

# Concord Steam

*Steam and Power Generation*



**Concord Steam**  
P.O. Box 2520  
Concord, NH 03302-2520  
Fax: 603. 224. 7816  
Tel: 603. 224. 1461

May 4, 2016

Debra A. Howland  
Executive Director and Secretary  
New Hampshire Public Utilities Commission  
Walker Building  
21 South Fruit Street, Suite 10  
Concord, NH 03301

**Re: DG 14 - 233 Report on status of Repowering Concord Steam**

Dear Ms. Howland:

As ordered in 25-728, Concord is providing this status report.

New Plant/Repowering –

We met with Vicki Quiram and Mike Connor of Administrative Services on April 14, and they told us that the expected date for the completion of the feasibility study is now October 2017. On April 22, we received notice that the existing RFP for building efficiency and conversion from steam to gas is to be canceled and they will issue a new RFP next month.

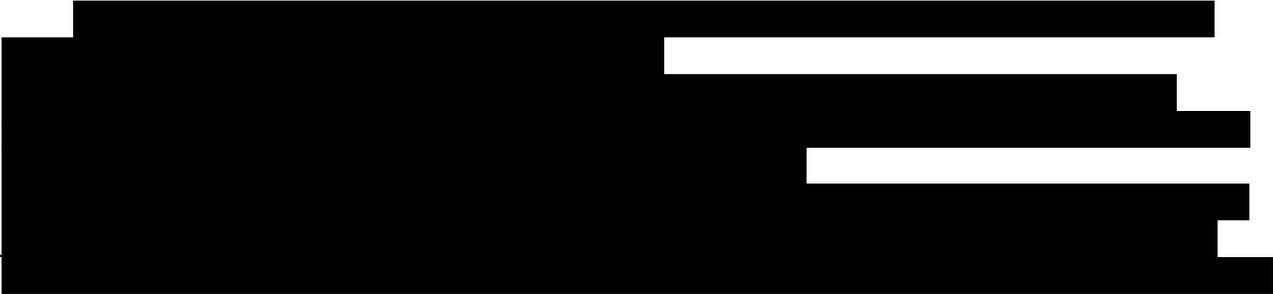
We met with TD Bank Securities on March 7 for an update on the project on financing the construction of the rebuilt plant with a combination of taxable and tax free bonds. TD Securities has been selected to be the underwriter for the bonds. The primary issue continues to be whether the State will stay with steam or not. This will delay financing until it is resolved.

We are still working with consultants on reports for the Fire Marshalls office. We have addressed and resolved most of the violations, and we will continue to work on their requests.

Mohlin and Co has completed a preliminary review of the specific building and structural concerns of the Fire Marshall. The Fire Marshall has requested that we perform an in depth analysis of the building structure, which we feel is not necessary. The same is true of the report from the fire protection engineer, SFC Engineering. We have a preliminary report on the specific concerns listed in the report, and the Fire Marshall is now asking for a complete study of the entire facility. We will work with the office to come up with a reasonable compromise on both of these issues. The reports are attached.

We have hired Nowland Services to review the electrical systems in the plant. Marty Nowland has delivered a draft report to us for review, and he still needs additional information on the equipment that we are working on getting for him.

The main 15 kV breaker that connects the plant to the grid, failed at the end of March. We have had the breaker repaired and it is now all back in service. There was no interruption of service to any customers. We are estimating the cost of the repair to be \$70,000.



Yours Truly,

A handwritten signature in black ink that reads "Peter Bloomfield". The signature is written in a cursive, flowing style.

