

FIRE ALARM NARRATIVE

1.0 GENERAL:

THE CONTRACTOR SHALL FURNISH ALL LABOR, SERVICES AND MATERIALS NECESSARY TO FURNISH AND INSTALL A COMPLETE, FUNCTIONAL FIRE ALARM SYSTEM IN THE BUILDING ADDITION. THE CONTRACTOR SHALL REPLACE THE EXISTING FCI FIRE ALARM SYSTEM WITH A VOICE EVAC CONTROL PANEL AND REMOTE STATION. THE SYSTEM SHALL COMPLY IN RESPECTS WITH ALL PERTINENT CODES, RULES, REGULATIONS AND LAWS OF THE AUTHORITY HAVING JURISDICTION. THE SYSTEM SHALL COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATIONS, MANUFACTURER'S RECOMMENDATIONS AND UNDERWRITERS LABORATORIES INC. (UL) LISTINGS. FIELD COORDINATE EXACT PLACEMENT OF ALL DEVICES TO PREVENT CONFLICTS - RELOCATE AS REQUIRED. SYSTEM SHALL BE MONITORED BY AN APPROVED CENTRAL STATION. FURNISH AND INSTALL ALL POWER AND FIRE ALARM INTERFACE CONNECTIONS INDICATED BY THE ARCHITECTURAL HARDWARE PACKAGES AS APPLICABLE. FURNISH AND INSTALL A DEDICATED 120 VOLT POWER CIRCUIT FOR EACH POWER SUPPLY CABINET AS REQUIRED - EMERGENCY SOURCE IF AVAILABLE.

IT IS FURTHER INTENDED THAT UPON COMPLETION OF THIS WORK, THE OWNER BE PROVIDED WITH:

COMPLETE INFORMATION AND DRAWINGS DESCRIBING AND DEPICTING THE ENTIRE SYSTEM AS INSTALLED, INCLUDING ALL INFORMATION NECESSARY FOR MAINTAINING, TROUBLESHOOTING AND/OR EXPANDING THE SYSTEM AT A FUTURE DATE.

COMPLETE DOCUMENTATION OF SYSTEM TESTING.

CERTIFICATION THAT THE ENTIRE SYSTEM HAS BEEN INSPECTED AND TESTED, IS INSTALLED ENTIRELY IN ACCORDANCE WITH THE APPLICABLE CODES, STANDARDS, MANUFACTURER'S RECOMMENDATIONS AND UL LISTINGS AND IS IN PROPER WORKING ORDER. CONTRACTOR SHALL USE "FIRE ALARM SYSTEM CERTIFICATION AND DESCRIPTION" AS REQUIRED BY SECTION 1-6.2 OF NFPA 72 - 2010 EDITION.

NOTE: THE INFORMATION CONTAINED ON THESE DRAWINGS IS DIAGRAMMATIC AND IS INTENDED TO INDICATE AREAS AND TYPE OF COVERAGE. ALL SYSTEM COMPONENTS AND INITIATOR/NOTIFICATION APPLIANCE LOCATIONS ARE NOT INDICATED ON DRAWINGS - THE DESIGN AND APPROVAL OF THIS SYSTEM SHALL BE THE FIRE ALARM CONTRACTOR'S RESPONSIBILITY AND SHALL BE BASED ON STANDARD PRODUCTS OF FCI SYSTEM COMPONENTS TO MEET OR EXCEED ALL REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION (A.H.J.). FINAL APPROVAL OF OVERALL SYSTEM LAYOUT SHALL BE RESERVED BY THE ENGINEER. NOTIFIER, GE, VIGILANT, EST AND EDWARDS ARE ACCEPTABLE EQUALS.

ALTERNATE MANUFACTURERS WILL BE CONSIDERED. BASIS FOR CONSIDERATION WILL INCLUDE BUT NOT BE LIMITED TO COMPLETE EQUIPMENT SUBMITTALS AND NARRATIVE DESCRIPTION OF THE PROPOSED SYSTEM, TEN (10) DAYS PRIOR TO BIDDING, PRIOR TO CONSTRUCTION, CONTRACTOR SHALL SUBMIT FOR SHOP DRAWING APPROVALS, COMPLETE INFORMATION AND LAYOUT DRAWINGS DESCRIBING AND DEPICTING THE ENTIRE SYSTEM TO BE INSTALLED.

1.1 SYSTEM OVERVIEW

1.1.1 THE NEW FIRE ALARM SYSTEM IS TO BE DESIGNED TO REPORT TO THE SUPERVISORY SERVICE THROUGH A DIGITAL ALARM COMMUNICATOR TRANSMITTER (DACT).

1.1.2 ALL INITIATING CIRCUITS ARE TO BE ARRANGED AS STYLE C IN ACCORDANCE WITH NFPA 72.

1.1.3 ALL NOTIFICATION APPLIANCE CIRCUITS ARE TO BE ARRANGED AS STYLE Y IN ACCORDANCE WITH NFPA 72.

1.1.4 ALL SIGNALING LINE CIRCUITS ARE TO BE ARRANGED AS STYLE 4 IN ACCORDANCE WITH NFPA 72.

1.1.5 CONTRACTOR SHALL PROVIDE REQUIRED INTER FACE TO SYSTEM AS REQUIRED TO ALLOW MSU'S CAMPUS WIDE EMERGENCY VOICE NOTIFICATION SYSTEM ("INFORM-A-CAST") TO BROADCAST OVER THE NEW VOICE EVAC SYSTEM. PROVIDE OWNER WITH ALL TECHNICAL INFORMATION AND SUPPORT FOR COORDINATION AND INSTALLATION OF THEIR INFRASTRUCTURE.

