

THE UNIVERSITY OF SOUTH CAROLINA NERR EDUCATION AND TRAINING CENTER

HOBCAW DISCOVERY CENTER RENOVATIONS



APRIL 13, 2012
CONSTRUCTION DOCUMENTS

PROJECT LOCATION

The Belle W. Baruch Foundation
Hobcaw Barony Discovery Center
22 Hobcaw Road
Georgetown, SC 29440
Tel: (843) 546-4623

ARCHITECTURAL

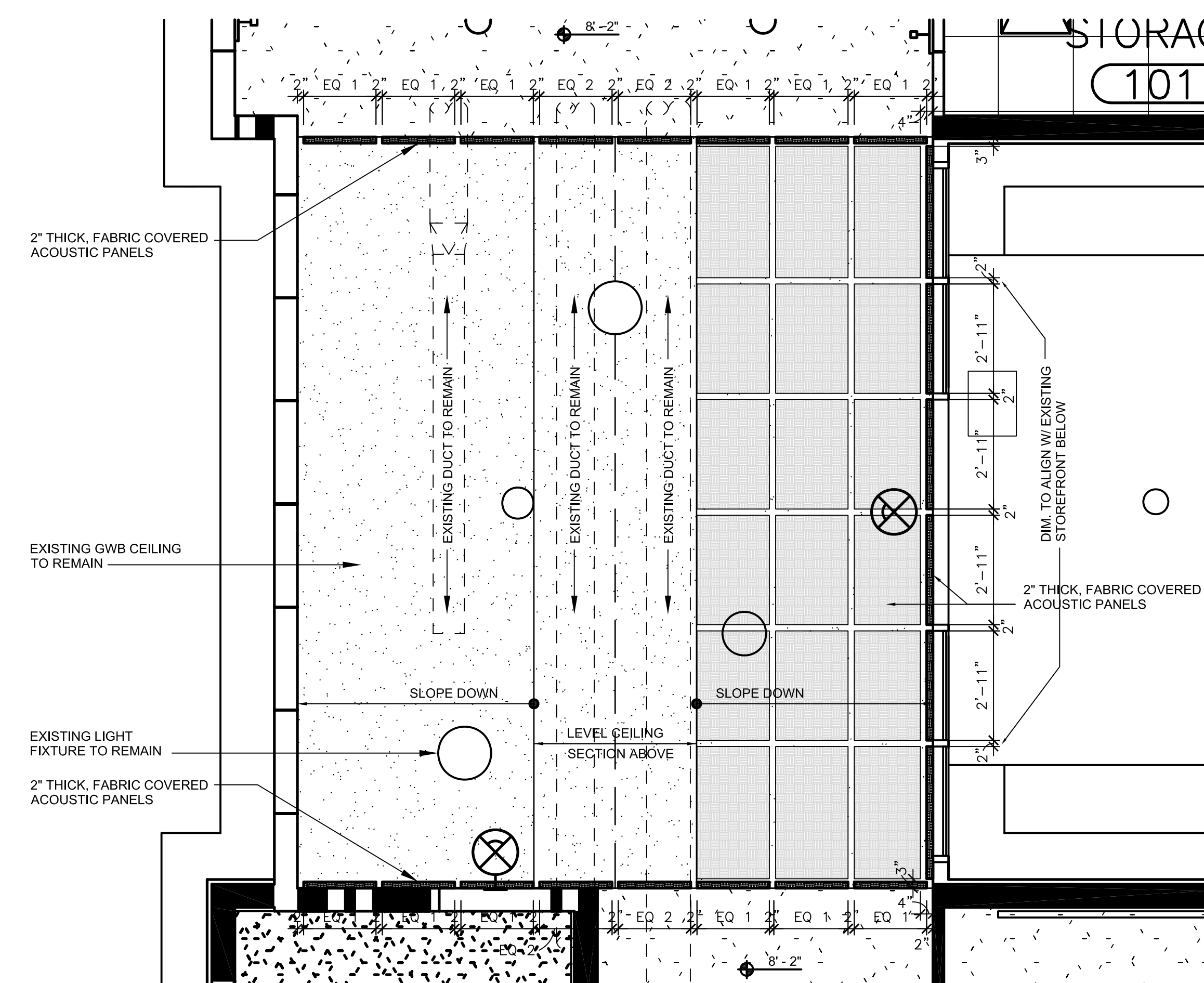
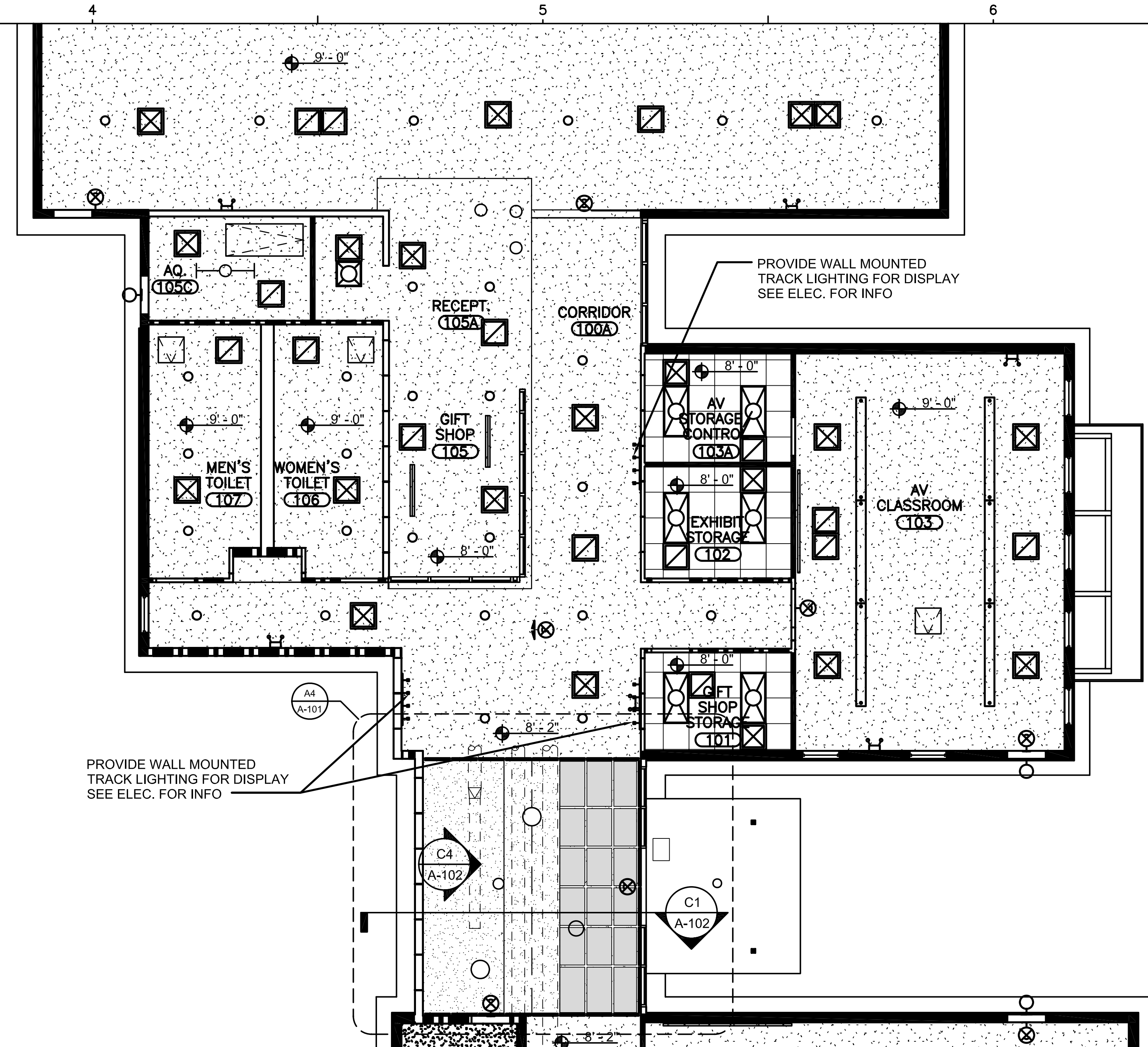
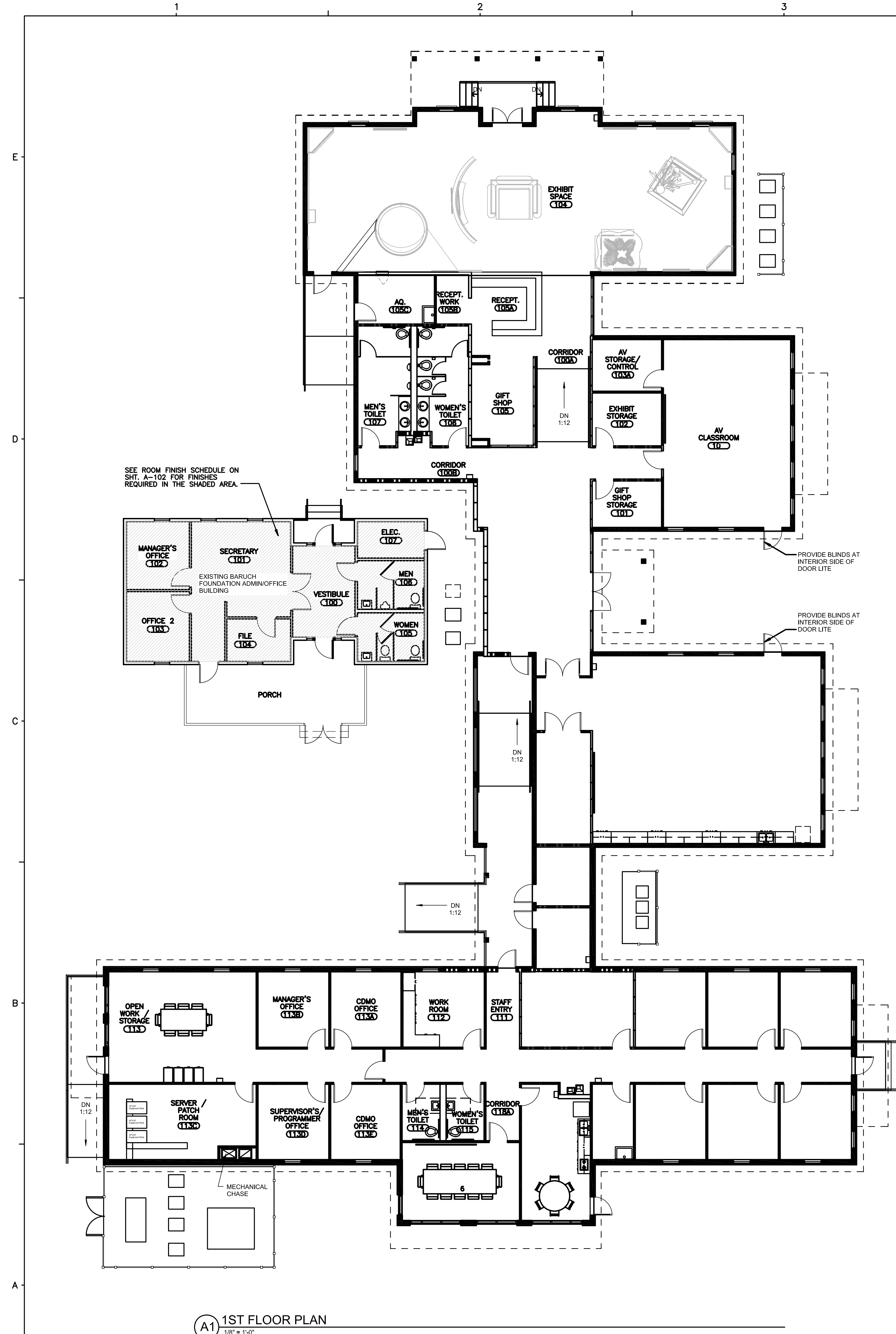
LS3P ASSOCIATES, LTD.
701-A Lady Street
Columbia, SC 29201
Tel: (803) 765-2418
PROJECT NO.: 2402-062141

ELECTRICAL

RMF Engineering
474 Wando Park Blvd., Suite 100
Mount Pleasant, SC 29464
Tel: (843) 577-4444

