N01 Grid Floor Refractory Hydro-Demolition Specification

Revision 1
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REFERENCE DOCUMENTS/ DRAWINGS	
Drawing No.	Description
11228001-5-87-0820	FURNACE GRID REFRACTORY DETAILS
11228001-5-87-0821	FURNACE GRID REFRACTORY DETAILS
11228001-5-25-0987	FURNACE GRID NOZZLES SECTIONS AND DETAILS
43-7587-5-813	REFRACTORY SETTING LOWER FURNACE
N/A	SPARCON 30FF PRODUCT DATA SHEET

1.1 Project Overview

1.1.1. Units 1 boiler is a 300 MW circulating fluidized bed boiler (CFB) provided by Foster Wheeler Corp. and placed into service in 2002. Unit 1 CFB has roughly 6,150 nozzles within a refractory bed above that make up the grid floor.

1.1.2. Grid floor nozzles are reaching the end of their service life and require replacement. To facilitate installation of the new nozzles, the refractory must be replaced. The replacement of the grid floor nozzles and refractory is part of an overall major maintenance outage that will include several other critical activities in the boiler areas.

1.1.3. JEA is requesting a Lump Sum Bid Proposal to complete the project as described in this Technical Specification.

1.2 Codes, Standards and Regulations

1.2.1. Contractor shall perform all refractory repair work in accordance with established federal standards and regulations, local codes and regulations, and the current issues of the following codes and regulations.

- 1.2.1.1. American National Standards Institute (ANSI)
- 1.2.1.2. American Petroleum Institute (API)
- 1.2.1.3. American Society of Mechanical Engineers (ASME)
- 1.2.1.4. American Society for Testing and Materials (ASTM)
- 1.2.1.5. American Welding Society (AWS)
- 1.2.1.6. Occupational Safety and Health Administration (OSHA)
- 1.2.1.7. Applicable Industry Standards

In case of a conflict between the above codes and regulations, Contractor will perform all work in accordance with the more stringent code or regulation.

2.1 Work to be furnished by Demolition Contractor

2.1.1 Scope of Work:

Automated hydro-demolition of grid floor refractory shall be completed on the JEA NS1 combustor floor. Contractor shall remove the existing refractory down to bare metal within the entire designated work scope area.

Specific requirements for demolition can be found in the Hydro-demolition Detail section below.

2.1.2 Hydro-demolition Detail

This project will be scheduled during the JEA NGS N01 Spring Outage FY25 from 3/1/25 through 4/14/25.

Contractor shall remove all refractory (down to bare metal) from the grid floor

Following unit shutdown and cool down, JEA will perform vacuum cleaning of remaining ash on the grid floor. JEA will cut out the existing nozzle assemblies, thermocouples, and thermowells as close as possible to the refractory floor face. Unit will then be turned over to the Contractor to begin hydro-demolition of the grid floor refractory. JEA is anticipating the unit being available to the Contractor approximately 8-10 days after the start of the outage.

All required hydro-demolition shall be completed within seven (7) days utilizing two 12-hour shifts per day, i.e., 7/24s.

Grid Floor Refractory:

2.1.2.1 Division wall refractory and perimeter curbing is outside the scope of the project and shall not be disturbed.

2.1.2.2 Boiler grid floor is approximately 86 feet long x 16.5 feet wide (Figures 1, 3, & 4). Grid floor has an area of 1,419 square feet.

2.1.2.3 Grid floor tubes are SA-210C steel (carbon steel) with a 3-3/8" outside diameter. Tubes have six (6) inch center to center spacing (Figure 2).

2.1.2.4 Membrane (steel flat bar) located between each tube. Tube sheet membrane is 1/4" thick, A-36 steel (Figure 2).

2.1.2.5 Refractory is approximately 5-3/4" deep over the tube membranes and approximately 4" deep over the tube crowns (Figures 2 & 5).