1.2 FIRE ALARM CONTROL SYSTEM:

1.2.1 THE FIRE ALARM SYSTEM IS TO BE A MICROPROCESSOR-BASED VOICE EVACUATION SYSTEM CAPABLE OF TWO-WAY COMMUNICATION OVER A NETWORK OF SIGNALING LINE CIRCUITS. INTELLIGENT/ANALOG ADDRESSABLE INITIATING DEVICES SHALL COMMUNICATE WITH THE FACP AND THE FACP SHALL COMMUNICATE THROUGH THE DACT. CONTROL PANEL SHALL BE EQUAL TO FCI "E3" SERIES, NOTIFIER OR PRIOR APPROVED EQUAL AND SHALL BE LOCATED AT THE DEMARC BACKBOARD. THE REMOTE ANNUNCIATOR SHALL BE INSTALLED AT THE ENTRY VESTIBULE OR RECEPTION AREA. FURNISH AND INSTALL ALL POWER SUPPLY CONNECTIONS TO FACP AND ELECTRIC BELLS ASSOCIATED WITH SPRINKLER SYSTEM. SUPERVISE ALL FLOW, TAMPER AND LOW PRESSURE SWITCHES ASSOCIATED WITH THE SPRINKLER RISER SYSTEM AND OR FIRE PUMP AS APPLICABLE. SUPERVISE ALL TAMPER VALVES, AND ETC. ASSOCIATED WITH THE ELEVATOR SYSTEM AS APPLICABLE. THE SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO, FIREMAN'S CONTROL PANEL, REMOTE ANNUNCIATOR AND INITIATOR/NOTIFICATION APPLIANCES. SUPPLEMENTAL NOTIFICATION/POWER SUPPLIES ARE REQUIRED AND ARE GENERALLY LOCATED IN THE SERVICE PLATFORM AREAS THROUGHOUT THE MAIN BUILDING.

1.3 INITIATING FUNCTIONS

1.3.1 MANUAL PULL STATIONS ARE TO BE LOCATED AT EXITS OF THE BUILDING ON ALL FLOORS PER APPLICABLE CODE. ADDITIONAL PULL STATIONS ARE TO BE PROVIDED SO THE TRAVEL DISTANCE TO A PULL STATION DOES NOT EXCEED 200 FT. MANUAL PULL STATIONS ARE TO BE INSTALLED AT EXTERIOR EGRESS DOORS FROM MECHANICAL, ELECTRICAL AND OR SPRINKLER ROOMS AS APPLICABLE.

1.3.2 AREA (SPOT) SMOKE DETECTORS GENERALLY ARE TO BE LOCATED IN VARIOUS AREAS OF THE BUILDING AS REQUIRED TO PROVIDE PROTECTION OF THE SPACES INDICATED, SPECIFICALLY STORAGE ROOMS, MECHANICAL AND ELECTRICAL ROOMS. ALSO, THERE SHALL BE SMOKE DETECTORS LOCATED ON EACH SIDE OF DOORS WITH MAGNETIC HOLD-OPENS AT SMOKE BARRIERS, THAT RELEASE UPON DETECTION OF SMOKE. A SMOKE DETECTOR SHALL BE INSTALLED FOR COVERAGE OF TO SYSTEM AUXILIARY AND CONTROL PANELS.

1.3.3 HEAT DETECTORS GENERALLY ARE TO BE LOCATED AS REQUIRED TO PROVIDE PROTECTION OF THE SPACES INDICATED IN CRITICAL AREAS THAT ARE NOT SUITABLE FOR SMOKE DETECTORS, SUCH AS DUSTY OR HIGH HUMIDITY AREAS.

1.3.4 ANALOG/ADDRESSABLE TYPE DUCT DETECTORS MUST BE LOCATED DOWNSTREAM OF AIR FILTERS AND AHEAD OF ANY BRANCH CONNECTIONS IN RETURN AIR DUCT OF HVAC UNITS HAVING A RATED CAPACITY GREATER THAN 2,000 CFM OR IN BOTH THE RETURN AND SUPPLY AIR DUCT OF UNITS RATED GREATER THAN 15,000 CFM. THESE DETECTORS WILL SHUT DOWN THEIR RESPECTIVE HVAC UNIT UPON DETECTION OF SMOKE, AND SHALL SOUND THE GENERAL BUILDING ALARM.

1.3.5 COMMERCIAL COOKING APPLIANCES HAVE SUPPRESSION SYSTEMS INSTALLED WITHIN THE HOOD AND SHALL BE ARRANGED TO SOUND AN ALARM AT THE FACP AND BE SUPERVISED.

1.3.6 WATER FLOW SWITCHES ARE GENERALLY INSTALLED ON SPRINKLER RISERS. SWITCHES SHALL BE ARRANGED TO INITIATE AN ALARM CONDITION.

1.3.7 TAMPER SWITCHES ARE GENERALLY INSTALLED ON SPRINKLER SYSTEM WATER CONTROL VALVES AT EACH FLOOR. SWITCHES SHALL BE ARRANGED TO ANNUNCIATE AN OFF-NORMAL CONDITION.

1.4 NOTIFICATION FUNCTIONS

1.4.1 VISUAL SIGNAL APPLIANCES (STROBES) MUST BE INSTALLED, AS A MINIMUM, TO CONFORM TO THE AMERICANS WITH DISABILITIES ACT (ADA) CRITERIA AND NFPA 72. SOME OF THE ADA CRITERIA ARE:

1.4.1.1 THE LAMP SHALL BE A NEON STROBE TYPE OR EQUIVALENT.

1.4.1.2 THE COLOR SHALL BE CLEAR OR NOMINAL WHITE (I.E., UNFILTERED OR CLEAR FILTERED WHITE LIGHT).

1.4.1.3 THE MAXIMUM PULSE DURATION SHALL BE 2/10TH OF ONE SECOND (0.2 SECONDS) WITH A MAXIMUM DUTY CYCLE OF 40 PERCENT. THE PULSE DURATION IS DEFINED AS THE TIME INTERVAL BETWEEN INITIAL AND FINAL POINTS OF 10 PERCENT OF MAXIMUM SIGNAL.

