GENERAL NOTES - MECHANICAL:

(1) THE MECHANICAL CONTRACTOR IS FULLY RESPONSIBLE FOR PERFORMING THE WORK IN FULL COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES UNDER THIS SECTION OF THE CONTRACT. IF THE CONTRACTOR DETERMINES THAT THE CONTRACT DOCUMENTS AND PLANS ARE NOT IN COMPLIANCE WITH THE APPLICABLE LOCAL CODES, HE/SHE SHALL INFORM THE ARCHITECT PRIOR TO CONSTRUCTION START FOR DIRECTION. FAILURE TO DO SO SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO MEET APPLICABLE LOCAL CODES, AND RE-WORK SHALL BE AT CONTRACTOR'S EXPENSE.

(2) CONTRACTOR SHALL HANG AND INSTALL ALL DUCTWORK FLUSH WITH THE BUILDING STRUCTURE TO ACCOMMODATE NEW CEILINGS. CONTRACTOR SHALL COORDINATE ALL INSTALLATION WORK WITH ARCHITECTURAL AND ELECTRICAL DESIGN. ALL DUCTWORK SHALL BE MODIFIED AS NECESSARY AND REQUIRED TO FIT AROUND BUILDING STRUCTURES, ARCHITECTURAL BUILD-OUT AND ELECTRICAL CABLE TRAY INSTALLATIONS. MECHANICAL CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE WORK SCOPE OF OTHER TRADES AND PARTICIPATE IN COORDINATING ALL CONSTRUCTION EFFORTS.

(3) CONNECT EACH DIFFUSER TO THE MAIN DISTRIBUTION DUCTS WITH A FLEX-DUCT SECTION; CONNECTIONS SHALL BE COMPLETED IN ACCORDANCE WITH THE DETAIL. EACH FLEX-DUCT CONNECTION SHALL INCLUDE A BUTTERFLY DAMPER TO BE INSTALLED AT THE TRUNK DUCT.

(4) CONTRACTOR SHALL PROVIDE ALL DUCTWORK REQUIRED TO COMPLETE THE HVAC SYSTEM. TIE IN BRANCH DUCTS TO MAIN DUCTS WITH SHEET METAL FLANGES. FLANGE CONNECTION SHALL BE FASTENED WITH CRIMPED SHEET METAL STRIPS AND SEALED WITH SILICONE CAULK.

(5) CONTRACTOR SHALL SUPPLY AND INSTALL FIRE DAMPERS AND ACCESS DOORS IN THE HORIZONTAL DUCTS WHERE THEY PENETRATE FIRE WALLS & BARRIERS.

(6) ALL OPENINGS CUT IN MASONRY AND PLASTER WALLS OR CONCRETE FLOORS SHALL BE CORE DRILLED OR SAWED WHEN POSSIBLE. CONTRACTOR SHALL CHECK BUILDING CONSTRUCTION BEFORE MAKING PENETRATIONS TO AVOID CUTTING THROUGH STRUCTURAL BEAMS AND REINFORCING. CONTRACTOR SHALL INFORM THE ENGINEER IF REINFORCING IS CUT OR DAMAGED WHILE MAKING OPENINGS. CONTRACTOR SHALL REINFORCE ALL OPENINGS AS REQUIRED BY DRAWINGS AND SPECIFICATIONS. PATCH AND SEAL OPENINGS WITH 8000 PSI CEMENT GROUT. INSTALL DECORATIVE TRIM (EQUIPMENT FLANGES, FRAMING OR ESCUTCHEONS) AROUND OPENINGS IN FINISHED AREAS. COORDINATE ALL CUTTING AND PATCHING WITH THE OTHER TRADES

(7) ON ANY WORK SHOWN ON MECHANICAL DRAWINGS REQUIRING DEMOLITION OF EXISTING OR NEW BUILDING STRUCTURES AND FINISHES, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE THE NECESSARY DEMOLITION. CONTRACTOR SHALL PATCH AND REPAIR ALL DEMOLITION WORK. PATCHING SHALL BE COMPLETED WITH THE SAME MATERIALS AS THE SURROUNDING AREAS, OR WITH ARCHITECT-APPROVED PATCHING MATERIALS. REPAIRS SHALL BE COMPLETED ACCORDING TO ARCHITECTURAL SPECIFICATIONS. ALL REFINISHING SHALL BE APPROVED BY THE ARCHITECT.

(8) CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING THE INSTALLATION OF THE AIR DISTRIBUTION SYSTEM SHOWN. DUCTWORK, DUCT ACCESSORIES AND CONTROLS SHOWN AND REQUIRED SHALL BE SUPPLIED AND INSTALLED. ALL INSTALLATION WORK SHALL BE DONE IN ACCORDANCE WITH APPLICABLE CODES, INCLUDING NFFA 90A AND 90B.(NFPA 90A: STANDARD FOR THE INSTALLATION OF AIR-CONDITIONING AND VENTILATING SYSTEMS)(NFPA 90B: STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR-CONDITIONING SYSTEMS)

(9) CONTRACTOR SHALL BALANCE ALL AIR DISTRIBUTION SYSTEMS TO ACHIEVE THE AIR VOLUME REQUIREMENTS INDICATED. BALANCING SHALL INCLUDE ADJUSTMENT OF ALL MANUAL VOLUME DAMPERS, SPLITTER DAMPERS, ZONE DAMPERS (IF REQUIRED), BUTTERFLY DAMPERS AND INDIVIDUAL DIFFUSER VOLUME DAMPERS (FINAL BALANCING ONLY). CONTRACTOR SHALL SUPPLY THE ENGINEER WITH A COMPLETE BALANCING REPORT WHICH INCLUDES, VOLUME, ROOM REFERENCE AND ZONE VOLUME TOTALS.

(10) MOUNT ALL THERMOSTATS (SENSORS) 48" ABOVE THE FINISHED FLOOR LEVEL. THERMOSTATS SHOWN SHALL BE IN CONTROL OF THE ZONE SYSTEM WHICH IS SUPPLYING AIR TO THE AREA WHERE THE THERMOSTAT IS LOCATED. CONTRACTOR SHALL SUPPLY AND INSTALL ALL CONTROL VOLTAGE WIRING AND CONDUIT FOR THERMOSTAT (DDC CONTROL) INSTALLATION.

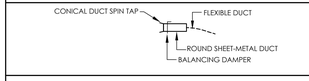
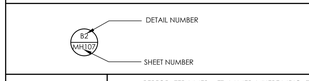
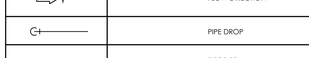
(11) CONTRACTOR SHALL INSTALL NEW REFRIGERANT PIPING FLUSH WITH THE BUILDING STRUCTURE AND MECHANICAL ROOM BOUNDARIES AS SHOWN. CONTRACTOR SHALL COORDINATE ALL INSTALLATION WORK WITH DUCTS AND ELECTRICAL CONDUIT. MECHANICAL CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE WORK SCOPE OF OTHER TRADES AND PARTICIPATE IN COORDINATING ALL CONSTRUCTION EFFORTS.

(12) ALL PIPING SHALL BE INSULATED AND JACKETED. REFER TO THE SPECIFICATIONS. THE CONDENSING AND ROOF TOP CONDENSER COILS ARE TO BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.

(13) PROVIDE SMOKE DETECTOR AND SHUTDOWN CONTROLS ON AIR HANDLERS AND SUPPLY FANS. SMOKE DETECTORS SHALL BE PROVIDED BY ELECTRICAL AND INSTALLED BY MECHANICAL. COORDINATE TO PROVIDE A COMPLETE SYSTEM. PROVIDE BOTH SUPPLY AND RETURN SIDE DEVICES.

(14) PROVIDE SEVEN DAY PROGRAMMABLE THERMOSTAT, 24 HOUR SINGLE/MULTI STAGE COMMERCIAL THERMOSTAT, DUAL SET POINTS, OCCUPIED AND UNOCCUPIED PERIODS, UNIT OPTIMIZATION, AUTO HEATING/COOLING AND AUTO CHANGE OVER. SUB-BASE BACK-UP BATTERY AND TEMPORARY OVER-RIDE. 24 VAC CONTROL VOLTAGE. PROVIDE PLASTIC SEE THRU PROTECTIVE COVER WITH KEY LOCK.

MECHANICAL SYMBOL LEGEND

	
	
	
	
	SUPPLY AIR GRILLE
	SUPPLY AIR GRILLE-SLOT DIFFUSER
	RETURN AIR GRILLE ALL RETURN AIR DUCT DROPS TO INCLUDE A MANUAL DAMPER
	THERMOSTAT TEMPERATURE SENSOR TEMPERATURE OVERRIDE SENSOR/SWITCH
	FIRE DAMPER W/ ACCESSIBLE DUCT ACCESS DOOR FIRE/SMOKE DAMPER W/ ACCESSIBLE DUCT ACCESS DOOR
	FLOW DIRECTION
	PIPE DROP
	PIPE RISE
	RETURN AIR DUCT RISE/DROP
	SUPPLY AIR DUCT RISE/DROP
	WALL OR FLOOR SLEEVE
	CHILLED WATER SUPPLY/RETURN PIPING
	SQUARE TO ROUND DUCT TRANSITION

MECHANICAL ABBREVIATIONS

A/C	AIR CONDITIONED	MAX	MAXIMUM
AD	ACCESS DOOR	MBD	MANUAL BALANCING DAMPER
AFF	ABOVE FINISHED FLOOR	MD	MOTORIZED DAMPER
AHU	AIR HANDLING UNIT	MECH	MECHANICAL
APPROX	APPROXIMATE	MIN	MINIMUM
ARCH	ARCHITECTURAL	MS	MOTOR STARTER
BDD	BACK DRAFT DAMPER	NA	NOT APPLICABLE
BHP	BRAKE HORSEPOWER	NC	NORMALLY CLOSED
BTU	BRITISH THERMAL UNIT	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NORMALLY OPEN
CH	CHILLER	NTS	NOT TO SCALE
CHP	CHILLED WATER PUMP		
CLG	CEILING	OA	OUTSIDE AIR
CWP	CONDENSER WATER PUMP	OAH	OUTSIDE AIR INTAKE HOOD
CO	CLEANOUT	OBD	OPPOSED BLADE DAMPER
CT	COOLING TOWER	OC	ON CENTER
CU	CONDENSING UNIT		
CW	COLD WATER	P	PUMP
CL	CENTER LINE	PBD	PARALLEL BLADE DAMPER
		PP	PRIMARY CHILLED WATER PUMP
DB	DRY BULB	PRESS	PRESSURE
DIA	DIAMETER	PRV	PRESSURE REDUCING VALVE
DN	DOWN	PSIG	POUNDS PER SQUARE INCH (GAUGE)
DWG	DRAWING		
DX	DIRECT EXPANSION	R	RETURN (AIR DEVICE)
EAT	ENTERING AIR TEMPERATURE	RA	RETURN AIR
EDH	ELECTRIC DUCT HEATER	RE: 4M7.01	REFER TO DETAIL 4, SHEET M7.01
EF	EXHAUST FAN	RET	RETURN
ELEC	ELECTRICAL	RH	RELATIVE HUMIDITY
ELEV	ELEVATION	RHD	RELIEF HOOD
		RPM	REVOLUTIONS PER MINUTE
F	DEGREES FAHRENHEIT	RTU	ROOF TOP UNIT
FC	FAN COIL		
FD	FIRE DAMPER W/ DUCT ACCESS DOOR	S	SUPPLY (AIR DEVICE)
FLEX	FLEXIBLE	SA	SUPPLY AIR
FLG	FLANGE	SCH	SCHEDULE
FLR	FLOOR	SCHP	SECONDARY CHILLED WATER PUMP
FPM	FEET PER MINUTE	SD	SMOKE DAMPER
FT	FEET, FOOT	SEC	SECOND
FS	FLOW SWITCH	SF	SUPPLY FAN
		SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
GAL	GALLON	SP	STATIC PRESSURE
GALV	GALVANIZED	SPEC	SPECIFICATION
GPM	GALLONS PER MINUTE	SF	SQUARE FOOT
		STD	STANDARD
HB	HOSE BIBB		
HP	HORSEPOWER	TEMP	TEMPERATURE
HR	HEAT PUMP (WATER SOURCE)	TSTAT	THERMOSTAT
HR	HOUR	TYP	TYPICAL
HVAC	HEATING/VENTILATING/ AIR CONDITIONING	UF	UNDER FLOOR
HWP	HOT WATER PUMP	UH	UNIT HEATER
HZ	HERTZ	UL	UNDERWRITERS LABORATORIES
ID	INSIDE DIAMETER		
IE	INVERT ELEVATION (FLOW LINE)	VEL	VELOCITY
IN	INCHES	VENT	VENTILATE
INSUL	INSULATION	VF	VENTILATION FAN
IN WG	INCHES OF WATER	VOL	VOLUME
KW	KILOWATT(S)	VOLT	VOLTAGE
LAT	LEAVING AIR TEMPERATURE	W	WIDE, WIDTH
LB	POUND	W/	WITH
L	LOUVER	WB	WET BULB
		W/O	WITHOUT

SHEET NO. M2.1
OF
SET NUMBER
REVISED:
DATE: 09/30/16
DRAWN BY: TC
PROJECT NO.:16.1.01

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PROFESSIONAL
ENGINEER

PORT OF BROWNSVILLE
•WORLD CLASS•
BOARD OF COMMISSIONERS, NAVIGATION DISTRICT OF CAMERON COUNTY, TEXAS

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
MECHANICAL NOTES & LEGENDS

TRINITY
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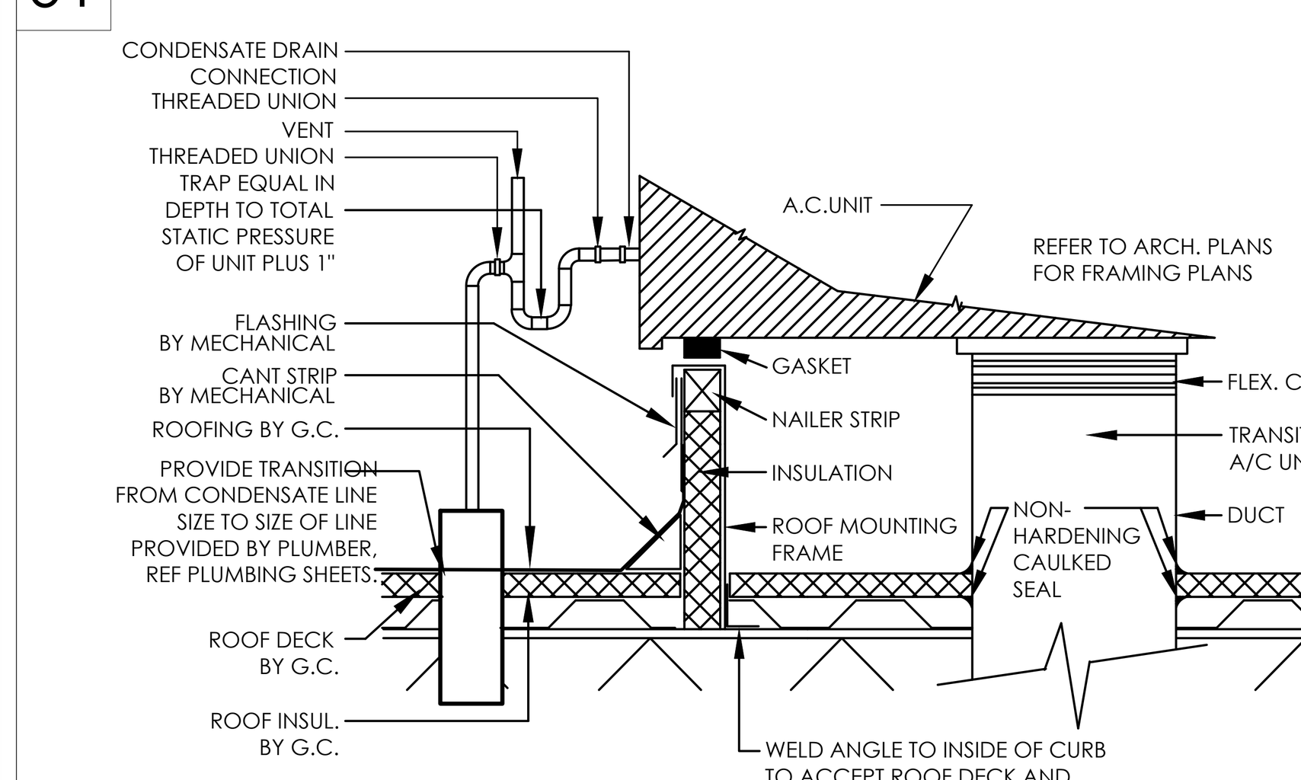
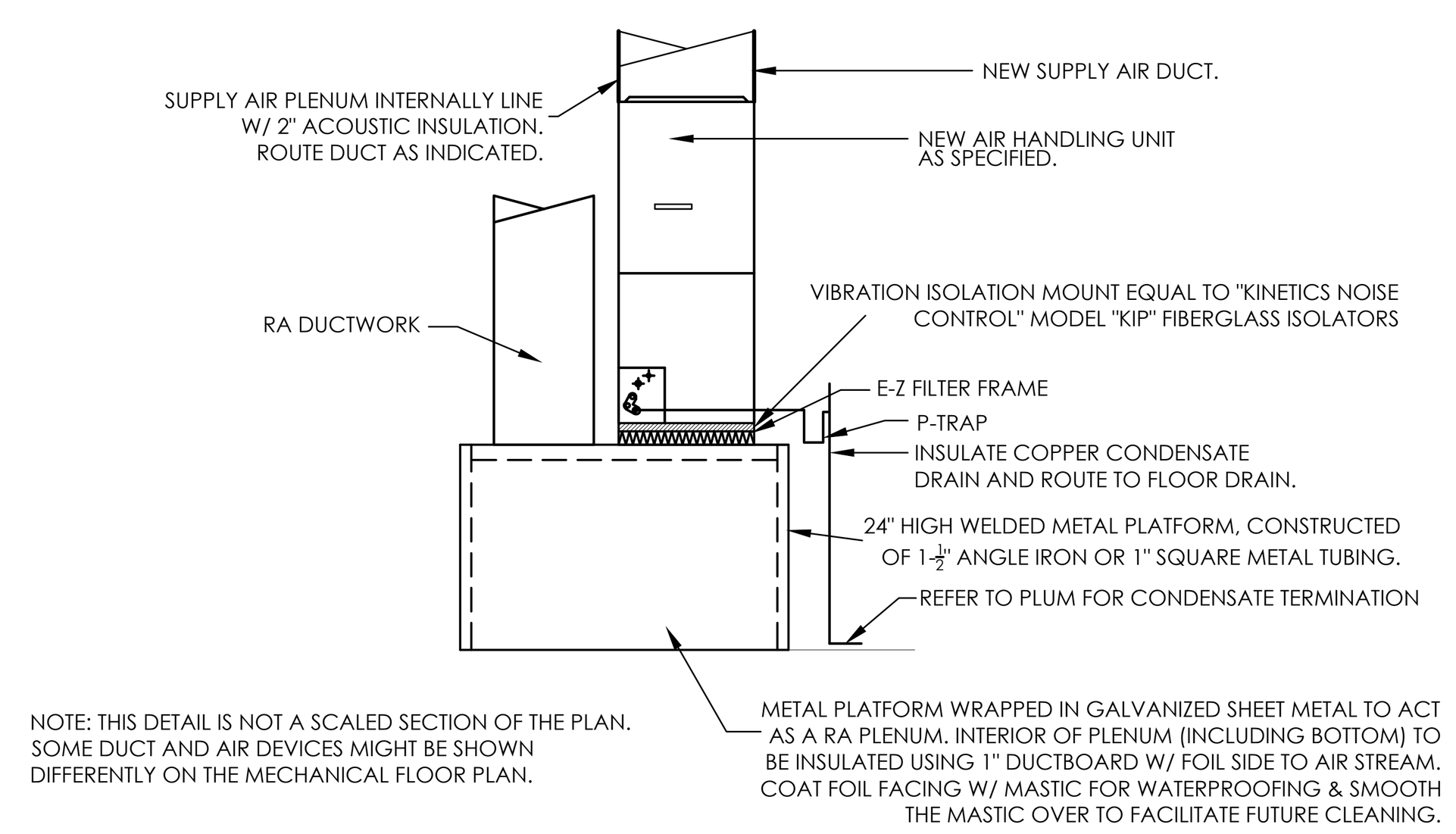
Texas Registered Engineering Firm - F10362
Project number: 16.1.01

01



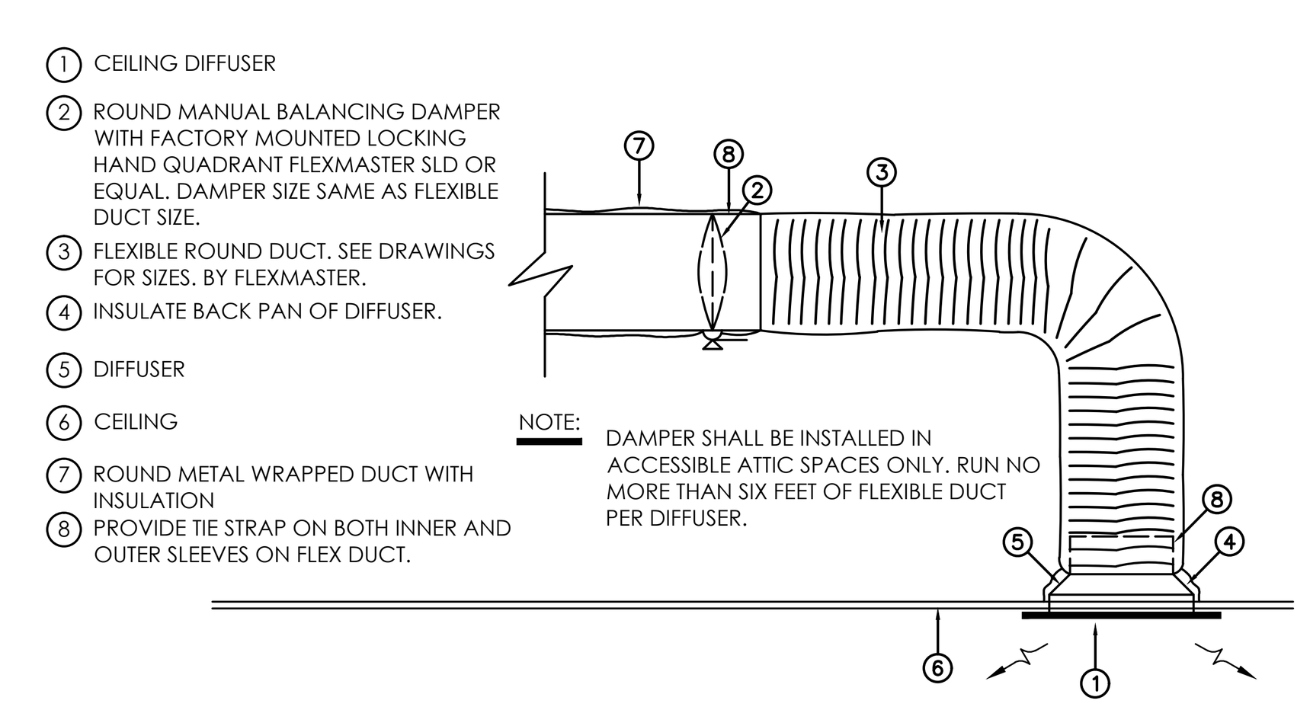
ROOF TOP UNIT DETAIL
NO SCALE

02



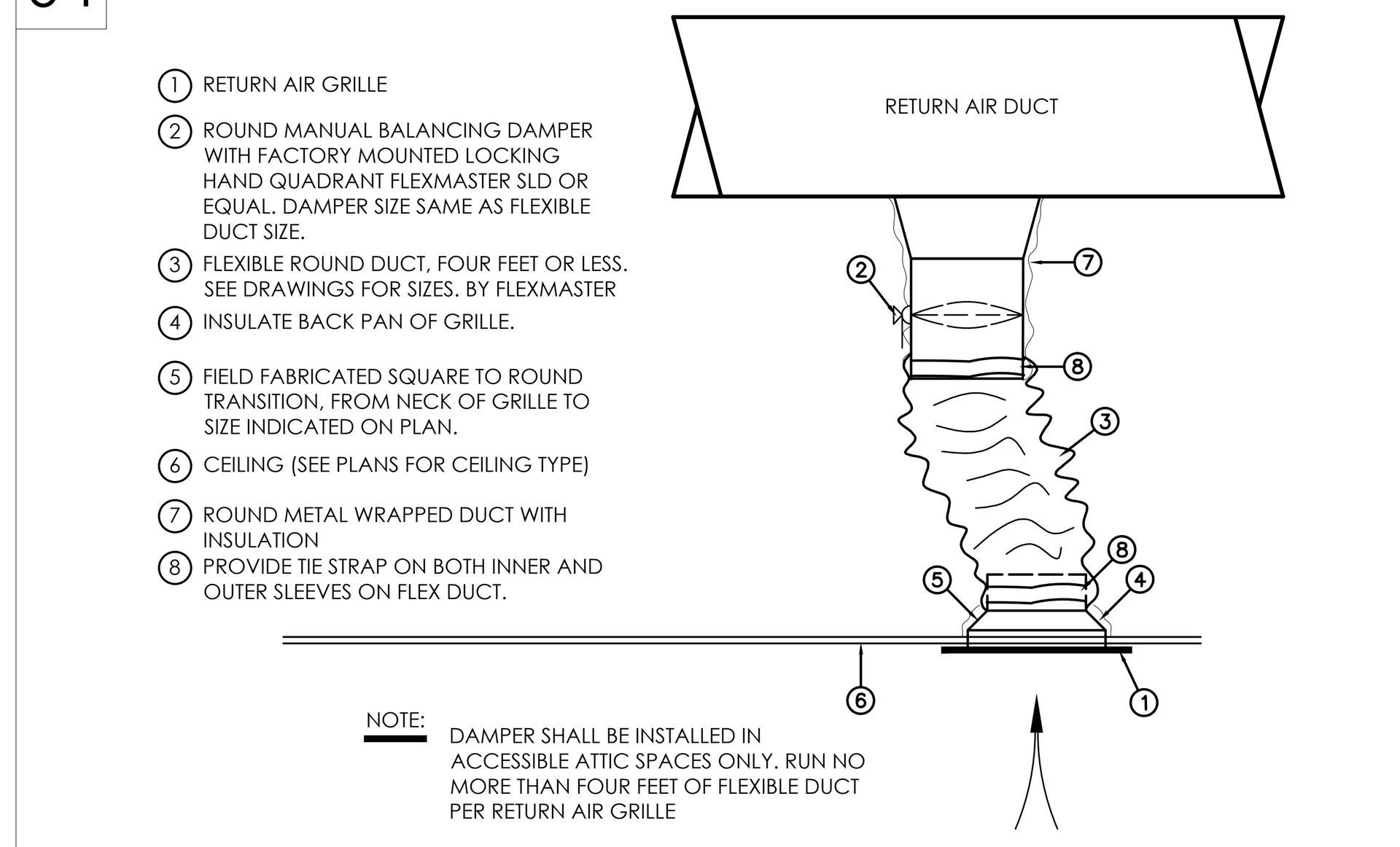
AIR HANDLING UNIT CONFIGURATION
NOT TO SCALE

03



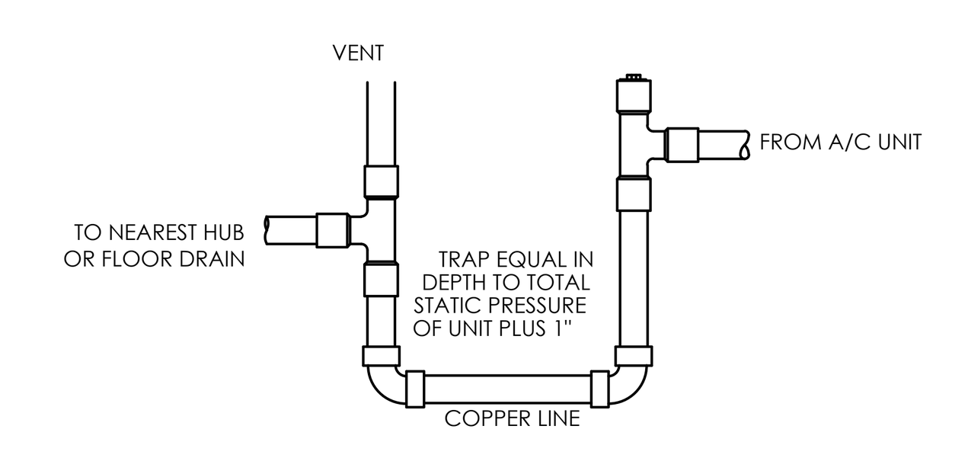
DIFFUSER RUN OUT DETAIL
NO SCALE

04



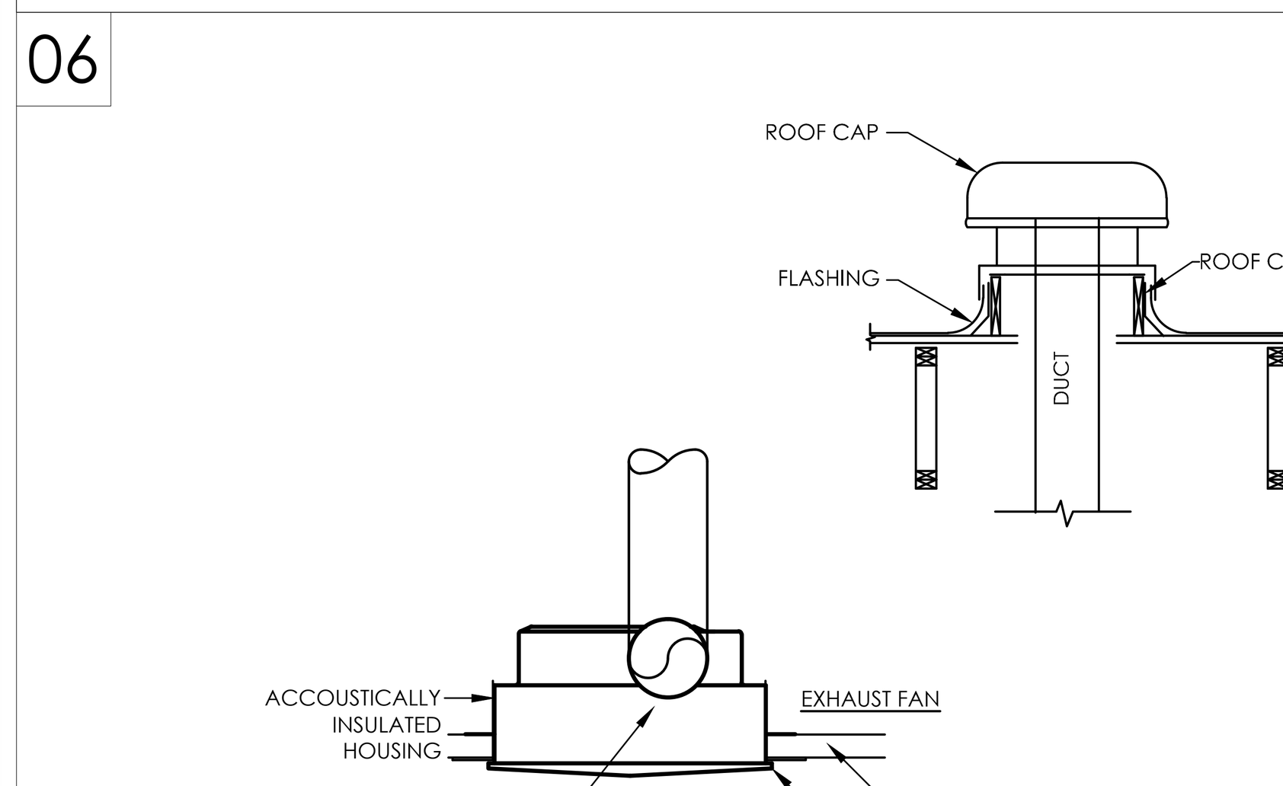
RETURN AIR GRILLE ATTACHMENT DETAIL
NO SCALE

05



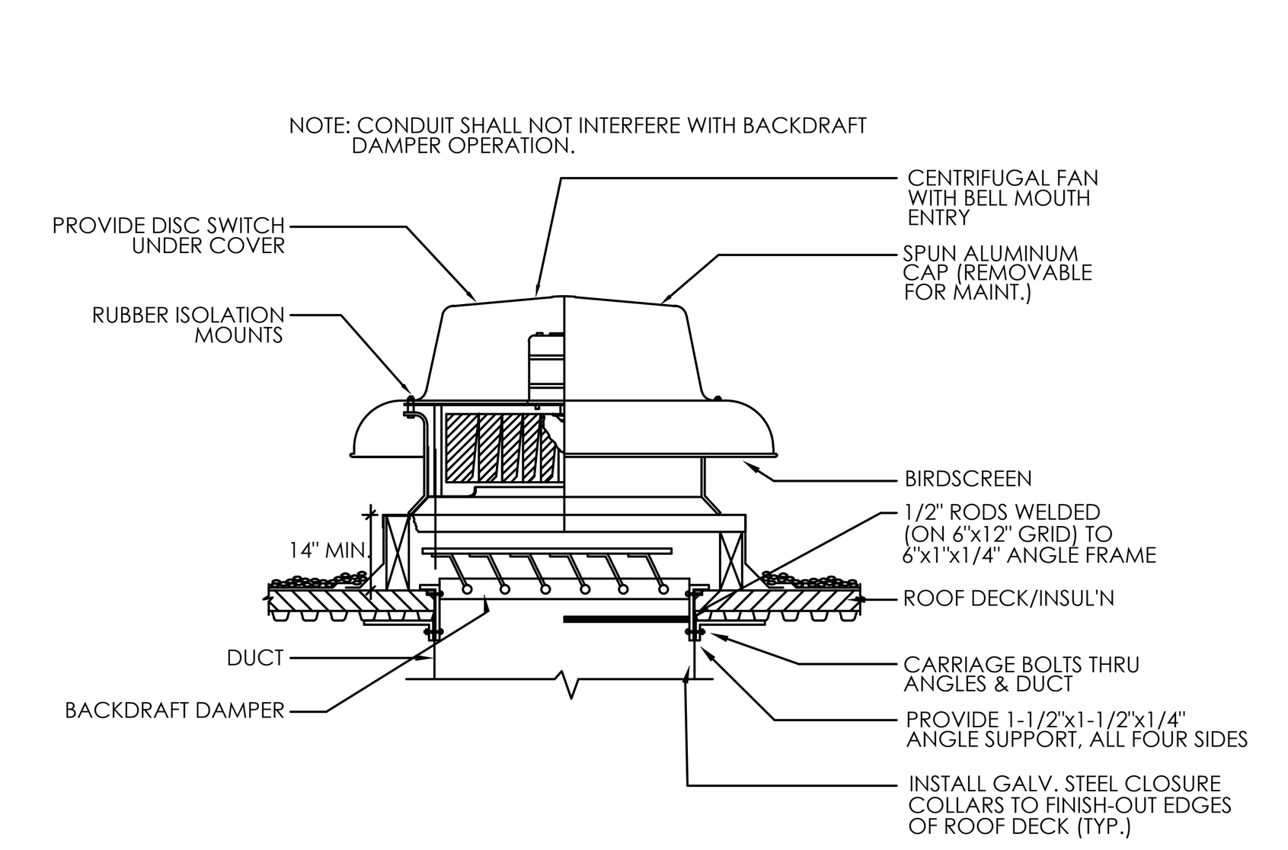
CONDENSATE TRAP DETAIL
NO SCALE

06



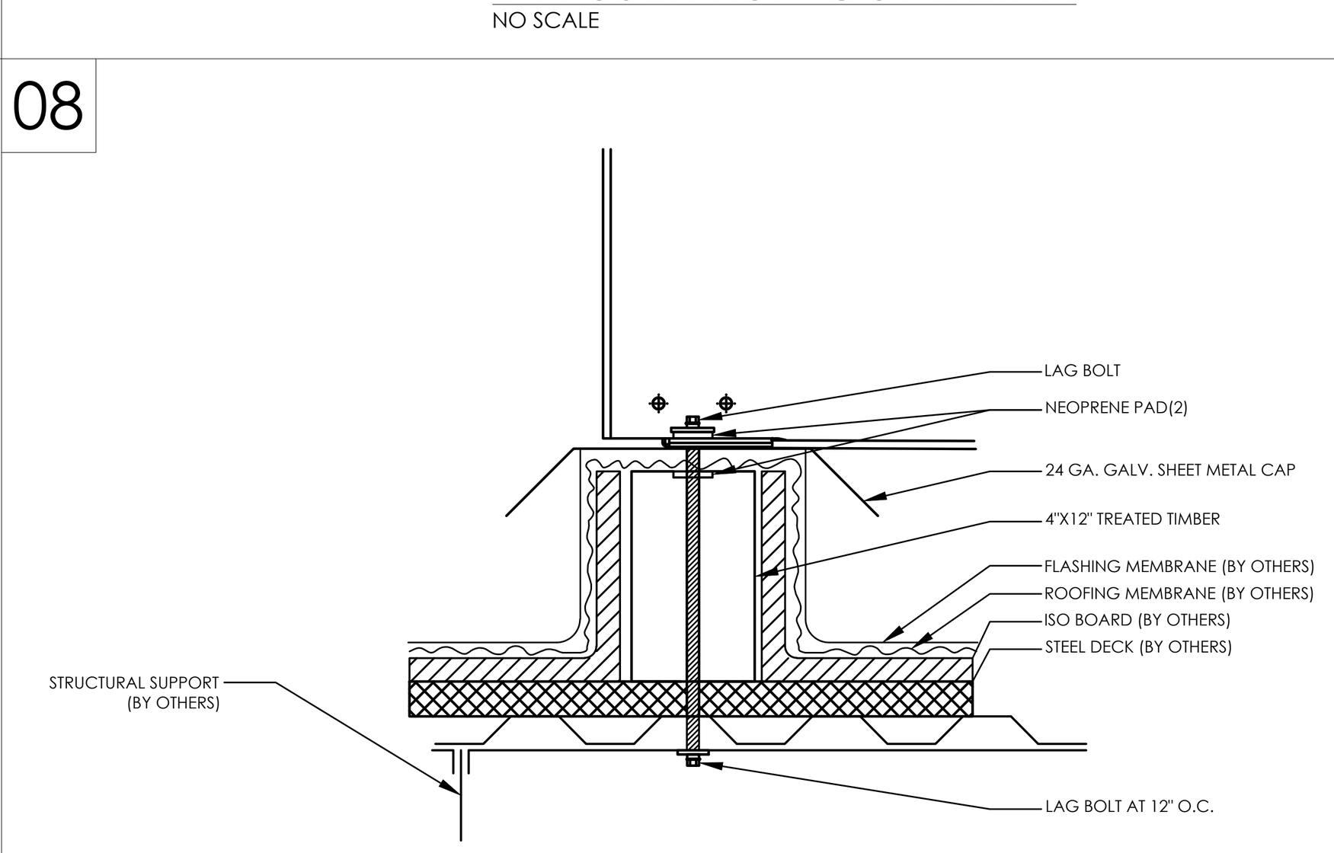
CEILING EXHAUST FAN DETAIL
NO SCALE

07



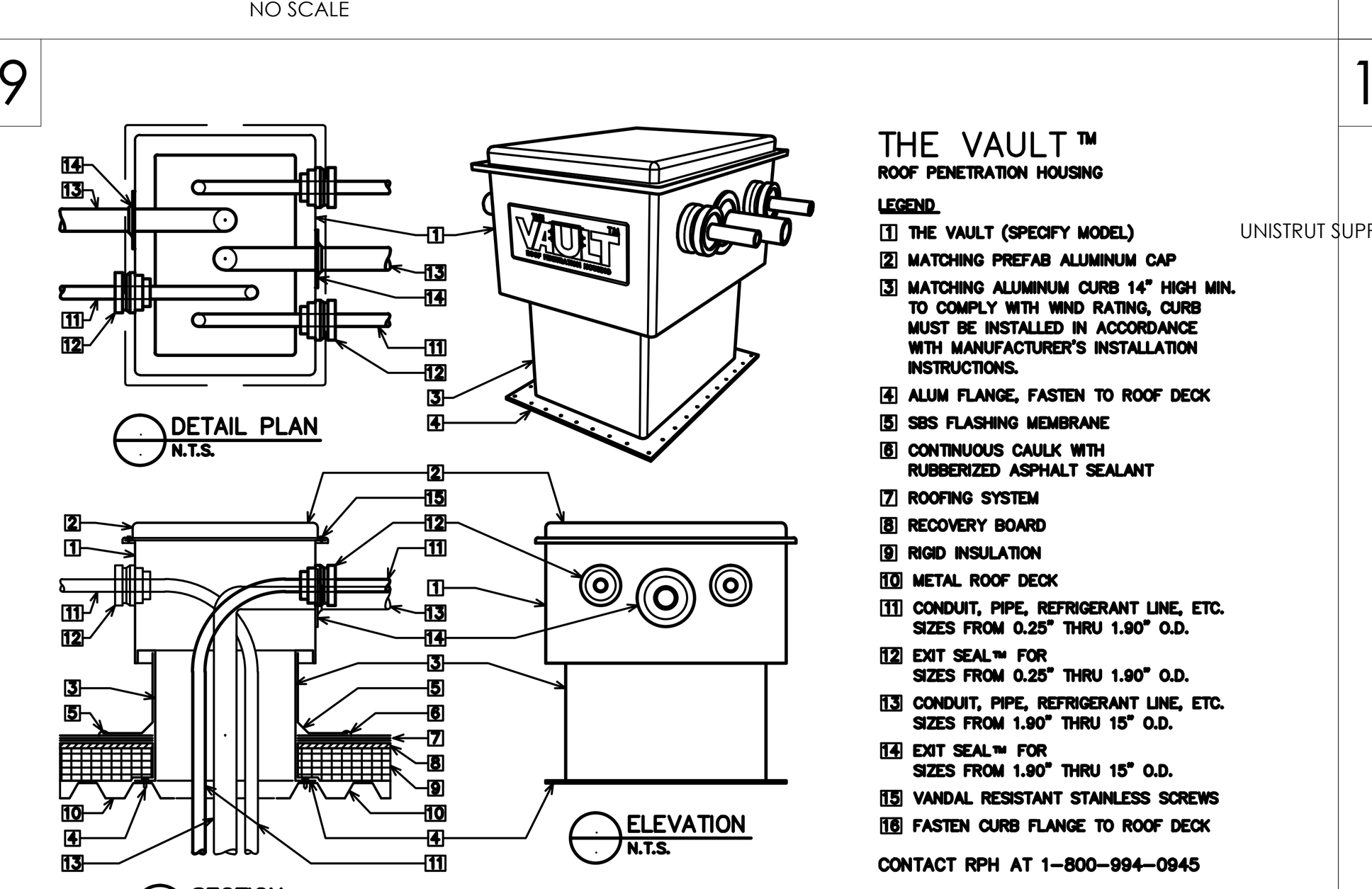
ROOF MTD. EXHAUST FAN
NO SCALE

08

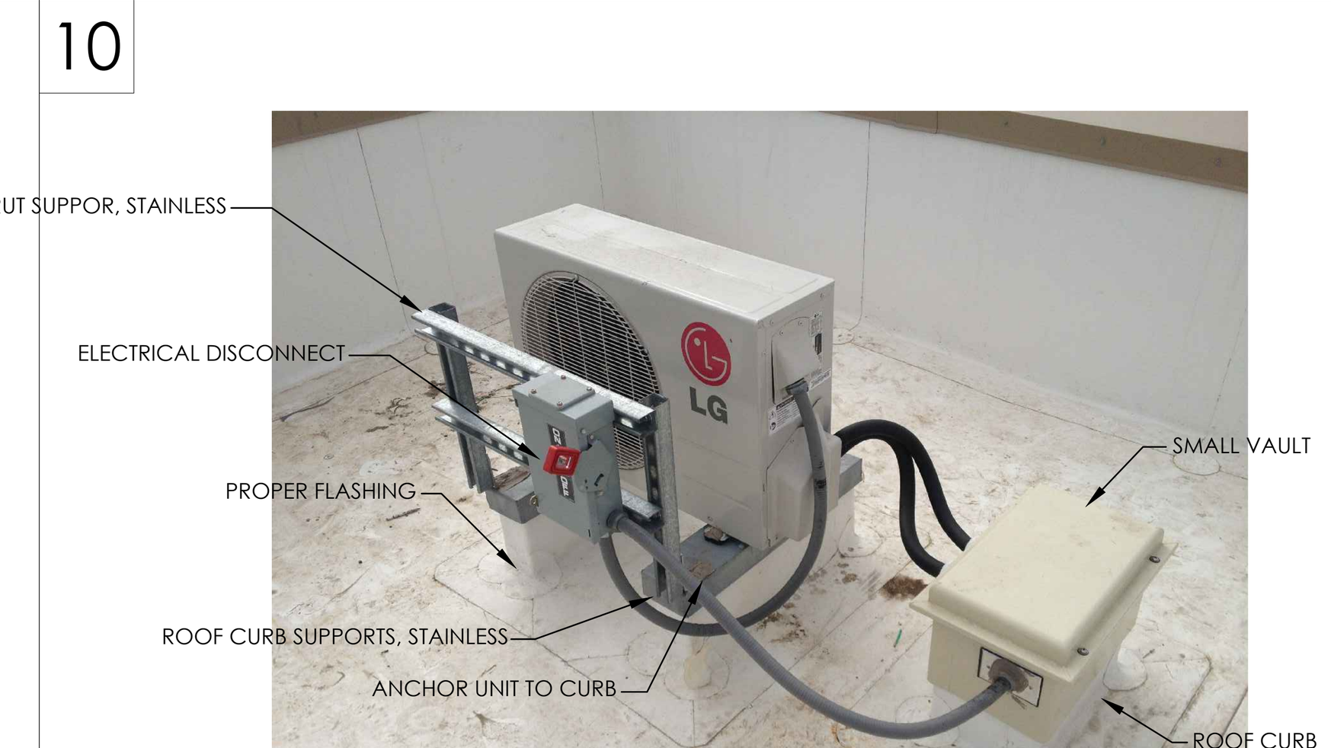


HVAC EQUIPMENT CURB FASTENING DETAIL
NO SCALE

09

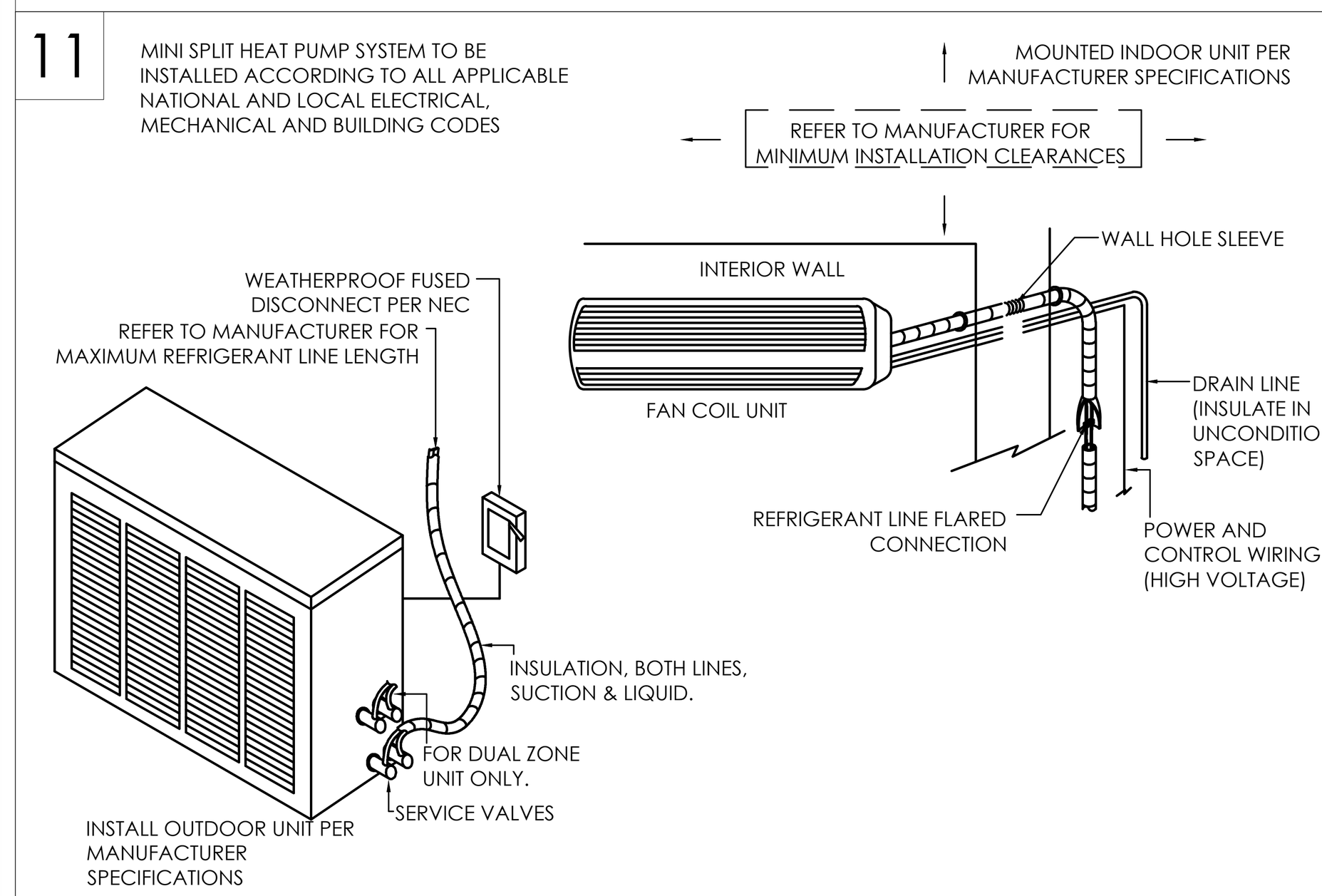


10



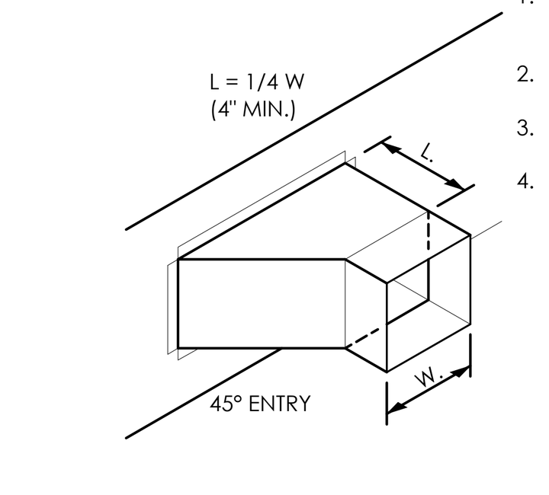
MINI SPLIT CONDENSING UNIT
NO SCALE

11



MINI SPLIT UNIT - CONDENSER AND EVAPORATOR
NO SCALE

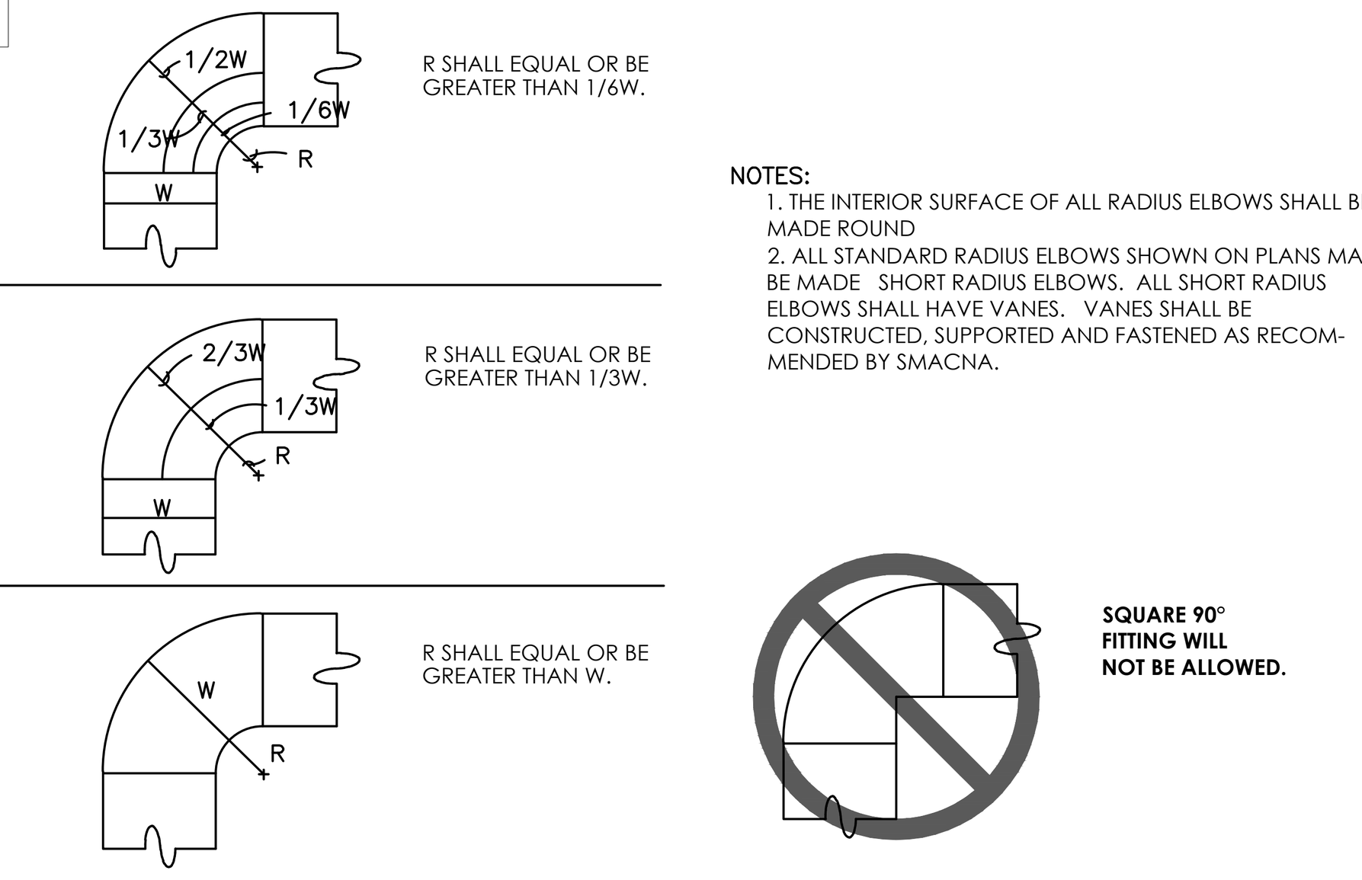
12



NOTES:
1. FIT ALL CONNECTIONS TO AVOID VISIBLE OPENINGS & SECURE SUITABLY FOR THE PRESSURE CLASS.
2. ADDITIONAL MECHANICAL FASTENERS REQ'D. FOR 4" W.G. & OVER.
3. DO NOT EXPOSE LINER EDGES ON LINED DUCT CONNECTIONS.
4. ALL OPENINGS TO BE CUT ACCURATELY IN SHAPE & SIZE.

