

BUILDING 58 – Power Substation No. 4

Figure 1 - Building 58, view from northwest

ARCHITECTURAL DESCRIPTION*PHYSICAL DESCRIPTION*

Building 58 is situated to the east of Building 127 at Pier 68, and is built on a platform over the bay (figure 1). Built in 1943, as Electrical Substation #4, the architect and builder are unknown. The building is rectangular in plan and measures 40' long, 26' wide and contains 939 square feet. It is 21' tall to the top of the monitor. It rests on chamfered square pylons that are capped with a reinforced, spanning floor slab. Concrete stem walls 3' - 4" high with galvanized louvered penetrations form the building base. The gable roof with monitor is oriented east to west and is sheathed in corrugated "transite" (cementitious asbestos reinforced) panels (CTP). The windows which rest atop the concrete stem walls are multi-lite, fixed steel sash with operable center ventilators. The gable ends and spandrel surfaces between the windows are also clad with CTP panels. At the primary, south

elevation are double, metal personnel doors, with glazed upper panels to the west. At the east end of the elevation are double, sliding metal loading doors with louvered vents at the base.

The interior is a single open space. The only applied finish is 6' x 6' terra cotta paving tile. The floor slab is also punctured with openings for electrical conduit that has since been removed. The remaining finishes include the reverse sides of the exterior cladding. The interior also contains a simple structural frame with six columns, canted beams at the gable ends, and one Fink truss at the center spanning from north to south.

HISTORIC/CURRENT USE

Building 58 is identified on the Bethlehem Steel, March 1945 plan. It originally provided easily accessible AC and DC power to Pier 68 and the dry-docks. The building is currently empty. The electrical equipment was removed at an unknown date.

CONDITIONS

EXTERIOR

WALLS

Corrugated transite panels (CTP) above concrete stem walls. Condition: Fair-Poor (figures 2 - 4)

Most of the CTP is sound; however, the southeast and southwest corners of the CTP cladding are shattered, opening the building to rain, and vermin. In addition, the leading edges of the overhanging panels at the gable ends and eaves are damaged (figures 2 – 4).



Figure 2 – Southeast Elevation



Figure 3 – Southeast corner, CTP damage



Figure 4 – Southwest corner, CTP damage

Concrete stem wall. Condition: Good (figure 5)

The concrete stem wall has very few spalls and is fundamentally sound.



Figure 5 – Concrete stem wall showing penetrations with ventilation louvers

WINDOWS

Steel sash windows. Condition: Fair (figures 6 and 7)

Steel sash multi-lite, fixed in frame with operable portions typical. Frame, mullions, and muntins are in fair condition. Window damage and broken/cracked panes have been dealt with by gluing sheet plastic panels at cracked or broken lites. Approximately Twenty three (23) 14”x20” panes are open and need to be replaced.



Figure 6 - Window at south elevation



Figure 7 - Window detail

DOORS

South personnel doors. Condition: Good (figures 8 and 9).

Double steel paneled doors with four lites over one panel below set into steel window assembly.

The original exterior door knob and spindle is in place but the interior knob is missing. The doors are currently secured with a hasp and padlock.



Figure 8 – One leaf of steel personnel door, interior view



Figure 9 - Steel personnel door, exterior view

Double steel sliding doors. Condition: Good

The doors are stiff but operable (figures 11 and 12)



Figure 10 – Sliding door exterior



Figure 11 – Sliding door interior

APPURTENANCES

Metal lamp. Condition: rusted (figure 12)



Figure 12 - Lamp at ridge, east elevation

INTERIOR

Figure. 13 - Interior



Figure. 14 - Interior view floor with penetrations

INTERIOR WALLS

CTP panel on steel structure above concrete stem wall.