1.4.1.4 THE INTENSITY SHALL BE A MINIMUM OF 75 CANDELA IN ACCORDANCE WITH UL 1971.

1.4.1.5 THE FLASH RATE SHALL BE A MINIMUM OF 1 HERTZ AND A MAXIMUM OF 3 HERTZ.

1.4.1.6 THE STROBES SHALL BE PLACED 80 IN. ABOVE THE HIGHEST FLOOR LEVEL WITHIN THE SPACE OR 6 IN. BELOW THE CEILING, WHICHEVER IS LOWER.

1.4.1.7 IN GENERAL, NO PLACE IN ANY ROOM OR SPACE REQUIRED TO HAVE A VISUAL SIGNALING APPLIANCE SHALL BE MORE THAN 50 FT. FROM THE SIGNAL (IN A HORIZONTAL PLANE). IN LARGE ROOMS AND SPACES EXCEEDING 100 FT. ACROSS WITHOUT OBSTRUCTION 6 FT. ABOVE THE FINISHED FLOOR SUCH AS AUDITORIUMS, DEVICES MAY BE PLACED AROUND THE PERIMETER, SPACED A MAXIMUM OF 100 FT. APART IN LIEU OF SUSPENDING APPLIANCES FROM THE CEILING.

1.4.1.8 NO PLACE IN COMMON CORRIDORS OR HALLWAYS IN WHICH VISUAL ALARM SIGNALING APPLIANCES ARE REQUIRED SHALL BE MORE THAN 50 FT. FROM THE SIGNAL.

1.4.1.9 VISUAL SIGNALING (STROBE) APPLIANCES SHALL BE LOCATED WITHIN 15 FT. OF THE END OF A CORRIDOR.

1.4.1.10 WHEN TWO OR MORE VISUAL SIGNALING APPLIANCES MAY BE VIEWED AT ONE TIME, THEY SHALL FLASH IN SYNCHRONIZATION.

1.4.1.11 AREAS REQUIRED TO HAVE VISUAL SIGNALING APPLIANCES INCLUDE BUT ARE NOT LIMITED TO: CORRIDORS, RESTROOMS, CONFERENCE AND MEETING ROOMS, CLASSROOMS, CAFETERIAS, FILING AND PHOTOCOPI ROOMS, BREAK ROOMS AND SIMILAR SPACES.

1.4.2 AUDIBLE ALARM DEVICES

1.4.2.1 HIGH-RISE BUILDINGS OR ASSEMBLY OCCUPANCIES ARE REQUIRED TO HAVE AUDIBLE ALARM DEVICES IN THE FORM OF SPEAKERS. THE SPEAKERS SHOULD BE ACTUATED THROUGH THE MAIN VOICE CONTROL PANEL LOCATED AT THE FACP AND BE CAPABLE OF PROVIDING A SOUND LEVEL WHICH IS A MINIMUM OF 85 DBA. IN NO CASE SHALL THE RATED OUTPUT OF A HORN BE LESS THAN 15 DBA OVER AMBIENT CONDITIONS. THE VOICE CONTROL PANELS SHOULD BE CAPABLE OF MANUAL SELECTION OF: NORMAL VOICE/TONE OPERATION; TONE ONLY OPERATION; MANUAL ONLY OPERATION.

1.4.2.2 THE VOICE CONTROL PANEL SHALL INCORPORATE A MICROPHONE WHICH IS CAPABLE OF OVERRIDING ANY OR ALL CIRCUITS, WHETHER ACTIVATED OR NOT, ON A SELECTABLE BASIS. THIS PROVIDES THE CAPABILITY OF ADDRESSING ALL CIRCUIT AUDIBLE DEVICES THROUGH AN ALL-PAGE FEATURE SIMULTANEOUSLY.

1.4.2.3 THE VOICE CONTROL PANEL SHALL BE CAPABLE OF PRODUCING TEXTUAL MESSAGES. INDIVIDUAL TEXTUAL MESSAGES PRODUCED BY THE VOICE CONTROL PANEL WILL REPEAT CONTINUOUSLY UNTIL SILENCED AT THE FACP. IN THE EVENT OF FAILURE OF THE DIGITAL MESSAGES TO BE PRODUCED, THE BUILDING VOICE CONTROL PANEL MUST AUTOMATICALLY PROVIDE A CONTINUOUS ALERT TONE. A REMOTE MICROPHONE STATION SHALL BE PROVIDED FOR PAGING FUNCTION.

1.5 AUXILIARY FUNCTIONS

1.5.1 EMERGENCY EXIT DOORS WITH SECURITY MAGNETIC LOOKS SHALL RELEASE PER NFPA 72.

1.5.2 DOORS IN RATED WALLS IN THE MEANS OF EGRESS SHALL BE HELD OPEN MAGNETICALLY. UPON ACTIVATION, THE FIRE ALARM SYSTEM MUST BE ARRANGED TO RELEASE THE MAGNET, CAUSING THESE DOORS TO CLOSE AUTOMATICALLY.

1.5.3 THE FIRE ALARM SYSTEM OPERATION FOLLOWING THE ACTIVATION OF A MANUAL PULL STATION, AREA SMOKE DETECTOR, THERMAL DETECTOR, SPRINKLER TAMPER SWITCH, SPRINKLER FLOW SWITCH OR DUCT TYPE SMOKE DETECTOR SHALL ACTIVATE THE FOLLOWING SEQUENCE:

1.5.3.1 ALL INTENDED ALARM NOTIFICATION APPLIANCES SHALL SOUND CONTINUOUSLY UNTIL THE FIRE ALARM CONTROL PANEL IS SILENCED BY THE ALARM SILENCE KEY.

1.5.3.2 ALL VISUAL NOTIFICATION APPLIANCES SHALL FLASH CONTINUOUSLY UNTIL THE FIRE ALARM PANEL IS SILENCED, ALARM CONDITION IS CLEARED AND THE CONTROL PANEL IS RESET.

