

ADDENDA NO. 04

Date: January 28, 2016

Project Name: Police Department Training Facility
City of Edinburg

Subject: Addendum No. 04

Project No.: CITY: Bid 2016-64
ERO: 14030



THE SEAL APPEARING ON THIS DOCUMENT WAS
AUTHORIZED BY ELI R. OCHOA, AIA 18160
DATED 1.28.2016

NOTICE TO PROPOSERS

- A. Receipt of this Addendum shall be acknowledged on the Proposal Form.
- B. This Addendum forms part of the Contract documents for the above referenced project and shall be incorporated integrally therewith.
- C. Each proposer shall make necessary adjustments and submit his proposal with full knowledge of all modifications, clarifications, and supplemental data included therein. Where provisions of the following supplemental data differ from those of the original Contract Documents, this Addendum shall govern.
- D. This addendum is generally separated into sections for convenience; however, all contractors, subcontractors, material men and other parties shall be responsible for reading the entire addendum. The failure to list an item or items in all affected sections of this addendum does not relieve any party affected from performing as per instructions, providing that the information is set forth one time in this addendum.

GENERAL

Item No. G01 Is any equipment going to be furnished by Owner and install by G.C.? Can you provide a list? – **No the City will not be having the G.C. install any equipment.**

Item No. G02 Does the G.C. need to add some kind of allowance to replace damaged landscaping or concrete curb, etc. due to traffic going into the jobsite? - **No, the City will be handling all the**

parking lot aspect of the project, and that should be part of the SW3P/NOI they will need to establish a construction entrance.

- Item No. G03 Is it required a Water Meter, Tap fees, impact fees to be added for this project? – Yes, a water meter is required and the tap fee will need to be added, due to the service area is North Alamo Water Supply.
- Item No. G04 On Section 8710 Finish Hardware, the description on the bottom right of each page for this section, it says Allowances. Is the Finish Hardware an Allowance or not? - On Section 8710 Finish Hardware, the section is not an allowance.
- Item No. G05 On page AE301 Detail #B4, the CMU low walls looks like a Stucco finish, but the detail just says just New CMU walls. Is the CMU just going to be painted or is it going to be Stucco Finish? Please, specify. - On AE301 Detail B4, The new CMU walls are just going to be painted, no stucco finish.

PLANS

- Item No. P01. Replace sheets E100, E101, E102, E200, and E300 in its entirety. (See attached).
- Item No. P02. Replace WINDOW FRAME ON SHEET AE601 W2 to read as Aluminum frame type. (See attached).

PROJECT MANUAL

- Item No. S01. Specification Section
00 41 00- Bid Form
Replace this section in its entirety (see attached).
- Item No. S02. Specification Section
01 21 00- Allowances
Replace this section in its entirety (see attached).
- Item No. S03. Specification Section
28 31 11- Digital Addressable Fire-Alarm
Replace this section in its entirety (see attached).

Item No. S04. **Specification Section**
10 21 13.17 Phenolic-Core Toilet Compartments

**As reviewed, additional approved vendor for Toilet Partitions
Part -2 Products**

2.02

A. Manufacturers

**6. Columbia Lockers/PSiSC
Phone | (803) 252-3020
Phone | (803) 461-8652
Model No. 58124 Class B**

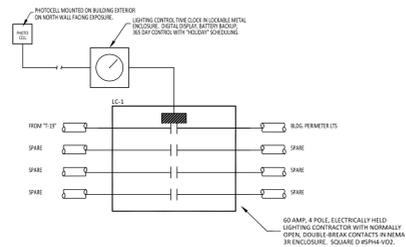
Item No. S05. **Specification Section**
10 14 19 Dimensional Letter Signage

Part -2 Products

Section 2.01 Dimensional Characters

Item A. Add the Sub-item to read as follows:

6. Character Font: Helvetica Medium Uppercase Letters.



1 LIGHT CONTROL SCHEMATIC LC-1
SCALE: N.T.S.

TYPE	MFR	MODEL NUMBER	LAMPS	VA	VOLTAGE	MOUNTING	DESCRIPTION
A	LSI	LPASC22-LED-SS-WW-UE	29W-LED 2727 LUMENS		120	RECESSED	2X2 LED LOW PROFILE RECESSED TROFFER
AE	LSI	LPASC22-LED-SS-WW-UE-EM 1100 LUMEN EMERGENCY	29W-LED 2727 LUMENS	29	120	RECESSED	2X2 LED LOW PROFILE RECESSED TROFFER
B	LSI	LPASC24-LED-SS-WW-UE	36W-LED 3425 LUMENS		120	RECESSED	2X4 LED LOW PROFILE RECESSED TROFFER
BE	LSI	LPASC24-LED-SS-WW-UE-EM 1100 LUMEN EMERGENCY	36W-LED 3425 LUMENS	36	120	RECESSED	2X4 LED LOW PROFILE RECESSED TROFFER
C	LSI	LPASC22-LED-SS-WW-UE-M20027-FK22 FURNISH WITH FLANGE KIT	29W-LED 2727 LUMENS		120	RECESSED	2X2 LED LOW PROFILE RECESSED TROFFER
CE	LSI	LPASC22-LED-SS-WW-UE-EM-M20027-FK22 1100 LUMEN EMERGENCY FURNISH WITH FLANGE KIT	29W-LED 2727 LUMENS	29	120	RECESSED	2X2 LED LOW PROFILE RECESSED TROFFER
D	GE	S-1-1V4-120-277-47-1-4-S-N-V-ST-A-W	55W-LED 7650 LUMENS		120	PENDANT	LINEAR LED
DE	GE	S-1-1V4-120-277-47-1-4-S-N-V-ST-A-W FURNISH 1100 LUMEN EMERGENCY	55W-LED 7650 LUMENS	55	120	PENDANT	LINEAR LED
F	ILP	WTPG4-70W-UNIV-4000K	44W-LED 3500K		120	RECESSED	4-FOOT LED
FE	ILP	WTPG4-70W-UNIV-4000K-LEDBB	44W-LED 3500K	44	120	PENDANT	4-FOOT LED WITH EMERGENCY BATTERY PACK
CC	ATLAS	WPM-43LED	43W-LED		120	WALL	43 WATT LED DIE CAST WALL PACK
X	LSI	EX-R-U-WB-WH REFER TO PLANS FOR NUMBER OF FACES REQUIRED	10W-LED		120	REFER TO PLANS	LED EXIT

REVISION:
1. 01.27.2016, ADDENDUM #4 - ADDED LIGHT FIXTURES TYPE CE TO RESTROOMS 104 AND 105. ADDED LIGHT FIXTURES TYPE FE TO ROOMS 104, 1 AND 105.1.

- GENERAL NOTES:**
1. REFER TO SHEET MEP-1.0 FOR GENERAL NOTES.
- KEY NOTES:**
- RELAY SHALL CONTROL ZONE 1 WITH DIMMING BUTTON 1.
 - RELAY SHALL CONTROL ZONE 2 WITH DIMMING BUTTON 2.
 - RELAY SHALL BE USED TO CONTROL FOYER/CIRCULATION 100.
 - RELAY SHALL BE USED TO CONTROL CORRIDOR 120.
 - RELAY SHALL CONTROL EXHAUST FAN. EXHAUST FANS SHALL BE CONTROLLED WITH LIGHTS.
 - ALL CORRIDORS SHALL BE CONNECTED TO CIRCUIT T-27.