BRANCH CONN. DETAIL
NO SCALE

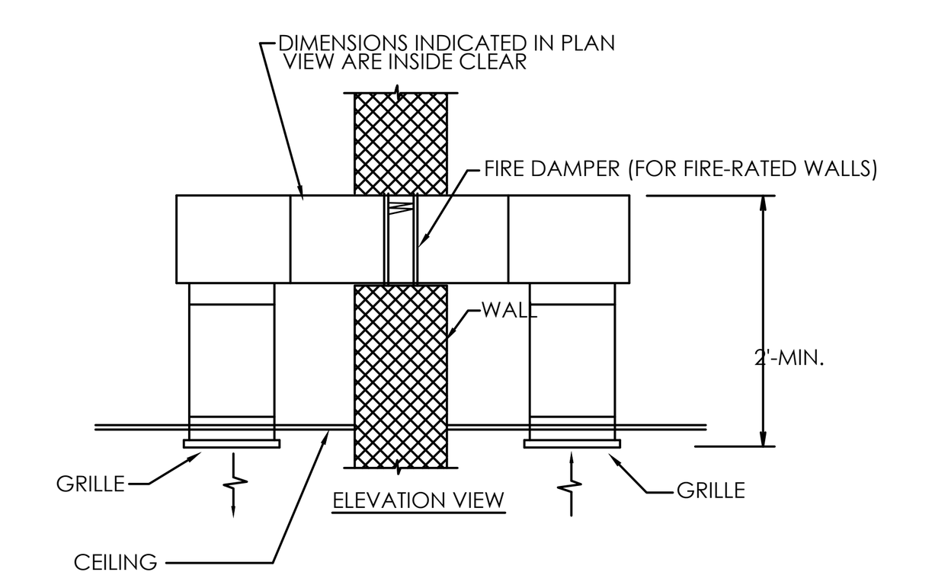
13



NOTES:
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND
2. ALL STANDARD RADIUS ELBOWS SHOWN ON PLANS MAY BE MADE SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

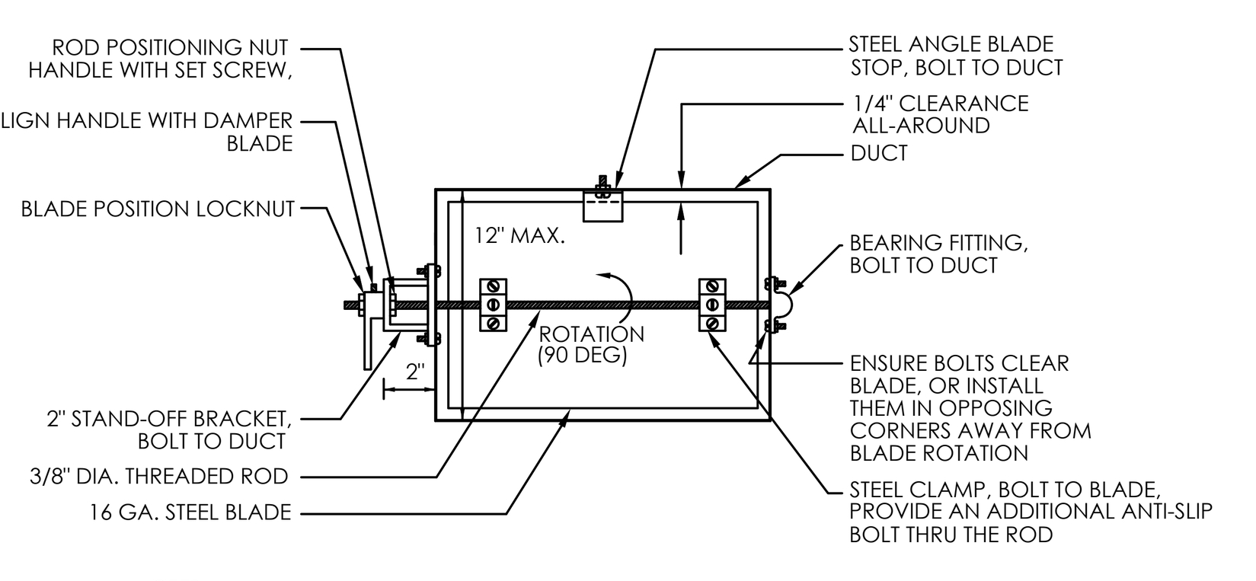
RADIUS DUCT ELBOW DETAIL
NO SCALE

14



TRANSFER DUCT DETAIL
NO SCALE

15



NOTES:
1. DAMPERS FOR ROUND DUCTS SHALL BE SIMILAR TO THE DAMPER SHOWN ABOVE.
2. ENSURE THAT FULL 90° DAMPER BLADE MOVEMENT IS UNOBSTRUCTED.
3. FOR DUCT HEIGHTS MORE THAN 12", PROVIDE FACTORY-FABRICATED OPPOSED BLADE DAMPERS

MANUAL DAMPER DETAIL
NO SCALE

(ADJUSTABLE SINGLE BLADE BALANCING TYPE)

AIR HANDLING UNIT SCHEDULE

TAG	AHU-A1	AHU-A2	AHU-A3	AHU-A4
TYPE	SNGL ZN VAV	SNGL ZN VAV	SNGL ZN VAV	SNGL ZN VAV
FLOW CONFIGURATION	VERTICAL	VERTICAL	VERTICAL	VERTICAL
AREA SERVED	OFFICES/STATIONS	OFFICES/RECEPTION	LARGE CONF	OFFICES/DRAFT
INDOOR UNIT FAN				
SUPPLY CFM	1400	1550	1050	1750
MIN. OUTSIDE AIR (CFM)	200	150	200	250
EXT. STATIC INCHES WC	0.5	0.5	0.5	0.5
MIN FAN POWER	3/4 HP - ECM	3/4 HP - ECM	1/2 HP - ECM	1.0 HP - ECM
INDOOR UNIT COOLING COIL				
ENTERING AIR DB/WB (°F)	76.7/64.5	75.5/63.4	78/65.6	76.8/65.6
LEAVING AIR DB/WB (°F	54.8/53.4	54.7/53.3	56.5/54.7	56.1/54
MIN. TOTAL/SENSIBLE CAPACITY (MBH)	44/32	44/34	33/24	53/38
DESIGN RETURN AIR DB/WB (°F)	73/61	73/61	73/61	73/61
DESIGN OUTSIDE AIR DB/WB (°F)	99/81	99/81	99/81	99/81
INDOOR UNIT HEATING SELECTION				
HEATER TYPE/AMBIENT DESIGN DB (°F)	ELEC/33	ELEC/33	ELEC/33	ELEC/33
HEAT INPUT/STAGES	10.8 KW/1	10.8 KW/1	7.2 KW/1	10.8 KW/1
ENTERING/LEAVING DB (°F)	65/90	67/90	63/85	65/85
DETAILS AND ACCESSORIES				
VOLTAGE/PHASE	208/1	208/1	208/1	208/1
MCA/MOCP	73/80	73/80	48/50	75/80
MANUFACTURER	TRANE	TRANE	TRANE	TRANE
MODEL	GAM5B0C48	GAM5B0C48	GAM5B0B36	GAM5B0C60
NOMINAL UNIT SIZE TONNAGE	4.0 TONS	4.0 TONS	3.0 TONS	5.0 TONS
MAX WEIGHT (lbs)	175 lbs	175 lbs	150 lbs	175 lbs
NOTES	2,4,7	2,4,7	2,4,7	2,4,7

CONDENSING UNIT SCHEDULE

TAG	CU-A1	CU-A2	CU-A3	CU-A4
OUTDOOR UNIT ELECTRICAL				
VOLTAGE/PHASE	208/1	208/1	208/1	208/1
MCA/MOCP	28/45	28/45	24/35	41/60
DETAILS AND ACCESSORIES				
MIN COOL/HEAT EFFICIENCY	17 SEER/-	17 SEER/-	17 SEER/-	17 SEER/-
COMPRESSOR QTY/STAGE QTY	1/2	1/2	1/2	1/2
COOL/HEAT AMBIENT DB (°F)	99/33	99/33	99/33	99/33
MANUFACTURER	TRANE	TRANE	TRANE	TRANE
MODEL	4TTR7048	4TTR7048	4TTR7036	4TTR7060
NOMINAL UNIT SIZE TONNAGE	4.0 TONS	4.0 TONS	3.0 TONS	5.0 TONS
MAX WEIGHT	325 lbs	325 lbs	300 lbs	325 lbs
NOTES	1,2,3,7	1,2,3,7	1,2,3,7	1,2,3,7

NOTES:
01. PROVIDE CONDENSER W/ FACTORY HAIL GUARDS & COIL E-COAT, 5,000 SALT SPRAY.
02. PROVIDE W/ SINGLE POINT POWER; TRANE, CARRIER, LENNOX ACCEPTABLE MANUFACTURERS.
03. PROVIDE IBC 2015 COMPLIANT CURB & ATTACHMENTS FROM UNIT TO CURB & CURB TO STRUCTURE. EQUIPMENT OR CURB MANUFACTURER IS RESPONSIBLE FOR PROVIDING ENGINEERED DETAIL ANALYSIS OF:
A) ATTACHMENT OF EQUIPMENT TO CURB.
B) CURB TO STRUCTURE.
C) CURB AND ATTACHMENT HARDWARE STRENGTH.
REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR ROOF SUBSTRATE DETAILS. EQUIPMENT OR CURB MANUFACTURER IS ALSO RESPONSIBLE FOR PROVIDING ENGINEERED INSTALLATION DRAWINGS FOR ITEMS 1 AND 2 LISTED ABOVE. BOTH THE ENGINEERED ANALYSIS & THE ENGINEERED INSTALLATION DRAWINGS SHALL BE PERFORMED SPECIFICALLY FOR THIS BUILDING & PROJECT SITE & STAMPED & SEALED BY A TEXAS LICENSED ENGINEER. SUBMITTALS WILL NOT BE APPROVED UNTIL ALL DOCUMENTATION LISTED ABOVE IS PROVIDED ACCURATELY.
04. PROVIDE EVAPORATOR COIL W/ E-COAT.
07. PROVIDE W/ HVAC CONTROLS INTERFACE CARD, COORDINATE W/ SUCCESSFUL CONTROLS MANUFACTURER.

ROOF TOP UNIT SCHEDULE

TAG	RTU-B1,C1	RTU-B2,C4	RTU-B3,C3	RTU-B4,B5	RTU-C2	RTU-C5,PR2	RTU-PR1	RTU-PR3
TYPE	SNGL ZN VAV	SNGL ZN VAV	SNGL ZN VAV	MULTI ZN VAV	SNGL ZN VAV	SNGL ZN VAV	SNGL ZN VAV	SNGL ZN VAV
DISCHARGE CONFIGURATION	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW
AREA SERVED	LNG,OFF/REC	WAIT/REC,OFF/CONF	VESTIBULE	OFFICES	BOARDROOM	LOBBY/RRs	OFFICES/STRG	OFFICES/PERMITS
FAN DATA								
SUPPLY CFM	1150	1000	1000	1300	2400	1750	1300	1750
MIN. OUTSIDE AIR (CFM)	150	200	200	250	650	250	250	250
EXT. STATIC INCHES WC	0.5	0.5	0.5	0.5	0.625	0.5	0.5	0.5
MIN FAN POWER	3/4 HP - ECM	3/4 HP - VFD	3/4 HP - VFD	1.0 HP - ECM	3.75 HP - VFD	1.0 HP - ECM	1.0 HP - ECM	1.0 HP - ECM
COOLING COIL								
ENTERING AIR DB/WB (°F)	76.4/64.2	78.2/65.8	78.2/65.8	78/65.6	80/67.3	76.7/65.5	78/65.6	76.7/65.5
LEAVING AIR DB/WB (°F)	56.6/54.3	56.3/54.8	56.3/54.8	56.1/54.3	56.4/55.7	55.5/53.9	54.9/53.7	55.5/53.9
MIN. TOTAL/SENSIBLE CAPACITY (MBH)	33/24	32/23	32/23	45/32	85/61	54/40	45/32	54/40
DESIGN RETURN AIR DB/WB (°F)	73/61	73/61	73/61	73/61	73/61	73/61	73/61	73/61
DESIGN OUTSIDE AIR DB/WB (°F)	99/81	99/81	99/81	99/81	99/81	99/81	99/81	99/81
DEHUMIDIFICATION SELECTION								
TYPE	NONE	NONE	ON/OFF HGRH	NONE	NONE	NONE	NONE	NONE
REHEAT CAPACITY	-	-	18 MBH	-	-	-	-	-
LEAVING AIR DB/WB (°F)	-	-	73/61	-	-	-	-	-
HEATING SELECTION								
HEAT TYPE/AMBIENT DB (°F)	ELEC/33	ELEC/33	ELEC/33	ELEC/33	ELEC/33	ELEC/33	ELEC/33	ELEC/33
HEAT INPUT/STAGES	4.5 KW/1	9 KW/3	9 KW/3	9 KW/2	20.3 KW/2	9 KW/2	12 KW/2	9 KW/2
ENTERING/LEAVING DB (°F)	67/80	63/92	63/92	63/85	60/87	65/82	63/85	65/82
DETAILS AND ACCESSORIES								
MIN COOL/HEAT EFFICIENCY	17 SEER/-	17 SEER/-	17 SEER/-	17 SEER/-	12.6 EER/-	17 SEER/-	17 SEER/-	17 SEER/-
COMPRESSOR QTY/COOL STAGE QTY	1/2	1/2	1/2	1/2	2/2	1/2	1/2	1/2
VOLTAGE/PHASE	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3
MCA/MOCP	25/30	41/45	41/45	43/45	81/90	43/45	43/45	43/45
MOUNTING	14" CURB	14" CURB	14" CURB	14" CURB	14" CURB	14" CURB	14" CURB	14" CURB
MANUFACTURER	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
MODEL	THC037	THC037	THC037	THC047	THC092	THC067	THC047	THC067
NOMINAL UNIT SIZE TONNAGE	3.0 Tons	3.0 Tons	3.0 Tons	4.0 Tons	7.5 Tons	5.0 Tons	4.0 Tons	5.0 Tons
MAX WEIGHT	750 lbs	750 lbs	750 lbs	950 lbs	1250 lbs	1000 lbs	950 lbs	1000 lbs
NOTES:	1-7	1-7	1-8	1-7,9	1-7	1-7	1-7	1-7

01. PROVIDE W/ FACTORY INTEGRAL GFI DUPLEX 120V RECEPTACLE, FACTORY POWERED.
02. PROVIDE CONDENSING COILS W/ HAIL GUARDS & FACTORY CONDENSER E-COAT. PROVIDE EVAPORATOR COIL W/ FACTORY E-COAT.
03. PROVIDE W/ MOTORIZED OA DAMPER, DIFF ENTH ECON, & BARR RELIEF DAMPER.
04. UNIT TO HAVE SINGLE ZONE VAV CONTROL & CO2 DEMAND CONTROL VENTILATION.
05. PROVIDE IBC 2015 COMPLIANT CURB & ATTACHMENTS FROM UNIT TO CURB & CURB TO STRUCTURE. EQUIPMENT OR CURB MANUFACTURER IS RESPONSIBLE FOR PROVIDING ENGINEERED DETAIL ANALYSIS OF:
A) ATTACHMENT OF EQUIPMENT TO CURB.
B) CURB TO STRUCTURE.
C) CURB & ATTACHMENT HARDWARE STRENGTH.
REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR ROOF SUBSTRATE DETAILS. EQUIPMENT OR CURB MANUFACTURER IS ALSO RESPONSIBLE FOR PROVIDING ENGINEERED INSTALLATION DRAWINGS FOR ITEMS A & B LISTED ABOVE. BOTH, THE ENGINEERED ANALYSIS & THE ENGINEERED INSTALLATION DRAWINGS SHALL BE PERFORMED SPECIFICALLY FOR THIS BUILDING & PROJECT SITE & STAMPED & SEALED BY A TEXAS LICENSED ENGINEER. SUBMITTALS WILL NOT BE APPROVED UNTIL ALL DOCUMENTATION LISTED ABOVE IS PROVIDED ACCURATELY.
06. TRANE, LENNOX, & CARRIER APPROVED AS MANUFACTURERS.
07. PROVIDE W/ HVAC CONTROLS INTERFACE CARD, COORDINATE W/ SUCCESSFUL CONTROLS MANUFACTURER.
08. UNIT TO HAVE ON/OFF HOT GAS REHEAT.
09. UNIT TO HAVE TRUE VAV CAPABILITIES: FAN SPEED TO BE CONTROLLED VIA DUCT STATIC PRESSURE & VARIABLE CAPACITY COMPRESSOR TO BE STAGED OFF OF COIL LEAVING AIR TEMPERATURE.

DX MINI-SPLIT SCHEDULE

INDOOR UNIT TAG	FC-A1,B1,C1,PR1
SERVES	IT ROOM
LOCATION	WALL
UNIT TYPE	WALL
FAN PROPERTIES	
MIN SUPPLY (CFM)	250
MINIMUM O/A (CFM)	0
UNIT CAPACITIES	
ENTERING AIR (DB/WB)	74/62
TOTAL CAPACITY (BTUH)	9,000
HEATING CAPACITY (BTUH)	0
UNIT DETAILS	
VOLTAGE/PHASE	208/1
MANUFACTURER	DAIKIN
MODEL NO.	FTXN09KEV
MAX WEIGHT (LBS)	25
CONDENSING UNIT TAG	**FCCU-1**
DETAILS	
VOLTAGE/PHASE	208/1
MCA/MOCP	5/15
AMB. AIR TEMP. (CLG°F/HTG°F)	99/33
REFRIGERANT	R-410A
COOLING MODE OPER. RANGE	15°F - 110°F
HEATING MODE OPER. RANGE	N/A
MANUFACTURER	DAIKIN
MODEL NO.	RKN09KEV
MAX WEIGHT (LBS)	75
MIN COOL/HEAT EFFICIENCY	18 SEER/-
MAX EQUIV. LINE LENGTH (FT)	66
MAX. VERTICAL RISE (FT)	49
CONTROL TYPE	WL-RC
NOTES	1-9

NOTES:
01. ELECTRICAL CONTRACTOR TO PROVIDE SINGLE CIRCUIT POWER FROM SERVICE TO OUTDOOR UNIT AND WIRE TO INDOOR UNIT.
02. WIRELESS REMOTE CONTROLLER.
03. PROVIDE INDOOR UNITS WITH MOUNTING BRACKETS IF REQUIRED.
04. SEE PLUMBING FOR CONDENSATE ROUTING.
03. PROVIDE IBC 2015 COMPLIANT CURB & ATTACHMENTS FROM UNIT TO CURB & CURB TO STRUCTURE. EQUIPMENT OR CURB MANUFACTURER IS RESPONSIBLE FOR PROVIDING ENGINEERED DETAIL ANALYSIS OF:
A) ATTACHMENT OF EQUIPMENT TO CURB.
B) CURB TO STRUCTURE.
C) CURB AND ATTACHMENT HARDWARE STRENGTH.
REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR ROOF SUBSTRATE DETAILS. EQUIPMENT OR CURB MANUFACTURER IS ALSO RESPONSIBLE FOR PROVIDING ENGINEERED INSTALLATION DRAWINGS FOR ITEMS 1 & 2 LISTED ABOVE. BOTH THE ENGINEERED ANALYSIS & THE ENGINEERED INSTALLATION DRAWINGS SHALL BE PERFORMED SPECIFICALLY FOR THIS BUILDING & PROJECT SITE & STAMPED & SEALED BY A TEXAS LICENSED ENGINEER. SUBMITTALS WILL NOT BE APPROVED UNTIL ALL DOCUMENTATION LISTED ABOVE IS PROVIDED ACCURATELY.
06. CONTRACTOR TO PROVIDE LINE SETS.
07. SIGHT GLASSES, FILTER DRYERS, & FIELD SUPPLIED EXPANSION VALVES ARE NOT TO BE USED ON THIS EQUIPMENT.
08. INSTALL PER MANUFACTURERS INSTRUCTIONS & PIPING RECOMMENDATIONS.
09. PROVIDE W/ CONTROLS INTERFACE CARD FOR STATUS & TEMPERATURES.

AIR DEVICE SCHEDULE

TAG	A	B	C	D	E	F	G	H	I
SERVICE TYPE	SUPPLY	SUPPLY	RETURN	RETURN	SUPPLY	RETURN	SUPPLY	SUPPLY	VAV SUPPLY
PHYSICAL PROPERTIES									
FACE SIZE	24"x24"	12"x12"	24"x24"	12"x12"	SEE PLANS	SEE PLANS	SEE PLANS	24"x24"	24"x24"
NECK SIZE	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
MOUNTING SURFACE	CEILING	CEILING	CEILING	CEILING	WALL	WALL	ROUND DUCT	CEILING	CEILING
DETAILS AND ACCESSORIES									
DAMPER TYPE	OPPOSED BLADE	OPPOSED BLDAED	OPPOSED BLADE	OPPOSED BLDAED	OPPOSED BLADE	OPPOSED BLDAED	AIR SCOOP	OPPOSED BLDAED	VAV PLATE
ACCESSORY	INSUL BACKPAN	INSUL BACKPAN	NONE	NONE	NONE	NONE	ROUND FRAME	INSUL BACKPAN	INSUL BACKPAN
COLOR FINISH	WHITE	WHITE	WHITE	WHITE				WHITE	WHITE
MATERIAL	STEEL	ALUMINUM	ALUMINUM	ALUMINUM	STEEL	STEEL	ALUMINUM	ALUMINUM	STEEL
MANUFACTURER	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE
MODEL	SCD	ASCD	80	80	520	535	SDGE	ASCD	PPD2
NOTES					1	1			3

NOTES:
01. COORDINATE COLOR OF AIR DEVICE AND FRAME W/ ARCHITECT.
02. PROVIDE W/ FLUSH-TO-ROUND DUCT AIR DEVICE FRAME: DUCT BOOT UNACCEPTABLE.
03. VAV SUPPLY AIR DEVICE. COORDINATE W/ SUCCESSFUL CONTROLS CONTRACTOR FOR CONTROL INTERFACE: DDC OR BACNET INTERFACE. PROVIDE W/ DRONE UNITS WHERE INDICATED ON PLANS. TIE INTO CONTROLS. AIR DEVICE VENDOR TO INCLUDE 115V/24V DC TRANSFORMERS AT EACH AIR DEVICE (FACTORY). PROVIDE W/ LCD T-STAT.

FAN SCHEDULE

TAG	EF-B1	EF-B2	EF-B3,C3,C4,PR1	EF-C1	EF-C2	EF-PR2
SERVICE	B LOUNGE	B GANG RRs	SINGLE RRs	C LOUNGE	C GANG RRs	PR GANG RRs
LOCATION	ROOF	ROOF	CEILING	ROOF	ROOF	ROOF
FAN PROPERTIES						
CFM	300	500	75	250	400	450
FAN RPM	1579	1667	642	1514	1536	1598
EXT SP (IN WG)	0.5	0.5	0.15	0.5	0.5	0.5
FAN POWER	1/10 HP - ECM	1/10 HP - ECM	16 W	1/10 HP	1/10 HP	1/10 HP
VOLTS/PHASE	120/1	120/1	120/1	120/1	120/1	120/1
SOUND LEVEL	7.8 SONES	8.4 SONES	0.7 SONE	7.3 SONES	7.4 SONES	7.8 SONES
MOUNTING	14" TDI CURB	14" TDI CURB	CEILING	14" TDI CURB	14" TDI CURB	14" TDI CURB
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL	G-085-VG	G-090-VG	SP-B90	G-085-VG	G-090-VG	G-090-VG
MAX WEIGHT	50 lbs	50 lbs	25 lbs	50 lbs	50 lbs	50 lbs
NOTES	1,2,3,6,7,9,10	1,2,3,7,8,9,10	1,2,3,4,5,7	1,2,3,6,7,9,10	1,2,3,7,8,9,10	1,2,3,7,8,9,10

NOTES:
01. PROVIDE W/ FAN SPEED CONTROLLER
02. PROVIDE WITH FACTORY INSTALLED DISCONNECT.
03. PROVIDE W/ BACKDRAFT DAMPER.
04. INTERLOCK FAN W/ LIGHTS.
05. PROVIDE W/ TIMED DELAY SHUTOFF.
06. PROVIDE FAN W/ WALL MOUNTED ROTARY TIME DIAL SWITCH, 0-60 MINS, LABELED "VENT FAN".
07. FAN TO BE MONITORED BY HVAC CONTROLS.
08. FAN OPERATION TO BE THROUGH HVAC CONTROLS
09. PROVIDE W/ LIFTING LUGS.
10. PROVIDE IBC 2015 COMPLIANT CURB & ATTACHMENTS FROM UNIT TO CURB & CURB TO STRUCTURE. EQUIPMENT OR CURB MANUFACTURER IS RESPONSIBLE FOR PROVIDING ENGINEERED DETAIL ANALYSIS OF:
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REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ROOF SUBSTRATE DETAILS. EQUIPMENT OR CURB MANUFACTURER IS ALSO RESPONSIBLE FOR PROVIDING ENGINEERED INSTALLATION DRAWINGS FOR ITEMS 1 & 2 LISTED ABOVE. BOTH, THE ENGINEERED ANALYSIS & THE ENGINEERED INSTALLATION DRAWINGS SHALL BE PERFORMED SPECIFICALLY FOR THIS BUILDING & PROJECT SITE & STAMPED & SEALED BY A TEXAS LICENSED ENGINEER. SUBMITTALS WILL NOT BE APPROVED UNTIL ALL DOCUMENTATION LISTED ABOVE IS PROVIDED ACCURATELY.

ROOF CAP SCHEDULE

TAG	RC-1
TYPE	EXHAUST
SERVES	RRs
LOCATION	ROOF
DETAILS AND ACCESSORIES	
MAX AIR VOL. (CFM)	375
NECK SIZE (INCHES)	10.0
MAX PRESSURE DROP (IN WG)	0.05
MAX. THROAT VELOCITY (FPM)	550.00
INCLUDED SCREEN(S)	BIRD
HOUSING MATERIAL	ALUMINUM
ROOF CURB HEIGHT	14" CURB
MANUFACTURER	GREENHECK
MODEL	GRSR
NOTES	1

NOTES:
1. TO BE HIGH WIND RATED. SAME CURB REQUIREMENTS AS OTHER EQUIP.

UNIT HEATER SCHEDULE

TAG	UH-1
SERVICE/LOCATION	RISER ROOM
DETAILS & ACCESSORIES	
VOLTS/PHASE	208/1
POWER INPUT	3.3 KW
AMPERAGE	16
MANUFACTURER	MARKEL
MODEL	(UH series)
NOTES	ALL

NOTES:
01. PROVIDE W/ AUTOMATICE ON/OFF VIA THERMOSTAT.
02. UNIT TO SWITCH ON WHEN SPACE TEMPERATURE REACHES 35°.
03. PROVIDE W/ DISCONNECT.
04. SUSPEND FROM STRUCTURE BY 1/4" ALL THREAD ROD & SPRING VIBRATION ISOLATORS.

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Texas Registered Engineering Firm - F10362
Project number: 16.1.01

SHEET NO. M3.1
OF
SET NUMBER
REVISED:
DATE: 09/30/16
DRAWN BY: TC
PROJECT NO.:16.1.01

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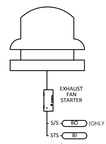
121939
LICENSED PROFESSIONAL ENGINEER

BROWNSVILLE NAVIGATION DISTRICT OF CAMERON COUNTY, TEXAS
PORT OF BROWNSVILLE
·WORLD CLASS·

PROJECT: ADMINISTRATION COMPLEX REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE: MECHANICAL DETAILS & SCHEDULES

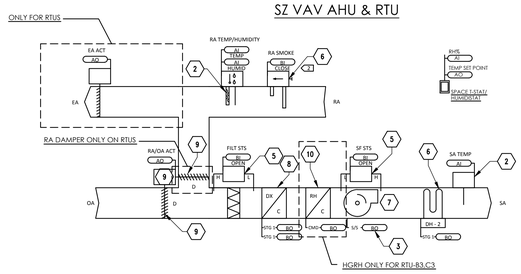
EXHAUST FANS



KEYED NOTES:

1. C02 SENSOR
2. TEMPERATURE SENSOR (PLUS HUMIDITY WHERE INDICATED)
3. MOTOR STARTER
4. FAN VARIABLE FREQUENCY DRIVE.
5. PRESSURE SENSOR
6. SMOKE DETECTOR. PROVIDED, MOUNTED AND WIRED BY DIV. 16.PROVIDE WITH CONTROL WIRING CONTACTS.
7. SUPPLY FAN
8. DX COIL
9. MOTORIZED DAMPER.
10. DEHUMIDIFICATION RE-HEAT COIL

SZ VAV AHU & RTU



SZ VAV AHU & RTU SEQUENCE

SEQUENCE OF OPERATIONS
TYPICAL FOR AHU-A1, A2, A3, A4, RTU-B1,B2, B3, C1,C2,C3, C4, C5, PR1, PR2, PR3.

BUILDING AUTOMATION SYSTEM INTERFACE:
THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED BYPASS, PRE-COOL, OCCUPIED / UNOCCUPIED AND HEAT / COOL MODES. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER SHALL OPERATE USING DEFAULT MODES AND SETPOINTS.

OCCUPIED MODE:
DURING OCCUPIED PERIODS, THE SUPPLY FAN WILL RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPER WILL OPEN TO MAINTAIN MINIMUM VENTILATION REQUIREMENTS. THE DX COOLING AND ELECTRIC HEAT WILL STAGE TO MAINTAIN THE OCCUPIED SPACE TEMPERATURE SETPOINT. IF ECONOMIZING IS ENABLED THE OUTSIDE AIR DAMPER WILL MODULATE TO MAINTAIN THE OCCUPIED SPACE TEMPERATURE SETPOINT.

UNOCCUPIED MODE:
WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) THE SUPPLY FAN WILL START, THE OUTSIDE AIR DAMPER WILL REMAIN CLOSED AND THE ELECTRIC HEAT WILL BE ENABLED. WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F (ADJ.) THE SUPPLY FAN WILL STOP AND THE ELECTRIC HEAT WILL BE DISABLED. WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 85.0 DEG. F (ADJ.) THE SUPPLY FAN WILL START, THE OUTSIDE AIR DAMPER WILL OPEN IF ECONOMIZING IS ENABLED AND REMAIN CLOSED IF ECONOMIZING IS DISABLED AND THE DX COOLING WILL BE ENABLED. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 85.0 DEG. F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F (ADJ.) THE SUPPLY FAN WILL STOP, THE DX COOLING WILL BE DISABLED AND THE OUTSIDE AIR DAMPER WILL CLOSE.

OPTIMAL START:
THE BAS WILL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS.

MORNING WARM-UP MODE:
DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS BELOW THE OCCUPIED HEATING SETPOINT A MORNING WARM-UP MODE WILL BE ACTIVATED. WHEN MORNING WARM-UP IS INITIATED THE UNIT WILL ENABLE THE HEATING AND SUPPLY FAN. THE OUTSIDE AIR DAMPER WILL REMAIN CLOSED. WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED HEATING SETPOINT (ADJ.), THE UNIT WILL TRANSITION TO THE OCCUPIED MODE.

PRE-COOL MODE:
DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS ABOVE THE OCCUPIED COOLING SETPOINT, PRE-COOL MODE WILL BE ACTIVATED. WHEN PRE-COOL IS INITIATED THE UNIT WILL ENABLE THE FAN AND COOLING OR ECONOMIZER. THE OUTSIDE AIR DAMPER WILL REMAIN CLOSED, UNLESS ECONOMIZING. WHEN THE SPACE TEMPERATURE REACHES OCCUPIED COOLING SETPOINT (ADJ.), THE UNIT WILL TRANSITION TO THE OCCUPIED MODE.

OPTIMAL STOP:
THE BAS WILL MONITOR THE SCHEDULED UNOCCUPIED TIME. OCCUPIED SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL STOP OCCURS. WHEN THE OPTIMAL STOP MODE IS ACTIVE THE UNIT CONTROLLER WILL MAINTAIN THE SPACE TEMPERATURE TO THE SPACE TEMPERATURE OFFSET SETPOINT.

OCCUPIED BYPASS:
THE BAS WILL MONITOR THE STATUS OF THE "ON" AND "CANCEL" BUTTONS OF THE SPACE TEMPERATURE SENSOR. WHEN AN OCCUPIED BYPASS REQUEST IS RECEIVED FROM A SPACE SENSOR, THE UNIT WILL TRANSITION FROM ITS CURRENT OCCUPANCY MODE TO OCCUPIED BYPASS MODE AND THE UNIT WILL MAINTAIN THE SPACE TEMPERATURE TO THE OCCUPIED SETPOINTS (ADJ.).

COOLING MODE:
THE UNIT CONTROLLER WILL USE SPACE TEMPERATURE AND SPACE TEMPERATURE SETPOINT TO DETERMINE WHEN TO INITIATE REQUESTS FOR COOLING. WHEN THE SPACE TEMPERATURE RISES ABOVE THE SETPOINT, THE UNIT CONTROLLER WILL MODULATE THE ECONOMIZER OR STAGE THE DX COOLING AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. THE FIRST COMPRESSOR WILL ENERGIZE AFTER ITS MINIMUM 3-MINUTE OFF TIME HAS EXPIRED. IF ADDITIONAL COOLING CAPACITY IS REQUIRED THE SECOND STAGE OF COOLING WILL BE ENABLED. ONCE THE SPACE TEMPERATURE FALLS BELOW THE SETPOINT THE COMPRESSORS WILL BE DEACTIVATED AND THE ECONOMIZER WILL RETURN TO MINIMUM POSITION. UNDER NO CONDITION SHALL THE AIR TEMPERATURE RISE ABOVE 54°.

HEATING MODE:
THE UNIT CONTROLLER WILL USE THE SPACE TEMPERATURE AND SPACE TEMPERATURE SETPOINT TO DETERMINE WHEN TO INITIATE REQUESTS FOR HEAT. WHEN THE SPACE TEMPERATURE DROPS BELOW THE SETPOINT, THE UNIT CONTROLLER WILL ENABLE ELECTRIC HEATING STAGES TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. ONCE THE SPACE TEMPERATURE RISES ABOVE THE SETPOINT THE ELECTRIC HEATING STAGES WILL BE DISABLED.

DEHUMIDIFICATION (UNITS RTU-B3 & C3 ONLY):
FACTORY INSTALLED HOT GAS REHEAT SHALL ALLOW APPLICATION OF DEHUMIDIFICATION. DEHUMIDIFICATION SHALL BE ALLOWED ONLY WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 40.0 DEG. F AND BELOW 100.0 DEG. F. THE ECONOMIZER OUTSIDE AIR DAMPER SHALL DRIVE TO MINIMUM POSITION DURING DEHUMIDIFICATION.

SINGLE COMPRESSOR UNITS :
ON A CALL FOR DEHUMIDIFICATION, THE REHEAT VALVE SHALL ENERGIZE AND THE COMPRESSOR SHALL ENABLE. WHEN THE HUMIDITY CONTROL SETPOINT IS SATISFIED, THE VALVE SHALL BE DE-ENERGIZED AND THE COMPRESSOR SHALL BE DISABLED. IF THERE IS A CALL FOR COOLING FROM THE SPACE TEMPERATURE CONTROLLER, WHILE IN REHEAT, THE REHEAT VALVE SHALL BE DE-ENERGIZED AND THE COMPRESSOR CONTINUES TO RUN.

COMPARATIVE ENTHALPY FOR RTUS ONLY:
OUTSIDE AIR (OA) ENTHALPY WILL BE COMPARED WITH RETURN AIR (RA) ENTHALPY POINT. THE ECONOMIZER WILL ENABLE WHEN OA ENTHALPY IS LESS THAN RA ENTHALPY - 3.0 BTU/LB. THE ECONOMIZER WILL DISABLE WHEN OA ENTHALPY IS GREATER THAN RA ENTHALPY.

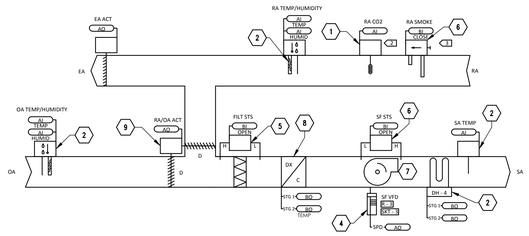
SUPPLY FAN:
THE SUPPLY FAN WILL BE ENABLED WHILE IN THE OCCUPIED MODE AND CYCLED ON DURING THE UNOCCUPIED MODE. A DIFFERENTIAL PRESSURE SWITCH WILL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FAN. IF THE SWITCH DOES NOT OPEN WITHIN 40 SECONDS AFTER A REQUEST FOR FAN OPERATION A FAN FAILURE ALARM WILL BE ANNUNCIATED AT THE BAS, THE UNIT WILL STOP, REQUIRING A MANUAL RESET.

SMOKE DETECTOR SHUTDOWN:
THE UNIT WILL SHUT DOWN IN RESPONSE TO A SIGNAL FROM THE SMOKE DETECTOR INDICATING THE PRESENCE OF SMOKE. THE SMOKE DETECTOR WILL BE INTERLOCKED TO THE UNIT THROUGH THE DRY CONTACTS OF THE SMOKE DETECTOR. A MANUAL RESET OF THE SMOKE DETECTOR WILL BE REQUIRED TO RESTART THE UNIT.

FILTER STATUS:
A DIFFERENTIAL PRESSURE SWITCH WILL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER WHEN THE FAN IS RUNNING. IF THE SWITCH CLOSES FOR 2 MINUTES AFTER A REQUEST FOR FAN OPERATION A DIRTY FILTER ALARM WILL BE ANNUNCIATED AT THE BAS.

DEHUMIDIFICATION MODE:
HUMIDITY SHALL NEVER RISE ABOVE 60% RH. IF HUMIDITY RAISES ABOVE 60%, COOLING SHALL RAMP TO 100%. IF TEMPERATURE IS ASDF BUT HUMIDITY IS STILL ABOVE 55%, 1ST STAGE OF COOLING SHALL ACTIVATE AND STAY ON UNTIL HUMIDITY REACHES 55%.

MZ VAV RTU



MZ VAV RTU SEQUENCE

SEQUENCE OF OPERATIONS
TYPICAL FOR RTU-B4,B5.

BUILDING AUTOMATION SYSTEM INTERFACE:
THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED BYPASS, PRE-COOL, OCCUPIED / UNOCCUPIED AND HEAT / COOL MODES. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER SHALL OPERATE USING DEFAULT MODES AND SETPOINTS.

OCCUPIED MODE:
DURING OCCUPIED PERIODS, THE SUPPLY FAN SHALL RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPER SHALL OPEN TO MAINTAIN MINIMUM VENTILATION REQUIREMENTS. THE DX COOLING AND ELECTRIC HEAT SHALL STAGE TO MAINTAIN THE OCCUPIED SPACE TEMPERATURE SETPOINT. IF ECONOMIZING IS ENABLED THE OUTSIDE AIR DAMPER SHALL MODULATE TO MAINTAIN THE OCCUPIED SPACE TEMPERATURE SETPOINT.

UNOCCUPIED MODE:
WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL START, THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED AND THE ELECTRIC HEAT SHALL BE ENABLED. WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP AND THE ELECTRIC HEAT SHALL BE DISABLED. WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 85.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL START, THE OUTSIDE AIR DAMPER SHALL OPEN IF ECONOMIZING IS ENABLED AND REMAIN CLOSED IF ECONOMIZING IS DISABLED AND THE DX COOLING SHALL BE ENABLED. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 85.0 DEG. F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP, THE DX COOLING SHALL BE DISABLED AND THE OUTSIDE AIR DAMPER SHALL CLOSE.

OPTIMAL START:
THE BAS SHALL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS.

MORNING WARM-UP MODE:
DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS BELOW THE OCCUPIED HEATING SETPOINT A MORNING WARM-UP MODE SHALL BE ACTIVATED. WHEN MORNING WARM-UP IS INITIATED THE UNIT SHALL ENABLE THE HEATING AND SUPPLY FAN. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED. WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED HEATING SETPOINT (ADJ.), THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE.

PRE-COOL MODE:
DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS ABOVE THE OCCUPIED COOLING SETPOINT, PRE-COOL MODE SHALL BE ACTIVATED. WHEN PRE-COOL IS INITIATED THE UNIT SHALL ENABLE THE FAN AND COOLING OR ECONOMIZER. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED, UNLESS ECONOMIZING. WHEN THE SPACE TEMPERATURE REACHES OCCUPIED COOLING SETPOINT (ADJ.), THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE.

OPTIMAL STOP:
THE BAS SHALL MONITOR THE SCHEDULED UNOCCUPIED TIME. OCCUPIED SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL STOP OCCURS. WHEN THE OPTIMAL STOP MODE IS ACTIVE THE UNIT CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE TO THE SPACE TEMPERATURE OFFSET SETPOINT.

OCCUPIED BYPASS:
THE BAS SHALL MONITOR THE STATUS OF THE "ON" AND "CANCEL" BUTTONS OF THE SPACE TEMPERATURE SENSOR. WHEN AN OCCUPIED BYPASS REQUEST IS RECEIVED FROM A SPACE SENSOR, THE UNIT SHALL TRANSITION FROM ITS CURRENT OCCUPANCY MODE TO OCCUPIED BYPASS MODE AND THE UNIT SHALL MAINTAIN THE SPACE TEMPERATURE TO THE OCCUPIED SETPOINTS (ADJ.).

HEATING MODE:
THE UNIT CONTROLLER SHALL MONITOR SPACE TEMPERATURE AND SPACE TEMPERATURE HEATING SETPOINT TO DETERMINE WHEN TO INITIATE REQUESTS FOR HEAT. WHEN THE SPACE TEMPERATURE DROPS BELOW THE SPACE TEMPERATURE HEATING SETPOINT, THE CONTROLLER SHALL ENABLE THE FIRST STAGE OF HEAT. IF ADDITIONAL HEATING CAPACITY IS REQUIRED THE SECOND STAGE OF HEAT SHALL BE ENABLED. THE SUPPLY FAN WILL REMAIN AT 100%%% DURING HEATING OPERATION. ONCE THE SPACE TEMPERATURE RISES ABOVE THE SETPOINT, THE HEATING STAGES SHALL BE DISABLED AND THE SUPPLY FAN SPEED WILL VARY ACCORDING TO VENTILATION AND COOLING MODES.

ECONOMIZER CONTROL / REFERENCE ENTHALPY:
THE SUPPLY AIR SENSOR SHALL MEASURE THE DRY BULB TEMPERATURE OF THE AIR LEAVING THE EVAPORATOR COIL WHILE ECONOMIZING. WHEN ECONOMIZING IS ENABLED AND THE UNIT IS OPERATING IN THE COOLING MODE, THE ECONOMIZER DAMPER SHALL MODULATE BETWEEN ITS MINIMUM POSITION AND 100%%% TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. MINIMUM POSITION SHALL BE CALCULATED BASED ON SUPPLY FAN SPEED. IF THE MIXED AIR TEMPERATURE STARTS TO FALL BELOW 53.0 DEG. F, THE ECONOMIZER STARTS TO CLOSE. AT 50.0 DEG. F, THE DAMPER SHALL BE AT MINIMUM POSITION. COMPRESSORS SHALL BE DELAYED FROM OPERATING UNTIL THE ECONOMIZER HAS OPENED TO 100%%% FOR 5 MINUTES.
REFERENCE ENTHALPY :
OUTSIDE AIR (OA) ENTHALPY IS COMPARED WITH A REFERENCE ENTHALPY POINT. THE ECONOMIZER IS ENABLED WHEN OA ENTHALPY IS 0.5 BTU/LB LESS THAN REFERENCE ENTHALPY POINT. THE ECONOMIZER IS DISABLED WHEN OA ENTHALPY IS 0.5 BTU/LB GREATER THAN REFERENCE ENTHALPY POINT.

