

## AREA MAP (GIBBS CAMPUS)



# ST. PETERSBURG COLLEGE

PLANS FOR

Gibbs Campus SPC Project No: 265-D-18-3 (Site Lighting Renovation)



# APRIL 04, 2018 **CONSTRUCTION DOCUMENTS**

# KEY PLAN (LIBRARY SITE)



# **SPC** St. Petersburg College

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E000	ELECTRICAL LEGEND AND DETAILS		U	0	305
E001	ELECTRICAL SPECIFICATIONS	t 1	,		99
E002	SITE PLAN PHOTOMETRICS	1 <b>D</b>			
E100	ELECTRICAL SITE PLAN	<del>نيز</del> [			
E500	PARTIAL ELECTRICAL RISER DIAGRAM, SCHEDULES	၂ဟ			
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AFFIDAVIT	GE, THESE PLANS AND SPECIFICATIONS ARE				
FACILITIES AND THE 2017 EDITION	THE STATE REQUIREMENTS FOR EDUCATIONAL ON OF THE FLORIDA BUILDING CODE.				
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CVR



ELECTRIC	CAL ABBREVIATIONS
SYMBOL	DESCRIPTION
φ	PHASE
A AC	
A/C	AIR CONDITIONING
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
AWG	AMERICAN WIRE GALIGE
C	CONDUIT
CATV	CABLE TELEVISION
CB	CRITICAL BRANCH
C/B	
CIR	CIRCUIT
CKT	CIRCUIT
CU	COPPER
DC	
DIA EB	DIAMETER FOUIPMENT BRANCH
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ELEV	ELEVATOR
EM	
ENII	ELECTRICAL METALLIC TODING
EPO	EMERGENCY POWER OFF (BUTTON OR SWITCH)
ER	EXISTING TO BE REMOVED
ETR	EXISTING TO BE RELOCATED
EWC	ELECTRIC WATER COOLER
F	FUSE
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR PANEL
FLA FMC	FULL LUAD AMPERES
G, GND	GROUND
GFCI, GFI	GROUND FAULT CIRCUIT INTERRUPTER
GND	
HOA	HAND-OFF-AUTOMATIC SWITCH
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HZ	
IEEE IG	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IMC	INTERMEDIATE METAL CONDUIT
KCMIL	THOUSAND CIRCULAR MILS
KVA LEMC	KILOVOLT-AMPERES
LTG	LIGHTING
LRA	LOCK ROTOR AMPS
MC	METAL CLAD CABLE
MCC	MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTION
MLO	MAIN LUGS ONLY
NC NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NORMALLY OPEN OR NUMBER
Р	POLE
PB	PUSH BUTTON OR PANIC BUTTON OR PULL BOX
	POWER
QTY	QUANTITY
REQ	REQUIRED
	RIGID METAL CONDUIT
RTS	REMOTE TEST STATION
RTU	ROOF TOP UNIT
SP	
SW	SHITCH
SYM	SYMMETRICAL
TEL	
I GB TMCR	TELECOMMUNICATIONS GROUNDING BUSBAR
TYP	TYPICAL
UG	
UL	UNDERWRITERS LABORATORY
VA	VOLT-AMPERE
W	WATT OR WIRE
WH WP	WATER HEATER
XFMR	TRANSFORMER

## DEMOLITION NOTES

- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS.
- THE OWNER RESERVES THE RIGHT TO INSPECT THE MATERIAL SCHEDULED FOR REMOVAL AND SALVAGE ANY ITEMS DEEMED USEABLE AS SPARE PARTS.
- EXISTING CONDITIONS INDICATED ON THIS DRAWING ARE TAKEN FROM EXISTING DOCUMENTS AND FIELD INVESTIGATION. IT IS RECOMMENDED FOR CONTRACTOR TO VISIT SITE AND VERIFY EXISTING CONDITIONS PRIOR TO BID.
- THE CONTRACTOR SHALL INSURE THAT CONDUITS REMAINING WITHIN THE PROJECT AREA ARE SUPPORTED IN ACCORDANCE WITH THE SPECIFICATIONS. CONDUITS THAT ARE ATTACHED TO ITEMS BEING REMOVED DURING DEMOLITION SHALL BE SUPPORTED FROM THE STRUCTURE PRIOR TO REMOVING ITEM.
- EXISTING PANEL DIRECTORIES SHALL BE UPDATED TO REFLECT CURRENT CONDITIONS.
- CONTRACTOR SHALL PATCH, PAINT AND MATCH FINISH WITH EXISTING SURFACES TO REMAIN WHERE ELECTRICAL DEVICES ARE BEING REMOVED.
- CONTRACTOR SHALL REVIEW NEW FLOOR PLANS FOR DEVICES TO REMAIN PRIOR TO DEMOLITION. EXISTING DEVICES TO REMAIN ARE SHOWN LIGHT IN COLOR.
- CONTRACTOR SHALL REVIEW NEW FLOOR PLANS FOR CIRCUITS TO REMAIN AND BE REUSED FOR NEW DEVICES PRIOR TO DEMOLITION.

RECEPTACLE(S)		
SYMBOL	DESCRIPTION	
$\square$	DUPLEX RECEPTACLE, 20 AMP, 120V U.O.N.	
Ŵ	DUPLEX RECEPTACLE, 20 AMP, 120V U.O.N. AUTOMATIC SWITCHED RECEPTACLE	
: - 	QUADRUPLEX RECEPTACLE, 20 AMP, 120V U.O.N. AUTOMATIC SWITCHED RECEPTACLE	
Ф	DUPLEX RECEPTACLE, 20 AMP, 120V U.O.N. MOUNTED AT 48" UNLESS NOTED OTHERWISE	
<b>\</b>	QUADRUPLEX RECEPTACLE, 20 AMP, 120V U.O.N.	
₽	QUADRUPLEX RECEPTACLE, 20 AMP, 120V U.O.N. MOUNTED AT 48" UNLESS NOTED OTHERWISE	
Φ	SINGLE RECEPTACLE, 20 AMP, 120V U.O.N.	
Ф	GFI - TYPE DUPLEX RECEPTACLE WP: DENOTES WEATHERPROOF COVER	
Ħ	GFI - TYPE DOUBLE DUPLEX RECEPTACLE	
$\square$	GFI - DUPLEX RECEPTACLE MOUNTED AT 48" UNLESS NOTED OTHERWISE	
₽	GFI - DOUBLE DUPLEX RECEPTACLE MOUNTED AT 48" UNLESS NOTED OTHERWISE	
Ŷ	SPECIAL PURPOSE RECEPTACLE (NEMA RATING AS INDICATED)	
Ħ	QUADRUPLEX RECEPTACLE, TICK MARKS DENOTE EMERGENCY (TYPICAL ALL RECEPTACLES)	
Ф	DUPLEX RECEPTACLE - HALF SWITCHED	
Φ	DUPLEX RECEPTACLE - CEILING MOUNTED	
IG	DUPLEX RECEPTACLE WITH ISOLATED GROUND	
۵D	DUPLEX RECEPTACLE - FLOOR MOUNTED	
EB	POWER POLE	
Ū	JUNCTION BOX - CEILING MOUNTED	
φ	JUNCTION BOX - WALL MOUNTED	
J	JUNCTION BOX - FLOOR / GROUND MOUNTED	

MISCELLA	ANEOUS
SYMBOL	DESCRIPTION
<b>└</b>	DISCONNECT SWITCH, NON-FUSIBLE 3 POLE, 60 AMP, NF = NON-FUSED, 3R = NEMA 3R ENCLOSURE
₩ <u>3P/60A</u> 3R	DISCONNECT SWITCH, FUSIBLE 3 POLE, 60 AMP, FUSED AT 50 AMPS, 3R = NEMA 3R ENCLOSURE
₩ <u>3P/60A</u> NEMA X 3R	COMBINATION STARTER / DISCONNECT SWITCH, FUSIBLE 3 POLE, 60 AMP, NEMA X SIZE, 3R = NEMA 3R ENCLOSURE
	MAGNETIC MOTOR STARTER
	ENCLOSED CIRCUIT BREAKER, AS INDICATED
	PANELBOARD, 480 / 277V
	PANELBOARD, 208 / 120V
МН	MANHOLE
ΗH	HAND HOLE
SPD	SURGE PROTECTION DEVICE
	ELECTRICAL METER
ТХ	TRANSFORMER
	HOMERUN TO PANEL INDICATED NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS
	WIRE IN CONDUIT CONCEALED, #12 AWG SIZE WIRE IN 1/2" CONDUIT MINIMUM UNLESS OTHERWISE NOTED
~ - ~	WIRE IN CONDUIT CONCEALED BELOW SLAB OR GRADE
	CONDUIT EXPOSED
~~~~~	FLEXIBLE CONDUIT
0	CONDUIT TURNING UP
•	CONDUIT TURNING DOWN
C	CONDUIT STUB

LIGHTING		CODES AND STANDARDS
	DESCRIPTION         CEILING MOUNTED 2'x2' / 2'x4' LUMINAIRE - RECESSED         NORMAL POWER         CEILING MOUNTED 2'x2' / 2'x4' LUMINAIRE - RECESSED         EMERGENCY POWER         CEILING MOUNTED 1'x4' LUMINAIRE         RECESSED OR SURFACE - NORMAL POWER         CEILING MOUNTED 1'x4' LUMINAIRE         RECESSED OR SURFACE - NORMAL POWER         CEILING MOUNTED 1'x4' LUMINAIRE         RECESSED OR SURFACE MOUNTED - EMERGENCY POWER         CEILING MOUNTED 1'x4' LUMINAIRE         PENDANT MOUNTED - NORMAL POWER         CEILING MOUNTED 1'x4' LUMINAIRE         PENDANT MOUNTED - NORMAL POWER         CEILING MOUNTED 1'x4' LUMINAIRE         PENDANT MOUNTED - NORMAL POWER         FLUORESCENT STRIP LUMINAIRE - NORMAL POWER         FLUORESCENT STRIP LUMINAIRE - NORMAL POWER         DOWNLIGHT LUMINAIRE - NORMAL POWER         DOWNLIGHT LUMINAIRE - EMERGENCY POWER         WALL MOUNTED LUMINAIRE - NORMAL POWER	NFPA 70:       NATIONAL ELECTRICAL CODE (2014)         NFPA 70:       NATIONAL FIRE ALARM CODE (2013)         NFPA 72:       NATIONAL FIRE ALARM CODE (2013)         NFPA 75:       STANDARD FOR THE PROTECTION OF ELECTRONIC COMPUTER / DATA PROCESSING EQUIPMENT (2013)         NFPA 90A:       STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS (2012)         NFPA 90B:       STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR CONDITIONING SYSTEMS (2015)         NFPA 92:       RECOMMENDED PRACTICE FOR SMOKE CONTROL SYSTEMS (2012)         NFPA 101:       LIFE SAFETY CODE (2015)         NFPA 110:       STANDARD FOR EMERGENCY AND STANDBY POWER SYSTEMS (2015)         2017 EDT:       FLORIDA BUILDING CODE (6th EDITION)         2017 EDT:       FLORIDA PREVENTION CODE (6th EDITION)         LOCAL JURISDICTION CODES AND / OR OWNER DESIGN GUIDELINES
	WALL MOUNTED LUMINAIRE - EMERGENCY POWER CEILING FAN CEILING FAN WITH LUMINAIRE TRACK LIGHTING WITH LUMINAIRE UNDERCOUNTER LUMINAIRE FLOOD LIGHT LUMINAIRE POLE LIGHT LUMINAIRE BOLLARD LUMINAIRE	<ol> <li>ALL SYMBOLS SHOWN MAY NOT BE USED.</li> <li>#12 AWG NEUTRAL CONDUCTOR SHALL BE INCLUDED FOR EACH BRANCH CIRCUIT UNLESS OTHERWISE NOTED.</li> <li>#12 AWG GREEN GROUND CONDUCTOR SHALL BE INCLUDED IN EACH RACEWAY UNLESS OTHERWISE NOTED.</li> <li>HOME RUNS TO PANEL BOARDS SHALL HAVE A MAXIMUM OF THREE (3) PHASE CONDUCTORS (ONE PER PHASE) PLUS DEDICATED NEUTRAL FOR EACH PHASE CONDUCTOR AND GROUND CONDUCTOR IN EACH CONDUIT.</li> </ol>
	STEP LIGHT LUMINAIRE	
<b>&amp; *</b>	EMERGENCY BATTERY LIGHT UNIT	COMMISSIONING
	EXIT LIGHT - SINGLE FACE WITH DIRECTIONAL ARROW EXIT LIGHT - DOUBLE FACE EXIT LIGHT - WALL MOUNTED	1. THE CONTRACTOR SHALL DEMONSTRATE TO THE REGISTERED DESIGN PROFESSIONAL REPRESENTATIVE BY WAY OF FUNCTIONAL PERFORMANCE TESTING OF ALL AUTOMATIC LIGHTING SYSTEMS. DEMONSTRATE THE PERFORMANCE OF SYSTEMS DESCRIBED HERE IN, INCLUDING: CALIBRATION OF CONTROL HARDWARE AND SOFTWARE, ADJUSTMENT AND PROGRAMMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS. DEMONSTRATED THE PLACEMENT, SENSITIVITY AND TIME-OUT ADJUSTMENT FOR OCCUPANT SENSORS. DEMONSTRATE THE TIME SWITCHES AND PROGRAMMABLE SCHEDULE CONTROLS ARE PROGRAMMED TO TURN THE LIGHTS OFF. DEMONSTRATE THE PLACEMENT AND ADJUSTMENT OF PHOTOSENSORS AND DAYLIGHTING CONTROLS ARE AS SPECIFIED.
