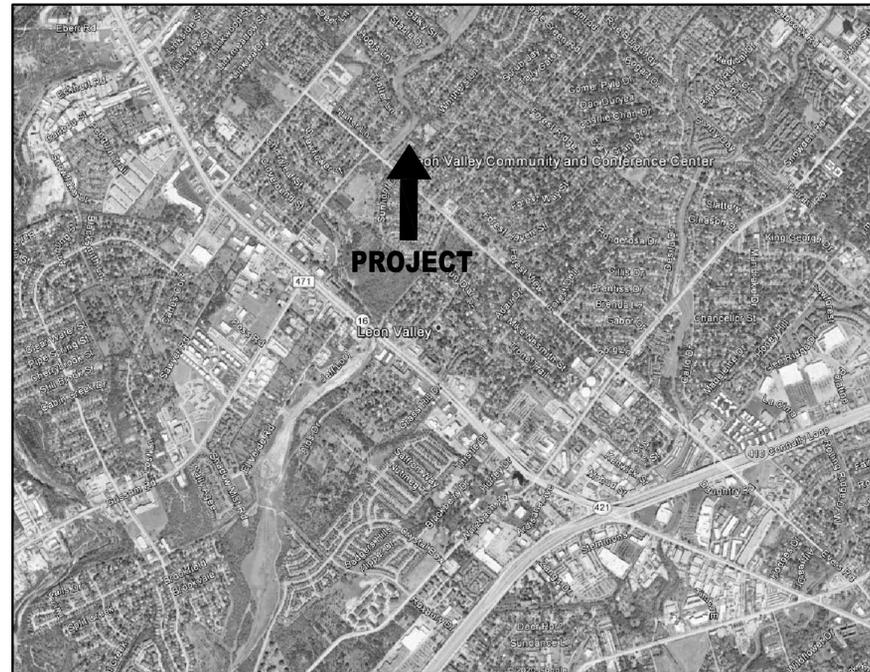


# LEON VALLEY COMMUNITY CENTER UPGRADES

## LEON VALLEY, TEXAS

### JUNE, 2020



**PROJECT LOCATION MAP**  
(6427 EVERS RD, SAN ANTONIO, TX)



SHEET INDEX	
GENERAL	
G1.1	COVER SHEET
ARCHITECTURAL	
A1.1	SITE PLAN
A1.2	FLOOR PLAN & ENLARGED PLANS
A1.3	KITCHEN EQUIPMENT PLAN & SCHEDULE
A2.1	EXTERIOR ELEVATIONS, ROOM SCHEDULE & DETAILS
A2.2	INTERIOR ELEVATIONS
MECHANICAL	
DM1.1	DEMO HVAC FLOOR PLAN
M1.1	HVAC FLOOR PLAN
M2.1	HVAC SCHEDULES
M3.1	HVAC DETAILS
M4.1	HVAC SPECIFICATIONS
M4.2	HVAC SPECIFICATIONS
PLUMBING	
P1.0	SANITARY, DRAIN, WASTE AND VENT PLAN
P1.1	DOMESTIC WATER AND GAS PLAN
P2.0	PLUMBING SCHEDULES
P2.1	PLUMBING SCHEDULES
P3.0	PLUMBING DETAILS
P3.1	PLUMBING SPECIFICATIONS
ELECTRICAL	
DE1.1	DEMO LIGHTING PLAN
DE2.1	DEMO POWER PLAN
E1.1	LIGHTING PLAN
E2.1	KITCHEN ELECTRICAL PLAN
E3.1	ELECTRICAL SCHEDULES
E4.1	ELECTRICAL SPECIFICATIONS

### SYMBOL LEGEND

(XX)	DOOR NUMBER TAG. REFERENCE DOOR SCHEDULE.
(XX)	WINDOW NUMBER TAG. REFERENCE WINDOW SCHEDULE.
(XX)	KEYED NOTE NUMBER TAG. REFERENCE APPLICABLE KEYED NOTE.
ROOM NAME (XX)	ROOM NAME & NUMBER TAG. REFERENCE ROOM FINISH SCHEDULE.
(XX)	KEYED WALL TYPE TAG. REFERENCE KEYED WALL TYPE SCHEDULE.
(XX)	REVISION NUMBER TAG. REFERENCE REVISION DESCRIPTION.
(XX.XX)	SPOT ELEVATION TAG. REFERENCE ASSOCIATED BENCH MARK.
(PX)	PHOTO NUMBER TAG. RE: PHOTO TAKEN IN DIRECTION OF ARROW.
(X/xxx)	CALLOUT FOR BUILDING SECTIONS & EXTERIOR ELEVATIONS.
(xxx) X	CALLOUT FOR INTERIOR ELEVATIONS.
(X/xxx)	CALLOUT FOR DETAIL SECTIONS.
(X/xxx)	CALLOUT FOR ENLARGED PLANS & ENLARGED DETAILS.

## PREPARED BY



801 NAVIGATION, SUITE 300  
CORPUS CHRISTI, TX 78408

TBPELS REGISTERED FIRM NO.  
ENGINEERING FIRM F-366  
SURVEYING FIRM 10126500

TBAE REGISTERED FIRM NO.  
ARCHITECTURAL FIRM BR599

PH. (361) 883-1984

WWW.LNVINC.COM

Mechanical and  
Electrical Consultants  
Firm Registration # F-02829  
5440 Old Brownsville Rd.  
Corpus Christi, TX 78417  
361 852 2342 vox  
361 852 2343 fax



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LEON VALLEY, TEXAS  
COVER SHEET

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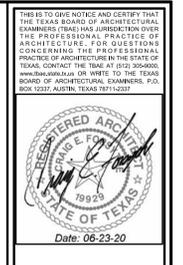


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DRAWING NO.:  
**G1.1**  
of 1  
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CHECKED BY: CEF  
APPROVED BY: CEF  
JOB NO.: 170165.310



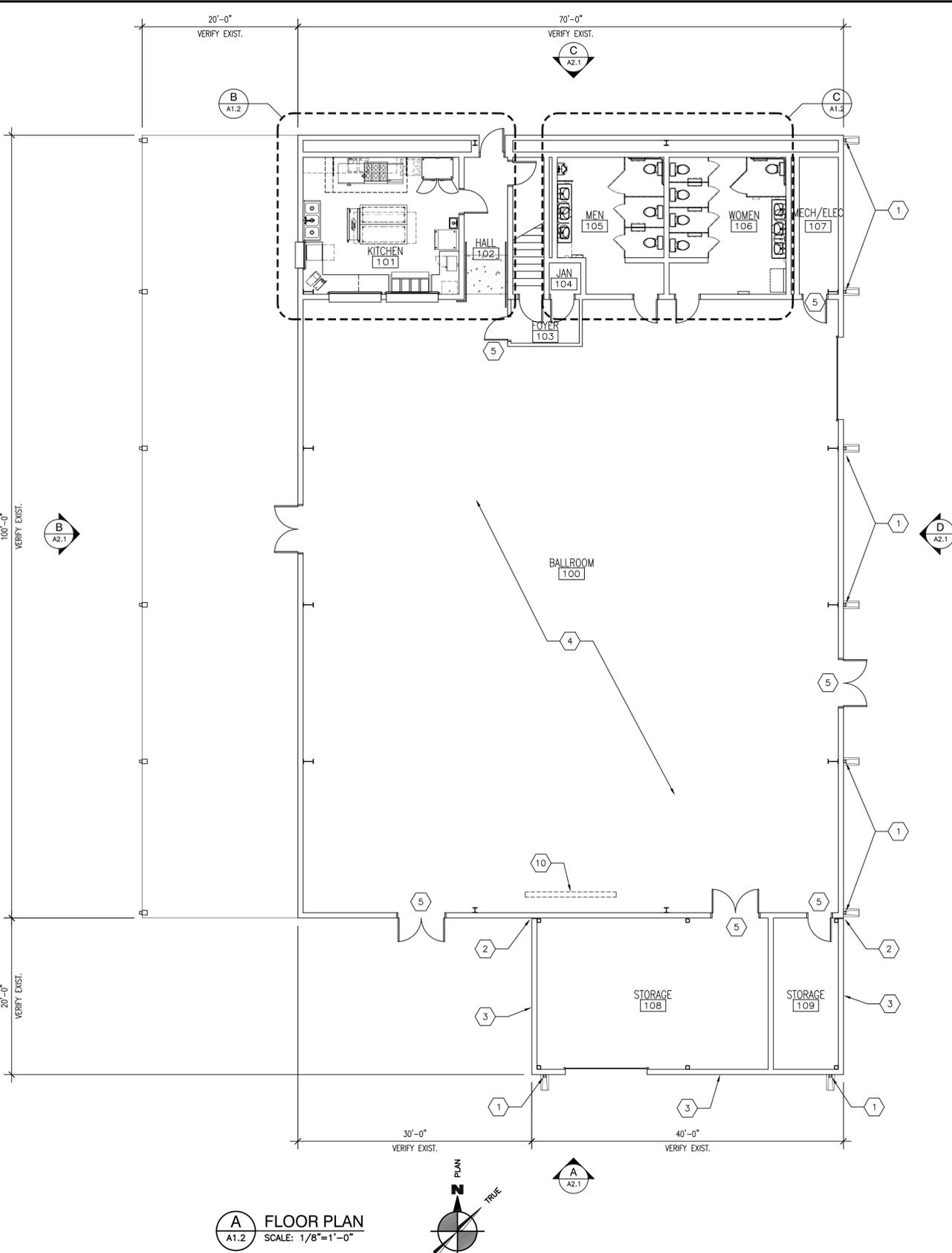


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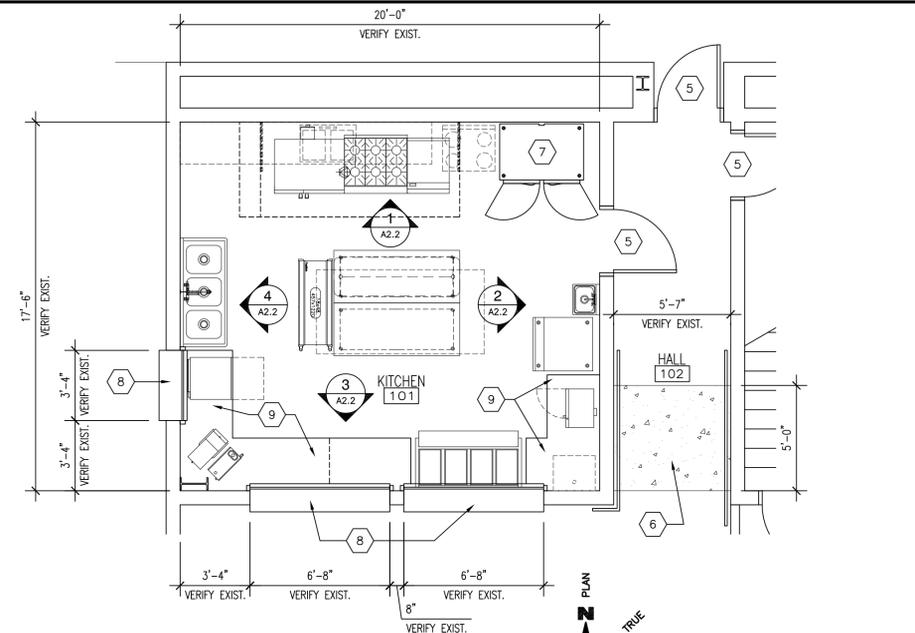
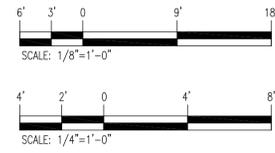
**LEON VALLEY COMMUNITY CENTER UPGRADES  
LEON VALLEY, TEXAS  
FLOOR PLAN & ENLARGED PLANS**

TIBBELS REGISTERED FIRM NO. 001147  
 ENGINEERING FIRM F-386  
 SURVEYING FIRM 10126000  
 TBAE REGISTERED FIRM NO. 00099  
 ARCHITECTURAL FIRM BR599  
 PH. (951) 985-1984  
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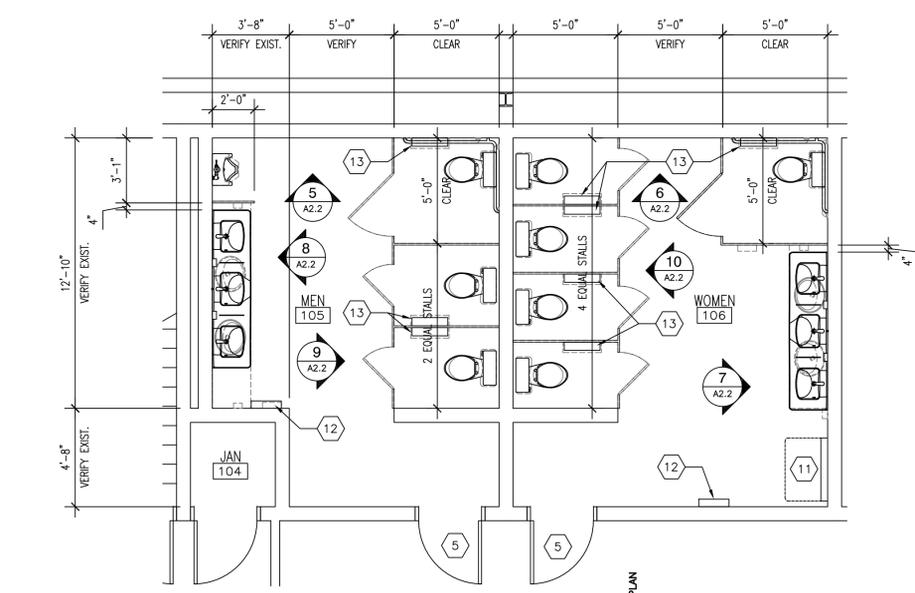
DRAWING NO.: **A1.2** of 5  
 DRAWN BY: NCT  
 CHECKED BY: CEF  
 APPROVED BY: CEF  
 JOB NO.: 170165.310



**A FLOOR PLAN**  
A1.2 SCALE: 1/8"=1'-0"



**B ENLARGED KITCHEN PLAN**  
A1.2 SCALE: 1/4"=1'-0"



**C ENLARGED RESTROOM PLANS**  
A1.2 SCALE: 1/4"=1'-0"

- GENERAL DEMOLITION NOTES**
- KITCHEN: REMOVE EXISTING MILLWORK, SINKS, OVEN, VCT FLOORING & WALL BASE. PATCH WALLS & FLOOR AS NEEDED TO PREPARE SURFACES FOR NEW FINISHES AS SCHEDULED & SPECIFIED. SEE MEP DRAWINGS FOR ADDITIONAL ITEMS TO BE REMOVED.
  - RESTROOMS: REMOVE EXISTING WATER CLOSETS (TOILETS), GRAB BARS, TOILET PARTITIONS, URINAL, MILLWORK, SINKS, TOILET PAPER DISPENSERS, PAPER TOWEL DISPENSERS, SOAP DISPENSERS, VCT FLOORING & WALL BASE. PATCH WALLS & FLOOR AS NEEDED TO PREPARE SURFACES FOR NEW FINISHES AS SCHEDULED & SPECIFIED. SEE MEP DRAWINGS FOR ADDITIONAL ITEMS TO BE REMOVED.
  - HALL: REMOVE EXISTING FLOOR PAINT & WALL BASE. PREPARE SURFACES FOR NEW FINISHES AS SCHEDULED & SPECIFIED.

MARK	DESCRIPTION
1	REMOVE & REPLACE METAL DOWNSPOUT WITH NEW METAL DOWNSPOUT TO MATCH EXISTING. INSTALL NEW CONCRETE SPLASH BLOCK. TOTAL OF EIGHT (8) DOWNSPOUTS/SPLASH BLOCKS.
2	REMOVE EXISTING SEALANT BETWEEN WALL TRANSITIONS. INSTALL NEW BACKER ROD & SEALANT. SEALANT TO MATCH COLOR OF EXISTING STUCCO. TOTAL OF TWENTY SIX (26) LINEAR FEET.
3	REMOVE & REPLACE APPROXIMATELY EIGHT HUNDRED & FIFTY (850) SQ. FT. OF EXISTING STUCCO/METAL LATH & WEATHER BARRIER WITH NEW STUCCO/METAL LATH & WEATHER BARRIER AS SPECIFIED.
4	(ADD ALTERNATE #1) PREPARE EXISTING CONCRETE FLOOR FOR 5,322 SQUARE FEET OF NEW VINYL PLANK FLOORING.
5	PAINT EXISTING DOOR AND DOOR FRAME.
6	SAW-CUT AND REMOVE EXISTING CONCRETE RAMP. ROUGHEN CONCRETE IN AREA SHOWN TO RECEIVE NEW NON-SHRINK EPOXY GROUT RAMP. POUR NEW RAMP WITH CONSISTENT SLOPE. FINISH SMOOTH TO ACCEPT NEW FLOORING AS SCHEDULED.
7	EXISTING REFRIGERATOR TO REMAIN.
8	EXISTING PLASTIC LAMINATE FINISHED ROLLING COUNTER DOOR SHELF. RE-FINISH SHELF WITH 16 GAUGE, 304 STAINLESS STEEL TOP & MONOLITHIC EDGES.
9	NEW PLASTIC LAMINATE FINISHED MILLWORK WITH 30" WIDE, 16 GAUGE, 304 STAINLESS STEEL COUNTERTOP, MONOLITHIC EDGES & MONOLITHIC BACK SPLASH. SEE REFERENCED INTERIOR ELEVATIONS.
10	NEW ELECTRICALLY OPERATED, CEILING MOUNTED, PROJECTION SCREEN AS SPECIFIED. SEE MEP FOR ADDITIONAL INFORMATION.
11	BABY CHANGING STATION TO REMAIN.
12	NEW PAPER TOWEL DISPENSER/DISPOSAL COMBINATION UNIT AS SPECIFIED.
13	NEW TOILET PAPER DISPENSER AS SPECIFIED.

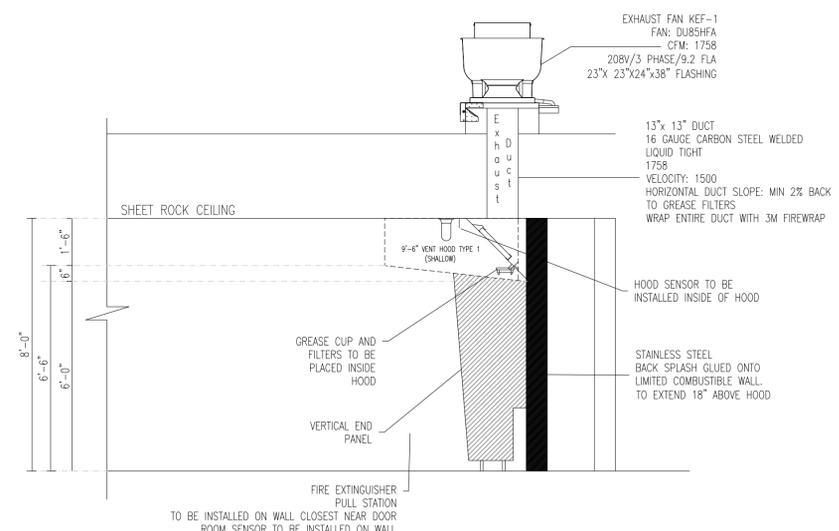
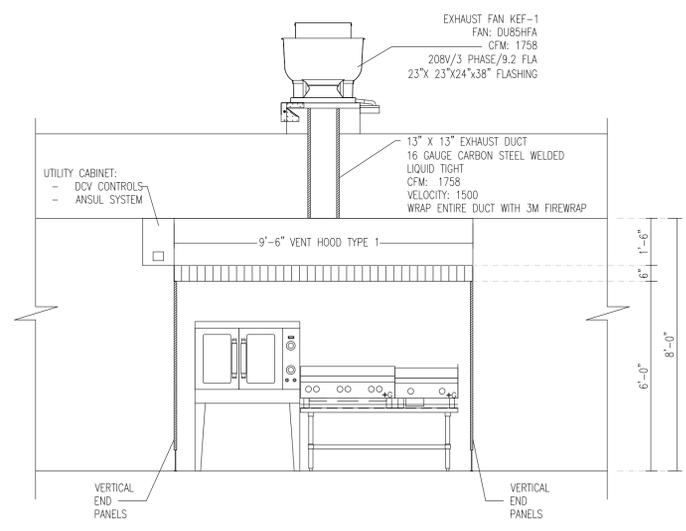
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NOTE: EQUIPMENT SCHEDULE, LAYOUT & ELEVATIONS PROVIDED BY JEAN'S RESTAURANT SUPPLY, (361) 884-9800.

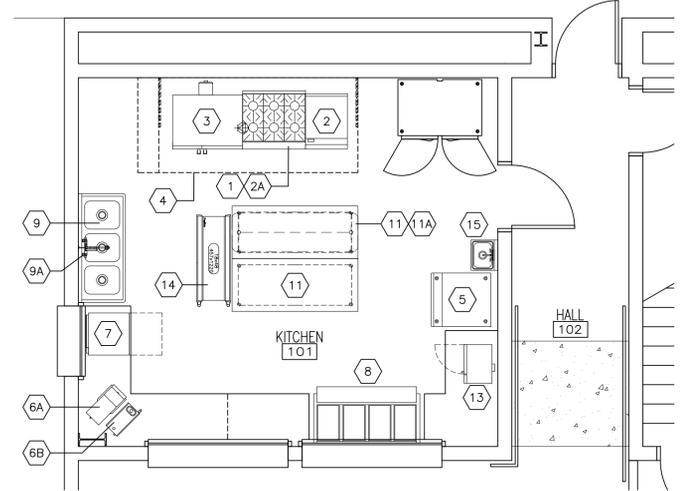
### KITCHEN EQUIPMENT SCHEDULE

Item No	Qty	Equipment Category	Manufacturer	Model Number	Amps	KW	HP	Volts	Phase	Cycle	Direct	Plug	NEMA	Cold Water Size (in)	Hot Water Size (in)	Direct Drain Size (in)	Indir. Drain Size (in)	Gas Size (in)	MBTUH
1	1	Hot Plate, Gas	Wolf Range	AHP636	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	180
1A	1	Hose, Gas	Dormont Manufacturing	1675KIT48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	1	Griddle, Gas	Wolf Range	AGM24	-	-	-	-	-	-	-	-	-	-	-	-	-	0.75	54
2A	1	Stand, Equipment	Advance Tabco	ES-305C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2B	1	Hose, Gas	Dormont Manufacturing	1675KIT48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	1	Oven, Convection, Electric	Vulcan	VC4ED	35	12.5	0.5	208	3	60	X	-	-	-	-	-	-	-	-
4	1	9'-6" Vent Hood	Captive-Aire	Exahust 1758 C.F.M.	15.0	-	-	115	1	60	X	-	-	-	-	-	-	-	-
4.1	1	Exhaust Fan KEF-1	Captive-Aire	DU85HFA	2.6	-	0.75	208	3	60	X	-	-	-	-	-	-	-	-
5	1	Ice Maker w/o Bin	Scotsman	C0530SA-32	7.8	-	-	230	1	50	X	-	-	.375	-	-	0.75	-	-
6A	1	Coffee/Tea Maker	Bunn-O-Matic	36700.0059	14.4	1.73	-	120	1	60	-	X	5-15P	0.25	-	-	-	-	-
6B	1	Coffee Maker, Automatic	Bunn-O-Matic	23001.0069	11.4	2.75	-	120/208	1	60	-	-	-	0.25	-	-	-	-	-
7	1	Washer, Undercounter, High Temp	Hobart US Foodservice	LXEH-2	30.5	6.7	0.8	120/208-240	1	60	X	-	-	0.75	-	0.75	-	-	-
8	1	Buffet/Cafeteria, Hot Food-Soup Station	Vollrath	38118	13.3	3.2	-	208-240	1	60	-	X	6-20P	-	-	-	-	-	-
9	1	Sink, NSF, 3 comp, 16 gauge	Advance Tabco	93-3-54	-	-	-	-	-	-	-	-	-	0.5	0.5	1.5	-	-	-
9A	1	Pre-Rinse Faucet, Backsplash Mount	Fisher	34436	-	-	-	-	-	-	-	-	-	0.5	0.5	-	-	-	-
11	2	Table, Work, 18 gauge, Flat Top w/ Undershelf	Advance Tabco	MSLAG-306-X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11A	1	Pot Rack, Table Mount	Advance Tabco	SCT-72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	1	Oven, Microwave	ACP, Inc.	RCS10TS	13.0	1.6	-	120	1	60	-	X	5-15	-	-	-	-	-	-
14	1	MultiStation Worktable	Metro	MS1848-FSPR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	1	Hand Sink, Wall Mount	Advance Tabco	7-PS-60-1X	-	-	-	-	-	-	-	-	-	0.5	0.5	1.5	-	-	-

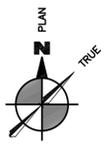
UNIT	EXHAUST AIR	SUPPLY AIR
9'-6" VENT HOOD TYPE 1	1758	-
TRANSFER AIR NEEDED		1758
TOTALS:	1758	1758



HOOD DETAIL ELEVATIONS  
3/8"=1'-0"

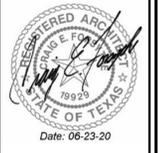


A1.3 KITCHEN EQUIPMENT PLAN  
SCALE: 1/4"=1'-0"



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

THESE DRAWINGS AND CERTIFY THAT THE TEXAS BOARD OF ARCHITECTURAL EXAMINERS (TBAE) HAS REVIEWED THESE DRAWINGS FOR COMPLIANCE WITH THE PROFESSIONAL PRACTICE OF ARCHITECTURE. FOR QUESTIONS CONCERNING THE PROFESSIONAL PRACTICE OF ARCHITECTURE IN THE STATE OF TEXAS, CONTACT THE TBAE AT (512) 306-6000. WWW.TBAE-ARCHITEX.COM OR WRITE TO THE TEXAS BOARD OF ARCHITECTURAL EXAMINERS, P.O. BOX 5037, AUSTIN, TEXAS 78762-0377



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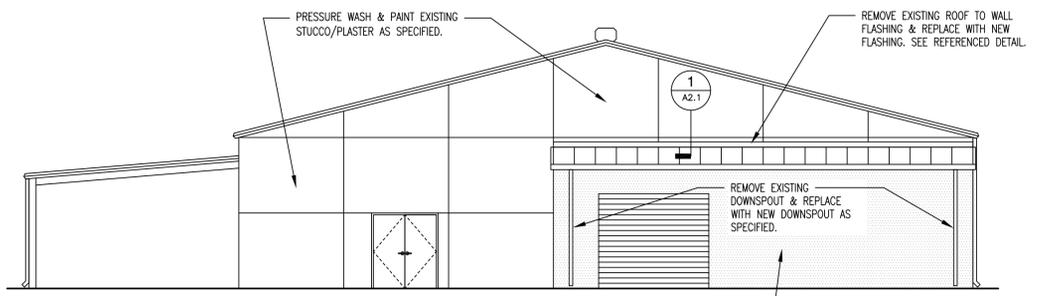
LEON VALLEY COMMUNITY CENTER UPGRADES  
LEON VALLEY, TEXAS  
KITCHEN EQUIPMENT PLAN & SCHEDULE

TBPELS REGISTERED FIRM NO. 0000000000  
ENGINEERING FIRM F-386  
SURVEYING FIRM T-10000  
TBAE REGISTERED FIRM NO. 0000000000  
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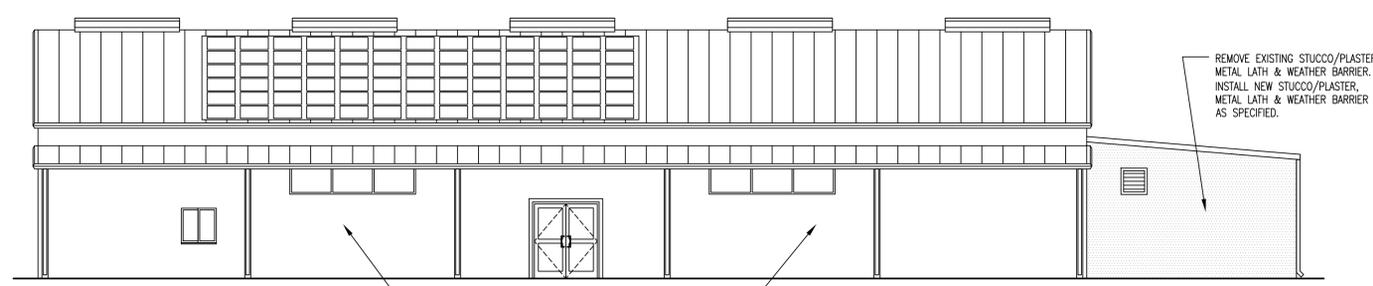
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of 5  
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APPROVED BY: CEF  
JOB NO.: 170165.310

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Issued: June 23, 2020, 10:09am

