



ENGINEERING EVALUATION COVERSHEET

Number: EVAL-DE-2020-0009

ESO#/PR#/NCR#: E7666

Revision: 1

Duration: Time Limited

Type: Engineering

Title: X-720 Roof Inspection

Doc Link:

Final Doc Link:

Description/Evaluation Statement:

Revision 1 of this Engineering Evaluation was completed to comply with the 5-year structural integrity requirement for roof structures to perform routine maintenance activities. An inspection of the X-720 was completed on May 24, 2023 as part of the roof stop work and concluded that the previous revision was still current. However, the previous revision is expiring soon, so a new revision was completed.

R1

CONCLUSION

The condition of the structural members of the roof show no significant change from the previous evaluation. Therefore, the X-720 roof is structurally adequate for routine maintenance access for 6 people. Each employee and hand-carried tools and materials may not exceed 300 pounds. In addition, listed below are maintenance tasks that need to be completed to protect the structural integrity of the roof (pictures of issues shown in Attachment B):

- Repair roof leaks in multiple locations. The locations with roof leaks are found near columns B13, D15, B8, B10, E4, K2 and K17.
- Remove all vegetation growing on the roof.

OBSERVATIONS

A walkdown of the X-720 roof was performed on June 13, 2024. Engineering found multiple locations on the roof where vegetation was growing. This could damage the TPO overlay and cause leaks in the future. While inspecting the interior of the roof, Engineering talked to personnel within the facility about leaks they have been noticing coming from the roof. The locations where leaks are present are listed above and pictures are provided in Attachment B. Engineering also found a spot of corroded metal decking near column J14 that needs to be monitored as part of this 5-year inspection.

[Revision 0, Approved 2/7/2023]

INTRODUCTION

This evaluation was completed to supersede EVAL-DE-2012-0113, Rev.5 "X-720 Roof Inspection Report" which was completed in 2016 as part of the required 5-year roof structural integrity. This new evaluation number was created with all previous pertinent information carried over to aid in clarification of previous documentation of roof evaluations. The prior evaluation (which expired 07 APR 2019) is available through the FBP X-drive.

CONCLUSION

This Engineering Evaluation includes performing an updated structural integrity inspection of the X-720 main roof as part of the five-year inspection program requirement for having a nuclear safety function as described in the Basis for Interim Operations (BIO) of Former Uranium Enrichment Facilities (FUEF). This assessment was performed from the exterior of the facility and sections of the interior structure and the current conditions compared to photographs from the previous inspections (see introduction for explanation on previous inspection). Overall, the condition of the structural members of the roof show no significant change from the previous evaluation and exterior walkdown observed the roof material to be in good to great condition, therefore, this evaluation is valid for a period of five years. This evaluation also includes an updated FBP Building Roof Assessment form.

Observations during the 2019 walkdown include debris (varies types) which need to be removed, minor cracking of roof sealant near roof drains, and several roof drain screens which need to be replaced. Additionally, there are several stanchions which have fallen and need to be up righted. The new TPO on the main lower roof (South side of facility) and selected Highbay roof valley appears to be in good condition. The East building addition and loading dock canopy roofs were not physically walkdown but observations were completed from above and below the roofs with no concerns being annotated.

It is Engineering's assessment that the X-720 roof is structurally stable to support up to 6 personnel (1800 pounds) for the purpose of routine maintenance. No additional/new significant structural issues were observed during the 2019 walkdown. Therefore, this Engineering Evaluation of the X-720 roof structural integrity is valid for routine roof access for a period of 5 years.

Operability Recommendations: Operable? ☐ Yes ☐ No ☒ N/A	Changes to Design Docs Needed: ☐ Yes ☒ No Affected Docs
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Implementation: Actions Required: ☐ Yes ☒ No EIAW/IAW Number: N/A USQD Screening Number: N/A USQD Number: N/A	Date Approved: 6/24/2024 Expiration Date: 6/24/2029 Next Review Date: N/A
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NOTE: If implementing actions are required, an EIAW/IAW number is also required to assure such actions are completed and do not violate certificate requirements and authorizations.

Non-Conforming Item Disposition:

☒ N/A	☐ NCR VOID (Item conforms)
☐ Reject - Return To Supplier	☐ Reject - Scrap/Dispose
☐ Repair	☐ Rework
☐ Use-As-Is	☐ Upgrade
	☐ Documentation

Other Comments or Notes:

Attachments

- 1) Attachment A - Roof Assessment Form
- 2) Attachment B - Rev. 1 Pictures
- 3) Attachment C - Rev. 0 Attachments

APPROVALS

AUTHOR: Nathan McLaughlin 6/24/2024 Nathan McLaughlin
Signature/Date

REVIEWER: Rick Matulja 24 JUN 2024 Rick Matulja
Signature/Date

APPROVER: Ellen K. Stone 6/24/2024 ellen stone
Signature/Date

FBP BUILDING ROOF ASSESSMENT

COVER SHEET

Project: **Structural Integrity Assessment** Engineering Evaluation No.: **EVAL-DE-2020-0009 Rev.1**

Building: **X-720** Intended Load: **Routine Maintenance Access**

Location/Area: **Entire Roof** No. of Employees **6** (x 300 lbs) = **1800 pounds**

Type of Structure: **Steel Frame / Steel Metal Deck (S)** Each employee plus hand-carried tools plus hand-carried materials may not exceed 300 pounds.

Weight of Equipment + Included above

Age of Structure: **72 Years** Weight of Materials + Included above

Occupied? ☒ Yes ☐ No Total Weight = **1800 pounds**

Maintained? ☒ Yes ☐ No Date of Assessment: **17 JUNE 2024**

The roof described above has been assessed by representatives of Engineering and Safety for Routine Maintenance Access. The result of this structural integrity assessment is:

- ☒ Passed (This judgment is based upon a Good-Faith roof assessment for routine maintenance access.)
- ☐ Conditionally Passed (Most of the roof areas are accessible, except as listed in _____)
- ☐ Did Not Pass (Requires further evaluation prior to FBP and/or FBP-managed contractor employee access.)

A separate engineering evaluation is needed for conditions other than stated above (such as the use or installation of rooftop equipment, or the stockpiling of materials on the roof).

Walkdown Date: **13 JUNE 2024**

Assessment Team

<u>Susan Ison</u> Facility Custodian (Print)	SUSAN ISON (Affiliate) Facility Custodian (Sign)	Digitally signed by SUSAN ISON (Affiliate) Date: 2024.06.17 12:36:52 -04'00'
<u>Alex Mullins</u> Safety Representative (Print)	ALEXANDER MULLINS (Affiliate) Safety Representative (Sign)	Digitally signed by ALEXANDER MULLINS (Affiliate) Date: 2024.06.18 10:37:41 -04'00'
<u>Nathan McLaughlin</u> Engineer (Print)	Nathan McLaughlin Engineer (Sign)	Digitally signed by Nathan McLaughlin Date: 2024.06.17 10:14:22 -04'00'
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Other: <u>N/A</u> (Print)	(Sign)	Date

FBP BUILDING ROOF ASSESSMENT

CHECKLIST

I. WALLS/ROOF SUPPORT

A. Exterior Walls

1. Concrete ☐
 - a. Tilt-up panels ☐
 - b. Cast-in-place ☐
 - c. Precast panels ☐
2. Masonry ☐
 - a. Block (CMU) ☐
 - b. Brick ☐
3. Steel frame w/ asbestos siding ☒
 - a. Pre-engineered building ☐
4. Wood frame with _____ siding ☐
5. Other _____ ☐

B. Interior Walls/Columns

1. Concrete ☐
 - a. Cast-in-place ☐
 - b. Tilt-up panels ☐
 - c. Precast panels ☐
2. Masonry ☐
 - a. Block (CMU) ☐
 - b. Brick ☐
3. Steel frame ☒
4. Wood frame w/siding ☐
5. Other _____ ☐

II. ROOF

A. Roofing

1. Metal type ☐
2. Built-up type ☒
3. Single-ply type ☐
4. Urethane ☐
5. Asphalt Shingle ☐
6. Composite type w/ spray foam overlay ☐

B. Decking

1. Reinforced concrete slab ☐
2. Precast concrete plank ☐
3. Prestressed concrete plank and deck ☐
4. Composite concrete slab ☐
5. Steel w/concrete fill ☐
6. Steel deck, 1.5" thick ☒
7. Composite Steel ☐
8. Plywood ☐
9. T&G wood plank ☐
10. Other _____ ☐

C. Roof Structure

1. Concrete ☐
 - a. Waffle Slab ☐
 - b. Concrete encased beams w slab ☐
 - c. Precast concrete plank ☐
2. Masonry beam ☐

C. Roof Structure (continued)

3. Steel ☒
 - a. Framework type _____ ☐
 - b. Joists ☐
 - c. Trusses ☒
4. Wood ☐
 - a. Joists ☐
 - b. Manufactured joists type _____ ☐
 - c. Beams ☐
5. Other _____ ☐

III. ROOF CONDITION

A. General Appearance

1. Debris ☐
2. Drainage (some standing water / fair) ☐
3. Visible damage from roof:
 - a. Concave/convex deflection ☐
 - b. Surface uniformity
 - Loose material ☐
 - Deviations from one area to another ☐
 - c. Sun damage ☐
4. Visible damage from interior:
 - a. Concave/convex deflection ☐
 - b. Notable ceiling damage
 - Water stains on ceiling panels ☐
5. General condition Good ☒
6. New equipment/alterations ☐
7. Other _____ ☐
8. Aged roof ☒

B. Surface Condition

1. Bare spots in gravel/ballast ☒
2. Visible light from below (through ceiling) ☐
3. Alligator/cracking ☐
4. Spalling concrete surfaces ☐
5. Slippage ☐
6. Housekeeping ☐
7. Evidence of recent repairs (yrs ago) ☐
8. OK ☒

C. Membrane Condition

1. Blistering ☐
2. Splitting ☐
3. Ridging/wrinkling ☐
4. Fishmouthing ☐
5. Loose felt laps/seams ☐
6. Punctures, fastener backout ☐
7. Securement to substrate ☐
8. Membrane shrinkage ☐
9. Membrane slippage ☐
10. Evidence of recent repairs ☐
11. N/A ☒

GENERAL: Plant maintenance or building custodian consulted for building history and known hazards.



FBP BUILDING ROOF ASSESSMENT

FINDINGS SHEET

Roof Sketch Legend: Roof Access Allowed Roof Access NOT ALLOWED

Top View Sketch or Satellite Photograph:

Side/End View:



Roof Sections (see Note No.1)	<u>Inspected</u> (Yes/No)	<u>Passed</u> (Yes/No)
1. Main High Roof	Yes	Yes
2. Main Low Roof	Yes	Yes
3. Canopy Roof	Yes	Yes

NOTES:

1. None

Building or Trailer No. **X-720**

Location/Area: **Entire Roof**

Comments *(add additional sheets as necessary)*:

See EVAL-DE-2020-0009, Rev.1 for additional details.

The **X-720** roof is structurally adequate for Routine Maintenance Access to all areas (as defined on page 1 of this FBP Building Roof Assessment) for six employees.



Main Low roof



Main Low roof looking West



Main Low roof – Expansion Joint



Main Low roof – Damage in the Overlay in the valley



Main Low roof



Main Low roof



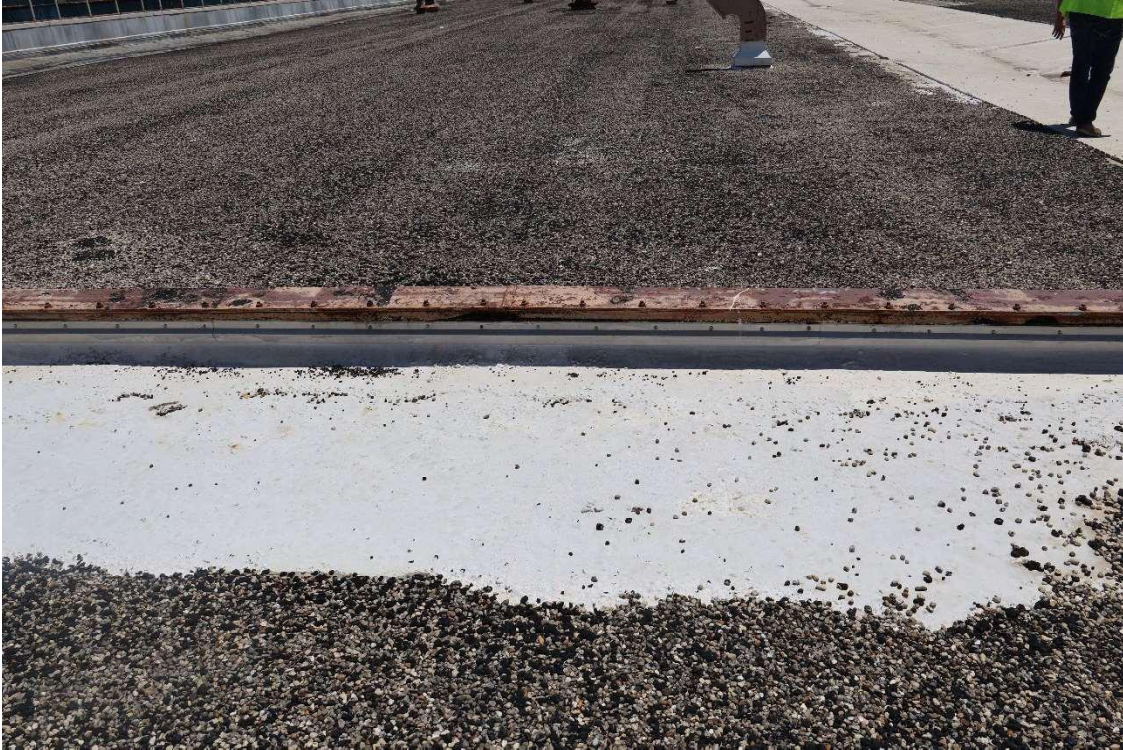
Main Low roof



Main Low roof



Main Low roof – Valleys shown and bare spots



Main Low roof – Bare spot by expansion joint



Main Low roof– Bare spot by expansion joint



Main Low roof – Valley shown and bare spots



Main Low roof



Main Low roof – Small cracks in Overlay



Main Low roof – Valleys near the main high roof



Main High roof



Main High roof



Main High roof



Main High roof – typical drain in valley



Main High roof – Expansion joint looking South



Main High roof – Expansion joint looking North



Main High roof – Vegetation



Main High roof – Loose debris broken off from vent



Main High roof – Bare spot in gravel along ridge



Main High roof – Expansion joint cover on South side is not secured



Main High roof – Large bare spot



Main High roof



Main High roof – Vegetation



Main High roof – More vegetation on North side



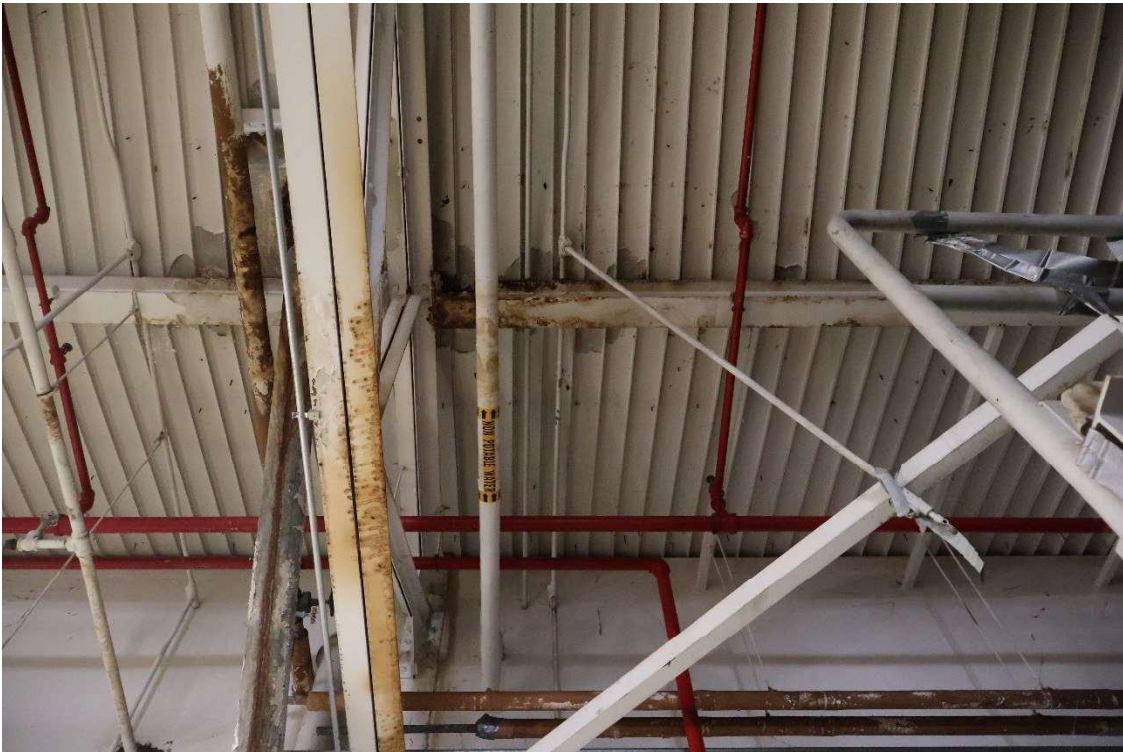
Main High roof – Possible repair/patch work



Main High roof – Vegetation on North side



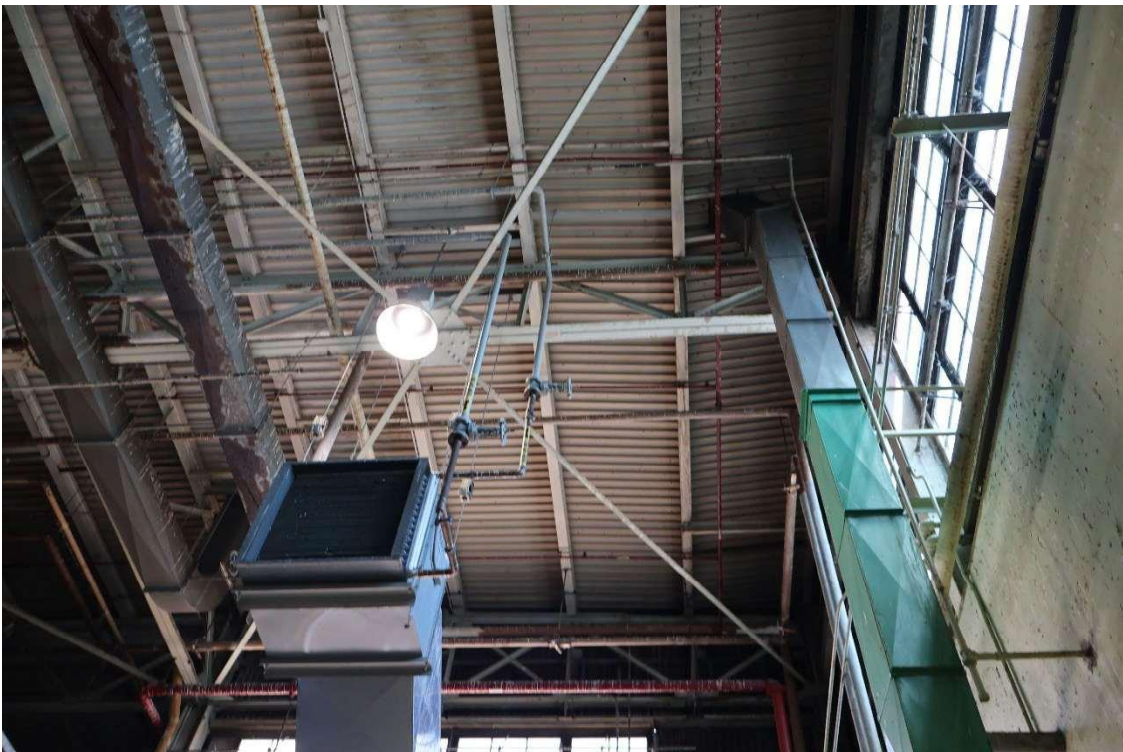
Main High roof – Gravel in the valley from runoff



