



Working Together for a
Better Tomorrow. Today.

BID SPECIFICATION PACKAGE

for

AIR HEATER REPLACEMENT PARTS

C 130303

Bid Opening Date/Time

Tuesday, April 27, 2021 at 2:00 p.m. (local time)
City of Grand Island, City Hall
100 East 1st Street, P.O. Box 1968
Grand Island, NE 68802-1968

Contact Information

Tylor Robinson
City of Grand Island – Utilities Department
Platte Generating Station
308/385-5496

Date issued: April 8, 2021

**ADVERTISEMENT TO BIDDERS
FOR
AIR HEATER REPLACEMENT PARTS
FOR
CITY OF GRAND ISLAND, NEBRASKA**

Sealed bids for Air Heater Replacement Parts will be received at the office of the City Clerk, 100 E. First Street, P.O. Box 1968, Grand Island, Nebraska 68802, until **Tuesday, April 27th, 2021 at 2:00 p.m. local time**, FOB the City of Grand Island, freight prepaid. Bids will be publicly opened at this time in the Grand Island City Hall City Clerk's Office located on 1st floor of City Hall. **Submit an original and three copies if submitting by mail**. Bid package and any Addendas are also available on-line at www.grand-island.com under Business-Bids and Request for Proposals-Bid Calendar under the bid opening date. Bidding documents, plans and specifications for use in preparing bids may be downloaded from the QuestCDN website www.QuestCDN.com for a \$30.00 fee. Submitting through QuestCDN requires one original document of the bid to be uploaded. **Bids received after the specified time will not be considered.**

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Successful bidder shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

Each bidder shall submit with the bid a certified check, a cashiers check, or bid bond payable to the City of Grand Island in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashiers check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered.** Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The Purchaser reserves the right to reject any or all bids, to waive irregularities therein, and to accept whichever bid that may be in the best interest of the City, at its sole discretion.

No bidder may withdraw his/her bid for a period of thirty (30) days after date of bid opening.

RaNae Edwards, City Clerk

Advertised

(All bids must be submitted on this form)

AIR HEATER REPLACEMENT PARTS BID DATA FORM

CITY OF GRAND ISLAND
GRAND ISLAND, NE

The undersigned Bidder, having examined all specifications and other bidding documents, and all addenda thereto, and being acquainted with and fully understanding all conditions relative to the specified materials and equipment, hereby proposes to provide new air heater baskets and seals, FOB the City of Grand Island-Platte Generating Station, freight prepaid, at the following price:

<u>ITEM DESCRIPTION</u>	<u>EXTENDED COST</u>
Base Bid:	
Material (breakdown attached)	\$ _____
Labor	\$ _____
Applicable Sales tax*	\$ _____
Total Base Bid	\$ _____

****Field Engineer** (not-to-exceed services) \$ _____

* If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.5% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

Exceptions Noted - Bidder acknowledges there are *Exceptions* and/or *Clarifications* noted to the above bid, and those exceptions are fully explained on a separate sheet, clearly marked, and included with the Bid.

Bidder Company Name Date

Company Address City State Zip

Print Name of Person Completing Bid Signature

Email: _____ Telephone No. _____

According to Nebraska Sales and Use Tax Requirements, Section 1-017, Contractors, check which option you have selected to file with the Nebraska Department of Revenue:

Nebraska law provides a sales and use tax exemption on contractor labor charges for the construction, repair, or annexation of any structure used for the generation, transmission, or distribution of electricity. Separately stated contractor labor would be exempt, all materials are taxable according to the contractor's option.

Option 1 (Section 1-017.05) _____ Option 2 (Section 1-017.06) _____ Option 3 (Section 1-017.07) _____

If the Nebraska sales and use tax election is not filed or noted above, the contractor will be treated as a retailer under Option 1 for sales and use tax purposes.

By checking this box, Bidder acknowledges the specified completion date of the project is **October 9, 2021**.

By checking this box, Bidder acknowledges that Addenda Number(s) _____ were received and considered in Bid preparation.

Note: If Bidder supplies individual unit pricing information as supplemental pricing to the base material and labor cost above, said individual pricing is proprietary information and should not be released under a public records request. The total base bid is not considered proprietary information and will be released pursuant to City Procurement Code.

**Field engineering services will be secured under a separate contract. For bidding purposes, the Contractor shall include a not-to-exceed estimate of Field Engineering Services, working six consecutive days, 40-hours regular time and 20-hours overtime. All travel and overnight expenses shall be included in the not-to-exceed amount. Any adjustment shall be in accordance with the provided rate sheet.

CHECKLIST FOR BID SUBMISSION**FOR****AIR HEATER REPLACEMENT PARTS**

Bids must be received by the City Clerk before 2:00 p.m. on Tuesday, April 27, 2021.

The following items must be completed for your bid to be considered.

- Submittal of bid documents:
 - Option 1 – Mailing:** A signed original and three (3) copies of the bidding documents. Failure to submit the correct number of copies may result in your bid not being considered.
 - Note: Your certified check, cashiers check or bid bond should be clearly marked in a separate envelope attached to the signed original bid.
 - Option 2 – QuestCDN (online):** Purchase the bid specification through QuestCDN at their \$30.00 fee. Upload the signed original of the Bid Data Form, along with any supporting material required to meet the bid specification through QuestCDN. Upload your bid bond online through QuestCDN. *Bidders using Certified check or Cashiers' Check must mail said check to the office of the City Clerk no later than the scheduled bid opening date and time and clearly marked with the project name.*
- Bidders must complete and sign the Bid Data Form provided in these Documents. All blank spaces must be filled in. Bidders shall acknowledge receipt of any Addenda information on the Bid Data Form.
- Selection of Nebraska Sales Tax Option. If the Nebraska sales and use tax election is not filed or noted above, the Contractor will be treated as a retailer under Option 1 for sales and use tax purposes.
- Firm lump sum pricing; firm unit pricing in case adjustments are necessary, and breakout of sales tax pricing.
- A proposed detailed schedule, including hold points for inspections and repairs.
- A reference list of at least three (3) projects of similar scope and complexity.
- A summary of the experience of the Field Engineer proposed for this project.
- An itemized list of materials proposed, including part numbers, detailed description and cost.
- Exceptions to the specification or Owner's Contract Document.
- A copy of your Quality Assurance Program.
- Details of all proposed warranties.
- Sample timesheet.
- Acknowledgment of Addenda Number(s) _____.

Please check off each item as completed to ensure compliance. If you have any questions, please feel free to contact our office prior to the bid opening date/time.

INSTRUCTIONS TO BIDDERS

1. GENERAL INFORMATION.

The following instructions outline the procedure for preparing and submitting Bids. Bidders must fulfill all requirements as specified in these Documents.

2. TYPE OF BID.

Bidders shall be required to submit prices for all items listed in the Bid Data Form.

3. PREPARATION OF BIDS.

Bidders shall use only the Bid Data Form provided in these Documents. All blank spaces in the Bid Data Form must be filled in, preferably in BLACK ink, in both words and figures where required. No changes to the wording or content of the forms is permitted. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures.

Prices stated shall be f.o.b. with freight and full insurance paid by Bidder, to the job site located in Grand Island, Nebraska.

The Bidder shall acknowledge receipt of all Addenda in the Bid Data Form. Bids received without acknowledgement or without the Addendum enclosed will be considered informal.

Individual unit pricing as listed on the Bid Data Form or supplied as supplemental information may be deemed proprietary information and not be released under a public records request. The total amount of the bid is not considered proprietary information and will be released pursuant to City Procurement Code.

4. SUBMISSION OF BIDS.

All Bids must be submitted intact with the correct number of copies no later than the time prescribed, at the place, and in the manner set forth in the ADVERTISEMENT FOR BIDS. Bids must be made on the Bid Data Form provided herein. Each Bid mailed must be submitted intact in a sealed envelope, so marked as to indicate its contents without being opened, and delivered in person or addressed and mailed in conformance with the instructions in the ADVERTISEMENT FOR BIDS.

5. BID SECURITY.

Bids must be accompanied by cash, a certified check, or cashier's check drawn on a bank which is insured by the Federal Deposit Insurance Corporation, or a bid bond issued by a Surety authorized to issue such bonds in the state where the Work is located, in the amount of 5 percent of the bid amount payable to OWNER. This bid security shall be given as a guarantee that the Bidder will not withdraw their Bid for a period of **thirty (30) days after** bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish a properly executed Performance Bond and Payment Bond, each in the full amount of the Contract price, within the time specified.

The Attorney-in-Fact that executes this bond on behalf of the Surety must attach a notarized copy of his/her power of attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

6. RETURN OF BID SECURITY.

Within fifteen (15) days after the award of the Contract, the OWNER will return the bid securities to all Bidders whose Bids are not to be further considered in awarding the Contract. All other retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and guarantees which have been fortified, will be returned to the respective Bidders whose Bids they accompanied.

7. BASIS OF AWARD.

The award will be made by the OWNER on the basis of the Bid from the lowest responsive, responsible Bidder which, in the OWNER's sole and absolute judgment will best serve the interest of the OWNER. All Bids will be considered on the following basis:

Delivery time	Conformance with the terms of the Bid
Bid price	Documents
Cost of installation	
Suitability to project requirements	Responsibility and qualification of Bidder

The OWNER reserves the right to reject all Bids, or any Bid not in conformance with the intent of the Bid Documents, and to waive any informalities and irregularities in said Bids.

8. EXECUTION OF CONTRACT.

The successful Bidder shall, within fifteen (15) days after receiving notice of award, sign and deliver to the OWNER the Contract hereto attached together with the acceptable bonds as required in these Bid Documents. Within fifteen (15) days after receiving the signed Contract with acceptable bond(s) from the successful Bidder, the OWNER's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

9. PERFORMANCE AND PAYMENT BONDS.

The successful Bidder shall file with the OWNER Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of one (1) year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his/her power-of-attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond.

10. TIME OF COMPLETION.

The time of completion of the Work to be performed under this Contract is the essence of the Contract. The time allowed for the completion of the Work is stated in the Bid Data Form.

11. GRATUITIES AND KICKBACKS.

City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

12. FISCAL YEAR.

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into by and between **[SUCCESSFUL BIDDER]**, hereinafter called the Contractor, and the **CITY OF GRAND ISLAND, NEBRASKA**, hereinafter called the City.

WITNESSETH:

THAT, WHEREAS, in accordance with law, the City has caused contract documents to be prepared and an advertisement calling for bids to be published for *AIR HEATER REPLACEMENT PARTS*; and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the bids submitted, and has determined the aforesaid Contractor to be the lowest responsive and responsible bidder, and has duly awarded to said Contractor a contract therefore, for the sum or sums named in the Contractor's bid, a copy thereof being attached to and made a part of this Contract;

NOW, THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties have agreed and hereby agree, the City for itself and its successors, and the Contractor for itself, himself/herself, or themselves, and its, his/her, or their successors, as follows:

ARTICLE I. That the following documents shall comprise the Contract, and shall together be referred to as the "Agreement" or the "Contract Documents";

1. This Contract Agreement.
2. City of Grand Island's Specification for this project.
3. **[NAME OF SUCCESSFUL BIDDER]** bid signed and dated **[DATE OF BID]**.

In the event of any conflict between the terms of the Contract Documents, the provisions of the document first listed shall prevail.

ARTICLE II. That the Contractor shall (a) furnish all tools, equipment, superintendence, transportation, and other construction materials, services and facilities; (b) furnish, as agent for the City, all materials, supplies and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good substantial and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the Contract documents as listed in the attached General Specifications, said documents forming the Contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct and complete all work included in and covered by the City's official award of this Contract to the said Contractor, such award being based on the acceptance by the City of the Contractor's bid;

ARTICLE III. That the City shall pay to the Contractor for the performance of the work embraced in this Contract and the Contractor will accept as full compensation therefore the sum (subject to adjustment as provided by the Contract) of **[DOLLAR AMOUNT] (\$00.00)** for all services, materials, and work covered by and included in the Contract award and designated in the foregoing Article II; payments thereof to be made in cash or its equivalent in the manner provided in the General Specifications.