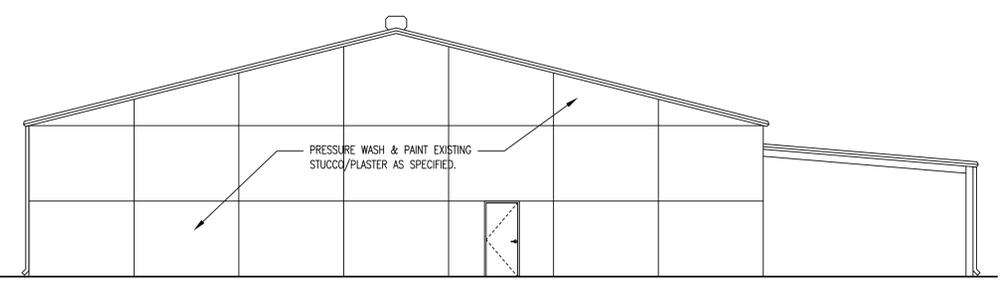
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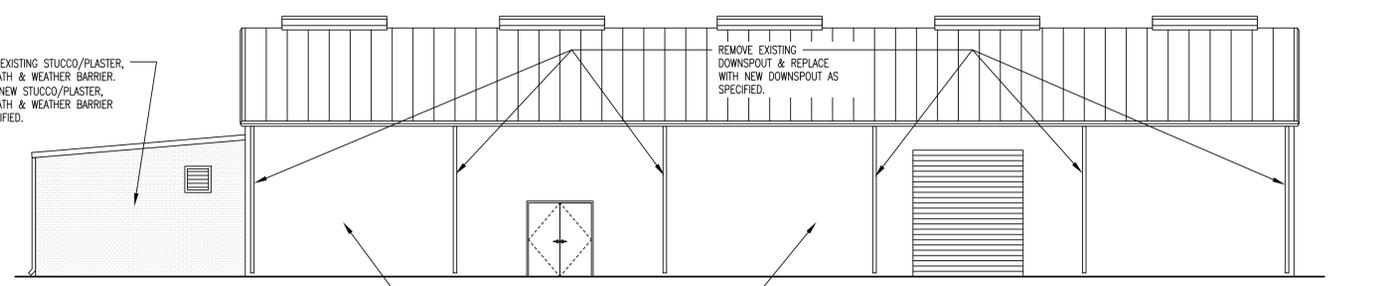
**A SOUTH EXTERIOR ELEVATION**  
A2.1 SCALE: 1/8"=1'-0"



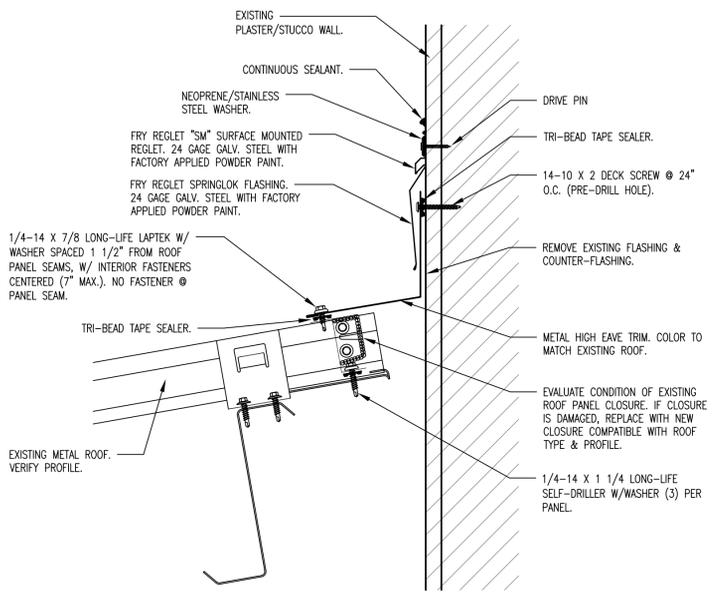
**B WEST EXTERIOR ELEVATION**  
A2.1 SCALE: 1/8"=1'-0"



**C NORTH EXTERIOR ELEVATION**  
A2.1 SCALE: 1/8"=1'-0"



**D EAST EXTERIOR ELEVATION**  
A2.1 SCALE: 1/8"=1'-0"



**1 ROOF FLASHING DETAIL**  
A2.1 SCALE: 3"=1'-0"

RM. NO.	ROOM NAME	FLOOR		BASE	AREA	WALLS								CEILING			NOTES
		MATL	FIN			NORTH		SOUTH		EAST		WEST		MATL	FIN	HEIGHT	
						EXIST.	PLASTER	EXIST.	PLASTER	EXIST.	PLASTER	EXIST.	PLASTER				
100	BALLROOM	EXIST. CONCRETE	N/A	RESILIENT	5,321.39 SF	EXIST. CMU & PLASTER	PAINT	EXIST. PLASTER	PAINT	EXIST. PLASTER	PAINT	EXIST. PLASTER	PAINT	EXIST. SUSP. ACOUST.	N/A	13'-0"	ADD ALTERNATE #1 - VINYL PLANK FLOORING.
101	KITCHEN	EXIST. CONCRETE	VINYL PLANK	RESILIENT	350.00 SF	EXIST. CMU	PAINT	EXIST. CMU	PAINT	EXIST. CMU	PAINT	EXIST. PLASTER	PAINT	EXIST. SHEETROCK	PAINT	8'-0"	
102	HALL	EXIST. CONCRETE	VINYL PLANK	RESILIENT	101.43 SF	EXIST. PLASTER	PAINT	EXIST. CMU	PAINT	EXIST. CMU	PAINT	EXIST. PLASTER	PAINT	EXIST. SHEETROCK	PAINT	8'-0"	
103	FOYER	EXIST. CONCRETE	VINYL PLANK	RESILIENT	48.85 SF	EXIST. CMU	PAINT	EXIST. PLASTER	PAINT	EXIST. PLASTER	PAINT	EXIST. PLASTER	PAINT	EXIST. SHEETROCK	PAINT	8'-0"	
104	JAN	EXIST. CONCRETE	N/A		16.17 SF											N/A	
105	MEN	EXIST. CONCRETE	VINYL PLANK	RESILIENT	218.72 SF	EXIST. CMU	PAINT	EXIST. CMU	PAINT	EXIST. CMU & PLASTER	PAINT	EXIST. CMU & PLASTER	PAINT	EXIST. SHEETROCK	PAINT	7'-9"	
106	WOMEN	EXIST. CONCRETE	VINYL PLANK	RESILIENT	259.17 SF	EXIST. CMU	PAINT	EXIST. CMU	PAINT	EXIST. PLASTER	PAINT	EXIST. CMU & PLASTER	PAINT	EXIST. SHEETROCK	PAINT	7'-9"	
107	MECH/ELEC	EXIST. CONCRETE	N/A		87.50 SF											N/A	
108	STORAGE	EXIST. CONCRETE	N/A		573.56 SF											N/A	
109	STORAGE	EXIST. CONCRETE	N/A		161.11 SF											N/A	

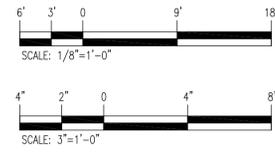
ISSUES / REVISIONS	NO.	DATE	DESCRIPTION	BY

**LEON VALLEY COMMUNITY CENTER UPGRADES**  
**LEON VALLEY, TEXAS**  
**EXTERIOR ELEVATIONS, ROOM SCHEDULE & DETAILS**

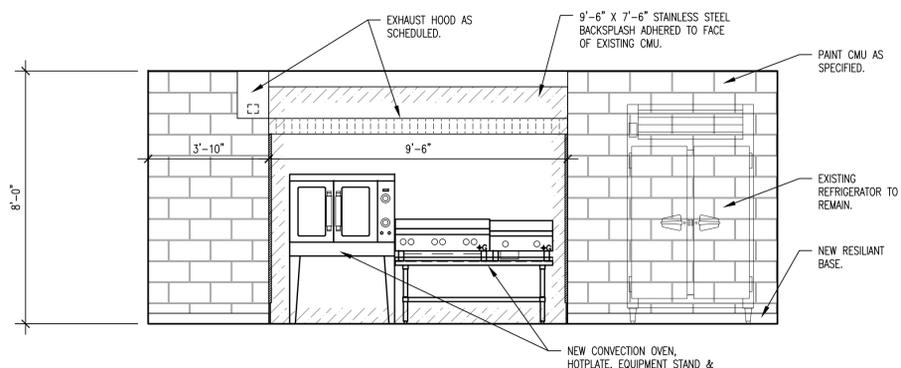
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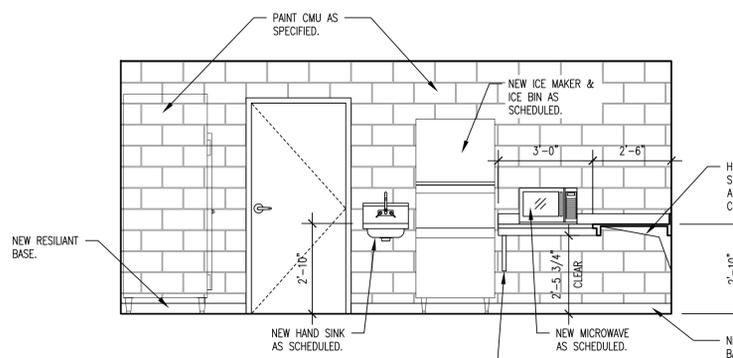
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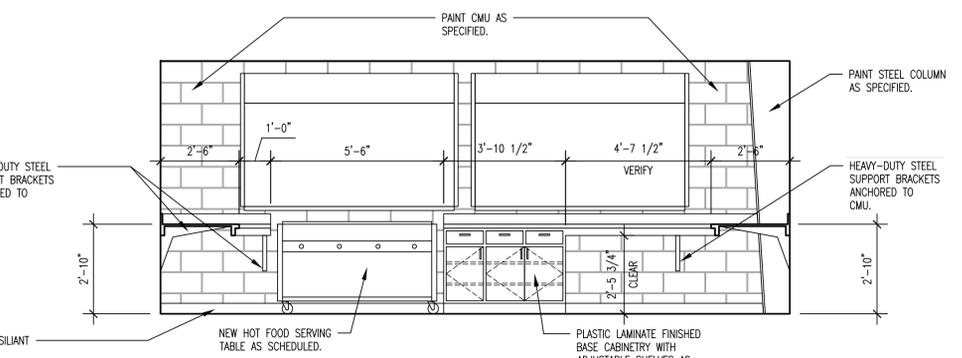
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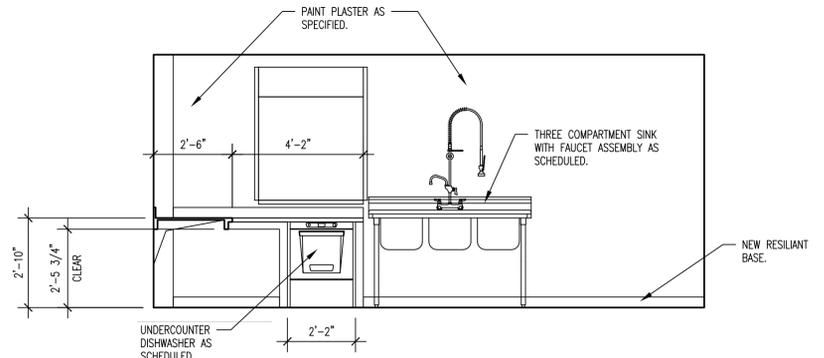
**1 KITCHEN ELEVATION**  
A2.2 SCALE: 3/8"=1'-0"



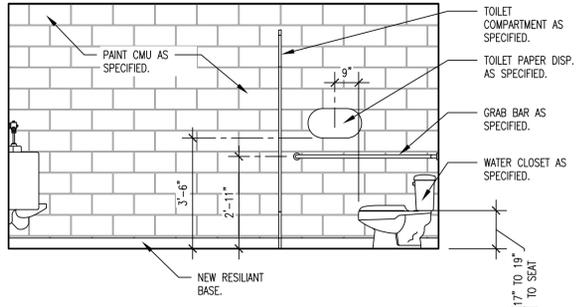
**2 KITCHEN ELEVATION**  
A2.2 SCALE: 3/8"=1'-0"



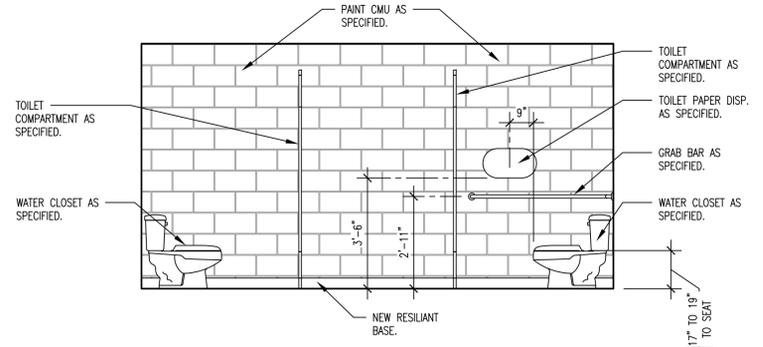
**3 KITCHEN ELEVATION**  
A2.2 SCALE: 3/8"=1'-0"



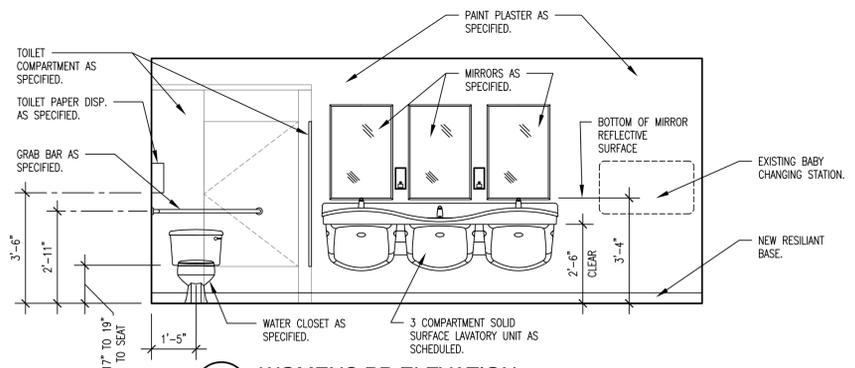
**4 KITCHEN ELEVATION**  
A2.2 SCALE: 3/8"=1'-0"



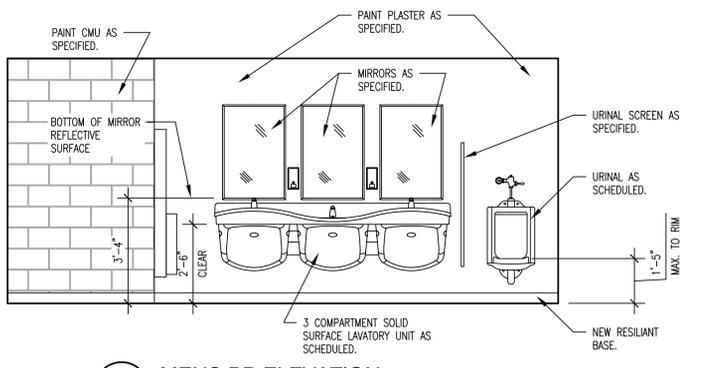
**5 MENS RR ELEVATION**  
A2.2 SCALE: 3/8"=1'-0"



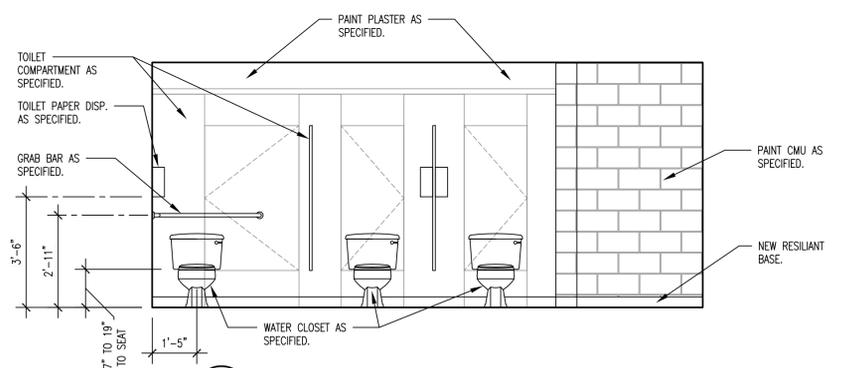
**6 WOMENS RR ELEVATION**  
A2.2 SCALE: 3/8"=1'-0"



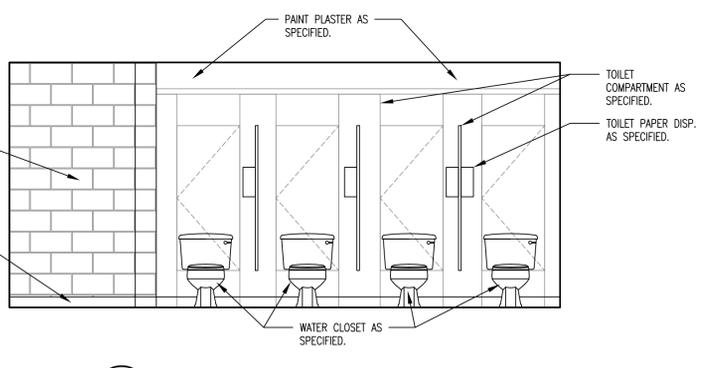
**7 WOMENS RR ELEVATION**  
A2.2 SCALE: 3/8"=1'-0"



**8 MENS RR ELEVATION**  
A2.2 SCALE: 3/8"=1'-0"



**9 WOMENS RR ELEVATION**  
A2.2 SCALE: 3/8"=1'-0"



**10 MENS RR ELEVATION**  
A2.2 SCALE: 3/8"=1'-0"



ISSUES / REVISIONS	NO.	DATE	DESCRIPTION	BY

**LEON VALLEY COMMUNITY CENTER UPGRADES  
LEON VALLEY, TEXAS  
EXTERIOR ELEVATIONS & DETAILS**

**LNV**  
an Ardurra Company  
801 NAVIGATION, SUITE 500  
CORPUS CHRISTI, TX 78408  
PH: (361) 985-1984  
WWW.LNVINC.COM

TIBELTS REGISTERED FIRM NO. 10000  
ENGINEERING FIRM F-386  
SURVEYING FIRM T-102600  
TBAE REGISTERED FIRM NO. 10000  
ARCHITECTURAL FIRM BR599

DRAWING NO.: **A2.2** of 5  
DRAWN BY: NCT  
CHECKED BY: CEF  
APPROVED BY: CEF  
JOB NO.: 170165.310

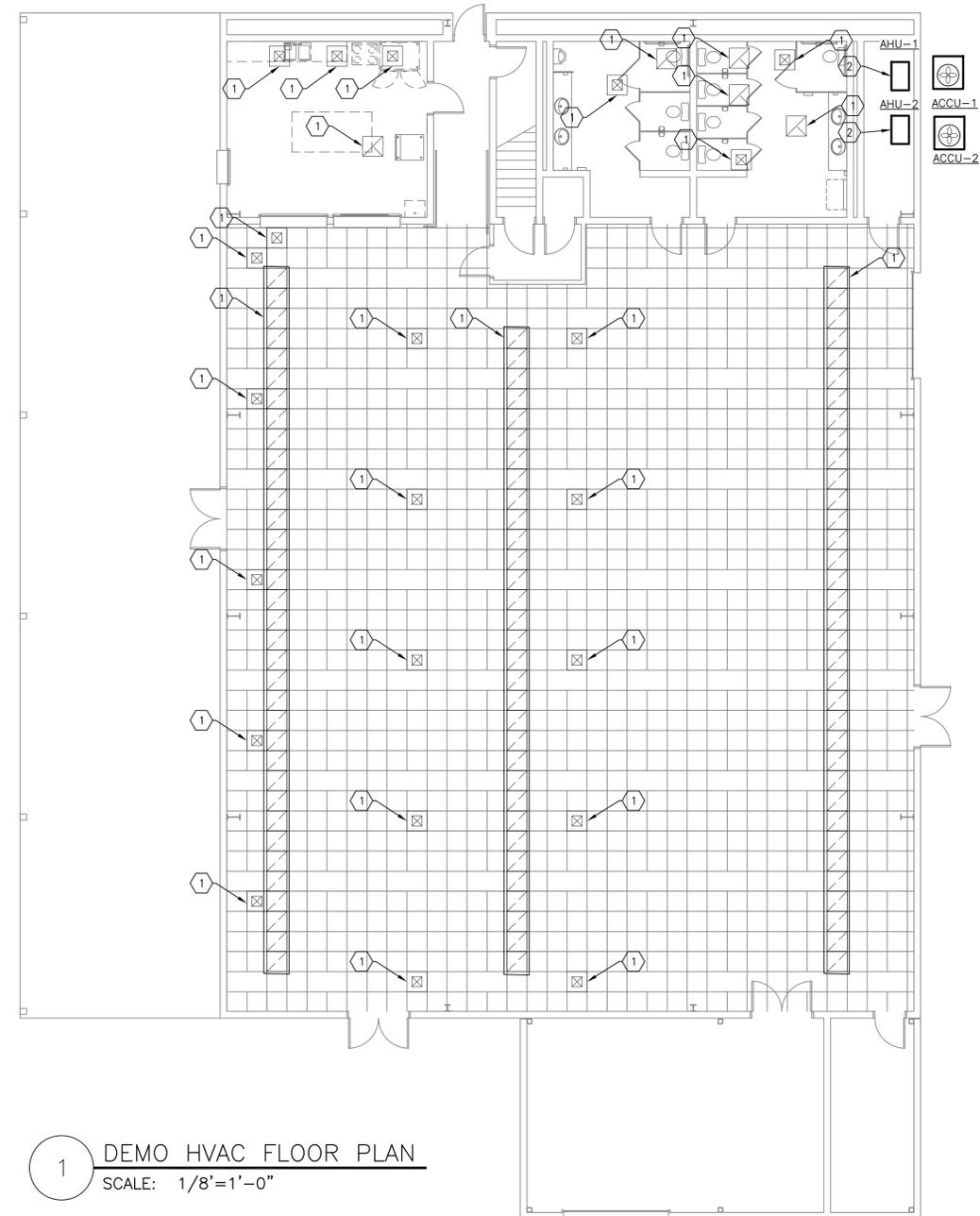
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Printed: June 23, 2020, 3:06pm

2/20/2011 11:52:00 AM  
Wednesday, June 22, 2011, 10:17pm

Mechanical and  
Electrical Consultants  
Firm Registration # F-2629  
Professional Seal  
Corpus Christi, TX 78411  
361 852 2342 ext.  
361 852 2343 fax



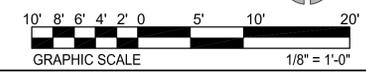
DATE: 06/24/20



1 DEMO HVAC FLOOR PLAN  
SCALE: 1/8"=1'-0"

HVAC KEYED NOTES:

- 1 DEMOLITION AIR DEVICE(S) AND FLEX DUCT TO MAIN DUCTWORK. PATCH DUCTWORK WHERE POSSIBLE. FIELD VERIFY PRIOR TO COMMENCEMENT OF WORK. REPORT ANY DISCREPANCIES.
- 2 DEMOLITION FOR REPLACEMENT EQUIPMENT. DO NOT DEMOLITION CONNECTED DUCTWORK COMPLETELY. DEMOLITION ONLY NECESSARY PORTIONS OF DUCTWORK FOR UNIT REPLACEMENT. FIELD VERIFY LOCATION OF EXISTING EQUIPMENT AND REPORT LOCATION PRIOR TO DEMOLITION. REPORT ANY ISSUES PRIOR TO COMMENCEMENT OF WORK.



DATE	NO.	DESCRIPTION	BY

LEON VALLEY COMMUNITY CENTER UPGRADES  
LEON VALLEY, TEXAS  
DEMO HVAC FLOOR PLAN

IBEW'S REGISTERED FIRM, INC.  
10000 W. LOOP WEST, SUITE 500  
CORPUS CHRISTI, TEXAS 78409  
PH. (361) 885-1884  
WWW.IBFW.COM

IBEW'S REGISTERED FIRM, INC.  
an Adarra Company  
601 NAVARRO, SUITE 500  
CORPUS CHRISTI, TX 78408  
WWW.IBFW.COM

DRAWING NO.:  
**DM1.1**  
1 of 6

DRAWN BY: CZ  
CHECKED BY: JW  
APPROVED BY: JW  
JOB NO.: 20111

ISSUES / REVISIONS	NO.	DATE	DESCRIPTION	BY

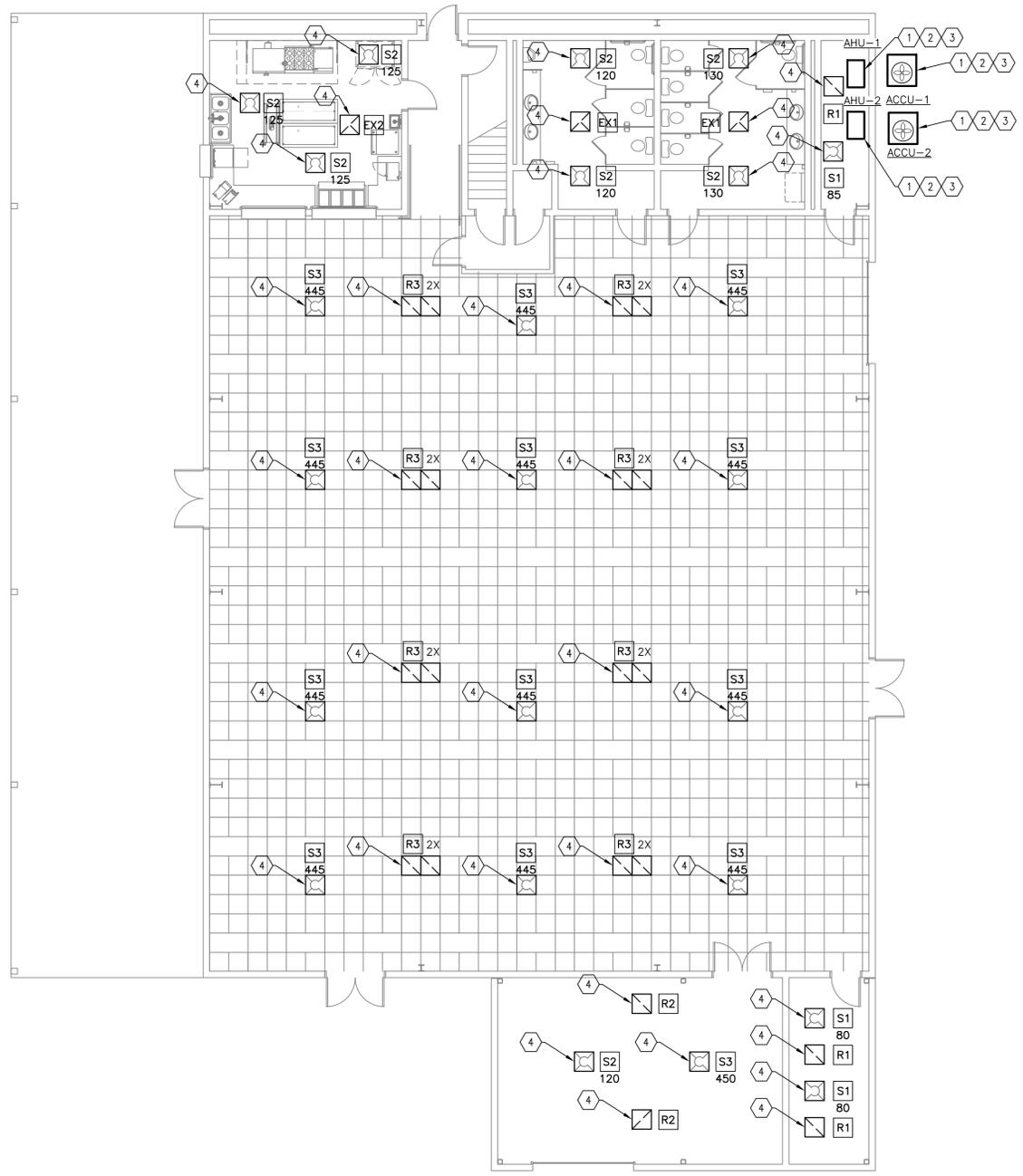
**LEON VALLEY COMMUNITY CENTER UPGRADES  
 LEON VALLEY, TEXAS  
 HVAC FLOOR PLAN**

LEON VALLEY COMMUNITY CENTER UPGRADES  
 LEON VALLEY, TEXAS  
 HVAC FLOOR PLAN

LEON VALLEY COMMUNITY CENTER UPGRADES  
 LEON VALLEY, TEXAS  
 HVAC FLOOR PLAN

LEON VALLEY COMMUNITY CENTER UPGRADES  
 LEON VALLEY, TEXAS  
 HVAC FLOOR PLAN

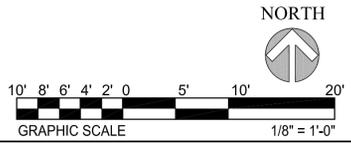
DRAWING NO.: **M1.1**  
 2 of 6  
 DRAWN BY: CZ  
 CHECKED BY: JW  
 APPROVED BY: JW  
 JOB NO.: 20111



**HVAC KEYED NOTES:**

- 1 PROVIDE AIR HANDLING UNIT. INSTALL AIR HANDLING UNIT HIGH ENOUGH TO ALLOW CONDENSATE P-TRAP TO BE INSTALLED. FIELD VERIFY EXACT FINAL LOCATION OF AHU INSTALLATION PRIOR TO PURCHASE OF AIR HANDLING UNIT AND SUPPORTS. PROVIDE RETURN AIR AND OUTSIDE AIR DAMPER FOR BALANCING. PROVIDE MCDANIEL METALS ACCOMMODATOR OR EQUAL FILTER HOUSING BOX; INSTALL FOR EASE OF REMOVAL OF FILTER. PROVIDE THERMOSTAT WHERE INDICATED. PROVIDE CONTROL WIRING. FURNISH A COMPLETE FUNCTIONAL SYSTEM. VERIFY LOCATION OF DUCT PENETRATION THROUGH CEILING WITH ELECTRICAL CONTRACTOR FOR LIGHT INSTALLATION COORDINATION. PROVIDE CONDENSATE DRAIN LINE, INSULATION WITH INSULATION CONTINUOUS THROUGHOUT SUPPORTS, AND ROUTE AS INDICATED. FIELD VERIFY ROUTING PRIOR TO INSTALLATION. PROVIDE AUXILIARY CONDENSATE DRAIN. PROVIDE WATER DETECTION SWITCH TO TURN UNIT OFF ON DETECTION OF WATER IN AUXILIARY DRAIN PAN.
- 2 PROVIDE AIR COOLED CONDENSING UNIT. PROVIDE REFRIGERANT LINES, INSULATION, AND SUPPORTS. PROVIDE COIL COATING ON CONDENSER COILS AND HAIL GUARDS. PROVIDE HOUSEKEEPING PAD. INSTALL UNITS TO CONFORM TO TEXAS WINDSTORM INSURANCE AGENCY REQUIREMENTS. FIELD VERIFY ROUTING OF REFRIGERANT LINES. REFRIGERANT LINE INSULATION SHALL BE CONTINUOUS THROUGHOUT SUPPORTS. COORDINATE WITH EQUIPMENT SUPPLIER FOR FINAL SIZE OF REFRIGERANT LINES AND ALL REQUIRED ACCESSORIES. FURNISH A COMPLETE, FUNCTIONAL SYSTEM.
- 3 PROVIDE GALVANIZED STEEL DUCTWORK AND SUPPORTS. FIELD VERIFY ROUTING PRIOR TO DUCTWORK FABRICATION. PROVIDE DUCT INSULATION. DUCT INSULATION SHALL BE CONTINUOUS THROUGHOUT DUCTWORK SUPPORTS.
- 4 PROVIDE NEW AIR DEVICE. RELOCATE AIR DEVICE TO SHOWN LOCATION. CONNECT NEW AIR DEVICES TO EXISTING MAIN DUCTWORK. FIELD VERIFY PRIOR TO COMMENCEMENT OF WORK. REPORT ANY DISCREPANCIES.

