



National
Aeronautics and
Space
Administration

Request for Offer Amendment

1. SOLICITATION TYPE (Check one) SEALED OFFER X NEGOTIATED		2. DATE ISSUED August 25, 2003	RFO NUMBER/AMENDMENT NUMBER RFO2-38206 TAM Amendment #1	3. PAGE 1 of 1
4. ISSUED BY: National Aeronautics and Space Administration Ames Research Center Moffett Field, CA 94035-1000		5. SUBMIT OFFERS TO: MAIL: National Aeronautics and Space Administration Ames Research Center Attn: M/S 213-13, Room 216A Moffett Field, CA 94035-1000 FAX: N/A HANDCARRY: Building N213, Room 216A E-MAIL: N/A		
6. CLOSING DATE/TIME: 2:00 PM, September 9, 2003; Past Performance Information Due: August 27, 2003				
7. DESCRIPTION OF REQUIREMENT RFO2-38206, HVAC REPLACEMENT, BUILDING N233 AT NASA AMES RESEARCH CENTER, MOFFETT FIELD, CALIFORNIA				
8. FOR INFORMATION, CONTACT:				
NAME Teresa Marshall		CODE JAZ	TITLE Contracting Officer	
PHONE (650) 604-5257		FAX (650) 604-4984	E-MAIL ADDRESS tmarshall@mail.arc.nasa.gov	
9. DESCRIPTION OF AMENDMENT This amendment makes the following changes to the solicitation as outlined below:				
1. Paragraph B.1 SUPPLIES/SERVICES TO BE PROVIDED . . . : Add the following after Option 2:				
"Option 3 Replacement of the Existing MCC-B and Associated 1 JB Transformer and Distribution Panels"				
2. Paragraph L.15 INFORMATION REQUIRED TO BE SUBMITTED BY OFFERORS, PRICE SUBMITTALS REQUIREMENTS . . . : Add Paragraph (1)(d) as follows: "(d) Lump Sum Price for Option 3."				
3. Revised Standard Form 1442, Solicitation, Offer, and Award (Pages 1 through 3) is issued with this amendment. This form shall be used to submit a proposal.				
4. Technical changes and/or alterations are issued with this amendment and made a part of the solicitation (13 pages with a sketch).				

SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>	1. SOLICITATION NO. RFO2-38206 (TAM)	2. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID <input checked="" type="checkbox"/> NEGOTIATED (BVS)	3. DATE ISSUED 8/05/2003	PAGE OF PAGES 1 of 3
	IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.			

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO. FEF 322745	6. PROJECT NO.
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7. ISSUED BY National Aeronautics and Space Administration Ames Research Center Attn: M/S 213-13 Moffett Field, CA 94035-1000	CODE	8. ADDRESS OFFER TO National Aeronautics and Space Administration Ames Research Center Attn: M/S 213-13, Room 206A Moffett Field, CA 94035-1000
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9. FOR INFORMATION CALL: <input type="checkbox"/>	A. NAME Teresa Marshall	B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS) (650)-604-5257 EMAIL ADDRESS: tmarshall@mail.arc.nasa.gov
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SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder."

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS (Title, identifying no., date):
TITLE: HVAC REPLACEMENT, BUILDING N233 AT NASA AMES RESEARCH CENTER, MOFFETT FIELD, CALIFORNIA

Section A. Solicitation/Contract Form	SF 1442: Solicitation, Offer, and Award (this form)
Section B. Supplies or Services and Prices/Costs	Page B1
Section C. Description/Specs./Work Statement	Page C1
Section E. Inspection and Acceptance	Pages E1 – E2
Section F. Deliveries or Performance	Pages F1
Section G. Contract Administration Data	Page G1
Section H. Special Contract Requirements	Pages H1 – H3
Section I. Contract Clauses	Pages I1 – I12
Section J. List of Attachments	Page J1
Section K. Representations, Certifications, and Other Statements of Offerors	Pages K1 – K10
Section L. Instrs., Conds., and Notices to Offerors	Pages L1 – L12
Section M. Evaluation Factors for Award	Page M1 – M2

A PRE-PROPOSAL CONFERENCE & CONDUCTED SITE TOUR IS SCHEDULED FOR 10:00 A.M. ON AUGUST 19, 2003 AT AMES RESEARCH CENTER, BUILDING N233. SEE PARAGRAPH L FOR ACCESS REQUIREMENTS.

11. The Contractor shall begin performance within 10 calendar days and complete it within 260 calendar days after receiving
 award, notice to proceed. This performance period is mandatory, negotiable. (See Clause 52.211-10.)

