

ELECTRICAL SPECIFICATIONS

- SCOPE OF WORK:**
THE CONTRACTOR SHALL PROVIDE ALL ELECTRICAL EQUIPMENT, MATERIALS AND LABOR NECESSARY FOR A COMPLETE AND OPERABLE ELECTRICAL SYSTEM, INCLUDING BUT NOT LIMITED TO THE FOLLOWING ITEMS, AND SHALL PERFORM WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- COORDINATE WITH POWER, TELEPHONE AND CABLE TV UTILITIES AND SHALL PROVIDE FOR ALL THE NECESSARY LABOR AND MATERIALS REQUIRED THAT ARE NOT PROVIDED BY THE UTILITIES. SEE STANDARDS AND PROJECT DRAWINGS ISSUED BY THE UTILITIES.
 - PROVIDE NEW POWER RECEPTABLES, COMPLETE AS SHOWN ON DRAWINGS OR AS REQUIRED BY APPLICABLE CODES.
 - PROVIDE TELEPHONE AND DATA OUTLETS (IF REQUIRED), COMPLETE INCLUDING CONDUITS (WHERE REQUIRED), WIRES AND/OR CABLES. HOME RUN EACH OUTLET TO THE MAIN TELEPHONE BACKBOARD UNLESS NOTED OTHERWISE.
 - PROVIDE NEW LIGHT FIXTURES AND SWITCHES, COMPLETE AS SHOWN OR AS REQUIRED BY APPLICABLE CODES. BRACE ALL LIGHT OUTLETS ACCORDING TO ELECTRICAL, ELECTRICAL SAFETY AND BUILDING CODE REQUIREMENTS.
 - PROVIDE NEW POWER WIRING FOR MECHANICAL EQUIPMENT (RTU, HVAC, VAV OR INSTA-HOT UNITS) WHERE REQUIRED OR AS SHOWN ON THE MECHANICAL DRAWINGS. CONTRACTOR SHALL PROVIDE WIRING, TO EACH UNIT AS REQUIRED OR SHOWN IN THE MECHANICAL DRAWINGS.
 - PROVIDE NEW MAIN SWITCHBOARD, TRANSFORMERS, PANELBOARDS AND SUB-PANELS AS SHOWN OR AS REQUIRED FOR THIS PROJECT.

THE CONTRACTOR SHALL PROVIDE EQUIPMENT AND MATERIALS REQUIRED TO COMPLETE THE ELECTRICAL WORK. TYPICAL MATERIALS WHICH MAY BE INCIDENTAL ARE TERMINAL LUGS NOT FURNISHED WITH VENDOR-SUPPLIED EQUIPMENT, COMPRESSION CONNECTORS FOR CABLES, SPLICES, JUNCTION AND TERMINAL BOXES, AND CONTROL WIRES BY VENDOR-FURNISHED EQUIPMENT TO INTERCONNECT WITH OTHER EQUIPMENT.

THE WORK SHALL ALSO INCLUDE THE COMPLETION OF DETAILS OF ELECTRICAL, TELEPHONE, SECURITY AND COMMUNICATION WORK ETC. NOT SHOWN WHICH MAY BE NECESSARY FOR THE SUCCESSFUL OPERATION OF ALL SYSTEMS DESCRIBED ON THE DRAWINGS AND INSTALLED AS PART OF THIS CONTRACT.

CODES, REGULATIONS AND STANDARDS:
THE FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS AND CODES ARE MINIMUM REQUIREMENTS.

- THE LATEST NATIONAL ELECTRICAL CODE (NEC) AS ADOPTED AND AMENDED BY THE AUTHORITY HAVING JURISDICTION.
- THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION STANDARDS (NEMA).
- UNDERWRITERS LABORATORIES INCORPORATED (UL).
- AMERICAN STANDARDS ASSOCIATION.
- BUILDING CODE(S) AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION.

ALL EQUIPMENT AND MATERIALS SHALL BE APPROVED BY AND SHALL BEAR THE LABEL OF UNDERWRITERS LABORATORIES INCORPORATED (UL) OR BE APPROVED AND LABELED BY AN INDEPENDENT TESTING LABORATORY ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.

THE CONSTRUCTION AND INSTALLATION OF THE ELECTRICAL EQUIPMENT AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE OSHA SAFETY AND HEALTH STANDARDS (29CFR1910 AND 29CFR1926, AS APPLICABLE), STATE BUILDING STANDARDS, AND APPLICABLE CODES AND REGULATIONS.

INSPECTION OF SITE AND OF OTHER TRADES' DRAWING(S):
PRIOR TO SUBMITTING A BID FOR ELECTRICAL WORK THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED CONSTRUCTION AND SHALL THOROUGHLY ACQUAINT HIMSELF/HERSELF WITH THE EXISTING UTILITIES AND WORKING CONDITIONS TO BE ENCOUNTERED. NO ALLOWANCE WILL BE MADE AFTER CONTRACT AWARD FOR FAILURE TO COMPLY WITH THIS CONDITION PRIOR TO BIDDING.

REFER TO ALL OTHER DRAWINGS THAT PERTAIN TO THIS PROJECT AND REPORT ANY CONFLICTS WITH THE DESIGN AND INTENT OF THESE DOCUMENTS. SEE GENERAL SPECIFICATION NOTES AND CAUTION TO CONTRACTOR (BELOW).

STORAGE AND HANDLING:
DELIVER MATERIALS AND EQUIPMENT TO THE PROJECT IN THE MANUFACTURER'S ORIGINAL, UNOPENED, LABELED CONTAINERS. PROTECT AGAINST MOISTURE, TAMPERING, OR DAMAGE FROM IMPROPER HANDLING, ETC.

ARRANGE FOR TIMELY DELIVERY OF MATERIALS AND EQUIPMENT TO THE JOB SITE IN ORDER TO MINIMIZE THE LENGTH OF TIME BETWEEN DELIVERY AND INSTALLATION.

COVER AND PROTECT ANY MATERIALS WHICH MAY BE AFFECTED BY THE WEATHER WHILE IN TRANSIT OR STORED AT THE PROJECT SITE. ANY MATERIAL FOUND DEFECTIVE OR NOT FUNCTIONAL OR NOT INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS MAY BE REJECTED BY THE ENGINEER, OWNER OR AUTHORITY HAVING JURISDICTION.

THE CONTRACTOR SHALL SECURE AND PROTECT ALL MATERIALS AND EQUIPMENT AND BE RESPONSIBLE FOR ANY DAMAGE. ANY DAMAGE OR LOSS THAT MAY OCCUR DURING THIS PERIOD SHALL BE REPAIRED OR REPLACED TO ITS ORIGINAL CONDITION WITHOUT ADDITIONAL COST TO THE OWNER OR ENGINEER.

CLEANUP:
KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH AWAY BY EMPLOYEES, OR BY WORK UNDER THIS DIVISION OF THE SPECIFICATIONS. AT THE COMPLETION OF THE WORK, REMOVE ALL SURPLUS MATERIALS, TOOLS, ETC. AND LEAVE THE PREMISES CLEAN (I.E. BROOM CLEAN).

EXCAVATION BACKFILL:
WHERE APPLICABLE, THE CONTRACTOR SHALL PERFORM ALL EXCAVATION AND BACKFILL REQUIRED FOR WORK UNDER THIS DIVISION OF THE SPECIFICATION. TRENCH BOTTOMS SHALL BE GRADED, TRUE AND BE FREE OF DEBRIS, STONES OR SOFT SPOTS. USE EXCAVATED MATERIALS FOR BACKFILL UNLESS OFF-SITE MATERIALS ARE DEEMED NECESSARY BY THE OWNER, ARCHITECT, ENGINEER OR AUTHORITY HAVING JURISDICTION. TRENCHING AND BACKFILLING FOR ELECTRICAL AND TELEPHONE UTILITY SERVICES TO THE BUILDING SHALL BE PROVIDED BY THE CONTRACTOR.

DRAWINGS:
THE DRAWINGS INDICATE GENERAL LAYOUT OR ARRANGEMENT AND LOCATIONS OF ELECTRICAL WORK ONLY. DATA PRESENTED ON THESE DRAWINGS ARE AS ACCURATE AS THE ENGINEER CAN DETERMINE. FIELD VERIFICATION IS REQUIRED OF ALL DIMENSIONS, LOCATIONS, LEVELS, ETC. TO SUIT FIELD REVIEW ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL AND OTHER TRADES' DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS OF THE EXISTING FACILITIES AND CONDITIONS. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS UNLESS OTHERWISE CLARIFIED BY THE ARCHITECT OR AUTHORITY HAVING JURISDICTION. DISCREPANCIES BETWEEN DIFFERENT PLANS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, OR REGULATIONS AND CODES GOVERNING THE INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING BEFORE THE DATE OF BID OPENING. IF DISCREPANCIES ARE NOT REPORTED, THE CONTRACTOR SHALL BID THE GREATER QUANTITY OR THE BETTER QUALITY, AND APPROPRIATE ADJUSTMENTS WILL BE MADE AFTER CONTRACT AWARD. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD MEASURE AND CONFIRM MOUNTING HEIGHTS AND LOCATIONS OF ELECTRICAL EQUIPMENT WITH RESPECT TO COUNTERS, RADIATION, ETC. DO NOT SCALE DISTANCE OFF THE ELECTRICAL DRAWINGS. USE ACTUAL BUILDING DIMENSIONS. SEE GENERAL SPECIFICATION NOTES AND CAUTION TO THE CONTRACTOR (BELOW).

IN ALL CASES SWITCHES CONTROLLING LIGHTING ARE TO BE LOCATED ON THE STRIKE SIDE OF THE DOORS UNLESS OTHERWISE REQUIRED. LOCATIONS INDICATED FOR SWITCHES AND OUTLETS ARE APPROPRIATE. OWNER MAY MAKE MINOR RELOCATIONS AT NO ADDITIONAL CHARGE.

EXCAVATION, CUTTING AND FITTING:
PERFORM THE CUTTING, FITTING, REPAIRING, AND FINISHING OF THE WORK NECESSARY FOR THE INSTALLATION OF THE EQUIPMENT OF THIS SECTION. HOWEVER, NO CUTTING OF WORK BY OTHER TRADES OR OF ANY STRUCTURAL MEMBER SHALL BE DONE WITHOUT THE CONSENT OF THE ARCHITECT OR THE AUTHORITY HAVING JURISDICTION.

COORDINATION AND COOPERATION WITH OTHER CONTRACTORS:
COORDINATE AND COOPERATE WITH THE OTHER CONTRACTORS SO THAT ELECTRICAL OUTLETS, CONDUITS, BOXES AND EQUIPMENT WILL BE SAFELY AND PROPERLY INSTALLED. ALL CONDUIT, FIXTURE AND OTHER EQUIPMENT LOCATIONS SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICT WITH PIPING, DUCTWORK, STRUCTURAL STEEL, BEAMS, TRUSSES OR OTHER OBSTRUCTIONS.

CAREFULLY CHECK THE LOCATIONS OF ALL OUTLET BOXES AND VERIFY THAT THEY HAVE NOT BEEN DAMAGED OR BLOCKED DURING THE INSTALLATION OF MATERIALS AND EQUIPMENT BY OTHER TRADES.

COORDINATE THE LOCATIONS OF TRENCHES AND CONDUITS FOR ELECTRICAL AND TELEPHONE UTILITY SERVICES WITH THE GENERAL CONTRACTOR.

MATERIALS:
ALL MATERIALS SHALL BE NEW AND EQUAL TO THE QUALITY SPECIFIED IN THE PLANS OR SPECIFICATIONS, AND MUST CARRY THE UNDERWRITERS LABORATORIES APPROVAL FOR THE PURPOSE(S) FOR WHICH THEY ARE USED, IN ADDITION TO MEETING ALL REQUIREMENTS OF THE APPLICABLE CODES AND REGULATIONS. UL LISTINGS OF AN ASSEMBLY SHALL BE FOR THE ENTIRE ASSEMBLY, NOT FOR THE COMPONENTS ALONE.

WIRE AND CABLE:
UNLESS OTHERWISE SPECIFIED, ALL WIRES SHALL BE TYPE THIN, THIN, XHHN OR NY CABLE INCLUDING ROMEX. ALL WIRING SHALL BE COPPER FOR SIZES NO. 10 AWG AND SMALLER. MINIMUM WIRE SIZE SHALL BE NO.14 AWG FOR RESIDENTIAL LIGHTING ONLY, PROTECTED BY 15 AMP BREAKER. MINIMUM WIRE SIZE FOR ALL OTHER APPLICATIONS SHALL BE #2 AWG. ALL CONDUCTORS LARGER THAN #2 AWG SHALL BE STRANDED.

FEEDERS FROM MAIN INCOMING POINT OF CONNECTION (ELECTRICAL) TO SUB PANELS MAY BE ALUMINUM TYPE SER. ALUMINUM CONDUCTORS SHALL BE SIZED PER NEC TABLE 310.16 OR PER NEC TABLE 310.15(B)(6) FOR SINGLE-PHASE DUELLING SERVICES.

NO WIRE SHALL BE INSTALLED IN THE CONDUIT SYSTEM UNTIL THE CONDUIT SYSTEM IS COMPLETE. USE MINERALAC #200 OR EQUIVALENT AS LUBRICANT TO FACILITATE THE INSTALLATION OF THE WIRES IN THE CONDUIT SYSTEM. CONTRACTOR MAY USE MC CABLE OR NON-METALLIC CABLE PROVIDED THAT MATERIALS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH ALL THE APPLICABLE CODES.

OUTLET, PULL AND JUNCTION BOXES:
WHERE REQUIRED, EACH SWITCH, LIGHT, RECEPTACLE OR OTHER OUTLET SHALL BE PROVIDED WITH CODE GAGE GALVANIZED STEEL OR PVC, UL LISTED FOR APPLICATION. OUTLET BOX, JUNCTION BOXES SHALL BE CODE GAGE GALVANIZED STEEL. OUTLET BOXES SHALL BE OF THE ONE PIECE KNOCKOUT TYPE.

CENTER ALL OUTLET BOXES IN BLOCK COURSES. BOXES INSTALLED IN POURED CONCRETE FLOORS SHALL BE FLUSH TYPE NON-METALLIC FLOOR BOXES, ROUND OR SQUARE WITH BRASS GASKETED COVERS, UL LISTED FOR EACH APPLICATION. WHERE BOXES ARE INSTALLED IN FLOORS WITH TILE OR CARPET FLOOR COVERING, THE COVERS SHALL BE OF THE RECESSED TYPE TO ACCOMMODATE THE FLOOR COVERING.

CONDUITS:
ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METALLIC CONDUIT (IMC) AND MC CABLE MAY BE USED IN ALL INTERIOR AREAS. ELECTRICAL METALLIC TUBING (EMT) SHALL NOT BE USED IN DIRECT CONTACT WITH THE EARTH, IN CONCRETE SLABS, IN CONCRETE WALLS OR AREAS THAT ARE SUBJECT TO PHYSICAL DAMAGE. ALL HOFERINS SHALL BE OF EMT, MC, RGS OR MC CABLE. FLEXIBLE STEEL CONDUITS SHALL BE USED FOR INDOOR FINAL CONNECTIONS TO ALL MECHANICAL EQUIPMENT NOT TO EXCEED THREE FEET AND RECESSED REMOVABLE FLUORESCENT LIGHT FIXTURES NOT TO EXCEED SIX FEET. PROVIDE LIQUID-TIGHT FLEXIBLE CONDUIT ON ALL WEATHER EXPOSED INSTALLATIONS. RACEWAYS UNDER SLAB-ON-GRADE SHALL BE SCHEDULE 40 PVC.

WHERE CONDUIT RACEWAYS ENTER OUTLET BOXES, JUNCTION BOXES, SHUNT OR CABINETS, FIRMLY FASTEN MC CONDUIT RACEWAYS WITH DOUBLE LOCKNUTS AND BUSHINGS. USE SLIP-ON FITTINGS ON EMT CONDUIT RACEWAYS. FITTING SHOULDERS SHALL SEAT FIRMLY AGAINST THE BOX OR CABINET, WITH ONE LOCKNUT ON THE INSIDE OF BOXES AND CABINETS. USE SNAP-ON CONNECTORS ON MC CABLE RACEWAYS. FIRMLY FASTEN CONDUIT TO THE BUILDING STRUCTURE. RUN EXPOSED CONDUITS PARALLEL TO THE BUILDING LINES, SUPPORTED BY APPROPRIATE HANGERS (UNISTRUT, THOMAS 4 BETTS, AFFLETON OR EQUAL).

COVER ALL METALLIC CONDUIT IN CONTACT WITH THE EARTH WITH POLYETHYLENE TAPE, SPIRAL WRAPPED, AT LEAST 1/2" OVERLAP WRAPPED TO PROVIDE DOUBLE THICKNESS. TAPE SHALL BE SCOTCH NO. 50. PVC CONDUIT AND DUCTS NOT UNDER BUILDINGS SHALL BE RUN A MINIMUM OF 18" BELOW GRADE, UNLESS OTHERWISE INDICATED, WITH THE EXCEPTION THAT CONDUIT BENDS LARGER THAN 1" IN DIAMETER SHALL BE MADE WITH GALVANIZED STEEL CONDUIT TREATED AS NOTED ABOVE.

WIRING DEVICES:
WALL SWITCHES SHALL BE AC SILENT TYPE SWITCH, 15A, 120 VOLTS. SPECIFICATION APPLIES TO SINGLE POLE SWITCHES, 3-WAY SWITCHES, OR 4-WAY SWITCHES.

RECEPTABLES SHALL BE DUPLEX TYPE, 120-VOLT GROUNDING TYPE. SPECIAL APPLICATION RECEPTACLE SHALL BE AS INDICATED ON PLANS. PROVIDE ISOLATED GROUND DUPLEX RECEPTACLE FOR DATA POWER, IF INDICATED.

GFI RECEPTABLES SHALL BE DUPLEX. WEATHERPROOF RECEPTABLES SHALL BE DUPLEX, WITH GFI RECEPTACLE OUTLET.

SWITCHES FOR SWITCHED DUPLEX RECEPTABLES SHOWN ON DRAWINGS SHALL SWITCH ONE RECEPTACLE ONLY.

DEVICE PLATES SHALL BE SMOOTH NYLON, UNLESS NOTED OTHERWISE. COLOR BY ARCHITECT.

DEVICES SPECIFIED ABOVE ARE GENERAL RECOMMENDATIONS ONLY. CONTRACTOR MAY USE OTHER TYPES AND COLORS AS APPROVED BY THE OWNER OR ARCHITECT.

LIGHTING FIXTURES:
PROVIDE NEW LIGHTING FIXTURES, WIRED AND CONNECTED AS INDICATED. THE DRAWINGS INDICATE THE PROPOSED FIXTURES FOR EACH LOCATION. PROVIDE LAMPS FOR ALL FIXTURES. ALL HID LAMPS SHALL BE MADE BY THE SAME MANUFACTURER AND BE FROM THE SAME PRODUCTION RUN. VERIFY CEILING CONSTRUCTION BEFORE ORDERING RECESSED FIXTURES. PROVIDE PLASTER FRAMES AND HANGERS AS REQUIRED. FIXTURE TYPES AND LOCATIONS SHALL BE VERIFIED WITH THE OWNER PRIOR TO ROUGH-IN AND INSTALLATION.