**1 NEW HVAC FLOOR PLAN**  
 SCALE: 1/8" = 1'-0"





DATE: 06/24/20

ISSUES / REVISIONS

NO.	DATE	DESCRIPTION

### AIR HANDLING UNIT SCHEDULE

MARK	FAN					COOLING COIL					GAS-FIRED DUCT HEATER			PHYSICAL PROPERTIES				FILTER		MFG & MODEL NO.	NOTES		
	TOTAL CFM	O/A CFM	ESP (IN)	FAN HP	VOLTAGE/PHASE	ROWS	FINS	FACE AREA (SQFT)	EAT	LAT	TOTAL COOLING (MBTU)	SENSIBLE COOLING (MBTU)	INPUT (MBTU)	OUTPUT (MBTU)	EAT/LAT DB	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	WEIGHT (LBS)			SIZE/THICKNESS (IN)	NUMBER
									DB/WB	DB/WB													
AHU-1	8000	900	0.40	5	208/3	4	15	16.5	77.6/64.2	55.0/54.0	222.6	187.4	225	180	69.5/85.3	77	63	39	545	20X25X1	6	RUUD RGH240ZK	ALL APPLY
AHU-2	8000	900	0.40	5	208/3	4	15	16.5	77.6/64.2	55.0/54.0	222.6	187.4	225	180	69.5/85.3	77	63	39	545	20X25X1	6	RUUD RGH240ZK	ALL APPLY

- NOTES:**
- INSTALL UNIT IN THE VERTICAL POSITION.
  - INSTALL UNIT IN THE HORIZONTAL POSITION.
  - DOUBLE WALLED, FORMED CABINET SYSTEM.
  - COOLING COIL WITH HARD SHUTOFF NON-BLEED TXV SUITABLE FOR USE WITH R-410A REFRIGERANT.
  - PVC IAQ DRAIN PAN.
  - INSULATED CASING WITH MINIMUM R=4.2 INSULATION.
  - DOOR SEALS WITH THERMAL BREAKS.
  - PROVIDE SERVICE ACCESS DOORS WITH AIR TIGHT SEAL.
  - PROVIDE INTEGRAL FACTORY INSTALLED AND WIRED CONTROLS: LOW VOLTAGE TRANSFORMER, CONTROL WIRING TERMINAL STRIP AND HEAT CONTROLS.
  - FOR VERTICAL AHU MOUNTING, PROVIDE MCDANIELS METALS LABOR SAVER FILTER HOUSING WITH FILTER RACK AND RETURN OPENING.
  - FOR HORIZONTAL AHU MOUNTING, PROVIDE MCDANIELS METALS RETURN AIR FILTER IN RETURN AIR DUCT DOWNSTREAM OF OUTSIDE AIR INTAKE TAP IN ORDER TO FILTER BOTH THE RETURN AND OUTSIDE AIR INTAKE WITH A SINGLE, CHANGEABLE FILTER.
  - MAINTAIN MANUFACTURER'S RECOMMENDED DISTANCE FOR MAINTENANCE AND SERVICE.
  - THREE PHASE POWER TO HEATER WITH SINGLE PHASE POWER TO EVAPORATOR FAN MOTOR. PROVIDE MANUFACTURER'S RECOMMENDED TRANSFORMER. PROVIDE WIRING BETWEEN HEATER AND EVAPORATOR FAN MOTOR. COORDINATE WITH ELECTRICAL DIVISION FOR POWER.
  - INSTALL UNIT WITH ENOUGH ELEVATION TO ALLOW FOR P-TRAP INSTALLATION AND FOR PROPER CONDENSATE DRAIN FLOW.
  - PROVIDE GAS-FIRED DUCT FURNACE, MODEL No. QVED-225. CONNECT EXISTING FLUE TO NEW DUCT FURNACE. CONNECT CONCENTRIC VENT ACCORDINGLY. FIELD VERIFY LOCATION OF FLUE AND CONCENTRIC VENT PRIOR TO COMMENCEMENT OF WORK. REPORT ANY DISCREPANCIES.
  - PROVIDE SMOKE DETECTORS IN SUPPLY AND RETURN AIR DUCTWORK. COORDINATE WITH ELECTRICAL CONTRACTOR FOR POWER.

### AIR COOLED CONDENSING UNIT SCHEDULE

MARK	SERVES	AMBIENT (°F)	CONDENSING CAPACITY	EFFICIENCY (EER)	PHYSICAL PROPERTIES				REFRIGERANT LINES			ELECTRICAL						MFG & MODEL NO.	
					WEIGHT (LBS)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	TYPE	NUMBER	LIQUID (ø IN)	SUCTION (ø IN)	VOLTAGE/PHASE /HERTZ	COMP RLA	FAN NUMBER	FAN FLA	MCA		MOCB
ACCU-1	AHU-1	98.1	20 TON	10.0	952	88	39	45	R-410A	1	7/8	1 5/8	208/3/60	33.3	3	7.2	83	110	RHEEM RAWL240CAZ
ACCU-2	AHU-2	98.1	20 TON	10.0	952	88	39	45	R-410A	1	7/8	1 5/8	208/3/60	33.3	3	7.2	83	110	RHEEM RAWL240CAZ

- NOTES:** (APPLIES TO ALL UNITS)
- PROVIDE FACTORY RECOMMENDED COIL COATING AND APPLICATION METHOD ON CONDENSING UNIT COIL.
  - PROVIDE HARD-START KITS AS REQUIRED BY EQUIPMENT MANUFACTURER.
  - REFRIGERANT PIPE SIZES SHOWN ARE FOR REFERENCE PURPOSES ONLY. CONFIRM EXACT SIZES WITH MANUFACTURER AND ADJUST AS NECESSARY. COMPLETE REFRIGERANT PIPING INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  - PROVIDE STRAINER/DRYER (CAPSULE TYPE) AND SIGHT GLASS AT EACH CONDENSING UNIT. SIGHT GLASS INSTALLED OUTDOORS MUST BE CONSTRUCTED OF COPPER, BRASS, OR OTHER NON-FERROUS MATERIAL.
  - PROVIDE TIME DELAY KIT TO PREVENT SHORT CYLING OF CONDENSING UNIT.
  - PROVIDE LOW/HIGH PRESSURE SWITCHES: MANUAL RESET.
  - PROVIDE WITH CONDENSER FAN LOW AMBIENT FAN CONTROL.
  - PROVIDE COMPRESSOR CRANK CASE HEATER.
  - MAINTAIN MANUFACTURER'S RECOMMENDED DISTANCE FOR MAINTENANCE.
  - PROVIDE CONCRETE MAINTENANCE PAD AND HAIL GUARD.
  - PROVIDE 3/8" RIBBED NEOPRENE ISOLATION PADS UNDER CONDENSING UNIT FEET (KORFUND OR EQUAL).

### AIR DEVICES SCHEDULE

MARK	NECK SIZE	SERVICE	MOUNTING	DAMPER	MFG. & MODEL	REMARKS
S1	6"ø	SUPPLY	LAY-IN	IN DUCT	TITUS OMNI-AA	24"X24" MODULE SIZE, ALUMINUM, WHITE
S2	8"ø	SUPPLY	LAY-IN	IN DUCT	TITUS OMNI-AA	24"X24" MODULE SIZE, ALUMINUM, WHITE
S3	12"ø	SUPPLY	LAY-IN	IN DUCT	TITUS OMNI-AA	24"X24" MODULE SIZE, ALUMINUM, WHITE
R1	6"ø	RETURN	LAY-IN	IN DUCT	TITUS PAR-AA	ALUMINUM, 12"X12" PANEL, WHITE.
R2	8X8	RETURN	LAY-IN	IN DUCT	TITUS PAR-AA	ALUMINUM, 24"X24" PANEL, WHITE.
R3	16"ø	RETURN	LAY-IN	IN DUCT	TITUS PAR-AA	ALUMINUM, 24"X24" PANEL, WHITE.
E1	12X10	EXHAUST	LAY-IN	IN DUCT	TITUS 350FL	ALUMINUM, SIDEWALL INSTALLATION, WHITE. 35' DEFLECTION, 3/4" BLADE SPACING.
E1	14X14	EXHAUST	LAY-IN	IN DUCT	TITUS 350FL	ALUMINUM, SIDEWALL INSTALLATION, WHITE. 35' DEFLECTION, 3/4" BLADE SPACING.

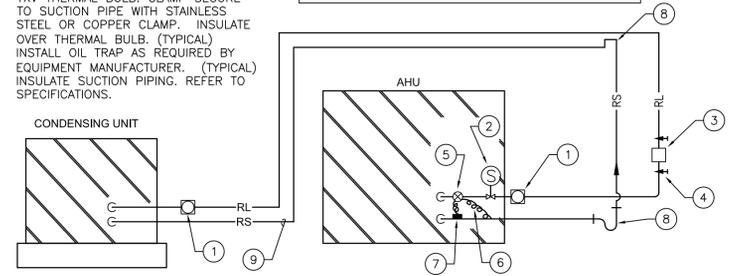
- NOTES:** APPLIES TO ALL UNITS
- PROVIDE INSULATION BLANKET ON REAR OF ALL AIR DEVICES.
  - WHEN NOTED, PROVIDE ADJUSTABLE AIR VOLUME CONTROL DAMPER ON AIR DEVICE.
  - CONTRACTOR IS RESPONSIBLE TO PROVIDE AIR DEVICE FRAME AND MOUNTING SYSTEM TO MATCH ARCHITECTURAL CEILING TYPES. COORDINATE WITH ARCHITECTURAL DRAWINGS. FIELD VERIFY FINAL AIR DEVICE LOCATION WITH ARCHITECTURAL CEILING PLAN PRIOR TO PURCHASE OF AIR DEVICE.
  - PROVIDE SQUARE TO ROUND DUCT TRANSITION TO AIR DEVICES AS REQUIRED FOR EACH AIR DEVICE APPLICATION.
  - COLOR WHITE ON ALL AIR DEVICES. CONFIRM AIR DEVICE COLOR WITH ARCHITECT PRIOR TO PURCHASE. FIELD VERIFY ROUTING OF FLEX DUCT. DO NOT CRIMP DUCT.
  - ON SURFACE MOUNTED FRAMES, PROVIDE FOAM GASKET AND CONCEALED FRAME MOUNTING. NO SCREWS SHALL BE VISIBLE IN FACE OF FRAME.
  - ON CEILING SURFACE MOUNTED FRAMES, PROVIDE RAPID MOUNT FRAME.
  - ALL AIR DEVICES SHALL BE ALUMINUM CONSTRUCTION.
  - PROVIDE SQUARE TO ROUND DUCT TRANSITION AS REQUIRED TO CONNECT AIR DEVICES TO DUCTWORK.

LEON VALLEY COMMUNITY CENTER UPGRADES  
 LEON VALLEY, TEXAS  
 HVAC SCHEDULES

**KEYED NOTES:**

1. COMBINATION SIGHT GLASS AND MOISTURE INDICATOR.
2. ELECTRIC SOLENOID VALVE AS REQUIRED BY EQUIPMENT MANUFACTURER.
3. PERMANENT TYPE REFRIGERANT FILTER DRYER. LOCATE INDOORS. (TYPICAL)
4. REFRIGERANT SHUT-OFF VALVE. (TYPICAL)
5. THERMAL EXPANSION VALVE. (TYPICAL)
6. TXV EQUALIZER PIPE. (TYPICAL)
7. TXV THERMAL BULB. CLAMP SECURE TO SUCTION PIPE WITH STAINLESS STEEL OR COPPER CLAMP. INSULATE OVER THERMAL BULB. (TYPICAL)
8. INSTALL OIL TRAP AS REQUIRED BY EQUIPMENT MANUFACTURER. (TYPICAL)
9. INSULATE SUCTION PIPING. REFER TO SPECIFICATIONS.

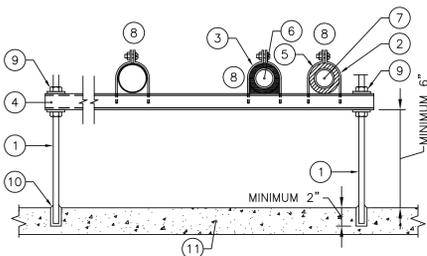
**NOTES:**  
 1. SIZE REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE DOUBLE SUCTION RISER AS REQUIRED BY MANUFACTURER.  
 2. SIZE REFRIGERANT SUCTION PIPE RISER FOR PROPER REFRIGERANT VELOCITY UNDER PART LOAD CONDITION FOR OIL RETURN PURPOSES. CONSULT WITH EQUIPMENT MANUFACTURER.



**1 REFRIGERANT LINES**  
 SCALE: N.T.S.

**KEYED NOTES:**

1. 3/8" DIA. GALVANIZED STEEL THREADED ROD DOWN TO WITHIN CONCRETE SLAB.
2. B-LINE GALVANIZED STEEL PIPE CLAMP.
3. B-LINE SERIES BVT STEEL VIBRACLAMP FOR REFRIGERANT, HOT GAS, AND LIQUID PIPING. (TYPICAL)
4. B-LINE B22 GALVANIZED STEEL CHANNEL.
5. 18 GA. X 12" LONG ALUMINUM SHEET METAL SADDLE (TYPICAL).
6. REFRIGERANT LIQUID PIPING (TYPICAL).
7. INSULATED REFRIGERANT SUCTION PIPING. (TYPICAL)
8. INSULATION SHALL BE CONTINUOUS THROUGH PIPE CLAMPS.
9. GALVANIZED STEEL MOUNTING HARDWARE; NUTS, WASHERS, ETC.
10. SECURE ROD TO CEMENT WITH EPOXY ANCHORING COMPOUND.
11. CONCRETE HVAC EQUIPMENT PAD.
12. ELECTRICAL OR CONTROL CONDUIT. COORDINATE CONDUIT LOCATIONS WITH ELECTRICAL CONTRACTOR.

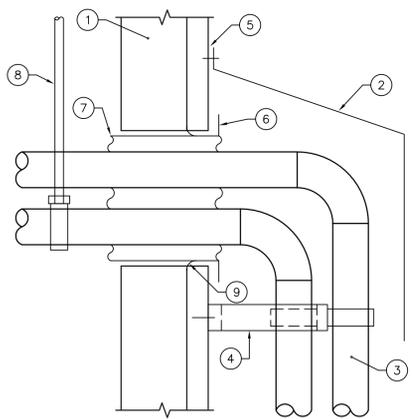


**NOTE:**  
 1. NUMBER OF PIPES AND CONDUITS AND SIZES VARIES.  
 2. SIZE GALVANIZED STEEL CHANNEL OR ANGLE IRON SUPPORTS AND THREADED ROD TO SUPPORT EXACT INSTALLED PIPE LOAD. REFERENCED SIZES ARE MINIMUM SIZE REQUIREMENTS.  
 3. SUPPORTS LOCATED OUTDOORS SHALL HAVE ALL HOT DIPPED, GALVANIZED STEEL CONSTRUCTION.

**2 EXTERNAL SUPPORTS REFRIGERANT LINES**  
 SCALE: N.T.S.

**KEYED NOTES:**

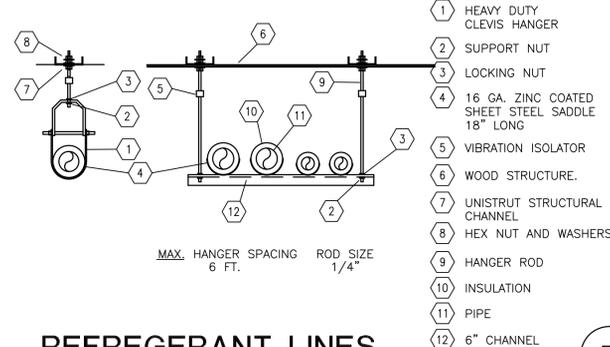
1. EXTERIOR WALL. REFER TO ARCHITECTURAL FOR CONSTRUCTION.
2. MINIMUM 20-GAUGE GALVANIZED STEEL PIPE WEATHER HOOD WITH SLOPED TOP AND OPEN BOTTOM. PROVIDE 1 INCH FLANGE AROUND PERIMETER OF HOOD FOR CONNECTION TO BUILDING SIDE WALL. SEAL ALL SEAMS IN WEATHER HOOD WATER TIGHT.
3. EXTERIOR REFRIGERANT PIPING AND CONDUIT. REFER TO DRAWINGS FOR SIZE AND LOCATION. (TYPICAL)
4. SUPPORT PIPING OR CONDUIT TO WALL WITH GALVANIZED STEEL STRUT. SECURE SUPPORT TO EXTERIOR WALL WITH CONCRETE ANCHORS OR LAG BOLTS.
5. SECURE HOOD TOP AND SIDE FLANGES TO BUILDING WITH SCREWS EVERY FOUR INCHES ON CENTER. PROVIDE TWO SCREWS AT EACH CORNER. PROVIDE WATER TIGHT SEALANT BETWEEN FLANGE AND BUILDING. COORDINATE SEALANT TYPE WITH GENERAL CONTRACTOR.
6. FRAME AROUND WALL PENETRATION AND PROVIDE 20-GAUGE GALVANIZED STEEL WALL PENETRATION SLEEVE. SECURE SLEEVE TO WALL STRUCTURE.
7. SEAL ENTIRE SPACE BETWEEN PIPING AND CONDUIT AND WALL SLEEVE WITH EXPANDABLE TYPE FOAM SEALANT. CUT EXCESS FOAM OFF AFTER DRYING AND SEAL OVER SURFACE OF FOAM WITH TWO LAYERS OF ELASTOMERIC ROOFING SEALANT ON EXTERIOR SURFACE.
8. TRAPEZE PIPE SUPPORT.
9. SEAL WALL SLEEVE TO WALL VAPOR BARRIER SYSTEM ON ALL FOUR SIDES. COORDINATE WITH GENERAL CONTRACTOR.



**3 REFRIGERANT LINES EXTERIOR WALL PENETRATION**  
 SCALE: N.T.S.

**KEYED NOTES:**

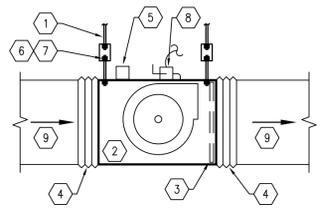
1. SUPPORT FROM STRUCTURE ABOVE, MINIMUM FOUR, HOT DIPPED, GALVANIZED STEEL, 3/8" DIAMETER.
2. ACOUSTICALLY INSULATED HOUSING.
3. INTEGRAL BACKDRAFT DAMPER.
4. FLEXIBLE CONNECTION.
5. INSTALL FAN SPEED CONTROLLER ON FAN HOUSING AND PROVIDE ACCESS TO CONTROLLER WHEN INDICATED ON EQUIPMENT SCHEDULE.
6. RUBBER OR SPRING ISOLATORS.
7. DOUBLE WASHERS, HEXNUT, AND LOCKNUT.
8. ELECTRICAL SERVICE DISCONNECT SWITCH.
9. TRANSITION TO UNIT DUCT CONNECTION SIZE.



- KEYED NOTES:**
1. HEAVY DUTY CLEVIS HANGER
  2. SUPPORT NUT
  3. LOCKING NUT
  4. 16 GA. ZINC COATED SHEET STEEL SADDLE 18" LONG
  5. VIBRATION ISOLATOR
  6. WOOD STRUCTURE.
  7. UNISTRUT STRUCTURAL CHANNEL
  8. HEX NUT AND WASHERS
  9. HANGER ROD
  10. INSULATION
  11. PIPE
  12. 6" CHANNEL

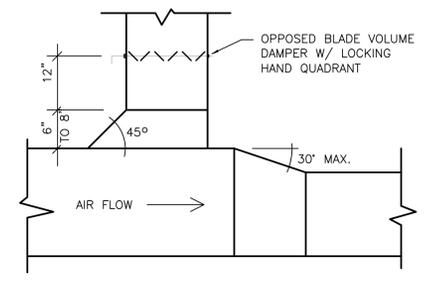
**4 REFRIGERANT LINES INTERIOR HANGER SUPPORT**  
 SCALE: N.T.S.

**7 EXHAUST FAN SCHEMATIC**  
 SCALE: N.T.S.

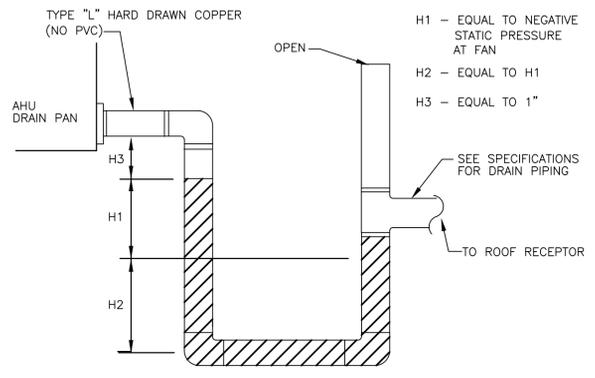


**KEYED NOTES:**

1. SUPPLY OR RETURN AIR DUCTWORK. REFER TO DRAWINGS FOR SIZE, LOCATION, AND ROUTING. REFER TO SPECIFICATION FOR INSULATION REQUIREMENTS.
2. TRANSITION WITHIN RISER TO UNIT DUCT CONNECTION SIZE. (TYPICAL)
3. FLEXIBLE DUCT CONNECTION. (TYPICAL)
4. ELECTRICAL WIRING BY ELECTRICAL CONTRACTOR.
5. ELECTRICAL DISCONNECT SWITCH WITH SINGLE OR DUAL POINT POWER CONNECTION AS INDICATED ON EQUIPMENT SCHEDULES.
6. REFRIGERANT PIPING. ROUTE TO REMOTE CONDENSING UNIT LOCATED ON ROOF AS INDICATED ON DRAWINGS. SUPPORT PIPING AT TURN DOWN TO UNIT.
7. INSULATED 3/4 INCH COPPER CONDENSATE DRAIN PIPE WITH P-TRAP AND AIR BREAK. TURN PIPE DOWN OVER FLOOR DRAIN FUNNEL WITH AIR GAP. SUPPORT PIPING FROM WALL OR FLOOR BELOW.
8. INSULATED STRUCTURAL GALVANIZED STEEL PLENUM AHU SUPPORT BASE WITH INTEGRAL AIR FILTER. REFER TO HVAC EQUIPMENT SCHEDULES.
9. SUPPORT PLENUM WITH NEOPRENE VIBRATION ISOLATION PADS APPROXIMATELY EVERY 18 INCHES ON CENTER. (TYPICAL)
10. FLOOR DRAIN BY PLUMBING CONTRACTOR.
11. REMOVABLE FILTER ACCESS DOOR WITH AIR TIGHT SEAL.
12. AIR FILTER REMOVAL AREA. KEEP AREA CLEAR OF OBSTRUCTION FOR PROPER SERVICE OF AIR FILTER. FIELD VERIFY EXACT AREA REQUIREMENTS WITH FINAL EQUIPMENT PROVIDED ON PROJECT.



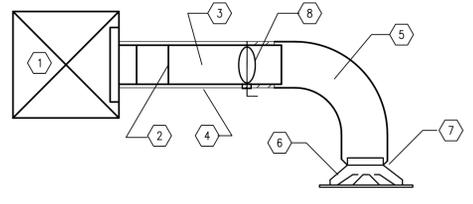
**5 DUCT BRANCH TAKEOFF**  
 SCALE: N.T.S.



**8 CONDENSATE P-TRAP**  
 SCALE: N.T.S.

**KEYED NOTES:**

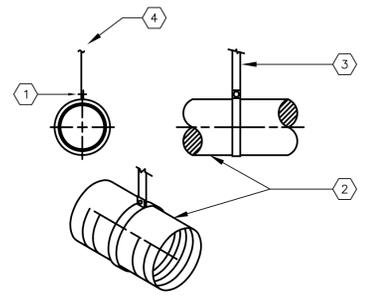
1. TRUNK DUCT
2. 45° TAKE-OFF TO ROUND FITTING OR SPIN-IN FITTING. ADD INSULATION GUARD IF DUCT IS INTERNALLY LINED. SEAL AIRTIGHT AROUND FITTING-TO-DUCT CONNECTION WITH APPROVED DUCT TAPE OR CANVAS CLOTH AND MASTIC.
3. "SNAP-LOCK" ROUND METAL DUCT.
4. EXTERNAL DUCT INSULATION PER SPECS. INSULATION SHOULD COVER TAKE-OFF FITTING AND BE SEALED VAPOR TIGHT TO TRUNK DUCT. SEAL
5. INSULATED FLEXIBLE DUCT, HELICALLY REINFORCED. RUN NO MORE THAN SIX FEET OF FLEXIBLE DUCT PER DIFFUSER. USE "CERTAFLEX" BY CERTAINTED OR APPROVED EQUAL. CONNECTIONS TO "SNAP-LOCK" AND TO DIFFUSERS SHOULD BE DOUBLE TAPED AND CLAMPED PER MFR. RECOMMENDATIONS. STRETCH FLEXIBLE DUCT AS TIGHT AS POSSIBLE.
6. DIFFUSER.
7. COVER DUCT INCREASER, SQUARE-TO-ROUND ADAPTOR AND BACK SIDE OF DIFFUSER WITH INSULATION.
8. BUILD-OUT BUTTERFLY DAMPER WITH LOCKING QUADRANT.



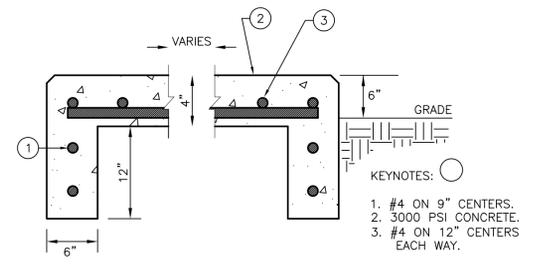
**6 DIFFUSER BRANCH TAKEOFF**  
 SCALE: N.T.S.

**KEYED NOTES:**

1. BOLT
2. METAL EXHAUST DUCT OR DRYER VENT
3. 1" MIN. BAND CLAMP
4. SUPPORT FROM STRUCTURE



**10 AHU INSTALLATION**  
 SCALE: N.T.S.



**NOTE:**  
 SIZE PAD 3" LARGER THAN EQUIPMENT PER SIDE. PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCE FOR AIR FLOW AND MAINTENANCE. COORDINATE SIZE WITH ARCHITECT, HVAC EQUIPMENT SUPPLIER, AND GENERAL CONTRACTOR PRIOR TO INSTALLATION. FIELD VERIFY EXACT FINAL LOCATION. PAD INSTALLATION AND ACCU INSTALLATION SHALL CONFORM TO CITY OF SA REQUIREMENTS.