1.5.3.3 A SUBSEQUENT ALARM SHALL CAUSE ITS PROGRAMMED OR INTENDED OUTPUTS TO ACTIVATE/REACTIVATE.

1.5.3.4 INITIATE TRANSMISSION OF THE ALARM SIGNAL TO REMOTE CENTRAL STATION.

1.5.3.5 ACTIVATE A SUPERVISED SIGNAL TO THE LOCAL FIRE DEPARTMENT PER NFPA 72.

1.5.3.6 MECHANICAL CONTROLS SHALL ACTIVATE AIR-HANDLING SYSTEMS IN ACCORDANCE WITH NFPA 90.

1.5.3.7 ALL SYSTEM EVENTS SHALL BE DISPLAYED ON A FACP DISPLAY AND REMOTE ANNUNCIATOR.

1.5.3.8 THE CONTROL PANEL SHALL ALARM CONTINUOUSLY UNTIL SILENCED.

1.5.3.9 AN ALARM FROM A ZONE OR DEVICE SELECTED FOR ALARM VERIFICATION SHALL CAUSE A VISUAL SIGNAL AT THE FACP AND ANNUNCIATOR DURING THE VERIFICATION SEQUENCE. AN ALARM FROM ANY OTHER DEVICE SUCH AS A PULL STATION, SHALL OVERRIDE ALARM VERIFICATION AND CAUSE AN IMMEDIATE ALARM.

1.5.3.10 SUPERVISE CONTROL SOURCE OF ELEVATOR SHUNT TRIP CIRCUIT BREAKER BY FIRE ALARM SYSTEM.

1.5.3.11 ACTIVATE NOTIFICATION APPLIANCES ASSOCIATED WITH AND REQUIRED BY THE SPRINKLER SYSTEM UPON SYSTEM WATER FLOW.

1.5.3.12 CONTROL PANEL SHALL BE PROVIDED WITH INTERFACE TO OWNERS EXISTING "INFORM-A-CAST" EMERGENCY NOTIFICATION SYSTEM. CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO EXISTING SYSTEM.

