FIRE ALARM SYSTEM DESCRIPTION / SCOPE OF WORK:

1. PROVIDE NEW FIRE ALARM SYSTEM FEATURING MANUAL ALARM, SELECTIVE SMOKE DETECTION, SPRINKLER ALARM, EMERGENCY VOICE/ALARM COMMUNICATION AND AUTO DIALER TO LOCAL FIRE DEPARTMENT.
2. FIRE ALARM SYSTEM SHALL BE INSTALLED PER REQUIREMENTS OF MAINE STATE BUILDING CODE 2015 AND NFPA 72
3. UPON COMPLETION OF THE INSTALLATION OF THE SYSTEMS, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE
4. A STAMPED SET OF APPROVED FIRE ALARM DESIGN DOCUMENTS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION.
5. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER OF THE PROJECT.
6. ARCHITECT/ENGINEER AND OWNER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE FINAL INSPECTION AND /OR TESTING.
7. ALL PENETRATIONS THROUGH RATED ASSEMBLIES, REQUIRING OPENING PROTECTION SHALL BE PROVIDED WITH A PENETRATION FIRE STOP SYSTEM AS IDENTIFIED IN CBC CHAPTER 7. UL OR OTHER LAB TESTING CRITERIA, APPROVED TYPE OF MATERIALS SHALL BE IDENTIFIED WITHIN THE SPECIFICATION WITHIN THE FIRE ALARM SECTION.
8. WALL MOUNTED VISUAL NOTIFICATION DEVICES SHALL HAVE THEIR BOTTOMS MOUNTED AT 80" MINIMUM AND 96" MAXIMUM FROM FINISHED FLOOR.
9. WALL MOUNTED AUDIBLE NOTIFICATION DEVICES SHALL HAVE THEIR TOPS MOUNTED AT 90" MINIMUM AND 100" MAXIMUM FROM FINISHED FLOOR AND NO CLOSER THEN 6' TO A HORIZONTAL STRUCTURE.
10. AUDIBLE DEVICES TO BE AT LEAST 15 DBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL BUT NOT LESS THAN 75 DBA AT 10 FEET OR MORE THAN 110 DBA AT THE MINIM HEARING DISTANCE . SOUND LEVEL SHALL BE MAINTAINED FOR DURATION OF AT LEAST 60 SECONDS 5 DBA MUST BE MAINTAINED.
11. AUDIBLE DEVICES SHALL BE SYNCHRONIZED TEMPORAL CODE 3 PATTERN.
12. THE CONTRACTOR SHALL ADJUST/INSTALL ALL DEVICES TO MAXIMIZE PERFORMANCE AND TO MINIMIZE FALSE ALARMS.
13. VISUAL DEVICES SHOULD NOT EXCEED 2 FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELA. VISUAL DEVICES WITHIN 55' FROM EACH OTHER SHALL BE SYNCHRONIZED.
14. UNDERGROUND AND EXTERIOR CONDUITS TO HAVE WATERTIGHT FITTINGS AND WIRE TO BE APPROVAL FOR WET LOCATIONS.
15. ALL FIRE ALARM WIRING SHALL BE FLP OR FPLP (FIRE POWER LIMITED OR FIRE POWER LIMITED PLENUM) AS REQUIRED FOR APPLICATION. WIRING IN CONDUIT ABOVE GROUND MAY BE THHN OR THWN.
16. PER CEC STANDARDS, ALL WIRING IS TO BE PULLED THROUGH EACH JUNCTION BOX AND CONNECTED DIRECTLY TO EACH FIRE DEVICE. DO NOT SPLICE THE WIRE. THERE MUST BE AT LEAST 6' OF LEAD WIRE FROM THE BOX TO THE DEVICE. ALL BOXES TO BE SIZED PER CEC.
17. SMOKE DETECTORS SHALL NOT BE ANY CLOSER THAN 1' FROM FIRE SPRINKLERS OR 3' FROM ANY SUPPLY DIFFUSER. IN AREA OF CONSTRUCTION OR POSSIBLE DAMAGE/CONTAMINATION ON NEWLY INSTALLED FIRE ALARM DEVICES SHALL BE COVERED UNTIL THAT AREA IS READY TO BE TURNED OVER TO THE OWNER.
18. ALL FIRE ALARM CIRCUITS SHALL BE IN CONDUIT. SURFACE RACEWAY OR OPEN RUN ABOVE CEILINGS. UNDER FLOORS AND IN WALLS IN A NEAT AND PROTECTED MANOR AS INDICATED ON DESIGN DOCUMENTS. EXPOSED CIRCUITS ARE ONLY PERMITTED WHEN NOTED AS EXPOSED ON DESIGN DOCUMENTS.
19. ALL WIRE TO BE AS PER MANUFACTURER REQUIREMENTS & FIRE DEPT. APPROVED UNLESS OTHERWISE NOTED. DO NOT EXCEED MANUFACTURER'S MAXIMUM LENGTH AND VOLTAGE DROPS.
20. FIRE ALARM PANEL. AND COMPONENTS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURERS SPECIFICATIONS. NO SINGLE DEVICE SHALL EXCEED THE WEIGHT OF 20 LBS. WITHOUT SPECIAL MOUNTING DETAILS.
21. A DEDICATED BRANCH CIRCUIT SHALL BE PROVIDED FOR FIRE ALARM EQUIPMENT. THIS CIRCUIT SHALL BE ENERGIZED FROM THE COMMON USE AREA PANEL AND SHALL HAVE NO OTHER OUTLETS. THE BREAKER SHALL HAVE A RED LOCKING DEVICE TO BLOCK THE HANDLE IN THE "ON" POSITION. THE CIRCUIT BREAKER SHALL BE LABELED "FIRE ALARM CIRCUIT CONTROL", CIRCUIT ID TO BE LABELED AT FIRE PANEL/EXTENDERS.
22. THE INSTALLING CONTRACTOR SHALL PROVIDE A RECORD OF COMPLETION PER NFPA 72, FIGURE 10.18.2.1.1.
23. THE INSTALLING CONTRACTOR SHALL PROVIDE SYSTEM PROGRAMMING FOR SUPERVISORY MONITORING PER CBC SECTION 901.6.2.
24. SUPERVISORY MONITORING SHALL BE TESTED AND VERIFIED AS SENDING CORRECT SIGNALS IN CONJUNCTION WITH FINAL ACCEPTANCE TEST.
25. OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING A FIRE SYSTEM MONITORING CONTRACT OR PROVISIONS.
26. THE FIRE ALARM SYSTEM SHALL BE A NICET CERTIFIED FIRE ALARM SYSTEM DESIGN WITH ALL REQUIRED LOAD CALCULATIONS. DEVICE CUT SHEETS. PLANS WITH DEVICE ADDRESSES AND CONFIGURATION AS REQUIRED FOR THE PROJECT CONDITIONS AND SPECIFICATIONS. ALL SUBMITTALS AND PLANS SHALL CONTAIN NICET CERTIFICATION NUMBER.
27. PROVIDE AND INSTALL INTERFACE MODULES TO UNLOCK POWER LOCKS ON ACTIVATION OF FIRE ALARM SYSTEM.