2.1.2.6 Estimated volume of grid floor refractory to be removed is 20 CY.

Refractory Composition:

2.1.2.7 Existing refractory expected to be a single layer of high strength, low cement castable – FWEC Code (58)LCC-SF.

2.1.2.8 Composition expected to be similar to Sparcon 30FF (FWEC Code (58)LCC-SF) (see Sparcon 30FF Data Sheet).

2.1.2.9 Actual material composition and/ or physical properties may differ from Sparcon 30FF.

Combustor Access:

2.1.2.10 Combustor entrance door is located on the north side wall (Figure 6).

2.1.2.11 Access doors are roughly 18 inches wide by 36 inches tall.

2.1.2.12 Due to door locking mechanism, actual door opening may be slightly smaller than above.

Figure 1. Grid Floor Plan View

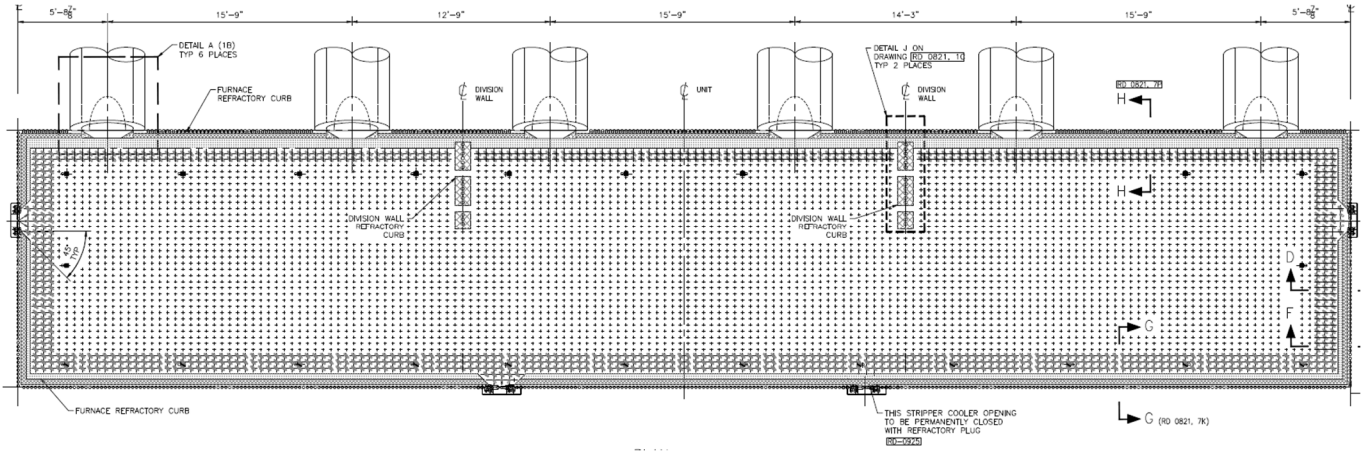


Figure 2. Grid Floor Detail

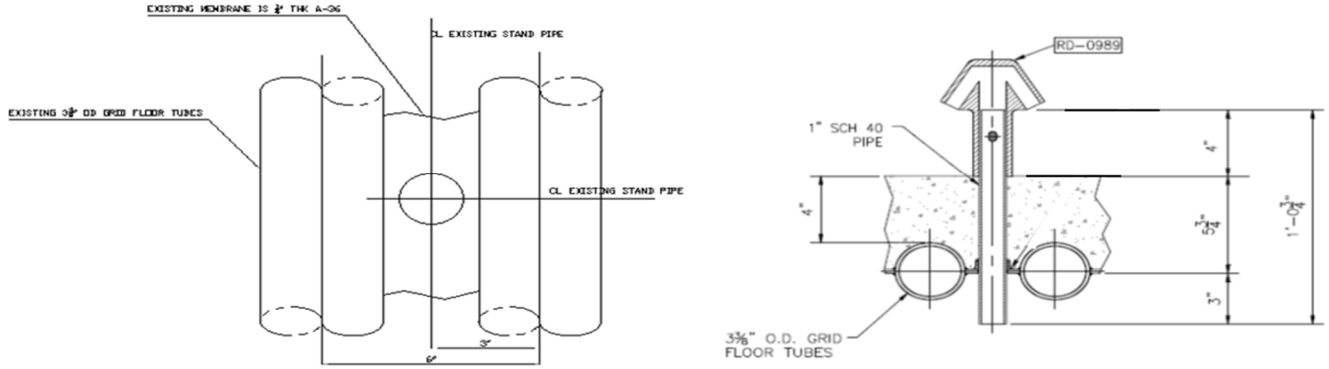


Figure 3. Grid Floor Detail (View from Side Walls)