**11 ACCU PAD SCHEMATIC**  
 SCALE: N.T.S.

NO.	DATE	DESCRIPTION

**LEON VALLEY COMMUNITY CENTER UPGRADES**  
**LEON VALLEY, TEXAS**  
**HVAC DETAILS**

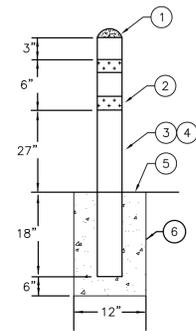
**LNV**  
 an Ardura Company  
 601 NAVASOTA, SUITE 300  
 CORPUS CHRISTI, TX 78408  
 PH: (361) 885-1884  
 WWW.LNVINC.COM

DRAWING NO.: **M3.1**  
 4 of 6  
 DRAWN BY: CZ  
 CHECKED BY: JW  
 APPROVED BY: JW  
 JOB NO.: 20111



**BOLLARD DETAIL KEYED NOTES:**

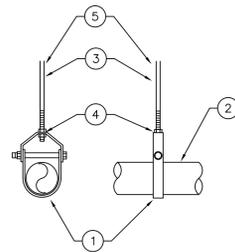
1. FILL POST WITH CONCRETE
2. 2" WIDE, WHITE REFLECTIVE TAPE
3. 4" STEEL PIPE
4. PAINT POST
5. GRADE
6. SET POST IN CONCRETE



**1 BOLLARD DETAIL**  
SCALE: N.T.S.

**PIPE SUPPORT DETAIL KEYED NOTES:**

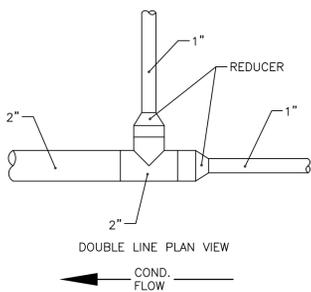
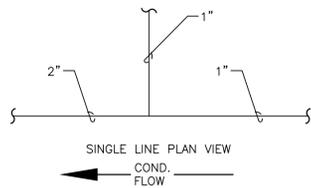
1. CLEVIS HANGER FOR SINGLE PIPE RUNS. PROVIDE DIELECTRIC PROTECTION FOR DISSIMILAR METALS.
2. PIPE, TYPICAL
3. HOT DIPPED GALVANIZED HANGER ROD. ALL-THREAD ROD NOT ALLOWED.
4. LOCK NUT TO SECURE HANGER IN PLACE.
5. SUPPORT FROM STRUCTURE PER MANUFACTURER'S RECOMMENDATIONS AND DETAIL 1/P10.



**3 PIPE SUPPORT DETAIL**  
SCALE: N.T.S.

**PIPING NOMENCLATURE GENERAL NOTES:**

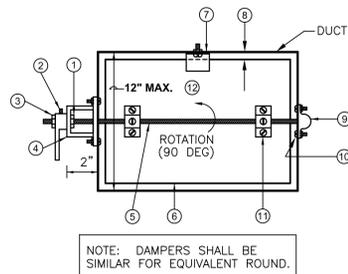
1. PIPING SIZE SHALL BE UNDIMINISHED UNTIL PIPE SIZE CHANGE IS NOTED. FITTINGS SHALL BE SIZE WITH LARGER PIPE PRIOR TO BRANCH TAKE OFF. USE REDUCING FITTINGS AFTER BRANCH FROM TEE TO MAINTAIN PIPE SIZE AS NOTED PRIOR TO BRANCH TAKE OFF.
2. USE OF EITHER REDUCING TEE OR FULL SIZE TEE WITH REDUCING FITTINGS IS ALLOWED.
3. IF CONTRACTOR IS UNSURE OF PIPE SIZE, DO NOT PROCEED UNTIL THE MATTER IS RESOLVED TO THE ENTIRE SATISFACTION OF OWNER.
4. GRAVITY FEED LINES ARE SIMILAR IN NATURE BUT IN REVERSE.



**2 CONDENSATE DRAIN LINE NOMENCLATURE**  
SCALE: N.T.S.

**KEYED NOTES:**

1. ROD POSITIONING NUT HANDLE WITH SET SCREW.
2. ALIGN HANDLE WITH DAMPER BLADE. ENSURE THAT FULL 90° DAMPER BLADE MOVEMENT IS UNOBSTRUCTED.
3. BLADE POSITION LOCKNUT.
4. 2" STAND-OFF BRACKET, BOLT TO DUCT.
5. 3/8" DIA. THREADED ROD.
6. 16 GA. STEEL BLADE.
7. STEEL ANGLE BLADE STOP, BOLT TO DUCT.
8. 1/4" CLEARANCE ALL-AROUND.
9. BEARING FITTING, BOLT TO DUCT.
10. ENSURE BOLTS CLEAR BLADE, OR INSTALL THEM IN OPPOSING CORNERS AWAY FROM BLADE ROTATION.
11. STEEL CLAMP, BOLT TO BLADE. PROVIDE AN ADDITIONAL ANTI-SLIP BOLT THROUGH THE ROD.
12. FOR DUCT HEIGHTS MORE THAN 12", PROVIDE FACTORY-FABRICATED OPPOSED BLADE DAMPERS.



**4 MANUAL DAMPER DETAIL**  
SCALE: N.T.S.

**TESTING, ADJUSTING, AND BALANCING**

**PART 1 GENERAL**

**1.1 SCOPE OF WORK**

- A. MECHANICAL DIVISION SHALL PROVIDE TESTING, ADJUSTING, AND BALANCING OF THE HEATING, VENTILATING AND AIR CONDITIONING SYSTEM.

**1.2 RESPONSIBILITY OF MECHANICAL CONTRACTOR:**

- A. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE SYSTEM START-UP PRIOR TO TESTING, ADJUSTING AND BALANCING AND SHALL DEMONSTRATE OPERATION OF EACH ITEM OF MECHANICAL EQUIPMENT.
- B. INSTALL CLEAN FILTERS IN THE AIR HANDLING UNIT.
- C. VERIFY THAT SYSTEMS ARE COMPLETE AND OPERABLE.
- D. FURNISH ALL LABOR AND MATERIAL REQUIRED TO ELIMINATE ANY DEFICIENCIES OR MALPERFORMANCE. RESOLVE ALL OPERATIONAL DEFICIENCIES PRIOR TO SUBMISSION OF FINAL TAB REPORT.

**1.3 RESPONSIBILITY OF CONTRACTOR:**

- A. SUBMIT BRIEF WRITTEN REPORT OF EACH INSPECTION TO OWNER, ARCHITECT, AND ENGINEER.
- B. PROVIDE ALL INSTRUMENTS AND EQUIPMENT REQUIRED TO ACCOMPLISH NECESSARY TESTING, ADJUSTING AND BALANCING AND AS REQUIRED BY THE ENGINEER TO VERIFY PERFORMANCE. ALL INSTRUMENTS SHALL BE IN ACCURATE CALIBRATION AND SHALL BE CALIBRATED IN RANGES THAT WILL BE EXPECTED.
- C. UPON COMPLETION OF THE INSTALLATION AND START-UP OF THE MECHANICAL EQUIPMENT BY THE MECHANICAL DIVISION, THE CONTRACTOR WILL TEST, ADJUST AND BALANCE THE SYSTEM COMPONENTS TO OBTAIN OPTIMUM CONDITIONS IN EACH CONDITIONED SPACE IN THE FACILITY. THE CONTRACTOR IS ADVISED THAT DEFICIENCIES IN HVAC CONSTRUCTION ARE OFTEN ENCOUNTERED DURING FINAL TAB SERVICES AND THE CONTRACTOR SHOULD INCLUDE IN BID PROPOSAL AN AMOUNT IT DEEMS ADEQUATE TO COMPENSATE FOR TIME IN IDENTIFYING THE DEFICIENCIES AND THEIR CORRECTION.
- D. FOURTEEN DAYS, OR EARLIER, PRIOR TO OWNER'S FINAL INSPECTION AS REQUESTED BY THE GENERAL CONTRACTOR, PREPARE SEVEN COPIES OF THE COMPLETED TESTING AND BALANCING REPORT AND SUBMIT ONE COPY TO OWNER AND SIX COPIES TO THE ARCHITECT/ENGINEER. RESOLVE ALL OPERATIONAL DEFICIENCIES PRIOR TO SUBMISSION OF FINAL REPORT.

**1.4 REFERENCES**

- A. AABC - NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE.
- B. ADC - TEST CODE FOR GRILLES, REGISTERS, AND DIFFUSERS.
- C. ASHRAE 111 - PRACTICES FOR MEASUREMENT, TESTING, ADJUSTING, AND BALANCING OF BUILDING HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION SYSTEMS.
- D. NEBB - PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS.
- E. SMACNA - HVAC SYSTEMS TESTING, ADJUSTING, AND BALANCING.

**1.5 SUBMITTALS**

- A. FIELD REPORTS: INDICATE DEFICIENCIES IN SYSTEMS THAT WOULD PREVENT PROPER TESTING, ADJUSTING, AND BALANCING OF SYSTEMS AND EQUIPMENT TO ACHIEVE SPECIFIED PERFORMANCE.

**1.6 COMMENCEMENT OF WORK REQUIREMENTS**

- A. PRIOR TO COMMENCING WORK, SUBMIT REPORT FORMS OR OUTLINES INDICATING ADJUSTING, BALANCING, AND EQUIPMENT DATA REQUIRED.
- B. SUBMIT DRAFT COPIES OF REPORT FOR REVIEW PRIOR TO FINAL ACCEPTANCE OF PROJECT. PROVIDE FINAL COPIES FOR ARCHITECT/ENGINEER AND FOR INCLUSION IN OPERATING AND MAINTENANCE MANUALS.
- C. PROVIDE REPORTS IN 3 RING BINDER MANUALS, COMPLETE WITH INDEX PAGE AND INDEXING TABS, WITH COVER IDENTIFICATION AT FRONT AND SIDE. INCLUDE SET OF REDUCED DRAWINGS WITH AIR OUTLETS AND EQUIPMENT IDENTIFIED TO CORRESPOND WITH DATA SHEETS, AND INDICATING THERMOSTAT LOCATIONS.
- D. INCLUDE DETAILED PROCEDURES, AGENDA, SAMPLE REPORT FORMS PRIOR TO COMMENCING SYSTEM BALANCE.

**1.7 TEST REPORT FORM REQUIREMENTS**

- A. INDICATE DATA ON AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE FORMS, FORMS PREPARED FOLLOWING ASHRAE 111 OR NEBB FORMS.

**1.8 QUALITY ASSURANCE**

- A. PERFORM TOTAL SYSTEM BALANCE IN ACCORDANCE WITH AABC NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION, TOTAL SYSTEM BALANCE, ASHRAE 111 OR NEBB PROCEDURAL STANDARDS FOR TESTING, BALANCING AND ADJUSTING OF ENVIRONMENTAL SYSTEMS.

**1.9 QUALIFICATIONS**

- A. THE MECHANICAL CONTRACTOR SHALL HAVE A MINIMUM THREE YEARS DOCUMENTED EXPERIENCE FOR TESTING, ADJUSTING, AND BALANCING WORK.
- B. PERFORM WORK UNDER ACCORDING TO GOVERNING AUTHORITIES RECOMMENDATIONS.

**PART 2 PRODUCTS**

**2.1 NOT USED**

**PART 3 EXECUTION**

**3.1 PRE-BALANCING CONFERENCE**

- A. CONVENE ONE WEEK PRIOR TO COMMENCING WORK OF THIS SECTION.

**TESTING, ADJUSTING, AND BALANCING (CONTINUED)**

**3.2 SEQUENCING**

- A. SEQUENCE WORK TO COMMENCE AFTER COMPLETION OF SYSTEMS AND SCHEDULE COMPLETION OF WORK BEFORE SUBSTANTIAL COMPLETION OF PROJECT.

**3.3 DESIGN CONDITIONS**

- A. THE HVAC SYSTEMS HAVE BEEN DESIGNED TO MAINTAIN THE INSIDE CONDITIONS INDICATED BELOW WHEN OPERATING WITH THE OUTSIDE CONDITIONS STATED. INSTALL, TEST, ADJUST AND BALANCE THE SYSTEMS SO THAT THEY WILL PRODUCE THE INSIDE CONDITIONS FOR DESIGN. MECHANICAL CONTRACTOR SHALL BE PREPARED TO PROVIDE A SUITABLE TEST TO PROVE THAT EQUIPMENT IS PRODUCING CAPACITIES SCHEDULED.

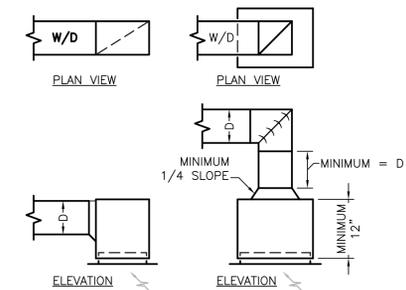
- 1) INSIDE CONDITIONS:  
SUMMER: 75 DEGREES FARENHEIT DRY BULB 55 % RELATIVE HUMIDITY  
WINTER: 70 DEGREES FARENHEIT DRY BULB

**3.4 FIELD REPORTS**

- A. REPORT DEFECTS AND DEFICIENCIES NOTED DURING PERFORMANCE OF SERVICES THAT PREVENT SYSTEM BALANCE.
- B. BEGINNING OF WORK MEANS ACCEPTANCE OF EXISTING CONDITIONS.

**KEY NOTES:**

1. RETURN OR EXHAUST AIR DEVICE - REFER TO AIR DEVICE SCHEDULE FOR DESCRIPTION.
2. SHEET METAL PLENUM - SIZE PER FIELD REQUIREMENTS.
3. INSULATE IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS.



**5 RETURN AND EXHAUST AIR DEVICE CONNECTION DETAIL**  
SCALE: N.T.S.



DATE: 06/24/20

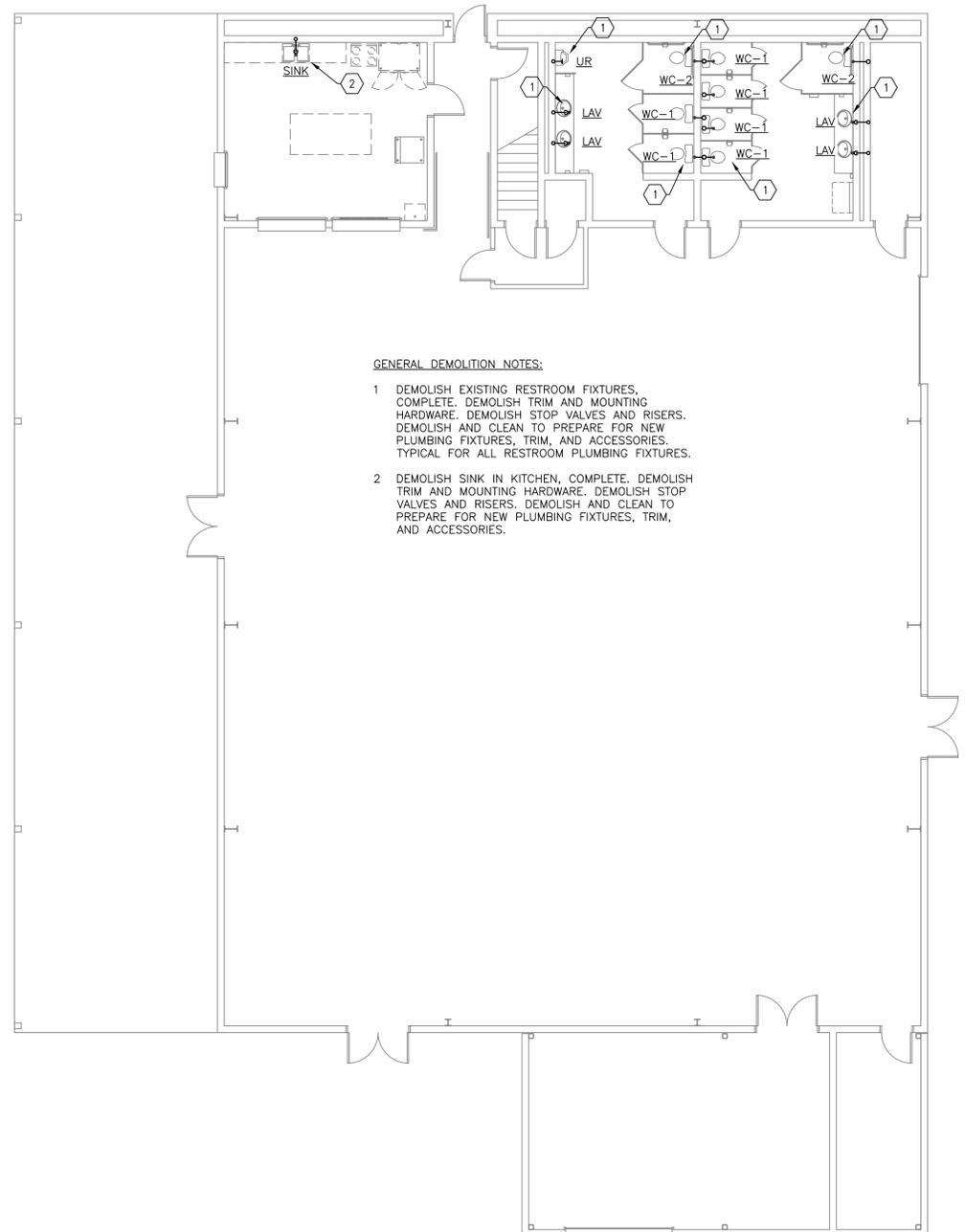
ISSUES / REVISIONS	DATE	NO.	DESCRIPTION	BY

**LEON VALLEY COMMUNITY CENTER UPGRADES  
LEON VALLEY, TEXAS  
HVAC SPECIFICATIONS**

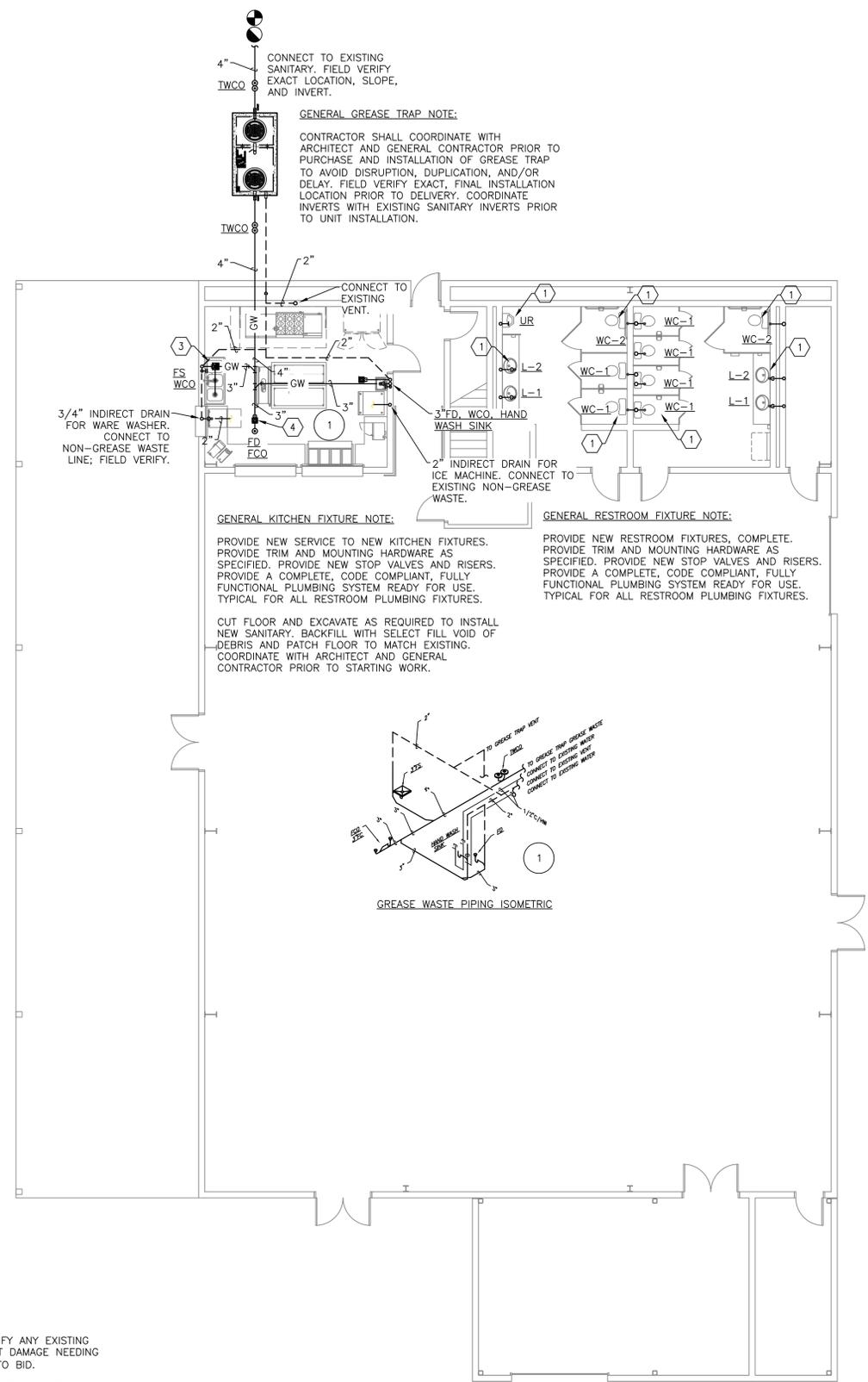


DATE: 06/24/20

NO.	DATE	DESCRIPTION

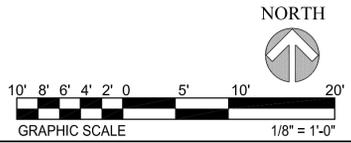


**1** SANITARY DRAIN, VENT, AND WASTE DEMOLITION PLAN  
 SCALE: 1/8"=1'-0"



**2** SANITARY DRAIN, WASTE, AND VENT PLAN  
 SCALE: 1/8"=1'-0"

- PLUMBING GENERAL NOTES:**
- PLUMBING CONTRACTOR SHALL FIELD VERIFY ANY EXISTING CONDITIONS AND REPORT ANY SIGNIFICANT DAMAGE NEEDING ATTENTION TO ARCHITECT/OWNER PRIOR TO BID.
  - PLUMBING CONTRACTOR SHALL COORDINATE AND FIELD ADJUST ANY PLUMBING FIXTURES AND PIPING THAT MAY BE NECESSARY TO FIT FIELD CONDITIONS. COORDINATE WITH ARCHITECT/OWNER AND OTHER TRADES PRIOR TO THE COMMENCEMENT OF WORK.
- PLUMBING KEY NOTES:**
- EXISTING FIXTURE(S) SHALL BE REPLACED WITH NEW. DISCONNECT UTILITIES AND REMOVE EXISTING. PROVIDE AND INSTALL NEW FIXTURE(S) AND REROUTE/EXTEND EXISTING UTILITIES TO RECONNECT AS REQUIRED.
  - DEMOLISH SINK IN KITCHEN, DEMOLISH WATER, SANITARY, AND VENT LINES BACK TO MAIN AND CAP.
  - PROVIDE FLOOR SINK FOR THREE COMPARTMENT SINK. COORDINATE WITH GENERAL CONTRACTOR FOR EXACT, FINAL LOCATION.
  - PROVIDE FLOOR DRAIN.



**LEON VALLEY COMMUNITY CENTER UPGRADES  
 LEON VALLEY, TEXAS**

**SANITARY, DRAIN, WASTE, AND VENT PLAN**

**LNV**  
 an Adurra Company  
 601 NAVASOTA, SUITE 300  
 CORPUS CHRISTI, TX 78408  
 PH: (361) 885-1884  
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DRAWING NO: **P1.0**

1 of 5

DRAWN BY: RS  
 CHECKED BY: JW  
 APPROVED BY: JW  
 JOB NO.: 20111



### PLUMBING FIXTURE CONNECTION SCHEDULE

MARK	FIXTURE	SOIL OR WASTE	VENT	TRAP	WATER		REMARKS
					COLD	HOT	
WC	WATER CLOSET	4"	2"	-	1"	-	
L	LAVATORY	2"	1 1/4"	1 1/4"	1/2"	1/2"	
MS	MOP SINK	3"	1 1/2"	3"	3/4"	3/4"	
SK	SINK	2"	1 1/2"	1 1/2"	1/2"	1/2"	
UR	URINAL	2"	1 1/2"	-	3/4"	-	
EWC	ELEC. DRINKING FOUNTAIN	2"	1 1/4"	1 1/4"	1/2"	-	

### WATER HAMMER ARRESTORS

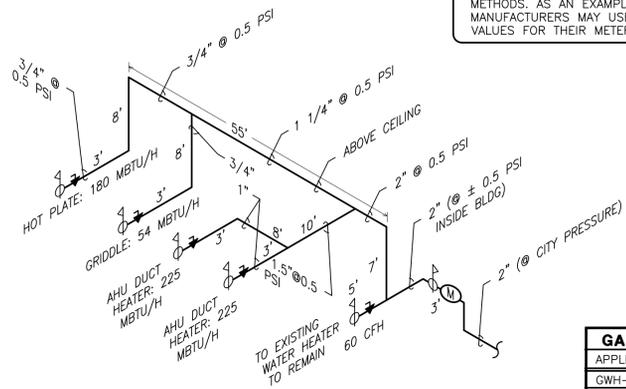
MARK	MANUFACTURER	MODEL	SIZE
SA-A	ZURN	SHOCKTROL Z-1700	# 100

- REMARKS:
- INSTALL PER GOVERNING AUTHORITIES AND MANUFACTURER'S RECOMMENDATIONS.
  - PROVIDE ACCESS PANEL, COORDINATE WITH ARCHITECTURAL FOR EXACT FINAL LOCATION OF ACCESS PANEL. PROVIDE STAINLESS STEEL ACCESS PANEL, PAINTED WITH COLOR PER ARCHITECTURAL.
  - CONFORM TO NATIONAL PLUMBING CODE ASA A-40-8 AND STANDARD PDI-WH201.

### PLUMBING LOAD SUMMARY

DOMESTIC COLD WATER	59.25 FU	14.60 GPM
DOMESTIC HOT WATER	14.25 FU	10.00 GPM
SANITARY SEWER (BLDG. TOTAL)	50 FU	

PLUMBING FIXTURE UNITS NOTED ABOVE ARE CALCULATED PER THE INTERNATIONAL PLUMBING CODE AND MAY VARY FROM SOME EQUIPMENT MANUFACTURER'S RECOMMENDED METHODS. AS AN EXAMPLE, SOME WATER METER MANUFACTURERS MAY USE DIFFERENT FIXTURE UNIT VALUES FOR THEIR METER SIZING CALCULATIONS.



### GAS PIPING RISER

NOT TO SCALE

### NATURAL GAS NOTES

- THE GAS COMPANY SHALL FURNISH METER, GAS PRESSURE REGULATOR AND SHORT TAP IF NEEDED. INSTALL GAS PIPING FROM TAP IN TRENCH FROM THE PROPERTY LINE, AND MAKE ALL CONNECTIONS REQUIRED. ARRANGE & PAY FOR ALL COSTS REQUIRED FOR THIS WORK. GAS PIPE WILL BE PROVIDED BY PLUMBING CONTRACTOR.
- THE CONTRACTOR SHALL PROVIDE GAS PIPING FOR ALL EQUIPMENT REQUIRING NATURAL GAS SERVICE, INCLUDING ALL FINAL CONNECTIONS AND TESTING. COORDINATE GAS PIPING WITH HVAC AND OTHER CONTRACTOR.
- PROVIDE SWING JOINTS AT ALL BRANCH LINES FROM GAS MAIN & EXPANSION LOOPS W/PIPE ANCHORS WHERE REQUIRED BY CODES. PROVIDE MOISTURE TRAPS AT EACH DROP IN GAS PIPING.
- PROVIDE MANUAL GAS SHUTOFF VALVE AT EACH APPLIANCE AND/OR EQUIPMENT SERVED INCLUDING UNIONS.
- PROVIDE SHUNT TRIP ON GAS FIRED KITCHEN APPLIANCES SUCH AS OVEN/RANGE AND THE LIKE.

### GAS LOAD SUMMARY

APPLIANCE	CFH
GWH-1 (EXISTING)	60
AHU-1 DUCT FURNACE	225
AHU-2 DUCT FURNACE	225
HOT PLATE	180
GAS GRIDDLE	54
<b>TOTAL</b>	<b>774</b>
LONGEST DISTANCE	150'-0"

GAS LOAD SUMMARY BASED ON IFGC TABLE 402.4(1) NATURAL GAS, LESS THAN 2 PSI INLET PRESSURE, 0.3"WC PD, SG 0.60 AND IFGC TABLE 402.4(3) NATURAL GAS, 2.0 PSI INLET PRESSURE, 1.0 PSI PD, 0.60 SG.

### ELECTRIC WATER HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	STORAGE (GALLON)	V/P	RECOVERY (@100° F)	KW	NOTES
EWH-1	A.O. SMITH	DVE-52	50	208/1	55	13.5	ALL APPLY

- NOTES:
- INSTALL PER GOVERNING AUTHORITIES RECOMMENDATIONS.
  - MAINTAIN MANUFACTURER'S RECOMMENDED DISTANCES TO COMBUSTIBLES.
  - PROVIDE AUXILIARY DRAIN PAN, 4" HIGH, 20 GAUGE, GALVANIZED STEEL, WITH A90 COATING.
  - PROVIDE T&P VALVE.
  - PROVIDE EXPANSION TANK, ET.
  - 5 YEAR WARRANTY.
  - SINGLE HEATING ELEMENT.
  - HEATERS SHALL MEET THE MINIMUM ENERGY FACTOR REQUIRED BY THE FEDERAL "NATIONAL APPLIANCE ENERGY CONSERVATION ACT".
  - HEATERS SHALL COMPLY WITH LOCALLY ADOPTED EDITIONS OF ASHRAE 90.1 AND THE INTERNATIONAL ENERGY CONSERVATION CODE.
  - IMMERSION THERMOSTAT
  - FUSED ELECTRICAL SERVICE
  - GLASS LINED TANK, 150PSI WORKING PRESSURE
  - EXTRUDED HIGH DENSITY ANODE
  - COLD WATER INLET TUBE DESIGNED TO REDUCE BUILDUP OF SCALE, FILM AND SEDIMENT.

