

PORT AUTHORITY OF ALLEGHENY COUNTY

TRANSMITTAL MEMORANDUM

TO: All Holders of Bid Documents for the Subject Contract

SUBJECT: North Shore Connector
NSC Train Systems (System Wide)
Contract No. NSC-009

DATE: September 26, 2008

Please find enclosed the following:

- Addendum No. #8 dated September 26, 2008
- Question and Answers 167-227
- NSC-009 Site Visit – Stage I Tunnel (Plinth Replacement) Attendance Sheet and working drawing
- Form B (Unit Price Schedule), Sheets B-2 through B-10 Excel file (A8-NSC-009 Form B.xls).

All document holder, the Excel file listed above, is provided on the CD as a separate file that is in addition to the (.pdf) files for the Addendum.

To use the Excel file, copy the file to your computer, right click on the file and go to “Properties”. Under the pop-up locate “Attributes” and uncheck the “Read-only” toggle. The bidder remains responsible for the proper submission of its Bid in accordance with the Bid Documents. Any additional updates to the Unit Price Schedule will be issued in Excel format as a part of related Addenda.

The following signature acknowledges the receipt of this Transmittal.

Signature

Name of Company

Date

Please sign and return one (1) copy to:

Port Authority of Allegheny County
Purchasing and Materials Management Department
Heinz 57 Center
345 Sixth Avenue, Third Floor
Pittsburgh, PA 15222-2527
Attention: Ms. Toni Matessa

NSC-009
Addendum 8

September 26, 2008
Form 004e

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NSC-009
Addendum 8

September 26, 2008
Form 004e

Port Authority of Allegheny County

North Shore Connector

NSC Train Systems (System Wide)

Contract No. NSC-009

ADDENDUM NO. 8

September 26, 2008

This Addendum modifies Bid Documents for the subject Contract as set forth below. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Form of Proposal, Form B.

To identify revisions on the attached Contract Drawings, an irregular line joined by a diamond symbol with a number inside it appears at the revision location; and the diamond symbol with a number inside it, date and a description appear in the Revision Block.

To identify revisions on the attached pages, a vertical bar appears in the right margin at the revision location.

CHANGES TO TERMS AND CONDITIONS (VOLUME 1)

1. Section 00100, Advertisement, Pages 00100-3 through 00100-4. Delete and replace with pages 00100-3 through 00100-4.
2. Section 00200, Instruction to Bidders, Page 00200-21. Delete and replace with page 00200-21.
3. Section 00400, Bid/Award Forms, Form B, Page B-2. Delete and replace with page B-2.
4. Section 00500, Agreement, Page 00500-34. Delete and replace with page 00500-34.
5. Section 00700, General Conditions, Pages 00700-21 through 00700-22. Delete and replace with pages 00700-21 through 00700-22.
6. Section 00700, General Conditions, Page 00700-63. Delete and replace with page 00700-63.
7. Section 00800, Prevailing Wage Rates, Davis Bacon Wages, Pages 1 through 13. Delete and replace with pages 1 through 13.

CHANGES TO TECHNICAL PROVISIONS (VOLUME 2)

8. Section 01755, Mobilization, Pages 01755-2 through 01755-3. Delete and replace with pages 01755-2 through 01755-3.

CHANGES TO NSC-009 CONTRACT DRAWINGS (VOLUME 1)

(Modified or Added Drawings are attached here to)

1. Drawing No. OC192, Sheet No 206. Drawing Modified.
2. Drawing No. OC193, Sheet No 207. Drawing Modified.
3. Drawing No. OC605, Sheet No 269. Drawing Modified.
4. Drawing No. SG145, Sheet No 400. Drawing Modified.
5. Drawing No. SG152, Sheet No 403. Drawing Modified.
6. Drawing No. CM041, Sheet No 544. Drawing Modified.
7. Drawing No. CR101, Sheet No 564. Drawing Modified.
8. Drawing No. CR102, Sheet No 565. Drawing Modified.
9. Drawing No. CR103, Sheet No 566. Drawing Modified.
10. Drawing No. CR104, Sheet No 567. Drawing Modified.

CHANGES TO NSC-009 ALSO PLANS (REF DWGS) (VOLUME 2)

(Modified or Added Drawings are attached here to)

1. Drawing No. GN005A. Drawing Modified.
2. Drawing No. GN006A. Drawing Modified.
3. Contract NSC-011, Drawing NAR 300, Drawing Added
4. Contract NSC-011, Drawing NAR 315, Drawing Modified
5. Contract NSC-011, Drawing NAR 316, Drawing Modified
6. Contract NSC-011, Drawing NAR 407, Drawing Modified
7. Contract NSC-011, Drawing NAR 515, Drawing Modified
8. Contract NSC-011, Drawing NAR 516, Drawing Modified
9. Contract NSC-011, Drawing NAR 517, Drawing Added
10. Contract NSC-011, Drawing NAR 920, Drawing Modified
11. Contract NSC-011, Drawing NAR 930, Drawing Added
12. Contract NSC-011, Drawing NAR 931, Drawing Added
13. Contract CA-456H, Drawing M-004-0. Drawing Added.
14. Contract CA-456H, Drawing M-006-1. Drawing Added.
15. Contract CA-456H, Drawing M-008-0. Drawing Added.
16. Contract CA-456H, Drawing M-009-0. Drawing Added.

17. Contract CA-456H, Drawing M-010-1. Drawing Added.
18. Contract CA-456H, Drawing M-011-0. Drawing Added.
19. Contract CA-456H, Drawing M-012-0. Drawing Added.
20. Contract CA-456H, Drawing M-017-1. Drawing Added.
21. Contract CA-456H, Drawing M-023-0. Drawing Added.
22. Contract CA-456H, Drawing M-024-0. Drawing Added.
23. Contract CY-810, Drawing C-077-0. Drawing Added.
24. Contract CY-810, Drawing C-078-0. Drawing Added.
25. Contract CY-810, Drawing C-079-0. Drawing Added.

All other questions relating to the Bid Documents must be submitted by mail or facsimile to:

Port Authority of Allegheny County
Heinz 57 Center
345 Sixth Avenue, Third Floor
Pittsburgh, PA 15222-2527
Attn: Toni Matessa
Fax: (412) 566-5359

In addition, the Bidder's attention is directed to the following schedule of activities for preparation of its Bid:

9:00 a.m. July 15, 2008	Pre-Bid Conference Port Authority of Allegheny County Heinz 57 Center Fifth Floor, Board Room 345 Sixth Avenue Pittsburgh, PA 15222-2527 (Attendance is not mandatory, but strongly recommended)
10:45 a.m.-4:00 p.m. July 15, 2008	Pre-Bid Site Tour of Pitt Tower Facility (10:45 a.m. – 12:00 p.m.) & South Hills Village Operations Control Center (12:45 p.m. – 4:00 p.m.) [immediately following the Pre-Bid Conference] Participants should wear a safety vest Transportation to each facility will be provided by Authority Details available at Pre-Bid Conference
1:30 a.m. to 4:00 a.m. July 16, 2008	Authority Stage I Tunnel (Gateway and Wood Street Stations and Gateway Tunnel Loop) Site Tour. NOTE: <u>This is a night-time tour.</u> Meeting Place: Gateway Station entrance located on the corner of Liberty Ave. and Stanwix Street, Pittsburgh, PA Participants should wear a Hard Hat and Safety Vest and bring a flashlight
10:30 a.m.-12:30 p.m. August 8, 2008	Site Tour of NSC-003/006 Worksite Participants are required to wear a safety vest, hard hat, and boots. Participants will be required to walk up/down stair access into and out of the excavation pits. Participants are required to attend tunnel safety training which will be provided and will begin at 10:30 a.m.. Meeting Place: Mazeroski Way/ West General Robinson Street Intersection (Launch Pit located on the North Shore)
10:30 a.m.-12:30 p.m. August 26, 2008	Site Tour of NSC-003/006 Worksite Participants are required to wear a safety vest, hard hat, and boots. Participants will be required to walk up/down stair access into and out of the excavation pits. Participants are required to attend tunnel safety training which will be provided and will begin at 10:30 a.m.. Meeting Place: Mazeroski Way/ West General Robinson Street Intersection (Launch Pit located on the North Shore)
August 14, 2008	Bidders shall submit Potential Areas of Subcontracting (Form GV) to Port Authority.
1:30 a.m. to 4:00 a.m. September 19, 2008	Authority Stage I Tunnel (Plinth replacement Site Tour) NOTE: <u>This is a night-time tour.</u> Meeting Place: Wood Street Station entrance located on the corner of Liberty Ave. and Sixth Ave., Pittsburgh, PA Participants should wear a Hard Hat and Safety Vest and bring a flashlight
1:30 a.m. to 4:00 a.m. October 2, 2008	Authority Stage I Tunnel (Gateway Tunnel Station and Loop) NOTE: <u>This is a night-time tour.</u> Meeting Place: Gateway Station entrance located on the corner of Liberty Ave. and Stanwix Street, Pittsburgh, PA Participants should wear a Hard Hat and Safety Vest and bring a flashlight
1:30 p.m. October 8, 2008	Bids Due Purchasing and Materials Management Department

The Board of Port Authority of Allegheny County reserves the right to reject any or all Bids

ARTICLE 2 – PRE-BID CONFERENCE

A Pre-Bid Conference may be held with prospective Bidders to review the Bid Documents and generally discuss the Project. The time and place will be specified in the Advertisement. All Bidders are encouraged to submit their questions in writing to the respective individuals listed in the Advertisement prior to the time specified in the Advertisement for the Pre-Bid Conference. A response may be provided during the Pre-Bid Conference or by Addendum thereafter.

ARTICLE 3 – PRE-BID TOUR

If a site tour is to be conducted covering the area(s) of the Work, it will be held at the date and time indicated in the Advertisement.

ARTICLE 4 – PUBLIC OPENING OF BIDS

Bids will be publicly opened and announced at the advertised time and place set for such Bid opening.

END OF SECTION

- 43A. Port Authority of Allegheny County North Shore Connector Project Safety and Security Management Plan, Dated April 20, 2007 (*Not Available for Purchase*)
44. Port Authority of Allegheny County System Safety Program Plan, Dated March 2005. (*Not Available for Purchase*)
45. PAAC ADU Operation Training – TWC Equipment Operation, Instruction Guide, Dated August 2006, (*Purchase Price \$5.00*)
46. PAAC ULS Application, FCC Application acceptance for call sign WPZK225, (*Purchase Price \$5.00*)
47. Allegheny River Tunnel N.P.D.E.S. Permit # PAG-2-00-02-04-108, January 13, 2005 (*Purchase Price \$138.00*)
- 48 through 68. [NOT USED]
69. PAAC – North Shore Connector Manual of Design Criteria, Dated October 8, 2004. (*Purchase Price \$35.00*)
- 70 through 77. [NOT USED]
78. PAAC North Shore Connector, North Side Tunnels & Station Shell, Contract No. NSC-003/006 Terms and Conditions, Volume 1, Dated November 2, 2005 (*Purchase Price \$25.00*)
79. PAAC North Shore Connector, North Side Tunnels & Station Shell, Contract No. NSC-003/006 Technical Provisions, Volume 2, Allegheny River Tunnel Launch Pit to Receiving Pit (NSC-003), Dated November 2, 2005 (*Purchase Price \$30.00*)
80. PAAC North Shore Connector, North Side Tunnels and Station Shell Contract No. NSC-003/006 Technical Provisions Volume 3, North Side Station and Cut & Cover Tunnel West (NSC-006), dated November 2, 2005 (*Purchase Price \$30.00*)
81. PAAC North Shore Connector, North Side Tunnels & Station Shell Contract No. NSC-003/006, Contract Drawings, Volume 1: Allegheny River Tunnel Launch Pit to Receiving Pit (NSC-003), Dated November 2, 2005 (*Purchase Price \$100.00*)
82. PAAC North Shore Connector, North Side Tunnels and Station Shell Contract NSC-003/006, Contract Drawings, Volume 2, North Side Station and Cut & Cover Tunnel West (NSC-006), Dated November 2, 2005 (*Purchase Price \$100.00*)
83. PAAC Stage I Contract CQ-240 Ventilation equipment Axial Flow Fans, Dampers and Sound Attenuators Operation and Maintenance Manual, Dated September, 1984, (*Purchase Price \$50.00*)
84. PAAC Track Entry Training Program, Dated April 2005 (*Purchase Price \$2.00*).
85. PAAC Stage I Light Rail Transit System, Gateway Center Station Finishes, Construction Contract No. CA-456G, CA-456-H, CA-456-P, CA-456-E, Dated July 8, 2003 (*Purchase Price \$10.00*)
86. PAAC Stage I Light Rail Transit System, Centenary Installation Central Business District, Installation Contract cy-815, dated May 5, 1983 (*Purchase Price \$10.00*)
87. [NOT USED]

PORT AUTHORITY OF ALLEGHENY COUNTY
NORTH SHORE CONNECTOR
NSC TRAIN SYSTEM (SYSTEM WIDE)
CONTRACT NO. NSC-009

UNIT PRICE SCHEDULE

BID ITEM	DESCRIPTION	UNITS	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
00771.001	INSURANCE DEDUCTIBLE FUND ALLOWANCE	PDA	1	\$50,000.00	\$50,000.00
01100.001	PARTNERING	PDA	1	\$50,000.00	\$50,000.00
01755.001	MOBILIZATION	LS	1		
01777.001	SYSTEMS INTEGRATION TESTING	LS	1		
01780.001	PARKING LOT NO. 1 ACCESS FOR PNC PARK EVENTS (OVER 30,000 ATTENDANCE)	EA	48		
01780.002	PARKING LOT NO. 1 ACCESS FOR HEINZ FIELD EVENTS	EA	48		
01784.001	TEMPORARY PEDESTRIAN ACCOMMODATIONS	LS	1		
01791.008	RE-INSTALL PARKING LOT SPECIAL SIGNAGE	EA	1		
01791.013	PERMANENT RELOCATION OF EXISTING PARKING LOT BOOTHS	LS	1		
01800.001	EROSION AND SEDIMENTATION CONTROL	LS	1		
01810.001	CITY OF PITTSBURGH OFF-DUTY UNIFORMED POLICE OFFICER	PDA	1	\$50,000.00	\$50,000.00
01900.001	TRAIN CLEARANCE TESTING PROGRAM	LS	1		
02020.001	CONTAMINATED MATERIALS HANDLING	PDA	1	\$50,000.00	\$50,000.00
02220.001	DEMOLITION OF EXISTING GATEWAY STATION LOOP FACILITIES	LS	1		
02220.002	UNFORESEEN FACILITY DEMOLITION	PDA	1	\$50,000.00	\$50,000.00
02220.003	DEMOLITION OF TEMPORARY TUNNEL CLOSURE WALL	LS	1		
02316.001	CLASS 1 EXCAVATION	CY	945		
02320.002	AASHTO NO. 57 COURSE AGGREGATE	CY	50		
02451.001	REPLACEMENT OF EXISTING DIRECT FIXATION TRACK	LF	960		
02451.002	AS DIRECTED REPLACEMENT OF EXISTING DIRECT FIXATION TRACK	PDA	1	\$200,000.00	\$200,000.00
02452.001	DIRECT FIXATION TRACK, TYPE I	LF	7,324		
02452.002	DIRECT FIXATION TRACK, TYPE II	LF	191		
02452.003	DIRECT FIXATION TRACK, TYPE III	LF	995		
02452.004	DIRECT FIXATION TRACK, TYPE IV	LF	3,290		
02453.001	NO. 4 SPECIAL CONSTRUCTION CROSSOVER AT ALLEGHENY	LS	1		

- A. All previous payments made to the Contractor by Authority applicable to terminated portion of the Contract;
- B. Any claim which Authority may have against the Contractor in connection with the Contract; and
- C. The agreed price of any materials, supplies, or other items acquired by the Contractor or sold pursuant to this Article 5 and not otherwise recovered by or credited to Authority.

ARTICLE 6 – GUARANTEES AND WARRANTIES

- 6.1 Unless otherwise provided in the Contract Documents, the Contractor guarantees and warrants the Work to be in accordance with the requirements of the Contract Documents, and to be free from defective and inferior materials, equipment and workmanship.
- 6.2
 - A. If, during any applicable guarantee or warranty period or within one year from the date of the Certificate of Acceptance of Final Inspection, whichever is later, Authority determines that the Work is defective, not fit for its intended purpose, or not in accordance with the requirements of the Contract Documents, Authority will inform the Contractor in writing and the Contractor shall repair or replace such work to the satisfaction of Authority and any collateral damage resulting from the defective work within a time specified by Authority, without additional expense to Authority.
 - B. In the event of a termination for default, pursuant to Section 00500, Article 4, the one-year period set forth in Article 6.2.A above shall commence on the date the Work is completed by others and accepted by Authority.
 - C. In the event of a termination for convenience of Authority, pursuant to Section 00500, Article 5, the one-year period set forth in Article 6.2.A above shall commence on the date of completion of the Work pursuant to the notice of termination.
 - D. All repairs or replacements shall be guaranteed and warranted, as required by Article 6.2.A above, or for a period of one year from the date of the acceptance by Authority of the repairs or replacements, whichever is later.
 - E. Should the Contractor fail to proceed within the time specified by Authority or in accordance with the guarantee or warranty, Authority may have such work performed by others and the costs of such work may be deducted from monies due, or to become due, the Contractor under the Contract or any other contract with Authority. In the event that final payment under the Contract has been made, the Contractor shall, within thirty (30) days of notification from Authority, reimburse Authority for such costs.
- 6.3 Any additional guarantee or warranty that may be required from the Contractor under the Contract Documents shall be subject to this Article 6 insofar as it does not conflict with the provisions of such additional guarantee or warranty.
- 6.4 The rights and remedies of Authority under this Article 6 are not intended to be exclusive and do not preclude the exercise of any other rights or remedies provided by the Contract Documents or by law with respect to unsatisfactory work performed by the Contractor.
- 6.5 Prior to the Contractor's submittal of the final pay estimate, the Contractor shall have all warranties and guarantees assigned to Authority including those from

utilities, the Engineer, Authority and others. Cooperation shall be specifically required in the area of scheduling of the Contractor's work to avoid possible interference with or impacts to, and to facilitate, the work of others. Where designated, the Contractor shall provide for proper interfaces to future construction by others.

- B. The Contractor hereby agrees, acknowledges and understands that should it cause any damage or cost, through any act or omission, to any other contractor having a contract with Authority, any public utility or any other person or entity, that said other contractor, such public utility or any other person or entity may bring an action directly against the Contractor for such damages and costs. The Contractor fully understands and agrees that the intent of this paragraph is to benefit such other contractors, public utilities, persons and entities and raises such other contractors, public utilities, persons and entities to the status of third party beneficiaries only as to the terms and conditions of this paragraph.

- 10.2 When any contractor performing work under or pursuant to another Authority contract is employed on work that interfaces with any portion of the Work, the Contractor shall provide to the Engineer all drawings, dimensions, data and other information necessary to ensure the complete, integrated and proper design, manufacture, installation and operation of interfacing and connecting parts and systems. The exchange of information will be coordinated by the Engineer and copies of all the Contractor's data, drawings and correspondence relating to the above shall be furnished to the Engineer in numbers as requested by the Engineer.
- 10.3 The Contractor shall also conduct its work in a manner that will prevent materials, soils, water, silt, dust, fumes and trash from leaving the work area and entering an adjacent contractor's work area.
- 10.4 The following table depicts other currently known or scheduled Authority or public or private agency contracts in the same area, adjacent to, or in the vicinity of the Worksite, and their anticipated start dates.

Other Contracts and Coordinated Contract Work	Anticipated Start / (Completion) Date
NSC-003/006 North Side Tunnel & Station Shell; NSC-003 Allegheny River Tunnel Launch Pit to Receiving Pit, and NSC-006 North Side Station and Cut & Cover Tunnel West	Ongoing (04/10)
NSC-004 R Gateway Station Shell	06/08 (10/10)
NSC-007 Aerial Structure, Retained Fill & Demo	05/08 (05/10)

NSC-010 Gateway Station Finishes	05/09 (11/10)
NSC-011 North Side Station Finishes	02/09 (08/10)
NSC-012 Allegheny Station Finishes	05/09 (12/10)
NSC-015 Elevators & Escalators	08/08 (12/10)
PNC Building 3	Ongoing/(Fall 09)
Carnegie Science Center	T.B.D.
North Shore Amphitheater	T.B.D.
North Side Riverfront Park Expansion	T.B.D.
Hyatt Place Hotel (North Shore Drive/Tony Dorsett Drive)	July 08/(Sept 09)
Marriott Residence Inn (Mazeroski Way/West General Robinson Street)	Ongoing/(Oct 09)
The Majestic Star Casino on the North Shore	Ongoing
PENNDOT West End Bridge	Ongoing
U.S. Courts Building Modifications for alternate access to parking garage (near Penn Park)	T.B.D

10.5 Coordinate construction activities and access to the Work:

- A. Along the entire cut-and-cover tunnel and station shell and existing Gateway Station Loop, the Contract interfaces with the NSC-004R and NSC-003/006 contractors. The NSC-004 R and NSC 003/006 contractors will provide access to the Work for the Contractor to measure, plan, and execute its work along the entire Cut-and-Cover Tunnel and Station Shell, and existing Gateway Station Loop. The Contractor shall coordinate the locations of the 23 kv feeder and Emergency Ventilation Fans EM-9 and EM-10 cabling rerouting locations with the NSC-004 R contractor prior to beginning this relocation work in order to coordinate placement in concert with the NSC-004 R contractor's temporary bracing design to be utilized during the NSC-004 R Gateway Station and loop demolition.
- B. At the new Gateway Station Shell and existing Gateway Station Loop, the Contract interfaces with the NSC-010 contractors. Provide access to the Work for the NSC-010 contractors to measure, plan, and execute their work within the new Gateway Station Shell, and existing Gateway Station Loop. Construction of the NSC-009 Work shall be coordinated with the NSC-010 contractors so that the NSC-010 contractors can maintain access through the work area.
- C. At the new Gateway Station, North Side Station and Allegheny Station, the Contract interfaces with the NSC-015 contractor. Provide access to the Work for the NSC-015 contractor to measure, plan, and execute its work for installing equipment including station finishes associated with the escalators and elevators for the new Stations. Construction of the NSC-009 Work shall be coordinated with the NSC-015 contractor so that the NSC-015 contractor can maintain access through the work area.
- D. Along the entire retained fill and aerial structure, the Contract interfaces with the NSC-007 contractor. The NSC-007 Contractor will provide access to the Work for the Contractor to measure, plan and execute its Work along the entire retained fill and aerial structure.

