DJJS SW UTAH
FIRE ALARM
SYSTEM UPGRADE

270 E. 1600 N.
CEDAR CITY, UT 84720

State of Utah–Department of Administrative Services

DIVISION OF FACILITIES CONSTRUCTION
AND MANAGEMENT

4110 State Office Building/Salt Lake City, Utah 84114/(801)538–3018

DFCM PROJECT NO. 09123430

FIRE ALARM SHEET INDEX

SHEET #	DESCRIPTION
FA–0	COVER SHEET/SHEET INDEX
FA–1	FIRE ALARM PLAN
FA–2	FIRE ALARM NOTES, RISER & DETAILS

CODE ANALYSIS

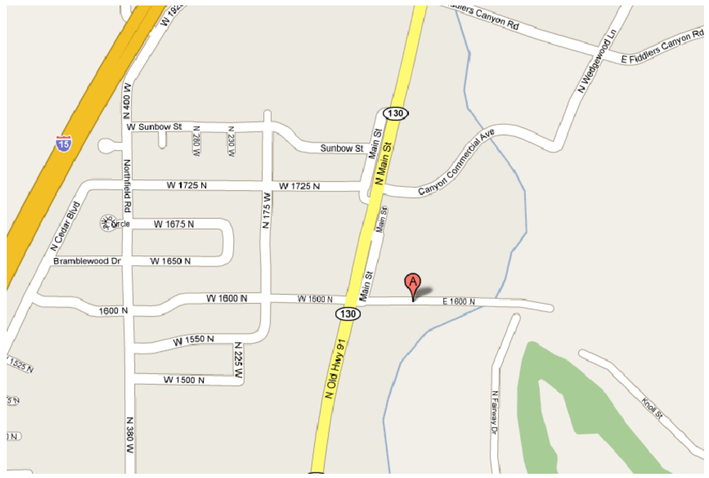
APPLICABLE CODES

	Year		Year
International Building Code	2006	National Electrical Code	2005
International Mechanical Code	2006	NFPA 101 Life Safety	
International Plumbing Code	N/A	Code, Chap 23	2006
International Fire Code	2006	ADA Accessibility	
International Energy		Guildelines	2002
Conservation Code	N/A		

SIGNATURES:

DATE	NAME	POSITION
DATE	NAME	POSITION
DATE	NAME	POSITION
DATE	NAME	POSITION
DATE	NAME	POSITION

VICINITY MAP



SPECTRUM ENGINEERS
324 S. State St., Suite 400
Salt Lake City, UT 84111
800-678-7077
801-328-5151
fax: 801-328-5155
www.spectrum-engineers.com

CONSULTANTS

LICENSED PROFESSIONAL ENGINEER No. 265949-2202 Jeffrey D. DuBois STATE OF UTAH

DEPARTMENT OF
HUMAN SERVICES
DJJS SW UTAH
YOUTH CENTER
FIRE PANEL

270 E. 1600 N.
Cedar City,
UT 84720

MARK	DATE	DESCRIPTION
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ISSUE:
DATE:

DFCM PROJECT NO:	09128430
PROJECT NO:	20090346
DRAWN BY:	BXW
CHECKED BY:	JDD
DESIGNED BY:	JDD
RECORD DRAWING DATE:	
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SHEET TITLE
COVER SHEET/
SHEET INDEX

