE CIVIL.	SITE Resta o, Te
	E17	EXISTING ELECTRIC SERVICE CONNECTION POINT. RISE UP AT POLE WITH 4" RMC. COORDINATE ROUGH-IN REQUIREMENTS WITH ELECTRIC UTILITY.	
			ELECTRICAL Iden Chick F Talley San Antoni
			TRIC/ Chicl Tal
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			SCRIPTION er change:
			.TE 3.23
			DATE 7.13.2
			SCALE:
			AS NOTED PROJECT NO.
		T	05-05-22
			SHEET NO.
		ELECTRICAL SITE PLAN	<b>E0.1</b>



	GENERAL NOTES	
Α.	COORDINATE ALL LOCATIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS ARCHITECTURAL SKETCHES AND EQUIPMENT SUPPLIERS. AVOID CONFLICTS BETWEEN EXIT SIGNS AND TV'S, NEON SIGNS, DRAPERIES, ETC.	MICHAEL LEGG ARCHITECTURE Michael Gregory Legg NCARB, AIA, RIBA, SACAP 26116 High Timber Pass St
В.	BATTERY PACKS ARE TO BE DIRECT WIRED. NO EXPOSED WIRING IS PERMITTED.	San Antonio, Texas 78260 ph. 210-416 4935 michael@mlarchitecture.info
C.	ELECTRICAL CONTRACTOR TO PROVIDE STEEL ANGLES AND HARDWARE REQUIRED FOR SUSPENDING ALL HANGING LIGHT FIXTURES, CEILING FANS ETC., ALL EXPOSED CONDUIT, JUNCTION BOXES, MOUNTING HARDWARE ETC., TO BE RUN AS NEAT AS POSSIBLE AT UNDERSIDE OF ROOF DECK AND IS TO BE PAINTED.	www.michaelleggarchitecture.com DRAWING COORDINATION Architectural, Landscape, Civil,
D.	ALL WIRING, DEVICES AND FIXTURES INSIDE THE WALK-IN FREEZER AND WALK-IN COOLER ARE TO BE VAPOR PROOF. SEAL ALL CONDUIT PENETRATIONS WITH SILICONE.	Structural, Mechanical and Electrical drawings are interrelated. General Contractor and all Sub Contractors shall review and
E.	USE FLEXIBLE METAL CONDUIT (GREENFIELD) FOR CONNECTION OF LAY-IN FIXTURES.	coordinate the entire set of drawings and specifications
F.	PROVIDE GROUND CONDUCTOR IN ALL CONDUIT RUNS (NOT ILLUSTRATED).	THE SEAL APPEARING ON THIS
G.	THROUGH WIRING OF FIXTURES SHALL NOT BE PERMITTED UNLESS SPECIFICALLY ILLUSTRATED.	DOCUMENT WAS AUTHORIZED BY G.G. MALONEY, JR. P.E. 63180 ON NOV 27, 2023 ALTERATION
H.	EACH LIGHTING FIXTURE SHALL HAVE ITS OWN BOX UNLESS OTHERWISE ILLUSTRATED.	OF SEALED DOCUMENTS WITHOUT PROPER NOTIFICATION OF THE RESPONSIBLE ENGINEER IS AN
١.	COORDINATE LOCATION OF WALL MOUNTED EMERGENCY LIGHT FIXTURES WITH OWNER AND INTERIOR DESIGNER TO AVOID CONFLICT WITH WALL FIXTURES.	OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.
J.	REFER TO ARCHITECTURAL FOR EXACT LOCATION OF LIGHTING FIXTURES. COORDINATE WITH ARCHITECT FOR LOCATION OF LIGHTING FIXTURES AND DEVICES BEFORE ROUGH-IN.	27 November 2023
К.	SEE KITCHEN EQUIPMENT DRAWINGS FOR KITCHEN FIXTURES ELECTRICAL SCHEDULE AND ROUGH-IN LOCATIONS.	
L.	SEE SHEET MEP1.0 FOR ADDITIONAL ROOF MOUNTED LIGHT FIXTURES AND SIGNS	G.G. MALONEY, JR.
М.	WIRING OF EMERGENCY LIGHT FIXTURES SHALL CONFORM TO THE FIRE MARSHAL'S OFFICE EMERGENCY WIRING CRITERIA.	63180 C LT
N.	WIRING IN DINING SHALL BE INSTALLED IN CONDUIT.	CURPTURE

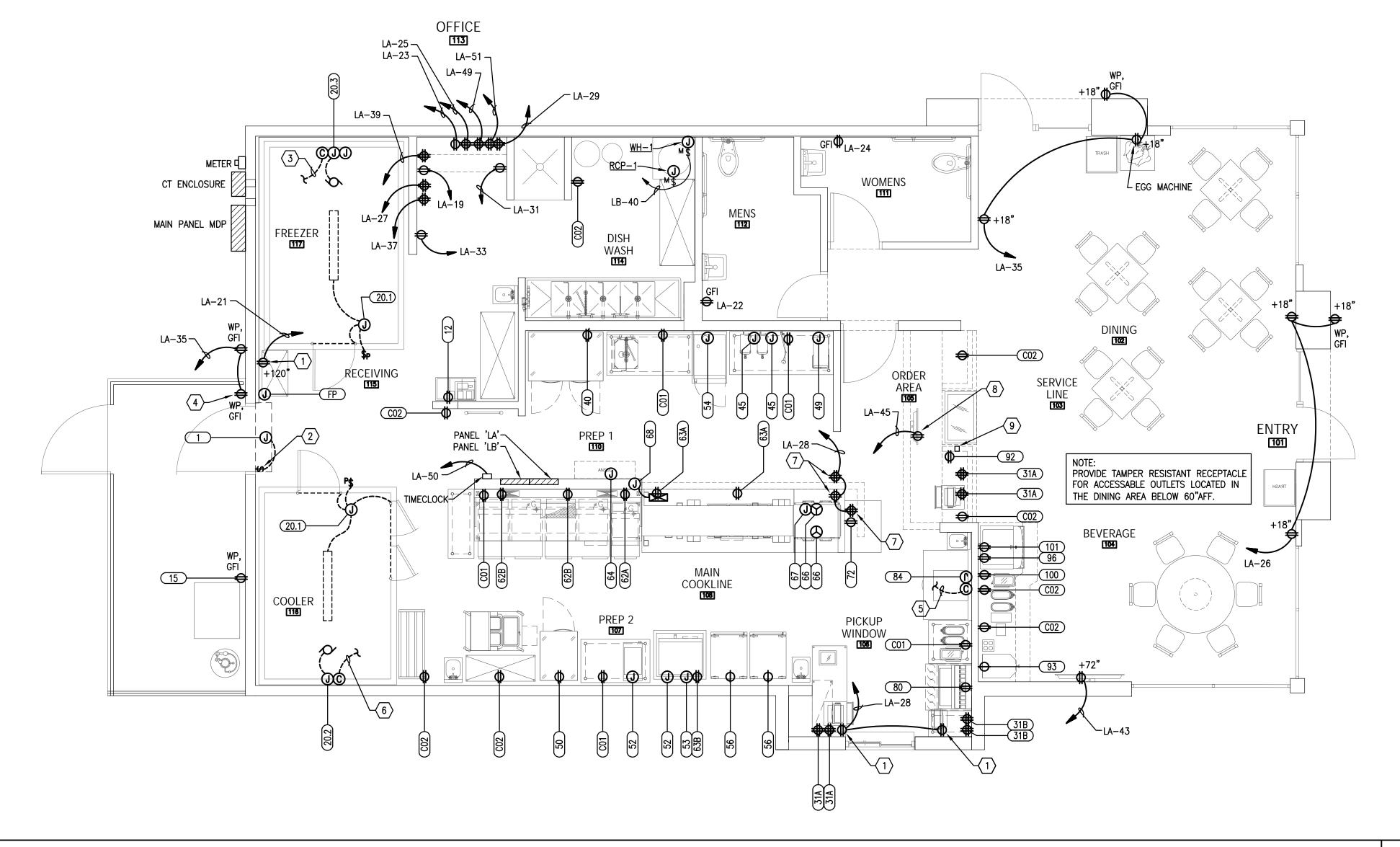
<#>	KEYED NOTES
1.	(12) 375W HEAT LAMPS ARE TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR AND INSTALLED IN THE LIGHT SOCKETS PROVIDED WITH THE HOOD. WIRING AND CIRCUIT FOR THE HOOD LIGHTS ARE PROVIDED WITH THE HOOD.
2.	FREEZER/COOLER LIGHT SHALL BE SUPPLIED BY FREEZER/COOLER MANUFACTURER, INSTALLED BY THE CONTRACTOR. COORDINATE LIGHTING CONTROLS WITH FREEZER/COOLER MANUFACTURER. CIRCUIT TO BACK OF HOUSE LIGHTING CIRCUIT.
3.	PROVIDE WALL MOUNTED MOTION SENSOR IN RESTROOMS. SENSOR SHALL BE LUTRON #MS-Z101.
4.	CONNECT EMERGENCY FIXTURES AND EXIT SIGNAGE TO UNSWITCHED LEG OF CIRCUIT FOR NORMAL OPERATION. IN CASE OF POWER LOSS, FIXTURES EMERGENCY BATTERY WILL ENERGIZE THE FIXTURE.
5.	SWITCHES FOR KITCHEN LED LIGHTING. TWO 3-WAY SWITCHES PER CIRCUIT FOR DUAL LEVEL SWITCHING PER ENERGY CODE. SINGLE SWITCH 'a' TO CONTROL FIXTURES NOTED AS 'a', SINGLE SWITCH 'b' TO CONTROL FIXTURES NOTED AS 'b'.
6.	LED LIGHT, TYPE 'D' TO BE FURNISHED AND INSTALLED WITH CANOPY. LIGHTS ARE TO BE PRE-WIRED WITHIN CANOPY. CONTRACTOR TO PROVIDE CIRCUIT AND CONTROLS TO CANOPY JUNCTION BOX LOCATION AS SHOWN. VERIFY WITH CANOPY PROVIDER EXACT CONNECTION REQUIREMENTS.
7.	LOCATION OF FRONT OF HOUSE LIGHTING SWITCH BANK. REFER TO SWITCH BANK ELEVATION DETAIL, 6/E4.2.
8.	CONTRACTOR SHALL PROVIDE ALL NECESSARY CONTACTORS AND RELAYS TO CIRCUIT EXHAUST FAN TO RESTROOM LIGHTING CIRCUIT AND CONTROL THRU MOTION SENSOR FOR A COMPLETE OPERATIONAL SYSTEM.
9.	EXISTING LIGHT FIXTURE PROVIDED WITH COOLER/FREEZER. CONNECT TO LIGHTING CIRCUIT FOR WALK-INS.
10.	PROVIDE A RECESSED CLOCK OUTLET FOR WALL MOUNTED LETTER SIGNS. REFER TO BEVERAGE ELEVATION DETAIL, 6/A2.1 FOR EXACT LOCATIONS OF RECEPTACLES.
11.	PROVIDE A RECESSED CLOCK OUTLET FOR WALL MOUNTED SIGN. MOUNT OUTLET AT 90" AFF.
12.	OUTLET ABOVE WINDOW AT 9'-6"AFF FOR OPEN SIGN. COORDINATE LOCATION WITH ARCH. SWITCH AS INDICATED.

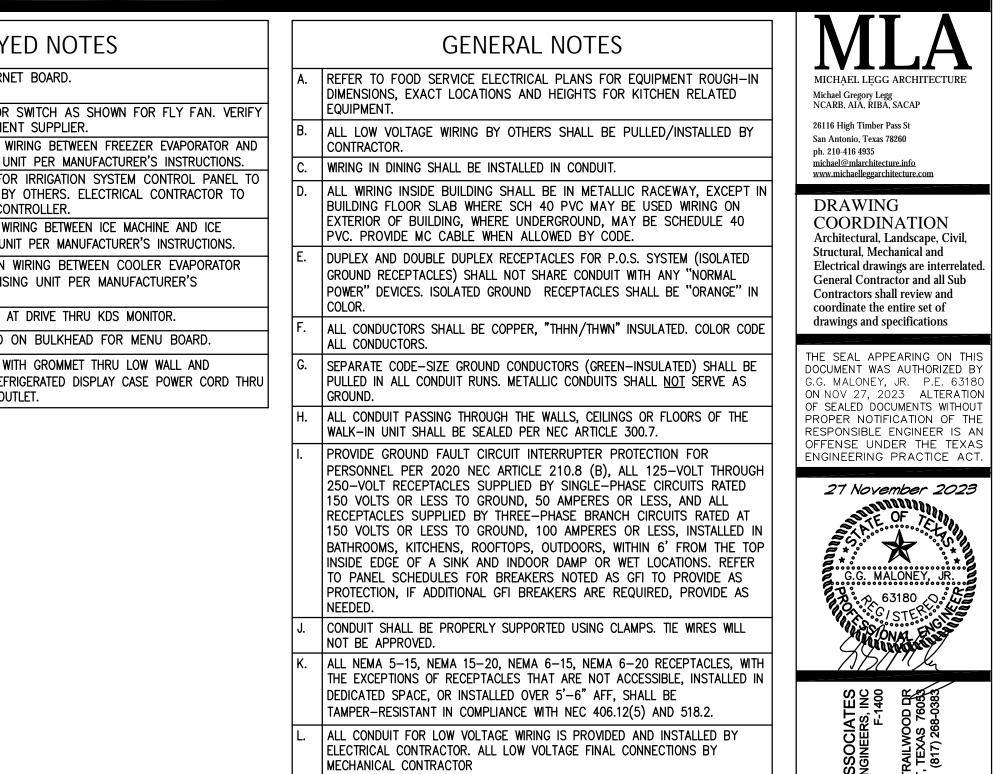
ALONEY, JR. 63180 NAL ENER ND/ 1/kg CL 2 MALONEY AS CONSULTING EN 5 F A ŭ p g ť FLOOR PI ksbi , Te ck Restau Frederick Antonio, **LIGHTING** Chick 11 Fre San Ai 6 N S



NO.	VOLTS	PH.	LOAD	LOC.	A.F.F.	OUTLET	REMARKS	CIRCUIT
CO1	120	1	15.0A	WALL	48"	DCO	NEMA 5-15 FOR CONVENIENCE OUTLET	LB-43,45,47,49,51
CO2	120	1	15.0A	WALL	18"	DCO	NEMA 5-15 FOR CONVENIENCE OUTLET	LB-53,55,57,59,44,46,48,50,52
FP	-	_	_	WALL		JB	EMPTY JBOX FOR REMOTE FIRE PULL, SEE DETAIL	
1	120	1	5.0A	CLG	DFA	JB	BTC ON FLY FAN THRU DOOR SWITCH	LB-29
12	120	1	15.0A	WALL	72"	DCO	NEMA 5-15 FOR BAG-N-BOX	LB-31
15	120	1	15.0A	WALL	36"	DCO	NEMA 5-15 FOR GREASE HOLDING SYSTEM (VERIFY REQUIREMENTS, PURVEYOR PROVIDED EQUIPMENT)	LB-33
20.1	120	1	15.0A	CLG	DFA	JB	BTC ON DOOR HEATER AND LIGHT CIRCUIT, 2 DOORS	LB-2,4
20.2	120	1	2.7A	CLG	DFA	JB	BTC ON COOLER EVAPORATOR COIL	LB-6
	208	1	10.0A	CLG	DFA	JB	BTC ON FREEZER EVAPORATOR COIL	LB-8/10
20.3	_	-	_	CLG	DFA	JB	CONDUIT TO FREEZER REMOTE CONDENSER FOR CONTROL WIRES	
20.4	208	1	11.4A	VERIFY	VERIFY	JB	BTC ON COOLER REMOTE CONDENSING UNIT	LB-12/14
20.5	208	1	11.4A	VERIFY	VERIFY	JB	BTC ON FREEZER REMOTE CONDENSING UNIT	LB-16/18
31A	120	1	5.0	WALL	24"	QUAD	NEMA 5-15 AND DATA FOR POS UNIT/PRINTER, CLEAN POWER	LA-2,4,6,8
31B	120	1	5.0	WALL	48"	QUAD	NEMA 5-15 AND DATA FOR POS UNIT/PRINTER, CLEAN POWER	LA-57, 59
40	120	1	6.9A	WALL	18"	DCO	NEMA 5-15 FOR REFRIGERATOR	LB-35
45	208	1	4050W	WALL	48"	JB	BTC ON HOT WATER DISPENSER	LB-20/22; LB-24/26
49	120	1	1700W	WALL	48"	JB	BTC ON TEA BREWER	LB-37
50	120	1	7.6A	WALL	18"	DCO	NEMA 5-15 FOR FREEZER	LB-39
52	208	1	29.8A	WALL	48"	JB	BTC ON RETHERMALIZER	LB-28/30; LB-58/60
53	208	3	5.5kW	WALL	24"	JB	BTC ON CONVECTION OVEN	LB-32/34/36
54	208	3	10.8kW	WALL	54"	JB	BTC ON COMBI OVEN	MDP-20/22/24
56	120	1	16.0A	WALL	18"	SCO	NEMA 5-20 FOR HEATED CABINETS	LA-10,12
62A	120	1	2.0A	WALL	18"	DCP	NEMA 5-15 FOR FRYER	LB-1
62B	120	1	2.0A	WALL	18"	DCP	NEMA 5-15 FOR FRYER	LB-3; LB-5
63A	120	1	2.0A	WALL	90"	DCP	NEMA 5-15 FOR TIMER	LB-7; LB-9
63B	120	1	2.0A	WALL	36"	DCP	NEMA 5-15 FOR TIMER	LB-11
64	120	1	5.0A	CLG	DFA	JB	BTC ON FRYER HOOD	LB-13
68	208	1	125A	WALL	18"	JB	BTC ON LOAD CENTER	MDP-25/27
80	120	1	5.0A	WALL	18"	DCO	NEMA 5-15 FOR SODA DISPENSER	LA-14
<b>0</b> 4	208	1	11.8	WALL	66"	JB	BTC ON ICE MACHINE	LA-16/18
84	_	-	_	WALL	66"	JB	CONDUIT TO ICE MACHINE REMOTE CONDENSER	
92	120	1	2.0A	WALL	18"	DCO	NEMA 5-15 FOR DISPLAY CASE	LB-41
93	120	1	16.0	WALL	24"	SCO	NEMA 5-20 FOR SOFT SERVE MACHINE	LB-42
96	120	1	5.0A	WALL	24"	DCO	NEMA 5-15 FOR SODA DISPENSER	LA-20
100	120	1		WALL	48"	DCO	NEMA 5-15 FOR LEMONADE URN	LB-19; LB-21

	KEYI
1	QUAD RECEPTACLE FOR ETHERNE
2.	PROVIDE INTERLOCK WITH DOOR EXACT LOCATION WITH EQUIPMEN
3	PROVIDE ALL INTERCONNECTION W FREEZER REMOTE CONDENSING UN
4.	WEATHERPROOF RECEPTACLE FOR BE PROVIDED AND INSTALLED BY MAKE 120V CONNECTION TO CON
5.	PROVIDE ALL INTERCONNECTION WI MACHINE REMOTE CONDENSING UN
6.	PROVIDE ALL INTERCONNECTION AND COOLER REMOTE CONDENSII
7.	RECEPTACLE MOUNTED ON WALL A
8.	DUPLEX RECEPTACLE MOUNTED (
9.	PROVIDE 3" DIAMETER OPENING WI MILLWORK AT 12" AFF. PASS REFR OPENING FOR CONNECTION TO OU

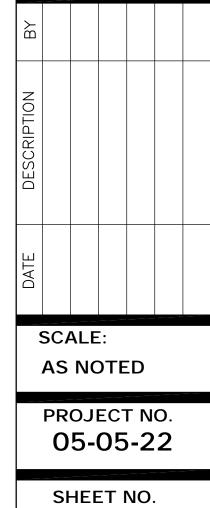




- M. ELEC. CONTRACTOR TO PROVIDE POWER TO REFRIGERATION CONDENSERS ON ROOF.
- N. ELECTRICAL CONTRACTOR TO WIRE LIGHTS, DOOR HEATER AND HEAT TRACE AT CONDENSATION LINES AT WALK-IN COOLER AND FREEZER.