SHEET INDEX

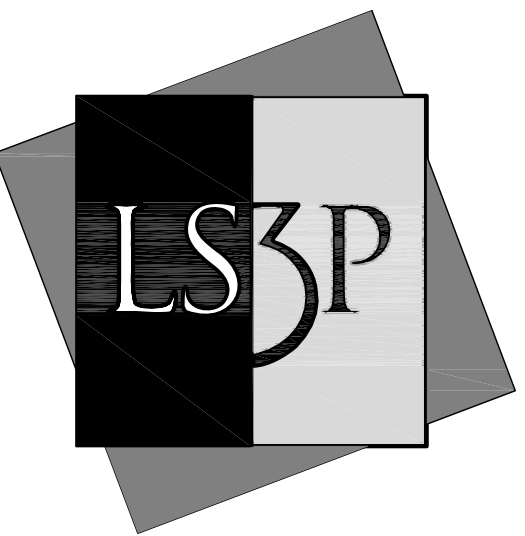
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**N.E.R.R. EDUCATION
TRAINING CENTER**

**BELLE W. BARUCH
FOUNDATION and
THE UNIVERSITY OF
SOUTH CAROLINA**

**HOB
DISCOVERY
CENTER
RENOVATIONS**



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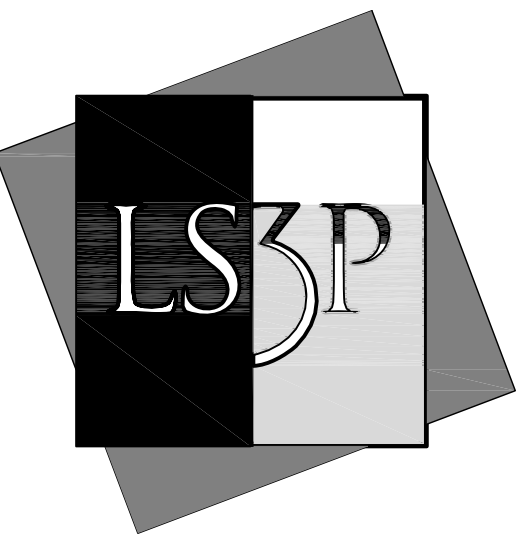
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No.	Description	Date

PROJECT: 2402-062141
DATE: APRIL 13, 2012
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FIRST FLOOR PLAN & RCP

A-101

SOLUTIONS THROUGH LISTENING
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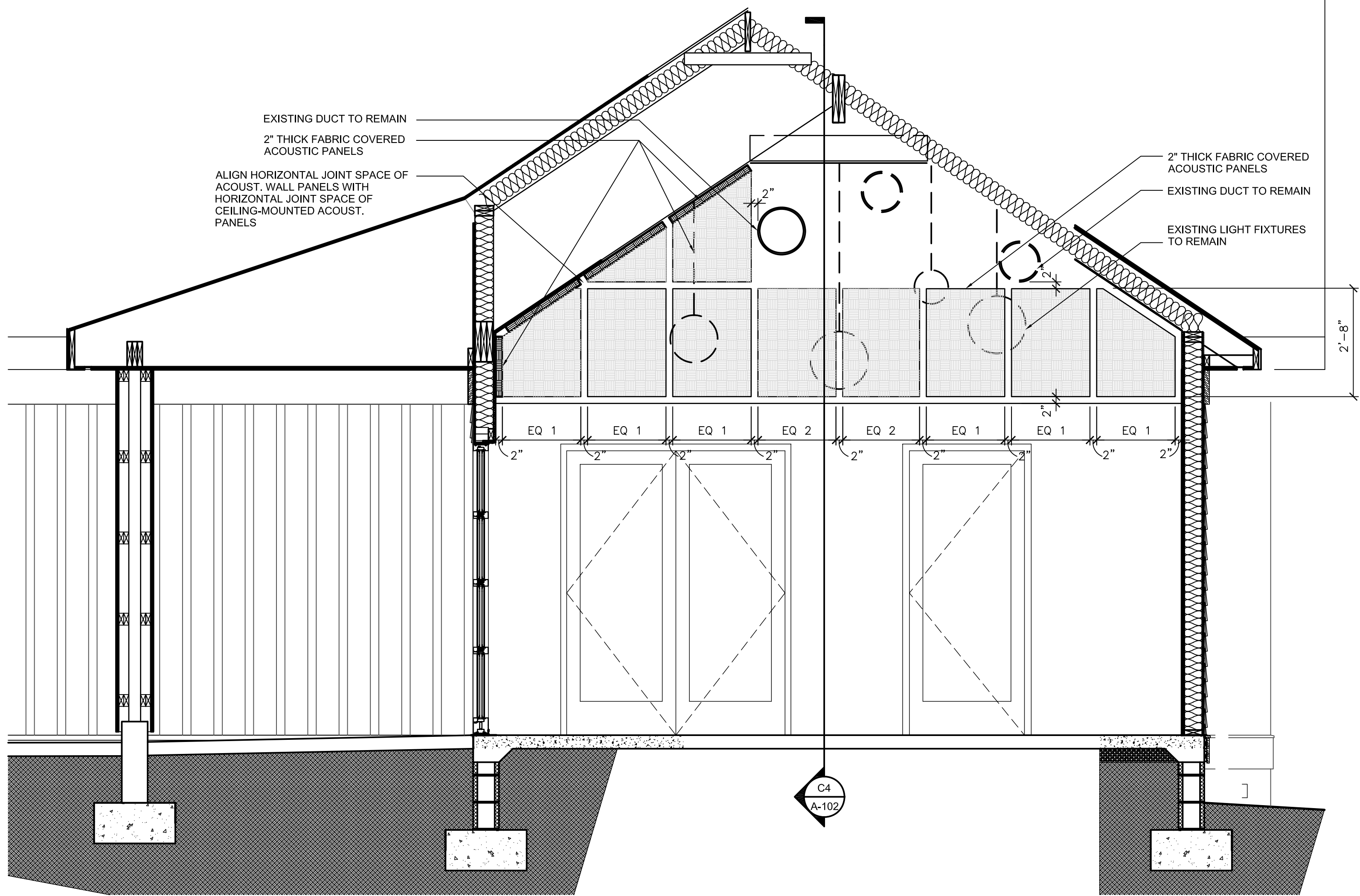
REVISIONS:

No.	Description	Date
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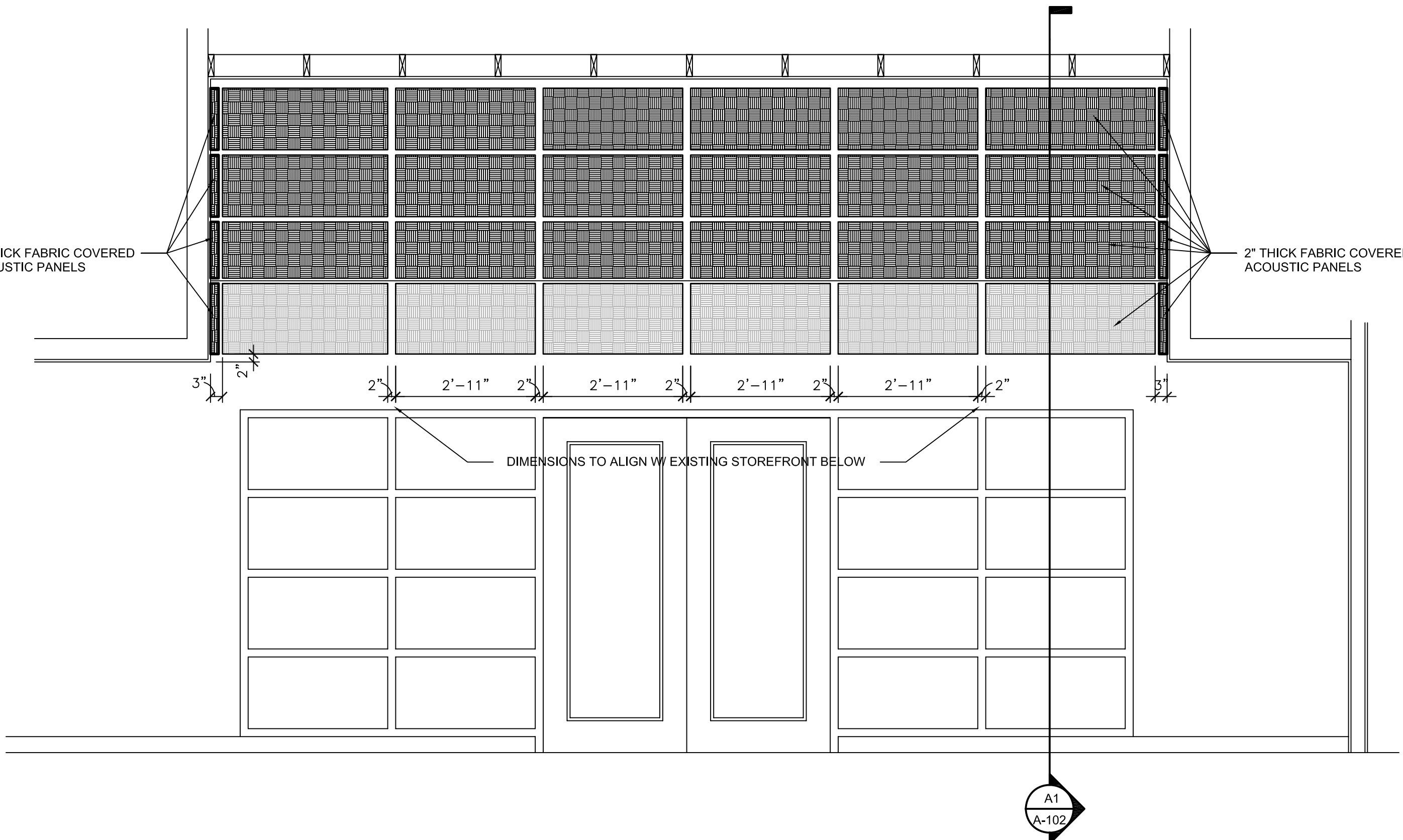
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DATE: APRIL 13, 2012
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FINISH
SCHEDULE &
INTERIOR
ELEVATIONS

A-102



C1 ELEVATION-BUS DROP-OFF LOBBY
1/2" = 1'-0"



C4 ELEVATION-BUS DROP-OFF LOBBY
1/2" = 1'-0"

ROOM FINISH SCHEDULE									
ROOM		FLOOR		WALLS				CEILINGS	NOTES
NO.	NAME	MATERIAL	BASE	NORTH	SOUTH	EAST	WEST		
100	VESTIBULE	CPT1	RB1	PT2	PT2/PT1	PT1	PT1	EXISTING	1
101	SECRETARY	CPT1	RB1	PT2	PT1	PT1	PT1	EXISTING	1
102	MANAGER'S OFFICE	CPT1	RB1	PT2	PT1	PT1	PT1	EXISTING	1
103	OFFICE 2	CPT1	RB1	PT1	PT2	PT1	PT1	EXISTING	1
104	FILE	CPT1	RB1	PT1	PT2	PT1	PT1	EXISTING	1
105	WOMEN	EXISTING	EXISTING	PT1	PT1	PT1	PT1	EXISTING	1
106	MEN	EXISTING	EXISTING	PT2	PT2	PT2	PT2	EXISTING	1
107	ELECTRICAL	EXISTING	EXISTING	PT1	PT1	PT1	PT1	EXISTING	1

ROOM FINISH LEGEND:

CPT1 CARPET - Interface - Cubic Style #1380102500, Color # 6386, Horizontal

RB1 RUBBER BASE - Johnsonite Rubber, 4", #79 - Bone White

PT1 PAINT - Benjamin Moore, Color Woodmont Cream #204

PT2 PAINT - Benjamin Moore, Color Bali #702

NOTES:

1. ALL CROWN MOLDING TO BE PAINTED - Benjamin Moore Color Chantilly Lace #OC-65 (gloss)

B4 ROOM FINISH SCHEDULE FOR EXISTING BARUCH FOUNDATION ADMIN/OFFICE BUILDING
NOT APPLICABLE

ELECTRICAL DIAGRAMS

SYMBOL	DESCRIPTIONS
	AUTOMATIC TRANSFER DEVICE
	METERING DEVICES: A=AMMETER, V=VOLTmeter, PF=POWER FACTOR, HZ=FREQUENCY METER
	DIGITAL METER
	FUSE, FUSE SIZE AS INDICATED (50A)
	GROUND CONNECTION
	TRANSFORMER (DELTA - RESISTANCE GROUNDED WYE SHOWN)
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	LIGHTNING ARRESTOR
	MOTOR STARTER CONTACTOR AND THERMAL OVERLOAD
	KIRK KEY INTERLOCK SYSTEM
	MOLDED CASE CIRCUIT BREAKER WITH RATINGS AS INDICATED
	SWITCH
	DRAW OUT DEVICE
	DRAW OUT POWER CIRCUIT BREAKER
	TEST TERMINAL BLOCK
	WIRING TERMINAL BLOCK
	INDICATOR OR PILOT LIGHT: R=RED, B=BLUE, W=WHITE, G=GREEN, A=AMBER
	ENCLOSED CIRCUIT BREAKER
	COMBINATION MAGNETIC MOTOR STARTER, ABBREVIATION INDICATES TYPE: FVNR, FVR, RVAT, 251W, 252W, SST
	VARIABLE FREQUENCY CONTROLLER W/FUSED DISCONNECT SWITCH
	VARIABLE FREQUENCY CONTROLLER
	MOTOR - SINGLE WINDING UNLESS OTHERWISE NOTED: 252W = 2 SPEED 2 WINDING, 251W = 2 SPEED 1 WINDING, NUMERALS (IF SHOWN) INDICATE HP
	CONDUCTORS NOT CONNECTED
	CONDUCTORS CONNECTED
	N.O.
	N.C.
	NORMALLY OPEN MOMENTARY CONTACT PUSH BUTTON WITH NAMEPLATE AS INDICATED ON DIAGRAM
	NORMALLY CLOSED MOMENTARY CONTACT PUSH BUTTON WITH NAMEPLATE AS INDICATED ON DIAGRAM
	NORMALLY CLOSED MAINTAINED CONTACT PUSH BUTTON WITH MUSHROOM BUTTON
	TWO POSITION MAINTAINED CONTACT SELECTOR SWITCH WITH NAMEPLATE AS INDICATED ON DIAGRAMS
	THREE POSITION MAINTAINED CONTACT SELECTOR SWITCH WITH NAMEPLATE AS INDICATED ON THE CONTROL DIAGRAMS. CLOSED, O = OPEN
	NORMALLY CLOSED PRESSURE SWITCH - OPENS ON RISING PRESSURE
	NORMALLY OPEN PRESSURE SWITCH - CLOSSES ON RISING PRESSURE
	NORMALLY CLOSED TEMPERATURE SWITCH - OPENS ON RISING TEMPERATURE
	NORMALLY OPEN TEMPERATURE SWITCH - CLOSSES ON RISING TEMPERATURE
	NORMALLY CLOSED FLOW SWITCH - OPENS ON RISING FLOW
	NORMALLY OPEN FLOW SWITCH - CLOSSES ON RISING FLOW
	NORMALLY CLOSED LEVEL SWITCH - OPENS ON RISING LEVEL
	NORMALLY OPEN LEVEL SWITCH - CLOSSES ON RISING LEVEL
	NORMALLY CLOSED LIMIT SWITCH (HELD OPEN)
	NORMALLY OPEN LIMIT SWITCH
	NORMALLY OPEN LIMIT SWITCH (HELD CLOSED)
	RELAY OR CONTACTOR COIL WITH TAG NUMBER AS SHOWN
	NORMALLY OPEN RELAY CONTACT
	NORMALLY CLOSED RELAY CONTACT
	ON-DELAY OR OFF-DELAY RELAY
	ON-DELAY RELAY NORMALLY CLOSED TIMED OPENING CONTACT
	ON-DELAY RELAY NORMALLY OPEN TIMED CLOSING CONTACT
	OFF-DELAY NORMALLY CLOSED CONTACT (OPENS WHEN ENERGIZED, TIMED CLOSING AFTER DE-ENERGIZING)
	OFF-DELAY NORMALLY OPEN CONTACT (OPENS WHEN ENERGIZED, TIMED OPENING AFTER DE-ENERGIZING)
	LATCHING RELAY L = LATCH COIL U = UNLATCH COIL
	FIELD WIRING TERMINAL
	WIRING INSIDE ENCLOSURE
	FIELD WIRING

POWER SYMBOLS

SYMBOL	DESCRIPTIONS	MH. (UON)
	COMBINATION SWITCH AND SIMPLEX RECEPTACLE	48" TOD
	COMBINATION SWITCH AND DUPLEX RECEPTACLE	48" TOD
	SIMPLEX RECEPTACLE	18" CTR
	DUPLEX RECEPTACLE, 'E' (IF SHOWN) INDICATES CONNECTED TO EMERGENCY CIRCUIT	18" CTR
	DUPLEX RECEPTACLE, FLOOR MOUNTED	
	DUPLEX RECEPTACLE, SPLIT WIRED - TOP HALF SWITCHED	18" CTR
	DUPLEX RECEPTACLE, CEILING MOUNTED	
	PEDESTAL TYPE DUPLEX RECEPTACLE	
	SPECIAL RECEPTACLE: 20A, 2P, 3W, 208V NEMA 6-20R	18" CTR
	SPECIAL RECEPTACLE: 30A, 2P, 3W, 208V NEMA 6-30R	18" CTR
	SPECIAL RECEPTACLE: 20A, 3P, 4W, 208/120V NEMA 14-20	18" CTR
	SPECIAL RECEPTACLE: 30A, 3P, 4W, 208V NEMA 15-30	18" CTR
	SPECIAL RECEPTACLE, FLOOR MOUNTED, NEMA 6-20R	
	PEDESTAL TYPE SPECIAL RECEPTACLE, NEMA 6-20R	
	DOUBLE DUPLEX RECEPTACLE	18" CTR
	RECEPTACLE, MOUNTED 6" ABOVE BACK SPLASH OR COUNTER	
	GROUND FAULT INTERRUPTER TYPE RECEPTACLE	18" BOD
	RECEPTACLE OUTLET MOUNTED HIGH	84" CTR
	ISOLATED GROUND RECEPTACLE	18" BOD
	DUPLEX RECEPTACLE AT 54" AFF	54" CTR
	DUPLEX RECEPTACLE FOR PAY PHONE	54" CTR
	DUPLEX RECEPTACLE FOR CART RECHARGE	36" CTR
	SIMPLEX RECEPTACLE FOR CART RECHARGE	36" CTR
	TELEVISION RECEPTACLE	72" CTR
	TELEVISION RECEPTACLE	18" BFC
	CLOCK HANGER OUTLET	84" CTR
	PROGRAM CLOCK OUTLET - SINGLE FACE, DOUBLE FACE	84" CTR
	EMERGENCY POWER OFF SWITCH	48" TOD
	JUNCTION BOX	
	EQUIPMENT CONNECTION AS NOTED	
	HEATER CONNECTION - NUMBER INDICATES KILOWATTS (3KW)	
	HEATER FAN - CEILING MOUNTED	
	ENCLOSED CIRCUIT BREAKER	
	NON-FUSED DISCONNECT SWITCH, 30A, 3P (UNLESS OTHERWISE NOTED)	
	FUSED DISCONNECT SWITCH - FUSE SIZE AS INDICATED (40A)	
	MAGNETIC MOTOR STARTER	
	COMBINATION MAGNETIC MOTOR STARTER, ABBREVIATION INDICATES TYPE: FVNR, FVR, RVAT, 251W, 252W, SST	
	VARIABLE FREQUENCY CONTROLLER W/FUSED DISCONNECT SWITCH	
	MOTOR - NUMERALS (IF SHOWN) INDICATE HP	
	GENERATOR - NUMERALS (IF SHOWN) INDICATE KW	
	MANUAL MOTOR STARTER WITH THERMAL OVERLOADS	
	CONTROL PANEL - TYPE AS INDICATED	
	MOMENTARY CONTACT START-STOP PUSH BUTTON STATION	
	MAINTAINED CONTACT START-STOP PUSHBUTTON STATION	
	MAINTAINED CONTACT EMERGENCY STOP PUSHBUTTON STATION	
	PANELBOARD	
	DISTRIBUTION PANELBOARD	
	TRANSFORMER	
	RACEWAY "UP" OR "TOWARDS"	
	RACEWAY "DOWN" OR "AWAY"	
	CIRCUIT CONCEALED IN WALLS OR CEILING SPACE. CONDUCTORS SHALL BE MINIMUM 2#12 AWG AND 1#12 AWG GROUND IN 3/4" CONDUIT, (UNLESS OTHERWISE NOTED)	
	RACEWAY CONCEALED IN SLAB OR BELOW GRADE	
	BRANCH CIRCUIT HOMERUN TO PANELBOARD. QUANTITY OF CIRCUITS INDICATED BY ARROWS. NUMBER OF CONDUCTORS SHALL BE MINIMUM 4#12 AWG AND 1#12 AWG GROUND IN 3/4" CONDUIT, (UNLESS OTHERWISE NOTED)	
	RACEWAY RUN EXPOSED. CONDUCTORS SHALL BE MINIMUM 2#12 AWG AND 1#12 AWG IN 3/4" CONDUIT, (UNLESS OTHERWISE NOTED)	
	BUS DUCT OR CABLE TRAY UP OR TOWARDS	
	BUS DUCT OR CABLE TRAY DOWN OR AWAY	
	BUS DUCT, TYPE & SIZE AS INDICATED	
	TELEPHONE AND POWER POLE ASSEMBLY	
	CONCRETE ENCASED DUCTBANK BELOW GRADE	
	SURFACE MOUNTED RACEWAY ASSEMBLY WITH REMOVABLE COVER	
	MULTI OUTLET ASSEMBLY - DARK SQUARES INDICATE PREMIXED RECEPTACLE LOCATIONS. SIZE AS INDICATED.	
	MULTI-OUTLET ASSEMBLY WITH RECEPTACLES LOCATED WHERE INDICATED	
	2 CELL MULTI-OUTLET ASSEMBLY WITH COMMUNICATION DEVICES AND RECEPTACLES LOCATED WHERE INDICATED	
	MULTI-OUTLET ASSEMBLY WITH COMMUNICATION OUTLETS LOCATED WHERE INDICATED	
	FLEXIBLE CONDUIT	
	CABLE TRAY	
	GROUND ROD	
	LIGHTNING PROTECTION AIR TERMINAL	
	GROUND WIRE CONNECTION	
	GROUND WIRE	
	LIGHTNING PROTECTION DOWN LEAD	
	UTILITY POLE	

LIGHTING SYMBOLS

SYMBOL	DESCRIPTIONS	MH. (UON)
	SINGLE POLE TOGGLE SWITCH	48" TOD
	SWITCH - SUBLETTER INDICATES FIXTURES CONTROLLED	48" TOD
	DOUBLE POLE TOGGLE SWITCH	48" TOD
	THREE-WAY TOGGLE SWITCH (SPDT)	48" TOD
	FOUR-WAY TOGGLE SWITCH (DPDT)	48" TOD
	KEY OPERATED SWITCH	48" TOD
	THREE WAY TOGGLE SWITCH CONTROLLING FIXTURES INDICATED WITH LOWERCASE a.	48" TOD
	MANUAL STARTER WITH OVERLOADS	48" TOD
	SWITCH WITH PILOT LIGHT	48" TOD
	DIMMER SWITCH	48" TOD
	LOW VOLTAGE CONTROL SWITCH	48" TOD
	MANUAL TIME SWITCH	48" TOD
	MOMENTARY CONTACT SWITCH	48" TOD
	OCCUPANCY SENSOR	
	TIME CLOCK	
	RELAY	
	LIGHTING CONTACTOR	
	PHOTOCELL OR PUSHPLATE SWITCH	
	FLUORESCENT LIGHTING FIXTURE - RECESSED, SURFACE, OR PENDANT MOUNTED, TYPE AS SPECIFIED	
	FLUORESCENT LIGHTING FIXTURE - 2 BALLAST	
	FLUORESCENT INDUSTRIAL LIGHTING FIXTURE	
	FLUORESCENT LIGHTING FIXTURE - WALL MOUNTED, TYPE AS SPECIFIED	
	LIGHTING FIXTURE - RECESSED, SURFACE, OR PENDANT MOUNTED	
	LIGHTING FIXTURE - WALL MOUNTED TYPE AS SPECIFIED	
	WALL WASHER	
	ADJUSTABLE WALL WASHER	
	LIGHTING FIXTURE ON EMERGENCY OR NIGHT LIGHT CIRCUIT	
	EMERGENCY BATTERY PACK WITH NUMBER OF HEADS INDICATED	
	EMERGENCY BATTERY PACK WITH REMOTE HEADS	
	REMOTE EMERGENCY HEAD	
	EMERGENCY BATTERY PACK - SEMI RECESSED, CEILING MOUNT	
	EXIT SIGN - CEILING OR PENDANT MOUNTED (SHADED PORTION INDICATES FACE)	
	EXIT SIGN - WALL MOUNTED - END, BACK	
	EXIT SIGN WITH DIRECTIONAL ARROWS	
	POLE MOUNTED LIGHTING FIXTURE - SINGLE, DOUBLE HEAD	
	POLE MOUNTED LIGHTING FIXTURE- SINGLE, POLE TOP	
	LIGHTING POLE (SPORTS)	