Peter Bloomfield, PE  
President



March 7, 2016

Peter Bloomfield,

RE: Fire Marshal's Inspection Report, December 30, 2016  
Concord Steam Plant  
Concord, NH

Dear Peter,

At your request SFC Engineering Partnership Inc (SFC) has reviewed a Fire & Life Safety Report from District Chief Danielle Cole of the New Hampshire State Fire Marshal's Office dated December 30, 2015. The report is the result of an inspection performed on December 30, 2015. The report outlines several code related items noted during the inspection for fire and life safety. SFC was engaged to specifically address the report and not to perform a complete inspection of the building. For ease of following the report will be addressed item by item starting with the Occupancy listed in the title area of the report. Sections listed without the leading NFPA standard are from NFPA 101, 2009 edition.

The report states under Occupancy in parenthesis Industrial Occupancy-High Hazard. SFC respectively disagrees with this classification. It is our opinion that the Occupancy is a Special Purpose Industrial Occupancy as defined in Section 3.3.178.8.3 of NFPA 101 2009 edition. Specifically;

“An industrial Occupancy in which ordinary and low hazard industrial operations are conducted in buildings designed for, and suitable only for, particular types of operations, characterized by a relatively low density of employee population with much of the area occupied by machinery or equipment.”

Further in Chapter 40 of NFPA 101, 2009 edition Section 40.1.4.1.2 further defines Special Purpose Industrial Occupancy as follows including Handbook Commentary. The grayed area is from the commentary.

**40.1.4.1.2 Special-Purpose Industrial Occupancy.** Special-purpose industrial occupancies shall include the following:

- (1) Industrial occupancies that conduct ordinary and low hazard industrial operations in buildings designed for, and that are usable only for, particular types of operations
- (2) Industrial occupancies that are characterized by a relatively low density of employee population, with much of the area occupied by machinery or equipment

It can be difficult to determine if a building qualifies as a special-purpose industrial occupancy. For example, a structure is often erected to protect a large machine or equipment from weather. Once constructed, authorities might try to impose means of egress requirements applicable to a general industrial occupancy, despite the fact that only a handful of personnel are expected to

occupy the building. Steel mills, paper plants, power-generating plants, and other operations with large machines are examples of the types of industrial occupancies requiring massive structures for process control and weather protection. These structures often represent minimum hazards to life safety and are typically classified as special-purpose industrial occupancies. In many of the more modern operations, all process control is conducted from a control room by remote means, which further reduces the number of occupants likely to be exposed to a fire in the equipment areas.

The special-purpose industrial occupancy classification must not be applied to a building simply to reduce egress requirements. Economic considerations, or staffing limitations that result in occupancy by fewer employees than usual, cannot be used as justification for reducing life safety features; the full number and arrangement of exits required for a general industrial occupancy must be maintained. A reduction in aisles, doors, stairways, and other components of the means of egress cannot be justified by the temporary classification of a building as a special-purpose industrial occupancy.

As can be seen from Section 40.1.4.1.2 the two criteria for classifying an occupancy as Special Purpose are fulfilled. The building is constructed around the boiler and associated equipment and cannot be used for any other purpose. The building contains the boiler, a generator turbine to produce power, a backup generator, and piping that directs the steam out of the plants to customers. There is a low density of employees. Typically 2 employees operate the plant. This plant means the plant should be classified as Special Purpose.

With the respect to the balance of the NHFMO report SFC is in general agreement with items of concern as noted below.

**Section 7.10.1.5.1 Exit Access** SFC agrees that proper marking and signing of egress paths and exits should be in place.

**Section 7.5.1.5 Exit Access** Specifically Dead End Corridors, This section pushes to Table 40.2.5. This table states that for a Special Purpose Occupancy dead end corridors can be 50 ft. and common path of travel can be 50 ft.

**NFPA 1 Section 13.6.8.1.3.1 Fire Extinguishers** SFC agrees that Fire extinguishers are required, should receive proper maintenance and be kept accessible. SFC further is of the opinion that plant staff should be trained in fire extinguisher use.

**Section 7.8.1.1 Illumination of Means of Egress** SFC agrees that means of egress should be properly illuminated.

**Section 40.2.9.1 Emergency Lighting.** SFC agrees that emergency lighting is required for the facility. There is a generator present, however SFC has no knowledge that the generator reacts quick enough to be considered for providing emergency lighting, instead SFC recommends that emergency lights be installed along egress paths.