- C. A procedure for restricting who may visit the Project Site and recording who visits the Project Site. Access to the Project Site should be limited to employees, agents and representatives of Authority and the Engineer, those employees, agents and representatives of the Contractor, the Subcontractors and the Suppliers necessary to perform the Work and to other individuals who may be necessary for the performance of the Work;
- D. A procedure for performing background checks, including the type/level of background checks proposed to be performed, for: all Contractor's and Subcontractor's employees, agents and representatives proposed to perform any portion of the Work at the Project Site and all Suppliers' employees, agents and representatives proposed to perform any portion of the Work at the Project Site other than solely making deliveries to the Project Site. Background checks shall not be required for employees, agents or representatives of Authority or the Engineer or for employees of Suppliers or others solely making deliveries to the Project Site. The procedure shall include a criteria for determining who, based upon the background check, may be barred or disqualified from performing work at, and/or visiting, the Project Site. No individual, except as stated herein, may perform any portion of the Work at, or otherwise visit, the Project Site until a complete background check has been performed on said individual and the individual passes the requirements of a background check. In performing background checks, the Contractor shall familiarize itself with, and fully comply with, all applicable federal, state and local laws, ordinances, rules, regulations and orders pertaining to background checks and privacy;
 - 1. All Contractor's and Subcontractor's employees, agents and representatives proposed to perform any portion of the work at the Penn Park laydown area shall be subject to random background checks by Authority Police Prior to the beginning of each week, the Contractor shall supply a list of employees performing work at the laydown area to Authority police including all requested employee information required to perform the background checks.
- E. A procedure for overseeing and ensuring the security of the Project Site in regard to deliveries made by Suppliers or others to the Project Site and for other permitted short term visitors to the Project Site who are not performing any portion of the Work at the Project Site, including providing temporary "visitor" badges to and escorting, as appropriate, such individuals;
- F. Identification badges, including permanent, temporary and visitor, shall be issued for the Project Site by the Engineer to the Contractor. The Security Program shall include a procedure for the display, control and return of all such identification badges which shall include:
 - 1. A procedure for ensuring that all badges are prominently displayed by each individual while on the Project Site. The absence of a valid badge may be grounds for removal from the Project Site;
 - 2. A proposed procedure for controlling, safeguarding and returning all badges;
 - 3. A procedure for reporting lost or stolen badges;
 - 4. A procedure for returning a badge to the Engineer if an employee or other individual is terminated or no longer will be performing work at the Project Site. Also, if, at any time, an employee or other individual is not scheduled to be performing work at the Project Site within the subsequent two-week period, the badge issued to said

GENERAL DECISION: PA20080004 09/19/2008 PA4

Date: September 19, 2008

General Decision Number: PA20080004 09/19/2008

Superseded General Decision Number: PA20070004

State: Pennsylvania

Construction Types: Heavy and Highway

Counties: Allegheny, Armstrong, Beaver, Bedford, Blair, Butler, Cambria, Cameron, Centre, Clarion, Clearfield, Clinton, Crawford, Elk, Erie, Fayette, Forest, Franklin, Fulton, Greene, Huntingdon, Indiana, Jefferson, Lawrence, McKean, Mercer, Mifflin, Potter, Somerset, Venango, Warren, Washington and Westmoreland Counties in Pennsylvania.

HEAVY AND HIGHWAY CONSTRUCTION PROJECTS (excluding sewer grouting projects and excluding sewage and water treatment plant projects)

Modification Number	Publication Date
0	02/08/2008
1	02/22/2008
2	03/07/2008
3	03/21/2008
4	04/11/2008
5	05/30/2008
6	06/20/2008
7	06/27/2008
8	07/04/2008
9	07/18/2008
10	09/19/2008

BOIL0013-005 09/30/2007

CENTRE, FRANKLIN, POTTER, CLINTON, FULTON, HUNTINGDON AND MIFFLIN COUNTIES

	Rates	Fringes
BOILERMAKER.....	\$ 36.86	23.81

BOIL0154-004 06/01/2008

ALLEGHENY, ARMSTRONG, BEAVER, BEDFORD, BLAIR, BUTLER, CAMBRIA, CAMERON, CLARION, CLEARFIELD, CRAWFORD, ELK, FAYETTE, FOREST, GREENE, INDIANA, JEFFERSON, LAWRENCE, MCKEAN, MERCER, SOMERSET, VENANGO, WARREN, WASHINGTON AND WESTMORELAND COUNTIES

	Rates	Fringes
BOILERMAKER.....	\$ 33.90	22.07

BOIL0744-003 07/01/2008

ERIE COUNTY

	Rates	Fringes
BOILERMAKER.....	\$ 35.34	18.48

* BRPA0009-023 06/01/2008

BEAVER COUNTY

	Rates	Fringes
BRICKLAYER.....	\$ 25.75	13.10

* BRPA0009-024 06/01/2008

WASHINGTON (Cross Creek, Hanover, Jefferson, Mt Pleasant, Nottingham, Peters, Robinson, Smith, Union Twp) COUNTY

	Rates	Fringes
BRICKLAYER.....	\$ 27.73	12.72

* BRPA0009-025 06/01/2008

BUTLER, LAWRENCE, AND MERCER COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 25.75	12.98

* BRPA0009-032 06/01/2008

FAYETTE (Jefferson & Washington Twp), GREENE (Except Cumberland, Dunkirk, Greene, Monongahelia Twp), INDIANA, AND WESTMORELAND (Rostraver Twp) COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 26.65	13.14

* BRPA0009-033 06/01/2008

ARMSTRONG, CLARION (Brady, Madison, Perry, Tobe, Porter, Redbank Twp), FAYETTE (Except Jefferson & Washington Twp), GREENE (Cumberland, Dunkirk, Greene, Monongahelia Twp), INDIANA, AND WESTMORELAND (Except Rostraver Twp) COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 26.77	13.02

BRPA0009-034 05/01/2008

ERIE COUNTY

	Rates	Fringes
BRICKLAYER.....	\$ 24.85	12.76

CARP2235-005 01/01/2008

Rates	Fringes
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PILEDRIVERMAN

Piledriverman (welder).....\$ 28.15	11.50
Piledriverman.....\$ 27.85	11.50

CARP2235-006 01/01/2007

Rates	Fringes
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Diver.....\$ 40.40	10.77
Tender.....\$ 26.93	10.77

CARP2274-001 01/01/2008

Rates	Fringes
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CARPENTER (ALLEGHENY,
ARMSTRONG, BEAVER, BUTLER,
ERIE, FAYETTE, GREENE,
LAWRENCE, MERCER, WASHINGTON,
AND WESTMORELAND COUNTIES)

Carpenter (Welders).....\$ 27.37	11.52
Carpenters.....\$ 26.67	11.52

CARPENTER (BEDFORD, BLAIR,
CAMBRIA, CAMERON, CENTRE,
CLARION, CLINTON, CLEARFIELD,
CRAWFORD, ELK, FOREST,
FRANKLIN, FULTON, HUNTINGDON,
INDIANA, JEFFERSON, MCKEAN,
MIFFLIN, POTTER, SOMERSET,
VENANGO, AND WARREN COUNTIES)

Carpenters (Welders).....\$ 27.13	11.52
Carpenters.....\$ 26.42	11.52

ELEC0005-006 12/21/2007

ALLEGHENY, ARMSTRONG, BEDFORD, BLAIR, BUTLER, CAMBRIA, CAMERON,
CENTRE (Remainder), CLARION, CLEARFIELD, ELK, FAYETTE, FULTON,
GREENE, HUNTINGDON, INDIANA, JEFFERSON, MCKEAN, SOMERSET,
VENANGO, WASHINGTON, AND WESTMORELAND COUNTIES

Rates	Fringes
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ELECTRICIAN.....\$ 29.38	17.59
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ELEC0056-004 06/01/2006

ERIE, FOREST AND WARREN COUNTIES

Rates	Fringes
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ELECTRICIAN.....\$ 23.90	15.09
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ELEC0126-005 06/03/2007

ALLEGHENY, ARMSTRONG, BEAVER, BEDFORD, BLAIR, CAMBRIA, CENTRE,
CLARION, CLEARFIELD, FAYETTE, FULTON, GREENE, HUNTINGDON,
INDIANA, JEFFERSON, SOMERSET, WASHINGTON AND WESTMORELAND

	Rates	Fringes
Line Construction:		
Groundman.....	\$ 21.27	14.05
Lineman.....	\$ 35.46	14.05
Truck Driver.....	\$ 23.05	14.05
Winch Truck Operator.....	\$ 24.82	14.05

ELEC0126-007 06/03/2007

FRANKLIN AND MIFFLIN COUNTIES

	Rates	Fringes
Line Construction:		
Groundman.....	\$ 19.28	13.26
Lineman.....	\$ 32.14	13.26
Truck Driver.....	\$ 20.89	13.26
Winch Truck Operator.....	\$ 22.50	13.26

ELEC0143-007 06/01/2007

FRANKLIN and MIFFLIN COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 26.50	12.72

ELEC0712-003 12/24/2007

CRAWFORD, BEAVER, LAWRENCE AND MERCER COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 28.45	17.67

ELEC0812-008 06/01/2007

CLINTON COUNTY

	Rates	Fringes
ELECTRICIAN.....	\$ 24.34	14.58

ELEC0812-009 06/01/2007

POTTER COUNTY

	Rates	Fringes
ELECTRICIAN.....	\$ 25.35	14.61

ELEC0812-011 06/01/2007

CENTRE COUNTY (Burnside, Curtin, Liberty, Howard, Marion,
Walker, Miles, Haines Townships)

	Rates	Fringes
ELECTRICIAN.....	\$ 25.35	14.61

ELEC1319-004 08/29/2005

BUTLER, CAMERON, CLINTON, CRAWFORD, ELK, ERIE, FOREST,
LAWRENCE, MCKEAN, MERCER, VENANGO, WARREN AND POTTER COUNTIES

Rates. Fringes

Line Construction:

Groundman.....	\$ 21.35	11.99
Lineman, Dynamite Man,		
Heavy Equipment Operator....	\$ 34.44	12.90
Truck Drivers.....	\$ 22.39	12.06
Winch Truck Operators.....	\$ 23.07	12.11

ENGI0066-016 01/31/2008

Rates. Fringes

Power equipment operators:

(ALLEGHENY, ARMSTRONG,
BEAVER, BLAIR, BUTLER,
CAMBRIA, CENTRE, CLARION,
CLEARFIELD, CRAWFORD, ERIE,
ELK, FAYETTE, GREENE,
INDIANA, JEFFERSON, LAWRENCE,
MCKEAN, MERCER, SOMERSET,
VENANGO, WARREN, WASHINGTON,
AND WESTMORELAND COUNTIES)

GROUP 1.....	\$ 25.58	13.74
GROUP 2.....	\$ 25.32	13.74
GROUP 3.....	\$ 21.67	13.74
GROUP 4.....	\$ 21.21	13.74
GROUP 5.....	\$ 20.96	13.74

Power equipment operators:

(BEDFORD, CAMERON, CLINTON,
FOREST, FRANKLIN, FULTON,
HUNTINGDON, MIFFLIN, AND
POTTER COUNTIES)

GROUP 1.....	\$ 25.29	13.74
GROUP 2.....	\$ 25.01	13.74
GROUP 3.....	\$ 21.37	13.74
GROUP 4.....	\$ 20.88	13.74
GROUP 5.....	\$ 20.67	13.74

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1 - Asphalt Paving Machine (Spreader), Autograde
(C.M.I. and similar); Backfiller, Compactor with Blade,
Backhoe - 360 and 180 degree Swing; Cableway; Caisson Drill
(similar to Hugh Williams), Central Mix Plant; Cooling
Plant; Concrete Paving Mixer, Concrete Pump (self-
propelled); Cranes; Cranes (boom or mast over 101ft. \$.50
per each additional 50 feet inclusive of jib), Cranes
(Tower Stationary- Climbing Tower Crane); Derrick; Derrick
Boat; Dozer(greater than 25,000 lbs.); Dragline; Dredge;
Dredge Hydraulic; Elevating Grader; Franki Pile Machine;
Gradall (remote control or otherwise), Grader (power-fine
grade); Hllift (4 cy. and over); Hoist 2 Drums or more (in
one unit); Hydraulic Boom Truck with pivotal cab (single

motor-Pitman or similar), (Boom and Mast over 101 feet will be paid an additional 50 feet inclusive of jib if used;) Kocal; Mechanic, Locomotive (std. Gauge); Metro-chip Harvester or similar; Milling Machine (Roto Mill or similar); Mix Mobile; Mix Mobile (with Self Loading Attachment), Mucking Machine (tunnel); Pile Driver Machine; Pipe Extrusion Machine; Presplitter Drill (self contained); Refrigeration Plant (soil Stabilization) Rough Terrain Crane (25 ton over) (Boom and Mast over 101 feet will be paid an additional 50 feet inclusive of jib if used); Rough Terrain Crane (under 25 ton), Scrapers; Shovel-Power; Slip form Paver (C.M.I. and similar); Trenching Machine (30,000 lbs. and over), Trenching Machine (under 30,000 lb.), Tunnell Machine (Mark XXI Jarva or similar), Vermeer Saw, Whirley, Mechanic, Pipe bursting machine, Slip Lining machine

GROUP 2: Asphalt plant operator; auger (tractor mtd.); auger (truck mtd.); belt loader (euclid or similar); boring machine; cable placer or layer; compactor with blade, concrete batch plant (electronically synchronized); concrete belt placer (C.M.I. and similar); concrete finishing machine and spreader, concrete mixer (over 1 cy.) concrete pump (stationary); core drill (truck or skid mtd. - similar to penn drill), dozer (25,000 lbs or less); Ditch Witch Saw, force feedloader; fork lift (lull or similar); grader - power; grease unit opertor (head); guard rail post driver (truck mounted) guard rail post driver (skid type); hilift (under 4 cy.); skid steer loader; hydraulic boom truck (non-pivotal cab); job work boat (powered), jumbo operator; locomotive (narrow guage); minor equipment operator (accumulative four units); mucking machine; multi-head saw (groover); overhead crane; roller -power-asphalt; ross carrier; side boom or tractor mounted boom; shuttle buggy (asphalt), stone crusher (screening-washing plants); stone spreader (self propelled) truck mounted drill (davey or similar); welder and repairman; well point pump operator.

GROUP 3: Broom Finisher (C.M.I. or similar); Compactors/Rollers (static or vibratory (Self-propelled) on dirt or stone; Curb Builder; Minor Equipment Opertor (two or three units); Multi-head Tie Tamper; Pavement Breaker (self-propelled or ridden); Soil Stabilizer Machine; Tire Repairman; Tractor (snaking and hauling); Well Driller and Horizontal: Winch or "A" Frame Truck (when hoisting and lowering).

GROUP 4: Ballast Regulator; Compressor; Concrete Mixer (1 cy. & under with skip); Concrete Saw (Ridden or self-propelled); Conveyor; Elevator (Material hauling only); Fork-lift (Ridden or self-propelled); Form Line Machine; Generator; Grout Pump; Heater (Machinical); Hoist (single Drum); Ladavator, Light Plant; Mulching Machine; Personnel Boat (Powered), Pulverizer, Pumps, Seeding Machine, spray Cure Machine (powered Driven); Subgrader; Tie Puller; Tugger; Welding Machine (Gas or Diesel).

GROUP 5: Deck Hand; Farm Tractor; Fireman on Boiler; Oiler; Power Broom; Side Delivery Shoulder Spreader (attachment).

IRON0003-001 06/01/2008

ALLEGHENY, FAYETTE, WESTMORELAND, CAMBRIA, INDIANA, ARMSTRONG,
BUTLER, BEAVER, CLARION, AND WASHINGTON COUNTIES

Rates Fringes

IRONWORKER.....\$ 29.43 19.45

IRON0207-002 06/01/2008

LAWRENCE, MERCER, AND VENANGO COUNTIES

Rates Fringes

IRONWORKER.....\$ 26.31 16.03

IRON0348-002 06/01/2008

CRAWFORD, ERIE, FOREST, AND WARREN COUNTIES

Rates Fringes

IRONWORKER.....\$ 25.33 18.55

IRON0404-008 07/01/2008

FRANKLIN (Remainder), HUNTINGDON (Remainder), AND MIFFLIN
COUNTIES

Rates Fringes

IRONWORKER, STRUCTURAL.....\$ 25.92 21.20

IRON0549-002 07/01/2006

GREENE COUNTY

Rates Fringes

IRONWORKER.....\$ 24.07 10%+14.94

IRON0568-004 05/01/2008

BEDFORD, FRANKLIN (Southwest 1/3), FULTON, HUNTINGDON (Western
2/3), AND SOMERSET COUNTIES

Rates Fringes

Ironworkers:

Sheeter, Bucker-Up.....\$ 26.08	11.60
Structural, Ornamental,	
Reinforcing, Machinery	
Mover, Rigger & Machinery	
Erector, Welder, Fence	
Erector.....\$ 25.83	11.60

IRON0772-001 06/01/2008

BLAIR, CAMERON, CENTRE, CLEARFIELD, CLINTON, ELK, JEFFERSON,

MCKEAN AND POTTER COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 24.53	18.55

A. HOLIDAYS

The following holidays shall be observed: New Years Day, Goodfriday, Memorial Day, Fourth of July, Labor Day, Veterans Day (Observed the day after Thanksgiving), Thanksgiving Day, Christmas Day.

Any holiday which occurs on Sunday shall be observed the following Monday.

