

NOT USED

N

ELECTRICAL SPECIFICATIONS

A

26 51 00 INTERIOR LIGHTING

- A. INSTALL LIGHTING FIXTURES AS SHOWN ON THE DRAWINGS.
- B. ALL FIXTURES TO BE LISTED AND LABELED BY UNDERWRITERS LABORATORIES AND ALL BALLASTS TO BE CBM CERTIFIED BY ETL.
- C. LAMPS SHALL BE MANUFACTURED BY PHILLIPS, OSRAM/ SYLVANIA OR GENERAL ELECTRIC. ALL LAMP TYPES SHALL BE BY THE SAME MANUFACTURER.
- D. FIXTURES ARE TO BE PROVIDED COMPLETE WITH BALLASTS, SOCKET, LAMPS, END AND TRIP PLATES AND ALL MOUNTING ACCESSORIES REQUIRED FOR A COMPLETE FIXTURE INSTALLATION.
- E. INCANDESCENT AND HIGH INTENSITY DISCHARGE RECESSED LIGHTING FIXTURES TO BE FURNISHED WITH THERMAL CUT OUTS AS REQUIRED BY THE NEC.
- F. USE RAPID-START HIGH-POWER-FACTOR ELECTRONIC BALLASTS AND T8 LAMPS, UNLESS NOTED OTHERWISE. FURNISH SPECIAL LOW TEMPERATURE BALLASTS FOR EXTERIOR MOUNTED FIXTURES.
- G. UNLESS OTHERWISE NOTED, ALL LENSES ON FLUORESCENT FIXTURES ARE TO BE ACRYLIC AND A MINIMUM OF 0.125 IN. THICK.
- H. ALL RECESSED HID FIXTURES SHALL CARRY A ULR LISTING. THEY SHALL HAVE A THERMAL CUT OUT ON BOTH THE BALLAST AND THE FIXTURE ITSELF.
- I. USE STEEL WIRE HANGERS FASTENED TO THE BUILDING STRUCTURE TO SUPPORT RECESSED FIXTURES AT EACH CORNER. (FOUR CORNERS SUSPENDED). FIXTURES TO FIT TIGHT AGAINST CONSTRUCTION TO ELIMINATE LIGHT LEAKS.
- J. WALL-MOUNTED FIXTURES SHALL BE MOUNTED PLUMB WITH BUILDING LINES AND INSTALLED WITH PROPER BOX AND COVER HARDWARE.
- K. SURFACE-MOUNTED FIXTURES SHALL COVER MOUNTING HARDWARE. USE A CANOPY THAT IS NO LONGER THAN THE MINIMUM WIDTH OF THE FIXTURE AND AT A HEIGHT THAT IS NO HIGHER THAN REQUIRED TO MOUNT FIXTURE ABSOLUTELY VERTICAL. CANOPY FINISH SHALL MATCH FIXTURE FINISH.
- L. STEIN-MOUNTED FIXTURES SHALL BE MOUNTED SO AS TO BE ABSOLUTELY VERTICAL AND HORIZONTAL. INSTALL AND SUPPORT AS SHOWN ON DRAWINGS.

27 00 00 GENERAL REQUIREMENTS

- A. PROVIDE ALL MATERIALS, LABOR, TOOLS, TRANSPORTATION INCIDENTALS AND APPURTENANCES TO COMPLETE IN EVERY DETAIL AND LEAVE IN WORKING ORDER ALL WORK CALLED FOR HEREIN.
- B. ALL NEW MATERIAL AND EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE FOLLOWING STANDARDS:
1. TELECOMMUNICATIONS INDUSTRY ASSOC./ELECTRONIC INDUSTRIES ALLIANCE (TIA/EIA):
 - a. TIA/EIA 568A.1, 2, AND 3 TELECOMMUNICATION CABLING STANDARD.
 - b. TIA/EIA 569 TELECOMMUNICATION PATHWAYS AND SPACES.
 - c. TIA/EIA 606 ADMINISTRATION OF INFRASTRUCTURE
 - d. TIA/EIA 607 GROUNDING AND BONDING
 - e. COMPLY WITH TIA/EIA 568, 569, AND BIC STANDARDS.
 - f. COMPLY WITH NFPA 770.
- C. FURNISH NEW AND UN-DETERIORATED MATERIALS OF A QUALITY NOT LESS THAN WHAT IS SPECIFIED ALL NEW MATERIAL SHALL HAVE MANUFACTURER'S NAME, MODEL NUMBER, OR OTHER IDENTIFICATION MARKING.
- D. THE CONTRACTOR SHALL BEAR ALL COSTS OF PERMITS, INSPECTIONS TESTS, AND/OR APPROVALS.
- E. THE CONTRACTOR SHALL PROVIDE ON-SITE PERSONNEL TO TROUBLESHOOT AND REPAIR ANY PROBLEMS THAT ARISE DURING CUTOVER AS THEY RELATE TO THEIR INSTALLED SYSTEM.
- F. AFTER COMPLETION, A WARRANTY SHALL BE FURNISHED FOR ALL COMPONENTS, PARTS, AND ASSEMBLIES AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP. WARRANTY SERVICES SHALL BE PROVIDED BY A CERTIFIED, FACTORY TRAINED REPRESENTATIVE OF THE EQUIPMENT MANUFACTURER FOR A MINIMUM OF ONE YEAR OR AS SPECIFIED IN EACH INDIVIDUAL SECTION.