CTP. Condition: Good-Fair

Concrete stem wall. Condition: Good

CEILING

CTP. Condition: Good-fair (figure 13)

INTERIOR FLOORS

Tile and concrete. Condition: Good to Fair (figure 14)

FIXTURES

Hanging shop lamps. Condition: Fair

STRUCTURAL ELEMENTS

Steel trusses, purlins and columns. Condition: Fair

RECOMMENDED IMMEDIATE REPAIRS

EXTERIOR

EXTERIOR WALLS

- Repair southeast and southwest corner CTP .
 1. Replace shattered and missing corner panels with galvanized corrugated metal panels. Note that CTP is considered a hazardous material.
 2. Install sealant at all conduit and pipe penetrations. Scrape, prime and paint rusted conduit or pipe.

WINDOWS

- Replace ten (10) 14"x20" 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. Prepare steel surfaces, prime with rust inhibitive primer and paint with two top coats.
 6. Seal all joints where sash meets adjacent elements
 7. Install plywood impact protection on south elevation

DOORS

- Repair south elevation, metal double personnel doors
 1. Survey existing condition of doors.
 2. Replace missing hardware and components.
 3. Replace broken glass pane.
 4. Prepare surfaces, prime and paint with two top coats.
- Repair south elevation, metal double sliding door and frame.
 1. Survey existing condition and operation of doors.
 2. Replace missing hardware and components.
 3. Prepare surfaces, prime and paint with two top coats.

*INTERIOR***FLOORS**

- Close floor penetrations.
 1. Use plywood as a temporary cover or plug holes in the slab with concrete as a permanent repair

CEILINGS

- No recommendation. Structural engineering report recommends 100% replacement.

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.

RECOMMENDED LONG-TERM REPAIRS

- Provide maintenance on a regular schedule.

BUILDING 58

GENERAL STRUCTURAL SYSTEM DESCRIPTION

GRAVITY SYSTEM

The roof is corrugated transite panel decking on steel beams, supported by steel trusses and columns. The corrugated transite panel cladding is supported on partial height concrete walls. Columns are supported by a suspended concrete slab supported by concrete piers over the water. The suspended slab appears to be about twelve inches thick and is reinforced with #4 or #5 reinforcing bars at an unknown spacing.

LATERAL SYSTEM

The roof diaphragm strength is provided by diagonal steel rod bracing connected to the bottom chords of the trusses. The lateral strength in the north-south direction appears to be provided by steel “v” tension rod bracing. The lateral strength in the east-west direction appears to be provided by steel “x” tension rod bracing.

CONDITIONS

- The corrugated transite panel roof decking, which is a hazardous material, shows significant deterioration.
- The steel framing shows signs of mild to moderate corrosion.
- There were cut holes present in the suspended slab that has several exposed reinforcing bars to the elements.
- One column on the south side of the building was severely damaged.

RECOMMENDATIONS

IMMEDIATE REPAIR RECOMMENDATIONS

- The column on the south side is recommended to be patched with steel plate approximately two feet by eight inches.
- 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.
- Holes in concrete slab should be patched. Approximately twelve holes were observed consisting of various sizes.
- Replace 100% of CTP roof deck with CMP to match appearance of existing roof.

LONG-TERM REPAIR RECOMMENDATIONS

- There are no long-term repairs required at this time.

RECOMMENDED SEISMIC STRENGTHENING

- Based on our limited observations, seismic strengthening does not appear to be necessary..



Figure 1 – Building 58 column damage



Figure 2 – Building 58 cut holes in slab



Figure 3 – Building 58 CMP degradation

BUILDING 58 – Power Substation # 4

MEP DESCRIPTION AND CONDITIONS ASSESSMENT

HVAC systems

- Louvers are provided on all sides for ventilation, as well as operable windows (see fig. 58-1).

Plumbing & Fire Protection Systems

- Building appears to have a fire sprinkler connection, but the pipe is broken at several points (see fig. 58-2) and abandoned.
- No other Plumbing service observed.

Electrical Systems

- The transformers and electrical equipment noted on previous reports has been removed and the station is currently used for general storage.
- Outdoor lights are equipped with photo sensors.
- Numerous conduits feeding from the building are disconnected and abandoned (see fig. 58-3).

RECOMMENDATIONS

IMMEDIATE REPAIR RECOMMENDATIONS

HVAC

- None.

Plumbing & Fire Protection

- None.

