F) WALL SWITCHES SHALL BE WHITE OR BROWN AND SHALL BE AS FOLLOWS OR APPROVED EQUAL:

1) 20A, SP, 125/277V. HUBBELL #1221.

2) 20A, 3W, 125/277V. HUBBELL #1223.

3) 20A, 4W, 125/277V. HUBBELL #1224.

4) 20A, SP, 125/277V. WITH PILOT LIGHT – HUBBELL #1221-PL.

5) 20A, SP, 125/277V. WEATHERPROOF – HUBBELL #1281/1795.

6) 20A, SP, 125/277V. KEY SWITCH, HUBBELL #1221-L

G) RECEPTACLES SHALL BE WHITE WITH STAINLESS COVERS, EXCEPT BROWN SHALL BE INSTALLED TO MATCH FINISHES (BLACK AS ALTERNATE) AND SHALL BE AS FOLLOWS OR APPROVED EQUAL. PROVIDE OTHER RECEPTACLES AS INDICATED ON THE DRAWINGS.

1) 20A, 125V., DUPLEX – HUBBELL #5362 (I).

2) 20A, 250V., 2W+G – HUBBELL #5461.

3) 30A, 250V., 3W+G – ARROW-HART #5709, BRYANT #8530R OR P & S #3990.

4) GROUND FAULT CIRCUIT INTERRUPTION FOR PERSONEL (20A/125V) – HUBBELL #GF-5362 WHERE PERMITTED, PROVIDE WEATHERPROOF COVERS HUBBELL #WP26M AND WEATHER RESISTANT GFI RECEPTACLES HUBBELL #GFR20 FOR DAMP AND WET LOCATIONS. ID-GFI RECEPTACLES SHALL BE LEGRAND #7595-ICHRO OR APPROVED EQUAL. PROVIDE GFI OUTLETS (GFI CIRCUIT BREAKERS IN THE PANEL BOARD) WHERE RECEPTACLE'S TEST AND RESET BUTTONS ARE NOT LOCATED IN THE READILY ACCESSIBLE LOCATION. FIELD VERIFY PRIOR TO BID.

5) CLOCK AND SIGN HANGER – ARROW-HART #5708, BRYANT #2828-CS OR HUBBELL.

H) PLATES

1) PROVIDE FACE PLATES FOR ALL DEVICES INCLUDING WALL SWITCHES, RECEPTACLES, TELEPHONE OUTLETS AND ALL WALL OUTLETS. FACE PLATES SHALL BE SATIN FINISHED STAINLESS STEEL IN ALL FOOD PREPARATION AREAS AND COMMERCIAL GRADE SMOOTH UNBREAKABLE PLASTIC IN LOBBY/DINING, OR DARK BROWN OR WHITE TO MATCH DEVICES AND WALLS.

I) LIGHTING FIXTURES

1) LIGHTING FIXTURES SHALL BE FURNISHED BY CONTRACTOR AS SCHEDULED ON DRAWINGS EXCEPT FOR THOSE INDICATED TO BE FURNISHED BY OWNER. CONTRACTOR SHALL INSTALL ALL LIGHTING FIXTURES, PROVIDE NECESSARY MOUNTING HARDWARE. ALL RECESSED LIGHTING FIXTURES SHALL BE THERMALLY PROTECTED AS REQUIRED BY CODE.

J) LAMPS

1) OWNER SHALL FURNISH AND CONTRACTOR SHALL INSTALL ONE COMPLETE SET OF LAMPS FOR ALL LIGHTING FIXTURES. PROVIDE LABEL IN EACH FIXTURE INDICATING SIZE AND TYPE OF LAMP CORRESPONDING WITH SCHEDULE ON DRAWING. SIZE SHALL BE MARKED "MAXIMUM WATTAGE".

2) FLUORESCENT LAMPS SHALL BE STANDARD COOL WHITE, ENERGY EFFICIENT.

3) INCANDESCENT LAMPS SHALL BE INSIDE FROSTED WITH 2500 HOUR LAMP LIFE RATED 130 VOLTS.