The total cost of the Contract includes:

Base Bid:	\$.00
Sales Tax on Materials/Equipment:	\$.00
Sales Tax on Labor:	<u>\$.00</u>
Total	\$.00

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

ARTICLE IV. The Contractor hereby agrees to act as agent for the City in purchasing materials and supplies for the City for this project. The City shall be obligated to the vendor of the materials and supplies for the purchase price, but the Contractor shall handle all payments hereunder on behalf of the City. The vendor shall make demand or claim for payment of the purchase price from the City by submitting an invoice to the Contractor. Title to all materials and supplies purchased hereunder shall vest in the City directly from the vendor. Regardless of the method of payment, title shall vest immediately in the City. The Contractor shall not acquire title to any materials and supplies incorporated into the project. All invoices shall bear the Contractor's name as agent for the City. This paragraph will apply only to these materials and supplies actually incorporated into and becoming a part of the finished product of the AIR HEATER REPLACEMENT PARTS.

ARTICLE V. That the Contractor shall start work as soon as possible after the Contract is signed and the required bonds and insurance are approved, and that the Contractor shall deliver the equipment, tools, supplies, and materials F.O.B. Platte Generating Station, and complete the work on or before **October 9, 2021**.

ARTICLE VI. The Contractor agrees to comply with all applicable State fair labor standards in the execution of this Contract as required by Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. During the performance of this Contract, the Contractor and all subcontractors agree not to discriminate in hiring or any other employment practice on the basis, of race, color, religion, sex, national origin, age or disability. The Contractor agrees to comply with all applicable Local, State and Federal rules and regulations. The Contractor agrees to maintain a drug-free workplace policy and will provide a copy of the policy to the City upon request. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

ARTICLE VII. Gratuities and kickbacks: City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of

a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

[SUCCESSFUL BIDDER]

By _____ Date _____

Title _____

CITY OF GRAND ISLAND, NEBRASKA

By _____ Date _____
Mayor

Attest: _____
City Clerk

The Contract is in due form according to law and hereby approved.

Attorney for the City

Date

DRAFT



*Working Together for a
Better Tomorrow, Today.*

REQUEST FOR BIDS - GENERAL SPECIFICATIONS

The Bid shall be in accordance with the following and with all attached BID DATA and DETAILED SPECIFICATIONS.

All prices are to be furnished and installed FOB, Grand Island, Nebraska. **All prices shall be firm, and shall include all sales and use taxes as lawfully assessed under laws and regulations of the State of Nebraska.** * If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.5% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

Mailed bids shall include the following on the **outside** of the mailing envelope: **“Air Heater Replacement Parts”**. All bids submitted by mail must include **an original and three copies** of the bid. The bid specification and on-line bidding forms are also available at <http://www.grand-island.com/business/bids-and-request-for-proposals/bid-calendar> under the bid opening date and “Click here for bid document link” through QuestCDN for a \$30.00 fee. If submitting through QuestCDN, **one** original document of the bid is required to be uploaded. No verbal bids will be considered. All sealed bids are due no later than Tuesday, **April 27th, 2021 at 2:00 p.m. local time.** to:

Mailing Address: City Clerk
City Hall
P. O. Box 1968
Grand Island, NE 68802-1968

Street Address: City Clerk
City Hall
100 E. First Street
Grand Island, NE 68801

Bids will be opened at this time in the City Hall City Clerk’s Office located on 1st floor of City Hall. Any bid received after the specified date will not be considered.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Contractor shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

The equipment and materials must be new, the latest make or model, unless otherwise specified. Prior to approving the invoice for payment, the City reserves the right to thoroughly inspect and test the equipment to confirm compliance with specifications. Any equipment or material which does not meet the City's requirements will be returned at vendor's expense for correction. The invoice will be paid after approval at the next regularly scheduled City Council meeting and occurring after departmental approval of invoice; the City Council typically meets the second and fourth Tuesday of each month. Invoices must be received well in advance of Council date to allow evaluation and processing time.

Each bidder shall submit with the bid a certified check, a cashier's check, or bid bond payable to the City of Grand Island in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the Bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashier's check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid.** Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered. Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Successful bidder shall comply with the City's insurance requirements; performance and payment bonds are required for this project as outlined in the Detailed Specifications and Instructions to Bidders. All bids shall be valid for at least thirty (30) working days after the bid deadline for evaluation purposes.

All bids must be on the bid form and must be signed and dated to be accepted. If exceptions and/or clarifications are noted to the bid, those exceptions must be fully explained on a separate sheet, clearly marked, and included with the Bid. Any changes that are found made to the original bid specification, other than Owner generated Addendums, would result in your bid not being considered. Please contact Tylor Robinson at 308-385-5495, for questions concerning this specification.

AIR HEATER BASKETS AND SEALS

PLATTE GENERATING STATION AIR HEATER REPLACEMENT PARTS Grand Island Utilities Department-Detailed Specification

1.0 PROJECT DESCRIPTION

1.1 BACKGROUND

The Unit 1 steam generator at Platte Generating Station is a tangential fired, natural circulation, superheat/reheat, pulverized coal-fired boiler manufactured by ABB-CE (CE Contract No. 13477). The steam generator produces 765,000 lb/hr (MCR) of steam at 1000 F and 1800 psi which is delivered to a 100,000 kW steam turbine. The unit uses Powder River Basin Coal from various mines in the basin.

Steam generator auxiliary equipment includes a vertical rotor, Ljungstrom air preheater (type 27-VI-90), a United Conveyor water impounded "W" type bottom ash storage hopper, and four CE-Raymond pulverizers (type 683 RS).

The Ljungstrom air preheater absorbs waste heat from the flue gas, then transfers the heat to incoming cold air by means of continuously rotating heat transfer elements of specially formed metal plates. The transfer elements are compactly arranged within sector-shaped compartments of a radially divided cylindrical shell, called the rotor. The housing surrounding the rotor is provided with duct connections at both ends and is adequately sealed by radial and circumferential sealing members. The sealing members isolate the air preheater into two (2) halves. Combustion air entering the boiler passes through one half of the preheater and flue gas exiting the boiler passes through the other half.

Recent inspections of the air preheater recommend repairing the air preheater to increase the efficiency and maintain the working elements. The air preheater OEM purchasing information is as follows:

Purchaser	Combustion Engineering, Inc.
Purchase Order	#1870411
Contract	#13477
Manufacturer	Ljungstrom Air Preheater
Model	27-VI-90
Serial No.	6765

1.2 LOCATION

The Platte Generating Station is located at 1035 W. Wildwood Drive, two (2) miles south of Grand Island, Nebraska. The plant entrance is located two (2) miles south of U.S. Highway 34 and 1 ½ miles east of U.S. Highway 281.

1.3 CONTACT

Question regarding this specification may be directed to:

Tylor Robinson
Platte Generating Station
1035 W. Wildwood Dr.
Grand Island, NE 68801
Ph. (308) 385-5495
trobinson@giud.com

2.0 SCOPE

The Contractor shall supply new air heater baskets and seals as specified below for the Platte Generating Station.

Cold end basketed heating elements shall be notched flat (NF) element type, NF6. They shall be constructed of a minimum 18-gauge, high strength low alloy steel with enhanced corrosion resistance in conformance with ASTM A606-04. Element baskets shall be fabricated in a full wrapper basket arrangement. Where applicable, seals shall be provided with the baskets to prevent gaps between the cold end and intermediate baskets and diaphragms.

Radial and Bypass seals shall be a brush design that allow the seal to adapt to an irregular sealing surface. The seal shall be constructed to always maintain positive contact with the sealing surface. The seal shall be a 2-part system that allows the brush to be removed and replaced quickly without disturbing the gap setting. All seals shall be provided with the required protection plates, holding strips and fasteners.

The Contractor shall furnish one (1) set of each of the following:

- Element Baskets for Cold End layer heating element, type NF6, 12" in depth
- Adaptive Hot End Radial Seals with holding strips and fasteners
- Adaptive Hot End Bypass Seals with holding strips and fasteners

2.1 GENERAL

The Contractor shall verify, design, manufacture, prepare for shipment, and ship, FOB jobsite, the materials and documentation for the air heater heat transfer elements and associated parts as described as follows.

2.1.1 APPLICABLE SPECIFICATIONS

All work shall be done in accordance with this detailed specification, and applicable standards. Any deviations from these specifications shall be detailed in the Contractor's proposal. Should the Contractor propose an alternate system to the system specified herein, the Contractor shall comply with the intent of these detailed specifications to the extent that they apply to the alternate system.

2.1.2 MINIMUM SPECIFICATIONS

These specifications are intended to detail the requirements for the performance of the materials. Should instructions contained in these specifications, bid documents, or the schedule contradict, the supplied materials and services shall conform to the higher standard. All materials, supplies and labor not specifically called for herein yet which are required to perform the specified work in accordance with applicable codes and standards,

and standard industry practice shall be provided by the Contractor at no additional cost to the Owner.

All work and procedures shall comply with the latest edition of the following Codes & Standards, and/or equivalent ISO Standards in effect at the date of issuance of a contract for the specified design, materials, and fabrication work:

AISC	Steel Construction Specifications
AISI	Specification for the Design of Cold-Formed Steel Structures Members.
ASTM	American Society for Testing & Materials
ANSI/AWS	Structural Welding Code - Steel
ASME/ANSI	Air Heaters Performance Test Code PTC 4.3
ASNT	American Society of Nondestructive Testing

2.1.3 CLARIFICATIONS

The Contractor shall be responsible for requesting prompt clarification when instructions are lacking, conflicts occur in the Specification and or manufacturer's literature, or the procedure specified is not clearly understood.

3.0 BIDDING

The Contractor shall include in his bid, firm itemized costs associated with the materials and services described herein. This includes, but not limited to, all expenses, equipment, labor, mobilization and demobilization, and subcontractors.

Bids will be evaluated by the Owner based on price, lead time, schedule, quality, economy of operation, experience of contractor, and adherence to specification. The primary evaluation factor will be the lump sum price. The owner reserves the right to reject any or all bids or waive informalities and to accept whichever bid that may be in the best interest of owner, at its sole discretion. The owner reserves the right to accept portions of the bid with disregard to the total bid amount. Bids must be received by **2:00 P.M. Tuesday, April 27th, 2021.**

Bidder is solely responsible for obtaining any clarifications to this specification as may be required for the Bidder to submit an accurate and complete bid proposal.

3.1 FIELD ENGINEER

The Contractor shall provide a field engineer to monitor the installation of the supplied materials. Field engineering services will be secured under a separate contract. For bidding purposes, the Contractor shall include a not-to-exceed estimate of Field Engineering Services. The Contractor shall estimate the Field Engineer working six (6) consecutive days, 40-hours regular time and 20-hours overtime. All travel and overnight expenses shall be included in the not-to-exceed amount. Adjustments to the amount billed by the field engineer shall be in accordance with the provided rate sheet.

3.2 SCHEDULE

It is planned that the plant will shut down for Fall 2021 Outage September 23, 2021-October 9, 2021. All air heater basket and seal material shall be delivered to the plant no later than August 31, 2021.

The Contractor shall be responsible for ensuring the proper size and fit of the replacement parts without air heater modifications. Any installation problems related to incorrect material will be back-charged to the Contractor.

The Contractor shall provide with the proposal a detailed schedule reflecting all key activities with sufficient information to demonstrate the means of completing the work in the allotted period. The schedule shall also reflect the hold points for inspections and repairs.

3.2.1 COORDINATION

The Contractor shall be responsible for coordination of this work with all crafts, subcontractors, manufacturer's representatives, and Owner's representative.

3.3 WARRANTY

The Contractor shall provide a written warranty that the replacement air heater baskets meets all of the design and fabrication requirements of this specification and are suitable for the intended application.

The Contractor shall warrant the material and workmanship used in the procurement and fabrication of the replacement components against manufacturing, fabrication and delivery defects for a minimum of one (1) year from the date placed in-service by the Owner.

