GENERAL ELECTRICAL NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (N.E.C. 2011) AND GOVERNING MUNICIPAL, STATE AND LOCAL CODES. ALL MATERIAL SHALL BE NEW AND SHALL BEAR THE
- ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTED BY THE
- 3. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING
- 4. CONTRACTOR SHALL MAKE ALL NECESSARY CUTTING AND DO ALL THE REPATCHING AS NECESSARY FOR THE PROPER EXECUTION OF THIS WORK.
- 5. AFTER COMPLETION OF THE INSTALLATION, THE SYSTEM SHALL TEST FREE FROM SHORT CIRCUITS AND
- 6. WHERE ELECTRICAL CONDUCTORS ARE INSTALLED IN CONDUIT, THE CONDUIT SHALL COMPLY WITH THE N.E.C. REQUIREMENTS.
- ALL CONDUCTORS SHALL BE COPPER. NO CONDUCTOR SHALL BE SMALLER THAN #12 AWG AND SHALL BE RATED FOR 600VOLTS THWN OR THHN INSULATION. INSTALL A GROUNDING CONDUCTOR WITH ALL CIRCUITS, UNLESS NOTED OTHERWISE, SIZED PER N.E.C. 250-122.
- 8. VERIFY BREAKER AND CORRESPONDING WIRE SIZES FOR ALL ELECTRICAL EQUIPMENT. DO NOT ORDER MATERIAL BEFORE VERIFYING BREAKER & WIRE SIZE. REPORT ANY DISCREPANCY IMMEDIATELY TO THE ENGINEER OF RECORD.
- 9. ALL OUTDOOR DISCONNECTS AND ELECTRICAL PANELS TO BE NEMA-3R. ALL OUTDOOR DISCONNECTS AND ELECTRICAL PANELS IN A SALT SPRAY AREA TO BE NEMA-4X.
- 10. PANELS SHALL BE SQUARE 'D', GENERAL ELECTRIC OR EQUAL, TYPE AND NUMBER OF BREAKERS AS INDICATED ON PANEL SCHEDULE, STENCIL PANEL DESIGNATION ON INSIDE OF PANEL. ALL TWO-POLE BREAKERS SHALL BE COMMON TRIP. PROVIDE TYPE WRITTEN SCHEDULE IN EACH LOAD CENTERS. CONNECTION TO MAIN BUS SHALL BE WITH BURNDY ANNULAR COMPRESSION LUGS. PANELS AIC RATING SHALL BE AS INDICATED ON PLANS.
- 11. PROVIDE NAMEPLATES FOR ALL PANEL BOARDS, DISCONNECTS, TRANSFORMER, TERMINAL CABINETS AND ALL ELECTRICAL EQUIPMENT IDENTIFIED BY NAME ON DRAWINGS.
- 12. ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES AND EQUIPMENT SHALL BE LABEL LISTED BY AN APPROVED THIRD PARTY TESTING AGENCY.
- 13. LOAD DATA IS BASED ON INFORMATION GIVEN ENGINEER AT TIME OF DESIGN. VERIFY ALL EQUIPMENT AND PANEL SIZES BEFORE ORDERING AND BEFORE INSTALLATION.
- 14. ALL EXTERIOR ELECTRICAL EQUIPMENT SHALL BE ANCHORED TO COMPLY WITH LOCAL CODE FOR WIND
- 15. ALL ELECTRICAL AND COMMUNICATIONS OUTLETS TO BE AT 15" A.F.F TO BOTTOM OF OUTLET UNLESS OTHERWISE NOTED, ALL LIGHT SWITCHES SHALL BE @ 48" AFF. TO TOP OF SWITCH.
- 16. TIME CLOCK FOR LIGHTING CONTROL TO BE AN ASTRONOMICAL TIME CLOCK.
- 17. THE CONTRACTOR SHALL CONTACT THE LOCAL POWER COMPANY AND OBTAIN, IN WRITING, THE AVAILABLE FAULT CURRENT OF THE UTILITY TRANSFORMER. THE CONTRACTOR SHALL ENSURE THAT ALL ELECTRICAL EQUIPMENT HAS AN AMP INTERRUPTING CAPACITY (AIC) GREATER THAN THE AVAILABLE FAULT CURRENT AT ANY POINT IN THE ELECTRICAL DISTRIBUTION SYSTEM.
- 18. WIRING METHOD:
- ALL CONDUCTORS SHALL BE INSTALLED IN ELECTRICAL METALLIC TUBING (EMT) OR MC CABLE & FLEXIBLE METAL CONDUIT (GREENFIELD) AS PER NEC 330-10, PROVIDED IT IS USED IN NON DESTRUCTIVE OR CORROSIVE SURROUNDINGS AS SPECIFIED IN NEC 2011 330-12. ALL FITTINGS AND COUPLINGS FOR EMT CONDUIT SHALL BE ALL STEEL RAIN TIGHT COMPRESSION TYPE OR ALL STEEL CONCRETE TIGHT SET SCREW TYPE. SCHEDULE 40 PVC CONDUIT, WITH FITTINGS AND COUPLINGS APPROPRIATE FOR THE USE, SHALL BE USED UNDERGROUND OR BELOW SLABS ON GRADE.