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? (If "YES," indicate within how many calendar days after award in Item 12B.) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	12B. CALENDAR DAYS Ten
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13. ADDITIONAL SOLICITATION REQUIREMENTS:

- A. Sealed offers in original and 2 copies to perform the work required are due at the place specified in Item 8 by 2:00 PM (hour) local time September 9, 2003. If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.
- B. An offer guarantee is, is not required.
- C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.
- D. Offers providing less than 90 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

OFFER (Must be fully completed by offeror)

14. NAME AND ADDRESS OF OFFEROR (Include ZIP Code)	15. TELEPHONE NO. (Include area code)
CODE _____ FACILITY CODE _____	16. REMITTANCE ADDRESS (Include only if different than Item 14)

17. The offeror agrees to perform the work at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government within _____ calendar days after the date offers are due. (Insert any number equal to or greater than the minimum requirement stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)

AMOUNTS _____ BASE OFFER \$ _____ OPTION 2 \$ _____
 OPTION 1 \$ _____ OPTION 3 \$ _____

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS

The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each

AMENDMENT NO.									
DATE									
20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER <i>(Type or print)</i>					20B. SIGNATURE			20C. OFFER DATE	

AWARD (To be completed by Government)

21. ITEMS ACCEPTED:

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA	
24. SUBMIT INVOICES TO ADDRESS SHOWN IN <i>(4 copies unless otherwise specified)</i> _____	ITEM 7	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO <input type="checkbox"/> 10 U.S.C. 2304(c)() <input type="checkbox"/> 41 U.S.C. 253(c)()
26. ADMINISTERED BY Refer to Block 7.	CODE _____	27. PAYMENT WILL BE MADE BY Financial Management and Payments Branch NASA-Ames Research Center Moffett Field, CA 94035-1000

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

<input type="checkbox"/> 28. NEGOTIATED AGREEMENT (Contractor is required to sign this document and return _____ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration slated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract.	<input type="checkbox"/> 29. AWARD (Contractor is not required to sign this document.) Your offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.
30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN (Type or print)	31A. NAME OF CONTRACTING OFFICER (Type or print)
30B. SIGNATURE	30C. DATE
31B. UNITED STATES OF AMERICA	
BY _____	
31C. AWARD DATE	

NOTE:

1. PAST PERFORMANCE INFORMATION IS DUE BY 2:00 PM, LOCAL TIME, ON AUGUST 27, 2003.

2. THE PRICE PROPOSAL, REMAINDER OF THE TECHNICAL PROPOSAL, SAFETY PLAN, COMPLETED REPRESENTATIONS AND CERTIFICATIONS, AND BID GUARANTEE SHALL BE SUBMITTED NO LATER THAN 2:00 PM, LOCAL TIME, ON SEPTEMBER 9, 2003.

3. THE CONTRACTING OFFICER MAY EXERCISE THE OPTIONS AT TIME OF AWARD. A FIRM FIXED OFFER PRICE IS REQUIRED FOR EACH OF THE OPTIONS. NO PROVISION IS MADE FOR AN ECONOMIC PRICE ADJUSTMENT. IF THE OPTIONS ARE EXERCISED, THE PERIOD OF PERFORMANCE REMAINS UNCHANGED. THE OPTIONS WILL BE EVALUATED IN ACCORDANCE WITH FAR CLAUSE 52.217-5, EVALUATION OF OPTIONS.

4. OFFERS MUST BE SUBMITTED ON ALL ITEMS. FAILURE TO PROPOSE ON ALL ITEMS MAY RESULT IN THE OFFER BEING REJECTED.

5. THIS IS A NEGOTIATED BEST VALUE PROCUREMENT. NO PUBLIC BID OPENING WILL BE HELD. PLEASE SEE SECTION M FOR EVALUATION FACTORS AND SECTION L FOR PROPOSAL SUBMITTAL REQUIREMENTS. A TECHNICAL PROPOSAL IS REQUIRED FOR THIS PROCUREMENT.

National Aeronautics and
Space Administration

Ames Research Center
Moffett Field, California 94035-1000



Reply JEF: 213-8

August 22, 2003

The following clarifications and changes are to be incorporated into the referenced specifications and drawings.

Dwg. A233-0301-S03: Delete one W200 beam parallel to and next to column line 21, shown on Detail A. Replace Detail 6 with new Detail 6 shown on the attached sheet dated August 18, 2003. At Detail 1 & 2, delete the 25mm puddle welds at the roof decking. At note #1: steel beams are for second floor slab and for roof deck support. At note #2: Epoxy is to cure to full strength based on manufacturer's recommendation. Concrete pad shown in Detail B is part of Option Item #3.