DEMAND CONTROL VENTILATION (DCV):
AS THE SUPPLY FAN SPEED COMMAND VARIES BETWEEN MINIMUM AND MAXIMUM, THE BUILDING DESIGN AND DCV MINIMUM POSITION TARGETS SHALL BE CALCULATED LINEARLY BETWEEN THE USER SELECTED SETPOINTS BASED ON THE INSTANTANEOUS SUPPLY FAN SPEED. THE BLDG. DESIGN AND DCV MINIMUM POSITION TARGETS WILL BE USED TO CALCULATE THE ACTIVE OA DAMPER MINIMUM POSITION TARGET BASED ON CO2 LEVELS RELATIVE TO THE ACTIVE DESIGN AND DCV CO2 SETPOINTS. THE DESIGN MINIMUM AND DCV MINIMUM OA DAMPER POSITION SETPOINTS AT MINIMUM FAN SPEED COMMAND AND THE DESIGN MINIMUM OA DAMPER POSITION SETPOINT AT MIDDLE FAN SPEED COMMAND SHALL HAVE A RANGE OF 0-100%%% WHILE THE DESIGN MINIMUM AND DCV MINIMUM OA DAMPER POSITION SETPOINTS AT FULL FAN SPEED SHALL HAVE A RANGE OF 0-50%%%.

NOTE : ON NON-SINGLE ZONE VAV UNITS, A 10%%% OFFSET SHALL BE ENFORCED BETWEEN THE DESIGN AND DCV MINIMUM POSITIONS THROUGHOUT THE FAN SPEED RANGE.

SUPPLY FAN OPERATION:
THE SUPPLY FAN SHALL BE ENABLED WHILE IN THE OCCUPIED MODE AND CYCLED ON DURING THE UNOCCUPIED MODE. THE UNIT CONTROLLER SHALL VARY THE SUPPLY FAN SPEED TO OPTIMIZE MINIMUM FAN SPEED IN ALL COOLING MODES. A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FAN. IF THE SWITCH DOES NOT OPEN WITHIN 40 SECONDS AFTER A REQUEST FOR FAN OPERATION A FAN FAILURE ALARM SHALL BE ANNUNCIATED, THE UNIT SHALL STOP, REQUIRING A MANUAL RESET.

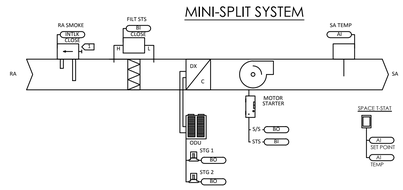
SUPPLY DUCT STATIC PRESSURE CONTROL:
THE UNIT CONTROLLER SHALL MODULATE THE SUPPLY FAN OUTPUT AS REQUIRED TO MAINTAIN THE DUCT STATIC PRESSURE SETPOINT. IF THE DUCT STATIC PRESSURE FALLS BELOW THE SUPPLY AIR STATIC SETPOINT + DEADBAND, THE UNIT CONTROLLER SHALL INCREASE THE OUTPUT TO THE SUPPLY FAN TO MAINTAIN SETPOINT. IF THE DUCT STATIC PRESSURE RISES ABOVE THE SUPPLY AIR STATIC SETPOINT + DEADBAND, THE UNIT CONTROLLER SHALL DECREASE THE OUTPUT TO THE SUPPLY FAN TO MAINTAIN SETPOINT.
IF FOR ANY REASON THE SUPPLY AIR PRESSURE EXCEEDS THE FIXED SUPPLY AIR PRESSURE LIMIT OF 3.5 INCHES OF W.C. THE SUPPLY FAN SHALL SHUT DOWN. THE UNIT SHALL BE ALLOWED TO RESTART THREE TIMES. IF THE OVERPRESSURIZATION CONDITION OCCURS ON THE FOURTH RESTART, THE UNIT SHALL SHUT DOWN AND A MANUAL RESET DIAGNOSTIC IS DISPLAYED AT THE REMOTE PANEL AND/OR THE BAS SYSTEM.

BUILDING PRESSURE CONTROL:
THE POWER EXHAUST SHALL ENABLE WHEN THE ECONOMIZER DAMPER POSITION IS EQUAL TO OR GREATER THAN THE EXHAUST FAN SETPOINT.

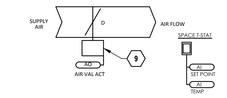
SMOKE DETECTOR SHUTDOWN:
THE UNIT SHALL SHUT DOWN IN RESPONSE TO A SIGNAL FROM THE SMOKE DETECTOR INDICATING THE PRESENCE OF SMOKE. THE SMOKE DETECTOR SHALL BE INTERLOCKED TO THE UNIT THROUGH THE DRY CONTACTS OF THE SMOKE DETECTOR. A MANUAL RESET OF THE SMOKE DETECTOR SHALL BE REQUIRED TO RESTART THE UNIT.

FILTER STATUS:
A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER WHEN THE FAN IS RUNNING. IF THE SWITCH CLOSES FOR 2 MINUTES AFTER A REQUEST FOR FAN OPERATION A DIRTY FILTER ALARM SHALL BE ANNUNCIATED AT THE BAS.

MINI-SPLIT SYSTEM



VAV-DIFFUSERS



VAV - DIFFUSERS

SEQUENCE OF OPERATIONS
VAV

OCCUPANCY MODE:
THE OCCUPANCY MODE WILL BE COMMUNICATED OR HARDWIRED TO THE VAV DIFFUSERS VIA A BINARY INPUT. VALID OCCUPANCY MODES FOR THE VAV WILL BE:

OCCUPIED:
NORMAL OPERATING MODE FOR OCCUPIED SPACES OR DAYTIME OPERATION. WHEN THE UNIT IS IN THE OCCUPIED MODE THE VAV WILL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE OCCUPIED HEATING OR COOLING SETPOINT. THE OCCUPIED MODE WILL BE THE DEFAULT MODE OF THE VAV.

UNOCCUPIED:
NORMAL OPERATING MODE FOR UNOCCUPIED SPACES OR NIGHTTIME OPERATION. WHEN THE UNIT IS IN UNOCCUPIED MODE THE VAV CONTROLLER WILL MAINTAIN THE SPACE TEMPERATURE AT THE STORED UNOCCUPIED HEATING OR COOLING SETPOINT REGARDLESS OF THE PRESENCE OF A HARDWIRED OR COMMUNICATED SETPOINT. WHEN THE SPACE TEMPERATURE EXCEEDS THE ACTIVE UNOCCUPIED SETPOINT THE VAV WILL MODULATE FULLY CLOSED.

OCCUPIED BYPASS:
MODE USED TO TEMPORARILY PLACE THE UNIT INTO THE OCCUPIED OPERATION. TENANTS WILL BE ABLE TO OVERRIDE THE UNOCCUPIED MODE FROM THE SPACE SENSOR. THE OVERRIDE WILL LAST FOR A MAXIMUM OF 4 HOURS (ADJ.). THE TENANTS WILL BE ABLE TO CANCEL THE OVERRIDE FROM THE SPACE SENSOR AT ANY TIME. DURING THE OVERRIDE THE UNIT WILL OPERATE IN OCCUPIED MODE.

HEAT/COOL MODE:
THE HEAT/COOL MODE WILL BE SET BY A COMMUNICATED VALUE FROM A COMMOM THERMOSTAT.

HEAT/COOL SETPOINT:
THE SPACE TEMPERATURE SETPOINT WILL BE DETERMINED EITHER BY A LOCAL (E.G., THUMBWHEEL) SETPOINT, THE VAV DEFAULT SETPOINT OR A COMMUNICATED VALUE. THE VAV WILL USE THE LOCALLY STORED DEFAULT SETPOINTS WHEN NEITHER A LOCAL SETPOINT NOR COMMUNICATED SETPOINT IS PRESENT. IF BOTH A LOCAL SETPOINT AND COMMUNICATED SETPOINT EXIST, THE VAV WILL USE THE COMMUNICATED VALUE.

COOLING MODE:
WHEN THE UNIT IS IN COOLING MODE, THE VAV CONTROLLER WILL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE COOLING SETPOINT BY MODULATING THE AIRFLOW BETWEEN THE ACTIVE COOLING MINIMUM AIRFLOW SETPOINT TO THE MAXIMUM COOLING AIRFLOW SETPOINT. BASED ON THE VAV CONTROLLER OCCUPANCY MODE, THE ACTIVE COOLING SETPOINT WILL BE ONE OF THE FOLLOWING:

SETPOINT
DEFAULT VALUE OCCUPIED COOLING SETPOINT 73.0 DEG. F
UNOCCUPIED COOLING SETPOINT 80.0 DEG. F
OCCUPIED STANDBY COOLING SETPOINT 78.0 DEG. F

THE VAV WILL USE THE MEASURED SPACE TEMPERATURE AND THE ACTIVE COOLING SETPOINT TO DETERMINE THE REQUIESTED COOLING CAPACITY OF THE UNIT . THE OUTPUTS WILL BE CONTROLLED BASED ON THE UNIT CONFIGURATION AND THE REQUESTED COOLING CAPACITY.

HEATING MODE:
WHEN THE UNIT IS IN HEATING MODE. THE VAV CONTROLLER WILL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE HEATING SETPOINT BY MODULATING THE AIRFLOW BETWEEN THE ACTIVE HEATING MINIMUM AIRFLOW SETPOINT TO THE MAXIMUM HEATING AIRFLOW SETPOINT. BASED ON THE VAV CONTROLLER OCCUPANCY MODE, THE ACTIVE HEATING SETPOINT WILL BE ONE OF THE FOLLOWING:

SETPOINT
DEFAULT VALUE OCCUPIED HEATING SETPOINT 71.0 DEG. F
UNOCCUPIED HEATING SETPOINT 60.0 DEG. F
OCCUPIED STANDBY HEATING SETPOINT 67.0 DEG. F

THE VAV CONTROLLER WILL USE THE MEASURED SPACE TEMPERATURE AND THE ACTIVE HEATING SETPOINT TO DETERMINE THE REQUESTED HEATING CAPACITY OF THE UNIT . THE OUTPUTS WILL BE CONTROLLED BASED ON THE UNIT CONFIGURATION AND THE REQUESTED HEATING CAPACITY.

ELECTRIC STAGED:
STAGE 1
IS ENERGIZED WHEN THE SPACE TEMPERATURE FALLS BELOW THE ACTIVE HEATING SETPOINT AND MINIMUM AIRFLOW REQUIREMENTS ARE MET. WHEN THE ZONE TEMPERATURE RISES ABOVE THE ACTIVE HEATING SETPOINT BY 0.5 DEG. F, STAGE 1 IS DE-ENERGIZED.
STAGE 2
ENERGIZES WHEN THE SPACE TEMPERATURE IS 1.0 DEG. F OR MORE BELOW THE ACTIVE HEATING SETPOINT, AND IS DE-ENERGIZED WHEN THE SPACE TEMPERATURE IS 0.5 DEG. F BELOW THE ACTIVE HEATING SETPOINT.
STAGE 3
ENERGIZES WHEN THE ZONE TEMPERATURE IS 2.0 DEG. F OR MORE BELOW THE ACTIVE HEATING SETPOINT, AND DE-ENERGIZES WHEN THE SPACE TEMPERATURE IS 1.5 DEG. F BELOW THE ACTIVE HEATING SETPOINT.

SPACE SENSOR FAILURE:
IF THERE IS A FAULT WITH THE OPERATION OF THE ZONE SENSOR AN ALARM WILL BE ANNUNCIATED AT THE BAS. SPACE SENSOR FAILURE WILL CAUSE THE VAV TO DRIVE THE DAMPER TO MINIMUM AIR FLOW IF THE VAV IS IN THE OCCUPIED MODE. OR DRIVE IT CLOSED IF THE VAV IS IN THE UNOCCUPIED MODE.

SHEET NO. M4.1
OF
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DATE: 09/30/16
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PROJECT NO.:16.1.01

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PORT OF BROWNSVILLE
•WORLD CLASS•
NAVIGATION DISTRICT OF CAMERON COUNTY, TEXAS

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
MECHANICAL CONTROLS

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Texas Registered Engineering Firm - F10362
Project number: 16.1.01

GENERAL DEMOLITION NOTES: (TO ALL SHEETS)

A. THE EXTENT OF DEMOLITION WORK IS INDICATED ON THE ARCHITECTURAL DRAWINGS AND BY THE REQUIREMENTS OF THIS SECTION. A VISIT TO THE SITE WILL BE REQUIRED TO PROPERLY BID THE DEMOLITION WORK.

B. PROVIDE ALL DEMOLITION WORK REQUIRED FOR THE REMOVAL AND/OR RELOCATION OF ELECTRICAL EQUIPMENT AND ASSOCIATED CONDUCTORS, CONDUIT, BOXES, ETC. TO PROVIDE A COMPLETE AND OPERABLE SYSTEM UPON COMPLETION OF THE PROJECT.

C. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW THE ARCHITECTURAL DOCUMENTS IN ADDITION TO THE DIVISION 15 AND 16 DOCUMENTS TO DETERMINE THE COMPLETE SCOPE OF WORK.

D. WHERE DEVICES OR EQUIPMENT ARE INDICATED OR REQUIRED TO BE REMOVED, THE ASSOCIATED BOXES, CONDUIT, AND CONDUCTORS SHALL BE REMOVED BACK TO THEIR SOURCE.

E. WHERE DEVICES OR EQUIPMENT ARE INDICATED OR REQUIRED TO BE RELOCATED, THE ASSOCIATED BOXES, CONDUIT, AND CONDUCTORS SHALL BE REMOVED BACK TO A CONCEALED JUNCTION BOX AND NEW PRODUCTS SHALL BE USED TO EXTEND THE SERVICE TO THE NEW LOCATION.

F. WHERE CONDUITS RUN ABOVE INACCESSIBLE CEILINGS OR IN WALLS WHICH ARE NOT PART OF DEMOLITION ARE TO REMAIN UNDISTURBED, CONDUCTORS SHALL BE REMOVED AND THE CONDUITS CAPPED AND ABANDONED.

G. WHERE THE REMOVAL OF DEVICES OR EQUIPMENT RENDERS EQUIPMENT DOWNSTREAM INOPERABLE, SERVICE SHALL BE EXTENDED TO THE DOWNSTREAM DEVICE OR EQUIPMENT SO THAT THE DEVICE OR EQUIPMENT IS LEFT IN OPERATING CONDITION.

H. COORDINATE DEMOLITION OF DIVISION 16 SYSTEMS AS REQUIRED WITH ALL OTHER TRADES.

I. ALL EXISTING ELECTRICAL EQUIPMENT, CONDUIT AND WIRING REMOVED DURING CONSTRUCTION NO LONGER REQUIRED AS PART OF AN ACTIVE SYSTEM AND NOT TO BE REUSED SHALL BE REMOVED FROM THE JOB SITE AND PROPERLY RETURNED TO THE OWNER, IF DESIRED BY OWNER.

J. WHERE EXISTING EQUIPMENT IS TO BE RELOCATED, EXTREME CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING THE REMOVAL AND REINSTALLATION. WHERE DAMAGE OCCURS, THE EQUIPMENT SHALL BE REPLACED OR REPAIRED TO THE SATISFACTION AND APPROVAL OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

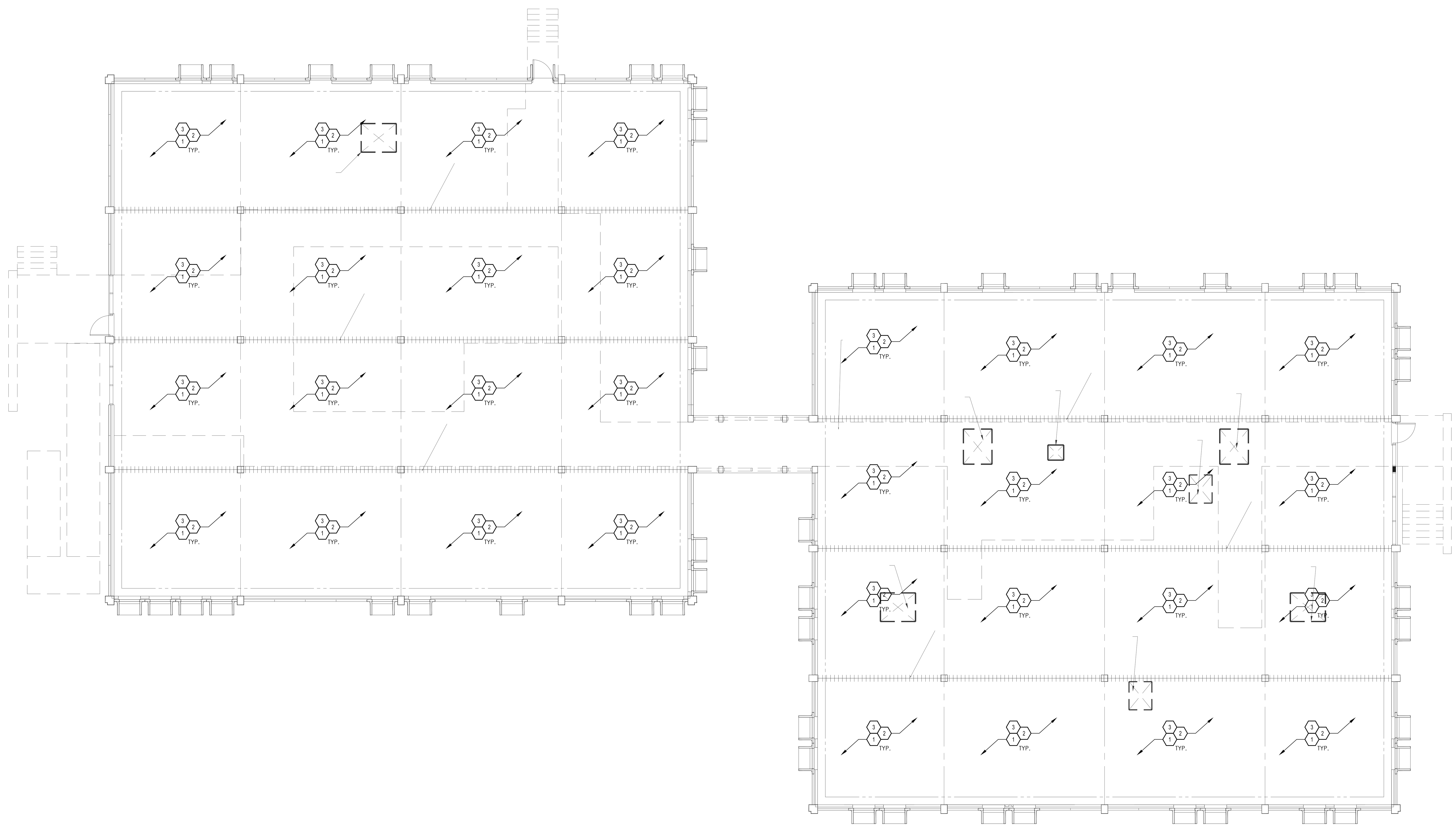
K. EXISTING DEVICES AND/OR EQUIPMENT TO BE REUSED SHALL BE CLEANED AND REPAIRED AT THE DISCRETION OF THE ARCHITECT WHERE APPLICABLE.

L. ALL DEVICES WITH AN "EX" SYMBOL ARE EXISTING TO REMAIN.

M. ALL DEVICES ATTACHED TO WALLS OR CEILINGS SHALL BE REMOVED PER DEMOLITION NOTE A - L WHETHER SHOWN ON DRAWINGS OR NOT.

KEYED NOTES: DEMOLITION

1. ALL EXISTING LIGHT FIXTURES, LIGHTING DEVICES, ASSOCIATED CONDUIT AND WIRING SHALL BE REMOVED.THIS APPLIES FROM FINISH FLOOR TO MEZZANINE/ATTIC SPACE.
2. ALL EXISTING ELECTRICAL EQUIPMENT, ELECTRICAL DEVICES, TELEPHONE DEVICES, DATA DEVICES AND ALL ASSOCIATED CONDUIT AND WIRING SHALL BE REMOVED.THIS APPLIES FROM FINISH FLOOR TO MEZZANINE/ATTIC SPACE.
3. ALL EXISTING SECURITY AND FIRE ALARM DEVICES AND ASSOCIATED CONDUIT AND WIRING SHALL BE REMOVED. THIS APPLIES FROM FINISH FLOOR TO MEZZANINE/ATTIC SPACE.



1 ELECTRICAL-DEMOLITION FLOOR PLAN - A & B
1/8"=1'-0"

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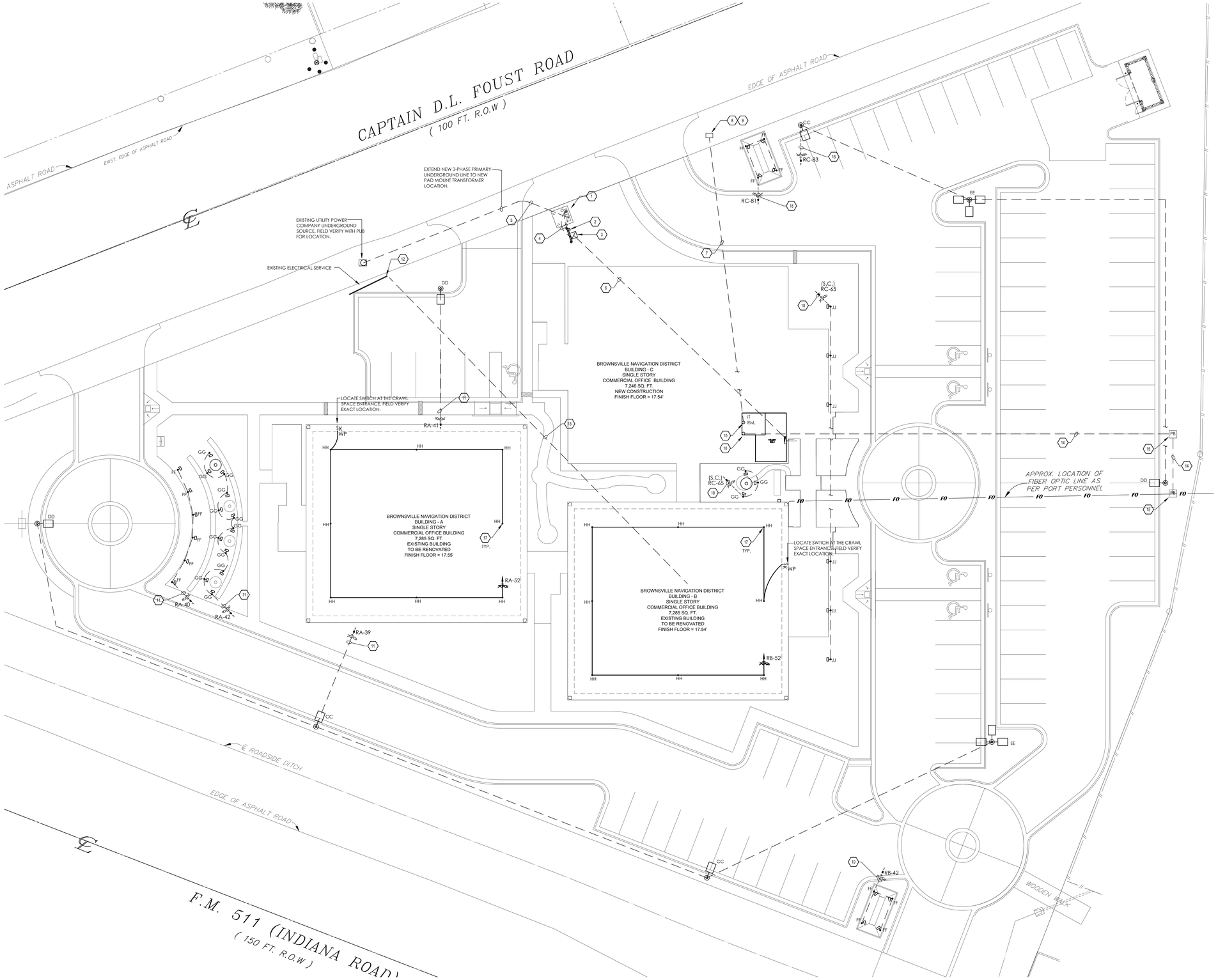
BROWNSVILLE NAVIGATION DISTRICT OF CAMERON COUNTY, TEXAS
PORT OF BROWNSVILLE
•WORLD CLASS•

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
ELECTRICAL – DEMOLITION FLOOR PLAN



1 SITE PLAN- ELECTRICAL
SCALE: 1/16"=1'-0"

GENERAL ELECTRICAL NOTES (TO ALL SHEETS)

A. CONTRACTOR TO VERIFY ALL EXISTING MAIN POWER SERVICES AND COORDINATE WITH POWER COMPANY FOR ALL NEW REQUIREMENTS AND ALL COST ASSOCIATED. CONTRACTOR SHALL INCLUDE ANY COST FOR THE NEW TRANSFORMER AND OTHER ASSOCIATED FEES IN BID. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL FEES WITH POWER COMPANY AND TO INCLUDE IN BID. CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH POWER COMPANY AS SOON THE CONTRACT IS AWARDED TO ORDER TRANSFORMER AND THE RELATED ELECTRICAL SERVICE EQUIPMENT AS SOON AS POSSIBLE.

B. CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATION, TRENCHING AND BACKFILLING. COORDINATE WITH ALL UTILITIES PRIOR TO EXCAVATION.

C. CONTRACTOR TO VERIFY ALL EXISTING MAIN TELEPHONE SERVICES AND COORDINATE WITH TELEPHONE COMPANY FOR ALL REQUIREMENTS AND ALL COST ASSOCIATED. INCLUDE ALL COST IN BID. CONDUIT FROM MAIN TELEPHONE RISER SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.

D. ALL ELECTRICAL EQUIPMENT OUTDOORS SHALL BE RATED TYPE NEMA 3R UNLESS OTHERWISE NOTED.

E. CONTRACTOR SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES. ALL WORK SHALL CONFORM TO NATIONAL ELECTRICAL CODES AND ALL OTHER AUTHORITY HAVING JURISDICTION. OBTAIN PERMITS AND PAY ALL FEES. PERFORM MODIFICATIONS TO MEET CODE AND ORDINANCE REQUIREMENTS AT NO ADDITIONAL COST TO OWNER, ARCHITECT OR ENGINEER. VERIFY PRIOR TO BID DATE.

F. VERIFY AT JOB SITE THE EXACT LOCATIONS OF STRUCTURAL MEMBERS SUCH AS BEAMS, COLUMNS, ETC., TO LOCATE EQUIPMENT CONDUIT, PANELS AND DEVICES. IF DEVIATIONS FROM THE DRAWING ARE NECESSARY TO MEET STRUCTURAL CONDITIONS MAKE DEVIATIONS WITHOUT ADDITIONAL COST, TO OWNER, ARCHITECT, OR ENGINEER.

G. IN COOPERATION WITH OTHER CONTRACTORS, DETERMINE THE EXACT LOCATION OF EQUIPMENT AND DEVICES AND CONNECTIONS THERETO BY REFERENCE TO THE SUBMITTALS AND ROUGH-IN DRAWINGS, AND BY MEASUREMENTS AT THE SITE. REFER TO ALL OTHER TRADES SUBMITTAL FOR ELECTRICAL INFORMATION.

H. GROUND ENTIRE ELECTRICAL SYSTEM IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

I. VERIFY AT JOB SITE GENERAL WORK TO BE DONE AS SPECIFIED, AS NOTED, OR AS REQUIRED FOR INSTALLATION ELECTRICAL SYSTEMS PRIOR TO SUBMISSION OF BIDS.

J. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND EQUIPMENT TO BE REMOVED AND REPLACED BEFORE SUBMITTING HIS BID.

K. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND SMALL SCALE ONLY. THEY CONVEY THE INTENT OF THE WORK BUT DO NOT SHOW DETAIL SUCH AS JUNCTION AND PULL BOXES REQUIRED BY THE SPECIFICATIONS AND THE NATIONAL ELECTRICAL CODE(NEC). PROVIDE ALL MATERIALS AND METHODS CALLED FOR IN THE SPECIFICATIONS AND AS REQUIRED IN THE NEC TO PROVIDE A COMPLETE INSTALLATION OF ALL WORK.

L. ALL WIRING SHALL BE COPPER.

M. ALL SLEEVES, PENETRATIONS, ETC. SHALL BE SEALED SOLID NON-SHRINKING MATERIAL IMMEDIATELY UPON FILLING OF THE OPENING WITH PIPE OR CONDUIT.

N. ARRANGE FOR SOURCES OF TEMPORARY CONSTRUCTION SERVICES. SUCH SERVICES SHALL BE NOMINALLY 120/240V, 1-PHASE, 3-WIRE FROM WHICH A COMPLETE SYSTEM OF TEMPORARY POWER AND LIGHTING SHALL BE PROVIDED FOR ALL CONSTRUCTION NEEDS.

O. ALL EXTERIOR EXPOSED CONDUIT SHALL BE ELECTRICAL PVC TYPE AND ALL EXTERIOR CONDUIT SUPPORTS, STRAPS, FASTENERS SHALL BE STAINLESS STEEL TYPE.

KEYED NOTES: ELECTRICAL

1. NEW POWER COMPANY PAD MOUNTED TRANSFORMER. PROVIDE CONCRETE PAD PER POWER COMPANY STANDARDS. COORDINATE EXACT LOCATION WITH POWER COMPANY PRIOR TO ANY ROUGH-IN.
2. NEW 120/208V, 3Ø, 4W, ELECTRICAL SERVICE METER.
3. MAIN BUILDING MAIN DISCONNECT/MANUAL GENERATOR TRANSFER SWITCH. REFER TO ELECTRICAL RISER DIAGRAM.
4. CONTRACTOR TO PROVIDE AND INSTALL PVC CONDUIT FROM NEW UTILITY TRANSFORMER TO NEW ELECTRICAL SERVICE EQUIPMENT PER POWER COMPANY STANDARDS. VERIFY ALL REQUIREMENTS PRIOR TO ANY ROUGH-IN. REFER TO ELECTRICAL RISER DIAGRAM.
5. CONTRACTOR TO PROVIDE AND INSTALL (1)-4" PVC CONDUIT FROM PROPOSED NEW UTILITY COMPANY POWER PRIMARY SOURCE TO NEW PAD MOUNT TRANSFORMER. ALL UNDERGROUND WORK SHALL BE ACCORDING TO POWER COMPANY STANDARDS. VERIFY ALL REQUIREMENTS WITH THE POWER COMPANY BEFORE ANY ROUGH-IN. COORDINATE LOCATION AND INSTALLATION WITH POWER COMPANY PRIOR TO BID.
6. CONTRACTOR TO PROVIDE AND INSTALL PVC CONDUIT FROM NEW ELECTRICAL SERVICE EQUIPMENT TO NEW PANEL-DPC. VERIFY ALL REQUIREMENTS PRIOR TO ANY ROUGH-IN. REFER TO ELECTRICAL RISER DIAGRAM.
7. CONTRACTOR TO PROVIDE AND INSTALL (4)-4"PVC CONDUIT FOR TELEPHONE/COMMUNICATION SERVICE EQUIPPED WITH PULLSTRING, AND TURNED UP AND CAPPED AT BOTH ENDS. DEPTH OF CONDUIT SHALL BE A MINIMUM OF 36". VERIFY ALL REQUIREMENTS WITH LOCAL UTILITIES BEFORE ROUGH-IN. ROUTE TO NEAREST TELEPHONE SERVICE LINE OR AS DIRECTED BY LOCAL TELEPHONE/COMMUNICATION COMPANIES. PROVIDE TRENCHING AND BACKFILL AS REQUIRED. COORDINATE EXACT LOCATION WITH TELEPHONE/COMMUNICATION COMPANIES PRIOR TO ANY WORK.
8. NEW TELEPHONE PEDESTAL. VERIFY ALL REQUIREMENTS PRIOR TO ANY ROUGH-INS.
9. TIE INTO EXISTING MAIN TELEPHONE LINE. COORDINATE WITH THE TELEPHONE COMPANY PRIOR TO ANY ROUGH-INS.
10. STUB UP CONDUITS IN IT ROOM, FIELD COORDINATE EXACT LOCATION PRIOR TO ANY WORK.
11. SHALL BE CONTROLLED VIA LIGHTING RELAY PANEL 'LCP1'.
12. EXISTING ELECTRICAL SERVICE TO EXISTING BUILDING-A/B LOCATION. FIELD VERIFY EXISTING CONDITIONS PRIOR TO ANY WORK. NOTE THE EXISTING ELECTRICAL SERVICE TO EXISTING BUILDING-B SHALL REMAIN IN OPERATION.
13. CONTRACTOR IS RESPONSIBLE TO IDENTIFY EXISTING ELECTRICAL CONDUITS TO EXISTING BUILDING-B PRIOR TO ANY WORK. CONTRACTOR SHALL NOTIFY ENGINEER/ARCHITECT IF THE UNDERGROUND CONDUITS ARE LOCATED AT A DIFFERENT LOCATION.
14. CONTRACTOR TO PROVIDE AND INSTALL (4)-4"PVC CONDUIT FOR COMMUNICATION SERVICE EQUIPPED WITH PULLSTRING. DEPTH OF CONDUIT SHALL BE A MINIMUM OF 36". FIELD VERIFY ALL EXISTING UNDERGROUND CONDUITS PRIOR TO ANY WORK.
15. NEW INGRADE PULLBOX. REFER TO DETAIL.
16. PROVIDE NEW INGRADE PULLBOX TO INTERSECT EXISTING FIBER OPTIC CONDUIT. INSTALL PULLBOX WITHOUT DAMAGING THE EXISTING FIBER CALBE. COORDINATE WITH OWNER PRIOR TO ANY WORK.
17. LIGHT FIXTURES UNDER THE EXISTING CRAWL SPACE. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION. ALL CONDUIT SHALL BE ELECTRICAL PVC TYPE. WITH STAINLESS STEEL SUPPORTS.
18. SHALL BE CONTROLLED VIA LIGHTING RELAY PANEL 'LCP3'.
19. SHALL BE CONTROLLED VIA LIGHTING RELAY PANEL 'LCP2'.

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PROJECT NO.:16.1.01

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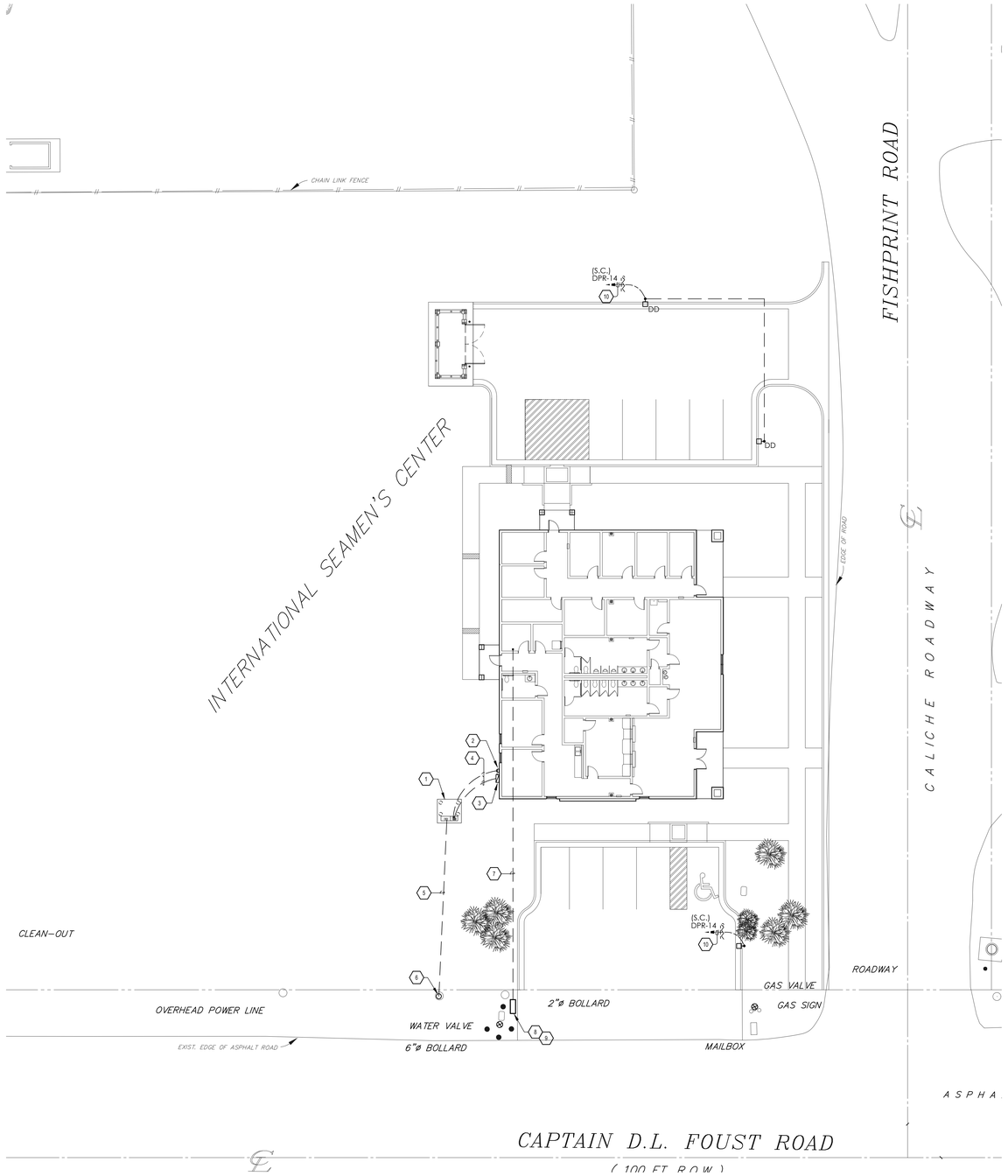
PORT OF BROWNSVILLE
•WORLD CLASS•
PORT OF BROWNSVILLE NAVIGATION DISTRICT OF CAMERON COUNTY, TEXAS

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
SITE PLAN – BUILDING



1 SITE PLAN- BUILDING
1/16"=1'-0"

KEYED NOTES: ELECTRICAL

1. NEW POWER COMPANY PAD MOUNTED TRANSFORMER. PROVIDE CONCRETE PAD PER POWER COMPANY STANDARDS. COORDINATE COST AND INSTALLATION WITH POWER COMPANY PRIOR TO BID DATE. COORDINATE EXACT LOCATION WITH POWER COMPANY PRIOR TO ANY ROUGH-IN.
2. NEW 120/208V, 3Ø, 4W, ELECTRICAL SERVICE METER.
3. NEW BUILDING MAIN SWITCH DISCONNECT 'MS'. PROVIDE WEATHER PROOF LABEL.
4. CONTRACTOR TO PROVIDE AND INSTALL PVC CONDUIT FROM NEW UTILITY TRANSFORMER TO NEW ELECTRICAL METER AND MAIN SWITCH DISCONNECT PER POWER COMPANY STANDARDS. VERIFY ALL REQUIREMENTS PRIOR TO ANY ROUGH-IN. REFER TO ELECTRICAL RISER DIAGRAM.
5. CONTRACTOR TO PROVIDE AND INSTALL (1)-4" PVC CONDUIT FROM PROPOSED NEW UTILITY COMPANY POWER POLE WITH RISER DIP POLE TO NEW PAD MOUNT TRANSFORMER. ALL UNDERGROUND WORK SHALL BE ACCORDING TO POWER COMPANY STANDARDS. VERIFY ALL REQUIREMENTS WITH THE POWER COMPANY BEFORE ANY ROUGH-IN. COORDINATE LOCATION, COST, AND INSTALLATION WITH POWER COMPANY PRIOR TO BID.
6. NEW POWER COMPANY POWER POLE WITH RISER DIP POLE.
7. CONTRACTOR TO PROVIDE AND INSTALL (2)-4"PVC CONDUIT FOR TELEPHONE SERVICE EQUIPPED WITH PULLSTRING, AND TURNED UP AND CAPPED AT BOTH ENDS. DEPTH OF CONDUIT SHALL BE A MINIMUM OF 36". VERIFY ALL REQUIREMENTS WITH LOCAL UTILITIES BEFORE ROUGH-IN. ROUTE TO NEAREST TELEPHONE SERVICE LINE OR AS DIRECTED BY LOCAL TELEPHONE COMPANY. PROVIDE TRENCHING AND BACKFILL AS REQUIRED. COORDINATE EXACT LOCATION AND COST WITH TELEPHONE COMPANY PRIOR TO BID.
8. NEW TELEPHONE PEDESTAL. VERIFY ALL REQUIREMENTS PRIOR TO ANY ROUGH-INS.
9. TIE INTO EXISTING MAIN TELEPHONE LINE. COORDINATE WITH THE TELEPHONE COMPANY PRIOR TO ANY ROUGH-INS.
10. SHALL BE CONTROLLED VIA LIGHTING RELAY PANEL 'LCP4'.

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SHEET TITLE:
SITE PLAN – BUILDING

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

PORT OF BROWNSVILLE
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BROWNSVILLE NAVIGATION DISTRICT
OF CAMERON COUNTY, TEXAS

SHEET NO.	ES2.1
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GENERAL NOTES: LIGHTING

A. ALL EXIT FIXTURES TYPE-"X1 & X2", EMERGENCY LIGHT FIXTURE TYPE-"E" AND ALL EMERGENCY BALLAST SHALL BE ON CIRCUIT "RA-53". FIXTURE TYPE LABEL WITH AN "_E" ARE LIGHT FIXTURES WITH EMERGENCY BALLAST. REFER TO LIGHT FIXTURE SCHEDULE.

B. VERIFY CEILING TYPES AND COORDINATE WITH FIXTURE TYPE LIGHT FIXTURE SHALL BE COMPATIBLE WITH CEILING TYPE AS INDICATED ON THE ARCHITECTURAL DOCUMENTS. NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO ORDERING FIXTURES.

C. COORDINATE EXACT ROUTING OF ALL CONDUIT ABOVE CEILING IN BUILDING, TYPICAL FOR ALL BUILDING EXTERIOR LIGHTING.

D. COORDINATE LOCATION OF LIGHTS WITH DIFFUSERS AND GRILLES.

E. SWITCH LEGS ARE NOT SHOWN WHERE SWITCHING SCHEME IS OBVIOUS.

KEYED NOTES: LIGHTING

1. PROVIDE DIMMING SWITCHING.
2. SHALL BE CONTROLLED VIA LCP1.
3. RELAY LIGHTING CONTROL PANEL PHOTOCELL. LOCATE AS DIRECTED BY MANUFACTURER..
4. LIGHTING CONTROL RELAY PANEL.
5. MOUNT LIGHT FIXTURE APPROXIMATELY 13'-0" ABOVE FINISH GROUND, SAME LEVEL AS WINDOW CANOPY.
6. WALL MOUNT OVERRIDE SWITCH FOR RELAY LIGHTING CONTROL PANEL.

1 ELECTRICAL FLOOR PLAN- BUILDING A
1/4"=1'-0"

KEY PLAN

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OF	
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BROWNSVILLE NAVIGATION DISTRICT
OF CAMERON COUNTY, TEXAS

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
ELECTRICAL FLOOR PLAN – BUILDING A

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GENERAL NOTES: LIGHTING

A. ALL EXIT FIXTURES TYPE-"X1 & X2", EMERGENCY LIGHT FIXTURE TYPE-"E" AND ALL EMERGENCY BALLAST SHALL BE ON CIRCUIT "RB-54", FIXTURE TYPE LABEL WITH AN "_E" ARE LIGHT FIXTURES WITH EMERGENCY BALLAST. REFER TO LIGHT FIXTURE SCHEDULE.

B. VERIFY CEILING TYPES AND COORDINATE WITH FIXTURE TYPE LIGHT FIXTURE SHALL BE COMPATIBLE WITH CEILING TYPE AS INDICATED ON THE ARCHITECTURAL DOCUMENTS. NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO ORDERING FIXTURES.

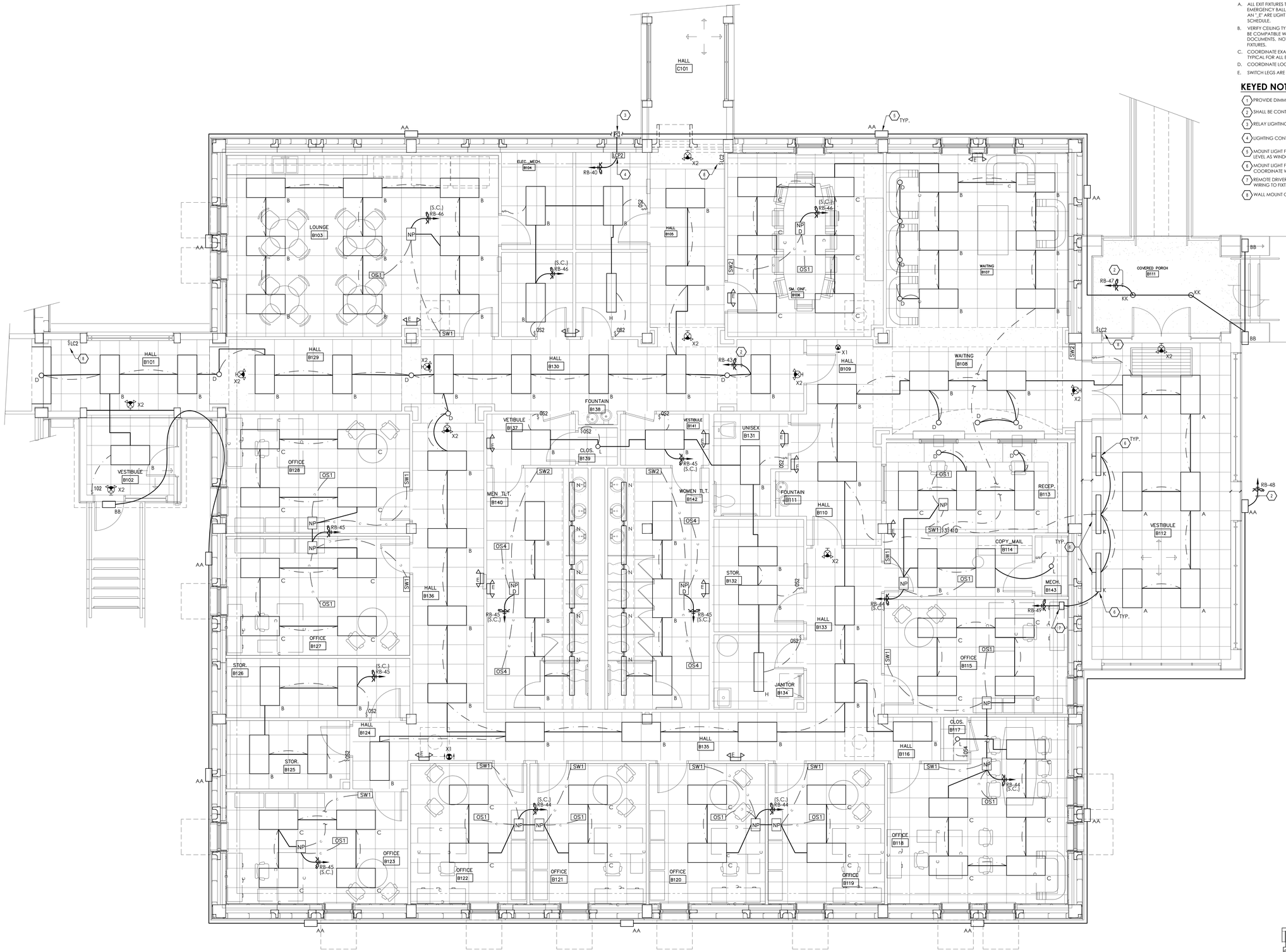
C. COORDINATE EXACT ROUTING OF ALL CONDUIT ABOVE CEILING IN BUILDING. TYPICAL FOR ALL BUILDING EXTERIOR LIGHTING.

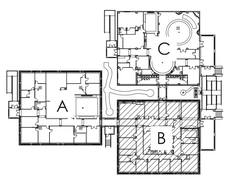
D. COORDINATE LOCATION OF LIGHTS WITH DIFFUSERS AND GRILLES.

E. SWITCH LEGS ARE NOT SHOWN WHERE SWITCHING SCHEME IS OBVIOUS.

KEYED NOTES: LIGHTING

1. PROVIDE DIMMING SWITCHING.
2. SHALL BE CONTROLLED VIA LCP3.
3. RELAY LIGHTING CONTROL PANEL PHOTOCELL. LOCATE AS DIRECTED BY MANUFACTURER.
4. LIGHTING CONTROL RELAY PANEL.
5. MOUNT LIGHT FIXTURE APPROXIMATELY 13'-0" ABOVE FINISH GROUND, SAME LEVEL AS WINDOW CANOPY.
6. MOUNT LIGHT FIXTURE ABOVE DISPLAY APPROXIMATELY 18' A.F.F. COORDINATE WITH ARCHITECT FOR EXACT LOCATION.
7. REMOTE DRIVER LOCATED ABOVE THE CEILING. PROVIDE 3/4"C WITH WIRING TO FIXTURE. FIELD VERIFY EXACT LOCATION PRIOR TO ANY WORK.
8. WALL MOUNT OVERRIDE SWITCH FOR RELAY LIGHTING CONTROL PANEL.





KEY PLAN

1 ELECTRICAL FLOOR PLAN- BUILDING B
1/4"=1'-0"

N

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PROJECT: ADMINISTRATION COMPLEX REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
ELECTRICAL FLOOR PLAN – BUILDING B

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GENERAL NOTES: LIGHTING

A. ALL EXIT FIXTURES TYPE-"X1 & X2", EMERGENCY LIGHT FIXTURE TYPE-"E" AND ALL EMERGENCY BALLAST SHALL BE ON CIRCUIT "CC-15". FIXTURE TYPE LABEL WITH AN "_E" ARE LIGHT FIXTURES WITH EMERGENCY BALLAST. REFER TO LIGHT FIXTURE SCHEDULE.