	0	
		CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS
\$3 \$4 \$D \$M \$F \$F	THREE-WAY TOGGLE SWITCH FOUR-WAY TOGGLE SWITCH DIMMER SWITCH MOTOR SWITCH FAN SWITCH THREE POSITION SELECTOR SWITCH	<ul> <li>DUE TO EXISTING CONDITIONS.</li> <li>THE CONTRACTOR SHALL CONTACT THE ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.</li> <li>BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.</li> </ul>
ψυτ 		
\$T \$LV	TIMER SWITCH (60 MINUTES)	SHEET INDEX
\$ноа •	HAND-OFF-AUTOMATIC SWITCH	
\$ноа \$к	HAND-OFF-AUTOMATIC SWITCH KEY SWITCH	Sheet Sheet Title

LIGHTING		CODES AND STANDARDS
	DESCRIPTION         CEILING MOUNTED 2'x2' / 2'x4' LUMINAIRE - RECESSED         NORMAL POWER         CEILING MOUNTED 2'x2' / 2'x4' LUMINAIRE - RECESSED         EMERGENCY POWER         CEILING MOUNTED 1'x4' LUMINAIRE         RECESSED OR SURFACE - NORMAL POWER         CEILING MOUNTED 1'x4' LUMINAIRE         RECESSED OR SURFACE MOUNTED - EMERGENCY POWER         CEILING MOUNTED 1'x4' LUMINAIRE         RECESSED OR SURFACE MOUNTED - EMERGENCY POWER         CEILING MOUNTED 1'x4' LUMINAIRE         PENDANT MOUNTED - NORMAL POWER         CEILING MOUNTED 1'x4' LUMINAIRE         PENDANT MOUNTED - NORMAL POWER         CEILING MOUNTED 1'x4' LUMINAIRE         PENDANT MOUNTED - EMERGENCY POWER         FLUORESCENT STRIP LUMINAIRE - NORMAL POWER         FLUORESCENT STRIP LUMINAIRE - EMERGENCY POWER         DOWNLIGHT LUMINAIRE - NORMAL POWER         DOWNLIGHT LUMINAIRE - EMERGENCY POWER         WALL MOUNTED LUMINAIRE - NORMAL POWER	Image: Standard S
	WALL MOUNTED LUMINAIRE - EMERGENCY POWER CEILING FAN CEILING FAN WITH LUMINAIRE TRACK LIGHTING WITH LUMINAIRE UNDERCOUNTER LUMINAIRE FLOOD LIGHT LUMINAIRE POLE LIGHT LUMINAIRE BOLLARD LUMINAIRE	<ol> <li>ALL SYMBOLS SHOWN MAY NOT BE USED.</li> <li>#12 AWG NEUTRAL CONDUCTOR SHALL BE INCLUDED FOR EACH BRANCH CIRCUIT UNLESS OTHERWISE NOTED.</li> <li>#12 AWG GREEN GROUND CONDUCTOR SHALL BE INCLUDED IN EACH RACEWAY UNLESS OTHERWISE NOTED.</li> <li>HOME RUNS TO PANEL BOARDS SHALL HAVE A MAXIMUM OF THREE (3) PHASE CONDUCTORS (ONE PER PHASE) PLUS DEDICATED NEUTRAL FOR EACH PHASE CONDUCTOR AND GROUND CONDUCTOR IN EACH CONDUIT.</li> </ol>
	STEP LIGHT LUMINAIRE EMERGENCY BATTERY LIGHT UNIT EXIT LIGHT - SINGLE FACE WITH DIRECTIONAL ARROW EXIT LIGHT - DOUBLE FACE EXIT LIGHT - WALL MOUNTED	1. THE CONTRACTOR SHALL DEMONSTRATE TO THE REGISTERED DESIG PROFESSIONAL REPRESENTATIVE BY WAY OF FUNCTIONAL PERFORMANC TESTING OF ALL AUTOMATIC LIGHTING SYSTEMS. DEMONSTRATE TH PERFORMANCE OF SYSTEMS DESCRIBED HERE IN, INCLUDING: CALIBRATION O CONTROL HARDWARE AND SOFTWARE, ADJUSTMENT AND PROGRAMMED ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER INSTALLATION INSTRUCTIONS. DEMONSTRATED THE PLACEMENT, SENSITIVIT AND TIME-OUT ADJUSTMENT FOR OCCUPANT SENSORS. DEMONSTRATE TH TIME SWITCHES AND PROGRAMMABLE SCHEDULE CONTROLS AF PROGRAMMED TO TURN THE LIGHTS OFF. DEMONSTRATE THE PLACEMENT AN ADJUSTMENT OF PHOTOSENSORS AND DAYLIGHTING CONTROLS ARE A SPECIFIED.
SWITCHE SYMBOL \$A \$3 \$4 \$D \$M \$F \$20	S DESCRIPTION SINGLE POWER TOGGLE SWITCH (LETTER DENOTES FIXTURE CONTROLLED) THREE-WAY TOGGLE SWITCH FOUR-WAY TOGGLE SWITCH DIMMER SWITCH MOTOR SWITCH FAN SWITCH THREE POSITION SELECTOR SWITCH	<ol> <li>FIELD VERIFY ALL LOCATION</li> <li>1. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.</li> <li>2. THE CONTRACTOR SHALL CONTACT THE ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.</li> <li>3. BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.</li> </ol>
Ф <sup>3Р</sup> \$T \$LV \$HOA \$K \$WP \$OS \$DOS \$DOS \$DOS \$DOS \$DOS \$DOS \$DOS \$DOS \$DOS \$DOS \$DOS \$DOS \$DOS \$DOS \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$AREA \$COS \$COS \$AREA \$COS \$COS \$AREA \$COS \$COS \$AREA \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$COS \$CO	TIMEL FORMOR SELECTOR SWITCH         TIMER SWITCH (60 MINUTES)         LOW VOLTAGE SWITCH         HAND-OFF-AUTOMATIC SWITCH         KEY SWITCH         SWITCH - WEATHERPROOF         WALL SWITCH OCCUPANCY SENSOR         DUAL-LEVEL OCCUPANCY SENSOR SWITCH         OCCUPANCY SENSOR - CEILING MOUNTED         OCCUPANCY SENSOR - WALL MOUNTED         PHOTOCELL	SHEET INDEX         Sheet Index I
	LIGHTING CONTACTOR TIME CLOCK	

## NO. 42527 ΌΝΑΙ Gerald A Crnkovich, P.E. P.E. #42527 Ο Õ S Campus) 3-3 <sup>33710</sup> S Petersburg College (Gibbs ( SPC Project No: 265-D-18-6605 5th Avenue North St. Petersburg, Florida 3 $\square$ + S Ш ٩L ECTRIC Ш St. DESIGN BY: CHECKED BY: G ISSUED FOR: DATE: 🔲 CD 30% 🔲 CD 60% CD 95% Review 03-27-2018 X CD 100% 04-04-2018 Pricing Bidding \_\_\_\_\_ Permit \_\_\_\_\_ Construction Drawing No.

