

BUILDING 108 –Carpenter’s Shop



Figure 1 - Building 108, view from the northwest

ARCHITECTURAL DESCRIPTION

GENERAL PHYSICAL DESCRIPTION

Building 108 stands within a cluster of buildings including Building 111, Building 38 and Building 105. Built in 1911 and expanded in 1913, the architect and builder are unknown.

This two-story industrial building measures 155' long, and 149' wide. It is 50' tall, and contains 40,846 square feet. The building incorporates two distinct masses, each under its own north-south oriented gable roof. The western half was constructed in 1911 and the eastern half was constructed two years later. There is a monitor along the western gable; skylights also penetrate the slopes of both gables. The building is clad in corrugated metal panels (CMP). Each mass has distinct windows - the eastern side has eight-over-eight wood double-hung windows, while continuous bands of multi-lite steel sash windows cross the north, west, and south elevations of the western mass. Doors include one roll-up metal loading door at the north elevation and two (surviving out of five) unique guillotine type vertical lift doors on the west elevation. In addition there are two personnel doors at the north end of the west elevation.

The 20,423 square-foot first floor contains a shop, a bathroom/locker room, and a storage area. Many large shelves, cabinets, and free standing sheds break up the otherwise uninterrupted space. Atop the concrete floor slab, the floor is wood tongue and groove, worn and covered with plywood and steel plates in some areas. The interior walls are the back side of the exterior cladding with exposed structural steel framing. The exposed ceiling structure of wood joists and cross-bracing supports the 4" tongue and groove wood flooring above. Riveted steel members support the joists at regular intervals. The second floor has the same square footage as the ground floor, and contains an open shop space with two, narrow rooms at the north and south ends. The second floor flooring is wood, and the walls are corrugated metal over exposed steel framing, as below. Steel Fink trusses support the roof at both gables. Skylights on the west face are exposed and those on the east have been covered.

HISTORIC/CURRENT USE

Building 108 has historically been used for woodworking on different scales. From 1911 to 1945, the output of this building ranged from fine cabinetmaking for fitted ship interiors, to the cutting of heavy timbers for ship shoring and launchings. Today, the first floor is used primarily as storage, and as needed miscellaneous use. The second floor retains its original use as a woodworking facility. It also retains many of the original machines installed during World War II, many of which are still in use.



Figure 2 –North elevation, east side



Figure 3 – North elevation, west side



Figure 4 - East elevation



Figure 5 - South elevation



Figure 6 – South end, west side electrical shed



Figure 7 – South elevation, west side



Figure. 8 – West elevation showing two out of five vertical lift loading doors.

EXTERIOR

WALLS

CMP (corrugated metal panels)

CMP. Condition: Fair to poor (figures 9 - 12)

The CMP has suffered from impact damage in the first course of panels above grade as well as impact damage around openings. There is significant rust deterioration at grade. The upper levels of CMP are in sound condition.



Figure 9 - Deteriorated CMP at grade



Figure 10 - Impact damage to CMP, west elevation



Figure 11 - Impact damage to CMP, east elevation.



Figure 12 - Impact damage to CMP at grade, west elevation.

WINDOWS

Steel Sash Windows. Condition: Good - Fair (figure 13).

Steel sash multi-lite, fixed in frame with operable portions are typical. They are located in the western half of the building. The frame, mullions, and muntins are in fair condition with light to moderate rust. Window damage and broken/cracked panes have been dealt with by gluing sheet plastic panels at cracked or broken panes. There are 70 steel windows, and approximately 40 of the window panes are currently cracked or broken. The steel windows flash into the CMP and the flashings appear to be sound.



Figure 13 - view from the northwest

Wood Sash Windows. Condition: Fair - Poor (figure 14).

There are (30) wood sash, (16) lite windows found primarily on the north and south elevations of the eastern half of the building. All windows are double hung. Most of the windows on the south side have been covered in plywood, and at the first floor a pipe traverses the window openings. The jambs, heads, sills, sash, and muntins are in fair condition. All of the paint is severely deteriorated. Approximately 25 of the window panes are currently cracked or broken. All sealant joints have failed where the wood window heads and jambs and sills meet the CMP (figures 15). The south elevation contains two aluminum replacement windows.