K) FLUORESCENT BALLASTS SHALL BE ENERGY EFFICIENT, CLASS "P".

3. EXECUTION

A) RACEWAY SYSTEM

4) ALL WIRE SHALL BE (INSTALLED IN A METAL RACEWAY AND SHALL BE) CONCEALED WHERE POSSIBLE. WHERE NECESSARY TO EXPOSE THE WIRING THE RACEWAY SHALL BE INSTALLED AS INCONSPICUOUSLY AS POSSIBLE AND IN STRAIGHT LINES WITH 90-DEGREE BENDS, PARALLEL WITH BUILDING LINES. RACEWAYS SQUARE, REAM SMOOTH AND MAKE-UP TIGHT. PLUG ENDS OF RACEWAYS DURING CONSTRUCTION AND SWAB CLEAN BEFORE PULLING WIRE OR CABLE. SUPPORT RACEWAYS FROM BUILDING STRUCTURE MEMBERS ONLY WITH APPROVED FASTENERS DESIGNED FOR THE PURPOSE.

5) RACEWAY SYSTEM SHALL BE INSTALLED TO MAINTAIN THE MAXIMUM HEADROOM WITH REQUIRED SUPPORTS FOR THE LOAD. ALL ANCHORS, STRAPS AND CLIPS SHALL BE THE TYPE DESIGNED FOR THE PURPOSE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. COMMON SUPPORTS SHALL BE USED FOR MECHANICAL AND ELECTRICAL EQUIPMENT BY COORDINATING THE WORK WITH ALL TRADES.

6) ALL ELECTRICAL BOXES SHALL BE SUPPORTED FROM BUILDING STRUCTURAL MEMBERS INDEPENDENTLY OF THE CONDUIT RACEWAYS, MECHANICAL SYSTEMS OR SUSPENDED CEILING SUPPORTS. RECESSED BOXES SHALL BE FLUSH WITH SURROUNDING SURFACES. ALL BOXES AND CABINETS SHALL BE PROTECTED DURING CONSTRUCTION AND SHALL BE CLEANED BEFORE PULLING WIRE AND INSTALLING DEVICES.

7) SIZE OF CONDUIT SHALL NOT BE LESS THAN 3/4" AND NOT LESS THAN REQUIRED BY THE NATIONAL ELECTRICAL CODE. SUBCONTRACTOR SHALL INSTALL LARGER SIZE CONDUITS THAN DETAILED WHERE THERE IS AN EXCESSIVE LENGTH OF UNBROKEN RUN OR AN EXCESSIVE NUMBER OF BENDS.

B) WIRE

1) USE ONLY APPROVED TYPE WIRE-PULLING LUBRICANTS FOR WIRE #4 AWG OR LARGER. SPLICE WIRE ONLY IN ACCESSIBLE BOXES. MAKE WIRE JOINS MECHANICALLY STRONG BEFORE APPLYING THE CONNECTOR AND WHERE TAPE IS USED, WRAP EACH JOINT TO THE THICKNESS OF THE ORIGINAL INSULATION. CLEAN AND POLISH METALLIC SURFACES BEFORE INSTALLING CONDUCTORS. APPLY PRESSURE TYPE LUGS ON STRANDED CONDUCTORS CONNECTED TO SCREW OR BOLT TYPE CONNECTIONS.

C) WIRING DEVICES

1) UNLESS NOTED OTHERWISE, RECEPTACLES SHALL BE INSTALLED 18" ABOVE THE FINISHED FLOOR, SWITCHES SHALL BE 48" AND CLOCK HANGERS 8'-0". RECEPTACLES NOTED ABOVE WORK COUNTERS AND CABINETS (AC) SHALL BE MOUNTED ABOVE THE SPLASH BACK. WEATHERPROOF RECEPTACLES SHALL BE INSTALLED SO THAT THE COVER PROTECTS THE DEVICE IN THE OPEN POSITION. PROVIDE A BONDING JUMPER BETWEEN THE BOX AND ALL RECEPTACLES.