Details of all proposed warranties shall be submitted with the bid.

3.4 QUALITY ASSURANCE

The Contractor shall provide details of their Quality Assurance Program with the bid.

3.5 RATES

The Bid shall include, as a separate T&M rate attachment, firm unit pricing for all labor, equipment, fuel surcharges, sundries **and expenses reflecting the charges to be used in billing T&M adjustments** that may be required for new work scope additions, additional services other than what is required in this specification or reductions in the same. All travel time and per diems shall be included in the hourly labor rates. The City of Grand Island will not be responsible for travel expenses to and from plant site. The City of Grand Island will not be responsible for any associated overnight expenses.

3.5.1 Time and Material Accounting

Contractor shall be required to maintain accurate job logs describing work performed by each crew throughout each day and daily time sheets detailing all work performed and expenses incurred **in the same format as the bid detail submittal**. Daily time sheets shall identify all individuals by name, craft and all hours worked on each portion of the work. Such job logs and time sheets shall accurately account for all man-hours with clear separation and identification of Time, Equipment and Material as required accounting for the actual service hours and expenses. A sample timesheet shall be included in the bid to be approved by the owner's designated representative.

The timesheets/logs shall clearly detail the specific work that was accomplished during the shift. These sheets shall be presented to the owner's representative on a daily basis for review with the contractor's superintendent. Any presentation of timesheets/logs deferred more than 48 hours before being presented to the owner's representative shall be null and void. The Owners representative will sign these documents as a record of receipt and review. Any corrections that need to be made to such signed documents shall be implemented upon the discovery of the error and both parties shall initial the change made on the form. These records will then serve as record of the work performed and a basis for determining the final billing.

3.6 TERMS AND CONDITIONS

Provide all other proposed terms and conditions which will be in effect during the performance of the work as a separate attachment with the bid. Any exceptions the bidder wishes to take regarding the Owners specifications and contract documents must be submitted with the bid.

3.7 SUBMITTALS

Contractor shall submit the following documentation for review with the bid:

- Bid Data Form
- Detailed Bill of Materials and specifications
- References for at least three (3) projects of a similar scope and for a similar size unit, including a description, name, and phone contact.
- Field Engineer's experience summary.
- T&M Rates
- Terms and Conditions
- Safety Documentation

3.8 DEVIATIONS

The bid shall provide any explanation of any anticipated deviations from the detailed scope of work or schedules.

The Platte Generating Station is NOT tax exempt and is subject to 7.5% sales tax. See the Nebraska Department of Revenue web site at www.revenue.state.ne.us for contractor's tax information.

4.0 QUALIFICATIONS

The Contractor shall be a firm specializing in the provision of services as outlined within this scope for large-scale utility air preheaters used in the electric power industry. The Contractor shall substantiate its experience through the submittal of three (3) similar projects' **reference list with the bid**. The Contractor will be expected to perform the work without the assistance of Platte Generating Station personnel or tools and comply with plant safety regulations and equipment lockout/tag out procedures.

4.1 FIELD ENGINEER

The Contractor shall provide well qualified service engineer to supervise the installation of the baskets and seals, serve as liaison to the Owner's designated representatives, be fully authorized to make any and all decisions affecting the work in the field and coordinate activities between the Contractor and its subcontractors, if any. A summary of the experience of the field engineer proposed for this project shall be **provided with the bid**.

5.0 SAFETY

The Contractor is required to follow their OSHA regulations for work in areas that are contaminated with fly ash and for areas that may be considered as confined spaces. NOTE: All contractors must submit **with the bid** a copy of their OSHA compliant Confined Space Procedure and Respiratory Protection Procedure. The Contractor will be required to provide proof that workers have successfully completed respiratory fit testing and pulmonary function testing and have been trained for confined space entry.

The Contractor shall be responsible for compliance with all safety practices as required by the regulatory agencies governing the Contractor's operations as well as any and all safety requirements of the Contractor's organization and shall submit historical evidence of such compliance. All personnel working on site will be

required to participate in the plant's safety orientation prior to performing any work on site at Platte Generating Station.

The plant has an equipment lockout/tag out procedure to prevent the unauthorized starting of motors and the unauthorized movement of valves and dampers. The Contractor is required to use the procedure and add its own locks/tags on top of the plant lock/tags if required. *Removal of plant locks/tags is not allowed and is cause for removal from the plant site.*

6.0 INSURANCE

The contractor shall comply with the attached City's insurance requirements.

7.0 PERFORMANCE AND PAYMENT BOND

The successful Bidder shall file with the OWNER Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of one year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond.

8.0 INVOICING

When equipment and similar goods are purchased that cannot immediately be put into operation, the City reserves the right to withhold from payment of such invoice retainage of 10% of the amount pending approval of the operation of such equipment and/or goods. The retainage shall be paid after it is verified that all the baskets and seals are the proper size, but no later than November 30, 2021.

9.0 DRAWINGS AND SITE INFORMATION

A selection of drawings has been provided with the bid package for reference only. Additional drawings are available for review at Platte Generating Station office. The Contractor is responsible for making such pre-bid site visits as required to obtain additional details for bidding and execution of the work and for clarification of any questions or concerns the bidder may have related to the work scope and site conditions.

ATTACHMENTS:

Air Heater Inspection Report – Spring 2020

Drawing Number 271730 – Air Heater General Arrangement

MINIMUM INSURANCE REQUIREMENTS
CITY OF GRAND ISLAND, NEBRASKA

The successful bidder shall obtain insurance from companies authorized to do business in Nebraska of such types and in such amounts as may be necessary to protect the Bidder and the interests of the City against hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations and completed operations. Failure to maintain adequate coverage shall not relieve Bidder of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

1. WORKERS COMPENSATION AND EMPLOYER'S LIABILITY

This insurance shall protect the Bidder against all claims under applicable State workers compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The liability limits shall not be less than the following:

Workers Compensation	Statutory Limits
Employers Liability	\$100,000 each accident
	\$100,000 each employee
	\$500,000 policy limit

2. BUSINESS AUTOMOBILE LIABILITY

This insurance shall be written in comprehensive form and shall protect the Bidder, Bidder's employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$ 500,000 Combined Single Limit
---------------------------------	----------------------------------

3. COMPREHENSIVE GENERAL LIABILITY

The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$ 500,000 each occurrence
	\$1,000,000 aggregate

4. UMBRELLA LIABILITY INSURANCE

This insurance shall protect the Bidder against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$1,000,000 each occurrence
	\$1,000,000 general aggregate

5. ADDITIONAL REQUIREMENTS

The City may require insurance covering a Bidder or subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Bidder or subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Bidder of all obligations under the Contract.

The Bidder shall provide and carry any additional insurance as may be required by special provisions of these specifications.

6. CERTIFICATE OF INSURANCE

Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this Contract. **The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the Bidder cannot have the "endeavor to" language stricken, the Bidder may elect to provide a new certificate of insurance every thirty (30) days during the contract. Bidder shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.**



Inspection Report

Unit 1 Airheater Spring 2020 Outage

Grand Island Utilities
1035 West Wildwood Drive
Grand Island, NE 68801

Plant Contact: Darrel Dorsey
Superintendent

By: Frank Klisura
Senior Consultant, Field Services

Project Information

Date Reported to plant: 04/28/2020

Location: Platte Generating Station
1035 West Wildwood Drive
Grand Island, NE 68801

Unit Number: 1

OEM Contract Number: LAP 3849

Facility Contact: Darrell Dorsey

1 SCOPE OF WORK:

Paragon was requested to perform an inspection outlining the current condition of the unit as well as provide recommendations for necessary future repairs. Immediate actions were discussed with plant personnel prior to departure from the site. The following report is a summary of findings from that visit.

2 EQUIPMENT:

(1) One size 27-VI Ljungström Regenerative Air Preheater.

TABLE OF CONTENTS

1 SCOPE OF WORK:..... 3

2 EQUIPMENT:..... 3

TABLE OF CONTENTS 4

3 OBSERVATIONS:..... 5

 3.1 Air Preheater Rotor: 5

 3.2 Compartment Inspection: 5

 3.3 Rotor Structure:..... 6

 3.4 Radial Seals: 6

 3.5 Hot End: 6

 3.6 Cold End 7

 3.7 Bypass, T-Bars, Rotor Post Seals:..... 8

 3.8 Baskets: 9

 3.9 Hot End: 9

4 Cold End Baskets and Support Grating:..... 10

 4.1 Housing and Ducting:..... 12

 4.2 Sector Plates:..... 12

 4.3 Soot Blower:..... 13

 4.4 Rotor Drive Unit and Pin Rack: 14

 4.5 Rotor Drive Unit:..... 14

 4.6 Pin Rack:..... 14

 4.7 Rotor Bearings: 17

5 Work Order/Recommendation Section..... 18

 5.1 CATEGORY A WORK ORDERS 18

 5.2 CATEGORY B WORK ORDERS: 18

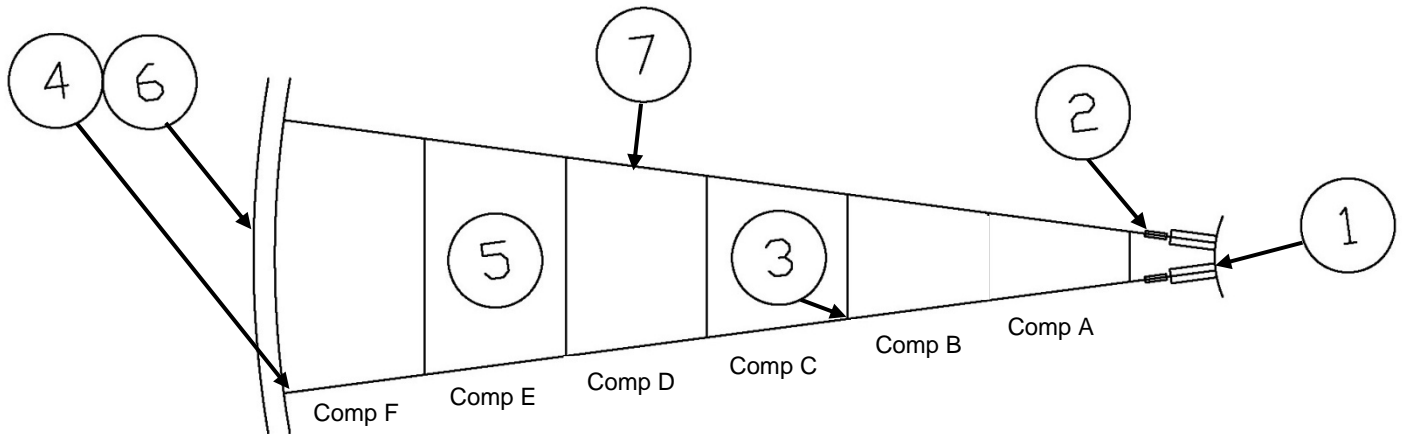
 5.3 CATEGORY C WORK ORDERS: 18

3 OBSERVATIONS:

3.1 Air Preheater Rotor:

3.2 Compartment Inspection:

The diagram below illustrates the components/areas checked during this part of the inspection, as well as what we are specifically looking for:



Ref #	Inspection Point
1	Rotor post welds: (stub-to-rotor post, and lateral stabilizers or "Wing Plates if present)
2	"Sister Plates" join stub diaphragm to the running diaphragm: checked for cracks, distortion, broken welds, and presence or absence of alignment pins (This component not present on these rotors)
3	Diaphragm-to-stay plate welds
4	Diaphragm-to-rotor shell welds
5	Condition of cold end support grating (if present) and/or basket support bars.
6	T-Bar attachment (floating or fixed) and rotor shell condition as well as localized erosion damage
7	Radial seal condition (this inspection point is suspended if seals are to be replaced during current outage)

3.3 Rotor Structure:

With no exceptions, the rotor structure was intact and in good, serviceable condition. No failed/damaged/distorted welds or signs of excessive stress or deformation to the rotor structure at any of the inspection points listed in the chart above was found.