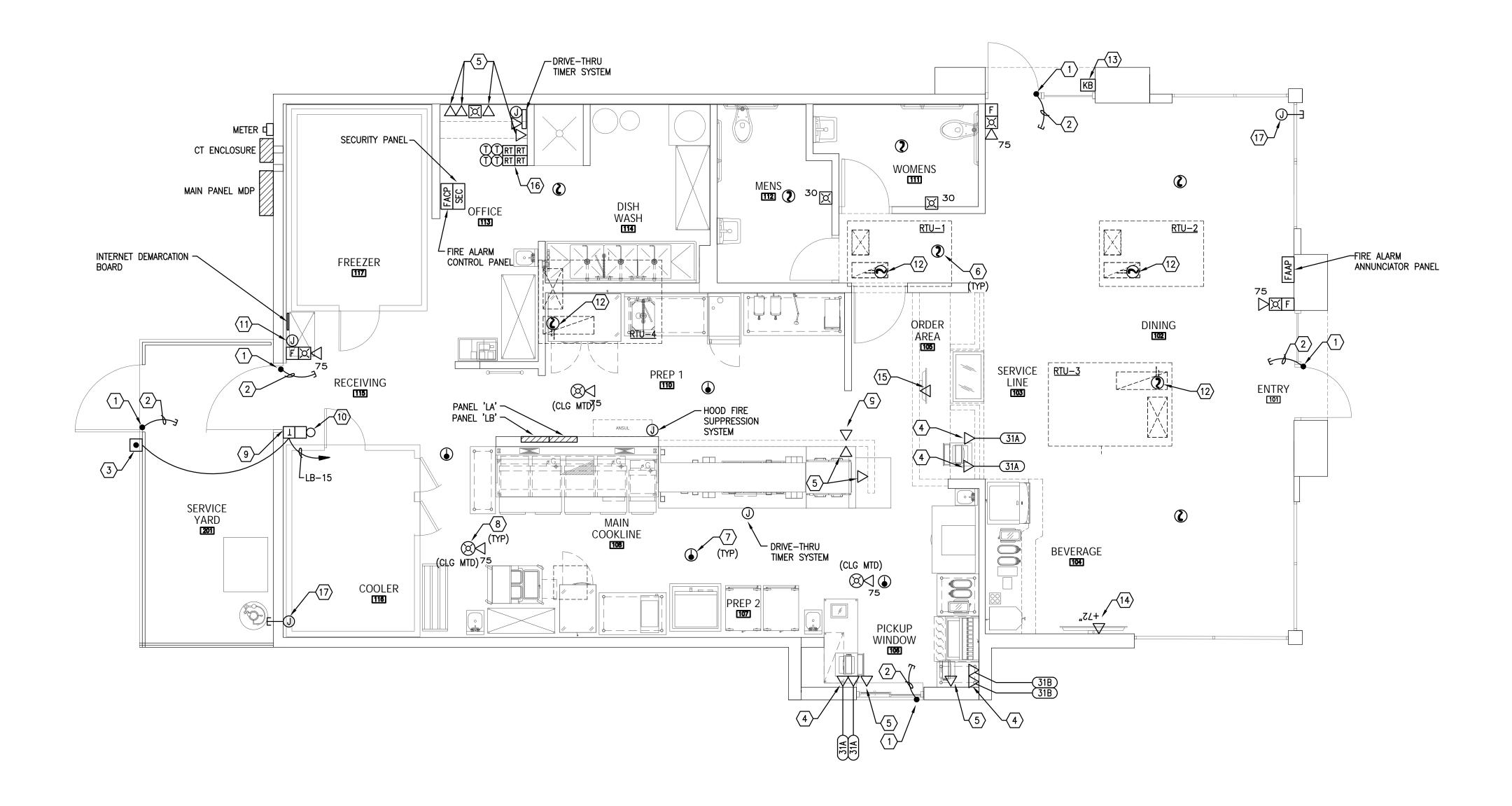


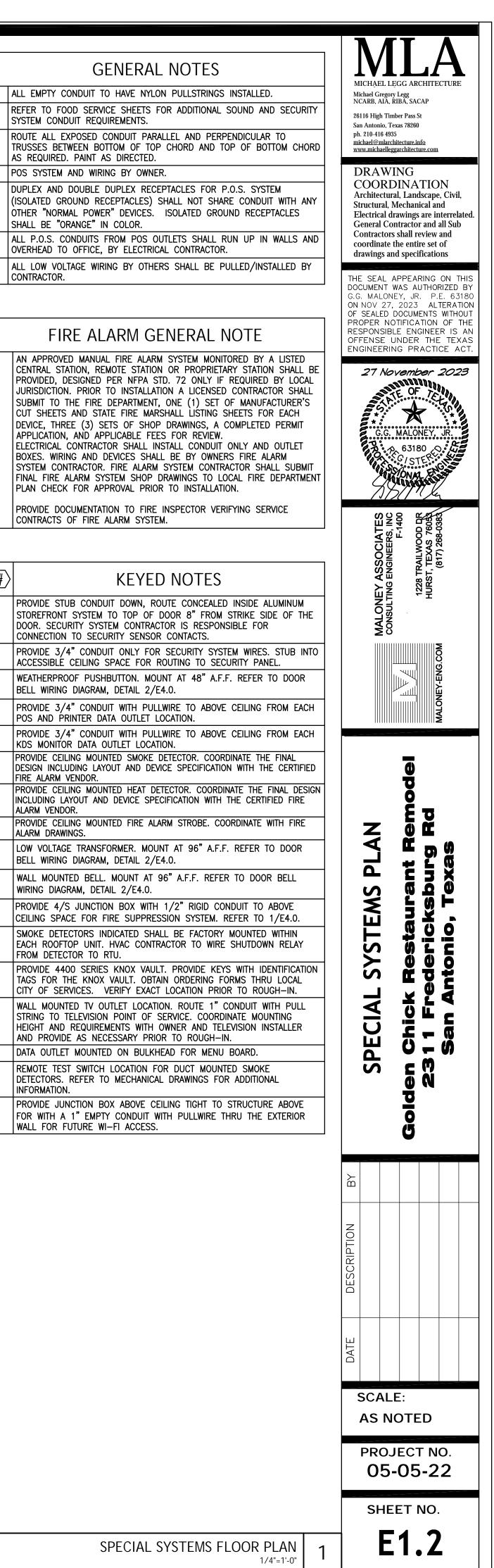
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E1.1

POWER FLOOR PLAN



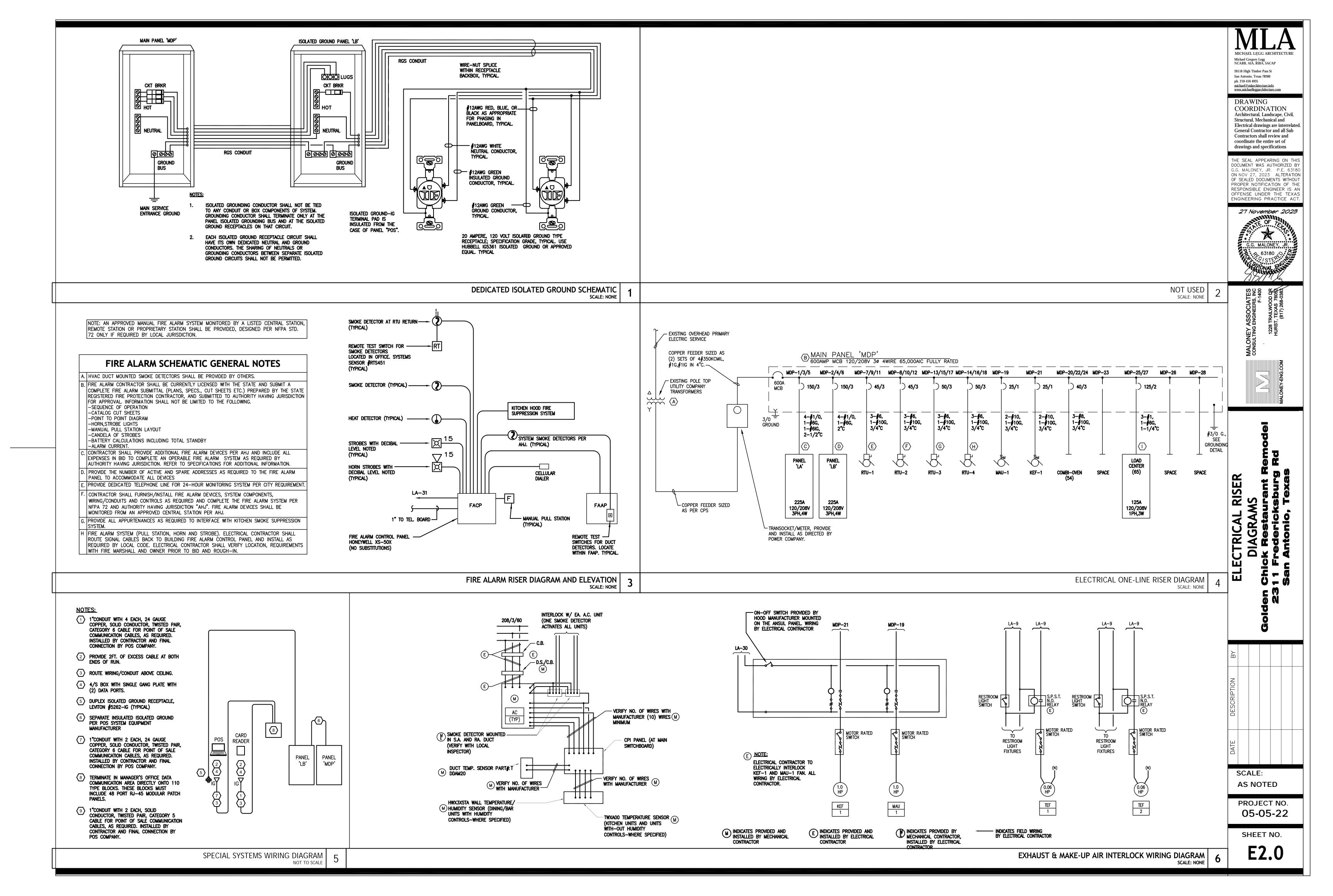


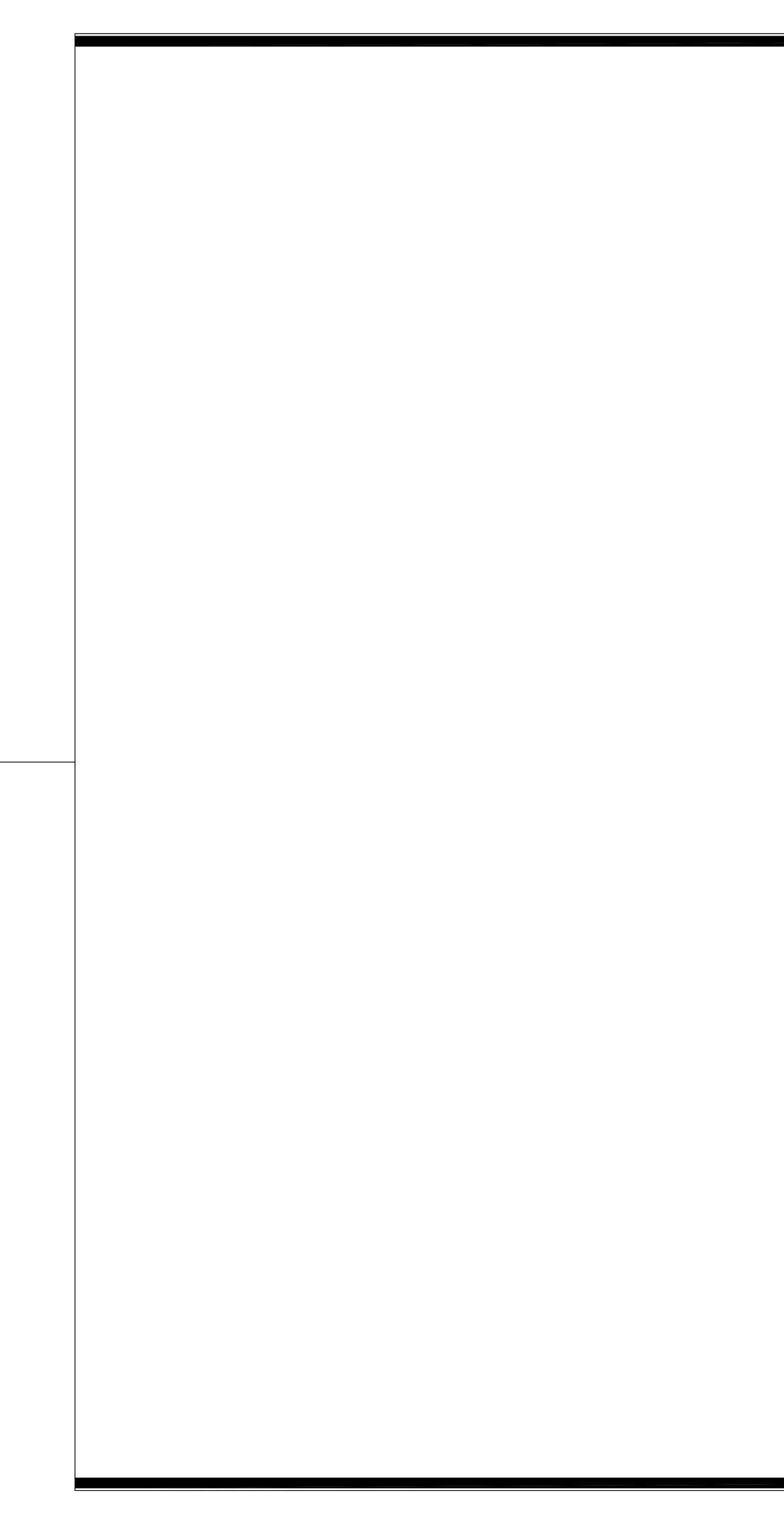
BELL WIRING DIAGRAM, DETAIL 2/E4.0.

STOREFRONT SYSTEM TO TOP OF DOOR 8" FROM STRIKE SIDE OF THE DOOR. SECURITY SYSTEM CONTRACTOR IS RESPONSIBLE FOR CONNECTION TO SECURITY SENSOR CONTACTS. ACCESSIBLE CEILING SPACE FOR ROUTING TO SECURITY PANEL. WEATHERPROOF PUSHBUTTON. MOUNT AT 48" A.F.F. REFER TO DOOR POS AND PRINTER DATA OUTLET LOCATION. KDS MONITOR DATA OUTLET LOCATION.

PROVIDE 3/4" CONDUIT ONLY FOR SECURITY SYSTEM WIRES. STUB INTO PROVIDE 3/4" CONDUIT WITH PULLWIRE TO ABOVE CEILING FROM EACH PROVIDE 3/4" CONDUIT WITH PULLWIRE TO ABOVE CEILING FROM EACH PROVIDE CEILING MOUNTED SMOKE DETECTOR. COORDINATE THE FINAL

DESIGN INCLUDING LAYOUT AND DEVICE SPECIFICATION WITH THE CERTIFIED FIRE ALARM VENDOR. PROVIDE CEILING MOUNTED HEAT DETECTOR. COORDINATE THE FINAL DESIGN INCLUDING LAYOUT AND DEVICE SPECIFICATION WITH THE CERTIFIED FIRE ALARM VENDOR. PROVIDE CEILING MOUNTED FIRE ALARM STROBE. COORDINATE WITH FIRE ALARM DRAWINGS. LOW VOLTAGE TRANSFORMER. MOUNT AT 96" A.F.F. REFER TO DOOR BELL WIRING DIAGRAM, DETAIL 2/E4.0. WALL MOUNTED BELL. MOUNT AT 96" A.F.F. REFER TO DOOR BELL WIRING DIAGRAM, DETAIL 2/E4.0.