Figure 14 –South wall, typical bay

DOORS

Personnel Doors. Condition: Fair (figures 15 -17).

There (4) personnel doors in the building. One, leading to a balcony on the north elevation, second floor was not accessible, but it appears to be plywood or a plywood cover over the opening. There is an angle iron and steel hinged door leading to an electrical room at the south end which is in good condition. The other two are side by side on the northern corner of the west elevation. The wood door with a single glazed lite is fixed closed. The adjacent door to the south is constructed of wood tongue and groove material that diagonally sheathes a supporting frame. Its construction is similar to that of the large loading doors along the west elevation. The inside of the door contains skillfully hand painted signage that is likely historic. The exterior paint on these doors is flaking exposing the wood to the elements. The hardware on this door is original and is completely in-tact.



Figure 15 –Wood personnel doors, west elevation



Figure 16 - Personnel door, west elevation



Figure 17 - Interior of same personnel door

Loading Doors.

Vertical lift wood loading doors. Condition: Fair - poor (figures 18 and 19).

There are two (2) surviving, vertical lift “guillotine” type loading doors on the west elevation, which appear to be unique to Pier 70. There were originally five (5) doors on this elevation. They are 9’-8” high by 19’ wide, and are constructed of wood tongue and groove material that diagonally sheathes a supporting frame. Its construction is similar to that of the personnel door described above. The exterior paint on these doors is flaking, exposing the wood to the elements. The hardware on the doors is original and is completely intact, but is not operable. The hardware includes sheaves mounted at the second floor, cable, wood lifting guides and metal straps for the cable attachment. Both doors appear to be fixed in the down position. The northernmost door contains a deteriorated window without glazing, and the southern door contains a personnel door.



Figure 18 – West elevation, north loading door.



Figure 19 – West elevation, south door

Roll-up steel loading doors.

Condition: unknown

There is one roll-up steel loading door found on the north elevation of the eastern half of the building that is held in the open position. Its functionality is unknown, and it appears to be heavily rusted.

APPURTENANCES

Modern flood lights, alarm bell, and wall mounted water line. Condition: Assumed good.

Historic elements, Condition: fair, (figures 20- 23)

There are several sheaves and track door hardware elements that are remnants of the three missing vertical lift doors (also see loading door, above). The north elevation of the western half of the building contains two, wooden, wall mounted fire hose stations. This elevation also contains an alarm bell, and a single metal shaded light.



Figure 20 – North elevation, electrical equipment



Figure 21 – North elevation, electrical equipment



Figure 22 – North elevation, electrical equipment

INTERIOR



Figure. 23 - Building 108: First floor, interior view looking southwest, west side.



Figure. 24 - Building 108: First floor, interior view looking south, east side.



Figure. 25 - Building 108: Second floor, interior view looking south, east side.