27 05 10 TELEPHONE AND DATA CONDUIT SYSTEM

- A. FURNISH AND INSTALL SYSTEM OF CONDUIT RACEWAYS, OUTLET BOXES, PULP WIRES, AND TERMINAL BOARDS AS SHOWN ON THE DRAWINGS UNLESS OTHERWISE NOTED ON PLANS. TELEPHONE SCHEDULING APPARATUS, CONDUCTORS, INSTRUMENTS, MISCELLANEOUS EQUIPMENT AND APPEARANCES ARE NOT PART OF THIS CONTRACT AND WILL BE PROVIDED AND INSTALLED BY GENERAL CONTRACTOR.
- B. CONDUITS FOR TELEPHONE HALL OUTLETS AND DATA WIRING SHALL BE A MINIMUM OF 1" UNLESS NOTED OTHERWISE.
- C. FURNISH AND INSTALL A 3/4" THICK, FIRE-TREATED, PLYWOOD TELECOM BACKBOARD AT LOCATION SHOWN ON THE DRAWINGS, PAINT WITH FIRE RETARDANT "P-1B" OR AS DIRECTED BY TENANT'S CONSTRUCTION MANAGER. THE PLYWOOD BACKBOARD SHALL BE SECURELY ATTACHED TO THE BUILDING STRUCTURE WITH 1/2" SUPPORT RELAY PANELS, TERMINAL BLOCKS AND OTHER HARDWARE WEIGHING APPROXIMATELY 10 POUNDS PER SQUARE FOOT.
- D. ALL CONDUIT RUNS FOR DATA AND TELEPHONE SHALL BE CONTINUOUS WITH NO JUNCTION BOXES EXCEPT AS NOTED ON DRAWINGS. THIS INCLUDES BUT IS NOT LIMITED TO RUNS BETWEEN TELEPHONE BOARD, MANAGER'S OFFICE, SOUND SYSTEM, CASHMANS AND TELEPHONE SETS.
- E. INSTALL PULP STRING IN EMPTY CONDUITS. ALL CONDUITS SHALL BE LABELED FOR PURPOSE DESIGNATED.
- F. FURNISH AND INSTALL GROUND ROD AND #6 GROUND WIRE FROM TELECOM BACKBOARD TO SERVICE ENTRANCE GROUND AND GROUND ROD PER TELEPHONE COMPANY'S REQUIREMENTS.
- G. OUTLET BOXES TO BE 4" SQUARE MINIMUM WITH SINGLE DEVICE COVER AND TELEPHONE PLATE.

27 05 15 INTERIOR COMMUNICATIONS PATHWAYS

- A. INTERIOR COMMUNICATIONS PATHWAYS SHALL BE INSTALLED BY THE GENERAL CONTRACTOR AND BY THE TELECOMMUNICATIONS CONTRACTOR AS SPECIFIED HEREIN.
- B. CONDUITS SHALL BE INSTALLED, AS DETAILED IN DRAWINGS. THESE CONDUITS SHALL BE INSTALLED BY THE GENERAL CONTRACTOR.