Near column C19



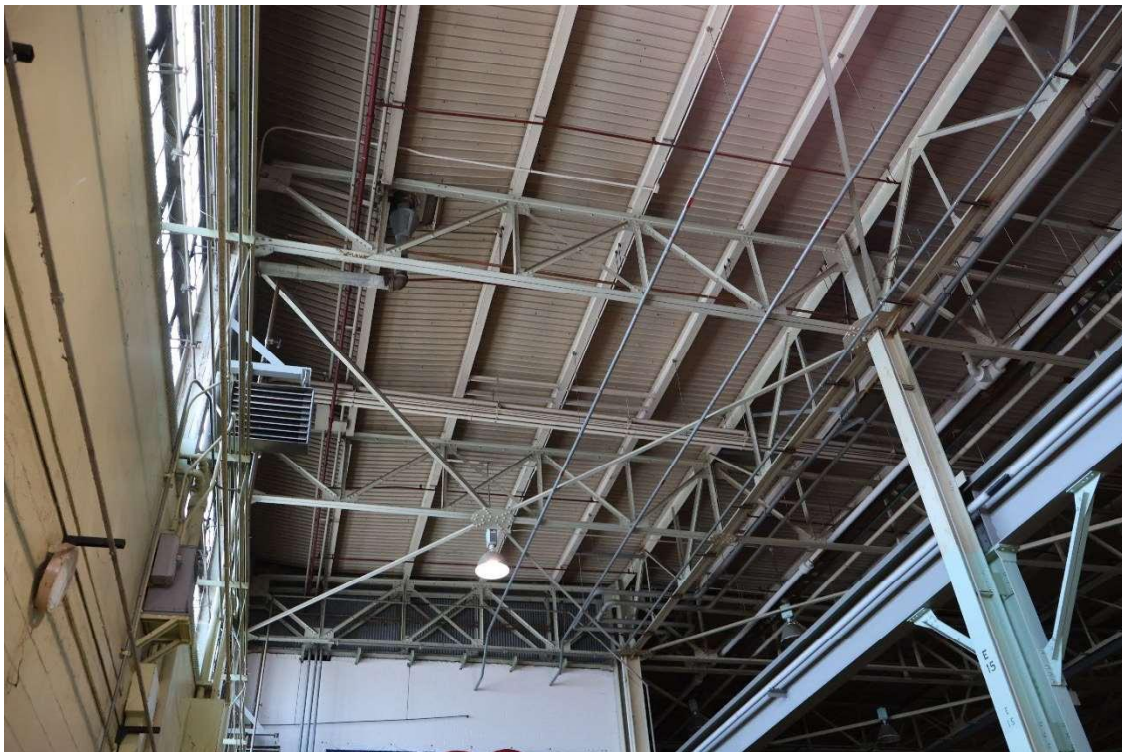
Near column B18



Near column D20



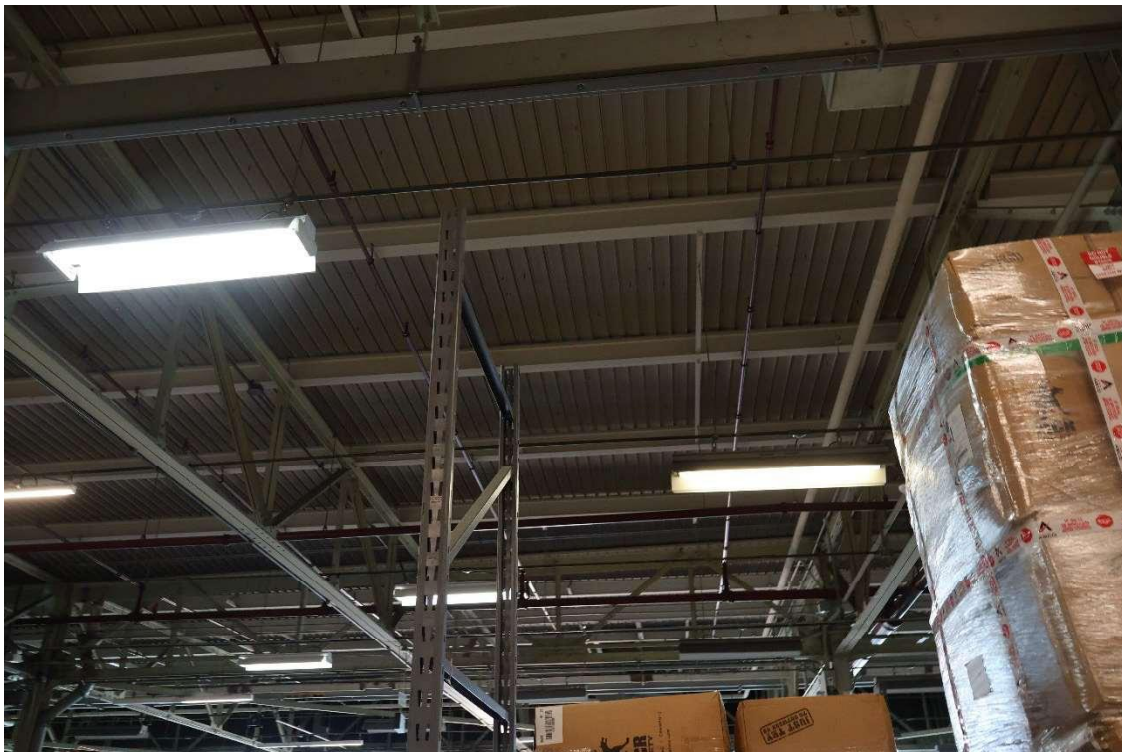
Overall roof, standing near column D20



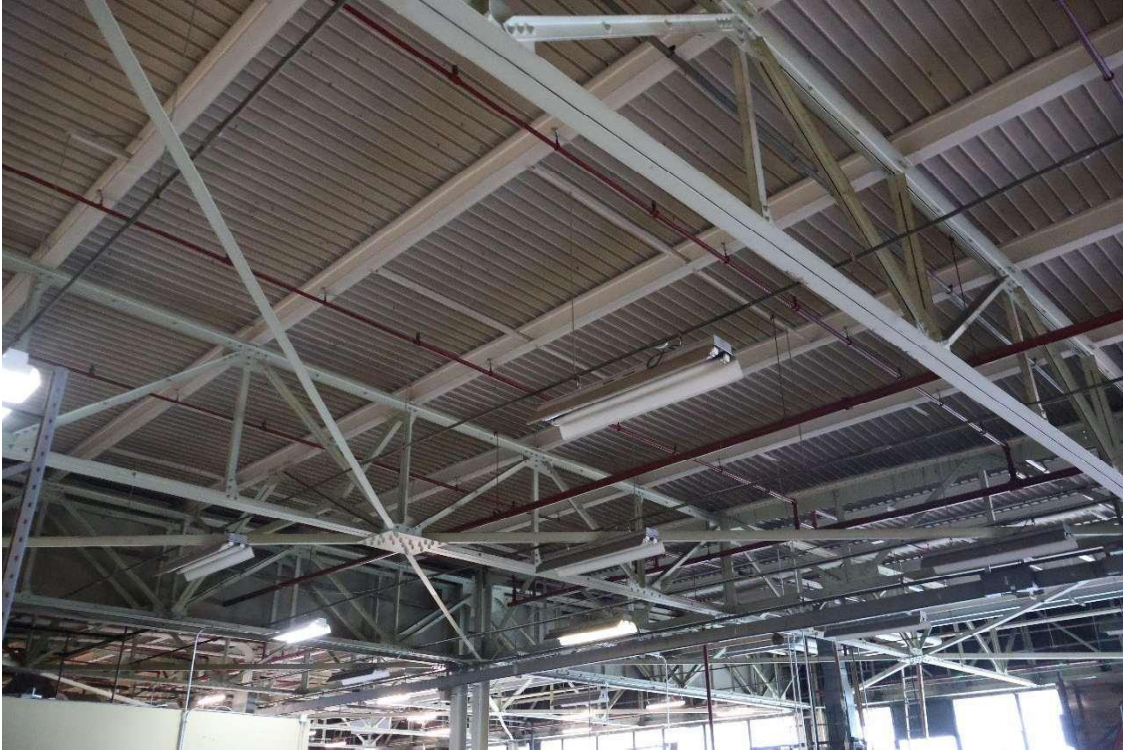
Near column D15



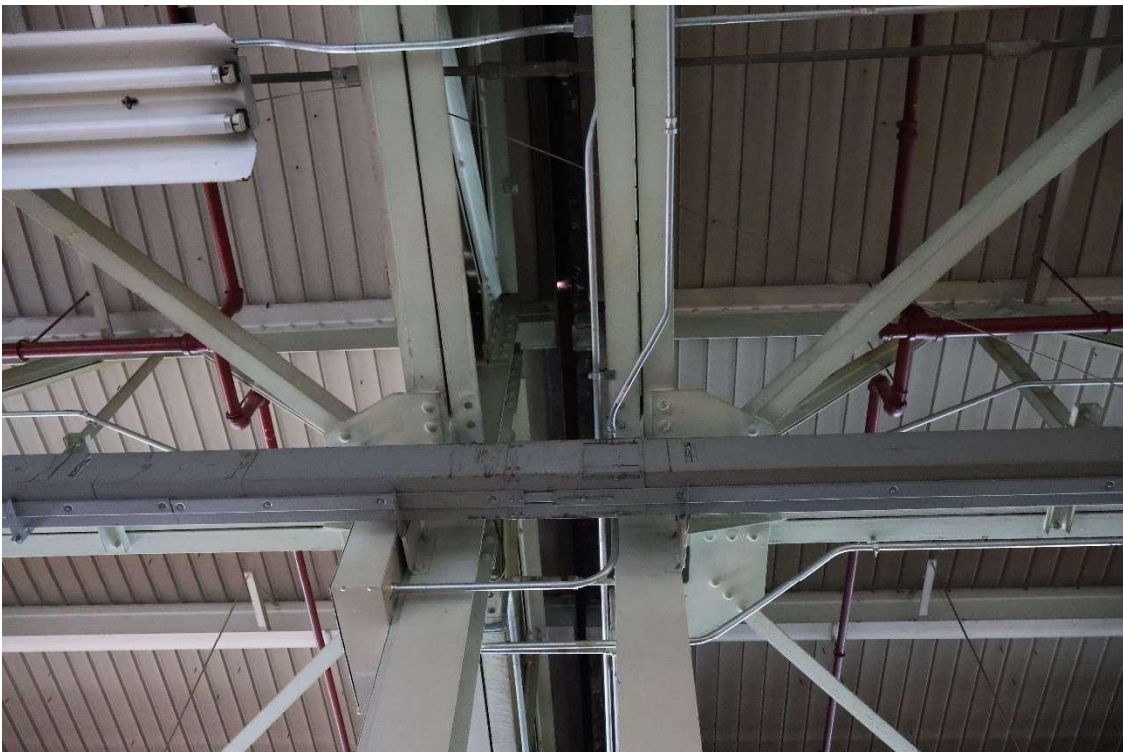
Drop down ceiling in Lunchroom



Near column C12 in Stores Area



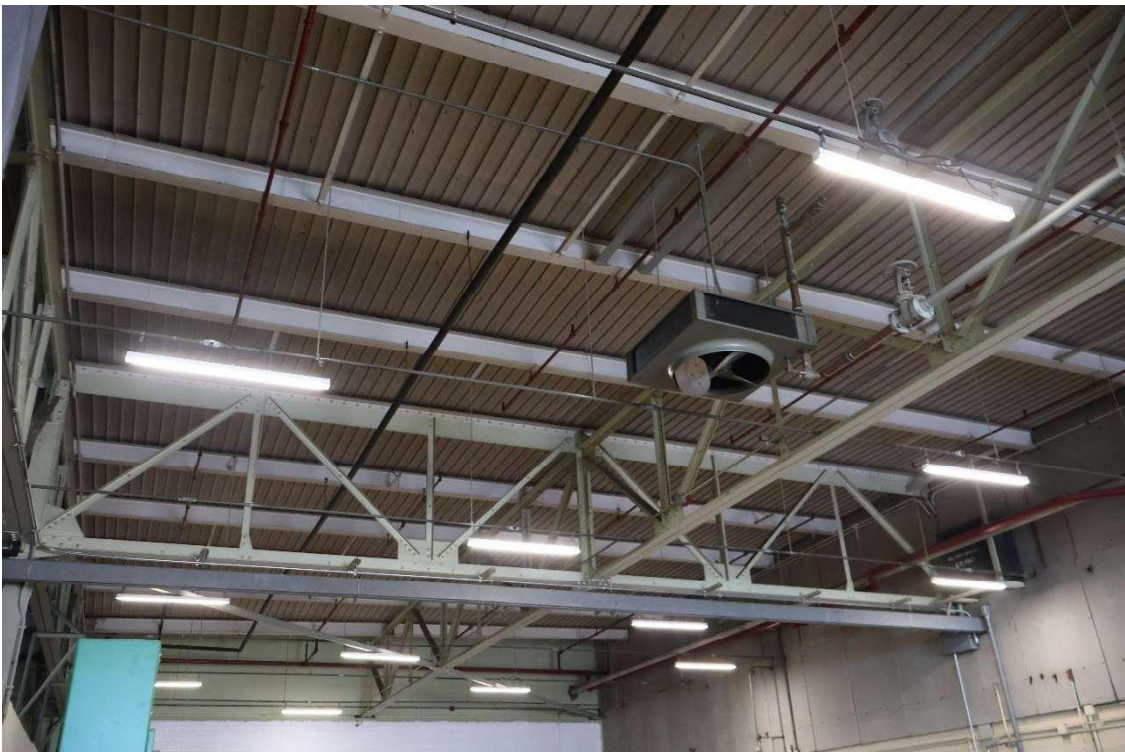
Stores Area



Expansion joint in Stores Area



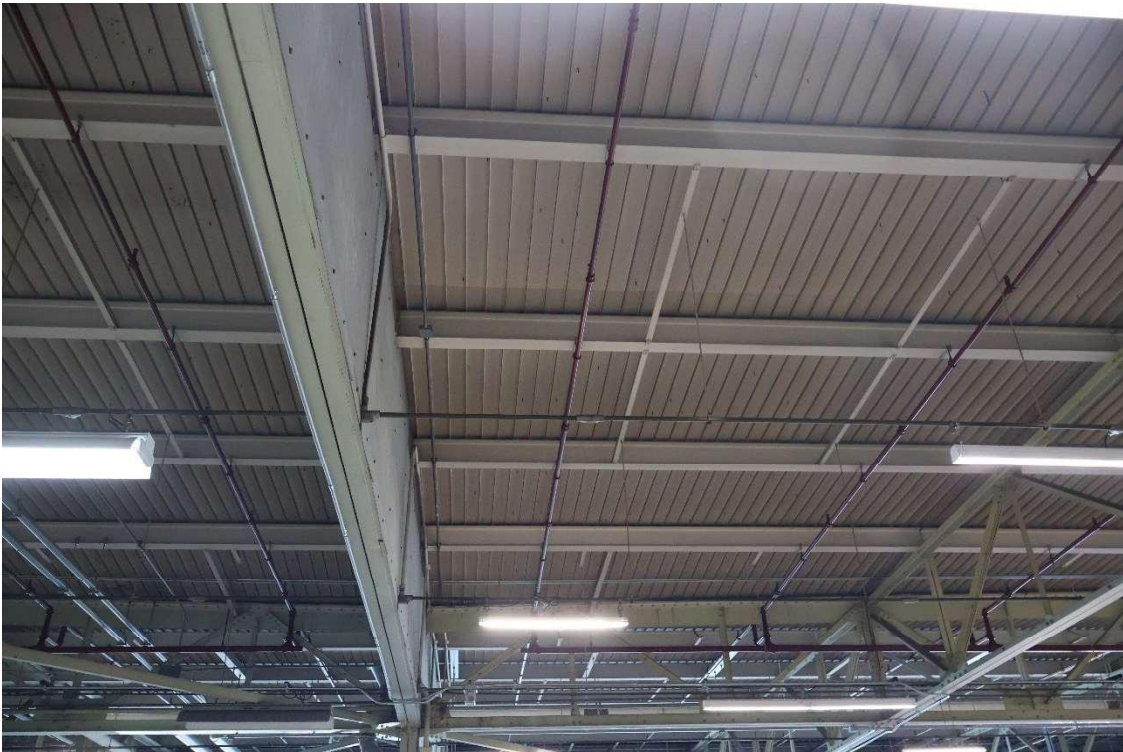
Near B15 in Stores Area



Near C15 in Stores Area



Light surface corrosion near column B14



Near column C10



Evidence of leaks near column B13



Roof above the picture shown above, at column B13



Leak near column C14



Roof above previous picture, near column C14



Water damage at column B15



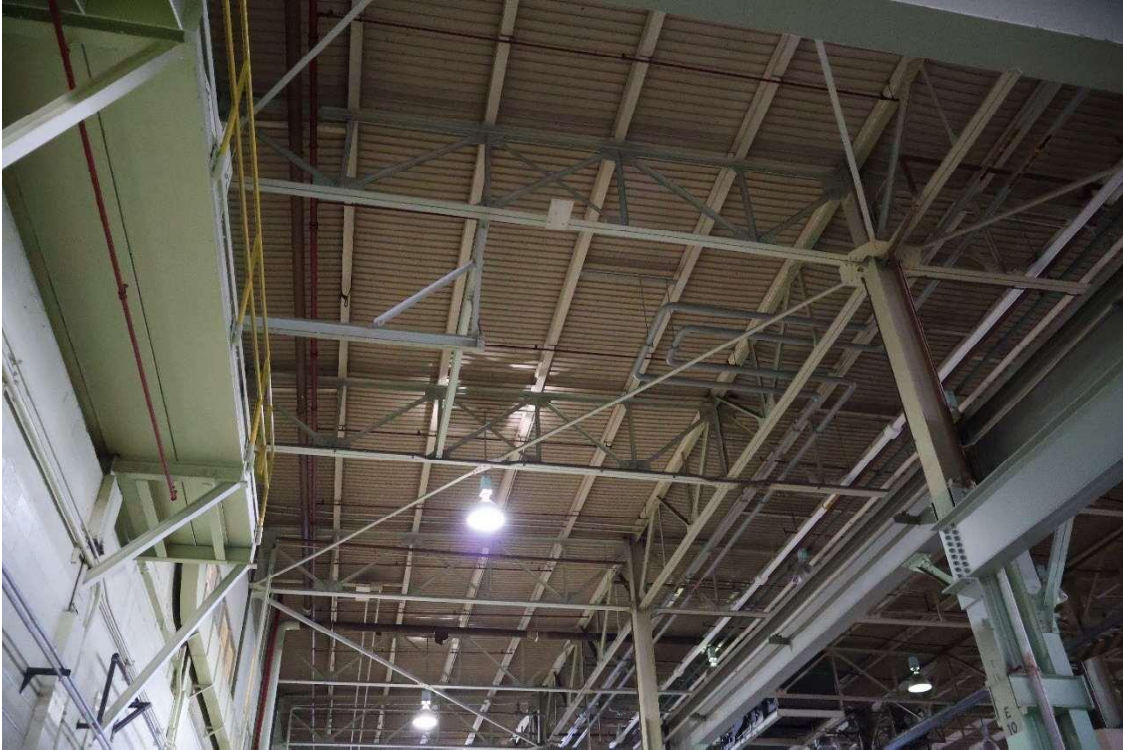
Roof at column B15 where the leak is coming from