FIRE ALARM CODE DATA SUMMARY SHEET

BUILDING OCCUPANCY GROUP	Group A - Assembly ☐ Group B - Business ☒	Group E - Education ☐ Group F - Factory ☒	Group H - Hazardous ☒ Group I - Institutional ☐	Group M - Mercantile ☐ Group R - Residential ☐	Group S - Storage ☒ Group U - Utility / Misc. ☐
BUILDING CHARACTERISTICS	Occupant Load: ____ N/A ☒	Number of stories: 2	Number of occupants above or below lowest exit discharge: 0 N/A ☐		
GENERAL REQUIREMENTS	Manual System (General Alarm Only) ☐	Sprinkler System (Supervision Only) ☐	Fully Automatic Fire Detection System (Manual Initiation/General Alarm, Sprinkler Supervision, and Smoke Detection) ☒		
SECONDARY POWER REQUIREMENTS BY SYSTEM TYPE	Voice Alarm ☐ N/A ☒	Remote ☐ N/A ☒	Central ☒ N/A ☐	Proprietary ☐ N/A ☒	
	15 Minutes Alarm ☐	24 Hour Standby ☐	5 Minutes Alarm ☐	60 hours Standby ☐	5 Minutes Alarm ☐
	60 hours Standby ☐	5 Minutes Alarm ☐	60 hours Standby ☐		
PRIMARY POWER SOURCE	Building Power ☒	Generator ☐	WIRING METHODS	Class 1,2,3 Signal Ckts. NEC 725 ☒	Duct/Plenum NEC 300-22 ☐
	Power Limited ☒	Non-Power Limited ☐			
LIFE SAFETY CONTROLS	Smoke Door ☐ N/A ☒	Shaft Pressurization ☐ N/A ☒	Duct Detector ☒ N/A ☐	Door Release ☐ N/A ☐	Elevator Capture ☐ N/A ☒
	Dampers/Controls ☐ N/A ☐				
VOICE ALARM SYSTEM	Pre-Recorded ☐ N/A ☒	Live ☐ N/A ☒	Entire Building ☐ N/A ☒	Selected Building Sections ☐ N/A ☒	Survivability Reqmts. ☐ N/A ☒
	2-Way Comms. ☐ N/A ☒				
SMOKE DETECTOR SYSTEM	Cross-Zoned ☐ N/A ☒	Alarm Verification ☐ N/A ☒	Approved Equivalent ☐ N/A ☒		
WIRING CLASS	Class A System ☒ N/A ☐	Class B System N/A ☒			
SPECIAL SYSTEMS	FM200 ☐ N/A ☒	Hood Systems ☐ N/A ☒	Pre-Action ☐ N/A ☒	Spray-Booth ☐ N/A ☒	Other AFFF FOAM SYSTEM

FIRE ALARM RISER NOTES

1. DEVICES SHOWN ARE TYPICAL ONLY. REFER TO FLOOR PLANS FOR EXACT PANEL AND DEVICE LOCATIONS.
2. PROVIDE 3/4" CONDUIT WITH WIRING FROM FIRE ALARM CONTROL PANEL TO ALL DOORS WITH SECURITY HARDWARE FOR OVERRIDE.