ELECTRICAL SYMBOL LEGEND

SYMBOL	ITEM DESCRIPTION AND REMARKS	MOUNTING
LIGHTING SYSTEM		
	RECESSED FLUORESCENT LIGHT FIXTURE AS SCHEDULED	AS NOTED
	PENDANT FLUORESCENT STRIP LIGHT FIXTURE AS SCHEDULED	AS NOTED
	WALL BRACKETED LINEAR LIGHT FIXTURE AS SCHEDULED	AS NOTED
	WALL BRACKETED LIGHT FIXTURE AS SCHEDULED	AS NOTED
	WALL BRACKETED LIGHT FIXTURE AS SCHEDULED	AS NOTED
	RECESSED CAN LIGHT FIXTURE AS SCHEDULED	AS NOTED
	EMERGENCY EXIT FIXTURE AS SCHEDULED - ARROW OR SHADING INDICATES EGRESS PATH DIRECTION	PER DETAIL
	GRADE MOUNTED LIGHT AS SCHEDULED	AS NOTED
	LED PENDANT LIGHT AS SCHEDULED	AS NOTED
	SURFACE MOUNTED STRIP LIGHT AS SCHEDULED	AS NOTED
	SINGLE POLE LIGHTING SWITCH	PER DETAIL
	3-WAY LIGHTING SWITCH	PER DETAIL
	4-WAY LIGHTING SWITCH	PER DETAIL
	SINGLE POLE LIGHTING SWITCH WITH PILOT LIGHT	PER DETAIL
	KEYED SINGLE POLE LIGHTING SWITCH	PER DETAIL
	KEYED 3-WAY LIGHTING SWITCH	PER DETAIL
	KEYED 4-WAY LIGHTING SWITCH	PER DETAIL
	DIMMER SWITCH - SIZED PER LOAD AND COMPATIBLE WITH LAMP SOURCE	PER DETAIL
	MOMENTARY CONTACT SPRING RETURN TOGGLE SWITCH	PER DETAIL
	WSP-PDT-(COLOR OPTIONS) WALL SWITCH SENSOR WITH MICROPHONIC AND PIR DUAL TECHNOLOGY: 120/277 VAC; 800/1200 WATTS.	WALL
	CMR-10 PIR SENSOR, LINE VOLTAGE, 120/277V; 800/1200/1500 WATTS	CEILING
	WSP-PDT WIDE VIEW SENSOR WITH MICROPHONIC AND PIR DUAL TECHNOLOGY 12 TO 24VDC/AC - FOR POWER PACK USAGE. USE OPTION WV-BR FOR CEILING MOUNTED UNITS.	CEILING
	CMR PHOTO SENSOR, LINE VOLTAGE, 120/277V; WITH AUX. CONTACTS FOR LOW VOLTAGE REMOTE CONTROL OF CIRCUIT BREAKER IN POWER LINK PANEL.	CEILING
	PP-20, 2-CIRCUIT POWER PACK UNIT FOR INTERCONNECTION TO 12/24V SENSOR - 120/277V; 20 AMP RATED.	ABV LAY-IN CEILING
LIGHT FIXTURE NOTE: LIGHT FIXTURE SHOWN WITH HALF SHADING INDICATES FIXTURE CONNECTED TO PENDENT POWER SYSTEM AS SPECIFIED - REFER TO LIGHT FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION. SUBSCRIPTS INDICATE CIRCUIT NUMBER AND SWITCHING DESIGNATIONS.		
SENSOR AND LIGHTING AUTOMATION NOTE: FURNISH AND INSTALL SENSORS, POWER PACKS AND ALL LIGHTING AUTOMATION DEVICES APPROXIMATELY AS INDICATED ON PLAN VIEW AND AS REQUIRED BY NUMBER OF CIRCUITS OF LIGHTING WITHIN THE SPACE. PLACEMENT OF SENSORS SHALL BE BASED ON ROOM GEOMETRY AND SHALL PROVIDE 100% COVERAGE OF THE SPACE - FIELD COORDINATE WITH MANUF. RECOMMENDATIONS. ALL SYSTEM COMPONENTS SHALL BE WIRED PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL COORDINATE ALL SENSITIVITY SETTINGS OF EQUIPMENT WITH OWNER'S PREFERENCES. INFO ABOVE IS BASED ON SENSOR SWITCH OCCUPANCY SENSORS AND SENSOR SWITCH AND MAY VARY, PENDING MANUFACTURER. MANUFACTURER SHALL PROVIDE A GUARANTEED LAYOUT TO THE CONTRACTOR AND SHALL ALSO SUBMIT LAYOUT IN SHOP DRAWINGS. CONTRACTOR SHALL INCLUDE A CIRCUIT NEUTRAL CONDUCTOR TO EACH WALL SWITCH SENSOR. IF THE NEUTRAL IS NOT REQUIRED BY THE SENSOR THE NEUTRAL SHALL BE GAPPED AND COILED IN THE WALL BOX.		
POWER SYSTEM		
	120V, 20 AMP DUPLEX RECEPTACLE MOUNTED PERPENDICULAR TO FLOOR.	16" TO BTM AFF UON
	120V, 20 AMP QUADRUPEX RECEPTACLE (DOUBLE DUPLEX)	16" TO BTM AFF UON
	120V, 20 AMP DUPLEX RECEPTACLE AT SPECIAL MOUNTING HEIGHT - REFER TO ARCHITECTURAL/MILLWORK DRAWINGS	AS NOTED
	125/250V RECEPTACLE FOR APPLIANCE USE - NEMA 14-50R, UON	16" TO BTM AFF UON
	120V, 20 AMP DUPLEX RECEPTACLE AND DATA CONNECTOR FOR FUTURE TV, IN COMMON BACKBOX/AV ENCLOSURE SUITABLE FOR FLAT PANELS, EQUAL TO FSR #WB-2RG. ENCLOSURE SHALL COMPLETE WITH ALL DEVICES, FRAMES AND PLATES. EXTEND EMPTY 1" CONDUIT TO CEILING SPACE FOR CABLING ACCESS. SEE DETAIL SHEET E4.03	80" TO BTM AFF UON - COORDINATE W/ARCH AND OWNER
	JUNCTION BOX FOR POWER CONNECTIONS TO EQUIPMENT	FIELD COORDINATE
	JUNCTION BOX FOR SPECIAL SYSTEMS CONNECTIONS TO EQUIPMENT	FIELD COORDINATE
	HEAVY DUTY NON-FUSED DISCONNECT SWITCH - SIZE AS NOTED ON EQUIPMENT SCHEDULE	AS NOTED, PER CODE
	HEAVY DUTY FUSED DISCONNECT SWITCH - SIZE AS NOTED ON EQUIPMENT SCHEDULE	AS NOTED, PER CODE
	ROUGH-IN FOR FIRE ZONE SENSOR/THERMOSTAT WITH 3/4" FROM SINGLE GANG BOX TO CEILING SPACE. SEE SHEET M1.01 FOR LOCATIONS.	COORD WITH TCC/MC
	ROUGH-IN FOR CARBON DIOXIDE SENSOR WITH 3/4" FROM SINGLE GANG BOX TO CEILING SPACE. SEE SHEET M1.01 FOR LOCATIONS.	COORD WITH TCC/MC
	FLOORBOX 120V QUAD RECEPTACLE - CONTRACTOR TO COORDINATE PLACEMENT AND COVERS WITH DESIGN DRAWINGS. SEE DETAIL DRAWING E4.04 AND TAG NOTES. BOX WILL CONTAIN VOICE/DATA, MICROPHONE CONNECTIONS AND SCOREBOARD CONTROLS AS APPLICABLE.	COORD. PLACEMENT
	120 VOLT POWER CONNECTION TO PLUMBING FIXTURE FLUSH VALVE TRANSFORMER - COORDINATE ROUGH-IN WITH PLUMBING FIXTURE.	COORD. W/UNIT
ELECTRICAL NOTES AND TAGS		
	ELECTRICAL DETAIL TAG ELECTRICAL DETAIL NUMBER DRAWING WHERE DETAIL IS ILLUSTRATED	
	ELECTRICAL CONSTRUCTION NOTE	
WRING HOME RUNS		
	WRING AND RACEWAY HOME RUN BACK TO POWER SOURCE ABOVE SLAB. (SEE PLAN VIEW FOR CIRCUIT TAG)	
	WRING AND RACEWAY HOME RUN BACK TO POWER SOURCE BELOW SLAB. (SEE PLAN VIEW FOR CIRCUIT TAG)	