27 05 28 WALL-MOUNT RACK

- A. WALL RACK SHALL CONTAIN NETWORK SWITCH, PATCH PANEL(S) AND BE MOUNTED ON THE WALLBOARD LOCATED IN THE BACK STORAGE ROOM.
- B. PROVIDE LOWELL MODEL X-2820.
- C. WALL RACK SHALL BE INSTALLED, AS DETAILED IN DRAWINGS.

27 11 00 HORIZONTAL CABLING AND CONNECTIVITY

- PROVIDE A 10/100/1000 MBPS FULL-DUPLEX TRANSMISSION ETHERNET NETWORK OVER 4-PAIR, CATEGORY 5E UTP HORIZONTAL CABLING. THE SYSTEM SHALL BE A CERTIFIED SOLUTION BY THE CONNECTIVITY MANUFACTURER. THE HORIZONTAL INFRASTRUCTURE SHALL SUPPORT BOTH VOICE AND DATA APPLICATIONS.
- B. THIS SECTION INCLUDES WIRE, CABLE, CONNECTING DEVICES, INSTALLATION, AND TESTING FOR WIRING SYSTEMS TO BE USED AS SIGNAL PATHWAYS FOR VOICE, VIDEO, AND DATA TRANSMISSION. THE SYSTEM SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
1. MOUNTING ELEMENTS
 2. UNSHIELDED TWISTED-PAIR CABLE
 3. PATCH, STATION, AND CROSS CONNECT CORDS
 4. JACKS AND FACEPLATES
 5. TERMINATION AND PATCH PANELS
- C. MANUFACTURERS' SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. COPPER CABLES (UTP):
 - a. BERK-TEK, INC.
 - b. BELDEN
 - c. MOHAKAM
 - d. GENERAL
 - e. UNIPRISE
 2. MODULAR JACKS AND FACEPLATES:
 - a. LEVITON
 - b. HUBBELL
 - c. ORTRONICS
 - d. PANDUIT
 - e. UNIPRISE
- D. HORIZONTAL CABLES FOR VOICE/DATA/VIDEO INFRASTRUCTURE:
1. LISTED AS COMPLYING WITH CATEGORY 5E OF TIA/EIA-568-A.
 2. CONDUCTORS: SOLID COPPER.
 3. UTP CABLE: COMPLY WITH TIA/EIA-568-A. FOUR THERMOPLASTIC-INSULATED, INDIVIDUALLY TWISTED PAIR OF CONDUCTORS; NO. 2 AWG, COLOR-CODED; ENCLOSE IN A JACKET.
 4. CABLE - LISTED PLenum - LISTED FOR USE IN AIR-HANDLING SPACES.
 5. NON-PLenum IN ALL OTHER AREAS.
 6. COLOR CODING: BLUE FOR DATA, YELLOW FOR VOICE AND WHITE FOR VIDEO
- E. WORKSTATION OUTLETS: SINGLE JACK CONNECTOR ASSEMBLIES MOUNTED IN FACEPLATE.
1. FACEPLATE: HIGH IMPACT PLASTIC; COLOR TO BE WHITE.
 2. MOUNTING: FLUSH, UNLESS OTHERWISE INDICATED.
 3. LABELING: SHALL HAVE INTEGRAL LABEL WITH LABEL COVER.
 4. JACK SPACES: AS INDICATED ON THE DRAWINGS WITH ANY NECESSARY BLANKS. BLANKS SHALL MATCH FACEPLATE COVER.
- F. WIRING METHOD: INSTALL HORIZONTAL CABLING IN RACEWAY WITHIN RACKS AND ENCLOSURES, AND EXCEPT IN ACCESSIBLE CEILING SPACES AND IN GYPSUM BOARD PARTITIONS WHERE CABLE WIRING METHOD MAY BE USED, CONCEAL RACEWAY AND CABLING EXCEPT IN UNFINISHED SPACES. IN ACCESSIBLE CEILINGS, USE APPROPRIATELY SIZED J-HOOKS TO SUPPORT THE CABLING EVERY FOUR FEET (MAXIMUM).