FA-0
SHEET OF

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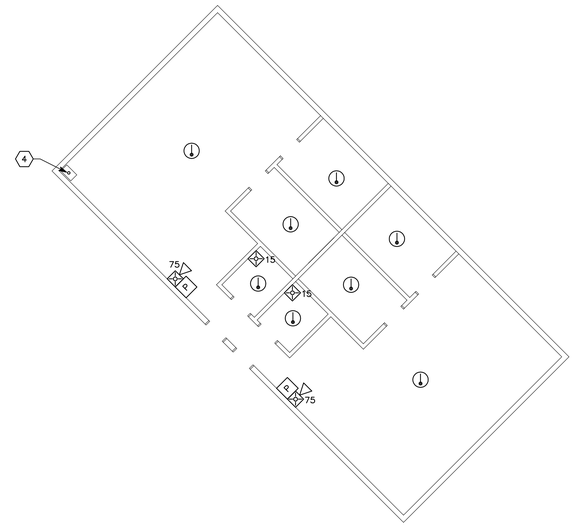
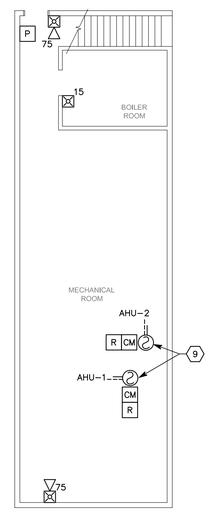
1 FIRE ALARM PLAN
SCALE: 1/8" = 1'-0"

NORTH



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



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

NORTH

SHEET KEYNOTES

1. NEW FIRE ALARM PANEL TO REPLACE EXISTING PANEL IN SAME LOCATION. PROVIDE REMOTE POWER SUPPLY FOR ADDITIONAL NAC CIRCUITS AND CONTROL AND MONITORING BY FCP.
2. PROVIDE NEW REMOTE POWER SUPPLY ADJACENT TO NEW FCP. PROVIDE CONTROL AND MONITORING CIRCUITS PER NFPA 72.
3. EXISTING UNDERGROUND CONDUIT LOCATION TO REMOTE TRAILER TO REMAIN. PULL NEW WIRING AS NECESSARY.
4. EXISTING UNDERGROUND CONDUIT LOCATION TO MAIN BUILDING TO REMAIN. PULL NEW WIRING AS NECESSARY.
5. EXISTING DOOR HOLDERS MOUNTED TO CABINET TO REMAIN. MAINTAIN EXISTING POWER AND CONTROL. PROVIDE NEW INTERCONNECTION RELAYS AND POWER IF NECESSARY.
6. PROVIDE NEW EXTERIOR HORN. COORDINATE WITH FACILITY ON PRECISE LOCATION.
7. PROVIDE FIRE SYSTEM ANNUNCIATOR AT FRONT ENTRY.
8. PROVIDE HEAT DETECTOR IN EXTERIOR FREEZER SHED. COORDINATE WITH FACILITY ON PRECISE LOCATION AND TEMPERATURE RATING.
9. PROVIDE DUCT SMOKE DETECTOR WITH CONTROL MODULE AND RELAY FOR LOCAL AND GLOBAL FAN SHUTDOWN.

SYMBOL LEGEND

SYMBOL	DESCRIPTION
FIRE ALARM	
FSA	FIRE SYSTEM ANNUNCIATOR.
FCP	FIRE ALARM CONTROL PANEL.
FPS	FIRE ALARM NOTIFICATION POWER SUPPLY.
C	AUTOMATIC DOOR CLOSERS: EXISTING DOOR CLOSERS SHALL BE CONNECTED TO FIRE ALARM PANEL TO RELEASE UPON GENERAL FIRE ALARM OR FROM SECURITY SYSTEM PANIC BUTTON.
MM	MONITOR MODULE.
CM	CONTROL MODULE.
P	FIRE ALARM MANUAL PULL STATION.
R	SHUT DOWN RELAY: INSTALL RELAY IN CONTROL CIRCUIT OF EQUIPMENT TO BE CONTROLLED IN THE EVENT OF A FIRE.
H	COOKING HOOD WET CHEMICAL SYSTEM MANUAL RELEASE.
	MAGNETIC DOOR HOLDER, EXISTING.
	DETECTOR, SMOKE.
A	DETECTOR, SMOKE WITH AUXILIARY CONTACT.
G	DETECTOR, SMOKE WITH GUARD.
	DETECTOR, SMOKE, DUCT WITH HOUSING AND SAMPLING TUBE.
	DETECTOR, HEAT.
	STROBE.
75	STROBE. SUBSCRIPT INDICATES CANDELA RATING.
WP	ALARM, HORN/SPEAKER, WEATHERPROOF.
	ALARM, HORN/STROBE, ONE ASSEMBLY.
75	ALARM, HORN/STROBE, ONE ASSEMBLY. SUBSCRIPT INDICATES CANDELA RATING.
C	ALARM, CHIME/STROBE, ONE ASSEMBLY.
G	ALARM, HORN/STROBE WITH GUARD, ONE ASSEMBLY.
M	ALARM, MINI HORN/STROBE, ONE ASSEMBLY.
75	ALARM, HORN/STROBE, ONE ASSEMBLY, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
75	ALARM, HORN, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
75	ALARM, STROBE, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
	WATERFLOW SWITCH, EXISTING.
	VALVE TAMPER SWITCH, EXISTING.