LABO1058-001 01/01/2008

	Rates	Fringes
LABORER (BEDFORD, CAMERON, CENTRE, CLINTON, CRAWFORD, FOREST, FRANKLIN, FULTON, HUNTINGDON, JEFFERSON, MIFFLIN, AND POTTER COUNTIES)		
GROUP 1.....	\$ 22.50	11.85
GROUP 2.....	\$ 22.66	11.85
GROUP 3.....	\$ 23.15	11.85
GROUP 4.....	\$ 23.60	11.85
GROUP 5.....	\$ 24.01	11.85
GROUP 6.....	\$ 19.05	11.85
GROUP 7.....	\$ 20.85	11.85
GROUP 8.....	\$ 23.50	11.85
GROUP 9.....	\$ 25.00	11.85

Laborers: (ALLEGHENY,
ARMSTRONG, BEAVER, BLAIR,
BUTLER, CAMBRIA, CLARION,
CLEARFIELD, ELK, ERIE,
FAYETTE, GREENE, INDIANA,
LAWRENCE, MCKEAN, MERCER,
SOMERSET, VENANGO, WARREN,
WASHINGTON, AND WESTMORELAND
COUNTIES)

GROUP 1.....	\$ 22.60	11.85
GROUP 2.....	\$ 22.76	11.85
GROUP 3.....	\$ 23.15	11.85
GROUP 4.....	\$ 23.60	11.85
GROUP 5.....	\$ 24.01	11.85
GROUP 6.....	\$ 19.05	11.85
GROUP 7.....	\$ 20.85	11.85
GROUP 8.....	\$ 23.60	11.85
GROUP 9.....	\$ 25.10	11.85

LABORERS CLASSIFICATIONS

GROUP 1: Asphalt curb sealer; Asphalt tamper; Batcherman (weigh) Blaster, Boatman, Brakeman, Change house attendant, Cofferdam, Concrete curing pitman, Puddler, Drill Runner's helper (Includes Drill Mounted on Truck, Track, or similar and Davey Drill Spots, Clean up, helps to maintain),

Electric Brush and or Grinder, Fence Construction
(Including Fence Machine Operator) Form stripper and Mover,
Gabion (Erectors and Placers) Hydro jet blaster nozzleman;
Landscape laborer, Manually moved emulsion sprayer, Radio
actuated traffic control operator Rip rap work, scaffolds
and Runways, Sheeters and Shorers (includes lagging)
structural concrete Top Surfacer, Walk Behind Street
Sweeper, and Wood Chipper

GROUP 2: Air tool operator (all types); Asphalt, batch &
concrete plant operator (manually operated) Burner,
Caisson; men (open air); Carryable pumps; Chain saw
operator including attachments, Cribbing, (concrete or
steel); Curb machine operator (asphalt or concrete walk
behind); Diamond head Core Driller, Drill runner's helper
(tunnel) Fork Lift, (walk behind), Form Setter (Road Forms
Line man) Highway Slab reinforcement placers (including
joint and Basket Setters) Hydraulic pipe pusher; Liner
plates (Tile or Vitrified Clay) Mechanical compacting
equipment operators, Mechanical joint sealer, Dope pot and
Tar Kettle, Mortar mixer (hand or machine) Muckers,
Brakemen & all other Labor, (Includes installation of
utility lines) Pipe Layers /Fusion /Heating Iron
(Regardless of materials) Portable Single Unit Conveyor,
Post Hole Auger, (2 or 4 cycle hand operated) Power
wheelbarrows and buggies, Rail porter or similar; Sand
blaster; Signal Man, Vibrator operator, Crown Screed
Adjuster, All RAILROAD TRACK WORK TO INCLUDE THE FOLLOWING:
adzing machine, ballast Router, Bolting Machine, Power
Jacks, Rail Drills, Railroad Brakeman, Rail Saws, Spike
Drivers (Manually or hand held tool) Spike Pullers Tamping
Machine, Thermitweld

GROUP 3: Asphalt Luteman/Raker, Blacksmith, Blaster, Brick,
stone and block pavers and block cutters (wood, belgian and
asphalt); Cement mortar lining car pusher; Cement mortar
mixer (pipe relining); Cement mortar pipe reliners;
concrete saw operator (walk behind); Curb cutters and
setters; Elevated roadway drainage construction; erector of
overhead signs, Form setter (road forms-lead man); Grout
machine operator; Gunite or dry pack gun (nozzle and
machine man); Manhole or catch basin builder (Brick block
concrete or any prefabrication) Miners and drillers
(including lining, supporting and form workmen, setting of
shields, miscellaneous equipment and jumbos); Multi-plate
pipe (aligning and securing); Placing wire mesh on gunite
projects; Wagon drill operators (air track or similar);
Walk behind ditching machine (trencher or similar)

GROUP 4: Reinforcing Steel Placer (Bending, aligning, and
securing, Cadweld)

GROUP 5: High Burner, (Any burning not done from deck), Welder
(Pipeline)

GROUP 6: Flagperson

GROUP 7: Certified Flag-person

Group 8: Toxic/Hazardous Waste Removal Laborer Levels C & D

GROUP 9: Toxic/Hazardous Waste Removal Laborer Levels A & B

PAIN0021-019 05/01/2008

CLINTON COUNTY

Rates Fringes

Painters:

Bridge.....	\$ 24.85	11.45
Brush & Roller.....	\$ 23.90	11.45
Spray.....	\$ 24.90	11.45

PAIN0021-024 05/01/2008

FRANKLIN COUNTY

Rates Fringes

PAINTER

Brush.....	\$ 23.65	8.30
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* PAIN0057-014 06/01/2008

ALLEGHENY, FAYETTE, GREEN, WASHINGTON COUNTIES

Rates Fringes

Painters:

Bridge.....	\$ 29.14	11.92
Brush & Roller.....	\$ 26.64	11.92
Spray.....	\$ 27.16	11.92

* PAIN0057-015 06/01/2008

ARMSTRONG, BEAVER, BEDFORD, BLAIR, BUTLER, CAMBRIA, CENTRE,
CLARION, CLEARFIELD, ELK, FULTON, HUNTINGTON, INDIANA,
JEFFERSON, LAWRENCE, MERCER, MIFFLIN, SOMERSET, VENANGO AND
WESTMORELAND COUNTIES

Rates Fringes

Painters:

Bridge.....	\$ 29.14	11.92
Brush and Roller.....	\$ 26.64	11.92
Spray.....	\$ 27.16	11.92

PAIN0057-022 05/01/2008

Rates Fringes

Painters: (ERIE, McKEAN, AND
WARREN (Including Columbus
and Freehold twps) COUNTIES)

Bridges,Stacks,Towers.....	\$ 22.52	10.60
Brush and Roller.....	\$ 20.52	10.60
Spray and Sandblasting.....	\$ 21.27	10.60

* PAIN0057-027 06/01/2008

CAMERON, CRAWFORD, POTTER, WARREN, (Excluding Columbus and Freehold twps)

Rates Fringes

PAINTER

Brush and Roller.....\$ 21.59 11.42

PLAS0526-002 01/01/2008

Rates Fringes

CEMENT MASON/CONCRETE FINISHER...\$ 25.72 12.47

PLUM0027-001 06/01/2008

ALLEGHENY, ARMSTRONG, GREENE (Except extreme Eastern portion)
AND WASHINGTON (Except extreme Eastern portion) COUNTIES

Rates Fringes

Plumbers and Pipefitters
(Bridge Drain Pipe).....\$ 32.70 15.02

* PLUM0047-005 05/01/2008

BEAVER, BUTLER, MCKEAN, MERCER, VENANGO, CLARION, LAWRENCE,
FOREST, WARREN, CRAWFORD, AND ERIE COUNTIES

Rates Fringes

Plumbers and Pipefitters
(Bridge Drain Pipe).....\$ 32.74 15.84

PLUM0354-005 07/01/2007

BEDFORD, BLAIR, CAMBRIA, CAMERON, CLEARFIELD, ELK, FAYETTE,
GREENE (Extreme Eastern portion), HUNTINGDON, INDIANA,
JEFFERSON, SOMERSE, WASHINGTON (Extreme Eastern portion), AND
WESTMORELAND COUNTIES

Rates Fringes

Plumbers and Pipefitters
(Bridge Drain Pipe).....\$ 30.84 17.36

TEAM0040-001 01/01/2008

Rates Fringes

TRUCK DRIVER (ALLEGHENY,
ARMSTRONG, BEAVER, BLAIR,
BUTLER, CAMBRIA, CENTRE,
CLARFIELD, CRAWFORD, ERIE,
FAYETTE, GREENE, INDIANA,
JEFFERSON, LAWRENCE, MCKEAN,
MERCER, SOMERSET, VENANGO,
WARREN, WASHINGTON, AND
WESTMORELAND)

GROUP 1.....	\$ 23.53	10.64+ A+B
GROUP 2.....	\$ 23.68	10.71+ A+B
GROUP 3.....	\$ 24.21	10.95+ A+B

Truck drivers: (BEDFORD,
CAMERON, CLAIRON, CLINTON,
ELK, FOREST, FRANKLIN,
FULTON, HUNTINGDON, MIFFLIN,
AND POTTER COUNTIES)

GROUP 1.....	\$ 23.34	10.56+ A+B
GROUP 2.....	\$ 23.53	10.64+ A+B
GROUP 3.....	\$ 24.05	10.88+ A+B

FOOTNOTES: A. Hazardous/toxic waste material/work level A
& B receive additional \$2.50 per hour above classification
rate

B. Hazardous/toxic waste materials/Work level C & D receive
\$1.00 per hour above classification

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1 - Single Axle (2 axles including steering axle);
Includes partsman and warehoueman

GROUP 2 - Tandem - Tri-Axle - Semi-Tractor Trailer
(combination) (3 axles or more including steering axle)

GROUP 3 - Specialty Vehicles; Heavy equipment whose capacity
exceeds that for which state licenses are issued
specifically refers to units in excess of eight (8) feet
width (such as Euclids, Atley Wagon, Payloader,
Tournawagons, and similar equipment when not self loaded);
Tar and Asphalt Distributors Trucks, Heavy Duty Trailer,
such as Low Boy, High Boy

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses
(29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates
listed under the identifier do not reflect collectively
bargained wage and fringe benefit rates. Other designations
indicate unions whose rates have been determined to be
prevailing.

WAGE DETERMINATION APPEALS PROCESS

- 1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

- C. Traffic Control Plan in accordance with Section 01780, "Maintenance and Protection of Traffic."

ARTICLE 2 PRODUCTS

[NOT USED]

ARTICLE 3 EXECUTION

3.01 GENERAL

- A. Contractor shall notify the Engineer at least ten (10) working days prior to the start of mobilization.
- B. It is the Contractor's responsibility to plan its work within the limits provided on the Contract Drawings.

3.02 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

- A. Provide and maintain lighting for construction operations to achieve minimum illumination intensities as indicated in Table D-3 of 29 CFR 1926.56.
- B. Contractor shall limit application of any on-site lighting in accordance with MUTCD, Section 6F.76, so as not to cause glare to traffic
- C. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails and lamps as required.
- D. Maintain lighting and promptly provide repairs to maintain required lighting levels at all times.
- E. Provide battery-operated or equivalent emergency lighting facilities at construction areas where normal light failures would expose employees to hazardous conditions. Test such facilities monthly.

3.03 STAGING AREA

- A. Secure and maintain staging area(s) to service Worksite.
- B. Install temporary facilities as described in Section 01783, "Temporary Facilities"
- C. Provide all requirements of Section 01780, "Maintenance and Protection of Traffic."
- D. The Contractor will be allowed to occupy a laydown area east of the Authority's Penn Park Storage Yard (area approximately 50'X400'). The laydown area shall be located on Authority right-of-way. The laydown area will be available to the Contractor during active construction during the NSC-009 Contract only.
 1. Contractor shall have access to the rail line into Authority's existing tunnel from the Penn Park laydown area. Contractor access will be coordinated with Authority operations and the Engineer as described in Section 00500, Article 2.1.
 2. Contractor shall protect existing facilities and secure the laydown area while allowing for access through the laydown area for Authority and Contractor vehicles.
 3. Contractor access to laydown area will be provided by way of the Martin Luther King Jr. East Busway through the closest available access point, either Grant St./Liberty Ave. or Liberty Ave./28th Street Ramp. Contractor access in and out of the laydown area will require travel on Authority's busway. Contractor shall be trained by Authority in busway access procedures and shall be granted a permit for access and operation on the busway. Contractor shall coordinate access training and permitting with Authority and the Engineer.

4. At completion of the laydown area use, the Contractor shall restore the area to its original use and condition.

3.04 CLEANING

- A. Keep Worksite including parking lots, roadways and sidewalks within the areas controlled by the Contractor clean of snow and ice. Provide means necessary including, but not limited to, snow plows, shovels, and ice melting agents. Haul snow to acceptable disposal site if stockpiling on site is not feasible, or as directed by the Engineer.
- B. Do not dispose of snow and ice onto public travel areas.

ARTICLE 4 MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

- A. Item 01755.001 - Mobilization shall be measured as a lump sum unit, complete in place.

4.02 PAYMENT

- A. Item 01755.001 – Mobilization will be paid at the lump sum price and shall include the cost of all work specified in this Section. Payment will be made in accordance with the following schedule:
 1. Whenever work is performed equal to five percent (5%) of the Contract Sum, excluding the price for this Contract Item, twenty five percent (25%) of the amount bid for Mobilization or three percent (3%) of the Contract Sum, excluding the price for this Contract Item, whichever is less, will be paid.
 2. Whenever work is performed equal to twenty-five percent (25%) of the Contract Sum, excluding the price for this Contract Item, forty percent (40%) of the amount bid for Mobilization or an additional two percent (2%) of the Contract Sum, excluding the price for this Contract Item, whichever is less, will be paid.
 3. Whenever work is performed equal to fifty percent (50%) of the Contract Sum, excluding the price for this Contract Item, twenty five percent (25%) of the amount bid for Mobilization or an additional two percent (2%) of the Contract Sum, excluding the price for this Contract Item, whichever is less, will be paid.
 4. Upon receipt of the Certificate of Acceptance of Final Inspection, any remaining amount bid for Mobilization will be paid.

END OF SECTION

**POR T AUTHORITY OF ALLEGHENY COUNTY
NORTH SHORE CONNECTOR PROJECT**

CONTRACT NO. NSC-009

The following Questions and Answers Summary shall not be construed to modify or change the Bid Documents. The Bidder shall submit its Bid based upon the Bid Documents. The Bid Documents may only be changed through the use of explicitly identified changes to the Bid Document, and any necessary change to the Bid Documents will be explicitly identified as such in an Addendum that would be issued by Port Authority.

Question 167: Reference Section 15887 - Tunnel Ventilation and Balancing Dampers.
Has corrosion protection been established or determined?

If a corrosion protection method is rejected what is the contractors recourse?

Response 167: The contractor shall follow SSPC standards for the expected conditions within the tunnel. Please refer to Section 15887, Article 2.02.K.3 for protection options.

Question 168: Reference Section 15887- Tunnel Ventilation and Balancing Dampers.
F.2 temperature and thermal testing. Are the dampers to be tested as an assembly (frame, blades, and actuators) or components alone?

Are there tests to be witnessed?

Are dampers tested with 482 deg. F air moving through the dampers or in a test chamber at 482 deg. F?

Response 168: Dampers are to be tested as complete assemblies, with frame, blades and actuators in fully assembled form. Tests are to be witnessed when performed. Dampers are to be tested in a test chamber at 482°F.

Question 169: Reference Section 15887 Tunnel Ventilation and Balancing Dampers.
At what temperature are leakage ratings to be tested?

What are the acceptable leakage ratings?

Response 169: Leakage ratings are defined in Section 15887 2.02 G-2. Leakage tests are to be conducted at 482°F.

Question 170: Reference Section 15887 Tunnel Ventilation and Balancing Dampers. Is there a specific steel alloy required for blades and frames?

Response 170: Material of construction for the dampers shall be as per manufacturer's recommendation to meet the performance criterion specified in Section 15887.

Question 171: Reference Section 15887 Tunnel Ventilation and Balancing Dampers Are actuators in or out of the airstream?

Response 171: All damper actuators are to be located outside the damper frame and direct airflow through the damper, however actuators are subject to the high temperature air requirements for the dampers.

Question 172: Reference Section 15887 Tunnel Ventilation and Balancing Dampers. For dampers listed as NS-TVD-210 has a width and length been determined?

Response 172: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 173: Reference Section 15887 Tunnel Ventilation and Balancing Dampers.
Shop testing 3.01C witness of test. If 2 week notice is given to the Engineer and they cannot attend, does testing stop? Does Contractor facilitate attendance mean pay for travel and lodging of Engineer? How many Engineers will attend and from what company?

Response 173: 1) No, testing will not be stopped if a mutual test schedule was agreed to and the Engineer needs to cancel. The Contractor shall coordinate the testing schedule with the Engineer's availability far enough in advance of the testing to allow the Engineer to attend when possible.

2) No, contractor does not make payment for Engineer's expenses.

3) No set number has been determined. It will depend on the testing schedule.

Question 174: Reference Specification 02456, 1.07, B, 2, is the rolling load alternative dynamic test acceptable. The alternative dynamic test as attached uses two High-speed servo-hydraulic actuators in place of reciprocating wheel 33-in stoke rolling load machines.

Response 174: Use the rolling load test as is called out in the specifications in Sec. 02456.1.07B.2.

Question 175: Specification 02456, 1.07 specifies the Insulated Joint test which includes 2 test samples only. The longitudinal pull apart test of two samples is a destructive test. The electrical resistance test is usually done before and after the rolling load test. The reason for doing the electrical resistance test before the rolling load test is to avoid the high cost of the rolling load test if the electrical testing fails. We would recommend standard IJ testing which includes 3 test samples, two for destructive longitudinal pull apart test, one for electrical, rolling loading and electrical test. Please consider.

Response 175: Use two (2) samples for IJ testing as is called out in Sec. 02456.1.07B. Test one for rolling load and electrical resistance, then test both for longitudinal pull-apart.

Question 176: Tunnel Ventilation Fans
Spec Statement: "Motor sizes shall be based on an air temperature of 32°F". Question: Are the motors for the jet fan assemblies to be based at the same temperature of 32°F?

Response 176: Yes

Question 177: Section 15889, 2.02, D, Pg.7 Tunnel Ventilation Fans
Spec Statement: "The Contractor shall note that the fan pressure performance given in this section is the required pressure for the system including an estimate of pressure loss for the evase, damper, sound attenuator assembly as well as connection ducts."
Question: What are those pressure loss estimate numbers for each component of the fan system at both duty points? Evase, damper, attenuator and connecting ducts. This question pertains to these (6) fans: GW-TVF-01&02, NS-TVF-01&02 and NS-TVF-03&04.

Response 177: The fan pressure performance given in Table 15889-1 is derived from the Engineer's estimation of the system losses under different operating modes. The Contractor is required under 1.04-H to submit its calculations on the expected total fan pressure based on the final selection of ventilation components. Calculations will then be benchmarked against the Engineer's estimation.

Question 178: Specification 00200 Section 1.1.A.1 "Scope" states that Contractor is responsible for the "Design, construction and testing of direct fixation track..." Please confirm that the trackwork is fully designed and that it is not the responsibility of the Contractor.

Response178: The track is designed, except for the plinth layout which is the Contractor's responsibility.

Question 179: Specification 00200 Section 2.14 addresses Bid Protest Procedures. The website link referenced is incorrect in that there is no "Bid Protest Procedures" link on the "Purchasing Info" page. Please clarify.

Response179: Port Authority is updating the website. It will be corrected shortly.

Question 180: There is a conflict in what constitutes the "Contract Documents" between Specification Section 00200 Section 1.2(c) definition of Contract Documents and Form I Article IV Contract Documents. Please clarify.

Response180: There is no conflict between "Contract Documents" definition in Section 0200 Section 1.2 (c) and Form I Article IV Contract Documents. Please refer to Section 0200 Section 1.2 (c) definitions for Contract Documents, Bid Documents, and Contract Forms.

Question 181: Specification 00500 Section 2.6 "Time of Completion" references an adjustment in the Time of Completion for a delay in the completion of the Work. Please confirm that the Contractor will be entitled to delay damages in the event the Time of Completion is delayed.

Response181: Adjustments in Time of Completion is outlined in Section 00500, Articles 2.6.B to F. Consideration of any claims for delay damages will be limited to the procedures set forth in Section 00900, Article 1.

Question 182: Specification 00500 Sections 5.4 and 5.6 address payment to the Contractor where the Authority has terminated the contract for its convenience. Please confirm that in such event, the Authority will pay the Contractor a reasonable amount for "overhead".

Response182: In the event of termination for Authority's convenience, any payment to Contractor will be confined to those items identified in Article 5.6 (minus those items identified in Article 5.8). Eligibility of any cost incurred by a contractor will be limited to that section.

Question 183: Specification 01200 Section 3.10 (d) states that if the "Authority is otherwise damaged as a result of the Contractor's failure to comply with the terms of the Contract Documents and/or as a result of a breach of the Contract, Authority may retain and/or withhold an amount equal to the sum of one and one-half times the amount of any such damage which may be sustained by Authority." Please confirm, pursuant to Section 00500-2.8, that the Authority's remedy for unexcused late completion by the Contractor will be the assessment of liquidated damages.

Response183: See response to Question 127.

Question 184: Specification 00700 Article I0.1.B states that to the extent the Contractor is delayed or impacted by any other contractor, the Contractor will not have any claim or cause of action against the Authority, but rather must pursue a claim or cause of action against the other contractors. Contractor cannot be expected to pursue lawsuits outside of their contract to recover for damages that are ultimately under the control of the Authority. The Contractor's contract is with the Authority and the sole source of remedy for damages must be within the terms of the Contract and directly with the Authority. Please clarify

Response184: Authority will address any contractor claims or issues arising from the delay in completion of the Work arising from Authority's adjustments in the Time of Completion through an equitable adjustment to the terms of completion of the Work. The Contractor will not be responsible for any delays caused by other contractors on the North Shore Connector project except for any delays caused by subcontractors or other contracting parties of the Contractor. See Addendum 8.

Question 185: Specification 02220 Section 2.10.A indicates the tunnel ventilation system equipment to be removed under this contract. Please provide

information as to the size of four Jet Fans (GW-BF-01, GW-BF-02, GW-BF-03, GW-BF-04).

Response185: The Operations and Maintenance Manuals for the CQ-240, CBD Ventilation Equipment Axial Flow Fans, Dampers and Sound Attenuators has been added to the Reference Documents and is available for review at Tri-Gold in accordance with Section 00200, Article 2.6. We have also attached exerts from the O&M manual for contractors review. In addition, ventilation plans from Stage I have been added to the Also Drawing package. See Addendum 8.

Question 186: Specification 02220 Section 2.11 .A indicates the tunnel mechanical drainage systems to be removed under this contract. Please provide information as to the size of Sump Pump No. 1 & 2.

Response186: We have added the sump pump drawings from Stage I to the Also Drawing package. See Addendum 8. The entire Stage I drawing set is included as a Reference Document available for review and purchase at Tri-Gold in accordance with Section 00200, Article 2.6.

Question 187: Contract Drawing TK146 indicates 3290 TP of Type 4 track and the unit price schedule calls out 3423 TF of Type 4 track. Please clarify.

Response187: See Addendum 8

Question 188: Regarding Question 24 (Addenda #1), Contractors are still awaiting response. Please clarify. Ref Section 0500, Article 2.1.O — Please clarify the intent of this section. Is it the Authority's intent to charge the contractor \$56.00/hr for escort services for all track occupancy? Is the escort required for the full duration of track occupancy or only to gain occupancy? Is this requirement for only revenue track? Would the Authority consider creating a PDA Bid Line Item for this?

Response188: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 189: Specification 00200 Article 3 defines the requirements for DBE utilization. There is no mention of lower tier DBE contracts counting toward the utilization goal. Please clarify if second tier DBE subcontractors/ materialmen count toward the goal.

Response189: Yes, as long as they met the requirements of the Contract Documents.

Question 190: Reference Section 01780 Maintenance and Protection of Traffic Drawing GN405 sht. 45 and CV 103 sht. 85. From review of the above referenced specification and drawings we assume that NSC-009 maintenance and protection of traffic responsibility is limited to the areas shown on drawings between Tony Dorset Drive and Art Rooney Way within the parking lot laydown areas. Is this assumption correct? If this assumption is correct will the current barricades and fence remain in place when the NSC-003/006 and NSC-007 Laydown areas are turned over to NSC-009?