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SEC	TION 260100 - BASIC ELECTRICAL SCOPE OF WORK REQUIREMENTS		STEEL. MOUNTIN
<u>ос</u> с А	ALL WORK SHALL BE IN COMPLIANCE WITH THE LATEST APPLICARIE CODES LAWS AND ORDINANCES AND THE		SUPPORT APPAR
/ \.	NATIONAL ELECTRICAL CODE. PROVIDE AND FURNISH ALL LABOR, MATERIALS, PERMITS AND INCIDENTALS REQUIRED	F	CHANNEL, AND S
D	TO COMPLETE ALL WORK AS SHOWN ON CONTRACT DOCUMENTS.	L.	OTHER SUPPORT
D.	INSTALLATION AND ARE NOT INTENDED TO SHOW EVERY CONNECTION, CONDUIT OR EXACT LOCATION AND EXTENT		EXCEEDING SPEC TWO-BOLT COND
	OF WORK. CONTRACTOR SHALL INSTALL THE WORK COMPLETE, INCLUDING DETAILS AND EQUIPMENT NECESSARY TO		CLAMPS DESIGNE
	ASSOCIATED WITH THE PROJECT UNDER ONE SUBMITTAL. SEPARATE SUBMITTALS MAY BE REJECTED. SUBMIT	F	RACEWAYS SERV
	DIMENSIONED ELECTRICAL ROOM LAYOUTS TO 1/4" SCALE WITH MANUFACTURES EQUIPMENT LOCATIONS SHOWN THEREIN.	1.	5011 01(11110 1/Ac
C.	ALL MATERIALS SHALL BE NEW AND FREE OF DEFECTS, AND SHALL BE U.L. LISTED OR BE LISTED WITH AN APPROVED,	260	533 RACEWAYS
D	NATIONALLY RECOGNIZED ELECTRICAL TESTING AGENCY.	A.	LISTING AND LAB
D.	INSPECT ALL NEW MATERIAL AND EQUIPMENT PRIOR TO INSTALLATIONS FOR DAMAGES, AND SHALL VERIFY EQUIPMENT OPERATES SATISFACTORILY.	_	LABELED AS DEFI
E.	WARRANT ALL MATERIAL AND EQUIPMENT FURNISHED TO COMPLETE ALL WORK FOR ONE YEAR AFTER FINAL	В.	CONDUIT GENER/ MINIMUM 3/4" AND
	ACCEPTANCE OF COMPLETION. MATERIALS AND EQUIPMENT DEFECTS OF FAILURES DUE TO ABUSE, OR WORKMANSHIP NEGLECT SHALL BE MADE GOOD BY THE CONTRACTOR WITHOUT COST TO THE OWNER.		STANDARD, REPU
F.	PROVIDE ONLY NEW, STANDARD UNDERWRITER'S LABORATORY INC. LISTED FIRST-GRADE MATERIALS THROUGHOUT,	C.	PROVIDE END BU
	AND SHALL BE MARKED WITH UNDERWRITER'S LABORATORY INC. LISTED AND WITH MANUFACTURER'S BRAND OR		THAN 200 LBS. M
G.	CONTRACTOR SHALL BE EXPERIENCED IN THEIR TRADE. CONTRACTOR'S WORK SHALL PRESENT A NEAT APPEARANCE	П	
	UPON COMPLETION. MATERIALS AND EQUIPMENT INSTALLED SHALL BE PLUMB, STRAIGHT, AND LEVEL.	D.	BELOW GRADE SH
Н.	COORDINATE WITH THE ARCHITECT AND OWNER ON EXACT LOCATION OF WIRING DEVICES AND RACEWAYS FOR OWNER-FURNISHED EQUIPMENT PRIOR TO ROUGH-IN. COORDINATE ELECTRICAL EQUIPMENT AND MATERIALS		EQUIPMENT, (INC EQUIPMENT), FMC
	INSTALLATION WITH OTHER BUILDING COMPONENTS AND TRADES. REVIEW AND COORDINATE BETWEEN ALL		CONDUIT WITHIN
I.	CONSTRUCTION DOCUMENTS AND PROJECT SPECIFICATIONS.	E.	CONDUIT OUTSIE
	CONCRETE AND OTHER STRUCTURAL COMPONENTS, AS THEY ARE CONSTRUCTED. COORDINATE THE CUTTING AND	F.	SEALANT: PROV
	PATCHING OF BUILDING COMPONENTS TO ACCOMMODATE THE INSTALLATION OF ELECTRICAL EQUIPMENT AND MATERIALS IN RENOVATION PROJECTS.		CEILING, OR FLOO
J.	COORDINATE CONNECTION OF ELECTRICAL SYSTEMS AND EQUIPMENT REQUIREMENTS WITH LOCAL UTILITY		PROVIDE SEALS F
V	SERVICES TO PROVIDE AND COMPLY WITH THE REQUIREMENTS FOR EACH SERVICE.		OR CLOSED CELL
r\.	CONDITION IN ACCORDANCE WITH THE INTENT OF THE CONTRACT DOCUMENTS. MARK DRAWINGS TO INDICATE	G.	COUPLINGS: ALL (
1	ACTUAL FIELD CONDITIONS.	Н.	OUTLET SHALL BE
L.	THE WORD "PROVIDE" MEANS FOR THE CONTRACTOR TO FURNISH AND INSTALL.		BY STEEL CITY, R
2604	519 CONDUCTORS AND CABLES:	I.	CEILING OUTLET
	WIRING GENERAL: CONDUCTORS SHALL BE COPPER AND HAVE CURRENT CARRYING CAPACITIES AS PER N.E.C. WITH		
	600 VOLT INSULATION, AND COMPLY WITH NEMA WC 70. ALUMINUM CONDUCTORS ARE NOT APPROVED.		50 LB SHALL BE LI
	CONDUCTORS SHALL BE #12 MINIMUM, EXCEPT FOR CONTROLS AND FIXTURE WIRE. SOLID FOR #10 AND SMALLER CONDUCTORS, STRANDED FOR #8 AND LARGER.	J.	OUTLET BOXES
В.	FEEDERS, BRANCH CIRCUITS, CLASS 1 AND CLASS 2 CIRCUITS SHALL BE INSULATION TYPE XHHW OR THWN.		CONDUCTORS.
C.	MAINTAIN STANDARD COLOR CODING OF BLACK, RED, AND BLUE FOR 120/208 VOLT 3-PHASE WIRING AND BROWN,		ACCESSIBLE. HO
	ORAINGE AND YELLOW FOR 2777480 VOLT 3-PHASE WIRING. COLOR CODING SHALL MATCH EXISTING FACILITIES WHERE THE COLOR CODING IS NOT STANDARD. WHITE NEUTRAL AND GREEN GROUND.	К.	METAL FLOOR B
D.	CONCEAL CABLES IN FINISHED WALLS, CEILINGS, AND FLOORS, UNLESS OTHERWISE INDICATED. INSTALL EXPOSED		RECTANGULAR.
	CABLES PARALLEL AND PERPENDICULAR TO SURFACES OF EXPOSED STRUCTURAL MEMBERS, AND FOLLOW SURFACE CONTOURS WHERE POSSIBLE.		TESTING AGENCY
E.	MAKE SPLICES AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR	260	544 SLEEVES A
	BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS. SERVICE ENTRANCE AND PANEL FEEDERS SHALL NOT BE SPLICED. TIGHTEN FLECTRICAL CONNECTORS AND TERMINALS ACCORDING TO	<u>200</u> A.	COORDINATE SI
	MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT		PENETRATIONS W
F	INDIGATED, USE THOSE SPECIFIED IN UL 486A AND UL 486B. WIRING AT OUTLETS: INSTALL CONDUCTOR AT EACH OUTLET, WITH AT LEAST 12 INCHES OF SUACK. MIRING IN LIGHT		PARTITIONS, CEIL
1.	POLES HANDHOLES: PROVIDE AT LEAST 18" OF SLACK AT HANDHOLE.	-	MATERIALS ACCO
		В.	SLEEVE INSTALLA 0.0239-INCH MININ
260	26 GROUNDING AND BONDING:		BOARD. SLEEVES
А.	GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND LOCAL CODES AND REQUIREMENTS.		CROSS-SECTION
В.	FEEDERS AND BRANCH CIRCUITS SHALL HAVE INSTALLED IN THE SAME RACEWAY AS THE CIRCUIT CONDUCTORS, AN		THICKNESS SHAL
<u> </u>	INSULATED COPPER GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH NEC.		1/4-INCH ANNULA
C.	DESCRIPTION OF SYSTEM: IN GENERAL, ALL ELECTRICAL EQUIPMENT (METALLIC CONDUIT, MOTOR FRAMES, PANEL BOARDS, ETC.) SHALL BE BONDED TOGETHER WITH A GREEN INSULATED OR BARE COPPER SYSTEM GROUNDING		SPACE OUTSIDE ( JOINT COMPOUN
	CONDUCTOR IN ACCORDANCE WITH SPECIFIC RULES OF ARTICLE 250 OF THE N.E.C. EQUIPMENT GROUNDING		INDIVIDUAL CABLI
	CONDUCTORS THROUGH THE RACEWAY SYSTEM SHALL BE CONTINUOUS FROM MAIN SWITCH GROUND BUS TO PANEL GROUND BAR OF EACH PANEL BOARD, AND FROM PANEL GROUNDING BAR OF EACH PANEL BOARD TO BRANCH		ABOVEGROUND I SEALS AND SIZE
	CIRCUIT EQUIPMENT AND DEVICES. CONNECTORS LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING		
			VVALL PIPES" FO
	SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED. ALL FEEDER		SLEEVE FOR INST
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D.	LABORATORY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USED, AND FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL ROOM GROUND BUS BARS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE 1/4" X 4" X 10", COPPER, MANUFACTURER PRE-DRILLED HOLES. ALL GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 3/0 COPPER GROUND, OR SIZED PER CODE, FOR A CONTINUOUS COPPER GROUNDING SYSTEM. UTILIZING BUILDING STEEL OR FOOTING IS NOT	<u>260</u> A.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICK AND WORDING AS
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D. E. G. <u>260</u> : A.	LABORATORY ACCEPTABLE TO AUTHORTIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USED, AND FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL ROOM GROUND BUS BARS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE X" X 4" X 10", COPPER, MANUFACTUREP PRE-DRILLED HOLES. ALL GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 30 COPPER GROUND, OR SIZED PER CODE, FOR A CONTINUOUS COPPER GROUNDING SYSTEM. UTILIZING BUILDING STEEL OR FOOTING IS NOT ACCEPTABLE. TELECOMMUNICATIONS, IDF, DATA, COMPUTER, AND SIMILAR ROOMS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, X"X 4" X 20", COPPER, MANUFACTUREP RRE-DRILLED HOLES. BOND GROUND BUS BAR TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 30 AWG COPPER. GROUND RODS: COPPER-CLAD STEEL, SECTIONAL TYPE; 3/4 INCH IN DIAMETER, BY 10 FEET. PROVIDE ADDITIONAL LENGTHS IN 10' SECTIONS TO ACHIEVE SPECIFIED MINIMUM RESISTANCE TO GROUND, MEASURED IN OHMS, AT BUILDING SERVICES GROUNDING SYSTEMS. EXOTHERMIC CADWELD SHALL BE USED FOR BUILDING GROUNDING SYSTEM CONNECTION TO DRIVEN GROUND RODS AND CONNECTION TO LIGHTNING PROTECTION DRIVEN GROUND RODS. GROUNDING AND BONDING FOR PIPING: METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING. BOND EACH ABOVE GROUND RODUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING BOND EACH ABOVE GROUND ROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING BOND EACH ABOVE GROUND ROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING BOND EACH ABOVE GROUND RESISTANCE BORNED MINIMUM 20' AND TIE WIRED TO THE REINFORCING BARS. PERFORM GROUNDING TEST. PERFORM TESTS BY FALL-OF-POTENTIAL METHOD ACCORDING TO IEEE 81, USING MEGOHMETER. RE	<u>260</u> А. В. С. <u>262</u> А. В.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICK AND WORDING AS FOR EMERGENC' MOUNTING IS NE EDGE IN ORDER PROVIDE CONTA SUBSTRATE. ADH OTHER LETTERIN JUNCTION BOX I LETTER SIZES SH LABEL TO INDICA PULL BOX IDENTI SIZES SHALL BE EXTERIOR EDGE PANEL AND DEST <b>726 WIRING DEVICES</b> , QUALIFIED TESTII AS MANUFACTUR PROVIDE WHITE DEVICES FOR EM ARCHITECT FOR F