B. VERIFY CEILING TYPES AND COORDINATE WITH FIXTURE TYPE LIGHT FIXTURE SHALL BE COMPATIBLE WITH CEILING TYPE AS INDICATED ON THE ARCHITECTURAL DOCUMENTS. NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO ORDERING FIXTURES.

C. COORDINATE EXACT ROUTING OF ALL CONDUIT ABOVE CEILING IN BUILDING. TYPICAL FOR ALL BUILDING EXTERIOR LIGHTING.

D. COORDINATE LOCATION OF LIGHTS WITH DIFFUSERS AND GRILLES.

E. SWITCH LEGS ARE NOT SHOWN WHERE SWITCHING SCHEME IS OBVIOUS.

KEYED NOTES: LIGHTING

1. PROVIDE DIMMING SWITCHING.
2. SHALL BE CONTROLLED VIA LCP3.
3. RELAY LIGHTING CONTROL PANEL PHOTOCELL. LOCATE AS DIRECTED BY MANUFACTURER.
4. LIGHTING CONTROL RELAY PANEL.
5. MOUNT LIGHT FIXTURE APPROXIMATELY 13'-0" ABOVE FINISH GROUND, SAME LEVEL AS WINDOW CANOPY.
6. MOUNT LIGHT FIXTURE ABOVE DISPLAY APPROXIMATELY 18' A.F.F. COORDINATE WITH ARCHITECT FOR EXACT LOCATION.
7. REMOTE DRIVER LOCATED ABOVE THE CEILING. PROVIDE 3/4"C WITH WIRING TO FIXTURE. FIELD VERIFY EXACT LOCATION PRIOR TO ANY WORK.
8. WALL MOUNT OVERRIDE SWITCH FOR RELAY LIGHTING CONTROL PANEL.

1 ELECTRICAL FLOOR PLAN- BUILDING C
1/4"=1'-0"

KEY PLAN

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PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
ELECTRICAL FLOOR PLAN - BUILDING C

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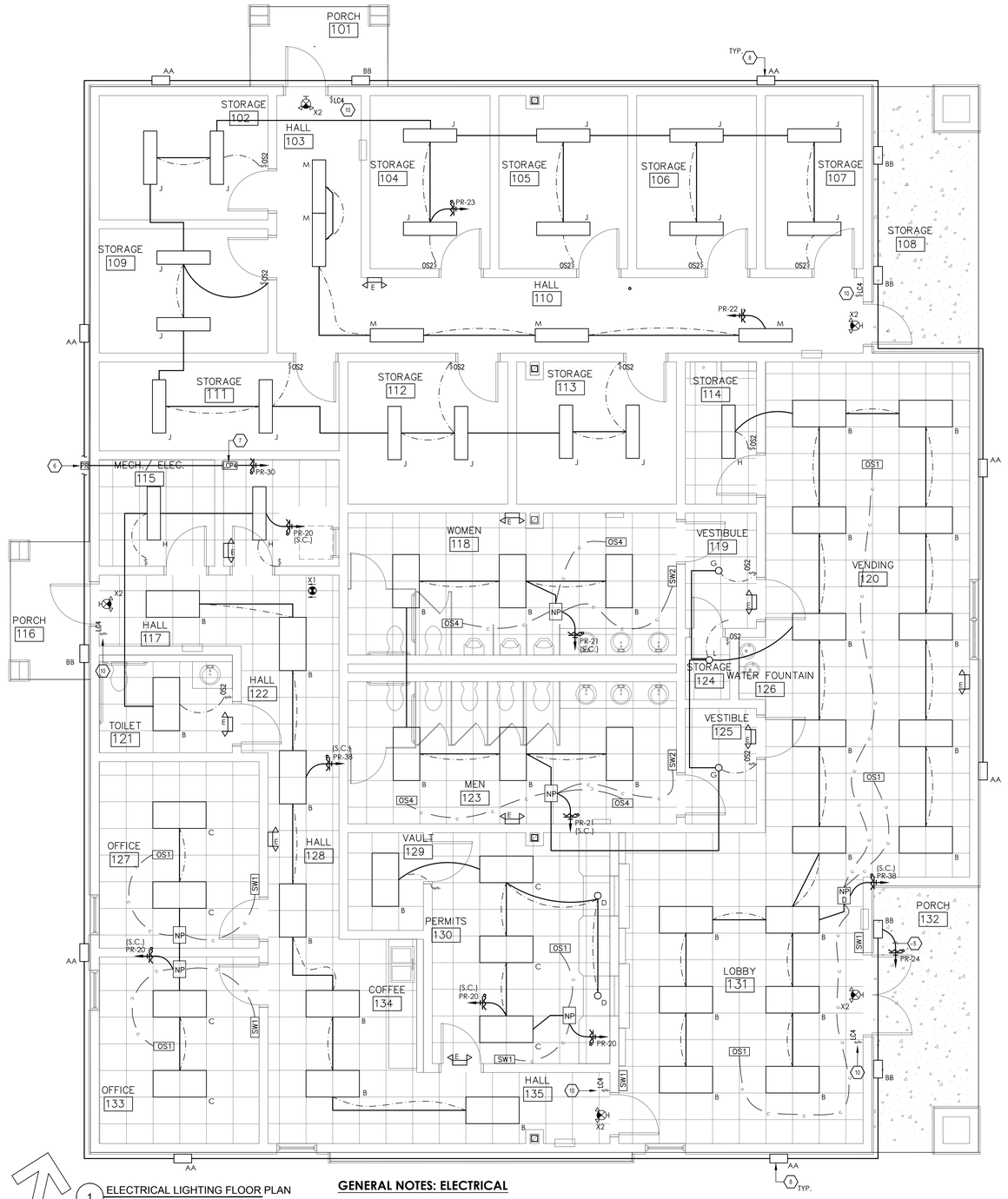
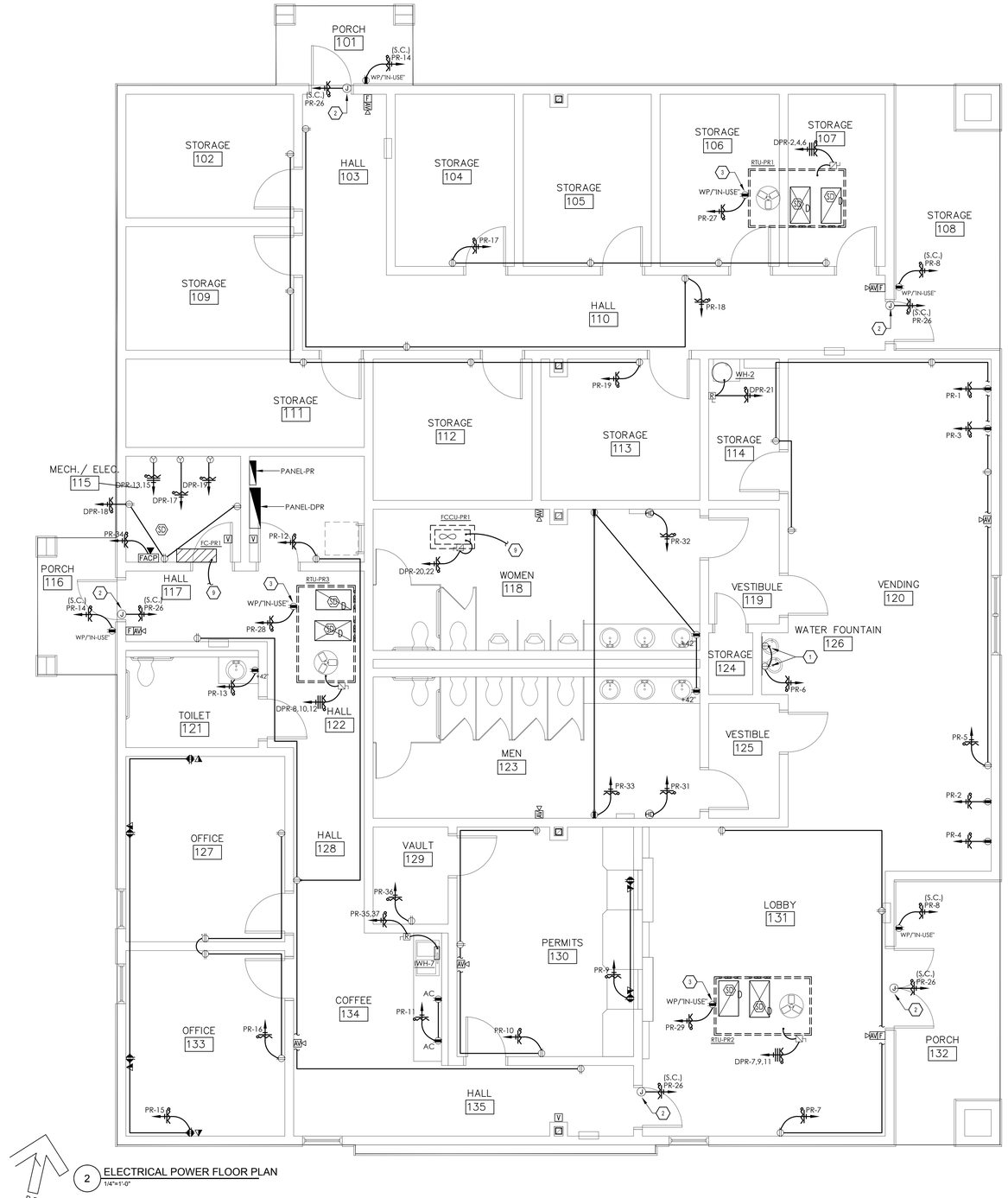


1 ELECTRICAL LIGHTING FLOOR PLAN
1/4"=1'-0"



2 ELECTRICAL POWER FLOOR PLAN
1/4"=1'-0"

GENERAL NOTES: ELECTRICAL

A. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT OF ALL POWER SOURCE WIRING IN ACCORDANCE WITH ARCHITECTURAL MILLWORK.

B. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTION TO H.V.A.C EQUIPMENT, PLUMBING EQUIPMENT. REFER TO PANEL SCHEDULE FOR WIRE SIZE.

C. ELECTRICAL CONTRACTOR SHALL PROVIDE STARTERS, RELAYS, CONTACTORS AND THE REQUIRED ELECTRICAL ACCESSORIES FOR MECHANICAL SYSTEM AS REQUIRED.

D. COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT IN ACCORDANCE W/MECHANICAL DRAWINGS TO MEET ELECTRICAL AND MECHANICAL REQUIRED CLEARANCE BY THE LATEST CODE.

E. COORDINATE EXACT LOCATION OF ISOLATED OUTLETS FOR COMPUTERS WITH OWNER.

F. ELECTRICAL CONTRACTOR SHALL PROVIDE J-BOX AND CONDUIT FOR H.V.A.C. CONTROLS AND THERMOSTATS. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.

G. NEMA RATED OUTLETS, REFER TO BREAKER SIZE AND COORDINATE WITH EQUIPMENT REQUIREMENTS PRIOR TO BID.

H. ALL DEVICES SHOWN ON DRAWINGS ARE SYMBOLIC ONLY. THE ENTIRE FIRE ALARM SYSTEM, SHALL BE IN FULL COMPLIANCE AND MEET ALL CODES AND REQUIREMENTS OF THE LOCAL ADMINISTRATIVE AUTHORITY. ANY MODIFICATIONS REQUIRED TO PROVIDE COMPLIANCE SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER OR ARCHITECT/ ENGINEER.

I. SWITCH LEGS ARE NOT SHOWN WHERE SWITCHING SCHEME IS OBVIOUS.

J. ALL EXIT FIXTURES TYPE-'X1 & X2', EMERGENCY LIGHT FIXTURE TYPE-'E' AND ALL EMERGENCY BALLAST SHALL BE ON CIRCUIT " PR-25", FIXTURE TYPE LABEL WITH AN " E" ARE LIGHT FIXTURES WITH EMERGENCY BALLAST. REFER TO LIGHT FIXTURE SCHEDULE.

K. VERIFY CEILING TYPES AND COORDINATE WITH FIXTURE TYPE LIGHT FIXTURE SHALL BE COMPATIBLE WITH CEILING TYPE AS INDICATED ON THE ARCHITECTURAL DOCUMENTS. NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO ORDERING FIXTURES.

L. COORDINATE EXACT ROUTING OF ALL CONDUIT ABOVE CEILING IN BUILDING, TYPICAL FOR ALL BUILDING EXTERIOR LIGHTING.

M. COORDINATE LOCATION OF LIGHTS WITH DIFFUSERS AND GRILLES.

KEYED NOTES: ELECTRICAL

1. COORDINATE EXACT LOCATION WITH PLUMBER TO CONCEAL CORD BEHIND ELECTRIC DRINKING FOUNTAIN PRIOR TO ANY ROUGH-IN.
2. J-BOX FOR SECURE DOOR EQUIPMENT. COORDINATE ALL WORK WITH EQUIPMENT MANUFACTURE AND ARCHITECTURAL DOCUMENTS PRIOR TO COMMENCING ANY ROUGH-INS.
3. GFI DUPLEX RECEPTACLE LOCATED ON ROOF. PROVIDE ROOF PITCH PAN FOR CONDUIT. PROVIDE WP/"IN-USE" ENCLOSURE FOR RECEPTACLE.
4. PROVIDE DIMMING SWITCHING.
5. SHALL BE CONTROLLED VIA LCP4.
6. RELAY LIGHTING CONTROL PANEL PHOTOCELL. LOCATE AS DIRECTED BY MANUFACTURER.
7. LIGHTING CONTROL RELAY PANEL.
8. FIXTURE SHALL BE MOUNTED AT 12'-0" A.F.F. FROM THE BOTTOM OF FIXTURE.
9. INTERLOCK FC-PR1 WITH FCCU-PR1 WIRING SHALL BE 3#8, 1#10G, 3/4"C.
10. WALL MOUNT OVERRIDE SWITCH FOR RELAY LIGHTING CONTROL PANEL.

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OF CAMERON COUNTY, TEXAS

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
ELECTRICAL FLOOR PLANS

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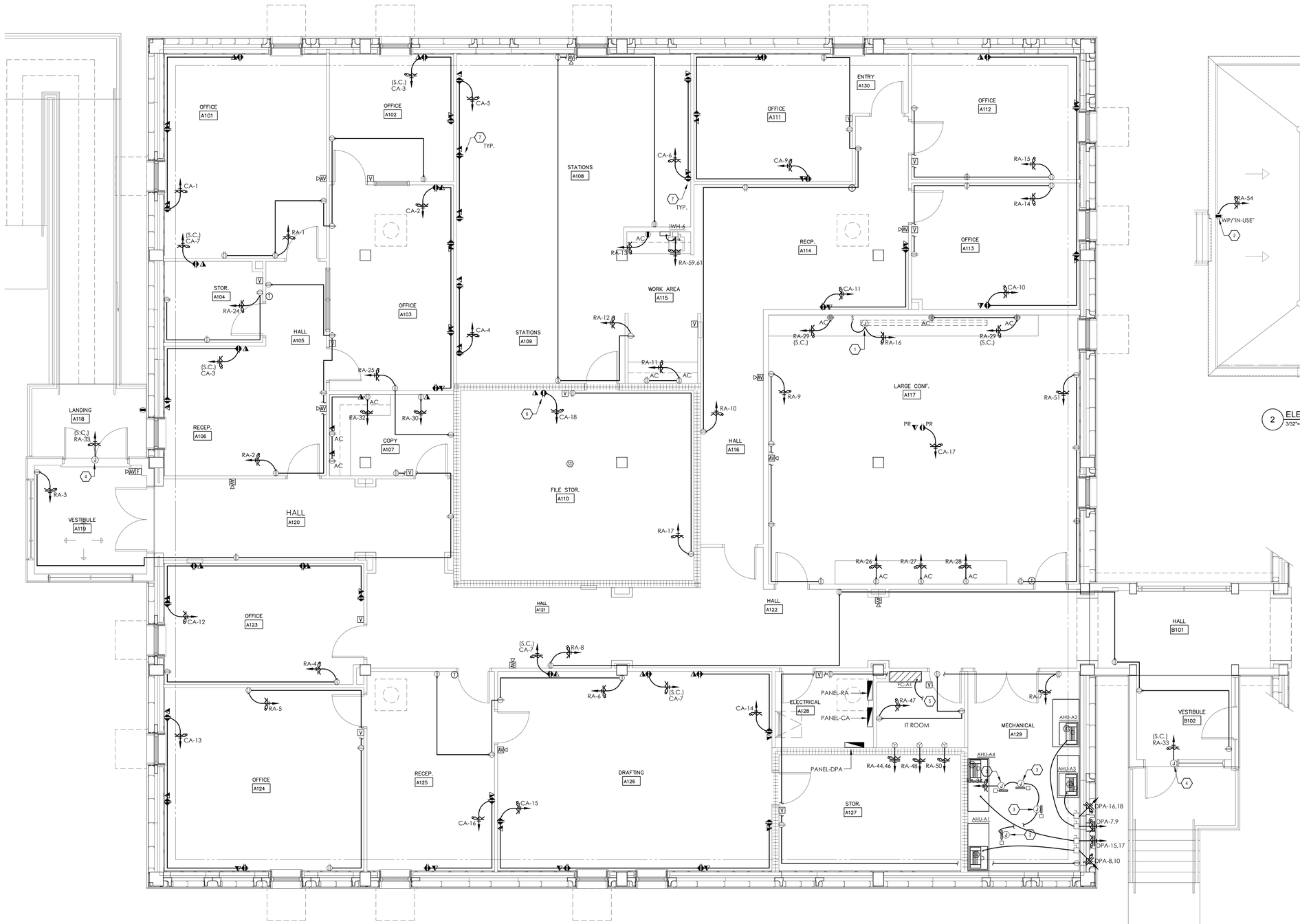
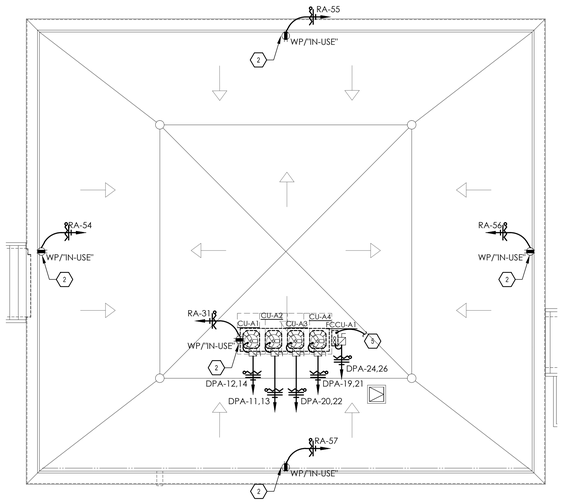


1 ELECTRICAL FLOOR PLAN- BUILDING A
1/4"=1'-0"



2 ELECTRICAL ROOF PLAN- BUILDING A
3/32"=1'-0"

GENERAL NOTES: POWER

A. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT OF ALL POWER SOURCE WIRING IN ACCORDANCE WITH ARCHITECTURAL MILLWORK.

B. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTION TO H.V.A.C EQUIPMENT, PLUMBING EQUIPMENT, REFER TO PANEL SCHEDULE FOR WIRE SIZE.

C. ELECTRICAL CONTRACTOR SHALL PROVIDE STARTERS, RELAYS, CONTACTORS AND THE REQUIRED ELECTRICAL ACCESSORIES FOR MECHANICAL SYSTEM AS REQUIRED.

D. COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT IN ACCORDANCE W/MECHANICAL DRAWINGS TO MEET ELECTRICAL AND MECHANICAL REQUIRED CLEARANCE BY THE LATEST CODE.

E. COORDINATE EXACT LOCATION OF ISOLATED OUTLETS FOR COMPUTERS WITH OWNER.

F. ELECTRICAL CONTRACTOR SHALL PROVIDE J-BOX AND CONDUIT FOR H.V.A.C, CONTROLS AND THERMOSTATS. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.

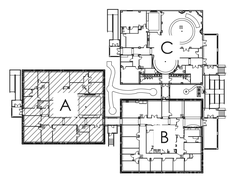
G. NEMA RATED OUTLETS, REFER TO BREAKER SIZE AND COORDINATE WITH EQUIPMENT REQUIREMENTS PRIOR TO BID.

H. ALL DEVICES SHOWN ON DRAWINGS ARE SYMBOLIC ONLY. THE ENTIRE FIRE ALARM SYSTEM, SHALL BE IN FULL COMPLIANCE AND MEET ALL CODES AND REQUIREMENTS OF THE LOCAL ADMINISTRATIVE AUTHORITY . ANY MODIFICATIONS REQUIRED TO PROVIDE COMPLIANCE SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER OR ARCHITECT/ ENGINEER.

I. FIRE ALARM LICENSE HOLDER SHALL ASSUME ALL RESPONSIBILITY FOR DESIGN AND SUBMITT DRAWINGS TO JURISDICTION HAVING AUTHORITY AND ABIDE BY ALL OTHER REQUIREMENTS PER NFPA..

KEYED NOTES: POWER

1. J-BOX FOR PROJECTOR SCREEN. COORDINATE EXACT LOCATION WITH EQUIPMENT MANUFACTURE PRIOR TO COMMENCING ANY WORK.
2. GFI DUPLEX RECEPTACLE LOCATED ON ROOF. PROVIDE ROOF PITCH PAN FOR CONDUIT. PROVIDE WP/'IN-USE" ENCLOSURE FOR RECEPTACLE.
3. J-BOX FOR FIRE SMOKE DAMPER. COORDINATE EXACT LOCATION AND ALL ELECTRICAL REQUIREMENTS WITH DIVISION-15 & EQUIPMENT SUPPLIER PRIOR TO COMMENCING NAY WORK.
4. J-BOX FOR SECURE DOOR EQUIPMENT. COORDINATE ALL WORK WITH EQUIPMENT MANUFACTURE AND ARCHITECTURAL DOCUMENTS PRIOR TO COMMENCING ANY ROUGH-INS.
5. INTERLOCK FC-A1 WITH FCCU-A1 WIRING SHALL BE 3#8, 1#10G, 3/4"C.
6. ELECTRONIC SLIDING EQUIPMENT CIRCUIT. COORDINATE EXACT LOCATION WITH SUPPLIER PRIOR TO ANY WORK.
7. RECEPTACLE TO BE USED FOR OFFICE CUBICLE. COORDINATE WITH OWNER.



KEY PLAN

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SHEET TITLE:
ELECTRICAL FLOOR PLAN – BUILDING A

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

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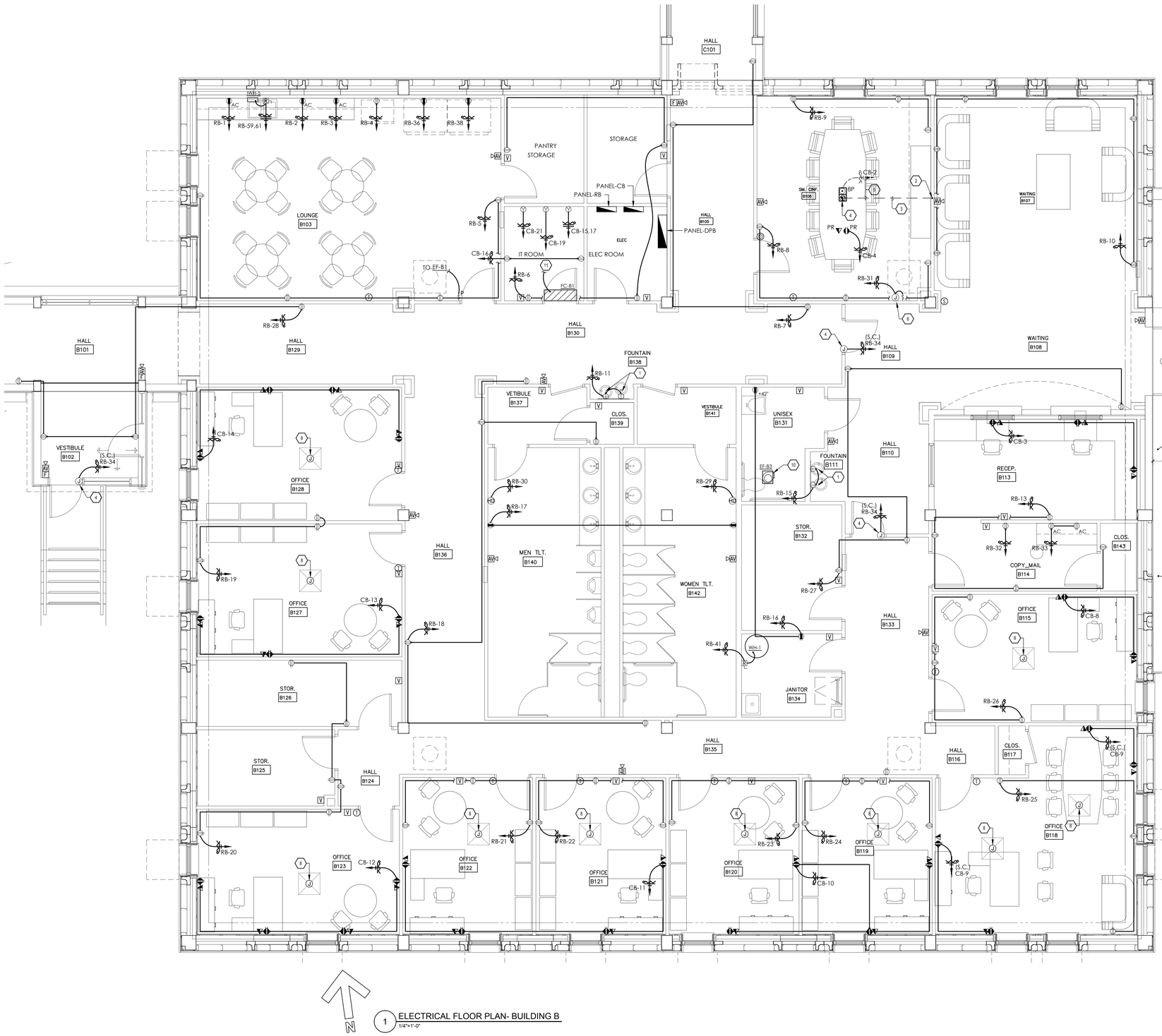
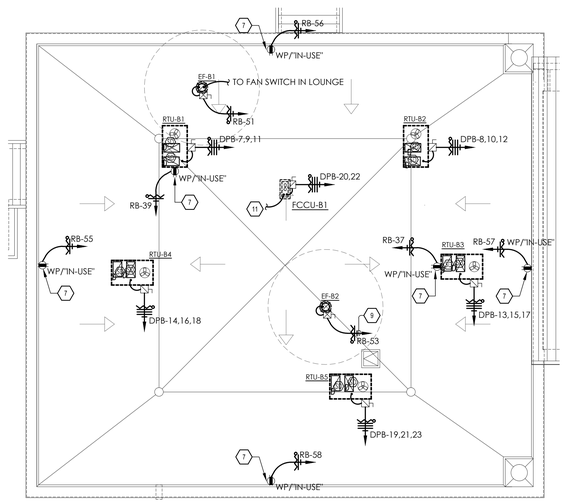
09/30/16
STATE OF TEXAS
REGISTERED
LEONARDO MUNOZ
95371
ENGINEER

SHEET NO.	E5.1
OF	
SET NUMBER	
REVISED:	
DATE: 09/30/16	
DRAWN BY: TC	
PROJECT NO.:16.1.01	



1 ELECTRICAL FLOOR PLAN- BUILDING B
1/4"=1'-0"



2 ELECTRICAL ROOF PLAN- BUILDING B
3/32"=1'-0"

GENERAL NOTES: POWER

A. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT OF ALL POWER SOURCE WIRING IN ACCORDANCE WITH ARCHITECTURAL MILLWORK.

B. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTION TO H.V.A.C EQUIPMENT, PLUMBING EQUIPMENT. REFER TO PANEL SCHEDULE FOR WIRE SIZE.

C. ELECTRICAL CONTRACTOR SHALL PROVIDE STARTERS, RELAYS, CONTACTORS AND THE REQUIRED ELECTRICAL ACCESSORIES FOR MECHANICAL SYSTEM AS REQUIRED.

D. COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT IN ACCORDANCE W/MECHANICAL DRAWINGS TO MEET ELECTRICAL AND MECHANICAL REQUIRED CLEARANCE BY THE LATEST CODE.

E. COORDINATE EXACT LOCATION OF ISOLATED OUTLETS FOR COMPUTERS WITH OWNER.

F. ELECTRICAL CONTRACTOR SHALL PROVIDE J-BOX AND CONDUIT FOR H.V.A.C. CONTROLS AND THERMOSTATS. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.

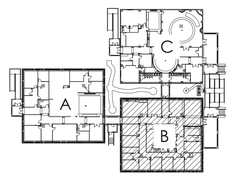
G. NEMA RATED OUTLETS, REFER TO BREAKER SIZE AND COORDINATE WITH EQUIPMENT REQUIREMENTS PRIOR TO BID.

H. ALL DEVICES SHOWN ON DRAWINGS ARE SYMBOLIC ONLY. THE ENTIRE FIRE ALARM SYSTEM, SHALL BE IN FULL COMPLIANCE AND MEET ALL CODES AND REQUIREMENTS OF THE LOCAL ADMINISTRATIVE AUTHORITY. ANY MODIFICATIONS REQUIRED TO PROVIDE COMPLIANCE SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER OR ARCHITECT/ ENGINEER.

I. FIRE ALARM LICENSE HOLDER SHALL ASSUME ALL RESPONSIBILITY FOR DESIGN AND SUBMITT DRAWINGS TO JURISDICTION HAVING AUTHORITY AND ABIDE BY ALL OTHER REQUIREMENTS PER NFPA.

KEYED NOTES: POWER

1. COORDINATE EXACT LOCATION WITH PLUMBER TO CONCEAL CORD BEHIND ELECTRIC DRINKING FOUNTAIN PRIOR TO ANY ROUGH-IN.
2. STUB-UP IN THROUGH WALL TO ABOVE CEILING LEVEL.
3. PROVIDE 1-1.25"C WITH PULLSTRING.
4. COORDINATE FINAL LOCATION WITH ARCHITECT, MILLWORK, AND OWNER PRIOR TO COMMENCING ANY ROUGH-INS.
5. SAW CUT AND PATCH TO MATCH EXISTING CONDITIONS PRIOR TO COMMENCING ANY WORK.
6. J-BOX FOR PROJECTOR SCREEN. COORDINATE EXACT LOCATION WITH EQUIPMENT MANUFACTURE PRIOR TO COMMENCING ANY WORK.
7. GFI DUPLEX RECEPTACLE LOCATED ON ROOF. PROVIDE ROOF PITCH PAN FOR CONDUIT. PROVIDE WP/"IN-USE" ENCLOSURE FOR RECEPTACLE.
8. J-BOX FOR VAV DIFFUSER. COORDINATE ALL ELECTRICAL CONNECTIONS/ REQUIREMENTS FOR OPERABLE SYSTEM WITH MECHANICAL CONTRACTOR DIVISION-15 DOCUMENTS AND EQUIPMENT MANUFACTURE PRIOR TO COMMENCING ANY WORK. CIRCUIT SHALL BE RB-50.
9. FAN SHALL BE CONTROLLED VIA H.V.A.C. CONTROLS. COORDINATE ALL ELECTRICAL CONNECTIONS WITH EQUIPMENT MANUFACTURE AND DIVISION-15 PRIOR TO COMMENCING ANY WORK.
10. TIE INTO ROOMS LIGHTING CIRCUIT AND INTERLOCK FAN WITH ROOMS LIGHTS. WIRING SHALL BE 2#12, 1#12G, $\frac{3}{4}$"C.
11. INTERLOCK FC-B1 WITH FCCU-B1 WIRING SHALL BE 3#8, 1#10G, 3/4"C.



KEY PLAN

SHEET NO.	E6.1
OF	
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REVISED:	
DATE: 09/30/16	
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ROBERTO J. RUIZ ARCHITECT, INC.
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09/30/16
STATE OF TEXAS
LEONARDO MUNOZ
97571
REGISTERED ARCHITECT

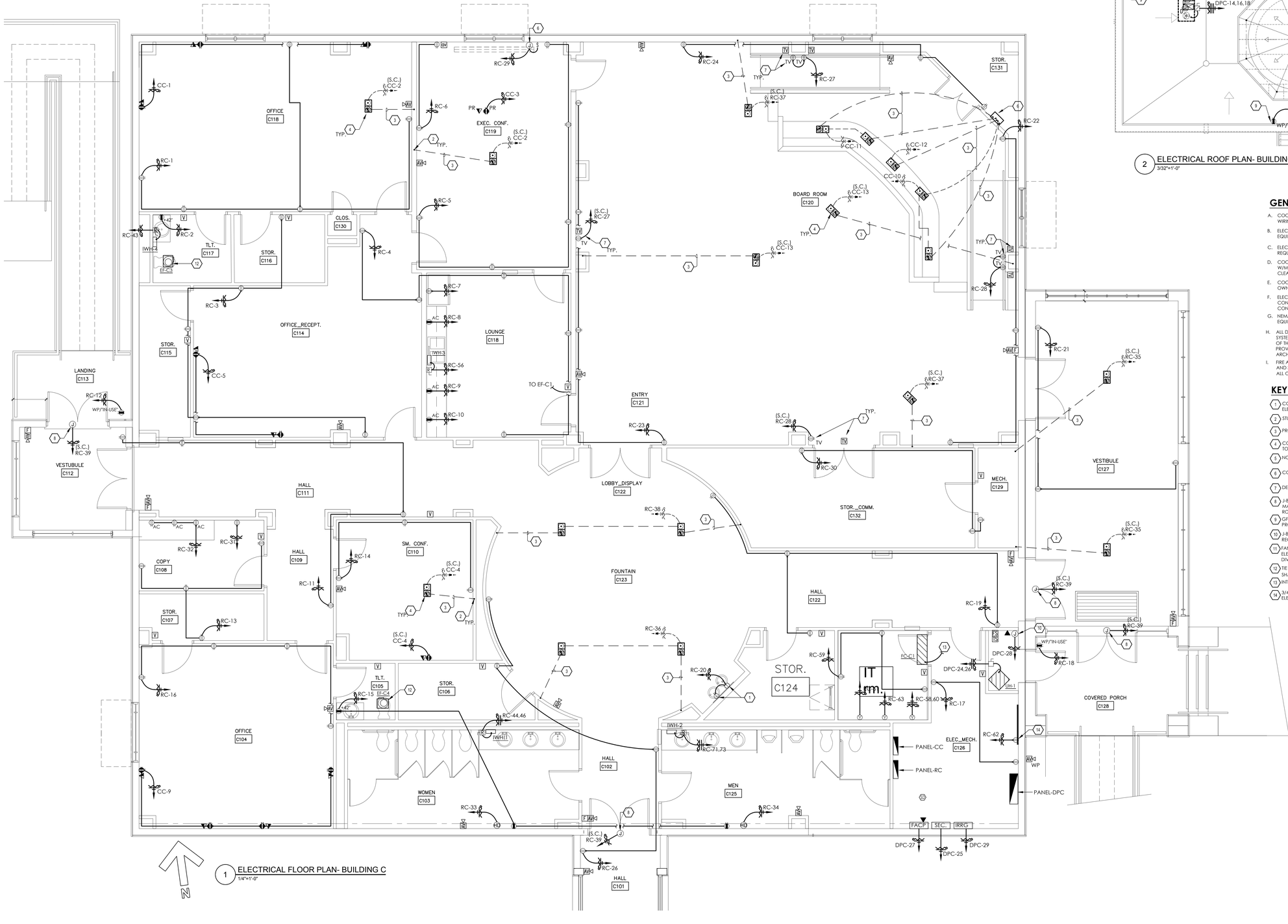
BIDS/PERMITTED DRAWINGS
CITY CAMERON COUNTY, TEXAS

PORT OF BROWNSVILLE
•WORLD CLASS•

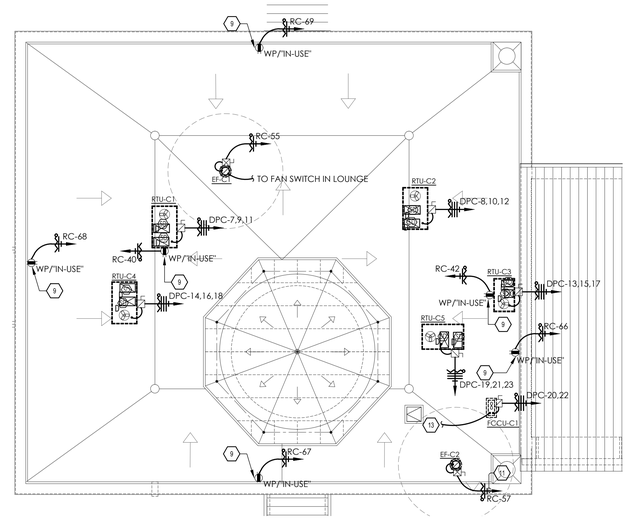
PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
ELECTRICAL FLOOR PLAN – BUILDING B

TRINITY
MEP ENGINEERING
3533 Moreland Dr. Ste A I Weslaco, Tx 78596
p:956.973.0500 I f:956-351-5750
www.trinitymep.com I Copyright 2016
Texas Registered Engineering Firm - F10362
Project number: 16.1.01



1 ELECTRICAL FLOOR PLAN- BUILDING C
1/4"=1'-0"



2 ELECTRICAL ROOF PLAN- BUILDING C
3/32"=1'-0"

GENERAL NOTES: POWER

A. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT OF ALL POWER SOURCE WIRING IN ACCORDANCE WITH ARCHITECTURAL MILLWORK.

B. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTION TO H.V.A.C. EQUIPMENT, PLUMBING EQUIPMENT, REFER TO PANEL SCHEDULE FOR WIRE SIZE.

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F. ELECTRICAL CONTRACTOR SHALL PROVIDE J-BOX AND CONDUIT FOR H.V.A.C. CONTROLS AND THERMOSTATS. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.

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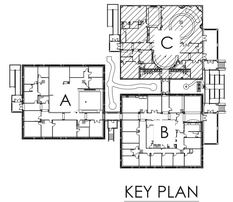
KEYED NOTES: POWER

1. COORDINATE EXACT LOCATION WITH PLUMBER TO CONCEAL CORD BEHIND ELECTRIC DRINKING FOUNTAIN PRIOR TO ANY ROUGH-IN.
2. STUB-UP IN THROUGH WALL TO ABOVE CEILING LEVEL.
3. PROVIDE 1-1.25"C WITH PULLSTRING.
4. COORDINATE FINAL LOCATION WITH ARCHITECT, MILLWORK, AND OWNER PRIOR TO COMMENCING ANY ROUGH-INS.
5. NOT USED.
6. COMMUNICATION CONDUIT STUB UP LOCATION.
7. DEVICES FOR TELEVISION SHALL BE MOUNTED AT 7'-0" A.F.F..
8. J-BOX FOR SECURE DOOR EQUIPMENT. COORDINATE ALL WORK WITH EQUIPMENT MANUFACTURE AND ARCHITECTURAL DOCUMENTS PRIOR TO COMMENCING ANY ROUGH-INS.
9. GFI DUPLEX RECEPTACLE LOCATED ON ROOF. PROVIDE ROOF PITCH PAN FOR CONDUIT. PROVIDE WP/"IN-USE" ENCLOSURE FOR RECEPTACLE.
10. J-BOX FOR FIRE SPRINKLER SYSTEM. COORDINATE EXACT LOCATION AND ALL ELECTRICAL REQUIRMENTS WITH FIRE SPRINKLER CONTRACTOR PRIOR TO COMMENCING ANY WORK.
11. FAN SHALL BE CONTROLLED VIA H.V.A.C. CONTROLS. COORDINATE ALL ELECTRICAL CONNECTIONS WITH EQUIPMENT MANUFACTURE AND DIVISION-15 PRIOR TO COMMENCING ANY WORK.
12. TIE INTO ROOMS LIGHTING CIRCUIT AND INTERLOCK FAN WITH ROOMS LIGHTS. WIRING SHALL BE 2#12. 1#12G, ¾"C.
13. INTERLOCK FC-C1 WITH FCCU-C1 WIRING SHALL BE 3#8, 1#10G, 3/4"C.
14. 3/4"X8'HX4'W PLYWOOD TELEPHONE BOARD FINISHED ONE SIDE. PROVIDE GROUND BAR AND TIE INTO ELECTRICAL GROUNDING SYSTEM VIA WIRE #4.



KEY PLAN

TRINITY
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Project number: 16.1.01

SHEET NO. E7.1
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DRAWN BY: TC
PROJECT NO.:16.1.01

ROBERTO J. RUIZ ARCHITECT, INC.
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09/30/16
STATE OF TEXAS
LEONARDO MUNOZ
103437
LICENSED PROFESSIONAL ENGINEER

PORT OF BROWNSVILLE
•WORLD CLASS•
PORT OF CAMERON COUNTY, TEXAS
AIRPORT ADMINISTRATION BUILDING

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
ELECTRICAL FLOOR PLAN – BUILDING C

ELECTRICAL LEGEND-LIGHTING

---ALL SYMBOLS SHOWN MAY NOT APPEAR IN ALL DRAWINGS.
SYMBOLS ARE SHOWN SCHEMATIC AND MAY NOT BE TO SCALE.

SYMBOL	DESCRIPTION
	2'X4' LIGHT FIXTURE, REFER TO LUMINAIRE SCHEDULE
	2'X4' LIGHT FIXTURE W/EMERGENCY BATTERY PACK, REFER TO LUMINAIRE SCHEDULE
	2'X2' LIGHT FIXTURE, REFER TO LUMINAIRE SCHEDULE
	2'X2' LIGHT FIXTURE W/EMERGENCY BATTERY PACK, REFER TO LUMINAIRE SCHEDULE
	1'X4' LIGHT FIXTURE, REFER TO LUMINAIRE SCHEDULE
	TRACK LIGHT WITH HEADS AS INDICATED
	INCANDESCENT, LED, FLUORESCENT, OR HID WALL WASHER LIGHT FIXTURE CEILING MTD, REFER TO LUMINAIRE SCHEDULE
	INCANDESCENT, LED, FLUORESCENT, OR HID FIXTURE CLG. OR WALL MTD, REFER TO LUMINAIRE SCHEDULE
	LED, FLUORESCENT, OR HID FIXTURE WITH EMERGENCY BATTERY PACK, CLG. OR WALL MTD, REFER TO LUMINAIRE SCHEDULE
	EXIT LIGHT, CEILING OR WALL MOUNTED - SHADING INDICATING SINGLE OR DOUBLE FACE; DIRECTIONAL ARROWS AS INDICATED REFER TO LUMINAIRE SCHEDULE
	EXIT LIGHT SAME AS ABOVE, EXCEPT WITH AN EMERGENCY UNIT AS A COMBO, REFER TO LUMINAIRE SCHEDULE
	CEILING FAN
	STRIP UTILITY LIGHT FIXTURE, REFER TO LUMINAIRE SCHEDULE
	STRIP UTILITY STRIP LIGHT WITH EMERGENCY BATTERY PACK, REFER TO LUMINAIRE SCHEDULE

ELECTRICAL LEGEND-SPECIAL SYTEMS

---ALL SYMBOLS SHOWN MAY NOT APPEAR IN ALL DRAWINGS.
SYMBOLS ARE SHOWN SCHEMATIC AND MAY NOT BE TO SCALE.

SYMBOL	DESCRIPTION	
P	WALL MOUNTED TELEPHONE/DATA OUTLET. FURNISH AND INSTALL 1"C., WITH PULLSTRING AND INSULATED BUSHING, STUBBED ABOVE CEILING, +24" UNLESS OTHERWISE NOTE. BOX TO BE MINIMUM 2 1/8" DEEP.	
	WALL MOUNTED TELEPHONE OUTLET, FURNISH AND INSTALL 3/4"C , WITH PULLSTRING AND INSULATED BUSHING, STUBBED ABOVE CEILING, +24" UNLESS OTHERWISE NOTE. BOX TO BE MINIMUM 2 1/8" DEEP.	
	WALL MOUNTED DATA OUTLET, FURNISH AND INSTALL 1"C , WITH PULLSTRING AND INSULATED BUSHING, STUBBED ABOVE CEILING, +24" UNLESS OTHERWISE NOTE. BOX TO BE MINIMUM 2 1/8" DEEP.	
P	PUBLIC TELEPHONE OUTLET.; J-BOX & 3/4"C	
TV	TELEVISION OUTLET. CLG. OR WALL MOUNTED - STUB 1.25" C. ABOVE CEILING FROM OUTLET BOX	
	PUSHBUTTON WALL MOUNTED.	
	FLOOR MOUNTED 2-DUPLEX RECEPTACLE /1GANG FOR TELE/DATA OUTLETS- FLUSH MOUNTED UNO FLOOR BOX = MFR.-WIREMOLD MODEL#RFB4-, RFB-8,RFB-DR,RFB4-LPB COVER #FPBTCBK-VERIFY FLOOR FINISH PRIOR TO ORDER SAME BOX FOR POWER OUTLETS.	
	FLOOR MOUNTED 2-DUPLEX RECEPTACLE /1GANG FOR DATA OUTLET- FLUSH MOUNTED UNO FLOOR BOX = MFR.-WIREMOLD MODEL#RFB4-, RFB-8,RFB-DR,RFB4-LPB COVER #FPBTCBK-VERIFY FLOOR FINISH PRIOR TO ORDER SAME BOX FOR POWER OUTLETS.	
AV	AUDIO VIDEO DROP, REFER TO DETAIL	
IC IC	INTERCOM - CALL SWITCH- JBOX WITH 3/4"C	
S	INTERCOM/PAGING LAY-IN SPEAKER	
	PA EXTERIOR SPEAKER	10'-6" AFF
F	SECURITY DOOR CONTACT SENSOR - STUB 1/2"C ABOVE CEILING FROM OUTLET BOX	
F	SECURITY MOTION DETECTOR SENSOR - STUB 1/2"C ABOVE CEILING FROM OUTLET BOX	
F	SECURITY GLASS BREAK SENSOR - STUB 1/2"C ABOVE CEILING FROM OUTLET BOX	
F	SECURITY KEY PAD - STUB 3/4"C ABOVE CEILING FROM OUTLET BOX	
SEC	SECURITY PANEL JUNCTION BOX	54"
ACCS	ACCESS CONTROL PANEL JUNCTION BOX - BY OTHERS	54"
F	CARD READER BOX - STUB 3/4"C ABOVE CEILING LEVEL FROM OUTLET BOX SYSTEM BY OTHERS	----
F	MAGNETIC LOCK BOX - STUB 3/4"C ABOVE CEILING LEVEL FROM OUTLET BOX SYSTEM BY OTHERS	----
S	INTRUSION EXTERIOR SPEAKER	10'-6" AFF
C	SINGLE SIDED CLOCK, J-BOX W/3/4"C	96" AFF MIN.
C H	DOUBLE SIDED CLOCK,J-BOX W/3/4"C	96" AFF MIN.
	CAMERA J-BOX W/ 3/4" CONDUIT	----

ELECTRICAL LEGEND-FIRE ALARM

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SYMBOL	DESCRIPTION
	ABOVE CEILING FROM OUTLET BOX
F	FIRE ALARM PULL STATION; STUB 3/4"C ABOVE CEILING FROM J-BOX
AV	FIRE ALARM AUDIBLE/VISUAL SIGNAL; STUB 3/4"C ABOVE CEILING FROM J-BOX
V	FIRE ALARM VISUAL SIGNAL; STUB 3/4"C ABOVE CEILING FROM J-BOX
	FIRE ALARM SMOKE DETECTOR CEILING OR WALL MOUNTED; STUB 3/4"C ABOVE CEILING FROM J-BOX
H	HEAT DETECTOR CEILING OR WALL MOUNTED; STUB 3/4"C ABOVE CEILING FROM J-BOX
SD	DUCT SMOKE DETECTOR; STUB 3/4"C ABOVE CEILING FROM J-BOX
SD A	SMOKE DETECTOR WITH AN AUDIBLE BASE; STUB 3/4"C ABOVE CEILING FROM J-BOX
FACP	FIRE ALARM CONTROL PANEL, ADDRESSABLE, SURFACE MTD UNO.
FAAP	FIRE ALARM REMOTE ANNUNCIATOR PANEL, FLUSH MOUNTED UNO
PAD-3	POWER SUPPLY, DEDICATED 110V
DH	DOOR HOLDER DEVICE; STUB 3/4"C ABOVE CEILING FROM J-BOX
TS	TAMPER SWITCH; STUB 3/4"C ABOVE CEILING FROM J-BOX
FS	FLOW SWITCH; STUB 3/4"C ABOVE CEILING FROM J-BOX
	FIRE ALARM OUTDOOR SPEAKER, WEATHER PROOF; STUB 3/4"C ABOVE CEILING FROM J-BOX

ELECTRICAL LEGEND-GENERAL

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SYMBOL	DESCRIPTION
	HEAVY DUTY DISCONNECT SWITCH FUSED
	HEAVY DUTY DISCONNECT SWITCH NONFUSED
	HEAVY DUTY COMBINATION DISCONNECT/MOTOR STARTER
	HEAVY DUTY MOTOR STARTER
	ENCLOSED BREAKER, RE: TO SCH. FOR MORE INFO.
	ROTARY TYPE DISCONNECT SWITCH
M	120V,20AMP. MOTOR RATED SWITCH, NEMA-1 ENCLOSURE
	MOTOR
	PANELBOARD, CLEARANCE AS PER LATEST NEC
	SWITCH LEG
	ELECTRICAL CONDUIT
	UNDERGROUND ELECTRICAL CONDUIT
X, X, X	MULTI-POLE DEVICE CIRCUIT NUMBERS
X/X/X	THREE SINGLE POLE DEVICE CIRCUIT NUMBERS
A-1	CONDUIT AND WIRE HOMERUN TO PANEL. SHORT HATCH INDICATES NEUTRAL CONDUCTOR; LONG HATCHES INDICATE PHASE CONDUCTORS, AND LONG HATCH WITH CIRCLE INDICATES ISOLATES OR INSULATED GROUND. ALPHANUMERIC DESCRIPTION INDICATES PANEL AND BREAKER.
A-1	UNDERGROUND CONDUIT AND WIRE HOMERUN TO PANEL. SHORT HATCH INDICATES NEUTRAL CONDUCTOR, LONG HATCHES INDICATE PHASE CONDUCTORS, AND LONG HATCH WITH CIRCLE INDICATES ISOLATED OR INSULATED GROUND. ALPHANUMERIC DESCRIPTION INDICATES PANEL AND BREAKER.
# / T	DETAIL NUMBER SHEET NUMBER
	THERMOSTAT WALL MOUNTED - STUB 1/2"C ABOVE CEILING FROM OUTLET BOX. COORDINATE EXACT LOCATION AND HEIGHT WITH MECHANICAL DIVISION.
	TELEPHONE BOARD
PC	PHOTO CELL(MFR.INTERMATIC #K4136M)
LC	LIGHTING CONTACTOR; NEMA-1, W/H.O.A. SWITCH
TC	TIME CLOCK (MFR.TORK#72022)
CP-1	CIRCULATING PUMP
$	ELECTRICAL DEVICE AS SHOWN ON PLANS SURFACE MOUNT RACEWAY. SURFACE MOUNT RACEWAY SHALL BE WIREMOLD #V700 SERIES. PROVIDE ALL RELATED #V700 SERIES ACCESSORIES FOR AN OPERABLE SYSTEM.