3.4 Radial Seals:

3.5 Hot End:

The hot end radial seals are in fair to poor condition, they exhibit normal wear for their age and time in service. However, there is significant damage to the sealing edge of several seals. The damage appears to be the result of heavy contact with a foreign object that was either left in the airheater or made its way into the airheater during operation. The damage is notable and as a good engineering practice we would recommend replacing the hot end radial seals during the next outage.

Damage to the sealing edge of the Hot end radial seals typical across entire field.



3.6 Cold End

The cold end radial seals are in good condition and set correctly to their respective sealing surface.



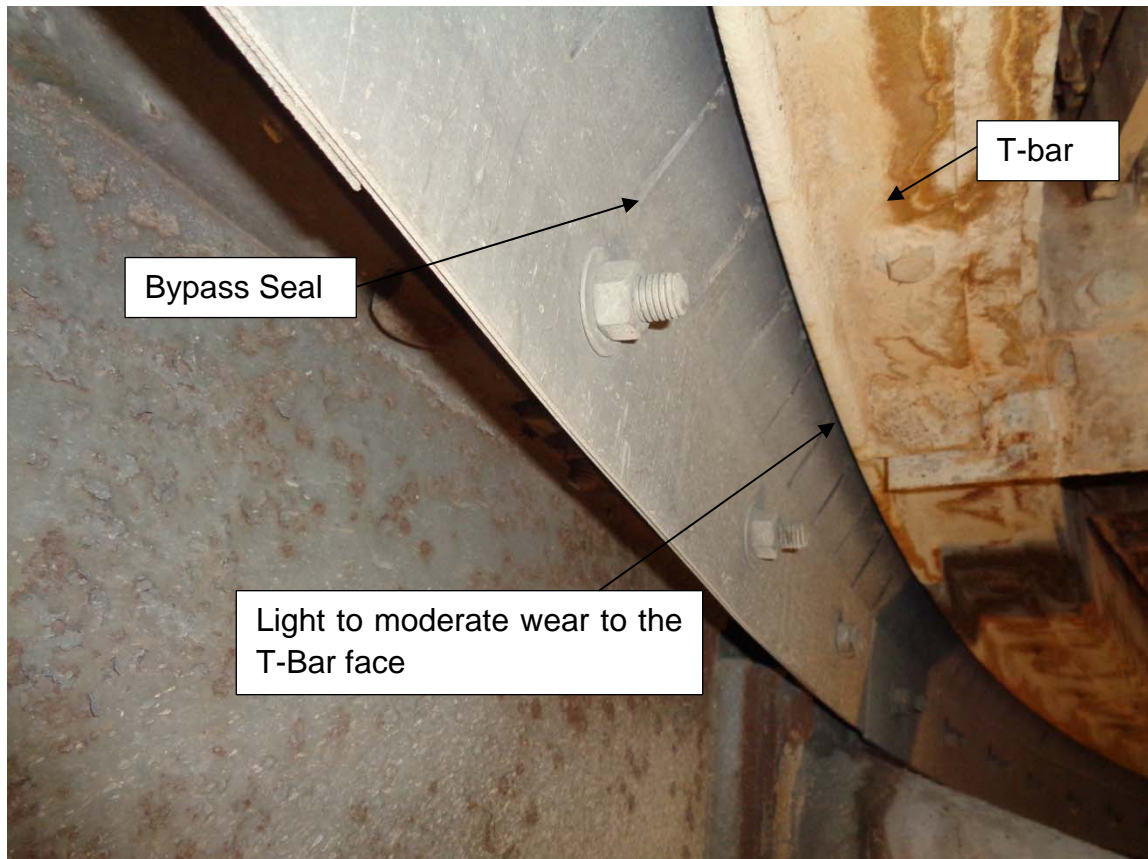
Cold end radial seals

3.7 Bypass, T-Bars, Rotor Post Seals:

The hot end and cold end bypass seals are intact and appear to have good nominal contact with the T-Bars. They will likely continue to function satisfactorily until the next major radial seal replacement.

The hot end and cold end T-Bars show light to moderate contact wear to the sealing surface. The wear is most notable at the T-Bar to diaphragm junctions. This condition is typical and referred to as rotor chording. The outward thermal expansion of the diaphragms distorts the shape of the T-Bars during full-load operation, as a result the T-Bars “chord” or flatten between the diaphragms causing point contact at the intersection of the diaphragms with the bypass seals. The wear is notable but not significant enough at this time to merit replacement. The condition of the T-Bars should be reevaluated at the next outage.

The hot end and cold end rotor post seals are in acceptable condition at this time, No significant erosion or corrosion damage was found.



3.8 Baskets:

3.9 Hot End:

The heat exchange element on the hot end is DU or Double Undulated. The element is tight and relatively clean. There is minimal element drop as visible from the hot end face of the rotor. Overall, the condition of the hot end element is acceptable.



4 Cold End Baskets and Support Grating:

The cold end NF-6 element is in poor condition. There is evidence of significant thinning and loss of material across the entire cold end. The cold end element is by design less thermally efficient than the hot end element. Its purpose is to serve as a barrier of protection against erosion/corrosion to the hot-intermediate layer while providing some measure of heat transfer ability. The cold end baskets should be replaced to ensure that the average cold end temperature does not migrate into the more thermally efficient intermediate layer, which is more expensive to replace.

Basket support grating is in good condition. No significant erosion damage or failed attachment welds was found.



There is significant erosion damage and loss of element across the entire cold end.



Cold end element is showing significant thinning of the element sheets.



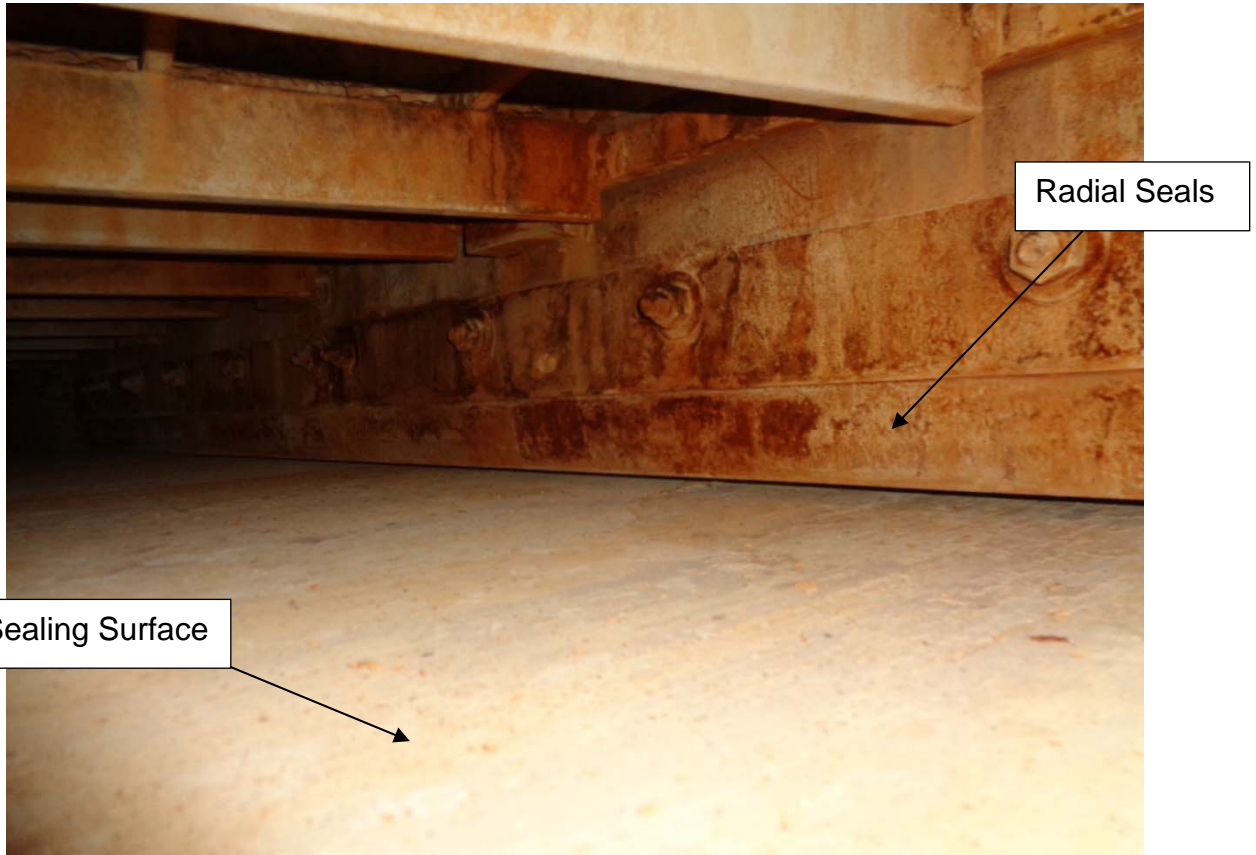
There is substantial loss of element across entire cold end.

4.1 Housing and Ducting:

The airheater housing and duct supports found to be in relatively good condition, no evidence of excessive distortion or stress to the airheater's duct supports was found.

4.2 Sector Plates:

The hot end and cold end sector plate sealing surfaces are relatively clean and free of significant erosion damage.



4.3 Soot Blower:

The soot blower is the OEM cantilever arm type. The nozzles are clean and free of obstruction and appear to be functioning correctly.



The soot blower appears to be in good serviceable condition.

4.4 Rotor Drive Unit and Pin Rack:

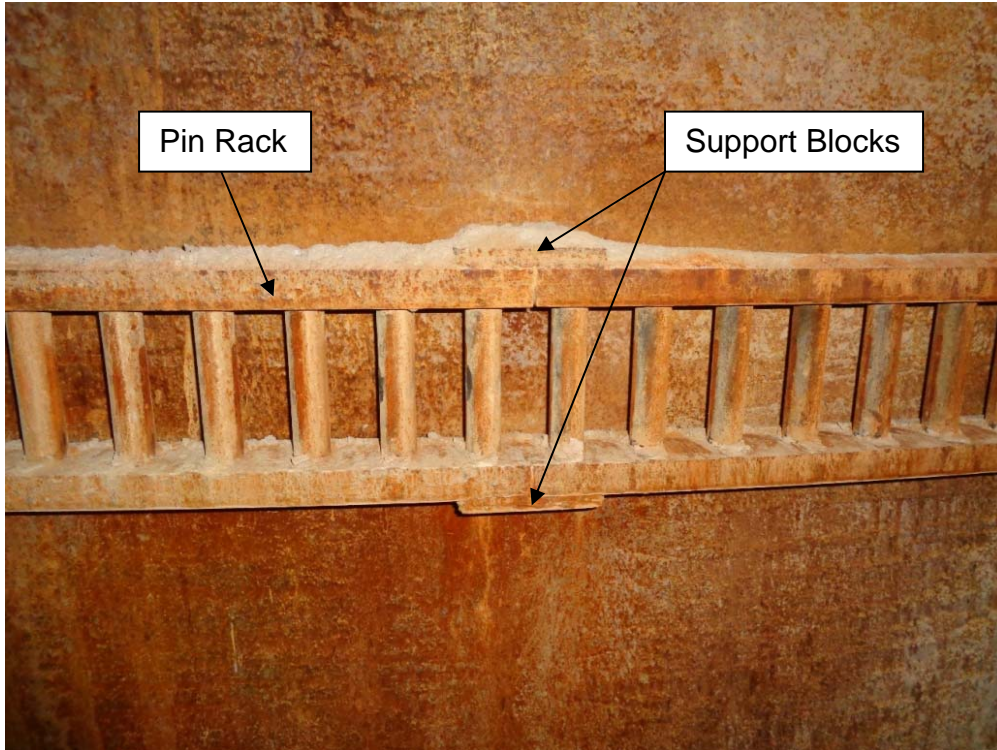
4.5 Rotor Drive Unit:

The drive unit was visually inspected externally. The oil level in the gear box was correct. The rotor was rotated several times and the drive appears to be functioning correctly.

