



Managed by Fermi Research Alliance, LLC for the U.S. Department of Energy Office of Science

SBN Far Detector Building Conventional Facilities

S. Dixon

ICARUS Integration Meeting

25 October 2017

SBN Far Detector Building – Electrical Power

Requirements (20MAR15 Readiness Review)

- 55 kw for TPC;
- 25 kw for Veto;
- 20 kw for spare;
- Totals to 100 kw or 125 kVA.

Installed

- 225 kVA dedicated detector power system;
- (2)-75 kVA transformers/panelboards;

(Note: Linda is evaluating circuits/location)

SBN Far Detector Building – Cryo Power

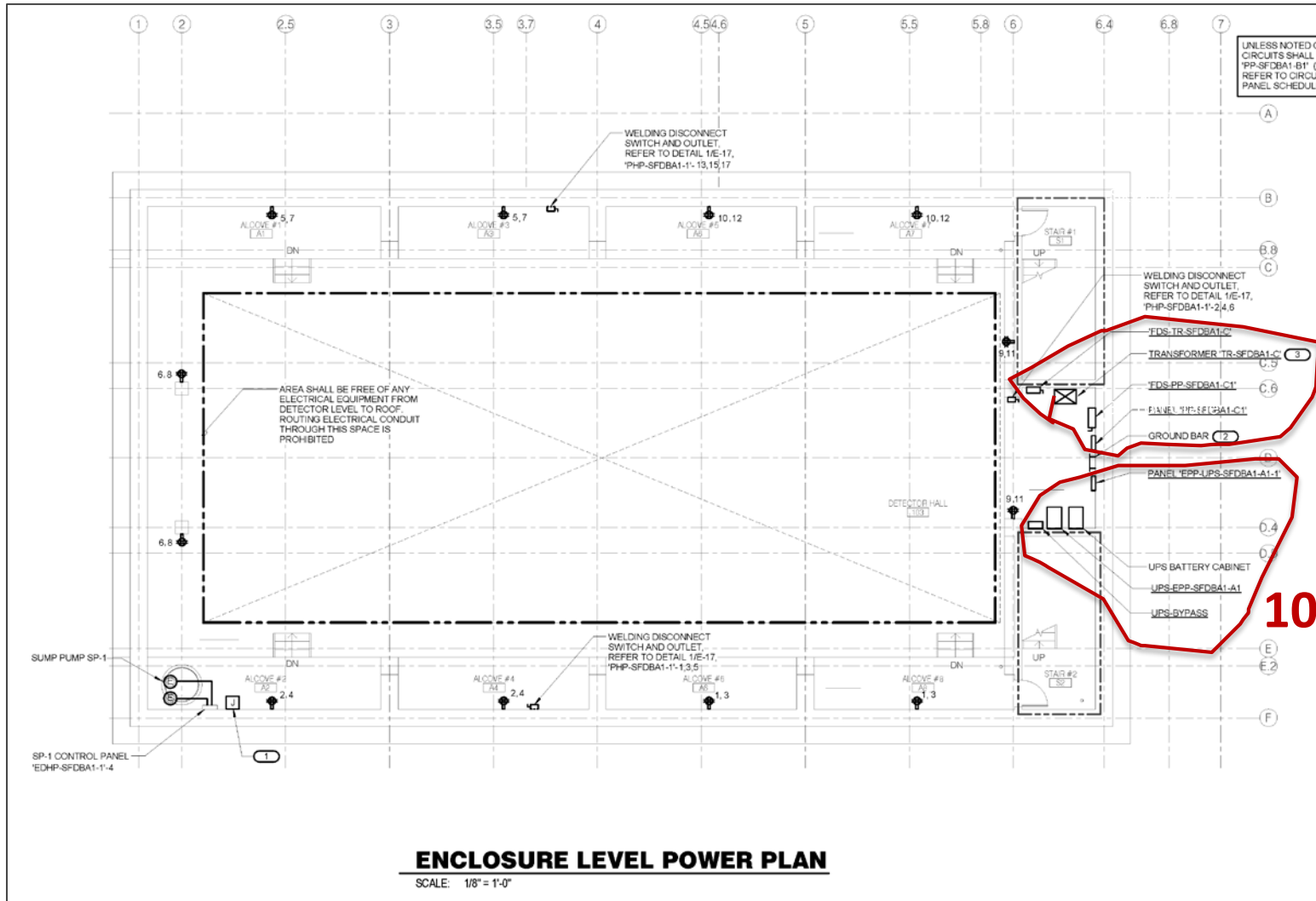
Requirements (20MAR15 Readiness Review)

- 150 kw;
- UPS required for monitoring and control equipment.