Leak at column D15



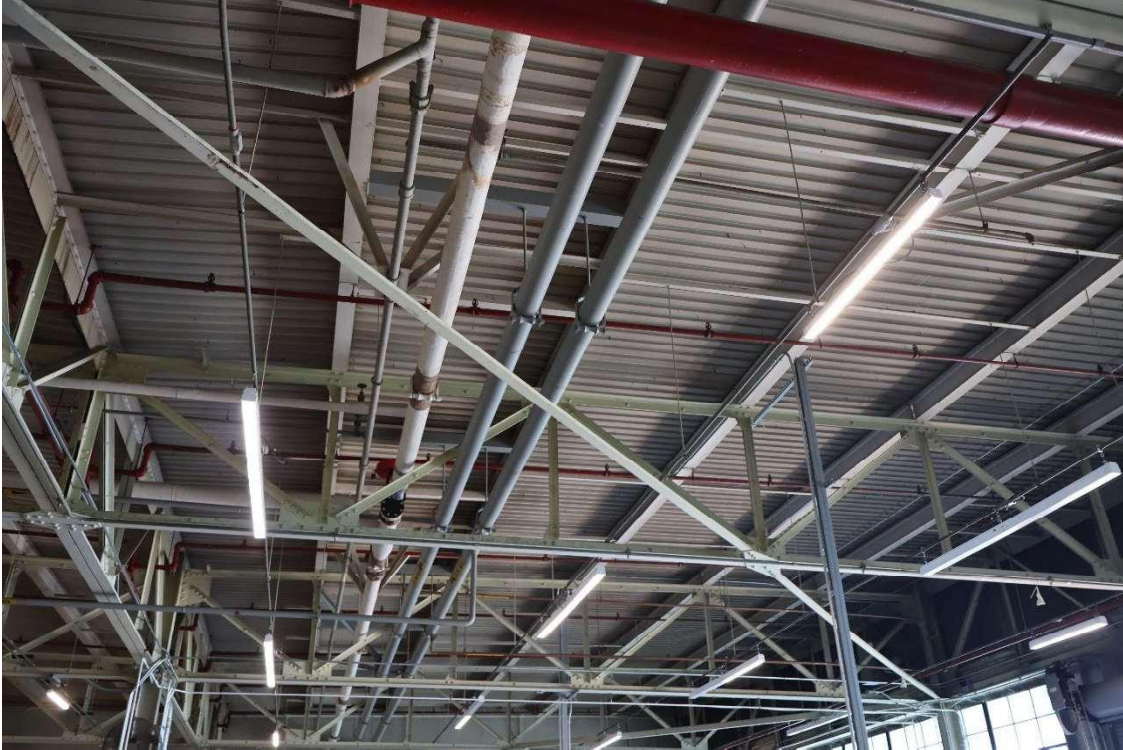
Roof at column D15



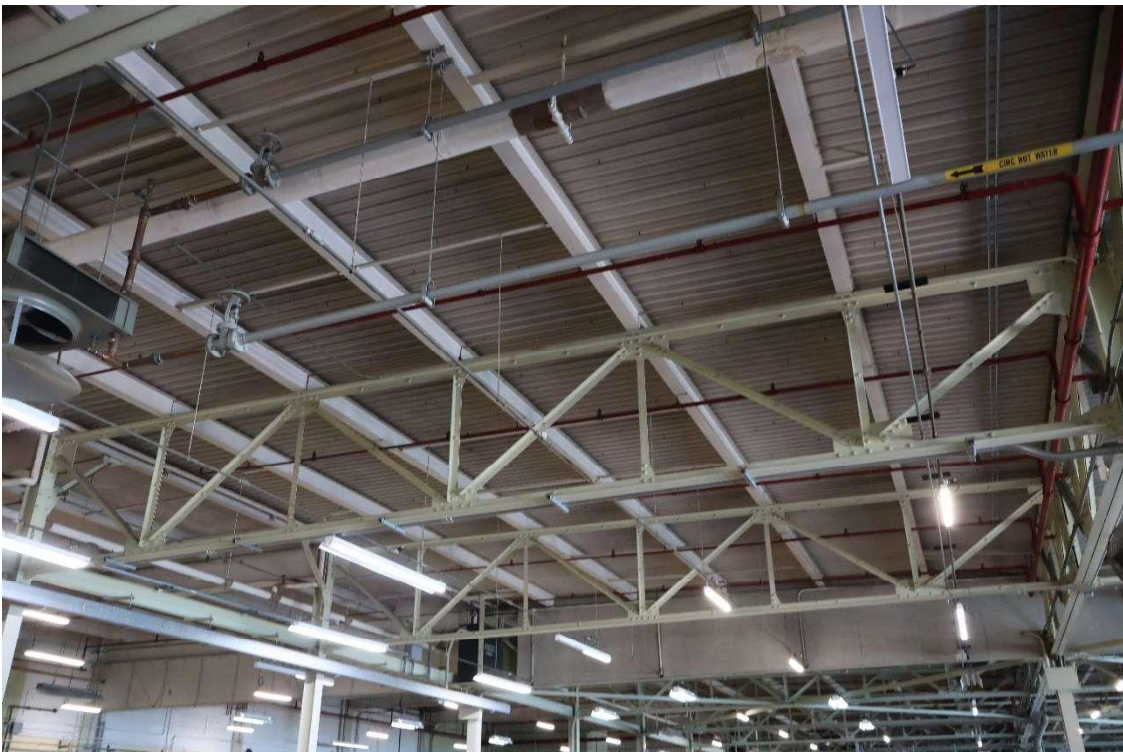
Near column E15



Near column B8



Near column B8 in Respirator Facility



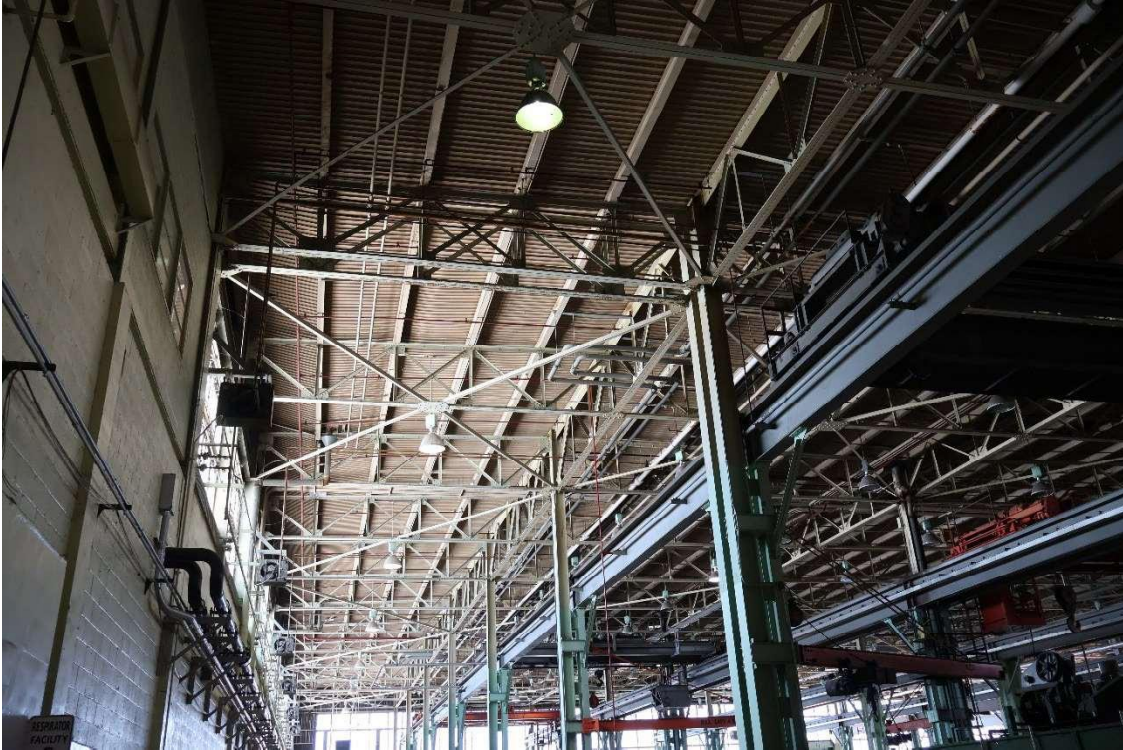
Roof of Respirator Facility



Minor surface corrosion in Respirator Facility



At column B10 where there is a leak



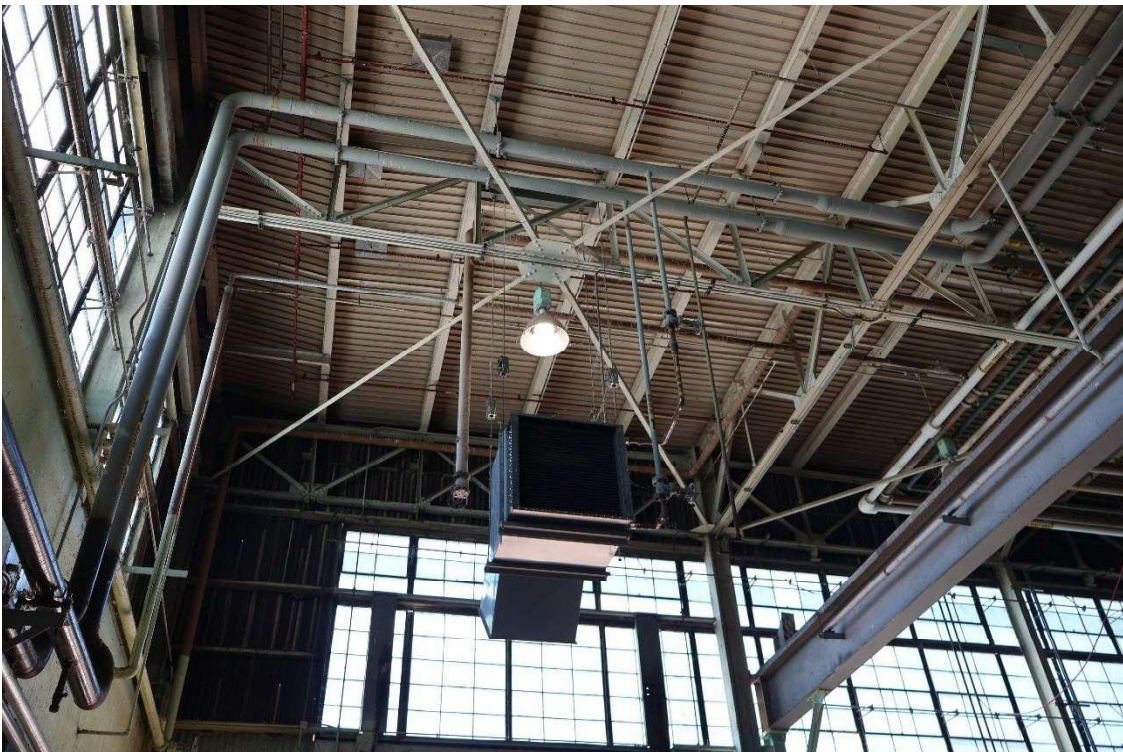
Overall roof near column D7



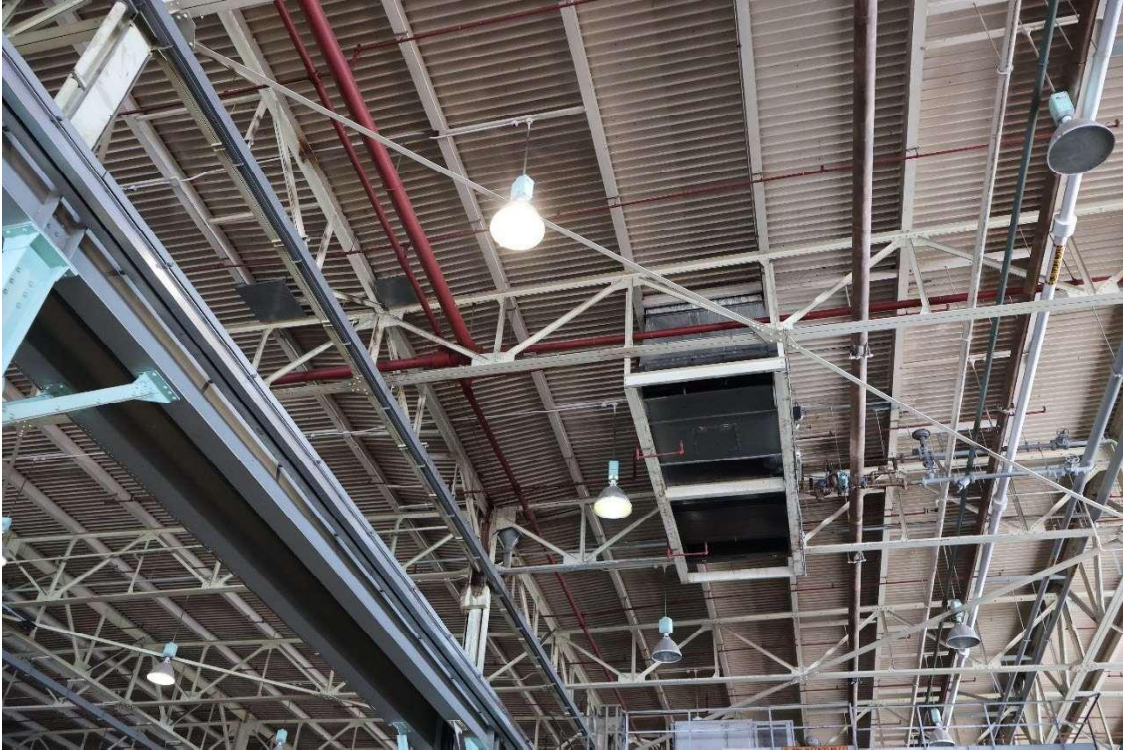
Minor holes near column D7



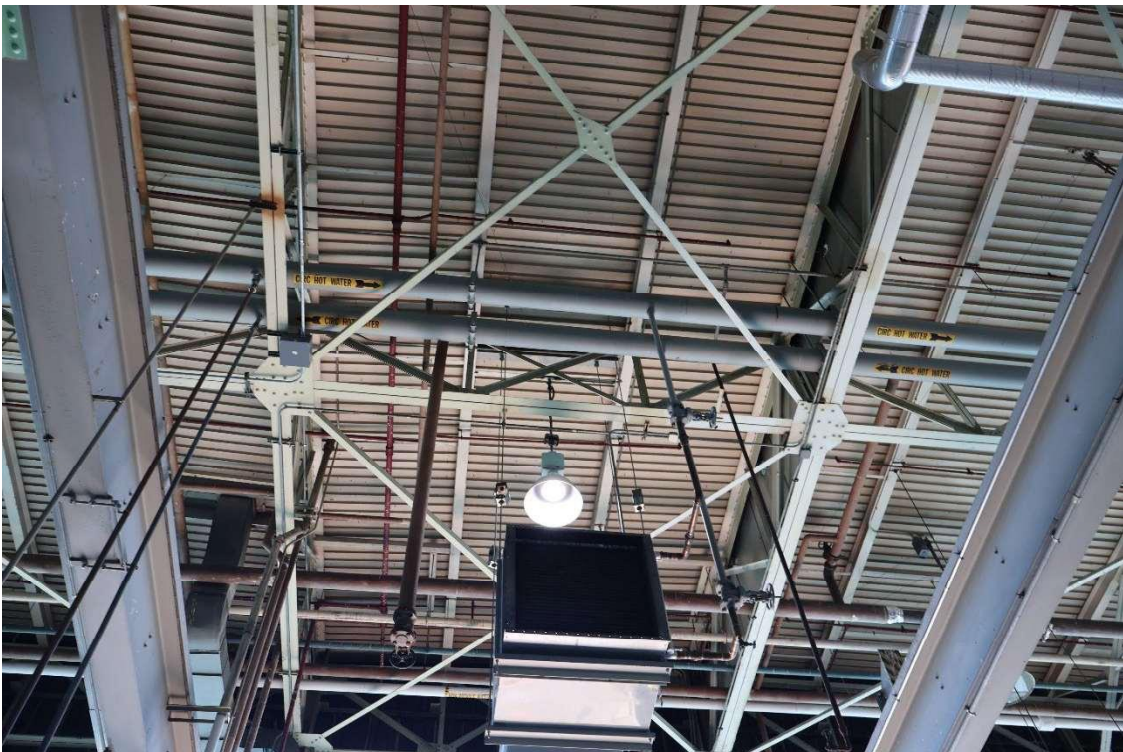
Near column E6



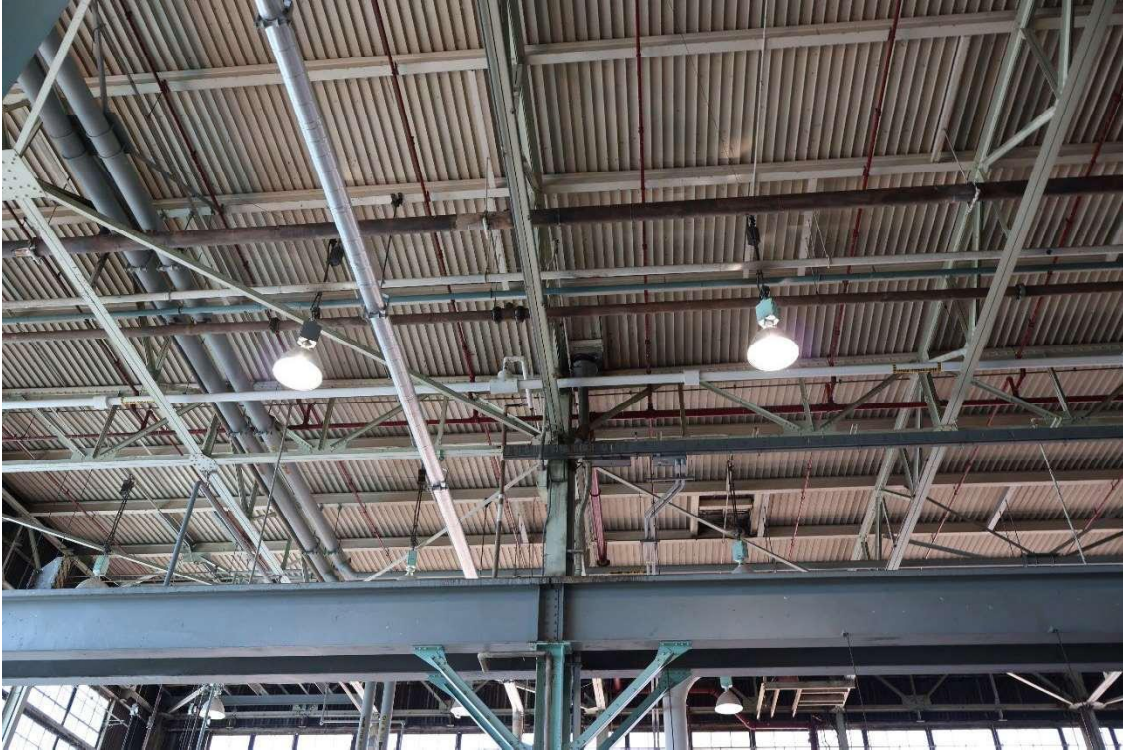
Near column D2



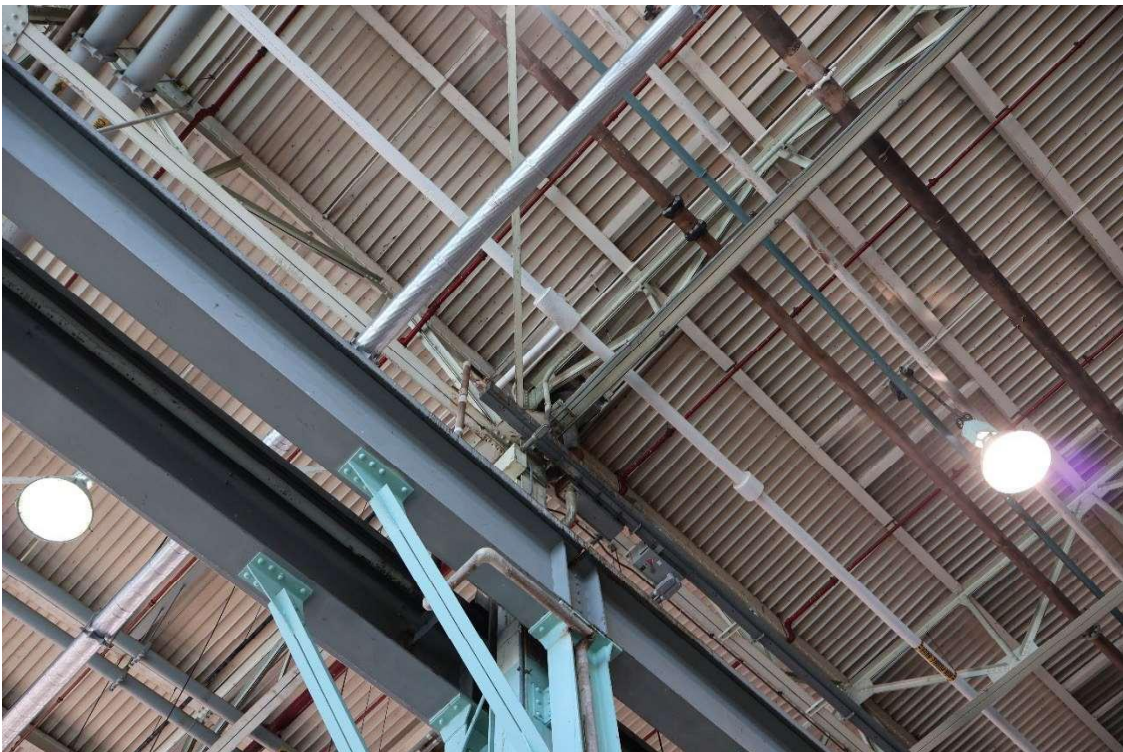
Near column F3



Near column F2



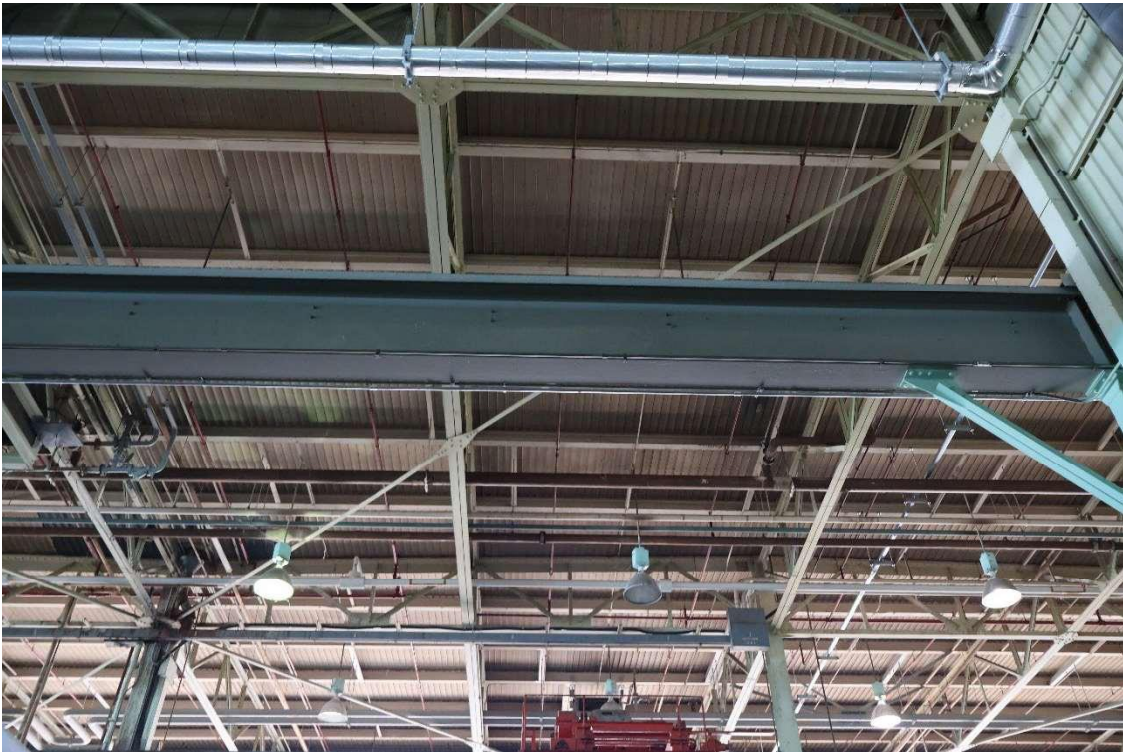
Roof above Carpenter Shop