MECHANICAL AND ELECTRICAL COORDINATION:
1. ANY DEVICE WHICH CARRIES THE FULL LOAD CURRENT OF ELECTRICALLY DRIVEN MACHINERY, AS OPPOSED TO CONTROL OR INSTRUMENTATION CURRENT IN THE HOLDING COIL, IS DEFINED AS A POWER CIRCUIT AND IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. CONTROL AND INSTRUMENTATION CIRCUITS CONNECTING HOLDING COILS TO THE AUTOMATIC TEMPERATURE CONTROL SYSTEM ARE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

2. THE POWER CIRCUIT IS DEFINED AS ALL DEVICES NECESSARY TO OPERATE THE UNIT, AND AS ALL DEVICES REQUIRED BY CODE TO PROTECT AND SERVICE THE UNIT, INCLUDING BRANCH CIRCUIT PROTECTIVE DEVICES, FUSED AND UNFUSED DISCONNECTS, MAGNETIC MOTOR STARTERS WITH RUNNING OVERLOAD AND SINGLE PHASING PROTECTION, AND MAGNETIC CONTACTORS.

3. THE CONTROL AND INSTRUMENTATION CIRCUIT IS DEFINED AS ALL DEVICES NECESSARY TO INTERFACE THE ELECTRICAL POWER CIRCUIT WITH THE AUTOMATIC TEMPERATURE CONTROL SYSTEM, INCLUDING CONDUIT, BOXES, CONDUIT FITTINGS, CONDUCTORS, ELECTRIC AND PNEUMATIC SWITCHES, ELECTRIC AND PNEUMATIC RELAYS, AND PNEUMATIC TUBING.

4. OVERCURRENT PROTECTION OF HVAC EQUIPMENT MAY BE PROVIDED BY FUSES, STANDARD CIRCUIT BREAKERS OR CIRCUIT BREAKERS LISTED FOR USE WITH HEATING, AIR CONDITIONING AND REFRIGERATION (HACR) EQUIPMENT. THE CONTRACTOR SHALL FOLLOW THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS FOR THE TYPE AND SIZE OF OVERCURRENT PROTECTION SERVICES FOR ALL HVAC EQUIPMENT.

SAFETY SWITCHES:
UNLESS OTHERWISE INDICATED ON THE DRAWINGS, SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE, 600 OR 250-VOLT, WITH THE NUMBER OF POLES REQUIRED. SAFETY SWITCHES FOR AIR COND. EQUIPMENT SHALL BE OF RUBBER TYPE WHERE RECOMMENDED BY EQUIPMENT MANUFACTURER. THE SWITCH SHALL BE AS REQUIRED BY CODE AND AS INDICATED ON THE DRAWINGS. WHEN LOCATED OUTSIDE THE BUILDING, THE SWITCHES SHALL BE NEMA 3R. ALL SWITCHES SHALL BE LOCKABLE.

FUSES:
FUSES SHALL BE OF THE SIZE AND RATING INDICATED ON THE DRAWINGS. ALL FUSES SHALL BE AS MANUFACTURED BY COOPER BUSSMAN, OR BY GOLD SHAINUT. VERIFY FUSE AND SWITCH REQUIREMENTS FOR THE ACTUAL EQUIPMENT BEING SUPPLIED.

MOTOR AND/OR EQUIPMENT WIRING:
ALL MOTORS SHALL BE WIRED TO CONFORM WITH THE MANUFACTURER'S RECOMMENDATIONS AND WITH APPLICABLE CODES. FURNISH NECESSARY MATERIALS, SUCH AS WIRES, CONDUITS, FITTINGS, ETC. REQUIRED BY THE SUPPLIER OF THE MOTOR DRIVEN EQUIPMENT. VERIFY EQUIPMENT LOCATIONS AND DIMENSIONS WITH THE TRADE SUPPLYING THE MOTOR OR EQUIPMENT BEFORE INSTALLING THE CONDUIT AND OUTLET OR JUNCTION BOX.

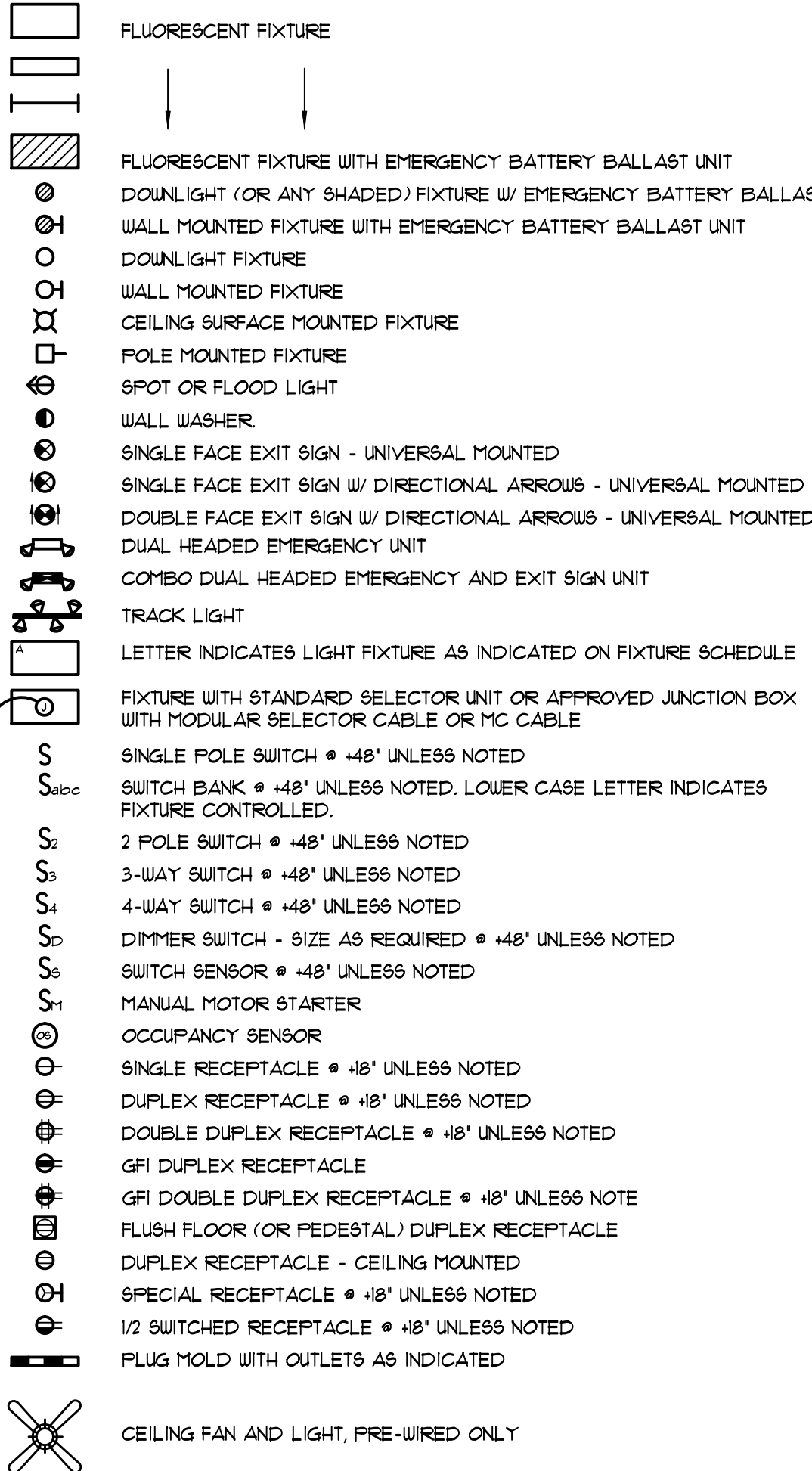
GUARANTEE:
CONTRACTOR SHALL GUARANTEE ALL MATERIALS FURNISHED AND ALL WORKMANSHIP PERFORMED, FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. ANY DEFECTS ARISING WITHIN THIS PERIOD THAT ARE THE RESULT OF MATERIALS FURNISHED AS PART OF THIS SECTION OR WORKMANSHIP PERFORMED HEREUNDER SHALL BE REPAIRED, REPLACED OR OTHERWISE MADE GOOD TO THE OWNER'S SATISFACTION IN ACCORDANCE WITH ACCEPTABLE INDUSTRY STANDARDS AND PRACTICE. ALL SUCH REPAIR OR REPLACEMENT OF DEFECTIVE WORK AND/OR MATERIALS SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.

GENERAL SPECIFICATION NOTES AND CAUTION TO CONTRACTOR:
ALL DRAWINGS, SPECIFICATIONS, SCHEDULES AND OTHER RELATED DOCUMENTS ARE COMPLETE AND ACCURATE ACCORDING TO THE BEST KNOWLEDGE OF THE ENGINEER AND DESIGNER. THE CONTRACTOR SHALL VERIFY THE ACTUAL EQUIPMENT TO BE INSTALLED, INCLUDING ALL ELECTRICAL REQUIREMENTS, INSTALLATION REQUIREMENTS, CLEARANCES, ETC. AND SHALL COORDINATE ALL WORK WITH DRAWINGS PREPARED BY OTHERS.

IN THE EVENT OF CONFLICT BETWEEN CONSTRUCTION DOCUMENTS, CODE ENFORCEMENT AUTHORITIES OR WITH WORK PERFORMED BY OTHER TRADES THAT ARISE AFTER CONSTRUCTION BEGINS, THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER IN WRITING AND SHALL REQUEST CLARIFICATION PRIOR TO CONTINUING WITH THE AFFECTED WORK OR ORDERING THE AFFECTED MATERIALS AND/OR EQUIPMENT. THE CONTRACTOR MAY BE REQUIRED TO BEAR ALL COSTS, INCLUDING LIQUIDATED DAMAGES, ASSOCIATED WITH DELAYS IN RESOLVING CONFLICTS THAT ARE NOT BROUGHT TO THE ATTENTION OF THE ENGINEER IN A TIMELY MANNER.

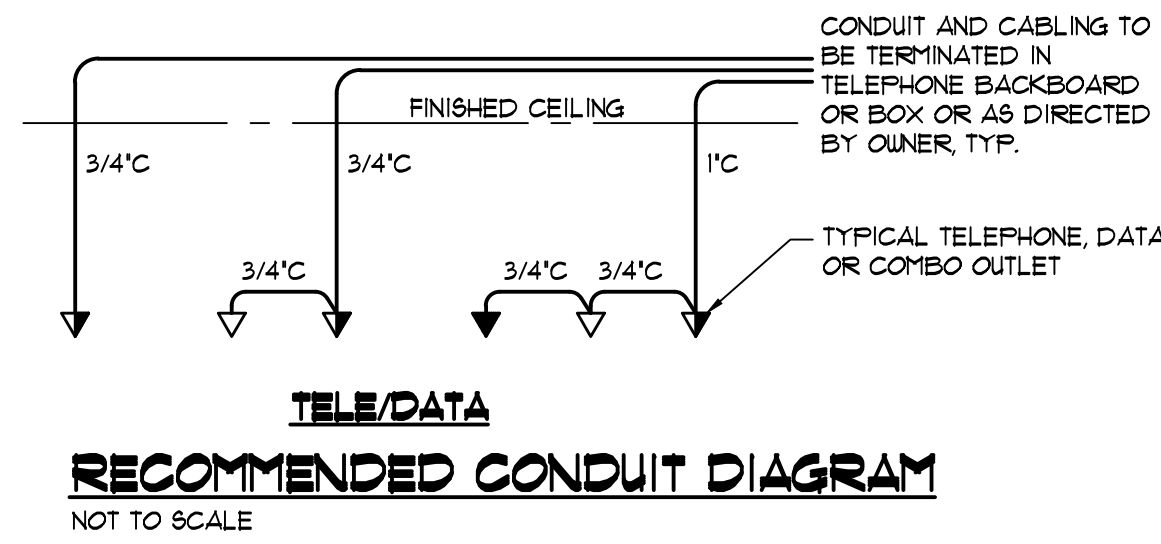
SYMBOL LIST

(NOT ALL SYMBOLS ARE USED)



KEYED PLAN NOTES

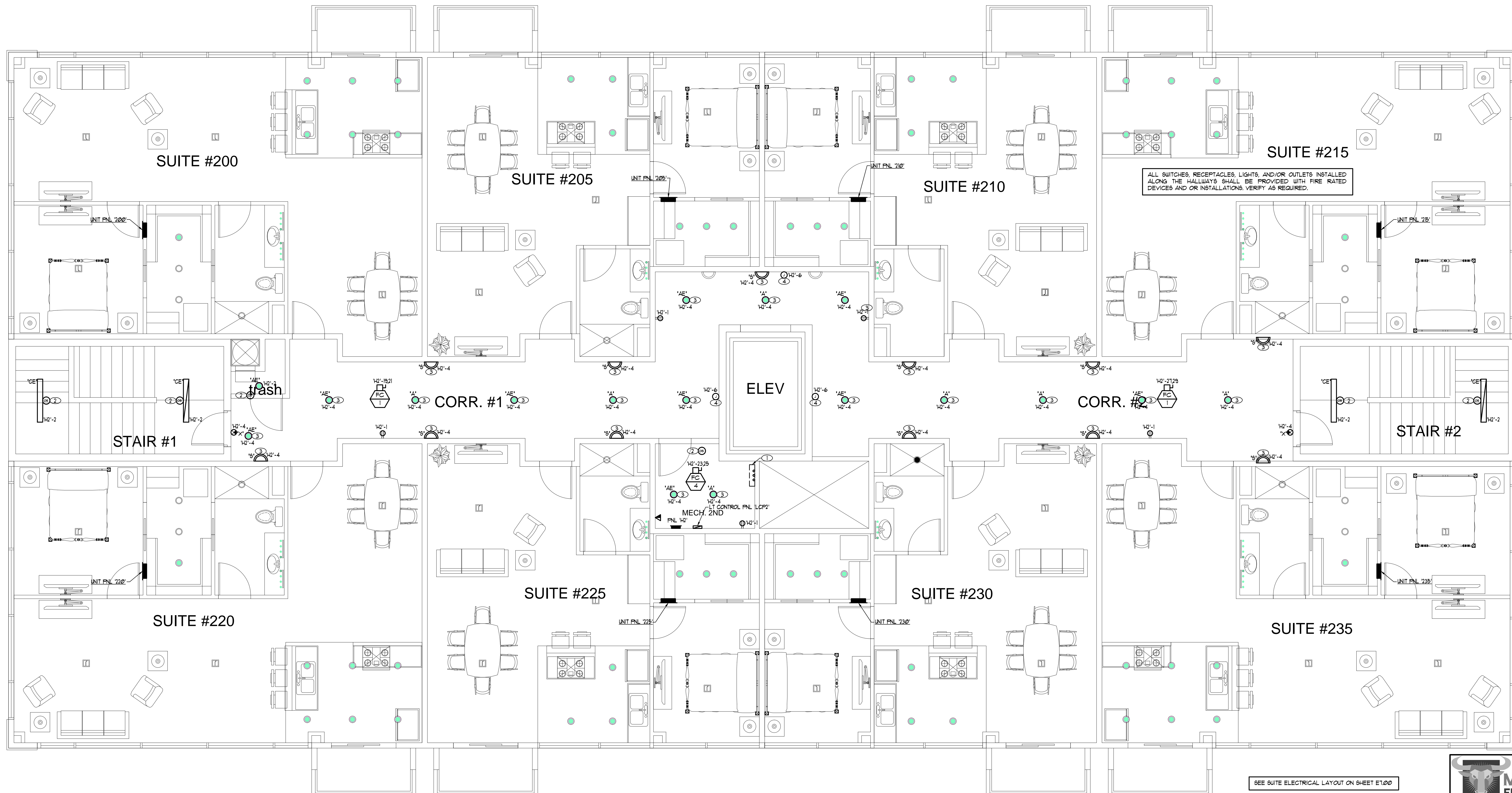
- FIBER AND/OR COPPER (CABLE/TV/INTERNET) PER UTILITY SERVICES. PROVIDE CONDUIT (INTERCONNECTED TO EACH FLOOR) AND A 24X24X6" DEPTH NEMA-1 ENCLOSURE SYSTEM IN ACCORDANCE WITH THE UTILITY STANDARDS AND REQUIREMENTS (I.E. MINIMUM OR AS REQUIRED). COORDINATE AND VERIFY WITH UTILITY THE EXACT REQUIREMENTS COMPLETE UP TO DESIGNATED UNIT OR SUITE OR AS REQUIRED.
- PROVIDE OCCUPANCY SENSOR TO CONTROL LIGHTING IN THIS SPACE. LOCATE SENSOR PER MANUFACTURER'S RECOMMENDATION. PROVIDE ADDITIONAL CONTACTORS IF REQUIRED. VERIFY.
- CONNECT TO LIGHTING CONTROL PANEL SEE DETAILS ON SHEET E100 AND PROVIDE POWER AND CONTROL WIRING AS REQUIRED.
- PROVIDE ROPE LED LIGHT ON FLOOR NUMBER. VERIFY WITH OWNER OR ARCHITECT THE EXACT REQUIREMENTS AND INSTALLATIONS AS REQUIRED.



GENERAL PLAN NOTES

LOCATIONS OF RECEPTACLES, OUTLETS, AND/OR OTHER ELECTRICAL EQUIPMENT ARE DIAGRAMMATIC. CONTRACTOR SHALL VERIFY EXACT LOCATIONS PRIOR TO ROUGH-IN WITH ARCHITECTURAL OR WITH OWNER.

- ALL FIXTURES AND EQUIPMENT SHALL BE CIRCUITED TO PANEL AS NOTED. NUMBER INDICATE CIRCUITING.
- ALL POWER WIRING SHALL BE IN APPROVED RACEWAY.
- WIRE SIZE SHALL BE MINIMUM #12 AWG, THIN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP PER DISTANCES HEREIN OR AS REQUIRED BY NEC (IN FEET).
- WIRE SIZE SHALL NOT BE LESS THAN CORRESPONDING CIRCUIT BREAKER RATING AS REQUIRED BY CODE.
- MAXIMUM NUMBER OF UNGROUNDED WIRES IN ANY CONDUIT SHALL BE THREE. ADDITIONAL WIRES ARE ACCEPTABLE IF WIRE SIZE IS INCREASED TO ALLOW FOR DERATING PER CODE. PROVIDE ADDITIONAL WIRES FOR SWITCHING AS REQUIRED.
- VERIFY MOUNTING AND LOCATION OF ALL OUTLETS WITH ARCHITECT OR OWNER PRIOR TO ROUGH-IN AND/OR INSTALLATION.
- REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND REQUIREMENTS OF MECHANICAL EQUIPMENT. SEE EQUIPMENT SCHEDULE AND MECHANICAL DWGS. PROVIDE SWITCHES, CONTROL DEVICES, DUCT/SMOKE DETECTORS, AND/OR MOTORIZED DAMPERS WIRINGS COMPLETE FOR EACH EQUIPMENT AS REQUIRED.
- IN ADDITION PROVIDE WIRING AND CONDUIT/RACEWAY TO ALL MECHANICAL DEVICES SUCH THERMOSTAT AND DUCT DETECTORS AS REQUIRED. VERIFY WITH MECHANICAL ALL REQUIREMENTS.
- REFER TO EQUIPMENT SUPPLIER OR MANUFACTURER OR OWNER/ARCHITECT THE REQUIREMENTS OF OTHER EQUIPMENT SUPPLIED BY OTHERS OR OWNER AND PROVIDE ELECTRICAL AS REQUIRED BY THIS PROJECT.
- WHEN REQUIRED ALL TELEPHONE, DATA AND CATV CONDUITS SHALL BE MINIMUM 3/4" CONDUIT. REFER TO DETAIL FOR ADDITIONAL INFORMATION.
- BEFORE BIDDING, CONTRACTOR SHALL REVIEW/CHECK ARCHITECTURAL, MECHANICAL, AND OR ANY OTHER DISCIPLINE DRAWINGS AND INFORMATION AND REPORT TO OWNER, ARCHITECT, AND/OR ENGINEER (FOR RESOLUTION) ANY ADDITIONAL ELECTRICAL THAT IS REFLECTED OR INCLUDED IN THIS ELECTRICAL CONTRACT PACKAGE/PLANS. ANY ITEMS NOT REPORTED SHALL BE DEEM RESPONSIBILITY OR EXPENSE OF THE ELECTRICAL CONTRACTOR.
- COORDINATE WITH OWNER OR ARCHITECT ALL LOW VOLTAGE, MUSIC AND PA SYSTEM OR COMMUNICATION WORK AND PROVIDE AS REQUIRED. VERIFY.
- FOR LIGHTING FIXTURE AND EQUIPMENT CONNECTION SEE PERTINENT SCHEDULES AS APPLICABLE.