Demolition for shaft construction: The Contractor is advised that removal of the existing floor tile and removal of the existing 25mm water line is to be performed under provisions of Spec. Section 02080. Overcutting of the 140mm thick slab will not be allowed.

Dwg. A233-0301-S06: Two of the above ceiling openings have data/communications cabling passing through. The Contractor is to sleeve these conductors prior to concrete placement.

Dwg. A233-0301-A01. In room 117, the existing ceiling has four recessed lights. These lights are to be removed and are not to be re-installed. Remove conductors and conduit to the nearest j-box. The existing ceiling mounted screen is to remain in place.

Dwg. A233-0301-A01. In room 117, replace existing ceiling tiles with Chamfered Tegular ceiling tiles, 24mm thick, Class A type; Armstrong or equal.

Dwg. A233-0301-A01, M03 & M07. Drawing A01 shows ceiling type in office areas off column line D. Ceiling layout for the adjacent computer rooms is not shown. Ceiling tiles and grids will have to be removed to allow demolition shown on drawing M03 and new work shown on drawings M07 & M08. The Contractor may remove ceilings and replace with new if the existing ceiling cannot be saved and replaced. All replaced tiles and grids must be maintained in good condition and appearance, or they will have to be replaced.

Dwg. A233-0301-M02 Key Note #15 – add... The Contractor is to maintain the pit area dry of groundwater intrusion during demolition and new construction. Add to Key Note 9 on E05... Temporary power for dewatering will be required during pit construction.

Dwg. A233-03-1-M03. Remove two sheet metal transfer ducts in the ceiling space between rooms 150 and 151. Each duct is approximately 610mm by 1000mm and 1800mm in length. The wall is to be patched with 16mm drywall (both sides) and fire taped. Remove two transfer grills at floor level on wall between rooms 150 and 151. Each grills is approximately 610 mm square. Patch openings with 16mm drywall, fire tape and paint to match adjacent wall area.

Dwg. A233-0301-M03 key note 11: There are seven locations. Four FCUs are in the basement as located on drawing M02; three are at the computer room floor.

Dwg. A322-0301-M07: The barometric damper at the wall at column line 9 is to be 510mm wide by 410mm high as the space between ceiling grid and grade beam is 530mm. The wall is 306mm thick. The Contractor is to cut this wall without overcut. The Contractor's cutting method are subject to approval.

Dwg. A233-0301-M08: The HSW & HWR lines north of column line D are DN40; not 25 as shown. These lines pass through existing openings that may be in-filled. Refer to drawing S06. The Contractor is to sleeve these lines prior to concrete placement.

Dwg. A233-0301-M08 and E11. The two FSD shown on column line E are not required. Delete key note 13 on E11. A control damper is required at each location.

Dwg. A233-0301-M12. On ISU schedule, ISU-11 is in room 170, ISU-15 is in room 150, as shown on drawing M07.

Dwg. A233-0301-M13 Key Note #1: Variable Frequency Drive (VFD) shall be ABB AC drive "ACH400" or equal with Siemen's Building Technologies Landis Division FLN RS485 Communication Module.

Dwg. A233-0301-M16. Detail 7 shows curb detail at the roof duct opening. The existing roof structure is of metal rib design, not concrete deck. The new curb framing is to be tied down to the decking and the steel support below. Refer also to drawing S03 detail 5. Tiedowns are to be 13mm threaded rod or equivalent, installed 600mm on centers.

Dwg. A233-0301-M17 Detail 6- Expansion Tank Piping. The Contractor is to add a tank isolation valve and a shut off valve at the drain line.

Dwg. A233-0301-E05 & M02. The rectifier (GE Inductrol) shown on E05 at column lines 19 & B is to be removed and demolished. It has been electrically disconnected.

Utility relocation at shaft above room 127; reference drawing A233-0301-M07.

The Contractor is to relocate one 50mm conduit with 4 conductors for lighting circuits in room 160. Install new J-box and replace conductors to allow installation of the shaft ductwork.

The Contractor is to relocate one 25mm hot water line. Existing line is copper with ACM insulation at the base of the janitor's closet. Replacement is to be copper with insulation; replace approximately 4 meters of pipe.

Dwg. A233-0301-E01 note 1: The Ames Standard Construction Specification (1996) is not part of this work requirement.

Dwg. A233-0301-E09: Circuits from T1 to new MCC B are circuit numbers 16, 16A & 16B to agree with the feeder schedule on drawing E07. Circuit from AC31 to MCC-B is circuit number 15 to agree with the feeder schedule on drawing E07. BP-1 is not shown on E09 but is shown on drawing M06. Install new disconnect switch Key Note type 3 and connect to circuit MCC-B17.

Dwg. A233-0301- E07. On single line diagram, circuit breakers for HWP-1 & 2 are 20 amp, not 15 amp as shown.