- G. INSTALL CABLE USING TECHNIQUES, PRACTICES, AND METHODS THAT ARE CONSISTENT WITH CATEGORY SE RATING OF COMPONENTS AND THAT INSURE CATEGORY SE PERFORMANCE OF COMPONENTS AND THE ENTIRE CABLE SYSTEM THROUGHOUT THE ENTIRE LIFE OF THE SYSTEM.
- H. DO NOT BEND CABLE IN HANDLING OR IN INSTALLING TO SMALLER RADII THAN MINIMUMS RECOMMENDED BY MANUFACTURER.
- I. HORIZONTAL CABLES: LABEL CABLES AT THE WORK AREA END AND AT THE CLOSET END WITH THE PATCH PANEL PORT NUMBER. LABEL EACH CABLE WITHIN 3 INCHES OF EACH TERMINATION, WHERE IT IS ACCESSIBLE TO THE CABLE AT JUNCTION OR OUTLET BOX, AND ELSEWHERE AS INDICATED.
- J. WORKSTATION: LABEL CABLES WITHIN OUTLET BOXES AND NEATLY TYPED ON THE INTEGRAL LABEL AT THE WORKSTATION. THE LABEL MUST BE PERMANENTLY ATTACHED TO THE CABLE.
- K. WARRANTY PERIOD FOR COMMUNICATIONS CONNECTIVITY (INCLUDING ALL COPPER), MANUFACTURER'S STANDARD, BUT NOT LESS THAN 25 YEARS FROM DATE OF CONTRACT COMPLETION.

27 22 00 DATA NETWORK EQUIPMENT

- A. THE LOCAL AREA NETWORK (LAN) SHALL BE CAPABLE OF 10/100/1000 MB/S FULL DUPLEX DATA TRANSMISSION VIA 4-PAIR CAT 5E UTP CABLE TO EVERY DATA JACK OUTLET. ALL EQUIPMENT MUST BE THE LATEST MODEL AVAILABLE AT THE TIME OF DELIVERY AND INSTALLATION.
- B. ETHERNET SWITCHES AND NETWORK MANAGEMENT SOFTWARE:
1. 3COM
 2. CISCO
 3. HP
- C. ETHERNET SWITCHES:
1. PROVIDE RACK MOUNTED SWITCHES.
 2. SWITCHES SHALL BE RATED 10/100/1000 BASE-T LINE SWITCHING SPEED. (RJ-45).
 3. SWITCHES SHALL HAVE TWENTY-FOUR 100BASE-T PORTS
 4. SWITCH FEATURES SHALL INCLUDE, BUT NOT LIMITED TO:
 - a. STORE-AND-FORWARD SWITCHING
 - b. FULL/HALF DUPLEX AUTO-NEGOTIATION
 - c. BACK PRESSURE FLOW CONTROL FOR HALF-DUPLEX
 - d. BROADCAST STORM SUPPRESSION
 - e. 802.1D SPANNING TREE PROTOCOL (STP)
 - f. 802.1W RAPID SPANNING TREE PROTOCOL (RSTP)
 - g. 802.1Q VLAN SUPPORT
 - h. 802.1P TRAFFIC PRIORITIZATION
 - i. 802.3X FULL-DUPLEX FLOW CONTROL
 - j. 802.3AD LINK AGGREGATION.
 - k. GMP V1 AND V2 SNOOPING.
 5. ADVANCED QUALITY OF SERVICE: SHALL PRIORITIZE TRAFFIC TO ENSURE MAXIMUM NETWORK PERFORMANCE AND OPTIMIZE IP TELEPHONY, VIDEO, AND DATA.
 6. EACH SWITCH SHALL SUPPORT THE FOLLOWING SNMP STANDARDS:
 - a. SNMP PROTOCOL (RFC157)
 - b. MIB-II (RFC 1213)
 - c. BRIDGE MIB (RFC493)
 - d. RMON MIB II (RFC 2201)
 - e. REMOTE MONITORING MIB (RFC 1757)
 - f. INTERFACE MIB (2233) STANDARDS.
 7. EACH SWITCH SHALL SUPPORT THE FOLLOWING SECURITY
 - a. RADIUS (RFC 2865, RFC 2864)
 - b. SESSION ACCOUNTING (RFC 2866)
 - c. IEEE 802.1X NETWORK LOGIN
 - d. SSHV2.
- D. INSTALL ETHERNET SWITCH COMPLETE AND VALIDATE CONNECTIVITY THROUGHOUT. ESTABLISH ALL VLANs, IP ROUTING, AND IP SUBNETS PER OWNER'S DIRECTION.