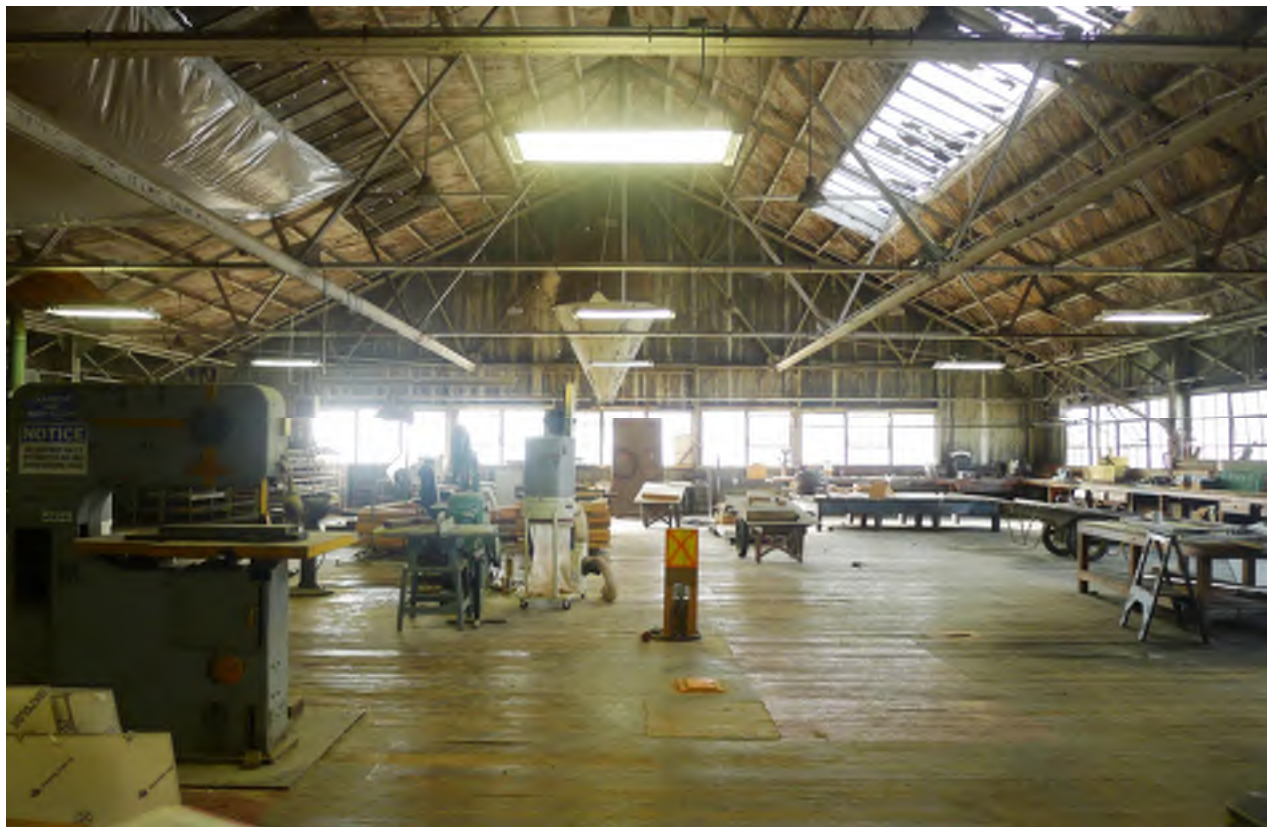


Figure. 26 - Building 108: Second floor, interior view looking south, west side.

INTERIOR WALLS

In general the interior wall surfaces are the backside of the exterior wall cladding with the exception of tongue and groove (T&G), plywood, or gypsum wall board (GWB) wall surfaces for internal partitions.

CMP panel on steel structure.

CMP. Condition: Fair to poor (figure 27).

CMP. The panels have generally been painted, and the paint is peeling. The panels are lightly to moderately corroded.



Figure. 27 – Interior side CMP, second floor.

Wood T&G, plywood, and GWB wall partition surfaces.

All wall partition surfaces are protected from the elements. Condition: Good (figures 28-30).

The wall partitions have been painted, and the paint is generally sound, but the painted surfaces are worn and grimy. Non-paintable plastic laminate partitions occur in the second floor break room



Figure. 28 – Personnel entry.

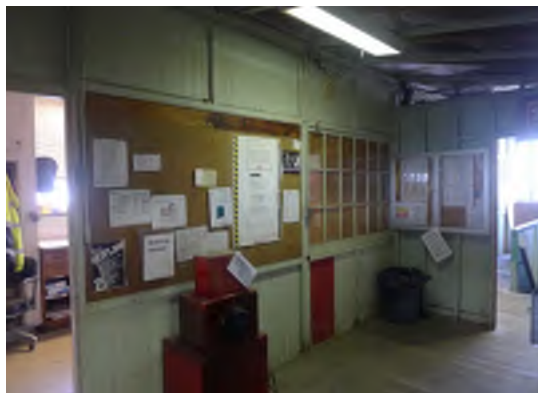


Figure. 29 – Second floor foyer to employee area.



Figure. 30 – Second floor T&G wood partition wall, south end, east side.

INTERIOR DOORS

Historic wood interior doors.

In the first floor entry foyer and stair and in the second floor office and employee area in the north end of the west portion of the building, there are (5) historic wood doors. Condition: Fair, (figures 31 and 32).

All doors have been painted, and the paint is peeling. The painted surfaces are worn and grimy. Most original hardware is missing.



Figure. 31 – Personnel doors, first floor entry.