Response190: The Contractor's MPT is mainly focused on the area between Tony Dorsett and Art Rooney Ave, however the Contractor is responsible for MPT for all of its construction activities including deliveries, equipment access, etc. The Contractor is responsible for submitting Traffic Control Plans for any needed short or long term road closures as described in Section 01780, Article 1.04. See GN405 for fencing information.

Question 191: Section 01787 Item 3.01. E indicates that the follow-on contractor is to be responsible for the temporary electric utility usage charges. Not knowing the calculated loads for the equipment utilizing the temporary power makes it impossible to estimate the utility usage cost. It is suggested that the Authority assume the billing or establish a PDA bid item for these cost. Otherwise the contractor will be forced to quote inflated cost within his bid and create a competitive disadvantage.

Response191: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 192: During the 16 weekend shutdown period for the Wood Street Crossover and the plinth replacement work will the Authority grant access to the Penn Park yard storage tracks for construction equipment storage thru the week?

Response192: Yes, but certain tracks have been taken out of service. Contractor to inform the Engineer on length of track required and time of need. Engineer to advise on which tracks are available at the time of need.

Question 193: Please provide drawings of the existing track system which include the tracks out to Penn Station and shows the locations of plinth pad replacement similar to the drawing that was shown to the contractors during the site visit.

Response193: The working drawing from the site visit is included with the attendance sheet, both of which are included in Addendum 8's documents. The track alignment drawings have been added to the Also drawings.

Question 194: After looking at the area where the new double crossover is being installed near Wood Street during the latest site visit, would the Authority consider not removing the existing concrete under the 2 existing turnouts and just remove the plinth pad concrete and pour concrete where the other 2 turnouts of the double crossover will be installed? The concrete looks to be in excellent condition. Leaving this concrete in place will save time not to mention the money Savings.

Response194: The double crossover should be constructed as per plans, not re-using any of the existing plinth concrete.

Question 195: Drawing TK132B, Sheet 114B
The replacement direct fixation fasteners are shown to be 1:40 cant. Are the 1:40 cant direct fixations fasteners to be used in areas where the plinth replacement is at the direction of the authority, Bid Item 02541.002?

Response195: Yes. The same direct fixation fasteners are to be used for both Item 02541.001 and 02451.002.

Question 196: Spec. Section 02451 Item 1.01.B.2.d
Protect and clean existing reinforcement bars that connect the plinth to the track bed for re-use. Please clarify what existing reinforcement is to remain when the existing plinth is removed.

Response196: After the existing plinth concrete is removed, all existing materials are to be disposed of except the existing reinforcing steel that is embedded into the existing track bed concrete. The existing track bed concrete and these existing bars are to remain.

Question 197: Bid Item 02451.001 and 02451.002
Is the plinth repair work required to be completed during the 16 week shut down?

Response197: Yes

Question 198: Bid Item 02451.001 and 02451.002
Please provide a plan that details the existing track geometry for plinth replacement. The plans that have been provided do not show if the existing track is super-elevated.

Response198: See Addendum 8

Question 199: Bid Item 02451.001 and 02451.002
Will temporary track supports be permitted to remain in place after a weekend outage or is the plinth concrete required installed?

Response199: Yes, but temporary supports need to be approved by Engineer and concrete will be required to be poured at the start of next weekend shutdown.

Question 200: Bid Item 02453.002
Is it necessary to remove all of the existing plinth concrete for installation of the double crossover at Wood Street?

Response200: Yes

Question 201: Bid Item 02453.002 Will the access at First Street be available for use for the weekend outage work?

Response 201: Yes, Contractor will only be able to gain access at First Avenue during non-revenue hours.

Question 202: Will the area near Penn Station and the Port Authorities busway be available for a lay down area?

Response 202: Yes, area near Penn Station and Port Authority's busway will be available for lay down area. See Addendum 8 for details.

Question 203: If available, what type of authority track protection and time frame will be allowed for stockpiling materials during the week and on the weekend?

Response 203: Contractor is responsible for their own protection of their laydown area. Penn Park access for stockpiling materials during daylight and non-revenue timeframe will be allowed with Engineer's approval and escort. Access to the existing tunnel will be granted only during non-revenue hours and during the 16 weekend shutdowns.

Question 204: Specification 02450; Part 2.01 Metal tags in 1/8 inch increments, Part 3.02B.4 Metal tags in 1/4 inch increments. Please clarify which is correct.

Response 204: Article 3.02B.4 is correct - Metal tags are in 1/4 inch increments.

Question 205: Specification Section 15885 page 5 calls for ASTM A53 pipe with square-cut grooved ends and fittings. Are roll grooved pipe and fittings acceptable which are more commonly used?

Response 205: Yes, rolled groove pipe ends and fittings conforming to NFPA 14 requirements are acceptable.

Question 206: Detail 5 on Dwg. FP107 indicates pipe as 6" bore welded/seamless. Which is correct?

Response 206: Both types are acceptable.

Question 207: Also on that detail hangers/supports are indicated to be welded. Can we utilize other means of hangers/supports such as beam clamps/drilled anchors, or other NFPA 13 approved hangers which do not require welding?

Response 207: Yes, the Contractor may opt to use alternative hanger/support methods provided they meet NFPA requirements and are suitable for the installation conditions in the tunnel. Sample hangers/supports shall be submitted to the Engineer for approval prior to installing on site. All hangers and supporting fixtures to tunnel walls and walkways will have to be coordinated with other Contracts.

Question 208: On Dwg. EL-101, Sht. 658 Addendum #3 Note #11 is obscured by the Engineers Stamp. Could you provide the filter type to be installed with the VSD Drives for the Fans EM09 and EM10?

Response 208: Note #11 in EL-101 reads: dv/dt filters to be installed with VSD drives for fans EM09 and EM10.

Question 209: In Series 500, Page 6, Article 1.14, the indemnification language is unclear. Please confirm that the Contractor is only responsible to the extent that its subcontractor's acts or omissions cause damage.

Response 209: Contractor is responsible for and shall indemnify Authority for the acts and omissions of all persons and subcontractors acting at the Contractor's direction and/or control. Authority does not maintain any contractual relationship or rights of indemnification with subcontractors, but expects that the Contractors will require full indemnification from their own subcontractors.

Question 210: In Series 500, Page 34, Article 6.1, the language "fit for its intended purpose" should be removed. The Contractor can only be responsible for performing in accordance with the Contract Documents. If the Contractor performs accordingly, and the finished product is still not "fit for its intended purpose," the Contractor should not be held responsible.

Response 210: See Addendum 8.

Question 211: In Series 700, Pages 19-20, Article 8.1, the indemnification language is unclear. Please confirm that the Contractor is only responsible to the extent its acts or omissions cause damage

Response 211: Contractor's duty to defend and indemnify Authority and other covered parties only applies to claims for or on account of injuries or damages alleged to have been caused by, through, or in connection with, the performance of the Work as specified in this provision.

Question 212: In Series 900, Page 9, Article 3.16 requires the Contractor to waive consequential and incidental damages. Because the Contract Documents call for liquidated damages, the Contractor believes that

this waiver should be a mutual waiver. Please confirm that the waiver of consequential and incidental damages is mutual in light of the provision calling for liquidated damages.

Response 212: Authority will consider addressing mutual waivers of prospective liability for consequential or incidental damages with the successful bidder.;

Question 213: In Series 1200, Page 13, Article 5.4, the language does not provide an exception to the conclusive and binding language for claims that the Contractor has made the Owner aware of in writing prior to final payment. The rest of the Contract Documents make clear that the Contractor does have a right to make certain claims and dispute certain payments throughout the course of the project. Please confirm that there is an exception to the conclusive and binding language in this Article to allow the Contractor to accept final payment in the event that there are disputes ongoing.

Response 213: The final payment provisions of Section 01200-13, 5.4, do not apply to such claims that the Contractor has previously provided notice, in writing, to Authority. Receipt of final payment will be conclusive upon any such claims which the Contractor possesses or may possess against Authority but has not provided written notice prior to accepting final payment.

Question 214: In reference to note no. 3 on drawing sheet no. 270, it should be "conduit supports", not "cable supports". Please revise.

Response 214: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 215: In reference to notes 6 and 18 on drawing sheet no. 271, it is not clear what type of conduit traction cables should be installed in. On drawing sheet no. 270, is the traction power and motor operated switch cables installed in fiberglass or galvanized rigid steel conduit? Please advise.

Response 215: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 216: On drawing sheet no. 270, please provide details of how the traction power feeder cables (as an example at stationing 6044+90) leave the

conduit and attach to the feeder jumper jc-400. If a box is required, then what size and type should be used. Please advise.

Response 216: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 217: In reference to conduit id nos. tpp-3 and tpp-4 in the conduit and cable schedule on drawing sheet no. 281, do these spare type conduits stop at the manhole outside the traction power substation or do they continue into the tunnel/subway and stop at their respective stationing numbers 6044+77.5 and 6044+76? Please advise.

Response 217: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 218: Detail "A" on drawing sheet no. 304 shows a porcelain cable clamp and also a conduit clamp which is a discrepancy. How is the traction power cable installed, in conduit, or exposed and supported by a porcelain cable clamp? Please advise.

Response 218: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 219: For Gateway Traction Power Tie Breaker Station, where is the ac primary feed coming from? What types and quantities of cable and conduit are required? The contract drawings do not provide this information. Please advise.

Response 219: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 220: For Allegheny Traction Power Circuit Breaker Room, where is the ac primary feed coming from? What types and quantities of cable and conduit are required? The contract drawings do not provide this information. Please advise.

Response 220: The 208/120 ac primary feed is provided by the NSC-012 Contractor. See note 1 on sheet no. 317.

Question 221: In reference to question/response no. 21 and contract drawing sheet nos. 345 to 350, do the signal cables on those drawings include 20% spare conductors? Please advise.

Response 221: Yes

Question 222: There is a discrepancy regarding the positive feeder locations at Allegheny location. Drawing sheet no. 176 shows the tie-in locations to the OCS at 6084+50 and 6084+90. However, drawing sheet no. 319 shows the tie-in locations to the OCS at 6088+85 and 6088+86. Which is correct? Please advise.

Response 222: Sheet no. 319 is correct.

Question 223: Regarding cable DN1 on drawing sheet no.319 and in reference to drawing sheet no. 428, it appears that only cables DP1 to DP4 have conduit going up to the elevated structure. How is cable DN1 going to get up to the elevated structure and where (stationing) will it be connected to the rail (or rails)? Please advise.

Response 223: See Drawing TP213, Section AA.

Question 224: Please provide a scaled drawing of contract drawing sheet nos. 587, 591, 592, 595, and 596 so that cable and conduit footages can be estimated.

Response 224: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 225: In reference to paragraph "X" on spec page 00500-16, does the overhead catenary system (ocs) drawings account for the ocs requirements mentioned in that paragraph. If not, then please reissue those applicable ocs layout drawings that show those requirements along with the ocs assemblies and supports.

Response 225: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 226: As an example and in reference to drawing sheet nos. 345 and 569, those drawing sheets both show the identical gateway interlocking and

both are supposed to show the cable plans as well. However, in some cases, cable for a specific wayside signal assembly is shown on one drawing, but is missed on the other drawing. An example would be signal location 2s where a 2/c #6 is shown on drawing sheet no. 569, but is missed on drawing sheet no. 345. Please review these two sets of drawings and revise for consistency so that the same cables are shown on both sets. It is much better to make these revisions now, then rather incur additional costs after the contract is awarded.

Response 226: Port Authority is reviewing this question and if a change to the Bid Documents is required it will be issued as an addendum.

Question 227: We request a two week bid date extension to the current bid date of October 8, 2008. We, as well as our Subcontractors, need this additional time in order to prepare our bids.

Response 227: Authority has considered the request but can not extend the bid time any longer. No changes are required to the Contract Documents.

CONTRACT CQ 240
CBD-VENTILATING EQUIPMENT
AXIAL FLOW FANS, DAMPERS & SOUND ATTENUATORS

OPERATION AND MAINTENANCE MANUAL

PREPARED FOR
PORT AUTHORITY OF ALLEGHENY COUNTY

PREPARED BY
FLAKT PRODUCTS, INC.

SEPTEMBER 1984

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS
FOR AXIAL FLOW FANS

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15.0 PERFORMANCE CURVES

15.1 FLAKT FANS: AIR & SOUND DATA

FAN	RPM	AIR PERFORMANCE		SOUND DATA	
		FWD. FLOW	REV. FLOW	FWD. FLOW	REV. FLOW
MT-EM-01,02	1180	SKB-729	SKB-736	SKB-59201	SKB-59301
WS-EM-05,06					
MT-EM-03,04	1180	SKB-730	SKB-737	SKB-59202	SKB-59302
WS-EM-09,10					
WS-EM-07	1180	SKB-731	SKB-738	SKB-59203	SKB-59303
WS-EM-08	1180	SKB-732	SKB-739	SKB-59204	SKB-59304
GW-EM-11	1180	SKB-733	SKB-740	SKB-59205	SKB-59305
MT-EM-12	1180	SKB-734	SKB-741	SKB-59206	SKB-59306
GW-EM-13	1180	SKB-735	SKB-742	SKB-59207	SKB-59307
MT-UPV-01	1180	SKB-57501	-----	SKB-57601	-----
MT-UPV-02	1180	SKB-57502	-----	SKB-57602	-----
MT-UPV-03	1180	SKB-57503	-----	SKB-57603	-----
MT-UPV-04	1180	SKB-57504	-----	SKB-57604	-----
WS-UPV-05	1180	SKB-57505	-----	SKB-57605	-----
WS-UPV-06	1180	SKB-57506	-----	SKB-57606	-----
GW-UPV-07	1180	SKB-577	-----	SKB-578	-----
GW-BF-01 thru 04	3450	SKB-572	-----	SKB-573(w/silencer)	-----
	3450	-----	-----	SKB-857(w/out silencer)	-----

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15.0 PERFORMANCE CURVES (CONTINUED)

15.2 WESTINGHOUSE ELECTRIC
WESTINGHOUSE DATA SHEETS 2930-11TE AND 2930-11S

RE FAN(S)	MT-UPV- 01 thru 04 WS-UPV- 05 & 06	GW-BF- 01 thru 04	GW-UPV-07	EM FANS 01 thru 04	GW-EM-13
HP	25	40	50	200	200/22
CAT.	82C67411	82A67409	82C67410	82C67389	82C67388
AMPS/HP PF/HP EFF/HP TORQUE/HP	SKD-285	SKD-287	SKD-283	SKD-281	SKD-309 (1195 RPM) SKD-313 (395 RPM)
RPM/HP AMPS/RPM TORQUE/RPM	SKD-286	SKD-288	SKD-284	SKD-282	SKD-314 (1195 RPM) SKD-312 (395 RPM)
DIM. DATA	SKD-291	SKD-289	SKD-293	SKD-310	SKD-311

PART II: DAMPERS AND DAMPER OPERATOR MOTORSRUSKIN CATALOG
WORKING DRAWINGS:

STATION	EQUIPMENT SERVICE		RUSKIN DRAWING
	ED	BD	
MT	-01 & 02	---	8177
	-03.1	---	8176
	-03.2	----	8175
	-01 thru 04	-04	8179
WS	-05 thru 08		
GW	-11 & 13		8178
	-09 & 10		

HILLS-MCCANNA DAMPER OPERATORS

TABLE OF CONTENTS (CONTINUED)

PART III: SOUND ATTENUATORS

<u>SECTION</u>	<u>TOPIC</u>	<u>PAGE/DOCUMENT</u>
INDUSTRIAL ACOUSTICS CATALOG		
WORKING DRAWINGS:		

EQUIPMENT SERVICE			
	EM	UPV	BF
MT	all:D-8325-092-2	01,04:D-8325-092-7	-----
		02 :D-8325-092-5	-----
		03 :D-8325-092-9	-----
	all:D-8325-092-1	01,04:D-8325-092-10	-----
		02 :D-8325-092-6	-----
		03 :D-8325-092-8	-----
WS	all:D-8325-092-2	05,06:D-8325-092-5	-----
	all:D-9325-092-2	05,06:D-8325-092-6	-----
GW	all:D-8325-092-2	07 :D-8325-092-4	all:B-8327-091-1
	all:D-8325-092-1	07 :D-8325-092-3	all:B-8327-091-2
			OUTLET
			INLET
			OUTLET
			INLET
			OUTLET

PART IV: MISCELLANEOUS ITEMS

EQUIPMENT SCHEDULE

RECOMMENDED SPARE PARTS

SERVICE AGENCIES/SUBCONTRACTORS

INSTALLATION - OPERATION - MAINTENANCE MANUAL1. SAFETY: READ THIS PAGE FIRST

- 1.1 FOR THE PROTECTION OF PERSONNEL, THE DATA IN THIS MANUAL MUST BE READ AND FULLY UNDERSTOOD BEFORE PROCEEDING WITH THE HANDLING, INSTALLATION, OPERATION OR SERVICING OF THE EQUIPMENT SUPPLIED UNDER THIS CONTRACT.
- 1.2 ALL SAFETY CODES, STANDARDS, AND REGULATIONS MUST BE OBSERVED DURING THE HANDLING, INSTALLATION, OPERATION AND SERVICING OF THE EQUIPMENT SUPPLIED UNDER THIS CONTRACT.
- 1.3 THE EQUIPMENT SUPPLIED UNDER THIS CONTRACT MUST BE OPERATED ONLY WITH ALL SAFETY DEVICES IN PLACE AND FUNCTIONING. SAFETY DEVICES INCLUDE GUARDS, SCREENS, DISCONNECT SWITCHES, ACCESS DOORS AND THE LIKE.
- 1.4 ALL POWER TO THE FAN MUST BE DISCONNECTED AND LOCKED OUT WHILE HANDLING, INSTALLING OR PERFORMING SERVICE MAINTENANCE OR INSPECTION WHENEVER A SAFETY DEVICE IS REMOVED.
- 1.5 THE FAN EQUIPMENT MUST NOT BE OPERATED UNTIL IT HAS BEEN PROPERLY INSTALLED AS DESCRIBED IN THE FOLLOWING SECTIONS, NOR SHOULD IT BE OPERATED EXCEPT IN STRICT ACCORDANCE WITH THE ABOVE SAFETY PRECAUTIONS.

2.0 FAN EQUIPMENT

- 2.1 GENERAL: The fans supplied on this contract are all of the axial flow type in which the direction of air flow is parallel to the axis of impeller rotation. In addition, those axial fans having a downstream vane section are described as vaneaxial fans. The essential component of the axial flow fan is a prop-type impeller having a number of aerodynamically shaped blades, all of which must operate at a certain pitch angle to achieve a given performance. The pitch angle of each blade in these fans is manually adjustable when the impeller is at rest. The impeller is mounted directly to the motor shaft; this assembly is then installed in a cylindrical casing to produce the basic axial flow fan.
- 2.2 NAMEPLATE DATA: Each fan carries an equipment tag number identifying its service level by alphabetic code.

Each fan also carries a fan manufacturer's nameplate upon which will be found a serial number and a product code number. This information should be supplied in any correspondence concerning the fan. The nameplate also bears specific information as to the maximum service conditions under which this fan is designed to operate.

Found with the fan manufacturer's nameplate is a motor manufacturer's nameplate (in addition to one attached to the motor casing) containing specific information on the motor originally supplied with each fan under this contract. The motor serial number must be supplied in any correspondence concerning the motor.

- 2.3 TOOLS AND TEST EQUIPMENT: In addition to the normal compliment of mechanical tools used in routine equipment maintenance, the following are required in order to operate and maintain the fan equipment:
- a) Torque wrench, snap-over or digital read out, calibrated;
 - b) Megger - 600 V DC;
 - c) Vibration Analyzer - IRD Model 350 w/#544 transducer, or equal;
 - d) Sound Level Meter/Analyzer - General Radio Model 1982, or equal, calibrated; w/#9601 microphone;
 - e) Sound Level Meter/Calibrator - General Radio Model 1565;
 - f) Loctite Grade T Primer - 6 oz. aerosol, Flakt p/n 10024401;
 - g) Loctite #242 ----- 50 cc bottle, Flakt p/n 10024402;
 - h) Adapter, 5/16" hex key x 3/8" sq. drive, Flakt p/n 100247;

- 3.0 RECEIVING AND HANDLING: The equipment must be unloaded carefully to avoid distortion and/or damage, using adequate web slings and/or spreaders. Personnel safety must always be a primary consideration during equipment handling.
- Upon delivery check to see that all items on the bill of lading and/or invoice have been received. The equipment has been carefully inspected at the factory before shipment, but it is possible for damage to occur in transit. Any shortage or damage should be promptly reported to the carrier. Contact Flakt for assistance in establishing such claims. If the equipment is to be installed immediately upon receipt, proceed to section 5, Installation.

4.0- STORAGE: If the fan is not to be installed immediately upon receipt, it must be stored in a clean and dry location, protected from the elements and chemical/mechanical damage. Motor space heaters must be safely connected and properly energized to avoid condensation damage to motor internal parts. For motor lubrication during storage, see Lubrication; Section 8 and also Westinghouse Instructions 2930-11TE and 2930-11S found in Section 13.2.

Unpainted machine parts of the fan should be given a protective with Sprayon #0322 (or equal). Remove the cover of the center core of the vane section of fans so equipped and spray all machined surfaces within the fan impeller mechanism.

Check the motor windings resistance to ground using a Megger (600 V DC). The resistance for each of the three phases should be recorded in a logbook. The logbook should be placed in a protective pouch and attached to the motor. Each impeller blade should be numbered in sequence with a felt tipped metal marker. The number one blade should be rotated to top center and the date of the reading recorded in the same logbook as used for the resistance readings.