D) EQUIPMENT CONNECTIONS

1) PROVIDE ALL NECESSARY MOTOR STARTERS (VERIFY HOOD FANS WITH SUPPLIER), DISCONNECT SWITCHES, CONTROLS, CONDUIT, BOXES, WIRE, ETC. AND CONNECT COMPLETE TO EACH PIECE OF EQUIPMENT INCLUDING ELECTRICAL CONNECTIONS INDICATED ON THE DRAWINGS. WHERE EQUIPMENT RATINGS DIFFER FROM THAT INDICATED, CONSULT OWNER. CONSULT WITH EQUIPMENT SUPPLIER TO DETERMINE ROUGH-IN REQUIREMENTS. WHERE EQUIPMENT IS NOTED AS FUTURE, TERMINATE CIRCUIT IN JUNCTION BOX AND TAPE ENDS OF THE CONDUCTORS.

E) LIGHTING FIXTURES

1) PROVIDE ALL NECESSARY MOUNTING HARDWARE AND RELATED ITEMS TO PROPERLY INSTALL THE LIGHTING FIXTURES. FIXTURES SUPPORTED IN EXPOSED GRID CEILINGS SHALL BE PROVIDED WITH CLIPS. FIXTURES MOUNTED IN OR ON TILE CEILINGS SHALL BE ALIGNED WITH TILES. LIGHTING FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURAL MEMBERS EXCEPT FOR EXPOSED GRID CEILINGS WHERE A CEILING SUPPORTING WIRE SHALL BE PROVIDED AT EACH FIXTURE CORNER.

F) CLEANING

1) ALL EQUIPMENT INCLUDING PANELBOARDS, SWITCHES, WIRING DEVICES, LIGHTING FIXTURES, WALL PLATES, ETC. SHALL BE FREE OF CORROSION, DIRT, PAINT SPLATTER OR DAMAGE OF ANY SORT AT FINAL ACCEPTANCE OF THE WORK. CONTRACTOR SHALL CLEAN, REPAIR OR REPLACE SAME AS INSTRUCTED BY THE OWNER BEFORE FINAL PAYMENT.

G) POWER AND LIGHTING PANELS

1) POWER DISTRIBUTION PANEL "MDP" SHALL BE SQUARE D TYPE I-LINE, CUTLER HAMMER, GENERAL ELECTRIC HAVING 3-POINT CATCH WITH LOCKABLE HANDLE. THE SERVICE ENTRANCE EQUIPMENT SHALL BE UL LISTED AND LABELED FOR THAT APPLICATION. BUSSING SHALL BE ALUMINUM, TIN-PLATED. BRACE BUSSING FOR 100,000 A.I.C.

2) LIGHTING AND POWER PANELBOARDS SHALL BE SQUARE D TYPE NQOD, CUTLER HAMMER, GENERAL ELECTRIC WITH LOCKING DOOR AND FLUSH TRIM. BUSSING SHALL BE ALUMINUM, WITH BRACING TO SUIT INTERRUPTING RATING.

3) BREAKERS SHALL BE INDIVIDUAL MOLDED CASE, BOLT-IN STYLE, SIZED AS SCHEDULED. TWO POLE AND THREE POLE BREAKERS SHALL BE COMMON TRIP SINGLE POLE UNITS WITH HANDLETIES ARE NOT ACCEPTABLE.

4) PANELS SHALL BE FLUSH-MOUNTED AS SHOWN ON PLANS.

5) CONTRACTOR TO VERIFY AVAILABLE FAULT CURRENT WITH UTILITY COMPANY FOR PROPER PANEL ASYMMETRICAL INTERRUPTING RATING. SUBMIT THIS INFORMATION WITH SHOP DRAWINGS ON PANELS, ALONG WITH LETTER FROM POWER COMPANY.

6) METER, C.T. CABINET, SERVICE CONDUCTORS AND CONDUIT, TRANSFORMER, ETC. SHALL BE PER LOCAL UTILITY REQUIREMENTS. COORDINATE SERVICE INSTALLATION WITH LOCAL UTILITY COMPANY, PROVIDING ALL NOTICES EQUIPMENT AND LABOR.