28 22 00 INTRUSION DETECTION SYSTEM

- A. THIS SECTION INCLUDES AN INTRUSION DETECTION SYSTEM WITH A DIGITAL RECORDER FOR MONITORING AND RECORDING BUILDING ACTIVITY.
- B. CONTROL PANEL, MOTION SENSORS, GLASS BREAK SENSORS, KEYPADS, AND DOOR CONTACT SWITCHES:
1. GE
 2. HONEYWELL
 3. PHILLIPS/BOSCH
- C. KEYPAD STATIONS
1. KEYPAD AND DISPLAY MODULE: ARRANGED FOR ENTERING AND EXECUTING COMMANDS FOR SYSTEM STATUS CHANGE AND FOR DISPLAYING SYSTEM STATUS AND COMMAND RELATED DATA.
- D. MOTION SENSORS
1. CEILING OR WALL MOUNT PASSIVE INFRARED WITH A 120-DEGREE ANGLE.
- E. CONTROL UNITS
1. COMPLY WITH UL 1023
 2. CABINET LOCKABLE
 3. STEEL ENCLOSURE, ARRANGED SO OPERATIONS REQUIRED FOR TESTING, NORMAL OPERATION, AND MAINTENANCE ARE PERFORMED FROM FRONT OF ENCLOSURE. IF MORE THAN A SINGLE CABINET IS REQUIRED TO FORM A COMPLETE CONTROL UNIT, PROVIDE EXACTLY THE SAME MODULAR COMPONENTS, ACCORDING TO ALL COMPONENTS AND ALLOW AMPLE GUTTER SPACE FOR INTERCONNECTING CABINETS AND FIELD WIRING. IDENTIFY EACH ENCLOSURE BY AN ENGRAVED, LAMINATED, PHENOLIC RESIN NAMEPLATE, LETTERING ON ENCLOSURE NAMEPLATE SHALL NOT BE LESS THAN 1 INCH (25.4 MM) HIGH. IDENTIFY INDIVIDUAL COMPONENTS AND MODULES WITHIN CABINETS WITH PERMANENT LABELS.
 3. CONTROL MODULES: TYPES AND CAPACITIES AS REQUIRED TO PERFORM UNIT FUNCTIONS. VISIBLE ADDRESSABLE SIGNALS IN CENTRAL CONTROL UNIT INDICATE ALARM SUPERVISORY, AND TROUBLE CONDITIONS FOR EACH ZONE. EACH TYPE OF AUDIBLE ALARM HAS A DISTINCT SOUND.
 4. SUPERVISORY CAPACITY: SUPERVISORICATED WITH CAPACITY FOR EXPANDING NUMBER OF ZONES BY A MINIMUM OF 25 PERCENT.
 5. POWER SUPPLY CIRCUITS: UNITS PROVIDE POWER FOR REMOTE POWER CONSUMING DETECTION DEVICES AND CIRCUITRY.
 6. INDICATING LIGHTS: INDIVIDUAL LED DEVICES DESIGNATE EACH ZONE. AN LED TEST SWITCH FOR EACH CONTROL UNIT SECTION ILLUMINATES ALL LED DEVICES ON THAT SECTION OF THE UNIT.
 7. TROUBLE TOGGLE TEST SWITCHES OR PUSH TEST BUTTONS DO NOT REQUIRE A KEY TO OPERATE. ALARM AND SUPERVISORY SIGNALS LIGHT A RED LED FOR THE ASSOCIATED ZONE. TROUBLE SIGNALS LIGHT AN AMBER LED FOR THE ASSOCIATED ZONE.
 7. TROUBLE TOGGLE TEST SWITCHES OR PUSH TEST BUTTONS DO NOT REQUIRE A KEY TO OPERATE. ALARM AND SUPERVISORY SIGNALS LIGHT A RED LED FOR THE ASSOCIATED ZONE. TROUBLE SIGNALS LIGHT AN AMBER LED FOR THE ASSOCIATED ZONE.
 8. RESETTING OF ALARM, SUPERVISORY, OR TROUBLE SIGNALS WHILE THE CONDITION STILL EXISTS.
 9. TRANSMISSION TO REMOTE ALARM RECEIVING STATION: AUTOMATICALLY ROUTE ALARM, SUPERVISORY, AND TROUBLE SIGNALS TO A REMOTE ALARM STATION BY MEANS OF A DIGITAL ALARM COMMUNICATOR TRANSMITTER AND TELEPHONE LINES.
- F. DIGITAL ALARM COMMUNICATOR TRANSMITTER
1. FUNCTIONAL PERFORMANCE UNIT RECEIVES AN ALARM, SUPERVISORY, OR TROUBLE SIGNAL FROM THE CONTROL PANEL, AND AUTOMATICALLY CAPTURES ONE OR TWO TELEPHONE LINES AND DIALS A PRESET NUMBER FOR A REMOTE CENTRAL STATION.
- G. CONDUCTORS AND CABLES
1. SIZE AND CONDUCTOR SIZE CONDUCTORS AS RECOMMENDED BY SYSTEM MANUFACTURER, UNLESS OTHERWISE INDICATED.
- H. LISTING FOR SYSTEM
1. UL 1610 - CENTRAL STATION BULGAR ALARM UNITS.