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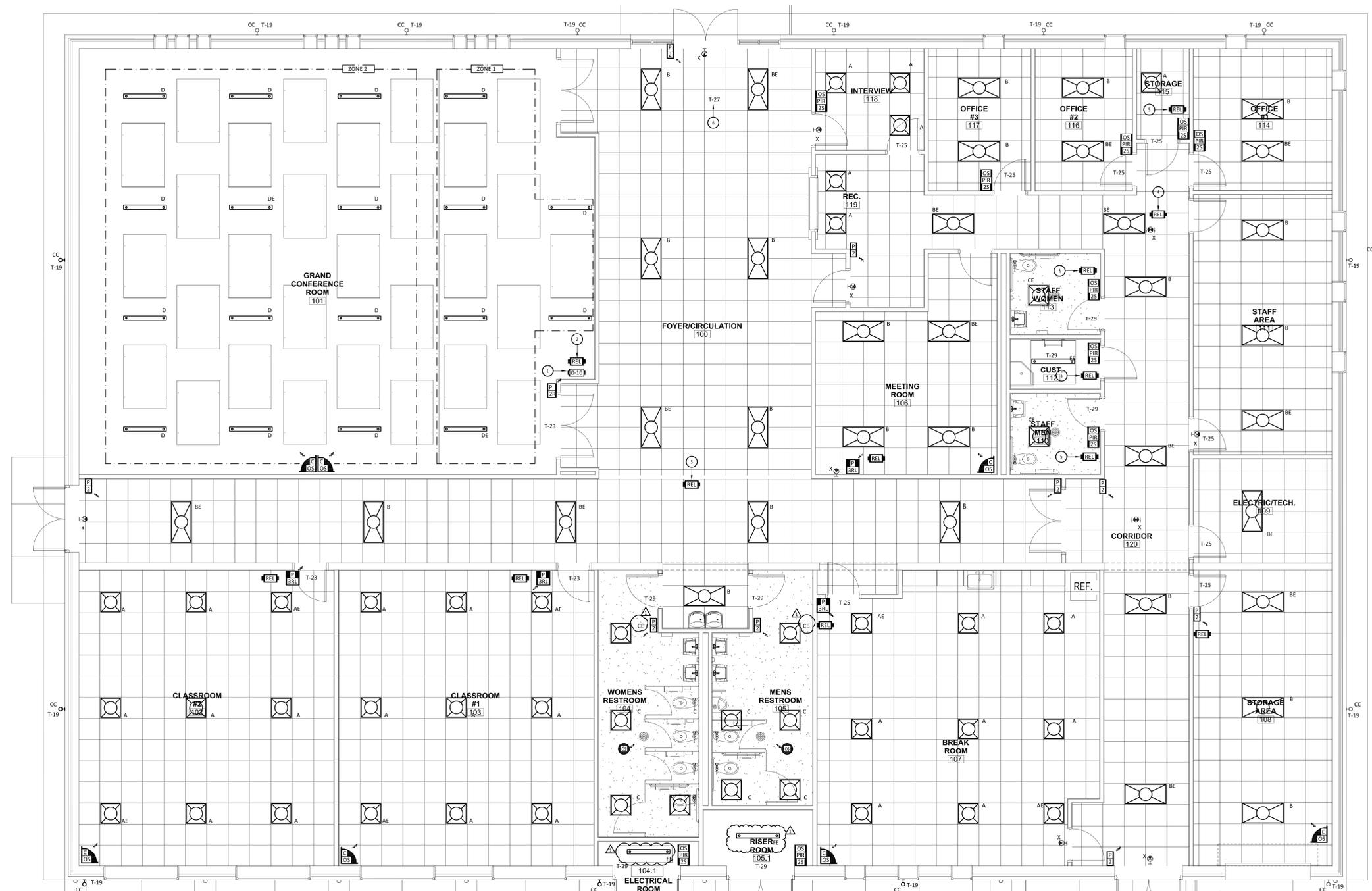
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MEP:
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956-332-2026

EDINBURG POLICE TRAINING DEPARTMENT
1000 N. DOUGLASS BLVD.
EDINBURG, TEXAS 78546
CITY OF EDINBURG PUBLIC WORKS

Date	Description	PROJECT NAME	PROJECT LOCATION	PROJECT OWNER
11/02/2015	PERMIT SET			
12/16/2015	C.D.S			
01/27/2016	ADD.#1			
No.	1			

PROJECT NO.: 15030
DRAWN BY: J.V.
CHECKED BY: J.A.N.
SHEET TITLE:
SIGMA HN ENGINEERS, PLLC
ELECTRICAL LIGHTING PLAN

E100



2 ELECTRICAL LIGHTING PLAN & LIGHT FIXTURE SCHEDULE
SCALE: 1/4" = 1'-0"

LIGHTING CONTROLS LEGEND

- (WALL MOUNTED) LUTRON/RLF2-OKLB-P-WH
- (CEILING MOUNT) LUTRON/RLF2-OCR2B-P-WH
- P12-2BRL-GWH-L01
- P12-2B-GWH-L01
- P12-3BRL-GWH-L01
- RMJ-16R-DV-B
- RMJ-5T-DV-B
- MS-OPS2-WH

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REVISION: Δ

- 01.27.2016, ADDENDUM #4, REVISED INSTALLATION REQUIREMENTS FOR SCREEN PROJECTORS AND TELEVISIONS. REVISED POWER REQUIREMENTS FOR ACCESS CONTROL PANEL. REMOVED PANEL "MD" FROM ELECTRICAL ROOM TO MATCH SITE PLAN SHEET ES-100.

GENERAL NOTES:

- REFER TO SHEET MEP-1.0 FOR GENERAL NOTES.
- ALL COMPUTER CIRCUITS SHALL CONSIST OF 2#12, 1#12G, 1#12IG, 1/2 INCH CONDUIT. FURNISH AND INSTALL ISOLATED GROUND RECEPTACLE WITH ORANGE FINISH. THESE SHALL BE INSTALLED WHERE DENOTED AS COMPUTER CIRCUITS ON THE ELECTRICAL PANEL SCHEDULES.
- FURNISH AND INSTALL 3/4-INCH CONDUITS WITH NYLON PULL STRING FOR ALL CAMERAS. ALL CONDUITS SHALL BE INSTALLED FROM THE CAMERA ALL THE WAY TO THE ELECTRIC/TECH RM. 109.

KEY NOTES:

- FURNISH AND INSTALL 8" X 4" X 3/4" VERTICALLY HUNG, GRADE AC, PLYWOOD. PAINT PLYWOOD WITH TWO COATS OF FIRE RETARDANT TO MATCH WALL FINISH.
- FURNISH AND INSTALL POWER FOR FIRE ALARM CONTROL PANEL.
- FURNISH AND INSTALL QTY. 2 TELEPHONE DATA DROPS FOR FIRE ALARM.
- FURNISH AND INSTALL GFCI DUPLEX RECEPTACLES WITH HEAVY DUTY, WHILE IN USE RED DOT COVERS.
- EXHAUST FANS SHALL BE CONTROLLED WITH LIGHT SWITCH.
- NOT USED.
- FURNISH AND INSTALL CEILING MOUNTED PROJECTOR MOUNT. COORDINATE WITH OWNER PROJECTOR MOUNT TYPE PRIOR TO COMMENCING WORK. FURNISH AT THE MOUNT, A 4-INCH SQUARE BOX WITH MUDRINGS FOR MULTIMEDIA CABLING AND WIRING DEVICES. MOUNT BOTH, J BOX AND DUPLEX RECEPTACLE, FLUSH TO CEILING TILE.
- NOT USED.
- FURNISH AND INSTALL POWER FOR RE-CIRCULATING PUMP. BRANCH CIRCUIT TO CONSISTS OF HORSEPOWER RATED MANUAL ON/OFF SWITCH, 2#10, 1#10G, 1/2 INCH CONDUIT.
- FURNISH AND INSTALL MULTIMEDIA WIRING DEVICE ROUGH-IN DEVICE INFRASTRUCTURE. REFER TO DETAILS FOR MOUNTING HEIGHT AND INFRASTRUCTURE REQUIRED, I.E. J-BOXES, CONDUITS, MOUNTING HARDWARE, ETC.
- FURNISH AND INSTALL POWER AND ROUGH-IN MULTIMEDIA FOR CEILING MOUNTED PROJECTOR. REFER TO DETAILS FOR INFRASTRUCTURE REQUIRED, (I.E. J-BOXES, CONDUITS, MOUNTING HARDWARE, ETC.)
- COORDINATE CEILING MOUNTED PROJECTOR HARDWARE WITH OWNER PRIOR TO INSTALLATION OF POWER AND ROUGH-IN INFRASTRUCTURE FOR DATA AND MULTIMEDIA.
- FURNISH AND INSTALL LOCAL AREA NETWORK RACK. ELECTRICAL CONTRACTOR SHALL INCLUDE IN HIS BID TO OWNER MATERIAL AND LABOR REQUIRED TO FURNISH AND INSTALL THE UNIVERSAL RACK (7'H) X (19" EIA) X (15" D) TWO-POST 19-INCH CP-RACK SYSTEM WITH THE FOLLOWING THE FOLLOWING:
 - A. MASTER CABLING SECTION, DOUBLE SIDED WITH EXTENDED FINGERS, (ONE AT EACH END)
 - B. QTY. (1) 2500 WATT APC - POWER DISTRIBUTION UNITS.
- FURNISH AND INSTALL 12" UNIVERSAL CABLE RUNWAY WITH THE FOLLOWING PRODUCTS:
 - A. 12" W 9" H 1.5" L UNIVERSAL CABLE RUNWAYS
 - B. 12" CABLE RUNWAY S-BENDS
 - C. THREADED CEILING KITS
 - D. 12" OUTSIDE RADIUS BEND
 - E. 1" CROSS MEMBER RADIUS DROP (FURNISH AT EVERY DROP FROM THE CABLE RUNWAY TO THE RACK).
 - F. BUTT-SPlice KITS
 - G. FLOOR KIT
 - H. WALL TRIANGLE SUPPORT BRACKETS.
 - I. CABLE MANAGEMENT RINGS (USE FOR ALL FIBER AND COPPER CABLING INSTALLED ALONG THE PLYWOOD WALL.
- FURNISH AND INSTALL CONDUITS FROM THE PROJECTOR TO THE FLOOR BOX; INSTALL PULL BOXES AT EVERY 90 DEGREE BEND.
- FURNISH AND INSTALL POWER AND ROUGH IN CONDUITS WITH PULL STRINGS FOR OWNER PROVIDED DSX ACCESS CONTROL SYSTEM. ROUTE CONDUIT FROM ACCESS CONTROL PANEL LOCATION TO ACCESSIBLE ABOVE CEILING.
- COORDINATE FINAL LOCATION OF FLOOR BOXES WITH OWNER PRIOR TO COMMENCING WORK.