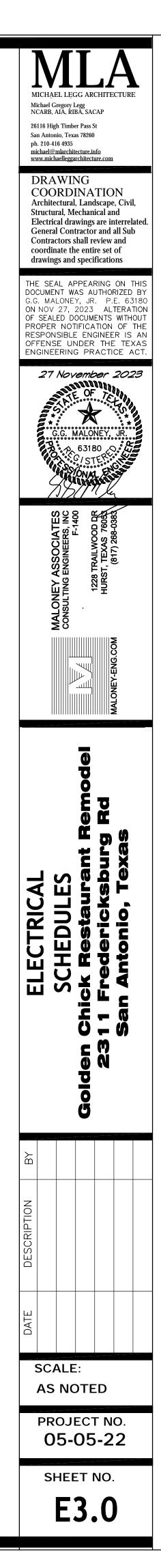




				PAN	NEL	Ν	ЛDF	)		WEATHER PROOF E	NCLOSURE	
LOAD CONT	LOAD N- CONT	LOCATION	CKT DEVICE	ТҮРЕ		РН	СКТ #	CKT DEVICE	TYPE	LOCATION	LOAD N- CONT	LOAD CONT
	42,658	PANEL LA /////	3 P 150 / / / /		1 3 5	A B C	2 4 6	3 P 150 / / / /		PANEL LB /////	32,926	
11,529		RTU- 1 /////	3 P 45 / / / /	HACR	_	A B C	8 10 12	3 P 45 / / / /	HACR			11,529
15,852		RTU- 3 ///// /////	3 P 60 / / / /	HACR	13 15 17	A B C	14 16 18	3 P 60 / / / /	HACR	RTU-4 ///// /////		15,852
1,587 1,587		MAU- 1 KEF- 1 SPACE	1 P 25 1 P 25 1 P		19 21 23	A B C	20 22 24	3 P 40 / / / /	GFI	COMBI OVEN ///// /////	10,830	
	20,800	PREP ISLAND ///// SHUNT TRIP CKT 2	2 P 125 / / 1 P	ST	25 27 29	A B C	26 28 30	1 P 1 P 1 P		SPACE SPACE SPACE		
		SPACE SPACE SPACE	1 P 1 P 1 P		31 33 35	A B C	32 34 36	1 P 1 P 1 P		SPACE SPACE SPACE		
		SPACE SPACE SPACE	1 P 1 P 1 P		37 39 41	A B C	38 40 42	1 P 1 P 1 P		SPACE SPACE SPACE		
	439 600	PANEL AMPERES PANEL MINIMUM BUS S	SIZE		<u>I</u>		PANI	EL VOLTAGI	E	120/208, 3PH, 4W 42,000 AIC	600A	МСВ
		PANEL CONTINUOUS K PANEL NON-CONTINUO								PROVIDE BOLT ON BR	EAKERS	

			PA	NEL LA			RECESSED		
LOAD CONT	LOAD N-CONT	LOCATION	CKT DEVICE TYPI	СКТ РН СКТ # #	CKT DEVICE	TYPE	LOCATION	LOAD N-CONT	LOAD CONT
600 600 320 200 50 800 800 800 500 500 500 500	600 720 200 720 200 500 4,000 4,000 4,000 4,000 1,080 500 500 500 500 800 800	FRONT LIGHTING BACK LIGHTING EXTERIOR BLDG LTS CEILING FANS TOILET LTS FANS TRACK LIGHTS PENDANT LIGHTS EXTERIOR LED STRIP EXTERIOR LED STRIP OFFICE RECPTLS ETHERNETBOARD OFFICE RECPTLS OFFICE RECPTLS DRIVE THRU TIMER CPU FA CP RECEPTACLES EXTR RECPTLS OFFICE RECPTLS OFFICE RECPTLS OFFICE RECPTLS RECEPTACLES TELEVISIONS MENU BOARD MENU BOARD MENU BOARD IT RACK SPARE DIGITAL SIGN POS 31B POS 31B	1       P       20         1       P       35         1       P       20         1       P	1       A       2         3       F       B       4         5       F       C       6         7       F       B       10         11       F       C       12         13       F       B       16         17       F       C       18         19       F       A       20         21       F       B       22         23       F       C       24         25       F       A       26         27       F       B       28         29       F       C       30         31       F       B       34         35       F       C       36         37       F       B       46         47       F       A       50         51       F       B       52         53       F       C       48         49       F       B       56         57       F       B       58         59       C       60	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	GFI GFI GFI	POS 31 POS 31 POS 31 POS 31 HEATED CABINET 56 HEATED CABINET 56 HEATED CABINET 56 SODA DISP 80 ICE MACHINE 84 ///// SODA DISP 96 RECEPTACLES RECEPTACLES DINING USB OUTLETS D/T KDS MONITOR HOOD CONTROL EXTERIOR SIGNS EXTERIOR SIGNS EXTERIOR SIGNS POLE LIGHTS ///// CANTINA LIGHTS CANTINA LIGHTS PYLON SIGN INTERIOR GC SIGN LIGHTING CONTROL FLAG LIGHTS INTERIOR SIGN DIGITAL SIGN	800 200 400 1,200 600 2,500 108 200 200 360 200 200	1,000 1,000 1,000 1,320 800 200 100 200 200 1,200 200 1,200 200 1,000
		PANEL AMPERES PANEL MINIMUM BUS SIZE		PANE	EL VOLTAGE		120/208, 3PH, 4W 22,000 AIC	225A	MLO
		PANEL CONTINUOUS KVA PANEL NON-CONTINUOUS K	(VA				PROVIDE BOLT ON BR	EAKERS	

LOAD CONT	LOAD N-CONT	LOCATION	CKT DEVICE	TYPE	СКТ #	PH	СКТ #		CKT VICE	TYPE	LOCATION	LOAD N-CONT	LOAD CONT
	144	FRYER 62A	1 P 20	ST	1	A	2	1	P 20		COOLER DR HTR 20.1	1,200	
	144	SHUNT TRIP FRYER	1 P	01	3	В	4	1			FREEZER DR HTR 20.1	600	
		SPARE	1 P		5	С	6	1			COOLER EVAP 20.2	600	
	200	16 CHANNEL TIMER 63A	1 P 20	GFI	7	Α	8	2	P 20		FREEZER EVAP 20.3	2,100	
	200	16 CHANNEL TIMER 63A	1 P 20	GFI	9	в	10	- 7	/		/////		
	200	8 CHANNEL TIMER 63B	1 P 20	GFI	11	С	12	2			COOLER COND 20.4	2,370	
	400	FRYER HOOD CONT	1 P 20		13	Α	14	- /			/////		
	144	FRYER 63B	1 P 20		15	В	16	1			FREEZER COND 20.5	2,370	
	200	SHUNT TRIP FRYER	1 P		17	C	18	1				4.050	
	360 360	LEMONADE (100) LEMONADE (100)	1 P 20 1 P 20	GFI GFI	19 21	A B	20 22	2	P 20	GFI	HOT WATER DISP 45	4,050	
	300 144	FRYER 63B	1 P 20	ST	23	C	22 24	-	, P 20	GFI	HOT WATER DISP 45	4,050	
	144	SHUNT TRIP FRYER	1 P	01	25	Ă	26	7	-	011		4,000	
		SPARE	1 P		27	В	28	-	, P 30	GFI	RETHERMALIZER 52	6,200	
	600	FLY FAN 1	1 P 20		29	C	30	1	1		////	-,	
	1,800	BAG-N-BOX 12	1 P 20	GFI	31	Α	32	3	P 20	GFI	CONVECTION OVEN	5,500	
	1,800	<b>GREASE HOLDING 15</b>	1 P 20	GFI	33	в	34	- 1	1		/////		
	828	<b>REFRIGERATOR 40</b>	1 P 20	GFI	35	С	36	- 7	-		/////		
	1,700	TEA BREWER 49	1 P 20	GFI	37	Α	38	1			ROOF RECEPTACLES	900	
	912	FREEZER 50	1 P 20		39	В	40	1		GFI	WH-1 / RCP-1	300	
	600	DISPLAY CASE 92	1 P 20	GFI	41	C	42	1		GFI	SOFT SERVE 93	1,920	
	200 200	RECEPTACLE (CO1) RECEPTACLE (CO1)	1 P 20 1 P 20	GFI GFI	43 45	A B	44 46	-	P 20 P 20	GFI GFI	RECEPTACLE (CO2) RECEPTACLE (CO2)	200 200	
	200	RECEPTACLE (CO1)	1 P 20	GFI	45 47	C	-	-	P 20	GFI	RECEPTACLE (CO2)	200	
	200	RECEPTACLE (CO1)	1 P 20	GFI	49	Ă	40 50	'n	P 20	GFI	RECEPTACLE (CO2)	200	
	200	RECEPTACLE (CO1)	1 P 20	GFI	51	В	52	i	P 20	GFI	RECEPTACLE (CO2)	200	
	200	RECEPTACLE (CO1)	1 P 20	GFI	53	c	54	2	P 20	GFI	ICE MACHINE 101	2620.8	
	200	<b>RECEPTACLE (CO1)</b>	1 P 20	GFI	55	A	56	1	1	GFI	/////		
	200	<b>RECEPTACLE (CO1)</b>	1 P 20	GFI	57	в	58	2	P 40	GFI	<b>RETHERMALIZER 52</b>	6200	
	200	RECEPTACLE (CO1)	1 P 20	GFI	59	С	60	/	1		/////		
		PANEL AMPERES PANEL MINIMUM BUS SIZE			•		PANE	L VO	LTAGE	<u>-</u>	120/208, 3PH, 4W 22,000 AIC	225A	MLO



FI	ECTRICAL SYMBOL LEGEND
SYMBOL	
• •	2 X 4 LED FIXTURE
9/1	2 X 4 LED FIXTURE WITH BATTERY BACKUP
0	1 X 4 LED FIXTURE
	1 X 4 LED FIXTURE WITH BATTERY BACKUP
0	4' LED STRIP FIXTURE
	4' LED STRIP FIXTURE WITH BATTERY BACKUP
	SURFACE MOUNTED TRACK AND TRACK HEAD
$\bigcirc$	PENDANT MOUNTED LIGHT FIXTURE
0	RECESSED DOWNLIGHT FIXTURE
	RECESSED WALLWASH LIGHT FIXTURE
Ŷ	WALL MOUNTED LIGHT FIXTURE
$\overline{\mathbf{N}}$	CEILING MOUNTED EXIT SIGN, SHADE INDICATES FACE
QQ	WALL/CEILING MOUNTED EMERGENCY BUGEYE FIXTURE
	COMBINATION EXIT SIGN/EMERGENCY BUGEYE
<u>م</u>	EMERGENCY REMOTE HEAD LIGHT FIXTURE
 	JUNCTION BOX WALL MOUNTED DUPLEX RECEPTACLE
•	FLOOR MOUNTED DUPLEX RECEPTACLE
<u>— Ө</u>	WALL MOUNTED SINGLE RECEPTACLE
۲	FLOOR MOUNTED SINGLE RECEPTACLE
$\bigotimes$	SPECIAL RECEPTACLE
	WALL MOUNTED QUADRUPLEX RECEPTACLE
\$ \$3	SINGLE POLE SWITCH THREE POLE LIGHT SWITCH
\$3 \$P	PILOT LIGHT SWITCH
\$т	SINGLE THROW THERMAL SWITCH
\$м	MOTOR RATED SWITCH
MS	MOTION SENSOR
	BUZZER
	PUSHBUTTON (MOMENTARY)
<u> </u>	MOTOR
	TELEPHONE BACKBOARD
	TELEPHONE OUTLET
	FLOOR MOUNTED TELEPHONE OUTLET
$\bigcirc$	POS CONNECTION FLOOR MOUNTED POS CONNECTION
V	COMBINATION DATA AND PHONE JACK
Ŵ	FLOOR MOUNTED COMBINATION DATA AND PHONE JACK
	DISCONNECT SWITCH
<u> </u>	PAGER OUTLET SECURITY JUNCTION BOX
	TELEVISION JACK (PROVIDE 3/4" CONDUIT WITH PULL WIRE)
КH	KEYED SWITCH
	PANELBOARD
	TRANSFORMER
	LOW VOLTAGE DOORBELL TRANSFORMER SWITCHED CIRCUITRY BURIED OR IN SLAB
	CIRCUITRY IN WALL OR CEILING
	HOMERUN BACK TO PANEL
	POINT OF CONNECTION
IG	ISOLATED GROUND
WP GFI	WEATHERPROOF GROUND FAULT CIRCUIT INTERRUPTER
MCT	MOTOR CONTROL TERMINAL
PTR	PRIOR TO ROUGH-IN
IFS	INTEGRATED FACILITY STRUCTURE (SWITCHGEAR)
	INTEGRATED POWER CENTER (SWITCHGEAR) FIRE ALARM CONTROL PANEL
FACP FAAP	FIRE ALARM CONTROL PANEL
F	FIRE ALARM PULL STATION
	FIRE ALARM HORN/STROBE DEVICE
X	FIRE ALARM STROBE DEVICE
	FIRE ALARM SMOKE DETECTOR
<b>②</b>	FIRE ALARM HEAT DETECTOR
-=:©	FIRE ALARM DUCT SMOKE DETECTOR
<u>ح</u>	FIRE ALARM DUCT SMOKE DETECTOR REMOTE TEST SWITCH
<u>المجاوعة</u>	FIRE ALARM DUCT SMOKE DETECTOR REMOTE TEST SWITCH TAMPER SWITCH

	1	LIGHTING FIXTURE S		
TYPE	SYMBOL	DESCRIPTION	LAMPS	REMARKS
Α	<b>o</b>	LED 2X4 FLAT PANEL LITHONIA CPX 2X4 4000LMHE 80CRI 40K ZT A12 MVOLT	(1) 34.8W LED LAMP 0–10V DIMMING, 4000K COLOR TEMPERATURE	120V. 4910 LUMENS, WHITE
AE		LED 2X4 FLAT PANEL LITHONIA CPX 2X4 4000LMHE 80CRI 40K ZT A12 MVOLT E7W	(1) 40W LED LAMP 0–10V DIMMING, 4000K COLOR TEMPERATURE	120V. 4910 LUMENS, WHITE WITH BATTERY BACKUP
В	0	RECESSED DOWNLIGHT JUNO TC22LED-G4-14LM-40K MVOLT EZ10 27-CWD TR6 BL HB-26	(1) 15.6W LED LAMP 0–10V DIMMING, 4000K COLOR TEMPERATURE	120V. 1400 LUMENS, BLACK TRIM
D	×	LED RECESSED DOWNLIGHT PROVIDED WITH CANOPY	(1) 11.3W LED LAMP	120V. LIGHTS CONNECTED TO JUNCTION BOX MOUNTED AT EACH CANOPY LOCATION
E	Q	EXTERIOR LED WALL SCONCE QSSI #WP34Q-F-2X16-U-4K-C-Z	(2) 16W LED LAMP 2700K COLOR TEMPERATURE	120V., COORDINATE MOUNTING HEIGHT WITH ARCH. ELEVATIONS. EACH LAMP IS 1693 LUMENS, TOTAL 3387 LUMENS.
F	<b></b>	COOLER FREEZER LIGHT HUBBELL #VBGL-1	(1) 11W LED LAMP	120V. 750 LUMENS, WHITE, SURFACE MOUNT
G1	₽	SINGLE HEAD LED AREA LUMINAIRE, TYPE 3 DISTRIBUTION ILP # (1) SAS 15L U 50 T3 UMB BRZ, DARK BRONZE POLE #SS 4 20 11 1 BRZ	(1) 110W LED LAMP, 5000K COLOR TEMPERATURE	208V. 15000 LUMENS, 20FT STRAIGHT SQUARE STEEL POLE
GE2	□₽	DOUBLE HEAD LED AREA LUMINAIRE, TYPE 3 DISTRIBUTION ILP # (2) SAS 15L U 50 T3 UMB BRZ, DARK BRONZE POLE #SS 4 20 11 1 BRZ	(2) 110W LED LAMP, 5000K COLOR TEMPERATURE	REMOVE EXISTING LUMINARES ON POLE AND REPLACE WITH NEW LUMINAIRE. PROVIDE ADAPTOR AS REQUIRED.
GE	₽	SINGLE HEAD LED AREA LUMINAIRE, TYPE 3 DISTRIBUTION ILP # (1) SAS 15L U 50 T3 UMB BRZ, DARK BRONZE POLE #SS 4 20 11 1 BRZ	(1) 110W LED LAMP, 5000K COLOR TEMPERATURE	REMOVE EXISTING LUMINARE ON POLE AND REPLACE WITH NEW LUMINAIRE. PROVIDE ADAPTOR AS REQUIRED.
н		DECORATIVE LED WALL SCONCE COPPERSTONE TX STAR WALL SCONCE	(1) 20W LED LAMP	120V., UL WET LOCATION LISTED.
J	×	56" ALTURA OIL RUBBED BRONZE CEILING FAN HUNTER #26655/ALTURA 56		120V., NO LIGHT KIT
к		LED STRING LIGHTS 220FT AMERICN LIGHTING #LS-MS-24-48-BK	(24)1.4W LED LAMPS MLV DIMMING, 3000K COLOR TEMPERATURE	120V. 300' LENGTH, BLACK
L	_ <b>__</b>	TRACK LIGHTS FIXTURE: JUNO #R605L-30K-PDIM-FL-BL TRACK: JUNO #T-2FT-B-T38-BL	(1)10W LED LAMP 3000K COLOR TEMPERATURE	120V. PROVIDE 2; TRACK SECTION, TWO TRACK HEADS PER SECTION
R		SURFACE MOUNT 4' LED HUBBELL #LAW-4-35-MW-U	(1) 11W LED LAMP	120V. 750 LUMENS, WHITE, SURFACE MOUNT
X	÷	COMBINATION EMERGENCY EXIT SIGN WITH EMERGENCY LIGHTS. UNIVERSAL MOUNT 90 MIN. BATTERY PACK. COMPASS LIGHTING #CCR	FIXTURE	120V, RED LETTERS, BLACK COLOR
X1		EMERGENCY EXIT SIGN WITH EMERGENCY LIGHTS. WALL MOUNT, SINGLE FACE, 90 MIN. BATTERY PACK. COMPASS LIGHTING #CE	PROVIDED WITH FIXTURE	120V, RED LETTERS, WHITE COLOR
X2		EMERGENCY EXIT SIGN WITH EMERGENCY LIGHTS. CEILING MOUNT, SINGLE FACE, 90 MIN. BATTERY PACK. COMPASS LIGHTING #CE	PROVIDED WITH FIXTURE	120V, RED LETTERS, WHITE COLOR
Y	<u>م</u> ےہ	EMERGENCY WALL MOUNTED BUG-EYE WITH 90 MIN. BATTERY PACK. COMPASS LIGHTING #CU2	Provided with Fixture	120V, WHITE COLOR
Z		EXTERIOR WALL MOUNTED EMERGENCY LIGHT WITH 90 MIN. BATTERY PACK. DUAL-LITE #PGZ-HTR	Provided with Fixture	120V, BLACK COLOR, UL WET LOCATION LISTED, BATTERY RATED FOR -22degF TO 122degF
3209 ALT FT. WORT TEL: 817. ryan.denn NOTES: 1. ALL 2. PR FIX BE EV/ 3. VEF 4. VEF 5. VEF	NNEY ONAL ACCOUNTS TA MERE DR. H, TX. 76116 .923.1983 ey@ced.com L LIGHT FIXTURES A OVIDE UNIT-PRICIN TURES SHALL BE A SUBMITTED FOR R ALUATION, REFER T RIFY CEILING CONDI RIFY MODEL NUMBE RIFY FINISH AND C	ARE TO BE PROVIDED BY CONTRACTOR. G ALONG WITH MANUFACTURER AND MODEL NUMBER FOR ALL I ALLOWED. AT CONTRACTORS OPTION, ALTERNATE LIGHT FIXTUR EVIEW AT BID OPENING, MUST INCLUDE UNIT—PRICING AND INCL TO SPECIFICATION 16510 AND 16520. ITIONS AND COORDINATE LIGHT FIXTURE MOUNTING HARDWARE I TRS AND DESCRIPTIONS WITH MANUFACTURER PRIOR TO PLACIN OLOR WITH ARCHITECT PRIOR TO PLACING ORDER. URAL DRAWINGS AND DETAILS FOR EXACT LOCATIONS, MOUNTIN	ES MAY BE SUBMITTED. H LUDE ALL APPLICABLE INF NEEDED TO SUIT CEILING G ORDER.	IOWEVER, ALTERNATED FIXTURES MUST ORMATION NECESSARY FOR REVIEW AND CONDITIONS PRIOR TO ORDERING.