During storage, the fan motor should be rotated by hand through at least ten revolutions every 60 days to circulate the grease in the motor bearings. Rotation should end with the blade at top center having a number different from the number showing when rotation started. Semi-annually, the motor bearings should be greased per instructions in Section 8, Lubrication. The space heaters should be checked for proper operation at least once a week and more frequently in damp and/or cold weather.

When the fan is to be removed from storage and readied for service, the space heaters should be disconnected and the motor windings resistance to ground in each phase be rechecked with the Megger. The reading for each phase should be greater than or equal to 1 megohm. If the reading in any phase is less, see Westinghouse Instruction 2930-11S for drying instructions or have the motor inspected by the manufacturer's nearest authorized service agent.

With satisfactory resistance readings obtained, the motor bearing lubrication system should be purged per Section 8, Lubrication. On fans so equipped, the vane section core cover should be removed and the protective coatings which were applied for the storage period should be removed from all impeller parts.

5.0 INSTALLATION

5.1 PREPARING FAN FOR START-UP: The fan equipment should be installed on a level foundation, properly shimmed and secured as required. Refer to the equipment drawings listed in Section 14 for pertinent details. All loose debris must be removed from the fans, connected equipment and ductwork. The records pouch must be removed and properly stored. The motor mounting bolts should be checked for correct torque; (See Section 12.3); the fan impeller must be centered in the fan casing. There must be adequate clearance between the inside diameter of the casing and all the blade tips as given in Section 12.4.

The electrical power connections to the motor and any other electrical device must be made in accordance with all applicable codes and safety practices. Refer also to the motor manufacturer's instruction sheets found in Section 13.2.

ALL PERSONNEL MUST BE WELL CLEAR OF THE FAN EQUIPMENT WHENEVER IT IS ROTATING. READ THE SAFETY INSTRUCTIONS IN SECTION 1 BEFORE PROCEEDING.

The motor should now be jogged to check the fan for proper rotation, which should be clockwise for Forward Flow. Refer to the contract drawings of the fans for forward flow; if an air flow direction label is affixed to the fan, be sure that both the label and the drawing are in agreement. Air flow labels will not be found on reversible fans. If it is necessary to reverse fan rotation, ALLOW THE FAN TO COME TO A COMPLETE STOP and then reverse any two of the motor power leads. Secure the casing access door.

5.2 INITIAL START-UP: With all personnel well clear of the fan, energize the motor and allow the fan time to come up to speed and normal flow conditions. Take an initial set of vibration readings as described in Section 6.1.3. The motor amperage should also be checked to see that the nameplate rating of the motor is not exceeded. An initial set of sound readings should also be taken at this time; this procedure is given in Section 6.1.2.

6.0 OPERATION: Once in operation, the fan should provide trouble-free service between recommended inspection points. It is wise to inspect the fans periodically, maintain a regular lubrication schedule (See Section 8) and to monitor the sound and vibration levels of the fans.

6.1 OPERATION MONITORING

6.1.1 VISUAL INSPECTION: All fans should be visually inspected monthly after they have been installed, following the Safety Recommendations given in Section 1. Inlet screens should be kept free of paper and trash which might restrict air flow or be ingested into the rotating impeller and cause mechanical damage. The finish of the motor should show no discoloration from excessive heat. Lubrication fittings should show no sign of lubricant loss or bleed. The impeller surfaces should show no sign of debris ingestion and/or cracks. With the power locked out, the rotor should be turned by hand; it should rotate smoothly and quietly. Roughness or noise may indicate a mechanical problem and the fan should not be operated until the cause is accounted for and/or corrected.

6.1.2 SOUND LEVEL: The sound level emitted by a fan will normally not change unless there exists a serious flow restriction or mechanical defect. Octave band readings should be taken only with a calibrated sound level meter/analyizer, following the equipment manufacturer's instructions. The observation point for all the readings should be the same so that the readings taken at different times may be directly comparable. Octave band reading sets should be taken initially, and thereafter annually at a minimum.

6.1.3 VIBRATION: Each fan is balanced at the factory per the following:

<u>Fan Service</u>	<u>MILS, max.</u>	<u>Service RPM, max.</u>
Booster	1.2	3600
Emergency	1.6	1200
Platform Vent.	1.6	1200

Vibration measurements should be taken with a calibrated vibration analyzer. Readings are generally taken in three planes: -horizontal, vertical and axial.

For horizontal readings, which are of primary importance, the magnetic base probe should be attached to the side of the fan, lying in a horizontal plane, on the discharge flange with the probe axis perpendicular to the axis of impeller rotation. For vertical readings, the probe should be rotated 90 degrees so that it is similarly placed at the top of the fan. For axial readings, the probe should be placed at the side of the fan, attached to the discharge flange, but rotated so that the probe axis is parallel to the axis of impeller rotation.

The vibration levels obtained should be less than or equal to those given above; it is common for the axial readings to be about one-half those for the other positions.

While vibration levels may be measured at any time, certain critical installations may require that equipment vibration levels be monitored continuously to obtain added assurance that any small mechanical problems may be noticed and attended to quickly, thus to avoid more serious operational problems. Continuous monitoring is thus recommended as a wise precaution for any installation. The appropriate levels for the above operational speeds are:

Vibration Level, mils

<u>SERVICE RPM</u>	<u>NORMAL</u>	<u>ALARM</u>	<u>SHUTDOWN</u>
3600	1.20	1.42	2.20
1200	1.60 (tuned)	4.26 (broad)	6.70 (broad)

Vibration levels at the SHUTDOWN magnitude require that the fan be stopped immediately and the cause of the imbalance be identified and corrected before the fan is returned to service. Vibration at the ALARM level is an indication that the fan has exceeded an acceptable level of balance and that service maintenance is required. For continuous monitoring equipment, contact FLAKT or suppliers of such equipment.

7.0 SERVICE MAINTENANCE

7.1 IMPELLER: Each fan impeller has all blades factory-set at a specific pitch angle to meet the specified performance. Other performance requirements may be met by changing the pitch of all blades on a given impeller. The hub fairing is marked with degree settings at the base of each blade and an index mark on the hub surface. The design blade pitch angle for each fan is shown on fan performance (test) curves listed in Section 15, and summarized in 7.1.1.g, below.

7.1.1 BLADE PITCH ADJUSTMENT: READ AND FOLLOW THE PRECAUTIONS PER SECTION

1.0, SAFETY, BEFORE PROCEEDING WITH ANY SERVICE MAINTENANCE.

a) Reference Drawings:

Booster Fans and Under Platform Fans: SA-0556

Emergency Fans: SKD-275

b) Remove the access cover over the impeller.

c) Using the hex key adapter (listed under tools, Sec. 2.3), loosen the four 12 mm hex socket screws enough to allow the blade to rotate.

d) Rotate the blade and align the desired degree setting (pitch) with the index mark. All blades on the impeller must be aligned identically.

DO NOT EXCEED THE FOLLOWING WITHOUT PRIOR APPROVAL BY FLAKT:

Booster Fans and Underplatform Fans: Setting 9

Emergency Fans: 55 degrees

- e) Tighten the four blade screws to barely snug, then torque diagonally opposite screws to 40 foot pounds.

CAUTION: It is important that a calibrated torque wrench be used, and that torque be applied gradually to each of the four screws alternately to avoid excessive torque on any individual blade screw.

If a blade screw is removed for any reason, the threads and underside of the screw head should be cleaned and re-coated with Moly Kote G-N Anti-Seize compound (or equal).

- f) Replace and secure the access door. The fan is now ready to be placed in service, per Section 5.2. Amperage, vibration and sound level readings should be taken and noted with the date and the value of the new setting of the blade pitch.

g) BLADE PITCH SETTINGS:

BLADE ANGLE CHART - DESIGN SETTINGS

EM	UPV	BF
01: 40.6°	01: -1.6	
02: 40.6°	02: -1.2	(NONE)
MT 03: 40.5°	03: -1.0	
04: 40.5°	04: -1.7	
05: 40.6°	05: -0.8	
06: 40.6°	06: -1.5	(NONE)
WS 07: 41°		
08: 40.8°		
09: 40.5°	07: 1.0	01: 4.0
10: 40.5°		02: 4.0
11: 41.2°		03: 4.0
GW 12: 40.3°		04: 4.0
13: 40.7°		

7.1.2 BLADE REPLACEMENT: Replacement blades are available only in pairs (for opposite sides of the impeller) which are weighted and trimmed to size. The fan should be rebalanced to "normal" level after such blade replacement. See Section 10 for fan disassembly.

7.1.3 OTHER SERVICING: The impeller should require no additional service maintenance other than thorough cleaning. Accumulated dirt can seriously affect impeller balance and motor bearing service life if left uncorrected.

7.2 MOTOR: Motor service maintenance is addressed in Section 13.2 (Westinghouse Instruction 2930-11TE). For additional information on motor lubrication, see Section 8, Lubrication.

7.3 CASING: The casing should be visually inspected periodically for physical soundness and possible deterioration of the paint coating. Any defects found should be corrected.

8.0 LUBRICATION: The motor bearings are the only items on the fan which require periodic lubrication. All greases listed on Westinghouse Instruction 2930-11TE are all suitable for 300°F service. Grease reaches the motor bearings through lines extended to fittings on the side of the fan casing adjacent to the conduit box. Separate purge lines extend from the bottom of each bearing to relief fittings also located on the side of the fan casing.

The motor bearings will not require initial lubrication unless the fan has been stored for six months or more, or stored under conditions of excessive heat, which may bake the grease in the supply lines. It is advisable to check the purge-relief fitting when adding grease. If no grease is purged through the relief fitting after several strokes of the grease gun, the grease lines may require cleaning.

The supply fitting should always be clean before adding lubricant to prevent contamination of the bearing, bearings should not be overlubricated or lubricated with a grease other than one of those specified.

It is also not good practice to mix lubricants. These fans were all lubricated with Chevron SRI-2 prior to shipment.

The amount of lubricant per bearing required for initial lubrication and at six month intervals thereafter is three strokes from a hand cartridge type grease gun.

The fan impeller has no moving parts which require lubrication.

9.0 TROUBLE SHOOTING: The axial flow fan is a mechanically simple device from which few problems can be expected. Such problems as may arise will be either electrical or mechanical. FOLLOW ALL SAFETY PRECAUTIONS WHEN TROUBLESHOOTING.

9.1 ELECTRICAL: These problems may be evidenced by failure of the motor to operate, or to operate at a speed other than the rated speed(s). This latter condition may include overheating of the motor and the generation of smoke. The electrical power supply should be checked first to ensure

that the correct power is available to the motor. Internal damage will require the removal of the motor from the fan for rebuilding/replacement.

9.2 MECHANICAL: Mechanical problems are marked by excessive noise and/or vibration, and sometimes by overheating. The impeller should be rotated slowly and carefully by hand and visually examined per Section 6.11 for visual damage. The impeller should rotate smoothly if the motor bearings are not defective. The vane section (on fans so equipped) should also be checked for mechanical integrity.

10.0 FAN DISASSEMBLY FOR IMPELLER/MOTOR REMOVAL

10.1 EMERGENCY FAN: (See Drawing SKD-265)

- a) Disconnect & lock out all power to motor.
- b) The amount of space available will determine the extent to which connected equipment must be removed to gain access to the impeller and/or motor. SUPPORT ALL COMPONENTS SAFELY BEFORE MAKING ANY MECHANICAL DISCONNECTION.

IMPELLER REMOVAL FROM FAN:

- c) Carefully disconnect the fan vane section (1000 lbs.) and outlet transition (1560 lbs.) from fan & flexible connection. Using safe & adequate equipment, move the freed components sideways to allow access to impeller (352 lbs.). See Section 10.4 for impeller removal from motor shaft.

MOTOR REMOVAL:

- d) After completing a) thru c) above, disconnect all leads at conduit box & carefully remove conduit between casing exterior and motor. Tag coil and secure all leads from damage during handling.

e) Remove motor base bolts.

f) Lift motor (2600 lbs.) carefully, with safe and adequate equipment, by eyebolt. Be sure that motor is secured and that its movements are controlled at all times during handling.

10.2 UNDER PLATFORM FANS: (SEE SKD-266 THRU 269):

The procedure given for the Emergency Fans applies also to the Under Platform Fans, with allowance made for lighter component weights (which are given on the reference drawings) and site restrictions.

10.3 BOOSTER FANS (SEE SKD-270):

The procedure given for the Emergency Fans applies also to the Booster Fans, with allowance made for lighter component weights (which are given on the reference drawing), site restrictions and the vibration isolators.

10.4 REMOVAL OF IMPELLER FROM MOTOR SHAFT:

Reference drawings: Emergency Fans.....SKD-275

Underplatform Fans.....SKC-364

Booster Fans.....SKC-365

The removal of the impeller from the motor shaft follows essentially the same procedure in all cases, with allowance being made for the variation in the weight of the different impeller sizes. The impeller is secured to the motor shaft by a bolt, which must be removed. The impeller must be safely supported before attempting to slide the impeller off the shaft. It may be necessary to use a puller to assist in removing the impeller. It is not necessary to remove the retaining ring inside the hub. Do not lose the thrust washer located behind the ~~thrust~~ washer. Handle the impeller carefully after removal. Service Maintenance for the impeller is covered in Section 7.0.

11.0 FAN PARTS11.1 INTERCHANGEABILITY

Fan components may be interchanged among all identical fans; e.g. all fans of the same size and type. For this contract, all Emergency Fan Components interchange (except the motor on the two speed fan) with all other Emergency Fans; All Underplatform Fan components interchange with other UPV fans (except for GW-UPV-07, which is a larger fan); all Booster fans interchange with all other BF fans. Any interchange of rotors and/or blade pairs should be accompanied by a complete check of the blade tip clearance (See Section 12.3) and rebalancing the fan-motor assembly (See Section 61.3)

11.2 REPLACEMENT SITES

The following tabulation indicates component replacement levels for equipment supplied on this contract:

EQUIPMENT	REPLACEMENT LEVEL		
	ON SITE	AUTHORITY SHOP	MANUFACTURER'S FACILITY
Fan:			
Rotor Assembly	X	X	X
Rotor Blades & Bolts	X	X	X
Rotor Less Blades & Bolts	-	-	X
Motor	X	X	X
Casing	X	X	X
Casing Vane Section	X	X	X
Transitions, Inlets	X	X	X
Sound Attenuators	X	X	X

12.0 FAN RE-ASSEMBLY12.1 MOTOR INSTALLATION - INITIAL

The fan motor must be adequately supported during lifting and its movements controlled during handling and placement within the fan casing. Clip mounted fans must be securely supported and blocked. The fan impeller should be installed only after the motor is located in the fan casing and temporarily secured with one or two bolts, finger tight. Each motor foot should rest on the same shim(s) removed during disassembly. Re-install all leads thru conduit.

12.2 IMPELLER INSTALLATION

With the motor installed on its base in the casing, proceed as follows: Clean both the motor shaft and the hub bore with a clean cloth and solvent. Wipe with a dry, clean cloth. Rotate the motor shaft so that the keyway is at the top. Apply a thick film of anti-seize compound (such as Fel-Pro C5A or Molykote G-N) to the motor shaft and keyway; install key. Locate the thrust washer in the impeller hub. Carefully slide the impeller onto the motor shaft. It may be necessary to use a 1/2-13 UNC stud, nut & helper bar to pull the impeller into correct position on the motor shaft. When the impeller has been positioned, clean the impeller-motor shaft bolt and apply a thin film of Loctite Grade T Primer to the threads. Blow excess primer from the thread and allow to dry (clean) for five minutes. Apply Loctite #242 to threads. Install hub washer and thread bolt into shaft, applying 40 ft. lbs. torque. The impeller-motor assembly is now ready for final positioning within the fan casing. Continue in following section.

12.3 MOTOR INSTALLATION - FINAL

- With the impeller installed on the motor shaft, the assembly must now be aligned and centered within the fan casing. The impeller set-back must be the same as shown below in the chart. When this is completed, the motor mounting bolts should be torqued to the following values:

<u>EQUIPMENT SERVICE</u>	<u>MOTOR MOUNT BOLT SIZE</u>	<u>TORQUE, FT-LBS.</u>	<u>IMPELLER SET-BACK</u>
Emergency	3/4 - 10	240	.062"
Underplatform	5/8 - 11	150	1.45"
Booster	1/2 - 13	75	1.45"

12.4 IMPELLER BLADE TIP CLEARANCE: (ALL POWER OFF & LOCKED OUT OR DISCONNECTED)

The blade tip clearance to the inside of the fan casing is determined by choosing a position on the casing, e.g. 12 o'clock, and checking the tip clearance of each blade at that position until the blade with the least clearance is determined. This blade is then used to check the clearance around the casing. The minimum allowable tip clearances are tabulated below.

STATION	EM TAG	EQUIPMENT SERVICE				
		TIP CLEAR, MIN.	UPV TAG	TIP CLEAR, MIN.	BF TAG	TIP CLEAR, MIN.
MT	01-04		01-04		---	---
WS	05-08	.080"	05-06	.100"	---	---
CW	09-13		07	.123"	01-04	.030"

NOTE: Motor mounting bolts must be torqued down in order to obtain valid tip clearance measurements.

12.5 RE-INSTALLATION OF ASSEMBLED FAN

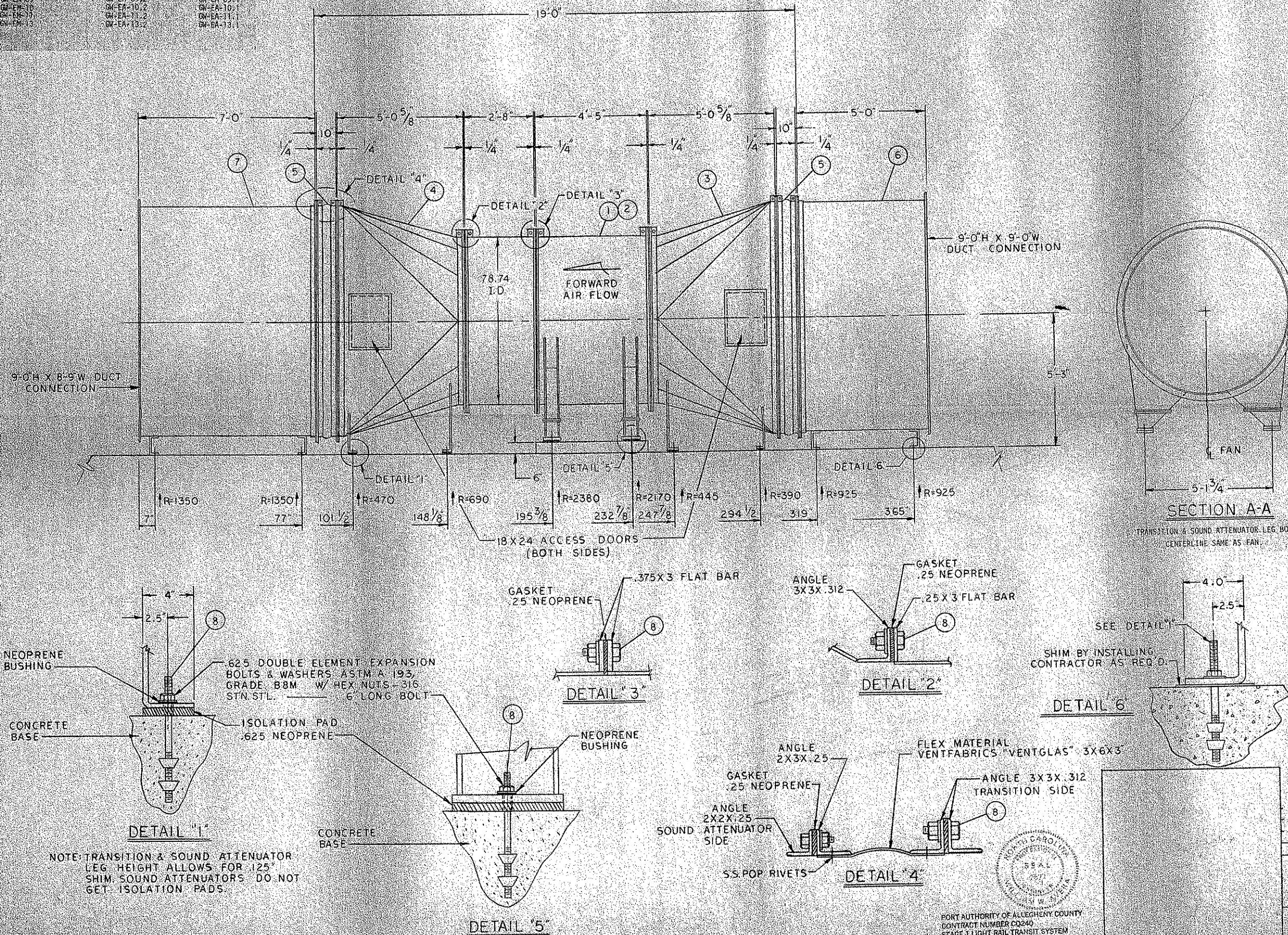
The reassembled fan can now be reinstalled to its associated components.

The conduit box can now be secured. Check to be sure that all power is off and locked out before reconnecting power leads.

12.6 ADEQUACY OF REPAIRS

The fans supplied on this contract require no special check-out procedures to verify the adequacy of repairs other than the steps associated with routine start-up tests for vibration, amperage and sound level.