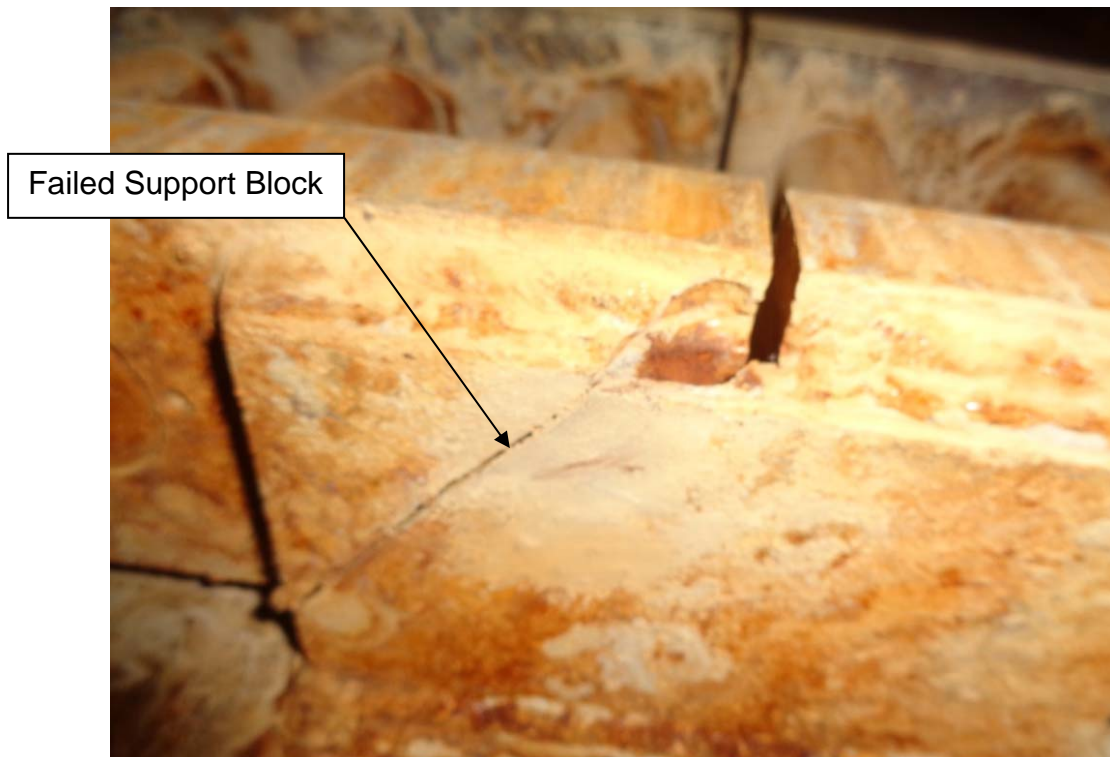


4.6 Pin Rack:

The pin rack sections were inspected section by section for pin wear, support block cracks, and weld integrity. Pin wear is mild at (0.020"-0.040" typ). While this is notable, it is still far from wearing through the case hardening. Typical case hardening on OEM pin rack segments is 0.125". That fact, in tandem with this unit configuration (VI) means that this component should be monitored for wear but is not in need of replacement at this time.



Pin rack side rails and support blocks were inspected for signs of hot or cold end impingement, cracked welds, and deformation. During the inspection three support blocks with cracks propagating between the pin rack segments were found and repaired.





Repaired Support Block



The drive gear shows normal wear and is in good working condition.

4.7 Rotor Bearings:

The rotor bearings and oil circulation systems were visually inspected. The oil circulation system appears to be intact and functioning correctly. The guide and support bearing were inspected thru their respective inspection ports. However, the true condition of the rotor bearings cannot be determined without removal of the internal components. It is advisable that oil samples be taken and analyzed periodically for metal shavings; this has proven to be an efficient and cost-effective way of monitoring the bearing condition.



Guide bearing internals as viewed from the inspection port.

What follows are the recommendations section of this report. It has been broken down into categories in accordance with the Paragon Airheater inspection matrix.

5 Work Order/Recommendation Section

Note: Work orders are divided into 3 categories:

- Category A work orders are those which represent a significant and immediate threat to the reliable, safe, or efficient operation of the unit. These work orders are generally given to the plant at the time of the inspection as they should, where possible, be remediated during the present outage.
- Category B work orders are those which represent a significant threat to the reliable efficient operation of the unit, but do not represent a risk of failure during operation. These work orders are generally scheduled for the next outage period.
- Category C work orders pose no threat to reliability or stability but should be remedied as a matter of good engineering practice. These are usually on the order of leaking gearboxes/shaft seals, damaged trunnion seals. They are not urgent in nature, and are usually put on the plants running list of “If down, do” items.

5.1 CATEGORY A WORK ORDERS:

- Repair failed support blocks (completed during visit).

5.2 CATEGORY B WORK ORDERS:

- Replace damaged hot end radial seals. You will also want to replace the bypass seals at the same time.
- Replace the cold end baskets.

5.3 CATEGORY C WORK ORDERS:



Paragon would like to thank you for this opportunity to partner with you in your ongoing efforts to ensure the proper operation and reliability of your air preheater. Please call us if you have any questions or concerns about any of the items mentioned in this report.

Sincerely,

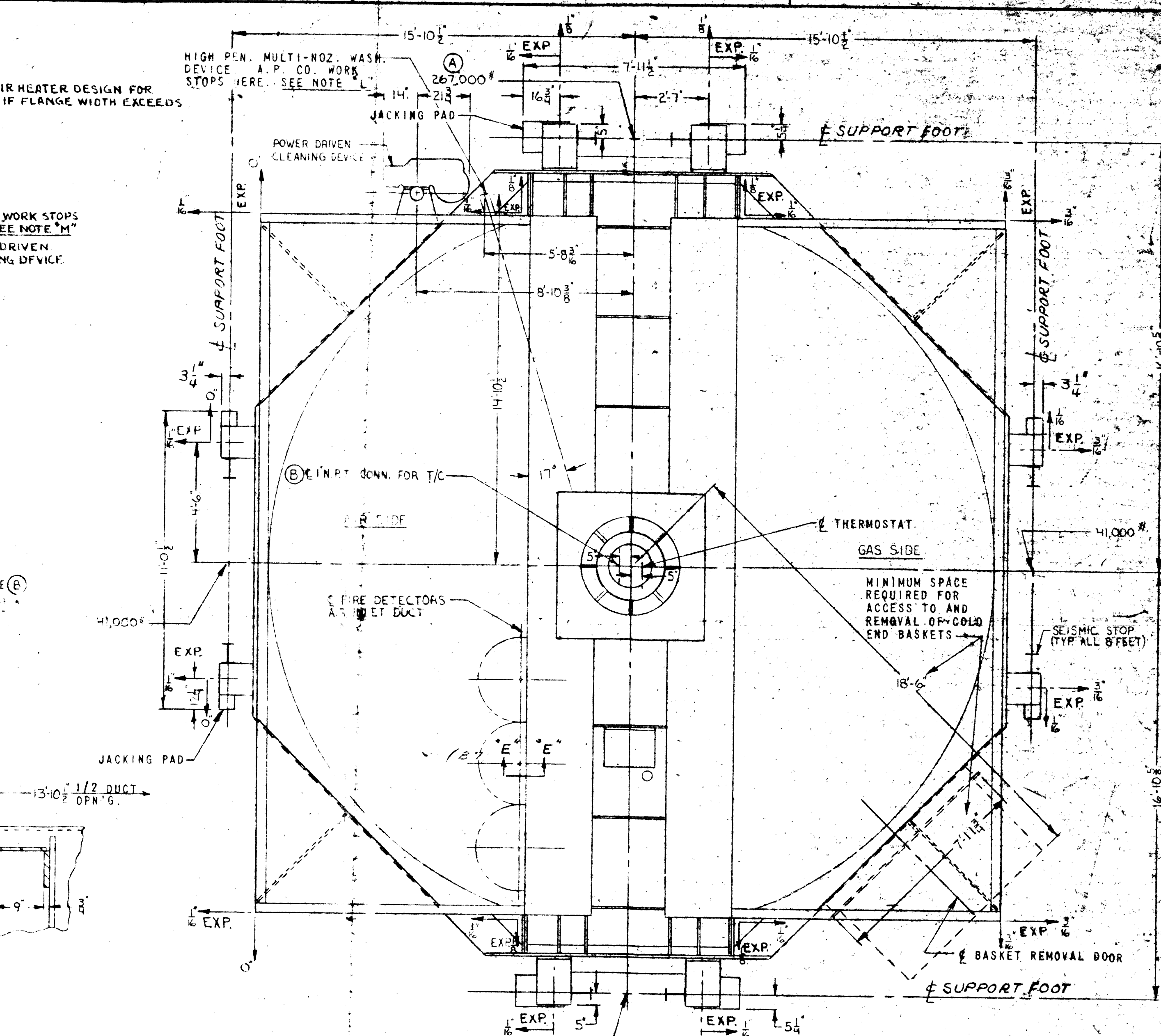
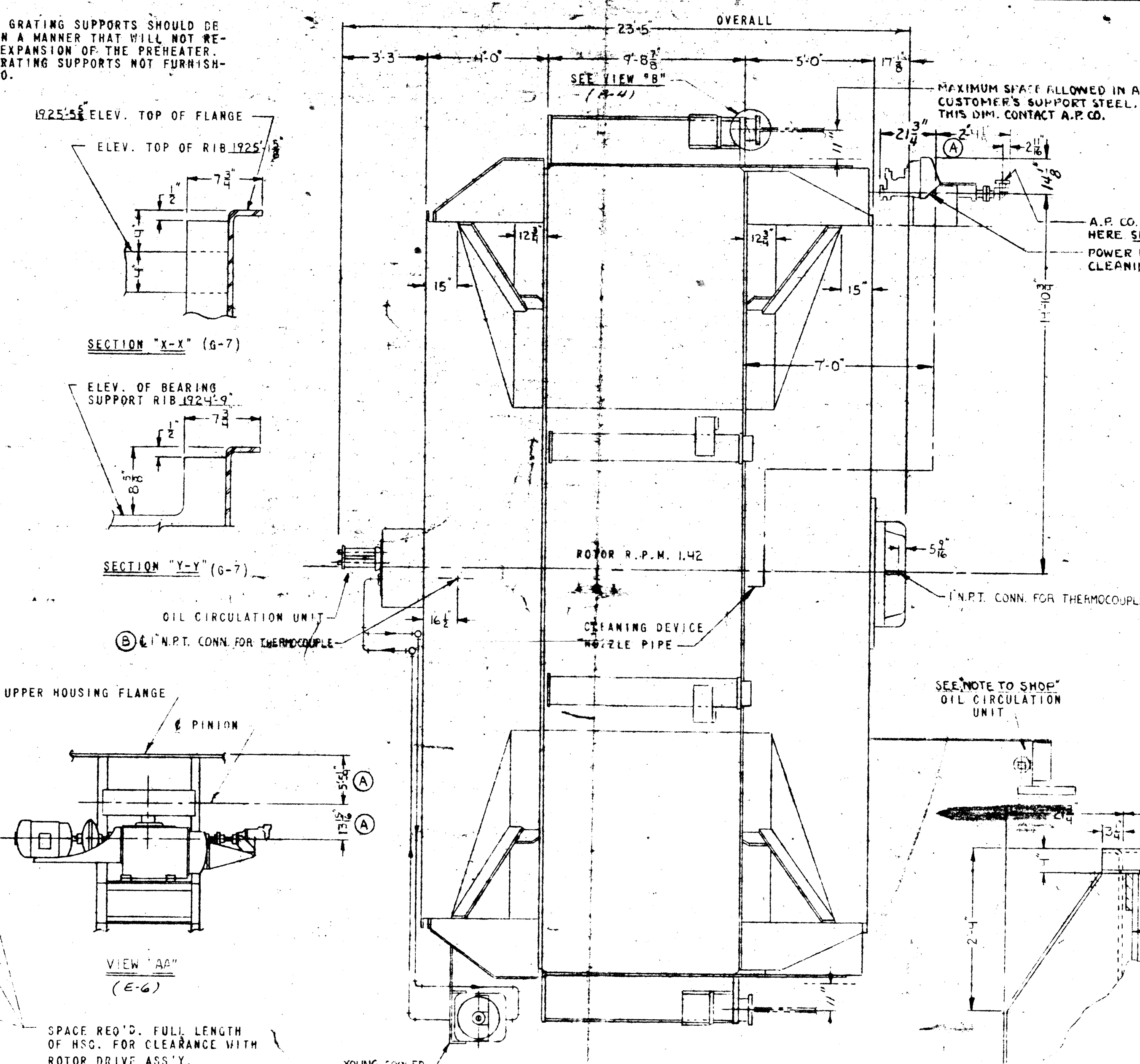
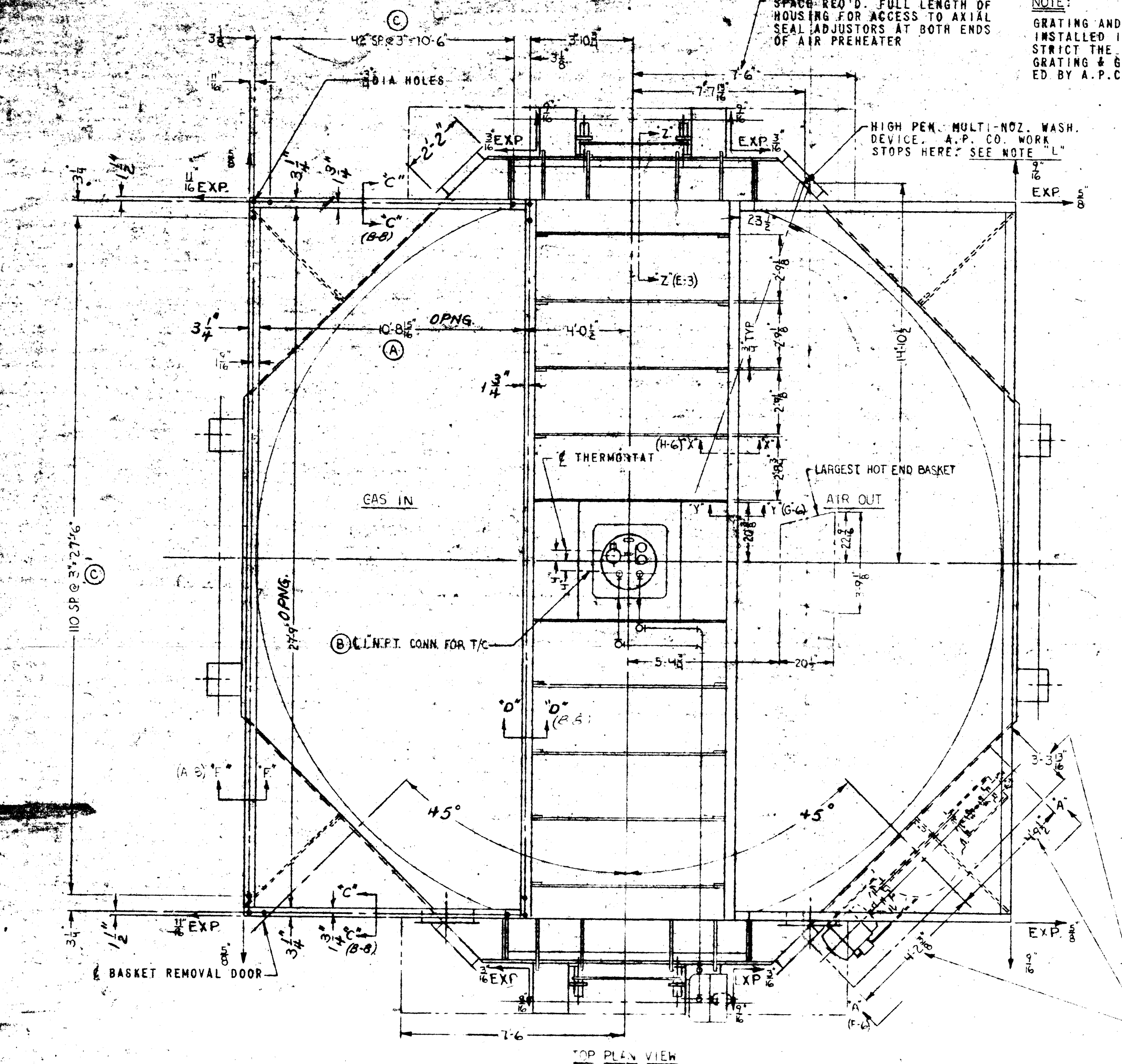
A handwritten signature in black ink that reads "John W. Albritton, IV". The signature is written in a cursive style with a large initial "J" and a distinct "IV" at the end.