**NFPA 1 Section 10.7.1.1 Fire Reporting** The nature of the building produces hot surfaces. If combustible materials are allowed to sit on the hot surfaces fires may occur. Continuous housekeeping is required to keep the hot surfaces clear. It appears that a fire was burning when the inspection occurred. SFC works in many power plants where small smoldering fire occur. Often the owner feels that it is not important to tell the fire department. However, on occasion, those fire expand beyond the capability of the staff and demand suppression efforts from the local fire department. SFC believes that there is a resolution to this issue but it will

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require a meeting and agreement with the City of Concord Fire Department to determine how best to report small fires without creating a response problem to the Fire Department.

**NFPA 70** The references to NFPA 70 These citations seem reasonable, however NFPA 70 work is beyond what SFC practices. SFC recommends that the electrical engineer that you work with provide responses to these items.

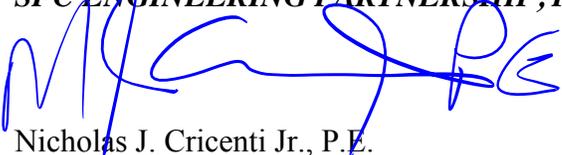
**Section 7.1..10.1 General** SFC agrees that all means of egress and egress paths should be kept clear.

**Section 40.3.2.1 through 40.3.2.4 Protection from Hazards** SFC does not agree with the premise that this is a High Hazard Industrial Occupancy therefore complete automatic sprinkler protection is not necessary. However the Sections 40.3.2.1 through 40.3.2.4 describe taking measures to protect the occupants should some sort of accident occur. SFC proposes that you, SFC, the City of Concord Fire Department, and the NHFMO work to develop a fire protection plan for the hazardous areas of the building. This may mean adding some local sprinklers, develop some smoke protected enclosures or other fire protection measures.

**NFPA 1 Section 13.6.7.3.2.4** SFC agrees that all extinguishers should be appropriate for the nearby hazards.

Sincerely,

***SFC ENGINEERING PARTNERSHIP, INC.***



Nicholas J. Cricenti Jr., P.E.  
Principal

NJC O:\2016 Proposals\Fire Protection\Concord Steam\20160307 FMO Response Letter.docx

Cc: file

# MOHLIN & COMPANY

CONSULTING ENGINEERS

March 22, 2016

Concord Steam Corp.  
P.O. Box 2520  
Concord, NH 03302

Attention: Mr. Peter Bloomfield

Subject: Correction of Alleged Deficiencies Found During a State Fire Marshall Inspection

Dear Peter,

Per your request two personnel from Mohlin & Company inspected your facility on March 16, 2016 to review the areas that The State Fire Marshall's inspection claims were deficient. These areas included the following:

1. No header above man door leading from FD Fan Room to maintenance garage resulting in a crack in CMU wall above the door.



2. Large opening cut through 17" thick concrete bunker wall for chip conveyor to pass without means of support of wall above the opening.



3. Deteriorated metal roof deck above Boiler



With the exception of the hollow CMU wall above the man-door into the garage, the existing buildings are stable and in no apparent risk of failure. However to further enhance the degree of stability in the buildings, we recommend the follow course of action:

1. The man door opening cut through the hollow CMU wall has resulted in a crack above the header. We recommend installing a steel channel header above the door and steel channel door jambs on each side of the opening to support the header. This will provide support to the wall above the opening with no further danger of wall cracking. (see drawing S-100 for details.)
2. The large opening cut into the 17" thick concrete coal bunker wall was done in 1979, with no damage above the opening occurring since then. However for added assurance that the wall above the opening will not suffer any damage we recommend installing two steel pipe columns from the floor slab to the underside of the openings. This will provide additional wall support and be sufficient to insure that the wall above will not move. (See drawing S-101for details)
3. A portion of the metal deck which supports the built up roof over the boiler has deteriorated due to exposure to moisture. We understand that the roof surface, i.e., asphalt built up roof, will be repaired in the near future. We recommend stripping the roof material to expose the metal roof deck and replacing that portion of the deteriorated deck with new galvanized 1 1/2", 16 gage Type B deck prior to installing the new built up roofing. The deck should span from the masonry wall to the first line of trusses (approximately 7'-8") and then if further deterioration is found , installing the same size deck spanning from truss to truss (7'-10"). (See Sketch SK-1 for details)

The cost to perform an exhaustive and comprehensive engineering analysis of the structures would be very expensive and in our opinion not required. Implementing the preventive measures

suggested above would be more than enough to further enhance an already stable building environment.