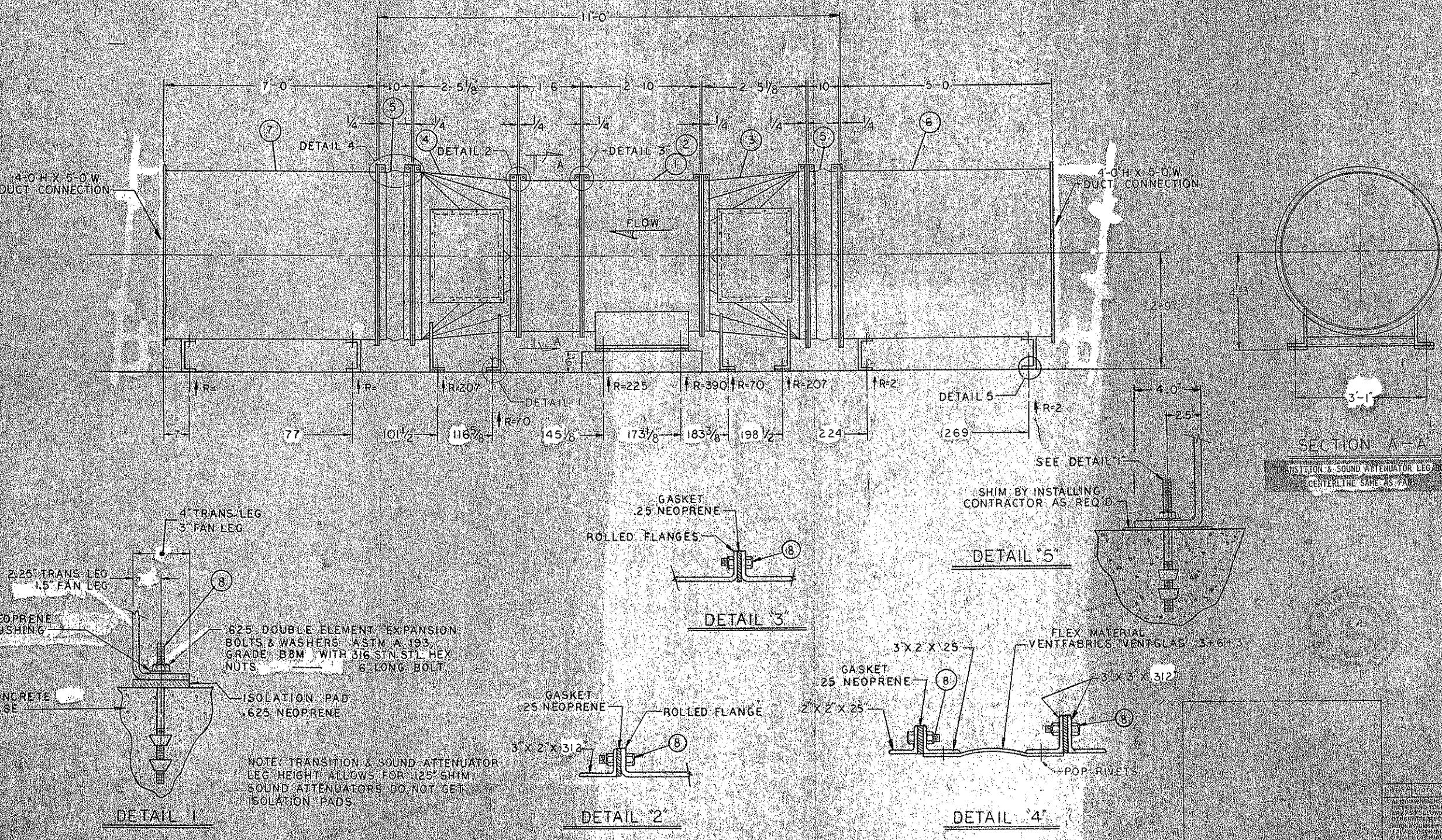
		REVISIONS		
REV.	PAGE	DESCRIPTION	DATE	BY
A		ORIG. PEL	12/4/82	SLR
B		ADD DETAIL, NOTES, DIM.	2/25/83	S
C		REV. FOR RESUBMITTAL	3/4/83	CS
D		NUTS ARE 3/8 S.S.T.	7/18/83	EHP
E		ADD FLATWASHERS AT ANCHORS	7/18/83	S



NOTE: TRANSITION & SOUND ATTENUATOR
LEG HEIGHT ALLOWS FOR 125°
SHIM/SOUND ATTENUATORS DO NOT
GET ISOLATION PADS

PART OF THE PORT AUTHORITY OF ALLEGHENY COUNTY
CONTRACT NUMBER C0240
STAGE 1 LIGHT RAIL TRANSIT SYSTEM

S	STANDARD	DESCRIPTION	REVISION
P	ADD DETAIL & NOTES	1/200	C
L	KEY FOR RECOMMENDATION	1/200	C
D	NUTS ARE 316 STAINLESS	7-11-85	BHF
E	NO HAWKINS 12 ANGLES	7-11-85	C



Haki

MIDTOWN

SKYLINE

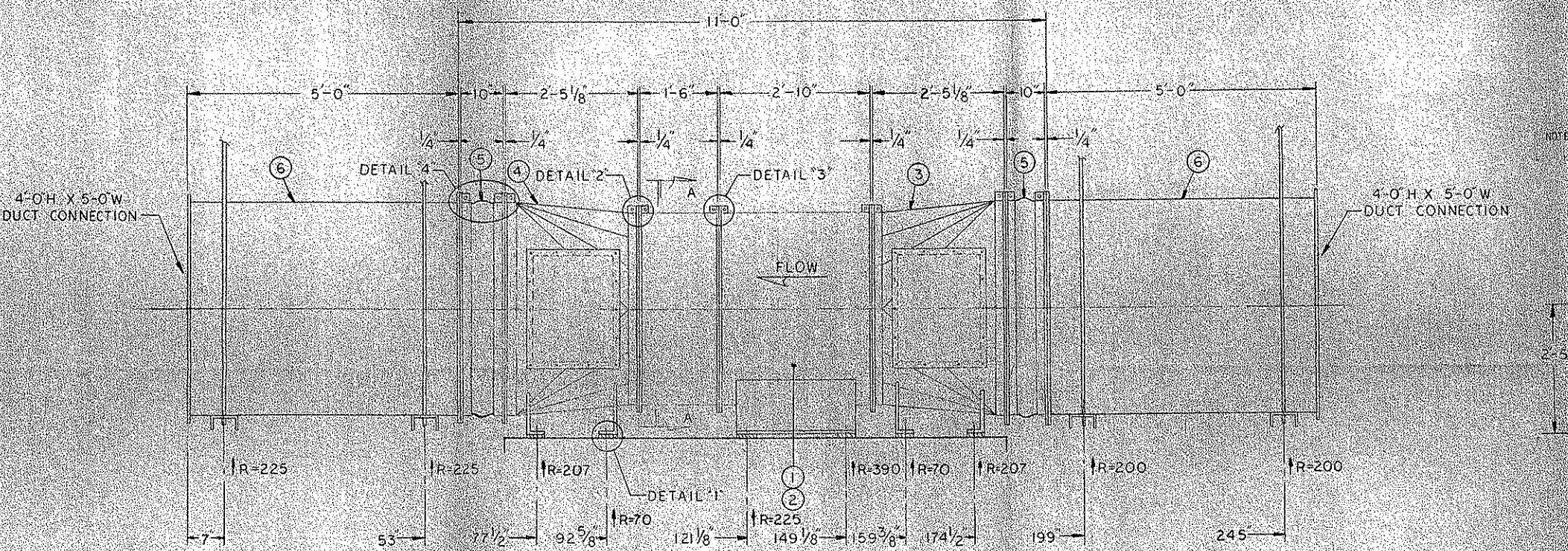
ITEM	ZONE	DESCRIPTION	DRAWN BY	REV.
A	ORIG. REV.	7-19-83	S	
B	REV. PER CUST. LAYOUT	7-19-83	S	
C	REV. FOR REFORM ITAL	7-19-83	S	
D	NUTS ARE 316 STN. STL	7-19-83	SHP	
E	ADD FLAT WASHERS TO ANCHOR BOLTS	7-19-83	S	

FAN DESIGNATION NO. SOUND ATTENUATOR DESIGNATION NO.

INLET OUTLET
MT-UPV-03 MT-UA-03-2 MT-UA-03-1

EQUIPMENT LIST

1. FAN: MODEL FTFA-112-7-2+ AXIAL ADJUSTABLE PITCH AXIAL FAN, 44.09" DIA., W/VANE SECTION & LEGS. 25,000 CEM AT 1180 RPM.
TOTAL WT. 732 LBS.
2. MOTOR: WESTINGHOUSE 25 HP, 1,200 RPM 1/24 T. FRAME 450/3760 TOTALLY ENCLOSED AIR OVER, NEMA DESIGN B WITH CLASS B INSULATION, 120 VOLTS SPACE HEATER, OVERSIZE CAST IRON CONDUIT BOX, CONDULET FOR SPACE HEATER LEADS, T-SUS THERMOGARD, GREATHER/DRAIN/CAST IRON FRAME, FOOT MOUNTED.
TOTAL WT. 505 LBS.
3. INLET TRANSITION: 10 GA. H.R. PLATE 2'-5 1/8" LONG W/DOOR 18" H X 24" W
TOTAL WT. 454 LBS.
4. OUTLET TRANSITION: 10 GA. H.R. PLATE 2'-5 1/8" LONG W/DOOR 18" H X 24" W
TOTAL WT. 454 LBS.
5. FLEXIBLE CONNECTION: VENTFABRICS VENTGLAS, FRAME RETARDANT, ABRAZION RESISTANT, AND SHALL WITHSTAND WITHOUT DELETERIOUS EFFECT SATURATION WITH GREASE AND OIL.
TOTAL WT. 404 LBS.
6. SOUND ATTENUATOR: (INLET X OUTLET) 5'-0" LONG X 4'-0" H X 5'-0" W (INDUSTRIAL ACOUSTICS) W/FLANGES 2 X 2 1/4" 316 STN. STL 1952 WT. 900 LBS.
7. HARDWARE: 1/2" DIA. BOLTS ASTM A 193, GRADE B8M W/SUITABLE LOCK WASHERS, NUTS-316 STN. STL. ANCHOR BOLTS 5/8" DIA. ASTM A 193, GRADE B8M W/ FLAT & LOCK WASHERS, NUTS-316 STN. STL.
8. ISOLATION: SHEARFLEX ISOLATION PADS, 5/8" THICK, FOR FAN AND TRANSITIONS

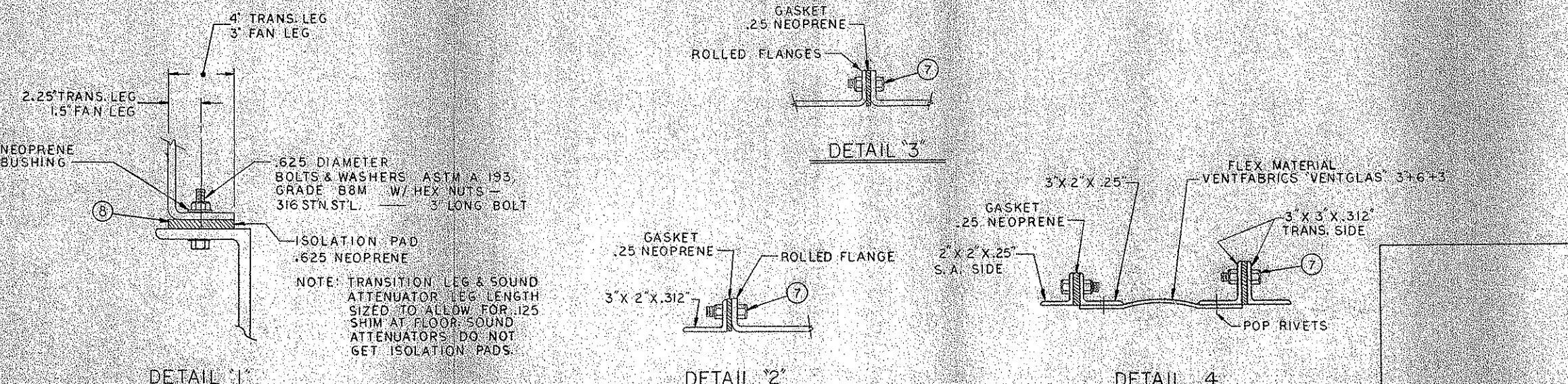


SECTION A-A

TRANSITION LEG BOLT
SAME AS FAN

- NOTE: 1. FAN & VANE SECTION SHIPPED ASSEMBLED, JOINTS TO TRANSITIONS, FLEX CONNECTIONS, AND SOUND ATTENUATORS TO BE MADE UP AT SITE WITH HARDWARE PER ITEM 7 PROVIDED BY FLAKT PRODUCTS.
2. MT-UPV-03 TO JACKET RIGHT HAND CONDUIT BOX, GREASE CONNECTIONS, AND ACCESS DOORS.
3. FLANGES OF ATTENUATORS TO DUCT CONNECTIONS TO BE PROVIDED WITH 5/8" DIA. BOLT HOLES.
4. REACTIONS SHOWN ARE WEIGHT AT EACH ANCHOR BOLT. FIGURES INCLUDE FAN THRUST.

SKD-268

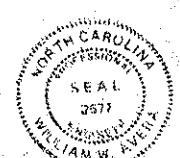


PUBLIC AUTHORITY OF ALLEGHENY COUNTY
CONTRACT NUMBER C0240
VALK 1 LIGHT RAIL TRANSIT SYSTEM

ITEM	DIY	DESCRIPTION	DRAWING OR DIMENSION	MATERIAL	WEIGHT
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. WHOLE NUMBER 1 INCH = 1.00 IN. 2 PLACE DECIMAL .00 IN. 3 PLACE DECIMAL .000 IN. EQUALS 1/1000 IN.					
DRAWN BY	S	DATE	12-29-82		
CHECKED BY		DATE	12-29-82		
APPROVED BY		DATE	12-29-82		
SCALE	344-01	CONTRACT NO.	T-0357		
NEXT ASSEMBLY	NONE	ASSEMBLY SHEET	1	OF	1
DRAWING NUMBER	SKD-268	REV.	E		

Flakt Products Winston-Salem, NC
Allentown, PA, Inc.

UNDERPLATFORM VENTILATION FAN ASSY.
MT-UPV-03



A

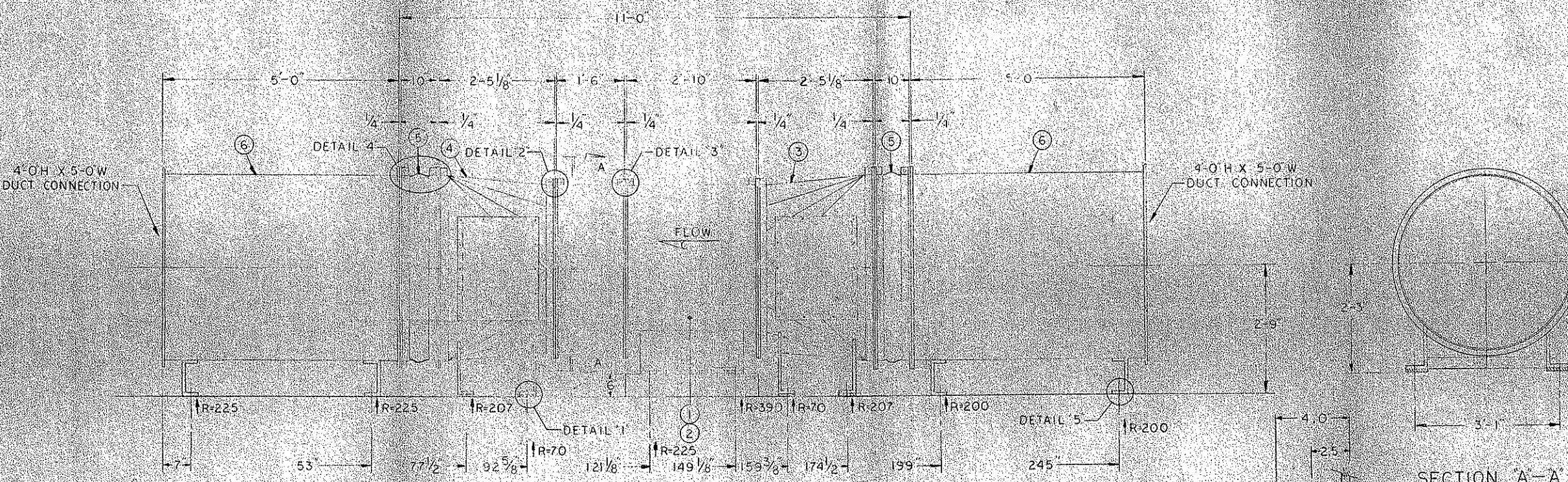
A	ORIGINAL DRAWING	DATE 12/2/82
B	ADDED NOTES & DETAILS	DATE 12/1/82
C	REV. FOR RESUBMITTAL	DATE 12/9/83
D	NUTS ARE 316 STN. STL.	DATE 7/19/83 BHP
E	ADD FLAT WASHERS TO ANCHOR BOLTS	DATE 9/1/83 B

FAN DESIGNATION NO. SOUND ATTENUATOR DESIGNATION NO.

INLET OUTLET
MU-UPV-02 MU-DA-02-1
WS-UPV-05 WS-DA-05-1
WS-UPV-06 WS-DA-06-1

EQUIPMENT LIST

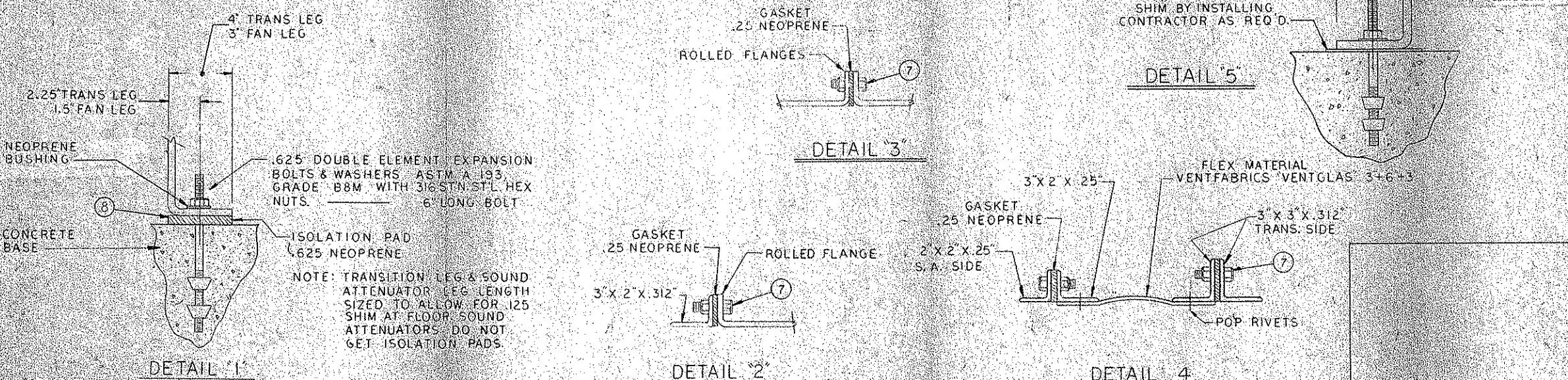
1. FAN - MODEL FTFA-112-7-24 AXIAL ADJUSTABLE PITCH AXIAL FAN, 44.09" DIA., 4/VANE SECTION & LEGS, 25,000 CFM AT 1180 RPM, 120VAC, 60Hz, 7.2A/6.5A
2. MOTOR - WESTINGHOUSE 25 HP, 11,200 RPM W/324 T FRAME 460/3/60 TOTALLY ENCLOSED AIR OVER, NEMA DESIGN B WITH CLASS H INSULATION, 120 VOLTS SPACE HEATER, OVERTSIZE CAST IRON CONDUIT BOX, CONDULET FOR SPACE HEATER LEADS, T-S THERMOGUARD, BREATHER/DRAIN, CAST IRON FRAME, FOOT MOUNTED
3. INLET TRANSITION: 10 GA. H.R. PLATE 2'-5 1/8" LONG W/DOOR 18" W. 24" H
TOTAL WT. 554 LBS.
4. OUTLET TRANSITION: 10 GA. H.R. PLATE 2'-5 1/8" LONG W/DOOR 18" W. 24" H
TOTAL WT. 554 LBS.
5. FLEXIBLE CONNECTION: VENTFABRICS "VENTGLAS" FLAME RETARDANT, ABRASION RESISTANT, AND SHALL WITHSTAND WITHOUT DELETERIOUS EFFECT SATURATION WITH GREASE AND OIL
TOTAL WT. 424 LBS.
6. SOUND ATTENUATOR: (INLET & OUTLET) 6'-0" LONG X 4'-0" H X 5'-0" W (INDUSTRIAL ACOUSTICS) W/FLANGES 2 x 2 x 1/4" INLET 500 LBS. OUTLET 900 LBS.
7. HARDWARE: 1/2" DIA. BOLTS ASTM A 193, GRADE B8M W/SUITABLE LOCK WASHERS, NUTS - 316 STN. STL EXPANSION BOLTS 5/8" DIA. ASTM A 193, GRADE B8M W/ FLAT & LOCK WASHERS, NUTS - 316 STN. STL
8. ISOLATION: SHEARTEX ISOLATION PADS, 5/8" THICK FOR FAN AND TRANSITIONS



SECTION "A-A"

TRANSITION & SOUND ATTENUATOR LEG BOLT
CENTERLINE SAME AS FAN

- NOTE: 1. FAN & VANE SECTION SHIPPED ASSEMBLED; JOINTS TO TRANSITIONS, FLEX CONNECTIONS, AND SOUND ATTENUATORS TO BE MADE UP AT SITE WITH HARDWARE PER ITEM 7 PROVIDED BY FLAKT PRODUCTS.
2. MU-UPV-02 AND WS-UPV-05 TO HAVE RIGHT HAND CONDUIT BOX, GREASE CONNECTORS AND ACCESS DOORS. WS-UPV-06 TO BE LEFT HAND.
3. FLANGES OF ATTENUATORS AT DUCT CONNECTIONS TO BE PROVIDED WITH 5/8" DIA. BOLT HOLES.
4. REACTIONS SHOWN ARE WEIGHT AT EACH ANCHOR BOLT. FIGURES INCLUDE FAN THRUST.