- I. INSTALL SYSTEM ACCORDING TO NFPA 70, APPLICABLE CODES MANUFACTURER'S WRITTEN INSTRUCTIONS.
- J. TRAIN OWNER'S PERSONNEL A MINIMUM OF 1 HOUR IN THE USE, OPERATION, AND ADMINISTRATION.

28 31 11 DIGITAL ADDRESSABLE FIRE ALARM SYSTEM

- A. BASIC PERFORMANCE:
1. ALARM, TROUBLE AND SUPERVISORY SIGNALS FROM ALL REPORTING DEVICES SHALL BE ENCODED ONTO AN NFPA STYLE 4 (CLASS B) SIGNALING LINE CIRCUIT.
 2. INITIATION DEVICE CIRCUITS SHALL BE WIRED CLASS B (NFPA STYLE B).
 3. INDICATING APPLIANCE CIRCUITS SHALL BE WIRED STYLE Y (CLASS B).
- B. SUBMIT COORDINATED SHOP DRAWINGS TO THE ARCHITECT FOR APPROVAL.
- C. ALL REFERENCES TO MANUFACTURER'S MODEL NUMBERS AND OTHER PERTINENT INFORMATION HEREIN IS INTENDED TO ESTABLISH MINIMUM STANDARDS OF PERFORMANCE, FUNCTION AND QUALITY. ALL DEVICES SHALL BE BY SAME MANUFACTURER AS LANDLORD SYSTEM.
- D. THE SYSTEM MUST HAVE PROPER LISTING AND/OR APPROVAL FROM THE FOLLOWING NATIONALLY RECOGNIZED AGENCIES:
1. UL, UNDERWRITERS LABORATORIES, INC.
 2. NFPA 70, NATIONAL ELECTRICAL CODE (NEC).
 3. NFPA 72, NATIONAL FIRE ALARM CODE.
- E. ALL EQUIPMENT COMPONENTS SHALL BE NEW, AND THE MANUFACTURER'S CURRENT MODEL. THE MANUFACTURER'S RECOMMENDATIONS, EQUIPMENT AND DEVICES SHALL BE TESTED AND LISTED BY A NATIONALLY RECOGNIZED APPROVALS AGENCY FOR USE AS PART OF A PROTECTED PREMISES PROTECTIVE SIGNALING (FIRE ALARM) SYSTEM. THE AUTHORIZED REPRESENTATIVE OF THE MANUFACTURER SHALL BE RESPONSIBLE FOR THE SATISFACTORY INSTALLATION OF THE COMPLETE SYSTEM.
- F. ALL EQUIPMENT AND COMPONENTS SHALL BE INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS. CONSULT THE MANUFACTURER'S INSTALLATION MANUALS FOR ALL WIRING DIAGRAMS, SCHEMATICS, PHYSICAL EQUIPMENT SIZES, ETC., BEFORE BEGINNING SYSTEM INSTALLATION.
- G. ALL EQUIPMENT SHALL BE ATTACHED TO WALLS AND CEILING/FLOOR ASSEMBLIES AND SHALL BE HELD FIRMLY IN PLACE.
- H. ALL WIRING SHALL BE INSTALLED IN CONDUIT OR RACEWAY: CONDUIT FILL SHALL NOT EXCEED 40 PERCENT OF CROSS-SECTIONAL AREA WHEN THREE OR MORE CABLES ARE CONTAINED WITHIN A SINGLE CONDUIT.
- I. CABLE MUST BE SEPARATED FROM ANY OPEN CONDUCTORS OF POWER OR CLASS I CIRCUITS, AND SHALL NOT BE PLACED IN ANY CONDUIT, JUNCTION BOX, OR RACEWAY CONTAINING THESE