Electrical Systems

- None.

Figures



Figure 58-1 – Building Exterior Wall Louvers



Figure 58-2 – Broken Fire Sprinkler Pipe



Figure 58-3 – Abandoned Conduit beneath Building

BUILDING 58 Power Sub Station

Fig. 1 - Building 58 view from ground at S. E. corner

BUILDING DESCRIPTION AND CONDITIONS ASSESSMENT*GENERAL ROOF DESCRIPTION*

This roof appears to be a more than 25 years old ceramic coated corrugated metal roof. The roof has damaged and deteriorated sheathing, along the perimeter of the building. Based on the age of the roof, the existing materials may include potential asbestos containing materials.

CONDITIONS*ROOF*

GENERAL NOTES: When viewing this building from the ground, this building appears to have damaged corrugated sheathing at the eaves and possibly throughout the entire roof.

RECOMMENDATIONS**IMMEDIATE REPAIR RECOMMENDATIONS***ROOF*

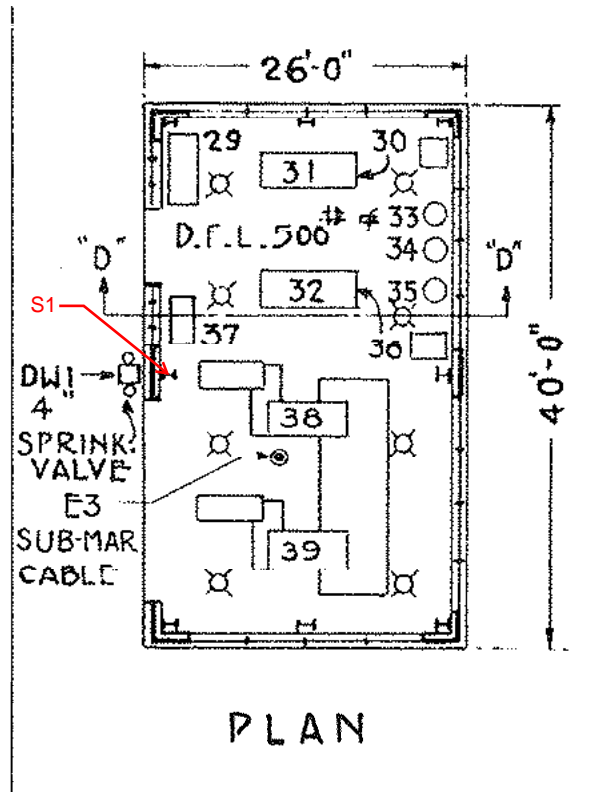
- Install temporary roofing patch at all holes, penetrations.

LONG-TERM REPAIR RECOMMENDATIONS*ROOF*

- Replace the entire corrugated roof with a new roof.

Structural Key:

S1: Column to be replaced.



BUILDING 58

A condition assessment of Building 58 was performed by AGS Inc. on June 29th, 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 58, 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 58 has remained relatively unchanged since the previous condition assessment in 2015. The building was previously empty and is now currently used as storage for large mechanical utility pipe sections. 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 (most notably on the doors), no additional deficiencies were found.



Figure 58-1 - Overall southeast view of Building 58.



Figure 58-2 – Overall southwest view of Building 58.



Figure 58-3 - View of Building 58 typical exterior window condition.



Figure 58-4 –View of Building 58 exterior steel sliding door.



Figure 58-5 - Overall view of Building 58 interior, looking northwest.



Figure 58-6 – View of Building 58 roof structure and corrugated transite panels.



Figure 58-7 - View Building 58 interior concrete slab.

BUILDING 68 – Power Substation No. 7

Figure 1 - Building 68, South elevation

ARCHITECTURAL DESCRIPTION*PHYSICAL DESCRIPTION*

This small, brick building stands along the wharf near the dry-docks to the west of Building 127, and only six feet to the north of Building 143. It appears to post-date 1945, as it does not show up on either the site plan or aerial photo from that date. The architect and builder are unknown. It is 28' long, 20' wide and 16' high.