ELECTRICAL SYMBOL LEGEND

SYMBOL	ITEM DESCRIPTION AND REMARKS	MOUNTING
FIRE ALARM SYSTEM		
	VOICE EVAC FIRE ALARM CONTROL PANEL	60" TO CENTER AFF
	FIRE ALARM CONTROL PANEL	60" TO CENTER AFF
	FIRE ALARM REMOTE ANNUNCIATOR PANEL	60" TO CENTER AFF
	VOICE EVAC COMMAND CENTER	80" TO CENTER AFF
	FIRE ALARM HORN UNIT - AUDIBLE/VISUAL	80" TO CENTER AFF
	FIRE ALARM STROBE UNIT - VISUAL ONLY	80" TO CENTER AFF
	FIRE ALARM BREAKGLASS STATION	44" TO TOP AFF
	HEAT DETECTOR, FIXED TEMPERATURE	CEILING PER CODE
	SYSTEM SMOKE DETECTOR	CEILING PER CODE
	SYSTEM DUCT DETECTOR	DUCTWORK, PER HVAC
	SPRINKLER TREE FLOW SWITCH - REFER TO SPRINKLER RISER ON FIRE PROTECTION DRAWINGS FOR QUANTITIES.	PIV. FIELD COORD.
	SPRINKLER TREE TAMPER SWITCH - REFER TO SPRINKLER RISER ON FIRE PROTECTION DRAWINGS FOR QUANTITIES.	PIV. FIELD COORD.
COMMUNICATIONS SYSTEMS - VOICE/DATA/INTERCOM		
	DATA/VOICE OUTLET, UNLESS INDICATED (2) RJ45 CAT 6 CABLE CONNECTIONS. # = NUMBER OF CONNECTIONS DIFFERENT FROM (2). "FAX" INDICATES THAT IN ADDITION TO THE DATA/VOICE CONNECTIONS INDICATED A CAT 6 ANALOG LINE IS TO BE INSTALLED AND TERMINATED.	WALL AT 16" TO BTM AFF U.O.N.
	DATA DROP FOR WIRELESS TRANSMITTER - INSTALL OWNER FURNISHED WIRELESS ACCESS POINT DEVICE AND TERMINATE CABLE. D# INDICATES NUMBER OF DATA PORTS AND CABLE DROPS.	CEILING
	OUTLET FOR WALL MOUNT TELEPHONE. V# INDICATES NUMBER OF VOICE PORTS AND CABLE DROPS.	WALL AT 48" TO BTM AFF
	FLOORBOX TECHNOLOGY VOICE/DATA OUTLETS - SEE COMMUNICATION DETAIL. V# INDICATES NUMBER OF VOICE PORTS AND CABLE DROPS. D# INDICATES NUMBER OF DATA PORTS AND CABLE DROPS. REFER TO PERSPECTIVE VIEW AND OUTLET DETAIL.	FIELD COORDINATE
	"100" DATA EQUIPMENT RACK - REFER TO COMMUNICATIONS DETAILS	COORD. PLACEMENT
	WIRE BASKET TYPE CABLE TRAY SYSTEM, AS INDICATED - SEE SPECIAL SYSTEMS AND COMMUNICATIONS DETAILS.	COORD. PLACEMENT
	J-BOX "C" FOR PRESENTATION STATION TECHNOLOGY OUTLETS - REFER TO OUTLET DETAIL DRAWING E4.04	COORD. WITH UNIT AND SCREEN
	WALL MOUNTED GYM SOUND SYSTEM CABINET - SEE DETAIL DRAWING E4.03.	COORD. PLACEMENT
	PENDENT MOUNT SOUND SPHERE CLUSTER FOR SOUND SYSTEM (AMP-1) - SEE DETAIL DRAWING E4.03.	COORD. PLACEMENT
	REMOTE LOCATION MICROPHONE JACK	COORD. PLACEMENT
SPECIAL SYSTEMS - DOOR ACCESS/SECURITY		
	DOOR ACCESS ELECTRIC LATCH RETRACTION - REFER TO ARCHITECTURAL ELEVATIONS/HARDWARE SPEC.	COORD.
	AUTO DOOR OPERATOR PUSH BUTTON - REFER TO ARCH. SPECIFICATIONS	COORD. PLACEMENT
ABBREVIATIONS		
AF	ABOVE FINISHED FLOOR	
BTM	BOTTOM	
GF	GROUND FAULT INTERRUPTING DEVICE	
WP	WEATHERPROOF DEVICE	
FDS	FUSED DISCONNECT SWITCH	
NFDS	NON-FUSED DISCONNECT SWITCH	
UO	UNLESS OTHERWISE NOTED	
IG	ISOLATED GROUND DEVICE	
LOC	EQUIPMENT LOCK OUT CLIP	
HACR	HEATING AND AIR-CONDITIONING RATED DEVICE	
EGFCI	30mA EQUIPMENT GROUND FAULT CIRCUIT INTERRUPTOR	
ST	SHUNT TRIP DEVICE	
MCB	MAIN CIRCUIT BREAKER	
MLO	MAIN LEVUS ONLY	
TLO	TELEVISION	
OHP	OVERHEAD PROJECTOR	
H	INDICATES DEVICE IS HUMIDITY RESISTANT	
NV	INDICATES DEVICE IS VANDAL RESISTANT	
FL	FIXTURE IS DESIGNATED NIGHT LIGHT 24 HOUR CONTINUOUS RUN	
WG	FIXTURE OR DEVICE SHALL HAVE A FACTORY SPEC. WIRE GUARD	
UG	UNDERGROUND	
EC	ELECTRICAL CONTRACTOR	
MC	MECHANICAL CONTRACTOR	
TCC	TEMPERATURE CONTROL CONTRACTOR	

ELECTRICAL SPECIAL SYSTEMS OUTLINE

CONTRACT SYSTEM DESCRIPTION	RACEWAYS/BOXES WITH PULL STRING	CABLING INFRASTRUCTURE	DISTRIBUTION EQUIPMENT
GENERAL BUILDING OPERATIONAL SYSTEMS			
ADDRESSABLE FIRE ALARM SYSTEM - VOICE EVAC	CFCI	CFCI	CFCI
STANDBY EMERGENCY GENERATOR SYSTEM FOR E-LTG, FIRE ALARM, DEMARC AND NETWORK ROOMS	CFCI	CFCI	CFCI
AUTOMATED LIGHTING CONTROLS - LOCALIZED AREAS - OCCUPANCY SENSOR BASED	CFCI	CFCI	CFCI
AUTOMATED LIGHTING CONTROLS - CENTRALIZED AREAS	CFCI	CFCI	CFCI
DOOR ACCESS CONTROLS AND HARDWARE	CFCI	CFCI	(7) CFCI
INFORMATION AND TECHNOLOGY SYSTEMS			
VOICE OVER IP SYSTEM (VOIP) - CAT 6	CFCI	CFCI	(3) CFCI
DATA SYSTEM (TRADITIONAL) - CAT 6	CFCI	CFCI	(3) CFCI
WAP (WIRELESS ACCESS POINT) - CAT 6	CFCI	CFCI	(4) CFCI
VIDEO DISTRIBUTION SYSTEM (TRADITIONAL) - RG6	CFCI	CFCI	OFCI
VIDEO DISTRIBUTION SYSTEM (ETHERNET) - IP BASED CAT 6	CFCI	CFCI	(3) CFCI
PERFORMANCE SYSTEMS			
SOUND REINFORCEMENT (PA) SYSTEM FOR GYMNASIUM	CFCI	CFCI	CFCI