- CONDUCTORS.
- J. WIRING IN CONDUIT SHALL BE IN ACCORDANCE WITH LOCAL, STATE AND NATIONAL CODES (E.G., NFPA 70C, NFPA 70E AND NFPA 72) AND RECOMMENDED BY THE MANUFACTURER OF THE FIRE ALARM SYSTEM. NUMBER AND SIZE OF CONDUCTORS SHALL BE AS RECOMMENDED BY THE FIRE ALARM SYSTEM MANUFACTURER, BUT NOT LESS THAN #18 AWG (0.02 MM) FOR INITIATING DEVICE CIRCUITS AND SIGNALING LINE CIRCUITS, AND #12 AWG (1.63 MM) FOR INDICATING APPLIANCE CIRCUITS.
- K. ALL WIRE AND CABLE SHALL BE LISTED AND/OR APPROVED BY A RECOGNIZED TESTING AGENCY FOR USE WITH A POTENTIAL SIGNALING SYSTEM.
- L. STROBE LIGHTS:
1. SHALL OPERATE ON 24 VDC, NOMINAL.
 2. SHALL MEET THE REQUIREMENTS OF THE ADA AS DEFINED IN UL STANDARD 1971, AND SHALL MEET THE FOLLOWING CRITERIA:
 - a. UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS, THE INTENSITY SHALL BE A MINIMUM OF 75 CANDELA.
 - b. ALL STROBES IN ANY GIVEN AREA SHALL BE SYNCHRONIZED WITH OTHER STROBES IN THAT AREA.
 - c. THE APPLIANCE SHALL BE PLACED 80 IN. ABOVE THE HIGHEST FLOOR LEVEL WITHIN THE SPACE OR 16 IN. BELOW THE CEILING, WHICHEVER IS LOWER.
 - d. THE APPLIANCE SHALL BE A WHITE HOUSING WITH THE WORD "FIRE" IN RED UNLESS PROHIBITED BY LOCAL CODES OR MALL STANDARDS.
- M. AUDIBLE/VISUAL COMBINATION DEVICE:
1. SHALL MEET THE APPLICABLE REQUIREMENTS OF SECTION 28 31 11-L LISTED ABOVE FOR VISIBILITY.
 2. AUDIBLE SIGNAL SHALL BE 15DB ABOVE AMBIENT SOUND LEVEL.
 3. THE ADDRESS MANUAL STATIONS SHALL BE USING WITH THE WORD "FIRE" IN RED UNLESS PROHIBITED BY LOCAL CODES OR MALL STANDARDS.
 4. DEVICES SHALL BE WALL OR CEILING MOUNTED AS INDICATED ON THE PLANS.
- N. MANUAL STATIONS:
1. ADDRESSABLE MANUAL STATIONS SHALL BE PROVIDED TO CONNECT TO THE FIRE ALARM CONTROL PANEL SIGNALING LINE CIRCUIT (SLC) LOOPS.
 2. THE MANUAL STATIONS SHALL USE A KEY OPERATED TEST-RESET LOCK, AND SHALL BE DESIGNED SO THAT AFTER ACTUAL EMERGENCY OPERATION, THEY CANNOT BE RESTORED TO NORMAL USE EXCEPT BY THE USE OF A KEY.
 3. ALL OPERATED STATIONS SHALL HAVE A POSITIVE, VISUAL INDICATION OF OPERATION THAT CANNOT BE RESET WITHOUT THE USE OF A KEY.
 4. MANUAL STATIONS SHALL BE SUITABLE FOR SEISMIC/FLUSH MOUNTING AS SHOWN ON THE PLANS, AND SHALL BE INSTALLED NOT LESS THAN 42 INCHES, AND NOT MORE THAN 48 INCHES ABOVE THE FINISHED FLOOR.
- O. PHOTOELECTRIC DETECTORS:
1. THE PHOTOELECTRIC TYPE DETECTOR SHALL BE A PLUG-IN UNIT WHICH MOUNTS TO A TWIST-LOCK BASE, AND SHALL BE UL LISTED.
 2. THE DETECTORS SHALL BE OF THE SOLID STATE PHOTOELECTRIC TYPE AND SHALL CONTAIN NO RADIOACTIVE MATERIAL. THEY WILL USE A PULSED INFRARED LED LIGHT SOURCE AND BE SEALED AGAINST REAR AIR FLOW ENTRY.