Respectively submitted,



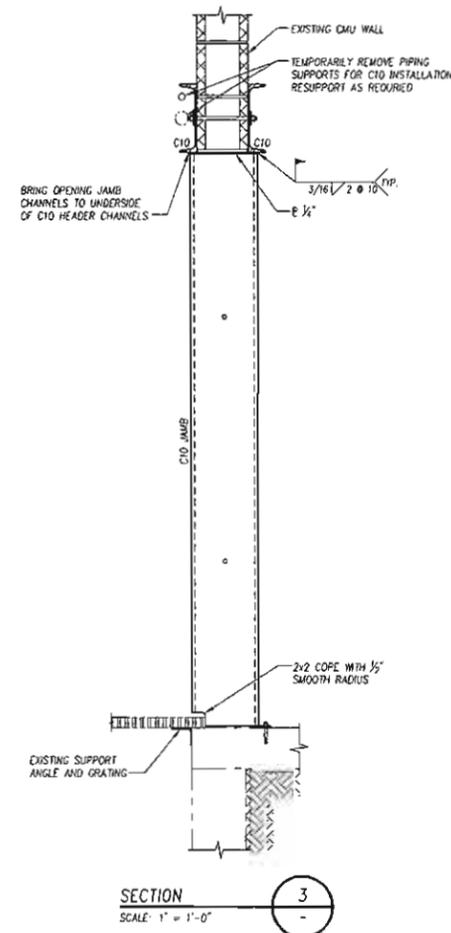
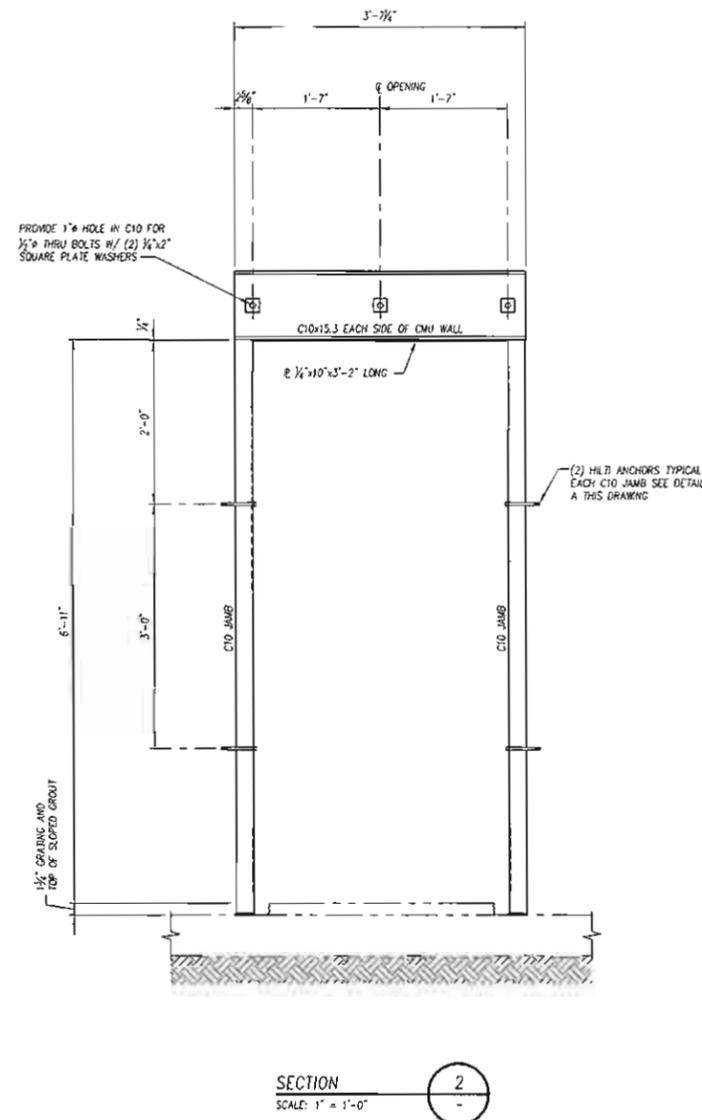
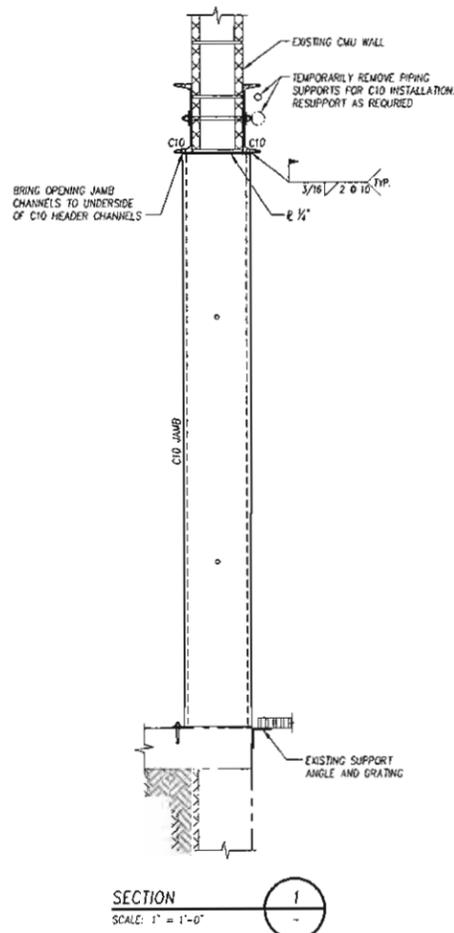
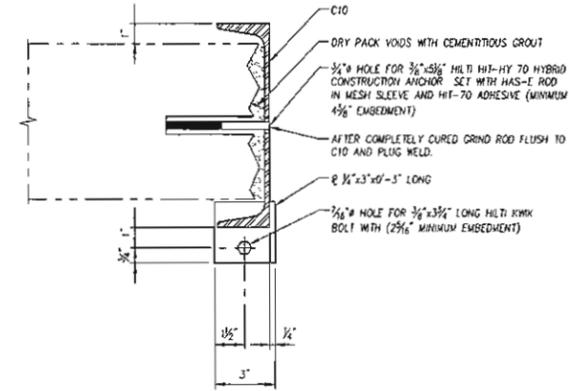
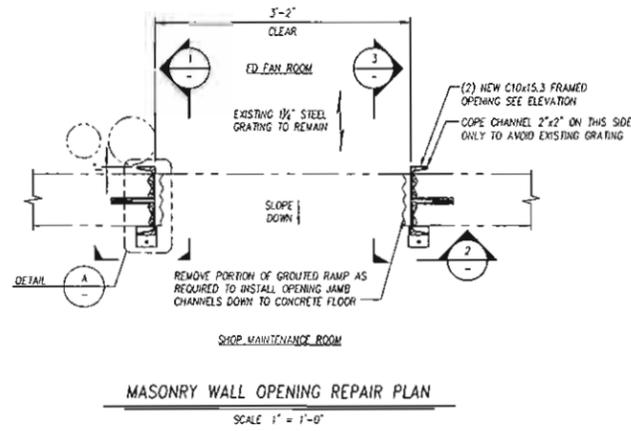
Robert A. Mohlin, P.E.