ABBREVIATION - DESCRIPTION:

CFCI - CONTRACTOR FURNISHED, CONTRACTOR INSTALLED - PER SPECIFICATIONS.
 OFCI - OWNER FURNISHED, CONTRACTOR INSTALLED - PER SPECIFICATIONS.
 OPCI - OWNER FURNISHED, OWNER INSTALLED.

NIC - NOT IN CONTRACT.

(1) - INTERFACE OF "OFCI" ITEM TO "CFCI" EQUIPMENT - CONTRACTOR TO COORDINATE.
 (2) - "OFCI" ITEM MOUNTED ON "CFCI" BRACKET/SUPPORT SYSTEM - CONTRACTOR TO COORDINATE.
 (3) - LIMITED TO CONNECTIVITY FOR EQUIPMENT RACKS AND PATCH PANELS. SWITCHES, ROUTERS AND ELECTRONICS, ETC BY OWNER.
 (4) - LIMITED TO CABLE TERMINATION IN BOX ABOVE CEILING - AP BY OWNER, INSTALLED BY CONTRACTOR.
 (5) - INCLUDES VGA CABLING FROM PROJECTOR TO PRESENTATION WORKSTATION.
 (6) - LIMITED TO SELF-AMPLIFIED SPEAKERS, RCA JACKS AND CABLING - MIC AND INPUT SOURCE BY OWNER.
 (7) - REFER TO ARCHITECTURAL DOOR HARDWARE SPECIFICATIONS.