SPECIAL SYSTEMS SYMBOLS

SYMBOL	DESCRIPTIONS	MH. (UON)
	HORN TYPE SPEAKER	GENERAL NOTE 5
	FIRE ALARM FLASHING STROBE LIGHT - WALL MOUNTED	GENERAL NOTE 5
	FIRE ALARM HORN	GENERAL NOTE 5
	COMBINATION FIRE ALARM HORN AND FLASHING STROBE LIGHT	GENERAL NOTE 5
	MAGNETIC DOOR HOLDER	
	FIRE ALARM ANNUNCIATOR PANEL	
	FIRE ALARM CONTROL PANEL	
	RESCUE ASSISTANCE MASTER CONTROL PANEL	48" TOD
	FIRE ALARM TRANSPONDER	48" TOD
	RESCUE ASSISTANCE REMOTE STATION	48" TOD
	DIGITAL ALARM COMMUNICATOR TRANSMITTER	48" TOD
	DOOR SOLENOID, ELECTRIC STRIKE - LOCKING DEVICE CONNECTION POINT	
	FIRE ALARM PULL STATION	48" TOD
	HEAT DETECTOR	
	SMOKE DETECTOR (PHOTOELECTRIC), AB INDICATES AUDIBLE BASE, E INDICATES ELEVATOR CONTROLS	
	SMOKE DETECTOR (IONIZATION)	
	DUCT SMOKE DETECTOR	
	FIRE ALARM SYSTEM ADDRESSABLE RELAY - CONTROL	
	FIRE ALARM SYSTEM ADDRESSABLE RELAY - MONITOR	
	FIRE ALARM SYSTEM REMOTE ALARM LIGHT	
	FLOW SWITCH CONNECTION	
	TAMPER SWITCH CONNECTION	
	FIRE ALARM LINEAR BEAM SMOKE DETECTOR TRANSMITTER & RECEIVER	
	FIREMAN'S TELEPHONE JACK	48" TOD
	MONITOR SYSTEM JB	36" CTR
	CEILING SPEAKER, F - FIRE ALARM	
	AMPLIFIER	
	KEYPAD	48" TOD
	CARD READER	48" TOD
	DOOR ALARM CONTACT	
	TELEPHONE OUTLET	18" CTR
	TELEPHONE OUTLET, WALL MOUNTED	48" TOD
	TELEPHONE OUTLET, FLOOR MOUNTED	
	DATA/TELEPHONE OUTLET, UNSHADED AREA = DATA, SHADED AREA = VOICE, NUMERALS INDICATE QUANTITY OF WIRED JACKS	18" CTR
	DATA/TELEPHONE OUTLET, FLOOR MOUNTED, UNSHADED AREA = DATA, SHADED AREA = VOICE, NUMERALS INDICATE QUANTITY OF WIRED JACKS	
	DATA OUTLET, FLOOR MOUNTED	
	TELEPHONE OUTLET - EMERGENCY	48" TOD
	DATA OUTLET	
	TELEVISION ANTENNA OUTLET	18" CTR
	TELEVISION SYSTEM SPLITTER - 2 WAY, 4 WAY	
	DATA/TELEPHONE OUTLET, CEILING MOUNTED	
	ROUGH IN JUNCTION BOX FOR CCTV CAMERA	

ELECTRICAL DRAWING

PRESENTATION

SYMBOL	DESCRIPTIONS
	REVISION NUMBER 2
	DRAWING NOTE NUMBER 2
	EQUIPMENT TAG NUMBER - REFER TO EQUIPMENT SCHEDULE
	SECTION/ELEVATION IDENTIFICATION
	PART PLAN AND DETAIL IDENTIFICATION
	EXISTING LINE TYPE
	NEW ELECTRICAL WORK LINE TYPE
	FUTURE ELECTRICAL WORK LINE TYPE
	DEMOLITION LINE TYPE ON DEMOLITION DRAWINGS

EQUIPMENT DESIGNATIONS

DESIGNATION	DESCRIPTIONS
SWGR	SWITCHGEAR
SWBD	SWITCHBOARD
PNL	PANELBOARD
MCC	MOTOR CONTROL CENTER
XFMR	TRANSFORMER

CIRCUIT DESIGNATIONS

LIGHTING	A	#	a
FIXTURE TYPE			
*CIRCUIT DESIGNATION			
SWITCH DESIGNATION			

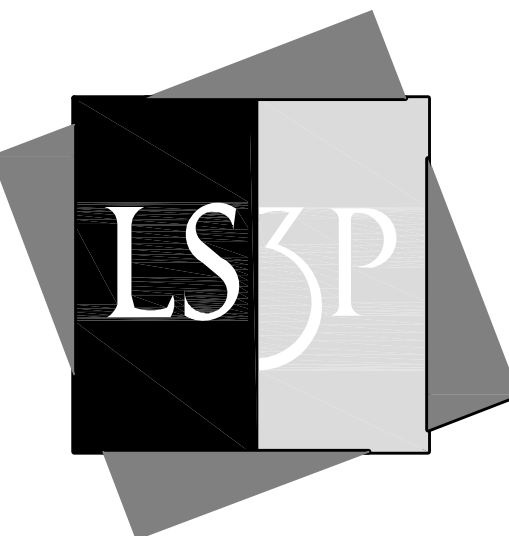
POWER

POWER	#
*CIRCUIT DESIGNATION	

* SEE NOTES FOR PANEL DESIGNATIONS FOR EACH AREA.

ELECTRICAL ABBREVIATIONS

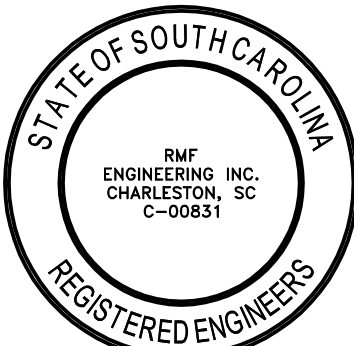
A, AMP	- AMPERE	KVAR	- KILOVOLT AMPERES REACTIVE
AC	- ALTERNATING CURRENT	KW	- KILOWATTS
A/C	- AIR CONDITIONING	KWH	- KILOWATT HOUR
AFF	- ABOVE FINISHED FLOOR	LA	- LIGHTNING ARRESTOR
AFG	- ABOVE FINAL GRADE	LC	- LIGHTING CONTACTOR
AHU	- AIR HANDLING UNIT	LTG	- LIGHTING
AIC	- AMPS INTERRUPTING CAPACITY	LTNG	- LIGHTNING
ALT	- ALTERNATE	LP	- LIGHTING PANEL
ANN	- ANNUNCIATOR	LRA	- LOCKED ROTOR AMPERES
APPROX	- APPROXIMATELY	MATV	- MASTER ANTENNA TELEVISION
ARCH	- ARCHITECT	MCB	- MAIN CIRCUIT BREAKER
ATC	- AUTOMATIC TEMPERATURE CONTROL	MCC	- MOTOR CONTROL CENTER
ATS	- AUTOMATIC TRANSFER SWITCH	MEH	- METAL HALIDE
AWG	- AMERICAN WIRE GAUGE	MH	- MANHOLE, MOUNTING HEIGHT
BAS	- BUILDING AUTOMATION SYSTEM	MLO	- MAIN LUGS ONLY
BFC	- BELOW FINISHED CEILING	MSP	- MOTOR STARTER PANEL
BFG	- BELOW FINISHED GRADE	MTD	- MOUNTED
BLDG	- BUILDING	MV	- MERCURY VAPOR
BOD	- BOTTOM OF DEVICE	NC	- NORMALLY CLOSED
C, CND	- CONDUIT	NEC	- NATIONAL ELECTRICAL CODE
CATV	- CABLE TELEVISION	NFSS	- NON-FUSED SAFETY SWITCH
CB	- CIRCUIT BREAKER	NO	- NUMBER, NORMALLY OPEN
CCTV	- CLOSED CIRCUIT TELEVISION	OC	- ON CENTER
CKT	- CIRCUIT	OFCl	- OWNER FURNISHED CONTRACTOR INSTALLED
CL	- CURRENT LIMITING	OFDI	- OWNER FURNISHED OWNER INSTALLED
CLG	- CEILING	OH	- OVERHEAD
CONN	- CONNECT	Ø, PH	- PHASE
CPT	- CONTROL POWER TRANSFORMER	P	- POLE
CT	- CURRENT TRANSFORMER	PB	- PUSHBUTTON
CTR	- CENTER	PF	- POWER FACTOR
CU,CO	- COPPER	PFCC	- POWER FACTOR CORRECTION CAPACITOR
CX	- CONNECT TO EXISTING	PL	- PILOT LIGHT
DC	- DIRECT CURRENT	PLC	- PROGRAMMABLE LIGHTING CONTROL
DISC	- DISCONNECT	PNL	- PANEL
DN	- DOWN	PP	- POWER PANEL
DP	- DISTRIBUTION PANEL	PR	- PAIR
DPST	- DOUBLE POLE SINGLE THROW	PT	- POTENTIAL TRANSFORMER
DPOT	- DOUBLE POLE DOUBLE THROW	PVC	- POLYVINYL CHLORIDE
DT	- DOUBLE THROW	Pp	- PUMP
DWG	- DRAWING	QTY	- QUANTITY
E, EMERG	- EMERGENCY	RCS	- REMOTE CONTROL SWITCH
EA	- EACH	REC, RECP	- RECEPTACLE
EC	- EMPTY CONDUIT	REQ'D	- REQUIRED
EF	- EXHAUST FAN	RFI	- RADIO FREQUENCY INTERFERENCE
EH	- ELECTRIC HEATER	RGS	- RIGID GALVANIZED STEEL
ELEC	- ELECTRIC	RLA	- RUNNING LOAD AMPERES
ELEV	- ELEVATION	RM	- ROOM
ETR	- EXISTING TO REMAIN	RVAT	- REDUCED VOLTAGE AUTO TRANSFORMER
EX	- EXISTING	RX	- REMOVE EXISTING
EXP	- EXPOSED	SC	- SURGE CAPACITOR
EW	- ELECTRIC WATER COOLER	SEC	- SECONDARY
FR	- FRAME	SN, S/N	- SOLID NEUTRAL
FA	- FIRE ALARM	SP	- SURGE PROTECTION
FAP	- FIRE ALARM ANNUNCIATOR PANEL	SPDT	- SINGLE POLE DOUBLE THROW
FBO	- FINISHED BY OTHERS	SS	- SAFETY SWITCH
FC	- FAN COIL	ST	- SOLID STATE
FDR	- FEEDER	SST	- SINGLE THROW
FLA	- FULL LOAD AMPERES	SW	- SWITCH
FLR	- FLOOR	SWB	- SWITCHBOARD
FU	- FUSED AND FUSIBLE	TBR	- TO BE REMOVED
FUS	- FUSED SAFETY SWITCH	TC	- TIME CLOCK
FVR	- FULL VOLTAGE REVERSING	TEL, TELE	- TELEPHONE
FNVR	- FULL VOLTAGE NON-REVERSING	TOD	- TOP OF DEVICE
GEN	- GENERATOR, GENERAL	TRANS/XMR	- TRANSFORMER
GFI	- GROUND FAULT INTERRUPTER	TH	- TUNGSTEN HALOGEN
GFR	- GROUND FAULT RELAY	TTB	- TELEPHONE TERMINAL BOARD
GRD	- GROUND	TW	- TWISTED
GRS	- GALVANIZED GRID STEEL	TY	- TYPICAL
HID	- HIGH INTENSITY DISCHARGE	UG	- UNDERGROUND
HOA	- HAND-OFF-AUTOMATIC	UH	- UNIT HEATER
HP	- HORSEPOWER	UN	- UNLESS OTHERWISE NOTED
HPS	- HIGH PRESSURE SODIUM	UON	- VOLTS
HPR	- HEATER	VFC	- VARIABLE FREQUENCY CONTROLLER
HV	- HIGH VOLTAGE	W	- WATTS, WIRE
HZ	- HERTZ	W/	- WITH
IG	- ISOLATED GROUND	W/P	- WEATHER-PROOF
J	- JUNCTION BOX	X	- EXPLOSION PROOF
KCMIL	- THOUSAND CIRCULAR MILS	251W	- 2 SPEED SINGLE WINDING
KV	- KILOVOLTS	252W	- 2 SPEED DOUBLE WINDING