ADD. ALTERNATES

BID ALTERNATE #1: PROVIDE MATERIAL AND LABOR COSTS TO PROVIDE A NEW SECURITY PANEL IN CONTROL ROOM. SEPARATE SECURITY FUNCTIONS FROM FIRE ALARM PANEL AND PROVIDE NEW WIRING, CONDUIT, AND ACCESORIES TO NEW PANEL.

BID ALTERNATE #2: PROVIDE MATERIAL AND LABOR COSTS TO LOCATE NEW FIRE ALARM PANEL IN THE MECHANICAL MEZZANINE UPSTAIRS AND LOCATE A NEW ANNUNCIATOR PANEL IN THE CONTROL ROOM. INCLUDE ALL COSTS ASSOCIATED WITH RELOCATING EXISTING, REUSED, OR NEW CIRCUITS AND CONDUIT.

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SHEET TITLE
FIRE ALARM PLAN

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FIRE ALARM INPUT/OUTPUT MATRIX

INPUT ACTION ZONE		OUTPUT ACTION: GENERAL ALARM (NOTIFICATION APPLIANCE OPERATION)	DOOR HOLDER RELEASE	ALARM SIGNAL AT FCP	SUPERVISOR SIGNAL TO FCP	TROUBLE SIGNAL TO FCP	AHU, RTU FAN SHUTDOWN		NOTES
1	WATER FLOW SWITCH ACTIVATION	●	●	●			●		
2	VALVE TAMPER SWITCH ACTIVATION				●				
3	PULL STATION ACTIVATION	●	●	●			●		
4	HEAT OR SMOKE DETECTOR ACTIVATION	●	●	●			●		
5	DUCT SMOKE DETECTOR				●		●		
6	REMOTE POWER SUPPLY TROUBLE					●			
7	CIRCUIT TROUBLE					●			
8	AC POWER LOSS				●				
9	LOW BATTERY POWER					●			
10	SYSTEM TROUBLE					●			
11									
12									
13									

WIRING SCHEDULE

FUNCTION	< 500'	< 1000'	1000'-3000'	> 3000'
ADDRESSABLE LOOP	#18 TSP	#18 TSP	#16 TSP	#14 TSP
POWER LOOP	#14 THWN	#14 THWN	#12 THWN	#10 THWN
SPARE LOOP	#14 THWN	#14 THWN	#12 THWN	#10 THWN
HORN STROBES	#14 THWN	#14 THWN	#12 THWN	#10 THWN
MAGNETIC DOOR HOLDER	#12 THWN	#10 THWN		
SPEAKERS	#16 TSP	#16 TSP	#14 TSP	#14 TSP

NOTIFICATION SCHEDULE

SYMBOL	STROBE SIZE	COVERAGE	AVERAGE CURRENT	MAXIMUM PER CIRCUIT ALONE
15	15 CD	20'x20'	.075A	20
15	15 CD	20'x20'	.085A	17
30	30 CD	30'x30'	.135A	11
75	75 CD	40'x40'	.200A	7
110	110 CD	50'x50'	.225A	6

