



DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVE
WILMINGTON, NC 28403

REPLY TO
ATTENTION OF:

CESAW-CT-EP

7 December 2015

SUBJECT: MATOC Request for Proposal for Task Order Request Number
W91278-11-X-1901, PN69302, SOF Battalion Operations Facility, Fort Bragg, NC

AMENDMENT 0002

- **The date for the receipt of Proposals is hereby changed to December 22nd 2015, at 11:00 am local time.**
- **Changes to the specifications and drawings can be found on the “Summary of Changes” page, attached hereto.**
- **Amendment changes are prefaced and followed by the following banner:
Amendment 0002.**
- **All other terms and conditions of the solicitation remain unchanged by this amendment.**

1. In accordance with Local Clause 52.216-4008, Multiple Award Fair Opportunity Task and Delivery Order Contracts, subject project is being offered to all Offerors in the LB Gulf North MATOC pool, as identified below, giving each fair opportunity to compete for this action by issuance of this Request for Proposal (RFP) letter. For the purposes of this solicitation, the RFP includes the RFP letter, the Specifications, and the Drawings. Any Offeror who does not wish to be considered for this particular task order is requested to notify this office in writing, within **seven (7) calendar days** of receipt of this letter, indicating reason for non-participation. Those who do wish to compete must submit a proposal by the date and time indicated in paragraph 13 below, and in accordance with the criteria specified herein.

Balfour Beatty Construction
11325 Random Hills Road, Suite 500
Fairfax, VA 22030
Phone (954) 585-4227
Fax (954) 585-4446
Email: klong@balfourbeattyus.com

B.L. Harbert International LLC
820 Shades Creek Parkway, Suite 3000
Birmingham, AL 35209
Phone (205) 802-2800
Fax (205)443-2963
Email: dgsavagc@bharbert.com
jstevenson@bharbert.com

Carothers Construction
31 Highway 328
Oxford, MS 38655
Phone (662) 513-8820
Fax 662) 234-3364
Email: smurphy@carothersconstruction.com
bogan@carothersconstruction.com

Hensel Phelps Construction Co.
6557 Hazeltine National Dr., Suite One
Orlando, FL 32822
Phone (407) 856-2400
Fax (407) 856-6111
Email: KHazen@henselphelps.com

SAUER Incorporated
11223 Phillips Parkway Dr., East
Jacksonville, FL 32256
Phone (904) 262-6444
Fax (904) 268-6156
Email: sauerjaxestimating@sauer-inc.com

W. G. Yates & Sons Construction Co.
P. O. Box 456
Philadelphia, MS 39350
Phone (228) 374-6011
Fax (228) 374-0294
Email: wyates@wgyates.com
cnadolski@wgyates.com

2. Interested participants must submit a price and technical proposal for work detailed in the statement of work, drawings and specifications posted on FedTeDs. To access the statement of work, specifications and drawings go to the following link: <https://www.fbo.gov>. CAUTION: Offerors shall insert a price on all numbered items of the Task Order Pricing Schedule (Attachment 1). Failure to do so may result in rejection of an Offeror's proposal.

3. If an Offeror believes the requirements in this RFP contain an error, omission, ambiguity, or are otherwise unsound; the offeror shall immediately notify the Contracting Officer in writing, to include supporting rationale. Such communication may be submitted via the POC identified in paragraph 22 below.

4. The statement of work for this project includes, but is not limited to: Construct a two-story battalion operations facility including battalion headquarters, company administrative and readiness modules with arms vaults, TA-50 lockers, classrooms, team rooms, mission planning areas, and overhead covered storage. The project includes a tactical equipment maintenance facility, an organization equipment storage building, an oil storage building, and organization

vehicle parking. Built-in building systems will include fire alarm/mass notification, fire suppression, energy management controls, telephone, advanced unclassified and classified communications networks, cable television, intrusion detection, closed circuit surveillance, electronic access control, and a protected distribution system (PDS). Supporting facilities include all related site-work and utilities (electrical, water, gas, sanitary sewer, and information systems distribution), lighting, parking, access drives, roads, aprons, hardstands, curb and gutter, sidewalks, emergency generator, storm drainage, landscaping, and other site improvements. Special construction includes sustainable construction features complying with Leadership in Energy and Environmental Design (LEED) "Silver." Access for persons with disabilities will be provided. Comprehensive interior design and audio visual services are included. The project includes demolition and disposal of current, dilapidated facilities. Air conditioning: 1,269kW (361 tons). Square Footage is not to exceed 145,849 Square Feet as authorized by Congress. The period of performance is **720 calendar days** after Notice to Proceed. Work location is Fort Bragg, NC.

5. Wage Decisions **NC150025, NC150081, and NC150103** apply to this task order (See Attachment 2). Offerors are reminded that wage determinations are subject to change prior to award. All proposed pricing shall include the most current wage rates. All Offerors are encouraged to review wage rates established by the Department of Labor prior to submitting proposals.

6. In accordance with FAR Clause 52.217-5, Evaluation of Options, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

7. In accordance with FAR Clause 52.217-7, Option for Increased Quantity - Separately Priced Line Item, the Contracting Officer may exercise the option by written notice to the Contractor prior to expiration of the option. **Optional Bid Items not exercised upon award will expire no-later-than September 30, 2017.**

8. In accordance with FAR Clause 52.228-1, Bid Guarantee, Offerors are required to submit a bid bond with their proposal. The Bid Guarantee shall be **20% of the bid price or \$3 million**, whichever is less. Bid bonds must be submitted in original form and contain original signatures. Photocopied, facsimile, scanned or otherwise mechanically reproduced bid bonds will not be accepted. Failure to submit a proper bid bond may be cause for rejection of an Offeror's proposal.

9. Proposals shall specify an acceptance period of no less than **120 calendar days** from due date of proposals. If discussion responses and/or proposal revisions are necessary and include updated pricing, the revised pricing shall be good for an additional **120 days**. Proposals which provide less than this period, or which fail to specify an acceptance period at all, may be rejected.

10. In accordance with DFARS 236.204 the Disclosure of Magnitude for this project is between \$25,000,000 and \$100,000,000. A Construction Cost Limitation (CCL) of **\$37,074,000.00**

applies to CLIN's 0001-0016 as shown in **Task Order Pricing Schedule** (Attachment 1). This limitation includes both design and construction costs.

11. FAR Clause 52.236-27, Site Visit (Construction), an organized site visit will be held on a **December 1st 2015, at 11:00 am EST.** Attendees will meet at the designated time at the US Army Corps of Engineers Office located in Building X-7170, Fort Bragg NC and travel together to the site together. Please contact the Project Engineer, Ron Cannady at (910) 908-0572 or by Email at arthur.d.cannady@usace.army.mil if you need directions to the field office.

This site visit IS NOT mandatory.

a. Any offeror who plans to attend this site visit must notify Michael Mullen & Charlenne Figgins no later than November 23rd 2015 12:00 pm EST. Please include the number of people who plan to attend. Contact information to notify Michael Mullen or Charlenne Figgins is in paragraph 22 below.

12. In accordance with FAR Provision 52.222-23, Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity for Construction, minority participation goals for Cumberland County, NC and its surrounding (Harnett, Sampson, Bladen, Robeson, Hoke and Moore) counties are **26.2% for each trade and female participation goal is 6.9%.**

*****Amendment 0002*****

13. Proposals shall be organized and tabbed in accordance with Appendix A, General Proposal Submission and Tabbing Requirements and Appendix B, Proposal Factors and Submission Requirements. Proposals shall be electronically signed by a duly authorized official of the Offeror's company and are required no later than **December 22nd 2015, at 11:00 am EST.** Refer to Appendix A for submittal instructions. Proposals shall be submitted by the date and time specified to the following address:

*****Amendment 0002*****

**U.S. Army Engineer District, Wilmington
ATTN: CESAW-CT (Mr. Michael M. Mullen, Contract Specialist)
69 Darlington Avenue
Wilmington, NC 28403**

14. In accordance with FAR Clause 52.215-1, Instructions to Offerors – Competitive Acquisitions, the Government reserves the right to make award without discussions. Therefore, Offerors should submit their best technical and price terms in their initial offer and not automatically assume that they will have an opportunity to participate in discussions or to submit a revised offer. The Government may make award of a conforming proposal without discussions, if deemed to be within the best interests of the Government.

15. The following are identified as applicable to the subject action:

FACTOR 1: Technical - Past Experience

FACTOR 2: Technical - Key Personnel

FACTOR 3: Price

16. The Government will evaluate proposals submitted for this task order using the Lowest Price Technically Acceptable Source Selection Process of FAR 15.101-2. Technical representatives shall review all proposals for acceptability and provide the Contracting Officer with a written technical analysis of each Offeror's proposal. The Contracting Officer, in conjunction with the Project Delivery Team (PDT), will review these analyses for correctness and completeness. Proposals will be evaluated for acceptability but not ranked using non-cost/price factors. Tradeoffs will not be permitted. To be considered technically acceptable, no technical factor in the proposal may be determined to be unacceptable. The failure of a proposal to meet any of the acceptability standards for non-cost factors will result in a technically unacceptable rating and preclude award. For further clarification, please see the descriptions shown at **Appendix B, Proposal Evaluation and Appendix C, Ratings and Definitions.**

The Government has established the following relative order of importance:

<u>Factor</u>	<u>Location</u>	<u>Description</u>	<u>Relative Importance</u>
1	Disc II TAB A	Past Experience	Equally important to Factor 2.
2	Disc II TAB B	Key Personnel	Equally important to Factor 1.

FACTOR 3 - PRICE

<u>Sub Factor</u>	<u>Location</u>	<u>Description</u>	<u>Relative Importance</u>
N/A	Disc I TAB B	Acknowledgement of Amendments (If Applicable)	
N/A	Disc I TAB C	Price (CONTRACT LINE ITEM SCHEDULE)	Award will be made on the basis of the lowest evaluated price of technically acceptable proposals meeting the acceptability Factor 1 & 2. The proposal that provides the lowest price and is otherwise technically acceptable will be selected for the task order award.
N/A	Hardcopy Only	Bid Guarantee	

17. Proposals must meet all the criteria stated in this RFP in order to be eligible for award, to include responsiveness and technical acceptability. The Government will evaluate each proposal independently from other proposals using only the RFP evaluation criteria. Award will be made on the basis of the lowest evaluated price of technically acceptable proposals meeting

or exceeding the acceptability standards for non-cost factors. The proposal that provides the lowest price and is otherwise technically acceptable in all factors will be selected for the task order award.

18. In accordance with the FAR, no contract shall be entered into unless the contracting officer ensures that all requirements of law, executive orders, regulations, and all other applicable procedures, including clearances and approvals, have been met. This includes the FAR Part 9.103 requirement that no award shall be made unless the contracting officer makes an affirmative determination of responsibility. To be determined responsible, a prospective contractor must meet the general standards in FAR Part 9.104 and any special standards set forth in the solicitation.