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EDINBURG POLICE TRAINING DEPARTMENT

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CITY OF EDINBURG PUBLIC WORKS

No.	Date	Description
1	11/02/2015	PERMIT SET
2	12/16/2015	C.D.S
3	01/27/2016	ADD #4

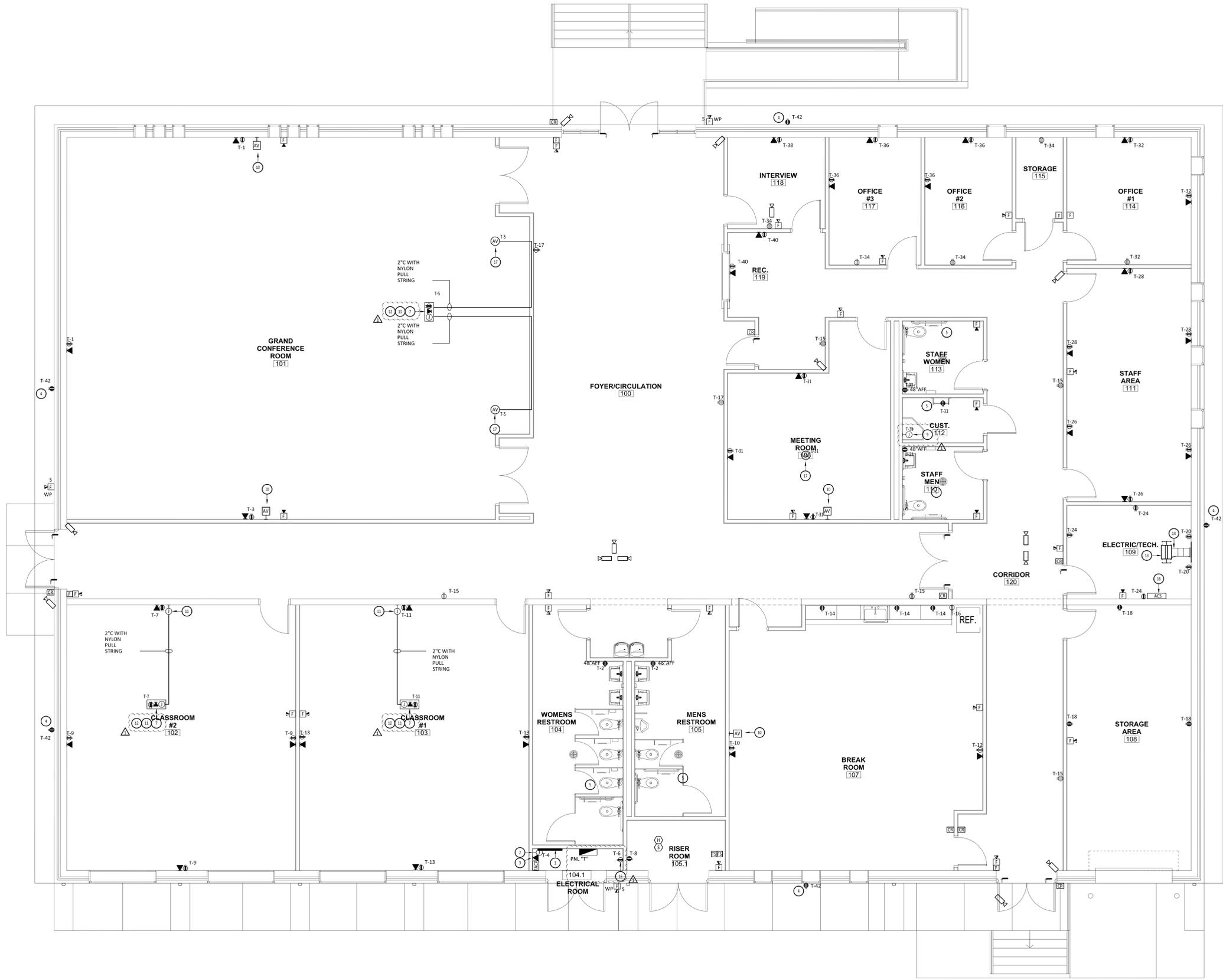
PROJECT NO.: 15030
 DRAWN BY: J.V.
 CHECKED BY: J.A.N.
 SHEET TITLE:

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TBPE Firm No. F-14767
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ELECTRICAL POWER AND SPECIAL SYSTEMS PLAN

E101



1 ELECTRICAL POWER & SPECIAL SYSTEMS PLAN
 SCALE: 1/4" = 1'-0"



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REVISION: Δ

- 01.27.2016: ADDENDUM #4 - REVISED MECHANICAL EQUIPMENT UNIT MARK FOR VAV BOXES TO MATCH MECHANICAL EQUIPMENT. ADDED WATER HEATER AND RE-CIRCULATING PUMP TO EQUIPMENT LAYOUT.

MECHANICAL EQUIPMENT CONNECTION SCHEDULE	
PACKAGED DX ROOFTOP UNITS	
UNIT MARK	DISCONNECT/ BRANCH CIRCUIT
RTU-1	3#6, 1#10G, 1" C
RTU-2	3#6, 1#10G, 1" C
SINGLE DUCT TERMINAL UNITS	
UNIT MARK	DISCONNECT/ BRANCH CIRCUIT
VAV-1	60/35AF/3P, NEMA 1, 3#8, 1#10, 3/4" C
VAV-2	30/13AF/3P, NEMA 1, 3#12, 1#12, 1/2" C
VAV-3	30/13AF/3P, NEMA 1, 3#12, 1#12, 1/2" C
VAV-4	30/16AF/3P, NEMA 1, 3#12, 1#12, 1/2" C
VAV-5	30/14AF/3P, NEMA 1, 3#12, 1#12, 1/2" C
VAV-6	30/14AF/3P, NEMA 1, 3#12, 1#12, 1/2" C
VAV-7	30/12AF/3P, NEMA 1, 3#12, 1#12, 1/2" C
VAV-8	30/7AF/3P, NEMA 1, 3#12, 1#12, 1/2" C
VAV-9	30/7AF/3P, NEMA 1, 3#12, 1#12, 1/2" C
EXHAUST FANS	
UNIT MARK	DISCONNECT/ BRANCH CIRCUIT
EF-1	2#12, 1#12G, 1/2" C
EF-2	2#12, 1#12G, 1/2" C
EF-3	2#12, 1#12G, 1/2" C
EF-4	2#12, 1#12G, 1/2" C
EF-5	2#12, 1#12G, 1/2" C
WATER HEATERS	
UNIT MARK	DISCONNECT/ BRANCH CIRCUIT
WH-1	60/35AF/3P, NEMA 1, 3#8, 1#10, 3/4" C
UNIT HEATER	
UNIT MARK	DISCONNECT/ BRANCH CIRCUIT
UH-1	30/12AF/3P, NEMA 1, 3#12, 1#12, 1/2" C
NOTES:	
A. REFER TO MECHANICAL & PLUMBING PLANS FOR EXACT LOCATION OF EQUIPMENT LOCATIONS.	
B. FURNISH AND INSTALL DISCONNECT SWITCHES FOR VAV BOXES WITHIN 4 FEET, IN FRONT OF THE VAV ACCESS PANEL.	
C. FURNISH AND INSTALL EQUIPMENT LABEL PER SPECIFICATIONS, RIGHT BELOW ACCESS PANEL, ON THE RCP T-BARS.	
D. REFER TO PANELS FOR CIRCUIT DESIGNATIONS.	
E. FURNISH AND INSTALL DISCONNECT SWITCHES ADJACENT TO WATER HEATER.	
F. FURNISH AND INSTALL HORSE POWER RATED MANUAL SWITCH FOR EXHAUST FANS.	

GENERAL NOTES:

- REFER TO SHEET MEP-1.0 FOR GENERAL NOTES.
- ALL COMPUTER CIRCUITS SHALL CONSIST OF 2#12, 1#12G, 1/2" INCH CONDUIT. FURNISH AND INSTALL ISOLATED GROUND RECEPTACLE WITH ORANGE FINISH. THESE SHALL BE INSTALLED WHERE DENOTED AS COMPUTER CIRCUITS ON THE ELECTRICAL PANEL SCHEDULES.

KEY NOTES:

- FURNISH AND INSTALL POWER FOR RECIRCULATING PUMP. BRANCH CIRCUIT TO CONSISTS OF HORSEPOWER RATED MANUAL ON/OFF SWITCH, 2#10, 1#10G, 1/2" INCH CONDUIT.
- FURNISH AND INSTALL BRANCH CIRCUIT FOR MAINTENANCE PURPOSE RECEPTACLE CONSISTING OF 2#12, 1#12G, 1/2" INCH CONDUIT. RECEPTACLE IS PROVIDED INTEGRAL TO ROOF TOP UNITS. ELECTRICAL CONTRACTOR SHALL INCLUDE IN HIS BID TO OWNER MATERIAL AND LABOR REQUIRED TO PROVIDE POWER.
- EXHAUST FANS SHALL BE CONTROLLED BY LIGHTS.
- FURNISH AND INSTALL POWER FOR ROOF TOP MOUNTED UNIT RECEPTACLES; BRANCH CIRCUIT T-33.