2ND FLOOR ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

SEE SUITE ELECTRICAL LAYOUT ON SHEET E100



SEAL



A NEW SHELL BUILDING IMPROVEMENT
31 SOUTH WATER STREET
CITY OF HENDERSON, NV 89015

APN #179-18-611-055

31 WATER STREET LLC
DATE: 04.16.2020

PROJECT NUMBER: 0201909

P. JAMES

ARCHITECTURE
PLANNING
DESIGN

4629 VICTORIA BEACH WAY
LAS VEGAS, NV 89103
702.683.3277

DATE

REVISIONS
Description

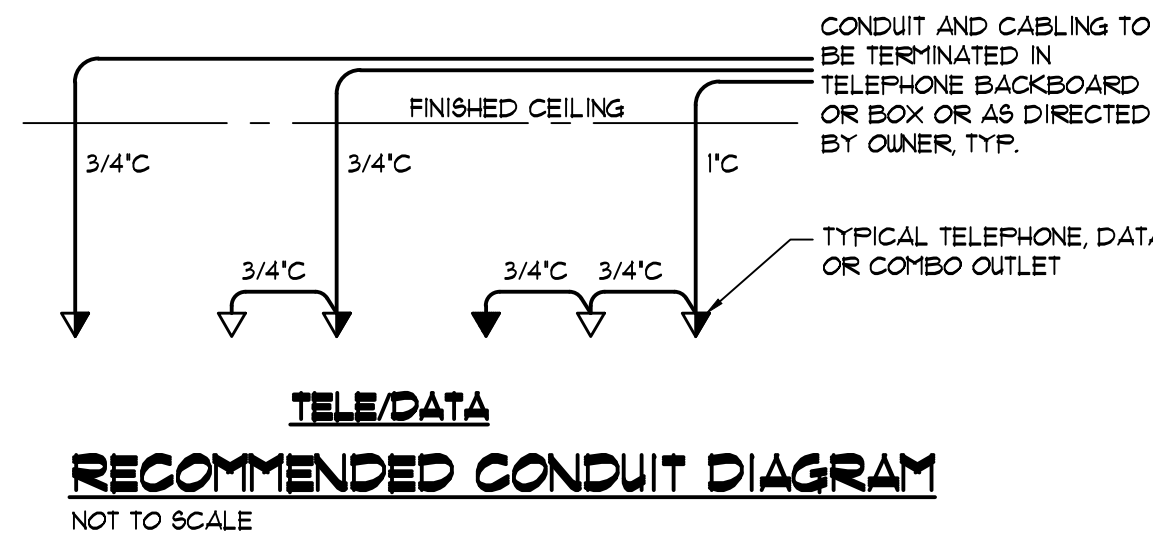
REV

SHEET

E3.00

KEYED PLAN NOTES

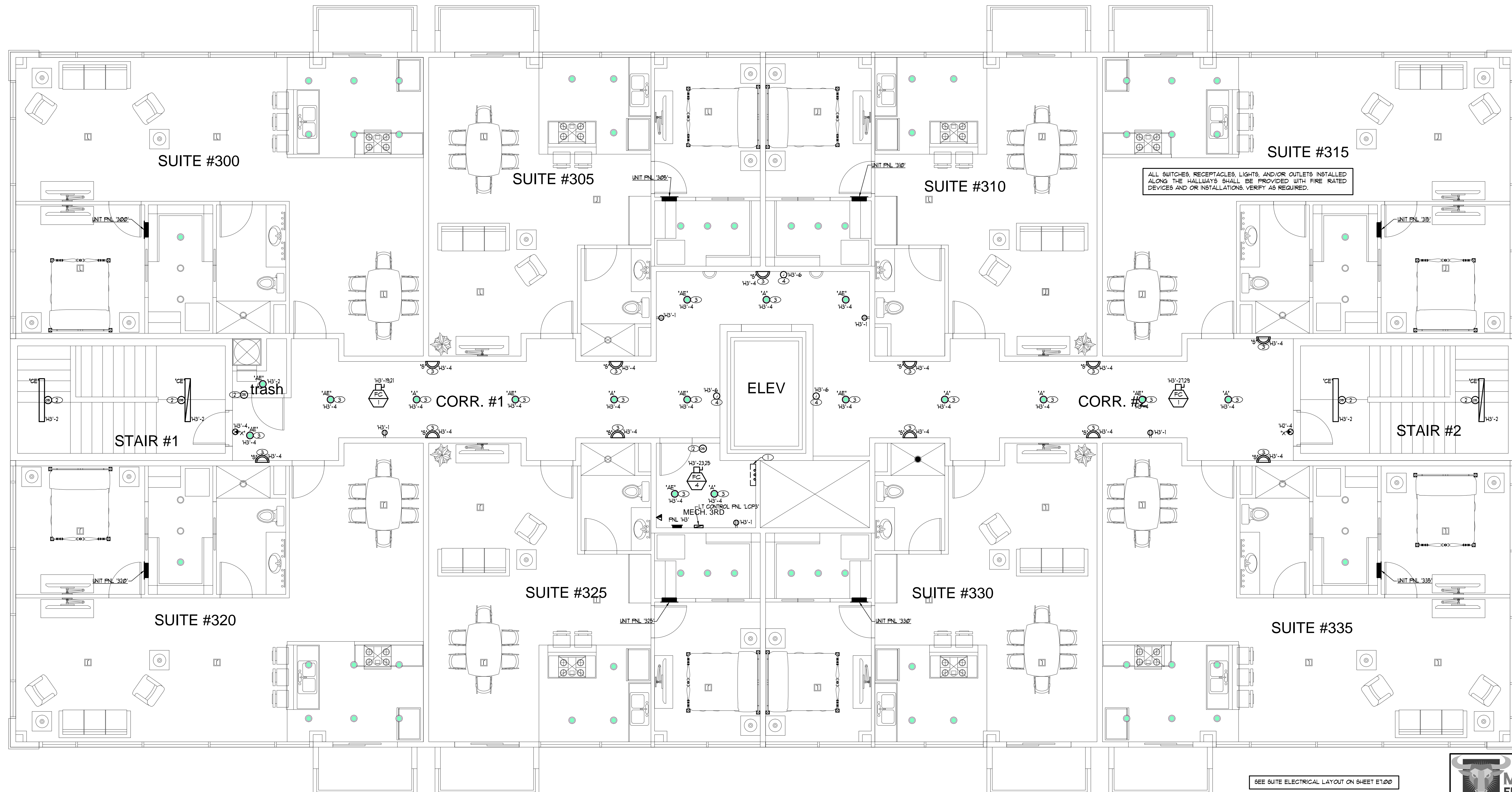
- FIBER AND/OR COPPER (CABLE/TV/INTERNET) PER UTILITY SERVICES. PROVIDE CONDUIT (INTERCONNECTED TO EACH FLOOR) AND A 24X24X6" DEPTH NEMA-1 ENCLOSURE SYSTEM IN ACCORDANCE WITH THE UTILITY STANDARDS AND REQUIREMENTS (I.E. MINIMUM OR AS REQUIRED). COORDINATE AND VERIFY WITH UTILITY THE EXACT REQUIREMENTS COMPLETE UP TO DESIGNATED UNIT OR SUITE OR AS REQUIRED.
- PROVIDE OCCUPANCY SENSOR TO CONTROL LIGHTING IN THIS SPACE. LOCATE SENSOR PER MANUFACTURER'S RECOMMENDATION. PROVIDE ADDITIONAL CONTACTORS IF REQUIRED. VERIFY.
- CONNECT TO LIGHTING CONTROL PANEL SEE DETAILS ON SHEET E100 AND PROVIDE POWER AND CONTROL WIRING AS REQUIRED.
- PROVIDE ROPE LED LIGHT ON FLOOR NUMBER. VERIFY WITH OWNER OR ARCHITECT THE EXACT REQUIREMENTS AND INSTALLATIONS AS REQUIRED.



GENERAL PLAN NOTES

LOCATIONS OF RECEPTACLES, OUTLETS, AND/OR OTHER ELECTRICAL EQUIPMENT ARE DIAGRAMMATIC. CONTRACTOR SHALL VERIFY EXACT LOCATIONS PRIOR TO ROUGH-IN WITH ARCHITECTURAL OR WITH OWNER.

- ALL FIXTURES AND EQUIPMENT SHALL BE CIRCUITED TO PANEL AS NOTED. NUMBER INDICATE CIRCUITING.
- ALL POWER WIRING SHALL BE IN APPROVED RACEWAY.
- WIRE SIZE SHALL BE MINIMUM #12 AWG, THIN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP PER DISTANCES HEREIN OR AS REQUIRED BY NEC (IN FEET).
- WIRE SIZE SHALL NOT BE LESS THAN CORRESPONDING CIRCUIT BREAKER RATING AS REQUIRED BY CODE.
- MAXIMUM NUMBER OF UNGROUNDED WIRES IN ANY CONDUIT SHALL BE THREE. ADDITIONAL WIRES ARE ACCEPTABLE IF WIRE SIZE IS INCREASED TO ALLOW FOR DERATING PER CODE. PROVIDE ADDITIONAL WIRES FOR SWITCHING AS REQUIRED.
- VERIFY MOUNTING AND LOCATION OF ALL OUTLETS WITH ARCHITECT OR OWNER PRIOR TO ROUGH-IN AND/OR INSTALLATION.
- REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND REQUIREMENTS OF MECHANICAL EQUIPMENT. SEE EQUIPMENT SCHEDULE AND MECHANICAL DWGS. PROVIDE SWITCHES, CONTROL DEVICES, DUCT/SMOKE DETECTORS, AND/OR MOTORIZED DAMPERS WIRINGS COMPLETE FOR EACH EQUIPMENT AS REQUIRED.
- IN ADDITION PROVIDE WIRING AND CONDUIT/RACEWAY TO ALL MECHANICAL DEVICES SUCH THERMOSTAT AND DUCT DETECTORS AS REQUIRED. VERIFY WITH MECHANICAL ALL REQUIREMENTS.
- REFER TO EQUIPMENT SUPPLIER OR MANUFACTURER OR OWNER/ARCHITECT THE REQUIREMENTS OF OTHER EQUIPMENT SUPPLIED BY OTHERS OR OWNER AND PROVIDE ELECTRICAL AS REQUIRED BY THIS PROJECT.
- WHEN REQUIRED ALL TELEPHONE, DATA AND CATV CONDUITS SHALL BE MINIMUM 3/4\".
- BEFORE BIDDING, CONTRACTOR SHALL REVIEW/CHECK ARCHITECTURAL, MECHANICAL, AND OR ANY OTHER DISCIPLINE DRAWINGS AND INFORMATION AND REPORT TO OWNER, ARCHITECT, AND/OR ENGINEER (FOR RESOLUTION) ANY ADDITIONAL ELECTRICAL THAT IS REFLECTED OR INCLUDED IN THIS ELECTRICAL CONTRACT PACKAGE/PLANS. ANY ITEMS NOT REPORTED SHALL BE DEEM RESPONSIBILITY OR EXPENSE OF THE ELECTRICAL CONTRACTOR.
- COORDINATE WITH OWNER OR ARCHITECT ALL LOW VOLTAGE, MUSIC AND PA SYSTEM OR COMMUNICATION WORK AND PROVIDE AS REQUIRED. VERIFY.
- FOR LIGHTING FIXTURE AND EQUIPMENT CONNECTION SEE PERTINENT SCHEDULES AS APPLICABLE.



3RD FLOOR ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

SEE SUITE ELECTRICAL LAYOUT ON SHEET E100



SEAL



A NEW SHELL BUILDING IMPROVEMENT
31 SOUTH WATER STREET
CITY OF HENDERSON, NV 89015

APN #179-18-611-055

31 WATER STREET LLC

PROJECT NUMBER: 0201909

DATE: 04.16.2020

P. JAMES

ARCHITECTURE
PLANNING
DESIGN

4629 VICTORIA BEACH WAY
LAS VEGAS, NV 89103
702.683.3277

DATE

REVISIONS
Description

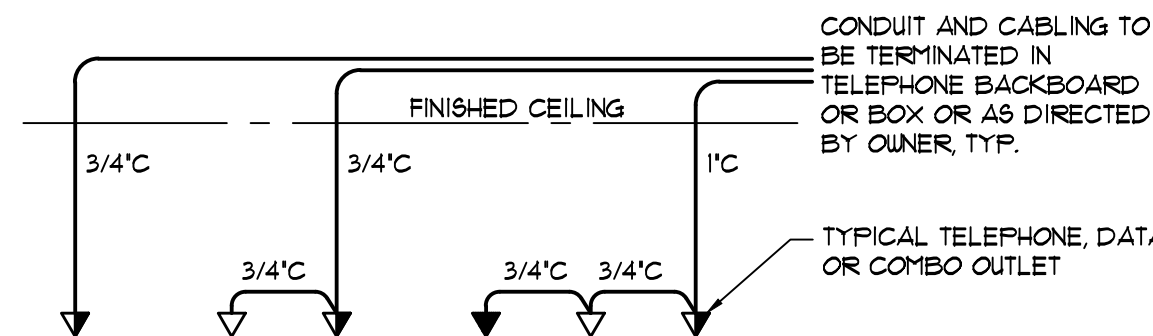
REV

SHEET

E4.00

KEYED PLAN NOTES

- FIBER AND/OR COPPER (CABLE/TV/INTERNET) PER UTILITY SERVICES. PROVIDE CONDUIT (INTERCONNECTED TO EACH FLOOR) AND A 24X24X6" DEPTH NEW-1 ENCLOSURE SYSTEM IN ACCORDANCE WITH THE UTILITY STANDARDS AND REQUIREMENTS (I.E. MINIMUM OR AS REQUIRED). COORDINATE AND VERIFY WITH UTILITY THE EXACT REQUIREMENTS COMPLETE UP TO DESIGNATED UNIT OR SUITE OR AS REQUIRED.
- PROVIDE OCCUPANCY SENSOR TO CONTROL LIGHTING IN THIS SPACE. LOCATE SENSOR PER MANUFACTURER'S RECOMMENDATION. PROVIDE ADDITIONAL CONTACTORS IF REQUIRED. VERIFY.
- CONNECT TO LIGHTING CONTROL PANEL SEE DETAILS ON SHEET E100 AND PROVIDE POWER AND CONTROL WIRING AS REQUIRED.
- PROVIDE ROPE LED LIGHT ON FLOOR NUMBER. VERIFY WITH OWNER OR ARCHITECT THE EXACT REQUIREMENTS AND INSTALLATIONS AS REQUIRED.



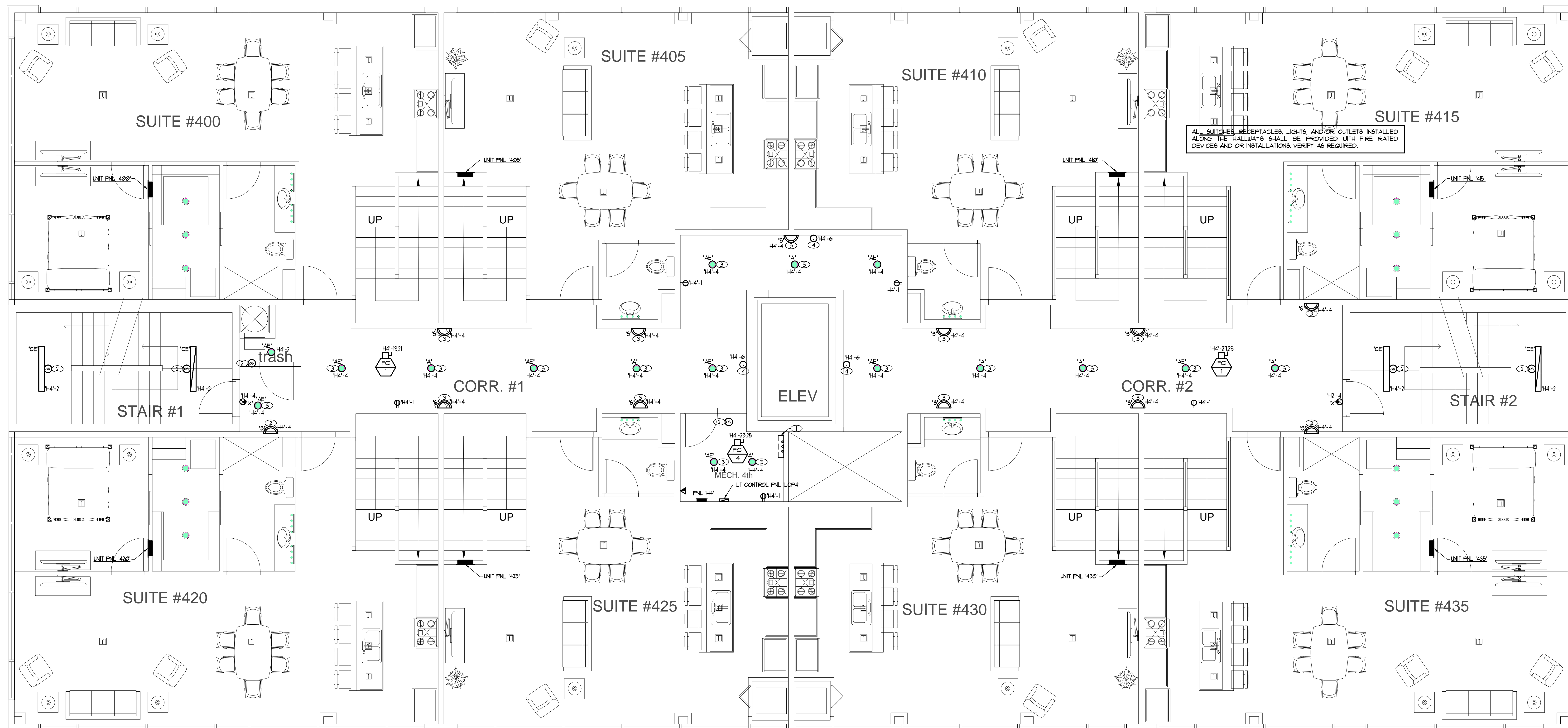
TELE/DATA
RECOMMENDED CONDUIT DIAGRAM
NOT TO SCALE

GENERAL PLAN NOTES

LOCATIONS OF RECEPTACLES, OUTLETS, AND/OR OTHER ELECTRICAL EQUIPMENT ARE DIAGRAMMATIC. CONTRACTOR SHALL VERIFY EXACT LOCATIONS PRIOR TO ROUGH-IN WITH ARCHITECTURAL OR WITH OWNER.