19. Technical inquiries and questions relating to proposal procedures or bonds shall be submitted via Bidder Inquiry in ProjNet at www.projnet.org/projnet. Please be aware that only bona fide employees of the MATOC pool contractors may have access or submit bidder inquiries to the ProjNet System. Inquiries submitted by sub-contractors will not receive Government responses.

a. Offerors shall not submit their proposals via ProjNet. Offerors shall submit their proposals in accordance with the provisions stated in paragraph 13 of this solicitation. Any questions regarding acceptable means of submitting offers shall be made directly to the Contract Specialist identified in the solicitation.

b. To submit and review bid inquiry items, bidders must be a current registered user or self-register into the system. To self-register, go to www.projnet.org/projnet, click BID tab, select Bidder Inquiry, select agency USACE, enter Key for this solicitation listed below, and your e-mail address, then click login. Fill in all required information and click create user. Verify that information on next screen is correct and click "Continue." From this page you may view all bidder inquiries or add an inquiry. Offerors questions will be acknowledged via email, followed by an answer to the question after it has been processed by our technical team.

i. The Solicitation Number is: W91278-11-X-1901

ii. The Bidder Inquiry Key is: M27RDJ-Y34V9X

c. Bidders/Offerors are requested to review the specification in its entirety and to review the Bidder Inquiry System for answers to questions prior to submission of a new inquiry. The name of the submitter or firm is not published for the public on the report of all Bidder Inquiries. Bidders/ Offerors are on notice of, and assumed to be aware of, all inquiries, responses, and information posted in the Bidder Inquiry System up to the date of bid submission, whether the inquiry was generated by the Bidder themselves or another potential Bidder/Offeror.

d. Government responses to technical inquiries and questions relating to proposal procedures or bonds that are submitted to ProjNet in accordance with the procedures above are not binding on the Government unless an amendment to the solicitation is issued on Standard Form 30. In the case of any conflicts, the solicitation governs. Any changes or revisions to the solicitation will be made by formal amendment.

e. The ability to enter technical inquiries and questions relating to proposal procedures or bonds will be disabled ten (10) days prior to the closing date stated in the solicitation. The Government reserves the right to not respond to questions/inquiries received after this date. No inquiries will be accepted by the Bidder Inquiry system within ten (10) calendar days prior to the date of bid opening. However, the Bidder Inquiry system may still be accessed to view answers/replies to previous inquiries until the proposal due date.

20. TASK ORDER / DELIVERY ORDER OMBUDSMAN

In accordance with [FAR 16.505\(b\) \(6\)](#), contracting officers shall identify in MATOC solicitations and contracts the individual(s) that have been appointed as primary ombudsman for USACE:

Primary:

Jacqueline C. Woodson

Acquisition Support Division Chief, Director of Contracting

United States Army Corps of Engineers

7701 Telegraph Rd

Alexandria, VA 22315

(703) 428-6323

Jacqueline.C.Woodson@usace.army.mil

(1) A contractor who receives an award under a multiple award contract may contact the ombudsman with a complaint concerning the award of a particular task/delivery order placed under the multiple-award contract.

(2) The contractor is encouraged to first try to resolve the issue with the task order contracting officer prior to contacting the ombudsman. Ombudsman complaints sent via e-mail are acceptable; however, contractors are encouraged to identify in the subject line of the e-mail "Ombudsman Complaint" to ensure appropriate and prompt attention by the ombudsman.

(3) Upon review of the facts, the ombudsman will determine whether the contractor was afforded a fair opportunity consistent with the procedures in the contract and either:

- (i) Deny the contractor's complaint; or,
- (ii) Require the contracting officer take corrective action regarding the complaint;


(4) The ombudsman's determination on the matter will be communicated to the contractor and the contracting officer.

21. NOTE: OFFERORS MAY BE FOUND NON-RESPONSIVE OR DEFICIENT, AND THEREFORE INELIGIBLE FOR AWARD, IF THEY SUBMIT A PROPOSAL THAT EXCEEDS THE CCL LIMIT THAT IS PROVIDED IN PARAGRAPH 10 OF THIS LETTER, OR IF THEY SUBMIT A PROPOSAL THAT EXCEEDS THE CONGRESSIONALLY APPROVED GROSS SQUARE FOOTAGE AS CALCULATED BY THE METHOD SET FORTH IN THE CONTRACT.

22. If you have any questions, please contact Mr. Michael Mullen at (910) 251-4710 or via email at michael.m.mullen@usace.army.mil or Ms. Charlene Figgins at (910) 251-4473 or via email at charlene.l.figgins@usace.army.mil.

Sincerely,

HILL.JOHN.T
C.1241531780

 Digitally signed by HILL.JOHN.T.C.1241531780
DN: c=US, o=U.S. Government, ou=DoD,
ou=PKI, ou=USA, cn=HILL.JOHN.T
C.1241531780
Date: 2015.12.07 14:14:22 -05'00'

John Hill
Contracting Officer

Enclosure(s):

1. Appendix A
 (a) Example 1
2. Appendix B
3. Appendix C

Attachment(s):

1. Bid Price Schedule
2. Additional Contract Clauses
3. Wage Decisions

ENCLOSURE 1
APPENDIX A
GENERAL PROPOSAL SUBMISSION AND TABBING REQUIREMENTS

W91278-11-X-1901
PN69302
SOF Battalion Operations Facility
Fort Bragg, NC

1. REQUIREMENT FOR SEPARATE PRICE AND TECHNICAL PROPOSALS:

Each offeror must submit both a Price Proposal and a Technical Proposal. The Price Proposal and Technical Proposal must be submitted as separate (CD-ROM) Discs. No hard paper copies will be accepted or evaluated.

Both the Price Proposal and the Technical Proposal must be received by the closing date and time set for receipt of proposals.

No dollar amounts from the Price Proposal are to be included in the Technical proposal.

All information intended to be evaluated as part of the Technical Proposal must be submitted as part of the Technical Proposal. Do not cross-reference similar material in the Price Proposal, or vice versa.

Do not include exceptions to the terms and conditions of the solicitation in either the technical or price proposal. Should the offer include any standard company terms and conditions that conflict with the terms and conditions of the solicitation, the offer may be determined “unacceptable” and thus ineligible for award. Should the offeror have any questions related to specific terms and conditions, these should be resolved prior to the submission of the offer.

The technical data criteria specified for each factor identified herein and as described in Appendix B shall be submitted as part of the proposal.

The contractor is responsible for including sufficient details in its proposal to permit a complete and accurate evaluation. Accordingly, the Contractor shall be clear and concise in its proposal. The Government will not make assumptions concerning the Contractor’s intent.

Failure to submit all the data required by the RFP, this Appendix and Appendix B, may be cause for determining a proposal incomplete and, therefore, not considered for award.

2. **Disc I: FACTOR 3: PRICE:** One (1) electronic copy (CD-ROM) shall be submitted and one (1) original copy of the bid guarantee in hardcopy only.

Electronic Requirements: Written portions of the proposal should be in MS Word, or Adobe Acrobat PDF. The submission shall be a single file tabbed as listed in the

table below. The CD-ROM must be clearly labeled by solicitation number, project name, installation, and Offeror's name.

TAB	CONTENTS OF THE PRICE PROPOSAL
A	The Proposal Cover Sheet
B	Acknowledgement of Amendments (If Applicable)
C	Schedule B, Task Order Price Schedule
	Bid Guarantee (Bid Bond)

TAB A – The proposal cover sheet is required by FAR 52.215-1 (c) (2) and must be submitted by all offerors. The format for the proposal cover sheet is as follows:

PROPOSAL COVER SHEET

1. The solicitation number;
 2. The name, address, and telephone and facsimile numbers of the offeror (and electronic address if available);
 3. A statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation and agreement to furnish any or all items upon which prices are offered at the price set opposite each item;
 4. Names, titles, and telephone and facsimile numbers (and electronic addresses if available) of persons authorized to negotiate on the offeror's behalf with the Government in connection with this solicitation; and
 5. Name, title, and signature of person authorized to sign the proposal.
- Proposals signed by an agent shall be accompanied by evidence of that agent's authority, unless that evidence has been previously furnished to the issuing office.

TAB B - If applicable - All amendments must be acknowledged by all Offerors and duly executed with an original signature by an official authorized to bind the company in accordance with FAR 4.102.

TAB C - Task order price schedule is to be completed in its entirety by all offerors. See Attachment 1.

Provide a fully executed Bid Bond as required by FAR Clause 52.228-1, Bid Guarantee.

3. **Disc II: TECHNICAL: FACTOR'S 1 & 2:** One (1) electronic copy (CD-ROM).

Electronic Requirements: Written portions of the proposal should be in MS Word, or Adobe Acrobat PDF. The electronic version shall be a single file tabbed in the same order as the hard copy. Drawings should be in Adobe Acrobat PDF. Any portion of the proposal not available in electronic format, i.e. cut sheets, should be scanned in Adobe Acrobat PDF format. The CD-ROM must be clearly labeled by solicitation number, project name,

installation, and Offeror's name. In the event of any conflict between the electronic submission and the hard copy submission, the hard copy submission will govern and will be the material upon which the Government bases its evaluation and ultimately, its decision.

TAB	CONTENTS OF THE TECHNICAL PROPOSAL
A	Factor 1: Past Experience
B	Factor 2: Key Personnel

Page Limitations: The following page limitations are established for each factor described above:

Factor 1: Past Experience – Limited to 20 pages (maximum of 5 forms)

Factor 2: Key Personnel – Limited to 3 pages per individual resume

NOTE: Pages that exceed the required page limitations will not be evaluated. Additional pages over the maximum allowed will be removed or not read and will not be evaluated by the Government. Tables of content, proposal cover letters, and tabs between proposal information do not count toward any page limitations in the proposal.

Offerors are cautioned that “parroting” of the Technical requirements or the Scope of Work with a statement of intent to perform *does not* reflect an understanding of the requirement or capability to perform. Offerors are responsible for including sufficient details to permit a complete and accurate evaluation of each proposal. Proprietary information shall be clearly marked.

TAB A - Factor 1: Past Experience: Demonstrate the experience of the offeror and/or proposed team, including subcontractors, on projects same/similar to that described in the solicitation for same/similar services. The projects submitted should also demonstrate that the offeror and/or the team have performed a same/similar type of services (ie. Building construction, to include but not limited to Mechanical, electrical, structural, etc. ability to coordinate with multiple entities (i.e. Utility companies or adjacent project contractors).

The Contractor shall complete a minimum of three (3), but no more than five (5), “Experience Information” forms, (See Example 1), in response to this factor. All projects submitted must be at least 50% complete for current on-going projects and for projects that are 100% complete, these projects must have been completed within the last five (5) years. Each project provided must be valued at over \$5,000,000.00.

If any of the information required is not included in the form, the contractor will be considered nonresponsive and evaluated as unacceptable.

(SEE EXPERIENCE INFORMATION FORM IN EXAMPLE 1)

TAB B –Factor 2: Key Personnel: The offeror must provide resume data for the following key personnel: Construction Project Manager, Safety Officer, Quality Control Manager, and Site Superintendent. The offeror may also include resume data for other

personnel that the offeror considers key. The Offeror shall provide an organization chart that identifies major subcontractors.

Resume information to be provided shall be limited to no more than three (3) pages per person and shall include the following information as a minimum:

- (a) Name and title
- (b) Project assignment
- (c) Name of firm with which presently associated
- (d) Years experience with this firm and with other firms
- (e) Active professional registration, year first registered, if applicable
- (f) Other experience and qualifications relevant to same/similar work required under this contract
- (g) List of project(s) in which the individual has worked to include name of project(s), project date(s), and role performed on the project.
- (h) Education: degree(s), year, specialization, if applicable
- (i) Professional License(s) and Certification(s), if applicable.

NOTE 1: Pages that exceed the required page limitations will not be evaluated. Additional pages over the maximum allowed will be removed or not read and will not be evaluated by the Government.

NOTE 2: Any changes to the key personnel identified in the proposal must meet the minimum acceptable criteria and can only be approved by the Contracting Officer.