ELECTRICAL ABBREVIATIONS:

ABBV:	DESCRIPTION	ABBV:	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	MFR. (S.C.)	MANUFACTURER SHARE CIRCUIT
BFC	BELOW FINISHED CEILING	QRCPT(S)	QUAD RECEPTACLE(S)
C	CONDUIT	RCPT(S)	DUPLEX RECEPTACLE(S)
CB	CIRCUIT BREAKER	CRCPT(S)	I.G. RECEPTACLE(S)
EC	EMPTY CONDUIT	QCRCPT(S)	QUAD I.G. RECEPTACLE(S)
EX	EXISTING	PNL	PANEL
F	FUSE	SQ (S.O.)	SPACE ONLY
G	GROUND (EQUIPMENT)	SP	SPARE
GFI	GROUND FAULT INTERRUPTER	ST (S.T.)	SHUNT TRIP
MTD	MOUNT OR MOUNTED	SW	SWITCH
NF	NONFUSED	UF	UNDERFLOOR
NIC	NOT IN CONTRACT	UG	UNDERGROUND
H.D	HEAVY DUTY	UNO(U.N.O.)	UNLESS NOTED OTHERWISE
NL	NIGHT LIGHT	WG	WIRE GUARD
AC	ABOVE COUNTER	WP	WEATHERPROOF
HT.	HEIGHT	XFMR	TRANSFORMER
MTD.	MOUNTING	MB	MAIN BREAKER
FDR.	FEEDER	MLO	MAIN LUGS ONLY
CKT.	CIRCUIT	RMC	RIGID METAL CONDUIT
LTG.	LIGHTING	RNC	RIGID NONMETALLIC CONDUIT
LC	LIGHTING CONTACTOR	EMT	ELECTRICAL METALLIC TUBING CONDUIT
IG	ISOLATED GROUND	S/N	SOLID NEUTRAL
EA.	EACH	AC	ABOVE COUNTER
N1	NEMA-1	AHJ	AUTHORITY HAVING JURISDICTION
N3R	NEMA-3R		
N4X	NEMA-4X		
SS	STAINLESS STEEL		

NOTES:
1.) 48" AFF INDICATES TO TOP OF DEVICE:
15" AFF INDICATES TO BOTTOM OF DEVICE:
ALL OTHER MOUNTING HEIGHTS REFER TO CENTERLINE OF DEVICE.
AC INDICATES 6" ABOVE COUNTER TO BOTTOM OF DEVICE.

ELECTRICAL LEGEND - WIRING DEVICES

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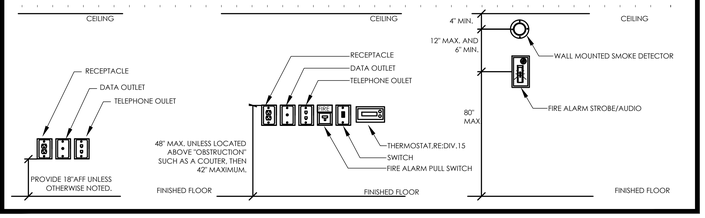
	SINGLE RECEPTACLE - 20A/125V/2P/3W/G NEMA 5-20R
	DUPLEX RECEPTACLE - 20A/125V/2P/3W/G NEMA 5-20R
H H	HOSPITAL GRADE DUPLEX RECEPTACLE/GFI - 20A/125V/2P/3W/G NEMA 5-20R
	DUPLEX RCPT, GFI - 20A/125V/2P/3W/G NEMA 5-20R
WP/ "IN-USE"	DUPLEX RCPT, WEATHER RESISTANT "WR", GFI INSTALLED IN A "IN-USE" WEATHER PROOF STEEL ENCLOSURE- 20A/125V/2P/3W/G NEMA 5-20R WP/"IN-USE" SHALL BE EQUAL TO MFR. CARLON, METALLIC SERIES SINGLE GANG, VERTICAL MOUNT #M8PUVMG DOUBLE GANG, VERTICAL MOUNT #M8PU2VMG
	QUADRAPLEX RECEPTACLE
	ISOLATED GROUND QUADPLEX RECEPTACLE
	ISOLATED GROUND DUPLEX RECEPTACLE - 20A/125V NEMA 5-20R
	208V RECEPTACLE, VERIFY NEMA NO. WITH EQUIPMENT SUPPLIER
	SPECIAL PURPOSE RECEPTACLE (NEMA NO. AS INDICATED)
J	JUNCTION BOX - SIZE & MOUNTING AS REQUIRED MINIMUM OF 4" SQUARE
J	J-BOX - AIR HAND DRYER; (RECESSED HAND DRYERS TO BE PROVIDED BY DIVISION 16, ELECTRICAL) #B-750 AUTOMATIC HANDCRAFT AS MANUFACTURER BY BOBRICK, (COLOR WHITE) QUANTITY; REFER TO DRAWINGS (MIN. ONE PER LAV. COMPLETE W/ ELE. CONNECTIONS TYP.)
2P	4-GANG FLOOR MOUNTED BOX, 2-DUPLEX RECEPTACLE(INCLUDE RECEPTACLE WITH COVER PLATE)/2-GANG FOR DATA - FLUSH MOUNTED UNO FLOOR BOX = MFR.-HUBBELL MODEL#CFB4G30CR-24GCVRNK(COVER)-(2)FBMPDUP-FBMP6KS -CFBHB2(MULTISERVICE STEEL RECESSED FLOOR BOX-VERIFY FLOOR FINISH PRIOR TO ORDER SAME BOX FOR DATA OUTLETS.
6P	6" FIRE RATED POKE-TRHOUGHS BOX, 2-DUPLEX RECEPTACLE(INCLUDE RECEPTACLE WITH COVER PLATE)- MFR.-HUBBELL MODEL#S1R6PTFIT-S1R6SPE-S1R6SPL-S1R6SPH(50/50 DEVICE PLATE COMBINATION)-S1R6CVRALU(COVER) -VERIFY FLOOR FINISH PRIOR TO ORDER SAME BOX FOR DATA OUTLETS.
8P	8" FIRE RATED POKE-TRHOUGHS BOX, 2-DUPLEX RECEPTACLE(INCLUDE RECEPTACLE WITH COVER PLATE)- MFR.-HUBBELL MODEL#S1R8PTFIT3-S1R8CSPK-S1R8CSPK-S1R8PSP2(50/50 DEVICE PLATE COMBINATION)-S1R8CVRALU(COVER) -VERIFY FLOOR FINISH PRIOR TO ORDER SAME BOX FOR DATA OUTLETS.

GENERAL ELECTRICAL NOTES

1. ALL SYMBOLS AND ABBREVIATIONS SHOWN ON THIS LEGEND MAY NOT APPEAR ON THIS SET OF DRAWINGS.
2. USE DIRECTIONAL ARROW ON EXIT SIGNS AS REQUIRED.
3. IEEE STANDARD C37.2-1991, ELECTRICAL POWER SYSTEM DEVICE FUNCTION NUMBERS.
4. CONTRACTOR SHALL NOT INSTALL MORE THAN THREE CURRENT CARRYING CONDUCTORS IN A COMMON RACEWAY. IF CONTRACTOR IS PLANNING ON GROUPING MULTIPLE CIRCUITS IN A SINGLE RACEWAY, THE CONTRCATOR MUST SUBMIT ALL DERATING CALCULATIONS FOR THE PROPOSED INSTALLATION IN ACCORDANCE WITH NEC ARTICLE 310.15 (B) (2) FOR APPROVAL PRIOR TO INSTALLATION. NON APPROVED INSTALLATIONS WILL BE REMOVED AND REINSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH THE NEC AT NO ADDITIONAL COST TO THE OWNER.
5. THERE SHALL NOT BE MORE THAN THE EQUIVALENT OF THREE 90° BENDS (270 DEGREES TOTAL) BETWEEN PULL POINTS. WHERE THERE ARE MORE THAN THREE QUARTER BENDS, CONTRACTOR SHALL PROVIDE PULL BOXES AS SPECIFIED AND SIZED IN ACCORDANCE WITH NEC.
6. COMPLY WITH NEC REQUIREMENTS FOR ELECTRICAL INSTALLATIONS. ALL ELECTRICAL EQUIPMENT AND MATERIAL TO BE APPROVED, LISTED, LABELED, IDENTIFIED AND INSTALLED PER RECOGNIZED ELECTRICAL TESTING LABORATORY.
7. ALL RECEPTACLES, SWITCHES AND JUNCTION BOXES SERVED BY EMERGENCY BRANCH CIRCUITS SHALL BE "RED" IN COLOR, COVERPLATES SHALL BE LABELED IN ACCORDANCE WITH SPECIFICATIONS TO INDICATE PANELBOARD AND CIRCUIT NO. (IE: ET"LA-3).

MOUNTING HEIGHT DETAIL

NOTE: VERIFY WITH ARCHITECTURAL FOR ADA REQUIREMENTS.



LUMINAIRE SCHEDULE

MARK	VOLTAGE	LAMP	MOUNTING	DESCRIPTION	MODEL NO.
A	120V	LED (6000LM) 55W	RECESSED LAY-IN	2X4 LAY-IN LED TROFFER W/ ACRYLIC LENS & LED DRIVER AND ALL REQUIRED MOUNTING ACCESSORIES	LITHONIA 2GTL-4-_-60L-_-_-MVOLT-EZ1-LP835
B	120V	LED (3000LM) 35W	RECESSED LAY-IN	2X4 LAY-IN LED TROFFER W/ ACRYLIC LENS & LED DRIVER AND ALL REQUIRED MOUNTING ACCESSORIES	LITHONIA 2GTL-4-_-30L-_-_-MVOLT-EZ1-LP835
B1	120V	LED (3300LM) 40W	RECESSED LAY-IN	2X2 LAY-IN LED TROFFER W/ ACRYLIC LENS & LED DRIVER AND ALL REQUIRED MOUNTING ACCESSORIES	LITHONIA 2GTL-2-_-33L-_-_-MVOLT-EZ1-LP835
C	120V	LED (4800LM) 47W	RECESSED LAY-IN	2X4 LAY-IN LED TROFFER W/ ACRYLIC LENS & LED DRIVER AND ALL REQUIRED MOUNTING ACCESSORIES	LITHONIA 2GTL-4-_-48L-_-_-MVOLT-EZ1-LP835
E	120V	LED	SURFACE	THERMOPLASTIC EMERGENCY LIGHTING UNIT W/ SELF-DIAGNOSTICS	LITHONIA ELM6LED W LP03VS SD
D	120V	LED (1500LM) 42W	RECESSED	6" LED RECESSED DOWNLIGHT WITH LED DRIVER, PROVIDE ALL REQUIRED MOUNTING ACCESSORIES.	GOTHAM EVO-35/15/6AR_-WD-LSS-MVOLT-EZ10
F	120V	LED (3500LM) 50W	RECESSED	6" LED RECESSED WALL WASH FIXTURE WITH LED DRIVER. PROVIDE ALL REQUIRED MOUNTING ACCESSORIES.	GOTHAM EVO-WW-35/35/6AR_-LSS-MVOLT-EZ10
G	120V	LED (3500LM) 40W	RECESSED	6" LED RECESSED DOWNLIGHT WITH LED DRIVER, PROVIDE ALL REQUIRED MOUNTING ACCESSORIES.	GOTHAM EVO-35/35/6AR_-WD-LSS-MVOLT-EZ10
H	120V	2-F32T8SPX35	SURFACE	4' FLUORESCENT CHANNEL WITH ELECTRONIC BALLAST, WIRE GUARD	LITHONIA C-2-32-MVOLT-GEB-WGCUN
J	120V	2-F32T8SPX35	SURFACE	4' FLUORESCENT SURFACE MTD. WRAP AROUND FIXTURE WITH ELECTRONIC BALLAST	LITHONIA LB-2-32-MVOLT-GEB10IS
K	120V	LED-3277 LM 57W	SURFACE	4' LINEAR LED FIXTURE. CANTILEVER, REMOTE DIMMING DRIVER.	ELLIPTIPAR S-120-R04M-HSL-M-00-0-30-ZX
L	120V	2-13DTT 3500K	SURFACE	11"FLUORESCENT LOW PROFILE ROUND FLUSH MOUNT, W/ELECTRONIC BALLAST	LITHONIA FMLR11213DTT-GEB
M	120V	LED-3000 LM 28.2W	SURFACE	4' LED WALL BRACKET SURFACE MTD, WITH DRIVER, UL LISTED	LITHONIA WL4-30L-_-EZ1-LP835-_-
UC	120V	LED - 441 LM 13W	SURFACE	24" LED UNDERCABINET LIGHTING, DIRECT WIRE, UL LISTED	LITHONIA RAZ24-UCDJBBL-RAZTRANS24120
X1	120V	INCLUDED	SURFACE	THERMOPLASTIC EXIT UNIT WITH SELF-DIAGNOSTICS	LITHONIA LQM S W 1 R 120/277 EL N SD _
X2	120V	INCLUDED	SURFACE	THERMOPLASTIC EXIT/EMERGENCY UNIT WITH SELF-DIAGNOSTICS	LITHONIA LHQM LED _-R SD
AA	120V	LED - 4028 LM 47W	SURFACE	LED WALL SCONCE, NIGHT TIME FRIENDLY, RATED FOR WET LOCATION	LITHONIA WSQ-2-10A700/40K-SR3-MVOLT-_-DNAXD
BB	120V	1-32W TBX 4100K	SURFACE	FLUORESCENT WALL MOUNTED FIXTURE WITH, RATED FOR WET LOCATION	TERON LIGHTING B8OC132X-120E-EYE-SM-41K
CC	208V	1-LED FIXTURE 16238 LM 131W 4000K	25'POLE	LED AREA LUMINAIRE, POLE MOUNT LUMINAIRE, INCLUDE BASE COVER, RATED FOR WET LOCATION, TYPE 3, INCLUDE DRIVER, ALUMINUM POLE WITH VIBRATION DAMPER	FIXTURE MFR: LITHONIA DSX1LED-60C-700-40K-T3M-MVOLT-RPA--DNAXD POLE MFR.LITHONIA #RTA 25 BG - DM19AS-VD-FBC-DNA
DD	208V	1-LED FIXTURE 2190 LM 209W 4000K	25'POLE	LED AREA LUMINAIRE, POLE MOUNT LUMINAIRE, INCLUDE BASE COVER, RATED FOR WET LOCATION, TYPE 4, INCLUDE DRIVER, ALUMINUM POLE WITH VIBRATION DAMPER	FIXTURE MFR: LITHONIA DSX1LED-60C-1000-40K-T4M-MVOLT-RPA--DNAXD POLE MFR.LITHONIA #RTA 25 BG - DM19AS-VD-FBC-DNA
EE	208V	3-LED FIXTURE 2190 LM EA., 630W 4000K	25'POLE	LED AREA LUMINAIRE, POLE MOUNT LUMINAIRE, INCLUDE BASE COVER, RATED FOR WET LOCATION, TYPE 4, INCLUDE DRIVER, ALUMINUM POLE WITH VIBRATION DAMPER	FIXTURE MFR: LITHONIA DSX1LED-60C-1000-40K-T4M-MVOLT-RPA--DNAXD POLE MFR.LITHONIA #RTA 25 BG - DM30905AS-VD-FBC-DNA
FF	208V	LED FIXTURE 2995 LM 37W 4000K	PEDESTAL	LED FLOOD LUMINAIRE, WIDE FLOOD DISTRIBUTION, PEDESTAL MOUNT, RATED FOR WET LOCATION	FIXTURE MFR: LITHONIA DSXF1LED-2-A530/40K-WFL-MVOLT-THK-DNAXD
GG	208V	LED FIXTURE 6933 LM 74W 4000K	PEDESTAL	LED FLOOD LUMINAIRE, MEDIUM SPOT DISTRIBUTION,PEDESTAL MOUNT, RATED FOR WET LOCATION	FIXTURE MFR: LITHONIA DSXF2LED-4-A530/40K-MSP-MVOLT-THK-DNAXD
HH	120V	LED A19 LAMP 1500 LM 14.5W 4000K	SURFACE	UTILITY VAPOR FIXTURE, MEDIUM BASE LED LAMP, ALUMINUM HOUSING, RATED FOR WET LOCATION, PROVIDE LED LAMP	FIXTURE MFR: LITHONIA VC1S0M12
JJ	120V	LED FIXTURE 7633 LM 74W 4000K	PEDESTAL	LED FLOOD LUMINAIRE, MEDIUM SPOT DISTRIBUTION, INTEGRAL SLIPFITTER, RATED FOR WET LOCATION	FIXTURE MFR: LITHONIA DSXF2LED-4-A530/40K-WFL-MVOLT-THK-DNAXD
KK	120V	LED FIXTURE 3500 LM 42.1W 4000K	RECESSED	LED RECESSED LUMINAIRE, RATED FOR DAMP LOCATION, LENSED	GOTHAM EVO-40/35-6WR-_-MD-LD-MVOLT-

NOTE:
1.) EQUAL MANUFACTURER SHALL BE ACCEPTABLE WITH EQUAL PERFORMANCE OF SPECIFIED EQUIPMENT AND APPROVED BY ENGINEER.
2.) SUBMIT EQUAL MANUFACTURERS TO ENGINEER 10 DAYS PRIOR TO BID DATE.
3.) SUBMIT LIGHT FIXTURES CUTSHEETS TO OWNER FOR APPROVAL PRIOR TO ORDER.
4.) CONTRACTOR SHALL VERIFY THAT ANY IRRIGATION SPRINKLER HEAD IS AWAY FROM ANY LIGHT POLE A MINIMUM OF 75' TO AVOID CONSISTENT WATER TO LIGHT POLE. COORDINATE WITH IRRIGATION CONTRACTOR PRIOR TO ANY WORK.

LIGHTING CONTROL SENSORS LEGEND

SYMBOL	ACUITY MODEL NUMBER	CONDUIT	COMMENTS
OS1	NCM-PDT-10	3/4"C	PROVIDE POWER PACK POSITIONED AS DIRECTED BY MANUFACTURER. REFER TO PLANS FOR TYPE OF POWER PACK. REFER TO PLANS AND SCHEDULES FOR SWITCHING TYPES.
OS2	WSX-PDT-SA	3/4"C	
OS3	CM-10	NA	PROVIDE POWER PACK POSITIONED AS DIRECTED BY MANUFACTURER. REFER TO PLANS FOR TYPE OF POWER PACK. REFER TO PLANS AND SCHEDULES FOR SWITCHING TYPES.
OS4	NCM-PDT-9	NA	PROVIDE POWER PACK POSITIONED AS DIRECTED BY MANUFACTURER. REFER TO PLANS FOR TYPE OF POWER PACK. REFER TO PLANS AND SCHEDULES FOR SWITCHING TYPES.
NP	nPP16	3/4"C	POWER PACK, 120,240,277, VAC, 16AMPS/POLE, PLENUM RATED, RELAY CONTACT PROTECTION, RJ-45 PORT
NP D	nPP16 D	3/4"C	POWER PACK, 120,240,277, VAC, 16AMPS/POLE, 0-10VDC DIMMING, PLENUM RATED, RELAY CONTACT PROTECTION, RJ-45 PORT
NP 2D	PP20 2P	3/4"C	POWER PACK, 120,240,277, VAC, 20AMPS/POLE, PLENUM RATED, RELAY CONTACT PROTECTION, RJ-45 PORT, CONTROLS TWO CIRCUITS
ADCP	nCM ADCX	3/4"C	AUTOMATIC DIMMING CONTROL PHOTOCELL-CEILING MOUNT, LOW VOLTAGE
LCP	BLUE BOX LT	RE: PLANS	LIGHTING CONTROL RELAY PANEL. REFER TO RELAY PANEL SCHEDULE.
SW1	nPODM-_-_-_WH	3/4"C	WALL MOUNT SWITCH WITH ON/OFF WITH STAINLESS STEEL PLATE
SW2	nPODM-_-DX-_WH	3/4"C	WALL MOUNT SWITCH WITH ON/OFF WITH RAISE /LOWER FUNCTION AND WITH STAINLESS STEEL PLATE
SW3	nPODM-4P-DX-_WH	3/4"C	WALL MOUNT SWITCH WITH ON/OFF WITH RAISE /LOWER FUNCTION AND WITH STAINLESS STEEL PLATE

GENERAL NOTES:
A. CONTRACTOR SHALL REFER TO MANUFACTURERS INSTRUCTIONS AND WIRING DIAGRAMS PRIOR TO BID DATE.
B. CONTRACTOR SHALL INCLUDE ALL COST IN BID FOR AN OPERABLE LIGHTING SYSTEM.
NOTES:

1. All sensor locations are approximate, refer to manufacturers installation instructions prior to installation.
2. Ultrasonic ceiling mount sensors should be located a minimum of six feet from HVAC supply/return vents.
3. Contractor is responsible for: proper sensitivity & time delay settings (for non-adaptive products) recommended placement, and field verification of circuits with in respect to power placement.
4. Contractor is responsible for field verification of required number of power packs:
   - One power pack is required for each circuit to be controlled.
   - One power pack is required for every three sensors in the zone.
   - If multiple circuits are to be controlled by a sensor, an auxiliary relay can be used in conjunction with the power pack.
   - The maximum number of sensors that can be put on a power pack is to be reduced by one for each slave pack used.
5. Sensors mounted over the door must be placed one foot inside the threshold.
6. Contractor is responsible for ensuring that the sensor bill of materials complies with the sensor design and layout specifications.
7. Contractor is responsible for installing equipment in compliance with local code.
8. Refer to manufacturers wiring diagrams.

SHEET NO. E8.1
OF
SET NUMBER
REVISED:
DATE: 09/30/16
DRAWN BY: TC
PROJECT NO.:161.01

ROBERTO J. RUIZ ARCHITECT, INC.
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09/30/16
STATE OF TEXAS
LEONARDO J. MUNOZ
103217
LICENSED PROFESSIONAL ENGINEER

PORT OF BROWNSVILLE
•WORLD CLASS•
DEPARTMENT OF CAMERON COUNTY, TEXAS

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
ELECTRICAL LEGEND/ SCHEDULES

TRINITY
MEP ENGINEERING
3533 Moreland Dr. Ste A I Weslaco, Tx 78596
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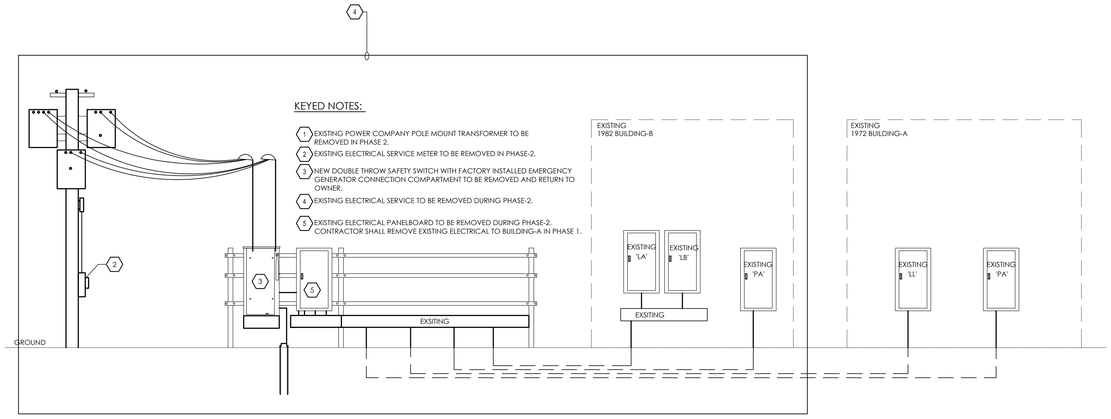
www.trinitymep.com I Copyright 2016
Texas Registered Engineering Firm - F10362
Project number: 16.1.01

BROWNSVILLE NAVIGATION BUILDING	
208/120V, 3Ø, 4W ELECTRICAL LOAD ANALYSIS	
DISCRIPTION	TOTAL KVA
LIGHTING	39
GENERAL POWER	123
COMPUTER POWER	36
A/C	231
WATER HEATER	15
TOTAL WATTS:	444 KVA
TOTAL AMPS:	1233.4 AMPS
TOTAL AMPS+25%:	1541.7 AMPS
WIRE SIZE AMPS:	1600 AMPS

DISCONNECT SCHEDULE

LABEL	DESCRIPTION
AHU-A1,A2,A4	100AMP, 1Ø, 3W, N1,208V, S/N, N.F., H.D. DISCONNECT
AHU-A3	60AMP, 1Ø, 3W, N1,208V, S/N, N.F., H.D. DISCONNECT
CU-A1,A2,A3,A4	60AMP, 1Ø, 3W, N4X,208V, S/N, H.D, FUSED DISCONNECT
RTU-B1,C1	30AMP, 3Ø, 4W, N4X,208V, S/N, H.D, FUSED DISCONNECT
RTU-B2, B3,B4,B5	60AMP, 3Ø, 4W, N4X,208V, S/N, H.D, FUSED DISCONNECT
RTU-C2, C3,C4,C5	60AMP, 3Ø, 4W, N4X,208V, S/N, H.D, FUSED DISCONNECT
RTU-PR1,PR2,PR3	60AMP, 3Ø, 4W, N4X,208V, S/N, H.D, FUSED DISCONNECT
FCCU-A1,B1, C1,PR1	30AMP, 1Ø, 3W, N4X,208V, S/N, H.D, FUSED DISCONNECT
IWH-1,2,3,4, 5,6	30AMP, 1Ø, 3W, N3,120V, S/N, N.F., H.D. ROTARY TYPE DISCONNECT
WH-1,2	30AMP, 1Ø, 3W, N3,120V, S/N, N.F., H.D. ROTARY TYPE DISCONNECT
EF-B1,B2,C1, C2,C3	FUSED COMBINATION DISCONNECT/STARTER, 30AMP, 1Ø, 3W, N4X,120V, 1 HP, CPT, SSOL, HOA

NOTE: 1. REFER TO BREAKER SIZE FOR FUSE SIZE.
2. REFER TO PANELBOARD FOR DISCONNECT PHASES AND VOLTAGE.
3. PROVIDE SOLID STATE PHASE LOSS PROTECTION FOR ALL STARTER AND COMBOS .



2 EXISTING ELECTRICAL SCHEMATIC DIAGRAM
SCALE: NTS

GENERAL NOTES:

A. PROVIDE GROUND /BONDING AS INDICATED ON THE NATIONAL ELECTRICAL CODE.

B. NAME PLATES SHALL BE PROVIDED FOR ALL ELECTRICAL SWITCH GEAR, PANEL BOARDS, LIGHTING CONTACTORS, LIGHTING CONTROL PANELS, ETC., BY ELECTRICAL CONTRACTOR.

C. NEW ELECTRICAL METERING AND SERVICE EQUIPMENT SHALL BE PROVIDED AND INSTALLED ACCORDING TO THE LOCAL POWER UTILITY CO. AND CITY REQUIREMENTS. VERIFY AND COORDINATE WITH POWER UTILITY CO. AND AHJ BEFORE BID AND INSTALLATION.

D. COMPLY WITH NFPA 70E SAFETY REQUIREMENTS.

E. PANELBOARDS WITH MORE THAN 42 CIRCUITS SHALL BE IN ONE CABINET ENCLOSURE, UNLESS OTHERWISE NOTED.

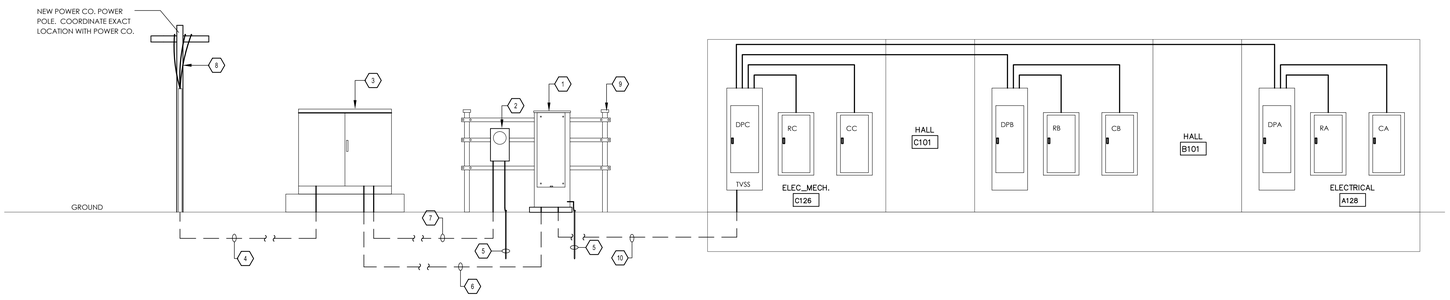
F. PROVIDE 4"CONCRETE PAD FOR ALL DRY-TYPE TRANSFORMERS.

G. ALL TWO SECTION PANELBOARDS SHALL BE FEED THRU LUGS.

H. CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY OF ELECTRICAL SERVICE TO THE NEW BUILDING WITHIN PROJECT SCHEDULE. COORDINATE ALL COST FOR LABOR AND MATERIALS WITH LOCAL ELECTRICAL UTILITY COMPANY PRIOR TO BID. ALL COST ASSOCIATED WITH THE DELIVERY OF ELECTRICAL SERVICE INCLUDING ALL MATERIALS SHALL BE INCLUDED IN BID. TRANSITION OF NEW ELECTRICAL SERVICE SHALL PROCEED IN WEEKENDS OR HOLIDAYS, INCLUDE ALL COST IN BID FOR OVERTIME FROM ELECTRIC UTILITY COMPANY. NO ADDITIONAL PAYMENT WILL BE MADE FOR SERVICE DELIVERY COSTS AFTER CONTRACT HAS BEEN AWARDED.

ELECTRICAL RISER DIAGRAM KEYED NOTES:

1. PROVIDE SERVICE RATED 1600AMPS, 208V, 3Ø, 4W, S/N, NEMA-3R PAINTED STAINLESS STEEL, GERNERATOR QUICK CONNECT SWITCHBOARD, EXTRA KRIK KEY LOCK, 65KA, COPPER BUS, MANUFACTURER EATON.
2. NEW ELECTRICAL SERVICE METER 120/208V, 3Ø, 4W. CONTRACTOR SHALL PROVIDE METER BASE. VERIFY WITH POWER FOR METER BASE REQUIREMENTS PRIOR TO BID DATE. INCLUDE ALL COST IN BID. COORDINATE ALLOCATION OF METER SOCKET AND WIRING WITH POWER COMPANY.
3. NEW POWER COMPANY PAD MOUNT TRANSFORMER 120/208V, 3Ø, 4W. PROVIDE CONCRETE PAD AS PER POWER COMPANY REQUIREMENTS.
4. FURNISH AND INSTALL 1-4"C FOR UTILITY PRIMARY RACEWAY TO POWER SOURCE AS DIRECTED BY UTILITY COMPANY. PROVIDE WARNING RIBBONS 12" ABOVE CONDUIT.
5. 1#3/0G IN 1"C, 3/4"X10' COPPER CLAD RODS. PROVIDE GROUNDING AS PER NEC REQUIREMENTS.
6. PROVIDE 4-RUNS EACH 4#600KCMIL, 4"C.
7. PROVIDE 1-2"C WITH PULLSTRING.
8. NEW POWER COMPANY POLE WITH RISER DIP POLE. COORDINATE WITH POWER COMPANY FOR ALL REQUIREMENTS.
9. 3"GALVANIZED PIPE WITH UNISTRUT STAND FOR ELECTRICAL SERVICE EQUIPMENT. COORDINATE WITH UTILITY COMPANY PRIOR TO ANY WORK.
10. PROVIDE 4-RUNS EACH 4#600KCMIL, 1#4/0G, 4"C.



1 ELECTRICAL SCHEMATIC DIAGRAM
SCALE: NTS

PANEL: DPC	AMP	LUGS	NEMA	V(LL)		(P)		(W)		V(LN)	MNT	KAIC	FDR: 4-RUN 4#600KCMIL, 1#4/0G, 4"C
LOCATION:	1600	MLO	1	208	3%%C,			4W		120	SUR.	44	
LOAD	CKT	LOAD	BKR	POLE	FEEDER/BRANCH CIRCUIT				FEEDER/BRANCH CIRCUIT	POLE	BKR	LOAD	CKT	LOAD
SERVED	#	KVA	SIZE		SIZE	A	B	C	SIZE		SIZE	KVA	#	SERVED
PANEL-RC	1	23	400	3	4#600KCMIL, 1#3G, 5"C	*			4#2, 1#8G,2"C	3	100	2	2	PANEL-CC
"	3	27			-		*		-			5	4	"
"	5	17			-			*	-			2	6	"
RTU-C1	7	3	30	3	4#10, 1#10G,3/4"C	*			4#3, 1#8G,2"C	3	80	9.8	8	RTU-C2
"	9	3			-		*		-			9.8	10	"
"	11	3			-			*	-			9.8	12	"
RTU-C3	13	9.8	80	3	4#3, 1#8G,2"C	*			4#6, 1#10G, 1"C	3	45	5	14	RTU-C4
"	15	9.8			-		*		-			5	16	"
"	17	9.8			-			*	-			5	18	"
RTU-C5	19	5.2	45	3	4#6, 1#10G, 1"C	*			3#8, 1#10G,3/4"C	2	20	0.6	20	FCCU-C1
"	21	5.2			-		*		-			0.6	22	"
"	23	5.2			-			*	3#10, 1#10G,3/4"C	2	25	1.7	24	UH-1
SEC.	25	0.4	20	1	2#12, 1#12G,1/2"C	*			-			1.7	26	"
FACP	27	0.4	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.4	28	FIRE SPRINKLER
IRRI.	29	0.4	20	1	2#12, 1#12G,1/2"C			*	-				30	SPACE
TVSS	31		100	3	4#2, 1#8G,2"C	*			-				32	SPACE
"	33				-		*		-				34	SPACE
"	35				-			*	-				36	SPACE
PANEL-DPA	37	57	600	3	2-RUNS 4#350KCMIL, 1#1G,4"C	*			2-RUNS 4#350KCMIL, 1#1G,4"C	3	600	52	38	PANEL-DPB
"	39	55			-		*		-			51	40	"
"	41	40			-			*	-			51	42	"
LOADS	-	(KVA)				169	172	145				(KVA)	-	DESCRIPTIVE LOADS
CONNECTED LOAD	-	486				KVA/PHASE						0	-	LIGHTING
RESERVE	0 %	0										2	-	RECEPTACLES
TOTAL LOAD	-	**486**										100	-	COOLING
												3	-	HEATING
TOTAL AMPS	-	***1349***										381	-	OTHER

NOTES:
1) PROVIDE INTEGRAL TVSS, 160KA.
2)
3)

PANEL: DPB	AMP	LUGS	NEMA	V(LL)		(P)		(W)		V(LN)	MNT	KAIC	FDR: 2-RUN 4#350KCMIL, 1#1G, 4"C
LOCATION:	600	MLO	1	208	3%%C,			4W		120	SUR.	10	
LOAD	CKT	LOAD	BKR	POLE	FEEDER/BRANCH CIRCUIT				FEEDER/BRANCH CIRCUIT	POLE	BKR	LOAD	CKT	LOAD
SERVED	#	KVA	SIZE		SIZE	A	B	C	SIZE		SIZE	KVA	#	SERVED
PANEL-RB	1	22	225	3	4#4/0, 1#4G,3"C	*			4#2, 1#8G,2"C	3	100	6	2	PANEL-CB
"	3	19			-		*		-			8	4	"
"	5	23			-			*	-			4	6	"
RTU-B1	7	3	30	3	4#8, 1#10G,3/4"C	*			4#6, 1#10G, 1"C	3	45	5	8	RTU-B2
"	9	3			-		*		-			5	10	"
"	11	3			-			*	-			5	12	"
RTU-B3	13	5	45	3	4#6, 1#10G, 1"C	*			4#6, 1#10G, 1"C	3	45	5.2	14	RTU-B4
"	15	5			-		*		-			5.2	16	"
"	17	5			-			*	-			5.2	18	"
RTU-B5	19	5.2	45	3	4#6, 1#10G, 1"C	*			3#8, 1#10G,3/4"C	2	20	0.6	20	FCCU-B1
"	21	5.2			-		*		-			0.6	22	"
"	23	5.2			-			*	-				24	SPACE
SPACE	25				-	*			-				26	SPACE
SPACE	27				-		*		-				28	SPACE
SPACE	29				-			*	-				30	SPACE
SPACE	31				-	*			-				32	SPACE
SPACE	33				-		*		-				34	SPACE
SPACE	35				-			*	-				36	SPACE
SPACE	37				-	*			-				38	SPACE
SPACE	39				-		*		-				40	SPACE
SPACE	41				-			*	-				42	SPACE
LOADS	-	(KVA)				52	51	51				(KVA)	-	DESCRIPTIVE LOADS
CONNECTED LOAD	-	153				KVA/PHASE						0	-	LIGHTING
RESERVE	25 %	38										0	-	RECEPTACLES
TOTAL LOAD	-	**192**										71	-	COOLING
												0	-	HEATING
TOTAL AMPS	-	***532***										82	-	OTHER

NOTES:
1)
2)
3)

PANEL: DPA	AMP	LUGS	NEMA	V(LL)		(P)		(W)		V(LN)	MNT	KAIC	FDR:
LOCATION: LOCATION-	600	MLO	1	208	3%%C,			4W		120	SUR.	10	2-RUN 4#350KCMIL, 1#1G, 4"C
LOAD	CKT	LOAD	BKR	POLE	FEEDER/BRANCH CIRCUIT				FEEDER/BRANCH CIRCUIT	POLE	BKR	LOAD	CKT	LOAD
SERVED	#	KVA	SIZE		SIZE	A	B	C	SIZE		SIZE	KVA	#	SERVED
PANEL-RA	1	24	225	3	4#4/0, 1#4G,3"C	*			4#2, 1#8G,2"C	3	100	4	2	PANEL-CA
"	3	16			-		*		-			5	4	"
"	5	18			-			*	-			3	6	"
AHU-A2	7	7.6	80	2	3#4, 1#8G,1 1/2"C	*			3#4, 1#8G,1 1/2"C	2	80	7.6	8	AHU-A1
"	9	7.6			-		*		-			7.6	10	"
CU-A2	11	3	45	2	3#6, 1#10G,1"C			*	3#6, 1#10G,1"C	2	45	3	12	CU-A1
"	13	3			-	*			-			3	14	"
AHU-A4	15	7.8	80	2	3#4, 1#8G,1 1/2"C		*		3#6, 1#10G,1"C	2	50	5	16	AHU-A3
"	17	7.8			-			*	-			5	18	"
CU-A4	19	4.3	60	2	3#6, 1#10G,1"C	*			3#8, 1#10G,3/4"C	2	35	2.5	20	CU-A3
"	21	4.3			-		*		-			2.5	22	"
SPACE	23				-			*	3#8, 1#10G,3/4"C	2	20	0.6	24	FCCU-A1
SPACE	25				-	*			-			0.6	26	"
SPACE	27				-		*		-				28	SPACE
SPACE	29				-			*	-				30	SPACE
SPACE	31				-	*			-				32	SPACE
SPACE	33				-		*		-				34	SPACE
SPACE	35				-			*	-				36	SPACE
SPACE	37				-	*			-				38	SPACE
SPACE	39				-		*		-				40	SPACE
SPACE	41				-			*	-				42	SPACE
LOADS	-	(KVA)				57	55	40				(KVA)	-	DESCRIPTIVE LOADS
CONNECTED LOAD	-	127				KVA/PHASE						0	-	LIGHTING
RESERVE	25 %	32										0	-	RECEPTACLES
TOTAL LOAD	-	**159**										1	-	COOLING
												56	-	HEATING
TOTAL AMPS	-	***440***										70	-	OTHER

NOTES:
1)
2)
3)

TRINITY
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Texas Registered Engineering Firm - F10362
Project number: 16.1.01

SHEET TITLE:
ELECTRICAL RISER/ SCHEDULES

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

PORT OF BROWNSVILLE
•WORLD CLASS•
BROWNSVILLE NAVIGATION DISTRICT
OF CAMERON COUNTY, TEXAS

ROBERTO J. RUIZ ARCHITECT, INC.
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09/30/16
STATE OF TEXAS
LEONARDO MUNOZ
97017
REGISTERED
ARCHITECT

SHEET NO.	E9.1
OF	
SET NUMBER	
REVISED:	
DATE: 09/30/16	
DRAWN BY: TC	
PROJECT NO.:16.1.01	

PANEL: RC	AMP	LUGS	NEMA	V(LL)		(P)		(W)		V(LN)	MNT	KAIC	FDR	
LOCATION:	400	MB	1	208	3%%C,			4W		120	SUR.	10	1-RUN 4#600KCMIL, 1#3G, 4"C	
LOAD	CKT	LOAD	BKR	POLE	FEEDER/BRANCH CIRCUIT				FEEDER/BRANCH CIRCUIT	POLE	BKR	LOAD	CKT	LOAD
SERVED	#	KVA	SIZE		SIZE	A	B	C	SIZE		SIZE	KVA	#	SERVED
5 RCPTS	1	1	20	1	2#10, 1#10G,3/4"C	*			2#12, 1#12G,1/2"C	1	20	0.4	2	1 RCPT
4 RCPTS	3	0.8	20	1	2#10, 1#10G,3/4"C		*		2#10, 1#10G,3/4"C	1	20	1	4	5 RCPTS
5 RCPTS	5	1	20	1	2#10, 1#10G,3/4"C			*	2#12, 1#12G,1/2"C	1	20	0.4	6	2 RCPTS
REF.	7	1.2	20	1	2#10, 1#10G,3/4"C	*			2#10, 1#10G,3/4"C	1	20	1	8	1 RCPTS
1 RCPT	9	1	20	1	2#10, 1#10G,3/4"C		*		2#10, 1#10G,3/4"C	1	20	1	10	1 RCPT
4 RCPTS	11	0.8	20	1	2#10, 1#10G,3/4"C			*	2#12, 1#12G,1/2"C	1	20	0.4	12	1 RCPT
4 RCPTS	13	0.8	20	1	2#10, 1#10G,3/4"C	*			2#12, 1#12G,1/2"C	1	20	0.6	14	3 RCPTS
3 RCPTS	15	0.6	20	1	2#12, 1#12G,1/2"C		*		2#10, 1#10G,3/4"C	1	20	0.8	16	4 RCPTS
2 RCPTS	17	0.4	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.4	18	1 RCPT
4 RCPTS	19	0.8	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	1.2	20	1.) E.D.F.
4 RCPTS	21	0.8	20	1	2#12, 1#12G,1/2"C		*		2#10, 1#10G,3/4"C	1	20	0.6	22	3 RCPTS
4 RCPTS	23	0.8	20	1	2#10, 1#10G,3/4"C			*	2#10, 1#10G,3/4"C	1	20	0.6	24	3 RCPTS
SPARE	25				-	*			2#12, 1#12G,1/2"C	1	20	0.8	26	4 RCPTS
TV	27	0.4	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.4	28	TV
SCREEN	29	0.6	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.6	30	3 RCPTS
1 RCPT	31	0.6	20	1	2#10, 1#10G,3/4"C	*			2#12, 1#12G,1/2"C	1	20	1	32	3RCPTS
HAND DRYER	33	2.3	25	1	2#8, 1#10G,3/4"C		*		2#10, 1#10G,3/4"C	1	25	2.3	34	HAND DRYER
2 RCPTS	35	0.6	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.6	36	2 RCPTS
2 RCPTS	37	0.6	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	0.6	38	2 RCPTS
DOORS	39	0.6	20	1	2#10, 1#10G,3/4"C		*		2#8, 1#10G,3/4"C	1	20	1.5	40	1 RCPT
LCC/PC	41	0.4	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	1.5	42	1 RCPT
IWH-4	43	2.4	30	1	2#6, 1#10G,1"C	*			2#6, 1#10G,1"C	2	30	2.1	44	IWH-1
LIGHTING	45	1.5	20	1	2#10, 1#10G,3/4"C		*		-			2.1	46	"
LIGHTING	47	1.2	20	1	2#8, 1#10G,3/4"C			*	2#10, 1#10G,3/4"C	1	20	1.4	48	LIGHTING
LIGHTING	49	1.5	20	1	2#10, 1#10G,3/4"C	*			2#10, 1#10G,3/4"C	1	20	0.9	50	LIGHTING
EXTERIOR LIGHTING	51	1.5	20	1	2#6, 1#10G,1"C		*		2#10, 1#10G,3/4"C	1	20	1	52	LIGHTING
EXTERIOR LIGHTING	53	1.5	20	1	2#6, 1#10G,1"C			*	2#12, 1#12G,1/2"C	1	20	1	54	LIGHTING
EF-C1	55	0.6	20	1	2#8, 1#10G,3/4"C	*			2#6, 1#10G,1"C	1	30	2.4	56	IWH-3
EF-C2	57	0.6	20	1	2#8, 1#10G,3/4"C		*		3#10, 1#10G,3/4"C	2	30	2.4	58	1 RCPT
3 RCPTS	59	0.6	20	1	2#12, 1#12G,1/2"C			*	-			2.4	60	"
1 RCPT	61	2.4	30	1	2#10, 1#10G,3/4"C	*			2#12, 1#12G,1/2"C	1	20	0.5	62	TELE. BOARD
1 RCPT	63	2.4	30	1	2#10, 1#10G,3/4"C		*		2#10, 1#10G,3/4"C	1	20	1	64	LIGHTING
EXTERIOR LIGHTING	65	0.9	20	1	2#10, 1#10G,3/4"C	*			2#12, 1#12G,1/2"C	1	20	1.5	66	1 RCPT
1 RCPT	67	1.5	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	1.5	68	1 RCPT
1 RCPT	69	1.5	20	1	2#12, 1#12G,1/2"C			*	-				70	SPACE
IWH-2	71	2.1	30	2	3#10, 1#10G,3/4"C	*			-				72	SPACE
"	73	2.1			-		*		-				74	SPACE
SPACE	75				-			*	-				76	SPACE
SPACE	77				-	*			-				78	SPACE
SPACE	79				-		*		-				80	SPACE
SIGN	81				-			*	-				82	SPACE
PARKING LIGHTING	83				-	*			-				84	SPACE
LOADS	-	(KVA)				23	27	17				(KVA)	-	DESCRIPTIVE LOADS
CONNECTED LOAD	-	66				KVA/PHASE						11	-	LIGHTING
RESERVE - %	25 %	17										49	-	RECEPTACLES
TOTAL LOAD	-	83										0	-	COOLING
												0	-	HEATING
												0	-	MOTOR
												0	-	KITCHEN
												6	-	OTHER
TOTAL AMPS	-	229												
NOTES:														
1) PROVIDE GROUND FAULT BREAKER														
2)														
3)														