- ALL FIXTURES AND EQUIPMENT SHALL BE CIRCUITED TO PANEL AS NOTED. NUMBER INDICATE CIRCUITING.
- ALL POWER WIRING SHALL BE IN APPROVED RACEWAY.
- WIRE SIZE SHALL BE MINIMUM #12 AWG, THIN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP PER DISTANCES HEREIN OR AS REQUIRED BY NEC (IN FEET).

CONDUCTOR	120V, 1PH	208V, 3PH
#12AWG	0'-60'	0'-100'
#10AWG	61'-100'	101'-200'
#8AWG	101'-160'	201'-320'
- WIRE SIZE SHALL NOT BE LESS THAN CORRESPONDING CIRCUIT BREAKER RATING AS REQUIRED BY CODE.
- MAXIMUM NUMBER OF UNGROUNDED WIRES IN ANY CONDUIT SHALL BE THREE. ADDITIONAL WIRES ARE ACCEPTABLE IF WIRE SIZE IS INCREASED TO ALLOW FOR DERATING PER CODE. PROVIDE ADDITIONAL WIRES FOR SWITCHING AS REQUIRED.
- VERIFY MOUNTING AND LOCATION OF ALL OUTLETS WITH ARCHITECT OR OWNER PRIOR TO ROUGH-IN AND/OR INSTALLATION.
- REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND REQUIREMENTS OF MECHANICAL EQUIPMENT. SEE EQUIPMENT SCHEDULE AND MECHANICAL DWGS. PROVIDE SWITCHES, CONTROL DEVICES, SENSING DEVICES, DUCT/SMOKE DETECTORS, AND/OR MOTORIZED DAMPERS WIRINGS COMPLETE FOR EACH EQUIPMENT AS REQUIRED.
- IN ADDITION, PROVIDE WIRING AND CONDUIT/RACEWAY TO ALL MECHANICAL DEVICES SUCH THERMOSTAT AND DUCT DETECTORS AS REQUIRED. VERIFY WITH MECHANICAL ALL REQUIREMENTS.
- REFER TO EQUIPMENT SUPPLIER OR MANUFACTURER OR OWNER/ARCHITECT THE REQUIREMENTS OF OTHER EQUIPMENT SUPPLIED BY OTHERS OR OWNER AND PROVIDE ELECTRICAL AS REQUIRED BY THIS PROJECT.
- WHEN REQUIRED ALL TELEPHONE, DATA AND CATV CONDUITS SHALL BE MINIMUM 3/4\".
- BEFORE BIDDING, CONTRACTOR SHALL REVIEW/CHECK ARCHITECTURAL, MECHANICAL, AND OR ANY OTHER DISCIPLINE DRAWINGS AND INFORMATION AND REPORT TO OWNER, ARCHITECT, AND/OR ENGINEER (FOR RESOLUTION) ANY ADDITIONAL ELECTRICAL THAT IS REFLECTED OR INCLUDED IN THIS ELECTRICAL CONTRACT PACKAGE/PLANS. ANY ITEMS NOT REPORTED SHALL BE DEEM RESPONSIBILITY OR EXPENSE OF THE ELECTRICAL CONTRACTOR.
- COORDINATE WITH OWNER OR ARCHITECT ALL LOW VOLTAGE, MUSIC AND PA SYSTEM OR COMMUNICATION WORK AND PROVIDE AS REQUIRED. VERIFY.
- FOR LIGHTING FIXTURE AND EQUIPMENT CONNECTION SEE PERTINENT SCHEDULES AS APPLICABLE.



4TH FLOOR ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

SEE SUITE ELECTRICAL LAYOUT ON SHEET E800



SEAL



A NEW SHELL BUILDING IMPROVEMENT
31 SOUTH WATER STREET
CITY OF HENDERSON, NV 89015

APN #179-18-611-055

31 WATER STREET LLC

PROJECT NUMBER: 0201909

DATE: 04-16-2020

P. JAMES

ARCHITECTURE
PLANNING
DESIGN

4629 VICTORIA BEACH WAY
LAS VEGAS, NV 89103
702.683.3277

DATE

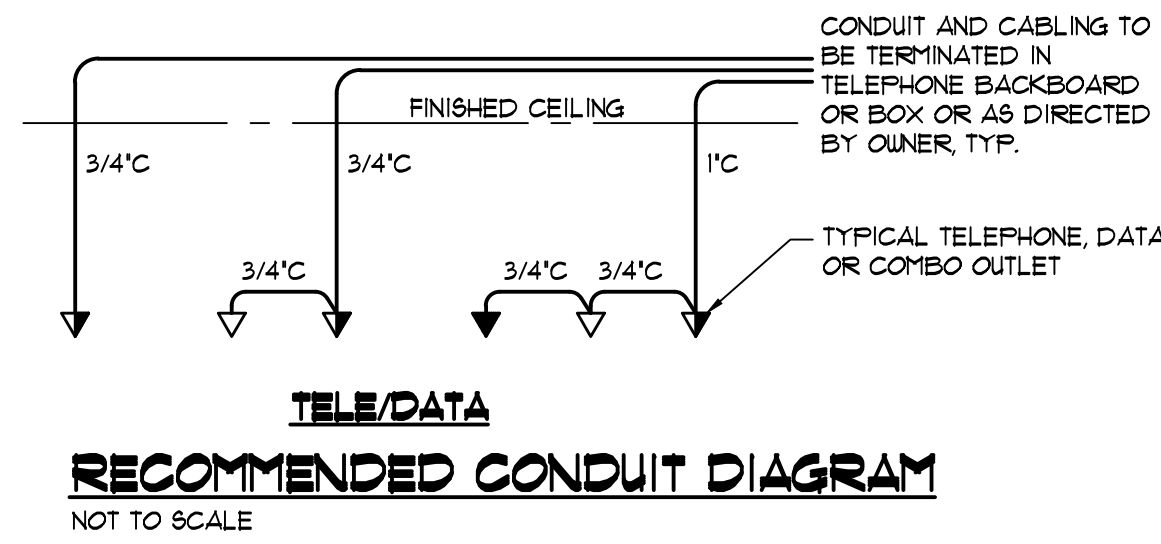
REVISIONS
Description

SHEET

E5.00

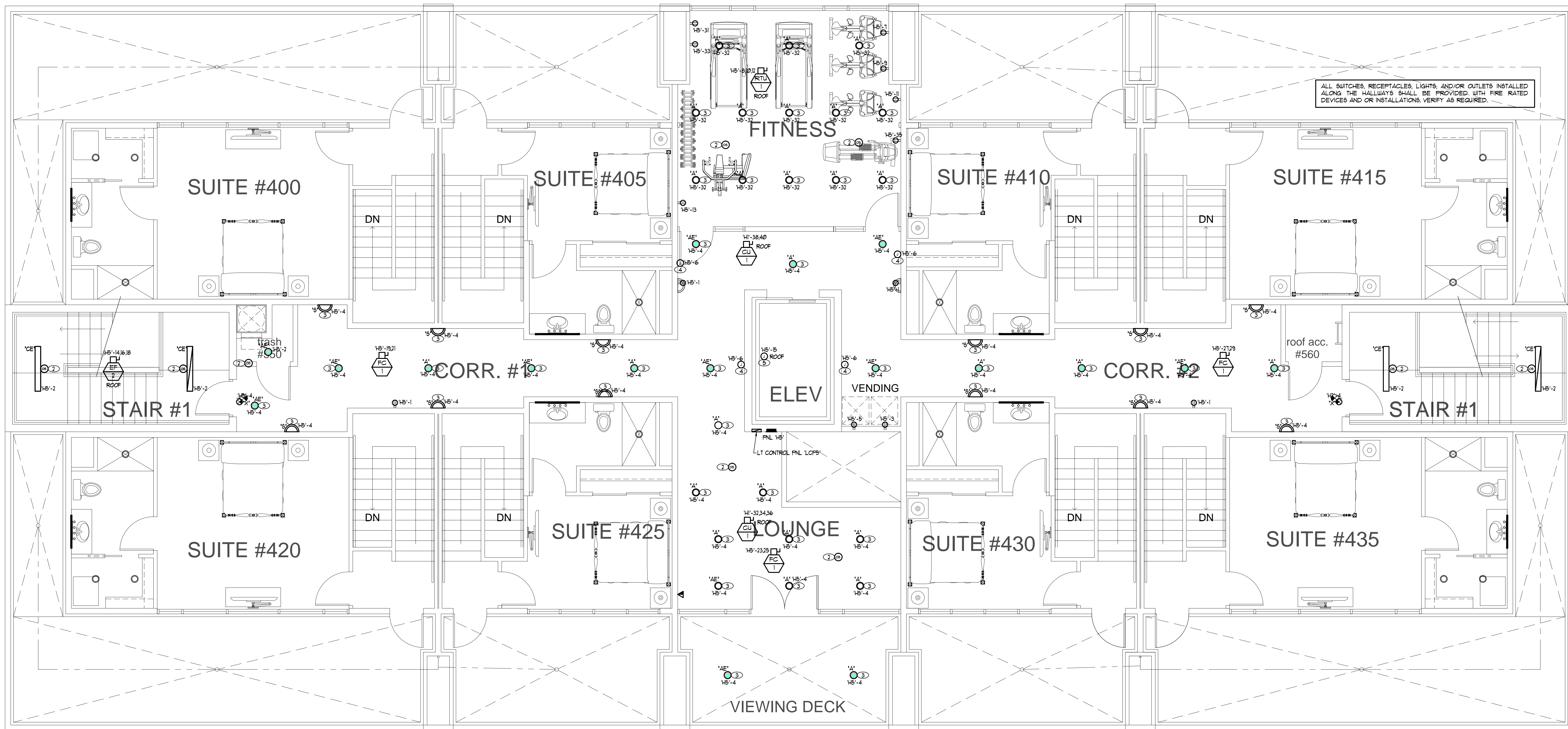
KEYED PLAN NOTES

- FIBER AND/OR COPPER (CABLE/TV/INTERNET) PER UTILITY SERVICES. PROVIDE CONDUIT (INTERCONNECTED TO EACH FLOOR) AND A 24X24X6" DEPTH NEW-1 ENCLOSURE SYSTEM IN ACCORDANCE WITH THE UTILITY STANDARDS AND REQUIREMENTS (I.E. MINIMUM OR AS REQUIRED). COORDINATE AND VERIFY WITH UTILITY THE EXACT REQUIREMENTS COMPLETE UP TO DESIGNATED UNIT OR SUITE OR AS REQUIRED.
- PROVIDE OCCUPANCY SENSOR TO CONTROL LIGHTING IN THIS SPACE. LOCATE SENSOR PER MANUFACTURER'S RECOMMENDATION. PROVIDE ADDITIONAL CONTACTORS IF REQUIRED. VERIFY.
- CONNECT TO LIGHTING CONTROL PANEL SEE DETAILS ON SHEET E1000 AND PROVIDE POWER AND CONTROL WIRING AS REQUIRED.
- PROVIDE ROPE LED LIGHT ON FLOOR NUMBER. VERIFY WITH OWNER OR ARCHITECT THE EXACT REQUIREMENTS AND INSTALLATIONS AS REQUIRED.
- PROVIDE POWER AND OR CONTROL TO WATER HEATERS. VERIFY EXACT LOCATION AND EXACT REQUIREMENTS WITH EQUIPMENT MANUFACTURER AS REQUIRED.



GENERAL PLAN NOTES

- LOCATIONS OF RECEPTACLES, OUTLETS, AND/OR OTHER ELECTRICAL EQUIPMENT ARE DIAGRAMMATIC. CONTRACTOR SHALL VERIFY EXACT LOCATIONS PRIOR TO ROUGH-IN WITH ARCHITECTURAL OR WITH OWNER.
- ALL FIXTURES AND EQUIPMENT SHALL BE CIRCUITED TO PANEL AS NOTED. NUMBER INDICATE CIRCUITING.
 - ALL POWER WIRING SHALL BE IN APPROVED RACEWAY.
 - WIRE SIZE SHALL BE MINIMUM #12 AWG, THIN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP PER DISTANCES HEREIN OR AS REQUIRED BY NEC (IN FEET).
 - WIRE SIZE SHALL NOT BE LESS THAN CORRESPONDING CIRCUIT BREAKER RATING AS REQUIRED BY CODE.
 - MAXIMUM NUMBER OF UNGROUNDED WIRES IN ANY CONDUIT SHALL BE THREE. ADDITIONAL WIRES ARE ACCEPTABLE IF WIRE SIZE IS INCREASED TO ALLOW FOR DERATING PER CODE. PROVIDE ADDITIONAL WIRES FOR SWITCHING AS REQUIRED.
 - VERIFY MOUNTING AND LOCATION OF ALL OUTLETS WITH ARCHITECT OR OWNER PRIOR TO ROUGH-IN AND/OR INSTALLATION.
 - REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND REQUIREMENTS OF MECHANICAL EQUIPMENT. SEE EQUIPMENT SCHEDULE AND MECHANICAL DWGS. PROVIDE SWITCHES, CONTROL DEVICES, DUCT/SMOKE DETECTORS, AND/OR MOTORIZED DAMPERS WIRINGS COMPLETE FOR EACH EQUIPMENT AS REQUIRED.
 - IN ADDITION, PROVIDE WIRING AND CONDUIT/RACEWAY TO ALL MECHANICAL DEVICES SUCH THERMOSTAT AND DUCT DETECTORS AS REQUIRED. VERIFY WITH MECHANICAL ALL REQUIREMENTS.
 - REFER TO EQUIPMENT SUPPLIER OR MANUFACTURER OR OWNER/ARCHITECT THE REQUIREMENTS OF OTHER EQUIPMENT SUPPLIED BY OTHERS OR OWNER AND PROVIDE ELECTRICAL AS REQUIRED BY THIS PROJECT.
 - WHEN REQUIRED ALL TELEPHONE, DATA AND CATV CONDUITS SHALL BE MINIMUM 3/4\".
 - BEFORE BIDDING, CONTRACTOR SHALL REVIEW/CHECK ARCHITECTURAL, MECHANICAL, AND OR ANY OTHER DISCIPLINE DRAWINGS AND INFORMATION AND REPORT TO OWNER, ARCHITECT, AND OR ENGINEER (FOR RESOLUTION) ANY ADDITIONAL ELECTRICAL THAT IS REFLECTED OR INCLUDED IN THIS ELECTRICAL CONTRACT PACKAGE/PLANS. ANY ITEMS NOT REPORTED SHALL BE DEEM RESPONSIBILITY OR EXPENSE OF THE ELECTRICAL CONTRACTOR.
 - COORDINATE WITH OWNER OR ARCHITECT ALL LOW VOLTAGE, MUSIC AND PA SYSTEM OR COMMUNICATION WORK AND PROVIDE AS REQUIRED. VERIFY.
 - FOR LIGHTING FIXTURE AND EQUIPMENT CONNECTION SEE PERTINENT SCHEDULES AS APPLICABLE.