APPENDIX A, EXAMPLE 1

EXPERIENCE INFORMATION (To be completed by Contractor)	
1. Contractor: Name:	2. Contract /Task Order(TO) /Purchase Order (PO) Number:
Address:	3. Contract/TO/PO Dollar Value:
	4. Contract/TO /PO Status: Active Complete
	Completion Date (w/ extensions): _____
5. Project Title: Location: _____	
6. Project Description-- to include the role of the contractor on the project and specific responsibilities of the contractor in performance of the effort: 	
7. Project Owner or Project Manager for the Client – provide: Name: Address: Telephone Number and E-mail:	

ENCLOSURE 2
Appendix B
Proposal Factors and Submission Requirements

W91278-11-X-1901
PN69302
SOF Battalion Operations Facility
Fort Bragg, NC

Offerors are reminded that this Appendix is intended to provide a comprehensive list of potential factors and corresponding evaluation criteria. However, as the Government identifies the need for other potential factors, this list is subject to revision as needed. Please refer to the RFP letter for identification of the specific factors that may apply to the task order under consideration.

LPTA SOURCE SELECTION PROCESS

An evaluation for acceptability will be performed on each proposal in accordance with FAR 15.101-2(b)(3). The proposal that provides the lowest price and is otherwise technically acceptable in all factors will be selected for award. To be considered technically acceptable, no technical factor in the proposal may be determined to be unacceptable. The failure of a proposal to meet any of the acceptability standards for non-cost factors will result in a technically unacceptable rating and preclude award.

Material omission(s) may cause the technical proposal to be rejected as unacceptable.

Proposals which are generic, vague, or lacking in detail may be considered unacceptable. The offeror's failure to include information that the Government has indicated should be included in the proposal may result in the offer being found deficient.

The Government cannot make award to an offeror that is determined to have a technical proposal that is deficient or unacceptable. Therefore, receipt of an "UNACCEPTABLE" determination of acceptability for any factor will make the offer ineligible for award, unless the Government elects to enter into discussions with that Offeror and all deficiencies are remedied in a revised proposal.

TECHNICAL EVALUATION: The Technical Proposal will be evaluated based on the criteria identified herein.

Factor 1: Past Experience: The Government will review the project experience of the offeror on projects provided in response to the Past Experience Factor. Offerors must meet all of the following minimum acceptability standards to receive an "ACCEPTABLE" rating on this factor:

Relevancy is established with the following two items:

- (1) Offeror must have at least three (3) projects that are same/similar to that of the work found in this solicitation; AND
- (2) Each of the projects submitted must be valued at over **\$5,000,000.00** and they must have been at least 50% complete within the last 5 years.

Recency is established with the following item:

(1) All projects submitted under Factor 1 must be at least 50% complete for current on-going projects and for projects that are 100% complete, these must have been completed within the last 5 years.

Relevancy and Recency are not separately rated. A single rating will be assigned for the submission under Factor 1.

Failure to demonstrate the minimally acceptability standards under this factor will result in an “UNACCEPTABLE” rating and possible elimination from further consideration for contract award.

Factor 2: Key Personnel: The Government will review the resumes provided in response to the Personnel Factor. Offerors must demonstrate all of the following minimum acceptability standards to receive an “ACCEPTABLE” rating on this factor.

The offeror must demonstrate in all resumes that the key personnel proposed have:

(1) A minimum of **five** (5) years of specialized and relevant experience in their field;
AND

(2) Experience on projects same/similar to the work in this solicitation working in the position they are assigned to under this contract; AND

(3) A degree in the field of work governed by the position they are assigned to. This applies to all Design Specialists and the Construction Project Manager; AND

(4) The appropriate Certification(s) in the field of work governed by the position they are assigned to. This applies to the Safety Officer and Quality Control Manager.

Failure to demonstrate the minimally acceptability standards under this factor will result in an “UNACCEPTABLE” rating and possible elimination from further consideration for contract award.

FACTOR 3: PRICE EVALUATION:

Price analysis will be performed to determine fairness and reasonableness as well as to assure an understanding of the work and ability to execute the task order at the price proposed. The evaluation will determine the extent to which the price proposal is realistic and consistent with the requirements of the RFP, to include limitations of the specified CCL, if any, reflect a clear understanding of the requirements, and are consistent with the information provided by the offeror.

Historical price information, competitive price information, the Independent Government Estimate (IGE), or any other pricing tool will be utilized as necessary in making this determination. Offerors are advised that any offer wherein pricing is deemed unfair or unreasonable, to include offers deemed to be unreasonably low, will be rendered ineligible for award. Additionally, all offers will be analyzed for unbalanced pricing.

Price will be evaluated and considered but will not be scored or combined with other aspects of the proposal evaluation.

The otherwise technically-acceptable, lowest-priced offeror may be required to confirm its price on either a, CLIN, element, or total price basis, and/or provide additional information in support of their price, prior to contract award at the Government's request and discretion.

**ENCLOSURE 3
APPENDIX C
RATINGS AND DEFINITIONS**

**W91278-11-X-1901
PN69302
SOF Battalion Operations Facility
Fort Bragg, NC**

Each evaluation factor and its risk rating combined will be determined and assigned using the adjectival and color descriptions contained herein. Upon assessment of each individual sub-factor and its risk rating, the appropriate overall rating for the technical proposal will be assigned using these acceptable and unacceptable (pass/fail) ratings as defined below:

Color	Rating	Description
Green	Acceptable	Proposal clearly meets the minimum requirements of the solicitation.
Red	Unacceptable	Proposal does not clearly meet the minimum requirements of the solicitation.

ATTACHMENT 1
TASK ORDER PRICING SCHEDULE

Solicitation Number - W91278-11-X-1901
PN 69302
SOF Battalion Operations Facility
Fort Bragg, NC

<u>CLIN</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total</u>
0001	BASE BID: Construction, Battalion Operations Facility (BOF), Complete	JB	1	_____	_____
0002	BASE BID: Construction, Tactical Equipment Maintenance Facility (TEMF) w/ Organizational Storage, Complete	JB	1	_____	_____
0003	BASE BID: Construction, Oil Storage Building, Complete	JB	1	_____	_____
0004	BASE BID: Construction, TEMF Organizational Vehicle Parking, Complete	JB	1	_____	_____
0005	BASE BID: Site Development Outside Five (5) Foot Line	JB	1	_____	_____
0006	OPTIONAL BID ITEM 1:				
0006a	Furniture, Finishes & Equipment: Purchase & Delivery	JB	1	_____	_____
0006b	Furniture, Finishes & Equipment: Installation, Complete	JB	1	_____	_____
0007	OPTIONAL BID ITEM 2: Audio Visual Equipment; Battalion Command Conference Room H249				
0007a	Audio Visual Equipment: Purchase & Delivery	JB	1	_____	_____
0007b	Audio Visual Equipment: Installation Complete	JB	1	_____	_____
0008	OPTIONAL BID ITEM 3: Audio Visual Equipment; Conference Rooms H110 and H119				
0008a	Audio Visual Equipment: Purchase & Delivery	EA	2	_____	_____
0008b	Audio Visual Equipment: Installation Complete	EA	2	_____	_____

0009	OPTIONAL BID ITEM 4: Audio Visual Equipment; Typical Conference Rooms				
0009a	Audio Visual Equipment: Purchase & Delivery	EA	5	_____	_____
0009b	Audio Visual Equipment: Installation Complete;	EA	5	_____	_____
0010	OPTIONAL BID ITEM 5: Audio Visual Equipment; Classrooms S202 and S203				
0010a	Audio Visual Equipment: Purchase & Delivery	EA	2	_____	_____
0010b	Audio Visual Equipment: Installation Complete	EA	2	_____	_____
0011	OPTIONAL BID ITEM 6: Electronic Security System, BOF: CCTV				
0011a	Purchase & Delivery CCTV	JB	1	_____	_____
0011b	Installation CCTV Complete	JB	1	_____	_____
0012	OPTIONAL BID ITEM 7: Electronic Security System, BOF: IDS				
0012a	Purchase & Delivery IDS	JB	1	_____	_____
0012b	Installation IDS Complete	JB	1	_____	_____
0013	OPTIONAL BID ITEM 8: Electronic Security System, BOF: Access Control				
0013a	Purchase & Delivery Access Control	JB	1	_____	_____
0013b	Installation Access Control Complete	JB	1	_____	_____
0014	OPTIONAL BID ITEM 9: Electronic Security System, TEMF: CCTV				
0014a	Purchase & Delivery CCTV	JB	1	_____	_____
0014b	Installation CCTV Complete	JB	1	_____	_____
0015	OPTIONAL BID ITEM 10: Electronic Security System, TEMF: IDS				
0015a	Purchase & Delivery IDS	JB	1	_____	_____
0015b	Installation IDS Complete	JB	1	_____	_____

0016	OPTIONAL BID ITEM 11: Electronic Security System, TEMF: Access Control				
0016a	Purchase & Delivery Access Control	JB	1	_____	_____
0016b	Installation Access Control Complete	JB	1	_____	_____

TOTAL BASE LINE ITEMS 0001 – 0005 _____

SUBTOTAL OPTIONAL BID ITEMS 1, CLIN 0006a-0006b _____

SUBTOTAL OPTIONAL BID ITEMS 2, CLIN 0007a-0007b _____

SUBTOTAL OPTIONAL BID ITEMS 3, CLIN 0008a-0008b _____

SUBTOTAL OPTIONAL BID ITEMS 4, CLIN 0009a-0009b _____

SUBTOTAL OPTIONAL BID ITEMS 5, CLIN 0010a-0010b _____

SUBTOTAL OPTIONAL BID ITEMS 6, CLINs 0011a-0011b _____

SUBTOTAL OPTIONAL BID ITEMS 7, CLIN 0012a-0012b _____

SUBTOTAL OPTIONAL BID ITEMS 8, CLIN 0013a-0013b _____

SUBTOTAL OPTIONAL BID ITEMS 9, CLIN 0014a-0014b _____

SUBTOTAL OPTIONAL BID ITEMS 10, CLIN 0015a-0015b _____

SUBTOTAL OPTIONAL BID ITEMS 11, CLIN 0016a-0016b _____

TOTAL AMOUNT OF OPTIONAL BID ITEMS 0001-00011, CLIN 0006-0016 _____

TOTAL LINE ITEMS 0001 – 0016 _____

PROPOSED CONTRACT DURATION: 720 calendar days

NOTICE TO BIDDERS

NOTE 1:

FOR OPTIONAL BID ITEMS 1 thru 11 (CLIN's 0006 – 0016), IF EXERCISED, THE PERIOD OF PERFORMANCE SHALL NOT BE EXTENDED BEYOND THE ORIGINAL CONTRACT DURATION OF 720 CALENDAR DAYS. PERFORMANCE OF ANY AWARDED OPTIONAL BID ITEMS SHALL RUN CONCURRENTLY WITH THE BASE BID ITEMS CONTRACT DURATION SO THAT THE PERIOD OF PERFORMANCE SHALL NOT EXCEED 720 CALENDAR DAYS.

NOTE 2:

THE GOVERNMENT RESERVES THE RIGHT TO EXERCISE OPTIONAL BID ITEMS 1 thru 11 (CLIN's 0006 – 0011) BY 30 SEPTEMBER 2017 AFTER AWARD.

NOTE 3:

THE EXERCISE OF OPTIONAL BID ITEM 1 thru 11 (CLIN's 0006 – 0011) SHALL BE SUBJECT TO THE AVAILABILITY OF FUNDS.

Attachment 2

Additional Contract Clauses

FAR 52.211-10, COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK
(APR 1984)

The Contractor shall be required to:

- (a) Commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed,
- (b) Prosecute the work diligently, and
- (c) Complete the entire work ready for use not later than **720 calendar days** after notice to proceed. The time stated for completion shall include final cleanup of the premises.