John W. Albritton, IV

Regional Sales Manager

JAlbritton@paragonairheater.com

(951) 760 - 2873



NOTE:
GRATING AND GRATING SUPPORTS SHOULD BE INSTALLED IN A MANNER THAT WILL NOT RESTRICT THE EXPANSION OF THE PREHEATER. GRATING & GRATING SUPPORTS NOT FURNISHED BY A.P.CO.

ALL MATERIAL SPECIFIED IN THE FOLLOWING NOTES OR SHOWN ON THIS DRAWING ARE FURNISHED BY A.P.CO. UNLESS OTHERWISE STATED.
AIR PREHEATER DUCT WORK
 DUCT BRACING, NOZZLE PIPES, ETC. WITHIN THE AIR PREHEATER DUCT WORK ARE NOT SHOWN. E.P.WAMPERS, TEST CONNECTIONS, ETC. ARE REQUIRED IN OR NEAR THE DUCT WORK. CONSULT A.P.CO.
DUCT PENETRATIONS & FLANGE PENETRATIONS
 ALL DUCT PENETRATIONS & FLANGE PENETRATIONS ARE IDENTICAL TO THOSE SHOWN ON THE GAS INLET DUCTS.
ROTOR DRIVE UNIT
 ROTOR DRIVE UNIT FRAME 1935C T.E.S.N.V. 1800 RPM, 230/460 VOLTS, 3 PHASE, 1.0 SERVICE FACTOR, 1.0 I.P.M. DESIGN, CLASS B INSULATION FOR 40°C MAX. AMP. 1.0 SERVICE FACTOR, END MOUNTED OUTBOARD. ALL WINDINGS TO BE COPPER, OVERSIZE COND. BOX WITH 3/4" COND. CONN. CONDUIT SYSTEM GROUND PIPING. CIRCULATION SYSTEM SUPPORT BEARING 1/2" DIA. P.P.M. 1442. 1800 RPM, 230/460 VOLTS, 3 PHASE, 1.0 SERVICE FACTOR, 1.0 I.P.M. DESIGN, CLASS B INSULATION FOR 40°C MAX. AMP. 1.0 SERVICE FACTOR, END MOUNTED OUTBOARD. ALL WINDINGS TO BE COPPER, OVERSIZE COND. BOX WITH 3/4" COND. CONN. CONDUIT SYSTEM GROUND PIPING. CIRCULATION SYSTEM SUPPORT BEARING 1/2" DIA. P.P.M. 1442.