7) THE PRECEDING SECTIONS ARE FOR SITUATIONS IN WHICH THE OWNER IS NOT USING THE ELECTRICAL PACKAGE FURNISHED BY W.R. CONTROLS (SEE SHEET E3).

H) DIMMERS

1) FURNISH WHEN REQUIRED EQUAL TO LUTRON ROTARY DIMMERS. SIZE AS SHOWN ON PLANS. UL LISTED. FURNISH WITH SWITCH PLATE. DO NOT CUT OR REDUCE HEAT FINS ON DIMMERS.

I) GROUNDING

1) EQUIPMENT GROUNDING:

A. THE EQUIPMENT GROUNDING SYSTEM SHALL BE SUCH THAT METALLIC STRUCTURES, ENCLOSURES, RACEWAYS, JUNCTION BOXES, OUTLET BOXES, CABINETS, MACHINE FRAMES, PORTABLE EQUIPMENT AND CONDUIT CONTAINING FEEDERS AND CIRCUITS WITH ELECTRICAL CIRCUITS OPERATE CONTINUOUSLY AT GROUND POTENTIAL AND PROVIDE A LOW IMPEDANCE PATH FOR POSSIBLE GROUND FAULT CURRENTS.

B. MAINFRAMES, SWITCHGEAR, PANELBOARDS AND MOTOR CONTROL PANELS SHALL BE PROVIDED WITH AN EQUIPMENT GROUND BUS (SOLID TIN PLATED COPPER WITH LUG OR SCREW TERMINALS) SECURELY BONDED TO THE ENCLOSURE. JUNCTION BOXES, CABINETS AND OTHER ENCLOSURES (SIZES ABOVE 5" X 5") SHALL UTILIZE AN EQUIPMENT GROUND BUS OR LUG AS REQUIRED TO SECURELY BOND THE EQUIPMENT GROUND CONDUCTOR TO THE ENCLOSURE.

C. ALL BRANCH CIRCUITS FOR POWER AND LIGHT SHALL INCLUDE A GREEN INSULATED GROUNDING CONDUCTOR. THE EQUIPMENT GROUND CONDUCTOR SHALL BE ELECTRICALLY AND MECHANICALLY CONTINUOUS FROM THE SOURCE OF SUPPLY TO THE EQUIPMENT TO BE GROUNDED.

D. LIGHTING FIXTURES SHALL BE SECURELY CONNECTED TO THE EQUIPMENT GROUND CONDUCTOR. A CONTINUOUS ROW OF FLUORESCENT FIXTURES MECHANICALLY JOINED TO PROVIDE A GOOD ELECTRICAL CONTACT MAY BE CONSIDERED AS ONE FIXTURE WITH THE EQUIPMENT GROUND CONDUCTOR CONNECTED AT ONLY ONE POINT.

E. MOTORS SHALL BE CONNECTED TO THE EQUIPMENT GROUND CONDUCTOR WITH A CONDUIT GROUNDING BUSHING AND WITH A BOLTED SOLDERLESS LUG CONNECTION ON THE METAL FRAME. BOLTS, NUTS AND WASHERS SHALL BE BRONZE, CADMIUM PLATED STEEL, OR OTHER NON-CORROSIVE MATERIAL.

F. ALL CONDUIT SHALL BE CONNECTED TO THE EQUIPMENT GROUND BUS BY MEANS OF A GROUNDING BUSHING.

G. E.C. SHALL COORDINATE WITH CASH REGISTER SYSTEM SUPPLIER TO CLARIFY ANY GROUNDING AND/OR WIRING REQUIREMENTS.

2) SYSTEM GROUND:

A. THE SERVICE GROUND SHALL BE SOLIDLY CONNECTED TO THE NEUTRAL BUS AND GROUND BUS AND ROUTED VIA GROUNDING ELECTRODE CONDUCTOR TO THE INCOMING BUILDING WATER SERVICE AHEAD OF THE MAIN CUTOFF VALVE.