D. E. F. G. <u>260</u>	LABORATORY ACCEPTABLE TO ADTHORTIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USED, AND FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL ROOM GROUND BUS BARS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE X" X 4" X 10", COPPER, MANUFACTURER PRE-DRILLED HOLES. ALL GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BARS: INETH MINIMUM 3/0 COPPER GROUND, OR SIZED PER CODE, FOR A CONTINUOUS COPPER GROUNDING SYSTEM. UTILIZING BUILDING STEEL OR FOOTING IS NOT ACCEPTABLE. TELECOMMUNICATIONS, IDF, DATA, COMPUTER, AND SIMILAR ROOMS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, "X 4" X 20", COPPER, MANUFACTURER PRE-DRILLED HOLES. BOND GROUND BUS BAR TO MAIN ELECTRICAL GROUND BARS WITH MINIMUM 3/0 AWG COPPER. GROUND, MESSIANCE TO GROUND BUS BAR TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 3/0 AWG COPPER. GROUND, MEASURED IN OHMS, AT BUILDING SERVICES GROUNDING SYSTEMS. EXOTHERMIC CADWELD SHALL BE USED FOR BUILDING GROUNDING SYSTEM CONNECTION TO ACHIEVE SPECIFIED MINIMUM RESISTANCE TO GROUND, MEASURED IN OHMS, AT BUILDING SERVICES GROUNDING GYSTEMS. EXOTHERMIC CADWELD SHALL BE USED FOR BUILDING GROUNDING SYSTEM CONNECTION TO DRIVEN GROUND RODS AND CONNECTION TO LIGHTNING PROTECTION DRIVEN GROUND RODS. SUSTEM CONNECTION TO DRIVEN GROUND RODS AND CONNECTION TO LIGHTNING PROTECTION NOF GAS PIPING SYSTEM CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE EUTRANCES TO BUILDING. BOND EACH ABOVE GROUND OF GAS PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTOFF VALVE. CONCRETE ENCASED LECTRODE IN BUILDING FOOTER SHALL BE A BARE CONDUCTOR, SAME SIZE AS THE BUILDING SYSTEMS GROUNDING GONDUCTOR, ROUTED MINIMUM 20' AND TIE WIRED TO THE REINFORCING BARS. PERFORM TESTS MY FALL-OF-POTENTIAL METHOD ACCORDING MOS UNTIL THE MEASU	<u>260</u> А. В. С. <u>262</u> А. В. С.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICK AND WORDING AS FOR EMERGENCY MOUNTING IS NEY EDGE IN ORDER PROVIDE CONTA SUBSTRATE. ADH OTHER LETTERINY JUNCTION BOX I LETTER SIZES SH LABEL TO INDICAT PULL BOX IDENTI SIZES SHALL BE EXTERIOR EDGE PANEL AND DESTI <b>726 WIRING DEVICES</b> , QUALIFIED TESTII AS MANUFACTUR PROVIDE WHITE DEVICES FOR EN ARCHITECT FOR F
D. E. G. <u>260</u> А.	LABORATORY ACCEPTABLE TO AUTHORITIES HAVING JURISIDICTION FOR APPLICATIONS IN WHICH USED, AND FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER TEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL ROOM GROUND BUS BARS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE 47 X 47 10°, COPPER, MANUFACTURER PRE-RILLED HOLES, ALL GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 30 COPPER GROUND, OR SIZED PER CODE, FOR A CONTINUOUS COPPER GROUNDING SYSTEM. UTILIZING BUILDING ACCEPTABLE. TELECOMMUNICATIONS, IDF, DATA, COMPUTER, AND SIMILAR ROOMS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, ½7 X 4° X 20°, COPPER, MANUFACTURER PRE-DRILLED HOLES, BOND GROUND BUS BAR TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 30 AWG COPPER. GROUND RODS: COPPER-CLAD STEEL, SECTIONAL TYPE; 34 INCH IN DIAMETER, BY 10 FEET. PROVIDE ADDITIONAL LENGTHS IN 10° SECTIONS TO ACHIEVE SPECIFIED MINIMUM RESISTANCE TO GROUND, MEASURED IN OHMS, AT BUILDING SERVICES GROUNDING SYSTEMS. EXOTHERMIC CADWELD SHALL BE USED FOR BUILDING GROUNDING SYSTEM CONNECTION TO DRIVEN GROUND RODS AND CONNECTION TO LIGHTNING PROTECTION DRIVEN GROUNDING SYSTEM CONNECTION, CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING. BOND EACH ABOVE GROUND PORTION OF GAS PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTGF VALVE. CONCRETE ENCASED ELECTRODE INJUILDING FOOTER SHALL BE A BARE CONDUCTORS, ME SIZE AS THE BUILDING SYSTEMS GROUNDING CONDUCTOR, ROUTED MINIMUM 20° AND TIE WIRED TO THE REINFORCING BARS. PERFORM GROUNDING TEST: PERFORM TESTS BY FALL-OF-POTENTIAL METHOD ACCORDING TO IEEE 81, USING MEGOHMETER. REPORT MEASURED GROUND RESISTANCES THAT EXCEED 5 OHMS. EXCESSIVE GROUND RESISTANCE I FRESISTANCE DOES NOT EXCEED 5 OHMS. <b>ADARGE CONDUCTORS, SANGE SIZE AS THE BUILDING SYSTEMS GROUNDING CONDUCTOR, </b>	<u>260</u> А. В. С. <u>262</u> А. В. С.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICK AND WORDING AS FOR EMERGENCY MOUNTING IS NE EDGE IN ORDER PROVIDE CONTA SUBSTRATE. ADH OTHER LETTERIN JUNCTION BOX I LETTER SIZES SH LABEL TO INDICA PULL BOX IDENTI SIZES SHALL BE EXTERIOR EDGE PANEL AND DEST <b>726 WIRING DEVICES</b> , QUALIFIED TESTIN AS MANUFACTUR PROVIDE WHITE DEVICES FOR EN ARCHITECT FOR F RECEPTACLES: S NOTED OTHERWIS
D. E. F. G. <u>260</u> A. B.	LABORATORY ACCEPTABLE TO AUTHORITIES HAVING JURISDUCTION FOR APPLICATIONS IN WHICH USED, AND FOR SPECIFIC TYPES, SIZES, AND COMBINISTIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSPORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL ROOM GROUND BUS BARS. INEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE X" X 4" X 10", COPPER, MANUFACTURER PRE-DRILED HOLES. ALL GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 3/0 COPPER GROUND, OR SIZED PER CODE, FOR A CONTINUOUS COPPER GROUNDING SYSTEM. UTILIZING BUILDING STELL OR FOOTING IS NOT ACCEPTABLE. TELECOMMUNICATIONS, IDF, DATA, COMPUTER, AND SIMILAR ROOMS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BUS BAR WITH MINIMUM 3/0 AWG COPPER. GROUND RODS: COPPER-CLAD STELL, SECTIONAL TYPE; 3/4 INCH IN DIAMETER, BY 10 FEET. PROVIDE ADDITIONAL LENGTHS IN 10' SECTIONS TO ACHIEVE SPECIFIED MINIMUM RESISTANCE TO GROUND, MEASURED IN OHMS, AT BUILDING SERVICES GROUNDING SYSTEMS. EXOTHERMIC CADWELD SHALL BE USED FOR BUILDING GROUND SYSTEM CONNECTION TO DRIVEN GROUND RODS AND CONNECTION TO LIGHTNING PROTECTION DRIVEN GROUND RODS. GROUNDING AND BONDING FOR PIPING: METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING. BOND EACH ABOVE GROUND PORTION OF GAS PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTOFF VALVE. CONCRETE ENCASED ELECTRODE IN BUILDING POTES SHALL BE A BARE CONDUCTORS, SINCE SUCT BERFORM TESTS BY FALL-OF-POTENTIAL METHOD ACCORDING TO IEEE 81, USING MEGOHMETER. REPORT MEASURED GROUND RESISTANCES THAT EXCEED 5 OHMS. EXCESSIVE GROUND RESISTANCE TO REPORTM TESTS BY FALL-OF-POTENTIAL METHOD ACCORDING TO IEEE 81, USING MEGOHMETER. REPORT MEASURED GROUND RESISTANCES THAT EXCEED 5 OHMS. EXCESSIVE GROUND RESISTANCE TO REPORTS FOR ELECTRICAL SYSTEMS. HANGERS AND SUPPORTS	<u>260</u> А. В. С. <u>262</u> А. В. С. С. D.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICK AND WORDING AN FOR EMERGENC' MOUNTING IS NE EDGE IN ORDER PROVIDE CONTA SUBSTRATE. ADH OTHER LETTERIN JUNCTION BOX I LETTER SIZES SH LABEL TO INDICA PULL BOX IDENTI SIZES SHALL BE EXTERIOR EDGE PANEL AND DEST 726 WIRING DEVICES, QUALIFIED TESTII AS MANUFACTUR PROVIDE WHITE DEVICES FOR EN ARCHITECT FOR IN RECEPTACLES: S NOTED OTHERWIN TOGGLE SWITCH POLE. TWO POLE