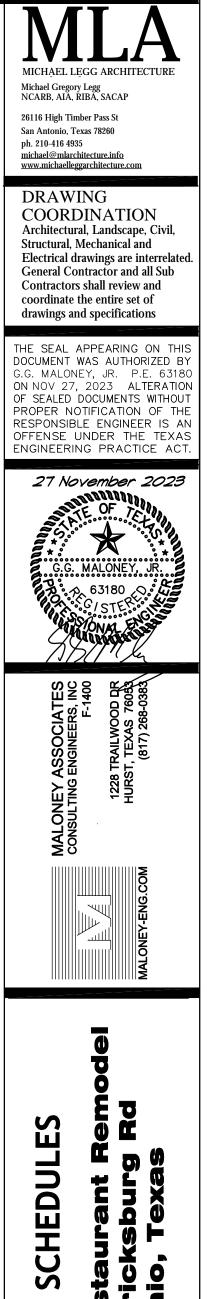
APPROVED BY ARCHITECT.

8. PROVIDE MAXIMUM WATTAGE LABEL ON INCANDESCENT AND HALOGEN LIGHTS FIXTURES THAT CORRESPOND TO THE MAXIMUM WATTAGE INDICATED IN THIS LIGHT FIXTURE SCHEDULE.

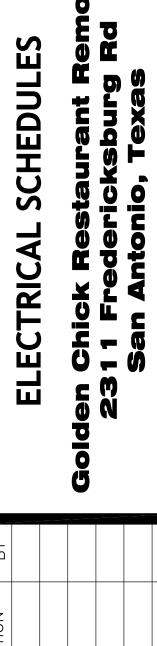
9. CONTRACTOR SHALL SUPPLY A COMPLETE AND OPERATIONAL SYSTEM TO COMPLY WITH DESIGN INTENT. 10. DUE TO AESTHETIC OR PERFORMANCE CRITERIA, SPECIFIED MANUFACTURER SHALL BE THE ONLY MANUFACTURE ALLOWED TO BID UNLESS OTHERWISE

11. COORDINATE WEIGHTS AND APPROPRIATE BLOCKING/SUPPORT FOR THE ANY CUSTOM LIGHTS.

CONDUIT INSTALLATION LOCATION BELOW GRADE OUTSIDE OF SLAB PERIMETER BELOW GRADE GOING THRU GRADE BEAM IN OR UNDER SLAB ON GRADE OUTDOOR LOCATIONS, ABOVE GRADE IN SLAB ABOVE GRADE WET AND DAMP LOCATIONS DRY LOCATIONS ABOVE CEILING BETWEEN LIGHT FIXTURES



## ALLOWED CONDUIT LOCATIONS ALLOWABLE CONDUIT TYPE RIGID STEEL CONDUIT OR NONMETALLIC CONDUIT (SCHEDULE 40 OR SCHEDULE 80 PVC) RIGID STEEL CONDUIT OR NONMETALLIC CONDUIT (SCHEDULE 40 OR SCHEDULE 80 PVC) WITH SLEEVE RIGID STEEL CONDUIT OR NONMETALLIC CONDUIT (SCHEDULE 40 OR SCHEDULE 80 PVC) **RIGID STEEL CONDUIT** RIGID STEEL CONDUIT OR NONMETALLIC CONDUIT (SCHEDULE 40 OR SCHEDULE 80 PVC) RIGID STEEL CONDUIT OR NONMETALLIC CONDUIT (SCHEDULE 40 OR SCHEDULE 80 PVC) RIGID STEEL CONDUIT AND ELECTRICAL METALLIC TUBING FLEXIBLE METAL CONDUIT (8'-0" LENGTHS MAXIMUM)



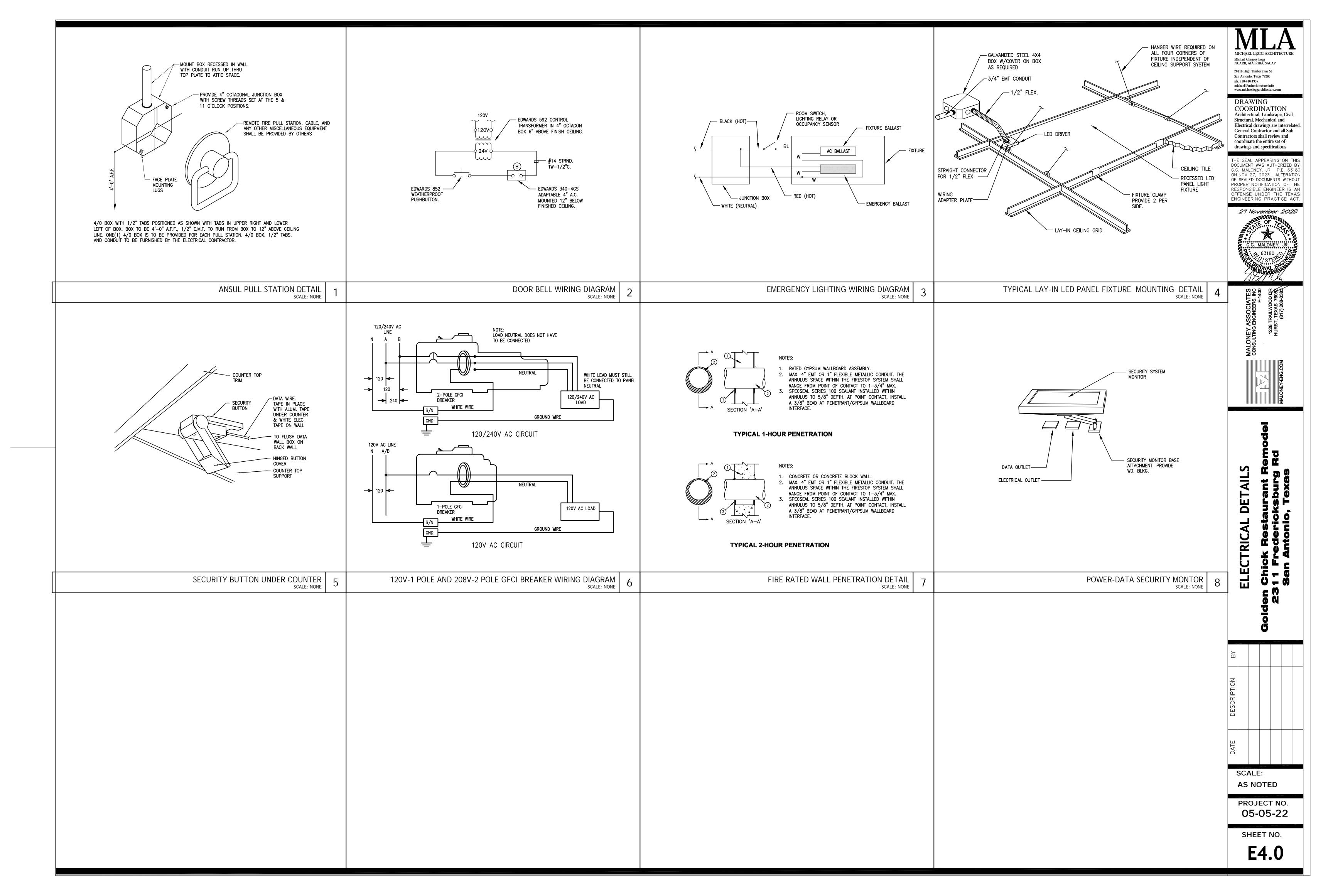
SCALE:

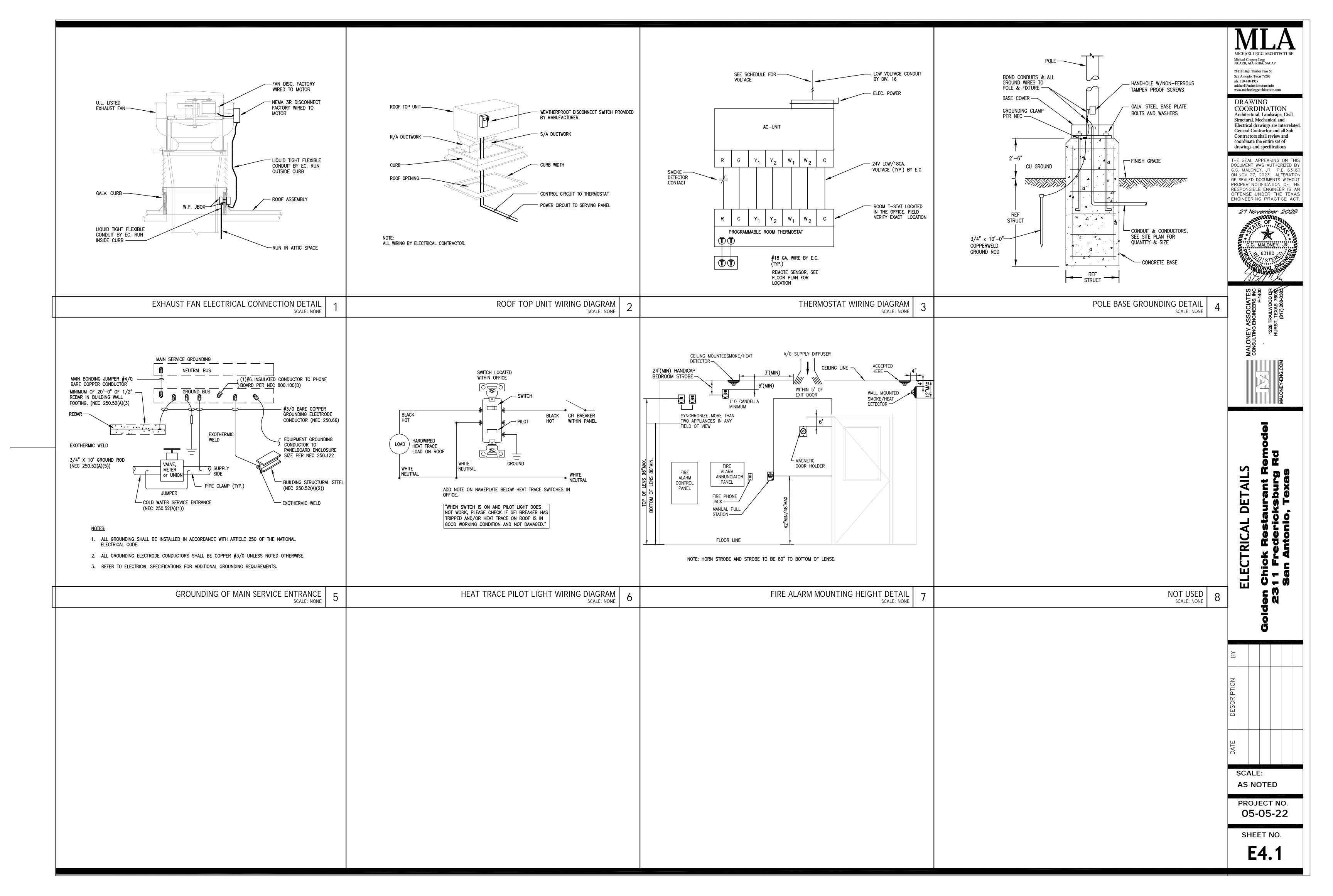
AS NOTED

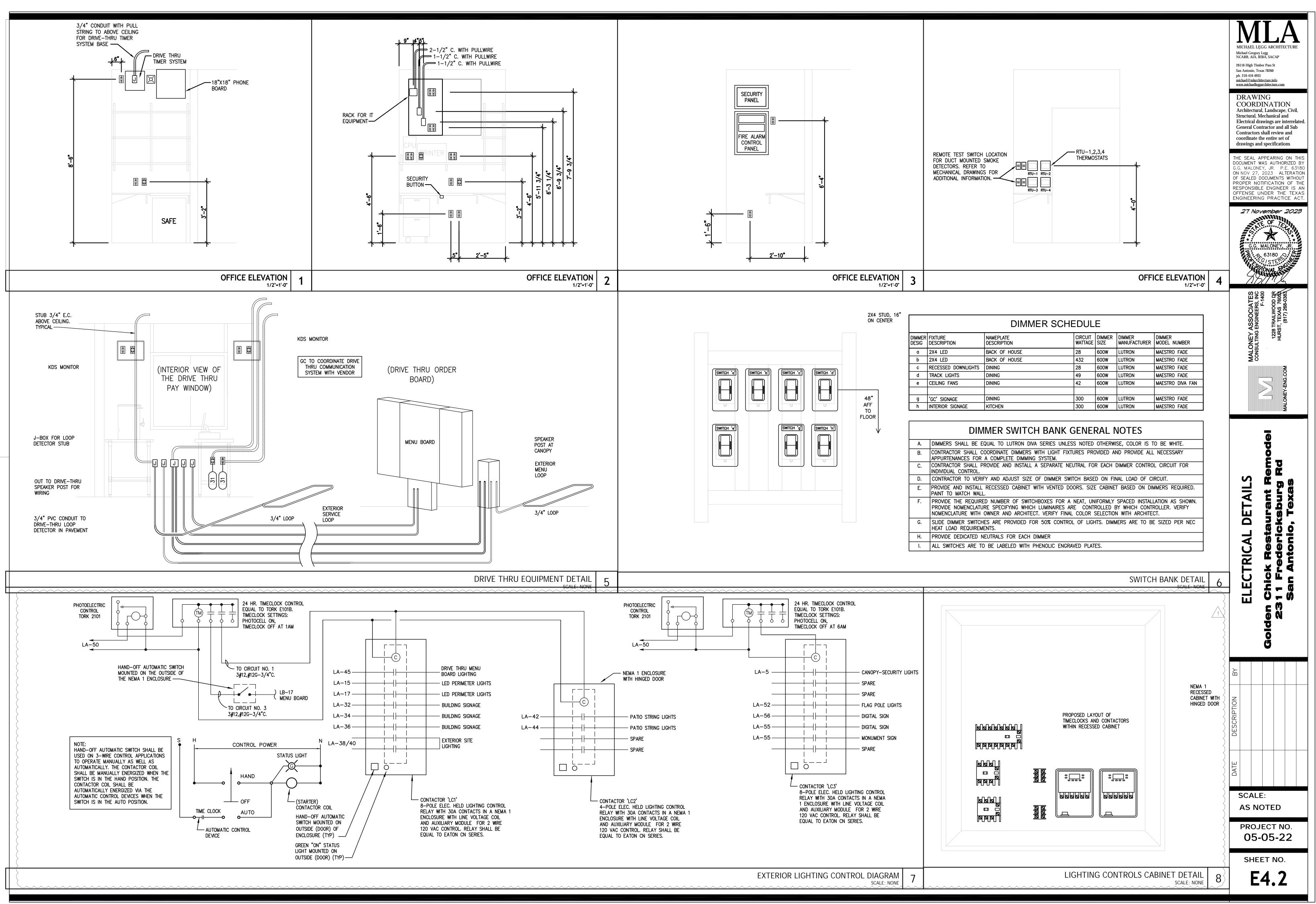
PROJECT NO. 05-05-22

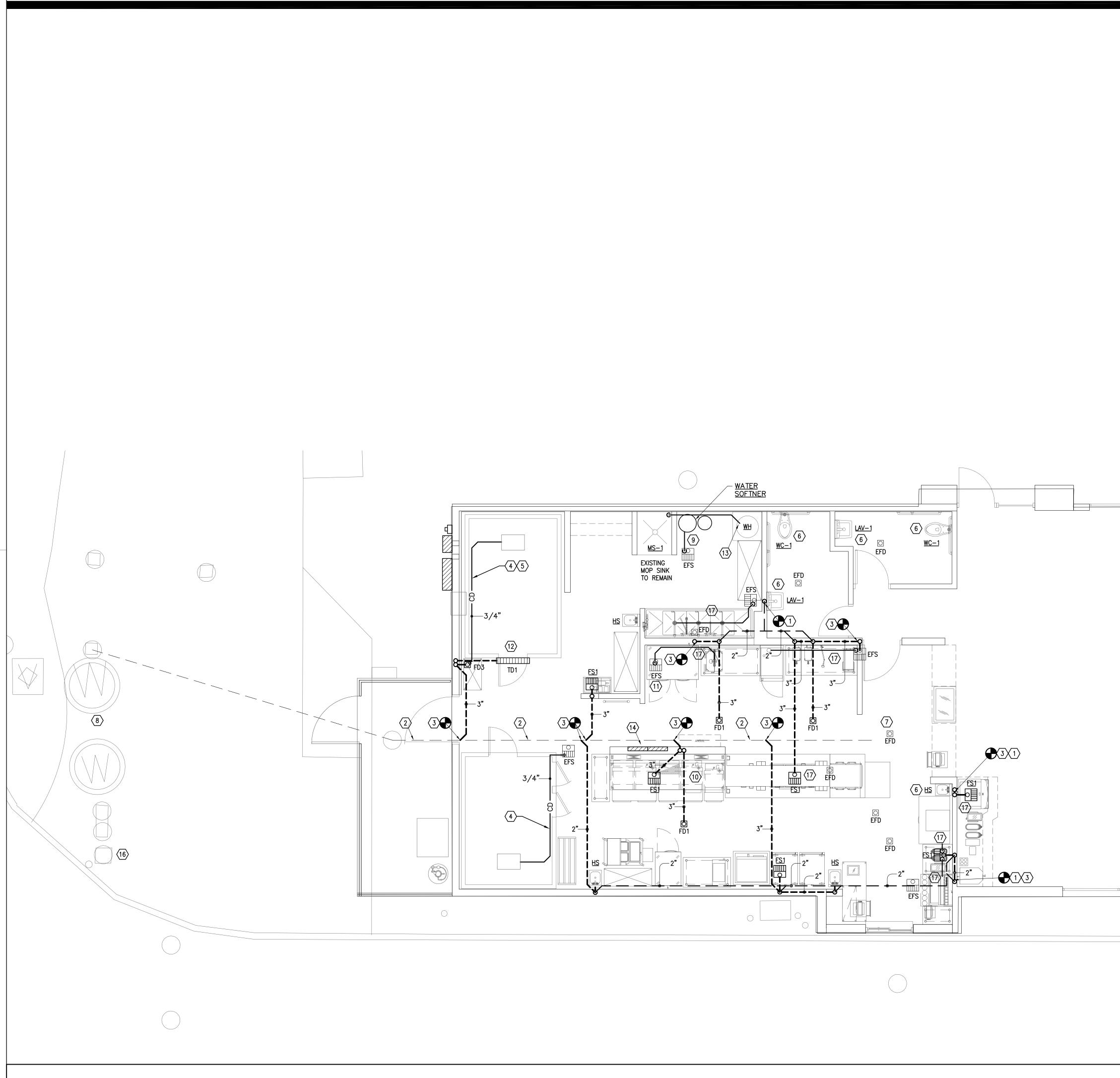
SHEET NO.

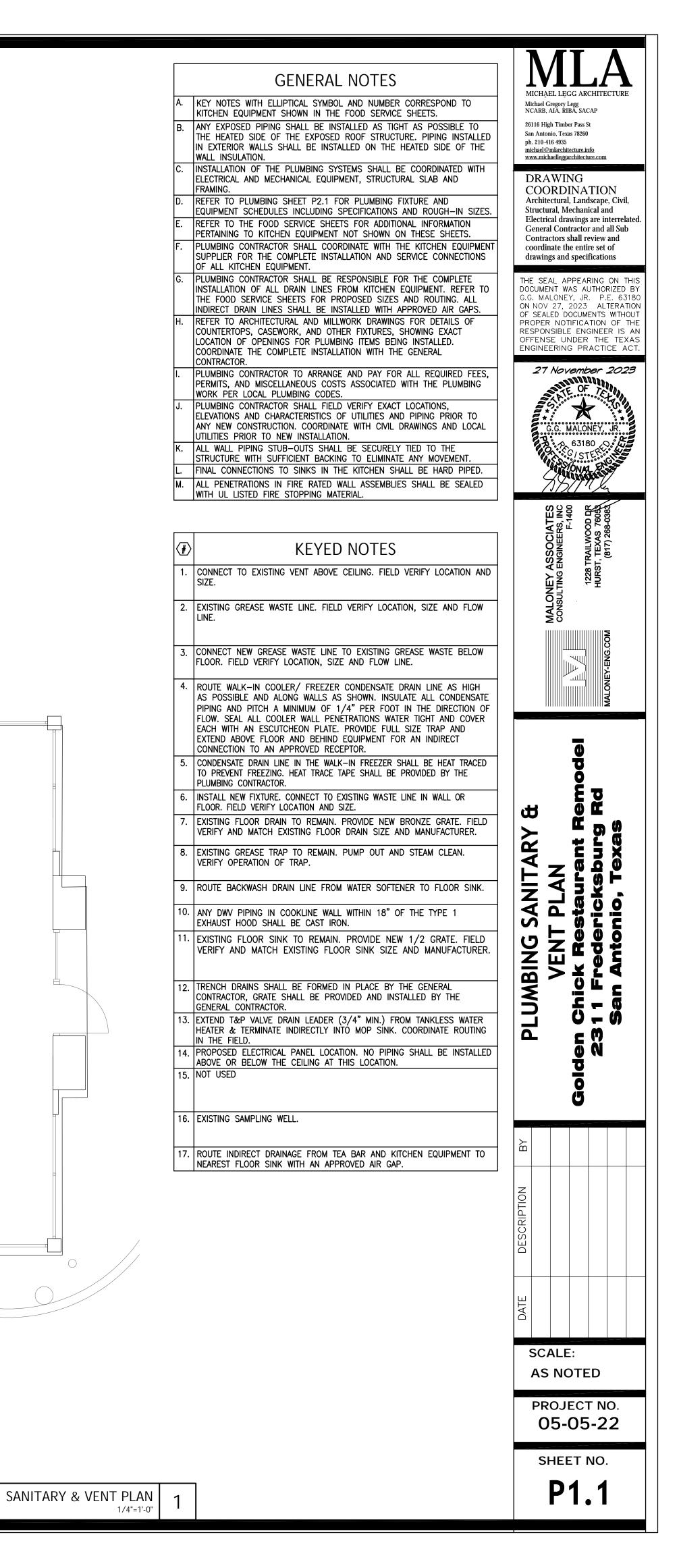
E3.1



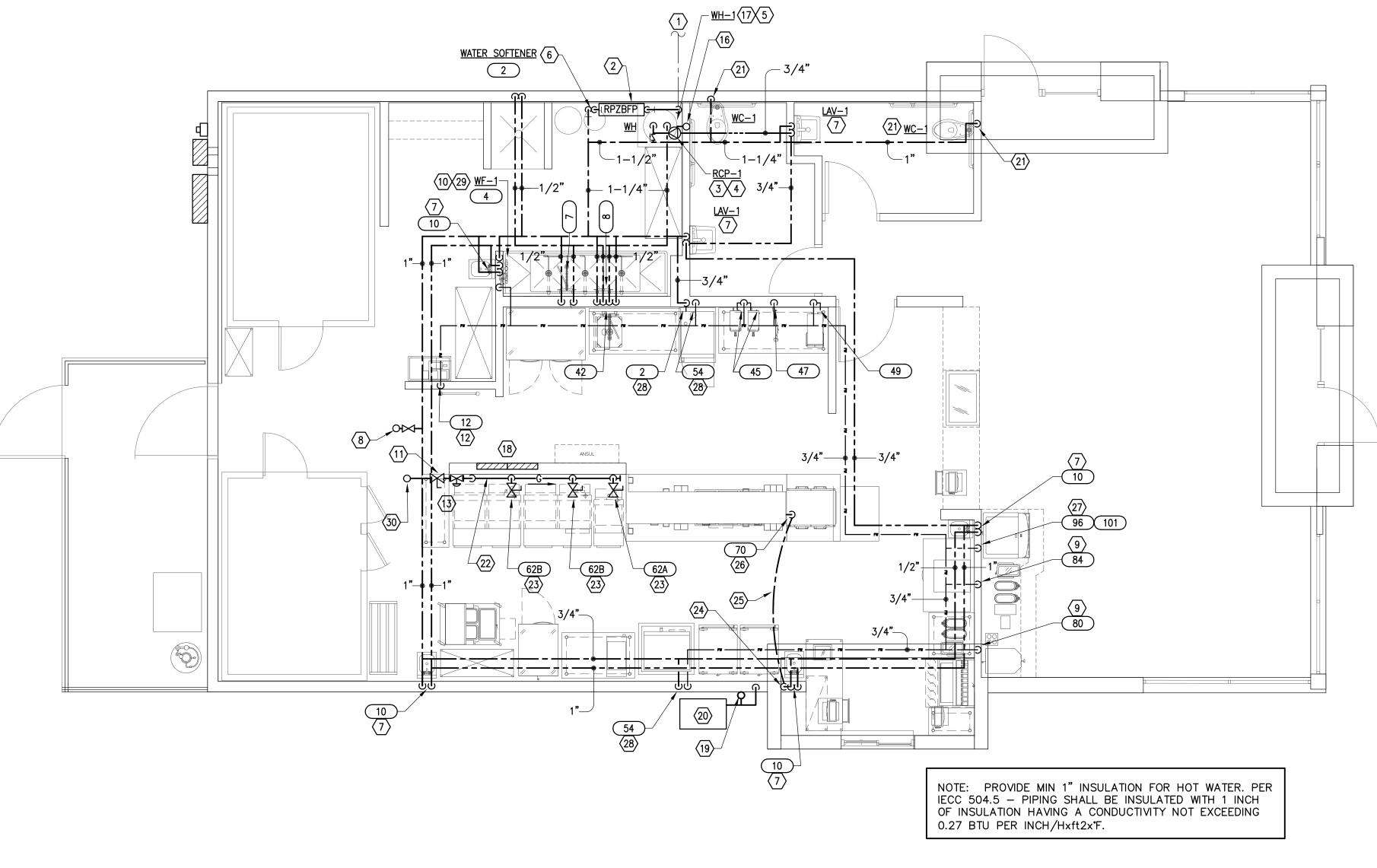








		- PL	UMBING SCHEDULE
ITEM	UTILITY	AFF	REMARKS
2	1-1/2" COLD WATER	DFA	WATER SOFTENER SYSTEM
3	½" HOT AND COLD WATER	36"	BTC ON MOP SINK FAUCET, VERIFY REQUIREMENTS - PLUMBER PROVIDED
4	3/4" COLD WATER	72"	BTC ON WATER FILTER THEN TO EQUIPMENT, SEE WATER FILTER DETAIL
7–8	½" HOT AND COLD WATER	14"	BTC ON SINK FAUCET OR PRE-RINSE FAUCET
10	HOT AND COLD WATER	20"	BTC ON HAND SINK FAUCET
12	½" FILTERED/TREATED WATER	72"	BTC ON SODA SYSTEM
42	½" HOT AND COLD WATER	14"	BTC ON SINK FAUCET OR PRE-RINSE FAUCET
45	½" FILTERED/TREATED WATER	48"	BTC ON HOT WATER DISPENSER
47	½" FILTERED/TREATED WATER	54"	BTC ON POT FILL FAUCET ON WALL
49	½" FILTERED/TREATED WATER	48"	BTC ON TEA BREWER
54	3/4" FILTERED WATER	54"	BTC ON COMBI OVEN
84	½" FILTERED/TREATED WATER	72"	BTC ICE MACHINE
96	½" FILTERED/TREATED WATER	72"	BTC ICE MACHINE
101	½"FILTERED/TREATED WATER	72"	BTC ICE MACHINE



⟨#⟩	KEYED NOTES
1.	EXISTING $1-1/2$ " DOMESTIC WATER SERVICE. FIELD VERIFY LOCATION AND SIZE.
2.	DOMESTIC WATER SERVICE RISER SHALL BE INSTALLED COMPLETE WITH LINE SIZED SHUT OFF VALVE, AND REDUCED PRESSURE ZONE BACKFLOW PREVENTER.
3.	FIELD COORDINATE THE INSTALLATION OF THE INLINE HOT WATER RECIRCULATION PUMP, EXPANSION TANK AND CHECK VALVE ASSEMBLY.
4.	TERMINATE THE HOT WATER RETURN TO THE WATER SUPPLY TO THE WATER HEATERS AS SHOWN, AND INSTALL COMPLETE WITH LINE SIZED CHECK VALVE. ROUTE THE 1 1/4" HW, AND 1" GAS TO THE WALL WATER HEATER.
5.	EXTEND 1 1/4" H&C DN TO WATER HEATER, FULL SIZED AS SHOWN.
6.	THE WATER SOFTENER SYSTEM SHALL BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY THE MANUFACTURER'S TECHNICIAN. THE PLUMBING CONTRACTOR SHALL INSTALL THE TAPS, BYPASS AND VALVING FOR FINAL CONNECTION BY OTHERS. THE WATER ASSEMBLY SHALL BE USED FOR SUPPLY TO THE WATER HEATERS ONLY.
7.	ROUTE 1/2" HW & CW TO HAND WASHING FIXTURE. INSTALL SUPPLIES COMPLETE WITH HOT WATER TEMPERING VALVE.
8.	ROUTE $3/4$ " COLD WATER UP ROOF AND TERMINATE WITH HOSE BIB (HB-2). REFER TO <b>SHEET MEP1.0</b> FOR PIPING CONTINUATION ON THE ROOF.
9.	COORDINATE INSTALLATION OF ACCESSIBLE LINE SIZED SHUT OFF VALVE TO ICE MAKER & APPROVED BACKFLOW PREVENTER. SHUT OFF VALVE SHALL BE RECESSED IN THE WALL AND COVERED WITH ACCESS PANEL.
10.	INSTALL OWNER FURNISHED WATER FILTER ASSEMBLY FOR FINAL CONNECTION.
11.	MECHANICAL GAS PLUG VALVE TO BE INSTALLED AS HIGH AS POSSIBLE TIGHT TO THE BOTTOM OF THE LAY IN CEILING IN AN ACCESSIBLE LOCATION. EXTEND GAS DOWN FOR COOKING APPLIANCES TO FULL SIZED MANIFOLD 12" AFF, INSTALLED TIGHT TO WALL. THE ANSUL VALVE SHALL BE FURNISHED WITH THE HOOD PACKAGE (BY OWNER) AND INSTALLED COMPLETE BY THE PLUMBING CONTRACTOR.
12.	ROUTE THE FILTER WATER SUPPLY WITH SHUT-OFF & APPROVED BACKFLOW PREVENTOR AS SCHEDULED FOR CONNECTION TO THE BAG-N-BOX ASSEMBLY. THE SYSTEM SHALL BE FURNISHED AND INSTALLED COMPLETE BY SODA VENDOR. FIELD COORDINATE THE COMPLETE INSTALLATION.
13.	ANY WATER PIPING IN THE COOKLINE WALL WITHIN 18" OF THE TYPE 1 EXHAUST HOOD SHALL BE INSTALLED AS RIGID COPPER PIPE. NO PLASTIC TUBING ALLOWED.
14.	COORDINATE INSTALLATION OF WALL MOUNTED HOSE BIB, WITH INTERIOR WALL FRAMING AND EXTERIOR FINISHES. REFER TO ARCHITECTURAL ELEVATION FOR ADDITIONAL INFORMATION.

15. FIELD VERIFY OPERATION OF EXISTING TRAP PRIMER TO FLOOR DRAIN.

16.	EXISTING 1" GAS (0.5 PSI) DOWN TO PROVIDE COMPLETE WITH GAS COCK, I
17.	FIELD COORDINATE PLACEMENT OF THE WATER PIPE SHALL BE FULL SIZE OF
18.	PROPOSED ELECTRICAL PANEL LOCATIO ABOVE OR BELOW THE CEILING AT THI
19.	ROUTE THE 1 1/2" (2.0 PSI) GAS SE WALL WITH EXTERIOR MAIN GAS SHUT- DISTRIBUTION. EXPOSED PIPING SHALL EXTERIOR WALL FINISH. REFER TO <b>MEP</b> ON ROOF.
20.	EXISTING GAS METER, VERIFY SIZE AND AND REGULATOR ASSEMBLY AS REQUIN COORDINATE WITH THE LOCAL SERVICE
21.	1" CW DN IN WALL TO WC-1.
	1 1/2" GAS (0.5 PSI) PIPING MANIFO COOK LINE WALL. REFER TO KITCHEN INFORMATION.
23.	3/4"G COMPLETE W/ SOC AND UNION FLEXIBLE HOSE CONNECTION WITH QUI AND INSTALLED BY PLUMBING CONTRA
24.	TEE-OFF 1/2" CW LINE & EXTEND DO
25.	CONTINUOUSLY SLEEVE & INSULATE UI CW FROM UNDER FLOOR AND EXTEND SLAB PENETRATIONS SHALL BE SEALED FLUSHED WITH FINISHED FLOOR.
26.	1/2" CW LINE UP FROM UNDER FLOO COMPLETE WITH SUPPLY & STOP.
	ROUTE THE FILTERED WATER SUPPLY I STAINLESS STEEL RPZ BACKFLOW PRE MAKER EQUIPMENT AS SHOWN. THE WA FURNISHED WITH THE KITCHEN EQUIPM PLUMBING CONTRACTOR.
28.	ROUTE 3/4" FW AND 3/4" CW LINE DOWN TO COMBI-OVEN CONNECTIONS.
29.	ROUTE THE CW SUPPLY PIPING WITH S BACKFLOW PREVENTER AS SCHEDULED PRIOR TO FINAL CONNECTION TO THE FILTER ASSEMBLY SHALL BE FURNISHE PACKAGE & INSTALLED BY THE PLUMB
30.	1–1/2" GAS LINE (0.5 PSI) DOWN FR AND FRYERS.