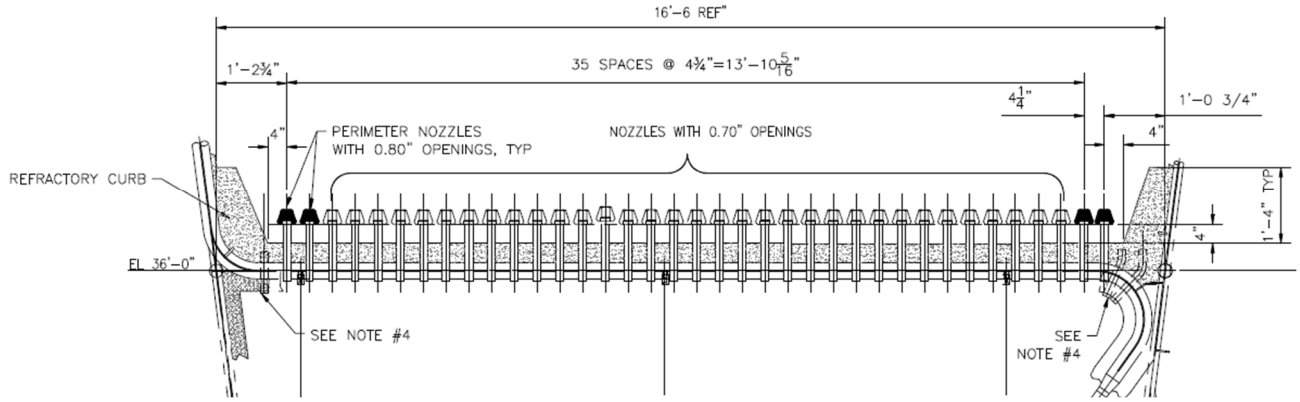


Figure 4. Grid Floor Detail (View from Front/Rear Walls)