B. THE SERVICE GROUND SHALL BE MADE AT THE SERVICE OVER CURRENT MAIN SWITCH.

C. TRANSFORMER GROUND (NO TERMINAL) SHALL BE CONNECTED TO THE NEAREST METALLIC COLD WATER PIPE OR BUILDING STEEL.

3) INSTALLATION:

A. ALL GROUNDING CONDUCTORS SHALL BE SIZED AS PER THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.

B. GROUND RODS: GROUND RODS SHALL BE THE COPPER CLAD STEEL TYPE AND SHALL BE A MINIMUM OF 8 FEET IN LENGTH AND 3/4 INCH IN DIAMETER. GROUND RODS SHALL BE AS MANUFACTURED BY COPPERWELD STEEL COMPANY, OR AND ACCEPTABLE EQUIVALENT.

C. GROUNDING ELECTRODE CONDUCTORS SHALL BE BARE STRAND COPPER. EQUIPMENT GROUND WIRE SHALL BE THW INSULATED AND SHALL BE GREEN IN COLOR.

D. CONNECTIONS TO WATER SERVICE SHALL BE MADE WITH SUITABLE GROUND CLAMP OF LUG CONNECTION AHEAD OF THE BUILDING METER OR CUTOFF VALVE.

E. CONNECTIONS TO GROUND RODS SHALL BE MADE BY A THERMAL WELD OF MECHANICAL COMPRESSION CLAMP.

F. GROUNDING CABLES EMBEDDED IN THE FLOOR SHALL BE MADE IN RIGID CONDUIT.

G. GROUND RODS SHALL BE DRIVEN FULL LENGTH DIAGONALLY INTO THE EARTH AND HAVE A ONE (1) FOOT MINIMUM COVER.

H. ALL CONDUCTOR CONNECTIONS SHALL BE MADE UP TIGHT TO PROVIDE CONTINUITY OF METALLIC GROUND.

I. GROUND WIRES NOT IN CONDUIT SHALL BE SUPPORTED EVERY FIVE (5) FEET.

4) TEST:

A. THE CONTRACTOR SHALL RUN A GROUND RESISTANCE TEST AND IF THE RESISTANCE TO GROUND IS GREATER THAN 25 OHMS, ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED. THE TEST SHALL NOT BE MADE WITHIN FIVE (5) DAYS AFTER A RAIN.

B. THE CONTRACTOR SHALL PROVIDE OWNER WITH A COPY OF THE TEST PROCEDURE AND RESULTS OF THE TEST.

C. THE GROUND TEST SHALL BE MEASURED IN THE PRESENCE OF AN AUTHORIZED REPRESENTATIVE OF THE ARCHITECT. NO EQUIPMENT SHALL BE OPERATED UNTIL GROUND POTENTIAL IS VERIFIED.

1. WORKMANSHIP

A) ALL WORK SHALL BE PERFORMED BY WORKMEN SKILLED IN THEIR TRADES AND SHALL BE TYPICAL OF THE BEST TRADE PRACTICES.

SECTION 16163 – SERVICE AND DISTRIBUTION

1. GENERAL

A) SCOPE: SECTION 16163 APPLIES TO ALL WORK HEREUNDER AND SHALL INCLUDE SERVICE, METERING AND DISTRIBUTION.

B) SERVICE: THE ELECTRICAL DISTRIBUTION IS 120/208 VOLTS, 3 PHASE, 4 WIRE 60 CYCLE. CONTRACTOR SHALL VERIFY SERVICE VOLTAGE WITH UTILITY COMPANY AND PROVIDE NECESSARY REVISIONS AND MODIFICATIONS REQUIRED. SERVICE ENTERS SPACE UNDERGROUND.

C) METERING: CONTRACTOR SHALL PROVIDE MODIFICATIONS NECESSARY METERING FACILITIES INCLUDING METER SOCKET, CURRENT TRANSFORMER CABINET CONDUIT AND OTHER WORK FOR METERING REQUIRED BY THE LOCAL UTILITY COMPANY.