TO WATER HEATER CONNECTION. K, UNION & 6" DIRT LEG.		GENERAL NOTES	
THE HOT WATER EXPANSION TANK. OF THE EXPANSION TANK CONNECTION.		ELLIPTICAL SYMBOL AND NUMBER CORRESPOND TO NT SHOWN IN THE FOOD SERVICE SHEETS.	MICHAEL LEGG ARCHITECTURE Michael Gregory Legg NCARB, AIA, RIBA, SACAP
ATION. NO PIPING SHALL BE INSTALLED THIS LOCATION. SERVICE PIPING UP THE EXTERIOR	THE HEATED SIDE (	NG SHALL BE INSTALLED AS TIGHT AS POSSIBLE TO OF THE EXPOSED ROOF STRUCTURE. PIPING INSTALLED S SHALL BE INSTALLED ON THE HEATED SIDE OF THE	26116 High Timber Pass St San Antonio, Texas 78260 ph. 210-416 4935
UT-OFF FOR ROOF MOUNTED	WALL INSULATION.		michael@mlarchitecture.info www.michaelleggarchitecture.com
ALL BE PAINTED TO MATCH THE MEP1.0 FOR CONTINUATION OF PIPING		NG <b>SHEET P2.1</b> FOR PLUMBING FIXTURE AND EQUIPMENT DING SPECIFICATIONS AND ROUGH-IN SIZES.	DRAWING
AND LOCATION. ADJUST GAS METER		OD SERVICE SHEETS FOR ADDITIONAL INFORMATION CHEN EQUIPMENT NOT SHOWN ON THESE SHEETS.	COORDINATION Architectural, Landscape, Civil,
QUIRED FOR NEW GAS LOAD.	E. PLUMBING CONTRAC	CTOR SHALL COORDINATE WITH THE KITCHEN EQUIPMENT E COMPLETE INSTALLATION AND SERVICE CONNECTIONS	Structural, Mechanical and Electrical drawings are interrelated. General Contractor and all Sub Contractors shall review and
	COUNTERTOPS, CAS	CTURAL AND MILLWORK DRAWINGS FOR DETAILS OF SEWORK, AND OTHER FIXTURES, SHOWING EXACT NINGS FOR PLUMBING ITEMS BEING INSTALLED.	coordinate the entire set of drawings and specifications
IFOLD SHALL BE INSTALLED LOW ON EN PLANS FOR ROUGH-IN	COORDINATE THE CONTRACTOR.	COMPLETE INSTALLATION WITH THE GENERAL	THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY
IION <b>(565 CFH TOTAL) FOR FRYERS</b> . QUICK DISCONNECT PROVIDED BY KEC	G. PLUMBING CONTRAC	CTOR TO ARRANGE AND PAY FOR ALL REQUIRED FEES, CELLANEOUS COSTS ASSOCIATED WITH THE PLUMBING PLUMBING CODES.	G.G. MALONEY, JR. P.E. 63180 ON NOV 27, 2023 ALTERATION OF SEALED DOCUMENTS WITHOUT PROPER NOTIFICATION OF THE
IRACTOR.	H. BEFORE ANY USE (	OF THE WATER SYSTEM IS MADE FOR DOMESTIC	RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS
DOWN TO UNDER FLOOR AS SHOWN.	WHICH A STERILIZIN	LL BE STERILIZED BY SLOWLY FILLING WITH WATER TO NG AGENT HAS BEEN APPLIED, AT A RATE GIVING 50	ENGINEERING PRACTICE ACT.
UNDER SLAB PIPING. STUB-UP THE ND PIPING TO FIXTURES/EQUIPMENT. LED WATER TIGHT AND LEVELED	EXTREMITIES OF TH OF THREE (3) HOU	, AS DETERMINED BY RESIDUAL CHLORINE TEST AT HE LINE. AFTER LINES HAVE BEEN FILLED FOR A PERIOD JRS, TESTS FOR RESIDUAL CHLORINE SHALL SHOW NOT M. IF LESS THAN 50 PPM IS INDICATED, DRAIN OR	27 November 2023
OOR & EXTEND TO FIXTURE FAUCET	FLUSH OUT THE LIN INDICATE AT LEAST HOURS. THE LINES	NE AND REPEAT STERILIZATION TREATMENT UNTIL TESTS 50 PPM OF RESIDUAL CHLORINE AFTER THREE (3) SHALL BE FLUSHED UNTIL ALL TRACES OF CHEMICAL	G.G. MALONEY, JR.
Y PIPING WITH SHUT-OFF & PREVENTER AS SCHEDULED TO THE ICE WATER FILTER ASSEMBLY SHALL BE		CTOR TO FLUSH AND SANITIZE ALL WATER LINES PRIOR	63180 0 55 6/STER
IPMENT PACKAGE & INSTALLED BY THE		ON OF THE FILTRATION SYSTEM. CTOR SHALL FIELD VERIFY EXACT LOCATIONS,	NICONAL STR
E DOWN WITH SHUT-OFFS & BFP-1 NS.	ELEVATIONS AND CH ANY NEW CONSTRU	HARACTERISTICS OF UTILITIES AND PIPING PRIOR TO JCTION. COORDINATE WITH CIVIL DRAWINGS AND LOCAL NEW INSTALLATION.	Standing
H SHUT-OFF & STAINLESS STEEL RPZ ED TO THE WATER FILTER ASSEMBLY		STUB-OUTS SHALL BE SECURELY TIED TO THE SUFFICIENT BACKING TO ELIMINATE ANY MOVEMENT.	-1400 -1400 -038347 -038347
HE EQUIPMENT AS SHOWN. THE WATER SHED WITH THE KITCHEN EQUIPMENT JMBING CONTRACTOR.	L. ALL FIXTURES AND STOP VALVES IN AC	EQUIPMENT SHALL BE INSTALLED WITH WATER SUPPLY CCESSIBLE LOCATIONS. SUPPLY PIPING TO SINKS AND D BE INSTALLED COMPLETE WITH 1/4 TURN BALL	MALONEY ASSOCIATES CONSULTING ENGINEERS, INC F-1400 1228 TRAILWOOD DR HURST, TEXAS 76083 (817) 268-0383
FROM ROOF TO AUTOMATIC GAS VALVE	VALVES.	s to sinks in the kitchen shall be hard piped.	Y AS IG EN JRST,
		S TO SINKS IN THE KNOLEN SIMLE BE TWIND THEED.	
			MALC
			X-ENG.COM

WATER & GAS FLOOR PLAN

ED AND WATER PLUMBING GAS Chicl 11 Fi San en Ng SCALE: AS NOTED

> PROJECT NO. 05-05-22

SHEET NO.

P1.2

				PL	UMB	ING FIXTURE SCHEDULE
MARK	FIXTURE		ROUGH-	-IN-SIZE		DESCRIPTION/REM
MANK	HATORE	s/w	V	CW	HW	
<u>WC-1</u>	WATER CLOSET ASSEMBLY (ADA)	4"	2"	1 1/2"	_	KOHLER $#3K-4302$ FLOOR MOUNTED, FLUSH VALVE, SIPHON JET BOWL, 1 1/2" TOP SPUD CONNECTION, EXPOSED TOP SPUD FLUSH VALVE, ELONGATED HEAV (LESS COVER) WITH CHECK HINGE STOPS. INSTALL S J-212-A.
<u>LAV-1</u>	LAVATORY (ADA)	2"	1 1/2"	1/2"	1/2"	KOHLER $\#$ K-2867 white vitreous china wall mou wrist blade handles, 0.5 GPM areator, 17 ga. F
<u>TD-1</u>	TRENCH DRAIN	3"	2"	_	_	POLYDRAIN 4" TRENGH DRAIN ASSEMBLY INCLUDING S DEEP SEAL P-TRAP.
<u>FD-1</u>	FLOOR DRAIN	3"	2"	-	-	ZURN #415 TYPE 'C' HINGED STRAINER, 8"Ø NICKEL CONVERTIBLE MEMBRANE CLAMP, AND ADJUSTABLE CO
<u>FD-2</u>	FLOOR DRAIN	3"	2"	1/2"	-	ZURN #415 TYPE 'B' STRAINER, 5"Ø NICKEL BRONZE MEMBRANE CLAMP, ADJUSTABLE COLLAR, AND TRAP F
<u>FD-3</u>	FLOOR DRAIN	3"	2"	-	-	SAME AS FD-1 WITH FUNNEL.
<u>FS-1</u>	FLOOR SINK	3"	2"	1/2"	-	ZURN #1900 SANI—FLOOR RECEPTOR, 12x12x6 ACID AND TOP, CAST IRON BODY, SQUARE SLOTTED LIGHT STRAINER. COORDINATE GRATE CONFIGURATION WITH #
FC0	FLOOR CLEANOUT	LINE SIZED	-	-	-	ZURN #1400 ADJUSTABLE FLOOR CLEANOUT, DURA-( WATER TIGHT TAPERED THREAD PLUG, AND 5"Ø ROUN
<u>WCO</u>	WALL CLEANOUT	LINE SIZED	-	-	_	ZURN #1443 SQUARE WALL CLEANOUT, DURA-COATE TIGHT TAPERED THREAD PLUG, AND NICKEL BRONZE ACCESS COVER AND FRAME.
DCO	DOUBLE CLEANOUT	LINE SIZED	_	_	_	ZURN #CO-2448, PVC CLEANOUT WITH ROUND ADJU IRON TOP, GASKET SEAL CAST IRON PLUG WITH RECE 12"x12"x4" REINFORCED CONCRETE PAD WITH BEVELE
<u>HB-1</u>	HOSE BIBB (EXTERIOR WALL)	-	-	LINE SIZED	-	WOODFORD #B67 (COORDINATE WITH WALL THICKNESS WALL FAUCET ENCLOSED IN A LOCKING WALL BOX, W BREAKER AND CHROME BRASS FINISH. INSTALL BOTTO FINISHED GRADE (UNO).
<u>HB-2</u>	HOSE BIBB (ROOF)	-	-	3/4"	_	WOODFORD #SRH-MS WITH ANTI-SIPHON INTEGRAL V FLANGE & EPDM BOOT COVERS. NO DRAIN REQUIRED

				PLU	MBIN	IG EQUIPMENT SCHEDULE
MARK	FIXTURE		ROUGH-	-IN-SIZE	•	DESCRIPTION/REI
		s/w	v	CW	нพ	
<u>WH-1</u>	EXISTING WATER HEATER	-	-	1 1/4"	1 1/4"	REUSE EXISTING WATER HEATER
<u>ET-1</u>	EXPANSION TANK	-	-	-	-	WATTS PLT-12 OR EQUAL PRODUCT COMPATIBLE WIT CHARGED AT 40 PSIG, HEAVY DUTY BUTYL DIAPHRAG
<u>RCP-1</u>	RECIRCULATION PUMP	-	-	-	3/4"	GRUNDFOS #UP15-42B7 INLINE HOT WATER OPEN S OF 4.0 GPM (140°F) @ 14' HEAD, 1/25 HP, 115V/ TIMER FOR OPERATION CONTROLS, AN ATTACHED POW
<u>IP-1</u>	TRAP PRIMER	-	-	1/2"	-	PPP, INC. #PR-500 "PRIME RITE" TRAP PRIMER, BRO PORTS, ADJUSTABLE WITH 1/2" COPPER TYPE "L" TO UNIT AS REQUIRED FOR SUPPLY TO MULTIPLE DRAINS A MINIMUM 12" AFF, PROVIDE ACCESS PANEL.
<u>WHA-1</u>	WATER HAMMER ARRESTER	-	-	LINE SIZED	-	PPP, INC. SERIES SC, FULLY MECHANICAL WATER HA PER THE MANUFACTURER SPECIFICATIONS.
<u>MXV-1</u>	MIXING VALVE	-	-	1/2"	1/2"	WATTS REGULATOR #LFMMV UNDER SINK THERMOSTAT AND INTEGRAL MOUNTING HOLES, TAMPER RESISTANT STRUCTURE, SET AT 110°F.
<u>RPZ-1</u>	REDUCED PRESSURE BACKFLOW PREVENTER	_	-	LINE SIZED	_	WATTS REGULATOR SS009 REDUCED PRESSURE ZONE MAKER(S) & CARBONATOR(S) SHALL BE PROTECTED PRINCIPLE BACKFLOW PREVENTER AND SHALL BE R ADAPTERS ARE OF STAINLESS STEEL CONSTRUCTION WITH FDA FOOD ADDITIVE REGULATIONS. THE MODEL DEPARTMENT APPROVAL WATTS SB-2.
<u>BFP-1</u>	BACKFLOW PREVENTER	-	-	LINE SIZED	_	WATTS REGULATOR LF007 DOUBLE CHECK VALVE ASS <b>THE BUILDING</b> SHALL BE PROTECTED BY AN APPROV RATED FOR 150 PSI, TWO POSITIVE SEATING CHECK RUBBER SEAT DISCS. VERIFY APPROVAL WITH UTILITY INSTALLATION.
<u>BFP-2</u>	BACKFLOW PREVENTER	_	_	LINE SIZED	_	WATTS REGULATOR SD-3 DUAL CHECK WITH ATMOSP BEVERAGE FIXTURE APPLIANCES, BREWER(S), ETC. SH BACKFLOW PREVENTER AND SHALL BE RATED FOR CO STAINLESS STEEL BODY CONSTRUCTION AND ALL RUE
<u>GI-1</u>	GREASE INTERCEPTOR	4"	2"	-	-	EXISTING TO REMAIN, PROVIDE GREASE TRAP SERVICE CLEANING.
<u>SW-1</u>	SAMPLE WELL	4"	-	-	_	EXISTING TO REMAIN
<u>S0–1</u>	WATER SOFTENER RO SYSTEM	-	-	1 1/2"	-	WATER SOFTENER TO BE FURNISHED INSTALLED BY T
<u>WF-1</u>	WATER FILTER SYSTEM	-	-	3/4"	-	WATER FILTER TO BE FURNISHED BY OWNER AND INS

### EMARKS

, WHITE VITREOUS CHINA WITH 1.6 GPF , BOLT CAPS, SLOAN ROYAL 111.1.6 AVY DUTY WHITE PLASTIC OPEN FRONT SEAT SOLID RING PIPE SUPPORT SLOAN

DUNT, FAUCET: K-7404-5A FAUCET WITH P-TRAP, GRID DRAIN & WALL CARRIER.

STAINLESS STEEL BODY AND GRATEWITH

L BRONZE GRATE, CAST IRON BODY, COLLAR.

ZE GRATE, CAST IRON BODY, CONVERTIBLE PRIMER CONNECTION.

D RESISTING PORCELAIN ENAMEL INTERIOR T DUTY GRATE, AND WHITE ABS DOME KITCHEN ROUGH IN PLANS.

-COATED CAST IRON BODY, GAS AND UND POLISHED NICKEL BRONZE TOP.

TED CAST IRON BODY, GAS AND WATER SECURED SQUARE, SMOOTH WALL

IUSTABLE SCORIATED SECURED CAST CESSED SOCKET. INSTALL IN MINIM OF LED EDGES.

SS) AUTOMATIC DRAINING FREEZELESS WITH ANTI-SIPHON INTEGRAL VACUUM TOM OF WALL BOX 24" ABOVE

VACUUM BREAKER CAST IRON UNDER DECK RED. INSTALL FIXTURE **THROUGH ROOF**.

EMARKS

ITH WATER HEATER SYSTEM. FACTORY AGM, RIGID POLYPROPYLENE LINER. SYSTEM RECIRCULATING PUMP, CAPABLE //1PH, AQUASTAT, INTEGRAL ATTACHED ÓWER CORD.

RONZE CONSTRUCTION WITH VACUUM TO RECEPTOR. PROVIDE DISTRIBUTION INS. INSTALL VALVE RECESSED IN WALL

HAMMER ARRESTER SIZED AND LOCATED

ATIC MIXING VALVE, WITH BRASS BODY F ENCLOSURE. SECURED TO

NE ASSEMBLY WATER SUPPLY TO ICE ED BY AN APPROVED REDUCED PRESSURE RATED FOR 150 PSI, THE BODY & ON, ALL RUBBER COMPONENTS COMPLY L IS SUBJECT TO LOCAL HEALTH

SSEMBLY. DOMESTIC WATER SERVICE TO OVED BACKFLOW PREVENTER AND SHALL BE MODULES WITH CAPTURED SPRINGS AND TY AND JURISDICTION PRIOR TO

SPHERIC PORT. WATER SUPPLY TO SHALL BE PROTECTED BY AN APPROVED CONTINUOUS OR INTERMITTENT PRESSURE, UBBER INTERNAL COMPONENTS.

CE COMPLETE WITH PUMP OUT AND

THE PLUMBING CONTRACTOR.

NSTALLED BY THE PLUMBING CONTRACTOR.

	gas de	EMAND	LOAD			
NO.	DESCRIPTION	CONN. SIZE	QTY.	INPUT (MBH/EA)	TOTAL (MBH)	
62	FRYER	3/4"	1	85	85	
63	FRYER	3/4"	2	240	480	
rtu-1	ROOF TOP UNIT	3/4"	1	67	67	
rtu-2	ROOF TOP UNIT	3/4"	1	67	67	
rtu-3	ROOF TOP UNIT	1"	1	125	125	
rtu-4	ROOF TOP UNIT	1"	1	125	125	
WH-1	WATER HEATER	3/4"	1	75	75	
		HVAC SUB-T	OTAL		384	
		WATER HEAT	ER SUB-TOTA	۱L	75	
		COOKING AP	565			
		GAS DEMAND	1024			
GAS DEMAND TOTAL (BTUH)						

NOTE(S):

1. THE ACTUAL LENGTH TO THE MOST REMOTE APPLIANCE CONNECTION IS 60'-0". THE SYSTEM IS SIZED FOR A TOTAL DEVELOPED LENGTH OF MAXIMUM **100'-0"**.