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CHARLOTTE, NORTH CAROLINA 28202
TEL. 704.333.6686 FAX 704.333.2926
WWW.LS3P.COM



RMF ENGINEERING, INC.
194 SEVEN FARMS DRIVE, SUITE G
CHARLESTON, SC 29492
RMF PROJECT #312022.A0



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REVISIONS:

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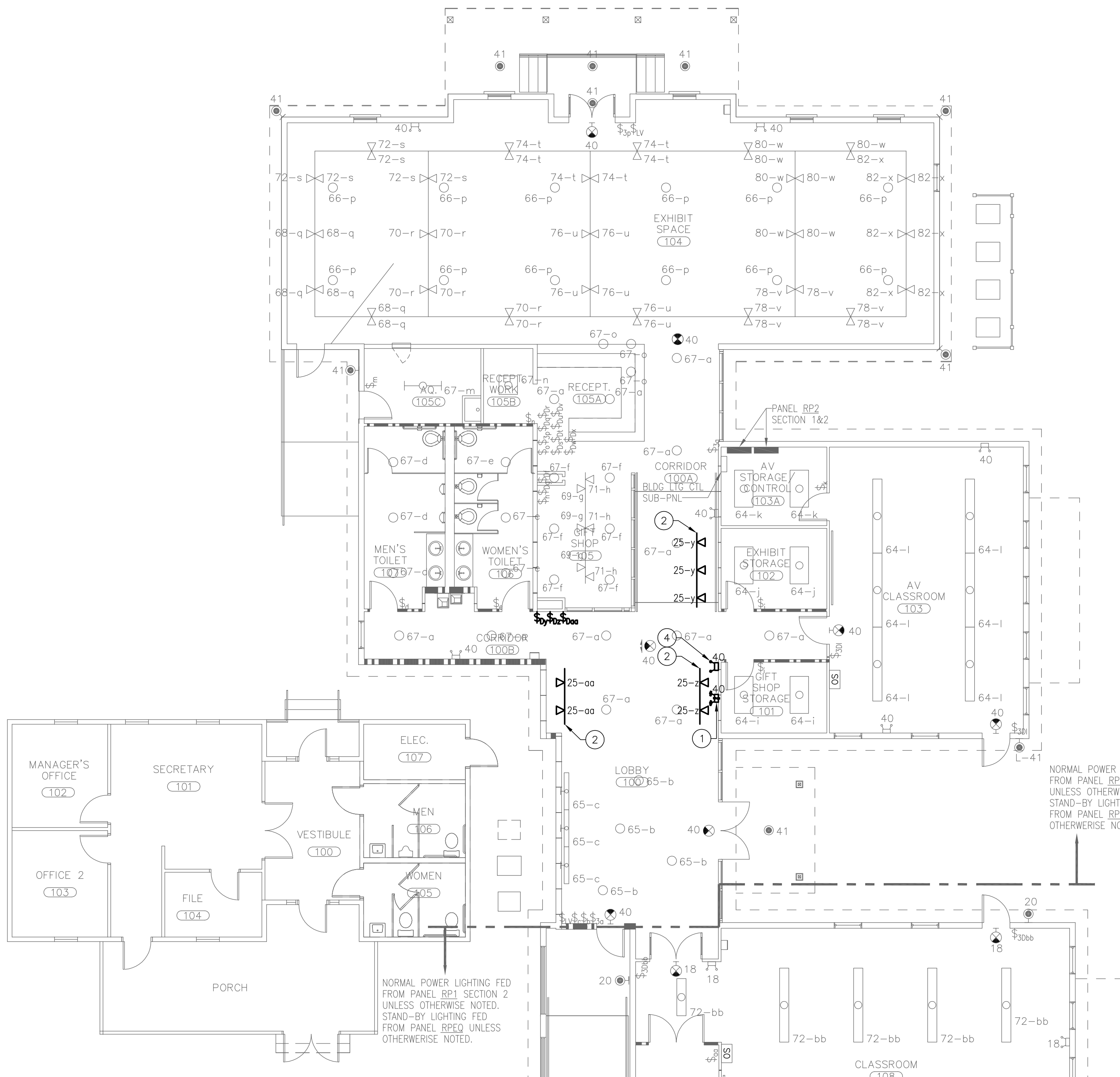
PROJECT: 2402-062141
DATE: 04/13/2012
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CHECKED BY: BAC

DEMOLITION NOTES:

- EXISTING CONDITIONS SUCH AS LIGHTING, RECEPTACLES, ETC. WERE OBTAINED FROM AVAILABLE RECORD DRAWINGS AND FIELD SURVEYS AND ARE NOT WARRANTED TO BE COMPLETE OR CORRECT. CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL ELECTRICAL ITEMS IN THE FIELD PRIOR TO THE START OF ANY WORK.
- SHOULD THE CONTRACTOR ENCOUNTER ANY MAJOR ELECTRICAL ITEMS, I.E. PANELS, FEEDERS, JUNCTION BOXES ETC. WHICH ARE NOT ADDRESSED ON THE DRAWINGS, HE SHALL BRING THEM TO THE ATTENTION OF THE ENGINEER. THE ENGINEER WILL REVIEW THE ITEM IN QUESTION AND GIVE THE NECESSARY DIRECTION.
- THE OWNER SHALL BE GIVEN A FIRST RIGHT OF REFUSAL FOR ALL ELECTRICAL EQUIPMENT WHICH IS TO BE REMOVED. ALL ELECTRICAL EQUIPMENT WHICH IS DESIRED BY THE OWNER SHALL BE STORED ON THE SITE WHERE DIRECTED BY THE OWNER. THE CONTRACTOR SHALL PROMPTLY DISPOSE OF ALL ELECTRICAL ITEMS WHICH ARE REMOVED AND THE OWNER DOES NOT WANT TO KEEP.
- IN GENERAL, ALL EXISTING ELECTRICAL DEVICES, LIGHTING FIXTURES, PANELS, CONDUITS, WIRING, JUNCTION BOXES, ETC. SHALL BE REMOVED IN THEIR ENTIRETY. THESE ITEMS ARE INDICATED WITH HEAVY DASHED LINES. ITEMS THAT ARE EXISTING TO REMAIN ARE INDICATED WITH A LIGHT CONTINUOUS LINE.
- ALL BRANCH CIRCUIT AND TELEPHONE WIRING WHICH MUST BE IN SERVICE AND WHICH IS DISCONNECTED AS A RESULT OF THE DEMOLITION WORK SHALL BE PROPERLY RECONNECTED.
- EXISTING SMOKE DETECTORS AND DUCT SMOKE DETECTORS SHALL BE TEMPORARILY DISCONNECTED DURING DEMOLITION AND OTHER DUST PRODUCING ACTIVITIES. COORDINATE THE TEMPORARY DISCONNECTION WITH FACILITIES.
- WHERE EXISTING DEVICES REMAIN IN WALLS WHICH RECEIVE A NEW FINISH, CONTRACTOR SHALL PROVIDE ALL NECESSARY OUTLET BOX EXTENSIONS, FLASTER RINGS, ETC. SO THAT DEVICES INSTALLED IN THE SAME MANNER AS EXISTING (I.E. FLUSH CONCEALED, ETC.).

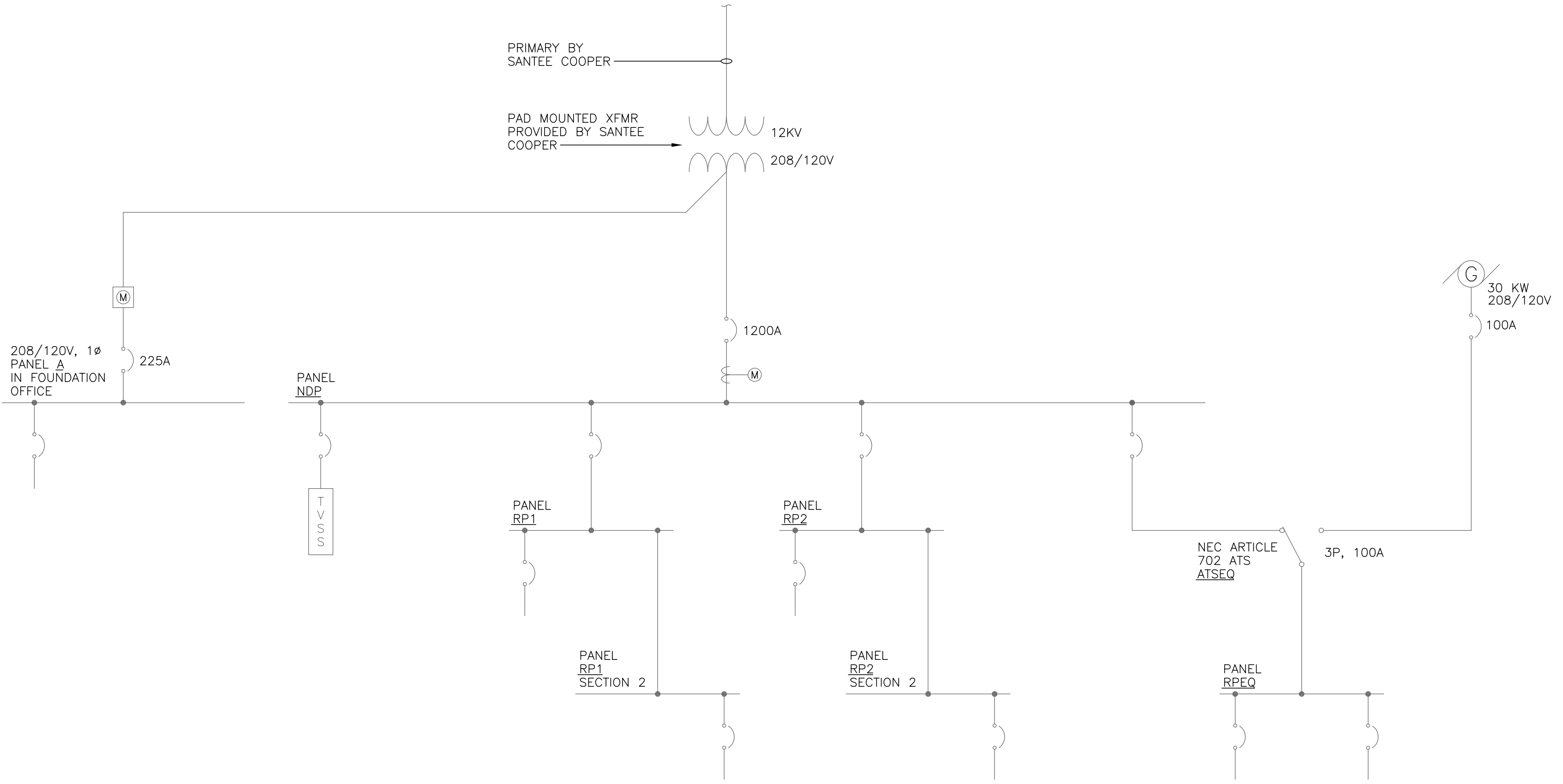
DRAWING NOTES:

- EXISTING BATTERY PACK FIXTURE TO BE RELOCATED. EXTEND EXISTING CONDUIT AND WIRE TO NEW LOCATION SHOWN ON THIS DRAWING.
- TRACK LIGHTING FIXTURE TYPE T1 MOUNTED 2'-0" FROM WALL.
- ROUTE CIRCUIT THROUGH BUILDING LIGHTING CONTROL SUB PANEL LOCATED IN AV STORAGE CONTROL ROOM.
- NEW BATTERY PACK LOCATION.