Figure. 32 – Unique, bi-fold door to second floor.

CEILING

Exposed second floor wood framing ceiling.

Condition: Fair, (figures 33 and 34)

The wood ceilings in both the west and east sections of the building appear to be sound. They were likely painted with lead based paint and it is severely deteriorated.



Figure 33 – Ceiling, east side looking south.



Figure 34 – Ceiling, west side looking south...

CMP ceiling, second floor, east side.

Condition: Good, (figure 35).

CMP panels are only lightly rusted at the seams with the planar areas clear of rust.



Figure 35 – CMP ceiling looking southwest.

Wood diagonal sheathing ceiling with skylights, second floor, west side.

Condition: Fair - poor, (figure 36 and 37).

The wood T&G diagonal sheathing was likely painted with lead based paint and it is severely deteriorated. The soundness of the wood is unknown. The roof sheathing and skylights are leaking.



Figure 36 - Wood ceiling, east side.



Figure 37 - BAE staff built roof leak containment.

INTERIOR FLOORS

Wood shop floor, first floor.

Condition: Fair to Poor (figure 38)

The first floor material is heavily worn but still serviceable. A total assessment of the floor is not possible because of equipment coverage. Numerous locations are clad in a plywood overlayment.



Figure 38 – Wood floor, west side at loading bays.

Wood shop floor, second floor.

Condition: Fair (figure 39)

The floor material is generally worn with damage from water intrusion. A large quantity of the floor is over laid with plywood.



Figure 39- Typical second floor, floor with plywood over-lay.

Laminate, employee area floor, second floor.

Condition: Good to fair

The employee area carpenters tool room is covered with vinyl asbestos tile. Other areas contain carpeting as well as vinyl tile.

STRUCTURAL STEEL COLUMNS, TRUSSES AND BEAMS

Trusses, built-up riveted columns and beams.

Condition – Good to Poor (figures 40 - 42)

The structural members were all originally primed and / or painted with lead based paint. The paint is failing throughout the building, and there is moderate rusting visible in all members. The second floor roof trusses and purlins are generally in sound condition with light to moderate rusting. The first floor built-up spanning steel beams carrying the wood joists are also generally in good condition with only light to moderate rusting. Steel columns at the periphery of the first floor are deteriorated because of breaches in the CMP, and exposure to the elements.



Figure 40 - Steel structure in east side, looking southwest.



Figure 41 - Built-up steel beams in the west side at loading doors, looking south.



Figure 42 – Deteriorated structural column base, north elevation.

INTERIOR SHEDS

Employee area and offices, second floor, west side.

Condition: Good to fair (figures 43 - 46)

At the north end of the west side a hallway and is a warren of rooms used as offices, break and conference room, locker room, and tool storage room and office space. It is in sound condition but worn and dirty. This area contains historic fabric (also see walls and floors above).



Figure 43 – Interior shed, employee area, north west side. Looking northwest.



Figure 44 - Carpenters tool rom.



Figure 45 - Locker room.

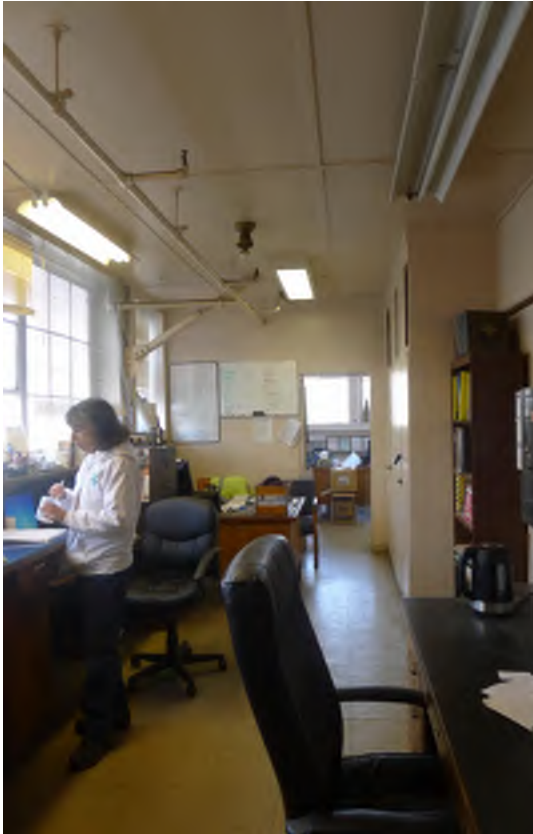


Figure 46 - Office

FIXTURES

Modern and historic hanging shop lamps, overhead trolley tracks, wall mounted cranes, historic fixtures.