### EXPANSION TANK

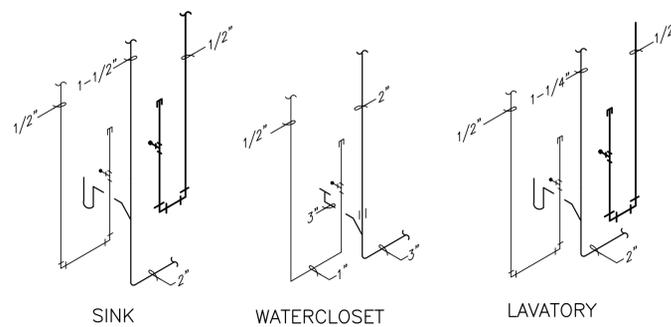
MARK	MANUFACTURER	MODEL	LOCATION	STORAGE (GALLON)	SERVICE
ET-1	PROFLOW	PFT-12	EWH	4.4	HOT WATER EXPANSION

- NOTES:
- MOUNT PER MANUFACTURER'S RECOMMENDATIONS.
  - INSTALL PER INTERNATIONAL PLUMBING CODE - CURRENT VERSION.
  - FACTORY PRE-CHARGE
  - PROVIDE MANUFACTURER'S RECOMMENDED MOUNTING HARDWARE.
  - PROVIDE SUPPORTS (GALVANIZED UNISTRUT ALLOWED) TO SECURE EXPANSION TANK TO BUILDING. DO NOT SUPPORT EXPANSION TANK ONLY BY CONNECTING DOMESTIC WATER PIPING.

### PUMP SCHEDULE

MARK	SERVICE	LOCATION	MOTOR DATA		MANUFACTURER/MODEL
			AMPS	V/P/H	
RCP	WATER RECIRC.	ON WALL/EWH	1.4	115/1/60	WATTS 500800

- NOTES:
- PROVIDE MANUFACTURER'S RECOMMENDED MOUNTING HARDWARE.
  - ELECTRICAL SHALL PROVIDE DISCONNECT.
  - PROVIDE AQUASTAT, JOHNSON CONTROLS A19D, B&G AQS OR EQUAL.
  - PUMP SHALL BE CONTROLLED BY TIMELOCK. TIMELOCK SHALL SHUTDOWN PUMP WHEN BUILDING IS SCHEDULED "UNOCCUPIED". PUMP SHALL ALSO BE CONTROLLED BY THE AQUASTAT; WHEN RETURN WATER IS AT SETPOINT TEMPERATURE (OWNER ADJUSTABLE), THEN THE AQUASTAT SHALL SHUT DOWN PUMP; ON DETECTION OF LOWER RETURN WATER TEMPERATURE DURING OCCUPIED PERIODS, PUMP SHALL ENGAGE TO CIRCULATE HOT WATER.



### PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	MANUFACTURER/MODEL
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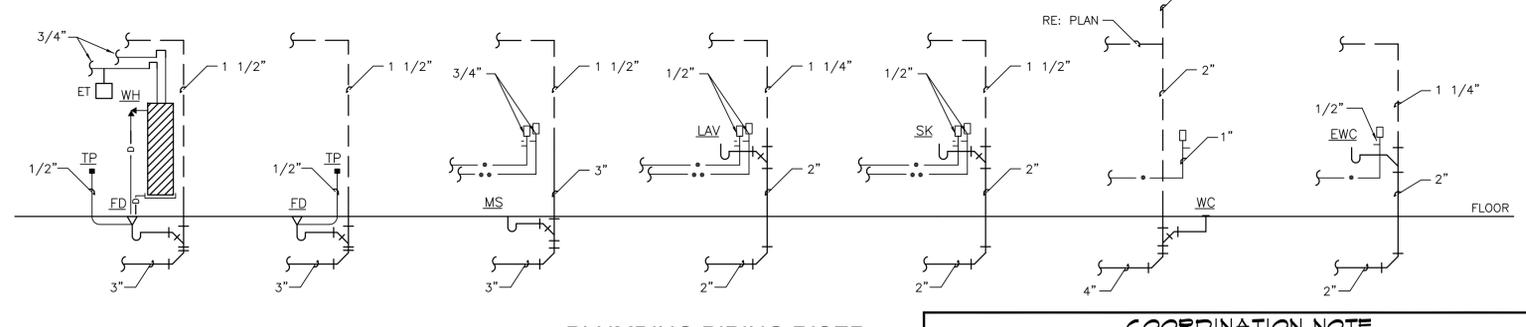
WC-1	17 1/8" FLOOR MOUNTED, BOTTOM OUTLET, 1.0 GPF FLUSH, TANK TYPE, WHITE VITREOUS CHINA, REVERSE TRAP, ELONGATED RIM, HEAVY DUTY WHITE PLASTIC OPEN FRONT SEAT LESS COVER. SLOAN FLUSHMATE PRESSURE ASSIST. TRIP LEVER ON WIDE SIDE OF STALL. ADULT ADA/TAS COMPLIANT INSTALLATION.	KOHLER HIGHLINE K-3519 PRESSURE ASSIST WATER CLOSET BEMIS 1655C SEAT
WC-2	15 1/2" FLOOR MOUNTED, BOTTOM OUTLET, 1.0 GPF FLUSH, TANK TYPE, WHITE VITREOUS CHINA, REVERSE TRAP, ELONGATED RIM, HEAVY DUTY WHITE PLASTIC OPEN FRONT SEAT LESS COVER. SLOAN FLUSHMATE PRESSURE ASSIST. TRIP LEVER ON WIDE SIDE OF STALL. ADULT STANDARD INSTALLATION.	KOHLER WELLWORTH K-3531 PRESSURE ASSIST WATER CLOSET BEMIS 1655C SEAT
UR-1	WALL MOUNTED, BACK OUTLET, 3/4" TOP SPUD, 1.0 GPF FLUSH VALVE, SIPHON JET, WHITE VITREOUS CHINA, URINAL WITH EXTENDED SIDE SHIELDS, 14 1/2" LONG BOWL, AND FLUSHING RIM. PROVIDE MANUFACTURER'S RECOMMENDED WALL BRACKET CARRIER PLATES. ADULT ADA/TAS INSTALLATION.	KOHLER BARDON K-4960-ET URINAL SLOAN REGAL 186-1 FLUSH VALVE
L-1	20 1/4"x17 1/2" COUNTER TOP, SELF RIMMING, WHITE VITREOUS CHINA LAVATORY WITH OVAL BASIN, OVERFLOW, SINGLE FAUCET HOLE, SINGLE LEVER FAUCET WITH EXTENDED LEVER OPERABLE WITH 5 LBF. OFFSET LAVATORY GRID STRAINER WITH TAILPIECE, P-TRAP, SUPPLY STOPS, AND INSULATION KIT. ASSE COMPLIANT INSTALLATION FOR HOT WATER DELIVERY. ADULT ADA/TAS COMPLIANT INSTALLATION.	KOHLER PENNINGTON K-2196-1 LAVATORY DELTA 501LF FAUCET MCGUIRE 155WC DRAIN MCGUIRE 8088 CAST BRASS P-TRAP MCGUIRE H2165LK CHROME PLATED CAST BRASS SUPPLY STOP TRUEBRO LAV GUARD INSULATION KIT
L-2	20 1/4"x17 1/2" COUNTER TOP, SELF RIMMING, WHITE VITREOUS CHINA LAVATORY WITH OVAL BASIN, OVERFLOW, SINGLE FAUCET HOLE, SINGLE LEVER FAUCET WITH EXTENDED LEVER OPERABLE WITH 5 LBF. OFFSET LAVATORY GRID STRAINER WITH TAILPIECE, P-TRAP, SUPPLY STOPS, AND INSULATION KIT. ASSE COMPLIANT INSTALLATION FOR HOT WATER DELIVERY. ADULT ADA/TAS COMPLIANT INSTALLATION.	KOHLER PENNINGTON K-2196-1 LAVATORY DELTA 501LF FAUCET MCGUIRE 155WC DRAIN MCGUIRE 8088 CAST BRASS P-TRAP MCGUIRE H2165LK CHROME PLATED CAST BRASS SUPPLY STOP TRUEBRO LAV GUARD INSULATION KIT
KS	KITCHEN SINK BY KITCHEN VENDOR. PLUMBING CONTRACTOR SHALL PROVIDE UTILITY CONNECTIONS TO FIXTURE; COLD WATER, HOT WATER, SANITARY, VENT. PROVIDE ALL CONNECTIONS REQUIRED AND NECESSARY TO FURNISH A COMPLETE, FULLY FUNCTIONAL SYSTEM.	BY KITCHEN VENDOR PLUMBING CONTRACTOR TO CONNECT TO UTILITIES
SK-HW	HAND WASH SINK PROVIDED BY KITCHEN VENDOR. PLUMBING CONTRACTOR SHALL PROVIDE UTILITY CONNECTIONS TO FIXTURE; COLD WATER, HOT WATER, SANITARY, VENT. PROVIDE ALL CONNECTIONS REQUIRED AND NECESSARY TO FURNISH A COMPLETE, FULLY FUNCTIONAL SYSTEM.	BY KITCHEN VENDOR PLUMBING CONTRACTOR TO CONNECT TO UTILITIES
WB	WATER VALVE BOX, FOR ICE MAKER, PLASTIC, WHITE. PROVIDE FOR WATER SERVICE TO COFFEE/TEA	OATEY # 38610
FD	DURA COATED CAST IRON FLOOR DRAIN WITH POLISHED NICKEL BRONZE TOP, MEMBRANE CLAMP AND ROUND STRAINER WITH SQUARE OPENING AND DEEP SEAL P-TRAP. PROVIDE TRAP-PRIMER TAP WHERE SHOWN ON DRAWINGS.	ZURN ZN-415 DRAIN TYPE B STRAINER
FS	SANI-FLOOR RECEPTOR, 12"x12", 6" DEEP CAST IRON BODY WITH WHITE ACID RESISTING PORCELAIN ENAMEL INTERIOR AND TOP, WHITE SEDIMENT BUCKET. PROVIDE TRAP-PRIMER TAP WHERE SHOWN ON DRAWINGS.	ZURN Z-1900-KC-P-2-25
EWC	BI-LEVEL WALL MOUNTED LEAD FREE ELECTRIC DRINKING FOUNTAIN WITH STAINLESS STEEL CABINET, 8 GPH CAPACITY, FRONT AND SIDE EASY TOUCH CONTROLS, RAISED LETTERING AND CARRIER. CANE TOUCH APRON MOUNTED ON LOW SIDE. ADULT ADA/TAS COMPLIANT INSTALLATION.	ELKAY EZSTL8C FOUNTAIN ZURN Z-1225 CARRIER MCGUIRE 8088 CAST BRASS P-TRAP MCGUIRE H2165LK CHROME PLATED CAST BRASS SUPPLY STOP ELKAY LKAPR-EZL APRON
MS	24" X 24" FLOOR MOUNTED PRECAST TERRAZO NEO-CORNER MOP SERVICE BASIN WITH 12" HIGH SIDES, 6" DROP FRONT, STAINLESS STEEL CAST INTEGRAL DRAIN, ALUMINUM BUMPER, SERVICE FAUCET WITH VACUUM BREAKER AND WALL SUPPORT, MOP HANGER, HOSE AND BRACKET.	FIAT TSBC-1610 BASIN FIAT 830-AA FAUCET FIAT 1239-BB BUMPER FIAT 889-CC MOP HANGER FIAT 832-AA HOSE AND BRACKET FIAT MSG 2424 WALL GUARD
FCO	ADJUSTABLE FLOOR CLEANOUT, DURA-COATED CAST IRON BODY WITH POLISHED NICKEL BRONZE TOP, GAS AND WATER TIGHT, TAPERED THREAD PLUG. SIZE TO MATCH CONNECTING LINE. PROVIDE ACCESSORIES AND COVER TO MATCH FLOOR CONSTRUCTION AND COVERING.	ZURN Z-1400
TWCO	ADJUSTABLE CLEANOUT WITH NICKEL BRONZE COVER, DURA-COATED CAST IRON BODY, AND ANCHOR FLANGE WITH CLAMP COLLAR. GAS AND WATERTIGHT. ABS TAPERED THREAD PLUG, AND ROUND SCORRIATED ADJUSTABLE TOP. TRAFFIC GRADE.	ZURN ZN-1400-KC 2-WAY

NOTE: UNLESS OTHERWISE NOTED - STOPS, SUPPLIES, P-TRAPS, ETC., MCGUIRE, BRASSCRAFT OR EQUAL.

### SUMP PUMP SCHEDULE

MARK	SERVICE	LOCATION	GPM	HEAD PRESS. (FEET)	MOTOR DATA			MANUFACTURER/MODEL	
					HP	V/P	EFF. RPM		
	ELEVATOR SUMP DEWATERING	IN PIT	50.0	3.1	0.5	115/1	65%	1750	BELL AND GOSSETT 2WT05

- NOTES:
- DISCHARGE SIZE - 2" THREADED
  - 2" SOLIDS HANDLING
  - CAST IRON, SEMI-OPEN, DYNAMICALLY BALANCED, NON-CLOG WITH PUMP OUT VANES FOR MECHANICAL SEAL PROTECTION.
  - SILICON CARBIDE SEALING FACES, STAINLESS STEEL METAL PARTS, BUNA-N ELASTOMERS.
  - THREADED, CORROSION-RESISTANT STAINLESS STEEL SHAFT.
  - 300 SERIES STAINLESS STEEL FASTENERS
  - CAPABLE OF RUNNING DRY WITHOUT DAMAGE TO COMPONENTS.
  - DESIGNED FOR CONTINUOUS OPERATION WHEN FULLY SUBMERGED.
  - FULLY SUBMERGED IN HIGH GRADE TURBINE OIL FOR LUBRICATION AND HEAT TRANSFER.
  - SINGLE PHASE MOTOR WITH CAPACITOR START MOTOR.
  - BUILT-IN OVERLOAD WITH AUTOMATIC RESET.
  - SEVERE DUTY OIL AND WATER RESISTANT POWER CORD.
  - POWER CORD LENGTH AS REQUIRED. FIELD VERIFY.
  - NEMA THREE PRONG GROUNDING PLUG. OFF/ON CONTROLLED BY WALL SWITCH.
  - REFER TO ELEVATOR SUMP PUMP DETAIL KEYED NOTES FOR ADDITIONAL INFORMATION. PROVIDE SUMP PUMP, HIGH WATER/OIL ALARM PANEL, LITTLE GIANT OS3-1/513390 FLOAT SWITCH WITH ALARM.



### PLUMBING PIPING RISER

SCALE: NOT TO SCALE

### COORDINATION NOTE

PLUMBING CONTRACTOR SHALL REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, STRUCTURAL, CIVIL AND OTHER PLANS AND SECTIONS FOR LOCATIONS OF ANY ELEMENTS WHICH WILL IMPEDE PLUMBING PIPING ROUTING. PLUMBING CONTRACTOR SHALL COORDINATE PIPING EFFORTS SPECIFICALLY WITH STRUCTURAL DIVISION TO VERIFY A CLEAR PATH FOR WATER, SANITARY, AND VENT PIPING PRIOR TO FABRICATION OF ANY PIPING. FIELD VERIFY CLEARANCES AND ROUTING PATHS PRIOR TO FABRICATION OF ANY PIPING.

FAILURE TO CONFORM TO COORDINATE CONSTRUCTION EFFORTS WITH OTHER TRADES SHALL NOT RELIEVE CONTRACTOR OF RESPONSIBILITY TO INSTALL PLUMBING SYSTEMS ACCORDING TO PROJECT SPECIFICATIONS AND REQUIREMENTS. ANY AND ALL REMORK TO PROVIDE COMPLETE, FUNCTIONAL INSTALLATIONS SHALL BE DONE AT NO COST TO THE OWNER.

LEON VALLEY COMMUNITY CENTER UPGRADES  
LEON VALLEY, TEXAS  
PLUMBING SCHEDULES

TEBELE REGISTERED FIRM  
ARCHITECTURAL FIRM  
SURVEYING FIRM  
10150000

TEBAE REGISTERED FIRM  
ARCHITECTURAL FIRM  
10150000

an Adurra Company  
601 NAVASOTA, SUITE 500  
CORPUS CHRISTI, TX 78408

PH: (361) 885-1884  
WWW.LLVINC.COM

DRAWING NO:  
**P2.0**

3 of 5

DRAWN BY: RS  
CHECKED BY: JW  
APPROVED BY: JW  
JOB NO.: 20111

DATE: 06/24/20

ISSUES / REVISIONS

NO.	DATE	DESCRIPTION

BY: \_\_\_\_\_

Mechanical and Electrical Consultants  
Firm Registration # 2689  
Professional Seal  
Corpus Christi, TX 78402  
361 822 2442 ext. 300  
361 822 2442 fax  
361 822 2442 cell

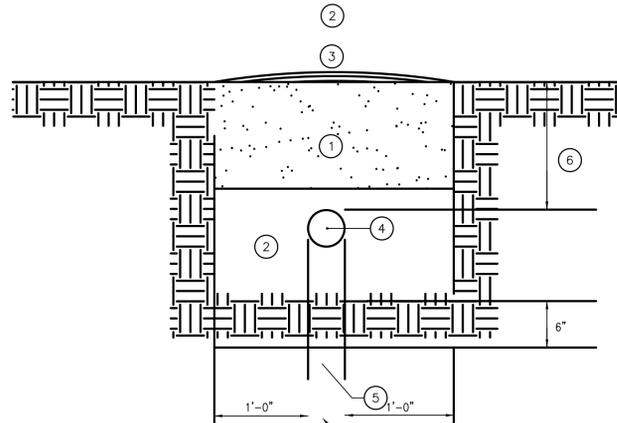
Inc Engineering  
GPM

Professional Seal  
Professional Engineer  
JAMES C. WARD  
08855  
LICENSED



TRENCH (W/PIPE) DETAIL KEYED NOTES:

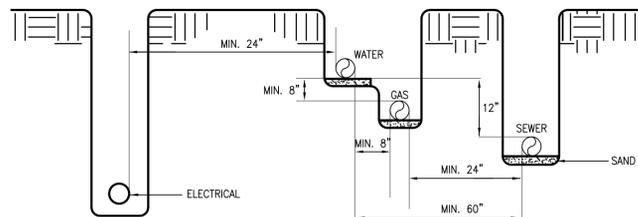
- BACKFILL SHALL BE RETAINED, SELECT MATERIAL FROM TRENCH EXCAVATION. MECHANICALLY COMPACT TO 95% PROCTOR. MOISTURE CONTENT -1 TO +3 % OF OPTIMAL PER ASTM-D698.
- BEDDING SHALL BE SELECT SAND BACKFILL PER ASTM-D2321, CLASS II. MECHANICALLY COMPACT TO 95% PROCTOR. MOISTURE CONTENT -1 TO 3 % OF OPTIMAL PER ASTM D698.
- PROVIDE SLIGHT OVERFILL FOR SETTLING. PROVIDE SEED, FERTILIZER, AND WATERING.
- PIPE SHALL BE INSPECTED BEFORE COVERING.
- VARIES, REFER TO PLAN.
- VARIES, FIELD VERIFY.



1 PIPE TRENCH SCHEMATIC  
SCALE: NOT TO SCALE

TRENCHING DETAIL NOTES:

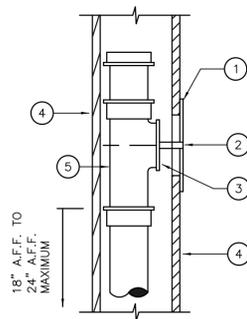
- CLEAR TRENCH OF ALL ROCKS AND DEBRIS BEFORE ADDING SAND CUSHION.
- COMPACT TRENCH FILL TO 95% PROCTOR DENSITY.
- MAINTAIN A MINIMUM OF 60 INCHES UNDISTURBED EARTH BETWEEN PARALLEL WATER AND SEWER LINES OR SUPPORT WATERLINE ON SEPARATE SHELF A MINIMUM OF 12" ABOVE SEWER LINE.
- MAINTAIN A MINIMUM OF 24" HORIZONTALLY BETWEEN ELECTRICAL PRIMARY AND SEWER. MAINTAIN A MINIMUM OF 12" VERTICALLY OR 24" HORIZONTALLY BETWEEN ELECTRICAL AND WATER LINES, GAS LINES, TELEPHONE RACEWAYS AND CABLE RACEWAYS.



2 UTILITY SEPARATION SCHEMATIC  
SCALE: NOT TO SCALE

WALL CLEAN OUT KEYED NOTES:

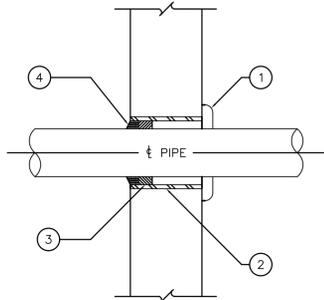
- STAINLESS STEEL COVER PLATE
- COVER PLATE
- LOCATE TO BE AS UNOBTRUSIVE AS POSSIBLE. COORDINATE WITH ARCHITECT AND GENERAL CONTRACTOR.
- FINISHED WALL
- CLEANOUT FITTING



3 WALL CLEANOUT  
SCALE: NOT TO SCALE

TYPICAL WALL PENETRATION DETAIL KEYED NOTES:

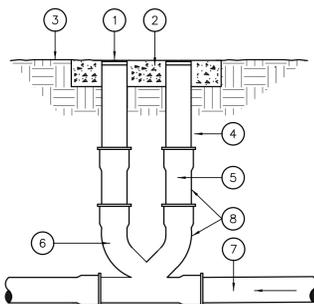
- ESCUTCHEON (TYPICAL FOR FINISHED INTERIOR WALLS)
- METAL PIPE SLEEVE
- FIRESTOPPING MATERIAL IN ACCORDANCE WITH UL 723 OR 1479 IN FIRE RATED WALLS
- SEALANT-JOINT 1 1/4" MIN. WIDE BY 3/8" DEEP



4 WALL CLEANOUT  
SCALE: NOT TO SCALE

2-WAY YARD CLEANOUT KEY NOTES:

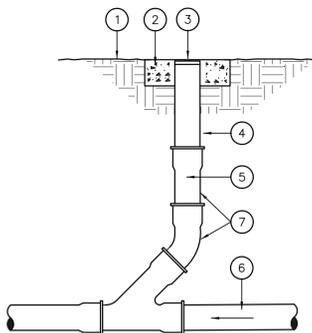
- CLEANOUT PLUGS - ZURN Z-1470 OR EQUAL
- 20"x12"x4" CONCRETE PAD
- GRADE LEVEL
- CAST IRON CLEANOUT EXTENSION-ZURN Z-1450-8 OR EQUAL
- SAME SIZE AS LINE SERVED EXCEPT 4" MAXIMUM REQ'D.
- TWO-WAY CLEANOUT FITTING
- SEWER MAIN - PVC PER SPECS
- CAST IRON FITTING



5 TWO WAY CLEANOUT  
SCALE: NOT TO SCALE

YARD CLEANOUT DETAIL KEYED NOTES:

- GRADE LEVEL
- 12"x12"x4" CONCRETE PAD
- CLEANOUT PLUG - ZURN Z-1470 OR EQUAL
- CAST IRON CLEANOUT EXTENSION-ZURN Z-1450-8 OR EQUAL
- SAME SIZE AS LINE SERVED EXCEPT 4" MAXIMUM REQUIRED
- SEWER MAIN - PVC PER SPECS
- CAST IRON FITTING

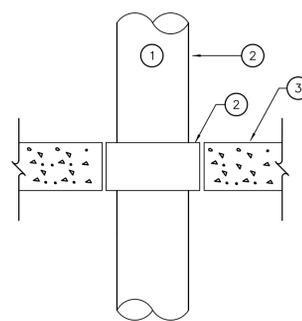


6 ONE WAY CLEANOUT  
SCALE: NOT TO SCALE

NOTE: PROVIDE SLEEVE AT ALL SW&V PIPING PASSING THROUGH FLOORS. DO NOT USE ON FLOOR DRAINS, MOP SINKS, AND/OR WATERCLOSETS.

FLOOR SLEEVE DETAIL KEYED NOTES:

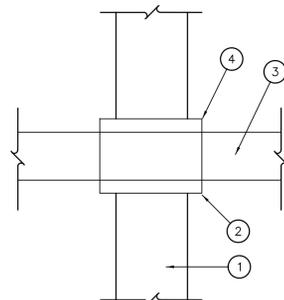
- SANITARY WASTE AND VENT PIPING
- SCH 40 PVC SLEEVE. SEAL ANNULUS WITH INTUMESCENT PUTTY.
- GROUND FLOOR SLAB



7 FLOOR SLEEVE AT SLAB  
SCALE: NOT TO SCALE

WALL SLEEVE DETAIL KEYED NOTES:

- MASONRY WALL
- GALVANIZED SCH 40 STEEL SLEEVE. SIZE TO BE MIN. 3/8" LARGER IN DIAMETER THAN PIPE AND INSULATION.
- HVAC PIPE
- FILL VOID WITH MINERAL WOOL AND CAULK VERMIN TIGHT WHEN PENETRATING INTERIOR PARTITIONS. FILL VOID WITH FIRE RETARDANT PUTTY PER SPECIFICATIONS WHEN PENETRATING EXTERIOR MASONRY WALLS OR FIRE RATED PARTITIONS.

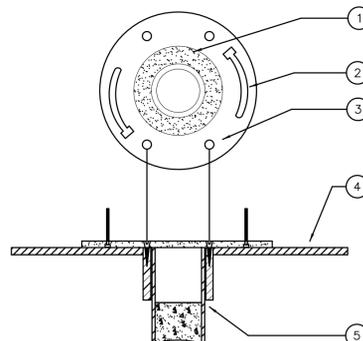


8 TWO WAY CLEANOUT  
SCALE: NOT TO SCALE

DMV FLANGE DETAIL KEYED NOTES:

- PLASTIC DMV (DRAINAGE-WASTE-VENT) PIPE
- SLOTS FOR CLOSET BOLTS
- USE SCREWS OR BOLTS TO SECURE PLASTIC FLANGE TO FLOOR
- FINISHED FLOOR
- CEMENTED JOINT

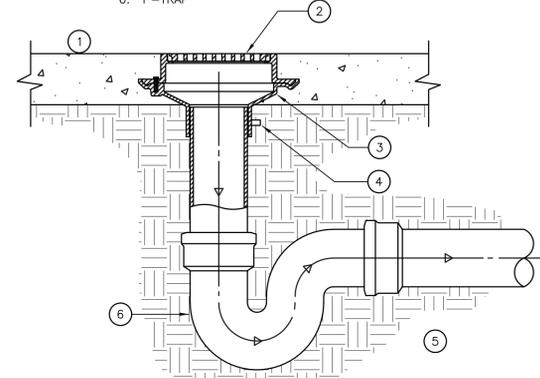
NOTE: OFFSET CLOSET FLANGES ARE NOT ALLOWED.



9 WATERCLOSET FLANGE  
SCALE: NOT TO SCALE

FLOOR DRAIN DETAIL KEYED NOTES:

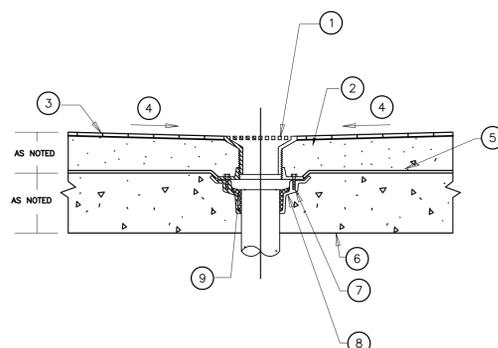
- FLOOR LINE
- POLISHED NIKALOY STRAINER
- FLOOR DRAIN
- TRAP PRIMER TAP
- REFER TO PLAN FOR EXACT LOCATION OF P-TRAP
- P-TRAP



10 FLOOR DRAIN SCHEMATIC  
SCALE: NOT TO SCALE

FLOOR DRAIN SEALING DETAIL KEYED NOTES:

- FLOOR DRAIN STRAINER
- COORDINATE WITH ARCHITECTURAL PLANS FOR FLOORING TYPE AND CONSTRUCTION METHODS.
- FINISHED FLOOR SURFACE
- SLOPE TO DRAIN
- WATERPROOF MEMBRANE
- CONCRETE FLOOR SLAB
- CLAMP PAN TIGHTLY INTO DRAIN COLLAR
- DRAIN BODY POURED IN PLACE
- NEOPRENE GASKET

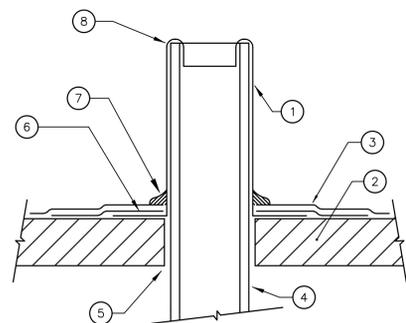


11 FLOOR DRAIN SEALING  
SCALE: NOT TO SCALE

VENT THROUGH ROOF DETAIL KEYED NOTES:

COORDINATE INSTALLATION WITH ROOFING CONTRACTOR TO PROTECT ROOFING WARRANTY.