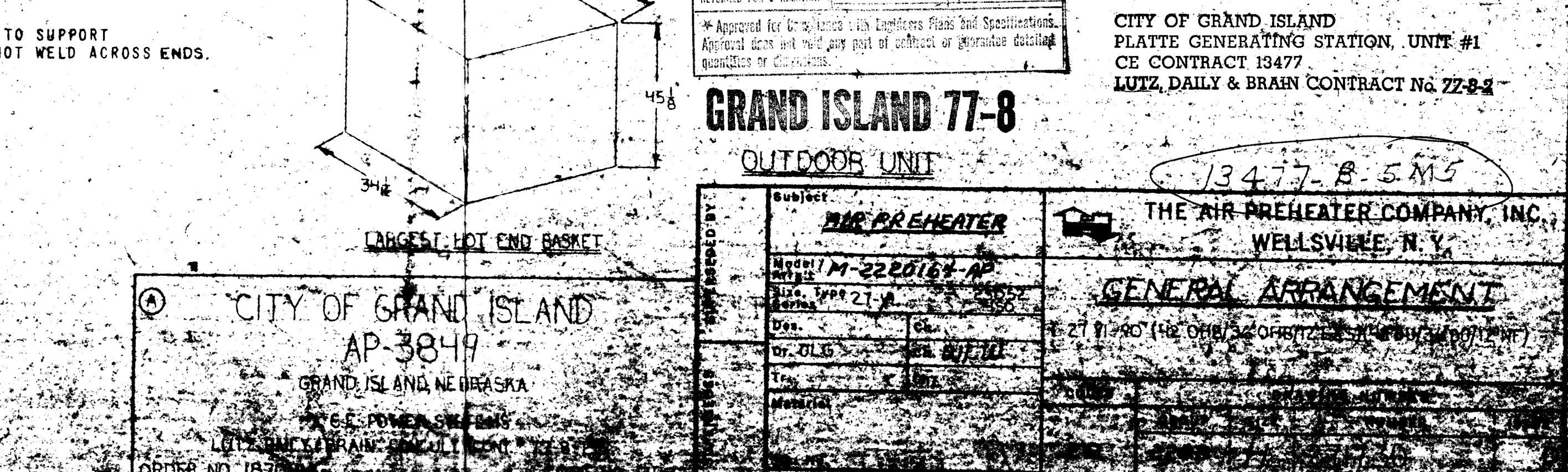
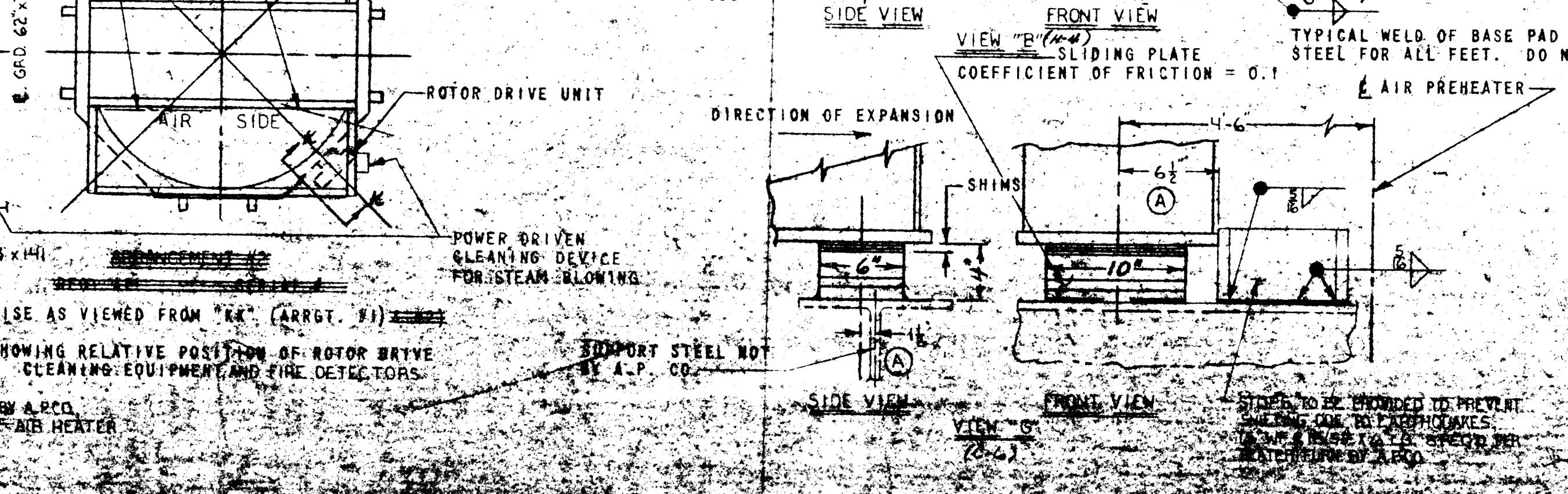
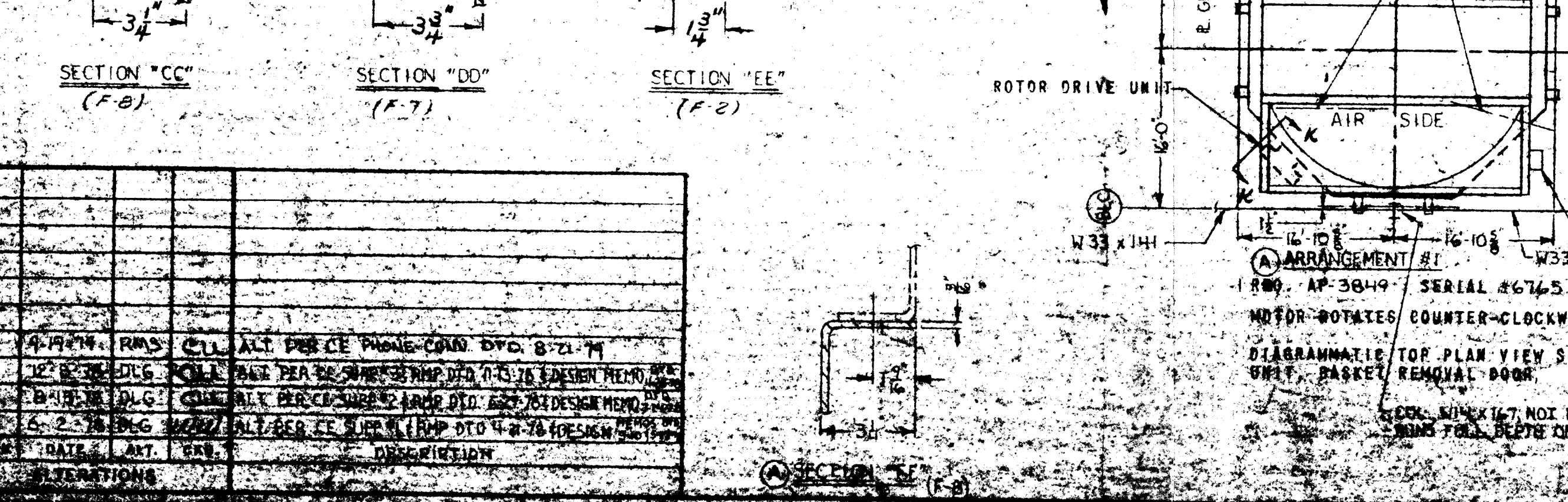
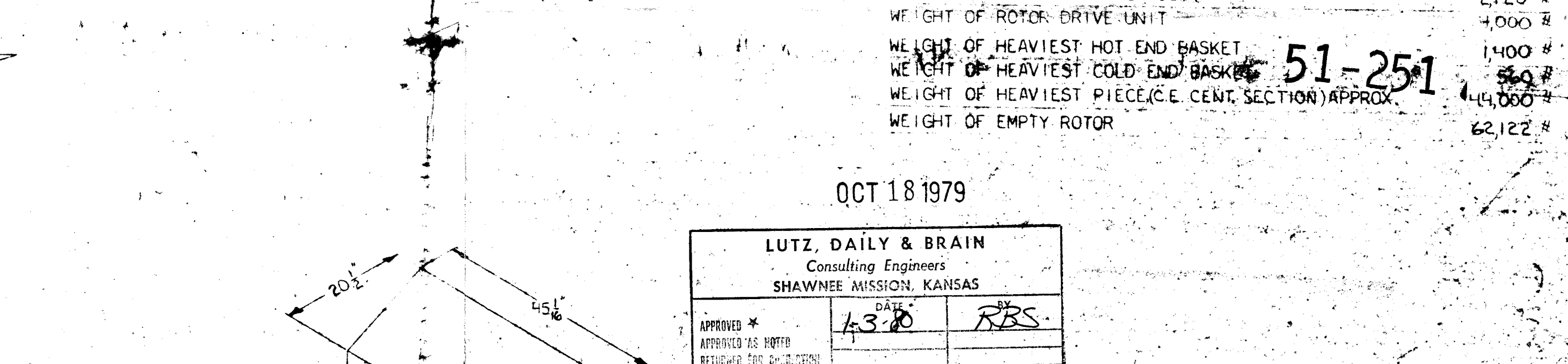
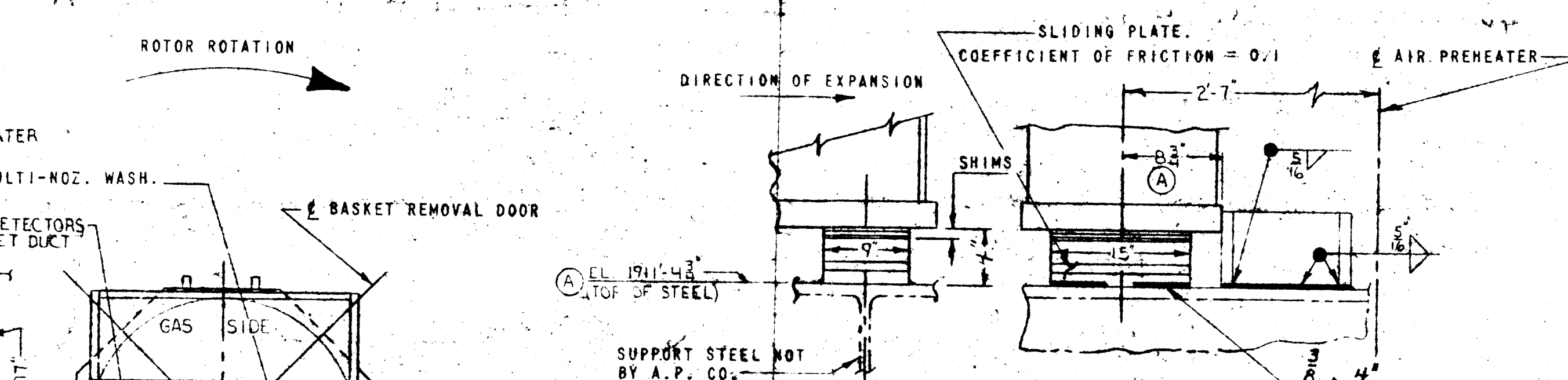
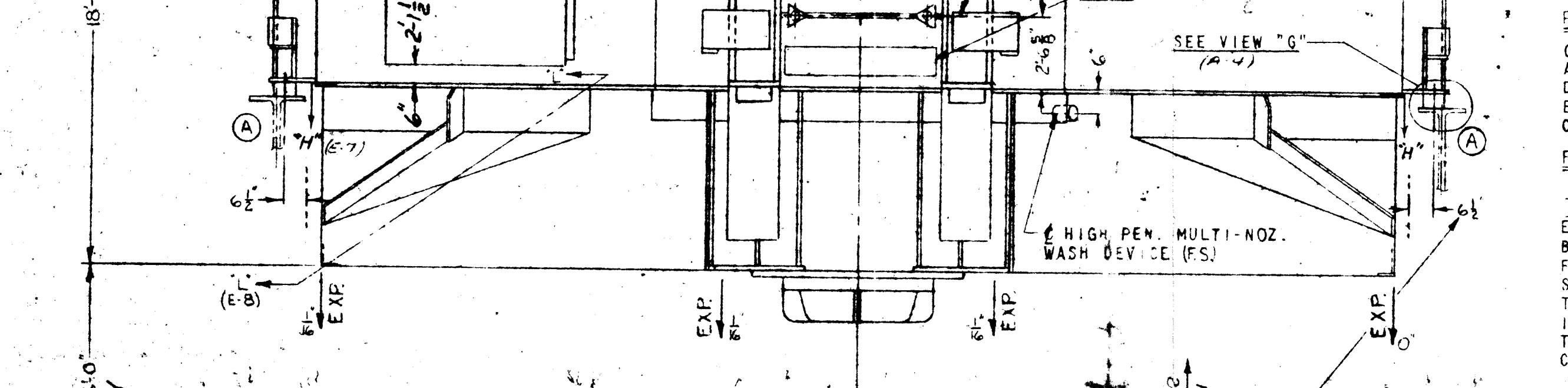
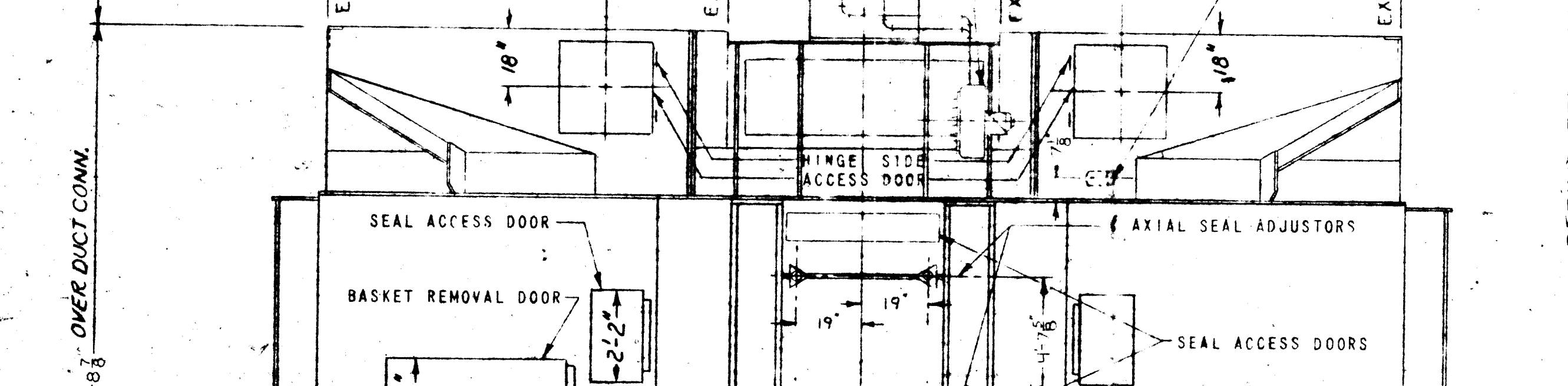
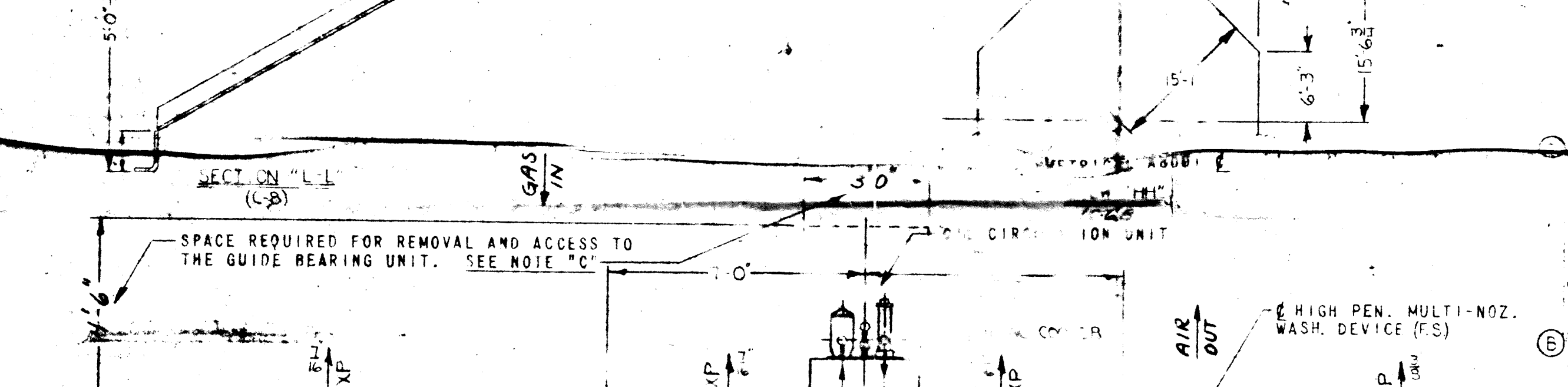
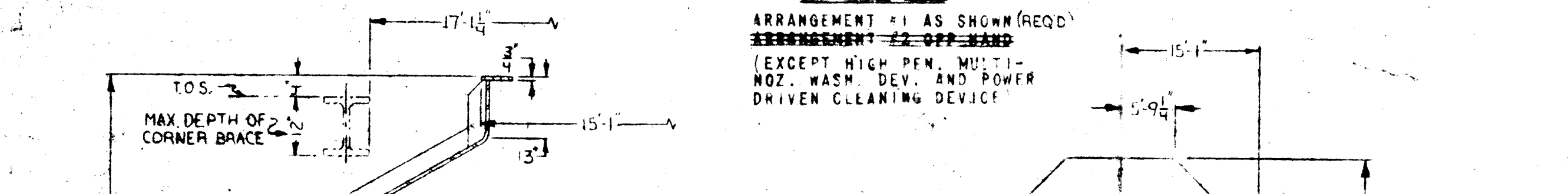
(1) FANWAL THERMOSTAT, SINGLE CIRCUIT, NEMA IV WEATHERPROOF ENCLOSURE, RANGE 50°-200° F., 300V. MIN. ELECTRICAL RATING 125-250 VOLTS, AC, 15 AMP. CIRCUIT CLOSURES ON OIL TEMPERATURE RISE AND ENERGIZES THE OIL CIRCULATION PUMP 1/2" CONDUIT CONNECTION. RANGE NOT TO BE DETERMINED WHEN OIL OPERATING TEMPERATURE IS 100-150° F.
 (2) SUPPORT BEARING AND GUIDE BEARING HOUSING PROVIDED WITH THERMO-COUPLE CONNECTIONS. THERMO-COUPLES NOT FURNISHED BY A.P.CO. 3/4" INSERTION LENGTH REQUIRED.