Dwg. A233-0301- E07. On feeder schedule add one spare CB for "future elevator", 125 amp, 3 pole.

Dwg. A233-0301- E08. MCC-B Elevation, use spare 15 amp breaker for BP-1; change HWP CBs to 20 amp breakers.

Dwg. A233-0301-E11. FSDs (2) at column line E, key notes 13, are not required.

Option #3:

Remove from the Section 01000 paragraph 1.1.1 Base Bid description: "Replace one in service motor control center with new MCC, transformer and distribution panels."

Add paragraph 1.1.4 Option #3, to the specifications Section 01000, as follows:

This work shall consist of the replacement of the existing MCC-B and associated transformer and distribution panels, as shown on the issued drawings A233-0301-E04, E05, E06, E07, E08, E09 (SP-1 work shall remain base bid scope.), E10, E12 details 1, 2, 5, & 6, E13 details 3 & 4 . These drawings are not being reissued under this addendum. Replacement of MCC-B shall not be priced under the base bid.

Spec. Section 01000 Paragraph 3.2: Add

The Contractor is to cover and protect office partitions in rooms 155 & 160 while work is being performed in those rooms. The Contractor is to remove and replace wall panels in room 160 at column line D while seismic infill work is being performed. In room 117, wall panels are to be covered with visqueen, or other cover, while work is performed in that room.

Spec. Section 15950 Paragraph 3.4: add

Systems testing will be required at completion of Phase One equipment activation, and then at completion of other equipment activation for final acceptance.

Spec. Section 15050 paragraph 2.2.3 & 2.2.4: All thermometers and pressure gages are to have dual metric/English scales.

Reference Spec. Section 01000 Paragraph 1.8. The following is added for a clearer description of required phasing.

Phase One: The new mechanical equipment and support system shall be installed, tested, and made operational to maintain conditioned air in Rooms 150, 151, 155, 160, 165, and 170, in order to maintain critical IT services to the Center. This equipment shall include ISU's 11, 12, 13, 14, and 15; make up air unit AH-41; and the three FCU's above Room 155. The basement air handler will remain in service until these new systems are fully operational and accepted. Government personnel occupying Rooms 155 and 160 will be relocated temporarily to other office spaces including Rooms 117-133. Modular partitions in 155 and 160 will be left

in place and must be protected during construction. After completion of work in 155 and 160, personnel will be relocated back to 155 and 160, thereby freeing the offices (rooms 117-133) to be renovated in phase two. Through the duration of this project, any interruptions to the utilities within the facility must be minimized and are to be coordinated in advance with the COTR.

Phase Two: After successful completion of phase one, the basement air handler will be removed from service and the demolition of the basement and first floor areas conducted. This work includes removal of the basement air handler, fill-in of the pit, demolition of the offices rooms 115-133 and installation of the new roof-mounted air handler system.

Phase Three: After successful completion of phase two, the existing MCC-B will be replaced. This will be conducted in accordance to a phasing plan defined in drawing E04. and will minimize the interruption of services within the facility.

Spec. Section 01000, Add Paragraph 1.9:

Access to room 127. The Contractor will be allowed early, (Phase 1), access to room 127 to permit early demolition of the ceiling for layout and start of the slab support work and shaft demolition. The existing duct passing through this room is to remain in service until Phase 2 work is permitted.

Asbestos and lead abatement:

Dwg. A233-0301-M2. Surveys of the basement mechanical system indicate the following asbestos containing materials (ACM): parallel to column line A, chilled water lines between FCUs at 19 & 14 have ACM; the boiler flue, item #14, has ACM insulation; the CHW lines and the HW lines between the air handler and the pumps have ACM; the CHW lines and the HW lines in rooms B10 & B12 have ACM.

All painted surfaces are assumed to have lead based paint.

Roofing materials have been tested and found to be negative concerning asbestos content.

Spec. Section 15003, Add paragraph 2.5 Substitutions:

Where makes or models are identified, such reference does not preclude the Contractor from submitting an "or equal" product that performs equally and that matches the salient characteristics of the listed model. The Contractor shall identify all characteristics of the proposed substitute and make modifications to assure that the complete installation works as intended.

The following Reliability Centered Maintenance (RCM) requirements are to be added to the specifications. The equipment and installation of the equipment shall meet the listed tolerances and performance. Testing to meet these requirements, above those already specified, will be performed by the Government. Additional adjustments may be required of the Contractor if these performance requirements are not met.