- RISE ABOVE ROOF 15" MINIMUM
- ROOF SYSTEM, FIELD VERIFY
- ROOFING MEMBRANE COUNTER-FLASHING BY ROOFING DIVISION
- SIZE AS INDICATED ON DRAWING
- ROUTE AS INDICATED
- ADHERE FLANGE WITH RUBBER MASTIC. PRIME TOP OF FLANGE BEFORE STRIPPING. PROVIDE ROOF FLASHING MEMBRANE SHEETS.
- ROOF CEMENT OR SEALANT AT PENETRATION TO MEMBRANE JUNCTURE.
- LEAD FLASHING BY PLBG DIVISION. WRAP OVER TOP OF VENT 1"



12 VENT THRU ROOF  
SCALE: NOT TO SCALE



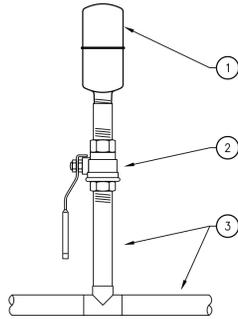
DATE: 06/24/20

NO.	DATE	DESCRIPTION

LEON VALLEY COMMUNITY CENTER UPGRADES  
LEON VALLEY, TEXAS  
PLUMBING DETAILS

WATER HAMMER ARRESTOR DETAIL KEYED NOTES:

1. WATER HAMMER ARRESTOR, INSTALL PER PDI WH201 AND PER MANUFACTURER'S RECOMMENDATIONS.
2. BALL VALVE
3. WATER LINE

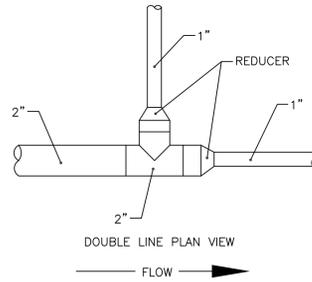


1 PIPING SUPPORT SCHEMATIC

SCALE: NOT TO SCALE

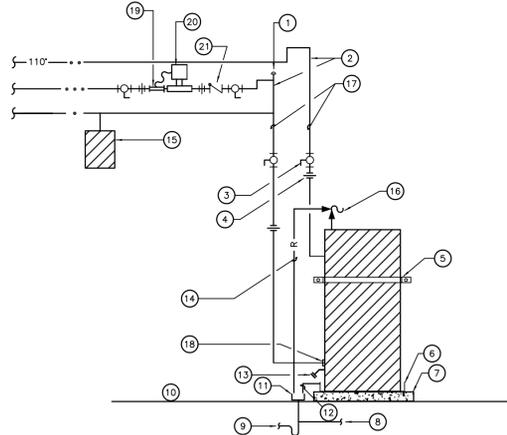
PIPING NOMENCLATURE GENERAL NOTES:

1. PIPING SIZE SHALL BE UNDIMINISHED UNTIL PIPE SIZE CHANGE IS NOTED. FITTINGS SHALL BE SIZE WITH LARGER PIPE PRIOR TO BRANCH TAKE OFF. USE REDUCING FITTINGS AFTER BRANCH FROM TEE TO MAINTAIN PIPE SIZE AS NOTED PRIOR TO BRANCH TAKE OFF.
2. USE OF EITHER REDUCING TEE OR FULL SIZE TEE WITH REDUCING FITTINGS IS ALLOWED.
3. IF CONTRACTOR IS UNSURE OF PIPE SIZE, DO NOT PROCEED UNTIL THE MATTER IS RESOLVED TO THE ENTIRE SATISFACTION OF OWNER.
4. GRAVITY FEED LINES ARE SIMILAR IN NATURE BUT IN REVERSE.



2 PIPING NOMENCLATURE

SCALE: NOT TO SCALE

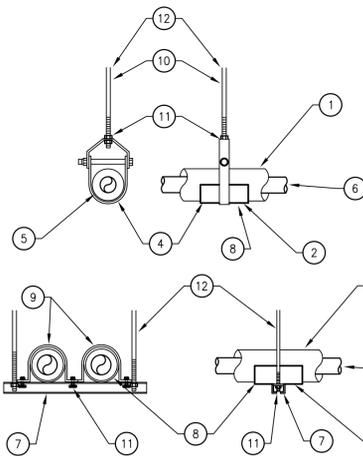


5 ELECTRIC WATER HEATER

SCALE: NOT TO SCALE

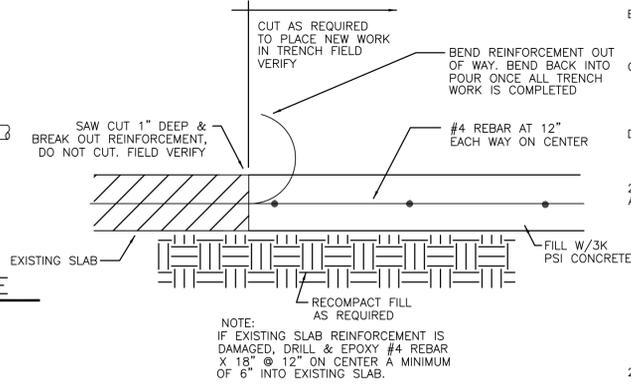
PIPE SUPPORT DETAIL KEYED NOTES:

1. PROVIDE A SECTION OF HIGH COMPRESSION OR INCOMPRESSIBLE INSULATION AT EACH HANGER. EXTEND 2 INCHES BEYOND GALVANIZED SHIELD EACH WAY.
2. GALVANIZED SHIELD, EXTEND MINIMUM OF 2 INCHES BEYOND HANGER.
3. INSULATION AS SPECIFIED.
4. CLEVIS HANGER FOR SINGLE PIPE RUNS, PROVIDE DIELECTRIC PROTECTION FOR DISSIMILAR METALS.
5. HANGER SHALL BE SIZED TO ALLOW AMPLE ROOM FOR PIPE WITHOUT CRUSHING INSULATION, TYPICAL.
6. PIPE, TYPICAL.
7. UNISTRUT CHANNEL, DRESS AND DEBURR CUT ENDS. PROVIDE GALVANIZED PAINT ON EXPOSED METAL.
8. GALVANIZED SHIELD MINIMUM 12" LONG FOR PIPING OVER 2" AND MINIMUM 6 INCHES LONG FOR PIPING UNDER 2".
9. PROVIDE PIPE CLAMP ON PIPING 2 1/2" AND SMALLER.
10. GALVANIZED HANGER ROD. ALL-THREAD ROD NOT ALLOWED.
11. LOCK NUT TO SECURE HANGER IN PLACE.
12. SUPPORT FROM STRUCTURE PER MANUFACTURER'S RECOMMENDATIONS.



3 PIPING SUPPORT SCHEMATIC

SCALE: NOT TO SCALE



4 SLAB CUT SCHEMATIC

SCALE: NOT TO SCALE

ELECTRIC WATER HEATER W/RCP DETAIL KEYED NOTES:

1. WATTS REGULATOR N36 VACUUM RELIEF
2. HEAT TRAPS PER 2003 IECC
3. BALL VALVE (TYPICAL)
4. UNION (TYPICAL)
5. WATTS REGULATOR E-100 WATER HEATER RESTRAINER, COORDINATE WALL TYPE WITH ARCH. FIELD VERIFY.
6. 4" DEEP 20 GA GALVANIZED AUXILIARY DRAIN PAN
7. 4" THICK REINFORCED CONCRETE HOUSEKEEPING PAD
8. TRAP PRIMER TO DRAIN
9. FLOOR
10. FLOOR DRAIN W/FUNNEL
11. AUX. PAN DRAIN LINE, 3/4"
12. RELIEF LINE, SIZE RELIEF LINE PER MFR RECOMMENDATIONS
13. TANK DRAIN
14. EXPANSION TANK, SUPPORT FROM STRUCTURE
15. ASME TAP RELIEF VALVE
16. REFER TO PLAN FOR SIZE
17. IF BOTTOM FED USE VACUUM BREAKER
18. ADJUSTABLE ADJUSTAT W/MOUNTING STRAP
19. RECIRC. PUMP
20. NON-SLAM CHECK VALVE
21. NON-SLAM CHECK VALVE

GENERAL PLUMBING SPECIFICATION

PART 1 GENERAL

1.1 CONDITIONS

THE INSTRUCTIONS TO BIDDERS, GENERAL CONDITIONS, SUPPLEMENTAL GENERAL CONDITIONS, AND ALL DIVISIONS OF THE SPECIFICATIONS APPLY TO THIS SECTION.

1.2 SECTION INCLUDES

A IT IS INTENDED THAT THE PLUMBING WORK INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS SHALL MAKE UP INTO WORKING SYSTEMS COMPLETE IN EVERY DETAIL UNLESS INDICATED OTHERWISE. ALL MATERIAL AND LABOR, WHETHER SPECIFICALLY INDICATED OR NOT BUT NECESSARY FOR THE PROPER INSTALLATION OF THE PLUMBING WORK, SHALL BE FURNISHED COMPLETE IN EVERY DETAIL.

B CHANGES IN PRICE FOR THE PLUMBING WORK CAN ONLY BE MADE FOR CHANGES IN THE DESIGN INTENTIONS AND AFTER WRITTEN CONSENT OF THE ARCHITECT.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A CONDENSATE DRAIN PIPING FROM AIR CONDITIONING EQUIPMENT TO PLUMBING DRAINS SHALL BE PROVIDED UNDER SECTION 15600.

B POWER WIRING FOR EQUIPMENT SHALL BE PROVIDED UNDER DIVISION 16, "ELECTRICAL".

1.4 SUBMITTALS

A COMPLETE BROCHURE OF MATERIALS, EQUIPMENT, APPURTENANCES, AND ACCESSORIES THE CONTRACTOR PROPOSES TO USE MUST BE SUBMITTED ACCOMPANIED BY COMPLETE DESCRIPTION LITERATURE, DRAWINGS, RATING TABLES OR CURVES NECESSARY TO GIVE FULL AND COMPLETE DETAILS. NO CONSIDERATION WILL BE GIVEN TO PARTIAL LISTS SUBMITTED FROM TIME TO TIME. ACCEPTABLE ITEMS MUST REPLACE ANY ITEM ON THIS LIST THAT IS REJECTED BECAUSE OF UNSUITABILITY OR INFERIOR QUALITY WITHIN TWO WEEKS. APPROVAL OF MATERIALS OR EQUIPMENT SHALL NOT BE CONSTRUED AS RELEASING THIS CONTRACTOR FROM FURTHER RESPONSIBILITY IN CONFORMING TO ALL PROVISIONS OF THE CONTRACT DOCUMENTS, BUT SHALL BE CONSIDERED AS A TOOL TO COORDINATE THE WORK AND TO AID IN THE PROPER SELECTION AND INSTALLATION OF THE EQUIPMENT.

1.5 PRODUCT HANDLING

MATERIAL SHALL BE STORED IN SUCH A MANNER AS TO PROTECT THEM FROM DAMAGE OR DETERIORATION. ALL MATERIALS AND EQUIPMENT INJURED OR DAMAGED (IN TRANSIT, STORAGE, INSTALLATION, TEMPORARY OPERATION OR TESTING) BEFORE COMPLETION OF THE CONTRACT SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER PRIOR TO FINAL ACCEPTANCE.

1.6 QUALITY CONTROL

A THE PLUMBING CONTRACTOR SHALL HAVE A CURRENT LICENSE ISSUED BY THE STATE OF TEXAS AND SHALL OBTAIN ALL PERMITS REQUIRED FOR THE PLUMBING WORK.

B THE PLUMBING WORK SHALL COMPLY WITH ANY LOCAL, STATE AND NATIONAL CODES, AND THE REQUIREMENTS OF ANY UTILITY COMPANY AFFECTING THE PLUMBING WORK.

C THE PLUMBING WORK SHALL CONFORM TO THE PLUMBING SPECIFICATIONS, THE GENERAL SPECIFICATIONS, THE PLUMBING DRAWINGS, AND THE GENERAL DRAWINGS. IN CASE OF A CONFLICT, THE SPECIFICATIONS SHALL GOVERN. WHERE A DISCREPANCY EXISTS, FURNISH THE BETTER QUALITY OR LARGER SIZE INDICATED.

1.7 AS BUILT DRAWINGS

AT THE COMPLETION OF THE PROJECT, CORRECTED SEPIAS SHALL BE FURNISHED TO THE OWNER. THESE DRAWINGS SHALL ACCURATELY LOCATE ALL UNDERGROUND PLUMBING LINES AND METERS.

PART 2 PRODUCTS

2.1 MATERIALS

A MATERIALS FOR THE PLUMBING WORK MUST BE NEW UNLESS INDICATED OTHERWISE. THE MATERIALS NAMED IN THE SPECIFICATIONS OR ON THE DRAWINGS FOR THE PLUMBING WORK INDICATE QUALITY AND DESIGN. ANY FEATURE INCLUDED AS A STANDARD OF THE MATERIALS LISTED SHALL BE INCLUDED IN ANY SUBSTITUTION. SUBSTITUTES OF EQUAL QUALITY AND DESIGN MAY BE PERMITTED AND MUST BE SUBMITTED IN ACCORDANCE WITH THESE SPECIFICATIONS. SUBSTITUTIONS SHALL BE PRE-APPROVED PRIOR TO SUBMITTAL.

B ALL OTHER MATERIALS, NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR A COMPLETE AND PROPER INSTALLATION OF THE WORK OF THIS SECTION, SHALL BE NEW, FIRST QUALITY OF THEIR RESPECTIVE KINDS, AND AS SELECTED BY THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE ARCHITECT.

C WATER PIPING (WITHIN 5 FEET OF THE BUILDING):  
1. COPPER TUBING: ASTM B42, TYPE K SOFT, 1 1/2" PIPE SIZE AND SMALLER. FITTINGS: ASME B16.26 CAST BRONZE. JOINTS: NO JOINTS ALLOWED BELOW SLAB. ALL PIPING BELOW SLAB OR INSTALLED IN CONCRETE OR MASONRY FLOORS AND WALLS SHALL BE ENCASED IN A POLYETHYLENE SLEEVE, POLYSLEEVE OR PREAPPROVED EQUAL.

D SANITARY SEWER (WITHIN 5 FEET OF THE BUILDING):  
1. PVC PIPE: (ASTM D2665), SCHEDULE 40. FITTINGS: PVC DWV TYPE, SCHEDULE 40, (ASTM D2865). JOINTS: (ASTM D2855) AND (D2564), SOLVENT WELD.

2.2 PIPING INSULATION:

A CLASS I INSULATION SHALL BE HEAVY DENSITY PREFORMED ONE-PIECE SINGLE SEAM INSULATION COMPOSED OF FINE INORGANIC GLASS FIBERS BONDED TOGETHER WITH A THERMOSETTING RESIN WITH AN ALL SERVICE JACKET COMPOSED OF WHITE KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBER YARN, CONFORMING TO THE FOLLOWING:

MAXIMUM TEMPERATURE LIMIT, DEG. F	500
DENSITY, LBS/CF	3.0 TO 5.0
SPECIFIC HEAT, BTU/LB/DEG F	0.20
THERMAL CONDUCTIVITY, BTU/HR/SQ.FT./DEG F/IN	
AT 75 DEG F	0.23
200 DEG F	0.26
400 DEG F	0.42
JACKET WATER VAPOR PERMEABILITY	0.02

2.3 INSULATION SCHEDULE:

INSULATION SERVICE	INSULATION	
	CLASS	THICKNESS
DOMESTIC COLD WATER PIPING	I	1"
DOMESTIC HOT WATER PIPING	I	1"

2.4 INSULATION LOCATION

A INSULATE HOT WATER PIPING.

B COLD WATER PIPING SUBJECT TO FREEZING (OUTSIDE ABOVE GRADE, IN CRAWL SPACE OR ATTIC, EXTERIOR WALLS, I.E. OUTSIDE BUILDING INSULATION ENVELOPE).

C DRAINS RECEIVING CONDENSATE FROM AIR CONDITIONING EQUIPMENT: REFER TO PLUMBING MATERIALS.

D EXPOSED DRAIN AND WATER SUPPLIES AT HANDICAPPED LAVATORIES AND SINKS SHALL BE COVERED WITH WHITE MOLDED VINYL KIT FOR OFFSET DRAIN.

2.5 FIRE RESISTANCE:

A INSULATION, ADHESIVE, SEALER, VAPOR-BARRIER COATINGS AND VAPOR-BARRIER MATERIALS SHALL HAVE A FLAME-SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NOT MORE THAN 50. MATERIALS THAT ARE FACTORY APPLIED SHALL BE TESTED AS ASSEMBLED AND CERTIFIED BY THE MANUFACTURER TO MEET STANDARDS. MATERIALS WHICH ARE FIELD APPLIED MAY BE TESTED INDIVIDUALLY. NO FUGITIVE OR CORROSION TREATMENTS SHALL BE EMPLOYED TO IMPART FIRE RESISTANCE.

1. FLAME SPREAD AND SMOKE DEVELOPED RATINGS: SHALL BE DETERMINED BY METHOD OF TEST OF SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS, NFPA NO. 255, ASTM E84 AND UNDERWRITERS' LABORATORIES, INC. BUILDING MATERIALS LIST UNDER HEADING "HAZARD CLASSIFICATION (FIRE)."

C REFER TO PLUMBING SCHEDULE FOR PLUMBING FIXTURES. REFER TO PLUMBING MATERIALS FOR ADDITIONAL INFORMATION.

E TEST SANITARY SEWER TO 10' HYDROSTATIC ABOVE MAXIMUM HEIGHT OF STACKS. TEST WATER LINES TO 1.5 TIMES OPERATING PRESSURE.

F TEST WATER LINES TO 1.5 TIMES OPERATING PRESSURE.

GENERAL PLUMBING SPECIFICATION (CONTINUED)

2.6 PLUMBING FIXTURES

A AS SCHEDULED ON THE PLANS, SCHEDULE DENOTES TYPE AND QUALITY OF FIXTURES REQUIRED. FIXTURE QUANTITIES HAVE NOT BEEN INDICATED AND WILL BE OBTAINED BY THE CONTRACTOR FROM THE PLANS.

B ALL TRIM SHALL BE CHROME PLATE ON BRASS. ALL FIXTURES SHALL BE PROVIDED WITH LOOSE KEY COMPRESSION TYPE STOPS ON SUPPLY PIPING. ALL BRASS SHALL BE SO DESIGNED THAT THE SUPPLY FIXTURE AND FAUCETS HAVE ALL WEARING PARTS IN A STANDARDIZED RENEWABLE OPERATING UNIT, WHICH CAN BE REMOVED WITHOUT DETACHING THE SUPPLY FIXTURE OR FAUCET PROPER. ALL TRAPS SHALL HAVE A CLEANOUT PLUG.

C FIXTURES SHALL BE MOUNTED AT LOCATION AND HEIGHT AS DIMENSIONED OR DIRECTED BY ARCHITECT.

D ALL PLUMBING FIXTURES DELIVERING POTABLE WATER FOR POSSIBLE HUMAN CONSUMPTION (IE LAVATORY AND SINK FAUCETS, WATER COOLERS AND FOUNTAINS, ETC.) SHALL BE LEAD FREE AS DEFINED BY THE "SAFE DRINKING WATER ACT".

2.7 GENERAL

A ESCUTCHEONS: CHROME PLATED BRASS ESCUTCHEONS SHALL BE PROVIDED WHEREVER ANY PIPE OR ROD PASSES THROUGH FINISHED FLOORS, WALLS, OR CEILINGS.

B PROVIDE AIR CHAMBERS THE SAME DIAMETER AS SUPPLY PIPE AND 18" LONG ON WATER PIPING BRANCHES TO FIXTURES. ALL AIR CHAMBERS SHALL BE CONCEALED IN CHASES OR PARTITIONS UNLESS NOTED OTHERWISE.

C 'HI-LO' WATER FOUNTAINS SHALL HAVE CANE TOUCH APRON ON THE HIGH UNIT.

PART 3 EXECUTION

3.1 REQUIREMENTS

A PROVIDE TEMPORARY SERVICES AND CONNECTIONS REQUIRED FOR CONSTRUCTION.

B WORKMANSHIP NOT IN ACCORDANCE WITH STANDARD APPROVED PRACTICES FOR INSTALLING THE PLUMBING WORK SHALL BE MADE TO COMPLY WITH THESE PRACTICES.

C ARCHITECT SHALL DETERMINE EXACT LOCATIONS OF FIXTURES AND EQUIPMENT FOR THE PLUMBING WORK. COORDINATE MOUNTING HEIGHTS AND ACCESSIBILITY CLEARANCES WITH ARCHITECT - SEE ARCHITECTURAL ELEVATIONS AND ENLARGED PLANS. FLUSH VALVES SHALL BE TOWARD THE WIDE SIDE OF THE STALL.

3.2 REQUIREMENTS

D CUTTING AND PATCHING REQUIRED FOR THE PLUMBING WORK SHALL BE DONE BY THE PLUMBING CONTRACTOR. DO NOT CUT, ALTER OR REDUCE ANY LOAD-BEARING MEMBER WITHOUT THE SPECIFIC WRITTEN APPROVAL OF THE ARCHITECT AND/OR STRUCTURAL ENGINEER.

3.3 CONDITIONS

E EXCAVATING AND BACKFILLING  
1. PROVIDE ALL EXCAVATING AND BACKFILLING REQUIRED FOR THE INSTALLATION OF THE PLUMBING WORK. TRENCHES SHALL BE EXCAVATED TO THE REQUIRED DEPTH AND THE BOTTOM TAMPED HARD AND GRADED FOR THE PROPER FALL. IF THE TRENCH IS IMPROPERLY GRADED AND FILL IS REQUIRED, IT SHALL BE MECHANICALLY TAMPED. ALL PIPING SHALL REST SECURELY ON THE BOTTOM OF THE TRENCH.

2. EXCAVATION SHALL BE BACKFILLED WITH SUITABLE MATERIAL, FREE FROM ALL DEBRIS AND RUBBISH, AND MECHANICALLY TAMPED. THE SURFACE SHALL BE LEVELED TO MATCH EXISTING GRADE AND MAINTAINED WITHOUT SINKING FOR THE WARRANTY PERIOD.

3.4 INSTALLATION

A GENERAL

1. THE PIPING SYSTEMS OF THE PLUMBING WORK SHALL BE CONCEALED IN THE BUILDING STRUCTURE UNLESS INDICATED OTHERWISE AND SHALL RUN NEATLY WITH BUILDING LINES WHEN EXPOSED. ROUTE ALL PIPING WHERE SHOWN UNLESS OBSTRUCTIONS PREVENT THIS, OBTAIN APPROVAL OF THE ENGINEER FOR ALL MODIFICATIONS.

2. SLEEVING SHALL BE PROVIDED UNLESS INDICATED OTHERWISE AND MUST BE APPROVED BY THE ARCHITECT. WHERE COPPER PIPE PASSES THROUGH MASONRY WALLS, FLOORS, OR PARTITIONS, COPPER SLEEVES SHALL BE PROVIDED. ALL PIPING PASSING THROUGH FLOORS OR EXTERIOR WALLS SHALL HAVE THE SLEEVES PACKED WITH INTUMESCENT PUTTY OR PREAPPROVED SEALANT AND PENETRATION SEALED WATERTIGHT AND RODENTPROOF.

3. DURING THE INSTALLATION OF THE PLUMBING, THE PLUMBING CONTRACTOR SHALL PROTECT ALL PIPE FROM DEBRIS AND TRENCH WATER. ALL OPEN PIPE SHALL BE MECHANICALLY SEALED - TAPE IS NOT ACCEPTABLE.

B WATER PIPING

1. PROVIDE ALL PIPING AND MAKE ALL CONNECTIONS FROM THE SERVICE TO EVERY ITEM AND FIXTURE. PROVIDE UNIONS AND SHUTOFF VALVES AT ALL FIXTURES AND EQUIPMENT CONNECTIONS.

2. STEEL WATER PIPING SHALL BE INSTALLED IN CONNECTION WITH POTABLE WATER PIPING. SOLDER JOINTS SHALL BE MADE UP WITH LEAD-FREE SOLDER AND A NON-CORROSIVE SOLDER FLUX. THREADED JOINTS SHALL HAVE TEFLON TAPE PER THE MANUFACTURER'S RECOMMENDATIONS.

3. STERILIZE ALL PIPING WITH A WATER SOLUTION CONTAINING 500 PPM OF CHLORINE. SOLUTION SHALL REMAIN IN PIPE FOR 8 HOURS BEFORE BEING FLUSHED OUT.

C SANITARY WASTE & VENT

1. CLEANOUTS SHALL BE PROVIDED SO THAT EACH AND EVERY WASTE LINE THROUGHOUT THE JOB MAY BE RODDED. CLEANOUTS SHALL BE SPACED ON 75' CENTERS ON STRAIGHT RUNS WHERE INTERMEDIATE BRANCHES DO NOT PROVIDE CLEANOUT ACCESS.

2. THE WASTE AND DRAIN LINES SHALL BE INSTALLED AT THE ELEVATIONS INDICATED. THEY SHALL BE GRADED AT MINIMUM OF 1/8" PER FOOT TO DRAIN PROPERLY.

3. ALL VENTS ABOVE THE ROOF SHALL BE FLASHED AS DETAILED. FLASHING SHALL BE FLANGED OUT ON ROOF 8" AROUND STACK AND BE SOLDERED TO LEAD CAULKING OR COPPER VENT.

D VALVES

1. THE PLUMBING CONTRACTOR SHALL PROVIDE VALVES WHERE SHOWN ON THE DRAWINGS AND WHERE NECESSARY FOR THE PROPER FUNCTIONING OF THE SYSTEM. PROVIDE ISOLATION VALVES FOR ALL MAJOR RESTROOM GROUPS AND BRANCH TAPS SERVING EACH FLOOR OR AREA OF THE BUILDING.

E PIPE SUPPORTS

1. ALL PIPE SHALL BE RIGIDLY SUPPORTED WITH HANGERS AND SUPPORTS SECURED TO THE STRUCTURAL FRAMING. HANGERS SHALL BE SPLIT RING FOR UP TO 2" AND CLEVIS TYPE WITH ADJUSTABLE SWIVEL COUPLINGS FOR LARGER. VERTICAL PIPING SHALL BE SUPPORTED BY RISER CLAMPS AT EACH FLOOR FOR SANITARY & WATER PIPING LESS THAN 2" AND EVERY OTHER FLOOR FOR WATER PIPING OVER 2". HANGER RODS SHALL BE OF THE SIZES RECOMMENDED BY THE MANUFACTURER. PERFORATED STRAP HANGERS WILL NOT BE PERMITTED IN ANY PART OF THE WORK. ALL PIPE SUPPORTS SHALL BE HOT DIPPED GALVANIZED.

2. PIPE HANGERS AND SUPPORTS SHALL BE LOCATED AT EACH VALVE AND NEAR CHANGES OF DIRECTION. SPACING OF HANGERS AND SUPPORTS SHALL NOT EXCEED THE FOLLOWING: 1) PVC SHALL HAVE HANGERS AT 5' SPACING FOR ALL SIZES.

WATER PIPE SIZE SPAN

3/4" AND SMALLER	7'-0"
1"	8'-0"
1-1/4"	10'-0"

G INSULATION

1. TEST ALL PIPING BEFORE COVERING.

2. ADHERE LONGITUDINAL AND BUTT STRIPS OF JACKET WITH FACTORY APPROVED GLUE. PRESSURE SENSITIVE TAPE SYSTEM IS NOT ALLOWED AS A PRIMARY SEALANT. ALL ELLS SHALL BE MITERED JOINTS.

3. WHEN SPECIFIED, APPLY VAPOR BARRIER MASTIC OVER ALL JOINTS AND SEAMS; EMBED GLASS CLOTH IN MASTIC WHERE FACTORY COVERING DOES NOT HAVE SCRIM REINFORCING.

3.5 GUARANTEE

THE OWNER SHALL BE GUARANTEED BY THE CONTRACTOR THAT ANY DEFECTS ARISING IN THE PLUMBING WORK WITHIN ONE YEAR OF THE DATE OF ACCEPTANCE SHALL BE CORRECTED FREE OF CHARGE. THIS SHALL INCLUDE MAINTAINING LEVEL OF ALL TRENCHES WITHOUT SINKING.

3.6 TESTS

THE PLUMBING CONTRACTOR SHALL TEST ALL PIPING AND FURNISH ALL APPARATUS NECESSARY FOR THE TESTS. ANY LEAKS SHALL BE REPAIRED AND THE TEST REPEATED TO COMPLETION. ALL PIPING SHALL BE TESTED TO THE SATISFACTION OF THE ARCHITECT AND THE PLUMBING INSPECTOR. THE ARCHITECT SHALL BE NOTIFIED 24 HOURS PRIOR TO THE TIME THE TEST IS CONDUCTED. CLEAN PIPING SYSTEM PER GOVERNING AUTHORITIES REQUIREMENTS AND RECOMMENDATIONS AND TEST WATER LINES FOR CONTAMINATION.

3.7 CLEAN UP

THE DEBRIS FROM INSTALLING THE PLUMBING WORK SHALL BE REMOVED FROM THE JOB SITE BY THE PLUMBING CONTRACTOR.