CC: File 16-138



**STRUCTURAL STEEL NOTES**

1. ALL STRUCTURAL STEEL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION'S "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND THE "AISC CODE OF STANDARD PRACTICE."
2. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1, LATEST EDITION. WELDING ELECTRODES SHALL BE E70XX.
3. ALL STRUCTURAL STEEL SHAPES AND PLATES SHALL CONFORM TO ASTM A36
4. ALL STRUCTURAL STEEL SHALL BE PAINTED PER CLIENT SPECIFICATIONS
5. ALL GROUT SHALL BE NON-SHRINK, NON-METALLIC, 7000 PSI MINIMUM COMPRESSIVE STRENGTH GROUT.



**MOHLIN & COMPANY**  
CONSULTING ENGINEERS  
146 MAIN STREET, SUITE 300  
SACONN, MAINE 04072  
(207) 283-9151 / FAX (207) 283-9136

M&C DRAWING NO. 2016-1381-S-100

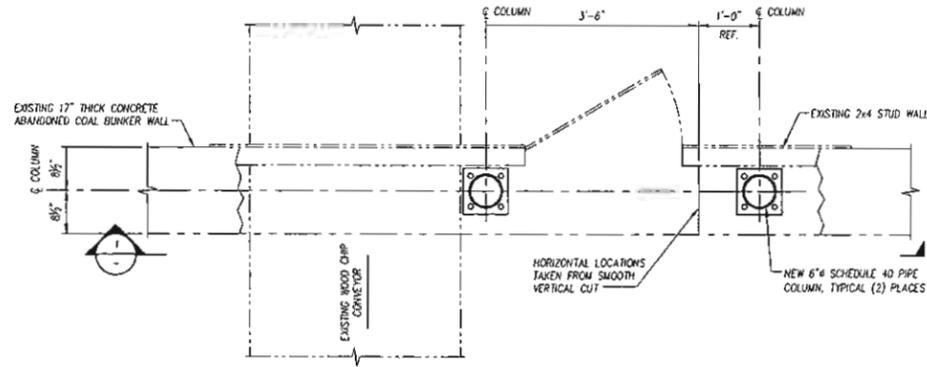
CLIENT CONCORD STEAM CORPORATION  
CONCORD, NH

TITLE F.D. FAN BUILDING  
MASONRY WALL OPENING REPAIR  
STRUCTURAL  
PLAN, SECTIONS, DETAIL & NOTES

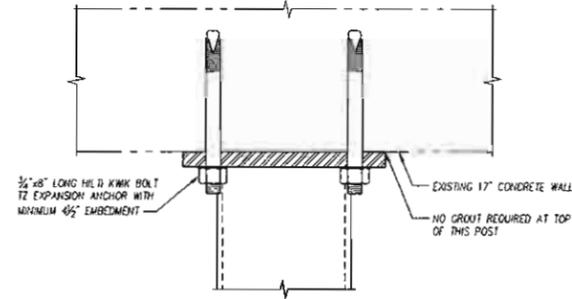
NO	DATE	DESCRIPTION	BY	CHKD	ENGINEER'S STAMP	DATE	SCALE	CLIENT DRAWING NUMBER	REV.
0	3/23/2016	ISSUED FOR CONSTRUCTION	AMJ	FDN		03/23/2016	AS NOTED		0