This one-story, rectangular plan, flat-roofed electrical substation is of brick, running bond, triple wythe, masonry construction. Steel columns may be entombed in pilasters visible on the interior. The windows and doors are framed in bands of protruding brick. The parapet topping the brick walls has a terra cotta coping, and angled courses form sills under the windows. Windows are a mixture of aluminum and steel sash, with some fixed and awning sash. Several windows contain galvanized ventilation louvers. The building contains one steel roll up door and three steel personnel doors. The foundation and floor are poured concrete. A wood frame is bolted to the west wall which is the remnant of a shed that was recently removed. The interior is a single space filled with operating electrical gear. The ceiling is a modular system of painted steel panels and beams. The building also has a basement which is currently flooded.

Historic/Current Use

This building currently serves as a powerhouse (east side) and office (west side) for BAE Systems and is part of the functioning wharf operation.

CONDITIONS

EXTERIOR

WALLS

Brick. Condition: Good (figures 2 - 7)

The brick and mortar joints are generally sound with only a few locations requiring repointing.



Figure 2 - North elevation



Figure 3 - West elevation



Figure 4 - East elevation

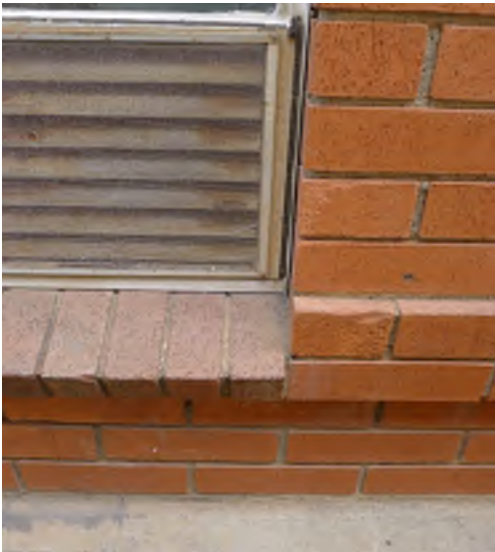


Figure 5 - Sill and brick band detail



Figure 6 - Brick band detail at windows



Figure 7 - Masonry joint with exposed rebar

WINDOWS

Steel and aluminum sash windows. Condition: Good-Fair (figures 8 - 10)

Steel sash and aluminum sash multi-lite, fixed in frame with operable portions and integral ventilation louvers are typical. Mottled obscure wire glazing is typical. There is one large clear, fixed plate glass window on the west elevation. There is only one cracked pane, and all other glazing is sound. There are open joints at the perimeter of the window and several louvers need to be reset into the sash.



Figure 8 - Aluminum sash. at southwest corner



Figure 9 - Steel sash with louvers (left) and plate glass window (right), west elevation



Figure 10 - damaged louver

DOORS

Personnel doors. Condition: Fair (figure 11 and 12)

There are three 3'x7' steel personnel doors in the building – one each on the north, west and south elevations. The door on the west elevation has intentionally been closed and sealed. The hardware on the operating doors is deficient. In general, the joints between the steel frame and brick are open. The doors and frames are lightly rusted.



Figure 11 - Sealant failure in door frames



Figure 12 - sealed personnel door

Roll-up door. Condition: Good (figure 13)

The roll-up door is on the north side of the west elevation and is in sound condition. The steel channel frame is moderately rusted. The door exterior is lightly rusted.



Figure 13 - Roll-up door

APPURTENANCES

Light fixtures. Condition: Fair (figure 14)

There are three metal wall mounted light fixtures that appear to be contemporary with the building.



Figure 14 - Exterior light fixture

INTERIOR

Figure. 15 - Building 68: Interior view

INTERIOR WALLS**Brick**

Brick. Condition: Good-Fair (figure 16)

There is substantial efflorescence on all interior walls suggesting water intrusion from the back side of the parapet.



Figure. 16 - Interior efflorescence on brick

CEILING

Painted precast concrete panels. Condition: Good (figure 17)



Figure 17 - Painted precast concrete ceiling panels.