D. E. G. <u>260</u> A. B.	LABORATORY ACCEPTABLE TO AUTHORITIES HAVING JUSCILON FOR APPLICATIONS WHICH USED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITORS AND OTHER ITEMS CONNECTIO. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC, SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL ROOM GROUND BUS BARS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE X' X 4' X 10', COPPER, MANUFACTURER PRE-DRILLED HOLES. ALL GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 3'0 COPPER GROUND, OR SIZED PER CODE, FOR A CONTINUOUS COPPER GROUNDING SYSTEM. UTILIZING BUILDING STEEL OR FOOTING IS NOT ACCEPTABLE. TELECOMMUNICATIONS, IDF, DATA, COMPUTER, AND SIMLAR ROOMS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, X'' X 4'' X 20', COPPER, MANUFACTURER PRE-DRILLED HOLES. BOND GROUND BUS BAR TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 3'0 AWG COPPER. GROUND RODS: COPPER-CLAD STEEL, SECTIONAL TYPE: 34 INCH IN DIAMETER, BY 10 FEET. PROVIDE ADDITIONAL LENGTHS IN 10' SECTIONS TO ACHIEVE SPECIFIED MINIMUM RESISTANCE TO GROUND, MEASURED IN OHMS, AT BUILDING SERVICES GROUNDING SYSTEMS. EXOTHERMIC CADWELD SHALL BE USED FOR BUILDING GROUNDING SYSTEM CONNECTION TO DRIVEN GROUND RODS AND CONNECTION TO LIGHTNING PROTECTION DRIVEN GROUND RODS. GROUNDING AND BONDING FOR PIPING: METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING'	<u>260</u> А. В. С. <u>262</u> А. В. С. С. С. Е.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICK AND WORDING AS FOR EMERGENCY MOUNTING IS NEY EDGE IN ORDER PROVIDE CONTA SUBSTRATE. ADH OTHER LETTERINY JUNCTION BOX I LETTER SIZES SH LABEL TO INDICAT PULL BOX IDENTI SIZES SHALL BE EXTERIOR EDGE PANEL AND DESTI AS MANUFACTUR PROVIDE WHITE DEVICES FOR EN ARCHITECT FOR F RECEPTACLES: S NOTED OTHERWIS TOGGLE SWITCH POLE, TWO POLE, FLUORESCENT DI
D. E. F. G. <u>260</u> А. В.	Laboratok' AcCEPTABLE To ADTHORTIES HAVING JURISDICTION FOR APPLICATIONS IN WITCH USED, AND FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL ROOM GROUND BUS BARS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE X' X 4' 10', COPPER, MANUFACTURER PRE-DRILED HOLES, ALL GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 30 COPPER GROUND, OR SIZED PER CODE, FOR A CONTINUOUS COPPER GROUNDING SYSTEM. UTILIZING BUILDING STEEL OR FOOTING IS NOT ACCEPTABLE. TELECOMMUNICATIONS, IDF, DATA, COMPUTER, AND SMILLAR ROOMS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, X'' X 4'' X 20', COPPER, MANUFACTURER PRE-DRILLED HOLES, BOND GROUND BUS BAR TO MAIN ELECTRICAL GROUND BAR MUTH MINIMUM 30 AWG COPPER. GROUND RODS: COPPER-CLAD STEEL, SECTIONAL TYPE; 34' INCH IN DIAMETER, BY 10 FEET. PROVIDE ADDITIONAL LENGTHS IN 10' SECTIONS TO ACHIEVE SPECIFIED MINIMUM RESISTANCE TO GROUND, MEASURED IN OHMS, AT BUILDING SERVICES GROUNDING SYSTEMS. EXOTHERNIC CADWELD SHALL BE USED FOR BUILDING GROUNDING SYSTEM CONNECTION TO DRIVEN GROUND RODS AND CONNECTION TO LIGHTNING PROTECTION DRIVEN GROUND RODS. GROUNDING AND BONDING FOR PIPING: METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL MATER SERVICE ENTRANCES TO BUILDING. BOND EACH ABOY GROUND TO D GAS PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTOFF VALVE. CONCRETE ENCASED ELECTRODE IN BUILDING FOOTER SHALL BE A BARE CONDUCTOR, SAME SIZE AS THE BUILDING SYSTEMS GROUNDING CONDUCTOR, ROUTED MINIMUM 20' AND THE WIRED TO THE REINFORCING BARS. <b>PERFORM</b> GROUNDING TEST: PERFORM TESTS BY FALL-OF-POTENTIAL METHOD ACCORDING TO EEE 81, USING MEGOHMETER. REPORT MEASURED GROUND EXCEED 5 OHMS. <b>29 HANGERS AND SUPPORTS </b>	<u>260</u> А. В. С. <u>262</u> А. В. С. С. Б. Е. F.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICK AND WORDING AS FOR EMERGENCY MOUNTING IS NEY EDGE IN ORDER PROVIDE CONTA SUBSTRATE. ADH OTHER LETTERINY JUNCTION BOX I LETTER SIZES SH LABEL TO INDICAT PULL BOX IDENTI SIZES SHALL BE EXTERIOR EDGE PANEL AND DESTI 726 WIRING DEVICES, QUALIFIED TESTII AS MANUFACTUR PROVIDE WHITE DEVICES FOR EN ARCHITECT FOR F RECEPTACLES: S NOTED OTHERWIS TOGGLE SWITCH POLE, TWO POLE, FLUORESCENT DI OCCUPANCY SEN
D. E. F. G. <u>260</u> A. B. C.	LABORATORY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USED, AND FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL GOOM GROUND BUS BARS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE 'X' X 4' X 10', COPPER, MANUFACTURER PRE-DRILLED HOLES. ALL GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 30' COPPER GROUND, OR SIZED PER CODE, FOR A CONTINUOUS COPPER GROUNDING SYSTEM UTILIZING BUILDING STEEL OR FOOTING IS NOT ACCEPTABLE. TELECOMMUNICATIONS, IDF, DATA, COMPUTER, AND SIMILAR ROOMS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, 'X' 4'' 20', COPPER, MANUFACTURER PRE-DRILLED HOLES. BOND GROUND BUS BAR TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 30' WGC COPPER. GROUND RODS: COPPER-CLAD STEEL, SECTIONAL TYPE; 34' INCH IN DIAMETER, BY 10 FEET. PROVIDE ADDITIONAL LENGTHS IN 10' SECTIONS TO ACHIEVE SPECIFIED MINIMUM RESISTANCE TO GROUND, MEASURED IN OHMS, AT BUILDING SERVICES GROUNDING SYSTEMS. EXOTHERMIC CADWELD SHALL BE USED FOR BUILDING GROUNDING SYSTEM CONNECTION TO DRIVEN GROUND RODS AND CONNECTION TO LIGHTNING PROTECTION DRIVEN GROUNDING ROUNDING AND BONDING FOR PIPING: METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING: METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE GRUNDER STUDFF VALVE. CONCRETE ENCASED ELECTRODE IN BUILDING FOOTER SHALL BE A BARE CONDUCTOR, SIME SIZE AS THE BUILDING'S MAIN SERVICE EQUIPMENT, OR GOUNDING BUS, TO MAIN METAL WATER SERVICE BURNERTS HUTGFF VALVE. CONCRETE ENCASED ELECTRICAD EMINIMUM 20' AND THE WRED TO THE REINFORCING BARS.	<u>260</u> А. В. С. <u>262</u> А. В. С. С. Б. Е. F. G.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICK AND WORDING AS FOR EMERGENCY MOUNTING IS NE EDGE IN ORDER PROVIDE CONTA SUBSTRATE. ADH OTHER LETTERIN JUNCTION BOX I LETTER SIZES SH LABEL TO INDICA PULL BOX IDENTI SIZES SHALL BE EXTERIOR EDGE PANEL AND DEST 726 WIRING DEVICES, QUALIFIED TESTI AS MANUFACTUR PROVIDE WHITE DEVICES FOR EM ARCHITECT FOR F RECEPTACLES: S NOTED OTHERWIS TOGGLE SWITCH POLE, TWO POLE, FLUORESCENT DI OCCUPANCY SEN LED DIMMERS: PR
D. E. F. G. A. B. C.	LABORATORY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USED AND FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANIEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL GROW GROUND BUS BARS: BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL GROW OROUND BUS BARS: DEVENTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE 'X' X 4' X 10', COPPER, MANUFACTURER PRE-DRILLED HOLES. ALL GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 30' COPPER GROUND, OR SIZED PER CODE, FOR A CONTINUOUS COPPER GROUNDING SYSTEM. UTILIZING BUILDING STEEL OR FOOTING IS NOT ACCEPTABLE. TELECOMMUNICATIONS, IDF, DATA, COMPUTER, AND SIMILAR ROOMS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, 'X' 4' X' 20', COPPER, MANUFACTURER PRE-DRILLED HOLES. BOND GROUND BUS BAR TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 30' MOR COPPER. GROUND RODS: COPPER-CLAD STEEL, SECTIONAL TYPE; 34 INCH IN DIAMETER, BY 10 FEET. PROVIDE ADDITIONAL LENGTHS IN 10' SECTIONS TO ACHIEVE SPECIFIED MINIMUM RESISTANCE TO GROUND, MEASURED IN OHMS, AT BUILDING SERVICES GROUNDING SYSTEMS. EXOTHERMIC CADWELD SHALL BE USED FOR BUILDING GROUNDING SYSTEM CONNECTION TO DRIVEN GROUND RODS AND CONNECTION TO LIGHTINING PROTECTION DRIVEN GROUNDING ROUNDING AND BONDING FOR PIPING: METAL WATER SERVICE FUE: INSTALL INSULATED COPPER GROUNDING ROUS. GROUNDING AND BONDING FOR PIPING: METAL WATER SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING. BOND EACH ABOVE GROUND PORTION OF GAS PIPING SYSTEM DOWINSTREAM FROM EQUIPMENT SHUTOFF VALVE. CONCRETE ENCASED ELECTRICOL DE MINIMUM 20' AND THE WIRED TO THE REINFORCING BARS. PERFORM GROUNDING FOR PIPING: METAL WATER SERVICE PIPE: INSTALL INSULATED WORD SUBJICE SHALL BE A BARE CONDUCTOR	<u>260</u> А. В. С. <u>262</u> А. В. С. С. Б. Е. F. G. H.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICK AND WORDING AS FOR EMERGENCY MOUNTING IS NE EDGE IN ORDER PROVIDE CONTA SUBSTRATE. ADH OTHER LETTERIN JUNCTION BOX I LETTER SIZES SH LABEL TO INDICA PULL BOX IDENTI SIZES SHALL BE EXTERIOR EDGE PANEL AND DEST 726 WIRING DEVICES, QUALIFIED TESTIN AS MANUFACTUR PROVIDE WHITE DEVICES FOR EN ARCHITECT FOR F RECEPTACLES: S NOTED OTHERWIS TOGGLE SWITCH POLE, TWO POLE, FLUORESCENT DI OCCUPANCY SEN LED DIMMERS: PR INSTALL DEVICE F