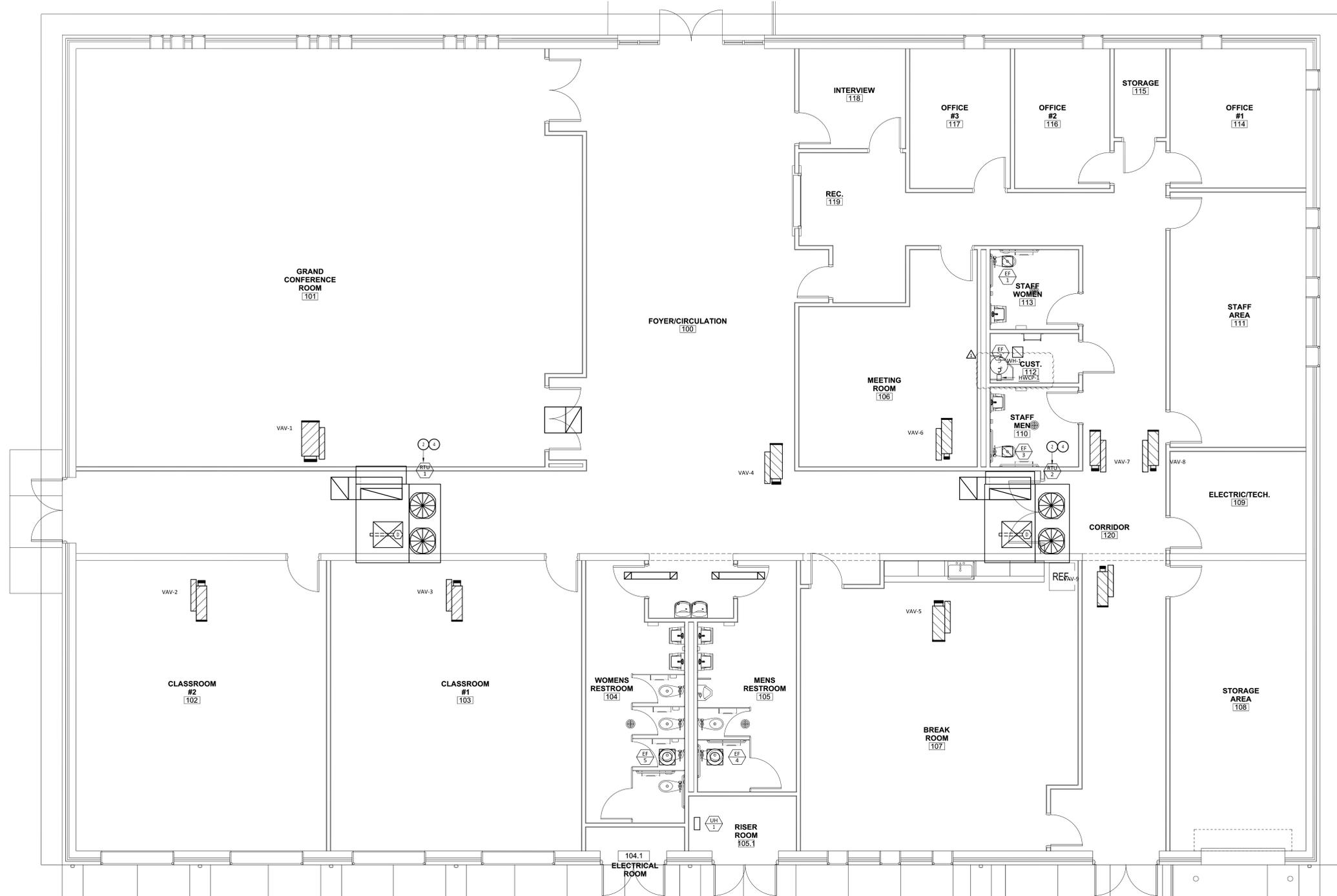
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1 ELECTRICAL-MECHANICAL CONNECTION SCHEDULE AND LAYOUT
 SCALE: 1/4" = 1'-0"

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CITY OF EDINBURG PUBLIC WORKS

No.	Date	Description
1	11/24/2015	PERMIT SET
2	12/16/2015	C.D.S.
3	01/27/2016	ADD #1

PROJECT NO.: 15030
 DRAWN BY: J.V.
 CHECKED BY: J.A.N.
 SHEET TITLE:

E102

ELECTRICAL POWER AND SPECIAL SYSTEMS PLAN

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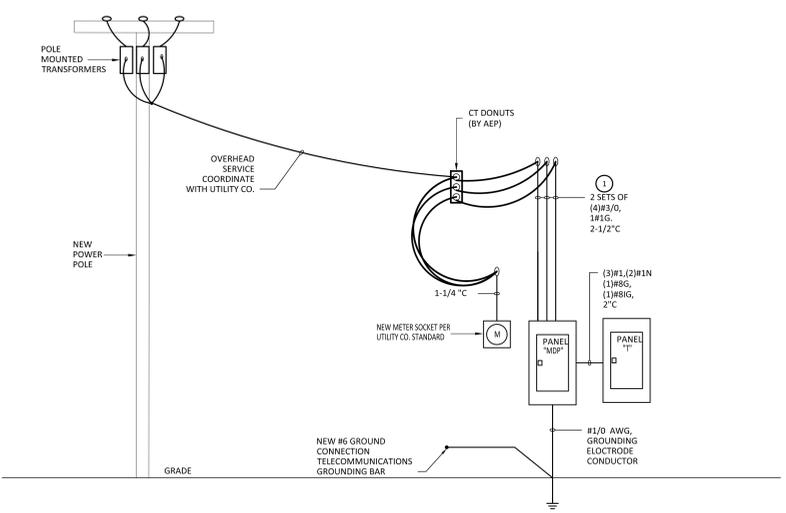
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956-332-2020

PANELBOARD "T"												
VOLTAGE: 208Y/120 VOLT 3 PHASE 4 WIRE					LOCATION: ELECTRICAL/MECH RM							
100 A MAIN BREAKER					MOUNTING: SURFACE							
BUSES: MAIN - 400 A; NEUTRAL - 200%; EQUIPMENT GROUND; ISOLATED GROUND					Isc = 10,000 A RMS SYM AVAILABLE							
VAL	VA-R	VA-O	LOAD	BKR	CKT	PH	CKT	BKR	LOAD	VAL	VA-R	VA-O
0	900		COMPUTER RECEPT. RM. 101	20/1	1	A	2	20/1	GFCI RESTROOM 104, 105	0	360	
0	540		COMPUTER RECEPT. RM. 101	20/1	3	B	4	20/1	FIRE ALARM CONTROL PANEL	0	180	
0	360		PROJECTOR/MEDIA POWER RM. 101	20/1	5	C	6	20/1	SECURITY PANELS	0	180	
0	360		PROJECTOR/MEDIA POWER RM. 102	20/1	7	A	8	20/1	GFCI RISER RM.105.1	0	180	
0	900		COMPUTER RECEPT. RM. 102	20/1	9	B	10	20/1	TV RM. 107	0	180	
0	360		PROJECTOR/MEDIA POWER RM. 103	20/1	11	C	12	20/1	RECEPT. RM. 107	0	0	1920
0	900		COMPUTER RECEPT. RM. 103	20/1	13	A	14	20/1	RECEPT. RM. 107	0	0	1920
0	900		RECEPT. CORRIDORS	20/1	15	B	16	20/1	REFRIGERATOR RM. 107	0	0	1600
0	0		RECEPT. FOYER 100	20/1	17	C	18	20/1	RECEPT. RM. 108	0	180	
602	0		BLDG PERIMETER LTS	20/1	19	A	20	20/1	RM. 109 TELECOM UPS	0	0	1500
0	180		LIGHTING CONTACTOR COIL	20/1	21	B	22	20/1	RM. 109 TELECOM UPS	0	0	1500
1402	0		INTERIOR LIGHTING	20/1	23	C	24	20/1	RECEPT. RM. 109	0	540	
983	0		INTERIOR LIGHTING	20/1	25	A	26	20/1	RECEPT. RM. 111	0	540	
670	0		INTERIOR LIGHTING	20/1	27	B	28	20/1	RECEPT. RM. 111	0	540	
0	0		INTERIOR LIGHTING	20/1	29	C	30	20/1	RECEPT. RM. 114, 116, 117	0	720	
0	540		RECEPT. RR 113, 110 AND RM. 112	20/1	31	A	32	20/1	RECEPT. RM. 115	0	360	
0	0		RTU RECEPT.	20/1	33	B	34	20/1	RECEPT. RM. 116	0	540	
0	180		SCP-1	20/1	35	C	36	20/1	RECEPT. RM. 117	0	540	
0	0		SPARE	20/1	37	A	38	20/1	RECEPT. RM. 118	0	540	
0	0		SPARE	20/1	39	B	40	20/1	RECEPT. RM. 119	0	0	
0	0		SPARE	20/1	41	C	42	20/1	EXTERIOR RECEPT GFCI	0	900	
VAL (LIGHTING)				3657 CONNECTED				4571 DEMAND				
VA-R (RECEPTACLES)				12600 CONNECTED				11300 DEMAND				
VA-O (OTHER)				8440 CONNECTED				8440 DEMAND				
VA TOTAL				24697 CONNECTED				10241 DEMAND				
AMPS: TOTAL				69 CONNECTED				67 DEMAND				
L	R	O	TOTAL	VA CONNECTED TO A PHASE	9685 VA =	81	AMPS CONNECTED TO A PHASE @ 120 VOLTS					
1585	4680	3420		VA CONNECTED TO B PHASE	7730 VA =	64	AMPS CONNECTED TO B PHASE @ 120 VOLTS					
670	3960	3100		VA CONNECTED TO C PHASE	7282 VA =	61	AMPS CONNECTED TO C PHASE @ 120 VOLTS					
1402	3960	1920		TOTAL	24697 VA							
3657	12600	8440										