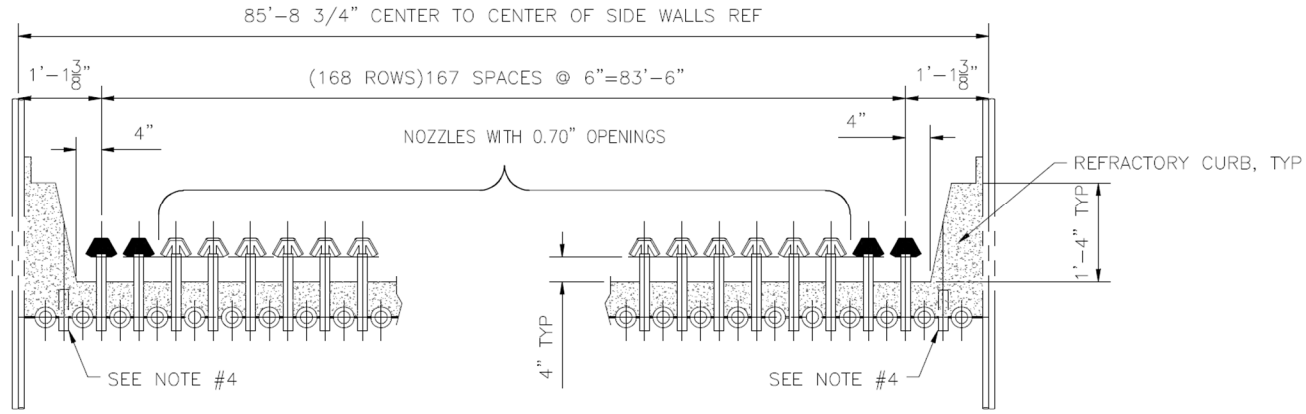


Figure 5. Refractory Curb Detail

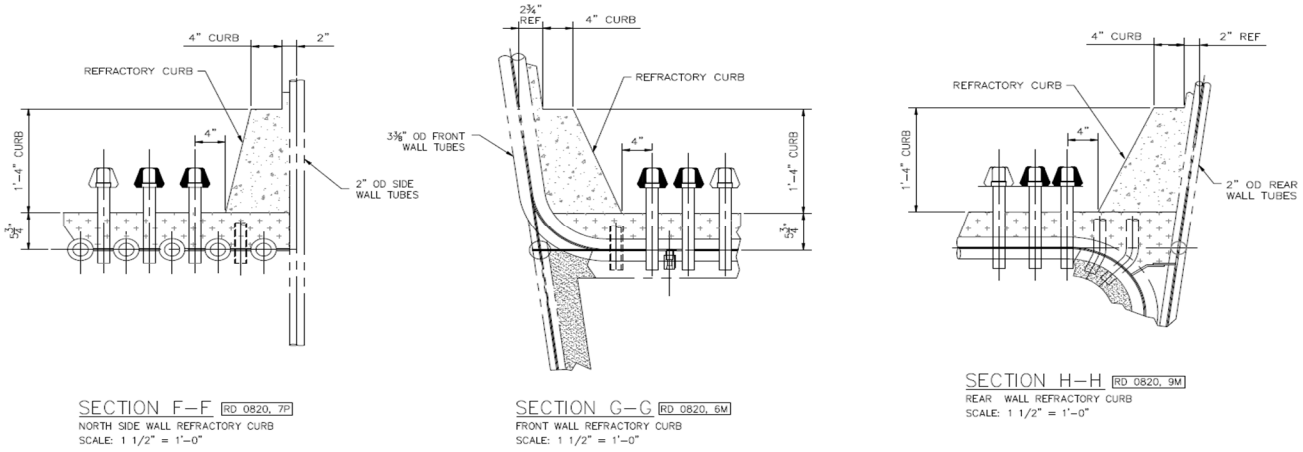
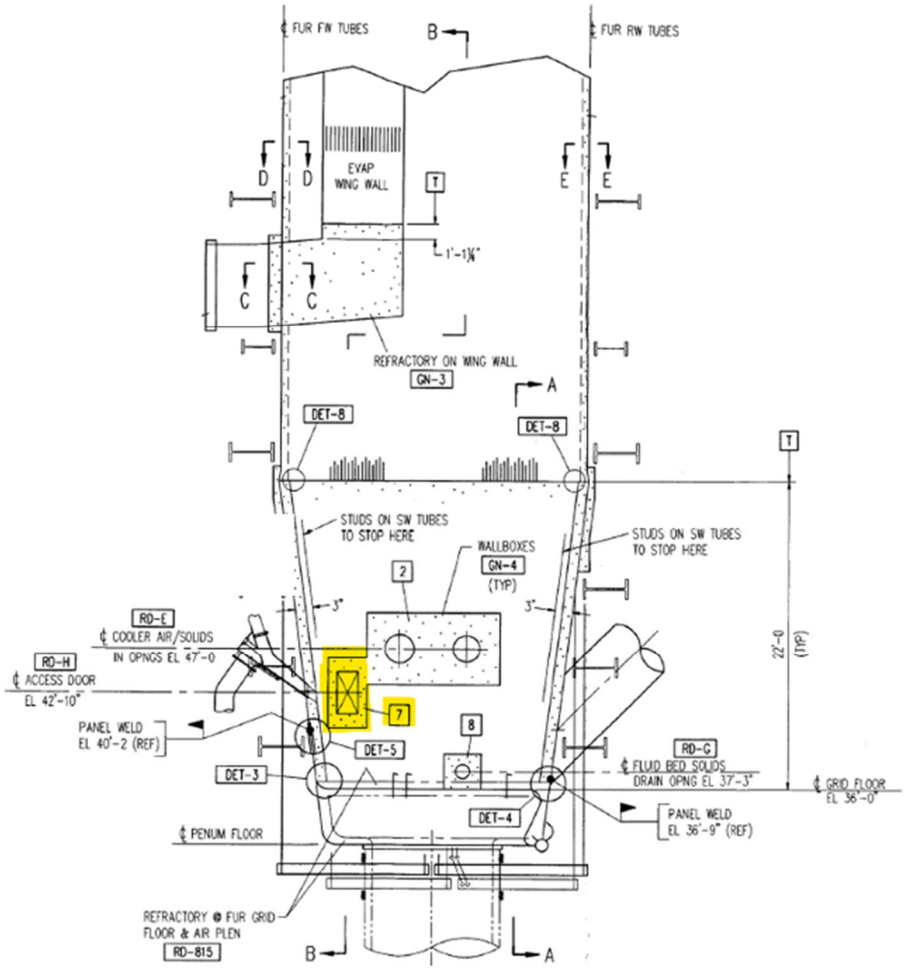