Section 15135 Centrifugal Pumps

Part 1 - General

Paragraphs 1.1 References, Page 1 – Add

INTERNATIONAL STANDARDS ORGANIZATION (ISO)

ISO 1940/1

(1986) Balance Quality Requirements of Rigid Rotor – Determination of Permissible Residual Unbalance

Paragraph 1.3 Submittals, SD –01 Data, Page 2 Add

Bearing Data—The Contractor shall provide to the Government the bearing manufacturer and part number for all bearings used in all rotating equipment supplied under this contract. The information shall be included on the sectional drawings for each bearing location.

Paragraph 1.3 Submittals, SD –19 Operation and Maintenance Manuals, Page 2 – Add

The Contractor shall provide 6 copies of all pertinent operations and maintenance manuals, which will include an illustrated parts breakdown, sufficiently detailed to allow the government to obtain replacement parts when required.

Cut sheets from generic catalogs are not sufficient to meet this requirement. All manuals will be edited to limit the data to model(s) and configuration of equipment actually delivered, including any options.

Paragraph 3.3 Alignment, Page 4 – Changes

Delete first paragraph and include the following:

Before attempting alignment, the contractor shall demonstrate that the pump does not have any load/force imposed by the piping system. Minimum alignment values (below) are for pump and driver at normal running temperatures. All shaft-to-shaft centerline alignments shall be within the tolerances specified in Table 1 unless more precise tolerances are specified by the machine manufacturer for special applications. Value must be compensated for thermal growth. Limited movement of the pump and driver (commonly known as bolt-bound) must be corrected to ensure alignment capabilities. Hold down bolts shall not be undercut in order to perform adjustments.

Shims shall be commercially die-cut, without seams or folds and be made of corrosion resistant stainless steel. No more than three shims shall be used at any single point.

TABLE 1. Coupled Shaft Alignment Tolerance Values

Soft Foot:

Motor Speed (RPM)

Maximum movement

All <0.0508 mm at each foot

For short couplings:

Motor Speed (RPM)	Parallel Off set	Angularity (mm/254 mm)	
<1000	0.12700 mm	0.3810 mm	
1200	0.10160 mm	0.2540 mm	
1800	0.07620 mm	0.1270 mm	
3600	0.05080 mm	0.0762 mm	
7200	0.02540 mm	0.0635 mm	

Section 15720 Air Handling Units

Part 1 - General

Paragraphs 1.1 References, Page 1 – Add

INTERNATIONAL STANDARDS ORGANIZATION (ISO)

ISO 1940/1

(1986) Balance Quality Requirements of Rigid Rotor – Determination of Permissible Residual Unbalance

Paragraph 1.3 Submittals, SD –01 Data, Page 2 Add

Bearing Data—The Contractor shall provide to the Government the bearing manufacturer and part number for all bearings used in all rotating equipment supplied under this contract. The information shall be included on the sectional drawings for each bearing location.

Paragraph 1.3 Submittals, SD –19 Operation and Maintenance Manuals, Page 2 – Add

The Contractor shall provide 6 copies of all pertinent operations and maintenance manuals, which will include an illustrated parts breakdown, sufficiently detailed to allow the government to obtain replacement parts when required.

Cut sheets from generic catalogs are not sufficient to meet this requirement. All manuals will be edited to limit the data to model(s) and configuration of equipment actually delivered, including any options.

Part 2 - Products

Paragraph 2.1 Air Handling Unit (AHU), Page 2 – Add

Air handling unit auxiliaries in accordance with ARI 430: AHU fan and motor shall be statically and dynamically balanced to ISO 1940/1-1986, G2.5.

Paragraph 2.3 Fans, Page 3 – Insert

AHU fan motor and drive shall be installed inside fan cabinet. Motor shall conform to NEMA MG-1 and be installed on an adjustable base.

Part 3 – Execution

Paragraph 3.2 Alignment, Page 5 – Add New Section

Before attempting alignment, the contractor shall demonstrate that the fan does not have any load/force imposed by the system. Minimum alignment values in paragraph 3.2.1 Sheave Alignment (below) are for fan and driver at normal running temperatures. Value must be compensated for thermal growth. Limited movement of the fan and driver (commonly known as bolt-bound) must be corrected to ensure alignment capabilities. Hold down bolts shall not be undercut in order to perform adjustments.

Shims shall be commercially die-cut, without seams or folds and be made of corrosion resistant stainless steel. No more than three shims shall be used at any single point.

Paragraph 3.2.1 Sheave Alignment, – Add New Section

After air balance is complete, replace variable sheaves with correct size Fix sheaves on the motor and driven shafts. The sheaves will be checked to ensure that they are true on the shaft. Run-out on the sheaves will be checked with a dial indicator. Sheave run-out shall not exceed 0.0580 mm. Run-out is defined to be half of peak to peak values.