Installed

- Fed from 750 kVA building power system;
- (1)-75 kVA transformers/panelboard;
- 10 kVA UPS (expandable to 20 kVA)

SBN Far Detector Building - Power

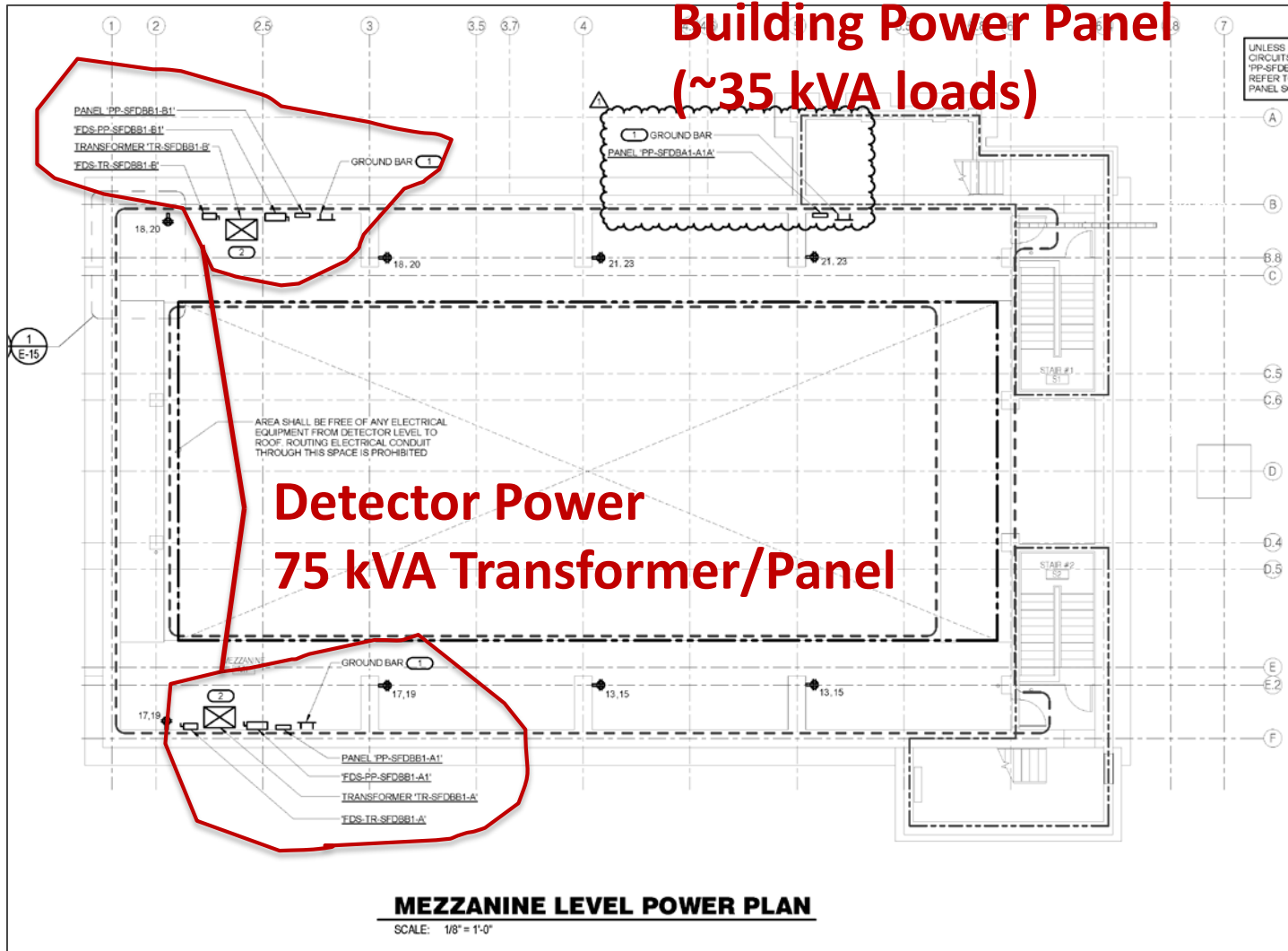


Cryo Panel

10 kVA UPS