(End of Clause)

FAR 52.211-12, LIQUIDATED DAMAGES – CONSTRUCTION (SEP 2000)

- a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of **\$2,045.20** for each calendar day of delay until the work is completed or accepted.
- (b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of Clause)

FAR 52.236-4001, DESIGN-BUILD CONTRACT-ORDER OF PRECEDENCE – Nov 2004

(a) The contract includes the standard contract clauses and schedules current at the time of award. It also entails:

- (1) the solicitation in its entirety, including all drawings, cuts and illustrations, and any amendments during proposal evaluation and selection, and (2) the successful Offeror's accepted proposal in its entirety, including all drawings, catalog cuts, illustrations, personnel, narratives and other offers that meet or exceed the RFP requirements. The contract constitutes and defines the entire agreement between the Contractor and the Government. No documentation shall be omitted which in any way bears upon the terms of that agreement.

(b) In the event of conflict or inconsistency between any of the provisions of the various portions of this contract, precedence shall be given in the following order:

(1) Items which exceed the RFP requirements

- (i) Betterments: Any portions of the Offeror's proposal which both meet and exceed the provisions of the solicitation, as defined by the Solicitation Section 100, "Proposal Submission Requirements."
- (ii) Enhancements: Any portions of the Offeror's proposal, or any portions of an accepted design submission, that exceed the minimum quality or performance standards set forth in the RFP but which are not specifically identified as betterments within the RFP definition. This includes, but is not limited to, catalog cuts, illustrations, narratives, identified personnel, equipment, materials, methods and all other offers contained within the proposal that meet or exceed the RFP requirements.

(2) The provisions of the solicitation (see also Contract Clause: SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION). If the proposal, or any approved design submission, offers to provide any requirement that does not meet the RFP specification and drawings, and that item is not specifically recognized during evaluation as a proposal weakness, it is a deviation. Deviations from the minimum standard of quality required by the RFP shall not be accepted unless identified and specifically approved by the Contracting Officer in writing. If unapproved, the Contractor must provide the RFP requirements without additional cost to the Government.

(3) All other provisions of the accepted proposal.

(4) Any design products, including but not limited to plans, specifications, engineering studies and analyses, shop drawings, equipment installation drawings, etc. These are "deliverables" under the contract and are not part of the contract itself. Design products must conform to all provisions of the contract, in the order of precedence herein.

(End of Clause)

FAR 52.249-4001 I, TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (APR 1991 OCE)

(a) This provision specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the contract clause entitled DEFAULT (FIXED PRICE CONSTRUCTION). In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

(b) The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

**MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORKDAYS BASED ON 5-DAY WORK WEEK**

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10	9	6	4	4	6	8	7	4	4	5	9

(c) Upon acknowledgment of the Notice to Proceed and continuing through-out the contract, the Contractor will record on the daily Contractor Quality Control report the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled workday. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day in each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph (b) above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather workdays, and issue a modification in accordance with the contract clause entitled DEFAULT (FIXED PRICE CONSTRUCTION).

ATTACHMENT 3
Wage Determinations

General Decision Number: NC150025 05/15/2015 NC25

Superseded General Decision Number: NC20140025

State: North Carolina

Construction Type: Building

County: Cumberland County in North Carolina.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015
1	05/15/2015

CARP0312-001 05/01/2013

	Rates	Fringes
CARPENTER, Excludes Drywall Hanging, and Form Work.....	\$ 22.85	8.25

* IRON0848-005 12/01/2014

	Rates	Fringes
IRONWORKER, STRUCTURAL.....	\$ 23.00	12.00

PLUM0421-001 07/01/2013

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 24.85	9.65

SUNC2011-006 08/24/2011

	Rates	Fringes
BRICKLAYER.....	\$ 19.00	0.00
CARPENTER (Drywall Hanging Only).....	\$ 13.83	0.00
CARPENTER (Form Work Only).....	\$ 13.38	1.80
CEMENT MASON/CONCRETE FINISHER...	\$ 15.80	0.00
ELECTRICIAN.....	\$ 20.64	6.68
HVAC MECHANIC (HVAC Duct Installation Only).....	\$ 17.37	1.82
LABORER: Common or General.....	\$ 10.54	0.52
LABORER: Landscape & Irrigation.....	\$ 9.13	0.28
LABORER: Pipelayer.....	\$ 13.35	2.80
LABORER: Mason Tender-Brick/Cement/Concrete.....	\$ 12.00	0.00
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 18.47	2.41
OPERATOR: Bulldozer.....	\$ 16.00	1.87
OPERATOR: Crane.....	\$ 19.77	4.48
OPERATOR: Forklift.....	\$ 13.86	0.00
OPERATOR: Grader/Blade.....	\$ 15.72	1.49
OPERATOR: Loader.....	\$ 16.17	0.25
PAINTER: Brush, Roller and Spray.....	\$ 12.35	0.00
ROOFER.....	\$ 11.75	1.06
SHEET METAL WORKER, Excludes HVAC Duct Installation.....	\$ 15.81	1.40
TRUCK DRIVER.....	\$ 13.38	1.48

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)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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.

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END OF GENERAL DECISION

General Decision Number: NC150081 01/02/2015 NC81

Superseded General Decision Number: NC20140081

State: North Carolina

Construction Type: Heavy

Counties: Cumberland and Hoke Counties in North Carolina.

HEAVY CONSTRUCTION PROJECTS

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number Publication Date
 0 01/02/2015

SUNC2011-062 08/26/2011

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 13.98	0.69
ELECTRICIAN.....	\$ 15.41	3.13
LABORER: Common or General.....	\$ 9.21	0.00
LABORER: Pipelayer.....	\$ 12.87	2.21
OPERATOR:		
Backhoe/Excavator/Trackhoe.....	\$ 14.71	0.00
OPERATOR: Bulldozer.....	\$ 14.63	0.00
OPERATOR: Loader.....	\$ 15.13	2.79
TRUCK DRIVER.....	\$ 13.12	1.89

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)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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

General Decision Number: NC150103 01/23/2015 NC103

Superseded General Decision Number: NC20140103

State: North Carolina

Construction Type: Highway

Counties: Brunswick, Cumberland, Currituck, Edgecombe, Franklin, Greene, Hoke, Johnston, Nash, New Hanover, Onslow, Pender, Pitt, Wake and Wayne Counties in North Carolina.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015
1	01/23/2015

* SUNC2014-005 11/17/2014

	Rates	Fringes
BLASTER.....	\$ 21.04	
CARPENTER.....	\$ 13.72	
CEMENT MASON/CONCRETE FINISHER...	\$ 14.48	
ELECTRICIAN		
Electrician.....	\$ 17.97	
Telecommunications		
Technician.....	\$ 16.79	.63
IRONWORKER.....	\$ 16.02	
LABORER		
Asphalt Raker and Spreader..	\$ 12.46	
Asphalt Screed/Jackman.....	\$ 14.33	
Carpenter Tender.....	\$ 12.88	

Cement Mason/Concrete
 Finisher Tender.....\$ 12.54
 Common or General.....\$ 10.20
 Guardrail/Fence Installer...\$ 12.87
 Pipelayer.....\$ 12.17
 Traffic Signal/Lighting
 Installer.....\$ 14.89

PAINTER

Bridge.....\$ 24.57

POWER EQUIPMENT OPERATOR

Asphalt Broom Tractor.....\$ 11.85
 Bulldozer Fine.....\$ 17.04
 Bulldozer Rough.....\$ 14.34
 Concrete Grinder/Groover....\$ 20.34
 Crane Boom Trucks.....\$ 20.54
 Crane Other.....\$ 20.08
 Crane Rough/All Terrain.....\$ 20.67
 Drill Operator Rock.....\$ 14.38
 Drill Operator Structure....\$ 21.14
 Excavator Fine.....\$ 16.60
 Excavator Rough.....\$ 14.00
 Grader/Blade Fine.....\$ 18.47
 Grader/Blade Rough.....\$ 14.62
 Loader 2 Cubic Yards or
 Less.....\$ 13.76
 Loader Greater Than 2
 Cubic Yards.....\$ 14.14
 Material Transfer Vehicle
 (Shuttle Buggy).....\$ 15.18
 Mechanic.....\$ 17.55
 Milling Machine.....\$ 15.36
 Off-Road Hauler/Water
 Tanker.....\$ 11.36
 Oiler/Greaser.....\$ 13.55
 Pavement Marking Equipment..\$ 12.11
 Paver Asphalt.....\$ 15.59
 Paver Concrete.....\$ 18.20
 Roller Asphalt Breakdown....\$ 12.45
 Roller Asphalt Finish.....\$ 13.85
 Roller Other.....\$ 11.36
 Scraper Finish.....\$ 12.71
 Scraper Rough.....\$ 11.35
 Slip Form Machine.....\$ 16.50
 Tack Truck/Distributor
 Operator.....\$ 14.52

2.30

TRUCK DRIVER

GVWR of 26,000 or Less.....\$ 11.12
 GVWR of 26,001 Lbs or
 Greater.....\$ 12.37

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

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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)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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:

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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

Technical Summary of Changes

SPECIFICATIONS – Volume 4

23 00 00 – AIR SUPPLY, DISTRIBUTION, VENTILATION, AND EXHAUST SYSTEMS

Delete existing Page 1 thru Page 24 in their entirety and replace with enclosed revised like-numbered Pages.

NOTE:

Text that is added or revised by this amendment is identified with *2 and/or printed in bold. Track changes shown as follows...Strikethroughs(Delete).

The text changes may have necessitated reformatting of subsequent text or pages. If this is the case, those pages have also been issued as amended pages but are not underlined or bold text.

DRAWINGS

File No. 141-85-24:

Volume 1:

Sheets ES101 and TS100 with Revision 1 dated 30 November 2015 are hereby added to and made a part of the Contract Drawings.

Volume 2:

Sheets A-402, A-403, A-602, and E-001 with Revision 1 dated 30 November 2015 are hereby added to and made a part of the Contract Drawings.

Volume 3:

Sheet EP101 with Revision 1 dated 30 November 2015 is hereby added to and made a part of the Contract Drawings.

-- End of Summary of Changes --

Encls
As Stated

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DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING

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08/10

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SECTION 23 00 00

AIR SUPPLY, DISTRIBUTION, VENTILATION, AND EXHAUST SYSTEMS
08/10

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL (AMCA)

- AMCA 201 (2002; R 2011) Fans and Systems
- AMCA 210 (2007) Laboratory Methods of Testing Fans for Aerodynamic Performance Rating
- AMCA 300 (2014) Reverberant Room Method for Sound Testing of Fans
- AMCA 301 (2014) Methods for Calculating Fan Sound Ratings from Laboratory Test Data

AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE (AHRI)

- AHRI 410 (2001; Addendum 1 2002; Addendum 2 2005; Addendum 3 2011) Forced-Circulation Air-Cooling and Air-Heating Coils
- AHRI Guideline D (1996) Application and Installation of Central Station Air-Handling Units

AMERICAN BEARING MANUFACTURERS ASSOCIATION (ABMA)

- ABMA 11 (2014) Load Ratings and Fatigue Life for Roller Bearings
- ABMA 9 (1990; ERTA 2012; S 2013) Load Ratings and Fatigue Life for Ball Bearings

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

- ASHRAE 52.2 (2012; Errata 2013; INT 1 2014; ADD A, B, AND D SUPP 2015; INT 3 2015) Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size
- ASHRAE 62.1 (2010; Errata 2011; INT 3 2012; INT 4 2012; INT 5 2013) Ventilation for Acceptable Indoor Air Quality
- ASHRAE 70 (2006; R 2011) Method of Testing for Rating the Performance of Air Outlets and

Inlets

ASHRAE 84	(2013; Addenda A 2013) Method of Testing Air-to-Air Heat Exchangers
ASTM INTERNATIONAL (ASTM)	
ASTM A123/A123M	(2013) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A167	(2011) Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM A53/A53M	(2012) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A924/A924M	(2014) Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process
ASTM B117	(2011) Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM B280	(2013) Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service
ASTM B766	(1986; R 2015) Standard Specification for Electrodeposited Coatings of Cadmium
ASTM C553	(2013) Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications
ASTM C916	(2014) Standard Specification for Adhesives for Duct Thermal Insulation
ASTM D1654	(2008) Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
ASTM D3359	(2009; E 2010; R 2010) Measuring Adhesion by Tape Test
ASTM D520	(2000; R 2011) Zinc Dust Pigment
ASTM E2016	(2011) Standard Specification for Industrial Woven Wire Cloth
ASTM E84	(2015a) Standard Test Method for Surface Burning Characteristics of Building Materials

