

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	09/21/2016

RESERVED FOR CITY STAMP

SYMBOL	DESCRIPTION	MOUNTING
FCP	FIRE ALARM CONTROL PANEL	WALL-TOP @ 66"
⊙	SMOKE DETECTOR	CEILING
P	MANUAL PULL STATION	WALL @ 48"
⊗	HORN / STROBE	WALL 80"-96"
⊗	STROBE	WALL 80"-96"

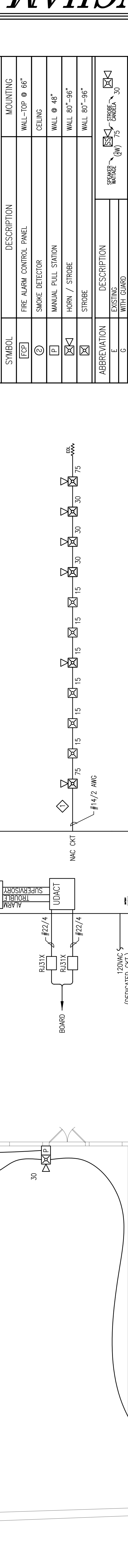
ABBREVIATION	DESCRIPTION
E	EXISTING
G	WITH GUARD
B	FIRE ALARM BATTERY
R	RESISTOR (10 Ω)
S	SPINDER BASE
WP	WEATHER PROOF
EOI	END OF LINE RESISTOR
AWG	AMERICAN WIRE GAUGE
TWP	TWISTED PAIR
TNSP	TWISTED SHIELDED PAIR
FRLP	FIRE POWER LIMITED PLENUM
FRLR	FIRE POWER LIMITED RISER

NOTE: ALL SYMBOLS MUST BE USED ON THIS PROJECT

110 Princes Point Road, Yarmouth, Maine 04096
 Office: 207.846.3350 • Fax: 207.846.6080
Security Systems

CUNNINGHAM

ORANGE THEORY FITNESS CENTER
 195 KENNEBEC STREET
 PORTLAND, MAINE 04101
FIRE ALARM PLAN



FIRE ALARM SYMBOL LEGEND

GENERAL NOTES:
 1. THESE DRAWINGS ARE DIAGRAMMATIC. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
 2. INSTALLATION SHALL COMPLY WITH NEC, NFPA 72 AND ALL OTHER APPLICABLE CODES AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
 3. WIRING DEPICTED ON THESE PLANS IS SCHEMATIC — ACTUAL WIRE LOCATIONS MAY DIFFER FROM THESE PLANS. WIRING SHALL BE PERFORMED AS ACTUAL BUILDING CONSTRUCTION CONDITIONS ALLOW AND TO MINIMIZE PENETRATIONS THROUGH AREA SEPARATION WALLS AND FIRE WALLS. THE USE OF FACEWAY IS PERMITTED AS LONG AS NO 110V OR HIGHER VOLTAGE CABLES ARE IN THE SAME FACEWAY.
 4. FIRE RATINGS SHALL BE MAINTAINED FOR ALL PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION.
 5. POWER FOR ALL FIRE ALARM PANELS AND FIRE ALARM POWER SUPPLIES MUST BE PROVIDED BY A DEDICATED AC BRANCH CIRCUIT.
 6. POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST REMAIN SEPARATED IN CABINETS. ALL POWER-LIMITED CIRCUIT WIRING MUST REMAIN AT LEAST 3.25" AWAY FROM ANY NONPOWER-LIMITED CIRCUIT WIRING. FURTHERMORE, ALL POWER-LIMITED AND NONPOWER-LIMITED CIRCUIT WIRING MUST ENTER AND EXIT THE CABINET THROUGH DIFFERENT KNOCK OUTS AND/OR SEPARATE CONDUITS.
 7. WHEN UTILIZING CLASS "A" CIRCUITS, SEPARATE OUTGOING AND RETURN CONDUCTORS OF CLASS "A" CIRCUITS BY A MINIMUM OF 12" WHERE RUN VERTICALLY AND 48" WHERE RUN HORIZONTALLY.
 8. WHEN UTILIZING SHIELDED CABLE TIE SHIELDS THROUGH AND INSULATE AT EACH JUNCTION BOX. INSULATE AND TAPE BACK AT END.
 9. ALL FIRE ALARM CABLING SHALL BE ACCEPTABLE TO THE FIRE ALARM EQUIPMENT MANUFACTURER FOR THE INTENDED PURPOSE.
 10. SMOKE DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER CONSTRUCTION CLEAN-UP IS COMPLETED AND FINAL.
 11. LOCATE SMOKE DETECTORS A MINIMUM OF THREE (3) FEET FROM MECHANICAL DIFFUSERS. WALL-MOUNTED SMOKE DETECTORS SHALL BE LOCATED A MINIMUM OF 4" AND A MAXIMUM OF 12" FROM CEILING. CEILING-MOUNTED SMOKE DETECTORS SHALL BE MOUNTED ON CEILINGS AND NOT ON THE BOTTOMS OF BEAMS OR JOISTS.
 12. PROVIDE SYNCHRONIZATION OF ALL VISUAL NOTIFICATION APPLIANCE CIRCUITS. PROVIDE ALL REQUIRED SYNC MODULES. PROVIDE A MULTI-SYNC MODE SLAVE CONNECTION BETWEEN ALL SYNC MODULES.
 13. VERIFY ALL FIELD SELECTABLE AUDIBILITY SETTINGS OF NOTIFICATION APPLIANCES WITH FIRE ALARM CONTRACTOR.
 14. UPON COMPLETION OF THE FIRE ALARM SYSTEM INSTALLATION AND PROGRAMMING, THE INSTALLING CONTRACTOR SHALL PERFORM FINAL TESTING OF THE ENTIRE SYSTEM PER ALL APPLICABLE CODES, AND SHALL COORDINATE AND PERFORM A FINAL FIRE ALARM SYSTEM INSPECTION.
 15. PROVIDE OFF-SITE MONITORING AS REQUIRED BY THE INTERNATIONAL FIRE CODE, SECTION 907.15 AND THE LOCAL AUTHORITY HAVING JURISDICTION.
 16. INSTALLING CONTRACTOR SHALL PHYSICALLY LABEL ALL INITIATING DEVICES AND NOTIFICATION APPLIANCE CIRCUIT END OF LINE (WHEN WIRING CLASS "B"). THESE LABELS SHALL BE IN PLACE PRIOR TO START-UP AND TESTING.