ITEM	QTY	DESCRIPTION	DRAWING OR DIMENSION	MATERIAL	WEIGHT
ALL DIMENSIONS ARE IN INCHES. UNLESS NOTED, FOLLOWING UNITS ARE INCHES. UNLESS OTHERWISE SPECIFIED: WHOLE NUMBER = INCH DECIMAL = 1/16 INCH 2 PLACE DECIMAL = 1/32 IN 3 PLACE DECIMAL = 1/64 IN ANGULAR = DEGREES		DRAWN 2-29-82 CHECKED APPROVED 2-29-82 SCALE 3/4"=1'-0" REVISIONS DISCLOSURE OF THIS DATA IN WHOLE OR IN PART FOR MANUFACTURING PURPOSES WITHOUT THE WRITTEN PERMISSION OF FLAKT PRODUCTS, INC. (BYRONBIRD)	DATE 12/2/82	Flakt Products A Division of Flakt, Inc.	
ITEM NO.	T-0557	CONTRACT NO.		Winston-Salem, NC	
NEXT ASSEMBLY	NONE	SHEET	OF 1	DRAWING NUMBER	
SKD-267				SKD-267	



UNDERPLATFORM
VENTILATION FAN ASSY.
MIDTOWN & WOOD ST.

SKD-267

DESCRIPTION		DATE	BY
ORIGINATE		7-19-83	S
ADD. NOTES & DETAILS		7-19-83	S
REV FOR RESUBMITAL		7-19-83	S
NUTS ARE SIGNS IN STL		7-19-83	BHP
ADD FLATWASHERS TO ANCHORS		7-19-83	S

FAN DESIGNATION NO. SOUND ATTENUATOR DESIGNATION

INLET OUTLET
SW-UPV-02 GM-03-02-2 GM-03-02-1

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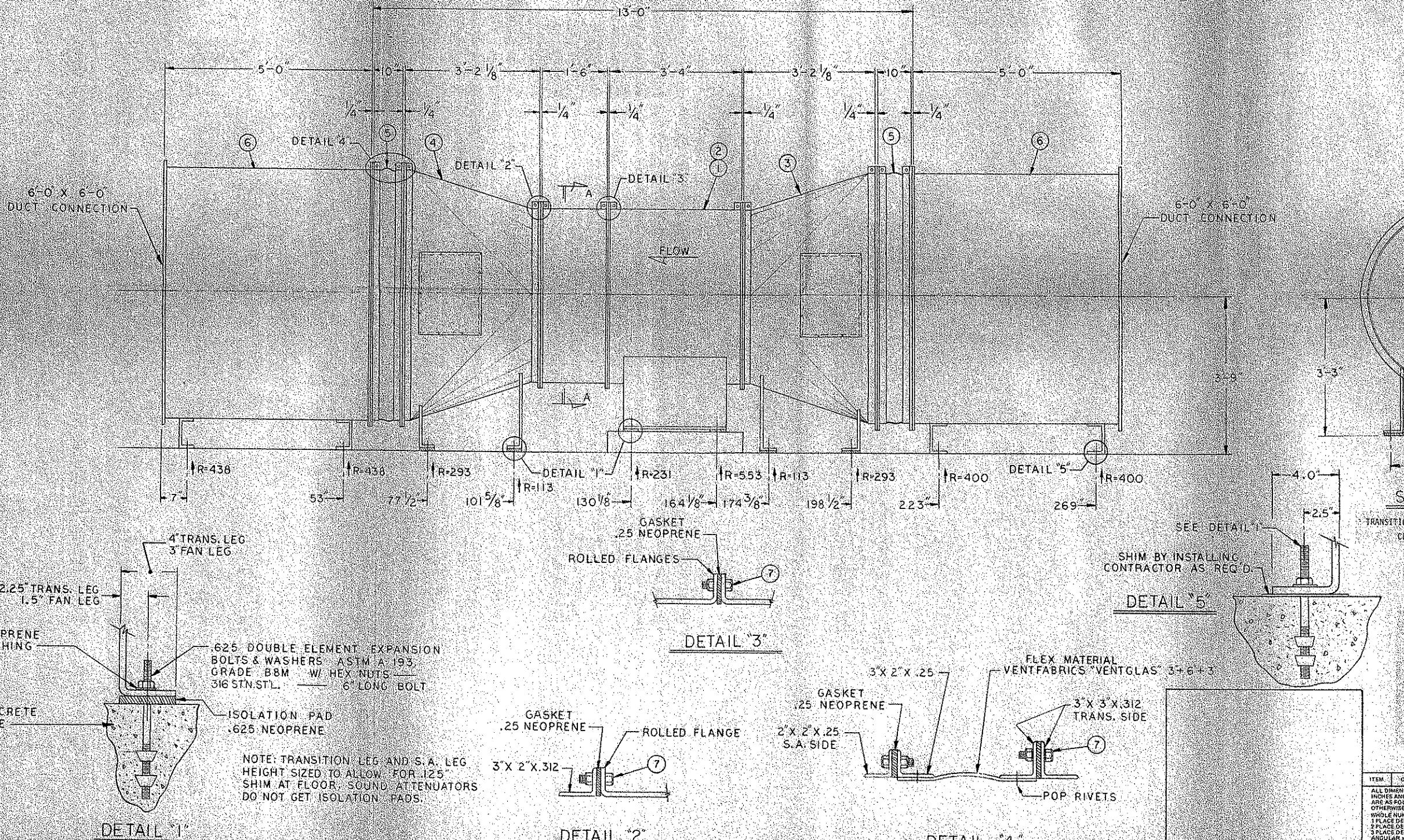
卷之三

07-03-2011

卷之三

PONENT LIST

- FAN: MODEL FFTA-125-7-2, AXIAL ADJUSTABLE PITCH
 FRAC. FAN 1/2" DIA. W/ VANE SECTION & VIBRATION
 BASE 40,000 CFM AT 1180 RPM
 TOTAL WT. 750 LBS.
 MOTOR: WESTINGHOUSE 50 H.P. 1,200 RPM W/ 365T
 FRAME 460/3/60 TOTALLY ENCLOSED AIR OVER, NEMA
 DESIGN B WITH CLASS H INSULATION, 120 VOLT, SPACE
 HEATER, OVERSIZE CAST IRON CONDUIT BOX, CONDUIT
 FOR SPACE HEATER LEADS, T-S, THERMOGUARD,
 BREATHER/DRAIN CAST IRON FRAME, FOOT MOUNTED.
 TOTAL WT. 750 LBS.
 INLET TRANSITION: 10 GA. A.R. PLATE 3'-2 1/8" LONG
 W/ODP 18 W X 24 H
 TOTAL WT. 671 LBS.
 OUTLET TRANSITION: 10 GA. A.R. PLATE 3'-2 1/8" LONG
 W/ODP 18 W X 24 H
 TOTAL WT. 671 LBS.
 FLEXIBLE CONNECTION: VENTFABRICS "VENTGLAS" FLAME
 RETARDANT, ABRASION RESISTANT, AND SHALL WITHSTAND
 WITHOUT DELETERIOUS EFFECT SATURATION WITH GREASE
 AND OIL.
 TOTAL WT. 572 LBS.
 SOUND ATTENUATOR: (INLET & OUTLET) IAC 5'-0" LONG
 6'-0" H X 5'-0" W (INDUSTRIAL ACOUSTICS) W/FLANGES
 2 X 2 X 1/4" INLET/OUTLET, OUTLET #150 LBS.
 HARDWARE: 1/2" DIA. BOLTS ASTM A 193, GRADE 80H
 W/SUITABLE LOCK WASHERS, NUTS - 316 STN. STL.
 EXPANSION BOLTS 5/8" DIA. ASTM A 193, GRADE 80H
 4" FLAT & LOCK WASHERS, NUTS - 316 STN. STL.
 ISOLATION: SHEARFLEX ISOLATION PADS, 5/8" THICK,
 FOR FAN & TRANSITIONS.

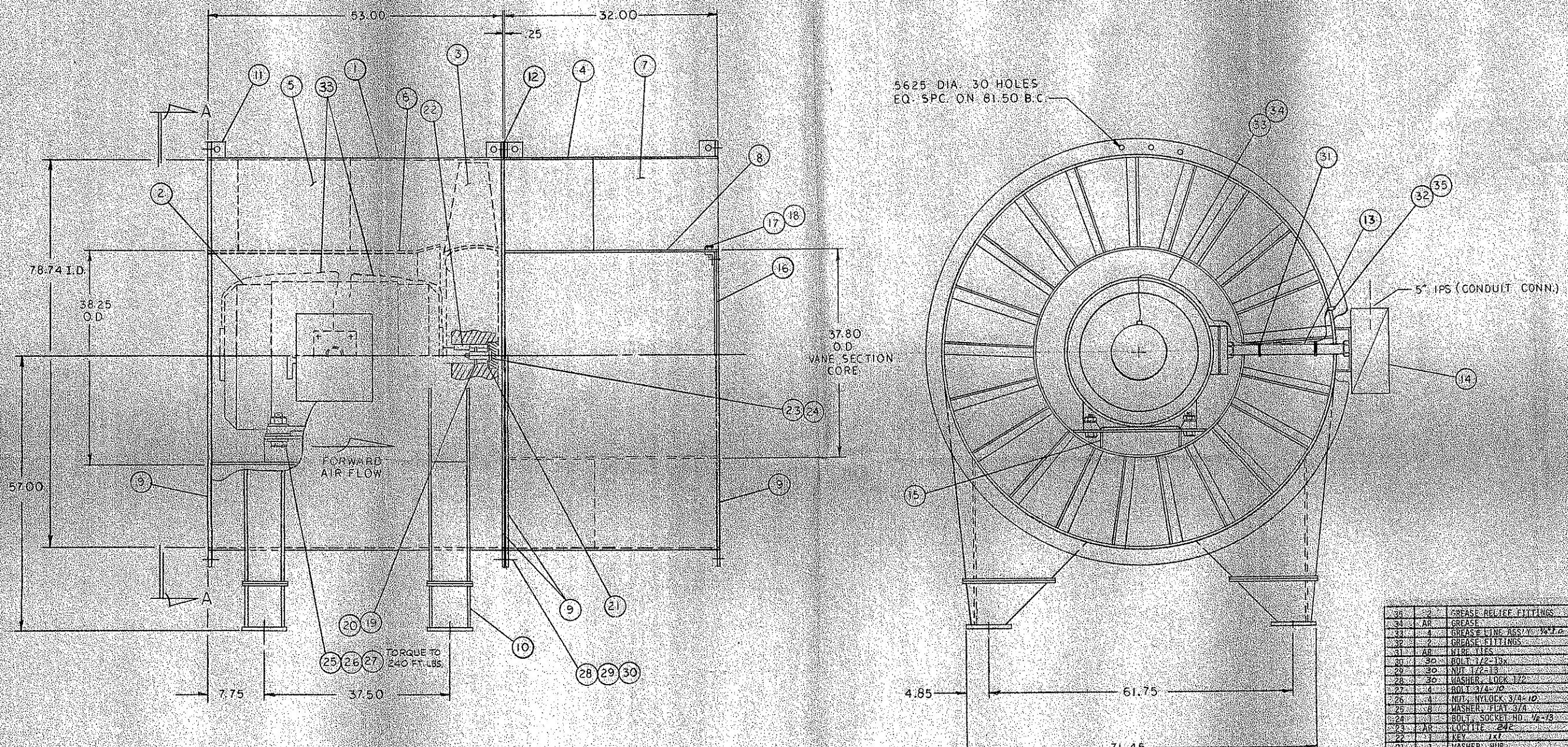


NOTES:

1. FAN & VANE SECTION SHIPPED ASSEMBLED. JOINTS TO TRANSITIONS, FLEX CONNECTIONS, AND SOUND ATTENUATORS TO BE MADE UP AT SITE WITH HARDWARE PER ITEM 8 PROVIDED BY FLAKT PRODUCTS.
2. IN UPV-07 TO HAVE LEFT HAND CONDUIT BOX, GHESE CONNECTIONS, AND ACCESS DOOR.
3. FLANGE OF ATTENUATORS AT DUCT CONNECTION TO BE PROVIDED WITH 5/8" DIA. BOLT HOLES.
4. REACTIONS SHOWN ARE WELD AT EACH ANCHOR BOLT.

Y	DESCRIPTION	DRAWING OR DIMENSION	MATERIAL	WEIGHT
ONS ARE NOT TO BE USED UNLESS SPECIFIED	DRAWN BY <i>S.</i> DATE 12-6-82	CHECKED BY <i>S.</i> APPROVED BY <i>S.</i> DATE 12-9-82	 Flakt Products <small>A Division of Flakt</small>	Winston-Salem, NC
PER 1 IN. ITEM NO. 001 ITEM NO. 002	SCALE 3/4-10			
LOCATION OR PART OF THE ITEM FOR THE PURCHASE OR PRODUCTION BY THE WRITTEN CONTRACT IS PROHIBITED	CONTRACT NO. T-0357	NEXT REVISION MEET	DRAWING NUMBER GW-UPV-07	SKD-269 E
	1 OF 1			

A	ITEM	100-12	REV B
B	ITEM	100-12	REV C
C	ITEM	100-12	REV D
D	ITEM	100-12	REV E
E	ITEM	100-12	REV F



NOTE: MT-EM-01, MT-EM-03, WS-EM-05, WS-EM-08, GU-EM-09, AND GH-EM-13 TO HAVE RIGHT HAND CONDUIT BOX, GREASE CONNECTIONS, AND ACCESS DOOR. ALL OTHER EMERGENCY FANS TO BE LEFT HAND.

IN AUTHORITY OF EQUIPMENT CO. LTD
MANUFACTURER OF INDUSTRIAL
VENTILATION SYSTEM

ITEM	QTY	DESCRIPTION	DRAWING OR DIMENSION	MATERIAL	WEIGHT
ALL DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE SPECIFIED, WORKPIECE IS IN. 1 PLACE DECIMAL, .1 IN. 2 PLACES DECIMAL, .01 IN. 3 PLACES DECIMAL, .001 IN.		DRAWN BY: SLL	DATE: 11-20-22		
		CHECKED BY: G. L. COOPER	DATE: 12-27-22		
		APPROVED BY: G. L. COOPER	DATE: 12-27-22		
		SCALE:			
THE USE, DUPLICATION, OR DISCLOSURE OF THIS DATA UNWILLY OR IN PART, FOR ANY PURPOSE, WITHOUT THE WRITTEN PERMISSION OF FLAKT PRODUCTS, INC. IS PROHIBITED.		CONTRACTING: I-0357			
		NEXT ASSEMBLY: SKD-265			
		DRAWING NUMBER: SKD-264			

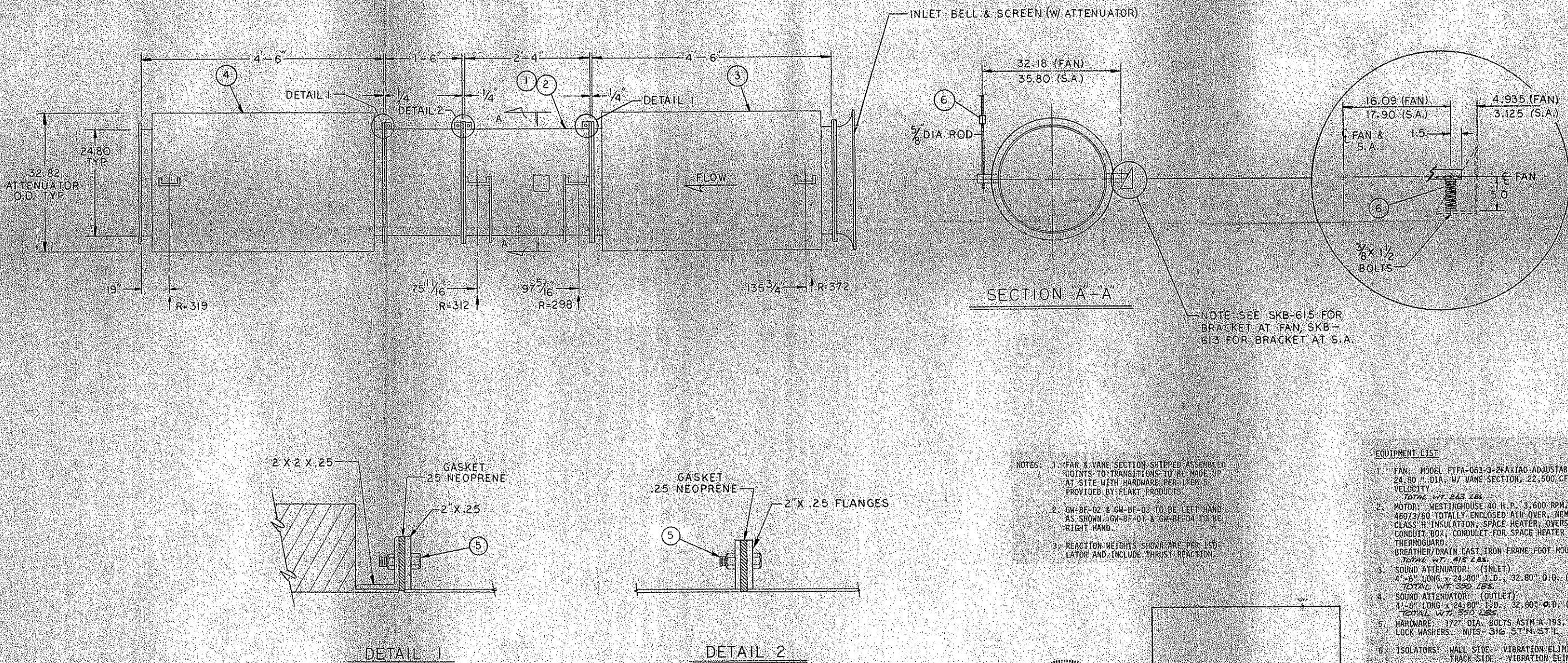
Flakt
Products
A Division of Flakt, Inc.
Winston-Salem, NC

AXICO 200-100-12
HORIZONTAL ARRANGEMENT
EMERGENCY FANS

SKD-264

REVISIONS			
REV.	DATE	DESCRIPTION	DRAWING NO.
A	12-6-82	ORIG. REL.	SKD-270
B	12-9-82	ADD. DETAILS & NOTES	
C	12-9-82	REV FOR RESUBMITAL	
D	12-10-82	1/2" NUTS ARE 3/16 S.T. ADDED WT	SKD-270 BRF

FAN DESIGNATION NO.	SOUND ATTENUATOR DESIGNATION NO.
GW-BF-01	GW-BA-01 .2
GW-BF-02	GW-BA-02 .2
GW-BF-03	GW-BA-03 .2
GW-BF-04	GW-BA-04 .2



NOTES:

1. FAN & VANE SECTION SHIPPED ASSEMBLED. JOINTS TO TRANSITIONS TO BE MADE UP AT SITE WITH HARDWARE PER ITEMS PROVIDED BY FLAKT PRODUCTS.
2. GW-BF-02 & GW-BF-03 TO BE LEFT HAND AS SHOWN, GW-BF-01 & GW-BF-04 TO BE RIGHT HAND.
3. REACTION WEIGHTS SHOWN ARE PER ISOLATOR AND INCLUDE THRUST REACTION.