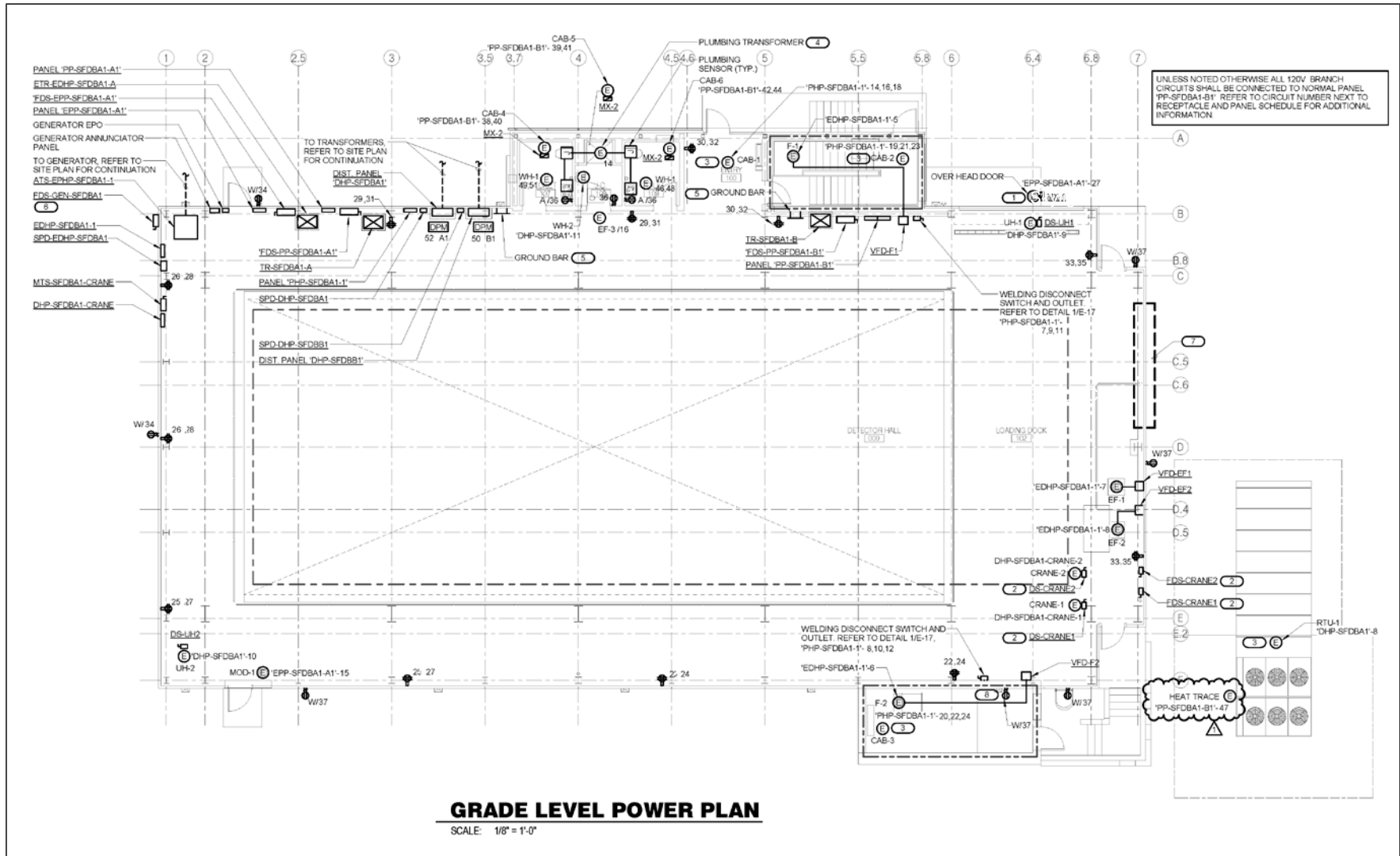
From 6-7-93, Sheet E-6 (SBN-doc-276)

SBN Far Detector Building - Power



From 6-7-93, Sheet E-7 (SBN-doc-276)

SBN Far Detector Building - Power



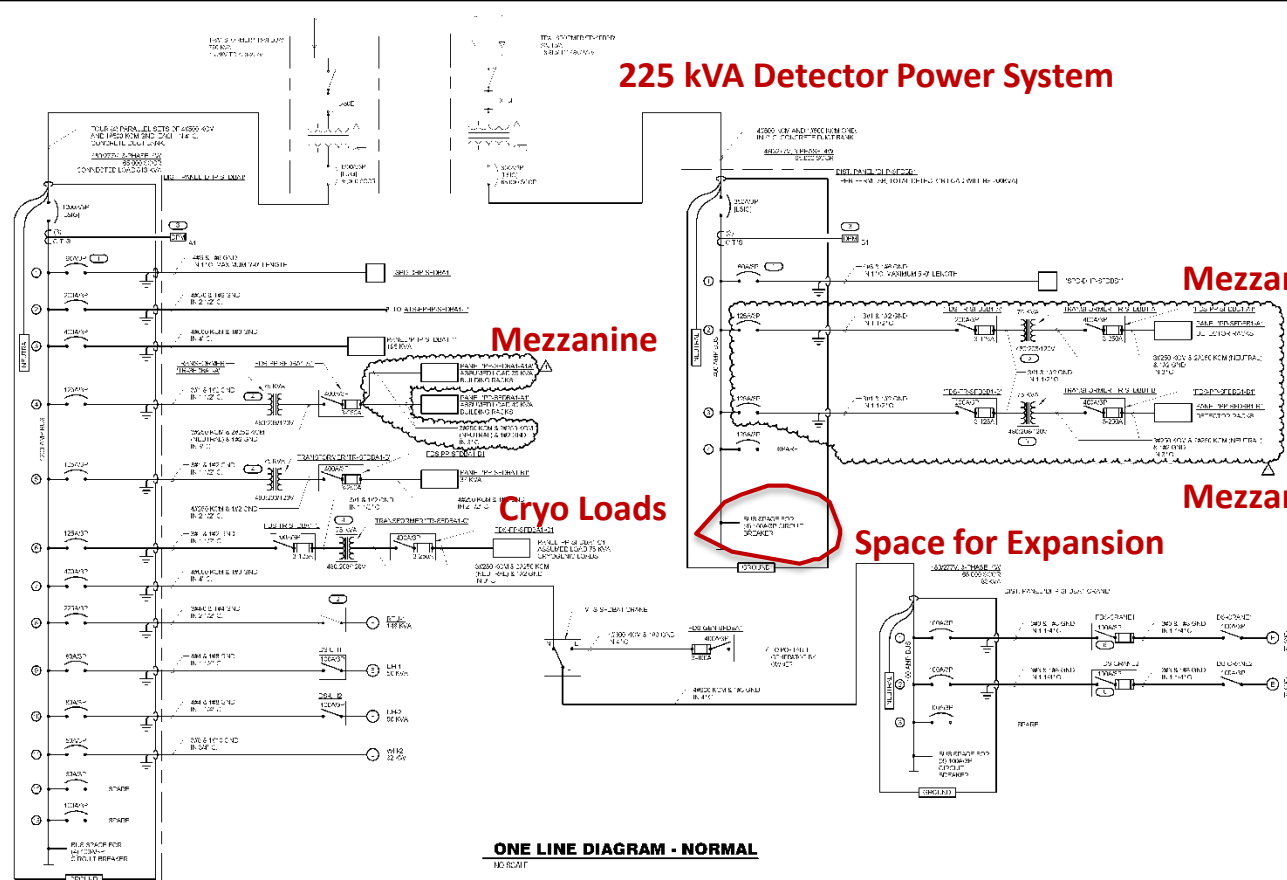
From 6-7-93, Sheet E-8 (SBN-doc-276)