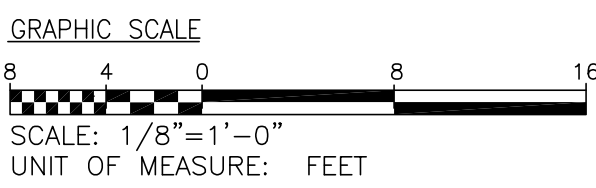


HOBCAW DISCOVERY CENTER LIGHTING FIXTURE SCHEDULE													
FIXTURE TYPE	DESCRIPTION	LOUVER/ LENS	LAMPS				BALLAST		VOLTAGE	INPUT WATTAGE	MOUNTING	REMARKS	MANUFACTURER
			TYPE	WATTAGE	QTY.	COLOR TEMP.	TYPE	QTY.					
T1	TRACK LIGHTING FIXTURE	-	LED	17.8	1	3500°K	ELECTRONIC	1	120	17.8	TRACK	PROVIDE ALL HARDWARE AND CONNECTORS TO PROVIDE A COMPLETE TRACK SYSTEM. TRACK SHALL BE SURFACE MOUNTED TO CEILING, 120V, ONE CIRCUIT TRACK.	INTENSE LIGHTING #MB900-35-DIM-W-FL50

PANELBOARD: RP2		MAINS: 400A MCB		AMPS: 400		MIN AIC: SERIES	
LOCATION: AV STORAGE CONTROL 103A		VOLTS: 208/120		PHASE: 3		WIRES: 4	
MOUNTING: SURFACE		ENCL NEMA: 1		NOTES: EXISTING PANELBOARD			
SERVES	CB	P	TA	3PH	CB	P	SERVES
CU-1	2	45	1	2	60	2	FCU-1
_____	_____	_____	3	_____	_____	4	_____
CU-2	2	20	5	_____	6	30	FCU-2
_____	_____	_____	7	_____	_____	8	_____
CU-3	2	25	9	_____	10	50	FCU-3
_____	_____	_____	11	_____	_____	12	_____
CU-4	2	35	13	_____	14	50	FCU-4
_____	_____	_____	15	_____	_____	16	_____
CU-5	2	20	17	_____	18	30	FCU-5
_____	_____	_____	19	_____	_____	_____	_____
CU-13	2	20	21	_____	22	30	FCU-5
_____	_____	_____	23	_____	_____	24	_____
TRACK LTG	1	20	25 ¹²	_____	_____	_____	_____
SPARE	1	20	27	_____	28	30	WH-1
SPARE	1	20	29	_____	30	_____	_____
SPARE	1	20	31	_____	32	20	1 SPARE
SPARE	1	20	33	_____	34	20	1 SPARE
SPARE	1	20	35	_____	36	20	1 SPARE
SPARE	1	20	37	_____	38	20	1 SPARE
SPARE	1	20	39	_____	40	20	1 SPARE
SPARE	1	20	41	_____	42	20	1 SPARE
			25.63	28.53	20.24		



ELECTRICAL SINGLE LINE DIAGRAM
SCALE: NONE



E

D

C

B

A

260500 COMMON WORK RESULTS FOR ELECTRICAL

- ALL WORK SHALL BE MANUFACTURED, TESTED AND INSTALLED IN ACCORDANCE WITH THE 2008 NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL CODES. IN ADDITION, ALL WORK SHALL BE IN ACCORDANCE WITH AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), AMERICAN WITH DISABILITIES ACT (ADA), 2009 INTERNATIONAL BUILDING CODE (IBC), ILLUMINATING ENGINEERING SOCIETY (IES), NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATES (NEMA), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE) AND UNDERWRITERS LABORATORY, INC. (UL). THE CONTRACTOR SHALL FURNISH A FIRE UNDERWRITERS CERTIFICATE OF INSPECTION COVERING THE WORK INSTALLED UNDER THIS SPECIFICATION. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND CERTIFICATES.
- THOROUGHLY EXAMINE THE ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS PRIOR TO COMMENCEMENT OF ANY WORK. COORDINATE WORK WITH ALL OTHER TRADES.
- ALL ELECTRICAL EQUIPMENT SHALL BE NEW, OF FIRST QUALITY, AND SHALL BE FURNISHED, DELIVERED, ERECTED, CONNECTED, AND FINISHED IN EVERY DETAIL.
- THE WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING COMPLETE ITEMS OR SYSTEMS: A SYSTEM OF INTERIOR WIRING, LIGHTING FIXTURES, LAMPS AND CONNECTION TO EQUIPMENT PROVIDED UNDER OTHER SECTIONS OF THE SPECIFICATION.
- CONTRACTOR SHALL PROVIDE TEMPORARY LIGHTING AND POWER AS REQUIRED DURING CONSTRUCTION.
- ALL MATERIALS REQUIRED FOR THE WORK SHALL BE NEW, OF FIRST QUALITY, AND SHALL BE FURNISHED, DELIVERED, ERECTED, CONNECTED, FINISHED IN EVERY DETAIL, AND SHALL BE SO SELECTED AND ARRANGED AS TO FIT PROPERLY INTO BUILDING SPACES. WHERE NO SPECIFIC KIND OR QUALITY OF MATERIAL IS GIVEN, A FIRST-CLASS STANDARD ARTICLE AS APPROVED BY THE ENGINEER SHALL BE PROVIDED.
- THESE PLANS AND SPECIFICATIONS ARE INTENDED TO PROVIDE A BROAD OUTLINE OF THE WORK AND EQUIPMENT REQUIRED, BUT ARE NOT INTENDED TO INCLUDE ALL THE DETAILS OF CONSTRUCTION.
- ALTHOUGH THE LOCATION OF EQUIPMENT MAY BE SHOWN ON THE ELECTRICAL PLANS IN A CERTAIN PLACE, THE CONSTRUCTION OF THE BUILDING, MAY DISCLOSE THE FACT THAT THE LOCATION FOR THIS ELECTRICAL WORK DOES NOT MAKE ITS POSITION EASILY AND QUICKLY ACCESSIBLE. IN SUCH CASES, THE CONTRACTOR SHALL CALL ATTENTION TO THIS FACT BEFORE INSTALLING HIS WORK FOR ACTION BY THE ARCHITECT AND SHALL BE GUIDED BY HIS WRITTEN INSTRUCTIONS.
- IT SHALL BE NOTED THAT A REASONABLE SHIFTING IN LOCATION OF OUTLETS (BEFORE INSTALLATION) WILL BE EXPECTED AND THIS WORK SHALL BE DONE AT NO INCREASED COSTS TO THE OWNER. CONTRACTOR SHALL VERIFY DOOR SWINGS PRIOR TO ROUGHING-IN LIGHT SWITCHES.
- THE CONTRACTOR SHALL VERIFY THE SERVICE REQUIREMENTS OF ALL PIECES OF EQUIPMENT BEFORE MAKING FINAL PROVISIONS. SHOP DRAWINGS SHALL BE AVAILABLE FOR CHECKING BEFORE INSTALLATION.
- THE CONTRACTOR SHALL MAINTAIN A SET OF WHITE PRINTS THROUGHOUT THE WORK UPON WHICH HE SHALL CAREFULLY RECORD THE ACTUAL LOCATIONS INCLUDING DIMENSIONS TO LOCATE WHEN DIFFERENT FROM CONTRACT DRAWINGS, EACH PIECE OF ELECTRICAL EQUIPMENT, CONTROL DEVICES, SWITCHES, OUTLETS, WIRES, CABLES, CONDUITS, ETC. UPON COMPLETION OF THE WORK, HE SHALL DELIVER THIS SET OF PRINTS TO THE ARCHITECT. THE ARCHITECT RESERVES THE RIGHT TO WITHHOLD FINAL PAYMENTS UNTIL RECORD "AS-BUILT" DRAWINGS ARE RECEIVED.

ONE (1) ACCEPTED COPY OF THE MATERIALS LIST.

ONE (1) ACCEPTED COPY OF EACH SHOP DRAWING.

ONE (1) COMPLETE COPY OF EACH PANELBOARD DIRECTORY.

EACH DIRECTORY SHALL BE A SEPARATE SHEET.

ONE (1) COPY OF EACH CIRCUIT BREAKER TIME-CURRENT CURVE.

ONE (1) COPY OF EACH OPERATION DESCRIPTION.
- THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR INSPECTION FOR THE PROJECT. UPON COMPLETION OF THE WORK, A FINAL INSPECTION CERTIFICATE SHALL BE SUBMITTED TO THE ARCHITECT IN TRIPlicate. THIS CERTIFICATE SHALL BE SUBMITTED PRIOR TO REQUEST FOR FINAL PAYMENT. THE CONTRACTOR SHALL PAY ALL FEES REQUIRED FOR INSPECTION.
- THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO BID DATE TO EXAMINE THE CONDITIONS UNDER WHICH HIS WORK IS TO BE PERFORMED. NO EXTRAS SHALL BE ALLOWED FOR FAILURE TO NOTE EXISTING CONDITIONS.
- USE NEMA TYPE 1 GENERAL PURPOSE ENCLOSURES FOR ALL INDOOR EQUIPMENT, NEMA 3R FOR OUTDOOR EQUIPMENT UNLESS OTHERWISE NOTED.
- PROVIDE ENGRAVED PLASTIC PHENOLIC LAMINATED NAMEPLATES FOR EACH PANELBOARD, CONTROLLER AND DISCONNECT. ENGRAVED NAMEPLATES SHALL BE PROVIDED WITH 1/4" HIGH VERTICAL BLACK LETTERS ON A WHITE BACKGROUND. NAMEPLATES SHALL BE SECURED BY MEANS OF STAINLESS STEEL METAL SCREWS.
- SUBMIT DRAWINGS AND DATA SHEETS OF THE FOLLOWING APPARATUS GIVING FULL INFORMATION AS TO DIMENSIONS, MATERIALS, FITNESS AND OTHER PERTINENT FACTS SPECIFIC TO THIS PROJECT. WHERE OPTIONAL EQUIPMENT, FUNCTIONS OR ITEMS ARE REQUIRED TO MEET THESE SPECIFICATION THEY SHALL BE SPECIFICALLY NOTED. OBTAIN APPROVAL BEFORE THE FOLLOWING APPARATUS INVOLVED IS ORDERED, BUILT, OR INSTALLED: WIRING DEVICES AND PLATES, AND LIGHTING FIXTURES.
- COORDINATE THE WORK TO MINIMIZE PENETRATION OF WATERPROOF CONSTRUCTION, INCLUDING ROOFS, EXTERIOR WALLS, ETC. WHERE SUCH PENETRATIONS ARE NECESSARY PROVIDE ALL NECESSARY SLEEVES, SHIELDS, FLASHING, FITTINGS AND CAULKING TO MAKE PENETRATION ABSOLUTELY WATERTIGHT.
- ALL CONDUITS PASSING THROUGH FIRE RATED, FIRE RESISTANT OR FIRE STOPPED WALLS, CEILINGS OR FLOORS SHALL BE SEALED WITH FOAM TYPE FIRE RESISTANT SEALANT.