PANELBOARD "MDP"												
VOLTAGE: 208Y/120 VOLT 3 PHASE 4 WIRE					LOCATION: EXTERIOR; FURNISH WITH NEMA 3R ENCLOSURE							
400 A MAIN BREAKER					MOUNTING: SURFACE							
BUSES: MAIN - 400 A; NEUTRAL - 200%; EQUIPMENT GROUND; ISOLATED GROUND					Isc = 22,000 A RMS SYM AVAILABLE							
VAL	VA-R	VA-O	LOAD	BKR	CKT	PH	CKT	BKR	LOAD	VAL	VA-R	VA-O
0	0	4771	RTU-1	60/3	1	A	2	60/3	RTU-2	0	0	4771
0	0	4771	*	-	3	B	4	-	*	0	0	4771
0	0	4771	*	-	5	C	6	-	*	0	0	4771
0	0	3167	SDB-1	35/3	7	A	8	20/3	SDB-6	0	0	500
0	0	3167	*	-	9	B	10	-	*	0	0	500
0	0	3167	*	-	11	C	12	-	*	0	0	500
0	0	1167	SDB-2	20/3	13	A	14	20/3	SDB-7	0	0	1167
0	0	1167	*	-	15	B	16	-	*	0	0	1167
0	0	1167	*	-	17	C	18	-	*	0	0	1167
0	0	1167	SDB-3	20/3	19	A	20	20/3	SDB-8	0	0	667
0	0	1167	*	-	21	B	22	-	*	0	0	667
0	0	1167	*	-	23	C	24	-	*	0	0	667
0	0	1500	SDB-4	20/3	25	A	26	20/3	SDB-9	0	0	667
0	0	1500	*	-	27	B	28	-	*	0	0	667
0	0	1500	*	-	29	C	30	-	*	0	0	667
0	0	1333	SDB-5	20/3	31	A	32	20/3	UH-1	0	0	1100
0	0	1333	*	-	33	B	34	-	*	0	0	1100
0	0	1333	*	-	35	C	36	-	*	0	0	1100
1585	4680	3420	PANEL "T"	100/3	37	A	38	35/3	WAHTER HEATER "WH-1"	0	0	3333
670	3960	3100	*	-	39	B	40	-	*	0	0	3333
1402	3960	1920	*	-	41	C	42	-	*	0	0	3333
VAL (LIGHTING)				3657 CONNECTED				4571 DEMAND				
VA-R (RECEPTACLES)				12600 CONNECTED				11300 DEMAND				
VA-O (OTHER)				8440 CONNECTED				8440 DEMAND				
VA TOTAL				10241 CONNECTED				10241 DEMAND				
AMPS: TOTAL				279 CONNECTED				278 DEMAND				
L	R	O	TOTAL	VA CONNECTED TO A PHASE	34955 VA =	292	AMPS CONNECTED TO A PHASE @ 120 VOLTS					
1585	4680	28730		VA CONNECTED TO B PHASE	33040 VA =	275	AMPS CONNECTED TO B PHASE @ 120 VOLTS					
670	3960	28410		VA CONNECTED TO C PHASE	32592 VA =	272	AMPS CONNECTED TO C PHASE @ 120 VOLTS					
1402	3960	27230		TOTAL	106227 VA							
3657	12600	84370										

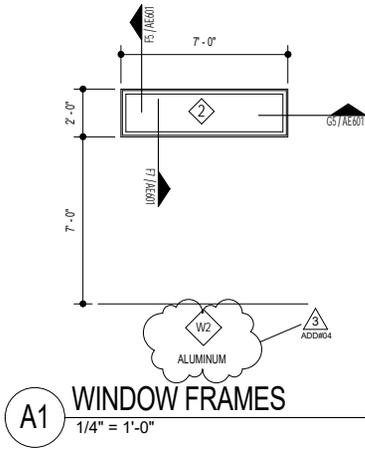
1 ELECTRICAL PANEL SCHEDULES
SCALE: N.T.S.

- KEY NOTES:**
- FURNISH AND INSTALL NEMA 3R WIRE GUTTER WITH HINGED ACCESS DOOR 8" DEEP X 24" LENGTH X 48" WIDE WITH POWER DISTRIBUTION BLOCKS TO TAP FEEDERS TO ELECTRICAL PANELS.
 - FURNISH AND INSTALL NEW NEMA RATED TMGB 1/4" X 4" X 12" WITH STAND OFF INSULATORS BELOW PANEL MDP, INSIDE A NEMA 3R ENCLOSURE. CONNECT ALL BONDING CONDUCTORS TO THIS BAR. APPROVED BONDING METHOD: EXOTHERMIC WELD.

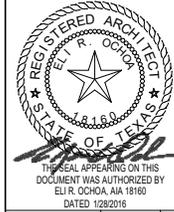


2 ELECTRICAL RISER
SCALE: N.T.S.

D:\Documents\14030_EDINBURG POLICE DEPT A CENTRAL_UPDATED_2_mgonzalez.rvt



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McAllen, Texas 78501
956.661.0400
www.goero.com



PROJECT NAME
**EDINBURG POLICE TRAINING
DEPARTMENT**

PROJECT LOCATION
1302 N. DOOLITTLE RD.
EDINBURG, TEXAS 78586

PROJECT OWNER
CITY OF EDINBURG PUBLIC WORKS

PROJECT NO.: 14030
DRAWN BY: Author
CHECKED BY: Checker

SHEET TITLE:
**WINDOW FRAMES
AND TYPES**

SK-02

SECTION 00 41 00

BID FORM

THE PROJECT AND THE PARTIES

1.1 TO:

- A. City of Edinburg
c/o City Secretary

415 W. University Dr.
Edinburg, Texas 78541

1.2 FOR:

- A. Police Department Training Facility

Bid No. 2016-64
ERO Architects Project No. 14030

1.3 DATE: _____ (BIDDER TO ENTER DATE)

1.4 SUBMITTED BY: (BIDDER TO ENTER NAME AND ADDRESS)

- A. Bidder's Full Name _____
 - 1. Address _____
 - 2. City, State, Zip _____
 - 3. Telephone _____

1.5 OFFER

- A. Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by ERO Architects for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum Total for **Edinburg Police Department Training Facility** of:
- B. _____ dollars
(\$ _____), in lawful money of the United States of America.
- C. All Expenditure Allowances described in Section 01 21 00 are to be included in the Bid Sum; Total = **fourty thousand dollars (\$40,000.00)**, in lawful money of the United States of America.
- D. BID BOND: Offerors will be required to provide Bid Security in the form of a Bid Bond in the amount of 5 percent of the largest possible total proposal. Failure to provide the Bid Bond with the proposal will constitute a non-responsive proposal and the proposal will not be considered.
- E. PERFORMANCE AND LABOR & MATERIAL PAYMENT BONDS: The successful Offeror will be required to provide 100% Performance and Labor and Materials. Payment Bond in strict conformance with all the requirements of the Contract Documents. Failure to do so will result in cancellation of the contract award and forfeiture of the Bid Bond security as liquidated damages.
- F. NOTE: Awarded Vendor must provide criminal background clearances through Senate Bill 9 for all personnel and sub-contractors working on the project job site.

1.6 ACCEPTANCE

- A. This Bidder shall be open to acceptance and is irrevocable for forty five days from the bid closing date.
- B. If this bid is accepted by the City of Edinburg within the time period stated above, we will:
 - 1. Execute the Agreement within seven days of receipt of Notice of Award.
 - 2. Furnish the required bonds within seven days of receipt of Notice of Award.
 - 3. Commence work within seven days after written Notice to Proceed of this bid.
- C. If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to the City of Edinburg by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.
- D. In the event our bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

1.7 CONTRACT TIME

- A. If the Bid is accepted, project will be substantially complete as follows: Complete the Work in **one hundred and fifty one (151)** calendar days from Notice to Proceed.
- B. Liquidated Damages: City of Edinburg has the right under contract to assess liquidated damages for each calendar day beyond the date for substantial completion set out in the contract in which the Work fails to be substantially complete due to unexcused delay. In the event the Contractor fails to achieve Substantial Completion of the work within the time indicated in the Bid Form, or as mutually agreed upon, or as such date may be extended or shortened by approved Change Order, the Owner shall be entitled to liquidated damages in the amount of \$500.00 per day for each day that the work is not substantially complete - the date on the Certificate of Substantial Completion.
- C. In the event the Contractor fails to achieve Final Completion of the Work within thirty (30) days of Substantial Completion or as mutually agreed upon, or as such date may be extended or shortened by approved Change Order, the Owner shall be entitled to liquidated damages in the amount of \$500.00 per day that passes within the first seven days past the scheduled Final Completion date in which the Work is not completed; \$1,000.00 per day for each day that passes within the second seven days past the scheduled Final Completion date in which the Work is not completed; and \$1,500.00 per day for each day that passes within the third seven days past the scheduled Final Completion date in which the Work is not completed, until the work is finally completed.
- D. Back Charges: City of Edinburg has the right under contract to back charge amounts that are spent to complete a portion of the work not completed by the contractor based on schedule and repairs of damage caused by work associated with the construction that requires quick response due to City of Edinburg operations and contractor has failed to respond. This will be deducted from contractor's contract amount and written as a change order to the contract.
- E. Rain/Off Days: Rain Days must be submitted within 3 days of event or with each pay application (weekly report) failure to provide notification with proper proof within the time period will not be accepted. Any additional days after rain days that the contractor fails to work will be charged as work days unless authorized in writing by both the contractor and Owner, refer to 1.07 Contract Time, A.