Condition: Assumed good to fair (figures 47 – 48).



Figure 47 – Second floor, historic wall mounted belt drive step pulleys, east side.



Figure 48- First floor, historic light switch.



Figure 49 –First floor, swinging arm crane,



Figure 50 – First floor, overhead trolley rails

RECOMMENDED IMMEDIATE REPAIRS

EXTERIOR

EXTERIOR WALLS

- Retain and rehabilitate historic fixtures mentioned in this report.
- Patch holes throughout the building.
- Seal CMP at all conduit and pipe penetrations.
- Replace deformed and deteriorated CMP with new galvanized corrugated steel to match the existing panels. Replace the panels from grade to the next panel above on the north, east and south elevations. Replace the deformed panels above the western loading doors. Prime and paint the new panels.
- Re-paint all existing CMP

WINDOWS

- Steel Windows - Replace approximately fifty (50) 14"x 20" window panes
- Repaint 100% of steel sash window components: frame, mullion and muntins.
 1. Remove all dirt and deteriorated glazing putty.
 2. Wire brush steel elements to remove rust.
 3. Install new glazing putty.
 4. Install new glazing where required to match existing original glazing.
 5. Repair bent steel sash and operating components.
 6. Prepare steel surfaces, and prime with rust inhibitive primer and paint with two top coats.
 7. Flash and seal to adjacent CMP.
- Repair leaking skylights, similar to repairs listed above for steel sash windows.
- Wood Windows - Replace (20) 14"x20" window panes.
- Repair all wood frames and moveable sash.
 1. Remove all moveable sashes for epoxy consolidation in a shop.
 2. Salvage and repair the hardware for re-use. Replace missing or deteriorated pieces.
 3. Retain the sound glass, replace broken glass and install new glazing putty in all windows.
 4. Repair and replace missing wood frame elements and epoxy consolidate, and patch the wood in situ.
 5. Install moveable sash into restored frames and install new sash chords. Ensure that all moveable sash operates.
 6. Prepare the wood surfaces, and prime and paint with two top coats.
 7. Flash and seal to the adjacent CMP

DOORS

- Replace deteriorated wood personnel doors at the northern most end of the west elevation and at the second floor of the north elevation with new steel doors.
- Repair the second personnel door to the south on the west elevation.

1. Remove door to a shop for the work
 2. Clean and repair all original hardware.
 3. Remove flaking paint from diagonal tongue and groove wood cladding. Seal tongue and groove joints. Prime and repaint the exterior surface only with two top coats.
 4. Lightly clean the inside surface of the door preserving the painted signage. Apply a clear sealer to the inside surface.
 5. Replace the original wood jambs and head. Re-hang the door ensuring proper operation.
- Repair two wood loading doors on the west elevation.
 1. Repair the doors in-situ.
 2. Survey the existing condition of the door.
 3. Remove flaking paint from diagonal tongue and groove wood cladding. Seal tongue and groove joints. Prime and repaint the exterior and interior surface with two top coats.
 4. Create a 4" curb to lift the doors out of standing water.
 5. Repair all hardware and components.
 6. Flash the tops of the doors into the CMP.
 7. Repair and repaint the wooden lifting guides.
 8. Fix doors in the closed position

INTERIOR

FLOORS

- Patch areas of deteriorated wood.
 1. Survey the existing condition of the floor.
 2. Replace deteriorated wood in-kind.

STRUCTURAL ELEMENTS

- Repaint steel columns and trusses.
 1. Verify that existing surfaces do not contain lead based paint.
 2. If lead based paints are suspected on the project, all removal must be done in accordance with the EPA Renovation, Repair and Painting rule and all applicable state and local regulations.
 3. Prepare steel surfaces, prime with rust inhibitive primer and paint with two top coats.