SBN Far Detector Building - Power

225 kVA Detector Power System

- GENERAL SHEET NOTES**
1. REFER TO ALL OTHER GENERAL ELECTRICAL NOTES DETECTED BY VISUAL INSPECTION AND REVISIONS TO THIS DRAWING.
 2. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL AND STATE CODES.
 3. REFER TO ALL OTHER GENERAL ELECTRICAL NOTES DETECTED BY VISUAL INSPECTION AND REVISIONS TO THIS DRAWING.
 4. REFER TO ALL OTHER GENERAL ELECTRICAL NOTES DETECTED BY VISUAL INSPECTION AND REVISIONS TO THIS DRAWING.
 5. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL AND STATE CODES.

- REVISIONS**
- | NO. | DATE | DESCRIPTION |
|-----|-----------|-------------------|
| 1 | 3/30/2015 | ISSUED FOR PERMIT |
| 2 | 3/30/2015 | ISSUED FOR PERMIT |
| 3 | 3/30/2015 | ISSUED FOR PERMIT |
| 4 | 3/30/2015 | ISSUED FOR PERMIT |
| 5 | 3/30/2015 | ISSUED FOR PERMIT |
| 6 | 3/30/2015 | ISSUED FOR PERMIT |



ONE LINE DIAGRAM - NORMAL
NO SCALE

C:\Revised\Load\Diagram\FILE_140523100 - Normal\Lab - FarDetector_CENTRAL_infrastructure
 4/22/2015 11:49:46 AM

REVISIONS

NO.	DATE	DESCRIPTION
1	3/30/2015	ISSUED FOR PERMIT
2	3/30/2015	ISSUED FOR PERMIT
3	3/30/2015	ISSUED FOR PERMIT
4	3/30/2015	ISSUED FOR PERMIT
5	3/30/2015	ISSUED FOR PERMIT
6	3/30/2015	ISSUED FOR PERMIT

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6	3/30/2015	ISSUED FOR PERMIT

SCALE:

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3	3/30/2015	ISSUED FOR PERMIT
4	3/30/2015	ISSUED FOR PERMIT
5	3/30/2015	ISSUED FOR PERMIT
6	3/30/2015	ISSUED FOR PERMIT