1 E-400-C **FIRE ALARM RISER DIAGRAM**
12" = 1'-0"

FIRE ALARM SEQUENCE OF OPERATION

1. UPON ACTIVATION OF ANY MANUAL PULL STATION, THE FOLLOWING SHALL OCCUR:
   - A. AUDIBLE/VISUAL SIGNALS WILL ACTIVATE AT THE FIRE ALARM CONTROL PANEL INDICATING THE DEVICE IN ALARM AND FLOOR.
   - B. ACTIVATE ALL STROBES, SOUND ALL COMMON CODES FOR EACH PULL STATION THROUGH COMBINATION HORN/STROBE UNITS THROUGHOUT THE BUILDING.
   - C. A SIGNAL WILL BE SENT TO THE FIRE DEPARTMENT VIA THE AUTO DIALER.
   - D. SHUT DOWN ALL AHU UNITS.
   - E. UNLOCK POWER LOCKS ON CARD ACCESS DOORS.
2. ACTIVATION OF SMOKE OR DUCT SMOKE DETECTOR SHALL:
   - A. AUDIBLE/VISUAL SIGNALS WILL OCCUR AT THE FIRE ALARM CONTROL PANEL INDICATING THE DEVICE IN ALARM AND FLOOR.
   - B. ACTIVATE ALL STROBES AND SOUND ALARM THROUGH COMBINATION HORN/STROBES UNITS THROUGHOUT THE BUILDING.
   - C. A SIGNAL WILL BE SENT TO THE FIRE DEPARTMENT VIA THE AUTO DIALER
   - D. SHUT DOWN ALL AHU UNITS.
   - E. UNLOCK POWER LOCKS ON CARD ACCESS DOORS.

SYSTEM INPUT/OUTPUT MATRIX

INPUT DEVICE	OUTPUT FUNCTION 1	2	3	4	5
AREA SMOKE DETECTOR	X	X	X		
DUCT SMOKE DETECTOR	X	X	X		X
MANUAL PULL STATION	X	X	X		
SPRINKLER FLOW SWITCH	X	X	X		
SPRINKLER VALVE TAMPER SWITCH				X	

OUTPUT FUNCTIONS:

1. SOUND GENERAL ALARM ON BOTH FLOOR LEVELS
2. INDICATE ALARM AT FIRE ALARM CONTROL PANEL.
3. NOTIFY FIRE DEPARTMENT VIA CENTRAL STATION.
4. INITIATE SUPERVISORY SIGNAL TO CENTRAL STATION.
5. INITIATE EQUIPMENT SHUTDOWN AND/OR ACTUATE FIRE/ SMOKE DAMPER.

FIRE ALARM SYMBOLS

F	MANUAL PULLBOX
F	VISUAL ONLY ALARM SIGNAL NUMBER DESIGNATES CANDELA RATING
F	AUDIBLE AND VISUAL ALARM SIGNAL NUMBER DESIGNATES CANDELA RATING
S	SMOKE DETECTOR - PHOTOELECTRIC
DS	DUCT MOUNTED SMOKE DETECTOR PROVIDE REMOTE TEST STATION ON AHU SERVED
CO	CARBON MONOXIDE DETECTOR
H	HEAT DETECTOR - RATE OF RISE
FS	SPRINKLER FLOW SWITCH
TS	SPRINKLER TAMPER SWITCH
RTS	REMOTE TEST STATION
FACP	FIRE ALARM CONTROL PANEL
NAC-1	NOTIFICATION APPLIANCE CIRCUIT PANEL
PS	AFFF FOAM TANK PRESSURE SWITCH

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Client
ImmuCell

Lot 11 - Second Tee Business Park
1039 Riverside Street
Portland, Maine 04103

Consultants

Reviewed for Code Compliance
Inside Plan Review
Application Number
Date: 03/16/17

Revision	By	App'd	DD/MM/YYYY
0 INTERIOR FIT OUT - ISSUED FOR CONSTRUCTION			08/19/2016

Issued	By	App'd	DD/MM/YYYY
PACKAGE C - INTERIOR FIT-OUT			**08.19.2016**
PACKAGE B - SUPERSTRUCTURE & SHELL			08.05.2016
PACKAGE A - FOUNDATIONS & BELOW SLAB			07.22.2016

Permit-Seal

STATE OF MAINE
Donald Lizanowski
14271
LICENSED PROFESSIONAL ENGINEER
8/19/2016

Client/Project
IMMUCELL

Lot 11 - Second Tee Business Park
1039 Riverside Street
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Title
FIRE ALARM SYMBOLS, NOTES & RISER

Project No. 191504176
Scale 12" = 1'-0"
Revision 0
Drawing No. **E-400-C**

ORIGINAL SHEET - ANSI E (34"x44")