CEILINGS

- Repaint CMP ceiling on second floor
 1. Verify that existing surfaces do not contain lead based paint.
 2. If lead based paints are suspected on the project, all removal must be done in accordance with the EPA Renovation, Repair and Painting rule and all applicable state and local regulations.
 3. Prepare steel surfaces, prime with rust inhibitive primer and paint with two top coats.

- Repaint exposed wood joists, bridging and underside of the tongue and groove second floor surface.
 1. Verify that existing surfaces do not contain lead based paint.
 2. If lead based paints are suspected on the project, all removal must be done in accordance with the EPA Renovation, Repair and Painting rule and all applicable state and local regulations.
 3. Prepare wood surfaces, prime and paint with two top coats.

OFFICES / PERSONNEL AMENITIES

- Repaint gypsum wall board, plywood or tongue and groove wall and ceiling surfaces on the second floor.
 1. Verify that existing surfaces do not contain lead based paint.
 2. If lead based paints are suspected on the project, all removal must be done in accordance with the EPA Renovation, Repair and Painting rule and all applicable state and local regulations.
 3. Prepare wood surfaces, prime and paint with two top coats of semi-gloss finish.

RECOMMENDED LONG-TERM REPAIRS

- Provide maintenance and repainting on a regular schedule.

BUILDING 108

GENERAL STRUCTURAL SYSTEM DESCRIPTION

GRAVITY SYSTEM

The roof of the east half of the building is corrugated steel decking supported by wood purlins and steel trusses and columns. The roof of the west half of the structure is wood 1x diagonal sheathing supported by wood purlins and steel trusses and columns. The second floor framing is 1x sheathing laid perpendicular to the wood joists, approximate size of 2x10, supported by steel beams and columns. The foundation of the structure was not observed, however according to the drawings and visual inspection there is a basement below the first floor. The first floor is timber decking, assumed to be supported by wood joists and steel beams.

LATERAL SYSTEM

The roof diaphragm strength appears to be provided by diagonal steel rod bracing west of the building centerline and 1x diagonal sheathing east of the building centerline. The second floor diaphragm strength appears to be provided by 1x sheathing laid perpendicular to the floor joists.

Lateral resistance in the north-south direction appears to be provided by steel angle “X” braced frames located on the east perimeter and truss moment frames on the west perimeter and building centerline. Lateral resistance in the east-west direction appears to be provided by two-story truss moment frames, the first story being comprised of portal frames.

CONDITIONS

- Steel roof deck is generally in good condition but with approximately 10-15% damaged due to rust.
- Steel framing is generally in good condition but about 20% show corrosion of peeling of paint.
- Wood purlins at roof level show significant sagging.
- Wood diagonal sheathing shows severe water damage and dry rot.
- At 2nd level there is some significant corrosion on the trusses on the west half.
- There are several removed “x” braces in the building on the east elevation and along the centerline.
- There is moderate corrosion to the 2nd floor wood framing
- There is moderate to severe corrosion at column bases along the exterior and some interior conditions.

RECOMMENDATIONS

IMMEDIATE REPAIR RECOMMENDATIONS

- Clean existing rusted steel framing to remove rust and paint, assess its condition, and re-coat with a rust-inhibiting primer and paint. There is a potential for the presence of lead or other hazardous materials in the existing coating.
- Approximately 20%-30% of structural steel truss members need to be replaced in kind.
- At approximately 20-30% of columns, replace the bottom one foot of the column including the baseplate. The approximate size is W12x30.
- Removed “x” braces along the interior and east side need to be replaced. Approximately four locations.
- Patch or replace steel roof deck where rusting has created rust holes. Approximately 10-15% of the area.
- Replace approximately 30% of 1x diagonal wood roof sheathing in kind.
- Replace purlins at roof framing that show significant sagging, approximately 20%.
- Replace approximately 10% of first floor sheathing and provide additional framing to increase floor stiffness.

LONG-TERM REPAIR RECOMMENDATIONS

- No long-term repairs required at this time.

RECOMMENDED SEISMIC STRENGTHENING

- In addition to the observed damage due to corrosion and dry rot, the building exhibits the following structural concerns.
 - Re-entrant corner irregularity at the south elevation.
 - Potential weak/soft story at the first floor.
 - Potentially inadequate diaphragm strength.
 - Non-ductile connections.