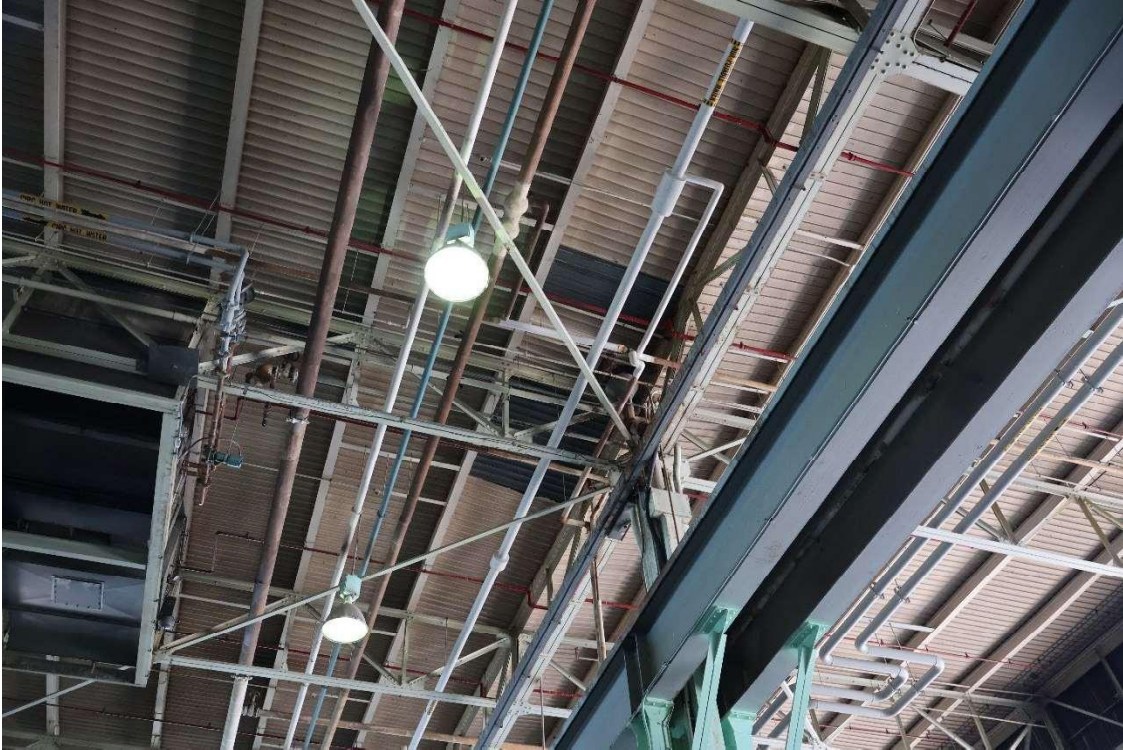
Leak identified near column K2



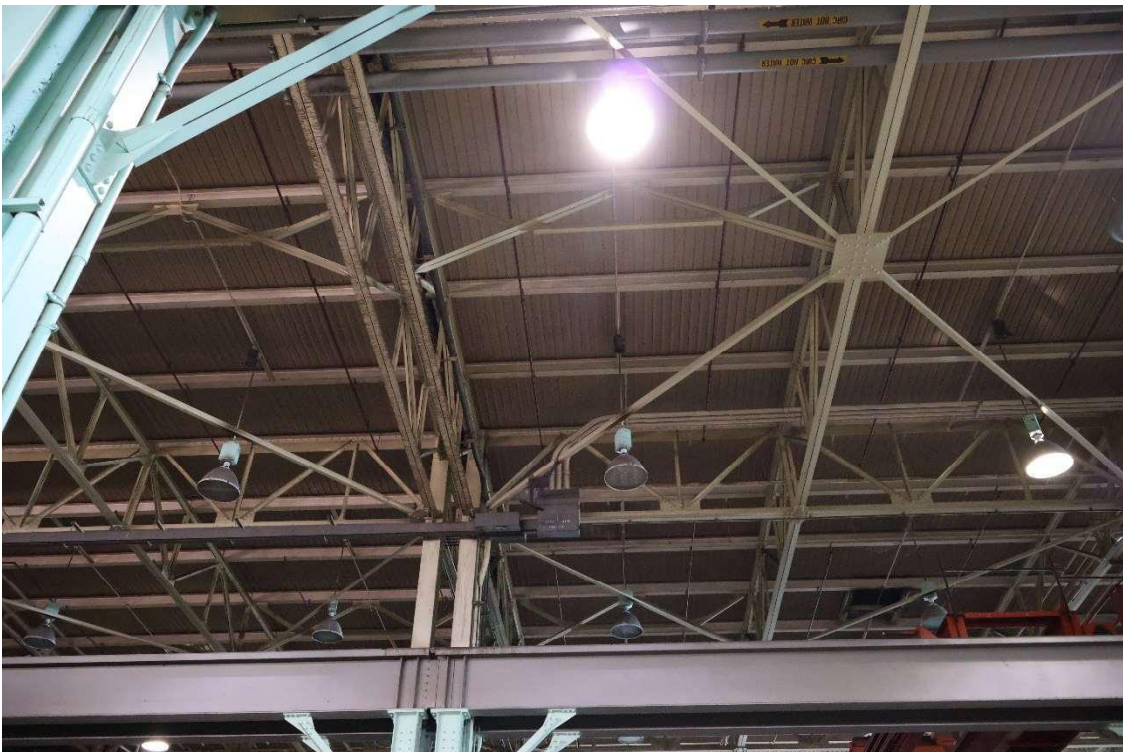
Leak stains on pipes near column K2



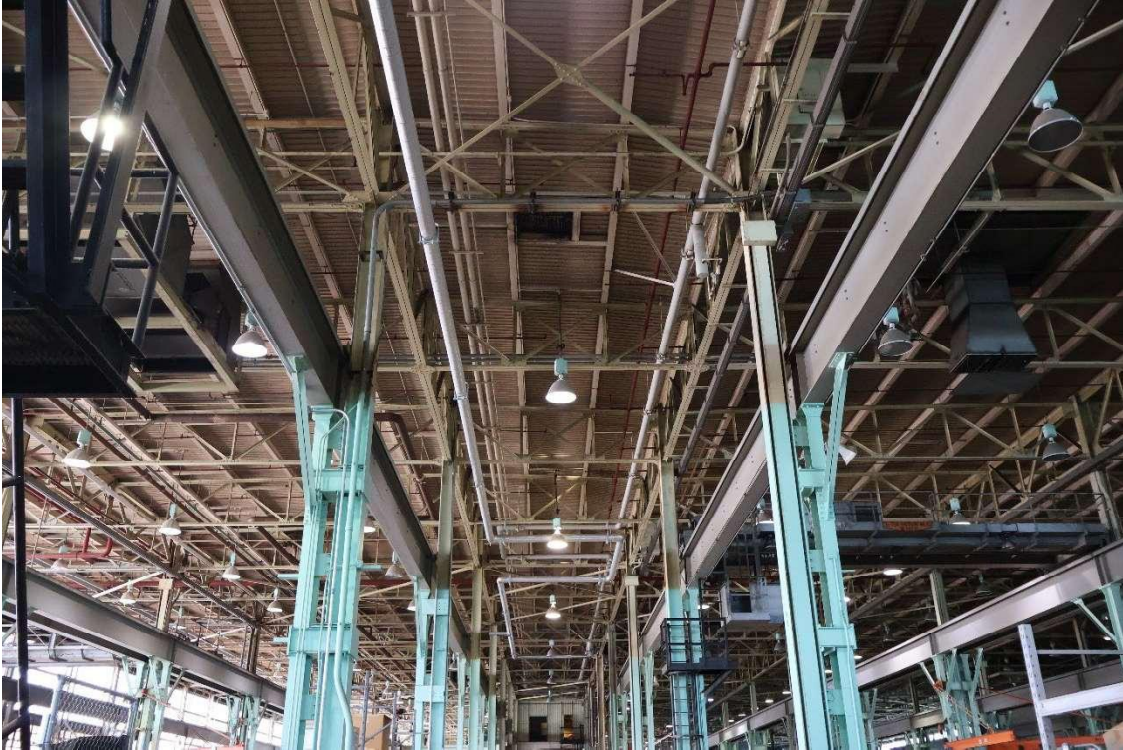
Near column K4



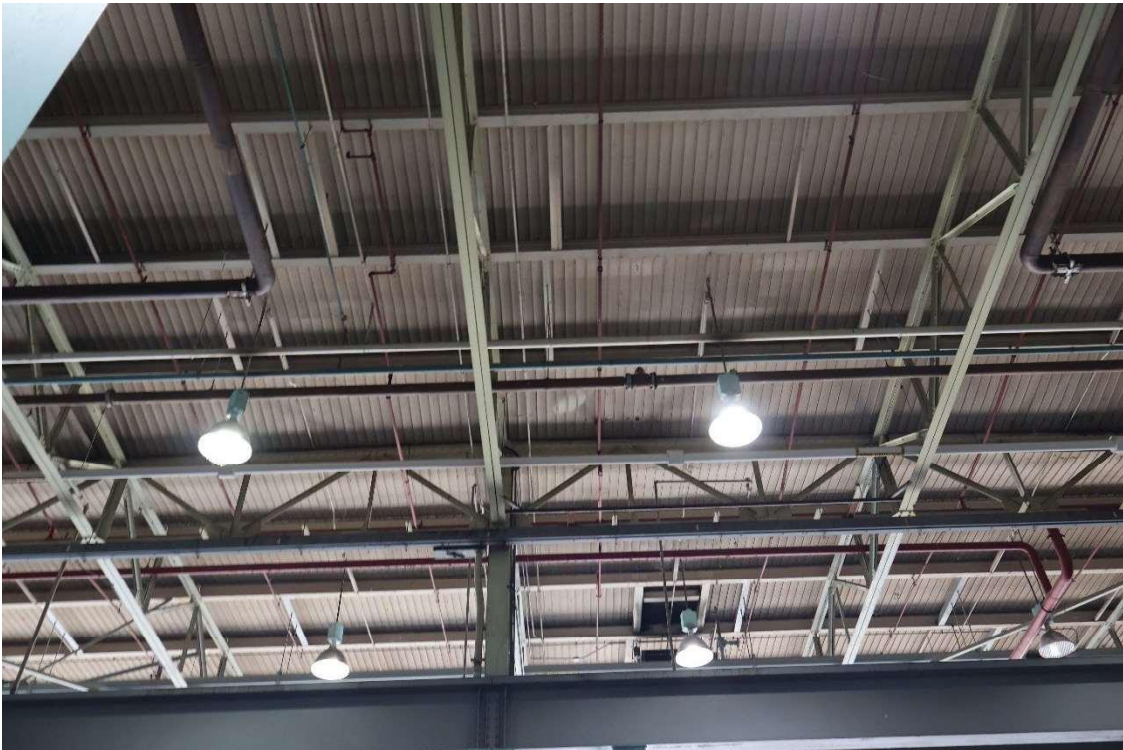
Near column K5



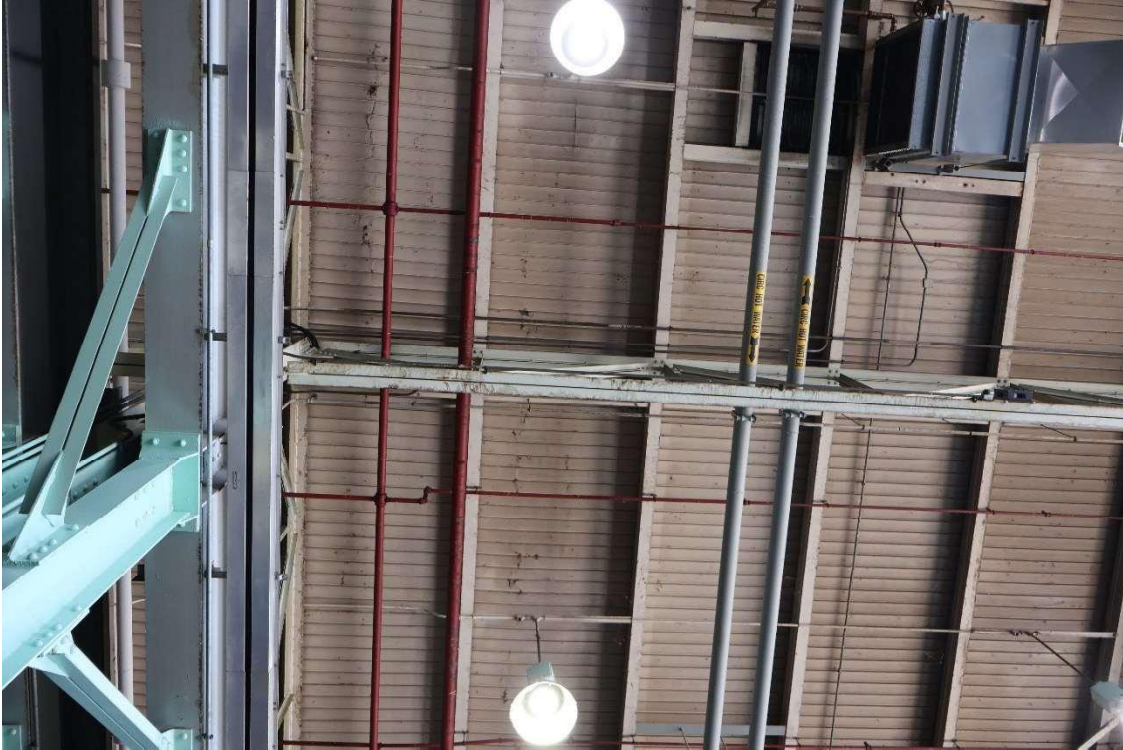
Near column H7



Near column H7 looking East



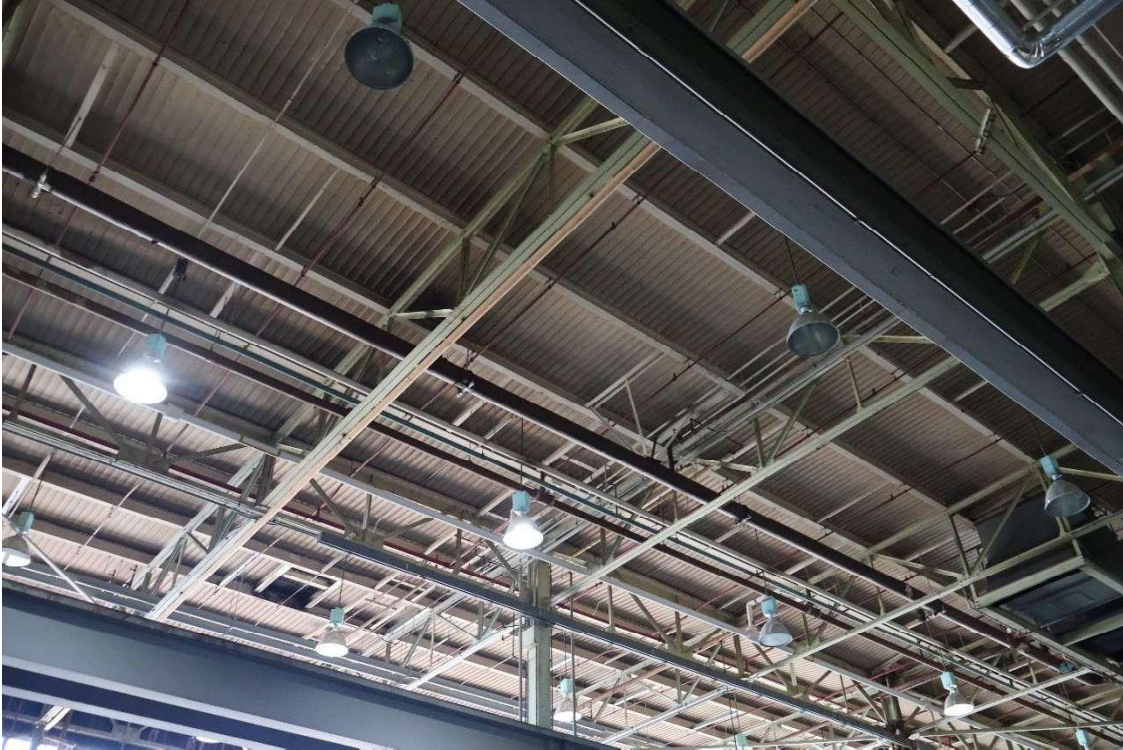
Near column J9



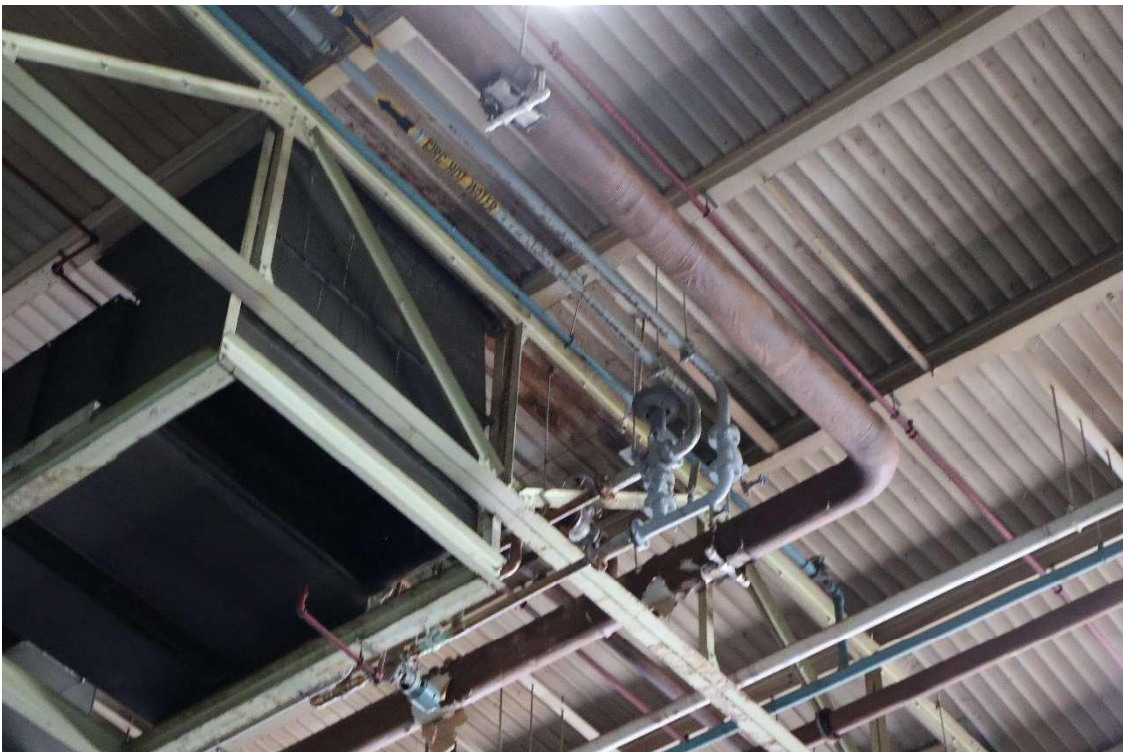
Near column K9



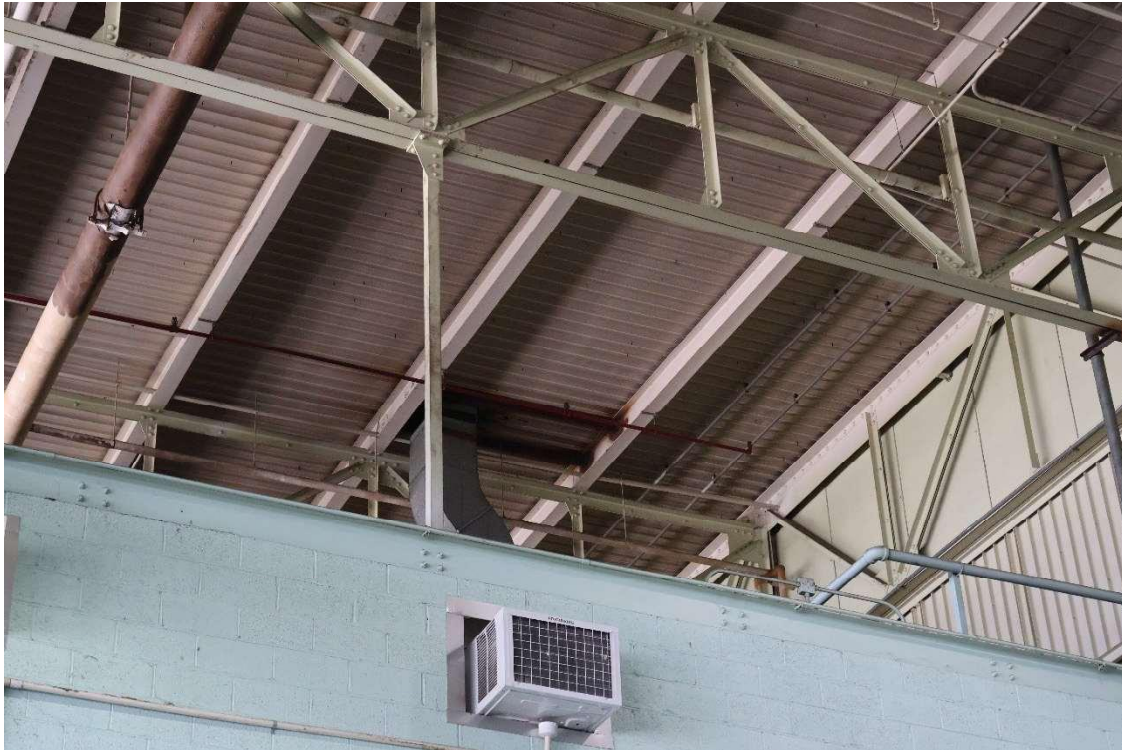
Minor corrosion on beam near K9



Near column J11



Corrosion visible standing near column J14



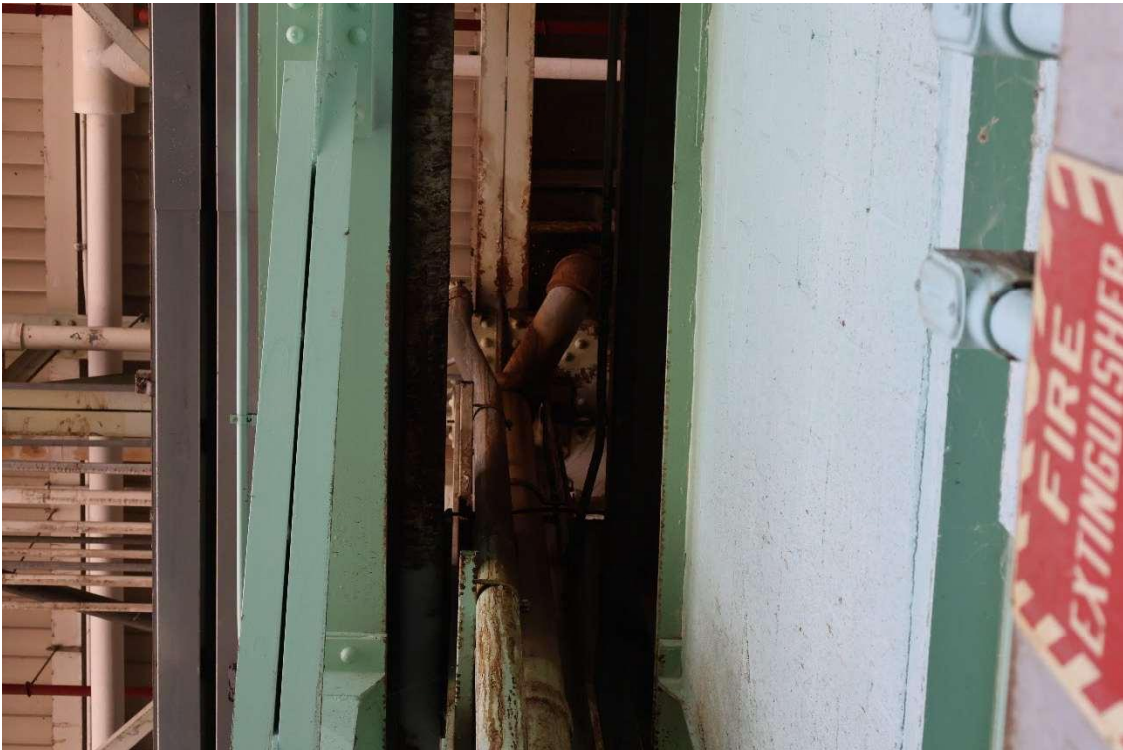
Corroded steel in cross members causing steel beam to corrode, seen standing near column J14