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

- NEMA MG 1 (2014) Motors and Generators
- NEMA MG 10 (2013) Energy Management Guide for Selection and Use of Fixed Frequency Medium AC Squirrel-Cage Polyphase Induction Motors
- NEMA MG 11 (1977; R 2012) Energy Management Guide for Selection and Use of Single Phase Motors

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

- NFPA 701 (2015) Standard Methods of Fire Tests for Flame Propagation of Textiles and Films
- NFPA 90A (2015) Standard for the Installation of Air Conditioning and Ventilating Systems

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

- SCS Scientific Certification Systems (SCS) Indoor Advantage

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

- SMACNA 1819 (2002) Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems, 5th Edition
- SMACNA 1966 (2005) HVAC Duct Construction Standards Metal and Flexible, 3rd Edition

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

- 40 CFR 82 Protection of Stratospheric Ozone

UL ENVIRONMENT (ULE)

- ULE Greenguard UL Greenguard Certification Program

UNDERWRITERS LABORATORIES (UL)

- UL 181 (2013) Factory-Made Air Ducts and Air Connectors
- UL 555 (2006; Reprint May 2014) Standard for Fire Dampers
- UL 586 (2009; Reprint Sep 2014) Standard for High-Efficiency Particulate, Air Filter Units
- UL 6 (2007; Reprint Nov 2014) Electrical Rigid Metal Conduit-Steel
- UL 705 (2004; Reprint Dec 2013) Standard for

Power Ventilators

- UL 723 (2008; Reprint Aug 2013) Test for Surface Burning Characteristics of Building Materials
- UL 900 (2015) Standard for Air Filter Units
- UL Bld Mat Dir (2012) Building Materials Directory
- UL Fire Resistance (2014) Fire Resistance Directory

1.2 SYSTEM DESCRIPTION

Furnish ductwork, piping offsets, fittings, and accessories as required to provide a complete installation. Coordinate the work of the different trades to avoid interference between piping, equipment, structural, and electrical work. Provide complete, in place, all necessary offsets in piping and ductwork, and all fittings, and other components, required to install the work as indicated and specified.

1.3 SERVICE LABELING

Label equipment, including fans, air handlers, terminal units, etc. with labels made of self-sticking, plastic film designed for permanent installation. Labels shall be in accordance with the typical examples below:

SERVICE	LABEL AND TAG DESIGNATION
Air handler Number	AH - 1
Heat Pump Number	HP - 1
Exhaust Fan Number	EF - 1
Makeup Air Unit Number	MAU - 1
Unit Heater	UH - 1
Energy Recovery Ventilation Unit	ERV - 1

Identify similar services with different temperatures or pressures. Where pressures could exceed 125 pounds per square inch, gage, include the maximum system pressure in the label. Label and arrow piping in accordance with the following:

- a. Each point of entry and exit of pipe passing through walls.
- b. Each change in direction, i.e., elbows, tees.
- c. In congested or hidden areas and at all access panels at each point required to clarify service or indicated hazard.
- d. In long straight runs, locate labels at distances within eyesight of each other not to exceed 75 feet. All labels shall be visible and legible from the primary service and operating area.

For Bare or Insulated Pipes	
for Outside Diameters of	Lettering
1/2 thru 1-3/8 inch	1/2 inch
1-1/2 thru 2-3/8 inch	3/4 inch
2-1/2 inch and larger	1-1/4 inch

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

- Insulated Nonmetallic Flexible Duct Runouts
- Duct Connectors
- Duct Access Doors
- Fire Dampers
- Diffusers
- Registers and Grilles
- Louvers
- In-Line Centrifugal Fans
- Axial Flow Fans
- Centrifugal Type Power Wall Ventilators
- Centrifugal Type Power Roof Ventilators
- Energy Recovery Devices

SD-06 Test Reports

- Damper Acceptance Test

SD-07 Certificates

- Certification

SD-08 Manufacturer's Instructions

- Manufacturer's Installation Instructions
- Operation and Maintenance Training

SD-10 Operation and Maintenance Data

- Operation and Maintenance Manuals

- Fire Dampers
- In-Line Centrifugal Fans
- Axial Flow Fans
- Centrifugal Type Power Wall Ventilators
- Centrifugal Type Power Roof Ventilators
- Energy Recovery Devices

1.5 QUALITY ASSURANCE

Except as otherwise specified, approval of materials and equipment is based on manufacturer's published data.

- a. Where materials and equipment are specified to conform to the standards of the Underwriters Laboratories, the label of or listing with reexamination in [UL Bld Mat Dir](#), and [UL 6](#) is acceptable as sufficient evidence that the items conform to Underwriters Laboratories requirements. In lieu of such label or listing, submit a written certificate from any nationally recognized testing agency, adequately equipped and competent to perform such services, stating that the items have been tested and that the units conform to the specified requirements. Outline methods of testing used by the specified agencies.
- b. Where materials or equipment are specified to be constructed or tested, or both, in accordance with the standards of the ASTM International (ASTM), the ASME International (ASME), or other standards, a manufacturer's certificate of compliance of each item is acceptable as proof of compliance.
- c. Conformance to such agency requirements does not relieve the item from compliance with other requirements of these specifications.

1.5.1 Prevention of Corrosion

Protect metallic materials against corrosion. Manufacturer shall provide rust-inhibiting treatment and standard finish for the equipment enclosures. Do not use aluminum in contact with earth, and where connected to dissimilar metal. Protect aluminum by approved fittings, barrier material, or treatment. Ferrous parts such as anchors, bolts, braces, boxes, bodies, clamps, fittings, guards, nuts, pins, rods, shims, thimbles, washers, and miscellaneous parts not of corrosion-resistant steel or nonferrous materials shall be hot-dip galvanized in accordance with [ASTM A123/A123M](#) for exterior locations and cadmium-plated in conformance with [ASTM B766](#) for interior locations.

1.5.2 Asbestos Prohibition

Do not use asbestos and asbestos-containing products.

1.5.3 Ozone Depleting Substances Used as Refrigerants

Minimize releases of Ozone Depleting Substances (ODS) during repair, maintenance, servicing or disposal of appliances containing ODS's by complying with all applicable sections of [40 CFR 82](#) Part 82 Subpart F. Any person conducting repair, maintenance, servicing or disposal of appliances owned by NASA shall comply with the following:

- a. Do not knowingly vent or otherwise release into the environment, Class I or Class II substances used as a refrigerant.
- b. Do not open appliances without meeting the requirements of [40 CFR 82](#) Part 82.156 Subpart F, regarding required practices for evacuation and collection of refrigerant, and [40 CFR 82](#) Part 82.158 Subpart F, regarding standards of recycling and recovery equipment.
- c. Only persons who comply with [40 CFR 82](#) Part 82.161 Subpart F, regarding

technician certification, can conduct work on appliances containing refrigerant.

In addition, provide copies of all applicable certifications to the Contracting Officer at least 14 calendar days prior to initiating maintenance, repair, servicing, dismantling or disposal of appliances, including:

- a. Proof of Technician Certification
- b. Proof of Equipment Certification for recovery or recycling equipment.
- c. Proof of availability of certified recovery or recycling equipment.

1.5.4 Use of Ozone Depleting Substances, Other than Refrigerants

The use of Class I or Class II ODS's listed as nonessential in 40 CFR 82 Part 82.66 Subpart C is prohibited. These prohibited materials and uses include:

- a. Any plastic party spray streamer or noise horn which is propelled by a chlorofluorocarbon
- b. Any cleaning fluid for electronic and photographic equipment which contains a chlorofluorocarbon; including liquid packaging, solvent wipes, solvent sprays, and gas sprays.
- c. Any plastic flexible or packaging foam product which is manufactured with or contains a chlorofluorocarbon, including, open cell foam, open cell rigid polyurethane poured foam, closed cell extruded polystyrene sheet foam, closed cell polyethylene foam and closed cell polypropylene foam except for flexible or packaging foam used in coaxial cabling.
- d. Any aerosol product or other pressurized dispenser which contains a chlorofluorocarbon, except for those listed in 40 CFR 82 Part 82.66 Subpart C.

Request a waiver if a facility requirement dictates that a prohibited material is necessary to achieve project goals. Submit the waiver request in writing to the Contracting Officer. The waiver will be evaluated and dispositioned.

1.5.5 Sustainable Design Certification

Product shall be third party certified in accordance with ULE Greenguard, SCS Scientific Certification Systems Indoor Advantage or equal. Certification shall be performed annually and shall be current.

1.6 DELIVERY, STORAGE, AND HANDLING

Protect stored equipment at the jobsite from the weather, humidity and temperature variations, dirt and dust, or other contaminants. Additionally, cap or plug all pipes until installed.

PART 2 PRODUCTS

2.1 STANDARD PRODUCTS

Provide components and equipment that are "standard products" of a

manufacturer regularly engaged in the manufacturing of products that are of a similar material, design and workmanship. "Standard products" is defined as being in satisfactory commercial or industrial use for 2 years before bid opening, including applications of components and equipment under similar circumstances and of similar size, satisfactorily completed by a product that is sold on the commercial market through advertisements, manufacturers' catalogs, or brochures. Products having less than a 2-year field service record are acceptable if a certified record of satisfactory field operation, for not less than 6000 hours exclusive of the manufacturer's factory tests, can be shown. Provide equipment items that are supported by a service organization. Where applicable, provide equipment that is an ENERGY STAR Qualified product or a Federal Energy Management Program (FEMP) designated product.

2.2 EQUIPMENT GUARDS AND ACCESS

Fully enclose or guard belts, pulleys, chains, gears, couplings, projecting setscrews, keys, and other rotating parts exposed to personnel contact according to OSHA requirements. Properly guard or cover with insulation of a type specified, high temperature equipment and piping exposed to contact by personnel or where it creates a potential fire hazard.

2.3 ELECTRICAL WORK

- a. Provide motors, controllers, integral disconnects, contactors, and controls with their respective pieces of equipment, except controllers indicated as part of motor control centers. Provide electrical equipment, including motors and wiring, as specified in Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM. Provide manual or automatic control and protective or signal devices required for the operation specified and control wiring required for controls and devices specified, but not shown. For packaged equipment, include manufacturer provided controllers with the required monitors and timed restart.
- b. For single-phase motors, provide high-efficiency type, fractional-horsepower alternating-current motors, including motors that are part of a system, in accordance with NEMA MG 11. Integral size motors shall be the premium efficiency type in accordance with NEMA MG 1.
- c. For polyphase motors, provide squirrel-cage medium induction motors, including motors that are part of a system, and that meet the efficiency ratings for premium efficiency motors in accordance with NEMA MG 1. Select premium efficiency polyphase motors in accordance with NEMA MG 10.
- d. Provide motors in accordance with NEMA MG 1 and of sufficient size to drive the load at the specified capacity without exceeding the nameplate rating of the motor. Provide motors rated for continuous duty with the enclosure specified. Provide motor duty that allows for maximum frequency start-stop operation and minimum encountered interval between start and stop. Provide motor torque capable of accelerating the connected load within 20 seconds with 80 percent of the rated voltage maintained at motor terminals during one starting period. Provide motor starters complete with thermal overload protection and other necessary appurtenances. Fit motor bearings with grease supply fittings and grease relief to outside of the enclosure.
- e. Where two-speed or variable-speed motors are indicated, solid-state variable-speed controllers are allowed to accomplish the same

function. Use solid-state variable-speed controllers for motors rated 10 hp or less and adjustable frequency drives for larger motors.