Given the above items, it is strongly recommended that a lateral analysis of the existing structure be conducted in order to accurately identify potential weaknesses and to develop a strengthening protocol if necessary.



Figure 1 – Typical base plate and column damage



Figure 2 – Typical column corrosion



Figure 3 – Removed/Damaged brace



Figure 4 – Typical CMP roof damage



Figure 5 – Typical wood roof damage



Figure 6 – Typical wood purlin sagging (redline drawn for clarity)

BUILDING 108 – Carpentry Shop & Storage

MEP DESCRIPTION AND CONDITIONS ASSESSMENT

HVAC systems

- 1st and 2nd floor shop area have no mechanical ventilation system. 2nd floor has gravity vents at peak of roof (See fig. 108-1).
- Small unit heaters provide heating. Appear abandoned with no current gas connection.
- Space is equipped with a process exhaust fan for sawdust collection. Numerous openings in the ductwork were observed.

Plumbing & Fire Protection Systems

- Building is fully sprinklered with fire hoses available at the 2nd floor.
- Rainwater leaders from roof observed to be broken (See fig. 108-2).
- Building is equipped with a restroom at the 2nd floor w/ water closet, urinal, and hand sink available. Facility is currently labeled “out of service.”
- Waste connection from 2nd floor restroom run outside of building and observed equipped with non plumbing transition connections. Appear to be 90-degree conduit connections. (See fig. 108-3)

Electrical Systems

- The building has 480V & 120V service with multiple panels.
- Flexible cable fed off building main service to supply neighboring building. Provided with “Caution – High Voltage” signage where exposed (See fig. 108-4).
- Power is fed by an underground conduit.
- Freight elevator located at NE corner of building.

RECOMMENDATIONS

IMMEDIATE REPAIR RECOMMENDATIONS

HVAC

- None required.

Plumbing & Fire Protection

- Repair building plumbing service to restroom.
- Replace existing non-plumbing transitions with correct plumbing fittings.
- Repair existing rainwater leaders and route to terminate at floor drains.

Electrical Systems

- Replace current temporary flexible cable connections with new rigid conduit

Figures



Figure 108-1 – Gravity Vents in ceiling.



Figure 108-2 – Broken Rainwater Leader.



Figure 108-3 – Non-waste fitting on plumbing waste pipe.



Figure 108-3 – Non-waste fitting on plumbing waste pipe.

BUILDING 108 Carpentry Shop & Storage



Fig. 1 - Building 108 metal roof from interior on left and wood roof from interior on right

BUILDING DESCRIPTION AND CONDITIONS ASSESSMENT

GENERAL ROOF DESCRIPTION

This half of the building is the Carpentry Shop and Storage. Approximately 100x100 has two roof types, a corrugated roof on the East side and built up roof over 2x4, T & G on the West.

CONDITIONS

CM ROOF

GENERAL NOTES: The corrugated roof has multiple holes in multiple locations, throughout the entire area all of which are visible from the building's interior.

T&G ROOF

GENERAL NOTES: The built up roof has multiple leaks in multiple locations, moisture damage roof sheathing 2xs and framing members, this occurs in multiple locations; all areas are visible from the building interior.

RECOMMENDATIONS

IMMEDIATE REPAIR RECOMMENDATIONS

CORRUGATED METAL ROOF

- Temporary roofing patch or caulking of all holes and penetrations is recommended.

PLYWOOD, T & G ROOF

- Replace all moisture damaged lumber and framing materials and patch all holes and penetrations is recommended