D. E. F. G. A. B. C. D.	LABORATORY ACCEPTABLE TO ADIHORITIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USED AND FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL GOOM GROUND BUS BARS. NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE V'X 4'X 10°, COPPER, MANUFACTURER PRE-DRILLED HOLES, ALL GROUND BUS BARS SHALL BE DONDED TO MAIN ELECTRICAL GROUND BUS BARS. NEWTON INSTRUMENT COMPANY INSULATED GROUND BUS BARS SHALL BE DONDED TO MAIN ELECTRICAL GROUND BUS BAR, WITH MINIMUM 30 COPPER, GROUND, OR SIZED PER CODE, FOR A CONTINUOUS COPPER GROUND BUS, Y'X 4''X 20°, COPPER, MANUFACTURER PRE-DRILLED HOLES. BOND GROUND BUS BAR TO MAIN ELECTRCAL GROUND BUS BAR WITH MINIMUM 30 AWG COPPER. GROUND RONS: COPPER-CLAD STEEL, SECTIONAL TYPE; 34 INCH IN DIAMETER. BY 10 FEET. PROVIDE ADDITIONAL LENGTHS IN 10° SECTIONS TO ACHIEVE SPECIFIED MINIMUM RESISTANCE TO GROUND, MEASURED IN OHMS, AT BULDING SERVICES GROUNDING SYSTEMS. EXOTHERNIC CADWELD SHALL BE USED FOR BUILDING GROUNDING SYSTEM CONNECTION TO DRIVEN GROUND RODS AND CONNECTION TO LIGHTNING PROTECTION DRIVEN GROUND RODS. GROUNDDRING FOR PIPING: METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING OFAS PIPING WSTEM WATER SERVICE ENTRANCES TO BUILDING. BOND EACH ABOVE GROUND ORTON OF GAS PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTOFF VALVE. CONCRETE ENCASED ELECTRODE IN BUILDING FOOTER SHALL BE A BARE CONDUCTOR, SAME SIZE AS THE BUILDING SYSTEMS GROUNDING CONDUCTOR, ROLTED MINIMUM 20' AND TIE WHED TO THE REINFORCING BARS. PERFORM GROUNDING TEST: PERFORM TESTS BY FALL-OF-POTENTIAL METHOD ACCORDING TO IEEE 81, USING MEGORMMETER. REPORT MEASURED GROUND RESISTANCES THAT EXCEED 5 OHMS. EXCESSIVE GROUND RESISTANCE: TRESISTANCE TO GROUND RESISTANCES THAT EXCEED 5 OHMS. <b>ZY HANGERS AND SU</b>	<u>260</u> А. В. С. <u>262</u> А. В. С. С. Б. Е. F. G. H.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICK AND WORDING AS FOR EMERGENCY MOUNTING IS NE EDGE IN ORDER PROVIDE CONTA SUBSTRATE. ADH OTHER LETTERIN JUNCTION BOX I LETTER SIZES SH LABEL TO INDICA PULL BOX IDENTI SIZES SHALL BE EXTERIOR EDGE PANEL AND DEST 726 WIRING DEVICES, QUALIFIED TESTI AS MANUFACTUR PROVIDE WHITE DEVICES FOR EN ARCHITECT FOR F RECEPTACLES: S NOTED OTHERWIS TOGGLE SWITCH POLE, TWO POLE, FLUORESCENT DI OCCUPANCY SEN LED DIMMERS: PR INSTALL DEVICE FLAT
D. E. F. G. A. B. C. D.	LABORATORY ACCEPTIABLE TO ADTIFURNITIES HAVING JURISUICTION FOR APPLICATIONS IN WHICH DISED, AND FOR SPECIFIC TYPES, SIZES, AND COMBININTONS OF CONDUCTORS AND OTHER TIEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUTS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL ROOM GROUND BUS BARS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE \$7'X 4'X 10', COPPER, MANUFACTURER PRE-ORTLED HOLES, ALL GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BARS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR. A CONTINUOUS COPPER GROUNDING SYSTEM. UTILIZING BUILDING STEEL OR FOOTING IS NOT ACCEPTABLE. TELECOMMUNICATIONS, IDF, DATA, COMPUTER, AND SIMILAR ROMS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BUS BAR. WITH MINIMUM 30 AVG COPPER. GROUND RODS: COPPER, CLAD STEEL, SECTIONAL TYPE: 34 INCH IN DIAMETER, BY 10 FEET. PROVIDE ADDITIONAL LENGTHS IN 10' SECTIONS TO ACHIEVE SPECIFIED MINIMUM RESISTANCE TO GROUND, MEASURED IN OHMS, AT BUILDING SERVICES GROUNDING SYSTEMS. EXCITHERING CADVELO SHALL BE USED FOR BUILDING GROUNDING SYSTEM CONNECTION TO DRIVEN GROUND RODS AND CONNECTION TO LIGHTNING PROTECTION DRIVEN GROUND RODS. GROUNDING AND BONDING FOR PIPING: METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING GONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING'S MAIN SERVICE BOLDEMENT, OR GROUND PORTION OF GAS. PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTOFF VALVE. CONCRETE ENAGABED ELECTRODE IN BUILDING GOOLIDING WATER SERVICE ENTRANCES TO BUILDING'S MAIN SERVICE BOLDEMENT, OR GROUND PORTION OF GAS. PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTOFF VALVE. CONCRETE ENAGABED ELECTRODE IN BUILDING BODS UNTIL THE RENFORCING BARS. PERFORM GROUNDING TEST: PERFORM TESTS BY FALL-OF-POTENTIAL METHOD ACCORDING TO IEEE 81, USING MEEGONMETER. REPORT MEASURED GROUND RESISTANCE S THAT EXCEED 5 OHMS. EXCESSING GROUND RESISTANCE: IRES	<u>260</u> А. В. С. <u>262</u> А. В. С. С. С. С. С. Е. Е. Е. Е. Е. Е. Е. Е. Е. Е. Е.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICKI AND WORDING AS FOR EMERGENCY MOUNTING IS NEW EDGE IN ORDER PROVIDE CONTA SUBSTRATE. ADH OTHER LETTERING JUNCTION BOX II LETTER SIZES SH LABEL TO INDICAT PULL BOX IDENTII SIZES SHALL BE EXTERIOR EDGE PANEL AND DESTI AS MANUFACTUR PROVIDE WHITE DEVICES FOR EN ARCHITECT FOR F RECEPTACLES: S NOTED OTHERWIS TOGGLE SWITCH POLE, TWO POLE, FLUORESCENT DI OCCUPANCY SEN LED DIMMERS: PR INSTALL DEVICE F PROJECT OUT FR ALL DEVICE PLATI CIRCUIT SERVING
D. E. F. G. A. B. C. D.	LABORATORY ACCEPTIABLE TO ADTHORN THES HAVING JURISULCTION FOR APPLICATIONS IN WHICH OBSED, AND FOR SPECIFIC TYPES, SIZES, AND COMBINITORS OF CONDUCTORS AND OTHER TIEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS. ELECTRICAL ROOM GROUND BUS BARS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE Y' X 4' X 10°, COPPER, MANUFACTURER PRE-ORILLED HOLES, ALL GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 30 COPPER GROUND, OR SIZED PER CODE, FOR A CONTINUOUS COPPER GROUNDING SYSTEM. UTILIZING BUILDING STEEL OR FOOTING IS NOT ACCEPTABLE. TELECOMMUNICATIONS, IDF, DATA, COMPUTER, AND SIMILAR ROOMS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, X'' A' X''', X''', X'''', X'''', X'''', X''''', X''''', X'''''', X''''', X''''', X'''', X''''', X''''''''	<u>260</u> А. В. С. <u>262</u> А. В. С. С. Б. Е. Е. Е. Е. Е. Е. Н. Ц.	SLEEVE FOR INST 553 ELECTRICA NAMEPLATES: EN SIZES AND THICKI AND WORDING AS FOR EMERGENCY MOUNTING IS NEW EDGE IN ORDER PROVIDE CONTA SUBSTRATE. ADH OTHER LETTERING JUNCTION BOX II LETTER SIZES SH LABEL TO INDICAT PULL BOX IDENTIL SIZES SHALL BE EXTERIOR EDGE PANEL AND DESTIL 726 WIRING DEVICES, QUALIFIED TESTIL AS MANUFACTUR PROVIDE WHITE DEVICES FOR EN ARCHITECT FOR F RECEPTACLES: SI NOTED OTHERWIS TOGGLE SWITCHI POLE, TWO POLE, FLUORESCENT DI OCCUPANCY SEN LED DIMMERS: PR INSTALL DEVICE F PROJECT OUT FRW ALL DEVICE PLATIL CIRCUIT SERVING
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APPARATUS FOR EXTERIOR APPLICATIONS SHALL BE STAINLESS STEEL. EXTERIOR LOCATED US SHALL CONSIST OF DIRECT BURIAL CONCRETE POSTS, STAINLESS STEEL OR ALUMINUM ILESS STEEL SPRINGS, BOLTS, WASHERS, ETC.

S OR CABLES SHALL HAVE L TRAPEZE-TYPE SUPPORTS FABRICATED WITH STEEL SLOTTED OR STEM, SIZED SO CAPACITY CAN BE INCREASED BY AT LEAST 25 PERCENT IN FUTURE WITHOUT ED DESIGN LOAD LIMITS. SECURE RACEWAYS AND CABLES TO THESE SUPPORTS WITH CLAMPS USING SPRING FRICTION ACTION FOR RETENTION IN SUPPORT CHANNEL. SPRING-STEEL FOR SUPPORTING SINGLE CONDUITS WITHOUT BOLTS MAY BE USED FOR 1-1/2-INCH AND SMALLER BRANCH CIRCUITS AND COMMUNICATION SYSTEMS ABOVE SUSPENDED CEILINGS. VAYS VIA OTHER RACEWAYS CABLE TRAYS AND WIREWAYS ARE NOT APPROVED.

### ND BOXES:

IG: METAL CONDUITS AND NONMETALLIC CONDUITS, TUBING, AND FITTINGS SHALL BE LISTED AND D IN NFPA 70 AND MARKED FOR INTENDED LOCATION AND APPLICATION.

- RIGID SHALL BE MINIMUM 1", GALVANIZED OUTSIDE AND INSIDE BY HOT DIPPING, E.M.T. SHALL BE HALL BE ELECTRO-GALVANIZED. CONDUITS SHALL BE AS MANUFACTURED BY ALLIED, PITTSBURGH , THOMAS & BETTS, TRIANGLE, WHEATLAND OR YOUNGSTOWN.
- INGS ON ALL CONDUITS. PROVIDE PULL STRINGS IN ALL EMPTY RACEWAYS. PULL STRINGS SHALL L BE IMPERVIOUS TO MOISTURE. PULL STRINGS SHALL HAVE A TENSILE STRENGTH NOT LESS LLIC RACEWAY MAY BE BONDED TO CABINETS, BOXES AND PANELBOARDS BY DOUBLE LOCKNUT ISURE THE METALLIC PARTS ARE ALL EFFECTIVELY GROUNDED.
- ADE OR CONCEALED IN WALLS SHALL BE EMT (INTERIOR ONLY), IMC OR GALVANIZED, CONDUIT BE RIGID GALVANIZED (HEAVY WALL), IMC, OR PVC (SCHEDULE 40). CONNECTION TO VIBRATING DING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID OR MOTOR-DRIVEN XCEPT USE LFMC IN DAMP OR WET LOCATIONS, MAXIMUM LENGTH 72 INCHES. CONCEAL ISHED WALLS, CEILINGS, AND FLOORS, UNLESS OTHERWISE INDICATED.
- AND EXPOSED TO PHYSICAL DAMAGE OR IN DAMP OR WET LOCATIONS SHALL BE RIGID WALL).
- A CLOSED CELL SILICONE FOAM SEALANT RATED TO PROVIDE A RATING EQUAL TO THE WALL. ASSEMBLY RATING. PROVIDE SEALS FOR THE EXTERIOR OF CONDUIT PENETRATIONS CONSISTING E SLEEVE WITH A COMPRESSIBLE RUBBER GASKET BETWEEN THE CONDUIT AND THE SLEEVE. THE INTERIOR OF THE CONDUIT PENETRATIONS CONSISTING OF GLAND TYPE SEALING BUSHING SILICONE FOAM. PROVIDE DUCT SEAL INSIDE AN APPROPRIATE SEAL-OFF FITTING TO SEAL THE NDUIT SYSTEM FROM WATER SEEPAGE OR HAZARDOUS GASES.