ELECTRICAL NOTES

- CONTRACTOR SHALL CUT AND PATCH AS REQUIRED DURING THE COURSE OF INSTALLATION OR AS SPECIFIED ON THE DRAWINGS. ALL PATCHING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WHOSE TRADE CAUSED THE NEED. THE GENERAL CONTRACTOR SHALL BE RETAINED TO PERFORM PATCHING AND THE COSTS BORNE BY THE CONTRACTOR REQUIRING THE PATCH.
- ALL NEW ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL OTHER LOCAL, STATE AND NATIONAL CODES WHICH APPLY AS INTERPRETED BY THE AHJ (AUTHORITY HAVING JURISDICTION).
- ALL WORK IS TO BE COORDINATED WITH ALL OTHER TRADES ON THIS PROJECT AND ELECTRICAL WORK INSTALLED IN A NEAT AND ORDERLY FASHION. THE ELECTRICAL CONTRACTOR (E.C.) SHALL FURNISH AND INSTALL ALL ELECTRICAL SYSTEMS AND EQUIPMENT AS REQUIRED FOR ALL EQUIPMENT FURNISHED AND INSTALLED AS PART OF THIS PROJECT BY ALL TRADES INDICATED ON THESE DRAWINGS UNLESS OTHERWISE NOTED.
- THE ELECTRICAL DRAWINGS ARE SCHEMATIC IN NATURE AND SHOW THE GENERAL ARRANGEMENT OF EQUIPMENT. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EQUIPMENT CONNECTION OR ROUGH-IN. REFER TO EQUIPMENT OUT-SHEETS AND RESPONSIBLE TRADES. COORDINATION OF OUTLETS SHALL BE MADE WITH MILLWORK AND CABINETRY DETAILS SHOWN ON THE ARCHITECTURAL DRAWINGS.
- ALL CONDUCTORS OF THE ELECTRICAL SYSTEM SHALL BE COPPER, 600V, THW/THWN AND SIZED AS REQUIRED FOR LOADING AND PER CODE. ALL CIRCUITS REQUIRING NEUTRAL CONDUCTORS SHALL HAVE DEDICATED NEUTRALS. ALL OCCUPANCY SENSORS SHALL BE PROVIDED WITH A NEUTRAL CONDUCTOR, IF NOT USED TAPE, LABEL AND COIL IN WALL BOX.
- ALL CONDUIT SHALL BE MINIMUM 3/4" TRADE SIZE, EMT AND FMC WHEN INSTALLED INDOORS IN DRY LOCATIONS, RMC WHEN INSTALLED OUTDOOR OR INDOORS IN DAMP/WET LOCATIONS. RMC AND LFMC WHEN EXPOSED OUTDOORS AND, RMC OR RNC-40 WHEN INSTALLED IN CONCRETE OR BELOW GRADE. FINAL CONNECTIONS TO ALL EQUIPMENT WHICH PRODUCE VIBRATION SHALL BE WITH FLEXIBLE METAL CONDUIT SUITABLE FOR THE SURROUNDING ENVIRONMENT. CONDUIT TURNING UP FROM BELOW GRADE OR FROM WITHIN CONCRETE SHALL BE RMC.
- RACEWAY FILL, WHEN RACEWAY SIZE IS NOT SPECIFICALLY INDICATED, SHALL BE BASED ON APPLICABLE ARTICLES OF THE NEC.
- CIRCUIT ROUTING, IN GENERAL, IS NOT SPECIFIED UNLESS SPECIFIC REQUIREMENTS EXIST WHERE ROUTING OF CIRCUITS WILL HAVE EFFECTS ON CIRCUIT VOLTAGE DROPS. THEREFORE, E.C. SHALL COORDINATE ROUTING LENGTH WITH CONNECTED LOAD AND ADJUST CONDUCTOR SIZE FOR A VOLTAGE DROP LESS THAN 3%.
- ALL CONDUITS SHALL BE INSTALLED CONCEALED IN SPACES OF NEW CONSTRUCTION, WHICH ARE TYPICALLY OCCUPIED. AREAS WITH EXPOSED CEILING STRUCTURE SHALL HAVE ALL CONDUIT CONCEALED IN WALL UP TO BOTTOM OF ROOF DECK AND AT THAT POINT EMERGE FROM WALL. E.C. SHALL COORDINATE THE LOCATION OF ALL EQUIPMENT TO MAINTAIN ACCESS REQUIRED BY THE N.E.C. AND EQUIPMENT MANUFACTURERS. ALL CONDUIT INSTALLED EXPOSED SHALL BE ROUTED PARALLEL OR PERPENDICULAR TO THE SUPPORT STRUCTURE.
- SERVICE VOLTAGE AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT SHALL BE VERIFIED BY THE E.C. PRIOR TO ELECTRICAL ROUGH-IN. DISCREPANCIES BETWEEN THE ELECTRICAL DRAWINGS AND EQUIPMENT REQUIREMENTS SHALL BE REPORTED TO THE ENGINEER BEFORE ANY ASSOCIATED WORK IS INSTALLED.
- COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR ALL FIRE AND SMOKE RATED BARRIERS. E.C. SHALL FURNISH AND INSTALL APPROPRIATE AND LISTED SEALS FOR ALL PENETRATIONS MADE IN THESE BARRIERS AS REQUIRED FOR THE INSTALLATION OF THE ELECTRICAL AND SPECIAL SYSTEMS.
- E.C. SHALL COORDINATE WITH THE G.C. AND PROVIDE THE REQUIRED SUPPORT OF LIGHTING FIXTURES AND BLOCKING NECESSARY TO SUPPORT ALL ELECTRICAL EQUIPMENT.
- INDEXES OF ELECTRICAL PANELS SHALL BE COMPLETED FOR EACH CIRCUIT. DESCRIPTION SHALL INCLUDE ROOM NUMBER TO MATCH SIGNAGE AND SHALL BE APPROVED BY ARCHITECT AND OWNER. ARC-FLASH WARNING LABELS SHALL BE APPLIED ON ALL EQUIPMENT PER N.E.C. 110.16. LABELS AND TAGS AS DETAILED SHALL BE PLACED ON ALL PANELS, STARTERS, DISCONNECTS, AND ETC.
- E.C. SHALL PROVIDE ALL LABOR AND MATERIAL TO CONNECT EQUIPMENT SPECIFIED AS PART OF THIS PROJECT AND SHALL REVIEW ALL PARTS OF THE CONSTRUCTION DOCUMENTS FOR LOCATION AND QUANTITIES.
- E.C. SHALL REFERENCE THE PROJECT SITE PLANS FOR ELECTRIC, TELEPHONE AND CABLE T.V. UTILITIES. COORDINATE ALL REQUIRED WORK WITH ASSOCIATED UTILITIES BEFORE BIDDING AND INCLUDE ALL MATERIAL AND LABOR REQUIRED BY THE RESPECTIVE UTILITY AND DEEMED "THE OWNERS RESPONSIBILITY" BY THAT UTILITY COMPANY. IN CASE OF DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND UTILITY COMPANY REQUIREMENTS, THE REQUIREMENTS OF THE UTILITY COMPANY SHALL BE FOLLOWED AND THE COST THEREOF SHALL BE INCLUDED IN THE BID.
- E.C. SHALL BE REQUIRED TO FABRICATE AND INSTALL ANY NECESSARY STANCHION MOUNTS FOR ALL ELECTRICAL EQUIPMENT THAT IS NECESSARY TO COMPLETE THEIR WORK.
- E.C. SHALL NOTE THAT LIGHT FIXTURE LOCATED IN MECHANICAL ROOMS SHALL BE FIELD ADJUSTED TO CLEAR DUCTWORK, EQUIPMENT AND BUILDING STRUCTURE.
- E.C. SHALL SUPPLY, INSTALL AND CONNECT TIME CLOCK AND REQUIRED CONTACTOR LOCATED IN MECHANICAL ROOM. CONTRACTOR SHALL ROUTE ALL OUTSIDE LIGHT CIRCUITS THROUGH TIME CLOCK AND REQUIRED CONTACTOR.
- E.C. SHALL BE RESPONSIBLE FOR RECEPTACLE HEIGHTS LOCATED IN CASEWORK/MILLWORK. REFERENCE ARCHITECTURAL DRAWINGS FOR CASEWORK/MILLWORK DETAILS.
- E.C. SHALL COORDINATE WITH THE TEMPERATURE CONTROLS CONTRACTOR FOR ALL LOCATIONS OF CONTROL DEVICE AND FURNISH AND INSTALL ALL BOXES, CONDUITS AND PULL STRING ROUGH-IN. SEE SHEET M1.01.
- BEFORE TERMINATION OF ALL FEEDER AND BRANCH CIRCUITS CONTRACTOR SHALL TEST FOR, IDENTIFY AND CORRECT GROUND FAULT CONDITIONS OF ALL CIRCUIT DEEMED, INCLUDING NEUTRALS. OWNER SHALL BE NOTIFIED OF TEST AND BE ALLOWED TO WITNESS TEST. TEST PROCEDURE SHALL BE APPROVED BY THE OWNER BEFORE ANY TESTS ARE CONDUCTED.
- CONTRACTOR SHALL TEST, IN A MANNER DEEMED APPROPRIATE BY THE AUTHORITY HAVING JURISDICTION, THE GROUND FAULT PROTECTION OF SERVICE DISCONNECTS AND SUBMIT A REPORT FOR APPROVAL TO THE AUTHORITY HAVING JURISDICTION AND TO ENGINEER. FOLLOW NEC 230.95.