TESTS:

- CONTRACTOR SHALL PROVIDE TESTING FOR THE EQUIPMENT AND BRANCH CIRCUITS, AND SUCH OTHER TESTS AS ARE DESCRIBED IN OTHER SECTIONS OF THIS SPECIFICATION.
- THE CONTRACTOR SHALL FURNISH ALL LABOR, SPECIALTIES, INSTRUMENTS, EQUIPMENT, ETC., REQUIRED FOR THE TESTS, AND SHALL PAY ANY OTHER EXPENSES INCURRED, INCLUDING NECESSARY CHANGES TO THE SYSTEMS AS REQUIRED TO PRODUCE THE SPECIFIED RESULTS.
- ALL TESTS SHALL BE CONDUCTED BEFORE ANY EQUIPMENT IS CONNECTED THAT WOULD BE SUBJECT TO DAMAGE FROM THE TEST.
- THE CONTRACTOR SHALL NOTIFY ALL PARTIES WHOSE PRESENCE IS NECESSARY FOR THE TEST; AND IN ALL CASES, THE ARCHITECT SHALL BE NOTIFIED AT LEAST ONE (1) DAY PRIOR TO THE ACTUAL TEST.
- RESULTS OF THE TESTS SHALL SHOW THAT THE FEEDERS, EQUIPMENT AND WIRING SHALL MEET THE REQUIREMENTS OF THIS SPECIFICATION. SHOULD ANY OF THE ABOVE TESTS INDICATE DEFECTS IN MATERIALS OR WORKMANSHIP, THE FAULTY INSTALLATION SHALL BE REPAIRED OR REPLACED AT ONCE AND THE NECESSARY PORTIONS OF THE TESTS RECONDUCTED TO THE APPROVAL OF THE ARCHITECT.
- THE TESTS SHALL DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER THE FOLLOWING:

THAT ALL LIGHTING, POWER, AND CONTROL CIRCUITS ARE CONTINUOUS AND FREE OF SHORT CIRCUITS.

THAT ALL CIRCUITS ARE FREE FROM UNSPECIFIED GROUNDS, AND GROUNDED WHERE SPECIFIED.

THAT THE RESISTANCE TO GROUND ON ALL NON-GROUNDED CIRCUITS IS AT LEAST ONE (1) MEGOHM.

THAT ALL CIRCUITS ARE PROPERLY CONNECTED IN ACCORDANCE WITH THE APPLICABLE WIRING DIAGRAMS.

THAT ALL CIRCUITS ARE OPERABLE, WHICH DEMONSTRATION SHALL INCLUDE FUNCTIONING OF EACH CONTROL NOT LESS THAN TEN (10) TIMES AND CONTINUOUS OPERATION OF EACH LIGHTING AND POWER CIRCUIT FOR NOT LESS THAN 1/2 HOUR.

260519 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

- ALL WIRING SHALL BE SINGLE CONDUCTOR ANNEALED COPPER WITH TYPE THHN/THWN, INSULATION UNLESS OTHERWISE NOTED OR HEREINAFTER SPECIFIED. WIRING SHALL BE RATED 600 VOLTS, AND SHALL COMPLY WITH FEDERAL SPECIFICATION J-C-30. BRANCH CIRCUIT WIRING, NO. 10 AND SMALLER, CONNECTED TO INTERIOR RECEPTACLES, LIGHTING FIXTURES, AND SWITCHES SHALL BE SOLID CONDUCTOR AND MAY BE TYPE THHN/THWN. ALL WIRING NO. 8 AWG AND LARGER SHALL BE STRANDED. WHERE ALLOWED BY THE LOCAL CODES (M.C.) CABLE MAY BE UTILIZED WHERE SPECIFIED. HEREINAFTER UNDER WIRING METHODS.
- MINIMUM SIZE OF BRANCH CIRCUIT WIRING IS NO. 12 AWG. MINIMUM SIZE OF NORMAL BRANCH CIRCUIT WIRE IS NO. 10 AWG WHERE USED FOR 120 VOLT BRANCH CIRCUIT HOMERUNS SEVENTY-FIVE (75) FEET AND LONGER.
- ALL PHASE CONDUCTORS SHALL BE FACTORY COLOR CODED TAPE OR COLOR CODED "SLIPPERS", APPLIED AT EACH SPLICE AND TERMINATION IN ACCORDANCE WITH THE FOLLOWING SCHEDULES:

208/120V. SYSTEMS

PHASE - COLOR

A - BLACK

B - RED

C - BLUE

N - WHITE

GRD - GREEN
- GREEN COLORED INSULATED EQUIPMENT GROUND CONDUCTOR SHALL BE PROVIDED FOR ALL FEEDERS AND FOR ALL BRANCH CIRCUITS.
- FOR WIRE IDENTIFICATION, USE BRADY "QUICK-TAGS" ON ALL CONDUCTORS AT THE TERMINATION OF THE RUN AND IN ALL OUTLETS. CODING SCHEME IS THE RESPONSIBILITY OF THE CONTRACTOR, BUT IS GENERALLY TO FOLLOW THE TERMINAL NUMBERING SCHEME OF THE PANELBOARD. ARRANGE THIS CODING SCHEME SO AS TO PROVIDE QUICK AND EASY IDENTIFICATION OF THE CONDUCTORS. IDENTIFY EACH FEEDER CONDUCTOR IN PULL AND JUNCTION BOXES WITH A STAMPED FIBRE TAG.
- INSTALL ALL WIRING IN EMT RACEWAY, EXCEPT WHERE OTHERWISE SPECIFIED. M.C. CABLE MAY BE UTILIZED, WHERE ALLOWED BY THE LOCAL CODE, FOR BRANCH CIRCUIT WIRING ONLY.
- RUN ALL GROUNDING CONDUCTORS IN RACEWAYS.
- NO MORE THAN 3 PHASE WIRES IN ANY BRANCH CIRCUIT CONDUIT.

260526 GROUNDING AND BONDING FOR ELECTRICAL SYSTEM

- THE LOW VOLTAGE DISTRIBUTION SYSTEM SHALL BE PROVIDED WITH A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR FOR EACH SINGLE OR THREE-PHASE FEEDER OR BRANCH CIRCUIT. THE REQUIRED GROUNDING CONDUCTOR SHALL BE INSTALLED IN THE COMMON RACEWAY WITH THE RELATED PHASE AND/OR NEUTRAL CONDUCTORS. WHEN THE RACEWAY FOR BRANCH CIRCUITS IS EMT OR METAL SURFACE RACEWAY, A GROUND WIRE SHALL BE INSTALLED IN THE RACEWAY. FLEXIBLE METALLIC CONDUIT EQUIPMENT CONNECTIONS UTILIZED IN CONJUNCTION WITH THE ABOVE SHALL BE PROVIDED WITH SUITABLE GREEN INSULATED GROUNDING CONDUCTORS CONNECTED TO APPROVED GROUNDING TERMINALS AT EACH END OF THE FLEXIBLE CONDUIT.

260533 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

RACEWAYS:

- ALL RACEWAYS RUN IN CEILING OR WALL SPACE AND EXPOSED ON INTERIOR WALLS SHALL BE EMT. ALL CIRCUIT RACEWAYS SHALL BE CONCEALED WHERE POSSIBLE AND A MINIMUM SIZE OF 3/4" UNLESS OTHERWISE NOTED. ALL RACEWAYS RUN IN SLAB OR EXPOSED ON EXTERIOR WALLS SHALL BE RIGID STEEL OR IMC. ALL EMERGENCY POWER WIRING SHALL BE INSTALLED IN CONDUIT.
- PROVIDE TRAPEZE TYPE CONDUIT HANGERS EVERY EIGHT (8) FEET FOR STRAIGHT RUNS AND WITHIN THREE (3) FEET OF EACH TERMINATION.
- ELECTRICAL METALLIC TUBING SHALL BE AS MANUFACTURED BY ALLIED CONDUIT OR APPROVED EQUAL. ALL CONDUIT FITTINGS SHALL BE STEEL COMPRESSION FITTINGS.
- RIGID GALVANIZED STEEL CONDUIT SHALL BE THREADED, GALVANIZED OR SHERARDIZED INSIDE AND OUT, AS MANUFACTURED BY ALLIED, TRIANGLE, WESTERN OR WHEATLAND. CONTRACTOR MAY USE INTERMEDIATE GRADE CONDUIT (MG).
- CONNECTIONS TO VIBRATING EQUIPMENT AND TO LIGHTING FIXTURES SHALL BE MADE WITH FLEXIBLE CONDUIT, GALVANIZED TYPE AS MANUFACTURED BY NATIONAL-FLEX STEEL OR APPROVED EQUAL.
- CONNECTIONS TO EQUIPMENT OR MOTORS LOCATED OUTDOORS SHALL BE MADE WITH LIQUID TIGHT SEAL-TITE CONDUIT WITH COMPRESSION TYPE FITTINGS, AS MANUFACTURED BY CROUSE HIND SERIES LA.
- CONDUIT IN DIRECT CONTACT WITH EARTH OR IN CORROSIVE ATMOSPHERE SHALL BE POLYVINYL CHLORIDE CONDUIT. POLYVINYL CHLORIDE CONDUIT SHALL BE SCHEDULE 40 AS MANUFACTURED BY CARLON OR APPROVED EQUAL.
- MAINTAIN SIX (6) INCH MINIMUM CLEARANCE BETWEEN ALL RACEWAY AND PARALLEL RUNS OF WATER PIPES.
- USE OZ/GEDNEY COMPANY TYPE B INSULATING BUSHINGS ON ALL RACEWAY FREE ENDS AND ENTERING PANELS, PULL BOXES, DISCONNECTS, ETC.
- VERTICAL ELBOWS STUBBED OUT OF FLOORS OR EQUIPMENT PADS SHALL BE IMC OR RGS CONDUIT.

OUTLET BOXES:

- AT ALL OUTLETS OF WHATEVER KIND, FOR ALL SYSTEMS, PROVIDE A SUITABLE BOX SPECIALLY DESIGNED TO RECEIVE THE TYPE OF FIXTURE OR DEVICE TO BE MOUNTED THEREON. PROVIDE FIXTURE OUTLET BOXES WITH SUITABLE FIXTURE SUPPORTS OF SIZE AND KIND REQUIRED FOR THE FIXTURE TO BE HUNG.
- PROVIDE BOX COVERS TO FIT OUTLET BOX INSTALLED OF THE REQUIRED DEPTH SO THAT THE EDGE OF THE RING IS FLUSHED WITH THE FINISHED PLASTER, MASONRY, ACOUSTICAL MATERIAL, OR OTHER FINISH.
- PROVIDE JUNCTION OR PULL BOXES WHERE EVER INDICATED OR WHERE REQUIRED TO FACILITATE WIRE PULLING OR CONNECTION. FABRICATE BOXES WITH TWELVE (12) GAUGE MINIMUM GALVANIZED STEEL AND EQUIP WITH SCREW COVER. SIZE BOX PER NEC. LABEL ALL CIRCUITS INSIDE BOX AND ON EXTERIOR OF COVER WITH ONE (1) INCH HIGH STENCILED LETTERS.
- PROVIDE SINGLE GANG F'S TYPE DEVICE BOX WITH WATERPROOF RECEPTACLE COVER. DEVICE BOX SHALL BE CAST COPPER FREE ALUMINUM WITH DIE CAST ALUMINUM COVERPLATE WITH SCREW SIMPLEX RECEPTACLE COVER. PROVIDE RUSSELLSTOLL TYPE FSWs-62 BOX.
- PROVIDE CONDULET TYPE CAST DEVICE BOXES FOR ISOLATED EQUIPMENT IN THE KITCHEN AND AS OTHER WISE REQUIRED. PROVIDE KINDOFF SUPPORTS AS REQUIRED BY CODE. CAST BOXES SHALL BE MADE OF FERALOY OR COPPER FREE ALUMINUM. CAST BOXES SHALL HAVE THREADED HUBS SUITABLE FOR 3/4" IMC OR RGS CONDUIT. CAST DEVICE BOXES SHALL BE CROUSE-HINDS CATALOG NO. FDD2, TWO GANG CATALOG NO. FDS222.
- PROVIDE FLOOR BOXES AS INDICATED ON DRAWINGS. PROVIDE AMERICAN ELECTRIC STEEL CITY BOX NO. 68-D OR APPROVED EQUAL. PROVIDE POLISHED BRASS COVERPLATE NO. P60-CACP FOR A FLUSH SERVICE.
- BOXES INSTALLED FLUSH IN WALLS SHALL BE SUPPORTED RIGIDELY ON TWO (2) SIDES.

260548 VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

- PROVIDE SEISMIC SUPPORTS AND ANCHORS FOR ELECTRICAL EQUIPMENT, AND SEISMIC BRACING FOR RACEWAY SYSTEMS IN COMPLIANCE WITH THE INTERNATIONAL BUILDING CODE 2009.