2. THE CONTRACTOR SHALL COORDINATE WITH THE NATURAL GAS SERVICE PROVIDER FOR THE PROVISION OF THE COMPLETE SYSTEM INCLUDING METER AND REGULATOR ASSEMBLY, ETC. 3. THE SERVICE PRESSURE TO THE BUILDING SHALL BE INSTALLED AS MEDIUM

GAS DEMAND TOTAL (CFH)

1024

- PRESSURE SUPPLY (0.5 PSI). 4. COORDINATE THE COMPLETE INSTALLATION OF THE METER ASSEMBLY
- INCLUDING PRESSURE REGULATOR TO REDUCE SUPPLY PRESSURE OF DISTRIBUTION PIPING DOWNSTREAM FROM THE METER TO 2 PSI.
- 5. PIPE SIZES SHOWN ON THE RISER DIAGRAM ARE BASED ON THE APPLICABLE GAS TABLES IN THE 2021 INTERNATIONAL PLUMBING CODE WITH LOCAL AMENDMENTS. VERIFY FIELD CONDITIONS FOR ACTUAL DEVELOPED LENGTH AND POSSIBLE ADJUSTMENTS TO PIPE SIZES IN THE FIELD.

# PIPING MATERIAL SCHEDULE

1.	WATER PIPE (ABOVE GROUND)	<b>UPONOR</b> CROSSLINKED POLYETHYLENE (PEX-a) PIPING MEETING ASTM F 877, SDR 9 STANDARDS WITH MANUFACTURER AVAILABLE ENGINEERED POLYMER (EP) COLD EXPANSION FITTINGS AND PEX REINFORCING RINGS MEETING ASTM F 1960. PIPING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND SHALL NOT BE INSTALLED WHERE IT IS EXPOSED TO SUNLIGHT. FIELD COORDINATE THE INSTALLATION OF MANUFACTURED PIPING COLOR AND PIPING LENGTHS TO RUN AS STRAIGHT AS POSSIBLE UTILIZING PEX-a PIPE SUPPORTS. ALL PIPING AND FITTINGS SHALL BE BY THE SAME MANUFACTURER.
2.	WATER PIPE (BELOW GROUND)	<b>UPONOR</b> CROSSLINKED POLYETHYLENE (PEX-d) PIPING MEETING ASTM F 877, SDR 9 STANDARDS. NO JOINTS OR FITTINGS SHALL BE INSTALLED BELOW THE BUILDING SLAB. FIELD COORDINATE THE INSTALLATION OF MANUFACTURED PIPING COLOR AND PIPING LENGTHS TO RUN AS STRAIGHT AS POSSIBLE. ALL PIPING AND FITTINGS SHALL BE BY THE SAME MANUFACTURER.
3.	WATER PIPE (INSULATION)	BOTH HOT AND COLD WATER PIPING SHALL BE INSTALLED COMPLETE WITH INSULATION EITHER IN CONCEALED OR EXPOSED LOCATIONS. REFER TO GENERAL NOTES FOR INSULATION THICKNESS INFORMATION.
4.	SEWER AND VENT PIPE (ABOVE AND BELOW GRADE)	DWV SCHEDULE 40 POLYVINYL CHLORIDE (PVC) PIPING. INSIDE BUILDING SERVICE WEIGHT (HUBLESS) CAST IRON SOIL PIPE AND STAINLESS STEEL NO HUB COUPLINGS SHALL BE UTILIZED FOR THE FIRST 10'-0" OF PIPING RECEIVING DISCHARGE FROM A DISHWASHER(S).
5.	CONDENSATE DRAIN PIPE AND INDIRECT DRAINAGE PIPE (INTERIOR TO BUILDING)	TYPE 'M' COPPER WITH 95/5 SILVER SOLDER JOINT FITTINGS. INSULATE CONDENSATE PIPING WITH 1/2" ARMAFLEX CLOSED CELL PIPE INSULATION WITH SELF SEALING ADHESIVE JOINTS, OR EQUIVALENT.
6.	CONDENSATE DRAIN PIPE (EXTERIOR TO BUILDING)	TYPE 'M' COPPER WITH 95/5 SILVER SOLDER JOINT FITTINGS.
7.	GAS PIPE	GAS PIPE – SCHEDULE 40 BLACK STEEL WITH MALLEABLE IRON FITTINGS. WELDED JOINTS FOR PIPE 2 1/2" AND LARDER AND ALL JOINTS BELOW GRADE. EXTERIOR GAS PIPING AT THE METER ASSEMBLY SHALL BE FIELD PAINTED MISSISSIPPI BRONZE. GAS PIPING EXTERIOR ON THE ROOF SHALL BE FIELD PAINTED WITH ZINC RICH GALVANIZED YELLOW PAINT FOR CORROSION PROTECTION. GAS PIPING INTERIOR TO THE BUILDING SHALL BE FIELD PAINTED YELLOW.
8.	Suspended Piping Support	SUPPORT PIPING WITH CLEVIS OR SPLIT RING TYPE PIPE HANGERS 3/8" ALL THREAD ROD AND BEAM CLAMPS. "PLUMBERS TAPE AND WIRE" NOT PERMITTED.

## HOT WATER DEMAND

ITEM	QTY.	GPH	TOTAL GPH
LAVATORY	2	5	10
KITCHEN HAND SINK	4	5	20
3 COMP POT SINK	1	90	90
PRE RINSE SINK	1	20	20
MOP SINK FAUCET	1	20	20
1 COMP POT SINK	1	15	15

175

TOTAL HOT WATER CALCULATIONS:

PEAK DEMAND

1.175 GPH (PEAK DEMAND) X 0.40 (DEMAND FACTOR) = 70 GPH.

- 2.70 GPH (DEMAND) X 1.0 (STORAGE FACTOR) = 70 GALS.
- 3.175 GPH (PEAK DEMAND) / 60 MIN./HR = 2.9 GPM.
- 4. 50°F DOMESTIC SUPPLY WATER TEMPERATURE.

5.140°F DESIGN SUPPLY HOT WATER FOR KITCHEN. 6. 500 GPM X  $\triangle$ T = MIN. OUTPUT BTUH REQUIRED AT WATER HEATER.

(500)(2.9)(90) = 130,500 BTUH.PROBABLE DEMAND

1. 70 GPH (PROBABLE DEMAND) X 0.40 (DEMAND FACTOR) = 28 GPH.

2. 28 GPH (DEMAND) X 1.0 (STORAGE FACTOR) = 28 GALS.

- 3. 70 GPH (PROBABLE DEMAND) / 60 MIN./HR = 1.16 GPM.
- 4. 50°F DOMESTIC SUPPLY WATER TEMPERATURE.

5. 140°F DESIGN SUPPLY HOT WATER FOR KITCHEN. 6. 500 GPM X  $\triangle$ T = MIN. OUTPUT BTUH REQUIRED AT WATER HEATER.

(500)(1.16)(90) = 52,200 BTUH.

CAPACITY PROVIDED 1. (1) TANKLESS WATER HEATER WITH 199,000 BTUH INPUT CAPACITY AND CONTINUOUS RECOVERY AT 140°F.

H	LUMB	ING LEGEND		PLUMBING GENERAL NOTES
SYMBOL	ABBREV.	DESCRIPTION	1.	NOTE: FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE DRAWINGS ARE       Michael Gregory Legg         ESSENTIALLY DIAGRAMMATIC AND ALTHOUGH SIZES AND LOCATIONS OF       Michael Gregory Legg
—— SAN ——— — — GW — — — — —	S OR W GW	SOIL OR WASTE (BELOW GRADE) GREASE WASTE		EQUIPMENT ARE DRAWN TO SCALE WHEREVER POSSIBLE, THE CONTRACTOR       26116 High Timber Pass St         SHALL MAKE USE OF ALL DATA IN ALL OF THE CONTRACT DOCUMENTS AND       San Antonio, Texas 78260         VERIEX, THIS INFORMATION PRIOR TO ORDERING, FARRICATING, OR INSTALLING       ph. 210-416 4935
		VENT		ANY MATERIALS.
CD	CD	CONDENSATE DRAIN	2.	THE PLUMBING SYSTEM DESIGN, INSTALLATION AND MATERIALS SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL CODES AND AUTHORITIES HAVING DRAWING
— ST ——	ST	STORM DRAIN	3.	JURISDICTION.       COORDINATIO         PLUMBING QUALITY, WEIGHTS OF MATERIALS AND ALTERNATE METHODS OF       Architectural, Landscape
CW	CW	COLD WATER		CONSTRUCTION SHALL CONFORM TO THE 2015 INTERNATIONAL PLUMBING CODE Structural, Mechanical an Electrical drawings are in
FW SW	FW SW	FILTERED WATER SOFTENED WATER	4.	CONTRACTOR SHALL COORDINATE ALL WORK SHOWN ON THESE DRAWINGS AND SPECIFICATIONS WITH ALL DISCIPLINES AND TRADES PRIOR TO SUBMITTAL OF Coordinate the entire set
—FSW ——	FSW	FIRE SERVICE WATER		BID AND INSTALLATION OF SYSTEM. drawings and specificatio
—— HW ———	HW	HOT WATER	5.	CONTRACTOR SHALL MAKE ALL ARRANGEMENTS WITH UTILITY COMPANIES FOR SERVICE AND CONNECTIONS AND SHALL PAY FOR ALL FEES, CHARGES, PERMITS AND METERS.
— HWR ———	HWR	HOT WATER RETURN	6.	THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND LABOR         G.G. MALONEY, JR. P.I.           ON NOV 27, 2023         ALT
RO	RO	REVERSE OSMOSIS WATER		(INCLUDING THE COMPLETE PLUMBING SYSTEM) FOR A PERIOD OF ONE YEAR FROM WRITTEN ACCEPTANCE BY THE TENANT. ANY DEFECTS IN MATERIALS AND RESPONSIBLE ENGINE
C O	G UP	GAS, NATURAL OR PROPANE		REPAIRED BY THIS CONTRACTOR IN A TIMELY FASHION, AT NO COST TO THE
	DN.	TEE DOWN	7.	TENANT.       ALL PLUMBING FIXTURE LOCATIONS (WATER CLOSETS, LAVATORIES ETC.) ARE       27 November -
C	DN.	PIPE DOWN		DIAGRAMMATIC. CONTRACTOR SHALL REFER TO FOOD SERVICE AND ARCHITECTURAL DRAWINGS FOR EXACT PLACEMENT AND MOUNTING HEIGHTS.
0	FC0	FLOOR CLEANOUT	8.	ANY DEVIATIONS FROM THE DRAWINGS OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION.
	DCO	DOUBLE CLEANOUT	9.	
	CO SOV	CLEANOUT, WALL OR PIPE SHUT-OFF VALVE		CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTAL OF BID AND FAMILIARIZE HIMSELF WITH EXISTING CONDITIONS. SUBMITTAL OF BID WILL VERIFY THAT THE CONTRACTOR HAS VISITED THE SITE.
	SOV	SHUT-OFF VALVE, NORMALLY OPEN	10.	PIPING SHALL BE INSTALLED PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION.
	SOV	SHUT-OFF VALVE, NORMALLY CLOSED		THE INSTALLATION SHALL MEET ALL CONSTRUCTION CONDITIONS AND ALLOW FOR THE INSTALLATION OF OTHER TRADES.
_N	C.V.	CHECK VALVE	11.	TRAP PRIMERS FOR FLOOR DRAINS AND FLOOR SINKS AND WATER HAMMER
——闵————	B.V.	BALANCING VALVE		I CODE WITH LOCAL AMENDMENTS AND THE LATEST EDITION OF THE AMERICAN
	U			
∲ ∳	P.V. SOC	MECHANICAL PLUG VALVE (GAS) SHUT-OFF COCK (GAS)	12.	REQUIREMENTS.       ALL VALVES, TRAP PRIMERS, WATER HAMMER ARRESTORS OR OTHER EQUIPMENT       Stopping         SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED       Stopping       Stopping         BEHIND AN ACCESS PANEL.       Stopping       Stopping       Stopping
	EAAV	EARTHQUAKE ACTUATED AUTOMATIC VALVE (GAS)	1.3	BEHIND AN ACCESS PANEL. 비해 Compliance with the 비해 Compliance with the 이것 .
	S.V.	ELECTRIC SOLENOID VALVE (GAS)		SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED       INSTALLED         BEHIND AN ACCESS PANEL.       INSTALLED         ALL SERVICE WATER HEATING EQUIPMENT TO BE IN COMPLIANCE WITH THE       INTERNATIONAL PLUMBING CODE WITH LOCAL AMENDMENTS AND LABELED         AS SUCH.       INSTALLED
	P.R.	PRESSURE REGULATOR (GAS)	14.	ALL ITEMS PROJECTING THROUGH THE ROOF SHALL BE FLASHED THROUGH
	POC	POINT OF CONNECTION		CURBS OR PIPE SEALS A MINIMUM OF 12" ABOVE THE ROOF. THE PIPE CURBS AND SEALS SHALL BE INSTALLED BY THE ROOFING CONTRACTOR.
<u>}</u>	T&P	TEMPERATURE & PRESSURE RELIEF VALVE		ENSURE THAT AMPLE BOOT OPENINGS ARE PROVIDED TO ACCOMMODATE ANY ELECTRICAL CONDUIT PENETRATIONS REQUIRED FOR POWER.
0	VTR HD	VENT TO ROOF HUB DRAIN	15.	CURBS AND SEALS SHALL BE INSTALLED BY THE ROOFING CONTRACTOR. ENSURE THAT AMPLE BOOT OPENINGS ARE PROVIDED TO ACCOMMODATE ANY ELECTRICAL CONDUIT PENETRATIONS REQUIRED FOR POWER. ALL WATER PIPING TO BE INSULATED AS PER THE <b>2015 INTERNATIONAL</b> PLUMBING CODE WITH LOCAL AMENDMENT REQUIREMENTS:
<b>₽</b>	FD	FLOOR DRAIN (COORDINATE GRATE REQS)		PIPE_SIZEINSULATION THICKNESSINSULATION VALUE1/2" THRU 1 1/4"1"R = 4.0
ф М	FS	FLOOR SINK (COORDINATE GRATE REQS)		1 - 1/2" THRU 2" $1 1/2$ " R = 6.0
$\bigcirc$	RP	RECIRCULATION PUMP	16.	CONTRACTOR SHALL PROVIDE: FAUCETS, TRAPS, STOPS, BALL VALVES, BACKFLOW DEVICES FOR KITCHEN EQUIP. GASCOCKS, WATER HAMMER
	HB	HOSE BIBB		ARRESTORS, CLEANOUT COVERS AND INDIRECT WASTE TO AN APPROVED
	KEC	KITCHEN EQUIPMENT CONTRACTOR	17.	PLUMBING SYSTEM.         ALL CLEANOUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE AND
	BTUH MBH	BRITISH THERMAL UNITS PER HOUR BTUH X 1000		LOCATED AS PER CODE REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE
	CFH	CUBIC FEET PER HOUR (1 MBH = 1 CFH)	18.	INSTALLATION.
	(E)	EXISTING		ANY VERTICAL SURFACE AND 10'-0" FROM OR 3'-0" ABOVE ANY MECHANICAL
	I.E.	INVERT ELEVATION	19.	ALL VALVES, UNIONS, ETC. TO BE SAME SIZE AS CONNECTED SUPPLY LINE
	CONN		20.	UNLESS OTHERWISE NOTED ON DRAWINGS. UNIONS SHALL BE PROVIDED AND INSTALLED AFTER EACH SCREW-TYPE VALVE
	FU GPM	FIXTURE UNITS GALLONS PER MINUTE	21	
	GPH	GALLONS PER HOUR		
	HP	HORSEPOWER	22.	ACCORDANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS. NO PIPING SHALL BE DIRECTLY EMBEDDED IN CONCRETE, MASONRY WALLS, OR CONCRETE FOOTINGS.
	PSI	POUNDS PER SQUARE INCH	23.	THE PLUMBING CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS FOR ALL POINTS OF CONNECTION WITH THE GENERAL CONTRACTOR AND OTHER TRADES
	AP	ACCESS PANEL	24	
	W/ FLR	WITH FLOOR	Δτ.	CONNECTIONS ARE REQUIRED. COORDINATE ALL CONNECTIONS WITH SITE
	CLG	CEILING	25.	ALL HORIZONTAL PIPING LINES EXTENDED AND CONNECTED TO EQUIPMENT
	ABV	ABOVE		SHALL BE RUN AT THE HIGHEST POSSIBLE ELEVATIONS AND NOT LESS THAN 6"
	BEL	BELOW	26.	ABOVE THE FLOOR TO PROVIDE CLEARANCE FOR CLEANING.
	UG	UNDERGROUND		FLOORS SHALL UTILIZE CORE DRILLING EQUIPMENT. COORDINATE WITH ARCHITECTURAL DETAILS FOR FLOOR CUTTING AND PATCHING.
	DN CONT.	DOWN	27.	THE PLUMBING CONTRACTOR IS TO PROVIDE ALL ADDITIONAL STEEL, HANGER
	TYP.	TYPICAL		MATERIALS, RODS AND CLAMPS AS REQUIRED FOR COORDINATION WITH WORK
	FOH	FRONT OF HOUSE	28.	PIPING LAYOUT IS SCHEMATIC ONLY, EXACT ROUTING AND INSTALLATION OF PIPES TO BE COORDINATED WITH THE BUILDING STRUCTURE AND THE WORK OF
	BOH	BACK OF HOUSE AMERICAN DISABILITIES ACT		OTHER CONTRACTORS. NO WATER OR DRAIN LINES ARE PERMITTED TO BE
	A.D.A. A.F.F.	ABOVE FINISH FLOOR	29.	
	B.F.F.	BELOW FINISH FLOOR		NECESSARY TO REROUTE PIPING FOR ACTUAL INSTALLATION OF ELECTRIC
			30.	WHENEVER FOUNDATION WALLS, EXTERIOR WALLS, ROOFS, ETC. ARE PENETRATED
				MATCH EXISTING CONSTRUCTION AND SEALED WEATHER TIGHT.
BACK	FLOW	DEVICE SCHEDULE	31.	ANY EXPOSED PIPING IN THE GUEST AREAS SHALL BE PAINTED TO MATCH THE WALL COLOR. ANY EXPOSED GAS PIPING IN THE KITCHEN SHALL BE PAINTED
FIXTURE		ITEM/ EQUIPMENT # BACKFLOW DEVICE	32.	WALL COLOR. ANY EXPOSED GAS PIPING IN THE KITCHEN SHALL BE PAINTED
I DOV CODA SVETE		<u>– RPZ–1</u> – BFP–1		STORE TURNOVER. DURING THE PROGRESS OF THE WORK, MAINTAIN AN ACCURATE RECORD OF
N-BOX SODA SYSTEM IING WATER SERVICE			33.	ALL CHANGES MADE IN THE PLUMBING SYSTEMS. THE RECORD DRAWING SHALL SCALE:
ING WATER SERVICE REWER(S)			•	I S MI DRI I MADALES INI ANANANANA INI MANANA ANANA ANA
ING WATER SERVICE REWER(S) E MACHINE(S)		-		SHOW CHANGES IN MANUFACTURER (WITH NUMBERS AND TRADE NAMES). MATERIALS, SIZES, LOCATIONS AND HOOK-UP POINTS. AS-BUILTS SHALL BE
ING WATER SERVICE REWER(S) E MACHINE(S) AKER(S) B CONNECTION(S)		<u>BFP-2</u>	34.	MATERIALS, SIZES, LOCATIONS AND HOOK-UP POINTS. AS-BUILTS SHALL BE GIVEN TO OWNER'S CONSTRUCTION MANAGER AT COMPLETION OF JOB. UPON COMPLETION OF JOB, THIS CONTRACTOR SHALL INSPECT ALL EXPOSED
N-BOX SODA STSTEP IING WATER SERVICE REWER(S) E MACHINE(S) AKER(S) B CONNECTION(S) DISPENSER(S) WATER DISPENSER(S)			34.	MATERIALS, SIZES, LOCATIONS AND HOOK-UP POINTS. AS-BUILTS SHALL BE GIVEN TO OWNER'S CONSTRUCTION MANAGER AT COMPLETION OF JOB.