FERMI NATIONAL ACCELERATOR LABORATORY

SBN FAR DETECTOR BUILDING

ONE LINE DIAGRAM - NORMAL

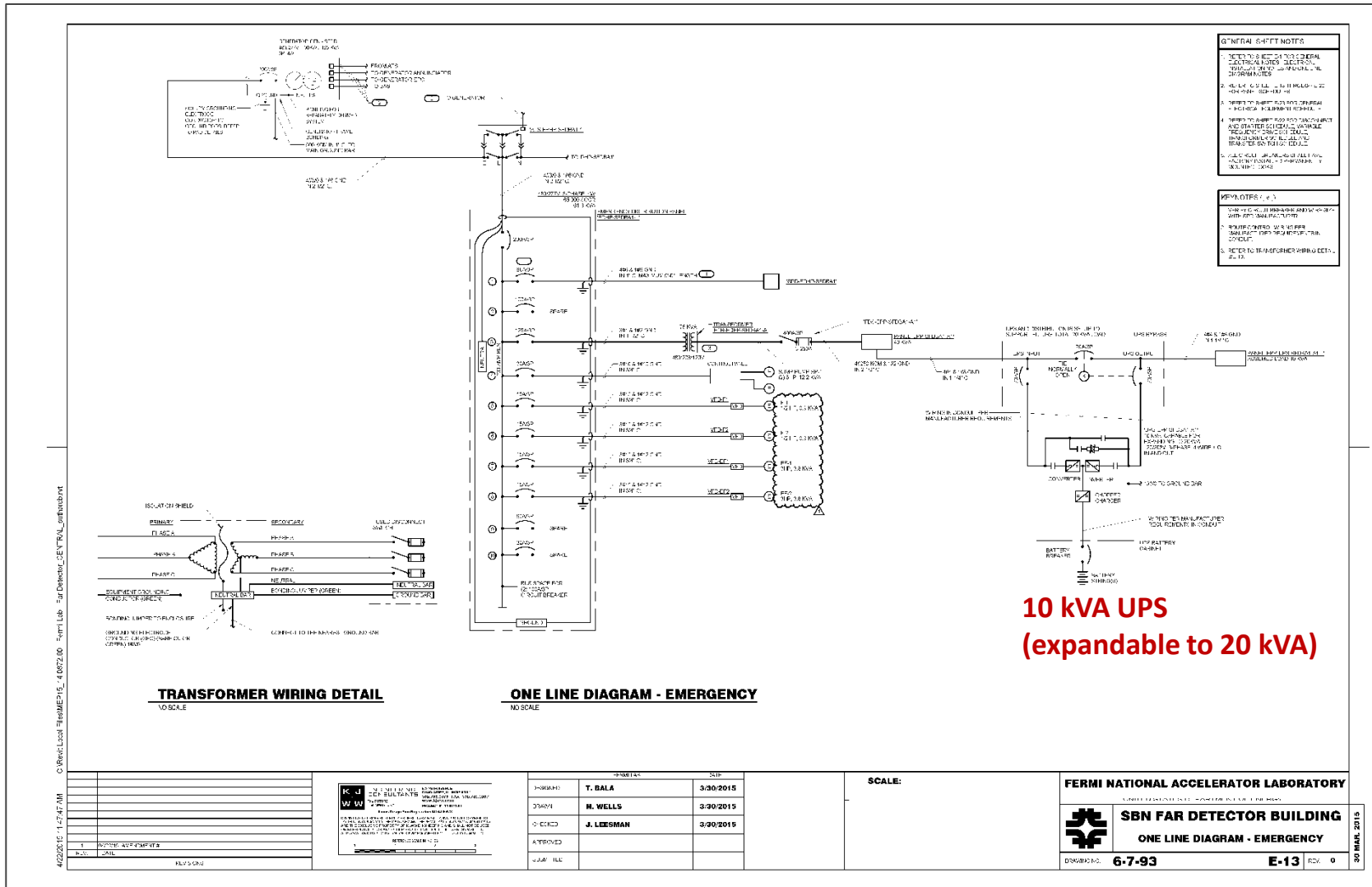
6-7-93 E-12 REV. 0

20 MAR 2015

From 6-7-93, Sheet E-12 (SBN-doc-276)



SBN Far Detector Building - Power



From 6-7-93, Sheet E-13 (SBN-doc-276)

SBN Far Detector Building – HVAC

Cooling Requirements (20MAR15 Readiness Review)

- All power converted to heat (100 kw);

Installed

- 27,000 cfm, 70 ton HVAC unit;
- Zoned distribution system (grade level and enclosure level, separated by shielding);
- Detector loads are at enclosure level;
- Supply through ductwork.