- 19. BRANCH-CIRCUIT WIRING, OTHER THAN 2-WIRE OR MULTIWIRE BRANCH CIRCUITS SUPPLYING POWER TO LUMINAIRES CONNECTED TOGETHER, SHALL NOT BE PASSED THROUGH AN OUTLET BOX THAT IS AN INTEGRAL PART OF A LUMINAIRE UNLESS THE LUMINAIRE IS IDENTIFIED FOR THROUGH-WIRING.
- LUMINAIRES SHALL NOT BE USED AS A RACEWAY FOR CIRCUIT CONDUCTORS UNLESS LISTED AND MARKED FOR USE AS A RACEWAY. PROVIDE J-BOXES AS REQUIRED.
- 20. SEAL ALL NEW CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS, CEILINGS, FLOORS, ETC., TO MAINTAIN EXISTING FIRE RATING CONDITIONS. FURNISH AND INSTALL FIRE RATED ENCLOSURES FOR ALL EQUIPMENTS PENETRATING FIRE RATED ENVELOPES, SPACES, ECT.
- 21. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE WIRING FOR HVAC SYSTEM: A/C EQUIPMENT(S), SMOKE DETECTORS, THERMOSTATS, TEST STATIONS, MOTORIZED VOLUME DAMPERS, ETC. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH MECHANICAL DRAWINGS AND PROVIDE ALL NECESSARY CONTROL WIRING. ELECTRICAL CONTRACTOR TO THOROUGHLY REVIEW MECHANICAL PLANS AND PROVIDE POWER TO ANY MECHANICAL EQUIPMENT OR DEVICE THAT IS NOT SHOWN ON ELECTRICAL PLANS BUT IS SHOWN ON MECHANICAL PLANS.
- 22. INSTALL "GFCI" GROUND FAULT INTERRUPTER RECEPTACLES WITH WEATHERPROOF COVER WITHIN 25 FT OF HVAC EQUIPMENT, MOUNT RECEPTACLE ON UNISTRUT (UNLESS HVAC EQUIPMENT IS SPECIFIED WITH FACTORY INSTALLED CONVENIENT RECEPTACLE) .
- 23. WHEN NEW ELECTRIC SERVICE IS BEING INSTALLED, IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH FPL/FPL ENGINEERS ON THE SIZE OF THE FPL TRANSFORMER THAT IS REQUIRED TO PROVIDE THE NEW ELECTRIC SERVICE SHOWN ON ELECTRIC PLANS, GC HAS TO INFORM THE OWNER ABOUT ANY EXTRA FPL CHARGES THAT MIGHT OCCUR IN ORDER TO PULL NEW SERVICE, THIS HAS TO BE DONE AS EARLY AS POSSIBLE DURING THE BIDDING PROCESS.
- 24. ELECTRICAL SERVICE EQUIPMENT MUST BE 3' ABOVE MSL, AND 8' ABOVE N.V.G.D. VERIFY AT SITE. ALL ELECTRICAL EQUIPMENTS SHALL BE INSTALLED ABOVE FLOOD LEVEL.
- 25. CONTRACTOR MUST VISIT THE SITE PRIOR TO BID OR CONSTRUCTION TO VERIFY ALL EXISTING CONDITIONS. BEFORE SUBMITTING BID, BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AT THE BUILDING SITE. THE INTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREINAFTER. BY THE ACT OF SUBMITTING A BID PROPOSAL FOR WORK, THE CONTRACTOR SHALL BE DEEMED TO HAVE MADE SUCH STUDY AND EXAMINATION AND TO ACCEPT ALL CONDITIONS PRESENT AT THE SITE. NO REQUEST FOR ADDITIONAL PAYMENT SHALL BE CONSIDERED AS VALID, DUE TO THE FAILURE TO ALLOW FOR CONDITIONS WHICH MAY EXIST. CONTRACTOR TO REPLACE ANY EXISTING DEVICE OR COMPONENT THAT IS CALLED AS EXISTING IF IT IS NOT FULLY OPERATIONAL.
- 26. WIRING METHODS IN ALL PATIENT CARE AREAS TO BE IN COMPLIANCE WITH REDUNDANT GROUNDING REQUIREMENTS OF NEC 2011 SECTION 517.13.
- 27. ALL DIMMING MECHANISMS HAVE TO BE COMPATIBLE WITH FIXTURE DIMMING REQUIREMENTS. CONTRACTOR MUST VERIFY ALL DIMMING MECHANISM AND FIXTURE DIMMING REQUIREMENTS BEFORE ANY ORDERING, INSTALLING, OR WIRING OF ANY DIMMING MECHANISMS AND FIXTURES.
- 28. ALL OUTDOOR RECEPTACLES TO BE GFCI & WEATHER PROOF.