5TH FLOOR ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

SEE SUITE ELECTRICAL LAYOUT ON SHEET E800



SEAL



A NEW SHELL BUILDING IMPROVEMENT
31 SOUTH WATER STREET
CITY OF HENDERSON, NV 89015

31 WATER STREET LLC

PROJECT NUMBER: 0201909

DATE: 04.16.2020

P. JAMES

ARCHITECTURE
PLANNING
DESIGN

4629 VICTORIA BEACH WAY
LAS VEGAS, NV 89103
702.683.3277

DATE

REVISIONS
Description

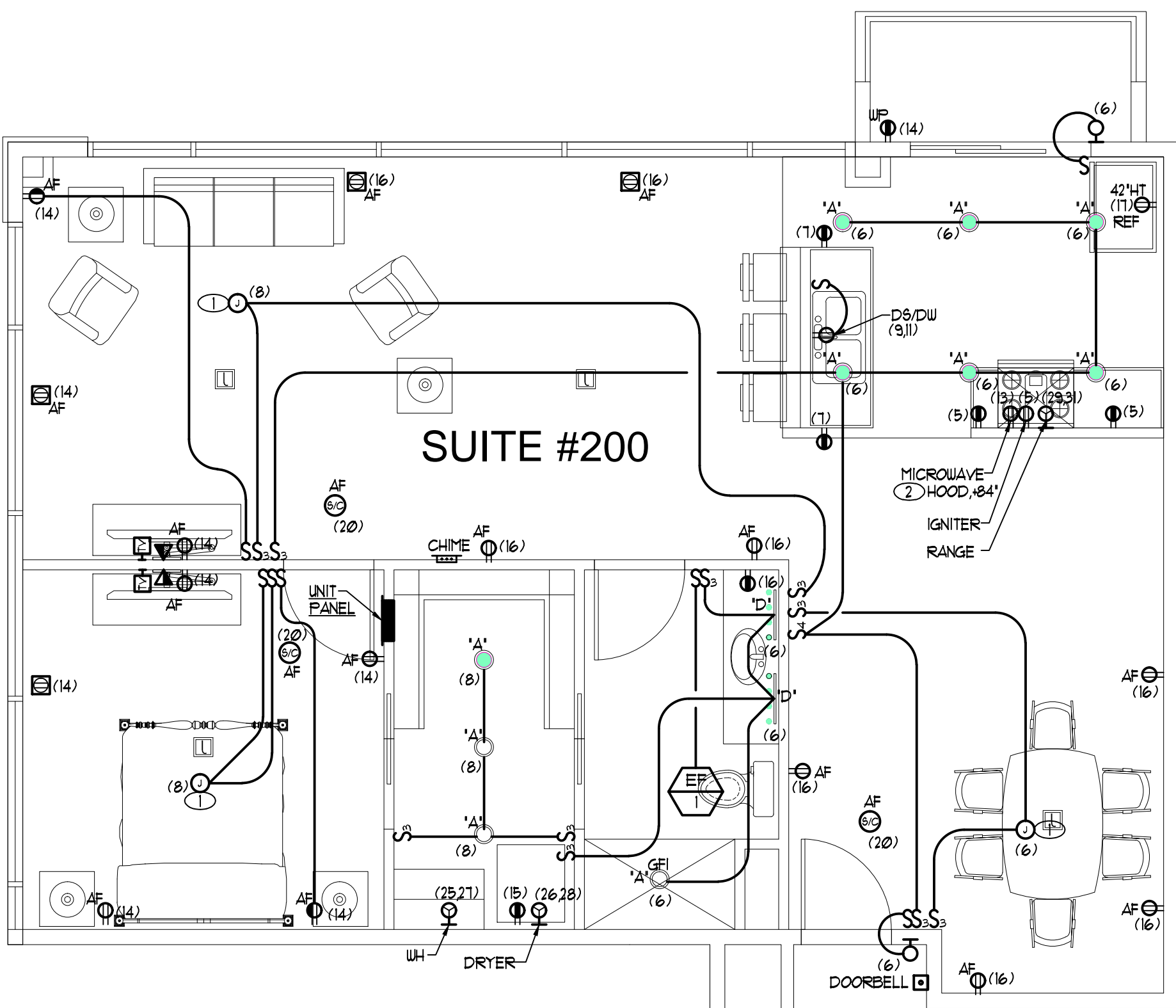
SHEET

E6.00

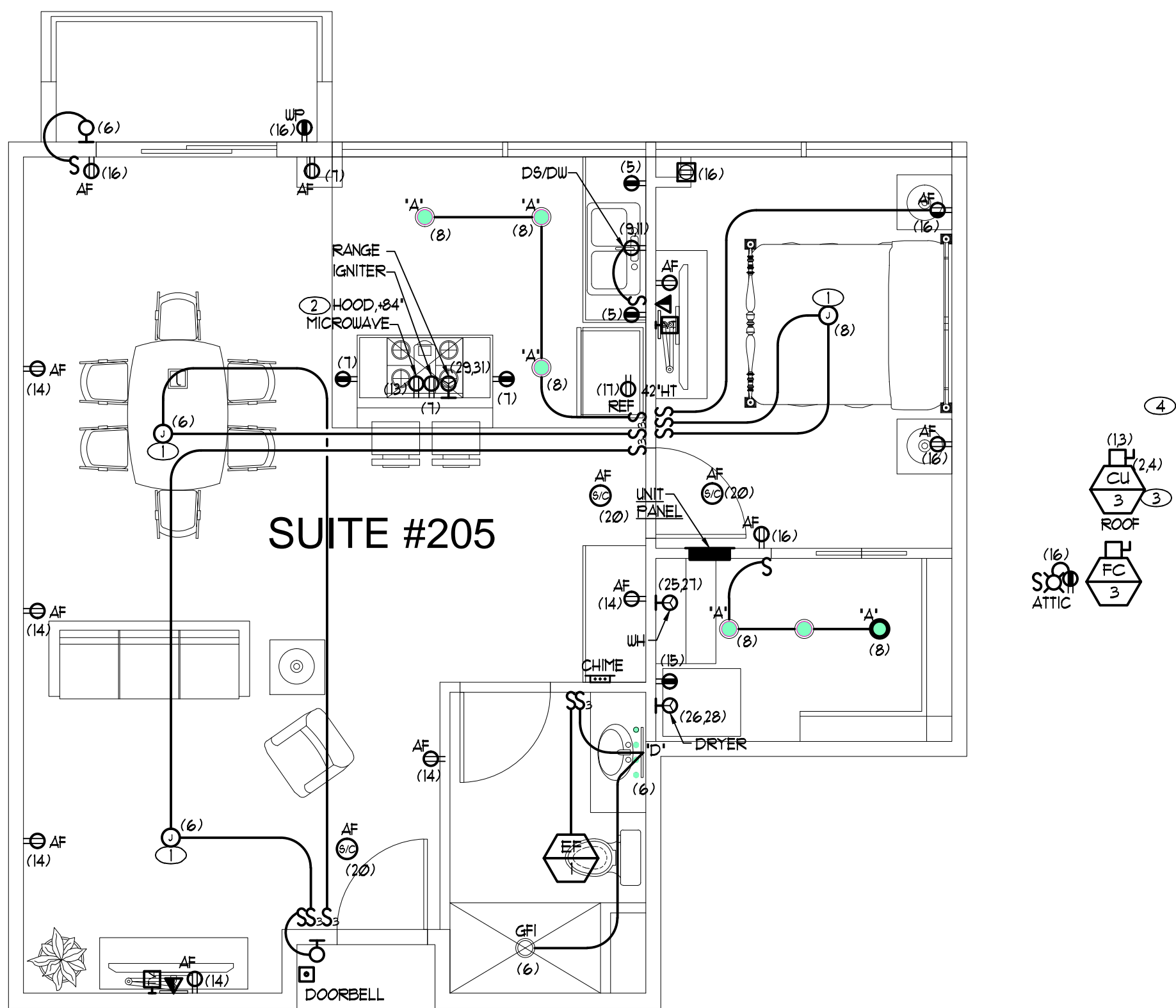
UNIT 200 (TYPICAL TO 215, 220, 235, 300, 315, 320, & 335)					
31 S. WATER STREET					
Address:					
General Load		Sq. ft.	VA per Sq. ft.	VA	
UNIT Square Footage		980			
General Lighting (3F at 3VA/SF)		980	3	2940	
	# of Units				
20A Small appliance load circuits at 1500VA, 2 each min.	2	1500	3000		
Laundry (Washing Machine) 1500VA 1 min.	1	1500	1500		
		Subtotal (1)	7440		
First 3,000VA of general load at 100%				3000	
Remainder of subtotal (1) at 35%	ST	4440	1554		
If over 120,000VA VA use 25%	ST	0	0		
		Subtotal (2)	4554		
Electrical (Cooking) Appliances (Use NEC Table 220-55)				VA	
Range (from table 220-55 rating, Owner's Alternative)				8000	
Double Electric Oven (Owner Option)				5000	
Clothes dryer 100%, table 220-54 (Owner's Alternative)				5000	
		Subtotal (3)	13000		
Heating, A/C: Name and List each Equip. components VA @ 100%	# of Units	Amps	Volts	VA	
CU-2	0	23.4	208	0	
CU-3	1	29.5	208	6136	
FC-2	0	19	115	0	
FC-3	1	19	115	2185	
Exhaust Fan 1	1	0.3	120	36	
Space Heating	0	5000		0	
			Subtotal (4)	8357	
Fixed Appliances - use 100%. If four or more, a demand of 75% is allowed	# of Units	VA	VA		
Garbage Disposal	1	800	800		
Microwave	1	1000	1000		
Refrigerator	1	800	800		
Water Heater	1	4500	4500		
Dishwasher	1	800	800		
	0.75		Subtotal (5)	5925	
Miscellaneous Motor Loads	# of Units	VA	VA		
Jacuzzi Allowance	0	5000	0		
25% Large Motor including A/C Comp.	0.25	6136	1534		
			Subtotal (6)	1534	
ADD 4800VA at New House per Ordinance			Subtotal (7)	0	
Grand Total of subtotals (2) + (3) + (4) + (5) + (6) + (7) =				33370	
Grand Total VA =	33370 / 208V =			93 Amperes	
	1.73				
Use Minimum Panel Size =	200 Amperes				

UNIT 205 (TYPICAL TO 210, 225, 230, 305, 310, 325, & 330)					
31 S. WATER STREET					
Address:					
General Load	Sq. ft.	VA per Sq. ft.	VA		
UNIT Square Footage	755				
General Lighting (5F at 3VA/SF)	755	3	2265		
	# of Units				
20A Small appliance load circuits at 1500VA, 2 each min.	2	1500	3000		
Laundry (Washing Machine) 1500VA 1 min.	1	1500	1500		
			Subtotal (1)		
			6765		
First 3,000VA of general load at 100%			3000		
Remainder of subtotal (1) at 35%	ST	3765	1317.75		
If over 120,000VA VA use 25%	ST	0	0		
			Subtotal (2)		
			4317.75		
Electrical (Cooking) Appliances (Use NEC Table 220-55)			VA		
Range (from table 220-55 rating, Owner's Alternative)			8000		
Double Electric Oven (Owner Option)			5000		
Clothes dryer 100%, table 220-54 (Owner's Alternative)			5000		
			Subtotal (3)		
			13000		
Heating, A/C: Name and List each Equip. components VA @ 100%	# of Units	Amps	Volts	VA	
CU-2	0	23.4	208	0	
CU-3	1	29.5	208	6136	
FC-2	0	19	115	0	
FC-3	1	19	115	2185	
Exhaust Fan 1	1	0.3	120	36	
Space Heating	0	5000		0	
				Subtotal (4)	
				8357	
Fixed Appliances - use 100%, if four or more, a demand of 75% is allowed	# of Units	VA	VA		
Garbage Disposal	1	800	800		
Microwave	1	1000	1000		
Refrigerator	1	800	800		
Water Heater	1	4500	4500		
Dishwasher	1	800	800		
	0.75		Subtotal (5)		
			5925		
Miscellaneous Motor Loads	# of Units	VA	VA		
Jacuzzi Allowance	0	5000	0		
25% Large Motor including A/C comp.	0.25	6136	1534		
			Subtotal (6)		
			1534		
ADD 4800VA at New House per Ordinance			Subtotal (7)		
Grand Total of subtotals (2) + (3) + (4) + (5) + (6) + (7) =			33134		
Grand Total VA =	33134 / 208V =		92 Amperes		
	1.73				
Use Minimum Panel Size =	200 Amperes				

ALL SWITCHES, RECEPTACLES, LIGHTS, AND/OR OUTLETS INSTALLED ALONG THE HALLWAYS SHALL BE PROVIDED WITH FIRE RATED DEVICES AND OR INSTALLATIONS. VERIFY AS REQUIRED.



UNIT 200 ELECTRICAL PLAN (TYPICAL TO UNITS 215, 220, 235, 300, 315, 320, & 335)
SCALE: 1/4" = 1'-0"



UNIT 205 ELECTRICAL PLAN (TYPICAL TO UNITS 210, 225, 230, 305, 310, 325, & 330)
SCALE: 1/4" = 1'-0"

GENERAL PLAN NOTES

- REFER TO SHEET E1 FOR ELECTRICAL FLOOR PLAN NOTES AND LEGEND.
- PROVIDE DISCONNECT SWITCH AND 240V POWER FOR MECHANICAL FORCE AIR UNITS.
- ALL ATTIC ACCESSSES SHALL BE PROVIDED WITH A SWITCH, LIGHT AND 120V GFI OUTLET AT OR NEAR THE FORCED AIR UNIT. LOCATE SWITCH NEAR ATTIC ACCESS PANEL.
- SWITCHES SHALL BE MOUNTED AT A MAXIMUM OF 48" ABOVE FINISHED FLOOR. GENERAL RECEPTACLES, TV AND TELE/COMPUTER OUTLETS SHALL BE MOUNTED AT A MINIMUM OF 18" ABOVE FINISHED FLOOR. INSTALL RECEPTACLE IN KITCHEN AND BATHROOMS 6' ABOVE COUNTER HORIZONTALLY UNLESS NOTED OTHERWISE.
- COORDINATE AND VERIFY EXACT MOUNTING HEIGHT AND LOCATIONS OF WALL MOUNTED LIGHT FIXTURES WITH OWNER PRIOR TO INSTALLATION.
- ALL LIGHTING FIXTURE LUMINAIRE INSTALLED INSIDE THE SHOWER ROOM SHALL NOT EXCEED 40 WATTS.
- PROVIDE MINIMUM 4" THICK WALL FOR MOUNTING ELECTRICAL SUBPANELS.
- ALL BRANCH CIRCUITS THAT SUPPLY 125-VOLT, SINGLE PHASE, 15 AND 20 AMP OUTLETS INSTALLED IN DUELLING UNIT BEDROOMS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY AN ARC-FAULT-CIRCUIT-INTERRUPTER LISTED TO PROVIDE PROTECTION OF ENTIRE BRANCH CIRCUIT.
- ALL 125V, 15A - 20A OUTLETS IN LAUNDRY ROOM SHALL BE GFCI PROTECTED PER NEC 210.8(A)(10).
- ALL OUTLETS THAT SUPPLY DISHWASHERS SHALL BE GFCI PROTECTED PER NEC 210.8(D).
- NEC ARTICLE 210.12 (A). SMOKE DETECTORS SHALL BE INCLUDED IN THE ARC-FAULT-CIRCUIT-INTERRUPTER PROTECTION OF DUELLING UNIT BEDROOM BRANCH CIRCUITS.

KEYED PLAN NOTES

- PROVIDE WHERE A BOX IS USED AS THE SOLE SUPPORT OF A LIGHT FIXTURE, THE BOX SHALL BE LISTED FOR THE APPLICATION AND APPROVED FOR THE WEIGHT OF THE FIXTURE SUPPORTED. NEC 314.2(A)(8).
- VERIFY AND COORDINATE EXACT LOCATION OF MICROWAVE OUTLET PRIOR TO ROUGH-IN.
- CONTRACTOR TO COORDINATE ACTUAL LOCATION OF THE FAN COIL UNIT AND PROVIDE POWER AND CONTROL AS REQUIRED.
- CONTRACTOR TO COORDINATE ACTUAL LOCATION OF THE CONDENSER UNIT AND PROVIDE POWER AND CONTROL AND MAINTENANCE RECEPTACLE WITHIN 25FEET AS REQUIRED.

TYPICAL UNIT PANEL SCHEDULE									
POLE #	DESCRIPTION	POLE	C.B.	C.B.	POLE	DESCRIPTION	POLE #		
1	CU-X	2	(X)	20	2	CU-X	2		
3	-						4		
5	SMALL APPLIANCE	1	20	20	1	LIGHTING	6		
7	SMALL APPLIANCE	1	20	20	1	LIGHTING	8		
9	DISPOSER	1	20	20	1	LIGHTING	10		
11	DISHWASHER	1	20	20	1	LIGHTING	12		
13	MICROWAVE	1	20	20	1	RECEPTACLES	14		
15	WASHING MACHINE	1	20	20	1	RECEPTACLES	16		
17	REFRIGERATOR	1	20	20	1	RECEPTACLES	18		
19	SPARE	1	20	20	1	SMOKE/CARBON DETECTORS	20		
21	CU-X (USE ONLY FOR STE AT 4TH/5TH FLOOR)	2	(X)	20	2	CU-X (USE ONLY FOR STE AT 4TH/5TH FLOOR)	22		
23	-						24		
25	WATER HEATER	2	30	(X)	2	CLOTH DRYER	26		
27	-						28		
29	RANGE	2	40	20	1	SPARE	30		
31	-						32		
33	SPARE	1	20	20	1	SPARE	34		
35	SPARE	1	20	20	1	SPARE	36		
37	SPARE	1	20	20	1	SPARE	38		
39	SPARE	1	20	20	1	SPARE	40		
41	SPARE	1	20	20	1	SPARE	42		

X DENOTES NUMBER OF CU OR FCU UNIT
(X) DENOTES 15/20 FOR CU-3 AND 25/40 FOR CU-2 OR VERIFY WITH EQUIP MANUFACTURER
POLE # ONLY NOT ALL BREAKERS ARE USED
RECOMMENDED SCHEDULE ONLY, CONTRACTOR MAY RE-ARRANGE TO BALANCE LOADS

X-DENOTES NUMBER OF CU OR FCU UNIT
(X) DENOTES 35A/2P FOR CU-3 AND 25A/2P FOR CU-2 OR VERIFY WITH EQUIP MANUFACTURER
TYPICAL ONLY NOT ALL BREAKERS ARE USED
RECOMMENDED SCHEDULE ONLY, CONTRACTOR MAY RE-ARRANGE TO BALANCE LOADS