LONG-TERM REPAIR RECOMMENDATIONS

CM ROOF

- Replacement of the entire roof is recommended as a long term solution

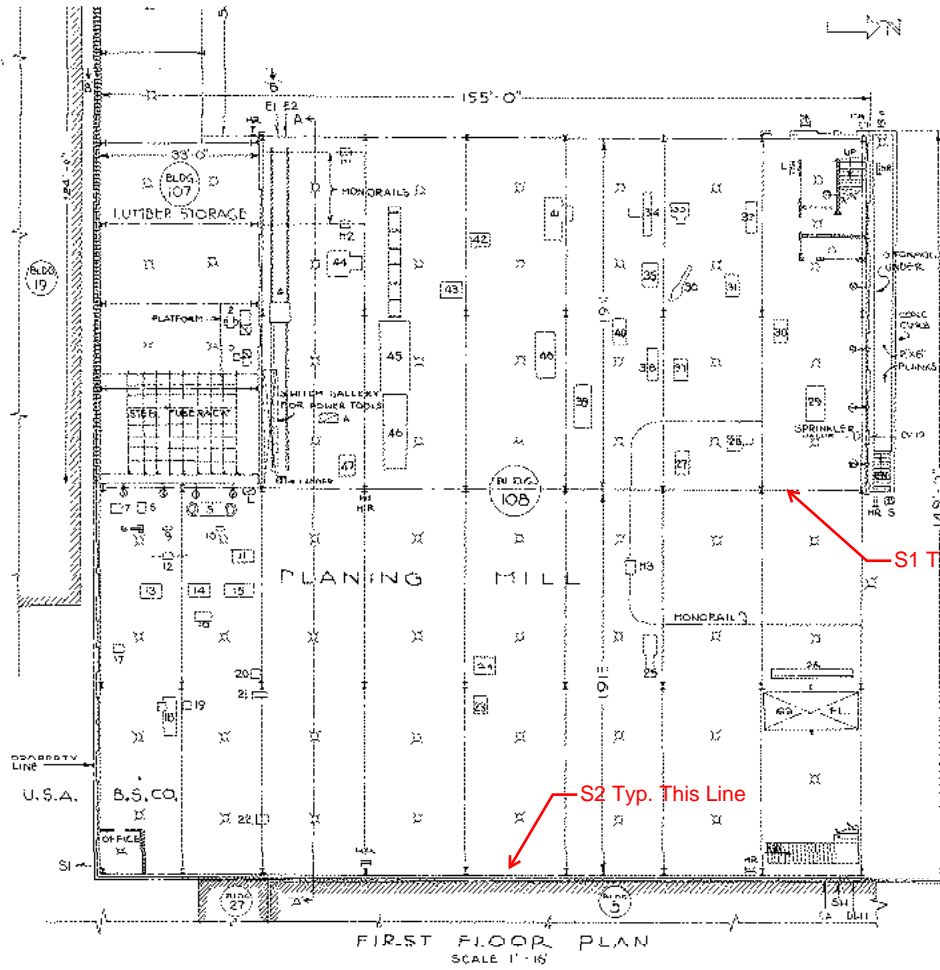
PLYWOOD T&G ROOF

- Replacement of the entire roof is recommended as a long term solution

Structural Key:

S1: Steel truss to be repaired per report.

S2: Steel braces to be repaired per report.



BUILDING 108

A condition assessment of Building 108 was performed by AGS Inc. on June 27th, 2017 based on the 2015 Pier 70 Building Condition Assessment Report by DCI+SDE Engineers. The purpose of the condition assessment and this addendum is to provide an update and field verification of the architectural and structural deficiencies found at Building 108, which was described in the aforementioned report by DCI+SDE Engineers. The condition assessment was based on a general visual observation of the exposed portions of the building from the ground level. No assessment was performed in areas that were not easily and/or safely accessible.

The overall condition of Building 108 has remained relatively unchanged since the previous condition assessment in 2015. The building continues to be used as general storage and as needed miscellaneous use on the first floor and as a woodworking and carpentry facility on the second floor. The recommended repairs provided in the previous condition assessment report have not been addressed. With exception to further general paint degradation on the building interior and exterior loading doors, no additional deficiencies were found.



Figure 108-1 - Overall northwest view of Building 108.



Figure 108-2 - Overall northeast view of Building 108.



Figure 108-3 - Typical view of Building 108 exterior corrugated metal panels.



Figure 108-4 - View of Building 108 wood sliding door located on the west side.



Figure 108-5 - View of typical condition of Building 108 windows and doors.



Figure 108-6 - Overall second floor interior view of Building 108, looking southeast.



Figure 108-7 - Overall interior view of Building 108 second floor framing.



Figure 108-8 - View of Building 108 roof structure and corrugated metal panels.



Figure 108-9 - View of Building 108 roof structure and wood diagonal sheathing.