2. MATERIALS

A) DISCONNECT SWITCHES: SHALL BE (HEAVY-DUTY TYPE, NEMA 1C) (NORMAL DUTY TYPE, NEMA NO) FUSED UNLESS NOTED OTHERWISE, DESIGNED TO ACCEPT ONLY REJECTION TYPE FUSES AND OPERATOR INTERLOCKED WITH THE DOOR IN THE "OFF" POSITION. SWITCHES SHALL BE MANUFACTURED BY GENERAL ELECTRIC, SQUARE D OF CUTLER-HAMMER.

B) FUSES: SHALL BE CURRENT LIMITING WITH 200,000 AMPERES INTERRUPTING CAPACITY, UL INC. CLASS RK1 AND SHALL BE DUAL ELEMENT, TIME DELAY, CLASS R REJECTION TYPE. ONE SET OF SPARE FUSES SHALL BE PROVIDED FOR EACH SIZE AND MOUNTED IN "SPARE FUSE CABINET" LOCATED AT THE SERVICE ENTRANCE. FUSE IDENTIFICATION LABELS SHALL BE MANUFACTURED BY BUSSMAN OR SHAWMUT.

3. EXECUTION

A) DISCONNECT SWITCHES SHALL BE INSTALLED 4'-0" ABOVE FINISHED FLOOR. ALL CABINETS SHALL BE VACUUM CLEANED BEFORE PULLING WIRE.

4. INSTALLATION OF EQUIPMENT AND FIXTURES

A) INSTALL ALL EQUIPMENT AND FIXTURES FORMING PART OF THE WORK OF THIS SECTION IN COMPLETE ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND ALL PERTINENT CODES AND REGULATIONS. MAKE ALL FINAL CONNECTIONS TO BAR AND KITCHEN EQUIPMENT.

5. LAMPING

A) LAMP ALL FIXTURES WITH LAMPS OF THE DESIGNED RATING AND PATTERN.

6. TESTING

A) GENERAL: UPON COMPLETION OF THIS PORTION OF THE WORK, FURNISH ALL EQUIPMENT AND PERSONNEL AND CONDUCT ALL TEST REQUIRED TO SECURE APPROVAL OF THE INSTALLATION FROM ALL AGENCIES HAVING JURISDICTION.

B) CRITERIA:

1) ALL SYSTEMS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS SHALL BE FREE FROM MECHANICAL AND ELECTRICAL DEFECTS AND SHALL SHOW AN INSULATION RESISTANCE BETWEEN PHASE CONDUCTORS AND GROUND OF NOT LESS THAN THAT REQUIRED BY THE NATIONAL ELECTRICAL CODE.

2) ALL SYSTEMS SHALL SHOW PROPER NEUTRAL CONNECTIONS.

7. CLEAN UP

A) ALL EQUIPMENT AND EXPOSED SURFACES SHALL BE LEFT SMOOTH AND CLEAN. ALL PLATE WORK SHALL BE POLISHED AND THE ENTIRE PREMISES SHALL BE CLEANED OF UNUSED MATERIALS, RUBBISH, DEBRIS AND GREASE SPOTS.

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ISSUE/REVISION RECORD

DATE	DESCRIPTION
01/29/19	COORDINATION SET
02/20/19	HEALTH SUBMITTAL
04/24/19	HEALTH RESPONSE
05/03/19	PERMIT/BID SET

PROFESSIONAL SEAL

PROFESSIONAL IN CHARGE
S. KOUGIAS
PROJECT MANAGER
E. ARELLANO
QUALITY CONTROL
S. KOUGIAS
DRAWN BY
E. ARELLANO

PROJECT NAME
BUBBA'S 33

GASTONIA
NORTH CAROLINA

3287 E. FRANKLIN BLDVD.

PROJECT NUMBER
20181046.0

SHEET TITLE
SPECIFICATIONS

SHEET NUMBER
SPC4