- 1. If this Bid is accepted, we will:

Complete the Work in _____ calendar days from Notice to Proceed.
(Bidder to enter number of days or weeks.)

1.8 UNIT PRICES

1.9 CHANGES TO THE WORK

- A. All approved change orders must be signed by the Owner and Architect. Architect will issue a Proposal Request (PR) to the Contractor; Contractor will prepare detail cost and time information including sub-contractor breakdown (Change Proposal) and submit to Architect for review, within 10 days of receipt of the Proposed Change; Architect will submit proposal and all information to Owner for review and approval.
- B. Allowances shall be handled in a similar manner as a change order, refer to 1.08, B. Contractor shall prepare detail cost and time information and submit to Architect for review; Architect will submit proposal and all information to Owner for review and approval.

1.10 ADDENDA

- A. The following Addenda have been received. The modifications to the Proposal Documents noted below have been considered and all costs are included in the Proposal Sum.
 - 1. ____ Addendum # 1 Dated _____.
 - 2. ____ Addendum # 2 Dated _____.
 - 3. ____ Addendum # 3 Dated _____.
 - 4. ____ Addendum # 4 Dated _____.
 - 5. ____ Addendum # 5 Dated _____.

1.11 BID FORM SIGNATURE(S)

- A. The Corporate Seal of
- B. _____
- C. (Bidder - print the full name of your firm)
- D. was hereunto affixed in the presence of:
- E. _____
- F. (Authorized signing officer, Title)
- G. (Seal)
- H. _____
- I. (Authorized signing officer, Title)

1.12 IF THE BID IS A JOINT VENTURE OR PARTNERSHIP, ADD ADDITIONAL FORMS OF EXECUTION FOR EACH MEMBER OF THE JOINT VENTURE IN THE APPROPRIATE FORM OR FORMS AS ABOVE.

END OF BID FORM

SECTION 01 21 00
ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include contingency allowances.

1.2 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.3 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.4 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.

- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Owner's Contingency Allowance: **Include a sum of fifteen thousand dollars (\$15,000.00)** including Contractor's Fees to be used at the discretion of the Owner for improvement of the Project.
- B. Allowance No. 2: Architect's Contingency Allowance: **Include a sum of fifteen thousand dollars (\$15,000.00)** including Contractor's Fees to be used at the discretion of the Architect with the approval of the Owner for improvement of the Project.
- C. Allowance No. 3: Dedication Plaque: **Include a sum of five thousand dollars (\$5,000.00)** to furnish and install cast metal dedication plaque as specified in Division 10 Section "Plaques."
- D. Allowance No. 4: Panel Signage: **Include a sum of five thousand dollars (\$5,000.00)** to furnish and install panel signs as selected by the Architect and as specified in Division 10 Section "Panel Signs."

END OF SECTION

SECTION 28 31 11

DIGITAL, ADDRESSABLE FIRE- ALARM SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes fire alarm systems.

1.2 DEFINITIONS

- A. FACP: Fire alarm control panel.
- B. LED: Light-emitting diode.
- C. NICET: National Institute for Certification in Engineering Technologies.
- D. Definitions in NFPA 72 apply to fire alarm terms used in this Section.
- E. Local and State building codes as reviewed by the local Authority Having Jurisdiction.

1.3 SYSTEM DESCRIPTION

- A. Non-coded, analog-addressable system; automatic sensitivity control of certain smoke detectors; and multiplexed signal transmission dedicated to fire alarm service only.

1.4 PERFORMANCE REQUIREMENTS

- A. Comply with NFPA 72 National Fire Alarm Code
- B. Comply with NFPA 101 Life Safety Code.
- C. Premises protection includes educational facilities.
- D. Fire alarm signal initiation shall be by one or more of the following devices:
 - 1. Manual stations.
 - 2. Heat detectors.
 - 3. Smoke detectors.
 - 4. Verified automatic alarm operation of smoke detectors.
 - 5. Automatic sprinkler system water flow.
 - 6. Fire extinguishing system operation.
 - 7. Fire standpipe system.
- E. Fire alarm signal shall initiate the following actions:
 - 1. Alarm notification appliances shall operate continuously.
 - 2. Identify alarm at the FACP and remote annunciators.
 - 3. Transmit an alarm signal to the remote alarm receiving station.
 - 4. Switch heating, ventilating, and air-conditioning equipment controls to fire alarm mode.
 - 5. Close smoke dampers in air ducts of system serving zone where alarm was initiated.
 - 6. Record events in the system memory.

- F. Supervisory signal initiation shall be by one or more of the following devices or actions:
 - 1. Operations of a fire-protection system valve tamper.

- G. System trouble signal initiation shall be by one or more of the following devices or actions:
 - 1. Open circuits, shorts and grounds of wiring for initiating device, signaling line, and notification-appliance circuits.
 - 2. Opening, tampering, or removal of alarm-initiating and supervisory signal-initiating devices.
 - 3. Loss of primary power at the FACP.
 - 4. Ground or a single break in FACP internal circuits.
 - 5. Abnormal ac voltage at the FACP.
 - 6. A break in standby battery circuitry.
 - 7. Failure of battery charging.
 - 8. Abnormal position of any switch at the FACP or annunciator.
 - 9.

- H. System Trouble and Supervisory Signal Actions: Ring trouble bell and annunciate at the FACP and remote annunciators.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. Shop Drawings:
 - 1. Shop Drawings shall be prepared by persons with the following qualifications:
 - a. Trained and certified by manufacturer in fire alarm system design.
 - b. Fire alarm certified by NICET, minimum Level III.
 - 2. System Operation Description: Detailed description for this Project, including method of operation and supervision of each type of circuit and sequence of operations for manually and automatically initiated system inputs and outputs. Manufacturer's standard descriptions for generic systems are not acceptable.
 - 3. Device Address List: Coordinate with final system programming.
 - 4. System riser diagram with device addresses, conduit sizes, and cable and wire types and sizes.
 - 5. Wiring Diagrams: Power, signal, and control wiring. Include diagrams for equipment and for system with all terminals and interconnections identified. Show wiring color code.
 - 6. Batteries: Size calculations.
 - 7. Duct Smoke Detectors: Performance parameters and installation details for each detector, verifying that each detector is listed for the complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
 - 8. Ductwork Coordination Drawings: Plans, sections, and elevations of ducts, drawn to scale and coordinating the installation of duct smoke detectors and access to them. Show critical dimensions that relate to placement and support of sampling tubes, the detector housing, and remote status and alarm indicators. Locate detectors according to manufacturer's written recommendations.
 - 9. Floor Plans: Indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits.
 - 10. Submittals shall be indexed by Specification Section 13851. Drawings will not be reviewed unless submittals are complete.

- C. Operation and Maintenance Data: For fire alarm system to include in emergency, operation, and maintenance manuals. Comply with NFPA 72, Appendix A, recommendations for Owner's manual. Include abbreviated operating instructions for mounting at the FACP.

- D. Submittals to Authorities Having Jurisdiction: In addition to distribution requirements for submittals specified in Division 1 Section "Submittals," make an identical submittal to authorities having jurisdiction. To facilitate review, include copies of annotated Contract Drawings as needed to depict component

locations. Resubmit if required to make clarifications or revisions to obtain approval. On receipt of comments from authorities having jurisdiction, submit them to Architect for review.