PER FLORIDA BUILDING CODE 2014 ENERGY CONSERVATION:

405.7.3 VOLTAGE DROP.

405.7.3.1 FEEDERS AND CUSTOMER OWNED SERVICE CONDUCTORS. FEEDER AND CUSTOMER OWNED SERVICE CONDUCTORS SHALL BE SIZED FOR A MAXIMUM VOLTAGE DROP OF 2 PERCENT AT DESIGN LOAD.

405.7.3.2 BRANCH CIRCUITS. BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED FOR A MAXIMUM VOLTAGE DROP OF 3 PERCENT AT DESIGN LOAD.

405.7.4 COMPLETION REQUIREMENTS.

- 405.7.4.1 DRAWINGS. CONSTRUCTION DOCUMENTS SHALL REQUIRE THAT WITHIN 30 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF THE ACTUAL INSTALLATION SHALL BE PROVIDED TO THE BUILDING OWNER, INCLUDING: 1. A SINGLE-LINE DIAGRAM OF THE BUILDING ELECTRICAL DISTRIBUTION SYSTEM AND
- 2. FLOOR PLANS INDICATING LOCATION AND AREA SERVED FOR ALL DISTRIBUTION. 405.7.4.2 MANUALS. CONSTRUCTION DOCUMENTS SHALL REQUIRE THAT AN OPERATING MANUAL AND MAINTENANCE MANUAL BE PROVIDED TO THE BUILDING OWNER. THE MANUALS SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING: I. SUBMITTAL DATA STATING EQUIPMENT RATING AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.

EXISTING

3 13176 EX EX EX

20 1 360 1/2" 12 12 RECEPT.