 3. THE DETECTOR SHALL FIT INTO A BASE THAT IS COMMON WITH BOTH THE HEAT DETECTOR AND IONIZATION TYPE DETECTOR AND SHALL BE COMPATIBLE WITH OTHER ADDRESSABLE DETECTORS, REMAINING A SINGLE FUNCTIONALITY. THE ADDRESSABLE DETECTOR ADAPTOR MODULE ON THE SAME CIRCUIT. THE DETECTOR SHALL ALSO FIT INTO A NON-ADDRESSABLE BASE THAT IS CAPABLE OF BEING MONITORED BY AN ADDRESSABLE ZONE ADAPTOR MODULE.
- P. THE SENSOR AND BASE SHALL BE BY APPROVED MANUFACTURERS LISTED IN 28 31 11 -B.
- Q. DUCT SMOKE DETECTORS:
1. DUCT SPOKE DETECTOR SHALL BE OF THE SOLID STATE PHOTOELECTRIC TYPE AND SHALL OPERATE ON THE LIGHT SCATTERING PHOTO DIODE PRINCIPLE. THE DETECTORS SHALL BE DESIGNED TO IGNORE INVISIBLE AIRBORNE PARTICLES OR SMOKE DENSITIES THAT ARE BELOW THE FACTORY SET ALARM POINT. NO RADIOACTIVE MATERIALS SHALL BE USED.
- R. DUCT DETECTOR REMOTE TEST AND ALARM STATION:
1. DEVICE SHALL HAVE A KEY OPERATED TEST/RESET OPERATION.
 2. DEVICE SHALL HAVE A PIEZO STYLE ANNUNCIATOR WITH A DBA RATING OF 85 AT A DISTANCE OF 10'-0".
 3. SHALL HAVE A LED STROBE (ADD-ON IF REQUIRED).
- S. AT THE FINAL INSPECTION, A FACTORY TRAINED REPRESENTATIVE OF THE MANUFACTURER OF THE MAJOR EQUIPMENT SHALL DEMONSTRATE THAT THE SYSTEM FUNCTIONS PROPERLY IN EVERY RESPECT.
- T. THE CONTRACTOR AND/OR THE SYSTEMS MANUFACTURER'S REPRESENTATIVES SHALL PROVIDE A TYPEWRITTEN "SEQUENCE OF OPERATION" TO THE TENANT.
- U. BEFORE FINAL APPROVAL OF THE FIRE ALARM SYSTEM IS REQUESTED, PROVIDE THE ARCHITECT, IN WRITING, A STATEMENT THAT ALL REQUIREMENTS OF THE CITY BUILDING INSPECTION AND FIRE DEPARTMENTS HAVE BEEN MET IN THE INSTALLATION OF THE FIRE ALARM SYSTEM.
- V. SUBMIT TO THE TENANT, UPON COMPLETION OF THE SYSTEM INSTALLATION, A CONTRACTOR'S FIRE ALARM SYSTEM CERTIFICATION AND DESCRIPTION FORM AS OUTLINED BY NFPA 72, AND AN APPROVED INSPECTION FORM FOR THE FIRE ALARM PORTION OF THE SYSTEM.
- (END OF ELECTRICAL SPECIFICATION)

(END OF ELECTRICAL SPECIFICATION)

FRCH
DESIGN WORLDWIDE
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800-581-0963 www.schnackel.com

Soma

STORE NO:

PROJECT LOCATION:
MIROMAR OUTLETS
10801 CORKSCREW ROAD
ESTERO, FL 33928
SPACE #: 407

DESIGN TYPE:

REVISIONS:

REQUIRED BY: _____ DATE: _____

* INDICATES NO REVISION TO THIS SHEET

DRAWN BY: JME
CHECKED BY: GRS

TE CONSTRUCTION GROUP
E JACKSON, TX
NE: 979-285-0712
E: THESE PRINTS HAVE BEEN REDUCED
50 PERCENT. SCALE WILL BE 50 PER CENT
Date: 06/05/21 CMAA: 28403
WHAT IS NOTED ON PLANS

DRAWING TITLE:
**ELECTRICAL
SPECIFICATIONS**

DATE ISSUED:
06/06/2017

PROJECT NO:
034138.000

DRAWING NO

E5.1