Figure 6. Combustor Access Door (Looking South)



3.1 General Requirements

3.1.1 Bidder shall furnish a detailed construction schedule and narrative of the construction plan in Bidder's proposal. At minimum, the construction plan shall include a plan for the demolition scope, dewatering plan, and equipment to be used. Updates shall be provided to the JEA Project/Construction Manager daily, as a minimum, after mobilization on site.

3.1.2 All aspects of refractory demolition services shall be accomplished utilizing standard industry procedures and practices. Workmanship will be performed in accordance with all applicable Federal and State regulations and per the conditions set forth within these guidelines.

3.1.3 Contractor shall comply with all Federal, State, and Local industrial safety rules, regulations, codes, and standards. Contractor shall also abide by all JEA Safety and Security Policies and Procedures, as a minimum requirement.

3.1.4 The Contractor is advised that other projects will be in progress at the plant site during this agreement period. Coordination and cooperation with other Contractors, JEA personnel and others working in the plant area will be required to ensure the work will be completed safely and on schedule.

3.1.5 Contractor shall be responsible for all labor and material costs associated with the replacement or repair of any existing plant equipment, components, etc., that may be damaged by the Contractor during project work.

3.1.5.1 It is imperative that Contractor bring to the attention of the JEA Project/Construction Manager any damage that it discovers immediately following discovery. Determination of cause shall be at the sole discretion of JEA.

3.1.5.2 No weld repairs to pressure containing parts or structural elements shall be made without written approval of JEA. Weld repairs shall be made only by certified welders qualified in the repair procedures to be utilized. If repair work is to be performed by a subcontractor, only JEA approved subcontractors shall be utilized.

3.1.5.3 Final acceptance of repairs shall be at the sole discretion of JEA.

3.1.6 Contractor shall not initiate “out of scope” services without obtaining prior authorization from the JEA representative. For example, if during project work, a potential problem or issue is identified by the contractor, the JEA representative shall be notified immediately of the problem/ issue and may then initial an authorization to the Contractor for “out of scope” services.

4.1 Special Requirements

4.1.1 Contractor shall employ automated hydro-blasting for refractory demolition. Mechanical demolition (jackhammer, cutting, etc.) shall not be used without prior authorization from JEA Project/Construction Manager. No abrasives, chemicals or solvents shall be used.

4.1.2 Contractor shall determine proper hydro-blasting pressure to ensure efficient refractory removal without damaging boiler components and/or pressure parts. Contractor shall remove the existing refractory down to bare metal in the entire work scope area.

4.1.3 The entire scope of work is to be constructed on a turnkey basis. Contractor shall provide all labor/materials/equipment/supplies, etc. within the scope of work to complete the demolition.

4.1.4 Contractor shall verify existing conditions and dimensions prior to starting work. Quantities listed in this Technical Specification are estimates only and any discrepancies must be brought to the attention of the JEA Representative.