Near column K15



Evidence of leak at column K17



Roof at column K17 near leak



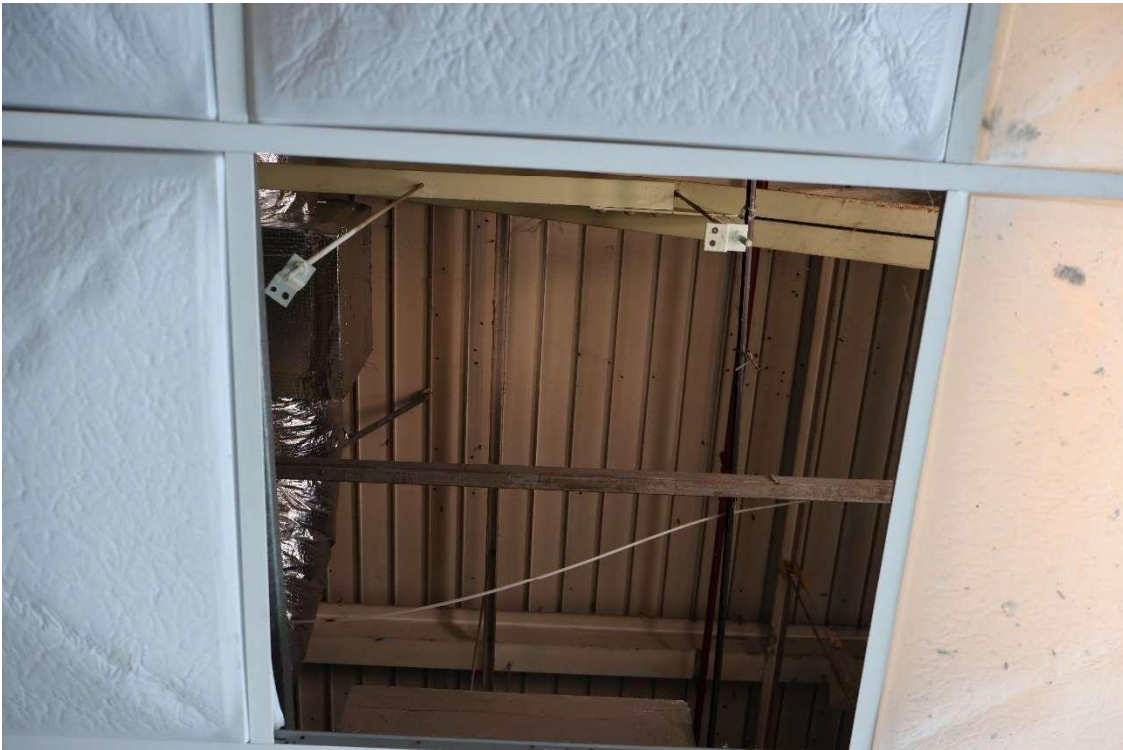
Near column K19



Metal decking on East side of mezzanine



Metal decking near the center of the mezzanine



Metal decking on West end of mezzanine



Looking West – Main Low Roof



Looking South – Main Low Roof



Main Low Roof – Missing Drain Screen



Looking West – Drain Screen Needs Replaced



Main Low Roof – Repair at Expansion Joint



Looking West on Main Low Roof



Looking South – Repair at Expansion Joint



Looking West – New TPO on Main Low Roof



Looking Southwest – New TPO on Main Low Roof



Looking Northwest – New TPO on Main Low Roof



Debris to be Removed from Main Low Roof



Looking East – Main Low Roof



Minor Cracking at Roof Drain – Main Low Roof



Main Low Roof – Recent Repair of Roof Drain



Looking North – Highbay Roof



Looking East – Building Addition Roof (No Physically Walkdown)



Looking West – Highbay Roof



Looking East – Lower Roof of Building Addition (No Physical Walkdown)



Looking West – Highbay Roof



Looking West – Highbay Roof



Looking Northwest – Highbay Roof



Highbay Expansion Joint, Typical



Looking Northwest – Highbay Roof, Stanchions to be Corrected



Highbay Roof Drain – Gravel Present at Drain to be Removed, Common



Highbay – Patching of Built-up Roof



Looking South from Highbay at New TPO on Main Low Roof



Looking Southeast from Highbay at New TPO on Main Low Roof



Looking East – New TPO in South Valley



Past Repair of Expansion Joint on Highbay Roof



Looking East at TPO Repair of Valley



Looking East at TPO Repair of Valley



Looking South – Roof Drain Screen to be Replaced on Highbay Roof



ENGINEERING EVALUATION COVERSHEET

Number: EVAL-DE-2012-0113

ESO#/PR#/NCR#: E3792, E4874, E5846

Revision: 5

Duration: Time Limited

Type: Engineering

Title: X-720 Roof Inspection Report

Doc Link:

Final Doc Link: T:\I0000 NS&E\I2000 Eng\I2000 Engineering Documents\EE\EVAL-DE-2012-0113 Rev5.pdf

Description/Evaluation Statement:

Revision 5 is caused by a separate stand-alone X-720C roof assessment (EVAL-DE-2016-0065).

Pages 01, 02, 03, 05, 06, 28 and 29 are revised.

Inaccurate X-720C locations on sketches are fixed on pages 05, 06 and 29.

Revision 4 of this Engineering Evaluation includes documentation from a 2014 walk down to ensure that there are no signs or issues that would question the integrity of the X-720 roof structure. There have been multiple roof leak repairs in the past and work orders are documented in Attachment 4. No significant issues were noted during the walk down, so this Engineering Evaluation is being extended for 5 years and the X-720 structure is adequate for routine maintenance access and inspection activities, as defined in this Engineering Evaluation. (Note: There were pages that were accidentally not kept through Revision 3, so the pages in Attachment 3 of Revision 4 are compiled from revisions 0, 2, and 3. Revision 1 was skipped and not used.)

An engineering evaluation was performed to assess the roof structural integrity for the X-720 building for the performance of routine maintenance activities.

The entire top of the X-720 roof was inspected and much of the underside with one small exception, the office area near column E14. The X-720C was only visually inspected from the underside of the roof since access to the top of the roof was unavailable due to the lack of a permanent fixed access ladder.

Summary of results:

The X-720 roof is adequate for routine maintenance access and inspection activities. Specifically, the roof can support six maintenance workers and their hand carried tools. A 300 lb limit per person including hand carried tools is the limit codified by the Ohio Building Code Table 1607.1. Please see attachments from the Ohio Building Code.

Revision 3: See items 4 and 5 below. No other changes.

The new vault in the X-720 necessitates the removal of the existing roofing down to but not including the original 18 gauge minimum metal decking. The new vault is an area approximately bounded from column lines 1 - 7 (E-W direction) and A- D (N-S direction). Reroofing of a section 10 feet east of column line 7, running from grids "A" to "C" is also required. The following points are to be followed:

1. The existing roof is structurally sound and will accommodate a full working crew. The roof can also accommodate pallets (4 ft x 4 ft) and bundled roofing materials weighing up to 450 lbs. Pallets are NOT to be stacked.

2. Once stripped of the existing built up roofing. The metal deck will accommodate worker's weight. Staging of supplies on the metal decking should be limited.
3. The new reroofing materials must not exceed a total weight of 12 PSF, which is the roof DL above the deck.
4. All staged material shall be placed over structural framing. Place each end of 2 x lumber across purlins or girders as needed.
5. The maximum permitted equipment wheel load is 300 lbs. per wheel spaced minimum of 2'-6" apart. This limitation is for wheel loads bearing directly onto the roof decking or onto the built-up roof.
6. The original roof design live load is 30 PSF.

Operability Recommendations: Operable? ☐ Yes ☐ No ☒ N/A	Changes to Design Docs Needed: ☐ Yes ☒ No Affected Docs
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Implementation: Actions Required: ☐ Yes ☒ No EIAW/IAW Number: N/A USQD Screening Number: N/A USQD Number: N/A	Date Approved: <u>11-1-2016</u> Expiration Date: 4/7/2019 Next Review Date: 4/7/2019
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NOTE: If implementing actions are required, an EIAW/IAW number is also required to assure such actions are completed and do not violate certificate requirements and authorizations.

Non-Conforming Item Disposition:

☒ N/A ☐ Reject - Return To Supplier ☐ Repair ☐ Use-As-Is	☐ NCR VOID (Item conforms) ☐ Reject - Scrap/Dispose ☐ Rework ☐ Upgrade ☐ Documentation
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Other Comments or Notes:

Revision 0 was issued April 2012 with 18 pages by author Joe Wellinghoff. [There is no Revision 1.]
 Revisions 2 and 3 were issued August 2012 with combined 25 pages by author Joe Wellinghoff.
 Revision 4 was issued 4/07/2014 with 49 pages by author Ellen Stone, reviewer K.Oliver, and approver B.Carrick.

Attachments

- 1) 2014 FBP Building Roof Assessment Form (4 pages)
- 2) 2014 Pictures (14 pages)
- 3) Past Revision Reference Pages (26 pages)
- 4) Past Work Orders (3 pages)

APPROVALS

AUTHOR: Kenneth E. Oliver 11/01/2016 Kenneth Oliver
REVIEWER: Ellen K. Stone 11/1/16 Ellen Stone
APPROVER: [Signature] 11-1-2016 Bernard Carrick

X-720 ROOF – LOWBAY ROOF



X-720 ROOF – LOWBAY ROOF (cont.)



X-720 ROOF - HIGHBAY



X-720 ROOF – HIGHBAY (cont.)



X-720 ROOF – HIGHBAY (cont.)



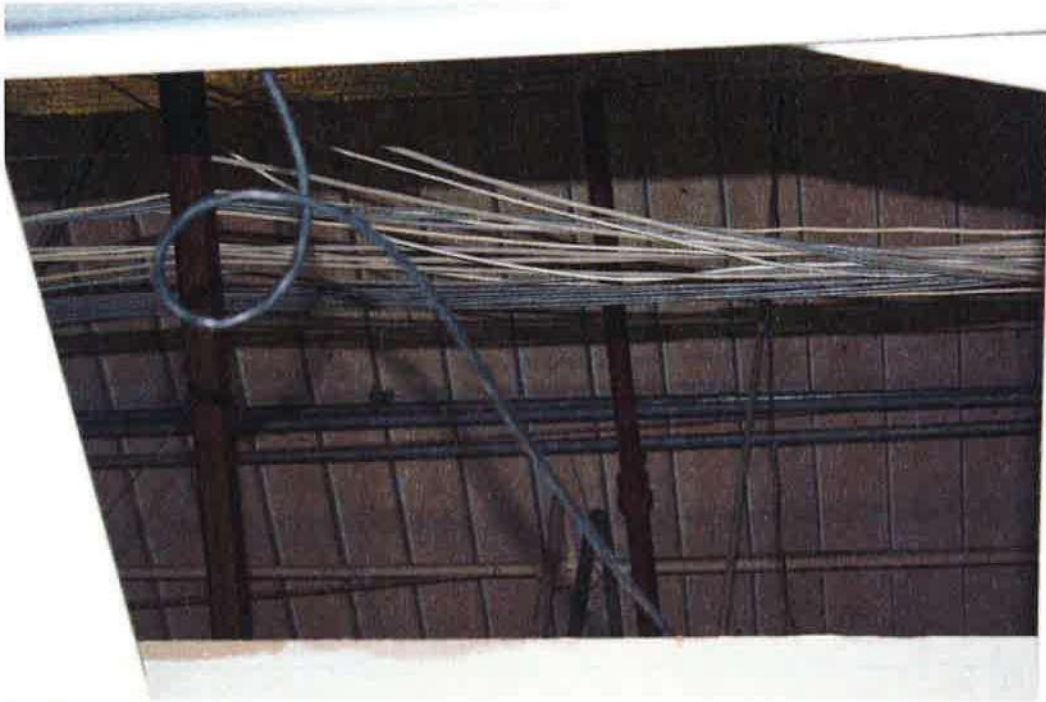
2014 ROOF STRUCTURAL INTEGRITY INSPECTION PICTURES

X-720 ROOF – HIGHBAY (cont.)



2014 ROOF STRUCTURAL INTEGRITY INSPECTION PICTURES

X-720 – MEZZANINE ROOF METAL DECKING



R4

X-720 – MEZZANINE ROOF METAL DECKING





X-720 – SOUTHEAST ROOF METAL DECKING – QC OFFICE AREA (cont.)



X-720 – SOUTH ROOF METAL DECKING – STORES AREA



2014 ROOF STRUCTURAL INTEGRITY INSPECTION PICTURES

X-720 – SOUTH ROOF METAL DECKING – STORES AREA (cont.)



X-720 – ROOF METAL DECKING – HIGHBAY TYP.



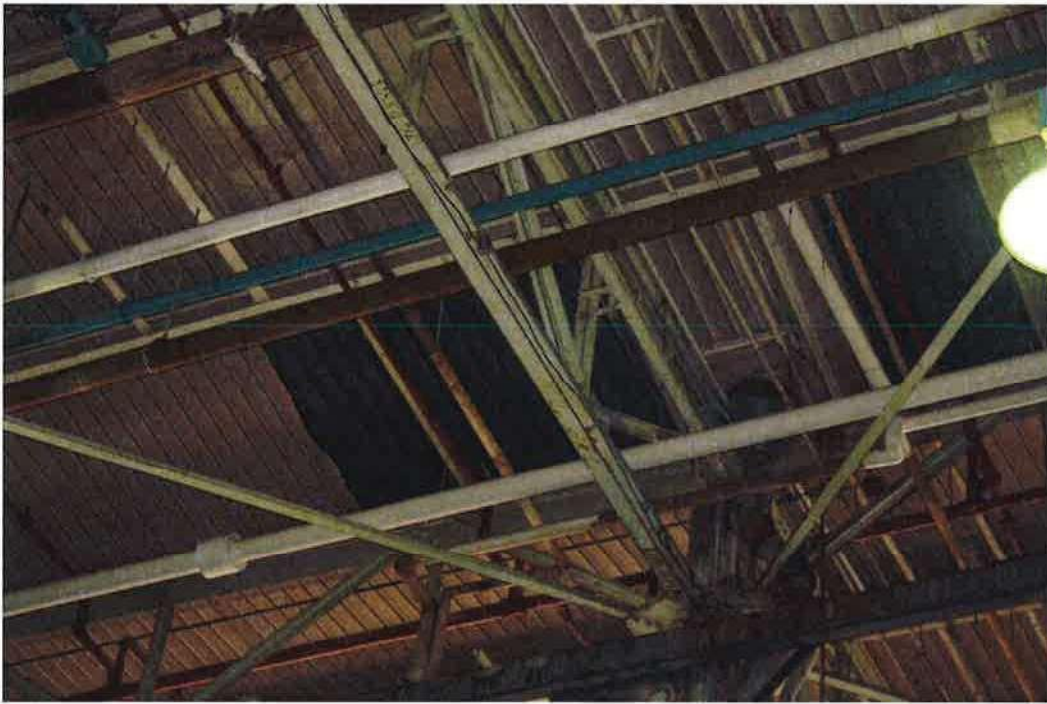
X-720 – ROOF METAL DECKING – HIGHBAY TYP. (cont.)



X-720 – ROOF METAL DECKING – HIGHBAY TYP. (cont.)



X-720 – ROOF METAL DECKING – HIGHBAY TYP. (cont.)



2014 ROOF STRUCTURAL INTEGRITY INSPECTION PICTURES

X-720 – ROOF METAL DECKING – HIGHBAY TYP. (cont.)



- ATTACHMENT 3 -

X-720 Roof Supplemental Information**1.0 Purpose**

In February 2012, FBP Safety set the requirement that all roofs at PORTS would require a structural integrity evaluation by FBP Engineering prior to any work occurring on the roof.

This engineering evaluation is in support of routine maintenance tasks. These tasks may typically include, but are not limited to, the following items:

- Minor repairs to roof leaks
- Repairs to roof drainage systems or components
- Changing HVAC filters
- Routine monitoring and seasonal changes to HVAC system
- Access to air monitoring instruments or to warning systems
- Typical maintenance or minor repair to communication systems or utility systems

2.0 X-720 Facility background

The X-720 Building contains the following maintenance shops: Compressor Shop, Machine Shop, Sheet Metal Shop, Carpenter Shop, Utilities Shop, Paint Shop, and Electrical and Instrument Shop. The south side of the building contains the Main Stores Area, Plant Services Facilities, and a Toxic Materials Storage Area, X-720C. X-720C, located at the west end of X-720 houses a nonflammable materials storage area. The X-720 Building also houses a small bicycle shop on the east side and adjacent to the compressor shop. The building and its facilities are necessary to provide services for maintenance of the plant. See Figure 4.5.1-2, on page 12 for the location of each shop. The X-720 is the future location of the RMDC Vault.

The X-720 building is located east of the X-326 and X-330 process buildings. 16th Street is north of the X-720. 12th Street is immediately south of X-720. Jackson Avenue is east of X-720. Miami Avenue is west of X-720.

2.1 Machine Shop

The Machine Shop occupies approximately 28,000 square feet and contains tools capable of performing: drilling, turning, broaching, grinding, threading, boring, shaping, millings, and sawing on metal parts or stock. The shop also operates a tool room for sharpening drills, reamers, cutting dies, taps, etc. The machine Shop is also equipped with a brush plating system.

2.2 Compressor Shop

The 7000 square foot Compressor Shop reblades and assembles component parts of axial compressors. This shop also balances the assembled rotor. Centrifugal compressors are also assembled and tested in this area. All compressor assembly is under strict housecleaning requirements. This is necessary to make

- ATTACHMENT 3 -

certain that foreign matter volatile with UF_6 is not entered into the process system. This shop utilizes many fixtures and jigs in the assembly of compressors.

2.3 Sheet Metal Shop

The Sheet Metal Shop is equipped for repair and fabrication of metal parts using metal stock normally less than $\frac{3}{4}$ in. thick. The shop is also equipped for the layout and fabrication of small models of new or experimental machinery. The shop covers approximately 16,000 square feet of floor space.

2.4 Carpenter Shop

The Carpenter Shop is equipped for all types of carpentry work. Its facilities and equipment are available for repairs performed both in the shop and in the field. Special items such as office equipment and drawing racks are fabricated in this shop. In addition to wood, the shop is able to work with such materials as transite, masonite and plastics. The shop contains approximately 8400 square feet of floor space.

2.5 Paint Shop

The 2400 square foot Paint Shop is located adjacent to the Carpenter Shop. This shop is equipped to apply paints, varnish and other coatings required on plant site.

2.6 Maintenance Shops

The Utilities Maintenance Area is separated into several small shops. These shops are:

- Lubrication
- Refrigeration and Air Conditioning
- Rigging
- Pipe Fitting

2.7 Electrical and Instrument Maintenance Shops

The electrical and instrument maintenance shops occupy an area of 30,400 square feet. Since some of the facilities for both electrical and instrument work are similar, these two maintenance shops are located in adjacent areas.