PANEL: RB	AMP	LUGS	NEMA	V(LL)		(P)		(W)		V(LN)	MNT	KAIC	FDR	
LOCATION:	225	MLO	1	208	3%%C,			4W		120	SUR.	10	1-RUN 4#4/0, 1#4G, 3"C	
LOAD	CKT	LOAD	BKR	POLE	FEEDER/BRANCH CIRCUIT				FEEDER/BRANCH CIRCUIT	POLE	BKR	LOAD	CKT	LOAD
SERVED	#	KVA	SIZE		SIZE	A	B	C	SIZE		SIZE	KVA	#	SERVED
1 RCPT	1	1	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	1	2	1 RCPT
1 RCPT	3	1	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	1.2	4	REF.
4 RCPTS	5	0.8	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.8	6	4 RCPTS
3 RCPTS	7	0.6	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	0.6	8	3 RCPTS
3 RCPTS	9	0.6	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	1	10	5 RCPTS
1.) E.D.F.	11	1.2	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.6	12	3 RCPTS
4 RCPTS	13	0.8	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	0.4	14	1 RCPT
1.) E.D.F.	15	1.2	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.4	16	2 RCPTS
2 RCPTS	17	0.4	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	1	18	5 RCPTS
3 RCPTS	19	0.6	20	1	2#12, 1#12G,1/2"C	*			2#10, 1#10G,3/4"C	1	20	1.2	20	6RCPTS
3 RCPTS	21	0.6	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.6	22	3 RCPTS
3 RCPTS	23	0.6	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.6	24	3 RCPTS
3 RCPTS	25	0.6	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	0.6	26	3 RCPTS
4 RCPTS	27	0.8	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.8	28	4 RCPTS
HAND DRYER	29	2.3	25	1	2#10, 1#10G,3/4"C			*	2#10, 1#10G,3/4"C	1	25	2.3	30	HAND DRYER
SCREEN	31	0.6	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	1	32	1 RCPT
2 RCPTS	33	1	20	1	2#12, 1#12G,1/2"C		*		2#10, 1#10G,3/4"C	1	20	0.6	34	DOORS
2 RCPTS	35	0.6	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	1.2	36	VENDING
1 RCPT	37	1.5	20	1	2#10, 1#10G,3/4"C	*			2#12, 1#12G,1/2"C	1	20	1.2	38	VENDING
1 RCPT	39	1.5	20	1	2#10, 1#10G,3/4"C		*		2#12, 1#12G,1/2"C	1	20	0.4	40	LCB/PC
WH-1	41	1.5	20	1	2#10, 1#10G,3/4"C			*	2#6, 1#10G,1"C	1	30	2.4	42	SITE LIGHTING
LIGHTING	43	1.5	20	1	2#10, 1#10G,3/4"C	*			2#10, 1#10G,3/4"C	1	20	1.3	44	LIGHTING
LIGHTING	45	1.5	20	1	2#10, 1#10G,3/4"C		*		2#10, 1#10G,3/4"C	1	20	1.3	46	LIGHTING
EXTERIOR LIGHTING	47	1.5	20	1	2#8, 1#10G,3/4"C			*	2#6, 1#10G,1"C	1	20	1.5	48	EXTERIOR LIGHTING
LIGHTING	49	1	20	1	2#12, 1#12G,1/2"C	*			2#8, 1#10G,3/4"C	1	20	1.2	50	VAV DIF.
EF-B1	51	0.4	20	1	2#10, 1#10G,3/4"C		*		2#10, 1#10G,3/4"C	1	20	1	52	LIGHTING
EF-B2	53	0.4	20	1	2#10, 1#10G,3/4"C			*	2#8, 1#10G,3/4"C	1	20	1.5	54	EMERGENCY/EXITS
1 RCPT	55	1.5	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	1.5	56	1 RCPT
1 RCPT	57	1.5	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	1.5	58	1 RCPT
IWH-5	59	2.1	20	2	3#12, 1#12G,1/2"C			*	-	1	20		60	SPARE
"	61	2.1			-	*			-	1	20		62	SPARE
SPARE	63		20	1	-		*		-	1	20		64	SPARE
LOADS	-	(KVA)				22	19	23				(KVA)	-	DESCRIPTIVE LOADS
CONNECTED LOAD	-	64				KVA/PHASE						6	-	LIGHTING
RESERVE - %	25 %	16										52	-	RECEPTACLES
TOTAL LOAD	-	80										0	-	COOLING
												0	-	HEATING
												0	-	MOTOR
												0	-	KITCHEN
												6	-	OTHER
TOTAL AMPS	-	222												
NOTES:														
1) PROVIDE GROUND FAULT BREAKER														
2)														
3)														

PANEL: CC	AMP	LUGS	NEMA	V(LL)		(P)		(W)		V(LN)	MNT	KAIC	FDR	
LOCATION:	100	MB	1	208	3%%C,			4W		120	SUR.	10	1-RUN 4#2, 1#8G, 2"C	
LOAD	CKT	LOAD	BKR	POLE	FEEDER/BRANCH CIRCUIT				FEEDER/BRANCH CIRCUIT	POLE	BKR	LOAD	CKT	LOAD
SERVED	#	KVA	SIZE		SIZE	A	B	C	SIZE		SIZE	KVA	#	SERVED
3 CRCPTS	1	0.6	20	1	2#10, 1#10G,3/4"C	*			2#10, 1#10G,3/4"C	1	20	0.8	2	2 QCRCPTS
PROJECTOR	3	0.6	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.8	4	2 CRCPTS
2 CRCPTS	5	0.8	20	1	2#12, 1#12G,1/2"C			*	-	1	20		6	SPARE
SPARE	7		20	1	-	*			-	1	20		8	SPARE
4 CRCPTS	9	0.8	20	1	2#10, 1#10G,3/4"C		*		2#10, 1#10G,3/4"C	1	20	0.8	10	2 QCRCPTS
2 QCRCPTS	11	0.8	20	1	2#10, 1#10G,3/4"C			*	2#10, 1#10G,3/4"C	1	20	0.4	12	1 QCRCPT
2 QCRCPTS	13	0.4	20	1	2#10, 1#10G,3/4"C	*			2#12, 1#12G,1/2"C	1	20	0.5	14	PROJECTOR
EMERGENCY/EXITS	15	1.5	20	1	2#8, 1#10G,3/4"C		*		-				16	SPACE
SPACE	17				-			*	-				18	SPACE
SPACE	19				-	*			-				20	SPACE
SPACE	21				-		*		-				22	SPACE
SPACE	23				-			*	-				24	SPACE
SPACE	25				-	*			-				26	SPACE
SPACE	27				-		*		-				28	SPACE
SPACE	29				-			*	-				30	SPACE
SPACE	31				-	*			-				32	SPACE
SPACE	33				-		*		-				34	SPACE
SPACE	35				-			*	-				36	SPACE
SPARE	37		20	1	-	*			-	1	20		38	SPARE
SPARE	39		20	1	-		*		-	1	20		40	SPARE
SPARE	41		20	1	-			*	-	1	20		42	SPARE
LOADS	-	(KVA)				2	5	2				(KVA)	-	DESCRIPTIVE LOADS
CONNECTED LOAD	-	9				KVA/PHASE						2	-	LIGHTING
RESERVE	25 %	2										7	-	RECEPTACLES
TOTAL LOAD	-	11										0	-	COOLING
												0	-	HEATING
TOTAL AMPS	-	31										0	-	OTHER
NOTES:														
1)														
2)														
3)														

PANEL: CA	AMP	LUGS	NEMA	V(LL)		(P)		(W)		V(LN)	MNT	KAIC	FDR	
LOCATION:	100	MB	1	208	3%%C,			4W		120	SUR.	10	1-RUN 4#2, 1#8G, 2"C	
LOAD	CKT	LOAD	BKR	POLE	FEEDER/BRANCH CIRCUIT				FEEDER/BRANCH CIRCUIT	POLE	BKR	LOAD	CKT	LOAD
SERVED	#	KVA	SIZE		SIZE	A	B	C	SIZE		SIZE	KVA	#	SERVED
3 CRCPTS	1	0.6	20	1	2#10, 1#10G,3/4"C	*			2#10, 1#10G,3/4"C	1	20	0.8	2	4 CRCPTS
4 CRCPTS	3	0.8	20	1	2#10, 1#10G,3/4"C		*		2#12, 1#12G,1/2"C	1	20	0.6	4	2 CRCPTS
3 CRCPTS	5	0.6	20	1	2#10, 1#10G,3/4"C			*	2#12, 1#12G,1/2"C	1	20	0.6	6	2 CRCPTS
2 CRCPTS	7	0.6	20	1	2#12, 1#12G,1/2"C	*			-	1	20		8	SPARE
3 CRCPTS	9	0.6	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.8	10	4 CRCPTS
2 CRCPTS	11	0.6	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.8	12	4 CRCPTS
3 CRCPTS	13	1.5	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	0.6	14	2 CRCPTS
4 CRCPTS	15	1.5	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.6	16	2 CRCPTS
PROJECTOR	17	0.4	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.4	18	1 CRCPT
SPACE	19				-	*			-				20	SPACE
SPACE	21				-		*		-				22	SPACE
SPACE	23				-			*	-				24	SPACE
SPACE	25				-	*			-				26	SPACE
SPACE	27				-		*		-				28	SPACE
SPACE	29				-			*	-				30	SPACE
SPACE	31				-	*			-				32	SPACE
SPACE	33				-		*		-				34	SPACE
SPACE	35				-			*	-				36	SPACE
SPARE	37		20	1	-	*			-	1	20		38	SPARE
SPARE	39		20	1	-		*		-	1	20		40	SPARE
SPARE	41		20	1	-			*	-	1	20		42	SPARE
LOADS	-	(KVA)				4	5	3				(KVA)	-	DESCRIPTIVE LOADS
CONNECTED LOAD	-	12				KVA/PHASE						0	-	LIGHTING
RESERVE	25 %	3										12	-	RECEPTACLES
TOTAL LOAD	-	16										0	-	COOLING
												0	-	HEATING
TOTAL AMPS	-	43										0	-	OTHER
NOTES:														
1)														
2)														
3)														

PANEL: RA	AMP	LUGS	NEMA	V(LL)		(P)		(W)		V(LN)	MNT	KAIC	FDR	
LOCATION:	225	MLO	1	208	3%%C,			4W		120	SUR.	10	1-RUN 4#4/0, 1#4G, 3"C	
LOAD	CKT	LOAD	BKR	POLE	FEEDER/BRANCH CIRCUIT				FEEDER/BRANCH CIRCUIT	POLE	BKR	LOAD	CKT	LOAD
SERVED	#	KVA	SIZE		SIZE	A	B	C	SIZE		SIZE	KVA	#	SERVED
6 RCPTS	1	1.2	20	1	2#10, 1#10G,3/4"C	*			2#10, 1#10G,3/4"C	1	20	0.8	2	4 RCPTS
4 RCPTS	3	0.8	20	1	2#10, 1#10G,3/4"C		*		2#12, 1#12G,1/2"C	1	20	0.4	4	2 RCPTS
3 RCPTS	5	0.6	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.8	6	4 RCPTS
4 RCPTS	7	0.8	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	1	8	5 RCPTS
4 RCPTS	9	0.8	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	1	10	5 RCPTS
2 RCPTS	11	0.4	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.8	12	4 RCPTS
1 RCPT	13	0.4	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	0.6	14	3 RCPTS
3 RCPTS	15	0.6	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.4	16	PROJECTOR SCREEN
2 RCPTS	17	0.4	20	1	2#12, 1#12G,1/2"C			*	2#10, 1#10G,3/4"C	1	20	1.2	18	LIGHTING
LIGHTING	19	0.7	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	1.2	20	LIGHTING
LIGHTING	21	1	20	1	2#10, 1#10G,3/4"C		*		2#10, 1#10G,3/4"C	1	20	0.8	22	LIGHTING
LIGHTING	23	1.1	20	1	2#10, 1#10G,3/4"C			*	2#12, 1#12G,1/2"C	1	20	0.6	24	3 RCPTS
2 RCPTS	25	0.4	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	1	26	1 RCPT
1 RCPT	27	1	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	1	28	1 RCPT
3 RCPTS	29	0.6	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.6	30	PRINTER
1 RCPT	31	1.5	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	1.2	32	3 RCPTS
DOORS	33	0.6	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.4	34	DAMPER
LCA/PC	35	0.4	20	1	2#12, 1#12G,1/2"C			*	-				36	SPARE
EXTERIOR LIGHTING	37	1.5	20	1	2#12, 1#12G,1/2"C	*			2#8, 1#10G,3/4"C	1	20	1.5	38	EXTERIOR LIGHTING
PARKING LIGHTING	39	0.8	20	1	3#8, 1#10G, 1"C		*		2#10, 1#10G,3/4"C	1	20	0.4	40	EXTERIOR LIGHTING
PARKING LIGHTING	41	0.8	20	1	2#12, 1#12G,1/2"C			*	2#10, 1#10G,3/4"C	1	20	1.2	42	EXTERIOR LIGHTING
SPACE	43				3#8, 1#10G, 1"C	*			3#10, 1#10G,3/4"C	2	30	2.4	44	1 RCPT
SPACE	45				-		*		-			2.4	46	"
3 RCPTS	47	0.6	20	1	2#12, 1#12G,1/2"C			*	2#10, 1#10G,3/4"C	1	30	2.4	48	1 RCPT
1 QRCPT	49	0.6	20	1	2#12, 1#12G,1/2"C	*			2#10, 1#10G,3/4"C	1	30	2	50	1 RCPT
4 RCPTS	51	0.8	20	1	2#12, 1#12G,1/2"C		*		2#10, 1#10G,3/4"C	1	20	1	52	LIGHTING
EMERGENCY/EXITS	53	1.5	20	1	2#8, 1#10G,3/4"C			*	2#12, 1#12G,1/2"C	1	20	1.5	54	1 RCPT
1 RCPT	55	1.5	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	1.5	56	1 RCPT
1 RCPT	57	1.5	20	1	2#12, 1#12G,1/2"C		*		-				58	SPACE
IWH-6	59	2.1	30	2	3#10, 1#10G,3/4"C			*	-	1	20		60	SPARE
"	61	2.1			-	*			-	1	20		62	SPARE
SPARE	63		20	1	-		*		-	1	20		64	SPARE
LOADS	-	(KVA)				24	16	18				(KVA)	-	DESCRIPTIVE LOADS
CONNECTED LOAD	-	58				KVA/PHASE						14	-	LIGHTING
RESERVE - %	25 %	14										44	-	RECEPTACLES
TOTAL LOAD	-	72										0	-	COOLING
												0	-	HEATING
												0	-	MOTOR
												0	-	KITCHEN
												0	-	OTHER
TOTAL AMPS	-	201												
NOTES:														
1)														
2)														
3)														

PANEL: CB	AMP	LUGS	NEMA	V(LL)		(P)		(W)		V(LN)	MNT	KAIC	FDR	
LOCATION:	100	MB	1	208	3%%C,			4W		120	SUR.	10	1-RUN 4#2, 1#8G, 2"C	
LOAD	CKT	LOAD	BKR	POLE	FEEDER/BRANCH CIRCUIT				FEEDER/BRANCH CIRCUIT	POLE	BKR	LOAD	CKT	LOAD
SERVED	#	KVA	SIZE		SIZE	A	B	C	SIZE		SIZE	KVA	#	SERVED
4 CRCPTS	1	0.8	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	0.4	2	1 QCRCPT
3 CRCPTS	3	0.6	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.6	4	PROJECTOR
SPARE	5		20	1	-			*	-	1	20		6	SPARE
SPARE	7		20	1	-	*			2#12, 1#12G,1/2"C	1	20	0.4	8	2 CRCPTS
4 CRCPTS	9	0.8	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.8	10	4 CRCPTS
4 CRCPTS	11	0.8	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.8	12	4 CRCPTS
4 CRCPTS	13	0.8	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	0.8	14	4 CRCPTS
1 RCPT	15	2.4	30	2	3#10, 1#10G,3/4"C		*		2#12, 1#12G,1/2"C	1	20	0.4	16	2 RCPTS
"	17	2.4			-			*	-	1	20		18	SPARE
1 RCPT	19	2.5	30	1	2#10, 1#10G,3/4"C	*			-				20	SPACE
1 RCPT	21	2.5	30	1	2#10, 1#10G,3/4"C		*		-				22	SPACE
SPACE	23				-			*	-				24	SPACE
SPACE	25				-	*			-				26	SPACE
SPACE	27				-		*		-				28	SPACE
SPACE	29				-			*	-				30	SPACE
SPACE	31				-	*			-				32	SPACE
SPACE	33				-		*		-				34	SPACE
SPACE	35				-			*	-				36	SPACE
SPARE	37		20	1	-	*			-	1	20		38	SPARE
SPARE	39		20	1	-		*		-	1	20		40	SPARE
SPARE	41		20	1	-			*	-	1	20		42	SPARE
LOADS	-	(KVA)				6	8	4				(KVA)	-	DESCRIPTIVE LOADS
CONNECTED LOAD	-	18				KVA/PHASE						0	-	LIGHTING
RESERVE	25 %	4										18	-	RECEPTACLES
TOTAL LOAD	-	22										0	-	COOLING
												0	-	HEATING
TOTAL AMPS	-	62										0	-	OTHER
NOTES:														
1)														
2)														
3)														

TRINITY
MEP ENGINEERING

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Texas Registered Engineering Firm - F10362
Project number: 16.1.01

SHEET NO. E10.1
OF
SET NUMBER

REVISED:

DATE: 09/30/16
DRAWN BY: TC
PROJECT NO.:16.1.01

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09/30/16
STATE OF TEXAS
LEONARDO MUNOZ

BROWNSVILLE NAVIGATION DISTRICT
OF CAMERON COUNTY, TEXAS
PORT OF BROWNSVILLE
• WORLD CLASS •

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
ELECTRICAL PANELS

PANEL: DPR	AMP	LUGS	NEMA	V(LL)		(P)		(W)			V(LN)	MNT	KAIC	FDR	
LOCATION:	400	MLO	1	208	3%%C,			4W			120	SUR.	10	1-RUN 4#600KCMIL, 1#3G, 4"C	
LOAD	CKT	LOAD	BKR	POLE	FEEDER/BRANCH CIRCUIT				FEEDER/BRANCH CIRCUIT	POLE	BKR	LOAD	CKT	LOAD	
SERVED	#	KVA	SIZE		SIZE	A	B	C	SIZE		SIZE	KVA	#	SERVED	
PANEL-PR	1	15	225	3	4#4/0, 1#4G,3"C	*			4#6, 1#10G,1"C	3	45	5.2	2	RTU-PR1	
"	3	12			-		*		-			5.2	4	"	
"	5	12			-			*	-			5.2	6	"	
RTU-PR2	7	5.2	45	3	4#6, 1#10G,1"C	*			4#6, 1#10G,1"C	3	45	5.2	8	RTU-PR3	
"	9	5.2			-		*		-			5.2	10	"	
"	11	5.2			-			*	-			5.2	12	"	
1 RCPT	13	2.4	30	2	3#10, 1#10G,3/4"C	*			3#8, 1#10G, 1"C	1	20	0.8	14	PARKING LIGHTING	
"	15	2.4			-		*		-	1	20		16	SPARE	
1 RCPT	17	2.5	30	1	2#10, 1#10G,3/4"C			*	2#12, 1#12G,1/2"C	1	20	0.6	18	3 RCPTS	
1 RCPT	19	2.5	30	1	2#10, 1#10G,3/4"C	*			3#8, 1#10G,3/4"C	2	20	0.6	20	FCCU-PR1	
WH-2	21	1.5	25	1	2#10, 1#10G,3/4"C		*		-			0.6	22	"	
SPACE	23				-			*	-				24	SPACE	
SPACE	25				-	*			-				26	SPACE	
SPACE	27				-		*		-				28	SPACE	
SPACE	29				-			*	-				30	SPACE	
SPACE	31				-	*			-				32	SPACE	
SPACE	33				-		*		-				34	SPACE	
SPACE	35				-			*	-				36	SPACE	
SPACE	37				-	*			-				38	SPACE	
SPACE	39				-		*		-				40	SPACE	
SPACE	41				-			*	-				42	SPACE	
LOADS	-	(KVA)				37	32	31				(KVA)	-	DESCRIPTIVE LOADS	
CONNECTED LOAD	-	100				KVA/PHASE						1	-	LIGHTING	
RESERVE	25 %	25										10	-	RECEPTACLES	
TOTAL LOAD	-	125										48	-	COOLING	
												0	-	HEATING	
TOTAL AMPS	-	346										41	-	OTHER	

NOTES:
1)
2)
3)

PANEL: PR	AMP	LUGS	NEMA	V(LL)		(P)		(W)			V(LN)	MNT	KAIC	FDR	
LOCATION:	225	MLO	1	208	3%%C,			4W			120	SUR.	10	1-RUN 4#4/0, 1#4G, 3"C	
LOAD	CKT	LOAD	BKR	POLE	FEEDER/BRANCH CIRCUIT				FEEDER/BRANCH CIRCUIT	POLE	BKR	LOAD	CKT	LOAD	
SERVED	#	KVA	SIZE		SIZE	A	B	C	SIZE		SIZE	KVA	#	SERVED	
VENDING	1	1	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	1	2	VENDING	
VENDING	3	1	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	1	4	VENDING	
5 RCPTS	5	1	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	1.2	6	1.) E.D.F.	
3 RCPTS	7	0.6	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	0.4	8	2 RCPTS	
2 QCRCPTS	9	1	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.6	10	3 RCPTS	
2 RCPTS	11	0.4	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.8	12	4 RCPTS	
1 RCPT	13	0.4	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	0.4	14	2 RCPTS	
4 QCRCPTS	15	1	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.8	16	4 RCPTS	
4 RCPTS	17	0.8	20	1	2#12, 1#12G,1/2"C			*	2#12, 1#12G,1/2"C	1	20	0.6	18	3 RCPTS	
5 RCPTS	19	1	20	1	2#12, 1#12G,1/2"C	*			2#12, 1#12G,1/2"C	1	20	1	20	LIGHTING	
LIGHTING	21	1.1	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.9	22	LIGHTING	
LIGHTING	23	1.3	20	1	2#12, 1#12G,1/2"C			*	2#6, 1#10G, 1"C	1	20	1.4	24	EXTERIOR LIGHTING	
EMERGENCY/EXITS	25	1	20	1	2#8, 1#10G,3/4"C	*			2#10, 1#10G,3/4"C	1	20	0.6	26	DOOR	
1 RCPT	27	1.5	20	1	2#8, 1#10G,3/4"C		*		2#8, 1#10G,3/4"C	1	20	1.5	28	1 RCPT	
1 RCPT	29	1.5	20	1	2#8, 1#10G,3/4"C			*	2#12, 1#12G,1/2"C	1	20	0.4	30	LCR/PC	
HAND DRYER	31	2.3	25	1	2#10, 1#10G,3/4"C	*			2#10, 1#10G,3/4"C	1	25	2.3	32	HAND DRYER	
4 RCPTS	33	0.8	20	1	2#12, 1#12G,1/2"C		*		2#12, 1#12G,1/2"C	1	20	0.4	34	FACP	
IWH-7	35	2.1	30	2	3#10, 1#10G,3/4"C			*	2#12, 1#12G,1/2"C	1	20	0.6	36	1 RCPT	
"	37	2.1			-	*			2#12, 1#12G,1/2"C	1	20	1.2	38	LIGHTING	
SPARE	39		20	1	-		*		-	1	20		40	SPARE	
SPARE	41		20	1	-			*	-	1	20		42	SPARE	
LOADS	-	(KVA)				15	12	12				(KVA)	-	DESCRIPTIVE LOADS	
CONNECTED LOAD	-	39				KVA/PHASE						8	-	LIGHTING	
RESERVE	25 %	10										27	-	RECEPTACLES	
TOTAL LOAD	-	49										0	-	COOLING	
												0	-	HEATING	
TOTAL AMPS	-	135										4	-	OTHER	

NOTES:
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2)
3)

GENERAL NOTES:

A. PROVIDE GROUND /BONDING AS INDICATED ON THE NATIONAL ELECTRICAL CODE.

B. NAME PLATES SHALL BE PROVIDED FOR ALL ELECTRICAL SWITCH GEAR, PANEL BOARDS, LIGHTING CONTACTORS, LIGHTING CONTROL PANELS, ETC., BY ELECTRICAL CONTRACTOR.

C. NEW ELECTRICAL METERING AND SERVICE EQUIPMENT SHALL BE PROVIDED AND INSTALLED ACCORDING TO THE LOCAL POWER UTILITY CO. AND CITY REQUIREMENTS. VERIFY AND COORDINATE WITH POWER UTILITY CO. AND AHJ BEFORE BID AND INSTALLATION.

D. COMPLY WITH NFPA 70E SAFETY REQUIREMENTS.

E. PANELBOARDS WITH MORE THAN 42 CIRCUITS SHALL BE IN ONE CABINET ENCLOSURE, UNLESS OTHERWISE NOTED.

F. PROVIDE 4"CONCRETE PAD FOR ALL DRY-TYPE TRANSFORMERS.

G. ALL TWO SECTION PANELBOARDS SHALL BE FEED THRU LUGS.

H. CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY OF ELECTRICAL SERVICE TO THE NEW BUILDING WITHIN PROJECT SCHEDULE. COORDINATE ALL COST FOR LABOR AND MATERIALS WITH LOCAL ELECTRICAL UTILITY COMPANY PRIOR TO BID. ALL COST ASSOCIATED WITH THE DELIVERY OF ELECTRICAL SERVICE INCLUDING ALL MATERIALS SHALL BE INCLUDED IN BID. TRANSITION OF NEW ELECTRICAL SERVICE SHALL PROCEED IN WEEKENDS OR HOLIDAYS, INCLUDE ALL COST IN BID FOR OVERTIME FROM ELECTRIC UTILITY COMPANY. NO ADDITIONAL PAYMENT WILL BE MADE FOR SERVICE DELIVERY COSTS AFTER CONTRACT HAS BEEN AWARDED.

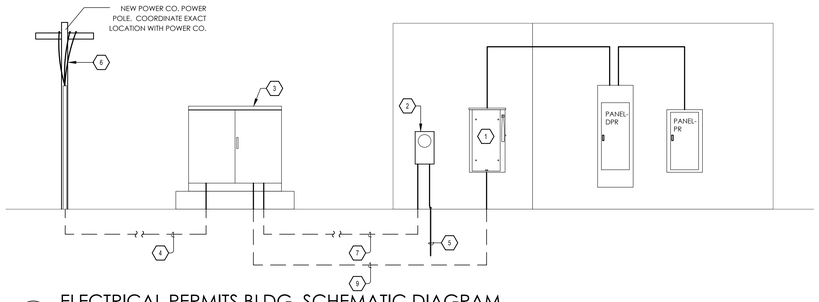
ELECTRICAL RISER DIAGRAM KEYED NOTES:

1. PROVIDE 400AMPS, 208V, 3Ø, 4W, S/N, NSR, HEAVY DUTY FUSED SERVICE ENTRANCE DISCONNECT, FUSED@400AMPS.
2. NEW ELECTRICAL SERVICE METER 120/208V, 3Ø, 4W. CONTRACTOR SHALL PROVIDE METER BASE. VERIFY WITH POWER FOR METER BASE REQUIREMENTS PRIOR TO BID DATE. INCLUDE ALL COST IN BID. COORDINATE ALLOCATION OF METER SOCKET AND WIRING WITH POWER COMPANY.
3. NEW POWER COMPANY PAD MOUNT TRANSFORMER 120/208V, 3Ø, 4W, PROVIDE CONCRETE PAD AS PER POWER COMPANY REQUIREMENTS.
4. FURNISH AND INSTALL 1-4"C FOR UTILITY PRIMARY RACEWAY TO POWER SOURCE AS DIRECTED BY UTILITY COMPANY. PROVIDE WARNING RIBBONS 12" ABOVE CONDUIT.
5. 1#1/0G IN 1"C, 3/4"X10' COPPER CLAD RODS. PROVIDE GROUNDING AS PER NEC REQUIREMENTS.
6. NEW POWER COMPANY POLE WITH RISER DIP POLE. COORDINATE WITH POWER COMPANY FOR ALL REQUIREMENTS.
7. PROVIDE 4-RUNS EACH 4#600KCMIL, 4"C.
8. PROVIDE 1-2"C WITH PULLSTRING.
9. PROVIDE 4-RUNS EACH 4#600KCMIL,1#1/0G, 4"C.

PERMITS BUILDING
208/120V, 3Ø, 4W ELECTRICAL LOAD ANALYSIS

DISCRIPTION	TOTAL KVA
LIGHTING	8
GENERAL POWER	37
A/C	48
WATER HEATER	7.5

TOTAL WATTS:	100.5 KVA
TOTAL AMPS:	279.2 AMPS
TOTAL AMPS+25%:	349 AMPS
WIRE SIZE AMPS:	400 AMPS



1 ELECTRICAL PERMITS BLDG. SCHEMATIC DIAGRAM
SCALE: NTS

SHEET NO. E10.2
OF
SET NUMBER
REVISED:
DATE: 09/30/16
DRAWN BY: TC
PROJECT NO.:16.1.01

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09/30/16
STATE OF TEXAS
LEONARDO MUNOZ
87017
REGISTERED PROFESSIONAL ENGINEER

PORT OF BROWNSVILLE
WORLD CLASS
NAVIGATION DISTRICT OF CAMERON COUNTY, TEXAS

PROJECT: ADMINISTRATION COMPLEX REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE: ELECTRICAL PANELS

TRINITY
MEP ENGINEERING
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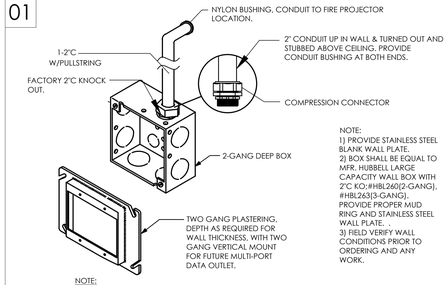
Texas Registered Engineering Firm - F10362
Project number: 16.1.01

01



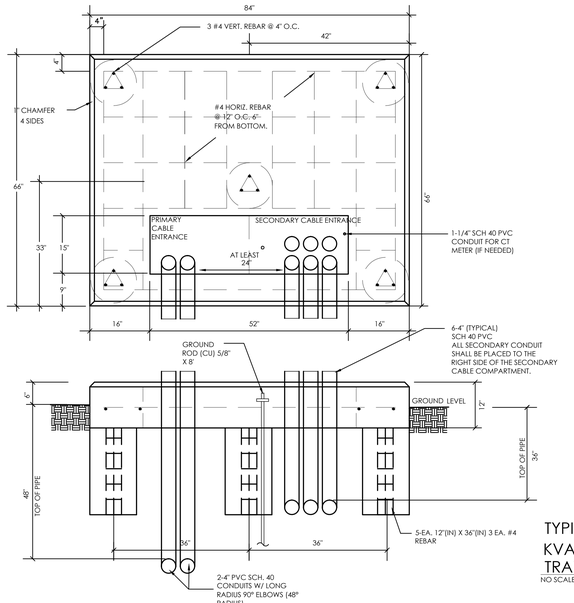
NOTE:
1) PROVIDE STAINLESS STEEL BLANK WALL PLATE.
2) BOX SHALL BE EQUAL TO MFR. HUBBELL LARGE CAPACITY WALL BOX WITH 2"C KO;#HBL260(2-GANG), #HBL263(3-GANG). PROVIDE PROPER MUD RING AND STAINLESS STEEL WALL PLATE. .
3) FIELD VERIFY WALL CONDITIONS PRIOR TO ORDERING AND ANY WORK.

NOTE:
1. PROVIDE TWO GANG STAINLESS STEEL BLANK WALL PLATE.

SYMBOL

AUDIO/VIDEO DROP DETAIL
NO SCALE

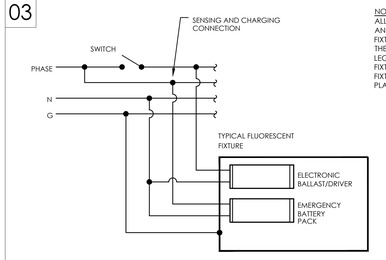
02



NOTE:
1. USE 3000 P.S.I. CONCRETE.
2. SLAB THICKNESS TO BE 12" MINIMUM.
3. ALL REINFORCING STEEL TO BE 3" BELOW TOP OF PAD.
4. 1 1/4" MIN PVC CONDUIT FOR CT'S WIRES @ SEC. CABLE ENTRANCE TO METER LOCATION.
5. COMPACT SOIL LINE 95% BEFORE INSTALLING CONCRETE PAD.
6. ALL MATERIALS PROVIDED AND INSTALLED BY THE CUSTUMER.

TYPICAL CONCRETE PAD FOR 45 TO 500 KVA 3 PHASE PAD-MOUNT TRANSFORMER (UD-16)
NO SCALE

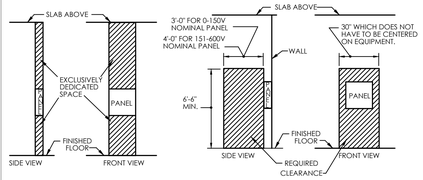
03



NOTE:
ALL EXIT LIGHT FIXTURE AND EMERGENCY FIXTURES SHALL BE ON THE NON-SWITCHED LEG. REFER TO LIGHT FIXTURE SCHEDULE FOR FIXTURE TYPE AND PLANS.

TYPICAL EMERGENCY LIGHT FIXTURE SCHEMATIC
NO SCALE

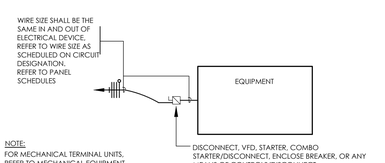
04



NOTE:
REFER TO THE LATEST NATIONAL ELECTRICAL CODE AND LOCAL CODES.

TYPICAL PANEL BOARD REQUIRED CLEARANCE
NO SCALE

05



NOTE:
FOR MECHANICAL TERMINAL UNITS, REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE

EQUIPMENT CIRCUIT DETAIL
NO SCALE

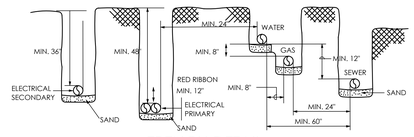
06

CLEAR TRENCH OF ALL ROCKS AND DEBRIS BEFORE ADDING SAND CUSHION.

COMPACT TRENCH FILL TO 95% PROCTOR DENSITY.

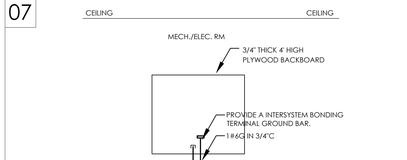
MAINTAIN A MINIMUM OF 60 INCHES UNDISTURBED EARTH BETWEEN PARALLEL WATER AND SEWER LINES OR SUPPORT WATER LINE ON SEPARATE SHELF A MINIMUM OF 12" ABOVE SEWER LINE.

MAINTAIN A MINIMUM OF 24" HORIZONTALLY BETWEEN ELECTRICAL PRIMARY AND SEWER. MAINTAIN A MINIM OF 12" VERTICALLY OR 24" HORIZONTALLY BETWEEN ELECTRICAL PRIMARY AND WATER LINES, GAS LINES, TELEPHONE RACEWAYS AND CABLE RACEWAYS.



TRENCH DETAIL
NO SCALE

07

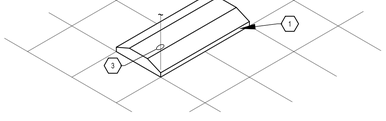


TELE/DATA RISER
NO SCALE

08

KEYED NOTES:

1. 2'x 4' LAY-IN FLUORESCENT FIXTURE
2. SUSPENDED CEILING
3. TIE WIRE, CONNECT TO ALL FOUR CORNERS OF FIXTURE TO TOP OF STRUCTURE, INDEPENDENT OF CEILING SUPPORTS.

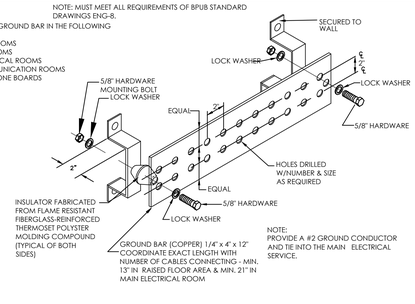


TYPICAL LAY-IN FIXTURE SUPPORT
NO SCALE

09

NOTE: MUST MEET ALL REQUIREMENTS OF BPUB STANDARD DRAWINGS ENG-8.

PROVIDE GROUND BAR IN THE FOLLOWING ROOMS:
1. MDF ROOMS
2. IDF ROOMS
3. ELECTRICAL ROOMS
4. COMMUNICATION ROOMS
5. TELEPHONE BOARDS

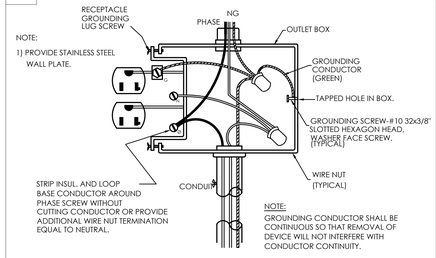


NOTE:
PROVIDE A #2 GROUND CONDUCTOR AND TIE INTO THE MAIN ELECTRICAL SERVICE.

WALL MOUNTED SINGLE-POINT GROUND BAR DETAIL
NO SCALE

10

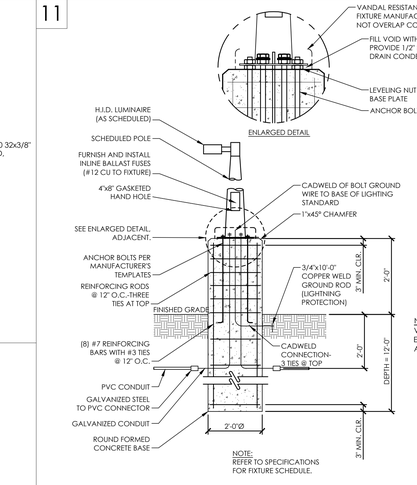
NOTE:
1) PROVIDE STAINLESS STEEL WALL PLATE.



NOTE:
GROUNDING CONDUCTOR SHALL BE CONTINUOUS SO THAT REMOVAL OF DEVICE WILL NOT INTERFERE WITH CONDUCTOR CONTINUITY.

TYPICAL RECEPTACLE GROUNDING DETAIL
NO SCALE

11

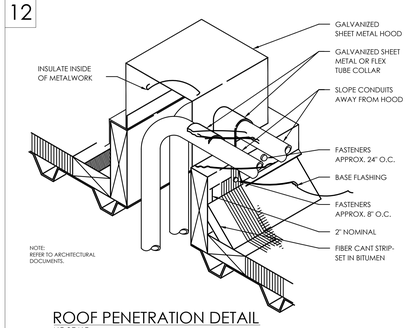


NOTE:
VERIFY WITH STRUCTURE ENGINEER PRIOR TO ANY WORK.

NOTE:
REFER TO SPECIFICATIONS FOR FIXTURE SCHEDULE.

PARKING LOT LIGHT POLE BASE
NO SCALE

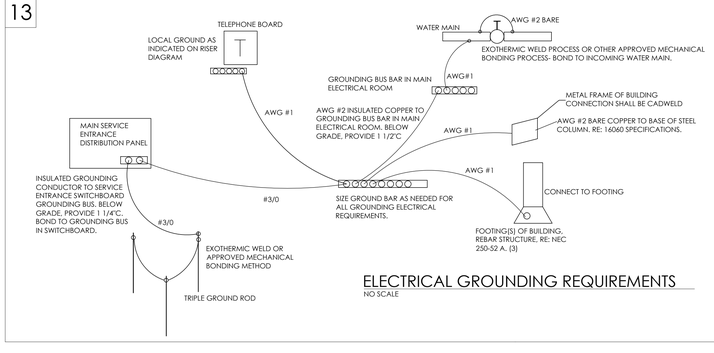
12



NOTE:
REFER TO ARCHITECTURAL DOCUMENTS.

ROOF PENETRATION DETAIL
NO SCALE

13



ELECTRICAL GROUNDING REQUIREMENTS
NO SCALE

SHEET NO. E11.1
OF
SET NUMBER
REVISED:
DATE: 09/30/16
DRAWN BY: TC
PROJECT NO.:16.1.01

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09/30/16
STATE OF TEXAS
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PORT OF BROWNSVILLE
•WORLD CLASS•

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
ELECTRICAL DETAILS

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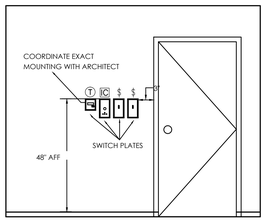
Project number: 16.1.01

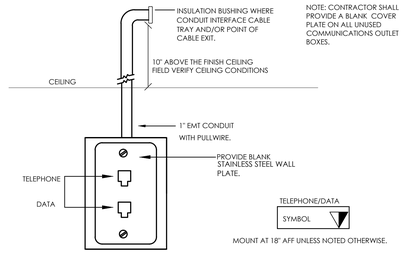
01

NOTE:
VERIFY WITH DIVISION-15 FOR THERMOSTAT LOCATION AND HEIGHT.



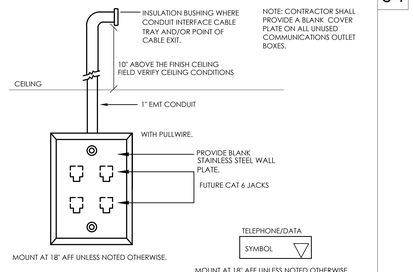
SWITCH PLATE LOCATION DETAIL
NO SCALE

02



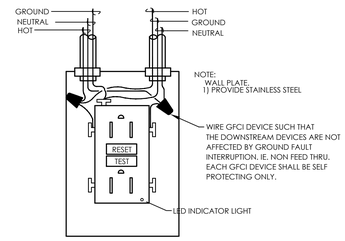
TELEPHONE/ DATA DETAIL
NO SCALE

03



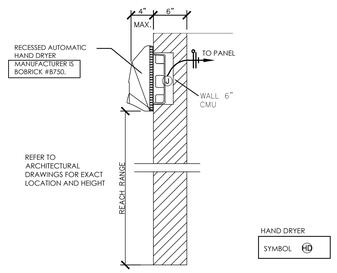
DATA DETAIL
NO SCALE

04



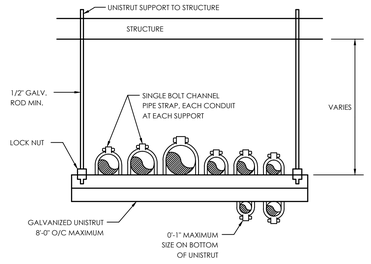
GFI RECEPTACLE- WIRING DIAGRAM
NO SCALE

05



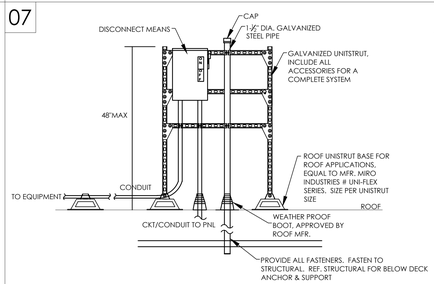
HAND DRYER DETAIL
NO SCALE

06



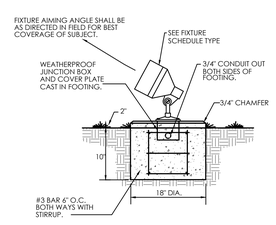
SUPPORT DETAIL FOR MULTIPLE CONDUIT HORIZONTAL RUNS
NO SCALE

07



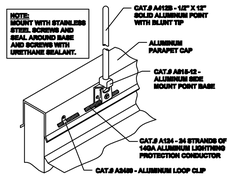
ROOF TOP STRUCTURAL DISCONNECT SUPPORT
NO SCALE

08



LIGHT FIXTURE TYPE-FF/GG,JJ MOUNTING DETAIL
NO SCALE

09

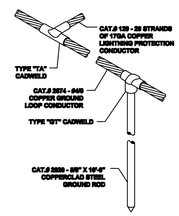


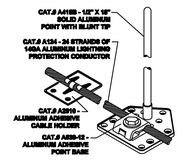
SPECIFIC NOTES:

1. LOWER ROOF IS UNDER ZONE OF PROTECTION CREATED BY HIGHER PROTECTED ROOFS.
2. CAT.# 2674 - 4/0 19 STRAND BARE COPPER GROUND LOOP CONDUCTOR INSTALLED MIN. 1' BELOW GRADE AND 2' FROM BUILDING FOUNDATION.

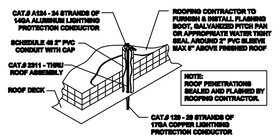
LIGHTNING PROTECTION DESIGN IS FOR INTENT ONLY. ACTUAL DESIGN SHALL BE PERFORMED BY A LICENSED LIGHTNING PROTECTION CONTRACTOR FROM THE WORKING DRAWINGS AND SPECIFICATIONS

DESIGN UTILIZES ALUMINUM COMPONENTS ABOVE THE ROOF IN ORDER TO BE COMPATIBLE WITH ALUMINUM / GALVANIZED PARAPET CAP / FLASHING AS REQUIRED BY LIGHTNING PROTECTION CODES AND LIGHTNING PROTECTION SPECIFICATION SECTION 19976 PART 2 PARAGRAPH 2.05.C.



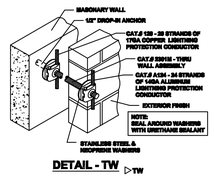


DETAIL - A ●A



DETAIL - T □T

NOTE: CERTIFIED LICENSED LIGHTNING PROTECTION CONTRACTOR IS RESPONSIBLE TO PROVIDE A COMPLETE AND UL LISTED DESIGN AND INSTALLATION TO MEET OR EXCEED UL96 AND UL96A. CONTRACTOR IS RESPONSIBLE TO PROVIDE MATERIAL FOR THE TYPE OF EXISTING SITE COASTAL ENVIRONMENT.



DETAIL - TW ▷TW

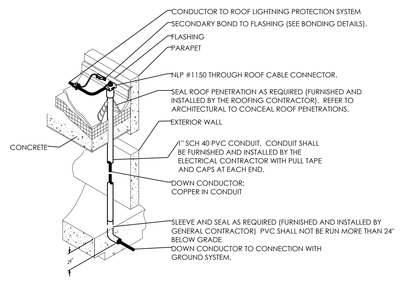
DETAIL - G

DETAIL - B ●B

ADHERE TO ROOF WITH APPROVED ADHESIVE THAT SHALL BE COORDINATED IN THE FIELD.

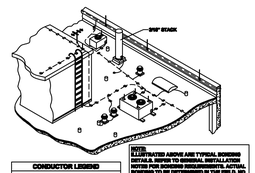
TYPICAL LIGHTNING PROTECTION DETAILS
NO SCALE

10



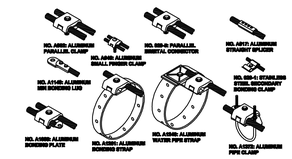
CONCEALED DOWN CONDUCTOR
NO SCALE

11



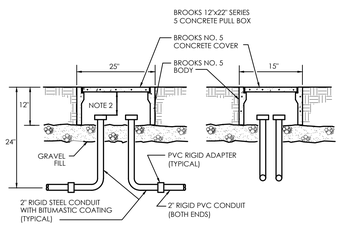
TYPICAL LIGHTNING PROTECTION ROOF SYSTEM DETAIL
NO SCALE

12



TYPICAL BONDING & SPLICING EQUIPMENT
NO SCALE

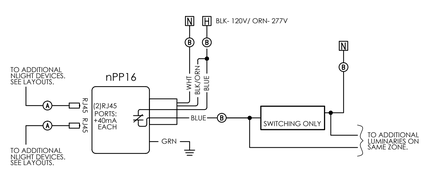
13



NOTES:
1. SEE PLAN FOR CONDUIT ORIENTATION
2. VARIES - MIN. 6', MAX-9'

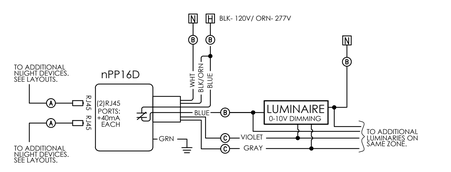
TYPICAL PULLBOX DETAIL
NO SCALE

14



TYPICAL WIRING DIAGRAM: NPP16
NO SCALE

15



TYPICAL WIRING DIAGRAM: NPP16 D
NO SCALE

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Project number: 16.1.01

SHEET TITLE:
ELECTRICAL DETAILS

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITION
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE, TEXAS

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09/30/16
STATE OF TEXAS
LEONARDO MUNOZ
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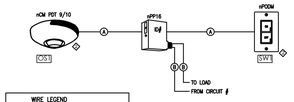
ENGINEER

PORT OF BROWNSVILLE
•WORLD CLASS•
THE PORT OF BROWNSVILLE IS AN EQUAL OPPORTUNITY EMPLOYER
PORT OF CAMERON COUNTY, TEXAS

SHEET NO.	E12.1
OF	
SET NUMBER	
REVISED:	
DATE: 09/30/16	
DRAWN BY: TC	
PROJECT NO.:16.1.01	

01



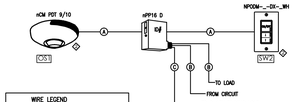
WIRE LEGEND
- (A) CAT 5 (LOW VOLTAGE)
- (B) CLASS 1 (2)#12, 1(#20,1/2"C)
- (C) CLASS 2 (2)#12, 1(#20,1/2"C)
- (D) ETHERNET LAN (LOW VOLTAGE)

KEY NOTES:
1. QUANTITY OF FIXTURES MAY VARY.
2. DEVICES REQUIRE BUS POWER; PROVIDED BY DEVICES SUCH AS MASTER POWER PACK (nPP DEVICE)
3. BUS POWER PROVIDED BY LED nLIGHT ENABLED FIXTURES IN SPACE.
4. PROGRAMMING IS NECESSARY IF ROOMS ARE BROKEN DOWN INTO ZONES. EMBEDDED CONTROLS REQUIRE n100 OR OTHER FACTORY-INSTALLED nLIGHT DEVICE.
5. VERIFY DIMMING TYPES: ELV, MLV, 2-WIRE, 3-WIRE, 4-WIRE, INCANDESCENT AVAILABLE. DIMMING DEVICE MAY REQUIRE ADDITIONAL BUS POWER TO OPERATE (NPS80 / NPS150 / OTHER SELF POWERED POWER PACK)
6. 0-10V DIMMING ONLY (MARK VII DIMMING BALLAST OR 0-10VDC DIMMING DRIVER)
7. nLIGHT EMBEDDED CONTROLS WITH EMERGENCY GENERATOR/INVERTER INPUT. FIXTURES TO OPERATE AT FULL BRIGHT IN EVENT OF NORMAL POWER LOSS. CONTROL DEVICES ARE DIABLED UNTIL NORMAL POWER IS RESTORED. SEE SPECIFICATIONS FOR POWER REQUIREMENTS.
8. nPP16 ER RELAYS DO NOT PROVIDE BUS POWER FOR nLIGHT DEVICES IN NETWORK DAISY CHAIN.
9. ALL THE CAT-5 CABLE SHALL BE DONE BY A QUALIFIED CERTIFED INSTALLER TO ASSURE THE CABLE TERMINATIONS ARE DONE PROPERLY PER MFR RECOMMENDATIONS.
10. CONTRACTOR SHALL INCLUDE ALL COST TO HAVE A PRE-INSTALLATION MEETING WITH MANUFACTURER TO ASSURE ALL THE INSTALLATION REQUIREMENTS ARE DONE PER MANUFACTURER.