ADDRESSABLE LOOP LEGEND

INITIATING LOOP	DESCRIPTION
FA-1	BUILDING LOOP; 150 MAX DETECTORS, 150 MAX MODULES

NOTE: ALL CIRCUITS CLASS A, STYLE 6

INDICATING LOOP LEGEND

INDICATING LOOP	DESCRIPTION
FI-1	FRONT RECEPTION AREA
FI-2	NORTHWEST DETENTION & CLASSROOMS
FI-3	SOUTHEAST DETENTION & KITCHEN
FI-4	TRAILER, GENERATOR, GYM
FI-5	MECHANICAL MEZZANINE

NOTE: ALL CIRCUITS CLASS A, STYLE Z

GENERAL SHEET NOTES

1. THE SCOPE OF WORK FOR THIS PROJECT INCLUDES REPLACING THE EXISTING CONVENTIONAL FIRE ALARM SYSTEM WITH A NEW ADDRESSABLE SYSTEM. A NEW FIRE ALARM PANEL, AND OTHER CONTROL EQUIPMENT, INITIATION AND NOTIFICATION DEVICES, CONDUIT, WIRING, AND ALL OTHER ACCESSORIES OR EQUIPMENT NECESSARY FOR A FULLY FUNCTIONAL SYSTEM ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION SHALL BE INCLUDED. ADDITIONALLY, EXISTING SECURITY SYSTEM FUNCTIONS SUPPORTED BY THE EXISTING FIRE ALARM PANEL SHALL BE MAINTAINED AND EXTENDED TO THE NEW FIRE ALARM PANEL.

   EXISTING WIRING AND CONDUIT MAY BE REUSED TO SUPPORT THE NEW SYSTEM AND EQUIPMENT WHERE POSSIBLE. NEW WIRING AND CONDUIT SHALL BE PROVIDED IN ALL OTHER INSTANCES.

2. CODE ANALYSIS:
   2006 INTERNATIONAL BUILDING CODE
   2006 INTERNATIONAL FIRE CODE
   2006 INTERNATIONAL MECHANICAL CODE
   2008 NFPA 70
   2007 NFPA 72
   2006 NFPA 101 CHAPTER 23 FOR EXISTING DETENTION AND CORRECTIONAL OCCUPANCIES
   AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS
   DFCM DESIGN REQUIREMENTS

   THIS BUILDING IS CLASSIFIED AS INSTITUTIONAL GROUP I-3 CONDITION IV IMPEDED EGRESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF THE EXISTING FIRE ALARM EQUIPMENT INCLUDING PANELS, CONDUIT, INITIATION DEVICES, NOTIFICATION APPLIANCES, WIRING, ETC. THAT IS NOT REUSED. DAMAGED SURFACES WHERE EQUIPMENT IS REMOVED SHALL BE PATCHED AND PAINTED TO MATCH EXISTING CONDITIONS.

4. PLANS ARE BASED UPON 300 MONITOR AND CONTROL DEVICES PER ADDRESSABLE LOOP (150 DETECTORS, 150 MODULES). OTHER CONFIGURATIONS ARE ACCEPTABLE SUBJECT TO CONTRACTOR ALLOWING FOR INCREASED WIRING REQUIREMENTS AND SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION. MAXIMUM INITIAL DEVICES PER LOOP SHALL NOT EXCEED 75% MAXIMUM ALLOWABLE.

5. PLANS ARE BASED UPON THE WIRING SCHEDULE SHOWN. WHERE MANUFACTURER'S REQUIREMENTS EXCEED REQUIREMENTS SHOWN, INCLUDE ADDITIONAL ASSOCIATED COSTS AND SUBMITTAL DRAWINGS INDICATING NEW WIRING CONFIGURATION.