- E. Documentation:
 - 1. Approval and Acceptance: Provide the "Record of Completion" form according to NFPA 72 to Owner, Architect, and authorities having jurisdiction.
 - 2. Record of Completion Documents: Provide the "Permanent Records" according to NFPA 72 to Owner, Architect, and authorities having jurisdiction. Format of the written sequence of operation shall be the optional input/output matrix.
 - a. Hard copies on paper to Owner.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project. The installing Contractor shall provide proof of their qualifications as Factory Authorized and Factory Trained for the products specified herein. The documents shall be included in the submittal package. A letter from the manufacturer stating that the Contractor is the Factory Authorized Distributor for the submitted equipment shall be included in the submittal package.
- B. The installing contractor shall have completed a minimum of five projects of similar size and scope within the past five years. Provide a list of completed projects including names and phone numbers of Owner's representatives and General Contractor for the project.
- C. Installer Qualifications: Personnel certified by NICET as Fire Alarm Level III. One full time employee with a current Texas Fire Alarm Planning Superintendents License. A minimum of two technicians with Factory Training for the submitted products. Submit copy of licenses.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- E. The installation shall be performed by Licensed full time employees of the Factory Authorized Distributor. The use of unlicensed subcontract labor for installation or submittal preparation is prohibited.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Lamps for Remote Indicating Lamp Units: Quantity equal to 10 percent of amount installed, but not less than 1 unit.
 - 2. Lamps for Strobe Units: Quantity equal to 10 percent of amount installed, but not less than 1 unit.
 - 3. Smoke, and Fire Detectors: Quantity equal to 10 percent of amount of each type installed, but not less than 1 unit of each type.
 - 4. Detector Bases: Quantity equal to 2 percent of amount of each type installed, but not less than 1 unit of each type.
 - 5. Keys and Tools: One extra set for access to locked and tamper proofed components.
 - 6. Audible and Visual Notification Appliances: One of each type installed.
 - 7. Fuses: Two of each type installed in the system.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. FACP and Equipment:
 - a. VES FIRE DETECTION SYSTEMS
 - b. Silent Knight-Farenhyt IPF100
 2. Wire and Cable:
 - a. Comtran Corporation.
 - b. Helix/HiTemp Cables, Inc.; a Draka USA Company.
 - c. Rockbestos-Suprenant Cable Corporation; a Marmon Group Company.
 - d. West Penn Wire/CDT; a division of Cable Design Technologies.
 3. Audible and Visual Signals:
 - a. VES FIRE DETECTION SYSTEMS
 - b. Silent Knight-Honeywell

2.2 FACP

- A. General Description:
1. Modular, power-limited design with electronic modules, UL 864 listed.
 2. Addressable initiation devices that communicate device identity and status.
 - a. Smoke sensors shall additionally communicate sensitivity setting and allow for adjustment of sensitivity at the FACP.
 - b. Temperature sensors shall additionally test for and communicate the sensitivity range of the device.
 3. Addressable control circuits for operation of mechanical equipment.
 4. The fire detection algorithm shall measure sensor signal dimensions, time patterns and combine different fire parameters to increase reliability and distinguish real fire conditions from unwanted deceptive nuisance alarms.
 5. Each detector shall have an integral microprocessor capable of making alarm decisions based on fire parameters stored in detector head. Detectors not capable of making independent alarm decisions shall not be acceptable. Maximum total analog loop response shall be 0.5 seconds.
- B. Alphanumeric Display and System Controls: Arranged for interface between human operator at the FACP and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.
1. Annunciator and Display: The main display status shall be on an 8 line 21 character backlit alpha-numeric liquid Crystal display.
 2. Keypad: Arranged to permit entry and execution of programming, display, and control commands; and to indicate control commands to be entered into the system for control of smoke-detector sensitivity and other parameters.
- C. Circuits:
1. Signaling Line Circuits: NFPA 72, Class A.
 - a. System Layout: Install no more than 50 addressable devices on each signaling line circuit.
 2. Notification-Appliance Circuits: NFPA 72, Class A.
- D. Smoke-Alarm Verification:
1. Initiate audible and visible indication of an "alarm verification" signal at the FACP.
 2. Activate a listed and approved "alarm verification" sequence at the FACP and the detector.
 3. Record events by the system printer.
 4. Sound general alarm if the alarm is verified.
 5. Cancel FACP indication and system reset if the alarm is not verified.

- E. Notification-Appliance Circuit: Operation shall sound in a temporal pattern, complying with ANSI S3.41.
 - F. Power Supply for Supervision Equipment: Supply for audible and visual equipment for supervision of the ac power shall be from a dedicated dc power supply, and power for the dc component shall be from the ac supply.
 - G. Alarm Silencing, Trouble, and Supervisory Alarm Reset: Manual reset at the FACP and remote annunciators, after initiating devices are restored to normal.
 - 1. Silencing-switch operation halts alarm operation of notification appliances and activates an "alarm silence" light. Display of identity of the alarm zone or device is retained.
 - 2. Subsequent alarm signals from other devices or zones reactivate notification appliances until silencing switch is operated again.
 - 3. When alarm-initiating devices return to normal and system reset switch is operated, notification appliances operate again until alarm silence switch is reset.
 - H. Walk Test: A test mode to allow one person to test alarm and supervisory features of initiating devices. Enabling of this mode shall require the entry of a password. The FACP and annunciators shall display a test indication while the test is underway. If testing ceases while in walk-test mode, after a preset delay, the system shall automatically return to normal.
 - I. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and control of changes in those settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory, and make a print-out of the final adjusted values on the system printer.
 - J. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, trouble, and supervisory signals to a remote alarm station through a digital alarm communicator transmitter and telephone lines.
 - K. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signal, supervisory and digital alarm communicator transmitter shall be powered by the 24-V dc source.
 - 1. The alarm current draw of the entire fire alarm system shall not exceed 80 percent of the power-supply module rating.
 - 2. Power supply shall have a dedicated fused safety switch for this connection at the service entrance equipment. Paint the switch box red and identify it with "FIRE ALARM SYSTEM POWER."
 - L. Secondary Power: 24-V dc supply system with batteries and automatic battery charger and an automatic transfer switch.
 - 1. Batteries: plate nickel cadmium.
 - 2. Battery and Charger Capacity: Comply with NFPA 72.
 - M. Surge Protection:
 - 1. Install surge protectors recommended by FACP manufacturer. Install on all system wiring external to the building housing the FACP.
- 2.3 MANUAL FIRE ALARM BOXES
- A. Description: UL 38 listed; finished in red with molded, raised-letter operating instructions in contrasting color. Station shall show visible indication of operation. Mounted on recessed outlet box; if indicated as surface mounted, provide manufacturer's surface back box.

1. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type. With integral addressable module, arranged to communicate manual-station status (normal, alarm, or trouble) to the FACP. Pull station shall be EST Model SIGA-278 or equal.
2. Station Reset: Key-operated switch.
3. Indoor Protective Shield: Factory-fabricated clear plastic enclosure, hinged at the top to permit lifting for access to initiate an alarm. Lifting the cover actuates an integral battery-powered audible horn intended to discourage false-alarm operation. Cover shall be Stopper ST1-1000
4. Weatherproof Protective Shield: Factory-fabricated clear plastic enclosure, hinged at the top to permit lifting for access to initiate an alarm.

2.4 SYSTEM SMOKE DETECTORS

A. General Description:

1. UL 268 listed, operating at 24-V dc, nominal.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACP.
3. Multipurpose type, containing the following:
 - a. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACP.
 - b. Piezoelectric sounder rated at 88 dBA at 10 feet (3 m) according to UL 464.
 - c. Heat sensor, combination rate-of-rise and fixed temperature.
4. Plug-in Arrangement: Detector and associated electronic components shall be mounted in a plug-in module that connects to a fixed base. Provide terminals in the fixed base for connection of building wiring.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type. Indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be analog-addressable type, individually monitored at the FACP for calibration, sensitivity, and alarm condition, and individually adjustable for sensitivity from the FACP.

B. Photoelectric Smoke Detectors:

1. Sensor: The analog photoelectric detector shall utilize a light scattering type photoelectric smoke sensor to sense changes in air samples from its surroundings. The integral microprocessor shall dynamically examine values from the sensor and initiate an alarm based on the analysis of data. The detector shall continually monitor any changes in sensitivity due to the environmental affect of dirt, smoke, temperature, aging and humidity. The information shall be stored in the integral processor and transferred to the analog loop controller for retrieval using a PC. The photo detector shall be rated for ceiling installation. The photoelectric smoke detector shall also be suitable for direct insertion into ducts with velocity of up to 5000 ft/min without requiring specific duct detector housings or supply tubes.
2. Detector Sensitivity: Between 1.0% and 3.5 percent/foot smoke obscuration when tested according to UL 268A.
3. Photoelectric Smoke Detectors shall be EST Model SIGA-PS or approved equal.
4. Standard detector bases shall be EST Model SIGA-SB/SIGA-SB4.
5. The base shall be capable of supporting one EST Model SIGA-LED remote LED. The remote LED shall be furnished and installed where the smoke detector is not visible from the floor area around the air conditioning duct.

C. Duct Smoke Detectors:

1. Duct Smoke Detectors:
 - a. Sensor: The analog photoelectric detector shall utilize a light scattering type photoelectric smoke sensor to sense changes in air samples from its surroundings.
 - b. Detector Sensitivity: Between 0.5 and 1.7 percent/foot (0.0016 and 0.0056 percent/mm) smoke obscuration when tested according to UL 268A.

2. UL 268A listed, operating at 24-V dc, nominal.
 3. Plug-in Arrangement: Detector and associated electronic components shall be mounted in a plug-in module that connects to a fixed base. The fixed base shall be designed for mounting directly to the air duct. Provide terminals in the fixed base for connection to building wiring.
 - a. Weatherproof Duct Housing Enclosure: UL listed for use with the supplied detector. The enclosure shall comply with NEMA 250 requirements for Type 4X.
 4. Self-Restoring: Detectors shall not require resetting or readjustment after actuation to restore them to normal operation.
 5. Integral Visual-Indicating Light: LED type. Indicating detector has operated and power-on status. Provide remote status and alarm indicator and test station where indicated.
- D. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACP
1. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACP.
 2. Plug-in Arrangement: Detector and associated electronic components shall be mounted in a plug-in module that connects to a fixed base. The fixed base shall be designed for mounting directly to the air duct. Provide terminals in the fixed base for connection to building wiring.
 - a. Weatherproof Duct Housing Enclosure: UL listed for use with the supplied detector. The enclosure shall comply with NEMA 250 requirements for Type 4X.