SEAL



A NEW SHELL BUILDING IMPROVEMENT

31 SOUTH WATER STREET
CITY OF HENDERSON, NV 89015

APN #179-18-611-055

31 WATER STREET LLC

PROJECT NUMBER: 0201909

P. JAMES

ARCHITECTURE

PLANNING

DESIGN

4629 VICTORIA BEACH WAY
LAS VEGAS, NV 89103
702.683.3277

DATE

REVISIONS

Description

REV

SHEET

DATE

REVISIONS

Description

REV

SHEET

DATE

REVISIONS

Description

REV

SHEET

DATE

REVISIONS

Description

REV

SHEET

DATE

REVISIONS

Description

REV

SHEET

DATE

REVISIONS

Description

REV

SHEET

DATE

REVISIONS

Description

REV

SHEET

DATE

REVISIONS

Description

REV

SHEET

DATE

REVISIONS

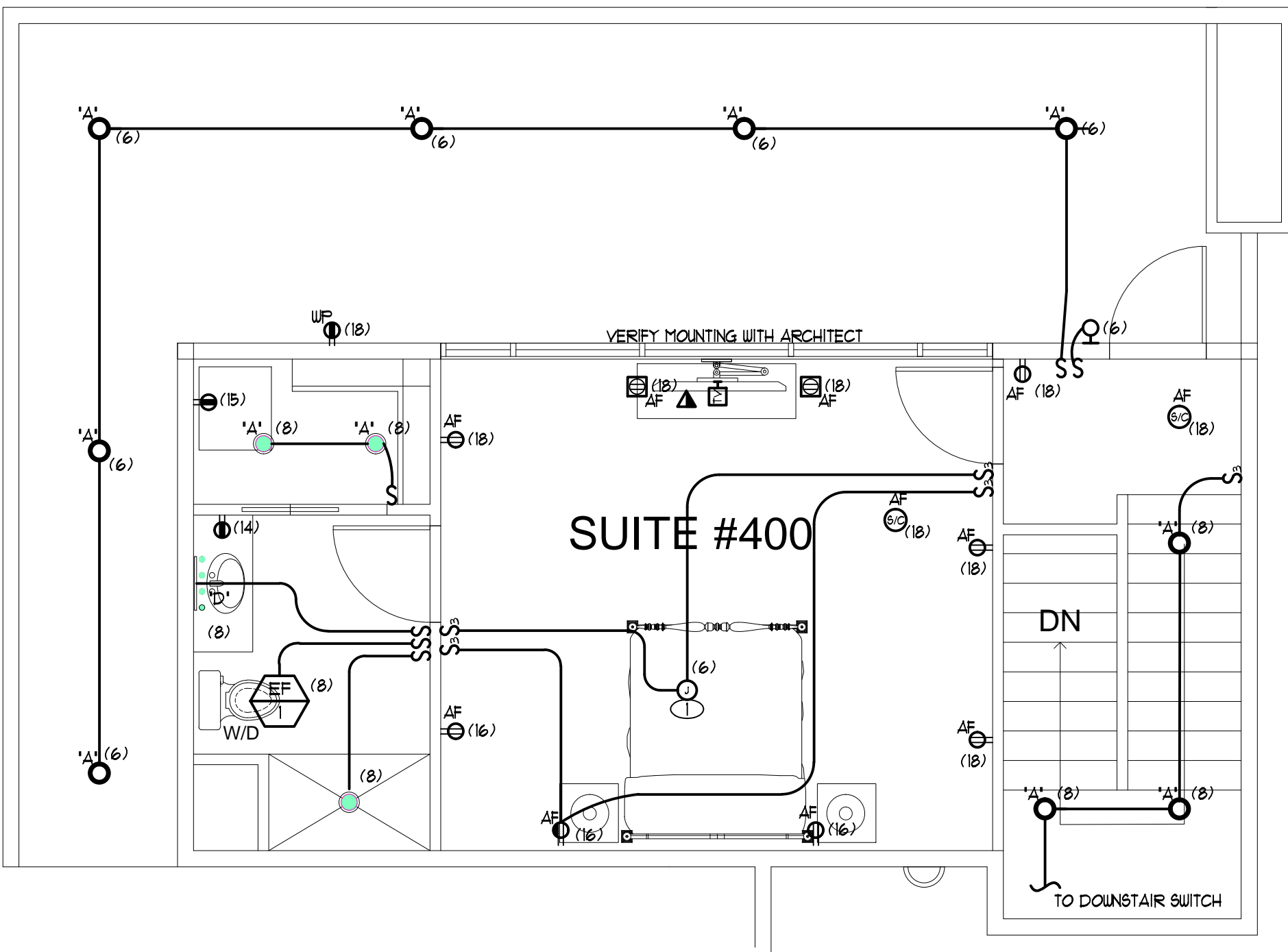
Description

REV

SHEET

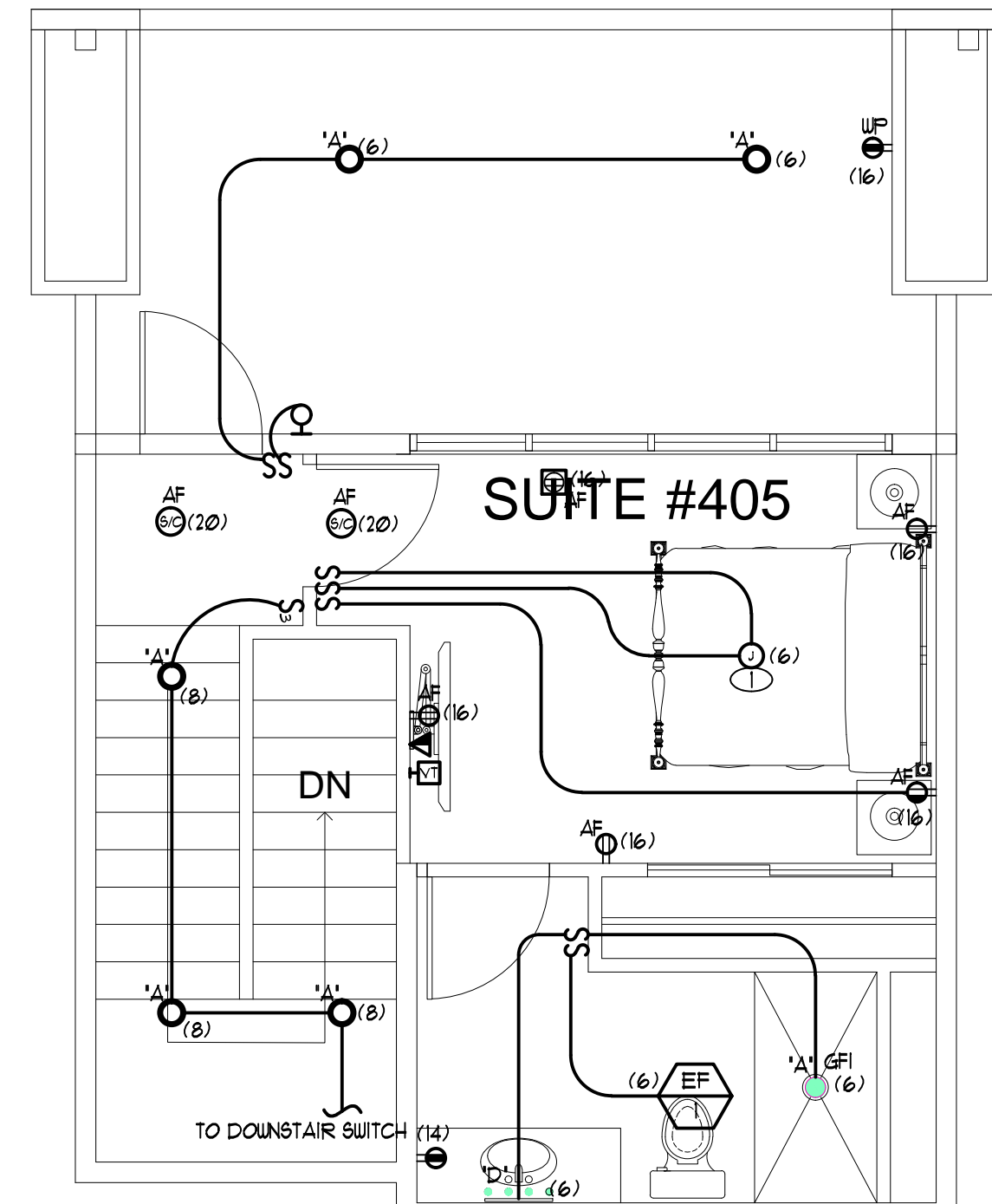
UNIT 400 (TYPICAL TO 415, 420, & 435)				
31 S. WATER STREET AT 4TH & 5TH FLOOR				
Address:				
General Load	Sq. ft.	VA per Sq. ft.	VA	
UNIT Square Footage	1525			
General Lighting (5F at 3VA/5F)	1525	3	4575	
	# of Units			
20A Small appliance load circuits at 1500VA, 2 each min.	2	1500	3000	
Laundry (Washing Machine) 1500VA 1 min.	1	1500	1500	
			Subtotal (1)	
			9075	
First 3,000VA of general load at 100%			3000	
Remainder of subtotal (1) at 35%	ST	6075	2126.25	
If over 120,000VA VA use 25%	ST	0	0	
			Subtotal (2)	
			5126.25	
Electrical (Cooking) Appliances (Use NEC Table 220-55)			VA	
Range (from table 220-55 rating, Owner's Alternative)			8000	
Double Electric Oven (Owner Option)			5000	
Clothes dryer 100%, table 220-54 (Owner's Alternative)			13000	
			Subtotal (3)	
			26000	
Heating, A/C: Name and List each Equip. components VA @ 100%	# of Units	Amps	Volts	VA
CU-2	0	23.4	208	0
CU-3	2	29.5	208	1227.2
FC-2	0	19	115	0
FC-3	2	19	115	437.0
Exhaust Fan 1	2	0.3	120	72
Space Heating	0	5000	0	0
			Subtotal (4)	
			1674	
Fixed Appliances - use 100%. If four or more, a demand of 75% is allowed	# of Units	VA	VA	
Garbage Disposal	1	800	800	
Microwave	1	1000	1000	
Refrigerator	1	800	800	
Water Heater	1	4500	4500	
Dishwasher	1	800	800	
	0.75		Subtotal (5)	
			5925	
Miscellaneous Motor Loads	# of Units	VA	VA	
Jacuzzi Allowance	0	5000	0	
25% Large Motor including A/C comp.	0.25	6136	1534	
			Subtotal (6)	
			1534	
ADD 4800VA at New House per Ordinance			Subtotal (7)	
			6368	
Grand Total of subtotals (2) + (3) + (4) + (5) + (6) + (7) =			42299	
	Grand Total VA =	42299 / 208V =	118 Amperes	
		1.73		
Use Minimum Panel Size =	200 Amperes			

UNIT 405 (TYPICAL TO 410, 425, & 430)				
31 S. WATER STREET AT 4TH & 5TH FLOOR				
Address:				
General Load	Sq. ft.	VA per Sq. ft.	VA	
UNIT Square Footage	1146			
General Lighting (5F at 3VA/5F)	1146	3	3438	
# of Units				
20A Small appliance load circuits at 1500VA, 2 each min.	2	1500	3000	
Laundry (Washing Machine) 1500VA 1 min.	1	1500	1500	
			Subtotal (1)	
			7938	
First 3,000VA of general load at 100%			3000	
Remainder of subtotal (1) at 35%	ST	4938	1728.3	
If over 120,000VA VA use 25%	ST	0	0	
			Subtotal (2)	
			4728.3	
Electrical (Cooking) Appliances (Use NEC Table 220-55)			VA	
Range (from table 220-55 rating, Owner's Alternative)			8000	
Double Electric Oven (Owner Option)			5000	
Clothes dryer 100%, table 220-54 (Owner's Alternative)			13000	
			Subtotal (3)	
			26000	
Heating, A/C: Name and List each Equip. components VA @ 100%	# of Units	Amps	Volts	VA
CU-2	2	23.4	208	973.4
CU-3	0	29.5	208	0
FC-2	2	19	115	437.0
FC-3	0	19	115	0
Exhaust Fan 1	2	0.3	120	72
Space Heating	0	5000	0	0
			Subtotal (4)	
			14176	
Fixed Appliances - use 100%. If four or more, a demand of 75% is allowed	# of Units	VA	VA	
Garbage Disposal	1	800	800	
Microwave	1	1000	1000	
Refrigerator	1	800	800	
Water Heater	1	4500	4500	
Dishwasher	1	800	800	
	0.75		Subtotal (5)	
			5925	
Miscellaneous Motor Loads	# of Units	VA	VA	
Jacuzzi Allowance	0	5000	0	
25% Large Motor including A/C comp.	0.25	4867.2	1216.8	
			Subtotal (6)	
			1217	
ADD 4800VA at New House per Ordinance			Subtotal (7)	
			6047	
Grand Total of subtotals (2) + (3) + (4) + (5) + (6) + (7) =			39047 / 208V =	
			109 Amperes	
Grand Total VA =	39047 / 208V =		1.73	
Use Minimum Panel Size =	200 Amperes			

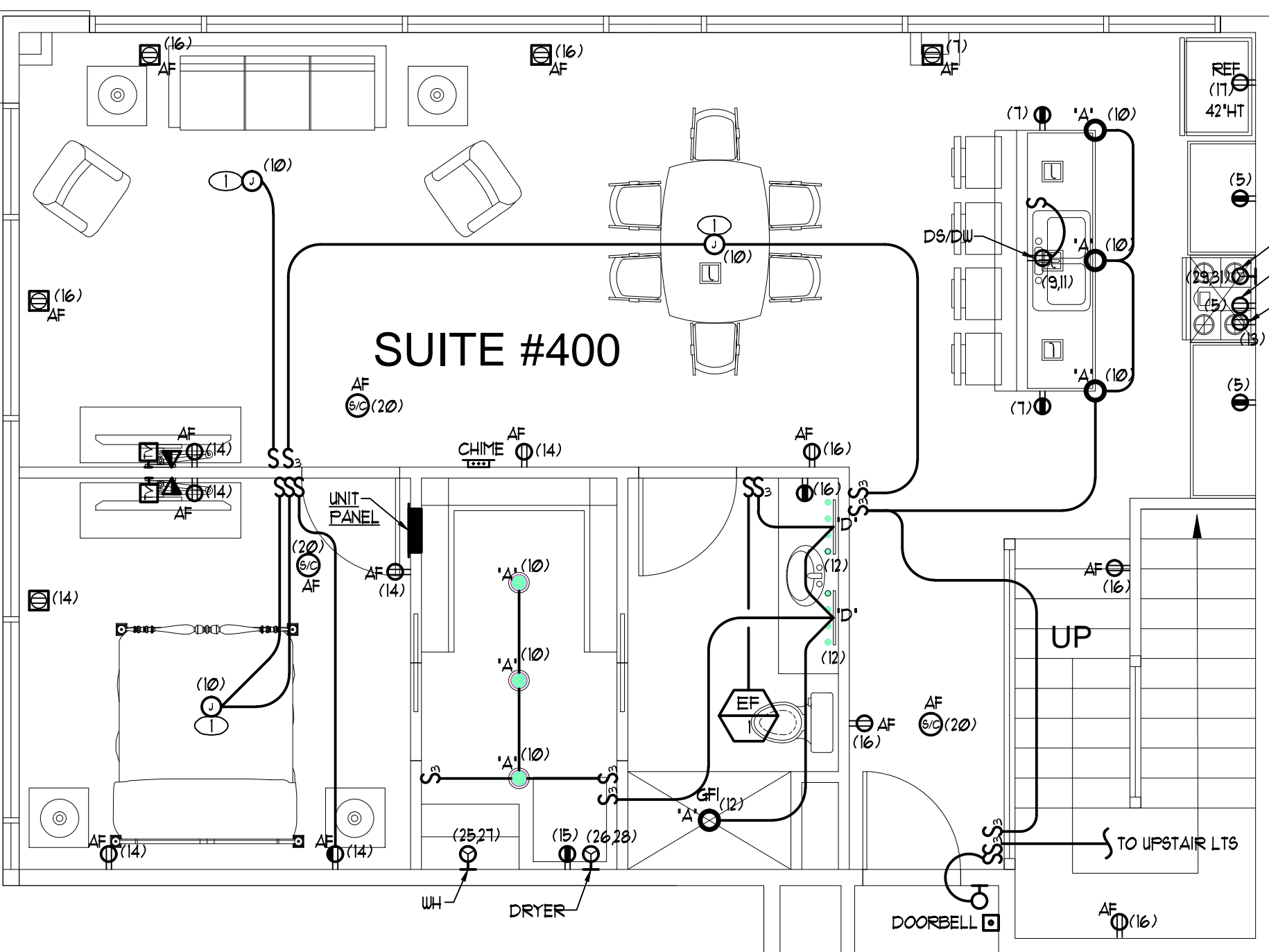


5TH FLOOR

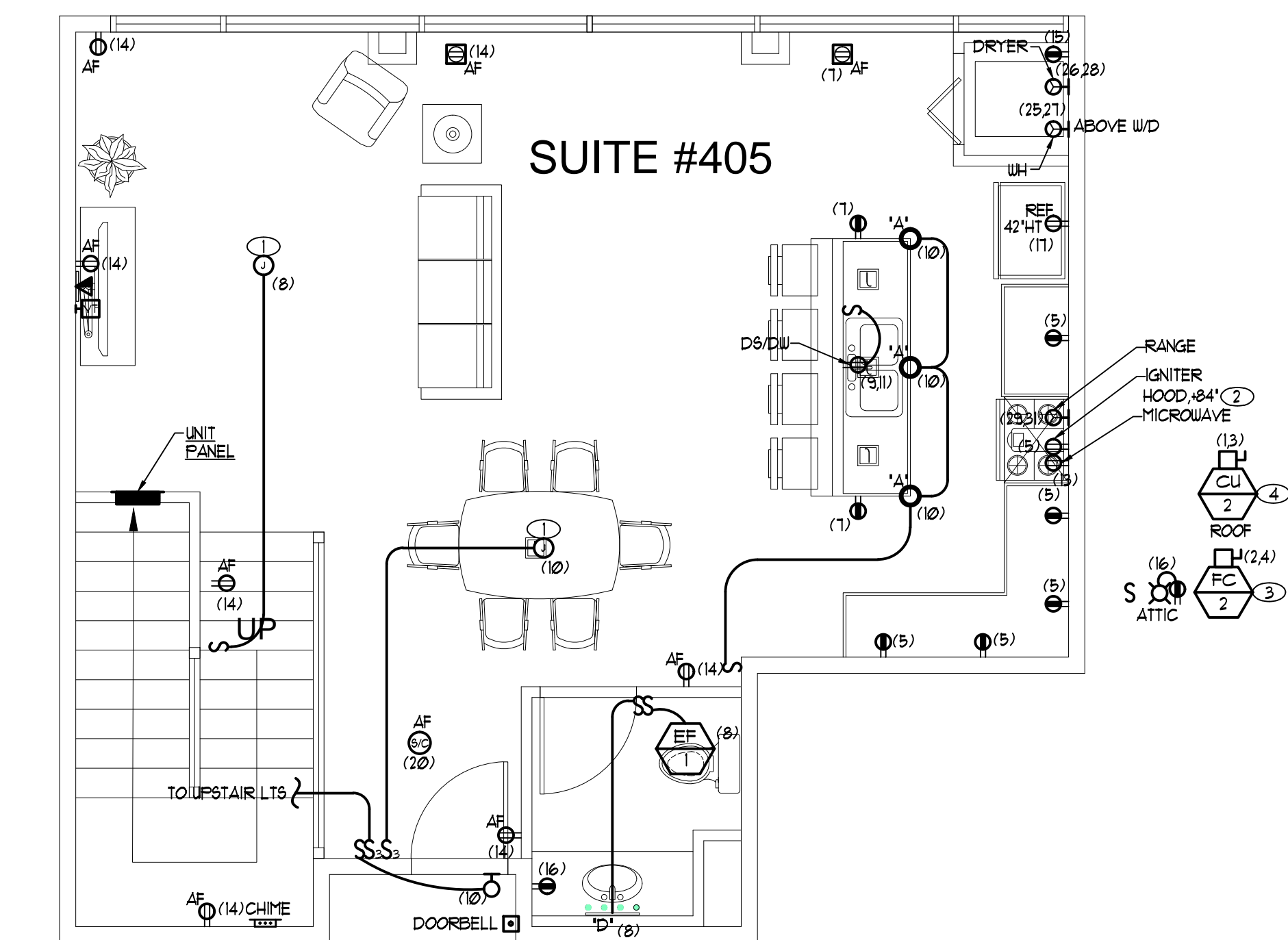
ALL SWITCHES, RECEPTACLES, LIGHTS, AND/OR OUTLETS INSTALLED ALONG THE HALLWAYS SHALL BE PROVIDED WITH FIRE RATED DEVICES AND OR INSTALLATIONS. VERIFY AS REQUIRED.



5TH FLOOR



4TH FLOOR



4TH FLOOR

UNIT 400 ELECTRICAL PLAN (TYPICAL TO UNITS 415, 420, & 435)
SCALE: 1/4" = 1'-0"

UNIT 405 ELECTRICAL PLAN (TYPICAL TO UNITS 410, 425, & 430)
SCALE: 1/4" = 1'-0"

GENERAL PLAN NOTES

- REFER TO SHEET E1 FOR ELECTRICAL FLOOR PLAN NOTES AND LEGEND.
- PROVIDE DISCONNECT SWITCH AND 240V POWER FOR MECHANICAL FORCE AIR UNITS.
- ALL ATTIC ACCESSSES SHALL BE PROVIDED WITH A SWITCH, LIGHT AND 120V GFI OUTLET AT OR NEAR THE FORCED AIR UNIT. LOCATE SWITCH NEAR ATTIC ACCESS PANEL.
- SWITCHES SHALL BE MOUNTED AT A MAXIMUM OF 48" ABOVE FINISHED FLOOR. GENERAL RECEPTACLES, TV AND TELECOMPUTER OUTLETS SHALL BE MOUNTED AT A MINIMUM OF 18" ABOVE FINISHED FLOOR. INSTALL RECEPTACLE IN KITCHEN AND BATHROOMS 6" ABOVE COUNTER HORIZONTALLY UNLESS NOTED OTHERWISE.
- COORDINATE AND VERIFY EXACT MOUNTING HEIGHT AND LOCATIONS OF WALL MOUNTED LIGHT FIXTURES WITH OWNER PRIOR TO INSTALLATION.
- ALL LIGHTING FIXTURE LUMINAIRE INSTALLED INSIDE THE SHOWER ROOM SHALL NOT EXCEED 40 WATTS.
- PROVIDE MINIMUM 4" THICK WALL FOR MOUNTING ELECTRICAL SUBPANELS.
- ALL BRANCH CIRCUITS THAT SUPPLY 125-VOLT, SINGLE PHASE, 15 AND 20 AMP OUTLETS INSTALLED IN DUELLING UNIT BEDROOMS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DEN, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY AN ARC-FAULT-CIRCUIT-INTERRUPTER LISTED TO PROVIDE PROTECTION OF ENTIRE BRANCH CIRCUIT.
- ALL 120V, 15A - 20A OUTLETS IN LAUNDRY ROOM SHALL BE GFCI PROTECTED PER NEC 210.8(A)(10).
- ALL OUTLETS THAT SUPPLY DISHWASHERS SHALL BE GFCI PROTECTED PER NEC 210.8(D).
- NEC ARTICLE 210.7(A). SMOKE DETECTORS SHALL BE INCLUDED IN THE ARC-FAULT-CIRCUIT-INTERRUPTER PROTECTION OF DUELLING UNIT BEDROOM BRANCH CIRCUITS.

KEYED PLAN NOTES

- PROVIDE WHERE A BOX IS USED AS THE SOLE SUPPORT OF A LIGHT FIXTURE, THE BOX SHALL BE LISTED FOR THE APPLICATION AND APPROVED FOR THE WEIGHT OF THE FIXTURE SUPPORTED. NEC 314.27(A)(5).
- VERIFY AND COORDINATE EXACT LOCATION OF MICROWAVE OUTLET PRIOR TO ROUGH-IN.
- CONTRACTOR TO COORDINATE ACTUAL LOCATION OF THE FAN COIL UNIT AND PROVIDE POWER AND CONTROL AS REQUIRED.
- CONTRACTOR TO COORDINATE ACTUAL LOCATION OF THE CONDENSER UNIT AND PROVIDE POWER AND CONTROL AND MAINTENANCE RECEPTACLE WITHIN 25FEET AS REQUIRED.