EX EX EX

EX EX EX

1 720 EX EX EX FRONT OUTLETS

20 1 900 EX EX EX OUTLETS CLASSROOM

20 1 720 EX EX EX CHANGING ROOM

20 1 180 1/2" 12 12 RECEPT. @ ROOF

 200
 2
 2,100
 EX
 EX
 EX
 EX

 200
 2
 EX
 EX
 EX
 EX

 125
 2
 15,916
 EX
 EX
 EX
 PANEL-P

 125
 2
 EX
 EX
 EX
 EX

SUBTOT. 75192 VA

* NON SIMULTANEOUS LOAD

600 EX EX EX SLIDING DOOR

1 720 EX EX EX COLOUMN OUTLETS

EX EX EX AIR COMPRESSOR

900 EX EX EX FAN/EQUIPMENT ROOM

TOTAL RECEP. LOAD

LIGHTING LOAD @ 125%

LARGEST MOTOR @125%

OTHER MOTORS @ 100%

AIR CONDITIONERS @ 100%

KITCHEN EQUIPMENT @ 65%

CURRENT PER PHASE

REST @ 50%

VERIFY ALL EOUIPMENT LOAD AND BREAKER AND WIRE SIZES PRIOR TO INSTALLATIONS

RECEP. 1st 10,000 VA @ 100%

60 3 EX EX AC

100 3 28800 EX EX EX

45 3 10100 3/4" 8 10

120/208V, 3PH, 4WIRE

AMPS POLE TOTAL COND. WIRE GRD
VA SIZE SIZE SIZE

400 AMPS

SPECIFICATIONS:

AMPACITY

- 2. OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED. 3. NAMES AND ADDRESSES OF AT LEAST ONE QUALIFIED SERVICE AGENCY. NOTE: ENFORCEMENT AGENCIES SHOULD ONLY CHECK TO BE
- SURE THAT THE CONSTRUCTION DOCUMENTS REQUIRE THIS INFORMATION TO BE TRANSMITTED TO THE OWNER AND SHOULD NOT EXPECT COPIES OF ANY OF THE MATERIALS.
- 405.3 TANDEM WIRING (MANDATORY). THE FOLLOWING LUMINAIRES LOCATED WITHIN THE SAME AREA SHALL BE TANDEM WIRED: I. FLUORESCENT LUMINAIRES EQUIPPED WITH ONE, THREE OR ODD-NUMBERED LAMP CONFIGURATIONS, THAT ARE RECESS-MOUNTED WITHIN 10 FEET (3048 MM) CENTER-TO-CENTER OF EACH OTHER. 2. FLUORESCENT LUMINAIRES EQUIPPED WITH ONE, THREE OR ANY ODD-NUMBERED LAMP CONFIGURATION, THAT ARE PENDANT- OR SURFACE-MOUNTED WITHIN 1 FOOT (305 MM) EDGE-TO-EDGE OF EACH OTHER.
- . WHERE ELECTRONIC HIGH-FREQUENCY BALLASTS ARE USED. LUMINAIRES ON EMERGENCY CIRCUITS. 3. LUMINAIRES WITH NO AVAILABLE PAIR IN THE SAME AREA.

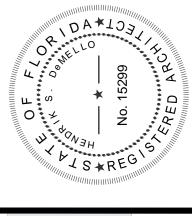
THE LIGHTING SPECIFICATIONS WERE SUPPLIED BY OTHERS. CONTRACTOR TO COORDINATE WITH OWNER/OWNER REP OR OWNER'S INTERIOR DESIGNER. VERIFY THAT THE SPECIFICATIONS ON THIS PLAN ARE WHAT THE OWNER ASKED FOR AND PROPERLY WIRE CONTROLS PER MANUFACTURER SPECIFICATIONS. ELECTRICAL CONTRACTOR TO CHECK MANUFACTURER SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR LIGHTS AND CONTROLS FOR LIGHTS PRIOR TO ORDERING AND ROUGH-IN.