4.1.5 Contractor shall be responsible for the onsite disposal of waste products (such as collected process water, refractory debris, general trash, and sanitary waste) that are generated by the Contractor, unless prior arrangements are made with the JEA Project/Construction Manager.

4.1.6 Contractor shall utilize vac trucks to remove the refractory debris on the grid floor.

4.1.7 Collected process water and refractory debris shall be disposed of at the designated onsite JEA Disposal Area.

4.1.8 Contractor shall mitigate process water contact with refractory in other areas of boiler through use of liners and barriers, as needed. For uncollected process water that reaches the boiler plenum (beneath the grid floor), the Contractor shall install plastic sheeting/liners on the boiler plenum refractory floors to funnel to the three (3) duct burner openings. JEA will provide scaffolding to block off the duct burner to plenum floor openings. Contractor to install pipe flange on the scaffold decking and plastic hose to funnel water to duct burner drains (see below detail). Water that collects on the plenum floor plastic lining shall be pumped directly to flanged opening to maintain positive drainage of the plenums. The drain openings shall be periodically monitored for obstructions and cleaned of any debris buildup, as needed, to maintain positive drainage out of the duct burners to the boiler drains during the demolition process.

4.1.9 Contractor shall supply qualified confined space entry attendants (hole watch personnel) as required by OSHA 29 CFR 1910.146 for Confined Space Entry. Confined Space entry points on the boiler include boiler grid floor access doors (2), boiler plenum access doors (3) and duct burner access doors (3).

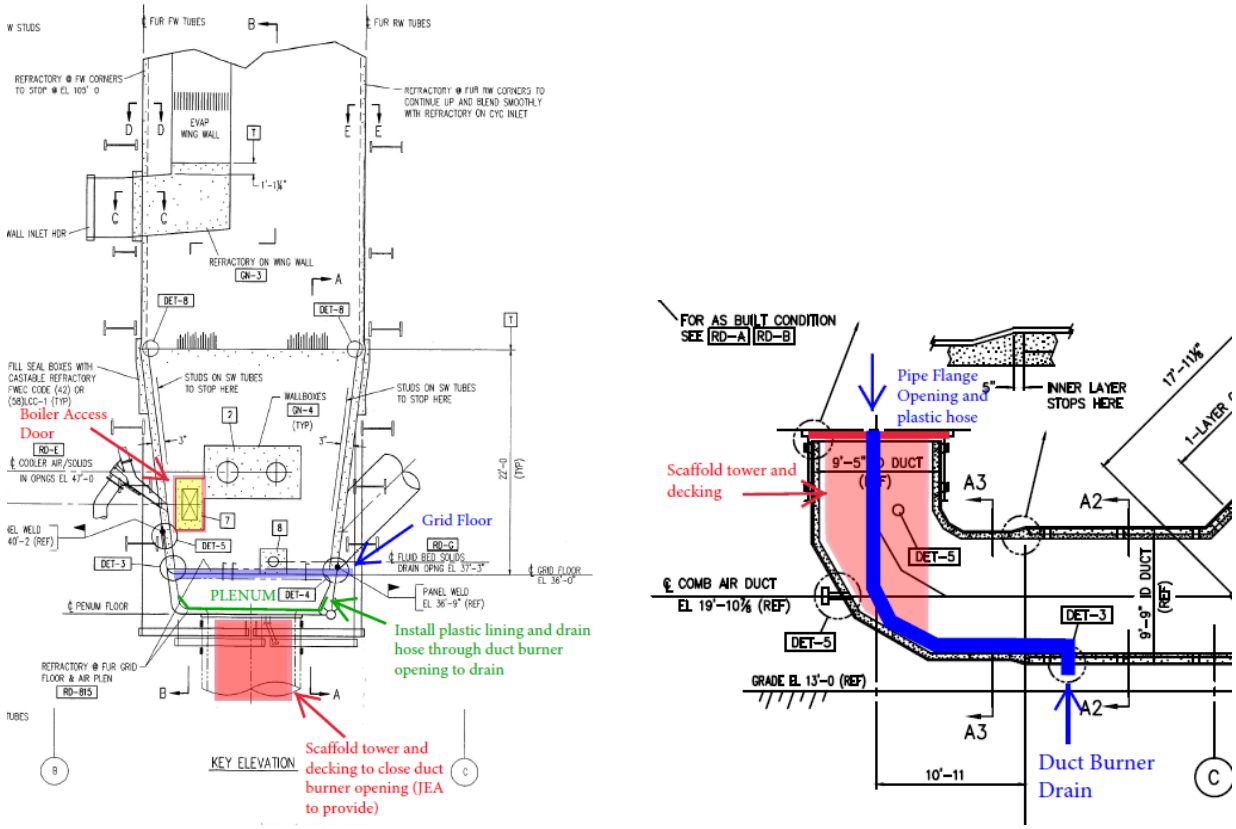
4.1.10 The expected roles and responsibilities of the confined space entry attendants include, but are not limited to, the following:

- knowledge of the hazards that may be faced during the entry, as well as the effects of those hazards
- monitor conditions inside and outside of the space
- call for evacuation of the space in the event of an emergency detection of a prohibited condition

At a minimum, confined space entry attendants shall be First Aid and CPR Certified, have documented proof of Confined Space Training, and documented OSHA 10 training, or approved equal, plus JEA Construction Site Specific Training. JEA reserves the right to remove confined space entry attendants deemed by JEA to not possess the necessary safety qualifications and experience.

4.1.11 During the refractory removal process, Contractor shall minimize impact to ongoing work by others in the area and prevent damage to pressure parts of the boiler and structural elements by flying debris or other demolition activities. Contractor shall provide containment barriers, as necessary, to accomplish this requirement.

Figure 7. Plenum and Duct Burners Liners (reference 4.1.8)



5.1 Demolition Contractor Responsibility

5.1.1 Contractor responsible for having all necessary JEA required safety training and personal protective equipment (PPE) prior to performing any work on the plant site.

5.1.2 Contractor must become JEA Safety Qualified prior to commencement of work. Information on becoming a JEA Safety Qualified Contractor can be found at the following link: https://www.jea.com/About/Procurement/Contractor_Safety/

5.1.3 This is a turnkey project and Contractor is to provide all labor, equipment, materials and supplies to complete the scope of work.

5.1.4 Contractor shall provide their own dedicated confined space hole watches, as needed.

5.1.5 All miscellaneous items necessary for safe project work.

5.1.6 Drinking water, ice, and hand washing stations.

5.1.7 Contractor shall furnish all sanitary facilities and wash stations for their employees.

5.1.8 Lighting for interior work and night shift work.

5.1.9 Only work trucks, with company identification logos on each side of vehicle, will be permitted on the plant site.

5.1.10 Contractor responsible for cleanup at completion of demolition activities. All refractory debris shall be removed from the grid floor and floor should be clean to begin the next phase of the project.

6.1 JEA Responsibility

The following items will be furnished by JEA or other Contractor Services:

6.1.1 JEA will ensure Lock Out/Tag Out (LOTO) of equipment and clearances, as appropriate, are in-place prior to commencement of work.

6.1.2 JEA will provide limited compressed air and electrical power for Contractor's use. Contractor to specify air and water requirements in the bid proposal.

6.1.3 JEA will provide service water, as needed, for hydro-demolition services. Contractor to specify water supply requirements in the bid proposal (psi, gpm, supply connections etc.).

6.1.4 JEA will provide scaffolding, as needed, through a separate service contract. Scaffolding can be erected in each duct burner to accommodate the installation of the plenum plastic sheeting/liners. Advanced notice will be required through the JEA Representative.

6.1.5 JEA will provide designated general trash dumpsters; JEA will empty the dumpsters as requested by the Contractor.

6.1.6 JEA will provide an onsite area for refractory debris disposal.