- EQUIPMENT LIST
1. FAN, MODEL PTFA-063-3-24 AXIAL ADJUSTABLE PITCH AXIAL 24.80" O.D. W/ VANE SECTION, 22,500 CFM AT 6715 OUTLET VELOCITY
TOTAL WT. 263 LBS
 2. MOTOR, WESTINGHOUSE 40 H.P., 3,600 RPM, 296T FRAME 460/230V, TOTALLY ENCLOSED AIR OVER, NEMA DESIGN B WITH CLASS B INSULATION, SPACE HEATER, OVERSIZE CAST IRON CONDUIT BOX, CONDUIT FOR SPACE HEATER LEADS, T.S. THERMOGUARD, BREATHER/DRAIN CAST IRON FRAME FOOT MOUNTED. 75744 WT. 415 LBS
 3. SOUND ATTENUATOR: (INLET)
4'-6" LONG X 24.80" I.D. X 32.80" O.D. (INDUSTRIAL ACOUSTICS)
TOTAL WT. 350 LBS
 4. SOUND ATTENUATOR: (OUTLET)
4'-11" LONG X 24.80" I.D. X 32.80" O.D. (INDUSTRIAL ACOUSTICS)
TOTAL WT. 370 LBS
 5. HARDWARE: 1/2" O.D. BOLTS ASTM A-193, GRADE 80W W/ SUITABLE LOCK WASHERS, NUTS- 3/16 ST N. STL.
 6. ISOLATORS: WALL SIDE - VIBRATION ELIMINATOR CO. DST-250 TRACK SIDE - VIBRATION ELIMINATOR CO. SNC-6

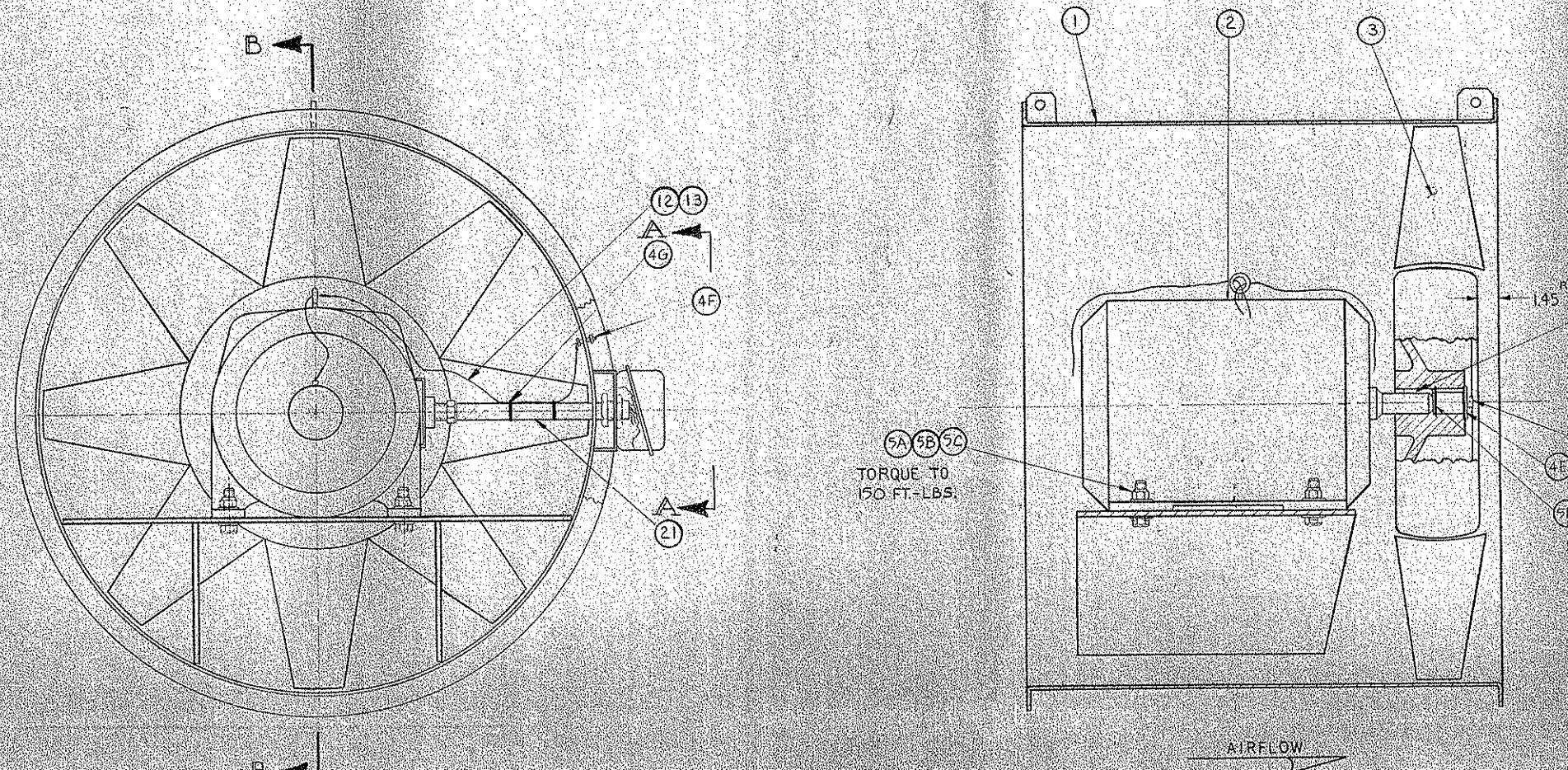


PORT AUTHORITY OF ALLEGHENY COUNTY
CONTRACT NUMBER PC-2470
STAGE 1 LIGHT PAINT TRAIL SYSTEM

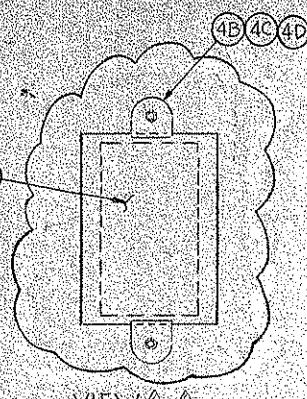
ITEM	QTY	DESCRIPTION	DRAWING OR DIMENSION	MATERIAL	WEIGHT
ALL DIMENSIONS ARE INCHES UNLESS OTHERWISE SPECIFIED. WHOLE NUMBERS 1 IN. 1 PLACED DECIMAL 1/16 IN. 2 PLACED DECIMAL 1/32 IN. 3 PLACED DECIMAL 1/64 IN. ANGULAR 1° = 1/16 U.					
DRAWN	1	DATE	12-6-82		
CHECKED			12-9-82		
APPROVED			12-9-82		
SCALE: 1/4" = 1'-0"					
CONTRACT NO.	T-0357				
ASSEMBLY	NONE				
SHEET	1	OF	1		
DRAWING NUMBER	SKD-270	REV.	D		

Flakt
ADVISORY BOARD
Winston-Salem, NC
BOOSTER FAN ASSY.
GATEWAY CENTER

REV	DATE
A	ORIG REL 1/27/82
B	ADDED NOTE 2/2/83
C	REV FOR REFORMATIAL 1/9/83
D	REV ITEM 4 ID 7/20/83 BHF
E	ADD LIFT LOGS REV SA 45B 1/1/83



NOTE: MT-UPV-01, MT-UPV-02, MT-UPV-03, AND WS-UPV-05
TO HAVE CONDUIT BOX, GREASE CONNECTIONS, AND
ACCESS DOOR ON RIGHT HAND SIDE.
MT-UPV-04, WS-UPV-06, AND GR-UPV-07 TO BE
LEFT HAND.



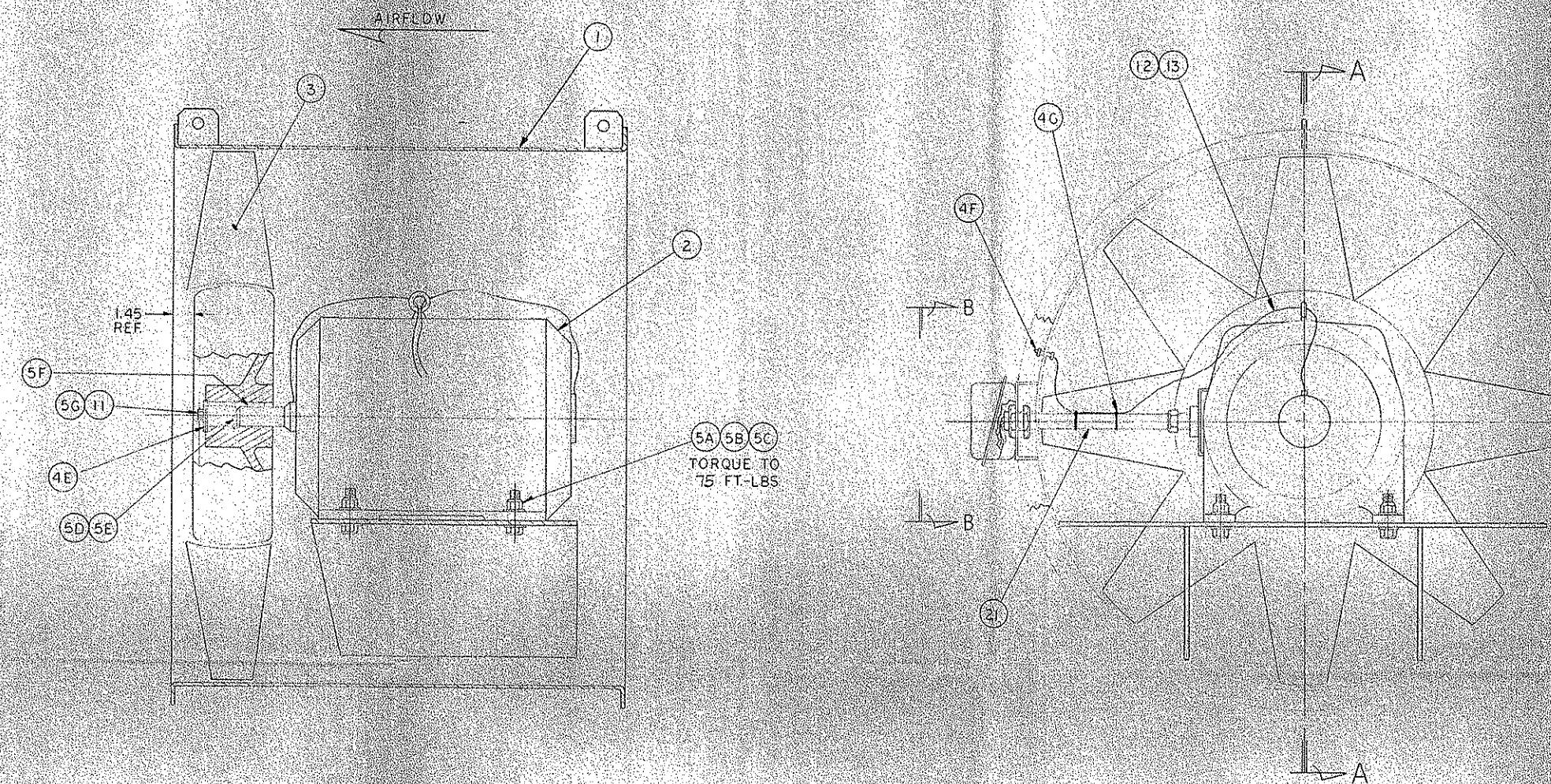
MOTOR FRM.	5D	5G
324T	N5000-187	1/2-13 UNC X 3.5
365T	N5000-237	1/2-13 UNC X 3.0

NOTES:
1. Conduit and fittings to be sized for motor used per NEC STD.
2. Adjust blade pitch per work order.
3. Check balance per 100459.
4. Fill out nameplate and rivet to fan case. ALSO FILL OUT NAMEPLATE, CONTRACTOR NAMEPLATE, PC, FAN CASE.
5. Secure all rotation and flow direction decals and access panel decal, lubrication decal.
6. Support clips not shown on top assembly. See case alignment for details and dimensions.
7. TOTAL WT. FAN 1/2 - 1038 LBS, FAN 125 - 1444 LBS.

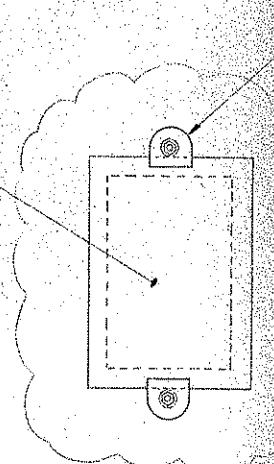
FLORIDA AUTHORITY OF ANGLER COUNTRY
CONTRACT NUMBER 10244
SAC 1 VENTILATION SYSTEM

ITEM	QTY	DESCRIPTION	DRAWING OR DIMENSION	MATERIAL	WEIGHT
4H	2	RELIEF FITTING	ALEMITE 317400		
21		CONDUIT W. FITTING	RIGID STL		
5D	1	RETAINER RING	SD	STL	
5E	1	THRUST WASHER	SD	STL	
4C	2	WASHER, LOCK 3/8	316 SS		
4B	2	WASHER 3/8	316 SS		
4D	2	NUT 3/8-16	316 SST		
4F	2	FITTING GREASE	ALEMITE 1610 BL		
4G	AR	WIRE TIES	10	STEEL	
13	AR	GREASE CHEVRON	100533	SRI-2	
12	2	GREASE LEAD	251D STL		
11	AR	LOCTITE 242			
5G	1	BOLT, MOTOR SHAFT	5G		
4F		WASHER, HUB	1020 STL		
5F	1	KEY	50x50x2.00		
5C	8	WASHER, FLAT	5G	316 SS	
5B	4	NUT, NYLOCK	5B-11 UNC	PLATED STL	
5A	4	BOLT	5B-11 UNC X 250	PLATED STL	
4A	1	COVER, ACCESS		109 HR PD	
3	1	ROTOR	SKC-364		
2	1	MOTOR			
1	1	WELD T. CASE	SKD260-261		
ALL DIMENSIONS ARE IN INCHES AND TOLERANCES ARE AS FOLLOWS UNLESS OTHERWISE SPECIFIED: WHOLE NUMBER = 1 IN. 1 PLACE DECIMAL = .1 IN. 2 PLACE DECIMAL = .01 IN. 3 PLACE DECIMAL = .001 IN. ANGULAR = 2 DEGREES					
DRAWN	S	DATE	12-15-82	Flakt	
CHECKED		BY	2-27-82		
APPROVED		BY	2-27-82		
SCALE	NONE	CONTRACTING	T-0357	TOP ASSEMBLY	
THE USE, DUPLICATION, OR DISCLOSURE OF THIS DATA IN WHOLE OR IN PART, IS RESTRICTED BY LAW TO THE CONTRACTING PARTY OR THE GOVERNMENT WITHOUT THE WRITTEN PERMISSION OF THE GOVERNMENT. IT IS EXEMPTED FROM THE PROVISIONS OF THE E.O. 13526.		NEXT	SKD-260-261	UNDERPLATFORM FANS	
RELEASER		DRAWING NUMBER	SKD-259	RELEASER	

LTR	DATE	DESCRIPTION	WHT.
A	1/29/02	ORIG. REL.	S
B	2/14/02	ADDED NOTE	S
C	2/14/02	REV. FOR RESUBMITAL	S
D	2/20/02	REV. ITEM 1D	EHP
E	2/20/02	ADDED LIFT LOGS, REV. SA, SB	S



SECTION A-A

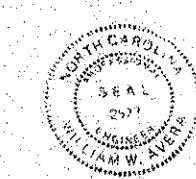


VIEW B-B

NOTE: CONDUIT BOX, GREASE CONNECTIONS, AND ACCESS DOOR
TO BE LEFT HAND FOR GW-BF-02 AND GW-BF-03.
GW-BF-01 AND GH-BF-04 TO BE RIGHT HAND.

NOTES:

- Conduit and fittings to be sized per NEC std.
- Adjust blade pitch per work order.
- Check balance per 100459.
- Fill out nameplate and rivet to fan case. Also rivet extra motor nameplate and special contract nameplate to fan case.
- Secure all rotation, flow direction, access panel, and lubrication decals.
- Legs or support clips not shown on top assembly. See case weldment for details and dimensions.

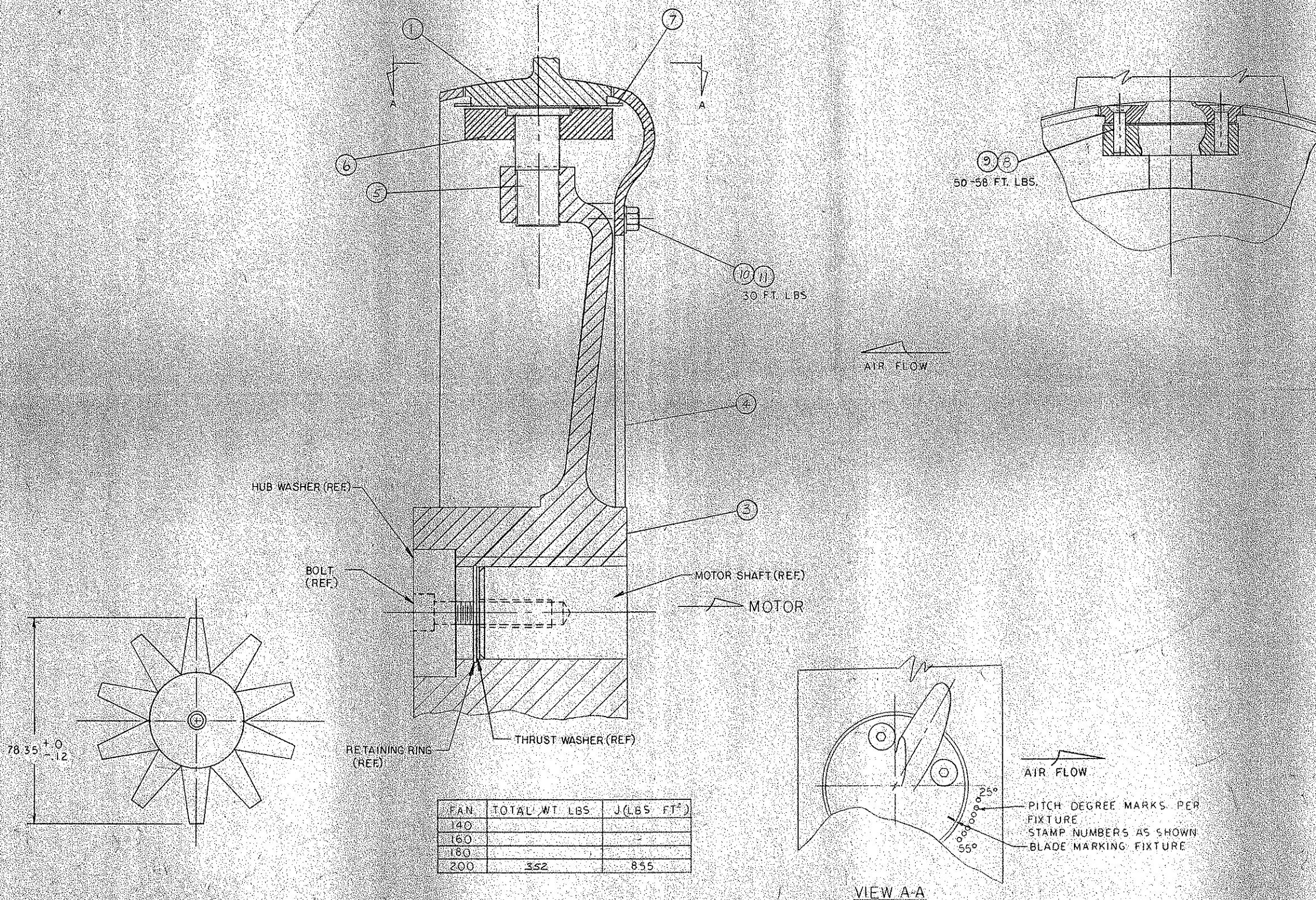


PORT AUTHORITY OF ALLEGHENY COUNTY
TRACT NUMBER C0240
GE LIFT RAIL TRANSIT SYSTEM

ITEM	QTY	DESCRIPTION	DRAWING OR DIMENSION	MATERIAL	WEIGHT
4H	2	RELIEF FITTING	ALEMITE 317400	RIGID STL.	
21	1	CONDUIT W/ FITTING		RIGID STL.	
5D	1	RETAINER RING	N5000 187	STL.	
5E	1	THRUST WASHER		.060 STL.	
4C	2	WASHER, LOCK	3/8	316 S.S.	
4B	2	WASHER, FLAT	3/8	316 S.S.	
4D	2	NUT	3/8-16	316 S.S.	
4F	2	GREASE FITTING	ALEMITE 1610BL		
4G	AR	WIRE TIES		STL.	
13	AR	GREASE, KEYSTONE		KSL69 #2	
12	2	GREASE LEAD		251 D STL	
11	AR	LOCTITE 242			
5G	1	BOLT, MOTOR SHAFT	1/2-13 UNC X 4.5		
4E	1	WASHER, HUB		1020	
5F	1	KEY	.50X.50X3.25	STL.	
5C	8	WASHER, FLAT	1/2	316 S.S.	
5B	4	NUT, NYLOCK	1/2-13 UNC	PLATED STL.	
5A	4	BOLT	1/2-13 UNC X 2.5	PLATED STL.	
4A	1	COVER, ACCESS		.105 HRPO	
3	1	ROTOR	SKC-365		
2	1	MOTOR, WESTINGHOUSE	286T		
1	1	CASE WELDMENT	SKD-263		
ITEM					
DRAWN BY DATE 12-17-82					
CHECKED BY 2/7/82					
APPROVED BY 2/7/82					
SCALE NONE					
THE USE, DUPLICATION, OR DISSEMINATION OF THIS DRAWING IN WHOLE OR IN PART FOR MANUFACTURE OR PROCUREMENT PURPOSES IS UNAUTHORIZED PERMISSION OF FLAKT PRODUCTS, INC. IS PROHIBITED					
CONTRACT NO. T-0357					
PRINTED BY SKD-270					
DRAWING NUMBER FTFA 063					
REV. E					

SKD 262 E

A	DRY CELL	12-782	SLR
B	ADDED TORQUE Specs .819	7/26/86	S
C	REV. TORQUE Specs	7/26/86	S
D	REMOVED BEARING HOUSING	7/26/86	SLR
E	PIN TO SHAFT RETAINER TUBE	10/16/86	SLR
F	REASSEMBLY OF ROTOR TO MTR. SHAFT	6-15-86	BHP



11	4	WASHER, LOCK	50
10	4	BOLT, HEX HD.	11/16 x 25
9	1/2	MOLY KOTE BN PASTE	
8	48	SCREW SOCKET NO. C.C.	M 12 x 1.0
7	12	BUDDO SCHE	TAKE UP
6	12	RETAINER	200473
5	12	SHAFT, BLADE	2225-05
4	1	HUB FAIRING	9269-04 AL
3	1	HUB	1423-04 AL
1	12	BLADE	4438-04 AL

SLR

7/26/86

7/26/86

ROTOR ASSEMBLY
200-100-12 FVMR
EMERGENCY FANS

T-0357

SKD-264

SKD-275 F