**STRUCTURAL STEEL NOTES**

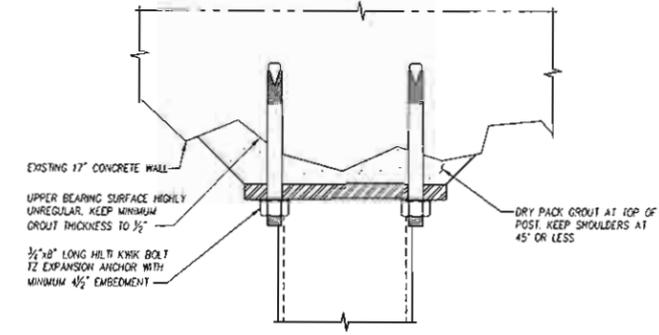
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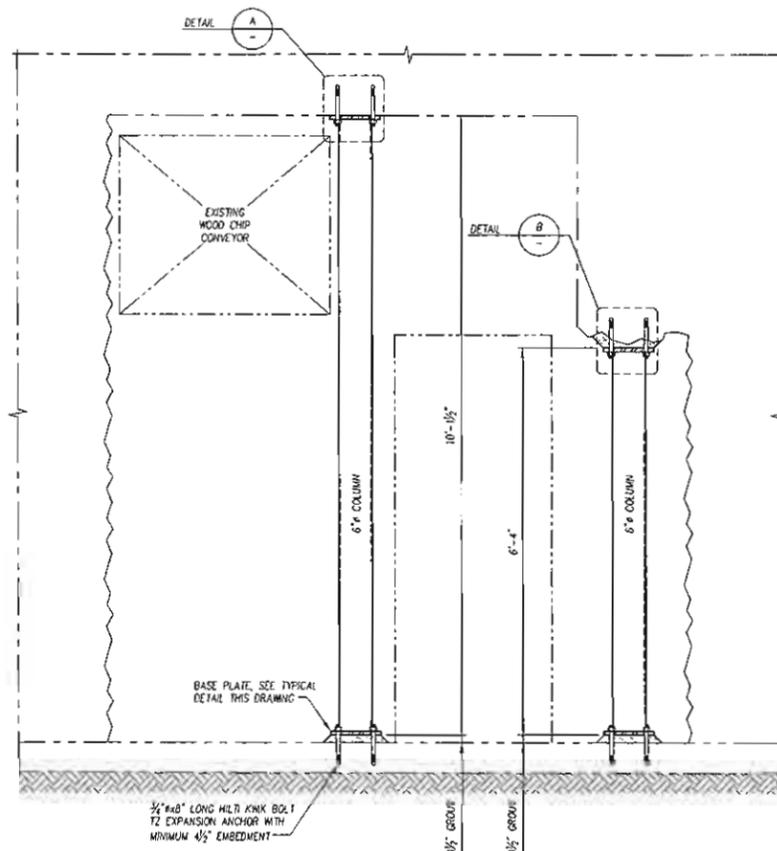
**CONVEYOR WALL OPENING REINFORCEMENT PLAN**  
SCALE: 3/4" = 1'-0"



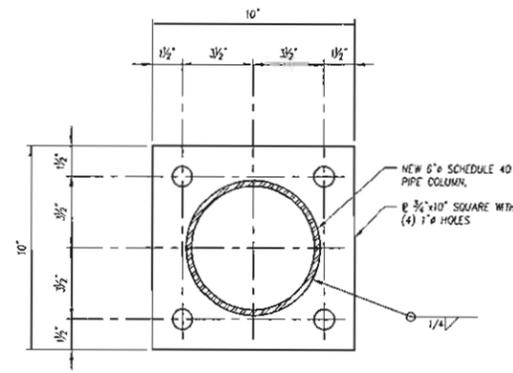
**DETAIL A**  
SCALE: 3" = 1'-0"