(3) CHICAGO PNEUMATIC AIR MOTOR #101-14000 AIR PRESSURE 70 P.S.I.G. CONSUMPTION IS 220 STD. CU. FT./MIN. AT 0.4 ROTOR R.P.M. 1442. VALVE OPERATOR, FILTER, SOLENOID VALVE. 11/2" CONDUIT CONNECTION. LOCATED BY ERECTOR IN AN ACCESSIBLE POSITION AS CLOSE TO THE AIR MOTOR AS POSSIBLE. PHASES NOT TO BE PHASED FOR AIR MOTOR. AIR MOTOR MUST BE FURNISHED WITH CLEAN DRY AIR, IT AIR CONNECTION. PIPING NOT BY A.P.CO. COMPANY.
 ACCESS DOORS
 2'-0" x 2'-0" QUICK OPENING ACCESS DOORS, ONE IN EACH DUCT, ALLOWING FOR INSULATION AS FOLLOWS: GAS INLET 4" AIR INLET 4" INTEGRAL WITH THE HEATER. BY A.P.CO. AND 7 ACCESS DOORS, ONE EACH IN THE GAS OUTLET AND AIR INLET, ADJACENT TO THE HEATER, NOT FURNISHED BY A.P.CO.
 PORT AND LIGHT
 ONE 250 WATT VAPOR PROOF LIGHT WITH 3/4" CONDUIT CONNECTION, AND ONE GLASS FACED OBSERVATION PORT, BOTH LOCATED IN AIR INLET DUCT. ALL SHIPPED UNATTACHED AND LOCATED UNDER SUPERVISION OF ERECTOR OR FIELD ENGINEER AT POINTS BEST SUITED FOR VIEWING THE COLD END ELEMENT.
FIELD WELDING
 1/4" LINEAL FEET OF 1/4" ERECTION WELD.
 4" LINEAL FEET OF SEAL WELD.
 ESTIMATES BASED ON SINGLE PASS WELDS. WELDING ROD NOT FURNISHED BY A.P.CO. WELDS BETWEEN CONNECTING PLATE AND ROTOR HOUSING FLANGES; ROTOR HOUSING PANELS TO PRESTALS AND CONNECTING PLATE SPLITS WHICH BOLT SECTIONS OF DUCT AND CENTER TUB TOGETHER. ARE TO BE DOWN BEAD WELDED, WHERE POSSIBLE, WITH A 3/16" FILLET. AN 1/8" FILLET WILL BE SUFFICIENT ON HORIZONTAL OR OVERHEAD WELDS IN THESE AREAS. ALL STRUCTURE WELDS WILL BE SPECIFIED ON EACH COMPONENT DRAWING.

(3) FANWAL THERMOSTAT, SINGLE CIRCUIT, NEMA IV WEATHERPROOF ENCLOSURE, RANGE 50°-200° F., 300V. MIN. ELECTRICAL RATING 125-250 VOLTS, AC, 15 AMP. CIRCUIT CLOSURES ON OIL TEMPERATURE RISE AND ENERGIZES THE OIL CIRCULATION PUMP 1/2" CONDUIT CONNECTION. RANGE NOT TO BE DETERMINED WHEN OIL OPERATING TEMPERATURE IS 100-150° F.
 (4) SUPPORT BEARING AND GUIDE BEARING HOUSING PROVIDED WITH THERMO-COUPLE CONNECTIONS. THERMO-COUPLES NOT FURNISHED BY A.P.CO. 3/4" INSERTION LENGTH REQUIRED.
NOTE TO ERECTOR
 REMOVE ALL COMPONENTS, PAINTED YELLOW, PRIOR TO START-UP.
BASKET REMOVAL
 COLD END BASKETS-ARRANGED FOR REMOVAL THROUGH HOUSING AS SHOWN. ALL OTHER BASKETS-ARRANGED FOR UPWARD REMOVAL THROUGH ADJACENT DUCTS.
 FINAL CHECKOUT (USING CHECK SHEETS PROVIDED) OF ALL AIR HEATER COMPONENTS WILL BE REQUIRED AFTER AIR HEATER IS ERECTED AND ALL CONNECTING DUCT WORK IS ATTACHED. THIS CHECKOUT TO BE ACCOMPLISHED IN THE PRESENCE OF AIR PREHEATER COMPANY PERSONNEL.
NOTE TO SHOP
 OIL CIRCULATION SYSTEM TO BE INSPECTED AND TESTED AFTER ASSEMBLY.
ANALYSE RECOMMENDATIONS
 WHEN TWO OR MORE AIR PREHEATERS ARE ATTACHED TO A BOILER, EACH AIR PREHEATER SHOULD BE MADE TO INSURE A FLOW OF AIR TO INSURE OPERATION OF SHOULD STARTUP ON ONE FAN BE COMPLETED. AIR MUST BE PASSING THROUGH THE AIR PREHEATER WHEN FLUE GAS IS PASSING THROUGH AIR HEATER.
AIR PREHEATER EXPANSION
 EXPANSIONS INDICATED ARE EXPECTED VALUES FOR THE MAXIMUM PROPOSED OPERATING CONDITIONS.
FIRE DETECTION SYSTEM
 FIRE DETECTION SYSTEM ASSEMBLY TO BE FURNISHED WITH AUXILIARY EQUIPMENT BY A.P.CO. ALARM WIRING AND ALARM SYSTEM TO BE FURNISHED BY OTHER.
YOUNG COOLER
 THE YOUNG COOLER WITH FAN AND FAN GUARD, 1/4 H.P. SLEEVED MOTOR, 50 FRAME, 1.0 SERVICE FACTOR, 1.0 I.P.M. DESIGN, CLASS B INSULATION FOR 40°C MAX. AMP. 1.0 SERVICE FACTOR, END MOUNTED OUTBOARD. ALL WINDINGS TO BE COPPER, OVERSIZE COND. BOX WITH 3/4" COND. CONN. CONDUIT SYSTEM GROUND PIPING. CIRCULATION SYSTEM SUPPORT BEARING 1/2" DIA. P.P.M. 1442.

(4) 1/2" DIA. STEEL INLET CONNECTION, 300#ASTM SLIP-ON RAISED FACE FLANGES, GASKETS, STUD BOLTS, AND NUTS. STEAM AT 150 P.S.I.G. WILL BE AVAILABLE FOR CLEANING. PRESSURE TO BE MAINTAINED THROUGH THE ORIFICE TO THE RECOMMENDED INITIAL BLOWING PRESSURE OF 200 P.S.I.G. OPERATOR MAY INCREASE OF DECREASE BLOWING PRESSURE AS DESIRED. THE BLOWING PRESSURE SHOULD NOT EXCEED A MAX. OF 250 P.S.I.G. WITH INLET VALVES WIDE OPEN. CONSUMPTION AT 250 P.S.I.G. WILL BE 250 STD. CU. FT./MIN.
 A BLOWING STEAM SOURCE SHOULD BE SELECTED WHICH WILL DELIVER SUPERHEATED STEAM TO THE CLEANING DEVICES HAVING AN ENTHALPY OF 15 BTU/LB. AT 250 P.S.I.G. (200°F. SAT. TEMP.) A CONSTANT PRESSURE THROUGHOUT THE BLOWING CYCLE MUST BE MAINTAINED. IF OIL IS TO BE USED FOR FIRING THE STEAM DURING THE INITIAL START-UP PERIOD, WE RECOMMEND STEAM AT A MIN. OF 150 P.S.I.G. OR HIGHER.

ONE 1/2" STRAINER PER DEVICE WITH 300# SLIP-ON WELDED FLANGES. GASKETS, BOLTS AND NUTS. SHIPPED UNATTACHED FOR FIELD INSTALLATION IN THE PIPING ADJACENT TO THE HIGH PEN. MULTI-NOZ. WASHING DEVICES. REMOVE ALL WELD, WELD MATERIAL AND BURS IN THE ADJACENT PIPING THAT COULD BREAK LOOSE AND PLUG THE NOZZLES.
 POWER DRIVEN TWIN NOZZLE CLEANING DEVICE FOR STEAM BLOWING TO BE LOCATED IN THE AIR INLET DUCT ADJACENT TO THE PREHEATER AS SHOWN. LEVER THROUGH ARM ON CLEANING DEVICE ROTATES COUNTER-CLOCKWISE AS VIEWED FROM END OF SHAFI. FOR MOTOR SPEC'S AND OTHER DATA SEE NOTES BELOW.
 1/4 H.P. G.E. MOTOR, FRAME 55, T.F.P. 200 RPM, 230/460 V. 3 PH. 1.0 SERVICE FACTOR, F.I.L.A. 2.471.2. RIGID MOUNTING, BALL BEARING. 400V. 50 AMP. 1.0 SERVICE FACTOR. CLASS B INSULATION FOR 40°C MAX. AMP. 1.0 SERVICE FACTOR, END MOUNTED OUTBOARD. ALL WINDINGS TO BE COPPER, OVERSIZE COND. BOX WITH 3/4" COND. CONN. CONDUIT SYSTEM GROUND PIPING. CIRCULATION SYSTEM SUPPORT BEARING 1/2" DIA. P.P.M. 1442.



WEIGHT OF SUPPORT BEARING ASSY	10,740 #
WEIGHT OF ROTOR DRIVE UNIT	11,400 #
WEIGHT OF HEAVIEST HOT END BASKET	1,400 #
WEIGHT OF HEAVIEST COLD END BASKET	1,400 #
WEIGHT OF HEAVIEST PIECEWISE CENT. SECTION APPROX.	1,400 #
WEIGHT OF EMPTY ROTOR	62,122 #
TOTAL WEIGHT OF PREHEATER	616,000 #

DATE: OCT 18 1979
 LUTZ, DAILY & BRAIN
 Consulting Engineers
 SHAWNEE MISSION, KANSAS
 CITY OF GRAND ISLAND
 PLATE GENERATING STATION, UNIT #1
 CONTRACT 19477
 LUTZ, DAILY & BRAIN CONTRACT NO 22-82
 GRAND ISLAND 77-8
 OUTDOOR UNIT