FOR FLUORESCENT LUMINAIRES, PROVIDE DISCONNECTS AS PER NEC 410.130(G).

BRANCH CIRCUIT VOLTAGE DROP MAXIMUM 3% PER 2014FBC **ENERGY CONSERVATION CODE SECTION 405.7.3.2**

CIRCUIT LOAD IN AMPS	WIRE SIZE COPPER	MAXIMUM LENGTH IN FEET
5 AMPS OR LESS	#12 AWG	180
6 AMPS	#12 AWG	150
7 AMPS	#12 AWG	130
8 AMPS	#12 AWG	115
9 AMPS	#12 AWG	100
10 AMPS	#12 AWG	90
11 AMPS	#12 AWG	83
12 AMPS	#12 AWG	75
13 AMPS	#12 AWG	70
14 AMPS	#12 AWG	65
15 AMPS	#12 AWG	60
16 AMPS	#12 AWG	57
17 AMPS	#12 AWG	54
18 AMPS	#12 AWG	51
19 AMPS	#12 AWG	48
20 AMPS	#12 AWG	45

ELECTRICAL NOTES & DETAILS



ADDITION

FLOOR

SECOND

designed	H. DeMello
drawn	H. DeMello
date	AUG. 21, 2015
scale	AS SHOWN
project #	15.138
sheet	

BUCHANAN P.E CONSULTING INC.dashELECTRICAL * MECHANICAL * PLUMBING ENGINEERING 6191 W. ATLANTIC BLVD, SUITE# 2 MARGATE, FL 33063 Ph: 954-590-3300 Fax: 954-590-2232 Email: BUCHANAN@MEPENGINEERS.COM CERTIFICATE OF AUTHORIZATION # 8842 □RAJA BUCHANAN P.E # 48916 □MAURICE L□RD P.E # 72550 | DATE: _____

MAINS:

LOCATION:

MOUNTING:

PANEL-MDP

NEMA-3R

CIRC No. | CIRC No.

3 4

11 12 LIGHTS

19 20 EAST LIGHTS

35 36 LIGHTS

8 RECEPT. PAVAN'S OFFICE

10 RECEPT. PAVAN'S OFFICE

14 BATH / CLASSROOM

16 WEST LIGHTS

18 CENTER LIGHTS

28 RECEPT. OFFICE

30 RECEPT. OFFICE

32 RECEPT. OFFICE

34 RECEPT. OFFICE

40 RECEPT. OFFICE

38 RECEPT. BATHROOM

101,980

10,000

2,860

7,865

36,000

14,716

VA

VA

VA

VA

VA

VA

107,893 VA

22 DRINKING FOUNT AIN

DESCRIPTION

TOTAL LOAD

REST OF ALL OTHER LOADS @ 100% 14,716 @100%

PANEL-MDP

DEMAND LOAD CALCULATIONS

15720 VA

10,000 @100%

5,720 @50%

6292 @125%

28800 @125%

36,452 @100%

0 @65%

= 299 AMPS

0 @100%

TOTAL LOAD =

TOTAL LOAD (VA) / (208Vx1.732)

400A

GRD WIRE COND. TOTAL POLE AMPS

EX EX EX 13176 3 60

EX EX EX 3 60

EX EX EX 3 60

12 | 12 | 1/2" | 896 | 1 | 20

EX EX EX 900 1 20

EX EX EX 600 1 20

EX EX EX 600 1 20

12 | 12 | 1/2" | 720 | 1 | 20

12 | 12 | 1/2" | 896 | 1

12 12 1/2" 180 1

VA SUBTOT. 26788 VA

12 12 1/2" 720

EX EX EX 900 1

EX EX EX 1200 1

12 12 1/2" 2400

12 12 1/2" 720 1

EXTERIOR WALL