**DETAIL B**  
SCALE: 3" = 1'-0"



**SECTION 1**  
SCALE: 3/4" = 1'-0"



**BASE PLATE - TYPICAL DETAIL**  
SCALE: 3" = 1'-0"

MOHLIN & COMPANY CONSULTING ENGINEERS 145 MAIN STREET, SUITE 300 SACCO, MAINE 04072 (207) 283-6151 / FAX (207) 283-6136		M&C DRAWING NO. 2016-1381-S-101		CLIENT CONCORD STEAM CORPORATION CONCORD, NH		TITLE COAL BUNKER BUILDING CONVEYOR WALL OPENING REINFORCEMENT STRUCTURAL PLAN, SECTION, DETAILS & NOTES	
DATE 03/23/2016	ISSUED FOR CONSTRUCTION	AMJ	PDN	DATE 03/23/2016	SCALE AS NOTED	CLIENT DRAWING NUMBER	REV. 0
NO	DATE	DESCRIPTION	BY	CHKD	ENGINEER'S STAMP	OWN. AMJ	ENC. PDN

# MOHLIN & COMPANY

CONSULTING ENGINEERS

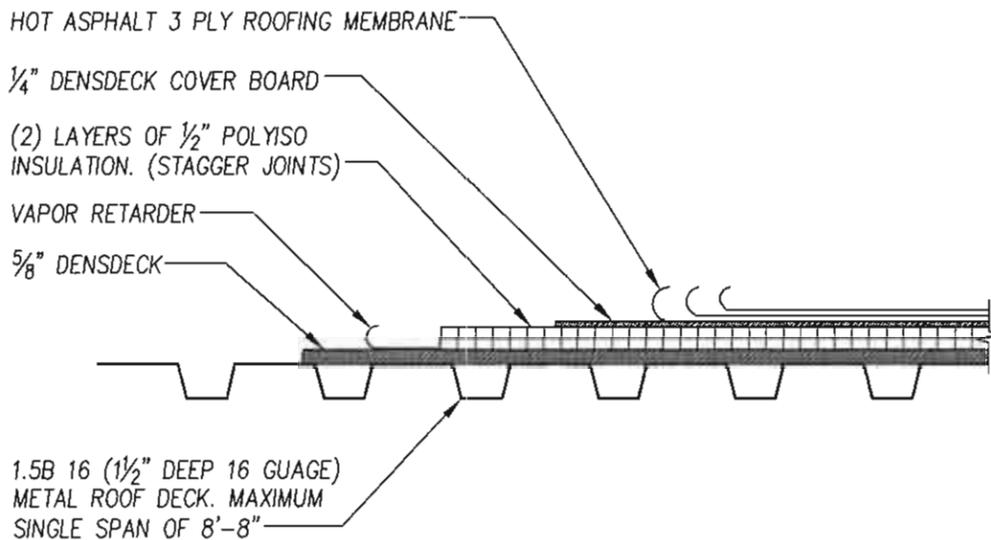
146 Main Street, Suite 300  
Saco, Maine 04072  
(207) 283-9151

PROJECT: CONCORD STEAM AND POWER

DESCRIPTION: ROOF DECK REPAIR DETAIL

JOB NO.: 16-138-SK-1 SHEET NO.: 1 OF 1

BY: PDN, AMJ DATE: 03/23/2016



## METAL ROOF DECK REPAIR – TYPICAL DETAIL

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

### DECK ATTACHMENT NOTES

1. PROVIDE MINIMUM 1 1/2" OF SUPPORT BEARING WIDTH ON EACH END OF METAL ROOF DECK.
2. ATTACH METAL ROOF DECK TO SUPPORTING STEEL WITH 5/8"  $\phi$  PUDDLE WELDS, POWER ACTUATED PNEUMATICALLY DRIVEN FASTENERS (SIZED TO METAL THICKNESS) OR #10 SELF DRILLING SCREWS AT 12" O.C. SIDE LAPS TO BE FASTENED TO EACH OTHER BY WELDED OR SCREWED AT EACH END, CENTER OF SPAN AND AT 36" O.C. MAX.



*Robert A. Mohlin*  
3/23/16