GENERAL NOTES:
1. SEE SPECS FOR LIMITATIONS ON DEVICES PER CAT5 RUN.
2. SEE LIMITATION OF GATEWAY AND BRIDGE FOR DEVICES PER PORT.
3. ALL SCENARIOS SHOW A MANUAL OVERRIDE OPTION.
4. NPP (NON-EMERGENCY) DEVICES PROVIDE UP TO 40mA BUS POWER PER PORT.

LIGHTING SENSOR SCHMETIC DIAGRAM
NO SCALE

02



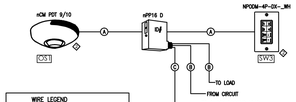
WIRE LEGEND
- (A) CAT 5 (LOW VOLTAGE)
- (B) CLASS 1 (2)#12, 1(#20,1/2"C)
- (C) CLASS 2 (2)#12, 1(#20,1/2"C)
- (D) ETHERNET LAN (LOW VOLTAGE)

KEY NOTES:
1. QUANTITY OF FIXTURES MAY VARY.
2. DEVICES REQUIRE BUS POWER; PROVIDED BY DEVICES SUCH AS MASTER POWER PACK (nPP DEVICE)
3. BUS POWER PROVIDED BY LED nLIGHT ENABLED FIXTURES IN SPACE.
4. PROGRAMMING IS NECESSARY IF ROOMS ARE BROKEN DOWN INTO ZONES. EMBEDDED CONTROLS REQUIRE n100 OR OTHER FACTORY-INSTALLED nLIGHT DEVICE.
5. VERIFY DIMMING TYPES: ELV, MLV, 2-WIRE, 3-WIRE, 4-WIRE, INCANDESCENT AVAILABLE. DIMMING DEVICE MAY REQUIRE ADDITIONAL BUS POWER TO OPERATE (NPS80 / NPS150 / OTHER SELF POWERED POWER PACK)
6. 0-10V DIMMING ONLY (MARK VII DIMMING BALLAST OR 0-10VDC DIMMING DRIVER)
7. nLIGHT EMBEDDED CONTROLS WITH EMERGENCY GENERATOR/INVERTER INPUT. FIXTURES TO OPERATE AT FULL BRIGHT IN EVENT OF NORMAL POWER LOSS. CONTROL DEVICES ARE DIABLED UNTIL NORMAL POWER IS RESTORED. SEE SPECIFICATIONS FOR POWER REQUIREMENTS.
8. nPP16 ER RELAYS DO NOT PROVIDE BUS POWER FOR nLIGHT DEVICES IN NETWORK DAISY CHAIN.
9. ALL THE CAT-5 CABLE SHALL BE DONE BY A QUALIFIED CERTIFED INSTALLER TO ASSURE THE CABLE TERMINATIONS ARE DONE PROPERLY PER MFR RECOMMENDATIONS.
10. CONTRACTOR SHALL INCLUDE ALL COST TO HAVE A PRE-INSTALLATION MEETING WITH MANUFACTURER TO ASSURE ALL THE INSTALLATION REQUIREMENTS ARE DONE PER MANUFACTURER.

GENERAL NOTES:
1. SEE SPECS FOR LIMITATIONS ON DEVICES PER CAT5 RUN.
2. SEE LIMITATION OF GATEWAY AND BRIDGE FOR DEVICES PER PORT.
3. ALL SCENARIOS SHOW A MANUAL OVERRIDE OPTION.
4. NPP (NON-EMERGENCY) DEVICES PROVIDE UP TO 40mA BUS POWER PER PORT.

LIGHTING SENSOR SCHMETIC DIAGRAM
NO SCALE

03



WIRE LEGEND
- (A) CAT 5 (LOW VOLTAGE)
- (B) CLASS 1 (2)#12, 1(#20,1/2"C)
- (C) CLASS 2 (2)#12, 1(#20,1/2"C)
- (D) ETHERNET LAN (LOW VOLTAGE)

KEY NOTES:
1. QUANTITY OF FIXTURES MAY VARY.
2. DEVICES REQUIRE BUS POWER; PROVIDED BY DEVICES SUCH AS MASTER POWER PACK (nPP DEVICE)
3. BUS POWER PROVIDED BY LED nLIGHT ENABLED FIXTURES IN SPACE.
4. PROGRAMMING IS NECESSARY IF ROOMS ARE BROKEN DOWN INTO ZONES. EMBEDDED CONTROLS REQUIRE n100 OR OTHER FACTORY-INSTALLED nLIGHT DEVICE.
5. VERIFY DIMMING TYPES: ELV, MLV, 2-WIRE, 3-WIRE, 4-WIRE, INCANDESCENT AVAILABLE. DIMMING DEVICE MAY REQUIRE ADDITIONAL BUS POWER TO OPERATE (NPS80 / NPS150 / OTHER SELF POWERED POWER PACK)
6. 0-10V DIMMING ONLY (MARK VII DIMMING BALLAST OR 0-10VDC DIMMING DRIVER)
7. nLIGHT EMBEDDED CONTROLS WITH EMERGENCY GENERATOR/INVERTER INPUT. FIXTURES TO OPERATE AT FULL BRIGHT IN EVENT OF NORMAL POWER LOSS. CONTROL DEVICES ARE DIABLED UNTIL NORMAL POWER IS RESTORED. SEE SPECIFICATIONS FOR POWER REQUIREMENTS.
8. nPP16 ER RELAYS DO NOT PROVIDE BUS POWER FOR nLIGHT DEVICES IN NETWORK DAISY CHAIN.
9. ALL THE CAT-5 CABLE SHALL BE DONE BY A QUALIFIED CERTIFED INSTALLER TO ASSURE THE CABLE TERMINATIONS ARE DONE PROPERLY PER MFR RECOMMENDATIONS.
10. CONTRACTOR SHALL INCLUDE ALL COST TO HAVE A PRE-INSTALLATION MEETING WITH MANUFACTURER TO ASSURE ALL THE INSTALLATION REQUIREMENTS ARE DONE PER MANUFACTURER.

GENERAL NOTES:
1. SEE SPECS FOR LIMITATIONS ON DEVICES PER CAT5 RUN.
2. SEE LIMITATION OF GATEWAY AND BRIDGE FOR DEVICES PER PORT.
3. ALL SCENARIOS SHOW A MANUAL OVERRIDE OPTION.
4. NPP (NON-EMERGENCY) DEVICES PROVIDE UP TO 40mA BUS POWER PER PORT.

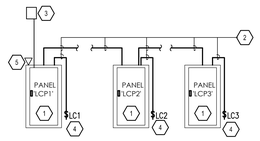
LIGHTING SENSOR SCHMETIC DIAGRAM
NO SCALE

04

KEYED NOTES:

1. LIGHTING CONTROL RELAY PANELS. REFER TO SPECIFICATIONS - 26 09 26. EACH MATER RELAY PANEL SHALL INCLUDE DISPLAY MONITOR.
2. PROVIDE COMMUNICATION CABLE AS RECOMMENDED BY MANUFACTURER IN A 3/4"C. REFER TO PLAN FOR PANEL LOCATIONS.
3. PROVIDE EXTERIOR PHOTO CELL AS RECOMMENDED BY MANUFACTURER.
4. PROVIDE OVERRIDE SWITCH STATION. PROVIDE WIRING AS RECOMMENDED BY MANUFACTURER.
5. PROVIDE DATA CONNECTION TO MASTER PANEL.

NOTE:
1.) ALL EXTERIOR CIRCUITS SHALL BE PROGRAMMED AT OWNERS DIRECTIONS.
2.) MASTER RELAY PANEL "LCP1" SHALL INCLUDE CLOCK, PHOTOCELL, SOFTWARE PROGRAMMING, COMMUNICATION CARD AND GRAPHICAL CONTROLS.
3.) ALL SLAVE PANELS SHALL INCLUDE GRAPHICAL CONTROLS.



LIGHTING RELAY PANEL - SCHEMATIC DETAIL
NO SCALE

RELAY LIGHTING CONTROL PANEL CIRCUIT SCHEDULE 120/208VAC, 1 PHASE

PANEL LOCATION:
PANEL DESCRIPTION: NETWORKING 16 Relay Cabinet:
CATALOG NUMBER: XXX
PANEL FEED: HP
PANEL ID: Master
MOUNTING: Surface

PANEL NAME: LCP1

RELAY NO.	RELAY TYPE	A	PNL CIRCUIT	LOAD VAC	LOAD W/VA	LOAD CIRCUIT DESCRIPTION
1	1	20	RA-19	120V	1500	CORRIDOR LIGHTS
3	1	20	RA-38	120V	1500	EXTERIOR LIGHTS
5	1	20	RA-37	120V	1500	EXTERIOR LIGHTS
7	1	20	RA-40	120V	1500	MOUNMENT SIGN
9	1	20	RA-42	120V	1500	FLAG POLES
11	1	20		120V		SPARE
13	1	20		120V		SPARE
15						SPACE
19						SPACE

RELAY NO.	RELAY TYPE	A	PNL CIRCUIT	LOAD VAC	LOAD W/VA	LOAD CIRCUIT DESCRIPTION
2	1	20	RA-39	120V	1500	PARKING LIGHTING
4	1	20	RA-39	120V	1500	PARKING LIGHTING - 30%
6	1	20	RA-41	120V	1500	PARKING LIGHTING
8	1	20	RA-41	120V	1500	PARKING LIGHTING - 30%
10						SPACE
12						SPACE
14						SPACE
16						SPACE
18						SPACE

LEGEND:
1 = RELAY-1-POLE,20A, UP TO 277VAC
2 = RELAY-2-POLE, 2-POLE, 20A, UP TO 480VAC
A=AMPS

NOTES:
1. INCLUDE EXTERIOR PHOTO CELL,SOFTWARE PROGRAMMING, COMMUNICATION CARD AND GRAPHICAL CONTROLS.
2. VERIFY WITH OWNER FOR ALL PROGRAMMING SEQUENCE.
3. REFER TO SPECIFICATION 16515.
4. PROVIDE DEDICATED 20AMP 120V FROM NEAREST 120/208V PANEL.
5. INCLUDE ALL TRAINING FOR PROGRAMMING AND STARTUP IN CONTRACT. REFER TO SPECIFICATIONS.
6. INCLUDE REMOTE CONTROL OPTION. OWNER TO PROVIDE DATA INPUT.
7. INCLUDE ASTRONOMICAL TIME CLOCK.

RELAY LIGHTING CONTROL PANEL CIRCUIT SCHEDULE 120/208VAC, 1 PHASE

PANEL LOCATION:
PANEL DESCRIPTION: NETWORKING 16 Relay Cabinet:
CATALOG NUMBER: XXX
PANEL FEED: HP
PANEL ID: Master
MOUNTING: Surface

PANEL NAME: LCP2

RELAY NO.	RELAY TYPE	A	PNL CIRCUIT	LOAD VAC	LOAD W/VA	LOAD CIRCUIT DESCRIPTION
1	1	20	RB-42	120V	1500	MOUNMENT SIGN
3	1	20	RB-43	120V	1500	CORRIDOR LIGHTS
5	1	20	RB-47	120V	1500	EXTERIOR LIGHTS
7	1	20	RB-48	120V	1500	EXTERIOR LIGHTS

RELAY NO.	RELAY TYPE	A	PNL CIRCUIT	LOAD VAC	LOAD W/VA	LOAD CIRCUIT DESCRIPTION
2	1	20		120V	1500	SPARE
4	1	20		120V	1500	SPARE
6				120V	1500	SPACE
8				120V	1500	SPACE

LEGEND:
1 = RELAY-1-POLE,20A, UP TO 277VAC
2 = RELAY-2-POLE, 2-POLE, 20A, UP TO 480VAC
A=AMPS

NOTES:
1. INCLUDE EXTERIOR PHOTO CELL,SOFTWARE PROGRAMMING, COMMUNICATION CARD AND GRAPHICAL CONTROLS.
2. VERIFY WITH OWNER FOR ALL PROGRAMMING SEQUENCE.
3. REFER TO SPECIFICATION 16515.
4. PROVIDE DEDICATED 20AMP 120V FROM NEAREST 120/208V PANEL.
5. INCLUDE ALL TRAINING FOR PROGRAMMING AND STARTUP IN CONTRACT. REFER TO SPECIFICATIONS.
6. INCLUDE REMOTE CONTROL OPTION. OWNER TO PROVIDE DATA INPUT.
7. INCLUDE ASTRONOMICAL TIME CLOCK.

RELAY LIGHTING CONTROL PANEL CIRCUIT SCHEDULE 120/208VAC, 1 PHASE

PANEL LOCATION:
PANEL DESCRIPTION: NETWORKING 16 Relay Cabinet:
CATALOG NUMBER: XXX
PANEL FEED: HP
PANEL ID: Master
MOUNTING: Surface

PANEL NAME: LCP3

RELAY NO.	RELAY TYPE	A	PNL CIRCUIT	LOAD VAC	LOAD W/VA	LOAD CIRCUIT DESCRIPTION
1	1	20	RC-81	120V	1500	MOUNMENT SIGN
3	1	20	RC-65	120V	1500	EXTERIOR LIGHTS
5	1	20	RC-51	120V	1500	EXTERIOR LIGHTS
7	1	20	RC-53	120V	1500	EXTERIOR LIGHTS
9	1	20	RA-42	120V	1500	FLAG POLES
11	1	20		120V		SPARE
13	1	20		120V		SPARE
15						SPACE
19						SPACE

RELAY NO.	RELAY TYPE	A	PNL CIRCUIT	LOAD VAC	LOAD W/VA	LOAD CIRCUIT DESCRIPTION
2	1	20	RC-83	120V	1500	PARKING LIGHTING
4	1	20	RC-83	120V	1500	PARKING LIGHTING - 30%
6	1	20	RC-45	120V	1500	CORRIDOR LIGHTS
8	1	20				SPARE
10	1	20				SPARE
12						SPACE
14						SPACE
16						SPACE
18						SPACE

LEGEND:
1 = RELAY-1-POLE,20A, UP TO 277VAC
2 = RELAY-2-POLE, 2-POLE, 20A, UP TO 480VAC
A=AMPS

NOTES:
1. INCLUDE EXTERIOR PHOTO CELL,SOFTWARE PROGRAMMING, COMMUNICATION CARD AND GRAPHICAL CONTROLS.
2. VERIFY WITH OWNER FOR ALL PROGRAMMING SEQUENCE.
3. REFER TO SPECIFICATION 16515.
4. PROVIDE DEDICATED 20AMP 120V FROM NEAREST 120/208V PANEL.
5. INCLUDE ALL TRAINING FOR PROGRAMMING AND STARTUP IN CONTRACT. REFER TO SPECIFICATIONS.
6. INCLUDE REMOTE CONTROL OPTION. OWNER TO PROVIDE DATA INPUT.
7. INCLUDE ASTRONOMICAL TIME CLOCK.

RELAY LIGHTING CONTROL PANEL CIRCUIT SCHEDULE 120/208VAC, 1 PHASE

PANEL LOCATION:
PANEL DESCRIPTION: NETWORKING 16 Relay Cabinet:
CATALOG NUMBER: XXX
PANEL FEED: HP
PANEL ID: Master
MOUNTING: Surface

PANEL NAME: LCP4

RELAY NO.	RELAY TYPE	A	PNL CIRCUIT	LOAD VAC	LOAD W/VA	LOAD CIRCUIT DESCRIPTION
1	1	20	PR-24	120V	1500	EXTERIOR LIGHTS
3	1	20	PR-22	120V	1500	CORRIDOR LIGHTS
5	1	20	PR-38	120V	1500	CORRIDOR LIGHTS
7	1	20	RC-53	120V	1500	EXTERIOR LIGHTS

RELAY NO.	RELAY TYPE	A	PNL CIRCUIT	LOAD VAC	LOAD W/VA	LOAD CIRCUIT DESCRIPTION
2	1	20	DPR-14	120V	1500	PARKING LIGHTING
4	1	20	DPR-14	120V	1500	PARKING LIGHTING - 30%
6	1	20		120V	1500	SPARE
8	1	20		120V	1500	SPARE

LEGEND:
1 = RELAY-1-POLE,20A, UP TO 277VAC
2 = RELAY-2-POLE, 2-POLE, 20A, UP TO 480VAC
A=AMPS

NOTES:
1. INCLUDE EXTERIOR PHOTO CELL,SOFTWARE PROGRAMMING, COMMUNICATION CARD AND GRAPHICAL CONTROLS.
2. VERIFY WITH OWNER FOR ALL PROGRAMMING SEQUENCE.
3. REFER TO SPECIFICATION 16515.
4. PROVIDE DEDICATED 20AMP 120V FROM NEAREST 120/208V PANEL.
5. INCLUDE ALL TRAINING FOR PROGRAMMING AND STARTUP IN CONTRACT. REFER TO SPECIFICATIONS.
6. INCLUDE REMOTE CONTROL OPTION. OWNER TO PROVIDE DATA INPUT.
7. INCLUDE ASTRONOMICAL TIME CLOCK.

SHEET NO. E13.1
OF
SET NUMBER
REVISED:
DATE: 09/30/16
DRAWN BY: TC
PROJECT NO.:161.01

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09/30/16
STATE OF TEXAS
LEONARDO J. MUNOZ
103731
REGISTERED
ARCHITECT

PORT OF BROWNSVILLE
•WORLD CLASS•

PROJECT: ADMINISTRATION COMPLEX REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
ELECTRICAL DETAILS

TRINITY
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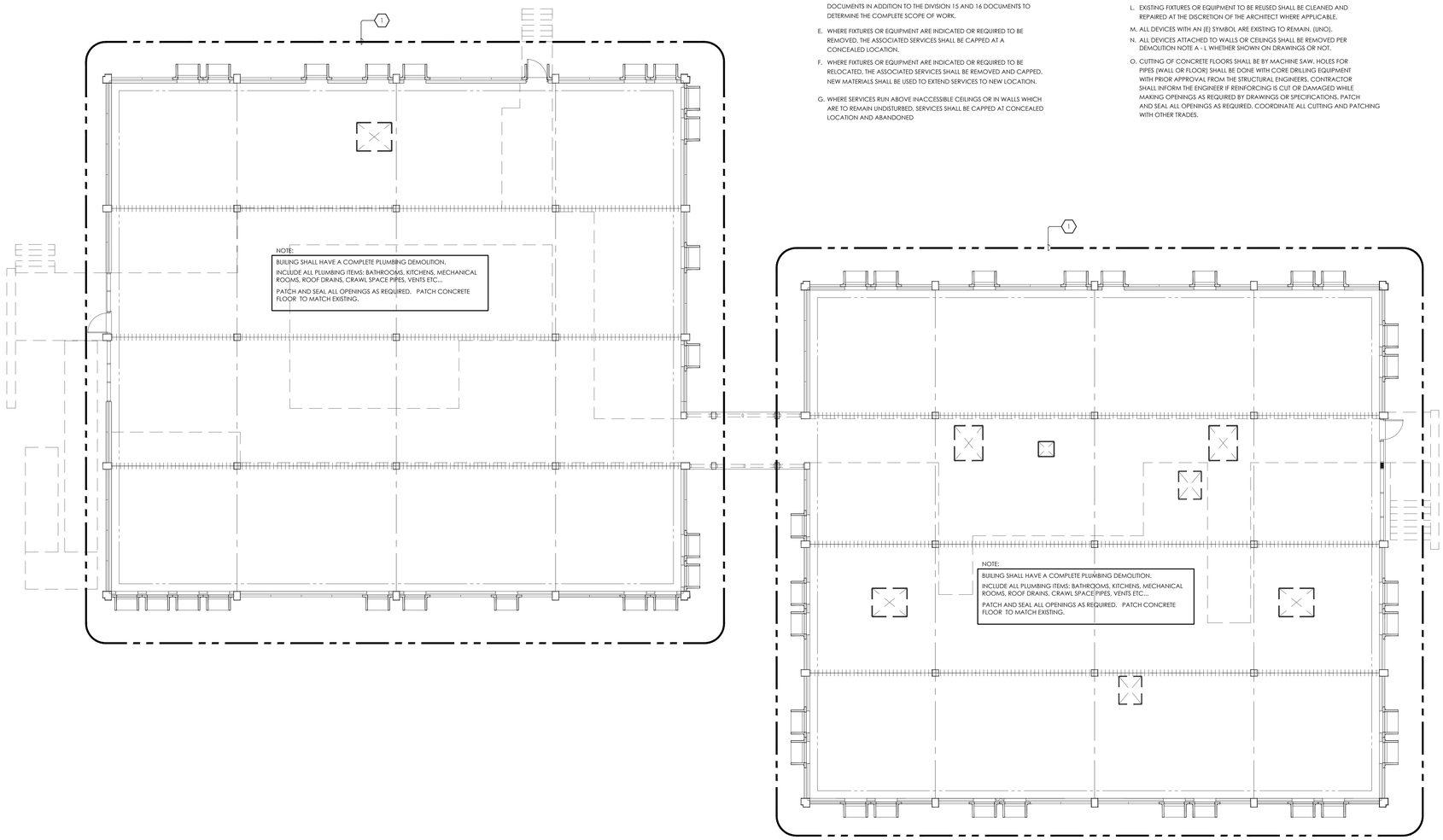
Texas Registered Engineering Firm - F10362
Project number: 16.1.01



1 PLUMBING-DEMOLITION FLOOR PLAN
1/8"=1'-0"

GENERAL DEMOLITION NOTES

A. THE CONTRACTOR IS FULLY RESPONSIBLE FOR PERFORMING THE DEMOLITION WORK UNDER THIS SECTION OF THE PROJECT IN FULL COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES INCLUDING THOSE PUBLISHED BY OSHA AND EPA.

B. THE EXTENT OF DEMOLITION WORK IS INDICATED ON THE ARCHITECTURAL DRAWINGS AND BY THE REQUIREMENTS OF THIS SECTION. A VISIT TO THE SITE WILL BE REQUIRED PRIOR TO BIDDING. CONTRACTOR SHALL IDENTIFY/ VERIFY ALL WATER, GAS AND SANITARY LINES BEFORE STARTING ANY DEMOLITION WORK. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL UNDERGROUND UTILITIES IN AREAS OF EXCAVATION WORK.

C. PROVIDE ALL DEMOLITION WORK REQUIRED FOR THE REMOVAL AND/OR RELOCATION OF PLUMBING FIXTURES AND EQUIPMENT AND ASSOCIATED SERVICES TO PROVIDE A COMPLETE AND OPERABLE SYSTEM UPON COMPLETION OF THE PROJECT.

D. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW THE ARCH'L DOCUMENTS IN ADDITION TO THE DIVISION 15 AND 16 DOCUMENTS TO DETERMINE THE COMPLETE SCOPE OF WORK.

E. WHERE FIXTURES OR EQUIPMENT ARE INDICATED OR REQUIRED TO BE REMOVED, THE ASSOCIATED SERVICES SHALL BE CAPPED AT A CONCEALED LOCATION.

F. WHERE FIXTURES OR EQUIPMENT ARE INDICATED OR REQUIRED TO BE RELOCATED, THE ASSOCIATED SERVICES SHALL BE REMOVED AND CAPPED. NEW MATERIALS SHALL BE USED TO EXTEND SERVICES TO NEW LOCATION.

G. WHERE SERVICES RUN ABOVE INACCESSIBLE CEILINGS OR IN WALLS WHICH ARE TO REMAIN UNDISTURBED, SERVICES SHALL BE CAPPED AT CONCEALED LOCATION AND ABANDONED

H. WHERE THE REMOVAL OF FIXTURES OR EQUIPMENT RENDERS EQUIPMENT DOWNSTREAM INOPERABLE, SERVICES SHALL BE EXTENDED TO THE DOWN-STREAM FIXTURES OR EQUIPMENT SO THAT THE FIXTURES OR EQUIPMENT IS LEFT IN OPERATING CONDITION.

I. COORDINATE DEMOLITION OF DIVISION 15 SYSTEMS AS REQUIRED WITH ALL OTHER TRADES.

J. ALL EXISTING PLUMBING FIXTURES AND EQUIPMENT REMOVED DURING CONSTRUCTION THAT ARE NOT TO BE REUSED SHALL BE REMOVED FROM THE JOB SITE AND PROPERLY RETURNED TO THE OWNER, IF DESIRED BY OWNER.

K. WHERE EXISTING FIXTURE OR EQPT IS TO BE RELOCATED, BE CAUTIOUS TO PREVENT DAMAGE DURING THE REMOVAL AND REINSTALLATION. WHERE DAMAGE OCCURS, THE EQUIPMENT SHALL BE REPLACED OR REPAIRED TO THE SATISFACTION AND APPROVAL OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

L. EXISTING FIXTURES OR EQUIPMENT TO BE REUSED SHALL BE CLEANED AND REPAIRED AT THE DISCRETION OF THE ARCHITECT WHERE APPLICABLE.

M. ALL DEVICES WITH AN (E) SYMBOL ARE EXISTING TO REMAIN. (UNO).

N. ALL DEVICES ATTACHED TO WALLS OR CEILINGS SHALL BE REMOVED PER DEMOLITION NOTE A - L WHETHER SHOWN ON DRAWINGS OR NOT.

O. CUTTING OF CONCRETE FLOORS SHALL BE BY MACHINE SAW. HOLES FOR PIPES (WALL OR FLOOR) SHALL BE DONE WITH CORE DRILLING EQUIPMENT WITH PRIOR APPROVAL FROM THE STRUCTURAL ENGINEERS. CONTRACTOR SHALL INFORM THE ENGINEER IF REINFORCING IS CUT OR DAMAGED WHILE MAKING OPENINGS AS REQUIRED BY DRAWINGS OR SPECIFICATIONS. PATCH AND SEAL ALL OPENINGS AS REQUIRED. COORDINATE ALL CUTTING AND PATCHING WITH OTHER TRADES.

KEYED NOTES: DEMO

1 REMOVE ALL EXISTING PLUMBING FIXTURES IN THIS AREA INCLUDING ALL CONNECTING SERVICES. CAP ALL SERVICE LINES AT A CONCEALED LOCATION FIVE FEET OUTSIDE OF BUILDING.

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Project number: 16.1.01

SHEET NO. PD1.1
OF
SET NUMBER
REVISED:
DATE: 09/30/16
DRAWN BY: TC
PROJECT NO.:16.1.01

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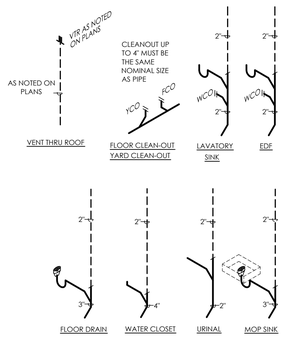
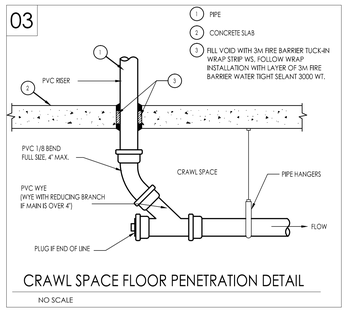
09/30/16
STATE OF TEXAS
LEONARDO MUNOZ
93017
REGISTERED
ARCHITECT

PORT OF BROWNSVILLE
•WORLD CLASS•
BROWNSVILLE NAVIGATION DISTRICT OF CAMERON COUNTY, TEXAS

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
PLUMBING – DEMOLITION FLOOR PLAN





CRAWL SPACE FLOOR PENETRATION DETAIL

NO SCALE

SEWER & VENT

02 TYPICAL RISER SCHEMATICS

SCALE: NTS

NOTE:
DRAWING IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF PIPING, DEVICES AND EQUIPMENT WITH BUILDING ELEMENTS AND THE WORK OF OTHER TRADES.

KEYED NOTES: PLUMBING

1. REFER TO CIVIL SITE PLAN FOR CONTINUATION OF PLUMBING FIVE FEET AWAY FROM BUILDING. PLUMBING CONTRACTOR TO BE RESPONSIBLE FOR COORDINATION, VERIFICATION AND CONNECTION OF ALL UTILITIES TO SITE UTILITY STUB-OUTS. CONTRACTOR SHALL VERIFY LOCATIONS, INVERT SLOPE, ELEVATION, AND DIRECTION OF FLOW WITH CIVIL ENGINEERING DRAWINGS.
2. COPPER CONDENSATE LINE FROM RTU, COORDINATE ROUTING WITH HVAC CONTRACTOR. REFER TO DETAIL 17/P4.1.
3. COPPER CONDENSATE LINE. PROVIDE 1/2" INSULATION AND 1/8" SLOPE. TYPICAL FOR ALL CONDENSATE LINES.
4. COPPER CONDENSATE DRAIN LINE DOWN THRU WALL. DISCHARGE TO MOP SINK /FLOOR SINK.
5. 1/2" COPPER FROM TRAP PRIMER COVER WITH POLYETHYLENE SLEEVE "POLY SLEEVE" OR EQUAL. PROVIDE FLUSHVALVE TRAP SEAL PRIMER EQUAL TO SLOAN VBF-72-A. SEE DETAIL 08/P4.1.
6. HOLES FOR PIPES (WALL OR FLOOR) SHALL BE DONE WITH CORE DRILLING EQUIPMENT WITH PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER. FOR CRAWL-SPACE FLOOR PENETRATION, REFER TO DETAIL #03 THIS SHEET.
7. RUN SEWER LINE INSIDE EXISTING BUILDING CRAWL-SPACE. REFER TO DETAIL #03 THIS SHEET.
8. FLOOR SINK FOR CONDENSATE FROM RTU's/AHU's. COORDINATE LOCATION WITH HVAC CONTRACTOR.

SEWER & VENT

1 FLOOR PLAN PLUMBING

1/8"=1'-0"

N

SHEET NO.	P1.1
OF	
SET NUMBER	
REVISED:	
DATE: 09/30/16	
DRAWN BY: TC	
PROJECT NO.:16.1.01	

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09/30/16

STATE OF TEXAS — LEONARDO J. MUNOZ — 91071 — REGISTERED ARCHITECT

PORT OF BROWNSVILLE
WORLD CLASS

BROWNSVILLE NAVIGATION DISTRICT
OF CAMERON COUNTY, TEXAS

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS

OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
FLOOR PLAN PLUMBING SEWER & VENT

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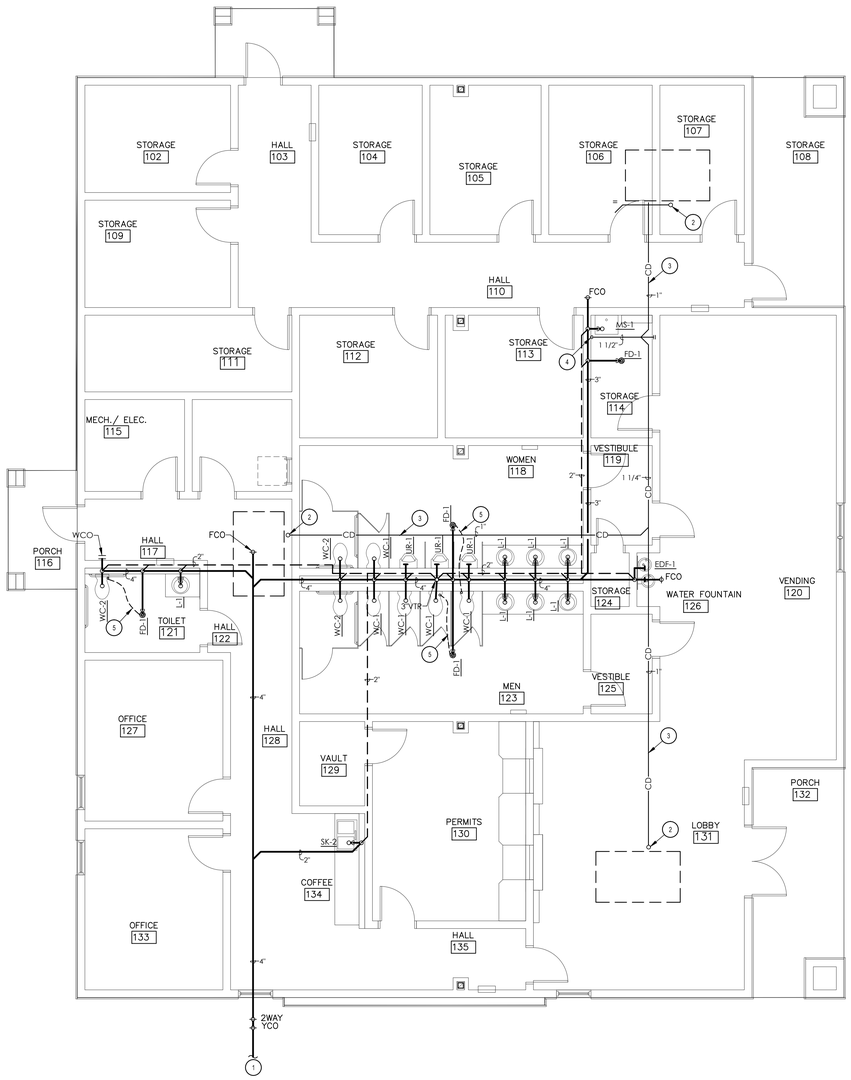
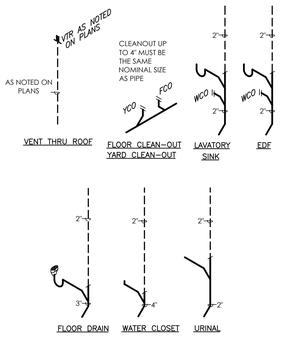


1 SEWER & VENT
PERMIT BUILDING FLOOR PLAN PLUMBING
3/16"=1'-0"

NOTE:
DRAWING IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF PIPING, DEVICES AND EQUIPMENT WITH BUILDING ELEMENTS AND THE WORK OF OTHER TRADES.

KEYED NOTES: PLUMBING

1. REFER TO CIVIL SITE PLAN FOR CONTINUATION OF PLUMBING FIVE FEET AWAY FROM BUILDING. PLUMBING CONTRACTOR TO BE RESPONSIBLE FOR COORDINATION, VERIFICATION AND CONNECTION OF ALL UTILITIES TO SITE UTILITY STUB-OUTS. CONTRACTOR SHALL VERIFY LOCATIONS, INVERT SLOPE, ELEVATION, AND DIRECTION OF FLOW WITH CIVIL ENGINEERING DRAWINGS.
2. COPPER CONDENSATE LINE FROM RTU, COORDINATE ROUTING WITH HVAC CONTRACTOR. REFER TO DETAIL 17/P4.1.
3. COPPER CONDENSATE LINE, PROVIDE 1/2" INSULATION AND 1/8" SLOPE. TYPICAL FOR ALL CONDENSATE LINES.
4. COPPER CONDENSATE DRAIN LINE DOWN THRU WALL. DISCHARGE TO MOP SINK.
5. 1/2" COPPER FROM TRAP PRIMER COVER WITH POLYETHYLENE SLEEVE "POLY SLEEVE" OR EQUAL. PROVIDE FLUSHVALVE TRAP SEAL PRIMER EQUAL TO SLOAN VBF-72-A. SEE DETAIL 08/P4.1.



2 SEWER & VENT
TYPICAL RISER SCHEMATIC
NTS

SHEET NO.	P1.2
OF	
SET NUMBER	
REVISED:	
DATE: 09/30/16	
DRAWN BY: TC	
PROJECT NO.:16.1.01	

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09/30/16
STATE OF TEXAS
LEONARDO J. MUNOZ
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REGISTERED ARCHITECT

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

PORT OF BROWNSVILLE
•WORLD CLASS•
BROWNSVILLE NAVIGATION DISTRICT
OF CAMERON COUNTY, TEXAS

SHEET TITLE:
FLOOR PLAN PLUMBING SEWER & VENT

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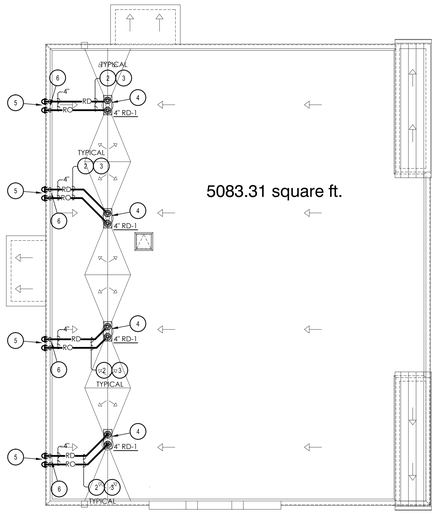
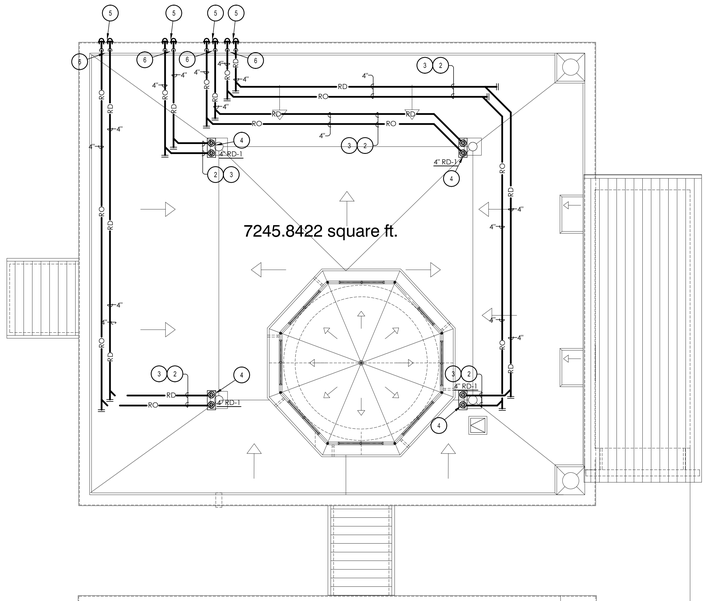
Texas Registered Engineering Firm - F10362
Project number: 16.1.01

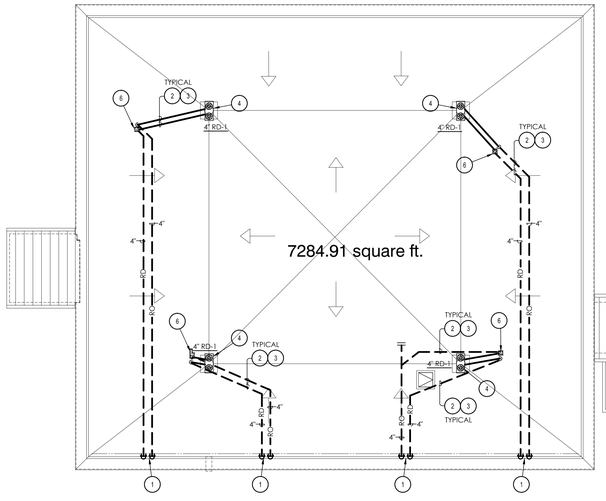
KEYED NOTES: PLUMBING

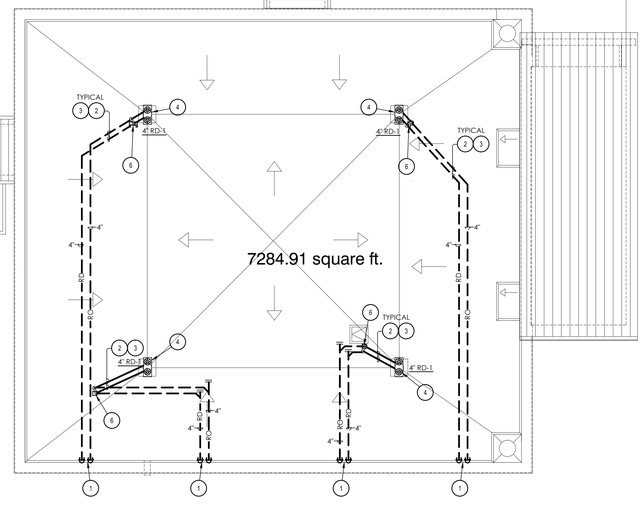
1. TERMINATE ROOF DRAIN & ROOF DRAIN OVERFLOW CONDUCTOR/LEADER WITH A DOWNSPOUT NOZZLE, JOSAM MODEL 25014. PROVIDE A CONCRETE SPLASH BLOCK. IDENTIFY OVERFLOW DRAIN AT EXIT. SPOUT TO HAVE "OVERFLOW" LABEL. REFER TO DETAIL #04 THIS SHEET.
2. PROVIDE 1/4" MINIMUM SLOPE ON ALL STORM LINE.
3. INSULATE ALL STORM LINES, REFER TO SPECIFICATIONS.
4. ROOF DRAIN (RD-1) COMMBINATION DRAIN/OVERFLOW EQUAL TO JOSAM 22500 SERIES MODEL # 22504-20-33-VP.
5. TERMINATE ROOF DRAIN & ROOF DRAIN OVERFLOW CONDUCTOR/LEADER WITH A DOWNSPOUT NOZZLE, JOSAM MODEL 25014. PROVIDE A CONCRETE SPLASH BLOCK. IDENTIFY OVERFLOW DRAIN AT EXIT. SPOUT TO HAVE "OVERFLOW" LABEL. REFER TO DETAIL #03 THIS SHEET.
6. PROVIDE A MINIMUM 12"X12" CHASE FOR ROOF DRAIN AND OVERFLOW DRAIN. REFER TO ARCHITECTUAL PLANS FOR CHASE.



ROOF DRAINS
2 ROOF PLAN PLUMBING
3/32"=1'-0"



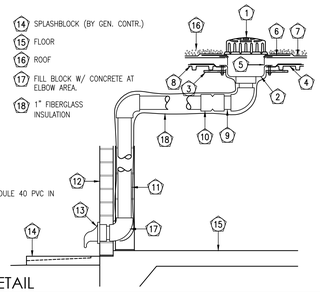




ROOF DRAINS
1 ROOF PLAN PLUMBING BUILDING A,B & C
3/32"=1'-0"

03

1. ROOF DRAIN BY: JOSAM 22500 SERIES ALUMINUM DOME
2. DRAIN BODY
3. UNDERDECK CLAMP
4. ROOF SUMP RECEIVER
5. EXTENSION COLLAR
6. FLASHING, REFER TO ARCH. DETAIL
7. COUNTER FLASHING, REFER TO ARCHITECTURAL DETAIL.
8. DECK
9. MINIMUM 1/8" PER FT. SLOPE ON HORIZ. RUNS
10. RUBBER "O" RING TYPE EXPANSION COUPLING WITHIN 4 FT. OF EACH ROOF DRAIN.
11. ROOF DRAIN CONDUCTOR/LEADERSCHEDULE 40 PVC IN WALL CHASE. REFER TO SPECS.
12. WALL.
13. DOWNSPOUT NOZZLE, BY ZURN OR JOSAM IDENTIFY OVERFLOW DRAIN AT EXIT. SPOUT TO HAVE "OVERFLOW" LABEL.
14. SPLASHBLOCK (BY GEN. CONTR.)
15. FLOOR
16. ROOF
17. FILL BLOCK W/ CONCRETE AT ELBOW AREA.
18. 1" FIBERGLASS INSULATION

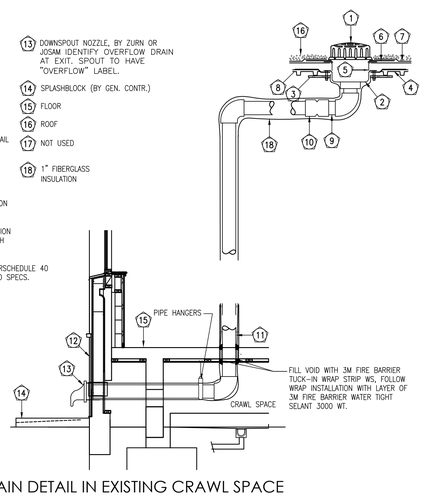


ROOF DRAIN DETAIL

NO SCALE

04

1. ROOF DRAIN BY: JOSAM 22500 SERIES ALUMINUM DOME
2. DRAIN BODY
3. UNDERDECK CLAMP
4. ROOF SUMP RECEIVER
5. EXTENSION COLLAR
6. FLASHING, REFER TO ARCH. DETAIL
7. COUNTER FLASHING, REFER TO ARCHITECTURAL DETAIL.
8. DECK
9. MINIMUM 1/8" PER FT. SLOPE ON HORIZ. RUNS
10. RUBBER "O" RING TYPE EXPANSION COUPLING WITHIN 4 FT. OF EACH ROOF DRAIN.
11. ROOF DRAIN CONDUCTOR/LEADERSCHEDULE 40 PVC IN WALL CHASE. REFER TO SPECS.
12. WALL.
13. DOWNSPOUT NOZZLE, BY ZURN OR JOSAM IDENTIFY OVERFLOW DRAIN AT EXIT. SPOUT TO HAVE "OVERFLOW" LABEL.
14. SPLASHBLOCK (BY GEN. CONTR.)
15. FLOOR
16. ROOF
17. NOT USED
18. 1" FIBERGLASS INSULATION



ROOF DRAIN DETAIL IN EXISTING CRAWL SPACE

NO SCALE

SHEET NO.	P1.3
OF	
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REVISED:	
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PROJECT NO.16.1.01	

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PORT OF BROWNSVILLE
·WORLD CLASS·

PROJECT: ADMINISTRATION COMPLEX REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
FLOOR PLAN PLUMBING ROOF DRAINS

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Project number: 16.1.01

NOTE:
DRAWING IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF PIPING, DEVICES AND EQUIPMENT WITH BUILDING ELEMENTS AND THE WORK OF OTHER TRADES.

KEYED NOTES: PLUMBING

1. PLUMBER TO CONNECT WATER SERVICE LINE TO WATER TAP PROVIDED BY UTILITY CONTRACTOR. REFER TO CIVIL UTILITY PLAN FOR LOCATION OF WATER TAP.
2. WATER SERVICE ENTRANCE. REFER TO DETAIL 01/P4.1
3. PRESSURE DROP ACTIVATED TRAP PRIMER. PROVIDE ACCESS PANEL IF INACCESSIBLE. SEE DETAIL 06/P4.1
4. 1/2" COPPER FROM TRAP PRIMER COVER WITH POLYETHYLENE SLEEVE "POLY SLEEVE" OR EQUAL, TYPICAL ALL TRAP-PRIMERS.
5. PROVIDE THERMOSTATIC MIXING VALVE (TMV-1). LEONARD MODEL 370-LF. SET TEMPERATURE 105°.
6. BRONZE CUT-OFF VALVE ABOVE CEILING. PROVIDE ACCESS PANEL WHERE LOCATED IN AN INACCESSIBLE CEILING. PANEL SHALL BE 12"X12" PAINTED TO MATCH CEILING.
7. WATER HAMMER ARRESTOR ABOVE CEILING. PROVIDE ACCESS PANEL WHERE LOCATED IN AN INACCESSIBLE CEILING. PANEL SHALL BE 12"x12" PAINTED TO MATCH CEILING.
8. PROVIDE UNDERCOUNTED INSTANTANEOUS WATER HEATER.
9. WATER SERVICE ENTRANCE. REFER TO DETAIL 19/P4.1
10. 3/4" CW UP TO ROOF MOUNT HOSE BIB.