Unless otherwise specified, drive and driven sheaves will be aligned by the four-point method. If the sheave web thickness is not the same on the drive and driven sheave, shims of the appropriate thickness will be used on the narrower sheave for the alignment. The thickness of the shims will be recorded and supplied with the machine information.

Soft Foot: Maximum allowable soft foot for all motor speeds shall be less than 0.0508 mm at each foot.

New Paragraph 3.3 Vibration Analyzer or Test Equipment, – Add

The equipment shall be tested with the use of an FFT analyzer to measure vibration levels. It shall have the following characteristics: dynamic range greater than 72db; a minimum of 400 line resolution; a frequency response range of 5Hz-10KHz (300 – 600000 cpm); the capacity to perform ensemble averaging; the capability to use Hanning window; auto-ranging frequency amplitude; a minimum amplitude accuracy over the selected frequency range of + or – 20% or = or – 1.5dB.

New Paragraph 3.5 Vibration Data, – Add

Vibration data shall be collected in the axial, vertical, and horizontal direction for each motor bearing.

Two narrow band spectra for each data collection point shall be obtained in the following manner: For all machines regardless of operating speed, a 5 to 500 Hz spectrum with a minimum of 400 lines of resolution shall be obtained. An additional spectrum of 5 to 2500 or 5 to 5000 Hz shall be acquired for machines operating at or below 1800 RPM or greater than 1800RPM, respectively.

Vibration limits shall conform to limits listed in Table 2.

TABLE 2 MAXIMUM ALLOWABLE VIBRATION LEVELS FOR FANS		
BAND	FREQUENCY RANGE	VELOCITY LINE AMPLITUDE BAND LIMITS (INCH/SEC PEAK)
1	0.3 x RPM min - 0.8 x RPM fan	0.04 DIRECT COUPLED 0.075 BELT DRIVE
2	0.8 x RPM fan - 1.2 x RPM fan/motor	0.075
3	1.2 x RPM fan/motor - 3.5 x RPM fan/motor	0.04
4	3.5 x RPM fan/motor - to Fmax = 60,000 CPM	0.03
		ACCELERATION BAND LIMITED OVERALL AMPLITUDE LIMITS (g's PEAK)
1	0.3 x RPM min - to Fmax = 120,000 CPM	0.5

Paragraph 3.2 AHU Testing, Page 6 – Add

Prior to final acceptance, the Contractor shall verify AHU conformance to alignment and vibration limits as listed in the appropriate Tables. Testing shall be performed by the Government, alignment shall be performed by the Contractor.

Section 15736 Computer Room Air Conditioning Units (ISUs)

Part 1 - General

Paragraphs 1.1 References, Page 1 – Add

INTERNATIONAL STANDARDS ORGANIZATION (ISO)

ISO 1940/1

(1986) Balance Quality Requirements of Rigid Rotor – Determination of Permissible Residual Unbalance

Paragraph 1.2 Submittals, SD –01 Data, Page 2 Add

Bearing Data—The Contractor shall provide to the Government the bearing manufacturer and part number for all bearings used in all rotating equipment supplied under this contract. The information shall be included on the sectional drawings for each bearing location.

Paragraph 1.2 Submittals, SD –19 Operation and Maintenance Manuals, Page 2 – Add

The Contractor shall provide 6 copies of all pertinent operations and maintenance manuals, which will include an illustrated parts breakdown, sufficiently detailed to allow the government to obtain replacement parts when required.

Cut sheets from generic catalogs are not sufficient to meet this requirement. All manuals will be edited to limit the data to model(s) and configuration of equipment actually delivered, including any options.

Part 2 - Products

Paragraph 2.3 Blower, Page 4 – Add

Fan wheels shall be galvanized steel and the entire fan assembly shall be statically and dynamically balanced to ISO 1940/1-1986, G2.5.

Blower motors shall be installed and be UL listed, conform to NEMA MG-1, have copper windings, be equipped with heavy duty ball bearings, sealed, permanently lubrication bearings and be mounted on an adjustable base. Motors shall have a minimum average life of 100,000 hours.

Section 16050 Basic Electrical Materials and Methods

Part 3 – Execution

Paragraph 3.8 Field Testing, Page 7 -Change

Delete first two paragraphs

After the installation is completed wire and cable shall be given a continuity and insulation resistance test. Insulation resistance test shall be with a 1000 volt insulation test set. Readings shall be recorded after a minimum of 3 minutes and until the reading is constant for 1 minute. Resistance between phase conductors and ground shall be no less than 25 megohms.

Phase-rotation tests shall be conducted on three phasebottom facing the equipment.