INTERIOR FLOORS

Concrete. Condition: Good

FIXTURES

Hanging fluorescent lamps. Condition: Good

RECOMMENDED IMMEDIATE REPAIRS*EXTERIOR***EXTERIOR WALLS**

- Repair Masonry joints.
 1. Conduct a survey of the masonry joints for mortar failure
 2. Paint exposed reinforcing rod with rust inhibitive paint.
 3. Re-point approximately 50 linear feet of the masonry joints where rebar is exposed and mortar is missing with matching mortar.
 4. Install sealant at all conduit and pipe penetrations. Scrape, prime and paint rusted conduit or pipe.

WINDOWS

- Replace 1 window pane
- Repaint 100% of steel and aluminum sash window components: frame, mullion and muntins.
 1. Remove all dirt and deteriorated glazing putty.
 2. Wire brush metal elements to remove rust or corrosion.
 3. Install new glazing putty.
 4. Install new glazing where required to match existing original glazing.
 5. Prepare metal surfaces, prime with rust inhibitive primer and paint with two top coats.
 6. Apply sealant at metal frame to brick joints

DOORS

- Repair and rehabilitate doors
 1. Survey existing condition of all doors
 2. Replace missing hardware and components.
 3. Repaint all metal doors and frames. Prepare surfaces, prime and paint with two top coats.
 4. Apply sealant at metal frame to brick joints.

INTERIOR

FLOORS

- No recommendation.

CEILINGS

- No recommendation.

STRUCTURAL ELEMENTS

- Brick.
 1. Identify and repair the sources of water intrusion on the roof.
 2. Clean wall of efflorescence by brushing.

RECOMMENDED LONG-TERM REPAIRS

- Provide maintenance on a regular schedule.

BUILDING 68

GENERAL STRUCTURAL SYSTEM DESCRIPTION

GRAVITY SYSTEM

The roof consists of precast concrete panels supported by steel beams and brick masonry walls at the building perimeter. The walls appear to be reinforced on all elevations. The main floor is a concrete suspended slab that directly supports the masonry. Below the suspended slab is a crawl space and another suspended concrete slab above the water. It is not known if these slabs are part of the overall pier deck or independent structures.

LATERAL SYSTEM

The roof diaphragm strength is provided by horizontal “x” bracing below the concrete precast panels. The lateral force resisting system in both directions is the perimeter masonry wall that is assumed to be reinforced, but this has not been physically verified by inspection or drawings provided by the Port.

CONDITIONS

- Some minor cracks in the precast concrete panel were observed
- An interior partition wall has been removed, exposing some reinforcing bars in the wall.

RECOMMENDATIONS

IMMEDIATE REPAIR RECOMMENDATIONS

- Paint the exposed wall rebar with rust inhibiting paint.

LONG-TERM REPAIR RECOMMENDATIONS

- Monitor the cracks in the concrete roof panels for further damage.

RECOMMENDED SEISMIC STRENGTHENING

- Out-of-plane anchorage for the masonry walls should be verified, and if not present the masonry wall should be anchored out-of-plane to the concrete precast panel roof deck.
- Connections between the concrete precast panels should be verified, and if not present, added.



Figure 1 – Concrete precast panels with minor cracking



Figure 2 – Cut masonry partition wall with exposed rebar

BUILDING 68 – Power Substation # 7

MEP DESCRIPTION AND CONDITIONS ASSESSMENT

HVAC systems

- The building has operable windows with permanent louvered openings built in for natural ventilation (see fig. 68-1)

Plumbing & Fire Protection Systems

- Building has no fire protection service.
- A Fire Hydrant is located at the SW corner of the building (see fig. 68-2)

Electrical Systems

- The building is an electrical substation containing (2) 1000KVA transformers providing 277/480 Volt power, and (1) 300KVA transformer providing 120/208 Volt power.
- Outdoor lights are equipped with photo sensors (see fig. 68-3).
- Building feeds overhead power to nearby temporary structure (see fit. 68-4).

RECOMMENDATIONS

IMMEDIATE REPAIR RECOMMENDATIONS

HVAC

- None.