262726 WIRING DEVICES

- STANDARDS COMPLIANCE: COMPLY WITH REQUIREMENTS OF APPLICABLE LOCAL CODES, NEC, UL, NEMA, AND IEEE STANDARDS PERTAINING TO WIRING DEVICES. PROVIDE WIRING DEVICES WHICH ARE U.L. LISTED AND LABELED. PROVIDED DEVICE PLATES WHICH ARE U.L. LISTED.
- ALL WALL SWITCHES SHALL BE TOGGLE, QUIET TYPE, FULLY ENCLOSED IN COMPOSITION CASE, 20 AMPERES 120/277 VOLT RATING AS MANUFACTURED BY HUBBELL, PASS AND SEYMOUR, ARROW-HART, LEVITON OR APPROVAL EQUAL.
- ALL RECEPTACLES SHALL BE 20 AMPERES, 120 VOLT, HEAVY DUTY, GROUNDING TYPE, BACK AND SIDE WIRED FULLY ENCLOSED IN COMPOSITION CASE AS MANUFACTURED BY HUBBELL, PASS AND SEYMOUR, ARROW-HART, LEVITON OR APPROVED EQUAL. RECEPTACLES SHALL BE SINGLE OR DUPLEX AS INDICATED ON DRAWINGS.
- SWITCHES AND RECEPTACLES SHALL BE GRAY IN COLOR FOR 120 VOLT.
- SWITCH AND RECEPTACLE COVER PLATES SHALL BE STAINLESS STEEL.
- PROVIDE MULTI-GANG SWITCH COVERPLATES WHERE TWO (2) OR MORE SWITCHES OR RECEPTACLES ARE INDICATED ADJACENT ON THE DRAWINGS. WHERE DIMMER SWITCHES ARE SHOWN ADJACENT TO TOGGLE SWITCHES THEY SHALL HAVE SEPARATE COVERPLATES. WHERE TWO (2) OR MORE DIMMERS ARE INDICATED TOGETHER THEY SHALL HAVE A COMMON COVERPLATE. DIMMER COVERPLATES SHALL BE AS MANUFACTURED BY THE DIMMER MANUFACTURER TO MATCH THE STYLE OF DIMMERS.
- PROVIDE MINIMUM #12 AWG GREEN INSULATED GROUND WIRE FROM DEVICE GROUND LUG TO DEVICE BOX GROUND LUG.

265100 INTERIOR LIGHTING

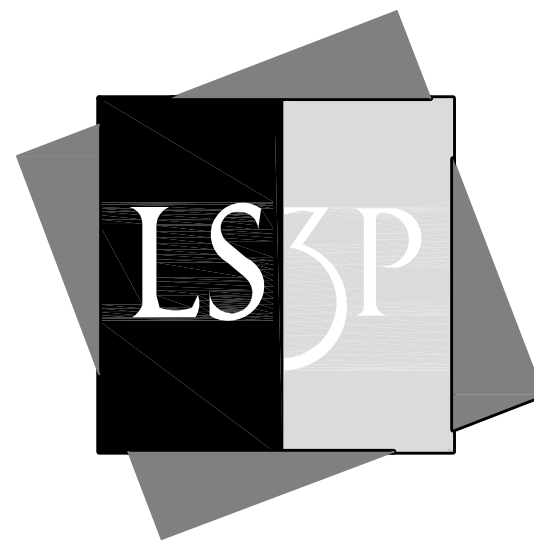
- REGARDLESS OF CATALOG NUMBER IN LIGHTING FIXTURE SCHEDULE, EVERY FIXTURE SHALL BE OF THE TYPE FOR THE CEILING CONSTRUCTION IN WHICH IT IS TO BE INSTALLED AND MOUNTING CONDITIONS. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE THIS WITH THE CEILING CONTRACTOR.
- BEFORE ANY OF THE FIXTURES ARE FABRICATED, COMPLETE SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL. WHEN REQUESTED BY THE ARCHITECT COMPLETE SAMPLES OF ANY OR ALL FIXTURES SPECIFIED SHALL BE SUBMITTED.
- UPON COMPLETION OF THE INSTALLATION, ALL LIGHTING FIXTURES SHALL BE CLEANED TO THE SATISFACTION OF THE ARCHITECT. SEE SCHEDULE OF FIXTURES ON THE DRAWINGS.
- THE LIGHTING DESIGN WAS BASED ON THE LIGHTING FIXTURE TYPE AND MANUFACTURERS AS SPECIFIED. ONLY THOSE FIXTURES SPECIFIED ARE APPROVED FOR INSTALLATION. IF THE CONTRACTOR ELECTS TO SUBSTITUTE AN ALTERNATIVE FIXTURE HE SHALL SUBMIT IN DETAIL COMPLETE CATALOG INFORMATION ON THE PROPOSED SUBSTITUTION AS WELL AS THE SPECIFIED FIXTURE AND PROVIDE LIGHTING CALCULATIONS OF AREAS AFFECTED BY THE PROPOSED SUBSTITUTIONS. THE PROPOSED SUBSTITUTION SHALL BE IN ALL DETAILS COMPLETELY EQUAL TO OR BETTER THAN THE SPECIFIED FIXTURE. IF REQUESTED BY THE ENGINEER THE CONTRACTOR SHALL PROVIDE AT NO COST A SAMPLE OF EACH PROPOSED SUBSTITUTION AND EACH SPECIFIED FIXTURE FOR EVALUATION.
- FLUORESCENT LAMPS SHALL BE ENERGY SAVING TYPE WARM WHITE SP35 SPX35 COLOR AS MANUFACTURED BY GENERAL ELECTRIC, SYLVANIA, OR PHILLIPS.
- FLUORESCENT LAMPS 2', 3', or 4' SHALL BE T8 DIAMETER.
- FIXTURES SHALL BE AS INDICATED ON THE SCHEDULE OF FIXTURES AND INDICATE THE QUALITY OF EQUIPMENT THAT IS TO BE PROVIDED.
- ALL LENSES FOR FLUORESCENT FIXTURES SHALL BE 100% ACRYLIC WITH A MINIMUM OF 0.125 LENS OVERALL THICKNESS.
- ALL FIXTURES SHALL BE COMPLETELY WIRED AT THE FACTORY.
- EACH RECESSED AND SEMI-RECESSED FIXTURE SHALL BE FINISHED WITH A MOUNTING FRAME OR RING COMPATIBLE WITH THE CEILING IN WHICH THEY ARE TO BE INSTALLED. THE FRAMES AND RINGS SHALL BE ONE (1) PIECE OR CONSTRUCTED WITH ELECTRICALLY-WELDED BUTT JOINTS, AND OF SUFFICIENT SIZE AND STRENGTH TO SUSTAIN THE WEIGHT OF THE FIXTURE.

- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE CERTAIN THAT ALL RECESSED FIXTURES HAVE TRIMS AND MOUNTING COMPONENTS COMPATIBLE WITH THE CEILING IN WHICH THEY ARE TO BE INSTALLED. SHOP DRAWINGS SHALL CLEARLY INDICATE THE COMPATIBILITY OF THE FIXTURE TO THE CEILING. LIGHTING FIXTURES SHALL MAINTAIN THE FIRE RATING OF THE CEILING.
- LIGHT LEAKS BETWEEN CEILING TRIMS OF RECESSED LIGHTING EQUIPMENT AND THE CEILING WILL NOT BE TOLERATED. YOKES, BRACKETS AND SUPPLEMENTARY SUPPORTING MEMBERS NEEDED TO MOUNTING LIGHTING FIXTURES TO TWO (2) INCH CARRIER CHANNELS OR OTHER SUITABLE CEILING MEMBERS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
- YOKES, BRACKETS AND SUPPLEMENTARY SUPPORTING MEMBERS NEEDED TO MOUNTING LIGHTING FIXTURES TO TWO (2) INCH CARRIER CHANNELS OR OTHER SUITABLE CEILING MEMBERS SHALL BE FURNISHED AN INSTALLED BY THE CONTRACTOR.
- RECESSED LIGHTING FIXTURES OF A DIMENSION TWENTY-FOUR (24) INCHES OR LONGER SHALL BE SUPPORTED ON TWO (2) DIAGONAL CORNERS INDEPENDENT OF CEILING CONSTRUCTION. RODS SHALL BE ALL-THREAD, MINIMUM OF 3/8" DIA. GALVANIZED CARBON STEEL WIRE SHALL BE A MINIMUM OF #12 GAUGE. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY CHANNELS, SUPPORT WIRES OR RODS, ETC. TO PROVIDE A STRUCTURALLY SOUND SYSTEM.
- REFLECTORS, REFLECTOR CONES AND VISIBLE TRIM OF ALL LIGHTING FIXTURES SHALL NOT BE INSTALLED UNTIL COMPLETION OF PLASTERING, CEILING TILE WORK, PAINTING AND GENERAL CLEANUP. THEY SHALL BE CAREFULLY HANDLED TO AVOID SCRATCHING OR FINGERPRINTING AND SHALL BE, AT THE TIME OF ACCEPTANCE BY THE OWNER, COMPLETELY CLEAN. ALL ALZAK PARABOLIC CONES SHALL BE GUARANTEED AGAINST DISCOLORATION FOR A MINIMUM OF TWO (2) YEARS, AND, IN THE EVENT OF PREMATURE DISCOLORATION, SHALL BE REPLACED BY THE MANUFACTURER, INCLUDING BOTH MATERIALS AND THE COST OF LABOR.
- ALL BALLASTS SHALL BE COVERED BY A FIVE (5) YEAR WARRANTY AGAINST DEFECTS. WARRANTY SHALL INCLUDE PAYMENT FOR NORMAL LABOR COSTS AND REPLACEMENT OF IN WARRANTY BALLASTS.
- LUMINAIRE ASSEMBLIES, INCLUDING BALLASTS, SHALL BE REASONABLY DEVOID OF OBJECTIONAL "HUM", IN THE NORMAL AMBIENT NOISE OF THE APPLICATION, AS JUDGED BY THE ENGINEER. FLUORESCENT BALLASTS SHALL HAVE A CLASS A SOUND RATING.
- FLUORESCENT BALLASTS SHALL BE ENERGY SAVING INSTANT START. ELECTRONIC TYPE AS MANUFACTURED BY ADVANCE MARK V, OR APPROVED EQUAL BY MOTOROLA MXRN-T8-11L OR MAGNETEK TRIAD HP SERIES. ELECTRONIC BALLASTS SHALL HAVE A TOTAL HARMONIC DISTORTION (THD) RATING LESS THAN 10%. ELECTRONIC BALLASTS SHALL MEET THE FEDERAL COMMUNICATIONS COMMISSION (FCC) STANDARDS SPECIFIED IN PART 18 OF THE FCC RULES CONCERNING INDUSTRIAL, SCIENTIFIC, AND MEDICAL EQUIPMENT.
- FLUORESCENT BALLASTS SHALL MEET THE REQUIREMENTS OF SECTION 410-73 (c) OF THE NATIONAL ELECTRICAL CODE. THE CONTRACTOR AND HIS SUPPLYING LIGHTING FIXTURE MANUFACTURER SHALL BE RESPONSIBLE FOR THE PROPER SELECTION OF BALLASTS FOR OPERATION IN THEIR ENVIRONMENT. BALLASTS SHALL HAVE ETL AND CBM CERTIFICATION LABELS AND SHALL BE HIGH POWER FACTOR TYPE OF 90% OR GREATER.
- A UL LISTING SHALL BE PROVIDED FOR EACH FIXTURE TYPE, AND THE APPROPRIATE LABEL OR LABELS SHALL BE AFFIXED TO EACH FIXTURE IN A POSITION CONCEALING IT FROM NORMAL VIEW.
- UL LABELS SHALL NOT BE INSTALLED ON REFLECTORS.

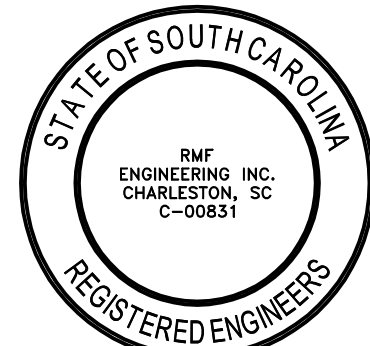
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LS3P ASSOCIATES LTD.
227 WEST TRADE STREET SUITE 700
CHARLOTTE, NORTH CAROLINA 28202
TEL. 704.333.6686 FAX 704.333.2926
WWW.LS3P.COM



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ELECTRICAL
SPECIFICATIONS

E-701

SOLUTIONS THROUGH LISTENING
SERVICE BY DESIGN