- ATTACHMENT 3 -

2.7.1 Electrical Shop

The Electrical Maintenance shop is equipped to maintain:

- The emergency telephone system
- The fire alarm system
- The radiation alarm panels
- The plant public address systems
- The low-voltage electrical systems (lighting, etc.)
- Electric motos

2.7.2 Instrument Shop

Electrical, electronic and pneumatic instrumentation is used to monitor and control process and auxiliary systems. These instruments are repaired or rebuilt in the Instrument Shop.

Signal generators, pressure gage testers, frequency counters, precision capacitors, instrument bridges, etc., are available for instrument repair.

2.7.3 Toxic Materials Storage Area

A toxic materials storage area is located at the east end of the Stores Area. There are four especially built storage lockers to house toxic materials.

These rooms are equipped with diked doorways, automatic CO₂ fire extinguishing systems, automatic wet pipe sprinkler system, and are locked to minimize access to the materials.

2.7.4 X-720C Nonflammable Materials Storage

The X-720C Storage building is located near the northwest corner of the X-720 Facility. Paint, paint thinner and oil are stored in this building. The X-720C is equipped with diked doorways, fire protection water sprinklers and hand held CO₂ extinguishers), and a ventilation system.

3.0 Roof Inspection

The top of the large roof was inspected by Joe Wellinghoff of Engineering on 3-12-12 [phase I] with assistance of a safety escort Mark Crabtree. Mark Crabtree was assigned to assist by facility custodian Wayne Wilbur. The underside of the roof was inspected by Joe Wellinghoff on 3-22-12 [phase II]. The large surface area of this building necessitated a two phase inspection approach. The top of the main roof is in excellent condition. There were no signs of deterioration, ponding or excessive deflection. Joe Wellinghoff asked Mark Crabtree if there are any problems with roof leaks. There is a leak at a drain below the roof at column K15. A subsequent visual inspection by Joe Wellinghoff saw no evidence of leaks or problems to the decking or roof supports immediately below the roof at the drain pipe. Therefore, the leak is sourced in the drain pipe at a location below the bottom of the roof. This leak has caused some mild surface corrosion on top of the crane beam, below the leak.

- ATTACHMENT 3 -

The inspection of the canopy framing was completed in phase II. The canopy support steel is 8" WF [e.g. wide flange] purlins per drawing X-720-14-A. There were several cases of isolated surface corrosion that does not structurally degrade the framing. In addition, each end of the framing was checked. None of the ends had missing shear or bolted connections.

Phase II also included an inspection of the decking and support steel on the underside of the roof at Stores. The steel was remarkably pristine, especially for a 60 year old structure.

Phase II also included an inspection of the underside of the small X-720C structure. There were no fixed ladders mounted to the structure. However, from the door openings, the underside of the roof could be seen. It too was in remarkably good or excellent shape.

See EVAL-DE-2016-0065 for the X-720C roof structural integrity assessment (including photos, drawing excerpts and roof inspection checklist.

Rev5

- ATTACHMENT 3 -

GAT/GDP-1073
VOLUME 2

Page: 4.5-7

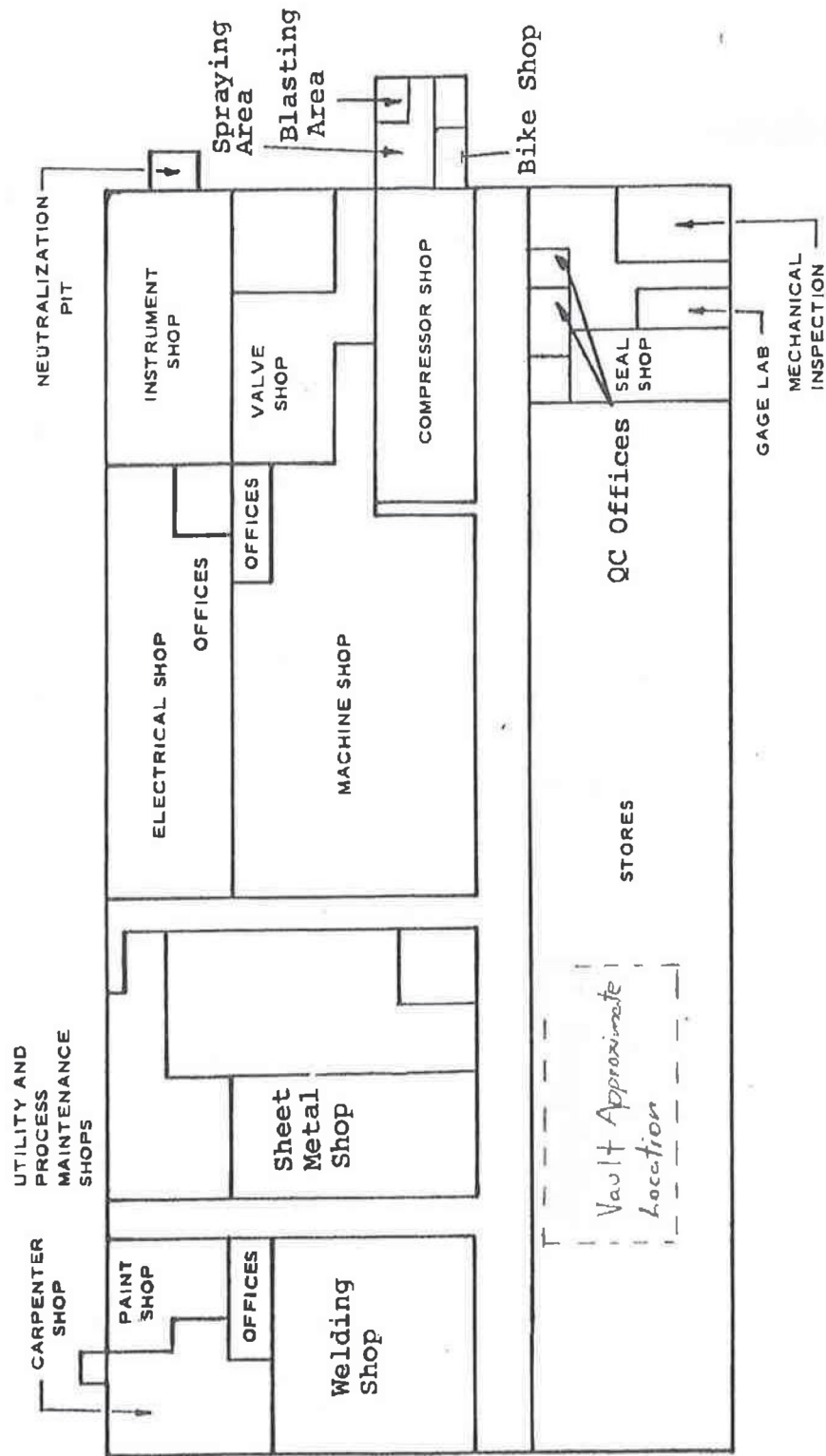
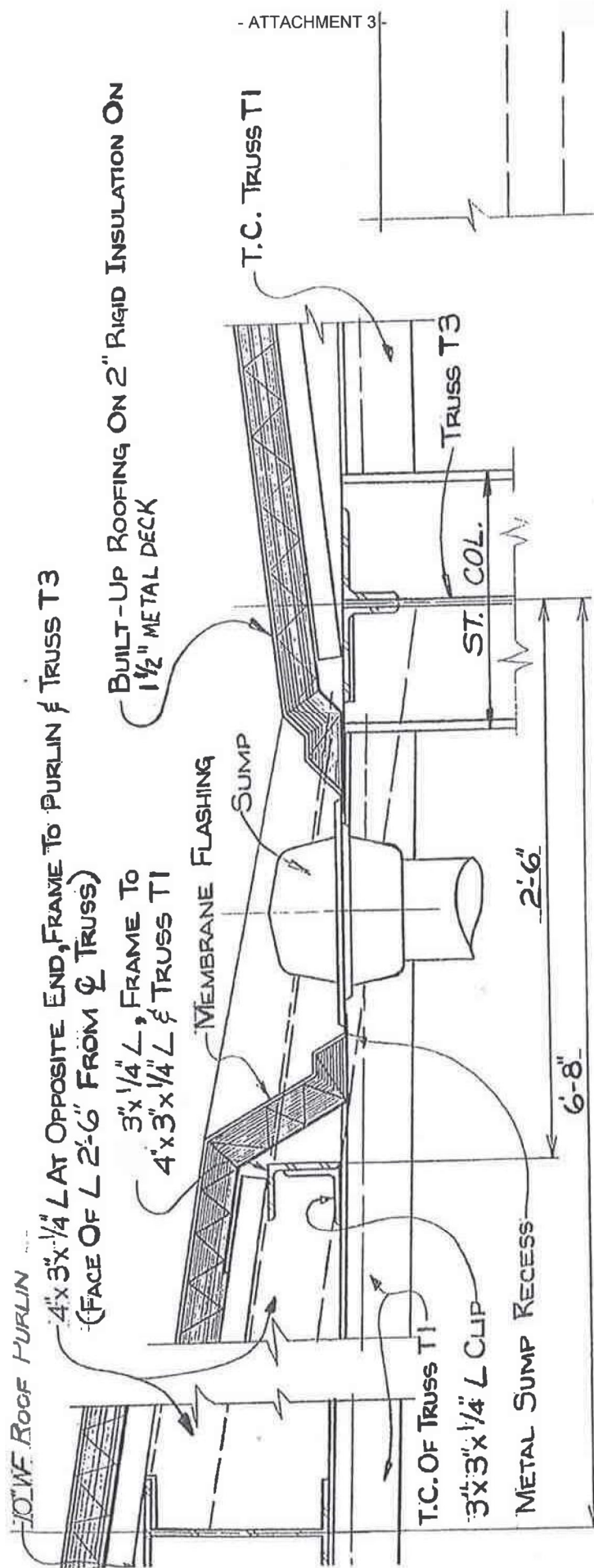


FIGURE 4.5.1-2 X-720 MAINTENANCE AND STORES BUILDING FLOOR PLAN

- ATTACHMENT 3 -



TYPICAL ROOF SUMP DETAIL

SCALE: 1 1/2" = 1'-0"

Par i | C
X
2

- ATTACHMENT 3 -

X-720 Roof and decking check

1. Check wheel load applied directly to decking.
2. Check built-up or final roof to accept a wheel load applied directly.

Parameters

300 lb wheel load applied over a 2'-6" x 2'-6" square area. This is a minimum requirement of the current Ohio Building Code Table 1607.1.

Decking check

The original drawing X-720-5-S indicates 1-1/2" deep 18 gauge decking

The maximum purlin spacing is 6'-8". By linear interpolation, the allowable applied load is as follows:

$$82 \text{ PSF} - [(11 \text{ PSF}/0.5 \text{ ft}) \times (3 \text{ in}/12 \text{ in})] = 76.5 \text{ PSF}$$

$$\text{Maximum allowed applied load} = 300 \text{ LBS}/[2.5 \text{ feet} \times 2.5 \text{ feet}] = 48 \text{ PSF} < 76.5 \text{ PSF} \text{ Checks O.K.}$$

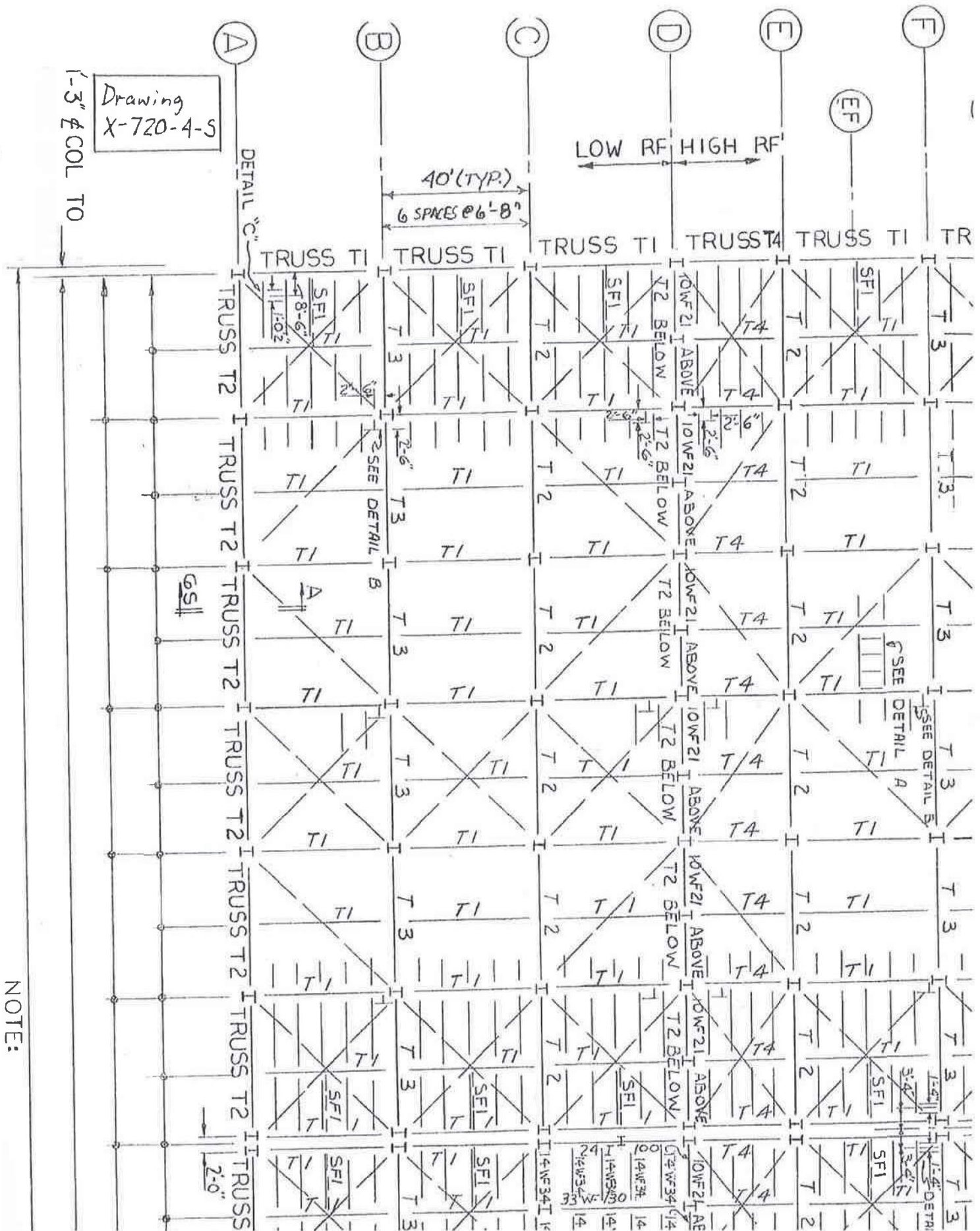
Built-up roof check

CURRENT Ohio Building Code requires a roof to resist an applied live load of 20 PSF. Roof also required to support a 300 lb concentrated load applied over a 2'-6" x 2'-6" square area.

Per the ORIGINAL 1952 dated drawing X-720-5-S, the required design uniform load was 30 PSF, which is 50% higher than today's standard of 20 PSF. Plus, the new roofing is to not exceed the original design of 12 PSF.

Therefore, it is conservative and safe to retain 300 lbs concentrated load limit for a roof that had a corresponding higher uniform live load design. Checks O.K.

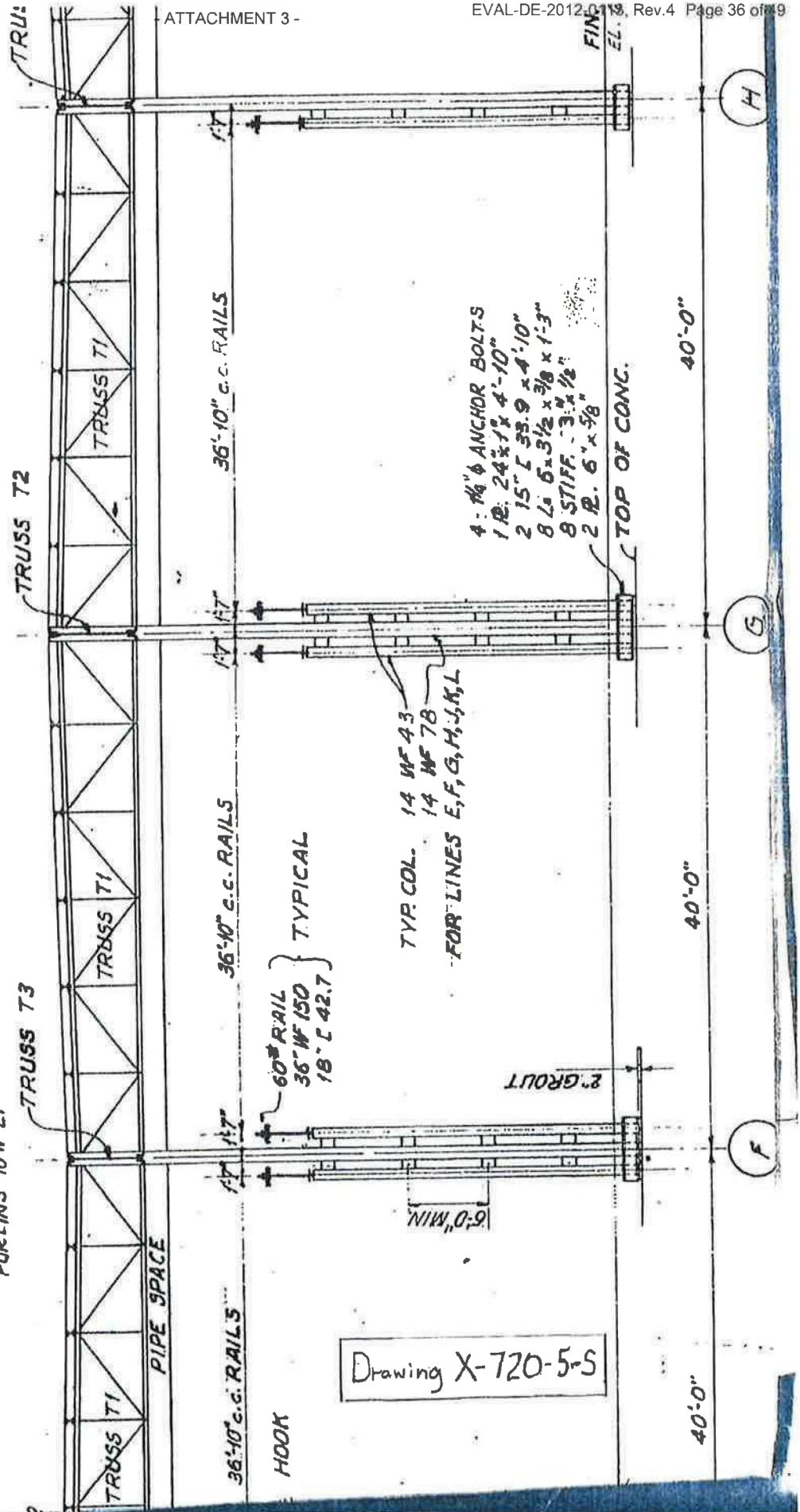
- ATTACHMENT 3 -



ROOF FRAMING LOADING	
ROOFING	6.0
INSUL.	1.0
ROOF	12.0
PURLINS	3.0
EQUIP.	5.5
SNOW	30.0
	57.5 $\frac{1}{8}$ ON PURLINS
EQUIP.	2.5
	60.0 $\frac{1}{8}$ ON N.F.S. TRUSS
TRUSS	4.0
	64.0 $\frac{1}{8}$ ON E.F.W TRUSS

1 1/2" 18 GA. METAL DECK
SUPPORTING MEMBERS

PURLINS 10W21

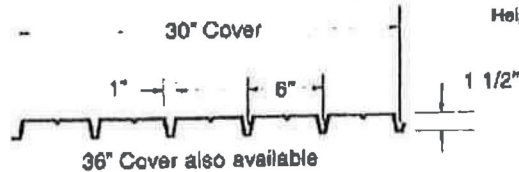


ATTACHMENT 3 -

DACS Type A Roof Deck (Narrow Rib) - Product Specifications



TYPE A ROOF DECK (NARROW RIB)



Helpful Hint: Type "A" deck is mainly used as a retrofit to match existing deck.

Section Properties (Fy=33 ksi)

Gage	Design Thickness	Weight (pcf)	Pd	Day	$I_p(\text{in}^4)$	$I_x(\text{in}^4)$	$S_p(\text{in}^3)$	$S_x(\text{in}^3)$
22	.0295	1.65	1.70	0.144	0.143	0.132	0.131	
20	.0358	2.09	2.15	0.175	0.175	0.160	0.159	
18	.0474	2.71	2.80	0.232	0.232	0.211	0.211	
16	.0598	3.30	3.40	0.294	0.294	0.266	0.266	

- Section properties calculated in accordance with AISI specifications

Gage	Span Cond	Max SDI Const Sp	Uniform Total Load in Pounds Per Square Foot (Dead and Live)											
			4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	
22	One	5'-5"	100	85	69	57	48	41	35	30				
20		6'-0"	131	104	84	69	58	49	43	37	32			
18		6'-11"	174	137	111	92	77	65	54	46	38	34	30	
16		7'-9"		173	140	116	97	80	68	55	47	41	38	
22	Two	6'-4"	108	85	69	57	48	40	35	30				
20		7'-0"	131	103	84	69	58	49	42	37	32			
18		8'-1"	174	137	111	92	77	66	56	49	43	38	34	
16		9'-1"		173	140	116	97	83	71	62	54	48	43	
22	Three or More	6'-4"	135	108	88	71	60	51	44	38	33			
20		7'-0"	164	129	105	88	73	62	53	46	41	36	32	
18		8'-1"		172	139	115	96	82	71	62	54	48	43	
16		9'-1"			175	148	122	104	89	78	68	60	54	

- Notes: 1. Load tables are calculated using section properties based on the steel design thickness shown in the Steel Deck Institute (SDI) design manual.
2. Loads shown in the shaded areas are governed by the live load deflection not in excess of 1/240 of the span. A dead load of 10 psi has been included.