Final acceptance will depend upon the satisfactory performance of the equipment under test. No conductor or circuit shall be energized until the installation has been approved by the Contracting Officer. Final test data shall be provided to the Contracting Officer. Data shall have a cover letter/sheet clearly marked with the System name, date, responsible tester and the words "Final Test Data."

Section 16225 Motors

Part 1 - General

Paragraphs 1.1 References, Page 1 – Add

ANTI-FRICTION BEARING MANUFACTURERS ASSOCIATION (AFBMA)

AFBMA 11

(1990) Load Ratings and Fatigue Life for Roller Bearings

AFBMA 9

(1990) Load Ratings and Fatigue Life for Ball Bearings

INTERNATIONAL STANDARDS ORGANIZATION (ISO)

ISO 1940/1

(1986) Balance Quality Requirements of Rigid Rotor – Determination of Permissible Residual Unbalance

Paragraph 1.3 Submittals, SD -01 Data, Page 1 Add

Bearing Data—The Contractor shall provide to the Government the bearing manufacturer and part number for all bearings used in all rotating equipment supplied under this contract. The information shall be included on the sectional drawings for each bearing location.

Paragraph 1.3 Submittals, SD -09 Reports, Add

Field Tests

Paragraph 1.3 Submittals, SD -19 Operation and Maintenance Manuals, Add

The Contractor shall provide 6 copies of all pertinent operations and maintenance manuals, which will include an illustrated parts breakdown, sufficiently detailed to allow the government to obtain replacement parts when required.

Cut sheets from generic catalogs are not sufficient to meet this requirement. All manuals will be edited to limit the data to model(s) and configuration of equipment actually delivered, including any options.

Part 2 - Products

Paragraph 2.1 Equipment, Page 1 – Add

Design, fabrication, testing, and performance of motors shall be in accordance with NEMA MG 1 and ISO 1940/1.

Allowable balance limits shall be in accordance with ISO 1940/1, Table 1.

Paragraph 2.2 Motor Types, Page 2 – Add to last sentence

Motors shall have factory-sealed ball bearings with an L-10 rated life of not less than 20,000 hours in accordance with AFBMA 9 of AFBMA 11.

Part 3 Execution

Paragraph 3.2 Alignment, – Add

Before attempting alignment, the contractor shall demonstrate that the motor does not have any load/force imposed by the load system. Minimum alignment values (below) are for motor and load at normal running temperatures. Alignment values must be compensated for thermal growth. Limited movement of the motor or load (commonly known as bolt-bound) must be corrected to ensure alignment capabilities. Hold down bolts shall not be undercut in order to perform adjustments.

Shims shall be commercially die-cut, without seams or folds and be made of corrosion resistant stainless steel. No more than three shims shall be used at any single point.

Motor and load shall be aligned to the following minimum specifications;

TABLE 1. Coupled Shaft Alignment Tolerance Values

Soft Foot:

Motor Speed (RPM) Maximum movement
All <0.0508 mm at each foot

For short couplings:

Motor Speed (RPM)	Parallel Off set	Angularity (mm/254 mm)	
<1000	0.12700 mm	0.3810 mm	
1200	0.10160 mm	0.2540 mm	
1800	0.07620 mm	0.1270 mm	
3600	0.05080 mm	0.0762 mm	
7200	0.02540 mm	0.0635 mm	

New Paragraph 3.3.1 Sound Discs, (to be installed by others) - Add

Sound discs shall be a minimum of 2.54mm (1 inch) diameter, manufactured of a magnetic stainless steel such as alloy 410 or 416, have a surface finish of 32 micro-inches RMS, and be attached by welding or stud mounting or epoxy glued. Method of attachment shall be submitted to the Contracting Officer for approval. The equipment shall be machined in order to achieve a flat and smooth spot to attach the sound disc. The faces to be parallel within one (1) degree, and all sharp edges to be removed from corners. Where sound discs will become inaccessible after equipment installation or the equipment configuration will present a safety hazard to data collector, permanently mounted accelerometers shall be installed.

New Paragraph 3.4 Vibration Analyzer or Test Equipment, – Add

The Government shall use an FFT analyzer to measure vibration levels. It shall have the following characteristics: dynamic range greater than 72db; a minimum of 400 line resolution; a frequency response range of 5Hz-10KHz (300 – 600000 cpm); the capacity to perform ensemble

averaging; the capability to use Hanning window; auto-ranging frequency amplitude; a minimum amplitude accuracy over the selected frequency range of + or - 20% or = or - 1.5dB.

An accelerometer, either stud-mounted or mounted using a rare earth, low mass magnet and sound disk (or finished surface) shall be used with the FFT analyzer to collect data. The mass of the accelerometer and its mounting shall have minimal influence on the frequency response of the system over the selected measurement range.