SBN Far Detector Building – HVAC

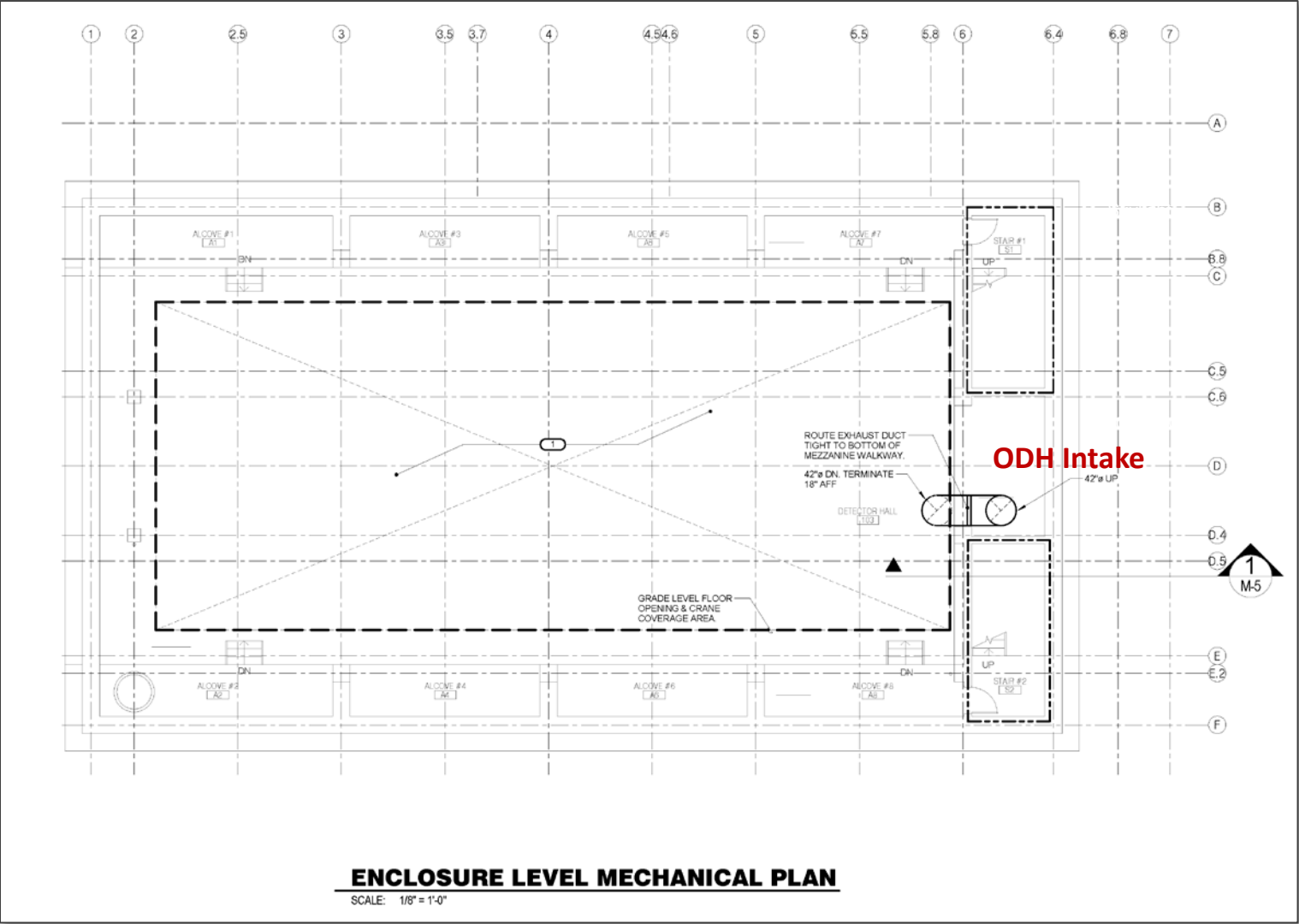
ODH Requirements (from M. Geynisman)

- 10,000 cfm exhaust;
- Intake at enclosure level;

Installed

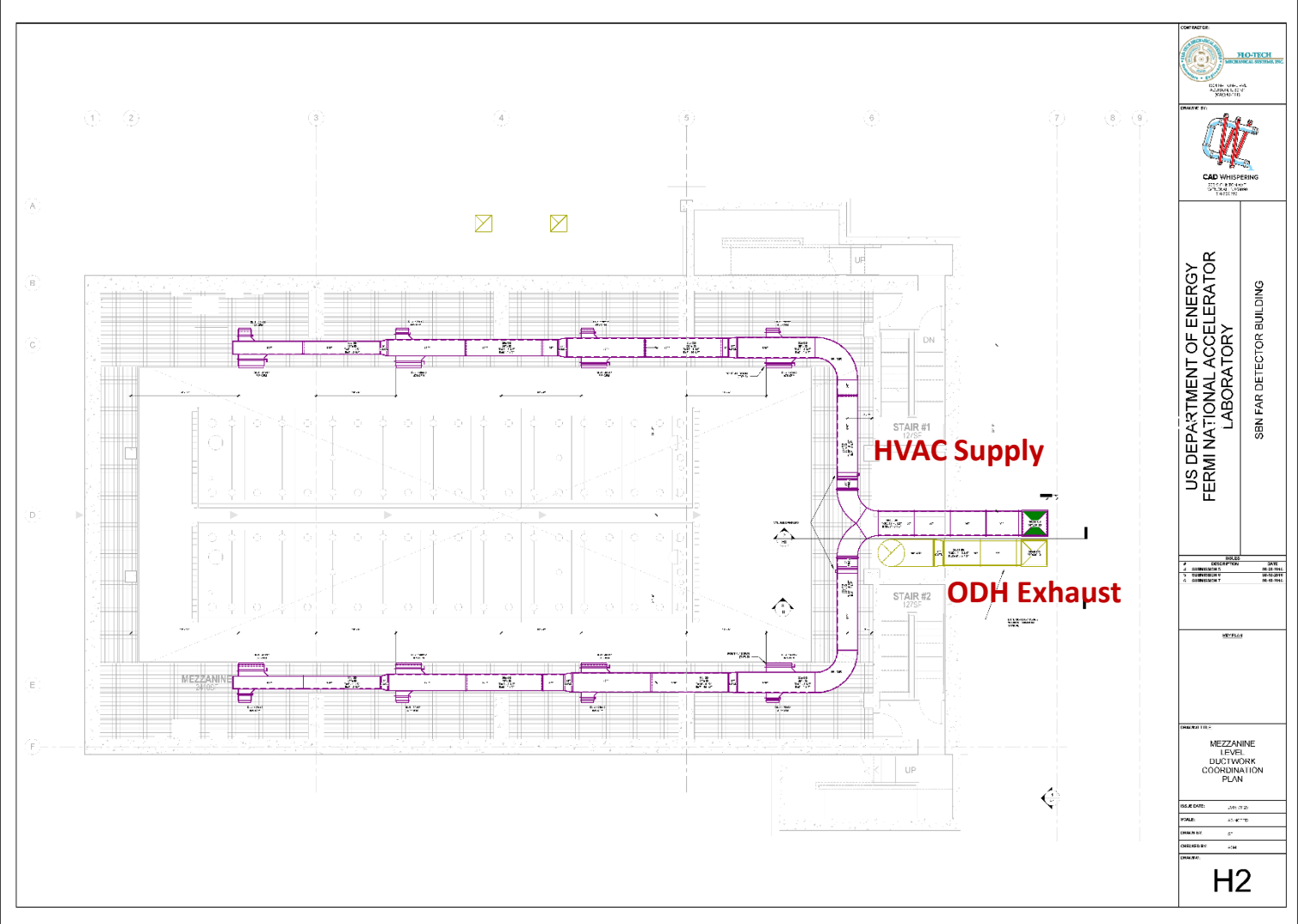
- 27,000 cfm, 70 ton HVAC unit;
- Zoned distribution system (grade level and enclosure level, separated by shielding);
- Detector loads are at enclosure level;
- Supply through ductwork;
- Modified shielding design to allow air from south end;
- Stairs are pressurized.