2.4 ANCHOR BOLTS

Provide anchor bolts for equipment placed on concrete equipment pads or on concrete slabs. Bolts to be of the size and number recommended by the equipment manufacturer and located by means of suitable templates. Installation of anchor bolts shall not degrade the surrounding concrete.

2.5 PAINTING

Paint equipment units in accordance with approved equipment manufacturer's standards unless specified otherwise. Field retouch only if approved. Otherwise, return equipment to the factory for refinishing.

2.6 INDOOR AIR QUALITY

Provide equipment and components that comply with the requirements of ASHRAE 62.1 unless more stringent requirements are specified herein.

2.7 DUCT SYSTEMS

2.7.1 Metal Ductwork

Provide metal ductwork construction, including all fittings and components, that complies with SMACNA 1966, as supplemented and modified by this specification.

- a. Provide radius type elbows with a centerline radius of 1.5 times the width or diameter of the duct where space permits. Otherwise, elbows having a minimum radius equal to the width or diameter of the duct or square elbows with factory fabricated turning vanes are allowed.

*2

- ~~b. Provide ductwork that meets the requirements of Seal Class C. Ductwork shall meet the requirements of of Seal Class A. Duct static pressure classification, per SMACNA 1966, shall be:~~

6 inches w.g. for supply duct upstream of VAV terminal units
2 inches w.g. for supply duct downstream of VAV terminal units
2 inches w.g. for outside air, exhaust air, and return air duct systems

- c. Provide sealants that conform to fire hazard classification specified in Section 23 07 00 THERMAL INSULATION FOR MECHANICAL SYSTEMS and are suitable for the range of air distribution and ambient temperatures to which it is exposed. Do not use pressure sensitive tape as a sealant.
- d. Make spiral lock seam duct, and flat oval with duct sealant and lock with not less than 3 equally spaced drive screws or other approved methods indicated in SMACNA 1966. Apply the sealant to the exposed male part of the fitting collar so that the sealer is on the inside of the joint and fully protected by the metal of the duct fitting. Apply one brush coat of the sealant over the outside of the joint to at least 2 inch band width covering all screw heads and joint gap. Dents in the male portion of the slip fitting collar are not acceptable.

2.7.1.1 Insulated Nonmetallic Flexible Duct Runouts

Use flexible duct runouts only where indicated. Runout length is indicated

on the drawings, and is not to exceed 5 feet. Provide runouts that are preinsulated, factory fabricated, and that comply with NFPA 90A and UL 181. Provide either field or factory applied vapor barrier. Provide not less than 20 ounce glass fabric duct connectors coated on both sides with neoprene. Where coil induction or high velocity units are supplied with vertical air inlets, use a streamlined, vaned and mitered elbow transition piece for connection to the flexible duct or hose. Provide a die-stamped elbow and not a flexible connector as the last elbow to these units other than the vertical air inlet type. Insulated flexible connectors are allowed as runouts. Provide insulated material and vapor barrier that conform to the requirements of Section 23 07 00 THERMAL INSULATION FOR MECHANICAL SYSTEMS. Do not expose the insulation material surface to the air stream.

2.7.1.2 General Service Duct Connectors

Provide a flexible duct connector approximately 6 inches in width where sheet metal connections are made to fans or where ducts of dissimilar metals are connected. For round/oval ducts, secure the flexible material by stainless steel or zinc-coated, iron clinch-type draw bands. For rectangular ducts, install the flexible material locked to metal collars using normal duct construction methods. Provide a composite connector system that complies with NFPA 701 and is classified as "flame-retardent fabrics" in UL Bld Mat Dir.

2.7.1.3 Corrosion Resisting (Stainless) Steel Sheets

ASTM A167

2.7.2 Duct Access Doors

Provide hinged access doors conforming to SMACNA 1966 in ductwork and plenums where indicated and at all air flow measuring primaries, automatic dampers, fire dampers, coils, thermostats, and other apparatus requiring service and inspection in the duct system. Provide access doors upstream and downstream of air flow measuring primaries and heating and cooling coils. Provide doors that are a minimum 15 by 18 inches, unless otherwise shown. Where duct size does not accommodate this size door, make the doors as large as practicable. Equip doors 24 by 24 inches or larger with fasteners operable from inside and outside the duct. Use insulated type doors in insulated ducts.

2.7.3 Fire Dampers

Use 1.5 hour rated fire dampers unless otherwise indicated. Provide fire dampers that conform to the requirements of NFPA 90A and UL 555. Perform the fire damper test as outlined in NFPA 90A. Provide a pressure relief door upstream of the fire damper. If the ductwork connected to the fire damper is to be insulated then provide a factory installed pressure relief damper. Provide automatic operating fire dampers with a dynamic rating suitable for the maximum air velocity and pressure differential to which it is subjected. Provide fire dampers approved for the specific application, and install according to their listing. Equip fire dampers with a steel sleeve or adequately sized frame installed in such a manner that disruption of the attached ductwork, if any, does not impair the operation of the damper. Equip sleeves or frames with perimeter mounting angles attached on both sides of the wall or floor opening. Construct ductwork in fire-rated floor-ceiling or roof-ceiling assembly systems with air ducts that pierce the ceiling of the assemblies in conformance with UL Fire Resistance.

Provide curtain type with damper blades out of the air stream. Install dampers that do not reduce the duct or the air transfer opening cross-sectional area. Install dampers so that the centerline of the damper depth or thickness is located in the centerline of the wall, partition or floor slab depth or thickness. Unless otherwise indicated, comply with the installation details given in [SMACNA 1819](#) and in manufacturer's instructions for fire dampers. Perform acceptance testing of fire dampers according to paragraph Fire Damper Acceptance Test and [NFPA 90A](#).

2.7.4 Air Deflectors and Branch Connections

Provide air deflectors at all duct mounted supply outlets, at takeoff or extension collars to supply outlets, at duct branch takeoff connections, and at 90 degree elbows, as well as at locations as indicated on the drawings or otherwise specified. Conical branch connections or 45 degree entry connections are allowed in lieu of deflectors for branch connections. Furnish all air deflectors, except those installed in 90 degree elbows, with an approved means of adjustment. Provide easily accessible means for adjustment inside the duct or from an adjustment with sturdy lock on the face of the duct. When installed on ducts to be thermally insulated, provide external adjustments with stand-off mounting brackets, integral with the adjustment device, to provide clearance between the duct surface and the adjustment device not less than the thickness of the thermal insulation. Provide factory-fabricated air deflectors consisting of curved turning vanes or louver blades designed to provide uniform air distribution and change of direction with minimum turbulence or pressure loss. Provide factory or field assembled air deflectors. Make adjustment from the face of the diffuser or by position adjustment and lock external to the duct. Provide stand-off brackets on insulated ducts as described herein. Provide fixed air deflectors, also called turning vanes, in 90 degree elbows.

2.7.5 Sound Attenuation Equipment

2.7.5.1 System with total pressure of 4 Inch Water Gauge and Lower

Use sound attenuators only where indicated. Provide factory fabricated sound attenuators that are constructed of galvanized steel sheets. Provide attenuator with outer casing that is not less than 22 gauge. Provide fibrous glass acoustical fill. Provide net sound reduction indicated. Obtain values on a test unit not less than 24 by 24 inches outside dimensions made by a certified nationally recognized independent acoustical laboratory. Provide air flow capacity as indicated or required. Provide pressure drop through the attenuator that does not exceed the value indicated, or that is not in excess of 15 percent of the total external static pressure of the air handling system, whichever is less. Acoustically test attenuators with metal duct inlet and outlet sections while under the rated air flow conditions. Include with the noise reduction data the effects of flanking paths and vibration transmission. Construct sound attenuators to be airtight when operating at the internal static pressure indicated or specified for the duct system, but in no case less than 2 inch water gauge.

2.7.6 Diffusers, Registers, and Grilles

Provide factory-fabricated units of aluminum that distribute the specified quantity of air evenly over space intended without causing noticeable drafts, air movement faster than 50 fpm in occupied zone, or dead spots anywhere in the conditioned area. Provide outlets for diffusion, spread,

throw, and noise level as required for specified performance. Certify performance according to [ASHRAE 70](#). Provide sound rated and certified inlets and outlets according to [ASHRAE 70](#). Provide sound power level as indicated. Provide diffusers and registers with volume damper with accessible operator, unless otherwise indicated; or if standard with the manufacturer, an automatically controlled device is acceptable. Provide opposed blade type volume dampers for diffusers and registers only where indicated. Provide linear slot diffusers with round or elliptical balancing dampers. Where the inlet and outlet openings are located less than 7 feet above the floor, protect them by a grille or screen according to [NFPA 90A](#).

2.7.6.1 Diffusers

Provide diffuser types indicated. Furnish ceiling mounted units with anti-smudge devices, unless the diffuser unit minimizes ceiling smudging through design features. Provide diffusers with air deflectors of the type indicated. Install ceiling mounted units with rims tight against ceiling. Provide sponge rubber gaskets between ceiling and surface mounted diffusers for air leakage control. Provide suitable trim for flush mounted diffusers. For connecting the duct to diffuser, provide duct collar that is airtight and does not interfere with volume controller. Provide return or exhaust units that are similar to supply diffusers.

2.7.6.2 Registers and Grilles

Provide units that are four-way directional-control type, except provide return and exhaust registers that are fixed horizontal or vertical louver type similar in appearance to the supply register face. Furnish registers with sponge-rubber gasket between flanges and wall or ceiling. Install wall supply registers at least 6 inches below the ceiling unless otherwise indicated. Locate return and exhaust registers 6 inches above the floor unless otherwise indicated. Achieve four-way directional control by a grille face which can be rotated in 4 positions or by adjustment of horizontal and vertical vanes. Provide grilles as specified for registers, without volume control damper.

2.7.7 Louvers

Provide louvers for installation in exterior walls that are associated with the air supply and distribution system as specified in Section [08 91 00 METAL WALL AND DOOR LOUVERS](#).

2.7.8 Air Vents, Penthouses, and Goosenecks

Fabricate air vents, penthouses, and goosenecks from aluminum sheets with aluminum structural shapes. Provide sheet metal thickness, reinforcement, and fabrication that conform to [SMACNA 1966](#). Accurately fit and secure louver blades to frames. Fold or bead edges of louver blades for rigidity and baffle these edges to exclude driving rain. Provide air vents, penthouses, and goosenecks with bird screen.

2.7.9 Bird Screens and Frames

Provide bird screens that conform to [ASTM E2016](#), No. 2 mesh, aluminum or stainless steel. Provide "medium-light" rated aluminum screens. Provide "light" rated stainless steel screens. Provide removable type frames fabricated from either stainless steel or extruded aluminum.