FIRE ALARM RISER DIAGRAM
 SCHEMATIC: NO SCALE

OPERATIONS MATRIX

FIRE ALARM INPUT													
PULL STATIONS	●												
FIRE ALARM AC POWER FAIL			●										
FIRE ALARM LOW BATTERY				●									
OPEN CIRCUIT					●								
GROUND FAULT						●							
NAC SHORT CIRCUIT							●						
LOSS OF AC TO BUILDING								●					
FIRE ALARM OUTPUT									●				
ACTIVATE ALARM INDICATOR										●			
ACTIVATE AUDIBLE ALARM											●		
ACTIVATE AUDIBLE TROUBLE INDICATOR												●	
ACTIVATE AUDIBLE TROUBLE SIGNAL													●
ACTIVATE TROUBLE SIGNAL													●
TRANSMIT ALARM SIGNAL													●
TRANSMIT TROUBLE SIGNAL													●



FIRE ALARM PLAN
 SCALE: 1/8" = 1'-0"

FACP Battery Calculation 9/21/2016

PROJECT NAME: ORANGE THEORY FITNESS CENTER
 Required Standby Time: 24 Hours
 Required Alarm Time: 5 Minutes

Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FC-12LX - PULL STATION	3	X 0.00030	= 0.00090
TOTAL STANDBY LOAD			0.00090
Regulated Load in ALARM			
Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
NAC-1 (See Voltage Drop Calculations)	1	X 1.08200	= 1.08200
TOTAL ALARM LOAD			1.08200
Battery Requirements			
Standby Load			
Current (Amps)	0.00090	X 24.00000	= 0.02160
Alarm Load			
Current (Amps)	1.08200	X 0.08333	= 0.09017
Total Ampere Hours (before derating factor)			0.11177
Derating Factor			X 1.2
TOTAL AMPERE HOURS REQUIRED			0.13412
BATTERIES TO BE PROVIDED (2 - 12V)			= FIELD VERIFY

NOTE: THE ABOVE BATTERY CALCULATION IS A COMBINED TOTAL OF THE ADDITIONAL LOADS THAT WILL BE ADDED FROM THE SCOPE OF THIS PROJECT. FIELD VERIFY THE SIZE OF THE EXISTING BATTERIES AND UPSIZE ACCORDINGLY.

Point to Point NAC Voltage Drop Calculation 9/21/2016

PROJECT NAME: ORANGE THEORY FITNESS CENTER
 Circuit Number: NAC-1

Device	Current	Distance	Voltage at previous device	Drop from source	Percent Drop
Device 1	0.066	17	19.07	1.329	6.51%
Device 2	0.066	17	18.89	1.423	6.98%
Device 3	0.066	17	18.89	1.511	7.41%
Device 4	0.079	6	18.86	1.539	7.55%
Device 5	0.066	15	18.53	1.570	7.70%
Device 6	0.066	15	18.77	1.628	7.98%
Device 7	0.107	9	18.73	1.669	8.18%
Device 8	0.107	9	18.70	1.697	8.32%
Device 9	0.107	9	18.60	1.748	8.81%
Device 10	0.176	64	18.53	1.867	9.15%
Device 11	1.082	394			
Total					

Notes:
 Wire resistance is doubled in the calculations for two wires (Positive and Negative).
 The voltage calculated to the last device must not be lower than the manufacturer's listed minimum operating voltage (E: rated operating voltage 16-33 VDC (24 VDC nominal)).

APPLICABLE CODES:
 MAINE UNIFORM ENERGY & BUILDING CODE
 PORTLAND CITY CODE, CHAPTER 10: FIRE PREVENTION & PROTECTION
 NFPA 1, FIRE CODE, & NFPA 101, LIFE SAFETY CODE

SHEET NOTES:
 ◊ EXISTING FIRE ALARM PANEL. FIELD VERIFY LOCATION OF EXISTING (IF ANY) FIRE ALARM DEVICES FOR EXACT WIRING CONNECTION.
 ◊ EXISTING FIRE ALARM PANEL. FIELD VERIFY LOCATION OF EXISTING (IF ANY) FIRE ALARM DEVICES FOR EXACT WIRING CONNECTION.

UNICAD Inc.
 578 W. 400th St.
 Yarmouth, ME 04096
 Office: 207.846.6080
 www.unicad.net

Fire Alarm Design & Drafting Services

CRB UNICAD JOB #16737
 DRAWN: WAYNE B. HANS
 CHECKED: NCT # 90496
 DATE: 09/21/2016
 REVISION: 0
 SCALE: 1/8"=1'-0"

FA-1