TYPICAL FASTENER LAYOUTS

[TYPE B-CELLULAR](#) | [TYPE N-CELLULAR](#) | [TYPE J-CELLULAR](#) | [TYPE H-CELLULAR](#)
[TYPE B ROOF DECK](#) | [TYPE F ROOF DECK](#) | [TYPE A ROOF DECK](#) | [TYPE N ROOF](#)
[1 1/2" COMPOSITE \(NORMAL WEIGHT\)](#) | [1 1/2" COMPOSITE \(LIGHTWEIGHT\)](#) | [2" COMPOSITE \(NORMAL WEIGHT\)](#) | [2" COMPOSITE \(LIGHTWEIGHT\)](#)
[3" COMPOSITE \(NORMAL WEIGHT\)](#) | [3" COMPOSITE \(LIGHTWEIGHT\)](#) | [TYPE S FORM DECK](#)
[DECK](#) | [TYPE BI \(B INVERTED\)](#)

[PRODUCTS OVERVIEW](#) | [ROOF DECK MAIN PAGE](#) | [COMPOSITE FLOOR DECK MAIN PAGE](#)
[COMPOSITE FLOOR DECK MAIN PAGE](#)
[CELLULAR DECK MAIN PAGE](#) | [ABOUT DACS](#) | [REQUEST QUOTE OR INFORMATION](#) | [A](#)

Wellinghoff, Joe

From: Brian Wilson [brianwilson@insolves.com]
Sent: Friday, August 03, 2012 9:37 AM
To: Wellinghoff, Joe
Cc: Crank, Steve; Wilkett, Greg; Saltsman, Joe; Carrick, Bernard
Subject: FW: Attached Image
Attachments: 1032_001.pdf; X-720-A-30105.16 RevC CJE 08-03-12.pdf

Joe,

Please find information and markups on the roof evaluations. Please review and incorporate any comments that you think are relevant. Also, attached is a new revision of the roof drawing that we have updated and will be giving to Bernie to sign on Monday. The updates deal with roof material weights for records, warranty duration, and type of roof covering to match contractor roof proposal. Any questions please feel free to call me

Brian D. Wilson, P.E.



Innovative Solutions Unlimited, LLC
Endeavor Center
740-289-3282, ext. 392 (Office)
740-876-1161 (Mobile)
740-289-3015 (Fax)
email: brianwilson@insolves.com
website: www.insolves.com

From: donotreply@insolves.com [<mailto:donotreply@insolves.com>]
Sent: Friday, August 03, 2012 9:04 AM
To: Wilson, Brian
Subject: Attached Image

Firestone

BUILDING PRODUCTS

TECHNICAL INFORMATION SHEET

SBS FR

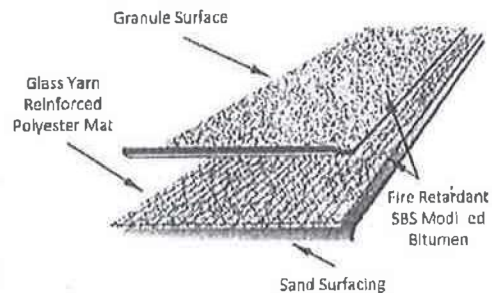
TIS #507

ITEM NUMBER: W71PUWS160F (UltraWhite™)
 W71PWS160F (White)
 W71PBS160F (Black)
 W71PFS160F (Blue)

Description:

Firestone SBS FR is a Styrene-Butadiene-Styrene modified bitumen membrane that is reinforced with a 190 g/3.89" (7.8 oz/yd²) non-woven polyester mat enhanced with continuous glass fiber strands in the machine direction. The combination results in a flexible, durable membrane. The addition of SBS rubber optimizes asphalt's natural waterproofing characteristics and increases system performance. This proprietary Fire Retardant compound provides resistance to thermal and physical forces over a wide range of temperatures.

SBS FR is ideal for both new construction and re-roofing applications. Low slope roofs of any size, even those with numerous penetrations, may accommodate a Firestone SBS FR application. Firestone FR with UltraWhite granules has a highly reflective surface designed to meet national, state and local energy code requirements.



Method of Application:

1. SBS FR shall be installed with conventional hot asphalt, LiquiGard™, or Firestone Multi-Purpose MB Cold Adhesive.
2. Please see the SBS Application Guide at www.firestonebpco.com for detailed information regarding the application of SBS FR.

Storage:

- All material should be stored out of the weather in a clean, dry area in its original unopened packaging at a minimum of 50 °F (10 °C) and a maximum of 100 °F (38 °C) so that it will be 50 °F (10 °C) or above at the time of application.
- If material must be stored temporarily on the roof before application, it must be elevated from the roof surface on a pallet, stored on end, and covered from the weather with a light colored opaque tarp in a neat, safe manner that does not exceed the allowable load limit of the storage area.
- Stack Firestone SBS FR squarely in the original unopened packaging not more than two (2) pallets high.

Precautions:

- Take care when transporting and handling Firestone Modified Bitumen rolls to avoid punctures and other types of physical damage.
- Isolate waste products, petroleum products, grease, oil (mineral and vegetable) and animal fats from all Firestone Modified Bitumen membranes.
- Consult your Technical Coordinator at 800-428-4511 for specific recommendations.
- Refer to Material Safety Data Sheet for SBS Membranes and Flashing.

Compliance:

Post Consumer Recycled Content: 4%
 Pre Consumer Recycled Content: 0%
 Manufacturing Location: Beech Grove, IN



Note:
 Dade County Approval
 of UltraWhite products is
 pending

Packaging:

Roll Width:	3.3 (1m)
Roll Length:	33.5 (10.2 m)
Net Coverage:	100' (9.3 m ²)
Roll Weight:	98 lb (44.4 kg)
Pallet Size:	48" x 39" (1.2 m x 1m)
Rolls per Pallet:	20
Weight per Pallet:	2,000 lb (907 kg)



TECHNICAL INFORMATION SHEET

SBS FR

ASTM D 6164 Type I, Grade G

Physical Properties Tested in accordance with ASTM D 5147	ASTM Standard Requirement	Units	Firestone Value	Metric Units	Firestone Value
Product Thickness	130	mil	150	mm	3.8
Net Mass	90	lb/100 ²	91	g/m ²	4,443
Bottom Side Coating	n/a	mil	43	mm	1.1
Peak Load @ 0 °F (-18 °C)	100	lb/inch, MD	109	kN/m	24
		lb/inch, CD	86	kN/m	23
Elongation @ Peak Load @ 0 °F (-18 °C)	20	% MD	40	%	45
	20	% CD	46	%	50
Peak Load @ 73 °F (-25 °C)	70	lb/inch, MD	67	kN/m	14
		lb/inch, CD	51	kN/m	13
Elongation @ Peak Load @ 73 °F (25 °C)	50	% MD	57	%	51
	50	% CD	73	%	59
Ultimate Elongation @ 5% of Peak load 73 °F (25 °C)	60	% MD	80	%	100
	60	% CD	92	%	102
Tear Strength @ 73 °F (25 °C)	100	lb/inch, MD	109	kN/m	555
Tear Strength @ 73 °F (25 °C)	100	lb/inch, MD	80	kN/m	467
Dimensional Stability	1	% Change MD	-0.2	%	-0.1
	1	% Change CD	0.2	%	0.2
Low Temperature Flexibility	0	°F	-30	°C	-34
Compound Stability	215	°F	270	°C	132
Granule Loss	2	grams	0.7	grams	0.7

Acceptable Substrates:

Structural Concrete (New and Existing)
Gypsum
Lightweight Concrete
Plywood and OSB
Existing Granule Surfaced Modified Bitumen

Firestone Insulation Note:

ISO 95+ GL™
ISOGARD HD™
RESISTA™
DensDeck

Notes:

Please consult the SBS Design Guide and Quick Specs on line at www.firestonebpco.com to review specific information regarding fastener types appropriate for the type of deck and insulation in use.

Please consult the SBS Design Guide and Quick Specs on line at www.firestonebpco.com to review specific information regarding the appropriate fastener or adhesive for the deck and type of insulation in use.

Requires a coverboard when applied in hot asphalt
Cannot be installed in hot asphalt
Cannot be installed in hot asphalt
Cannot be encapsulated in hot asphalt

Reciprocity: UltraWhite only	Initial	Weathered	#
Solar Reflectance	0.73	pending	
Thermal Emittance	0.92	pending	
Rated Product ID			0034
Licensed Manufacturer ID			0608
Classification	Production Line		

Solar Reflectance Index (SRI) = 87

SRI calculated using the ONNL (DOE) calculator, ASTM E 1980-01

Please Contact your Firestone Technical Coordinator at 1-800-428-4511 for further information.

This sheet is meant to highlight Firestone products and specifications and is subject to change without notice. Firestone takes responsibility for furnishing quality materials which meet published Firestone product specifications. Neither Firestone nor its representatives practice architecture. Firestone offers no opinion on and expressly disclaims any responsibility for the soundness of any structure. Firestone accepts no liability for structural failure or resultant damages. Consult a competent structural engineer prior to installation on if the structural soundness or structural ability to properly support a planned installation is in question. No Firestone representative is authorized to vary this disclaimer.

- ATTACHMENT 3 -

Firestone
 BUILDING PRODUCTS

TECHNICAL INFORMATION SHEET

UltraPly™ TPO

TIS #201

Description:

Firestone UltraPly™ TPO is a flexible Thermoplastic Polyolefin roofing membrane that is produced with polyester weft-inserted reinforcement. This heat weldable TPO membrane is available in 45 mil (1.1 mm) and 60 mil (1.5 mm) thicknesses in 8' (2.4 m), 10' (3 m) and 12'4" (3.76 m) widths. The colors available are white, tan or gray. This reflective membrane is suitable for a variety of low slope applications.



Preparation of Substrate:

1. Substrates must be clean, dry, smooth, and free of sharp edges, fins, loose or foreign materials, oil, grease, and other materials that may damage the membrane.
2. All roughened surfaces that can damage the membrane shall be repaired as specified to offer a smooth substrate.
3. All surface voids greater than 1/4" (6.3 mm) wide shall be properly filled with an acceptable fill material.

Method of Application:

1. Firestone UltraPly TPO membrane is installed as continuous roofing or waterproofing layer on the roof. Rolls are overlapped (side laps and end laps) prior to the heat welding of the seam areas.
2. Install the UltraPly TPO Roofing System in accordance with current Firestone UltraPly TPO specifications, details and workmanship requirements.

Storage:

- Store away from sources of punctures and physical damage.
- Assure that structural decking will support the loads incurred by material when stored on rooftop. The deck load limitations should be specified by the project designer.
- Store away from ignition sources as membrane will burn when exposed to open flame.

Precautions:

- Exercise caution when lifting, moving, transporting, storing or handling membrane rolls to avoid sources of punctures and possible physical damage.
- Contact your Technical Coordinator at 1-800-428-4511 for specific recommendations regarding chemical or waste product compatibility with Firestone UltraPly TPO Membrane.
- Refer to Material Safety Data Sheets (MSDS) for safety information

Packaging:	Widths	Lengths	Weight
.045" UltraPly TPO and	5' (1.5 m)	100' (30.5 m)/200' (61 m)	0.23 lb/sf (2.1 kg/m²)
.060" UltraPly TPO	8' (2.4 m)	100' (30.5 m)/200' (61 m)	0.31 lb/sf (2.9 kg/m²)
	10' (3.05 m)	100' (30.5 m)/200' (61 m)	
	12'4" (3.76 m)	100' (30.5 m)/200' (61 m)	

Compliance:

Post Consumer Recycled Content: 0%
 Pre Consumer Recycled Content: 15%
 Manufacturing Location: Wellford, SC
 Tuscumbia, AL



CCMC 13348-R



TECHNICAL INFORMATION SHEET

Physical Properties:	ASTM D 6878 Specification	Units	Performance Minimum	Typical Values 45 mil	Typical Values 60 mil
Overall Thickness	D 751	In(mm)	0.039(1)	0.045 (1.14) ±10%	0.060(1.5) ±10%
Coating over Scrim	D 7635	In(mm)	0.015(1)	0.017(0.44)	0.021(0.54)
Breaking Strength	D 751 Grab Method	Lb(N)	220(975)	340(1,510)	390(1,730)
Elongation at Reinforcement Break	D 751 Grab Method	%	15	25	25
Tearing Strength	D 751	Lb(N)	55(245)	120(530)	120(530)
Brittleness Point	D 2137	°F(°C)	-40(-40)	Pass	Pass
Ozone Resistance, No cracks	D 1149	***	Pass	Pass	Pass
Properties after Heat Aging	D 573	°F(°C)	670 h @ 240°F (116°C)		
Retention of Breaking Strength	D 751 Grab Method	%	90, minimum	> 90	>90
Retention of Elongation at Break	D 751 Grab Method	%	90, minimum	>90	>90
Retention of Tearing Strength	D 751	%	60, minimum	>60	>60
Weight of Change	D 1204, 6h at 158°F (70°C)	%	±1, maximum	<1	<1
Linear Dimension Change	D 471	%	±1, maximum	<1	<1
Water Absorption		%	±3, maximum	<3	<3
Weather Resistance, 80°C Black Panel, no cracking, crazing when wrapped around a 3" mandrel and inspected at 7x magnification	G 155,	kJ/m²	10,080, minimum	>20,160	>20,160
Puncture Resistance	FTM 101C, Method 2031	***		265(1,180)	300(1,300)
Dynamic Puncture Resistance MD	D 5635	***		Pass (20 J)	Pass (40 J)
Dynamic Puncture Resistance CD	D 5635	***		Pass (35 J)	Pass (50 J)
Static Puncture Resistance	D 5602	***		Pass (25 kg)	Pass (25 kg)

Reflectivity:	Initial	Weathered	#
Solar Reflectance	0.79	0.68	
Thermal Emittance	0.85	0.83	
SRI	98	81	
Rated Product ID			0008
Licensed Manufacturer ID			0608
Classification	Production Line		



Compliance:	Test Method	White	Tan	Gray	Energy Star®	White	Tan
Solar Reflectance	ASTM E903	0.81	0.63	0.37	Initial Solar Reflectance	0.79	0.60
Thermal Emittance	ASTM E408	0.95	0.95	0.95	Aged Solar Reflectance (3 years)	0.78	0.54
Solar Reflectance Index (SRI)	ASTM E1980	102	77	43	Cleaned prior to aged test?	Yes	No
					Initial Emittance	0.85	0.81

Please Contact your Firestone Technical Coordinator at 1-800-428-4511 for further information.

This sheet is meant to highlight Firestone products and specifications and is subject to change without notice. Firestone takes responsibility for furnishing quality materials which meet published Firestone product specifications. Neither Firestone nor its representatives practice architecture. Firestone offers no opinion on and expressly disclaims any responsibility for the soundness of any structure. Firestone accepts no liability for structural failure or resultant damages. Consult a competent structural engineer prior to installation if the structural soundness or structural ability to properly support a planned installation is in question. No Firestone representative is authorized to vary this disclaimer.



*ENERGY STAR is only valid in the United States

- ATTACHMENT 3 -



Technical Service Hotline 1.800.225.6119 or
www.densdeck.com

Manufacturer

Georgia-Pacific Gypsum LLC
 133 Peachtree Street
 Atlanta, GA 30303
 Technical Service Hotline: 1.800.225.6119

Georgia-Pacific Canada LP
 7070 Mississauga Road, Unit 120
 Mississauga, ON L5M 7V9

Description

DensDeck® DuraGuard Roof Board is an enhanced roof board incorporating a low perm, integrated coating with all the features of DensDeck® Roof Board. Additionally, the durable DuraGuard roof board coating provides an ideal substrate for a wide variety of adhered roofing systems, including self-adhered and hot-mapped membranes. The coated surface assures more uniform spreading of adhesives with an even better coverage rate than DensDeck® Prime Roof Board and can eliminate the need for field priming with a number of systems*. Ideal for metal roof systems and fluid-applied membranes.

The DensDeck DuraGuard Roof Board design employs fiberglass mats front and back over a gypsum treated core, providing excellent fire resistance, moisture resistance and wind uplift properties. The unique construction of DensDeck DuraGuard Roof Board provides superior flute spanning and will help stiffen and stabilize the roof deck. DensDeck DuraGuard Roof Board also has been shown to withstand deterioration and jobsite damage more effectively than roofing membrane substrates such as paper-faced gypsum board, fiberboard and perlite insulation. DensDeck DuraGuard Roof Board resists the growth of mold when tested, as manufactured, per ASTM D 3273.

Primary Uses

DensDeck DuraGuard Roof Board has been found to be an ideal substrate for self-adhered, hot mapped, cold mastic and torched asphaltic systems as well as all fully adhered, single-ply systems. 1/2" (12.7 mm) and 5/8" (15.9 mm) DensDeck DuraGuard Roof Board may also be used in vertical applications as a substrate board for the roof side of parapet walls. DensDeck DuraGuard Roof Board may allow the bonding of cold mastic and torching of modified bitumen membranes directly to its surface. Consult with the system manufacturer for recommendations on this application. DensDeck DuraGuard Roof Board is the preferred substrate for adhered vapor retarders.

Standards and Code Approvals

DensDeck DuraGuard Roof Boards are manufactured to meet ASTM C 1177 and have the following approvals:

- Florida Product Approval Code FL 1250
- Miami-Dade County, Florida NOA GB-0908 1C

Recommendations and Limitations

DensDeck DuraGuard Roof Boards are manufactured to act with a properly designed roof system following good roofing practices. The actual use of DensDeck DuraGuard Roof Board as a roofing component in any system or assembly is the responsibility of the roofing system's design authority. Consult with the appropriate system manufacturer and/or design authority for system and assembly specifications and instructions on applying other products to DensDeck DuraGuard Roof Board.

Georgia-Pacific does not warrant and is not responsible for any systems or assemblies utilizing DensDeck DuraGuard Roof Board or any component in such systems or assemblies other than DensDeck DuraGuard Roof Board.

The need for a separator sheet between the DensDeck DuraGuard Roof Board and the roofing membrane must be determined by the roof membrane manufacturer or roofing system designer.

Confirm any priming requirements with the membrane manufacturer. When applying solvent-based adhesives or primers, allow sufficient time for the solvent to flash off to avoid damage to roofing components.

DensDeck DuraGuard Roof Boards should not be subjected to abnormal or excessive loads or foot traffic, such as, but not limited to, use in plaza decks or under steel-

wheeled equipment that may fracture or damage the panels. Provide suitable roofing system protection when required.

For hot mapping asphalt or coal tar directly to DensDeck DuraGuard Roof Board, follow the manufacturer's recommended system application temperature guidelines and good roofing practices.

Fluid mapping DensDeck DuraGuard Roof Board to a substrate followed by a fluid mapped application of a membrane is not recommended. Mechanical attachment, ribbon adhesives or ribbon or spot mapping of asphalt may be acceptable methods of attachment, prior to fluid mapping a membrane. Consult with system manufacturer or design authority for attachment requirements.

When torching to DensDeck DuraGuard Roof Board, maintain the majority of the torch flame on the Moist Bit roll rather than on the surface of the board. Field priming should not be required.

Conditions beyond the control of Georgia-Pacific, such as weather conditions, dew, leaks, application temperatures and techniques may cause adverse effects with roofing systems.

Moisture Management

DensDeck DuraGuard Roof Boards, like other components used in roofing systems, must be protected from exposure to moisture before, during and after installation.

Remove the plastic packaging from all DensDeck DuraGuard Roof Board immediately upon receipt of delivery. Failure to remove the plastic packaging may result in entrapment of condensation or moisture. DensDeck DuraGuard Roof Board stored outside must be stored level and off the ground and protected by a breathable waterproof covering. Provide means for air circulation around and under stored bundles of DensDeck DuraGuard Roof Board. DensDeck DuraGuard Roof Board must be covered the same day as installed.

Avoid application of DensDeck DuraGuard Roof Boards during rain, heavy fog and any other conditions that may deposit moisture on the surface, and avoid the use of non-vented, direct-fired heaters during winter months. When roofing systems are installed on new poured concrete or light weight concrete decks or when re-roofing over a wet existing concrete deck, a venting base sheet or vapor retarder should be installed above the concrete to retard the migration of water from the concrete into the roof assembly. Always consult the roofing system manufacturer or design authority for specific instructions for applying other products to DensDeck DuraGuard Roof Boards.

Moisture vapor movement by convection must be eliminated, and the flow of water by gravity through imperfections in the roof system must be controlled. After a leak has occurred, no condensation on the upper surface of the system should be tolerated, and the water introduced by the leak must be dissipated to the building interior in a minimum amount of time.

Although DensDeck DuraGuard Roof Boards are engineered with fiberglass facings and high density gypsum cores, the presence of free moisture can have a detrimental effect on the performance of the product and the installation of roofing membranes. For example, hot asphalt applications can blister; torched modified bitumen may not properly bond; and adhesives for single ply membranes may not dry properly. Moisture accumulation may also significantly decrease wind uplift and vertical pull resistance in the system or assembly. DensDeck DuraGuard Roof Boards containing excessive free moisture content may need to be evaluated for structural stability to assure wind uplift performance.