ENGINEERING A SUSTAINABLE FUTURE
6040 S. Durango Dr., Ste. 100 Las Vegas, NV 89113
Phone: office 702.361.0020, cell 702.521.3700
Website: Marianoeng.com

SEAL



A NEW SHELL BUILDING IMPROVEMENT
31 SOUTH WATER STREET
CITY OF HENDERSON, NV 89015

P. JAMES
ARCHITECTURE
PLANNING
DESIGN
4629 VICTORIA BEACH WAY
LAS VEGAS, NV 89103
702.683.3277

ARCHITECT
DATE: 04-16-2020

REV	DESCRIPTION	DATE

SHEET

E8.00

LIGHT FIXTURE SCHEDULE								
TYPE	DESCRIPTION	MANUFACTURER/ CATALOG NUMBER	VOLTAGE	NO. LAMPS	WATTS FIXT.	LAMP TYPE	REMARKS PROVIDE LAMPS AS REQUIRED	
A	6 INCH DOWNLIGHT	ELCO E614C-12-40-W HOUSING:E6LC-12	UNV 120-277V	LED	12.88	LED	OR APPROVED BY OWNER/ ARCHITECT	PROVIDE COMPLETE KIT INCLUDING SPECIAL MOUNTING BRACKET, ETC. AS REQUIRED
AE	6 INCH DOWNLIGHT WITH 1100 LUMEN EM	ELCO E614C-12-40-W HOUSING:E6LC-12-EM2	UNV 120-277V	LED	12.88	LED	OR APPROVED BY OWNER/ ARCHITECT	PROVIDE COMPLETE KIT INCLUDING SPECIAL MOUNTING BRACKET, ETC. AS REQUIRED
CE	4 FOOT STAIRWELL LIGHT WITH OC SENSOR AND EM	LA LIGHTING WSE201-8-4L-BPL-MSLOW- 1DRDM-UNV-1-840	UNV 120-277V	LED	64.99	LED	OR APPROVED BY OWNER/ ARCHITECT	PROVIDE COMPLETE KIT INCLUDING SPECIAL MOUNTING BRACKET, ETC. PROVIDE WITH BATTERY BACKUP SYSTEM AS REQUIRED
D	VANITY LIGHT	LUMENCIA LLFL5324D	120V	LED	19	LED	OR APPROVED BY OWNER/ ARCHITECT	PROVIDE COMPLETE KIT INCLUDING SPECIAL MOUNTING BRACKET, ETC. AS REQUIRED
S	WALL SCONCE LIGHTING FIXTURE	VERIFY WITH OWNER EXACT TYPE	UNV 120-277V	LED	100	LED	OR APPROVED BY OWNER/ ARCHITECT	PROVIDE COMPLETE KIT INCLUDING SPECIAL MOUNTING BRACKET, ETC.
W	EXTERIOR WALLPACK WITH EM	NLS NV-W-74-16L-7-40K-UNV-WM-TBD EB	UNV 120-277	LED	36	LED	OR APPROVED BY OWNER/ ARCHITECT	PROVIDE COMPLETE KIT INCLUDING SPECIAL MOUNTING BRACKET, ETC. PROVIDE WITH BATTERY BACKUP SYSTEM AS REQUIRED
X	EXT SIGN UNIVERSAL MOUNT	ELCO EEL61	UNV 120-277	LED	7	LED	OR APPROVED BY OWNER/ ARCHITECT	PROVIDE WITH BATTERY BACKUP SYSTEM COMPLETE KIT VERIFY WITH OWNER OR ARCHITECT

NOTES:
1. WHEN REQUIRED, UNIVERSAL OR ADVANCED BALLAST ONLY: ELECTRONIC, PARALLEL > 0.90 POWER FACTOR, REDUCED HARMONICS <0.10
2. UL LISTED AND APPROVED FOR WET OR DAMP LOCATION, DEPENDING ON CONDITIONS
3. COORDINATE BLDG PENETRATION WITH EXTERIOR BLDG SURFACE MATERIALS. PROVIDE MANUFACTURERS LISTED PENETRATION SEALS. ALL PENETRATIONS SHALL BE MADE WATER PROOF. COORDINATE WITH OTHER TRADES REQUIREMENTS. WHERE APPLICABLE
4. WHEN FIXTURE IS DENOTED WITH AN "E" EXAMPLE - F1E, PROVIDE 90 MINUTE EMERGENCY OPERATION WITH ACCESSIBLE TEST SWITCH. 1100 LUMEN BATTERY PACK MANUFACTURED BY BODINE WITH 5 YEAR WARRANTY. TEST SWITCH SHALL BE FIXTURE MOUNTED, EXTERIOR FIXTURE TEST SWITCHES SI-WEATHERPROOF. ALL LIGHTING FIXTURE WITH BATTERY PACKS REQUIRE A SEPARATE NON-SWITCH, HOT CONDUCTOR FOR OPERATION. DISCONNECT POWER TO BATTERY PACKS WILL CAUSE THEM TO DISCHARGE. (OR PER OWNER'S APPROVED)
5. PROVIDE WITH FIXTURE MOUNTED PHOTOCELL
6. ALL SWITCHING AND MOUNTINGS SHOWN IN DRAWINGS ARE GENERIC IN NATURE. BEFORE ORDERING FIXTURES YOU SHALL VERIFY WITH ARCHITECT/ARCHITECTURAL'S SWITCHING AND MOUNTING REQUIREMENTS AND PROVIDE THE APPROPRIATE BALLASTS, FIXTURES OR MOUNTINGS MATERIALS AS NEEDED.
7. YOU SHALL ADHERE TO THE NOTES IN THE "PRIOR TO COMMENCING WORK" AS STATED IN COVER SHEET OR ELSEWHERE ON DRAWINGS.

MECHANICAL EQUIPMENT CONNECTION SCHEDULE									
ITEM #	TAG NO.	DESCRIPTION	FLA (MCA)	MCCP (NOTE 1)	VOLTY PHASE	DISC SW OR C.B.	FEEDER SIZE	REMARKS	
1	ELEV	ELEVATOR	114	-	208/3	150/3	2" C WITH 4#2/0 & 1#6 GND (Copper)	(NOTES: 4,5,11)	
2	RTU-1	ROOF TOP UNIT - 1	19	-	208/3	25/3	3/4" C WITH 3#10 & 1#10 GND (Copper)	(NOTES: 4,5,6,7)	
3	CU-1	CONDENSING UNIT 1	99	-	208/3	125/3	1-1/4" C WITH 3#1 & 1#6 GND (Copper)	(NOTES: 4,5,11)	
4	FC-1, FCU-2, & FCU-3	FAN COIL UNIT 1, 2, & 3	15	-	208/1	25/2	3/4" C WITH 2#12 & 1#12 GND (Copper)	(NOTES: 4,5,6,7)	
5	CU-2	CONDENSING UNIT 2	23.4	-	208/1	35/2	3/4" C WITH 2#10 & 1#12 GND (Copper)	(NOTES: 4,7,8)	
6	CU-3	CONDENSING UNIT 3	29.5	-	208/1	50/2	3/4" C WITH 2#8 & 1#10 GND (Copper)	(NOTES: 4,5,9)	
7	CU-4	CONDENSING UNIT 4	37	-	208/1	60/2	3/4" C WITH 2#6 & 1#10 GND (Copper)	(NOTES: 4,5,10)	
8	FC-4	FAN COIL UNIT 4	0.2	-	208/1	25/2	3/4" C WITH 2#10 & 1#12 GND (Copper)	(NOTES: 4,5,6,7)	
9	EF-1	EXHAUST FAN - 1	0.3	-	120/1	15/1	3/4" C WITH 2#12 & 1#12 GND (Copper)	(NOTES: 4,5,6,7)	
10	EF-2 & EF-3	EXHAUST FAN - 2 & 3	22	-	208/3	30/3	3/4" C WITH 3#10 & 1#10 GND (Copper)	(NOTES: 4,7,9)	
11	EF-4	EXHAUST FAN - 4	3.5	-	208/3	15/3	3/4" C WITH 3#12 & 1#12 GND (Copper)	(NOTES: 4,5,6,7)	
12	PUMP	PUMP IN PUMP ROOM	29.2	-	208/3	60/3	3/4" C WITH 3#6 & 1#10 GND (Copper)	(NOTES: 4,5,10)	

NOTES: CONTRACTOR TO COMPLY WITH ALL NOTES BELOW AND SHALL PROVIDE LARGER WIRES PER NEC FOR VOLTAGE DROP COMPENSATION AS REQUIRED.
[1] SEE PANEL SCHEDULE FOR OVERCURRENT PROTECTION RATING IF NOT INDICATED.
[2] ALL CONDUCTORS SHALL BE RATED 45-50 DEGREES C WHEN REQUIRED. NEUTRAL WIRE MAYBE NOT BE REQUIRED VERIFY EQUIPMENT AND PROVIDE IF REQUIRED.
[3] ALL MOTOR LOADS SHALL BE VERIFIED AND PROVIDED WITH PROPER PROTECTION PER NEC. PROVIDE MOTOR CIRCUIT PROTECTION IF REQUIRED.
[4] FOR REFERENCE ONLY, CONTROL TO BE INSTALLED BY OTHERS, VERIFY REQUIREMENTS AND PROVIDE LABOR AND MATERIALS AS REQUIRED.
[5] CONTRACTOR SHALL COORDINATE WITH SUPPLIER/OWNER FOR CONNECTION & CONTROL REQUIREMENTS, BREAKER OR DISCONNECT MAY DIFFER WITH MANUFACTURER BUT PROVIDE AS NOTE #3 ABOVE OR AS REQUIRED.
[6] CONTRACTOR TO PROVIDE 20A, 1-POLE DISCONNECT SWITCH.
[7] CONTRACTOR TO PROVIDE 20A, 2 OR 3-POLE DISCONNECT SWITCH.
[8] CONTRACTOR TO PROVIDE 30A OR AS REQUIRED, 2 OR 3-POLE DISCONNECT SWITCH.
[9] CONTRACTOR TO PROVIDE 60A OR AS REQUIRED, 2 OR 3-POLE DISCONNECT SWITCH.
[10] CONTRACTOR TO PROVIDE 60A OR AS REQUIRED, 2 OR 3-POLE DISCONNECT SWITCH.
[11] CONTRACTOR TO PROVIDE 100A OR AS REQUIRED, 2 OR 3-POLE DISCONNECT SWITCH.

SEAL



4/16/20

A NEW SHELL BUILDING IMPROVEMENT

31 SOUTH WATER STREET

CITY OF HENDERSON , NV 89015

APN #179-18-611-055

31 WATER STREET LLC

PROJECT NUMBER: 0201909

ARCHITECTURE
PLANNING
DESIGN

4629 VICTORIA BEACH WAY

LAS VEGAS, NV 89103

702.683.3277

REVISIONS

REV	Description	DATE

SHEET

E9.00

FEEDER, AVAILABLE FAULT, & %VD SCHEDULE	
DATE PERFORMED: 03/25/20	
CONTRACTOR SHALL MARK IN THE FIELD THE MAXIMUM AVAILABLE CURRENT ON THE SERVICE EQUIPMENT PER NEC 110.24 (A) OR AS REQUIRED BY CITY HAVING JURISDICTION	
1	AVAIL FAULT (AIC)= 38184 %VDROP = 0%
2	PANEL NAME = "MSA" FEEDER SIZE = 95ETS OF 5°C WITH 4#750 & 1#750 GND (Alum) ABOVE FEEDER SIZE IS USED FOR CALCULATION ONLY, PROVIDE PER UTILITY REQUIREMENTS AS REQUIRED. AVAIL FAULT (AIC)= 36581 %VDROP = 0.00% LENGTH USED IN CALC (FT) = 50
3	PANEL NAME = "FUTURE SUITE 100A" FEEDER SIZE = 25ETS OF 3°C WITH 4#350 & 1#1 GND (Copper) AVAIL FAULT (AIC)= 23309 %VDROP = 0.97% LENGTH USED IN CALC (FT) = 85
3A	PANEL NAME = "FUTURE SUITE 100B" FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 21790 %VDROP = 1.05% LENGTH USED IN CALC (FT) = 5
4	PANEL NAME = "H1" FEEDER SIZE = 35ETS OF 2°C WITH 4#3/0 & 1#3 GND (Copper) AVAIL FAULT (AIC)= 22251 %VDROP = 0.95% LENGTH USED IN CALC (FT) = 90
5	PANEL NAME = "H2" FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 15068 %VDROP = 1.05% LENGTH USED IN CALC (FT) = 30
6	PANEL NAME = "H3" FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 14439 %VDROP = 1.08% LENGTH USED IN CALC (FT) = 42
7	PANEL NAME = "H4" FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 13113 %VDROP = 1.12% LENGTH USED IN CALC (FT) = 54
8	PANEL NAME = "H5" FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 12012 %VDROP = 1.56% LENGTH USED IN CALC (FT) = 66
9	PANEL NAME = UNIT 200 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 14167 %VDROP = 0.49% LENGTH USED IN CALC (FT) = 68
10	PANEL NAME = UNIT 205 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 9918 %VDROP = 0.84% LENGTH USED IN CALC (FT) = 116
11	PANEL NAME = UNIT 210 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 8921 %VDROP = 0.97% LENGTH USED IN CALC (FT) = 134
12	PANEL NAME = UNIT 215 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 7047 %VDROP = 1.32% LENGTH USED IN CALC (FT) = 182
13	PANEL NAME = UNIT 300 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 12792 %VDROP = 0.58% LENGTH USED IN CALC (FT) = 80
14	PANEL NAME = UNIT 305 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 9230 %VDROP = 0.92% LENGTH USED IN CALC (FT) = 128
15	PANEL NAME = UNIT 310 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 8363 %VDROP = 1.05% LENGTH USED IN CALC (FT) = 146
16	PANEL NAME = UNIT 315 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 6697 %VDROP = 1.41% LENGTH USED IN CALC (FT) = 194
17	PANEL NAME = UNIT 400 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 11662 %VDROP = 0.85% LENGTH USED IN CALC (FT) = 92
18	PANEL NAME = UNIT 405 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 8633 %VDROP = 1.19% LENGTH USED IN CALC (FT) = 140
19	PANEL NAME = UNIT 410 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 7872 %VDROP = 1.34% LENGTH USED IN CALC (FT) = 158
20	PANEL NAME = UNIT 415 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 6381 %VDROP = 1.89% LENGTH USED IN CALC (FT) = 206

FEEDER, AVAILABLE FAULT, & %VD SCHEDULE	
DATE PERFORMED: 03/25/20	
CONTRACTOR SHALL MARK IN THE FIELD THE MAXIMUM AVAILABLE CURRENT ON THE SERVICE EQUIPMENT PER NEC 110.24 (A) OR AS REQUIRED BY CITY HAVING JURISDICTION	
21	PANEL NAME = "FUTURE SUITE 150A" FEEDER SIZE = 25ETS OF 3°C WITH 4#350 & 1#1 GND (Copper) AVAIL FAULT (AIC)= 23309 %VDROP = 0.90% LENGTH USED IN CALC (FT) = 85
21A	PANEL NAME = "FUTURE SUITE 150B" FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 21790 %VDROP = 0.96% LENGTH USED IN CALC (FT) = 5
22	PANEL NAME = "ELEVATOR" FEEDER SIZE = 2°C WITH 4#2/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 11199 %VDROP = 0.89% LENGTH USED IN CALC (FT) = 85
23	PANEL NAME = UNIT 220 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 23131 %VDROP = 0.18% LENGTH USED IN CALC (FT) = 25
24	PANEL NAME = UNIT 225 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 13559 %VDROP = 0.53% LENGTH USED IN CALC (FT) = 73
25	PANEL NAME = UNIT 230 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 11836 %VDROP = 0.65% LENGTH USED IN CALC (FT) = 90
26	PANEL NAME = UNIT 235 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 8727 %VDROP = 1.00% LENGTH USED IN CALC (FT) = 138
27	PANEL NAME = UNIT 320 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 17465 %VDROP = 0.34% LENGTH USED IN CALC (FT) = 47
28	PANEL NAME = UNIT 325 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 11411 %VDROP = 0.68% LENGTH USED IN CALC (FT) = 95
29	PANEL NAME = UNIT 330 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 10171 %VDROP = 0.81% LENGTH USED IN CALC (FT) = 112
30	PANEL NAME = UNIT 335 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 7795 %VDROP = 1.16% LENGTH USED IN CALC (FT) = 160
31	PANEL NAME = UNIT 420 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 15413 %VDROP = 0.54% LENGTH USED IN CALC (FT) = 59
32	PANEL NAME = UNIT 425 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 10506 %VDROP = 0.91% LENGTH USED IN CALC (FT) = 107
33	PANEL NAME = UNIT 430 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 9446 %VDROP = 1.05% LENGTH USED IN CALC (FT) = 124
34	PANEL NAME = UNIT 435 FEEDER SIZE = 2°C WITH 4#3/0 & 1#6 GND (Copper) AVAIL FAULT (AIC)= 7368 %VDROP = 1.58% LENGTH USED IN CALC (FT) = 172

					PANEL NAME "MSA"				FEEDER BOTTOM ENCL: NEMA-3R				
					LOCATION: OUTDOOR				AVAIL SHRT CKT SHRT CKT BRACE		36.58 KAIC 42 KAIC		
NO OF WIRE SYSTEM													
MAIN BREAKER OR FUSE SIZE													
MAIN LUG BUSS SIZE													
POLE #	DESCRIPTION	PHASE A	PHASE B	PHASE C	POLE	C.B.	C.B.	POLE	PHASE A	PHASE B	PHASE C	DESCRIPTION	POLE #
1	"FUTURE SUITE 100A"	62346			3	600	600	3	57550	57550		"FUTURE SUITE 150A"	2
3	HOUSE PANEL "H1"	40984	52785		3	600	150	3	13680	13680	57550	"ELEVATOR"	4
5	UNIT 200	11123			3	200	200	3	11123		13680	UNIT 220	6
7	UNIT 205	11045	11045		3	200	200	3	11045	11123	11123	UNIT 225	8
9	UNIT 210	11045			3	200	200	3	11045	11045	11045	UNIT 230	10
11	UNIT 215	11123			3	200	200	3	11123		11045	UNIT 235	12
13	UNIT 300	11123	11123		3	200	200	3	11123	11123	11123	UNIT 320	14
15	UNIT 305	11045	11045		3	200	200	3	11045	11045	11123	UNIT 325	16
17	UNIT 310	11045	11045		3	200	200	3	11045	11045	11045	UNIT 330	18
19	UNIT 315	11123			3	200	200	3	11123	11045	11045	UNIT 335	20
21	UNIT 400	14100	14100		3	200	200	3	14100		11123	UNIT 420	22
23	UNIT 405	13016	13016		3	200	200	3	13016	14100	14100	UNIT 425	24
25	UNIT 410	13016	13016		3	200	200	3	13016	13016	13016	UNIT 430	26
27	UNIT 415	14100	14100		3	200	200	3	14100	13016	13016	UNIT 435	28
29	SPARE				3	200	200	3		14100	14100	SPARE	30
SUB-TOTAL =		248232	265033	227433					214132	214132	214132	= SUB-TOTAL	
TOTAL CONNECTED VA/PHASE =		460364	472166	441666					3836	3936	3680	= TOTAL CONNECTED AMPS/PHASE	
TOTAL CONNECTED VA =		1374093.167											
TOTAL DEMAND		Load	DF	DEMAND									
LIGHTING IN VA			25%	0									
RECEPTACLES > 10K IN VA			80%	0									
LARGEST MOTOR IN VA			25%	0									
THIS PANEL LOAD IN VA		1374093.17	100%	1374093.17									
TOTAL PANEL IN VA		1374093.17											
TOTAL AMPERES =		3814											