END OF SECTION



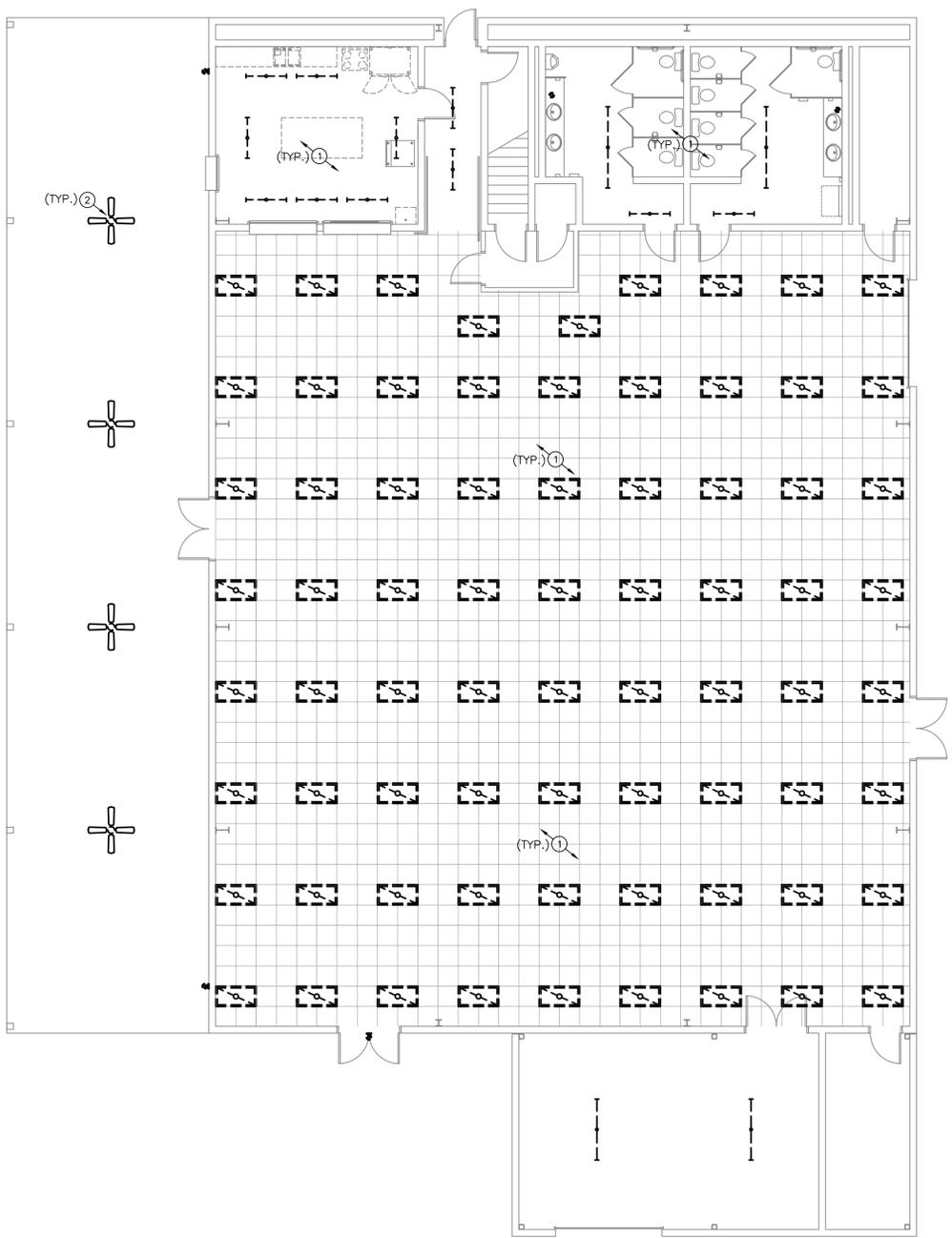
ISSUES / REVISIONS

NO.	DATE	DESCRIPTION

DATE: 06/24/20

LEON VALLEY COMMUNITY CENTER UPGRADES  
LEON VALLEY, TEXAS  
PLUMBING SPECIFICATIONS

TEBELE REGISTERED FIRM INC. ARCHITECTURAL FIRM 1025890  
SURVEYING FIRM 1025890  
TEBELE REGISTERED FIRM INC. ARCHITECTURAL FIRM 1025890  
AN Adura Company  
801 NAVASOTA, SUITE 500  
CORPUS CHRISTI, TX 78408  
PH: (361) 885-1984  
WWW.LEONVALLEY.COM



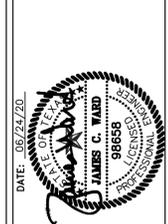
1 DEMO LIGHTING PLAN  
SCALE: 1/8"=1'-0"

**DEMO LIGHTING KEY NOTES:**

- ① DISCONNECT AND REMOVE EXISTING FIXTURE(S) TO BE REPLACED WITH NEW. EXISTING CONDUIT, WIRE, AND CONTROLS TO BE EXTEND/REROUTED AND REUSED.
- ② DISCONNECT AND REMOVE EXISTING FANS TO BE REPLACED WITH NEW. EXISTING CONDUIT, WIRE, AND CONTROLS TO BE EXTEND/REROUTED AND REUSED.

Mechanical and Electrical Consultants  
Firm Registration # F-2629  
Corpus Christi, TX 78401  
361 852 2342 ext. 361 852 2343 fax

**GPM** inc  
Engineering



DATE: 06/24/20

ISSUES / REVISIONS	NO.	DATE	DESCRIPTION	BY

**LEON VALLEY COMMUNITY CENTER UPGRADES  
LEON VALLEY, TEXAS  
DEMO LIGHTING PLAN**

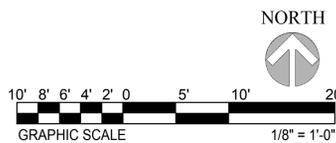
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ELECTRICAL CONTRACTORS  
SURVEYING FIRM 1012660

IBAAE REGISTERED FIRM INC.  
ARCHITECTURAL FIRM 18959

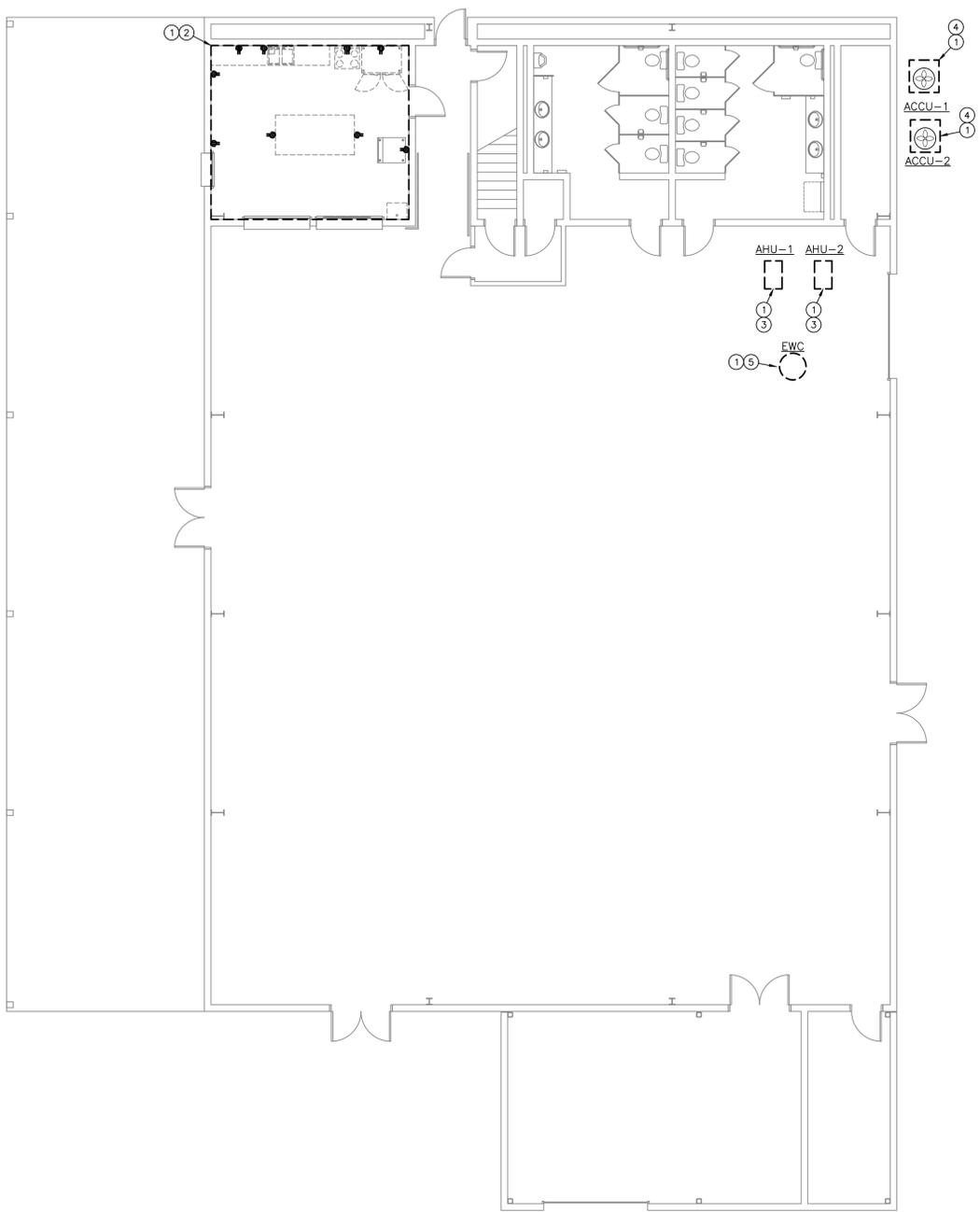
601 NAVARRO, SUITE 500  
CORPUS CHRISTI, TX 78408  
PH: (361) 885-1884  
WWW.LVINC.COM

DRAWING NO.:  
**DE1.1**  
1 of 6

DRAWN BY: AV  
CHECKED BY: JW  
APPROVED BY: JW  
JOB NO.: 20111



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Wednesday, June 23, 2011, 1:05pm



1 DEMO POWER PLAN  
SCALE: 1/8"=1'-0"

**DEMO POWER KEY NOTES:**

- ① EXISTING CIRCUIT DESIGNATION AND LOCATION ARE UNKNOWN. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY AND COORDINATE LOCATION PRIOR TO THE COMMENCEMENT OF WORK.
- ② EXISTING KITCHEN TO BE REMODELED. ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE ALL DEVICES, CONDUIT, AND WIRE BACK TO SOURCE. FIELD VERIFY PRIOR TO THE COMMENCEMENT OF WORK.
- ③ EXISTING AIR HANDLING UNIT TO BE REPLACE WITH NEW, DISCONNECT AND REMOVE EXISTING CONDUIT AND WIRE FROM EXISTING EQUIPMENT TO BE REPLACED. COORDINATE WITH HVAC CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK.
- ④ EXISTING AIR CONDENSING UNIT TO BE REPLACED WITH NEW, DISCONNECT AND REMOVE EXISTING CONDUIT AND WIRE FROM EXISTING EQUIPMENT TO BE REPLACED. COORDINATE WITH HVAC CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK.
- ⑤ EXISTING ELECTRICAL WATER HEATER TO BE REPLACED WITH NEW, DISCONNECT AND REMOVE EXISTING CONDUIT AND WIRE FROM EXISTING EQUIPMENT TO BE REPLACED. COORDINATE WITH PLUMBING CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK.



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Professional Seal  
Corpus Christi, TX 78411  
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DATE: 06/24/20

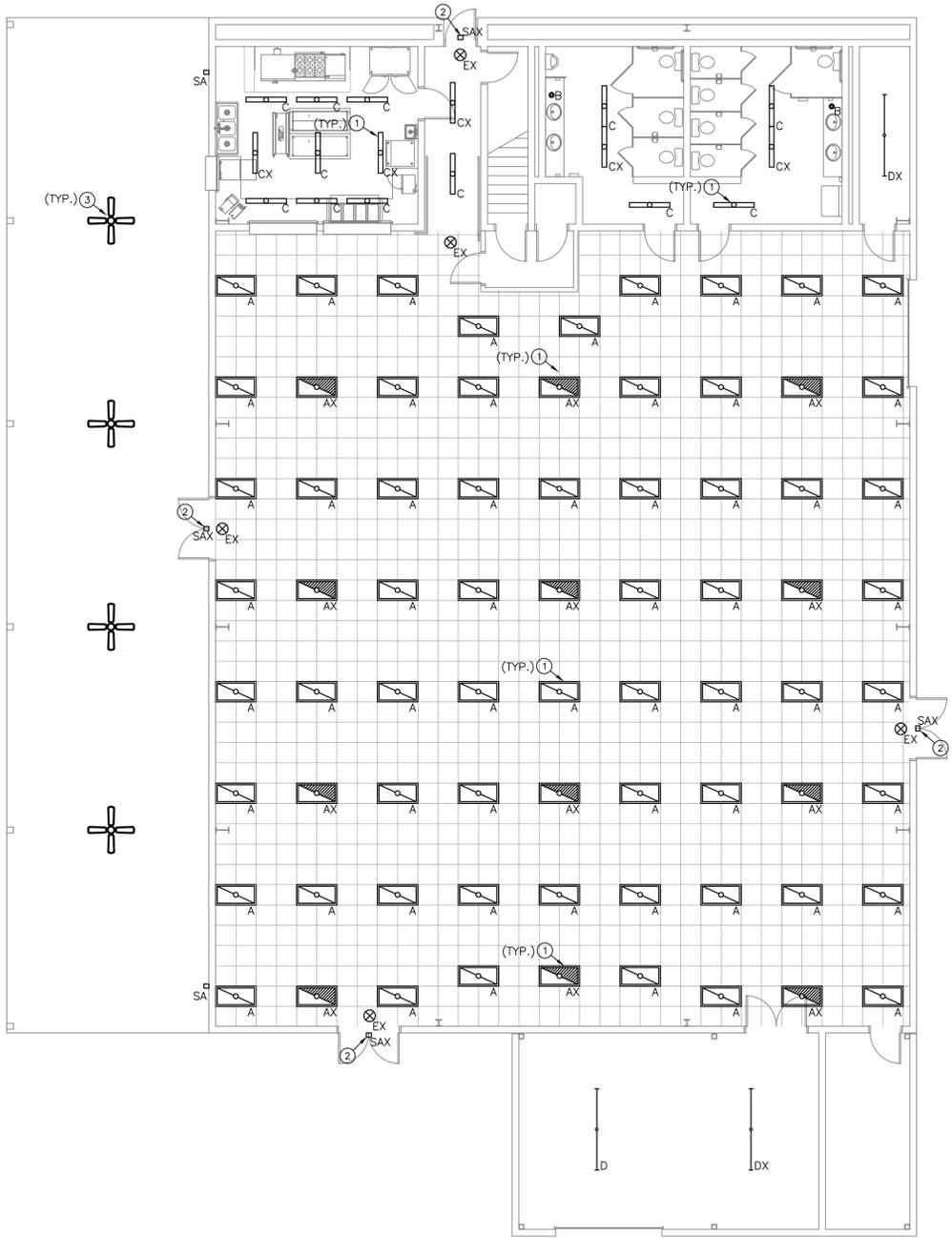
ISSUES / REVISIONS	DATE	NO.	DESCRIPTION	BY

**LEON VALLEY COMMUNITY CENTER UPGRADES  
LEON VALLEY, TEXAS  
DEMO POWER PLAN**

**LNV**  
an *Aduma Company*  
601 NAVASTOCK, SUITE 500  
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**DE2.1**  
2 of 6  
DRAWN BY: AV  
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APPROVED BY: JW  
JOB NO.: 20111

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Wednesday, June 24, 2020, 1:33pm



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

**ELECTRICAL GENERAL NOTES:**

- VERIFY ALL EQUIPMENT LOCATIONS AND POWER REQUIREMENTS WITH OWNER AND OTHER CONTRACTORS PRIOR TO THE COMMENCEMENT OF WORK.
- FIELD COORDINATE EXACT LOCATION OF ALL LIGHTING WITH ARCHITECTURAL PLANS PRIOR TO THE COMMENCEMENT OF WORK.

**LIGHTING KEY NOTES:**

- 1 PROVIDE AND INSTALL NEW LIGHTING FIXTURE AS SHOWN. EXTEND/REROUTE EXISTING CIRCUIT AND CONTROLS TO CONNECT AS REQUIRED.
- 2 PROVIDE AND INSTALL NEW EXTERIOR FIXTURE. PROVIDE CONDUIT AND WIRE TO TIE INTO NEAREST EXTERIOR LIGHTING CIRCUIT.
- 3 PROVIDE AND INSTALL NEW CEILING FANS. EXTEND/REROUTE EXISTING CIRCUIT TO CONNECT AS REQUIRED. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION ON EXACT MODEL AND REQUIREMENTS PRIOR TO THE COMMENCEMENT OF WORK.

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361 852-2342 ext. 361 852-2343 fax



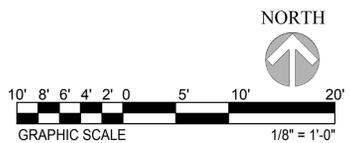
ISSUES / REVISIONS

NO.	DATE	DESCRIPTION

LEON VALLEY COMMUNITY CENTER UPGRADES  
LEON VALLEY, TEXAS  
LIGHTING PLAN

IBEW'S REGISTERED FIRM INC.  
ELECTRICAL CONTRACTORS  
SURVEYING FIRM 1012680  
IBEW REGISTERED FIRM INC.  
ARCHITECTURAL FIRM 18959  
601 NAVARRO, SUITE 500  
CORPUS CHRISTI, TX 78408  
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CHECKED BY: JW  
APPROVED BY: JW  
JOB NO.: 20111



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Wednesday, June 22, 2011 10:59am





ELECTRICAL SPECIFICATIONS  
DIVISION 16 – ELECTRIC

16100.02 DRAWINGS AND SPECIFICATIONS

A. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY TO EACH OTHER, AND WHAT IS CALLED FOR ONE, SHALL BE AS IF CALLED FOR BY BOTH.

B. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL DESIGN, LAYOUT, AND ARRANGEMENT OF EQUIPMENT AND VARIOUS SYSTEMS. HOWEVER, BEING DIAGRAMMATIC THE DRAWINGS DO NOT NECESSARILY SHOW ALL DETAILS SUCH AS JUNCTION BOXES, PULL BOXES, WIRING, ETC. NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.

C. STUDY AND REVIEW ALL CONTRACT DOCUMENTS, INCLUDING DRAWINGS AND SPECIFICATIONS FOR ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND OTHER PORTIONS OF THE WORK TO AVOID POSSIBLE INSTALLATION CONFLICTS. ADJUST ELECTRICAL WORK TO CONFORM TO ALL CONDITIONS INDICATED THEREIN. SHOULD CONFLICTS ARISE WHICH REQUIRE CHANGES IN THE CONTRACT DOCUMENTS, NOTIFY THE ARCHITECT AND OWNER. SECURE WRITTEN APPROVAL AND AGREEMENT ON NECESSARY ADJUSTMENTS BEFORE THE BIDDING.

D. DISCREPANCIES BETWEEN DRAWINGS, BETWEEN DRAWINGS AND SPECIFICATIONS, OR BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS, OR ERRORS ON EITHER DRAWINGS OR SPECIFICATIONS SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF GPM ENGINEERING FOR A DECISION BEFORE THE SPECIFIC BIDDING.

16100.05 PERMITS, FEES, TAXES AND ROYALTIES

A. ARRANGE AND PAY FOR ALL NECESSARY PERMITS, FEES, TAXES, AND ROYALTIES IN CONNECTION WITH ELECTRICAL WORK.

16100.06 CODES AND REGULATIONS

A. COMPLY WITH THE LATEST APPLICABLE REQUIREMENTS OF THE NEC, NESC, OSHA, NFPA AND THE LOCAL ELECTRICAL INSPECTION AUTHORITY WHO SHALL HAVE FINAL JURISDICTION. COMPLY ALSO WITH ALL REQUIREMENTS OF LOCAL UTILITY AND TELEPHONE COMPANIES.

REPORT TO THE ENGINEER PRIOR TO SUBMITTING BIDS, ANY PART OR PORTION OF THE ELECTRICAL DESIGN WHICH DOES NOT CONFORM TO THE REQUIREMENTS OF THE APPLICABLE LOCAL OR STATE CODES OR REQUIREMENTS OF LOCAL UTILITY OR TELEPHONE COMPANIES, OTHERWISE BE HELD RESPONSIBLE TO PROVIDE INSTALLATION WHICH WILL COMPLY WITH THESE CODES AND REGULATIONS.

APPLICABLE CODES AND ORDINANCES AND LOCAL INTERPRETATIONS ARE TO TAKE PRECEDENCE WHEN THEY CONFLICT WITH, OR ARE MORE STRINGENT THAN THE ELECTRICAL DESIGN. DRAWINGS AND SPECIFICATIONS TAKE PRECEDENCE WHERE DESIGN IS MORE STRINGENT THAN CODES AND ORDINANCES.

16100.07 STANDARDS

A. MATERIALS AND INSTALLATION SHALL ALSO CONFORM TO LATEST STANDARDS AND PRACTICES OF THE INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE), THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA), INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AMERICAN SOCIETY OF TESTING MATERIALS (ASTM), AND THE NATIONAL BUREAU OF STANDARDS.

B. THE FOREGOING RULES, STANDARDS AND REGULATIONS SHALL NOT RELIEVE THE CONTRACTOR FROM FURNISHING AND INSTALLING HIGHER GRADES OF MATERIALS AND WORKMANSHIP WHICH ARE SPECIFIED HEREIN OR INDICATED ON DRAWINGS.

16100.09 PRODUCT DATA AND SUBMITTALS

A. FURNISH PRODUCT DATA AND SUBMITTALS FOR REVIEW BY GPM ENGINEERING, INC. AND OWNER PRIOR TO INSTALLATION.

FURNISH DETAILED AND DIMENSIONED PRODUCT DATA, SUBMITTALS, AND SHOP DRAWINGS FOR ALL DISTRIBUTION ELECTRICAL FIXTURES, LIGHTING FIXTURES AND LAMPS, SPECIAL EQUIPMENT, SPECIAL SYSTEMS AND SPECIAL APPARATUS WHICH ARE TO BE PROVIDED FOR INSTALLATION IN THIS WORK.

INCLUDE CATALOG CUTS, DIMENSIONAL AND OPERATING DATA, WIRING DIAGRAMS FOR SPECIAL SYSTEMS, AND SUCH OTHER DATA AS MAY BE REQUIRED BY GPM ENGINEERING AND OWNER. SUBMIT SAMPLES OF EQUIPMENT WHEN REQUESTED BY THE CONSULTING ENGINEER AND OWNER.

16100.10 MINOR DEVIATIONS AND CHANGES

A. FURNISH AND INSTALL ENTIRE ELECTRICAL INSTALLATIONS AS DESIGNED AND IN ACCORDANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS. MINOR DEVIATIONS NECESSITATED BY FIELD CONDITIONS OR EQUIPMENT BEING SUPPLIED MAY BE MADE UPON APPROVAL OF GPM ENGINEERING AND OWNER. CHANGES IN DESIGN AND INSTALLATION SHALL BE DONE IN THE MANNER PROVIDED FOR IN THE GENERAL CONDITIONS.

16100.11 CUTTING AND REPAIRING

A. PROVIDE ALL CUTTING, PATCHING CHANNELING, CORE DRILLING, ETC., IN BUILDING STRUCTURE NECESSARY FOR ELECTRICAL WORK. LOCATE HOLES TO BE DRILLED, OUTLETS, ETC., COORDINATE WORK WITH ALL OTHER TRADES ON THE JOB, AND MAKE ARRANGEMENTS FOR NECESSARY OPENINGS AND CHASES. SEAL ALL HOLES CUT FOR WIRING RUNS. NO CUTTING, CHANNELING, CORE DRILLING, ETC., SHALL BE DONE WITHOUT PRIOR APPROVAL OF THE ARCHITECT. MAKE NECESSARY REPAIRS TO FINISHED BUILDING WHERE PATCHING OR REFINISHING IS NECESSARY DUE TO ELECTRICAL WORK. ACTUAL WORK INVOLVED IN THESE REPAIRS SHALL BE DONE BY SKILLED CRAFTSMEN IN THE TRADES INVOLVED.

16100.12 MATERIALS

A. FURNISH AND INSTALL ALL MATERIAL, EQUIPMENT, AND DEVICES WHICH ARE NEW, FIRST QUALITY, BEAR THE LISTED LABEL OF THE UNDERWRITERS LABORATORIES, INC. AND WHICH ARE ACCEPTED BY GPM ENGINEERING FOR INSTALLATION IN THIS PROJECT. REPLACE, IN A MANNER ACCEPTED BY GPM ENGINEERING, PLIC AND PAY FOR ALL EQUIPMENT OR MATERIALS DAMAGED IN THE COURSE OF INSTALLATION OR TESTING.

BASIC BID SHALL INCLUDE MANUFACTURERS AND CATALOG NUMBERS AS SHOWN IN THESE SPECIFICATIONS, OR ON THE DRAWINGS WITH NO EQUALS, UNLESS SPECIFICALLY INDICATED. SPECIFIED MATERIALS, EQUIPMENT, AND DEVICES SHALL BE FURNISHED AND INSTALLED UNDER THE CONTRACT UNLESS CHANGED BY MUTUAL AGREEMENT BETWEEN CONTRACTOR AND GPM ENGINEERING, INC.

SUBSTITUTE EQUIPMENT OF OTHER MANUFACTURERS WHICH IS EQUIVALENT TO OR SUPERIOR THAN THAT SPECIFIED MAY BE PROPOSED. HOWEVER, SUCH SUBSTITUTIONS MUST BE ACCEPTED IN WRITING BY GPM ENGINEERING, INC. PRIOR TO BIDDING.

IF SUBSTITUTIONS ARE NOT REQUESTED OR GRANTED, THE SPECIFIED MATERIALS AND EQUIPMENT MUST BE INSTALLED. THE DECISION OF GPM ENGINEERING REGARDING SUBSTITUTIONS SHALL BE FINAL. IT SHALL BE THE ELECTRICAL CONTRACTORS RESPONSIBILITY UNDER THIS SECTION OF THE SPECIFICATION TO NOTIFY ALL CREATED TRADES OF THE ACCEPTED SUBSTITUTIONS AND TO ASSUME FULL RESPONSIBILITY FOR ALL COSTS CAUSED AS A RESULT OF THE SUBSTITUTION. PRIOR TO START OF WORK, SUBMIT TO THE ENGINEER A COMPLETE LIST OF TYPES, MATERIALS, AND EQUIPMENT AND MANUFACTURERS OF THESE ITEMS WHICH ARE TO BE FURNISHED FOR THIS WORK.

B. COPPER WIRE MUST BE USED. ALUMINUM WIRE WILL NOT BE ACCEPTED.

C. EQUIPMENT AND MATERIALS MUST COMPLY WITH THE REQUIREMENTS OF THE UTILITY COMPANY, AND WHERE REQUIRED, SHALL BE SUBMITTED TO THEM FOR THEIR APPROVAL.

16100.15 GUARANTEE

A. FURNISH TO OWNER A FORMAL GUARANTEE COVERING ENTIRE ELECTRICAL SYSTEM, TO BE FREE FROM DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE OF INSTALLATION BY OWNER. DURING THIS PERIOD, PROVIDE ALL LABOR AND NEW MATERIALS WHERE REQUIRED, TO REPAIR OR REPLACE ALL DEFECTS TO THE SATISFACTION OF OWNER AT NO ADDITIONAL COST.

16100.16 FINAL ACCEPTANCE AND WORK CLOSE-OUT

A. CONTRACTOR SHALL INSPECT THE ENTIRE ELECTRICAL INSTALLATION TO ASSURE THAT ALL WORK IS COMPLETED AND ALL SYSTEMS ARE COMPLETELY OPERATIONAL BEFORE CALLING FOR A FINAL ACCEPTANCE OF THE WORK. ALL CERTIFICATES INCLUDING ACCEPTANCE OF LOCAL INSPECTION AUTHORITY MUST BE PRESENTED AT THAT TIME.

16100.19 CLEANING AND PAINTING

A. IN GENERAL, EXCEPT WHERE SPECIFIED OTHERWISE HEREIN, FINISH PAINTING OF CONDUITS, BOXES, POLES, AND EQUIPMENT WHERE SPECIFIED TO BE DONE IN FIELD, SHALL BE DONE BY OTHER TRADES UNDER ANOTHER SECTION OF THE SPECIFICATIONS. PROTECT ELECTRICAL APPARATUS, CABINETS, BOXES AND ALL OTHER EQUIPMENT NORMALLY FURNISHED ON THE JOB WITH FACTORY APPLIED FINISH, EITHER PAINTED OR GALVANIZED, DURING STORAGE AND INSTALLATION. CLEAR ALL ELECTRICAL EQUIPMENT SUCH AS LIGHTING FIXTURES, LAMPS, SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, ETC., OF CONSTRUCTION DIRT, DRILL CHIPS, DEBRIS, DUST PAINT SMEARS, ETC., BEFORE COMPLETION OF WORK. CLEAN OR TOUCH-UP AND REPAINT ALL BLEMISHES, RUST SPOTS, ETC., TO ORIGINAL STATE OF FINISH.