Fire Resistance Classifications

DensDeck DuraGuard Roof Boards are excellent fire barriers over combustible and noncombustible roof decks, including steel decks.

UL 790 Classification DensDeck DuraGuard Roof Boards have been classified by Underwriters Laboratories (UL) for use as a fire barrier over combustible and

* Confirm priming requirements with membrane manufacturer

continued →

Submittal Approvals

Job Name _____

Contractor _____

Date _____

- ATTACHMENT 3 -

Technical Service Hotline 1.800.225.6119 or
www.densdeck.com

noncombustible decks in accordance with the ANSI/UL 790 test standard, The UL classification includes a comprehensive Class A, B or C rating. For additional information concerning the UL 790 classification, consult the UL Certification Directory.

UL 1256 Classification: DensDeck® DuraGuard Roof Boards have also been classified by UL in roof deck constructions for internal (under deck) fire exposure in accordance with the ANSI/UL 1256 Steiner Tunnel test. For additional information concerning the UL 1256 classification, consult the UL Certification Directory.

FM Class 1 Approvals: DensDeck DuraGuard Roof Boards are included in numerous roofing assemblies with a Factory Mutual (FM) Class 1 fire rating. 1/4" (6.4 mm) DensDeck DuraGuard Roof Boards have passed testing under the FM Colorimeter Standard 4450 and have been approved by FM as such for insulated steel deck roofs when installed according to the conditions identified by FM. For more information concerning FM Approvals and FM Class 1 assemblies with DensDeck DuraGuard Roof Boards, consult FM or RoofNav®.

Type X: 5/8" (15.9 mm) DensDeck® DuraGuard Fireguard® Roof Boards are manufactured to meet the "Type X" requirements of ASTM C 1177 for increased fire resistance beyond regular gypsum board.

UL Fire Resistance Ratings: 5/8" (15.9 mm) DensDeck DuraGuard Fireguard Roof Boards are designated as **Type DD** by UL and included in assembly designs investigated by UL for hourly fire resistance ratings. 5/8" (15.9 mm) DensDeck DuraGuard Fireguard Roof Boards may also replace any unclassified 5/8" (15.9 mm) gypsum board in an assembly in the UL Fire Resistance Directory under the prefix "D".

Flame Spread and Smoke Developed: When tested in accordance with ASTM E 84, DensDeck DuraGuard Roof Boards had Flame Spread 15, Smoke Developed 0.

Wind Uplift

DensDeck DuraGuard Roof Boards are included in numerous assemblies evaluated by FM or other independent laboratories for wind uplift performance. For information concerning such assemblies, please visit www.roofnav.com.

Physical Properties

Properties	1/4" (6.4 mm)	1/2" (12.7 mm)	5/8" (15.9 mm)
Thickness, nominal	1/4" (6.4 mm) ± 1/16" (1.0 mm)	1/2" (12.7 mm) ± 1/32" (0.8 mm)	5/8" (15.9 mm) ± 1/32" (0.8 mm)
Width, standard	4' (1219 mm) ± 1/8" (3 mm)	4' (1219 mm) ± 1/8" (3 mm)	4' (1219 mm) ± 1/8" (3 mm)
Length, standard	4' (1219 mm) and 8' (2438 mm) ± 1/4" (6.4 mm)	4' (1219 mm) and 8' (2438 mm) ± 1/4" (6.4 mm)	4' (1219 mm) and 8' (2438 mm) ± 1/4" (6.4 mm)
Weight, nominal, lbs/sq. ft. (Kg/m ²)	1.6 (7.9)	2.0 (9.6)	2.5 (12.2)
Surfacing	Fiberglass mat Durable, low perm coating	Fiberglass mat Durable, low perm coating	Fiberglass mat Durable, low perm coating
Flexural Strength ¹ , parallel, lbf. min. (N)		110 (356)	100 (444)
Flex. Spanability ²	2'-5/8" (66.7 mm)	5" (127 mm)	8" (203 mm)
Permeability, perms (ng/Pa·s·in ²)	<2 (114)	<2 (114)	<2 (114)
R Value ³ , R ² ·°F·hr/ft ² ·Btu (m ² ·K/W)	7.6	5.6	6.7
Linear Variation with Change in Temp., in/in °F (mm/mm/°C)	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶)	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶)	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶)
Linear Variation with Change in Moisture	6.25 x 10 ⁻⁶	8.25 x 10 ⁻⁶	6.25 x 10 ⁻⁶
Water Absorption ⁴ , % max	<5	<5	<5
Compressive Strength ⁵ , psi nominal		950	900
Surface Water Absorption, grams, nominal		<1.0	<1.0
Flame Spread, Smoke Developed (ASTM E 84)		15/0	15/0
Bonding Radius	3" (76 mm)	12" (305 mm)	16" (407 mm)

1. Tested in accordance with ASTM C 473 method B.

2. Tested in accordance with ASTM E 661.

3. Tested in accordance with ASTM E 96 (dry cup method).

4. Tested in accordance with ASTM C 578 (heat flux meter).

5. Tested in accordance with ASTM C 1177.

6. Tested in accordance with ASTM C 473.



Georgia-Pacific
Gypsum

U.S.A. - Georgia-Pacific Gypsum LLC
 Canada - Georgia-Pacific Canada LP

SALES INFORMATION AND ORDER PLACEMENT

U.S.A. Midwest: 1-800-876-4746 West: 1-800-824-7503
 South: 1-800-327-2344 Northeast: 1-800-947-4497

CANADA Canada Toll Free: 1-800-387-6823
 Quebec Toll Free: 1-800-361-0486

TECHNICAL INFORMATION

U.S.A. and Canada: 1-800-225-6119
www.gpgypsum.com

SALE For current warranty information for this product, please go to www.gpgypsum.com and select the product for warranty information. All sales of this product by Georgia-Pacific are subject to our Terms of Sale available at:

product may cause skin, eye and respiratory tract irritation. Avoid breathing dust and minimize contact with skin and eyes. Wear long sleeve shirts, long pants and eye protection. Always maintain adequate ventilation. Use a dust mask or NIOSH/MSHA approved respirator as appropriate in dusty or poorly ventilated areas.

FIRE SAFETY CAUTION Passing a fire test in a controlled laboratory setting and/or certifying or labeling a product as having a one-hour, two-hour, or any other fire resistance or protection rating and, therefore, as acceptable for use in certain fire rated assemblies/systems, does not mean that either a particular assembly/system incorporating the product, or any given piece of the product itself, will necessarily provide one-hour fire resistance, two-hour fire resistance, or any other specified fire resistance or protection in an actual fire. In the event of an actual fire, you should immediately take any and all actions necessary for your safety and the safety of others without regard for any fire rating of any product or assembly/system.



TECHNICAL INFORMATION SHEET

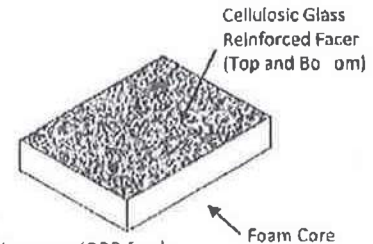
ISO 95+™ GL Insulation Flat and Tapered

TIS 901

Description:

Firestone ISO 95+ GL flat and tapered roof insulation consists of a closed-cell polyiso foam core laminated to a black glass reinforced mat facer on both major surfaces. Flat and tapered ISO 95+ GL insulation provides outstanding thermal performance on commercial roofing applications, while providing positive roof top drainage to help eliminate ponding water when tapered ISO 95+ GL insulation is used.

All Firestone polyiso insulation uses EPA accepted blowing agents and qualify under the Federal Procurement Regulation for Recycled Material. Flat and tapered ISO 95+ GL insulation with ISOGARD™ Foam Technology incorporates a HCFC-free blowing agent that does not contribute to the depletion of the ozone (ODP-free).



Method of Application:

Insulation shall be neatly tied to all roof penetrations, projections and nailers. No more insulation shall be installed than can be covered with membrane and completed before the end of each day's work or before the onset of inclement weather.

Firestone ISO95+ GL board may be installed using:

- Firestone fasteners and Plates
- Hot Asphalt (requires a coverboard)
- Firestone Improved Insulation Adhesives
 - I.S.O. Twin Pack™
 - I.S.O. Stick™
 - I.S.O. Spray™ S
 - I.S.O. FIX™ II

For ballasted systems, the top layer of Firestone insulation may not be mechanically attached.

ISO 95+ GL Flute Span Over Metal Decks				
Thickness	1.0"	1.25"	1.5"-3.8"	4.0"
Span	2.625'	3.675'	4.375'	4.5'

Storage:

- Keep insulation dry at all times.
- Elevate insulation above the deck or ground.
- Cover insulation with waterproof tarps.

Precautions:

- Polyiso foam will burn if exposed to a flame of sufficient heat and intensity. Keep away from heat, sparks, and open flames.
- Protect against dust that may be generated when insulation is cut with a circular saw during installation.
- Refer to Material Safety Data Sheet (MSDS) for additional information.
- Use in accordance with Firestone ISO 95+™ Specifications

Specification Compliance:

ASTM C1289, Type II, Class 1
UL Classified
FM Class 1 Approved
Manufactured in an ISO 9002 Registered Facility
CAN/ULC-S704, Type 1, Class 3

Available Sizes:

Flat Boards: 4' x 4' (1.22 m x 1.22 m)
4' x 8' (1.22 m x 2.44 m)
Thickness ranging 1.0" (25.4 mm) to 4.0" (101.6 mm)
Tapered Boards: 4' x 4' (1.22 m x 1.22 m)
4' x 8' (1.22 m x 2.44 m) (special order)
Thickness ranging 0.5" (12.7 mm) to 4.0" (101.6 mm)
Slopes ranging 1/16" per foot (.5%) to 1/4" per foot (4%)



CCMC 13274-L

Manufactured in an ISO 9001 Registered Facility

Manufacturing Locations: Florence, KY Corsicana, TX
Bristol, CT Jacksonville, FL Salt Lake, UT
DeForest, WI Youngwood, PA

Note:

Miami Dade Classified POLYISO is only produced in the Jacksonville, FL and Youngwood, PA facilities





TECHNICAL INFORMATION SHEET

ISO 95+ GL Insulation

Typical Thickness (Inches)	Thickness, (millimeters)	% Post Consumer	% Post Industrial	TOTAL RECYCLE CONTENT
1.00	25.40	37%	15%	52%
1.25	31.75	33%	15%	48%
1.50	38.10	29%	15%	44%
1.75	44.45	26%	15%	41%
2.00	50.80	24%	15%	39%
2.30	58.42	21%	15%	36%
2.50	63.50	20%	15%	35%
2.80	71.12	18%	15%	33%
3.00	76.20	17%	15%	32%
3.25	82.55	18%	15%	31%
3.50	88.90	15%	15%	30%
3.75	95.25	14%	15%	29%
4.00	101.60	14%	15%	29%

Physical Properties	ASTM Standard	Units	Value	Units	Value
Compressive Strength	D 1621	psi	20	kPa	138
Density	D 1622	pcf	2	kg/m ³	32
Dimensional Stability	D 2126	%	<2	%	<2
Moisture Vapor Transmission	E96	perm	<1	ng/(Pa·s·m ²)	57.5
Water Absorption	C209	% by volume	<1	% by volume	<1
Service Temperature	----	°F	100-200 °F	°C	73-121 °C

25 psi (172 kPa) available upon request.

Product Data	Thickness, Inches	Thickness, mm	LTTR R-Value*	Flute Spanability, inches
Long Term Thermal Resistance as related to thickness of ISO95+GL	1.00	25.4	6.0	2.285
	1.25	31.7	7.5	3.675
	1.50	38.1	9.0	4.375
	1.75	44.5	10.5	4.375
	2.00	50.8	12.1	4.375
	2.30	58.4	14.0	4.375
	2.50	63.5	15.3	4.375
	2.80	71.1	17.2	4.375
	3.00	76.2	18.5	4.375
	3.25	82.6	20.1	4.375
	3.50	88.9	21.7	4.375
	3.75	95.3	23.4	4.375
	4.00	101.6	25.0	4.500

*Long Term Thermal Resistance (LTTR) values provide a 15-Year time weighted average in accordance with CAN/ULC-S770.

Acceptable Substrates:	Notes:
Structural Concrete, 3000 psi (New and Existing) Steel, min. 22 gage Lightweight Concrete Plywood and OSB, min. 1/2 in. Gypsum, min. 2"	Please consult the SBS Design Guide and Quick Specs on line at www.firestonebpc.com to review specific information regarding fastener types appropriate for the type of deck and insulation in use.
NOT ACCEPTABLE:	Do not use hot asphalt to adhere ISO GARD HD Coverboard to ISO 95+ GL Insulation.

Please Contact your Firestone Roof Systems Advisor at 1-800-428-4511 for further information.

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- ATTACHMENT 4 -

SOMAX G3 | SOMAX CMMS Production

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Work Orders

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Work Order 1401071 Desc.

Status 40 - Approved WO Search

Detail Completion Approval / Status Requirements

Request REPAIR/PATCH LEAKING ROOF OVER LOCKER ROOM 1 ADDITION ON WEST SIDE OF BUILDING

Description

Location LOCKER ROOM 1 OUTSIDE BUILDING

Classification

Requestor ID 77077 Deficiency Tag N/A Crew 6636 Type CM Regulatory BMP Priority 0

P6 Project ID 427 Planner S_CARP EQ Class 2 Work History NR

Charge Type EQ Charge To FAC720 Building X720 Category DW

Task ID	Done	Ca...	Disposition	Desc	Task Status	Work Week	Charge To	Build...	Crew	EQ Cl...	Crew Size	Est. Dur...	Total Est...	Required	Act. Com...
01			P50	PERFORMED UNDER WCD 1310723-01- REPAIR/PATCH LEAKING ROOF OVER LOCKER ROOM 1 ADDITION, ON WEST SIDE OF BUILDING.	10	1426	FAC720	X720	6636	2	2	20.00	40.00	11/15/2013	/ /

SOMAX G3 | SOMAX CMMS Production

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Work Orders

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Work Order 1305196 Desc.

Status 40 - Approved WO Search

Detail Completion Approval / Status Requirements

Request WORKED UNDER WO# 1304035 AS TASK #3

Description

Location COLUMN H19

Classification

Requestor ID 77077 Deficiency Tag N/A Crew 6636 Type CM Regulatory BMP Priority 0

P6 Project ID 427 Planner S_CARP EQ Class 2 Work History NR

Charge Type EQ Charge To FAC720 Building X720 Category MISC

Task ID	Done	Ca...	Disposition	Desc	Task Status	Work Week	Charge To	Build...	Crew	EQ Cl...	Crew Size	Est. Dur...	Total Est...	Required	Act. Com...
01			P50	TROUBLESHOOT/REPAIR WATER LEAK (POSSIBLE ROOF LEAK) AT COLUMN H19	81	1330	FAC720	X720	6636	2	2	10.00	20.00	03/05/2013	/ /

- ATTACHMENT 4 -

SOMAX G3 | SOMAX CMMS Production

File Edit Modules Functions Reports Windows Help

Work Orders

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Work Order 1304035 Desc. WO Search

Status 80 - Finished

Detail Completion Approval / Status Requirements

Request REPAIR WATER LEAK AT COLUMN WHERE BREAKER PANEL LP10B IS LOCATED. IT APPEARS THE WATER IS LEAKING FROM AROUND A ROOF DRAIN OR MAY BE AN ACTUAL ROOF LEAK. SEE DIDI HANNAH FOR EXACT LOCATION INSIDE STORES.

Description REPAIR WATER LEAK AT COLUMN WHERE BREAKER PANEL LP10B IS LOCATED. IT APPEARS THE WATER IS LEAKING FROM AROUND A ROOF DRAIN OR MAY BE AN ACTUAL ROOF LEAK. SEE DIDI HANNAH FOR EXACT LOCATION INSIDE STORES.

Location STORES

Source WR - WORK REQUEST

Source ID 1301383

Creator 78045

Created 01/09/2013 14:04

Printed 0

Classification

Requestor ID 77077 Deficiency Tag N/A Crew 6636 Type CM Regulatory BMP Priority 0

P6 Project ID 427 Planner S_CARP EQ Class 2 Work History NR

Charge Type EQ Charge To FAC720 Building X720 Category MM

Task ID	Done	Ca...	Disposition	Desc	Task Status	Work Week	Charge To	Build...	Crew	EQ Cl...	Crew Size	Est. Dur...	Total Est...	Required	Act. Com...
02	☒		00	NEED RADON TO SURVEY ROOF. REPAIR WATER LEAK AT COLUMN WHERE BREAKER PANEL LP10B IS LOCATED. IT APPEARS THE WATER IS LEAKING FROM AROUND A ROOF DRAIN OR MAY BE AN ACTUAL ROOF LEAK. SEE DIDI HANNAH FOR EXACT LOCATION INSIDE STORES.	80	1324	FAC720	X720	6641	2	0	0.00	0.00	01/22/2013	04/16/2013
03	☒		70	TROUBLESHOOT/REPAIR WATER LEAK (POSSIBLE ROOF LEAK) AT COLUMN H19	80	1326	FAC720	X720	6636	2	2	10.00	20.00	03/18/2013	05/24/2013

Print the current record

SOMAX G3 | SOMAX CMMS Production

File Edit Modules Functions Reports Windows Help

Work Orders

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Work Order 1302777 Desc. WO Search

Status 80 - Finished

Detail Completion Approval / Status Requirements

Request TROUBLE SHOOT/REPAIR WATER LEAK IN OFFICE CEILING. SUSPECT A ROOF LEAK. WATER IS NEAR A FLUORESCENT LIGHT FIXTURE.

Description TROUBLE SHOOT/REPAIR WATER LEAK IN OFFICE CEILING. SUSPECT A ROOF LEAK. WATER IS NEAR A FLUORESCENT LIGHT FIXTURE.

Location DOE PERSONNEL OFFICE (DEE POWELL'S OFFICE)

Source WR - WORK REQUEST

Source ID 1300982

Creator 77026

Created 12/10/2012 12:56

Printed 0

Classification

Requestor ID 77077 Deficiency Tag N/A Crew 6636 Type CM Regulatory BMP Priority 0

P6 Project ID 427 Planner S_CARP EQ Class 2 Work History NR

Charge Type EQ Charge To FAC720 Building X720 Category MISC

Task ID	Done	Ca...	Disposition	Desc	Task Status	Work Week	Charge To	Build...	Crew	EQ Cl...	Crew Size	Est. Dur...	Total Est...	Required	Act. Com...
01	☒		P50	TROUBLE SHOOT/REPAIR WATER LEAK IN OFFICE CEILING. SUSPECT A ROOF LEAK. WATER IS NEAR A FLUORESCENT LIGHT FIXTURE.	80		FAC720	X720	6636	2	3	10.00	30.00	12/13/2012	02/15/2013

- ATTACHMENT 4 -

SOMAX G3 | SOMAX CMMS Production

File Edit Modules Functions Reports Windows Help

Work Orders

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Work Order 1208159 Desc. WO Search

Status 80 - Finished

Detail Completion Approval / Status Requirements

Request REPAIR ROOF LEAKS AT COLUMNS H-4, H-6, H-15, H-17, F-15, F-19, K-13 AND K-15

Description REPAIR ROOF LEAKS AT COLUMNS H-4, H-6, H-15, H-17, F-15, F-19, K-13 AND K-15

Location X720 ROOF

Source WR - WORK REQUEST

Source ID 1202856

Creator 60064

Created 03/06/2012 15:33

Notes Attachments

Printed 0

Classification

Requestor ID 60883 Deficiency Tag N/A Crew 6636 Type CM Regulatory BMP Priority 0

P6 Project ID 427 Planner S_CARP EQ Class 2 Work History NR

Charge Type EQ Charge To FAC720 Building X720 Category MM

Task ID	Done	Ca	Disposition	Desc	Task Status	Work Week	Charge To	Build	Crew	EQ Cl	Crew Size	Est. Dur	Total Est	Required	Act. Com
01	☒	☐	70	REPAIR ROOF LEAKS AT COLUMNS H-4, H-6, H-15, H-17, F-15, F-19, K-13 AND K-15	80		FAC720	X720	6636	2	2	16.00	32.00	02/23/2012	10/16/2013

SOMAX G3 | SOMAX CMMS Production

File Edit Modules Functions Reports Windows Help

Work Orders

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Work Order 1204012 Desc. WO Search

Status 80 - Finished

Detail Completion Approval / Status Requirements

Request REPAIR ROOF DRAIN WATER LEAK

Description REPAIR ROOF DRAIN WATER LEAK

Location FROM ROOF AT COLUMN K13 ABOVE POWER PANEL

Source WR - WORK REQUEST

Source ID 1201439

Creator 65344

Created 12/14/2011 10:29

Notes Attachments

Printed 0

Classification

Requestor ID 60883 Deficiency Tag N/A Crew 6636 Type CM Regulatory BMP Priority 0

P6 Project ID 427 Planner S_CARP EQ Class 2 Work History NR

Charge Type EQ Charge To FAC720 Building X720 Category BPS

Task ID	Done	Ca	Disposition	Desc	Task Status	Work Week	Charge To	Build	Crew	EQ Cl	Crew Size	Est. Dur	Total Est	Required	Act. Com
01	☒	☐	70	REPAIR ROOF DRAIN WATER LEAK	80		FAC720	X720	6636	2	2	20.00	40.00	12/14/2011	12/21/2011
02	☒	☐	70	DIVERT WATER FROM POWER PANEL INSIDE BUILDING	80		FAC720	X720	6636	2	2	20.00	40.00	12/14/2011	12/14/2011