				PANEL NAME				FEED/VERIFY									
				"FUTURE SUITE 100A"				ENCL: NEMA-1									
								AVAIL SHRT CKT		23.31 KAIC							
								SHRT CKT BRACE		42 KAIC							
				LOCATION: SEE PLAN													
								%VDROP = 0.97%									
POLE #	DESCRIPTION	PHASE A	PHASE B	PHASE C	POLE	C.B.	C.B.	POLE	PHASE A	PHASE B	PHASE C	DESCRIPTION	POLE #				
1	ALLOWANCE RESTAURANT - SUITE 100	38367			3	200	200	3	23979			ALLOWANCE	2				
3			38367										23979				4
5				38367											23979		6
7																	8
9																	10
11																	12
13																	14
15																	16
17																	18
19																	20
21																	22
23																	24
25																	26
27																	28
29																	30
31																	32
33																	34
35																	36
37																	38
39																	40
41													42				
SUB-TOTAL =		38367	38367	38367					23979	23979	23979	= SUB-TOTAL					
TOTAL CONNECTED VA/PHASE =		62346	62346	62346					520	520	520	= TOTAL CONNECTED AMPS/PHASE					
TOTAL CONNECTED VA =		187036.85								NOTES:							
TOTAL DEMAND		Load	DF	DEMAND					PROVIDE 2SETS OF 3" C WITH #350 & 1#1 GND (Copper)								
LIGHTING IN VA			25%	0					PROVIDE APPROPRIATE WIRE SIZES PER NEC								
RECEPTACLES > 10K IN VA			50%	0													
LARGEST MOTOR IN VA			25%	0													
THIS PANEL LOAD IN VA		187036.85	100%	187036.85													
TOTAL PANEL IN VA		187036.85															
		TOTAL AMPERES =				519											

				PANEL NAME				FEED/VERIFY					
				"FUTURE SUITE 100B"				ENCL: NEMA-1					
								AVAIL SHRT CKT		21.79 KAIC			
								SHRT CKT BRACE		22 KAIC			
				LOCATION: SEE PLAN									
								%VDROP = 1.05%					
POLE #	DESCRIPTION	PHASE A	PHASE B	PHASE C	POLE	C.B.	C.B.	POLE	PHASE A	PHASE B	PHASE C	DESCRIPTION	POLE #
1	ALLOWANCE	23979											2
3			23979										4
5				23979									6
7													8
9													10
11													12
13													14
15													16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
SUB-TOTAL =		23979	23979	23979					0	0	0	= SUB-TOTAL	
TOTAL CONNECTED VA/PHASE =		23979	23979	23979					200	200	200	= TOTAL CONNECTED AMPS/PHASE	
TOTAL CONNECTED VA =		71937.25								NOTES:			
TOTAL DEMAND		Load	DF	DEMAND					PROVIDE 2" C WITH 4#3/0 & 1#6 GND (Copper)				
LIGHTING IN VA			25%	0					PROVIDE APPROPRIATE WIRE SIZES PER NEC				
RECEPTACLES > 10K IN VA			50%	0									
LARGEST MOTOR IN VA			25%	0									
THIS PANEL LOAD IN VA		71937.25	100%	71937.25									
TOTAL PANEL IN VA		71937.25											
		TOTAL AMPERES = 200											

				PANEL NAME				FEED/VERIFY					
				"FUTURE SUITE 150A"				ENCL: NEMA-1					
				LOCATION: SEE PLAN				AVAIL SHRT CKT		23.31 KAIC			
								SHRT CKT BRACE		42 KAIC			
								%VDROP = 0.90%					
POLE		PHASE	PHASE					PHASE	PHASE	PHASE			
#	DESCRIPTION	A	B	C	POLE	C.B.	C.B.	POLE	A	B	C	DESCRIPTION	#
1	ALLOWANCE RESTAURANT - SUITE 150	38367							19183			ALLOWANCE	2
3			38367		3	200	200	3		19183			4
5				38367							19183		6
7													8
9													10
11													12
13													14
15													16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
SUB-TOTAL =		38367	38367	38367					19183	19183	19183	= SUB-TOTAL	
TOTAL CONNECTED VA/PHASE =		57550	57550	57550					480	480	480	= TOTAL CONNECTED AMPS/PHASE	
TOTAL CONNECTED VA =		172649.4											
TOTAL DEMAND		Load	DF	DEMAND									
LIGHTING IN VA			25%	0									
RECEPTACLES > 10K IN VA			50%	0									
LARGEST MOTOR IN VA			25%	0									
THIS PANEL LOAD IN VA		172649.4	100%	172649.4									
TOTAL PANEL IN VA		172649.4											
		TOTAL AMPERES =				479							

				PANEL NAME				FEED/VERIFY										
								ENCL: NEMA-1										
								AVAIL. SHRT CKT		21.79 KAIC								
								SHRT CKT BRACE		22 KAIC								
NO OF WIRE SYSTEM				LOCATION: SEE PLAN														
MAIN BREAKER OR FUSE SIZE																		
MAIN LUG BUSS SIZE																		
POLE				PHASE A	PHASE B	PHASE C					%VDROP = 0.96%							
#	-	DESCRIPTION	-				POLE		C.B.		PHASE A	PHASE B	PHASE C	-	DESCRIPTION	-	POLE #	
1		ALLOWANCE		19183													2	
3	-				19183												4	
5	-					19183											6	
7																	8	
9																	10	
11																	12	
13																	14	
15																	16	
17																	18	
19																	20	
21																	22	
23																	24	
25																	26	
27																	28	
29																	30	
31																	32	
33																	34	
35																	36	
37																	38	
39																	40	
41																	42	
SUB-TOTAL =				19183	19183	19183					0	0	0	= SUB-TOTAL				
TOTAL CONNECTED VA/PHASE =				19183	19183	19183					160	160	160	= TOTAL CONNECTED AMPS/PHASE				
TOTAL CONNECTED VA =				57549.8														
TOTAL DEMAND				Load	DF	DEMAND												
LIGHTING IN VA				25%				0				NOTES:						
RECEPTACLES > 10K IN VA				50%				0				PROVIDE 2" C WITH 4#3/0 & 1#6 GND (Copper)						
LARGEST MOTOR IN VA				25%				0				PROVIDE APPROPRIATE WIRE SIZES PER NEC						
THIS PANEL LOAD IN VA				57549.8	100%	57549.8												
TOTAL PANEL IN VA				57549.8														
				TOTAL AMPERES =				160										

	LINE- VOLTS	PHASE VOLTS	SYSTEM PHASE	PANEL NAME "H1"	FEED/VERIFY	
					ENCL. NEMA-1	PHASE
NO OF WIRE SYSTEM	208	120	3		AVAIL SHRT CKT	22.25 KAIC
MAIN BREAKER OR FUSE SIZE	4			LOCATION: SEE PLAN	SHRT CKT BRACE	42 KAIC
MAIN LUG BUSS SIZE	600					
PANEL NAME "H1"						
POLE #	PHASE A	PHASE B	PHASE C	POLE	C.B.	C.B.
1	HOUSE PANEL "H2"	3106	5007	3	200	200
3						
5						
7	HOUSE PANEL "H4"	3106	5007	3	200	200
9						
11						
13	RECEPT - LOBBY	360	1200	1	20	20
15	PUMP PUMP ALLOWANCE- ELEV		1200	2	30	30
17			1200			
19	FC-4	120		2	15	20
21		120		2	1	1200
23	FC-1		1800	2	20	20
25		1800				
27	CU-4		4440	2	60	3
29						
31	FC-4	120		2	15	125
33		120				
35	FIRE ALARM (FIRE RISER ROOM)		360	1	20	20
37	SPACE			1	20	20
39	SPACE			1	20	20
41	SPACE			1	20	20
SUB-TOTAL = 8812 15884 14040						
TOTAL CONNECTED VA/PHASE = 40984 52725 46164						
TOTAL CONNECTED VA = 139933						
TOTAL DEMAND	Load	DF	DEMAND			
LIGHTING IN VA		25%	0			
RECEPTACLES > 10K IN VA		50%	0			
LARGEST MOTOR IN VA		25%	0			
THIS PANEL LOAD IN VA	139933	100%	139933			
TOTAL PANEL IN VA			139933			
TOTAL AMPERES = 388						

	LINE- VOLTS	PHASE VOLTS	SYSTEM PHASE	PANEL NAME "H3"	FEED/VERIFY	
					ENCL. NEMA-1	PHASE
NO OF WIRE SYSTEM	208	120	3		AVAIL SHRT CKT	14.44 KAIC
MAIN BREAKER OR FUSE SIZE	4			LOCATION: SEE PLAN	SHRT CKT BRACE	18 KAIC
MAIN LUG BUSS SIZE	200					
POLE #	PHASE A	PHASE B	PHASE C	POLE	C.B.	C.B.
1	RECEPT - FLOOR 3	900		1	20	20
3	SPACE			1	20	20
5	SPACE			1	20	20
7	SPACE			1	20	20
9	SPACE			1	20	20
11	SPACE			1	20	20
13	SPACE			1	20	20
15	SPACE			1	20	20
17	SPACE			1	20	20
19	FC-1	1800		2	20	20
21			1800			
23	FC-4		120	2	15	20
25		120				
27	FC-1		1800	2	20	20
29			1800			
31	SPACE			2	15	20
33						
35	SPACE					
37	SPACE					
39	SPACE					
41	SPACE					
SUB-TOTAL = 2820 3600 1920						
TOTAL CONNECTED VA/PHASE = 3106 5007 3120						
TOTAL CONNECTED VA = 11233						
TOTAL DEMAND	Load	DF	DEMAND			
LIGHTING IN VA		25%	0			
RECEPTACLES > 10K IN VA		50%	0			
LARGEST MOTOR IN VA		25%	0			
THIS PANEL LOAD IN VA	11233	100%	11233			
TOTAL PANEL IN VA			11233			
TOTAL AMPERES = 31						

	LINE- VOLTS	PHASE VOLTS	SYSTEM PHASE	PANEL NAME "H5"	FEED/VERIFY	
					ENCL. NEMA-1	PHASE
NO OF WIRE SYSTEM	208	120	3		AVAIL SHRT CKT	13.01 KAIC
MAIN BREAKER OR FUSE SIZE	4			LOCATION: SEE PLAN	SHRT CKT BRACE	14 KAIC
MAIN LUG BUSS SIZE	200					
POLE #	PHASE A	PHASE B	PHASE C	POLE	C.B.	C.B.
1	RECEPT - FLOOR 5	900		1	20	20
3	VENDING MACHINE - FLOOR 5		1200	1	20	20
5	VENDING MACHINE - FLOOR 5		1200	1	20	20
7	EXERCISE EQUIP ALLOWANCE	1200		1	20	
9	EXERCISE EQUIP ALLOWANCE		1200	1	20	25
11	EXERCISE EQUIP ALLOWANCE		1200	1	20	
13	RECEPT - FLOOR 5 GYM	360		1	20	30
15	WATER HEATERS PWR/CONTROL		1200	1	20	
17	SPACE			1	20	
19	FC-1	1800		2	20	30
21			1800			
23	FC-1		1800	2	20	
25		1800				
27	FC-1		1800	2	20	15
29			1800			
31	EXERCISE EQUIP ALLOWANCE	1200		1	20	20
33	EXERCISE EQUIP ALLOWANCE		1200	1	20	20
35	EXERCISE EQUIP ALLOWANCE		1200	1	20	20
37	SPACE			1	20	20
39	SPACE			1	20	20
41	SPACE			1	20	20
SUB-TOTAL = 7260 8400 7200						
TOTAL CONNECTED VA/PHASE = 12226 14536 13060						
TOTAL CONNECTED VA = 40242						
TOTAL DEMAND	Load	DF	DEMAND			
LIGHTING IN VA		25%	0			
RECEPTACLES > 10K IN VA		50%	0			
LARGEST MOTOR IN VA		25%	0			
THIS PANEL LOAD IN VA	40242	100%	40242			
TOTAL PANEL IN VA			40242			
TOTAL AMPERES = 112						

	LINE- VOLTS	PHASE VOLTS	SYSTEM PHASE	PANEL NAME "H2"	FEED/VERIFY	
					ENCL. NEMA-1	PHASE
NO OF WIRE SYSTEM	208	120	3		AVAIL SHRT CKT	16.07 KAIC
MAIN BREAKER OR FUSE SIZE	4			LOCATION: SEE PLAN	SHRT CKT BRACE	18 KAIC
MAIN LUG BUSS SIZE	200					
POLE #	PHASE A	PHASE B	PHASE C	POLE	C.B.	C.B.
1	RECEPT - FLOOR 2	900		1	20	20
3	SPACE			1	20	20
5	SPACE			1	20	20
7	SPACE			1	20	20
9	SPACE			1	20	20
11	SPACE			1	20	20
13	SPACE			1	20	20
15	SPACE			1	20	20
17	SPACE			1	20	20
19	FC-1	1800		2	20	20
21			1800			
23	FC-4		120	2	15	20
25		120				
27	FC-1		1800	2	20	20
29			1800			
31	SPACE			2	15	20
33						
35	SPACE					
37	SPACE					
39	SPACE					
41	SPACE					
SUB-TOTAL = 2820 3600 1920						
TOTAL CONNECTED VA/PHASE = 3106 5007 3120						
TOTAL CONNECTED VA = 11233						
TOTAL DEMAND	Load	DF	DEMAND			
LIGHTING IN VA		25%	0			
RECEPTACLES > 10K IN VA		50%	0			
LARGEST MOTOR IN VA		25%	0			
THIS PANEL LOAD IN VA	11233	100%	11233			
TOTAL PANEL IN VA			11233			
TOTAL AMPERES = 31						

	LINE- VOLTS	PHASE VOLTS	SYSTEM PHASE	PANEL NAME "H4"	FEED/VERIFY	
					ENCL. NEMA-1	PHASE
NO OF WIRE SYSTEM	208	120	3		AVAIL SHRT CKT	13.11 KAIC
MAIN BREAKER OR FUSE SIZE	4			LOCATION: SEE PLAN	SHRT CKT BRACE	18 KAIC
MAIN LUG BUSS SIZE	200					
POLE #	PHASE A	PHASE B	PHASE C	POLE	C.B.	C.B.
1	RECEPT - FLOOR 4	900		1	20	20
3	SPACE			1	20	20
5	SPACE			1	20	20
7	SPACE			1	20	20
9	SPACE			1	20	20
11	SPACE			1	20	20
13	SPACE			1	20	20
15	SPACE			1	20	20
17	SPACE			1	20	20
19	FC-1	1800		2	20	20
21			1800			
23	FC-4		120	2	15	20
25		120				
27	FC-1		1800	2	20	20
29			1800			
31	SPACE			2	15	20
33						
35	SPACE					
37	SPACE					
39	SPACE					
41	SPACE					
SUB-TOTAL = 2820 3600 1920						
TOTAL CONNECTED VA/PHASE = 3106 5007 3120						
TOTAL CONNECTED VA = 11233						
TOTAL DEMAND	Load	DF	DEMAND			
LIGHTING IN VA		25%	0			
RECEPTACLES > 10K IN VA		50%	0			
LARGEST MOTOR IN VA		25%	0			
THIS PANEL LOAD IN VA	11233	100%	11233			
TOTAL PANEL IN VA			11233			
TOTAL AMPERES = 31						



ENGINEERING A SUSTAINABLE FUTURE
6040 S. Durango Dr., Ste. 100 Las Vegas, NV 89115
Phone: office 702.361.0020, cell 702.521.3700
Website: Marianoeng.com

SEAL



A NEW SHELL BUILDING IMPROVEMENT
31 SOUTH WATER STREET
CITY OF HENDERSON, NV 89015

P. JAMES
ARCHITECTURE
PLANNING
DESIGN
4629 VICTORIA BEACH WAY
LAS VEGAS, NV 89103
702.683.3277

REV	DATE	Description

SHEET

E13.00

31 WATER STREET LLC
PROJECT NUMBER: 0201909
DATE: 04-16-2020



COMcheck Software Version 4.1.1.0

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: A NEW SHELL BUILDING IMPROVEMENT
Project Type: New Construction

Construction Site: 31 Water Street
Henderson, NV 89015
Owner/Agent: Designer/Contractor:

Additional Efficiency Package(s)

Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft ²)	C Allowed Watts / ft ²	D Allowed Watts (B X C)
1-Multifamily	8400	0.61	5141
Total Allowed Watts =			5141

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Multifamily				
LED 1: Type A or AE: LED PAR 12W:	1	91	13	1174
LED 2: Type C or CE: LED Panel 60W:	1	22	65	1430
LED 3: Type S: LED Panel 36W:	1	47	36	1692
Total Proposed Watts =			4296	

Interior Lighting PASSES: Design 16% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

Project Title: A NEW SHELL BUILDING IMPROVEMENT Report date: 02/20/20
Data filename: G:\2020\31 S Water Street Project\31 Water Street IECC.cck Page 1 of 6



COMcheck Software Version 4.1.1.0

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 0.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4]1	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C406 [PR9]1	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: A NEW SHELL BUILDING IMPROVEMENT Report date: 02/20/20
Data filename: G:\2020\31 S Water Street Project\31 Water Street IECC.cck Page 2 of 6

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.2 [EL22]1	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern = 50 percent.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1.1 [EL18]1	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1.2 [EL19]1	Occupancy sensors control function in warehouses: In warehouses, the lighting in aislesways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1.3 [EL20]1	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space. 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space. 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.2.1 [EL21]2	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: A NEW SHELL BUILDING IMPROVEMENT Report date: 02/20/20
Data filename: G:\2020\31 S Water Street Project\31 Water Street IECC.cck Page 3 of 6

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3.1 [EL23]2	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3.2 Daylight-responsive controls for applicable spaces. C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sideell zone.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.4 [EL26]1	Separate lighting control devices for specific uses installed per approved lighting plans.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.4 [EL27]1	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.3 [EL6]2	Exit signs do not exceed 5 watts per face.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.6 [EL26]2	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.7 [EL27]2	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.8.2.1 [EL28]2	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.9 [EL29]2	Total voltage drop across the combination of feeders and branch circuits <= 5%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: A NEW SHELL BUILDING IMPROVEMENT Report date: 02/20/20
Data filename: G:\2020\31 S Water Street Project\31 Water Street IECC.cck Page 4 of 6

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3.1 [F117]2	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.4.1 [F118]1	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Interior Lighting fixture schedule for values.
C408.1.1 [F157]1	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.2.5.1 [F116]2	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.3 [F133]2	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: A NEW SHELL BUILDING IMPROVEMENT Report date: 02/20/20
Data filename: G:\2020\31 S Water Street Project\31 Water Street IECC.cck Page 5 of 6

Project Title: A NEW SHELL BUILDING IMPROVEMENT Report date: 02/20/20
Data filename: G:\2020\31 S Water Street Project\31 Water Street IECC.cck Page 6 of 6

SEAL



4/16/20

A NEW SHELL BUILDING IMPROVEMENT

31 SOUTH WATER STREET

CITY OF HENDERSON, NV 89015

APN #179-18-611-055

31 WATER STREET LLC

PROJECT NUMBER: 0201909

DATE: 04-16-2020

P. JAMES

ARCHITECTURE

PLANNING

DESIGN

4629 VICTORIA BEACH WAY

LAS VEGAS, NV 89103

702.683.3277

DATE

REVISIONS

Description

REV

SHEET

E14.00