SBN Far Detector Building - HVAC



From 6-7-93, Sheet M-2 (SBN-doc-276)

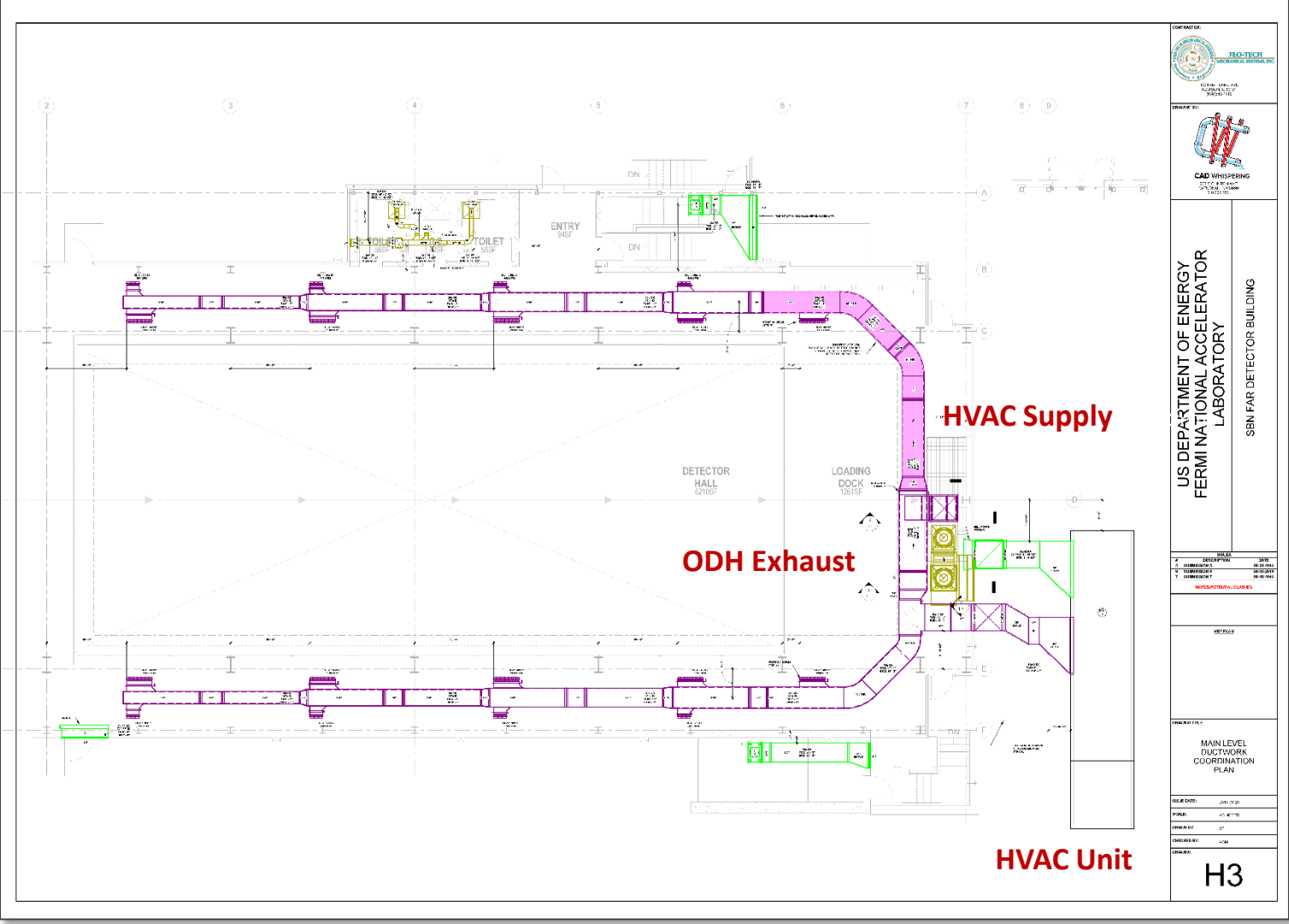
SBN Far Detector Building - HVAC



US DEPARTMENT OF ENERGY FERMI NATIONAL ACCELERATOR LABORATORY SBN FAR DETECTOR BUILDING	
SHEET NO. 1 2 3 4	SHEET TITLE MEZZANINE LEVEL DUCTWORK COORDINATION PLAN
DATE: 06/11/20 SCALE: AS SHOWN DRAWN BY: JF CHECKED BY: JF	H2