- UPLINGS AND CONNECTORS FOR EMT SHALL BE OF COMPRESSION TYPE.

ANDARD TYPE, WITH KNOCKOUTS, MADE OF HOT DIPPED GALVANIZED STEEL AS MANUFACTURED OR APPLETON. BOX EXTENSIONS USED TO ACCOMMODATE NEW BUILDING FINISHES SHALL BE AS RECESSED BOX.

XES SHALL BE 4-INCH OCTAGON 1-1/2 INCH DEEP OR LARGER WHEN REQUIRED DUE FOR NUMBER R CONDUIT ENTRY. LUMINAIRE OUTLET BOXES: NON-ADJUSTABLE, DESIGNED FOR ATTACHMENT HING 50 LB. OUTLET BOXES DESIGNED FOR ATTACHMENT OF LUMINAIRES WEIGHING MORE THAN ED AND MARKED FOR THE MAXIMUM ALLOWABLE WEIGHT.

IALL BE PROVIDED WITH APPROVED 3/8 INCH FIXTURE STUDS WHERE REQUIRED. PROVIDE BOXES WHERE SHOWN ON THE DRAWINGS AS REQUIRED TO FACILITATE INSTALLING DXES SHALL BE SIZED IN ACCORDANCE WITH THE NEC. ALL JUNCTION BOXES SHALL BE ONTALLY SEPARATE BOXES MOUNTED ON OPPOSITE SIDES OF WALLS SO THEY ARE NOT IN THE NNEL AND TO MAINTAIN WALL FIRE RATING.

KES: CAST METAL FOR SLAB ON SLAB ON GRADE OR SHEET METAL, FULLY ADJUSTABLE, TAL FLOOR BOXES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED ND MARKED FOR INTENDED LOCATION AND APPLICATION.

### SEALS FOR ELECTRICAL RACEWAYS AND CABLING:

VE SELECTION AND APPLICATION FOR RACEWAYS AND CABLES THROUGH FIRE RATED I "THROUGH-PENETRATION FIRESTOP SYSTEMS" SPECIFIED IN ARCHITECTURAL DRAWINGS AND FOR FIRE-RATED-ASSEMBLY PENETRATIONS, MAINTAIN INDICATED FIRE RATING OF WALLS, SAND FLOORS AT CABLE PENETRATIONS. INSTALL SLEEVES AND SEAL WITH FIRESTOP ING TO LISTING.

IN FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS: WALL SLEEVES. GALVANIZED-STEEL SHEET: THICKNESS; ROUND TUBE CLOSED WITH TABS FOR SCREW-FASTENING THE SLEEVE TO THE OR RECTANGULAR OPENINGS: FOR SLEEVE CROSS-SECTION RECTANGLE PERIMETER LESS THAN VITH NO SIDE LARGER THAN 16 INCHES, THICKNESS SHALL BE 0.052 INCH. FOR SLEEVE CTANGLE PERIMETER 50 INCHES OR MORE AND ONE OR MORE SIDES LARGER THAN 16 INCHES, E 0.138 INCH. CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH WALL SURFACES. ISTALLED IN FLOORS 2 INCHES ABOVE FINISHED FLOOR LEVEL. SIZE PIPE SLEEVES TO PROVIDE CLEAR SPACE BETWEEN SLEEVE AND CABLE UNLESS SLEEVE SEAL IS TO BE INSTALLED. SEAL SLEEVES WITH GROUT FOR PENETRATIONS OF CONCRETE AND MASONRY AND WITH APPROVED FOR GYPSUM BOARD ASSEMBLIES. ROOF-PENETRATION SLEEVES - SEAL PENETRATION OF WITH FLEXIBLE BOOT-TYPE FLASHING UNITS APPLIED IN COORDINATION WITH ROOFING WORK. ERIOR-WALL PENETRATIONS - SEAL PENETRATIONS USING SLEEVES AND MECHANICAL SLEEVE LEEVES TO ALLOW FOR 1-INCH ANNULAR CLEAR SPACE BETWEEN PIPE AND SLEEVE FOR VICAL SLEEVE SEALS. UNDERGROUND EXTERIOR-WALL PENETRATIONS - INSTALL CAST-IRON SLEEVES, SIZE SLEEVES TO ALLOW FOR 1-INCH ANNULAR CLEAR SPACE BETWEEN CABLE AND

LING MECHANICAL SLEEVE SEALS.

## DENTIFICATION:

AVED PLASTIC LAMINATE NAMEPLATES: PROVIDE ENGRAVING PHENOLIC PLASTIC LAMINATE IN SS INDICATED, ENGRAVED WITH 1/16 INCH THICK LINES WITH SQUARE STANDARD PICA LETTERING SPECIFIED HEREIN, BLACK FACE AND WHITE LETTER FOR NORMAL SYSTEMS AND RED AND WHITE AND FIRE ALARM SYSTEMS. PUNCH FOR MECHANICAL FASTENING, EXCEPT WHERE ADHESIVE SSARY BECAUSE OF SUBSTRATE. MATERIAL THICKNESS SHALL BE 1/16 INCH. PROVIDE BEVELED ELIMINATE SHARP CORNERS. PROVIDE SELF-TAPPING STAINLESS STEEL ROUND HEAD SCREWS. TYPE PERMANENT ADHESIVE WHERE SCREWS CANNOT OR SHALL NOT PENETRATE THE IVE NAMEPLATE SHALL BE PERMANENTLY INSTALLED. TITLES SHALL BE 1/2 INCH HIGH AND ALL HALL BE 1/4 INCH HIGH.

NTIFICATION: PROVIDE NEAT INDELIBLE FELT TIP, STENCILED MARKING ON JUNCTION BOXES. L BE 1 INCH HIGH MINIMUM. PROVIDE NON-STENCILED MARKINGS INSIDE THE JUNCTION BOX. THE CIRCUITS CONTAINED THEREIN.

CATION: PROVIDE NEAT INDELIBLE FELT TIP, STENCILED MARKING ON PULLBOX COVERS. LETTER INCH HIGH MINIMUM. PROVIDE NON-STENCILED MARKINGS INSIDE THE PULL BOX AND ON THE MATCH THE COVER MARKINGS. LABEL TO INDICATE THE CIRCUITS CONTAINED THEREIN, SOURCE

DIMPONENTS AND ACCESSORIES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A AGENCY AND MARKED FOR INTENDED LOCATION AND APPLICATION. WIRING DEVICES SHALL BE BY COOPER, HUBBELL, LEVITION OR PASS & SEYMOUR.

LORED DEVICES FOR NORMAL POWER, UNLESS OTHERWISE NOTED. PROVIDE RED COLORED RGENCY POWER. PROVIDE BRUSHED STAINLESS STEEL COVER PLATES. COORDINATE WITH L COLOR SELECTION OF DEVICES AND COVER PLATES.

CIFICATION GRADE 20A, 125V, 3W GROUNDED, MOUNTED 18" A.F.F. TO THE CENTERLINE UNLESS COLOR SHALL MATCH TOGGLE SWITCHES.

HEAVY DUTY SPECIFICATION GRADE 20-AMP, 120/277 VAC, HEAVY DUTY, QUIET TYPE: SINGLE HREE WAY OR FOUR WAY AS REQUIRED FOR APPLICATION.

IERS: PRESET SLIDE CONTROL: LUTRON OR EQUIVALENT, COMPATIBLE WITH DIMMABLE BALLAST. R SWITCHES, 120/277 VAC, WALL MOUNTED SINGLE POLE- LEVITON OR EQUIVALENT.

SET SLIDE CONTROL: LUTRON OR EQUIVALENT, COMPATIBLE WITH DIMMABLE DRIVER.

TES IN FULL CONTACT WITH WALL SURFACE OR SURFACE MOUNTED BOX. PLATES SHALL NOT THE WALL OR FROM THE EDGE OF THE BOX.

FOR RECEPTACLES AND SWITCHES SHALL BE LABELED, SHOW PANEL DESIGNATION AND BRANCH ACH RECEPTACLE.

#### HTING:

BE FURNISHED AS SHOWN IN THE LUMINAIRE SCHEDULE AND COMPLY WITH UL 1598 AND BE

LISTED AND LABELED FOR INSTALLATION IN WET LOCATIONS AS DEFINED IN NFPA 70 AND MARKED FOR INTENDED LOCATION AND APPLICATION. LATERAL LIGHT DISTRIBUTION SHALL COMPLY WITH IESNA RP-8. THE CONTRACTOR SHALL FURNISH STAINLESS STEEL MOUNTING HARDWARE AND REQUIRED ACCESSORIES OF THE SPECIFIED AND / OR APPROVED FIXTURES.

- B. BALLASTS FOR FLUORESCENT LAMPS: BALLASTS SHALL BE ELECTRONIC PROGRAMMED START TYPE AND COMPLY WITH UL 935 AND WITH ANSI C82.11. BALLASTS SHALL BE DESIGNED FOR TYPE AND QUANTITY OF LAMPS SERVED AND SHALL BE DESIGNED FOR FULL LIGHT OUTPUT UNLESS ANOTHER BF, DIMMER OR BI-LEVEL CONTROL IS INDICATED. BALLAST SHALL HAVE A SOUND RATING OF CLASS A, TOTAL HARMONIC DISTORTION RATING LESS THAN 10 PERCENT, OPERATING FREQUENCY 42 KHZ OR HIGHER, LAMP CURRENT CREST FACTOR 1.7 OR LESS, BF 0.88 OR HIGHER, A MINIMUM STARTING TEMPERATURE OF 0 DEGREE F AND HAVE A POWER FACTOR 0.95 OR HIGHER. PROVIDE PARALLEL LAMP CIRCUITS AND MULTIPLE LAMP BALLASTS SHALL COMPLY WITH ANSI C82.11 AND SHALL BE CONNECTED TO MAINTAIN FULL LIGHT OUTPUT ON SURVIVING LAMPS IF ONE OR MORE LAMPS FAIL. COMPACT FLUORESCENT LAMPS SHALL HAVE AN OPERATING FREQUENCY 20 KHZ OR HIGHER AND LAMP END-OF-LIFE DETECTION AND SHUTDOWN CIRCUIT.
- C. BALLASTS FOR HID LAMPS: BALLASTS SHALL BE ELECTRONIC PULSE-START TYPE. BALLASTS SHALL HAVE A SOUND RATING OF CLASS A, TOTAL HARMONIC DISTORTION RATING LESS THAN 20 PERCENT, CURRENT CREST FACTOR 1.5 OR LESS, POWER FACTOR 0.950R HIGHER AND LAMP END-OF-LIFE DETECTION AND SHUTDOWN CIRCUIT. BALLASTS SHALL HAVE A MINIMUM STARTING TEMPERATURE OF 0 HAVE A MINIMUM CRI 80 AND COLOR TEMPERATURE 4000 K.