2.5 NOTIFICATION APPLIANCES

- A. Description: Equipped for mounting as indicated and with screw terminals for system connections.
1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly.
- B. Chimes, Low-Level Output: Vibrating type, 75-dBA minimum rated output. As required to meet ADA requirements.
- C. Chimes, High-Level Output: Vibrating type, 81-dBA minimum rated output. As required to meet ADA requirements.
- D. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Horns shall produce a sound-pressure level of 90 dBA, measured 10 feet (3 m) from the horn.
- E. Visible Alarm Devices: Xenon strobe lights listed under UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- (25-mm-) high letters on the lens.
1. Rated Light Output: 75 candela.
 2. Strobe Leads: Factory connected to screw terminals.

2.6 SPRINKLER SYSTEM REMOTE INDICATORS

- A. Remote status and alarm indicator and test stations, with LED indicating lights. Light is connected to flash when the associated device is in an alarm or trouble mode. Lamp is flush mounted in a single-gang wall plate. A red, laminated, phenolic-resin identification plate at the indicating light identifies, in engraved white letters, device initiating the signal and room where the smoke detector or valve is located. For water-flow switches, the identification plate also designates protected spaces downstream from the water-flow switch.

2.7 REMOTE ANNUNCIATOR

- A. Description: Duplicate annunciator functions of the FACP for alarm, supervisory, and trouble indications. Also duplicate manual switching functions of the FACP, including acknowledging, silencing, resetting, and testing.
 - 1. Mounting: Flush cabinet, NEMA 250, Class 1.
- B. Display Type and Functional Performance: Alphanumeric display same as the FACP. Controls with associated LEDs permit acknowledging, silencing, resetting, and testing functions for alarm, supervisory, and trouble signals identical to those in the FACP.

2.8 ADDRESSABLE INTERFACE DEVICE

- A. Description: Microelectronic monitor module listed for use in providing a system address for listed alarm-initiating devices for wired applications with normally open contacts. It shall be possible to address each module without the use of DIP or rotary switches. The multifunction modules shall be programmable at site to suit conditions and may be changed at any time using a code downloaded from the Analog Loop Controller. Modules requiring EPROM, Prom, ROM changes or DIP switches will not be acceptable. A green LED shall flash to confirm communication with the loop controller. A red LED shall flash to display alarm status.

2.9 DIGITAL ALARM COMMUNICATOR TRANSMITTER

- A. Listed and labeled according to UL 632.
- B. Functional Performance: Unit receives an alarm, supervisory, or trouble signal from the FACP, and automatically captures one or two telephone lines and dials a preset number for a remote central station. When contact is made with the central station(s), the signal is transmitted. The unit supervises up to two telephone lines. Where supervising 2 lines, if service on either line is interrupted for longer than 45 seconds, the unit initiates a local trouble signal and transmits a signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. When telephone service is restored, unit automatically reports that event to the central station. If service is lost on both telephone lines, the local trouble signal is initiated.
- C. Secondary Power: Integral rechargeable battery and automatic charger. Battery capacity is adequate to comply with NFPA 72 requirements.
- D. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

2.10 GUARDS FOR PHYSICAL PROTECTION

- A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, gong, or other device requiring protection mount over gymnasium devices.
 - 1. Factory fabricated and furnished by manufacturer of the device.
 - 2. Finish: Paint of color to match the protected device.

2.11 WIRE AND CABLE

- A. Wire and cable for fire alarm systems shall be UL listed and labeled as complying with NFPA 70, Article 760.
- B. Signaling Line Circuits: Twisted, shielded pair, not less than No. 16 AWG.

1. Circuit Integrity Cable: Twisted shielded pair, NFPA 70 Article 760, Classification CI, for power-limited fire alarm signal service. UL listed as Type FPL, and complying with requirements in UL 1424 and in UL 2196 for a 2-hour rating.
- C. Non-Power-Limited Circuits: Solid-copper conductors with 600-V rated, 75 deg C, color-coded insulation.
1. Low-Voltage Circuits: No. 16 AWG, minimum.
 2. Line-Voltage Circuits: No. 12 AWG, minimum.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

- A. Smoke or Heat Detector Spacing:
1. Smooth ceiling spacing shall not exceed 30 feet.
 2. Spacing of heat detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas, shall be determined according to Appendix A in NFPA 72.
 3. Spacing of heat detectors shall be determined based on guidelines and recommendations in NFPA 72.
- B. HVAC: Locate detectors not closer than 3 feet (1 m) from air-supply diffuser or return-air opening.
- C. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of the duct.
- D. Remote Status and Alarm Indicators: Install near each smoke detector and each sprinkler water-flow switch and valve-tamper switch that is not readily visible from normal viewing position.
- E. Audible Alarm-Indicating Devices: Install not less than 6 inches (150 mm) below the ceiling. Install horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille.
- F. Visible Alarm-Indicating Devices: Install adjacent to each alarm horn and at least 6 inches (150 mm) below the ceiling mount at maximum of 80".
- G. Device Location-Indicating Lights: Locate in public space near the device they monitor.
- H. FACP: Surface mount with tops of cabinets not more than 72 inches (1830 mm) above the finished floor.
- I. Annunciator: Install with top of panel not more than 72 inches (1830 mm) above the finished floor.
- J. Pull stations shall be at ADA recommended heights.

3.2 WIRING INSTALLATION

- A. Wiring Method: Where exposed to damage such as mechanical rooms and gymnasium. Install wiring in metal raceway according to Division 16 Section "Raceways and Boxes."
1. Fire alarm circuits and equipment control wiring associated with the fire alarm system shall be installed in a dedicated raceway system. This system shall not be used for any other wire or cable.
- B. Wiring Method:
1. Cables and raceways used for fire alarm circuits, and equipment control wiring associated with the fire alarm system, may not contain any other wire or cable.

2. Fire-Rated Cables: Use of 2-hour fire-rated fire alarm cables, NFPA 70 Types MI and CI, is permitted in interior areas and not exposed to damage.
 3. Signaling Line Circuits: Power-limited fire alarm cables may be installed in the same cable or raceway as signaling line circuits.
- C. Wiring within Enclosures: Separate power-limited and non-power-limited conductors as recommended by manufacturer. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, and train conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.
- D. Cable Taps: Use numbered terminal strips in junction, pull, and outlet boxes, cabinets, or equipment enclosures where circuit connections are made.
- E. Color-Coding: Color-code fire alarm conductors differently from the normal building power wiring. Use one color-code for alarm circuit wiring and a different color-code for supervisory circuits. Color-code audible alarm-indicating circuits differently from alarm-initiating circuits. Use different colors for visible alarm-indicating devices. Paint fire alarm system junction boxes and covers red.
- F. Wiring to Remote Alarm Transmitting Device: 1-inch (25-mm) conduit between the FACP and the transmitter. Install number of conductors and electrical supervision for connecting wiring as needed to suit monitoring function.

3.3 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals according to Division 16 Section "Electrical Identification."
- B. Install instructions frame in a location visible from the FACP.
- C. Indicate breaker in panel as fire alarm per NFPA.

3.4 GROUNDING

- A. Ground the FACP and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to the FACP.

3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections. Report results in writing.
- B. Perform the following field tests and inspections and prepare test reports:
 1. Before requesting final approval of the installation, submit a written statement using the form for Record of Completion shown in NFPA 72.
 2. Perform each electrical test and visual and mechanical inspection listed in NFPA 72. Certify compliance with test parameters. All tests shall be conducted under the direct supervision of a NICET technician certified under the Fire Alarm Systems program at Level III.
 3. Visual Inspection: Conduct a visual inspection before any testing. Use as-built drawings and system documentation for the inspection. Identify improperly located, damaged, or nonfunctional equipment, and correct before beginning tests.

4. Testing: Follow procedure and record results complying with requirements in NFPA 72.
5. Test and Inspection Records: Prepare according to NFPA 72, including demonstration of sequences of operation by using the matrix-style form in Appendix A in NFPA 70.

3.6 ADJUSTING

- A. Follow-Up Tests and Inspections: After date of Substantial Completion, test the fire alarm system complying with testing and visual inspection requirements in NFPA 72. Perform tests and inspections listed for three monthly, and one quarterly, periods.
- B. Semiannual Test and Inspection: Six months after date of Substantial Completion, test the fire alarm system complying with the testing and visual inspection requirements in NFPA 72. Perform tests and inspections listed for monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.
- C. Annual Test and Inspection: One year after date of Substantial Completion, test the fire alarm system complying with the testing and visual inspection requirements in NFPA 72. Perform tests and inspections listed for monthly, quarterly, semiannual, and annual periods. Use forms developed for initial tests and inspections.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain the fire alarm system, appliances, and devices. Refer to Division 1 Section Closeout Procedures.

END OF SECTION 28 31 11