Plumbing & Fire Protection

- None.

Electrical Systems

- None.

Figures



Figure 68-1 – Building Windows w/ Louvers



Figure 68-2 – Fire Hydrant at SW Corner



Figure 68-3 – Exterior Lighting Photosensor



Figure 68-4 – Overhead Power to Temporary Structure

BUILDING 68 Power Sub Station #7

Fig. 1 - Building 68 view from roof top

BUILDING DESCRIPTION AND CONDITIONS ASSESSMENT*GENERAL ROOF DESCRIPTION*

This is older brick building. The roof is a tar and gravel roof that has recently been patched. The patched area has a low area and does not allow water to drain properly.

CONDITIONS*ROOF*

GENERAL NOTES: This building has a tar and gravel roof with recent patch work. There is heavy ponding directly over a recently patched roof area.

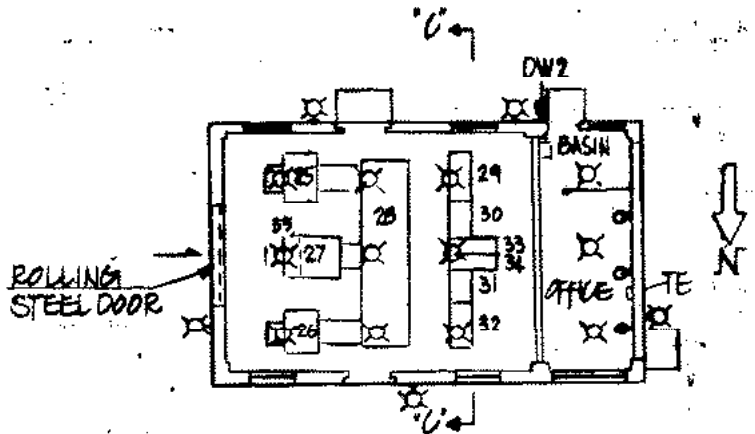
RECOMMENDATIONS**IMMEDIATE REPAIR RECOMMENDATIONS***ROOF*

- Re-work the semi patched roof area to prevent or eliminate the potential for ponding.

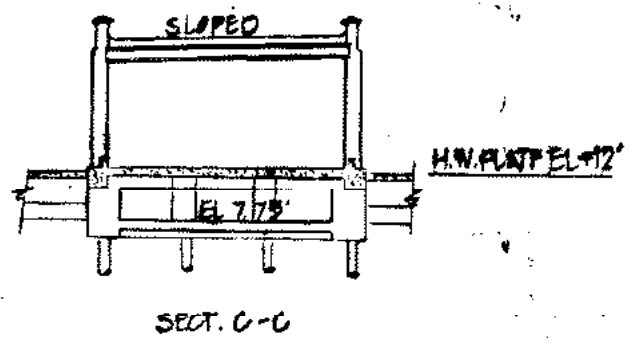
LONG-TERM REPAIR RECOMMENDATIONS

ROOF

- Tear off and replace with all new roofing materials.



BLDG. NO. 60 GEN. PLAN D-5
 SUB-STATION NO. 7
 SCALE: 1" = 16'



BUILDING 68

A condition assessment of Building 68 was performed by AGS Inc. on June 28th, 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 68, 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 68 has remained relatively unchanged since the previous condition assessment in 2015. The building continues to be used as an electrical power management and distribution facility and the recommended repairs provided in the previous condition assessment report have not been addressed. Some localized areas of minor surface corrosion were found on the ceiling interior, most notably on a steel brace and ledger along the south wall. No additional deficiencies were found.



Figure 68-1 - Overall southwest view of Building 68.



Figure 68-2 – Overall northeast view of Building 68.



Figure 68-3 & Figure 68-4 - View of Building 68 typical exterior window condition.



Figure 68-5 –View of Building 68 exterior steel roll-up door.



Figure 68-6 – View of Building 68 roof structure and painted ceiling panels.



Figure 68-7 – View of localized minor surface corrosion on the ledger along Building 68 south wall.



Figure 68-8 - View of Building 68 interior concrete slab.