2.8 AIR SYSTEMS EQUIPMENT

2.8.1 Fans

Test and rate fans according to [AMCA 210](#). Calculate system effect on air moving devices in accordance with [AMCA 201](#) where installed ductwork differs from that indicated on drawings. Install air moving devices to minimize fan system effect. Where system effect is unavoidable, determine the most effective way to accommodate the inefficiencies caused by system effect on the installed air moving device. The sound power level of the fans shall not exceed 85 dBA when tested according to [AMCA 300](#) and rated in accordance with [AMCA 301](#). Provide all fans with an AMCA seal. Connect fans to the motors either directly or indirectly with V-belt drive. Use V-belt drives designed for not less than 150 percent of the connected driving capacity. Provide variable pitch motor sheaves for 15 hp and below, and fixed pitch as defined by [AHRI Guideline D](#) (A fixed-pitch sheave is provided on both the fan shaft and the motor shaft. This is a non-adjustable speed drive.). Select variable pitch sheaves to drive the fan at a speed which can produce the specified capacity when set at the approximate midpoint of the sheave adjustment. When fixed pitch sheaves are furnished, provide a replaceable sheave when needed to achieve system air balance. Provide motors for V-belt drives with adjustable rails or bases. Provide removable metal guards for all exposed V-belt drives, and provide speed-test openings at the center of all rotating shafts. Provide fans with personnel screens or guards on both suction and supply ends, except that the screens need not be provided, unless otherwise indicated, where ducts are connected to the fan. Provide fan and motor assemblies with vibration-isolation supports or mountings as indicated. Use vibration-isolation units that are standard products with published loading ratings. Select each fan to produce the capacity required at the fan static pressure indicated. Provide sound power level as indicated. Obtain the sound power level values according to [AMCA 300](#). Provide standard AMCA arrangement, rotation, and discharge as indicated. Provide power ventilators that conform to [UL 705](#) and have a UL label.

2.8.1.1 In-Line Centrifugal Fans

Provide in-line fans with centrifugal backward inclined blades, stationary discharge conversion vanes, internal and external belt guards, and adjustable motor mounts. Mount fans in a welded tubular casing. Provide a fan that axially flows the air in and out. Streamline inlets with conversion vanes to eliminate turbulence and provide smooth discharge air flow. Enclose and isolate fan bearings and drive shafts from the air stream. Provide precision, self aligning ball or roller type fan bearings that are sealed against dust and dirt and are permanently lubricated. Provide L50 rated bearing life at not less than 200,000 hours as defined by [ABMA 9](#) and [ABMA 11](#). Provide motors with totally enclosed enclosure. Provide manual motor starters across-the-line with general-purpose enclosures.

2.8.1.2 Axial Flow Fans

Provide axial flow fans complete with drive components and belt guard, with steel housing, cast fan wheel, cast or welded steel diffusers, fan shaft, bearings, and mounting frame as a factory-assembled unit. Provide fan wheels that are dynamically balanced and keyed to the fan shaft, with radially projecting blades of airfoil cross-section. Enclose and isolate fan bearings and drive shafts from the air stream. Permanently lubricate fan bearings or provide them with accessible grease fittings. Provide precision self-aligning ball or roller type fan bearings that are sealed

against dust and dirt. Provide fan bearings that have a L50 rated bearing life at not less than 200,000 hours of operation as defined by [ABMA 9](#) and [ABMA 11](#). Provide fan inlets with an aerodynamically shaped bell and an inlet cone. Furnish fan unit with inlet and outlet flanges, inlet screen, and automatic operation adjustable inlet vanes. Unless otherwise indicated, provide motors that do not exceed 1800 rpm and have explosion-proof enclosure. Provide magnetic motor starters across-the-line with explosion-proof enclosure.

2.8.1.3 Centrifugal Type Power Wall Ventilators

Provide direct or V-belt driven centrifugal type fans with backward inclined, non-overloading wheel. Provide removable and weatherproof motor housing. Provide unit housing that is designed for sealing to building surface and for discharge and condensate drippage away from building surface. Construct housing of heavy gauge aluminum. Equip unit with an aluminum or plated steel wire discharge bird screen, disconnect switch, anodized aluminum stainless steel wall grille, manufacturer's standard motor-operated damper, an airtight and liquid-tight metallic wall sleeve. Provide totally enclosed fan cooled type motor enclosure. Use only lubricated bearings.

2.8.1.4 Centrifugal Type Power Roof Ventilators

Provide direct or V-belt driven centrifugal type fans with backward inclined, non-overloading wheel. Provide hinged or removable and weatherproof motor compartment housing, constructed of heavy gauge aluminum. Provide fans with birdscreen, disconnect switch, motorized dampers, roof curb. Provide explosion-proof type motor enclosure. Provide centrifugal type kitchen exhaust fans according to [UL 705](#), fitted with V-belt drive, round hood, and windband upblast discharge configuration, integral residue trough and collection device, with motor and power transmission components located in outside positively air ventilated compartment. Use only lubricated bearings.

2.8.2 Coils

Provide fin-and-tube type coils constructed of seamless copper tubes and aluminum fins mechanically bonded or soldered to the tubes. Provide copper tube wall thickness that is a minimum of [0.016 inches](#). Provide aluminum fins that are [0.0055 inch](#) minimum thickness. Provide casing and tube support sheets that are not lighter than [16 gauge](#) galvanized steel, formed to provide structural strength. When required, provide multiple tube supports to prevent tube sag. Test each coil at the factory under water at not less than [400 psi](#) air pressure and make suitable for [200 psi](#) working pressure and [300 degrees F](#) operating temperature unless otherwise stated. Mount coils for counterflow service. Rate and certify coils to meet the requirements of [AHRI 410](#).

Provide suitable direct-expansion coils for the refrigerant involved. Provide refrigerant piping that conforms to [ASTM B280](#) and clean, dehydrate and seal. Provide seamless copper tubing suction headers or seamless or resistance welded steel tube suction headers with copper connections. Provide supply headers that consist of a distributor which distributes the refrigerant through seamless copper tubing equally to all circuits in the coil. Provide circuited tubes to ensure minimum pressure drop and maximum heat transfer. Provide circuiting that permits refrigerant flow from inlet to suction outlet without causing oil slugging or restricting refrigerant flow in coil. Provide field installed coils which are completely

dehydrated and sealed at the factory upon completion of pressure tests.

2.8.3 Air Filters

List air filters according to requirements of [UL 900](#), except list high efficiency particulate air filters of 99.97 percent efficiency by the DOP Test method under the Label Service to meet the requirements of [UL 586](#).

Provide 1 inch depth, sectional, disposable type filters of the size indicated with a MERV of 8 when tested according to [ASHRAE 52.2](#). Provide initial resistance at 500 fpm that does not exceed 0.36 inches water gauge. Provide UL Class 2 filters, and nonwoven cotton and synthetic fiber mat media. Attach a wire support grid bonded to the media to a moisture resistant fiberboard frame. Bond all four edges of the filter media to the inside of the frame to prevent air bypass and increase rigidity.

2.9 ROTARY WHEEL [ENERGY RECOVERY DEVICES](#)

Provide unit that is a factory fabricated and tested assembly for air-to-air energy recovery by transfer of sensible heat from exhaust air to supply air stream, with device performance according to [ASHRAE 84](#) and that delivers an energy transfer effectiveness of not less than 70 percent with cross-contamination not in excess of 1.0 percent of exhaust airflow rate at system design differential pressure, including purging sector if provided with wheel. Provide exchange media that is chemically inert, moisture-resistant, fire-retardant, laminated, nonmetallic material which complies with [NFPA 90A](#). Isolate exhaust and supply streams by seals which are static, field adjustable, and replaceable. Equip chain drive mechanisms with ratcheting torque limiter or slip-clutch protective device. Fabricate enclosure from galvanized steel and include provisions for maintenance access. Provide recovery control and rotation failure provisions as indicated.

2.10 FACTORY PAINTING

Factory paint new equipment, which are not of galvanized construction. Paint with a corrosion resisting paint finish according to [ASTM A123/A123M](#) or [ASTM A924/A924M](#). Clean, phosphatize and coat internal and external ferrous metal surfaces with a paint finish which has been tested according to [ASTM B117](#), [ASTM D1654](#), and [ASTM D3359](#). Submit evidence of satisfactory paint performance for a minimum of 125 hours for units to be installed indoors and 500 hours for units to be installed outdoors. Provide rating of failure at the scribe mark that is not less than 6, average creepage not greater than 1/8 inch. Provide rating of the inscribed area that is not less than 10, no failure. On units constructed of galvanized steel that have been welded, provide a final shop docket of zinc-rich protective paint on exterior surfaces of welds or welds that have burned through from the interior according to [ASTM D520](#), Type I.

Factory painting that has been damaged prior to acceptance by the Contracting Officer shall be field painted in compliance with the requirements of Paragraph FIELD PAINTING OF MECHANICAL EQUIPMENT.

2.11 SUPPLEMENTAL COMPONENTS/SERVICES

2.11.1 Refrigerant Piping

The requirements for refrigerant piping are specified in Section [23 23 00](#) REFRIGERANT PIPING.

2.11.2 Condensate Drain Lines

Provide and install condensate drainage for each item of equipment that generates condensate in accordance with Section 22 00 00 PLUMBING, GENERAL PURPOSE except as modified herein.

2.11.3 Backflow Preventers

The requirements for backflow preventers are specified in Section 22 00 00 PLUMBING, GENERAL PURPOSE.

2.11.4 Insulation

The requirements for shop and field applied insulation are specified in Section 23 07 00 THERMAL INSULATION FOR MECHANICAL SYSTEMS.

2.11.5 Controls

The requirements for controls are specified in Section 23 09 23 LONWORKS DIRECT DIGITAL CONTROL FOR HVAC AND OTHER LOCAL BUILDING SYSTEMS.

PART 3 EXECUTION

See Section 01 91 00.00 COMMISSIONING for commissioning requirements.

3.1 EXAMINATION

After becoming familiar with all details of the work, verify all dimensions in the field, and advise the Contracting Officer of any discrepancy before performing the work.

3.2 INSTALLATION

- a. Install materials and equipment in accordance with the requirements of the contract drawings and approved [manufacturer's installation instructions](#). Accomplish installation by workers skilled in this type of work. Perform installation so that there is no degradation of the designed fire ratings of walls, partitions, ceilings, and floors.
- b. No installation is permitted to block or otherwise impede access to any existing machine or system. Install all hinged doors to swing open a minimum of 120 degrees. Provide an area in front of all access doors that clears a minimum of [3 feet](#). In front of all access doors to electrical circuits, clear the area the minimum distance to energized circuits as specified in OSHA Standards, part 1910.333 (Electrical-Safety Related work practices).
- c. Except as otherwise indicated, install emergency switches and alarms in conspicuous locations. Mount all indicators, to include gauges, meters, and alarms in order to be easily visible by people in the area.

3.2.1 Condensate Drain Lines

Provide water seals in the condensate drain from all units. Provide a depth of each seal of [2 inches](#) plus [the number of inches, measured in water gauge](#), of the total static pressure rating of the unit to which the drain is connected. Provide water seals that are constructed of 2 tees and an appropriate U-bend with the open end of each tee plugged. Provide pipe cap

or plug cleanouts where indicated. Connect drains indicated to connect to the sanitary waste system using an indirect waste fitting. Insulate air conditioner drain lines as specified in Section 23 07 00 THERMAL INSULATION FOR MECHANICAL SYSTEMS.

3.2.2 Equipment and Installation

Provide frames and supports for tanks, compressors, pumps, valves, air handling units, fans, coils, dampers, and other similar items requiring supports. Floor mount or ceiling hang air handling units as indicated. Anchor and fasten as detailed. Set floor-mounted equipment on not less than 6 inch concrete pads or curbs doweled in place unless otherwise indicated. Make concrete foundations heavy enough to minimize the intensity of the vibrations transmitted to the piping, duct work and the surrounding structure, as recommended in writing by the equipment manufacturer. In lieu of a concrete pad foundation, build a concrete pedestal block with isolators placed between the pedestal block and the floor. Make the concrete foundation or concrete pedestal block a mass not less than three times the weight of the components to be supported. Provide the lines connected to the pump mounted on pedestal blocks with flexible connectors. Submit foundation drawings as specified in paragraph DETAIL DRAWINGS.

3.2.3 Access Panels

Install access panels for concealed valves, vents, controls, dampers, and items requiring inspection or maintenance of sufficient size, and locate them so that the concealed items are easily serviced and maintained or completely removed and replaced. Provide access panels as specified in Section 05 50 13 MISCELLANEOUS METAL FABRICATIONS.