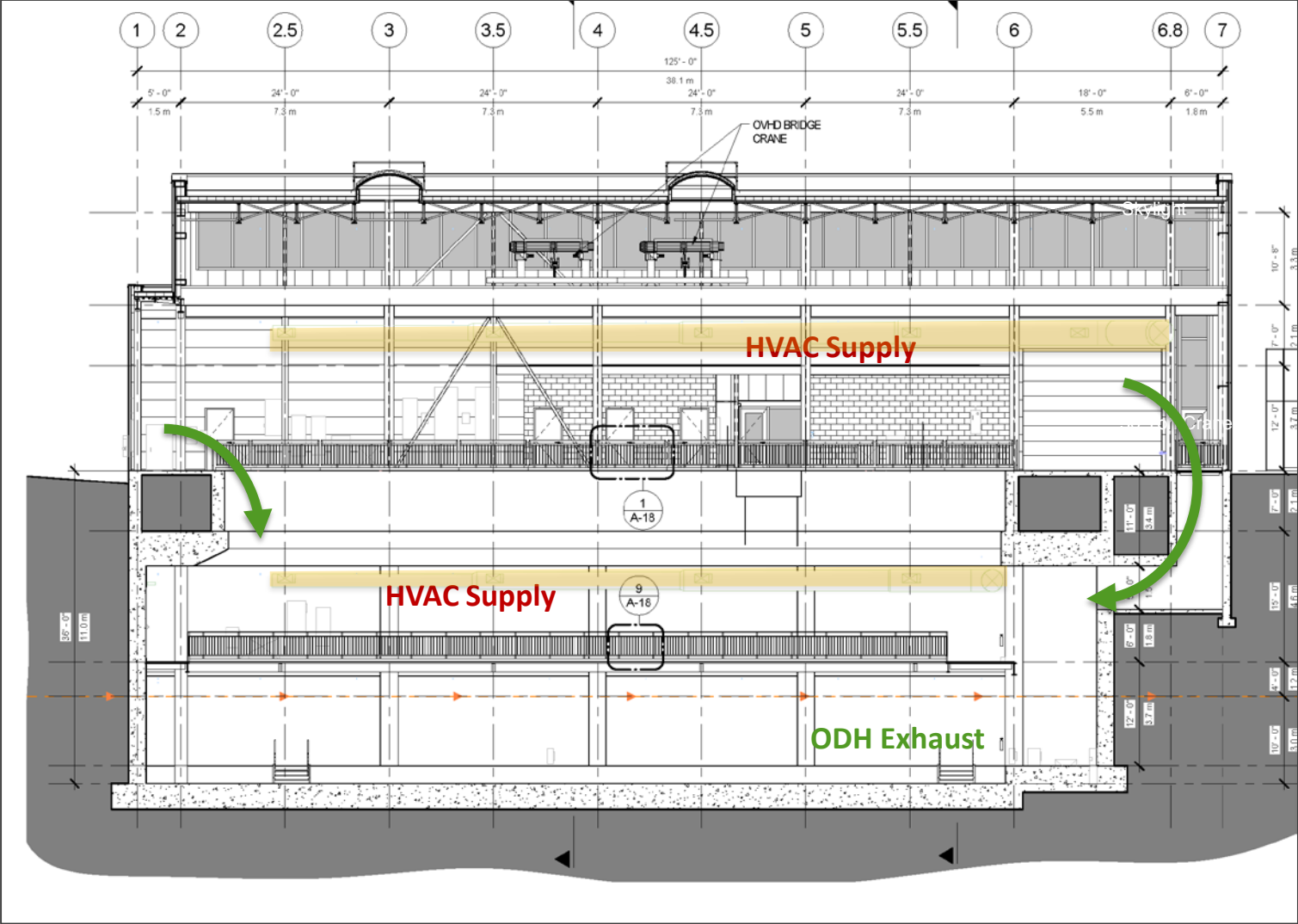
From Shop Drawing H2

SBN Far Detector Building - HVAC



From Shop Drawing H3

SBN Far Detector Building - HVAC



From 6-7-93, Sheet A-6 (SBN-doc-276)

SBN Far Detector Building - HVAC



Looking North From Loading Dock

SBN Far Detector Building - HVAC



Looking North From Enclosure Level



Looking North at North Wall

SBN Far Detector Building - HVAC



Looking South From Loading Dock