6. PLANS ARE BASED UPON 1.5 AMPS AT 24 VDC, NOT TO EXCEED 75% (1.125 AMPS AVAILABLE), POWER SUPPLY CAPACITY PER NOTIFICATION CIRCUIT. NOTIFICATION DEVICE LOADS ARE BASED UPON NOTIFICATION DEVICE SCHEDULE SHOWN. INCLUDE ADDITIONAL ASSOCIATED COSTS FOR INCREASED WIRING AND POWER SUPPLY CAPACITY IF LOADS OF ACTUAL DEVICES PROVIDED EXCEED CIRCUIT CAPACITY, OR IF LOAD OUTPUT OF ACTUAL POWER SUPPLIES PROVIDED IS SIZED DIFFERENTLY. PROVIDE SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION.

7. PROVIDE POWER SUPPLY CAPACITY AS REQUIRED FOR DOOR HOLD OPENS SHOWN.

8. BATTERY CAPACITY FOR FIRE ALARM PANEL AND REMOTE POWER SUPPLY TO BE ADEQUATE TO OPERATE 15 MINUTES AFTER 24 HOURS PLUS 25% SPARE CAPACITY.

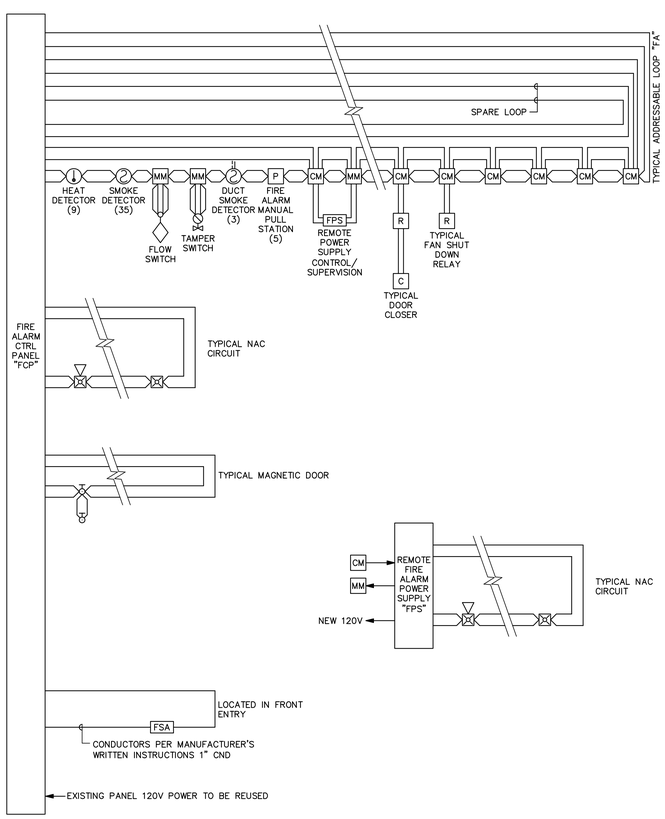
9. RUN SPARE LOOPS IN SAME CONDUIT. DO NOT EXCEED 40% AREA FILL OF CONDUITS.

10. REPLACE EXISTING DUCT DETECTORS WITH NEW, ADDRESSABLE DEVICES. INSTALL DUCT DETECTORS PER NFPA 72 REQUIREMENTS.

14. PROVIDE ONE YEAR OFF SITE MONITORING INCLUDING ALL INTERFACE DEVICES AND MONITORING CHARGES. COORDINATE WITH BUILDING OWNER'S OFF SITE MONITORING COMPANY.

15. LOCATE SMOKE AND HEAT DETECTORS MINIMUM 3' FROM AIR SUPPLY AND RETURN LOUVERS. EXISTING DEVICE LOCATIONS SHALL NOT BE REUSED IF NOT MEETING THIS REQUIREMENT.

16. PROVIDE SYNCHRONIZED STROBES THROUGHOUT FACILITY. PROVIDE SYNCHRONIZATION MODULES PER MANUFACTURER'S REQUIREMENTS. INCLUDE ADDITIONAL WIRING, IF REQUIRED.



A1 DJJS ADDRESSABLE FIRE ALARM RISER
NO SCALE

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SHEET TITLE
FIRE ALARM NOTES, RISER & DETAILS

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