3.2.4 Flexible Duct

Install pre-insulated flexible duct in accordance with the latest printed instructions of the manufacturer to ensure a vapor tight joint. Provide hangers, when required to suspend the duct, of the type recommended by the duct manufacturer and set at the intervals recommended.

3.2.5 Metal Ductwork

Install according to SMACNA 1966 unless otherwise indicated. Install duct supports for sheet metal ductwork according to SMACNA 1966, unless otherwise specified. Do not use friction beam clamps indicated in SMACNA 1966. Anchor risers on high velocity ducts in the center of the vertical run to allow ends of riser to move due to thermal expansion. Erect supports on the risers that allow free vertical movement of the duct. Attach supports only to structural framing members and concrete slabs. Do not anchor supports to metal decking unless a means is provided and approved for preventing the anchor from puncturing the metal decking. Where supports are required between structural framing members, provide suitable intermediate metal framing. Where C-clamps are used, provide retainer clips.

3.2.6 Kitchen Exhaust Ductwork

Fabricate concealed ducts conveying moisture laden air from minimum 18 gauge, Type 300 series, stainless steel. Continuously weld, braze, or solder joints to be liquid tight. Pitch ducts to drain at points indicated. Make transitions to other metals liquid tight, companion angle

bolted and gasketed.

3.2.7 Acoustical Duct Lining

Apply lining in cut-to-size pieces attached to the interior of the duct with nonflammable fire resistant adhesive conforming to [ASTM C916](#), Type I, [NFPA 90A](#), [UL 723](#), and [ASTM E84](#). Provide top and bottom pieces that lap the side pieces and are secured with welded pins, adhered clips of metal, nylon, or high impact plastic, and speed washers or welding cup-head pins installed according to [SMACNA 1966](#). Provide welded pins, cup-head pins, or adhered clips that do not distort the duct, burn through, nor mar the finish or the surface of the duct. Make pins and washers flush with the surfaces of the duct liner and seal all breaks and punctures of the duct liner coating with the nonflammable, fire resistant adhesive. Coat exposed edges of the liner at the duct ends and at other joints where the lining is subject to erosion with a heavy brush coat of the nonflammable, fire resistant adhesive, to prevent delamination of glass fibers. Apply duct liner to flat sheet metal prior to forming duct through the sheet metal brake. Additionally secure lining at the top and bottom surfaces of the duct by welded pins or adhered clips as specified for cut-to-size pieces. Other methods indicated in [SMACNA 1966](#) to obtain proper installation of duct liners in sheet metal ducts, including adhesives and fasteners, are acceptable.

3.2.8 Dust Control

To prevent the accumulation of dust, debris and foreign material during construction, perform temporary dust control protection. Protect the distribution system (supply and return) with temporary seal-offs at all inlets and outlets at the end of each day's work. Keep temporary protection in place until system is ready for startup.

3.2.9 Insulation

Provide thickness and application of insulation materials for ductwork, piping, and equipment according to Section [23 07 00](#) THERMAL INSULATION FOR MECHANICAL SYSTEMS. Externally insulate outdoor air intake ducts and plenums up to the point where the outdoor air reaches the conditioning unit or up to the point where the outdoor air mixes with the return air stream.

3.2.10 Duct Test Holes

Provide holes with closures or threaded holes with plugs in ducts and plenums as indicated or where necessary for the use of pitot tube in balancing the air system. Plug insulated duct at the duct surface, patched over with insulation and then marked to indicate location of test hole if needed for future use.

3.2.11 Power Roof Ventilator Mounting

Provide foamed [1/2 inch](#) thick, closed-cell, flexible elastomer insulation to cover width of roof curb mounting flange. Where wood nailers are used, predrill holes for fasteners.

3.2.12 Power Transmission Components Adjustment

Test V-belts and sheaves for proper alignment and tension prior to operation and after 72 hours of operation at final speed. Uniformly load belts on drive side to prevent bouncing. Make alignment of direct driven

couplings to within 50 percent of manufacturer's maximum allowable range of misalignment.

3.3 EQUIPMENT PADS

Provide equipment pads to the dimensions shown or, if not shown, to conform to the shape of each piece of equipment served with a minimum 3-inch margin around the equipment and supports. Allow equipment bases and foundations, when constructed of concrete or grout, to cure a minimum of 14 calendar days before being loaded.

3.4 CUTTING AND PATCHING

Install work in such a manner and at such time that a minimum of cutting and patching of the building structure is required. Make holes in exposed locations, in or through existing floors, by drilling and smooth by sanding. Use of a jackhammer is permitted only where specifically approved. Make holes through masonry walls to accommodate sleeves with an iron pipe masonry core saw.

3.5 CLEANING

Thoroughly clean surfaces of piping and equipment that have become covered with dirt, plaster, or other material during handling and construction before such surfaces are prepared for final finish painting or are enclosed within the building structure. Before final acceptance, clean mechanical equipment, including piping, ducting, and fixtures, and free from dirt, grease, and finger marks. When the work area is in an occupied space such as office, laboratory or warehouse protect all furniture and equipment from dirt and debris. Incorporate housekeeping for field construction work which leaves all furniture and equipment in the affected area free of construction generated dust and debris; and, all floor surfaces vacuum-swept clean.

3.6 PENETRATIONS

Provide sleeves and prepared openings for duct mains, branches, and other penetrating items, and install during the construction of the surface to be penetrated. Cut sleeves flush with each surface. Place sleeves for round duct 15 inches and smaller. Build framed, prepared openings for round duct larger than 15 inches and square, rectangular or oval ducts. Sleeves and framed openings are also required where grilles, registers, and diffusers are installed at the openings. Provide one inch clearance between penetrating and penetrated surfaces except at grilles, registers, and diffusers. Pack spaces between sleeve or opening and duct or duct insulation with mineral fiber conforming with ASTM C553, Type 1, Class B-2.

3.6.1 Sleeves

Fabricate sleeves, except as otherwise specified or indicated, from 20 gauge thick mill galvanized sheet metal. Where sleeves are installed in bearing walls or partitions, provide black steel pipe conforming with ASTM A53/A53M, Schedule 20.

3.6.2 Framed Prepared Openings

Fabricate framed prepared openings from 20 gauge galvanized steel, unless otherwise indicated.

3.6.3 Insulation

Provide duct insulation in accordance with Section 23 07 00 THERMAL INSULATION FOR MECHANICAL SYSTEMS continuous through sleeves and prepared openings except firewall penetrations. Terminate duct insulation at fire dampers and flexible connections. For duct handling air at or below 60 degrees F, provide insulation continuous over the damper collar and retaining angle of fire dampers, which are exposed to unconditioned air.

3.6.4 Closure Collars

Provide closure collars of a minimum 4 inches wide, unless otherwise indicated, for exposed ducts and items on each side of penetrated surface, except where equipment is installed. Install collar tight against the surface and fit snugly around the duct or insulation. Grind sharp edges smooth to prevent damage to penetrating surface. Fabricate collars for round ducts 15 inches in diameter or less from 20 gauge galvanized steel. Fabricate collars for square and rectangular ducts, or round ducts with minimum dimension over 15 inches from 18 gauge galvanized steel. Fabricate collars for square and rectangular ducts with a maximum side of 15 inches or less from 20 gauge galvanized steel. Install collars with fasteners a maximum of 6 inches on center. Attach to collars a minimum of 4 fasteners where the opening is 12 inches in diameter or less, and a minimum of 8 fasteners where the opening is 20 inches in diameter or less.

3.6.5 Firestopping

Where ducts pass through fire-rated walls, fire partitions, and fire rated chase walls, seal the penetration with fire stopping materials as specified in Section 07 84 00 FIRESTOPPING.

3.7 FIELD PAINTING OF MECHANICAL EQUIPMENT

Clean, pretreat, prime and paint metal surfaces; except aluminum surfaces need not be painted. Apply coatings to clean dry surfaces. Clean the surfaces to remove dust, dirt, rust, oil and grease by wire brushing and solvent degreasing prior to application of paint, except clean to bare metal on metal surfaces subject to temperatures in excess of 120 degrees F. Where more than one coat of paint is specified, apply the second coat after the preceding coat is thoroughly dry. Lightly sand damaged painting and retouch before applying the succeeding coat. Provide aluminum or light gray finish coat.

3.7.1 Temperatures less than 120 degrees F

Immediately after cleaning, apply one coat of pretreatment primer applied to a minimum dry film thickness of 0.3 mil, one coat of primer applied to a minimum dry film thickness of one mil; and two coats of enamel applied to a minimum dry film thickness of one mil per coat to metal surfaces subject to temperatures less than 120 degrees F.

3.7.2 Finish Painting

The requirements for finish painting of items only primed at the factory, and surfaces not specifically noted otherwise, are specified in Section 09 90 00 PAINTS AND COATINGS.

3.8 IDENTIFICATION SYSTEMS

Provide identification tags made of brass, engraved laminated plastic, or engraved anodized aluminum, indicating service and item number on all valves and dampers. Provide tags that are 1-3/8 inch minimum diameter with stamped or engraved markings. Make indentations black for reading clarity. Attach tags to valves with No. 12 AWG 0.0808-inch diameter corrosion-resistant steel wire, copper wire, chrome-plated beaded chain or plastic straps designed for that purpose.

3.9 DAMPER ACCEPTANCE TEST

Submit the proposed schedule, at least 2 weeks prior to the start of test. Operate all fire dampers and smoke dampers under normal operating conditions, prior to the occupancy of a building to determine that they function properly. Test each fire damper equipped with fusible link by having the fusible link cut in place. Test dynamic fire dampers with the air handling and distribution system running. Reset all fire dampers with the fusible links replaced after acceptance testing. To ensure optimum operation and performance, install the damper so it is square and free from racking.

3.10 TESTING, ADJUSTING, AND BALANCING

The requirements for testing, adjusting, and balancing are specified in Section 23 05 93 TESTING, ADJUSTING AND BALANCING FOR HVAC. Begin testing, adjusting, and balancing only when the air supply and distribution, including controls, has been completed, with the exception of performance tests.

3.11 CLEANING AND ADJUSTING

Provide a temporary bypass for water coils to prevent flushing water from passing through coils. Air terminal units, thoroughly clean ducts, plenums, and casing of debris and blow free of small particles of rubbish and dust and then vacuum clean before installing outlet faces. Wipe equipment clean, with no traces of oil, dust, dirt, or paint spots. Provide temporary filters prior to startup of all fans that are operated during construction, and install new filters after all construction dirt has been removed from the building, and the ducts, plenums, casings, and other items specified have been vacuum cleaned. Maintain system in this clean condition until final acceptance. Properly lubricate bearings with oil or grease as recommended by the manufacturer. Tighten belts to proper tension. Adjust control valves and other miscellaneous equipment requiring adjustment to setting indicated or directed. Adjust fans to the speed indicated by the manufacturer to meet specified conditions. Maintain all equipment installed under the contract until close out documentation is received, the project is completed and the building has been documented as beneficially occupied.

3.12 OPERATION AND MAINTENANCE

3.12.1 Operation and Maintenance Manuals

Submit six manuals at least 2 weeks prior to field training. Submit data complying with the requirements specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA. Submit Data Package 3 for the items/units listed under SD-10 Operation and Maintenance Data

3.12.2 Operation And Maintenance Training

Conduct a training course for the members of the operating staff as designated by the Contracting Officer. Make the training period consist of a total of 8 hours of normal working time and start it after all work specified herein is functionally completed and the Performance Tests have been approved. Conduct field instruction that covers all of the items contained in the Operation and Maintenance Manuals as well as demonstrations of routine maintenance operations. Submit the proposed On-site Training schedule concurrently with the Operation and Maintenance Manuals and at least 14 days prior to conducting the training course.

-- End of Section --