- D. FLUORESCENT LAMP DESIGN SELECTION: OSRAM-SYLVANIA, GE OR PHILLIPS WITH CRI 81 (MINIMUM), COLOR TEMPERATURE 4100 K AND AVERAGE RATED LIFE 20,000 HOURS.
- E. LED LUMINAIRES SHALL BE UL 8750 LISTED AND TESTED IN ACCORDANCE WITH LM-79 AND LM-80 STANDARDS. THE LED LUMINAIRE SHALL HAVE A LUMINOUS EFFICACY OF AT LEAST 90 LUMENS/W, A COLOR TEMPERATURE OF 3500K OR 4000 K, A CRI OF AT LEAST 80, AN ESTIMATED LIFE OF AT LEAST 50,000 HOURS AT L70 LUMEN MAINTENANCE AND SHALL INCLUDE A MINIMUM 5-YEAR WARRANTY ON THE ENTIRE LUMINAIRE INCLUDING THE DRIVER.
- F. POLE AND SUPPORT COMPONENT CERTIFICATES SHALL BE CERTIFIED BY MANUFACTURER OF POLES THAT PRODUCTS ARE DESIGNED FOR INDICATED LOAD REQUIREMENTS IN AASHTO LTS-4-M AND THAT LOAD IMPOSED BY LUMINAIRE AND ATTACHMENTS HAS BEEN INCLUDED IN DESIGN. MINIMUM WIND LOAD FOR ASSEMBLY SHALL BE 140 MPH.
- G. BOLLARDS AND FLOOD LIGHTS SHALL BE INSTALLED ON CONCRETE BASE WITH TOP 2 INCHES ABOVE FINISHED GRADE OR SURFACE AT LUMINAIRE LOCATION. CAST CONDUIT INTO BASE AND SHAPE BASE TO MATCH SHAPE LUMINAIRE BASE.
- H. GROUND METAL POLES AND SUPPORT STRUCTURES IN ACCORDANCE WITH GROUNDING AND BONDING SPECIFICATION SECTION AND PROVIDE GROUNDING ELECTRODE FOR EACH POLE.

Tampa, Florida 33602 Tel: 888.891.9713 COA: #27158 Project No: 01-18012 COA: #27158 Project No: 01-18012
Date       St. Petersburg College (Gibbs Campus)         SPC Project No: 265-D-18-3       565-D-18-3         Drawing Title       0.05 5th Avenue North       St. Petersburg, Florida 33710         Date       ELECTRICAL SPECIFICATIONS
Image: big of the system   Image: big





	SCOPE OF WORK:	WI HONY CANA
	A. CONTRACTOR SHALL COORDINATE WORK WITH OWNER.	NO. 42527
	B. CONTRACTOR SHALL PROVIDE ALL COMPONENTS AND ACCESSORIES NEEDED TO ESTABLISH ROADWAY AND PARKING LIGHTING.	
	C. PROPER CARE SHALL BE TAKEN TO PROTECT EXISTING TO REMAIN EQUIPMENT, DEVICES AND UTILITIES. ANY DAMAGES TO SUCH EQUIPMENT, DEVICE AND UTILITIES DURING CONSTRUCTION SHALL BE REPAIRED TO	STATE OF
* * * * * * * * * * * * * * * * * * * *	ORIGINAL CONDITION AT CONTRACTOR'S EXPENSE.	VONAL ENTIT
<ul> <li>x</li> <li>x&lt;</li></ul>		Gerald A Crnkovich, P.E. P.E. #42527
<ul> <li></li></ul>		13
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<ul> <li></li> &lt;</ul>		• 210 888.8
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		a, Flo
		Tampa C
	KEY NOTES: (#)	
	<ol> <li>EXISTING DUKE ENERGY POLE AND SITE LUMINAIRE(S) TO BE REMOVED BY OTHERS.</li> </ol>	
	2. PROVIDE 2 #10 & 1 #10 G IN 1" CONDUIT, FOR ENTIRE RUN. INSTALL CONDUIT 24" UNDERGROUND.	(snc
	<ol> <li>FURNISH AND INSTALL LIGHTING CONTACTOR ADJACENT TO PANEL 'C1' SECT.2 IN A NEMA 1 ENCLOSURE. PROVIDE LABEL ON ENCLOSURE TO READ 'ROADWAY AND PARKING LIGHTING'.</li> </ol>	3 3710
	4. POWER LUMINAIRES FROM EXISTING SINGLE PHASE SPARE BREAKERS IN PANEL 'C1' SEC. 2. PROVIDE BREAKER TIES AS REQUIRED. UPDATE PANEL SCHEDULE.	D-18-C
		(Gib 65-L <sup>burg, FI</sup>
		ge ( o: 2 <sup>eterst</sup> SIT
		st. F No
		ojec
		DULC PL
		SP( SP(
LIGHTING WITHIN HATCHED AREA PROVIDED BY SITE LUMINAIRES AND POLES INSTALLED AS PART		bete eee
OF SPC GIBBS - STUDENT SUCCESS CENTER PROJECT.		ў. Н
		awing Tit
	LOAD     CONNECTED     DEMAND FACTOR     TOTAL DEMAND       SITE LIGHTS     1.42 KVA     1.25     1.78 KVA @ 1Ø 208V ==> 8.6 AMP       NOTE:	Date
	1. PRIOR TO STARTING WORK, THE ELECTRICAL CONTRACTOR SHALL OPEN EXISTING PANELS C1 SEC.1 AND C1 SEC2 AND CONFIRM SIZE AND INTEGRITY OF THE EXISTING INSTALLATION.	
	<ol> <li>PRIOR TO STARTING WORK, THE ELECTRICAL CONTRACTOR SHALL PERFORM A 30 DAY LOAD STUDY ON BUILDING LI PANEL 'C1'. IF STUDY RESULT INDICATE MAXIMUM AMP DRAW IS LESS THAN OR EQUAL TO 57 AMPS PROCESS WITH</li> </ol>	
	AMP DRAW IS OVER 57 AMPS CONTRACTOR SHALL PERFORM WORK ASSOCIATED WITH ALTERNATE #1. REFER TO SHEET E500 FOR ALTERNATE #1	
		ption
		Descr
		DESIGN BY: AJ CHECKED BY: GC
		ISSUED FOR: DATE:
		□         CD 60%           □         CD 95% Review         03-27-2018
		LA         CD 100%         04-04-2018           Pricing
	North	Bidding
ELECTRIC	CAL SITE PLAN	Construction Drawing No.
$\frac{-1}{\text{SCALE}: \frac{1}{32}" = 1'-0"}$		
	S	

## ALTERNATE #1 SCOPE OF WORK-ENCOMPASSES PROVIDING ALL COMPONENTS AND ACCESSORIES NEED TO INSTALL PANEL 'L1C' AND POWERING ROADWAY/PARKING LIGHTS FROM PANEL 'L1C'.

	MAIN LUGS     100 AMPS     PANEL     L1C       Phase     Circuit     Mount     NEMA     Voltage
	HO2       Ckt.       Circuit       Wire       Trip       Brkr.       Load       A Phase       B Phase       C Phase       Load       Brkr.       Trip       Ckt.       Circuit       Ckt.       Ckt.       Circuit       Ckt.
	#       Description       Size       Amps       Pole       Type       Load kVA       Load kVA       Type       Pole       Amps       Size       Description       #         1       1       ROADWAY/PARKING LIGHITS       20       2       L       0.36       0.36       1       20       1       20       SPARE       2
	$\frac{1}{1} = \frac{1}{7} = \frac{1}{7} = \frac{1}{7} = \frac{1}{1} = \frac{1}$
	9         SPARE         20         2         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a
	13       SPACE       Image: space s
	17     SPACE     18       19     SPACE     1     20     SPARE     18       21     SPACE     1     20     SPARE     20
	21     SPACE     1     20     SPARE     22       23     SPACE     Image:
ENCOMPASSES PROVIDING ALL	27       SPACE       Image: Constraint of the system of the syste
COMPONENTS AND ACCESSORIES	31         SPACE         32           33         SPACE         Image: S
	35     SPACE     36       37     SPACE     6       39     SPACE     38
LIGHTS FROM PANEL 'L1C'.	39         SPACE         40           41         SPACE         0         0         0         10         30         40           41         SPACE         0         0         0         10         42
	Total kVA     1.424     Total Amps     3.96       Total Demand kVA     1.780     Dem Load Amps     4.95
	KITCHEN "K":       0.000 KVA @ .65 DF=0.000 KVA         MOTOR "M":       0.000 KVA, TOTAL + 25% OF LARGEST=0.000 KVA         HEATING "H":       0.000 KVA @ 1.00 DF=0.000 KVA         MISC "S":       0.000 KVA @ 1.00 DF=0.000 KVA         1       REFER TO SHEET E100 FOR FEEDER INFORMATION.         2       3         4       4
	LEGEND MDP DEMAND LOAD SUMMARY
	NEW EQUIPMENT       NEW EQUIPMENT TO REMAIN         EXISTING EQUIPMENT TO REMAIN       Voltage       Phase         EXISTING EQUIPMENT TO BE REMOVED       120       208       3       1600
	ADDED LIGHTING "L": 1.42 KVA @ 1.25 DF= 1.78 KVA
	PANEL TYPE SURGE PROTECTION MFR. / MODEL NO. Total Connected Load 513.82 KVA
	MDP / SERVICE ENTRANCE PANELS       PQ PROTECTION MODEL PQS300         DISTRIBUTION PANELS       PQ PROTECTION MODEL PQM200         BRANCH / SUB PANELS       PQ PROTECTION MODEL PQM100
	KEYED NOTES (#) FEEDER SCHEDULE (COPPER)
ا لــــــــــــــــــــــــــــــــــــ	Image: second constraints     Image: second constraints       1.     EXISTING EQUIPMENT AND/OR DEVICE SHOWN FOR REFERENCE.       1.     EXISTING EQUIPMENT AND/OR DEVICE SHOWN FOR REFERENCE.
	2.       PROVIDE NEW PANEL 'L1C', ASSOCIATED FEEDER AND SPD.         3.       FURNISH AND INSTALL 100A BREAKER IN 'MDP' SPACE. BREAKER SHALL MATCH EXISTING BREAKER TYPE. LABEL BRANCH CIRCUIT.         MARK       RATING       GROUND)         NO SIZE       100A         100A       100       4 #3 & 1 #8 EG         EX       EXISTING TO REMAIN
EX EX EX C1 SEC.1 EX C1 SEC.2 EX C1 SEC.2	Image: Constraint of the constraint
$2 \frac{\text{LINLANGED ELECT. KOUWI 139}}{\text{SCALE: 1/4" = 1'-0"}}$	