16100.20 TRENCHING AND BACKFILL

A. PROVIDE ALL TRENCHING AND BACKFILLING REQUIRED FOR ELECTRICAL WORK.

16100.21 SCOPE OF WORK

A. WORK UNDER THIS CONTRACT COMPRISES THE PROVIDING OF ALL LABOR, MATERIAL, EQUIPMENT, TRANSPORTATION, SCAFFOLDING, RIGGING, TOOLS AND RELATED ITEMS AND SUBCONTRACT WORK FOR A COMPLETE OPERATING ELECTRICAL SYSTEM AND INCLUDES BUT IS NOT LIMITED TO:

TRENCHING AND BACKFILL. LOW VOLTAGE FEEDERS  
TEMPORARY LIGHT AND POWER. LIGHT AND POWER DISTRIBUTION PANELS.  
CUTTING AND PATCHING. LIGHTING BRANCH CIRCUIT WIRING.  
SHOP DRAWINGS. CONNECTIONS TO EQUIPMENT FURNISHED BY OTHERS.  
TESTING AND ADJUSTMENTS. LIGHTING FIXTURES AND LAMPS.  
CLEANING AND PAINTING. TELEPHONE SYSTEMS AS INDICATED ON PLANS.  
ELECTRICAL SERVICE CONDUITS.

B. ITEMS MENTIONED IN THE ABOVE SCHEDULE ARE LISTED FOR THE PURPOSE OF DESCRIBING BASIC SPECIFICATION CONTENTS AND SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM EXECUTING ANY WORK DESCRIBED THROUGHOUT THE SPECIFICATION OR INDICATED ON DRAWINGS BECAUSE OF ITS DETAILED OMISSION IN THIS SCHEDULE.

16100.22 SHOP DRAWINGS AND MANUFACTURER'S SUPERVISION REQUIRED

A. PROVIDE SHOP DRAWINGS FOR THE FOLLOWING, PRIOR TO FABRICATION, INCLUDING ALL ACCESSORIES AND MANUFACTURER'S SUPERVISION WHERE INDICATED:

DISTRIBUTION PANEL BOARDS  
LIGHT AND POWER PANEL BOARDS  
TRANSFORMERS  
MOLDED CASE CIRCUIT BREAKERS.  
LIGHTING FIXTURES AND LAMPS.

16100.23 GROUNDING

A. PROVIDE ALL ELECTRICAL SYSTEM GROUNDING IN ACCORDANCE WITH THE NEC AND ANY STATE AND LOCAL CODE REQUIREMENTS, EVEN IF NOT SHOWN ON THE DRAWINGS. INCLUDE ADDITIONAL GROUNDING CONDUCTORS IN NON-METALLIC RACEWAYS, EVEN THOUGH THE DRAWINGS SHOWN ONLY CIRCUIT AND/OR NEUTRAL CONDUCTORS.

B. RECEPTACLES WHICH DO NOT HAVE THEIR MOUNTING YOKES CONNECTED TO RECEPTACLE GROUNDING POINT SHALL BE GROUNDED WITH A GREEN INSULATED GROUNDING JUMPER CONNECTED TO OUTLET BOX. PROVIDE A SEPARATE GROUND CONDUCTOR WITH BRANCH CIRCUIT WIRING WHEN INDICATED ON DRAWINGS OR WHEN REQUIRED BY CODE.

C. GROUND CABLES SHALL BE CONTINUOUS WITHOUT JOINTS OR SPLICES THROUGH ITS LENGTH. IF BARE GROUND CONDUCTORS ARE RUN THROUGH METALLIC CONDUIT, THEY BE SECURELY BONDED TO EACH CONDUIT AT THE ENTRANCE AND EXIT. ALL CONNECTIONS TO EQUIPMENT OR CONDUIT SHALL BE MADE WITH APPROVED TYPE OF SOLDERLESS CONNECTOR, AND SAME SHALL BE THOROUGHLY CLEANED AND BRIGHT BEFORE CONNECTION IS MADE SO AS TO ENSURE A GOOD METAL CONTACT. CONNECTIONS WHICH WILL BE INACCESSIBLE AFTER COMPLETION OF PROJECT SHALL BE MADE BY THE CADWELD OR THERMO WELD PROCESS.

D. GROUNDING CONNECTIONS: UTILIZE BURNDY "THERMOWELD" PROCESS FOR ALL CABLE- TO-CABLE, CABLE-TO-STEEL, AND CABLE-TO-GROUND ROD CONNECTIONS.

E. WHEN THE MAXIMUM RESISTANCE TO GROUND SPECIFIED ABOVE CANNOT BE ACHIEVED, THE CONTRACTOR SHALL INCREASE THE LENGTH AND QUANTITY OF GROUND RODS TO ACHIEVE THIS RESISTANCE REQUIRED.

WHERE INCREASED, QUANTITY AND LENGTH OF GROUND RODS DO NOT PRODUCE THE MAXIMUM SPECIFIED RESISTANCE, SOIL TREATMENT AROUND GROUND RODS SHALL BE PROVIDED.

F. SOIL TREATMENT TO REDUCE GROUND RESISTANCE AROUND COPPER WELD GROUND RODS SHALL BE PROVIDED AS FOLLOWS:

1. EXCAVATE CIRCULAR TRENCH AROUND EACH ELECTRODE AND 2'-6" BELOW TOP OF ELECTRODE. FILL WITH 100 POUNDS OF MAGNESIUM SULFATE.

2. SEPARATE ELECTRODE FROM CHEMICAL TO 18" RADIUS WITH STONEFREE EARTH BACKFILL. USE EXTREME CARE TO AVOID DIRECT CHEMICAL CONTACT WITH THE ELECTRODE.

16100.24 WIRING – GENERAL

A. ALL BRANCH CIRCUIT WIRING RUN WITHIN THE BUILDING AND NOT EXPOSED TO MOISTURE, SHALL BE INSTALLED IN ELECTRO-METALLIC TUBING AND RUN CONCEALED IN NEW WALLS, CEILINGS AND/OR SLABS, BUT EXPOSED ON EXISTING SURFACES WHERE CONDUITS CANNOT BE CONCEALED.

B. ALL BRANCH CIRCUIT WIRING RUN OUTSIDE OF THE BUILDING AND EXPOSED TO MOISTURE SHALL BE INSTALLED IN RIGID INTERMEDIATE GALVANIZED CONDUIT AND RUN CONCEALED IN NEW CONSTRUCTION, BUT EXPOSED ON EXISTING CONSTRUCTION.

C. ALL ELECTRIC AND TELEPHONE SERVICE, RUN ABOVE GRADE SHALL BE IN RIGID METALLIC CONDUIT.

D. ALL RACEWAYS UNDER ROADS, WALKS OR OTHER PAVED AREAS SHALL BE RIGID NON-METALLIC, SCHEDULE 40 PVC CONDUIT. SLOPE CONDUIT AWAY FROM BUILDING A MINIMUM OF 3" PER 100' OF LENGTH.

E. ALL UNDERGROUND WIRING OUTSIDE BUILDING AND UTILITY COMPANY SERVICES, SHALL BE IN RIGID NON-METALLIC CONDUIT SCHEDULE-40 (UNLESS NOTED OTHERWISE ON DRAWINGS) AND SHALL BE ENCASED IN CONCRETE, BURIED BELOW FINISHED GRADE. NON-METALLIC CONDUIT SHALL NOT BE ALLOWED IN STRUCTURAL SLABS, UNLESS APPROVED BY THE STRUCTURAL ENGINEERS.

G. INSTALL RACEWAYS FROM BOX-TO-BOX OR TERMINATIONS AS SHOWN ON THE DRAWINGS OR AS REQUIRED TO AFFECT CIRCUITING DESCRIBED WITH CIRCUIT NUMBERS ADJACENT TO EQUIPMENT. GROUPING HOME RUNS OR COMBINING WIRES IN COMMON RACEWAYS WILL BE ALLOWED, WITH A MAXIMUM OF FOUR SINGLE POLE BRANCH CIRCUITS IN A RACEWAY. INCREASE WIRE SIZES AND RACEWAYS WHERE REQUIRED TO AVOID LOSS OR AMPACITY AS REQUIRED BY NATIONAL ELECTRICAL CODE.

H. PROVIDE "OZ" OR EQUAL CONDUIT SEALS FOR ALL RACEWAYS, WIRES OR CABLES PASSING THROUGH FOUNDATIONS, FLOORS, WALLS, FOOTINGS, COOLER AND FREEZER WALLS.

I. ALL UNDERGROUND WIRING AND RACEWAYS SHALL BE A MINIMUM OF 24" BELOW FINISHED GRADE EXCEPT WIRING OVER 600 VOLTS WHICH SHALL BE 30" BELOW FINISHED GRADE, UNLESS NOTED OTHERWISE.

16100.25 CONDUITS AND RACEWAYS

A. ALL CONDUITS SHALL BE 1/2" MINIMUM TRADE SIZE DIAMETER, UNLESS SPECIFIED OTHERWISE.

B. ALL RIGID STEEL CONDUITS SHALL HAVE THREADS PAINTED WITH THOMAS AND BETTS COPPER SHIELD WHERE CONDUIT IS EXPOSED TO WEATHER OR DAMPNESS.

C. RIGID NON-METALLIC CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODES AND ARTICLE 352 OF THE NATIONAL ELECTRICAL CODE. PVC CONDUIT SUB UPS IN SLAB SHALL NOT EXTEND MORE THAN 18" ABOVE FINISH SLAB AND THEN MUST CHANGE TO STEEL CONDUIT. CONDUIT SHALL BE PROTECTED FROM LIGHT DURING STORAGE AND INSTALLATION.

D. RACEWAYS SHALL BE CAPPED WITH BUSHINGS DURING CONSTRUCTION AND SWABBED CLEAN BEFORE DRAWING IN WIRE.

E. CONDUITS SHALL BE CUT SQUARE AND REAMED AND ALL TERMINALS SHALL BE MADE UP TIGHT.

F. RIGID CONDUIT SYSTEM SHALL BE MADE UP WITH THREADED FITTINGS AND COUPLINGS.

G. EXPOSED RACEWAYS SHALL RUN PARALLEL TO OR AT RIGHT ANGLES TO SURFACES WIRED OVER AND SHALL BE PROVIDED WITH FITTINGS OR STANDARD MANUFACTURED ELBOWS.

H. SUPPORTS ON ALL RACEWAYS SHALL RUN PARALLEL TO OR AT RIGHT ANGLES TO SURFACES WIRED OVER AND SHALL BE SPACED AT A MAXIMUM OF 10'. SUPPORTS ON RACEWAYS LARGER THAN 2" SHALL BE SPACED AT A MAXIMUM OF 6'.

I. FASTENINGS SHALL BE LAD SHIELDS, RAW PLUGS, WOOD SCREWS, LAG BOLTS, BEAM CLAMPS OR TOGGLE BOLTS. NAILS OR WOODEN PLUGS WILL NOT BE PERMITTED.

J. CONDUITS AND HANGERS SHALL BE INSTALLED IN A MANNER NOT TO INTERFERE WITH THE WORK OF OTHER TRADES. THIS SHALL INCLUDE TRAPEZE HANGERS TO STRADDLE DUCTS, PIPES OR OTHER OBSTRUCTIONS, WHERE NECESSARY. PERFORATED STRAP IRON WILL NOT BE PERMITTED.

K. PROVIDE A CONDUIT EXPANSION FITTING WHEREVER RUN CROSSES AN EXPANSION JOINT IN THE STRUCTURE, AND WHERE CONDUIT IS ATTACHED TO SEPARATE STRUCTURES. EXPANSION FITTING SHALL BE "OZ" TYPE "AX," THOMAS AND BETTS, STEEL CITY OR APPROVED EQUAL.

L. RIGID NON-METALLIC CONDUIT SHALL BE POLYVINYL CHLORIDE SCHEDULE-40 HEAVY WALL, MADE BY CARLON OR APPROVED EQUAL.

M. SURFACE METAL RACEWAY SHALL BE WIREMOLD, KINDORF OR APPROVED EQUAL.

N. RIGID CONDUIT BUSHINGS SHALL BE IMPACT RESISTANT PLASTIC INSULATING TYPE, AS MADE BY THOMAS & BETTS, APPLETON, STEEL CITY OR APPROVED EQUAL.

O. ELECTRO-METALLIC TUBING SHALL BE REPUBLIC, ETP, NATIONAL OR APPROVED EQUAL WITH SCREW-TYPE FITTINGS.

P. ALL STEEL CONDUITS IN DIRECT CONTACT WITH EARTH SHALL BE PAINTED WITH TWO(2) COATS OF BLACK ASPHALT, PRIOR TO INSTALLATION.

Q. PROVIDE A CONTINUOUS RED PLASTIC STRIP 1'-0" ABOVE TOP OF ALL UNDERGROUND RACEWAYS.

R. CONDUIT SUPPORTS AND HANGERS SHALL BE GALVANIZED BY STEEL CITY, KINDORF OR EQUAL.

16100.27 PULL OR JUNCTION BOXES AND WIRING TROUGHS

A. FURNISH AND INSTALL PULL OR JUNCTION BOXES WHERE INDICATED OR WHERE NECESSARY TO FACILITATE PULLING OF CONDUCTORS. ALL BOXES SHALL BE SIZED ACCORDING TO NEC REQUIREMENTS.

B. BOXES SHALL BE FORMED OF HOT DIPPED GALVANIZED SHEET STEEL EXCEPT WHERE SPECIFIED OTHERWISE.

C. BOXES INSTALLED IN WET AREAS OR WHERE EXPOSED TO WEATHER SHALL BE GALVANIZED WITH CAST BOLTED COVERS.

E. ALL COVERS ON BOXES AND TROUGHS SHALL BE SCREW COVER TYPE, OR COMBINATION HINGED AND SCREWED TYPE.

16100.28 WIRES AND CABLES – 600 VOLT INSULATION

A. WIRE AND CABLE SHALL BE COPPER AND SHALL HAVE CURRENT CARRYING CAPACITY NOT LESS THAN INDICATED AND SHALL CONFIRM TO UL STANDARDS. CONDUCTOR SIZES SHALL BE AS INDICATED ON THE DRAWINGS AND SHALL NOT BE LESS THAN NO. 12 AWG FOR POWER AND LIGHTING WORK UNLESS OTHERWISE INDICATED OR SPECIFIED. ALL NO. 8 BARS GAUGE WIRE AND LARGER SHALL BE STRANDED UNLESS OTHERWISE NOTED ON DRAWINGS. VOLTAGE RATING OF CONDUCTORS WHICH OPERATE AT 600 VOLTS AND BELOW SHALL BE 600 VOLTS. TYPE THWN INSULATION SHALL BE USED FOR ALL SIZES OF WIRE WITH XHHW USED FOR RISERS, UNLESS OTHERWISE NOTED. RECESSED LIGHTING FIXTURES IN HUNG CEILINGS SHALL BE SUPPLIED WITH TYPE AF INSULATED WIRE IN FLEXIBLE METAL CONDUIT, IN LENGTHS NOT EXCEEDING 6 FEET, FROM ADJACENT JUNCTION BOX. TYPE THHN INSULATED WIRE MAY BE USED FOR BRANCH CIRCUIT WIRING, PROVIDING THE AMPACITIES AT WHICH IT IS EMPLOYED ARE BASED ON THE ALLOWABLE AMPACITY OF 75° WIRE.

B. CABLES IN HIGH TEMPERATURE AREAS SHALL HAVE AN INSULATION TYPE SUITABLE FOR THE TEMPERATURE CABLES USED IN SPACES FOR ENVIRONMENTAL AIR SHALL CONFORM WITH APPLICABLE NEC REQUIREMENTS.

16100.29 WIRE SPLICING AND TERMINATING OF 600 VOLT CONDUCTORS

A. SPLICES OF WIRES UP TO 3 #8 CONDUCTORS SHALL BE MADE WITH PRESSURE TYPE CONNECTORS. WIRE NUTS OR SCREW CAPS WILL NOT BE PERMITTED. SPLICES ABOVE THIS SIZE SHALL BE MADE WITH APPROVED MECHANICAL CONNECTORS, SCOTCHFILL AND SCOTCH #88 VINYL TAPE.

B. SPLICES IN CABLES #6 GAUGE AND LARGER SHALL BE MADE WITH CAST SLEEVE TYPE CONNECTORS WITH SET SCREWS, SCOTCHFILL AND SCOTCH #88 VINYL TAPE.

C. COPPER CONDUCTOR TERMINATIONS SHALL BE MADE WITH MECHANICAL, SET SCREW, PRESSED COPPER LUGS. TWO(2) BOLT LUGS SHALL BE USED IF NECESSARY, TO OBTAIN SUFFICIENT CONTACT SURFACE OR 200 AMPERES PER SQUARE INCH CAPACITY TO MAINTAIN RIGIDITY IN TERMINATING LARGE CABLES.

D. SMALL WIRE SPLICES SHALL BE MADE WITH THOMAS AND BETTS WIRE NUTS OR APPROVED EQUAL CONNECTORS.

E. LARGE WIRE SPLICES SHALL BE MADE WITH "OZ" TYPE XW AND "OZ" TYPE XTP, OR APPROVED EQUAL CONNECTORS.

F. TERMINAL LUGS SHALL BE PRESSED COPPER SCREW LUGS AS MADE BY MAC OR EQUAL.

16100.30 WIRING DEVICES AND PLATES

A. PROVIDE AT EVERY INDICATED OUTLET THE PROPER DEVICES AND PLATES. COORDINATE TYPE OF DEVICE PLATES WITH OWNER BEFORE ORDERING.

WHERE MORE THAN ONE DEVICE IS INDICATED IN ONE LOCATION, THEY SHALL BE GANGED TOGETHER IN ONE BOX AND UNDER ONE PLATE AS REQUIRED.

B. DEVICES LISTED ARE TO ESTABLISH TYPE, COLOR, OPERATION AND CAPACITY. MANUFACTURERS SHALL BE HUBBELL, PASS AND SEYMOUR, OR ARROW HART.

16100.32 LAMPS AND FIXTURES

A. PROVIDE FIXTURES AS SHOWN ON THE LIGHTING FIXTURE SCHEDULE AND DESCRIBED BELOW. THE FIXTURES SHALL BE SUPPLIED COMPLETE WITH LAMPS AND ANY AUXILIARY DEVICES NECESSARY FOR THEIR FUNCTION. FIXTURES SHALL BE SECURELY FASTENED TO THE CEILING STRUCTURE, AS WELL AS THE OUTLET BOX WHERE NECESSARY TO MAINTAIN PROPER ALIGNMENT.

B. HID BALLAST SHALL BE HIGH POWER FACTOR TYPE.

C. FIXTURES SHALL BE DESIGNED AND APPLIED SUCH THAT THE BALLAST/FIXTURE COMBINATION WITH ALL UNITS IN-PLACE IN THE ROOM OR SPACE SHALL HAVE AN INAUDIBLE SOUND.

D. FIXTURE/BALLAST COMBINATION SHALL BE DESIGNED TO LIMIT MAXIMUM BALLAST CASE TEMPERATURE TO 90 DEG.C.

E. LIGHTING FIXTURES SHALL CONFORM TO ARTICLES 410 AND 300-22 OF THE NEC.

F. FOR THE SIGNS, PROVIDE CONNECTIONS WITH WATERPROOF JUNCTION BOXES OR AS SPECIFIED ON THE PLANS.

G. ALL EXTERIOR LIGHTING FIXTURES WHERE EXPOSED TO WEATHER SHALL BE UL TESTED FOR WET LOCATIONS. OUTDOOR CANOPY LIGHTING FIXTURES, LOCATED UNDER CANOPIES SHALL BE UL LISTED FOR DAMP LOCATIONS.

16100.33 TELEPHONE CONDUIT SYSTEM

A. PROVIDE A COMPLETE TELEPHONE SYSTEM AS INDICATED ON THE PLANS WITH OUTLET BOXES, PLATES AND CABINETS FOR THE INSTALLATION OF TELEPHONE AND WIRING BY THE TELEPHONE COMPANY.

B. ALL RACEWAYS, CABINETS, OUTLETS, ETC., AND THE METHOD OF INSTALLATION SHALL COMPLY WITH THE REGULATIONS AND REQUIREMENTS OF THE TELEPHONE COMPANY.

16100.36 SERVICE AND CURRENT CHARACTERISTICS

A. ELECTRICAL SERVICE SHALL BE BROUGHT IN OVERHEAD OR UNDERGROUND BY THIS CONTRACTOR FROM THE UTILITY COMPANY POLE TO THE PAD OR POLE MOUNTED TRANSFORMER AND TO THE MAIN DISTRIBUTION PANEL LOCATED AS SHOWN ON THE DRAWINGS. ELECTRICAL CONTRACTOR TO COORDINATE ALL NECESSARY REQUIREMENTS WITH THE UTILITY COMPANY.

B. SERVICE SHALL BE THREE PHASE, FOUR WIRE, 120/208 VOLTS OR AS SHOWN ON PLANS.

16100.38 SAFETY AND DISCONNECT SWITCHES

A. BASE NAMED MANUFACTURER – SQUARE 'D'.

B. UNLESS NOTED OTHERWISE, ALL OTHER SWITCHES SHALL BE SQUARE 'D' HEAVY DUTY CLASS 3110.

C. ALL DISCONNECT SWITCHES SHALL BE LOCKABLE IN THE "ON" OR "OFF" POSITION.

D. OTHER ACCEPTABLE MANUFACTURERS – GENERAL ELECTRIC, WESTINGHOUSE, CUTLER-HAMMER.

16100.42 MOLDED CASE CIRCUIT BREAKERS

A. BASED NAMED MANUFACTURER – SQUARE 'D'.

B. CIRCUIT BREAKERS SHALL BE OF THE MOLDED CASE BOLTED IN TYPE CONSISTING OF THE NUMBER OF POLES AND AMPERE RATINGS AS NOTED ON THE DRAWINGS.

C. CIRCUIT BREAKERS SHALL BE OF THE INDICATING TYPE PROVIDING "ON," "OFF," AND "TRIPPED" POSITIONS OF THE OPERATING HANDLE. WHEN THE BREAKER IS TRIPPED, THE HANDLE SHALL ASSUME A POSITION BETWEEN "ON" AND "OFF" POSITIONS.

BREAKERS SHALL BE OF THE QUICK-MAKE QUICK-BREAK TYPE WITH INVERSE TIME CHARACTERISTICS SECURED THROUGH THE USE OF A BI-METALLIC AND A MAGNETIC TRIPPING ELEMENT.

D. TWO AND THREE POLE BREAKERS SHALL BE THE COMMON TRIP TYPE. HANDLE EXTENSIONS PROVIDING COMMON MANUAL OPERATION WILL NOT BE ACCEPTABLE.

16100.43 LIGHTING AND POWER PANELS

A. BASED NAME MANUFACTURER – SQUARE 'D'.

B. THE LIGHTING PANELBOARDS SHALL BE FOR THE DEAD FRONT, AUTOMATIC MOLDED CASE CIRCUIT BREAKER TYPE.

C. CABINETS SHALL BE CODE GAUGE WITH MINIMUM 4" SIDE, TOP, AND BOTTOM GUTTERS AND A MINIMUM OF 20" WIDE. PROVIDE SUBFEED LUGS AND A MINIMUM OF 8" TOP, BOTTOM AND SIDE GUTTERS FOR FEEDER TAPS WITHIN PANELBOARDS AND WHEN FEEDERS ARE INSTALLED IN SIDE GUTTERS.

D. THE PANELS SHALL BE FACTORY ASSEMBLED COMPLETE WITH BREAKERS. ANY CIRCUIT BREAKER SHALL BE CAPABLE OF REPLACEMENT WITHOUT DISTURBING ANY OTHER BREAKER. THE MAIN BUS BARS OR BRANCH WIRE CONNECTORS, THE PANELS SHALL BE CAPABLE OF HAVING BRANCH CIRCUITS ADDED WITHOUT ADDITIONAL MACHINING, DRILLING, OR TAPPING. BRANCH CIRCUITS SHALL BE SEQUENCED PHASED ON THE MAIN BUS CARRYING CAPACITY SHALL BE DETERMINED ON A BASIS OF NOT MORE THAN 750 AMPERES PER SQUARE INCH OF CROSS SECTIONAL AREA FOR ALUMINUM BUSES.

E. THE PANELS SHALL BE ARRANGED FOR 3 PHASE, 4 WIRE, 277/480 OR 120/208 VOLT SERVICE AS INDICATED.

F. CIRCUIT BREAKERS SHALL BE AS SPECIFIED IN "MOLDED CASE CIRCUIT BREAKER" SECTION OF THE SPECIFICATIONS. ALL PANELS SHALL BE PROVIDED WITH A COMPLETE TYPE-WRITTEN DIRECTORY OF ALL CONNECTED LOADS. MINIMUM INTERRUPTING CAPACITY – 120/208 AND 277/480 VOLT SYSTEMS TO BE COORDINATED WITH LOCAL UTILITY COMPANIES SO AS TO INTERRUPT THE AVAILABLE FAULT CURRENT.

G. OTHER ACCEPTABLE MANUFACTURERS – SIEMENS ITE, WESTINGHOUSE, GENERAL ELECTRIC.

H. THE PANELS SHALL BE LOCATED AND SIZED AS INDICATED ON THE PLANS AND CONNECTED AS SHOWN ON THE RISER DIAGRAM.

16100.48 TEMPORARY LIGHT AND POWER

A. THE ELECTRICAL CONTRACTOR SHALL PROVIDE, MAINTAIN, AND OPERATE A SUITABLE TEMPORARY ELECTRIC DISTRIBUTION SYSTEM FOR LIGHT AND POWER.

B. ALL NECESSARY MATERIALS, I.E., PANELBOARDS, SWITCHES, FUSES, CABLES, RECEPTACLE OUTLETS, SUPPORTS AND OVER CURRENT PROTECTION, INCLUDING GROUND FAULT CIRCUIT INTERRUPTERS, 15 AMP. SINGLE-PHASE RECEPTACLES, 30 AMP. SINGLE-PHASE OUTLETS, AND ALL OTHER ACCESSORIES REQUIRED FOR THE TEMPORARY DISTRIBUTION SYSTEM SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.

D. ALL NECESSARY SLEEVES AND SUPPORTS, AS MAY BE REQUIRED FOR THE TEMPORARY DISTRIBUTION SYSTEM SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.

E. MINIMUM TEMPORARY LIGHTING WITHIN ALL PORTIONS OF THE BUILDING SHALL BE BASED UPON A LIGHTING INTENSITY OF TEN(10) FOOT CANDLES THROUGHOUT. PROPERLY GUARDED LEFT HAND THREADED LAMPS FOR MEETING OSHA REQUIREMENTS AND THE FOLLOWING MINIMUM LAMPING REQUIREMENTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.

ROOMS OR SPACES 100 SQ. FT. TO 250 SQ. FT., NOT LESS THAN TWO(2) 100-WATT LAMPS. ROOMS OR SPACES OVER 250 SQ. FT. AND UNDER 500 SQ. FT., NOT LESS THAN FOUR(4) 100- WATT LAMPS.

ROOMS OR SPACES OVER 500 SQ. FT., NOT LESS THAN TWO(2) 200-WATT LAMPS OVER 1,000 SQ. FT. OR FRACTION THEREOF.

ALL WIRING, OUTLETS AND LAMPS AS REQUIRED SHALL BE PROVIDED TO CREATE PROPER ADEQUATE LIGHTING IN STAIRS, CORRIDORS AND PASSAGES.

FOR SECURITY REASONS, LIGHTING IN STAIRS, CORRIDORS AND PASSAGES SHALL REMAIN ENERGIZED CONSTANTLY, 24 HOURS OF EACH DAY.

THE ELECTRICAL CONTRACTOR SHALL MAINTAIN HIGHER LIGHTING INTENSITIES AS NECESSARY, IN AREAS WHERE CONCRETE FINISHING AND WORK OF SIMILAR NATURE IS IN PROGRESS, AT NO ADDITIONAL COST TO THE CONTRACTOR.

F. MINIMUM TEMPORARY POWER WITHIN ALL BUILDINGS PROVIDED BY ELECTRICAL CONTRACTOR FOR ELECTRICALLY OPERATED SMALL TOOLS SHALL BE BASED ON A MINIMUM OF 0.50 WATTS PER SQUARE FOOT. ALL POWER OUTLETS SHALL BE PROPERLY GROUNDED CONFORMING TO NEC AND RULES AND REGULATIONS PRESCRIBED BY OSHA, AS WELL AS ALL OTHER AGENCIES HAVING JURISDICTION WITHIN LOCALITY. WHEN SUCH CODES OR REGULATIONS ARE INCONSISTENT, THE MORE STRINGENT SHALL PREVAIL.

G. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL FEEDERS AND LIGHTING POWER DISTRIBUTION CENTERS OF SUFFICIENT CAPACITY FOR THE REQUIREMENTS OF THE ENTIRE BUILDING, WITH SUFFICIENT NUMBER OF OUTLETS AT SUCH CONVENIENT LOCATIONS SO THAT GROUNDED EXTENSION CORDS OF NOT OVER 100 FEET IN LENGTH WILL REACH ALL WORK AREAS REQUIRING TEMPORARY POWER OR LIGHT.

FEEDERS AND BRANCH CIRCUITS SHALL BE EXTENDED TO KEEP PACE WITH CONSTRUCTION.

END OF ELECTRICAL SPECIFICATIONS

ISSUES / REVISIONS

NO.	DATE	DESCRIPTION	BY
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