2 DOMESTIC WATER
TYPICAL RISER SCHEMATIC
NTS

1 DOMESTIC WATER
FLOOR PLAN PLUMBING
1/8"=1'-0"

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SHEET NO. P2.1
OF
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PROJECT NO.:16.1.01

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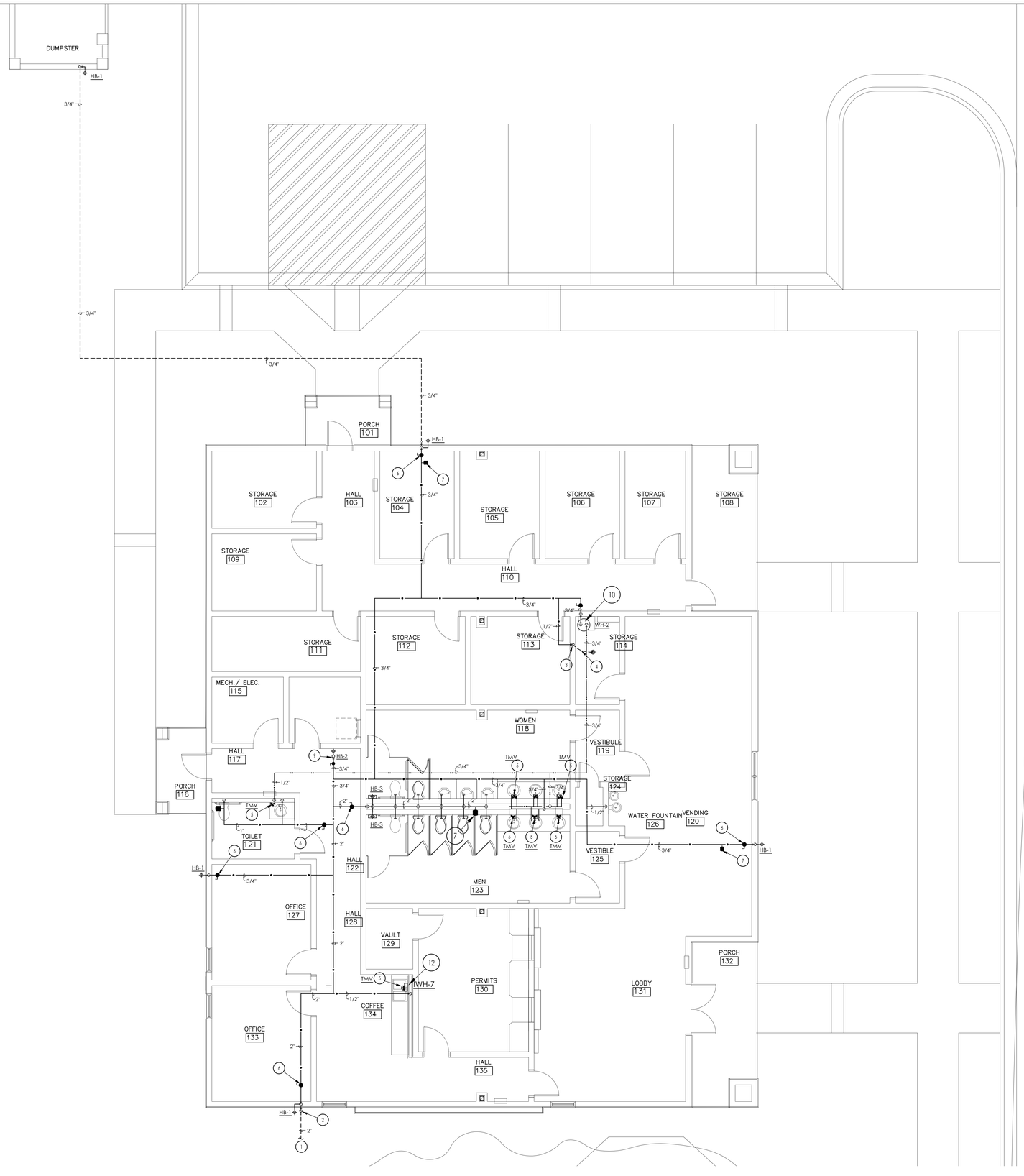
PORT OF BROWNSVILLE
•WORLD CLASS•

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
FLOOR PLAN PLUMBING DOMESTIC WATER



1 DOMESTIC WATER
PERMIT BUILDING FLOOR PLAN PLUMBING
NTS

NOTE:
DRAWING IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF PIPING, DEVICES AND EQUIPMENT WITH BUILDING ELEMENTS AND THE WORK OF OTHER TRADES.

KEYED NOTES: PLUMBING

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5. PROVIDE THERMOSTATIC MIXING VALVE (TMV-1), LEONARD MODEL 370-LF. SET TEMPERATURE 105°.
6. BRONZE CUT-OFF VALVE ABOVE CEILING. PROVIDE ACCESS PANEL WHERE LOCATED IN AN INACCESSIBLE CEILING. PANEL SHALL BE 12"X12" PAINTED TO MATCH CEILING.
7. WATER HAMMER ARRESTOR ABOVE CEILING. PROVIDE ACCESS PANEL WHERE LOCATED IN AN INACCESSIBLE CEILING. PANEL SHALL BE 12"x12" PAINTED TO MATCH CEILING.
8. PROVIDE UNDERCOUNTED INSTANTANEOUS WATER HEATER.
9. 3/4" CW UP TO ROOF MOUNT HOSE BIB.
10. INSTALL WATER HEATER ABOVE MOP SINK. REFER TO DETAIL 18/P4.1.
11. PRESSURE DROP ACTIVATED TRAP PRIMER. PROVIDE ACCESS PANEL IF INACCESSIBLE. SEE DETAIL 06/P4.1
12. 1/2" COPPER FROM TRAP PRIMER COVER WITH POLYETHYLENE SLEEVE "POLY SLEEVE" OR EQUAL. TYPICAL ALL TRAP-PRIMERS.
13. PROVIDE UNDERCOUNTED INSTANTANEOUS WATER HEATER.

2 DOMESTIC WATER
TYPICAL RISER SCHEMATIC
NTS

SHEET NO.	P2.2
OF	
SET NUMBER	
REVISED:	
DATE: 09/30/16	
DRAWN BY: TC	
PROJECT NO.16.1.01	

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PORT OF BROWNSVILLE
WORLD CLASS.
BROWNSVILLE NAVIGATION DISTRICT
OF CAMERON COUNTY, TEXAS

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
FLOOR PLAN PLUMBING DOMESTIC WATER

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PLUMBING SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	BALL VALVE		DOMESTIC COLD WATER
	CHECK VALVE		DOMESTIC HOT WATER
	GATE VALVE		DOMESTIC HOT WATER RETURN
	UNION		SANITARY SEWER VENT
	DIRECTION OF FLOW		SANITARY WASTE LINE
	WALL CLEANOUT	140°	140° HOT WATER
	FLOOR CLEANOUT YARD CLEANOUT		SANITARY DIRECTION OF FLOW
	FLOOR SINK		BRANCH - TOP CONNECTION
	FLOOR DRAIN		PIPE RISER
	WALL HYDRANT OR HOSE BIBB		PIPE DROP
FW	FILTERED WATER		POINT OF CONNECTION (APPROXIMATED FIELD VERIFY EXACT POINT OF CONNECTION)

NOTE: 1. NOT ALL SYMBOLS USED ON THIS PROJECT
2. INSTALL WATER CLOSET FLUSH VALVE HANDLE TOWARDS WIDER SIDE OF WATER CLOSET OR DOOR OPENING.
3. INSTALL ADA APPROVED FLUSH VALVE HANDLE FOR ADA PLUMBING FIXTURES.

PLUMBING PIPING MATERIAL:

1. SANITARY DRAIN & VENT INSIDE BUILDING BELOW GRADE: SCHEDULE 40 PVC
2. SANITARY DRAIN OUTSIDE BUILDING: SCHEDULE 40 PVC
3. SANITARY DRAIN & VENT INSIDE BUILDING ABOVE GRADE: SCHEDULE 40 PVC
4. SANITARY DRAIN & VENT IN PLENUM CEILING: NO-HUB CAST IRON
5. DOMESTIC HOT & COLD WATER: COPPER, TYPE "L" HARD DRAWN
6. DOMESTIC WATER BELOW GRADE: COPPER, TYPE "K" SOFT ANNEALED
7. DOMESTIC WATER BELOW GROUND OUTSIDE OF BUILDING PIPING 2" SIZE AND SMALLER: COPPER, TYPE "L" HARD DRAWN
8. DOMESTIC WATER BELOW GROUND OUTSIDE OF BUILDING PIPING OVER 2" SIZE: SDR 26 CLASS 160 PVC

ABBREV. DESCRIPTION

AC	ABOVE CEILING
AFF	ABOVE FINISHED FLOOR
ASA	AMERICAN STANDARDS ASSOCIATION
ASME	AMERICAN SOICIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AW	ACID WASTE
AWWA	AMERICAN WATER WORKS ASSOCIATION
AV	ACID VENT
BTUH	BRITISH THERMAL UNIT PER HOUR
CA	COMPRESSED AIR
CI	CAST IRON
CO	CLEANOUT
CU	COPPER
DN	DOWN
EQ	EQUAL
FCO	FLOOR CLEANOUT
FF	FINISH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
GAL	GALLON(S)
GALV	GALVANIZED
GW	GREASE WASTE
HB	HOSE BIBB
HP	HORESPOWER
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
RD	ROOF DRAIN(S)
RE:4/P6	REFER TO DETAIL 4 DRAWING P-6
RO	REVERSE OSMOSIS
SD	STORM DRAIN
SPEC	SPECIFICATION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
VTR	VENT THRU ROOF
V	VACUUM
W/	WITH
WCO	WALL CLEAN OUT
YCO	YARD CLEAN OUT

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE TYPE	CONNECTION SIZE San. Sewer	Vent	Cold Water	Hot Water	DESCRIPTION
WC-1	WATER CLOSET FLOOR MOUNTED	4"	2"	1"	-	ZURN MODEL NO. Z5655-BWL, FLOOR MOUNTED WATER CLOSET, WITH ELONGATED RIM, 15" RIM HEIGHT, VITREOUS CHINA, SIPHON JET FLUSH ACTION 10"- 12" ROUGH IN, WITH ZURN FLUSHVALVE MODEL NO. Z6000AV-HET 1.28 GPF, 1" TOP SPUD INLET AND 2 BOLT CAPS, WITH OPEN FRONT SEAT LESS COVER. FLUSH LEVER SHALL BE MOUNTED ON APPROACH SIDE OF FIXTURE.
WC-2	WATER CLOSET FLOOR MOUNTED ADULT HANDICAPPED	4"	2"	1"	-	ZURN MODEL NO. Z5665-BWL, FLOOR MOUNTED WATER CLOSET, WITH ELONGATED RIM, 16-3/4" RIM HEIGHT, VITREOUS CHINA, SIPHON JET FLUSH ACTION 10"- 12" ROUGH IN, WITH ZURN FLUSHVALVE MODEL NO. Z6000AV-HET 1.28 GPF, 1" TOP SPUD INLET AND 2 BOLT CAPS, WITH "BENEKE" OPEN FRONT SEAT LESS COVER MODEL 5335S. FLUSH LEVER SHALL BE MOUNTED ON APPROACH SIDE OF FIXTURE.
UR-1	URINAL (STANDARD & HANDICAPPED) REFER TO ARCH'L DRAWING FOR MOUNTING HEIGHTS	2"	2"	3/4"	-	ZURN MODEL NO. Z5738.206.00 SIPHON JET WALL HUNG URINAL, VITREOUS CHINA, 1/8 GPF FLUSH, COMPACT DESIGN, WITH INTEGRAL TRAP, 3/4" TOP INLET, 14" LIP, INCLUDES WALL HANGERS, 2" IPS OUTLET FLANGE AND RUBBER GASKET, WITH ZURN FLUSHOMETER .125 GPF MODEL NO. Z6003AV-ULF , PROVIDE ZURN CARRIER SYSTEM MODEL NO. Z-1221.
L-1	LAVATORY COUNTER TOP STANDARD & HANDICAPPED	2"	2"	1/2"	1/2"	CRANE "ACCESS PRO" MODEL NO. 1580 SELF-RIMMING OVAL BASIN COUNTERTOP LAVATORY, CONCEALED FRONT OVERFLOW, VITREOUS CHINA. COMPLETE WITH INSTALLATION TEMPLATE, FAUCET HOLES ON 4" CENTERS, PROVIDE FAUCET EQUAL TO MOEN MODEL 8413, SINGLE HANDLE, VANDAL RESISTANT, ADA APPROVED. PROVIDE PROTECTIVE COVER ON P-TRAP AND STOPS.
L-2	LAVATORY WALL HUNG ADULT HANDICAPPED REFER TO ARCH'L DRAWING FOR MOUNTING HEIGHTS	2"	2"	1/2"	1/2"	CRANE "HARWICH" MODEL NO. 1412V (20X18) WALL HUNG LAVATORY, WITH ANTI-SPLASH RIM AND HIGH BACK, CONCEALED FRONT OVERFLOW, INCLUDES WALL HANGER. VITREOUS CHINA, WITH FAUCET HOLES ON 4" CENTERS. PROVIDE FAUCET EQUAL TO MOEN MODEL 8413, SINGLE HANDLE, VANDAL RESISTANT, ADA APPROVED. PROVIDE PROTECTIVE COVER ON P-TRAP AND STOPS.
SK-1	SINGLE-COMPARTMENT KITCHEN SINK	2"	2"	1/2"	1/2"	SINGLE COMPARTMENT STAINLESS STEEL SINK BY ELKAY MODEL NO. BCR15. SELF RIMMING, TOP MOUNT WITH STAINLESS STEEL MOUNTING CHANNELS. 18 GAUGE TYPE 302 CENTERED DRAIN, COMPLETE WITH ELKAY GOOSENECK FAUCET MODEL LK411A. WITH WRIST BLADE HANDLES.
SK-2	TWO-COMPARTMENT KITCHEN SINK ADA COMPLIANT	2"	2"	1/2"	1/2"	DOUBLE COMPARTMENT STAINLESS STEEL SINK BY ELKAY MODEL GECR 3321 MOUNT WITH STAINLESS STEEL MOUNTING CHANNELS. 18 GAUGE, TYPE 302, CENTERED REAR DRAIN, COMPLETE WITH MOEN TWO-HANDLE KITCHEN FAUCET MODEL NO. 8799. WITH WRIST BLADE HANDLES. COORDINATE KNEE SPACE WITH SINK DRAIN LOCATION FOR ADA COMPLIANCE. PROVIDE PROTECTIVE COVER ON P-TRAP AND STOPS. PROVIDE LKADOS CHROME PLATED BRASS OFFSET TAILPIECE FOR WHEELCHAIR USE.
EDF-1	ELECTRIC DRINKING FOUNTAIN W/ BOTTLE FILLING STATION REFER TO ARCH'L DRAWING FOR MOUNTING HEIGHTS	2"	2"	1/2"	-	BI-LEVEL ELECTRIC DRINKING FOUTAIN W/ BOTTLE FILLING STATION SHALL BE "ELKAY" MODEL NO. LZWS-EDFPBM117K. "HI-LO" WALL-MOUNTED BARRIER-FREE DRINKING FOUNTAIN SHALL INCLUDE DUAL 18 GAUGE TYPE 300 HIGH-POLISHED STAINLESS STEEL FINISH BASINS WITH INTEGRAL SWIRL DESIGN, PUSH-BUTTON OPERATED VALVES WITH: FRONT-ACCESSIBLE CARTRIDGE AND FLOW ADJUSTMENT, POLISHED CHROME-PLATED BRASS VANDAL-RESISTANT BUBBLER HEADS WITH INTEGRAL LAMINAR ANTI-SQUIRT FLOW, CHROME-PLATED BRASS VANDAL-RESISTANT WASTE STRAINERS, VANDAL-RESISTANT BOTTOM PLATES, HIGH-POLISHED STAINLESS STEEL FINISH BACK AND ACCESS PANELS, IN-WALL MOUNTING FRAME, HIGH AND LOW FOUNTAIN MOUNTING LEVELS, AND 1-1/4" O.D. WASTE PIPES. INCLUDE OPTIONS FILTER AND REMOTE-CHILLER.
HB-1	HOSE BIB EXTERIOR GENERAL USE	-	-	3/4"	-	MILD TEMPERATURE WALL HYDRANT SHALL BE WADE MODEL 8600M1-17S 3/4" INLET WITH BRONZE CASING, BRONZE FACE AND STRAIGHT INLET CONNECTION WITH INTEGRAL BACKFLOW PREVENTER.
HB-2	ROOF MOUNT HOSE BIB	-	-	1"	-	CONNECTION WITH INTEGRAL BACKFLOW PREVENTER. NON-FREEZE HYDRANT SHALL BE WOODFORD MODEL RHY2-MS 1" INLET, PROTECTIVE HOUSING, AND BRONZE CASING. PROVIDE ROOF MOUNTING SYSTEM.
HB-3	WALL FAUCET INTERIOR HOSE BIB	-	-	3/4"	-	WOODFORD MODEL B26 (IN BOX) P-3/4" INLET, WITH BACKFLOW PREVENTER AND LOOSE TEE KEY.
MS-1	MOP SINK	3"	2"	1/2"	1/2"	FIAT MODEL NO. TSB100, 24"X24"X12" TERRAZO MOP SINK, COMPLETE WITH FAUCET MODEL 830-AA, MOP SINK SHALL INCLUDE ALL HOSE BRACKETS, HOSE, AND MOP HANGER. WITH 3" DRAIN WITH STRAINER & DEEP SEAL P-TRAP. PROVIDE WALL GUARD MSG2424.
FS-1	FLOOR SINK	AS NOTED ON PLANS				EQUAL TO JOSAM FLOOR SINK 49303-2-3-31-5S. 8" A.R.E. SQUARE TOP, WITH 5-7/8" DEEP SUMP, WITH FLANGE, 1/2 GRATE, WITH ALUMINUM SEDIMENT BUCKET.
FD-1	RESTROOM FLOOR DRAIN	AS NOTED ON PLANS				EQUAL TO JOSAM PART # 30003-6A-Y-50, CAST IRON BODY WITH CLAMP RING, FLANGE, ADJUSTABLE NIKALOY STRAINER, HUB OUTLET WITH GASKET AND 1/2" PRIMER TAP.

NOTES:

1.) INSULATE ALL WATER AND WASTE PIPING UNDER LAVATORIES WITH HANDY-SHIELD JACKET BY PLUMBEREX.

2.) PROVIDE SINGLE FIXTURE WATER HAMMER ARRESTORS EQUAL TO MINI-RESTER, HYDRA-RESTER SIOUX CHIEF. FOR ALL PLUMBING FIXTURES IN THE WATER SUPPLY SYSTEM.

3.) ALL VITREOUS CHINA FIXTURES SHALL BE WHITE.

INSTANTANEOUS ELECTRIC WATER HEATER SCHEDULE

MARK	MODEL	VOLTAGE	KW	AMPS	DEGREE RISE AT 0.5 GPM	WATER INLET	WATER OUTLET	MANUFACTURER
IWH-3, IWH-4	SP2412	120	2.4	20	33	3/8"	3/8"	EEMAX "SINGLE POINT" WATER HEATER
IWH-1, IWH-2 IWH-5, IWH-6 IWH-7	EX4208T ML	208/1	4.1	20	28	1/2"	1/2"	EEMAX "SINGLE POINT" WATER HEATER WITH ML (MULTIPLE LAVS) OPTION

ELECTRIC WATER HEATER SCHEDULE

DESIG.	STORAGE GALLONS	RECOVERY G.P.H.	DEGREE RISE °F	WATER TEMP. LEAVING	WATER INLET	WATER OUTLET	REMARKS
WH-1 WH-2	10	10	60°	120°	3/4"	3/4"	RHEEM MODEL NO. EGSP10, 1.5KW, 120V/1Ø. ELECTRIC TANK TYPE.

PLUMBING GENERAL NOTES: (ALL SHEETS)

A. ALL WORK AND MATERIAL SHALL BE IN COMPLIANCE WITH ALL APPLICABLE CODES AS ADAPTED AND AMENDED BY THE INSPECTING AUTHORITIES.

B. ALL PLUMBING WORK SHALL BE INSTALLED SO AS TO AVOID CONFLICT WITH ALL ELECTRICAL WORK, MECH'L WORK AND STRUCTURAL MEMBERS, COORDINATE WITH MECHANICAL, ELECT'L AND STRUCTURAL FOR PROPER CLEARANCES. CONTRACTOR SHALL COORDINATE AND ESTABLISH A SEQUENCE OF INSTALLATION WITH OTHER TRADES WORKING ON THE PROJECT.

C. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR PHASING AND SEQUENCE OF CONSTRUCTION OF WORK.

D. SLEEVE ALL OUTSIDE WALL, FLOOR SLAB, AND GRADE BEAM PENETRATIONS PER DETAILS AND PER CODE.

E. LOCATE ALL PLUMBING VENTS TO ROOF (VTR) SO THAT THEY TERMINATE A MINIMUM OF 1'-0" AWAY FROM ANY VERTICAL SURFACE AND 10'-0" AWAY FROM ANY OUTSIDE AIR INTAKES.

F. RECORD INVERT ELEVATIONS OF ALL YCO'S ON "AS-BUILT" DRAWINGS.

G. ALL SANITARY SEWER PIPING 4" AND LARGER SHALL BE INSTALLED AT 1/8" PER FT. MINIMUM, ALL SANITARY SEWER PIPING 3" AND SMALLER SHALL BE INSTALLED AT 1/4" PER FT. MINIMUM.

H. PLUMBING CONTRACTOR SHALL PAY FOR ALL UTILITY CONNECTIONS FEES, PERMITS, TESTS AND INSPECTIONS. FURNISH 3 COPIES OF INSPECTION CERTIFICATE BEFORE REQUESTING FINAL PAYMENT. PLUMBING CONTRACTOR TO BE RESPONSIBLE FOR COORDINATION, VERIFICATION AND CONNECTION OF ALL UTILITIES TO SITE UTILITY STUB-OUTS, REFERENCE ASSOCIATED ARCHITECTURAL, ELECTRICAL, MECHANICAL, STRUCTURAL, KITCHEN AND CIVIL DRAWINGS FOR RELATED INFORMATION.

I. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING AND REPAIRING ALL AREAS WHICH ARE DAMAGED BY HIS OPERATIONS.

J. CUTTING OF CONCRETE FLOORS SHALL BE BY MACHINE SAW. HOLES FOR PIPES (WALL OR FLOOR) SHALL BE DONE WITH CORE DRILLING EQUIPMENT WITH PRIOR APPROVAL FROM THE STRUCTURAL ENGINEERS.

K. PRESSURE TEST ALL INSTALLATIONS PRIOR TO CONNECTING EQUIPMENTS.

L. LABEL ALL PIPING PER ANSI STANDARD.

M. INSULATE ALL PIPING AS STATED IN SPECIFICATIONS.

N. INSTALL SHUT-OFF VALVES (STOPS) AND PIPING UNIONS AT EACH PIECE OF EQUIPMENT, PLUMBING FIXTURES, AND BRANCHES TO FIXTURE GROUPS. VALVES SHALL BE LOCATED IN AN ACCESSIBLE LOCATION, OR ACCESS PANELS PROVIDED AS NECESSARY.

O. PROVIDE ANY BACK FLOW PREVENTION DEVICE REQUIRED BY CODE OR GOVERNING AUTHORITIES. CONTRACTOR SHALL VERIFY THIS WITH CITY OR LOCAL AGENCIES AND INCLUDE COST OF SAME IN BID. CONTRACTOR TO HAVE BACK FLOWS CERTIFIED.

P. PROVIDE WATER HAMMER ARRESTORS AS INDICATED ON THE DRAWINGS. AIR CHAMBERS NOT AN APPROVED SUBSTITUTE.

Q. ALL EXPOSED PIPING FOR DESIGNATED DISABLED ACCESS FIXTURES SHALL BE COVERED OR OTHERWISE WRAPPED IN ACCORDANCE WITH A.D.A. REQUIREMENTS AND LOCAL AUTHORITY.

R. ALTERNATE MATERIALS NOT IDENTIFIED IN SPECIFICATIONS/DRAWINGS BUT APPROVED BY LOCAL AUTHORITY SHALL BE SUBMITTED TO ARCHITECT AND PLUMBING ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

S. ISOMETRIC DIAGRAMS ARE FOR SIZING PURPOSES ONLY AND SHALL NOT BE USED FOR MATERIAL TAKE-OFFS, OR BE CONSTRUED TO INDICATE ACTUAL SITE INSTALLATION.

T. DRAWING IS SCHEMATIC IN NATURE AND SHOW THE GENERAL LAYOUT OF THE PLUMBING SYSTEM. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF PIPING, DEVICES AND EQUIPMENT WITH BUILDING ELEMENTS AND THE WORK OF OTHER TRADES.

U. EVERY FLOOR DRAIN, FLOOR SINK OR HUB DRAIN SHALL BE SERVED BY AN AUTOMATIC TRAP PRIMER.

V. REFER TO KITCHEN EQUIPMENT PLAN AND SPECIFICATIONS. INFORMATION SHOWS EXACT LOCATIONS AND NECESSARY PLUMBING REQUIREMENTS FOR THE KITCHEN EQUIPMENT. COORDINATE WITH KITCHEN EQUIPMENT SUPPLIER.

W. ALL PLUMBING FIXTURES IDENTIFIED SHALL BE PROVIDED AND INSTALLED BY THE PLUMBING CONTRACTOR UNLESS NOTED OTHERWISE.

X. INSTALL VACUUM BREAKERS AT ALL THREADED HOSE CONNECTIONS AND AT ALL CONNECTIONS WHERE CROSS-CONTAMINATION COULD OCCUR.

Y. PIPING SHALL NOT BE INSTALLED OVER ELECTRICAL EQUIPMENT.

Z. CONTACT ARCHITECT BEFORE PENETRATING STRUCTURAL ELEMENTS WITH PIPING, EQUIPMENT, ETC.

A'. VERIFY EXACT LOCATIONS OF "HVAC" EQUIPMENT WITH MECHANICAL DRAWINGS. VERIFY PRIOR TO ANY INSTALLATION THAT THERE IS SUFFICIENT SPACE IN WALLS, CHASES AND CEILING CAVITIES FOR PLUMBING SYSTEM PIPING, VENTS, EQUIPMENT, ETC.

B'. PROVIDE ACOUST-O-PLUMB PIPE CLAMPS ON ALL DOMESTIC WATER PIPES 1" AND SMALLER IN SIZE. REFER TO FLOOR PLANS AND RISER DIAGRAMS.

C'. FIRESTOP ALL PENETRATIONS THRU FIRE-RATED ASSEMBLIES. REFER TO SPECIFICATIONS AND ARCHITECTURAL DRAWINGS.

D'. CAULK AROUND ALL PLUMBING FIXTURES. CAULK COLOR TO MATCH FIXTURE COLOR.

E'. SEAL ALL EXTERIOR WALL AND ROOF PENETRATIONS WATER TIGHT.

F'. PLASTIC PIPE SHOULD ALWAYS BE BURIED IN STRICT ACCORDANCE WITH THE ASTM STANDARD RELEVANT TO THE TYPE OF PLASTIC PIPING SYSTEM BEING INSTALLED. THOSE STANDARDS ARE:

ASTM D2321 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS.

ASTM D2774 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING.

NOTE: IN ADDITION TO THESE STANDARDS, PIPE SHOULD ALWAYS BE INSTALLED IN ACCORDANCE WITH ALL LOCAL CODE REQUIREMENTS.

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Texas Registered Engineering Firm - F10362
Project number: 16.1.01

SHEET NO. P3.1
OF
SET NUMBER
REVISED:
DATE: 09/30/16
DRAWN BY: TC
PROJECT NO.:16.1.01

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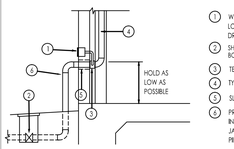
LICENSED PROFESSIONAL ENGINEER

PORT OF BROWNSVILLE
•WORLD CLASS•
BROWNSVILLE NAVIGATION DISTRICT OF CAMERON COUNTY, TEXAS

PROJECT: ADMINISTRATION COMPLEX REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE: FLOOR PLAN PLUMBING SEWER & VENT

01



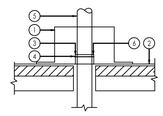
1. WALL HYDRANT - INSTALL LOW ENOUGH TO DRAIN RISER.
2. SHUT-OFF VALE IN CAST IRON BOX FLUSH WITH FINISHED GRADE
3. TEE
4. TYPE "L" COPPER
5. SLEEVE
6. PROVIDE 1" ARMAFLEX INSULATION W/ METAL JACKET ON EXPOSED PIPING.

WATER SERVICE ENTRANCE DETAIL

NO SCALE

05

NOTE:
LOCATE ALL PLUMBING VENTS TO ROOF (VTR) SO THAT THEY TERMINATE A MINIMUM OF 1'-0" AWAY FROM ANY VERTICAL SURFACE AND 10'-0" AWAY FROM ANY OUTSIDE AIR INTAKES.

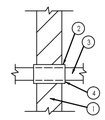


1. PREFABRICATED ROOF CURB, FURNISHED & INSTALLED BY ROOFING CONTR. (COORDINATE)
2. METAL ROOFING
3. STAINLESS STEEL CLAMP
4. SLEEVE PIPE BY ROOFING CONTR.
5. VTR
6. PROVIDE CAULKING GROVE
7. LOCATE MIN. 10'-0" FROM A/C AIR INTAKES

VENT THRU ROOF DETAIL

NO SCALE

09



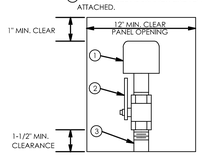
1. MASONRY WALL
2. GALVANIZED SCHEDULE 40 STEEL OR COPPER SLEEVE, SIZE TO BE MINIMUM 3/8" LARGER IN DIAMETER THAN PIPE AND INSULATION.
3. PLUMBING PIPE (RELIER LINES, DOMESTIC WATER, AIR, AND GAS PIPING).
4. FILL VOID WITH MINERAL WOOL AND CAULK VERMIN TIGHT.

WALL SLEEVE DETAIL

NO SCALE

13

1. WATER HAMMER ARRESTOR, SIZE AS PER MANUFACTURER'S SIZING TABLE.
2. BALL VALVE, SAME NOMINAL SIZE AS PIPE BRANCH. OPENING IN BALL VALVE TO MATCH PIPE I.D.
3. PIPE SAME SIZE AS BRANCH LINE TO WHICH IT IS ATTACHED.



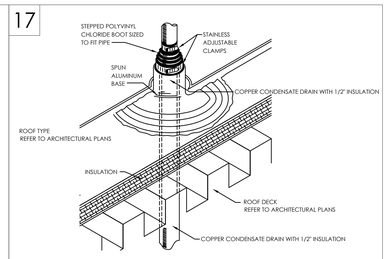
NOTE: PROVIDE REDUCER IF REQUIRED BETWEEN VALVE AND WATER HAMMER ARRESTOR.

DIMENSIONS FOR MIN. PANEL SIZE AND OPENING IF WATER HAMMER ARRESTOR IS LOCATED IN WALL. LOCKING PANEL COLOR TO BE DETERMINED BY ARCHITECT.

WATER HAMMER ARRESTOR DETAIL

NO SCALE

17



CONDENSATE PIPING THRU ROOF DETAIL

NO SCALE

02

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 WATER LINE ON SEPARATE SHELF A MINIMUM OF 12" ABOVE SEWER LINE.
MAINTAIN A MINIMUM OF 24" HORIZONTALLY BETWEEN ELECTRICAL PRIMARY AND SEWER. MAINTAIN A MINIM OF 12" VERTICALLY OR 24" HORIZONTALLY BETWEEN ELECTRICAL PRIMARY AND WATER LINES, GAS LINES, TELEPHONE RACEWAYS AND CABLE RACEWAYS.

TRENCHING DETAIL

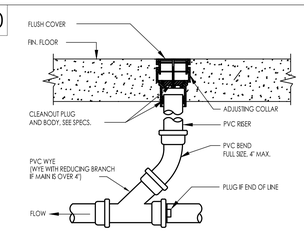
NO SCALE

06

TRAP SEAL PRIMER DETAIL

NO SCALE

10

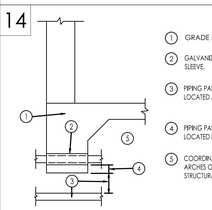


FLOOR CLEANOUT DETAIL

NO SCALE

14

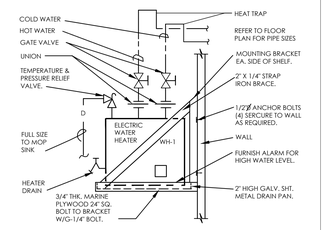
1. GRADE BEAM
2. GALVANIZED SCH 40 STEEL SLEEVE, SIZE PER SPECS. CENTER PIPE IN SLEEVE.
3. PIPING PASSING HORIZONTALLY UNDER GRADE BEAM SHALL BE LOCATED A MINIMUM OF 6" BELOW BEAM. PROVIDE A SLEEVE.
4. PIPING PASSING HORIZONTALLY THROUGH GRADE BEAM SHALL BE LOCATED NO LESS THAN 6" ABOVE BOTTOM OF BEAM.
5. COORDINATE LOCATIONS OF PIPING IN 3,4,5 ABOVE AS RELIEVING ARCHES OR ADDITIONAL CONCRETE MAY BE REQUIRED TO MAINTAIN STRUCTURAL INTEGRITY OF BEAM.



GRADE BEAM SLEEVE DETAIL

NO SCALE

18



WALL MOUNTED ELECTRIC WATER HEATER

NO SCALE

03

WALL CLEANOUT DETAIL

NO SCALE

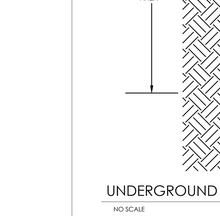
07

1. METAL SLEEVE TWO SIZES LARGER THAN PIPE
2. FILL VOID WITH NON-SHRINKING WATERPROOF, VERMIN PROOF MATERIAL
3. ALL PLUMBING PIPE PENETRATIONS THROUGH GROUND FLOOR, AND GRADE BEAMS SHALL BE SLEEVED
4. PIPE
5. CONCRETE SLAB
6. MINIMUM 3"

FLOOR PENETRATION DETAIL

NO SCALE

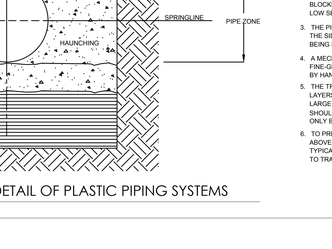
11



ADA WATER CLOSET DETAIL

NO SCALE

15

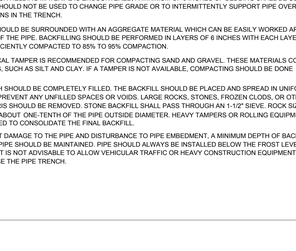


YARD CLEANOUT DETAIL

NO SCALE

19

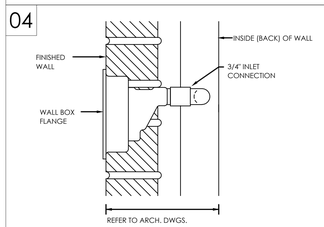
1. WALL HYDRANT - INSTALL LOW ENOUGH TO DRAIN RISER.
2. SHUT-OFF VALE IN CAST IRON BOX FLUSH WITH FINISHED GRADE
3. FILL VOID WITH 3M FIRE BARRIER TUCK-IN WRAP STRIP WS, FOLLOW WRAP INSTALLATION WITH LAYER OF 3M FIRE BARRIER WATER TIGHT SELANT 3000 WT.
4. TYPE "L" COPPER
5. SLEEVE
6. PROVIDE 1" ARMAFLEX INSULATION W/ METAL JACKET ON EXPOSED PIPING.



WATER SERVICE ENTRANCE DETAIL @ EXISTING BUILDINGS W/ CRAWL SPACE

NO SCALE

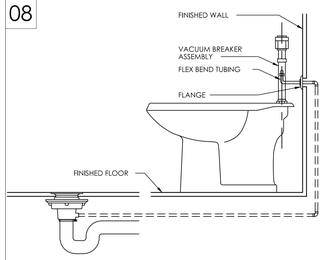
04



WALL HYDRANT DETAIL

NO SCALE

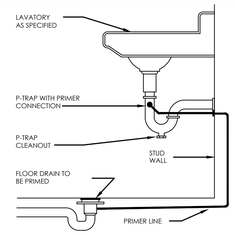
08



FLUSH VALVE TRAP SEAL PRIMER

NO SCALE

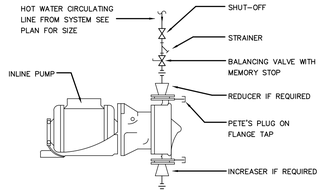
12



TRAP SEAL PRIMER INSTALLATION DETAIL

NO SCALE

07



INLINE CIRCULATING PUMP DETAIL

NO SCALE

20

UNDERGROUND INSTALLATION DETAIL OF PLASTIC PIPING SYSTEMS

NO SCALE

UNDERGROUND INSTALLATION OF PLASTIC PIPE

PLASTIC PIPE SHOULD ALWAYS BE BURIED IN STRICT ACCORDANCE WITH THE ASTM STANDARD RELEVANT TO THE TYPE OF PLASTIC PIPING SYSTEM BEING INSTALLED. THOSE STANDARDS ARE:

ASTM D2321 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS.

ASTM D2774 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING.

NOTE: IN ADDITION TO THESE STANDARDS, PIPE SHOULD ALWAYS BE INSTALLED IN ACCORDANCE WITH ALL LOCAL CODE REQUIREMENTS.

RECOMMENDATIONS FOR UNDERGROUND INSTALLATION OF PLASTIC DRAINAGE PIPE:

1. THE MINIMUM WIDTH OF THE TRENCH SHOULD BE THE PIPE OD (OUTSIDE DIAMETER) PLUS 16 INCHES OR THE PIPE OUTSIDE DIAMETER TIMES 1.25 PLUS 12 INCHES. THIS WILL ALLOW ADEQUATE ROOM FOR JOINING THE PIPE, SNAKING THE PIPE IN THE TRENCH TO ALLOW FOR EXPANSION AND CONTRACTION WHERE APPROPRIATE AND SPACE FOR BACKFILLING AND COMPACTION OF BACKFILL. THE SPACE BETWEEN THE PIPE AND TRENCH WALL MUST BE WIDER THAN THE COMPACTION EQUIPMENT USED TO COMPACT THE BACKFILL.
2. PROVIDE A MINIMUM OF 4 INCHES OF FIRM, STABLE AND UNIFORM BEDDING MATERIAL IN THE TRENCH BOTTOM. IF ROCK OR UNYIELDING MATERIAL IS ENCOUNTERED, A MINIMUM OF 6 INCHES OF BEDDING SHALL BE USED. BLOCKING SHOULD NOT BE USED TO CHANGE PIPE GRADE OR TO INTERMITTENTLY SUPPORT PIPE OVER LOW SECTIONS IN THE TRENCH.
3. THE PIPE SHOULD BE SURROUNDED WITH AN AGGREGATE MATERIAL WHICH CAN BE EASILY WORKED AROUND THE SIDES OF THE PIPE. BACKFILLING SHOULD BE PERFORMED IN LAYERS OF 6 INCHES WITH EACH LAYER BEING SUFFICIENTLY COMPACTED TO 85% TO 95% COMPACTION.
4. A MECHANICAL TAMPER IS RECOMMENDED FOR COMPACTING SAND AND GRAVEL. THESE MATERIALS CONTAIN FINE-GRAINS, SUCH AS SILT AND CLAY. IF A TAMPER IS NOT AVAILABLE, COMPACTING SHOULD BE DONE BY HAND.
5. THE TRENCH SHOULD BE COMPLETELY FILLED. THE BACKFILL SHOULD BE PLACED AND SPREAD IN UNIFORM LAYERS TO PREVENT ANY UNFILLED SPACES OR VOIDS. LARGE ROCKS, STONES, FROZEN CLODS, OR OTHER LARGE DEBRIS SHOULD BE REMOVED. STONE BACKFILL SHALL PASS THROUGH AN 1-1/2" SIEVE. ROCK SIZE SHOULD BE ABOUT ONE-TENTH OF THE PIPE OUTSIDE DIAMETER. HEAVY TAMPERS OR ROLLING EQUIPMENT SHOULD ONLY BE USED TO CONSOLIDATE THE FINAL BACKFILL.
6. TO PREVENT DAMAGE TO THE PIPE AND DISTURBANCE TO PIPE EMBEDMENT, A MINIMUM DEPTH OF BACKFILL ABOVE THE PIPE SHOULD BE MAINTAINED. PIPE SHOULD ALWAYS BE INSTALLED BELOW THE FROST LEVEL. TYPICALLY, IT IS NOT ADVISABLE TO ALLOW VEHICULAR TRAFFIC OR HEAVY CONSTRUCTION EQUIPMENT TO TRAVERSE THE PIPE TRENCH.

SHEET NO.	P4.1
OF	
SET NUMBER	
REVISED:	
DATE: 09/30/16	
DRAWN BY: TC	
PROJECT NO.:16.1.01	

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STATE OF TEXAS
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103731
REGISTERED ARCHITECT

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
FLOOR PLAN PLUMBING SEWER & VENT

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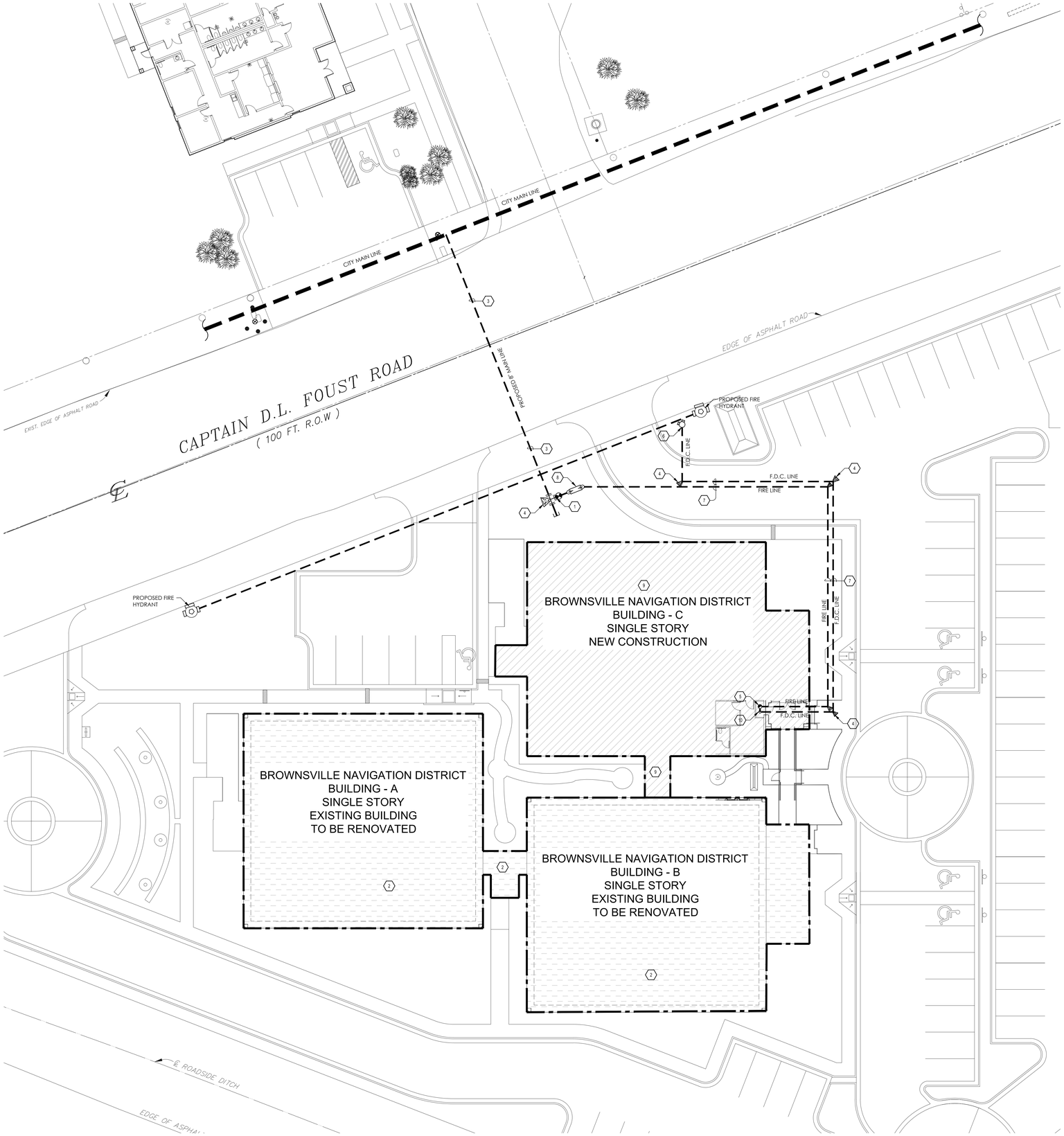


1 SITE PLAN- BUILDING
1/16"=1'-0"

GENERAL NOTES - FIRE PROTECTION:

A. SYSTEM TO BE DESIGNED TO MEET CITY OF BROWNSVILLE AND FIRE MARSHAL CODES. PLANS SHALL BE SUBMITTED TO THE CITY OF BROWNSVILLE FOR REVIEW AND APPROVAL. FIRE MARSHAL TO BE THE FINAL APPROVING AUTHORITY FOR ALL FIRE PROTECTION WORK.

B. FIRE DEPARTMENT CONNECTION SHALL BE AS REQUIRED BY LOCAL FIRE MARSHAL.

C. ALL PIPE TO BE SIZED HYDRAULICALLY

D. ALL PIPING UNDER SLAB SHALL BE STAINLESS STEEL. ELSE USE DUCTILE IRON. VERIFY WITH LOCAL APPROVING AUTHORITY.

E. DETAILS DESCRIBE SOME SPRINKLER COMPONENTS REQUIRED BY A AUTOMATICALLY OPERATED SYSTEM. SPRINKLER CONTRACTOR TO PROVIDE ALL SYSTEM COMPONENTS REQUIRED FOR A TURN KEY FIRE SPRINKLER SYSTEM.

F. PROVIDE SIGNS FOR FDC, ALL VALVES, AND RISER.

G. HAZARD CLASSIFICATION SHALL BE AS PER NFPA 13.

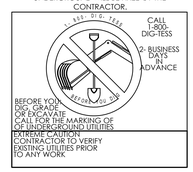
H. ALL UNDERGROUND PIPE TO BE DR-18 C900 AND TO BE INSTALLED AS PER NFPA 24.

I. REFER TO SPECIFICATIONS FOR FURTHER INSTRUCTIONS.

J. ALL ABOVE CEILING PIPING WILL NEED TO BE ROUTED AROUND EXISTING CONDUITS, BEAMS, MECHANICAL DUCT WORK AND DRAIN LINES. ALL PIPE LEFT WITH TRAP WATER NEEDS TO BE PROVIDED W/ A DRAIN VALVE.

K. SEAL ALL WALL OPENINGS W/ MORTAR OR FIRE CAULKING.

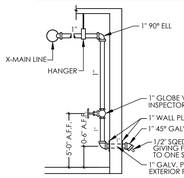
NOTE: CARE SHALL BE TAKEN DURING DIGGING. ALL LINES DAMAGED UNDERGROUND WILL BE FIXED BY THE CONTRACTOR.



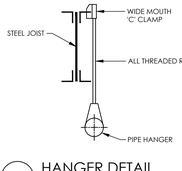
KEYED NOTES - FIRE PROTECTION:

1. FIRE SPRINKLER MAIN TO CONNECT TO PROPOSED WATER LINE. SEE DETAIL #4.
2. THIS IS A EXISTING BUILDING FACILITY. PROVIDE A NEW FIRE PROTECTION SYSTEM. COORDINATE W/ ALL OTHER TRADES.
3. ESTIMATED LOCATION OF MAIN WATER LINE. SEE CIVIL SITE PLAN FOR EXACT LOCATION AND SIZE.
4. PROVIDE A THRUST BLOCK @ EVERY CHANGE IN DIRECTION.
5. FIRE SPRINKLER SYSTEM RISER SHALL BE PLACED IN THIS ROOM. REFER TO DETAIL #5.
6. PLACE F.D.C. IN THIS LOCATION. COORDINATE EXACT LOCATION. SEE DETAIL #7
7. RUN FIRE MAIN AND FDC LINES BETWEEN 3 AND 4 FEET DEEP. PROVIDE 4 INCHES OF SAND UNDER PIPE. COVER ALL PIPE AND LEAVE JOINTS EXPOSED FOR ENGINEER AND FIRE DEPARTMENT INSPECTION.
8. PROVIDE BACKFLOW PREVENTER IN THIS LOCATION. COORDINATE FINAL LOCATION. SEE DETAIL #6
9. THIS IS A NEW BUILDING FACILITY. PROVIDE A NEW FIRE PROTECTION SYSTEM. COORDINATE W/ ALL OTHER TRADES.
10. DROP F.D.C. @ THIS POINT. PROVIDE STAINLESS STEEL IN-BUILDING RISER CUSTOMIZABLE (8' VERTICAL X 20' HORIZONTAL) AT FLOOR PENETRATION. CONTRACTOR COORDINATE EXACT LOCATION.

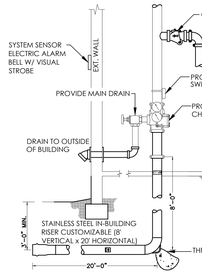
THIS DRAWING IS DIAGRAMMATIC AND SHOULD BE USED AS REFERENCE FOR BIDDING PURPOSES ONLY. THIS DRAWING SHALL NOT BE USE FOR PERMIT OR CONSTRUCTION.
CONTRACTOR IS FULLY RESPONSIBLE FOR THE DESIGN OF THE NEW FIRE SPRINKLER SYSTEM. ALL NFPA CODES APPLICABLE SHALL BE USED AND FOLLOWED.



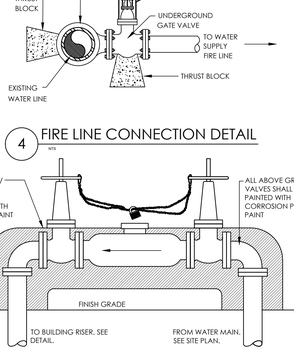
3 INSPECTOR'S TEST DETAIL
NTS



2 HANGER DETAIL
NTS

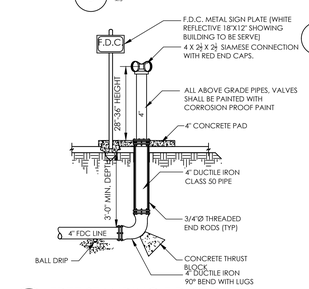


5 RISER ROOM DETAIL
NTS



4 FIRE LINE CONNECTION DETAIL
NTS

6 BACKFLOW PREVENTER DETAIL
NTS



7 FREE STANDING F.D.C. DETAIL
NTS

SHEET NO.	FP1.0
OF	
SET NUMBER	
REVISED:	
DATE: 09/30/16	DRAWN BY: TC
PROJECT NO.:16.1.01	

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09/30/16
STATE OF TEXAS
LEONARDO MUNOZ
5107
REGISTERED
LICENSED ARCHITECT

PORT OF BROWNSVILLE
•WORLD CLASS•

PROJECT: ADMINISTRATION COMPLEX
REHABILITATION AND BUILDING ADDITIONS
OWNER: BROWNSVILLE NAVIGATION DISTRICT
PORT OF BROWNSVILLE
BROWNSVILLE, TEXAS

SHEET TITLE:
SITE PLAN – BUILDING

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Project number: 16.1.01