New Paragraph 3.5 Vibration Data, Page 6 – Add

Vibration data shall be collected in the axial, vertical, and horizontal direction for each motor bearing for motors 5 HP and larger.

Two narrow band spectra for each data collection point shall be obtained in the following manner: For all machines regardless of operating speed, a 5 to 500 Hz spectrum with a minimum of 400 lines of resolution shall be obtained. An additional spectrum of 5 to 2500 or 5 to 5000 Hz shall be acquired for machines operating at or below 1800 RPM or greater than 1800RPM, respectively.

Vibration limits shall conform to limits listed in Table 2.

TABLE 2 MAXIMUM ALLOWABLE VIBRATION LEVELS FOR ELECTRIC MOTORS FRACTIONAL AND INTEGRAL HORSEPOWER AC/DC MOTORS VELOCITY LINE-AMPLITUDE BAND LIMITS		
BAND	FREQUENCY RANGE (CPM)	STANDARD (INCH/SEC - PEAK)
1	0.3 x RPM - 0.8 x RPM	0.04
2	0.8 x RPM - 1.2 x RPM	0.075
3	1.2 x RPM - 3.5 x RPM	0.04
4	3.5 x RPM - 8.5 x RPM	0.03
5	8.5 x RPM - 60,000 CPM	0.03
6	60,000 CPM - 120,000 CPM	0.03

New Paragraph 3.6 Electrical Tests, – Add

Perform continuity tests on all phases.

Perform insulation resistance and polarization index test on each phase of motor. Insulation tests on 480-volt motors shall be conducted using a 1000-volt insulation test set. Insulation tests on motors rated less than 480-volts shall be conducted using 500-volt insulation test set.

Test data shall include the location and identification of motors and megohm reading versus time. Test data shall be recorded at 15, 30, 45 seconds and 1 minute increments thereafter up to 10 minutes. Megohm readings shall not be less than 25 megohms for each phase and each phase reading shall be within 10 percent of the other two.

Calculate the polarization index of each phase by dividing the 10 minute reading by the 1 minute reading. The polarization index shall be greater than 1.25. Any values lower shall be rejected and the motor returned to the factory.

Paragraph 3.7 Motor Acceptance, – Add

Prior to final acceptance, the contractor shall verify electric motor conformance to specifications.

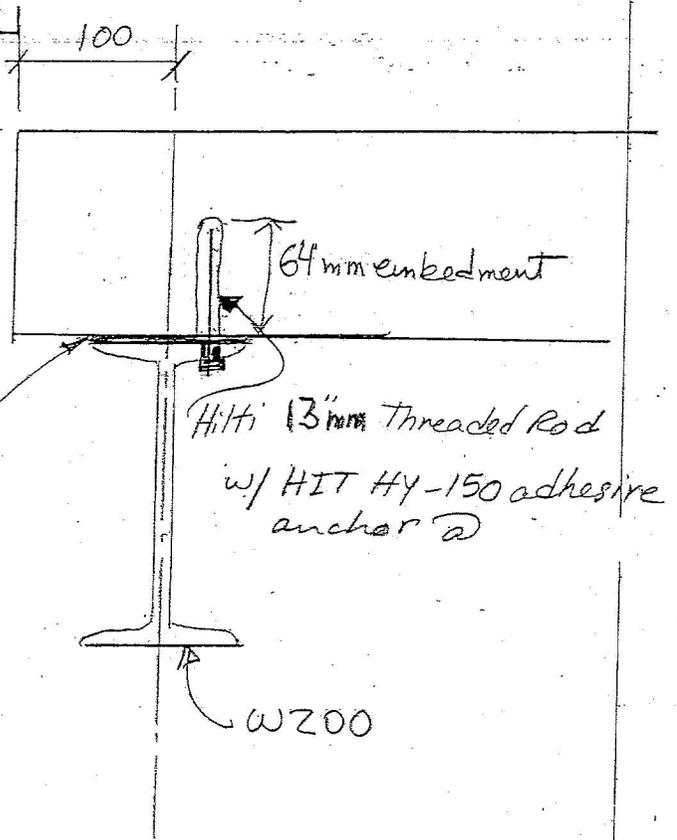
Final test reports shall be provided to the Contracting Officer. Reports shall have a cover letter/sheet clearly marked with the system name, date, and the words "Final Test Reports."

H233 - HVAC Replacement

Saw cut slab after completion of (N) steel beam, core drill all corners to avoid overcut.

Adhesive Anchors Epoxy shall be cured to 140mm full strength base on manufacturers recommendation prior of installation of Beam

Fully Grouted to ensure full contact w/ Conc. slab



22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS



Section 6
Edge of opening & supporting members 53

August 18, 2003