LISTED FIRE STOPPING MATERIAL.

**P2.1** 

		ING LEGEND		PLUMBING GENERAL NOTES	
SYMBOL	ABBREV.		1.	NOTE: FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND ALTHOUGH SIZES AND LOCATIONS OF	
	S OR W	SOIL OR WASTE (BELOW GRADE)		EQUIPMENT ARE DRAWN TO SCALE WHEREVER POSSIBLE, THE CONTRACTOR26116 High Timber Pass SSHALL MAKE USE OF ALL DATA IN ALL OF THE CONTRACT DOCUMENTS ANDSan Antonio, Texas 78260	
— — GW — — — —	GW	GREASE WASTE		VERIFY THIS INFORMATION PRIOR TO ORDERING, FABRICATING OR INSTALLING ANY MATERIALS.	
CD	CD	CONDENSATE DRAIN	2.	THE PLUMBING SYSTEM DESIGN, INSTALLATION AND MATERIALS SHALL CONFORM	
— ST ———	ST	STORM DRAIN		TO ALL FEDERAL, STATE AND LOCAL CODES AND AUTHORITIES HAVING DRAWING COORDINA	ATION
— CW ———	CW	COLD WATER	3.	PLUMBING QUALITY, WEIGHTS OF MATERIALS AND ALTERNATE METHODS OF Architectural, Land CONSTRUCTION SHALL CONFORM TO THE <b>2015 INTERNATIONAL PLUMBING CODE</b> Architectural, Mechan	nical and
— FW ——	FW	FILTERED WATER		WITH LOCAL AMENDMENTS. Electrical drawings General Contracto	or and all
— sw ——	SW	SOFTENED WATER	4.	CONTRACTOR SHALL COORDINATE ALL WORK SHOWN ON THESE DRAWINGS AND SPECIFICATIONS WITH ALL DISCIPLINES AND TRADES PRIOR TO SUBMITTAL OF	
— FSW ———	FSW	FIRE SERVICE WATER		BID AND INSTALLATION OF SYSTEM. drawings and speci	
— нw ———	HW	HOT WATER	5.	CONTRACTOR SHALL MAKE ALL ARRANGEMENTS WITH UTILITY COMPANIES FOR SERVICE AND CONNECTIONS AND SHALL PAY FOR ALL FEES, CHARGES, PERMITS THE SEAL APPEA	
— HWR ———	HWR	HOT WATER RETURN		AND METERS. DOCUMENT WAS AUG., MALONEY, JR. G.G.	R. P.E.
R0	RO	REVERSE OSMOSIS WATER	6.	(INCLUDING THE COMPLETE PLUMBING SYSTEM) FOR A PERIOD OF ONE YEAR OF SEALED DOCUM	MENTS W
G	G	GAS, NATURAL OR PROPANE		FROM WRITTEN ACCEPTANCE BY THE TENANT. ANY DEFECTS IN MATERIALS AND OR LABOR FOUND WITHIN THE GUARANTEE PERIOD SHALL BE REMEDIED OR	IGINEER
0	UP	PIPE UP		REPAIRED BY THIS CONTRACTOR IN A TIMELY FASHION, AT NO COST TO THE TENANT.	RACTIC
	DN.	TEE DOWN	7.	ALL PLUMBING FIXTURE LOCATIONS (WATER CLOSETS, LAVATORIES ETC.) ARE 27 November 20 Novembe	ber 2
C	DN.	PIPE DOWN		DIAGRAMMATIC. CONTRACTOR SHALL REFER TO FOOD SERVICE AND	
<b></b>	FCO	FLOOR CLEANOUT	8.	ARCHITECTURAL DRAWINGS FOR EXACT PLACEMENT AND MOUNTING HEIGHTS.	,, ,, ,,
	DCO	DOUBLE CLEANOUT		TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION.	
	C0	CLEANOUT, WALL OR PIPE	9.	CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTAL OF BID AND FAMILIARIZE	
	SOV	SHUT-OFF VALVE		CONTRACTOR HAS VISITED THE SITE.	TER
<u>N0</u>	SOV	SHUT-OFF VALVE, NORMALLY OPEN	10.	PIPING SHALL BE INSTALLED PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION.	2 EN
	SOV	SHUT-OFF VALVE, NORMALLY CLOSED		THE INSTALLATION SHALL MEET ALL CONSTRUCTION CONDITIONS AND ALLOW FOR THE INSTALLATION OF OTHER TRADES.	11 Ju
	C.V.	CHECK VALVE	11.	TRAP PRIMERS FOR FLOOR DRAINS AND FLOOR SINKS AND WATER HAMMER	4.5
	B.V.	BALANCING VALVE		ARRESTORS ARE TO BE INSTALLED AS PER THE 2015 INTERNATIONAL PLUMBING	760 L 760 B
	U	UNION		SOCIETY OF SANITARY ENGINEERING (ASSE 1010) SIZING AND INSTALLATION	ILWC XAS 7) 26
	P.V.	MECHANICAL PLUG VALVE (GAS)	12	SOCIETY OF SANITARY ENGINEERING (ASSE 1010) SIZING AND INSTALLATION       SOCIETY OF SANITARY ENGINEERING (ASSE 1010) SIZING AND INSTALLATION         REQUIREMENTS.       ALL VALVES, TRAP PRIMERS, WATER HAMMER ARRESTORS OR OTHER EQUIPMENT       SOCIETY OF SANITARY ENGINEERING (ASSE 1010) SIZING AND INSTALLATION	TRA T, TE (81
	SOC	SHUT-OFF COCK (GAS)		SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED	1228 TRAI HURST, TE (81
	EAAV	EARTHQUAKE ACTUATED AUTOMATIC VALVE (GAS)	1.3	SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED       INSTALLED         BEHIND AN ACCESS PANEL.       INSTALLED         ALL SERVICE WATER HEATING EQUIPMENT TO BE IN COMPLIANCE WITH THE       INTERNATIONAL PLUMBING CODE WITH LOCAL AMENDMENTS AND LABELED         AS SUCH.       INSTALLED	Ţ
X as in	S.V.	ELECTRIC SOLENOID VALVE (GAS)		2015 INTERNATIONAL PLUMBING CODE WITH LOCAL AMENDMENTS AND LABELED	
	P.R.	PRESSURE REGULATOR (GAS)	14.	AS SUCH. ≥0 ALL ITEMS PROJECTING THROUGH THE ROOF SHALL BE FLASHED THROUGH	≥
$\overline{\bullet}$	POC	POINT OF CONNECTION		CURBS OR PIPE SEALS A MINIMUM OF 12" ABOVE THE ROOF. THE PIPE CURBS AND SEALS SHALL BE INSTALLED BY THE ROOFING CONTRACTOR.	
24-	T&P	TEMPERATURE & PRESSURE RELIEF VALVE		ENSURE THAT AMPLE BOOT OPENINGS ARE PROVIDED TO ACCOMMODATE ANY	
T Ø	VTR	VENT TO ROOF	15	ELECTRICAL CONDUIT PENETRATIONS REQUIRED FOR POWER.         ALL WATER PIPING TO BE INSULATED AS PER THE 2015 INTERNATIONAL	
0	HD	HUB DRAIN	15.	PLUMBING CODE WITH LOCAL AMENDMENT REQUIREMENTS:	
 ⊕	FD	FLOOR DRAIN (COORDINATE GRATE REQS)		PIPE_SIZEINSULATION THICKNESSINSULATION VALUE1/2" THRU 1 1/4"1"R = 4.0	
	FS	FLOOR SINK (COORDINATE GRATE REQS)		1 - 1/2" THRU 2" 1 1/2" R = 6.0	
$\bigcirc$	RP	RECIRCULATION PUMP	16.	CONTRACTOR SHALL PROVIDE: FAUCETS, TRAPS, STOPS, BALL VALVES, BACKFLOW DEVICES FOR KITCHEN EQUIP. GASCOCKS, WATER HAMMER	
	HB	HOSE BIBB		ARRESTORS, CLEANOUT COVERS AND INDIRECT WASTE TO AN APPROVED	
	KEC	KITCHEN EQUIPMENT CONTRACTOR		PLUMBING SYSTEM.	
	BTUH	BRITISH THERMAL UNITS PER HOUR	17.	ALL CLEANOUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE AND LOCATED AS PER CODE REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE	
	MBH	BTUH X 1000		ALL CLEAN OUT LOCATIONS WITH EQUIPMENT, MILLWORK, ETC., PRIOR TO	
	CFH	CUBIC FEET PER HOUR (1 MBH = 1 CFH)	18.	INSTALLATION.	Ľ
	(E)	EXISTING		ANY VERTICAL SURFACE AND 10'-0" FROM OR 3'-0" ABOVE ANY MECHANICAL	2
	I.E.	INVERT ELEVATION	19.	EQUIPMENT OUTSIDE AIR INTAKE. ALL VALVES, UNIONS, ETC. TO BE SAME SIZE AS CONNECTED SUPPLY LINE UNLESS OTHERWISE NOTED ON DRAWINGS. UNIONS SHALL BE PROVIDED AND INSTALLED AFTER EACH SCREW-TYPE VALVE AND PRIOR TO FOUIPMENT CONNECTIONS	
	CONN	CONNECTION		ALL VALVES, UNIONS, ETC. TO BE SAME SIZE AS CONNECTED SUPPLY LINE UNLESS OTHERWISE NOTED ON DRAWINGS.	X
	FU	FIXTURE UNITS	20.	UNIONS SHALL BE PROVIDED AND INSTALLED AFTER EACH SCREW-TYPE VALVE	Ü
	GPM	GALLONS PER MINUTE	21.	ALL UNDERGROUND METALLIC PIPE AND FITTINGS SHALL BE PROTECTED IN	
	GPH	GALLONS PER HOUR	22	ACCORDANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS.	ð
	HP	HORSEPOWER		ACCORDANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS. NO PIPING SHALL BE DIRECTLY EMBEDDED IN CONCRETE, MASONRY WALLS, OR CONCRETE FOOTINGS.	Ø
	PSI	POUNDS PER SQUARE INCH	23.	THE PLUMBING CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS FOR ALL POINTS OF CONNECTION WITH THE GENERAL CONTRACTOR AND OTHER TRADES PRIOR TO START OF WORK.	Ľ.
	AP	ACCESS PANEL		PRIOR TO START OF WORK.	
	W/	WITH	24.	CONNECTIONS ARE REQUIRED. COORDINATE ALL CONNECTIONS WITH SITE	-
	FLR	FLOOR		CONDITIONS AND SITE UTILITY CONTRACTOR/ REPRESENTATIVE.	Ņ
	CLG	CEILING	25.	ALL HORIZONTAL PIPING LINES EXTENDED AND CONNECTED TO EQUIPMENT SHALL BE RUN AT THE HIGHEST POSSIBLE ELEVATIONS AND NOT LESS THAN 6"	
	ABV	ABOVE		ABOVE THE FLOOR TO PROVIDE CLEARANCE FOR CLEANING	
	BEL	BELOW	26.	ALL CUTTING OF EXISTING PAVING, WALKS AND/OR FLOORS SHALL UTILIZE MACHINE SAW CUTTING EQUIPMENT. HOLES FOR PIPES IN CONCRETE WALLS OR	
	UG	UNDERGROUND		FLOORS SHALL UTILIZE CORE DRILLING EQUIPMENT. COORDINATE WITH	
	DN	DOWN	77	ARCHITECTURAL DETAILS FOR FLOOR CUTTING AND PATCHING.	
	CONT.	CONTINUE	<b>2</b> /.	MATERIALS, RODS AND CLAMPS AS REQUIRED FOR COORDINATION WITH WORK $ ightarrow  ightarrow$	
	TYP.	TYPICAL	20	OF OTHER TRADES.	
	FOH	FRONT OF HOUSE	20.	PIPES TO BE COORDINATED WITH THE BUILDING STRUCTURE AND THE WORK OF	
	BOH	BACK OF HOUSE AMERICAN DISABILITIES ACT		OTHER CONTRACTORS. NO WATER OR DRAIN LINES ARE PERMITTED TO BE	
	A.D.A. A.F.F.	AMERICAN DISABILITIES ACT ABOVE FINISH FLOOR	29.		
	B.F.F.	BELOW FINISH FLOOR		NECESSARY TO REROUTE PIPING FOR ACTUAL INSTALLATION OF ELECTRIC	
			30	EQUIPMENT.       Image: Constraint of the second seco	
			50.	FOR THE INSTALLATION OF PLUMBING SYSTEMS, THEY SHALL BE PATCHED TO	
		DEVICE SCHEDULE	.31	MATCH EXISTING CONSTRUCTION AND SEALED WEATHER TIGHT.	+
RACKI				WALL COLOR. ANY EXPOSED GAS PIPING IN THE KITCHEN SHALL BE PAINTED	
		ITEM/ EQUIPMENT # BACKFLOW DEVICE	32.	PLUMBING CONTRACTOR SHALL BE ON SITE AND PRESENT AT THE DATE OF	
FIXTURE	vi	<u>– <u>RPZ–1</u> – BFP–1</u>		STORE TURNOVER.	
FIXTURE I-BOX SODA SYSTEI		<u> </u>	33.	DURING THE PROGRESS OF THE WORK, MAINTAIN AN ACCURATE RECORD OF ALL CHANGES MADE IN THE PLUMBING SYSTEMS. THE RECORD DRAWING SHALL SCALE:	
FIXTURE —BOX SODA SYSTEI NG WATER SERVICE				SHOW CHANGES IN MANUFACTURER (WITH NUMBERS AND TRADE NAMES). MATERIALS, SIZES, LOCATIONS AND HOOK-UP POINTS. AS-BUILTS SHALL BE	
FIXTURE I-BOX SODA SYSTEI NG WATER SERVICE REWER(S) E MACHINE(S)		-		IMAIRNALD NUCH IN ATTAINS AND BUILDER POR BUILDER STATES	モレ
FIXTURE BOX SODA SYSTEI NG WATER SERVICE REWER(S) E MACHINE(S) KKER(S)				GIVEN TO OWNER'S CONSTRUCTION MANAGER AT COMPLETION OF JOB.	ED
FIXTURE -BOX SODA SYSTEI NG WATER SERVICE REWER(S) E MACHINE(S) KER(S) 3 CONNECTION(S)		-	34.	GIVEN TO OWNER'S CONSTRUCTION MANAGER AT COMPLETION OF JOB.	
FIXTURE -BOX SODA SYSTEI NG WATER SERVICE REWER(S) E MACHINE(S) KER(S) 3 CONNECTION(S) DISPENSER(S)	s)		34.	GIVEN TO OWNER'S CONSTRUCTION MANAGER AT COMPLETION OF JOB.         UPON COMPLETION OF JOB, THIS CONTRACTOR SHALL INSPECT ALL EXPOSED         PORTIONS OF THE PLUMBING INSTALLATION AND COMPLETELY REMOVE ALL         EXPOSED LABELS, SOIL, MARKINGS AND FOREIGN MATERIAL EXCEPT PRODUCT	ΤΝΟ
FIXTURE	S)			GIVEN TO OWNER'S CONSTRUCTION MANAGER AT COMPLETION OF JOB. UPON COMPLETION OF JOB, THIS CONTRACTOR SHALL INSPECT ALL EXPOSED PORTIONS OF THE PLUMBING INSTALLATION AND COMPLETELY REMOVE ALL	ΤΝΟ

