

COMBINED SYNOPSIS/SOLICITATION

INSTALLATION OF A BUILDING AUTOMATION SYSTEM (BAS) ON CURRENT HVAC SYSTEM AND RECOVERY/DISPOSAL OF REFRIGERANT FROM NINE (9) NON-OPERATIONAL LEGACY CHILLERS FOR NMFS NORTHWEST FISHERIES SCIENCE CENTER, MANCHESTER RESEARCH STATION LOCATED IN PORT ORCHARD, WASHINGTON.

(I) This is a combined synopsis/solicitation for commercial items prepared in accordance with the format in FAR Subpart 12.6, as supplemented with additional information included in this notice and in accordance with the simplified acquisition procedures authorized in FAR Part 13. This announcement constitutes the only solicitation; quotes are being requested and a written solicitation will not be issued.

(II) This solicitation is issued as a request for quotation (RFQ). Submit written quotes on RFQ Number NFFP7600-23-00677MCW2.

(III) The solicitation document and incorporated provisions and clauses are those in effect through Federal Acquisition Circular 2023-02 (MAR 2023) (Deviation 2023-03)(DEC 2022)

(IV) This solicitation is being issued as a total small business set-aside. The associated NAICS code is 238220. The small business size standard is \$19.0M.

(V) This combined solicitation/synopsis is for the following commercial services:

Line Item 0001, services, non-personal, to provide all labor, equipment and materials (unless otherwise provided herein) necessary to install a building automation system (BAS) on the current HVAC system in accordance with the attached Statement of Work.

Line Item 0002, services, non-personal, to provide all labor, equipment and materials (unless otherwise provided herein) necessary to recover/dispose of refrigerant from nine (9) non-operational legacy chillers in accordance with the attached Statement of Work.

(VI) Description of requirements is as follows:

See attached Statement of Work which applies to the line item in Section (V). Wage Determination 2015-5525 Rev 21 is applicable and can be viewed at SAM.gov

(VII) Place of Performance: NOAA NWFSC Manchester Research Station, 7305 Beach Drive, Port Orchard, WA 98366

Period of Performance shall be: date of award – 120 days

(VIII) FAR 52.212-1, INSTRUCTIONS TO OFFERORS – COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES (MAR 2023), applies to this acquisition.

NOTICE TO OFFERORS: Instructions for submitting quotations under this request for quote must be followed. Failure to provide all information to aid in the evaluation may be considered non-responsive. Offers that are non-responsive may be excluded from further evaluation and rejected without further notification to the offeror.

The offeror will submit a quote for the items in section (V) as listed in the attached Statement of Work.

1. Submit PDF or Microsoft Word format quotations to the office specified in this solicitation at or before the time specified in the solicitation. Email quotes are required and can be sent to michelle.walton@noaa.gov.

2. Contractor shall have an active registration in the System for Award Management (SAM found at <https://sam.gov/content/home>) in order to provide a quote and be eligible for award. Must provide their UEI #/CAGE CODE with their quote.

3. Provide all evaluation criteria in accordance with FAR 52.212-2 in this package. Vendors who do not provide all evaluation criteria will not be accepted.

4. Vendors shall assume that the Government has no prior knowledge of them or their capability.

5. Quote shall include at least two references for similar services including the phone number, full address, and e-mail address. References will be checked. The Government will use its discretion to determine the sources of past performance information used in the evaluation, and the information may be obtained from references provided by the vendor, the agency's knowledge of contractor performance, other government agencies or commercial entities, or past performance databases, and will be based on responsiveness, quality, and customer services.

The following minimum information shall be provided within contractor submitted references:

- Contract Number/Order Number
- Date of Contract Award
- Name and Address of the Government Agency or Commercial Entity
- Contract Type
- Annual Contract Cost
- Period of Performance
- Description of Work
- Valid name, phone number and e-mail address of Contracting Officer, Contracting Officer's Representative or Prime Contractor (if company was subcontracted).
- In the description of work, quotes should provide a detailed explanation demonstrating the similarity of the contract, in terms of scope and size to the requirements of the solicitation for purposes of the relevancy review. Additionally, vendors should provide a brief description of work performed and results achieved; description of the methodology, tools, and processes utilized.

6. If proposed subcontractor past performance is provided as part of the two (2) of its most relevant contracts or efforts and type of work to be done by the subcontractor on the solicitation requirement must be stated. The vendor's submittal shall clearly detail the aspects of the work in the solicitation that the subcontractor is proposed to perform. A Past Performance example which does not clearly detail the aspects of the work in the solicitation that the subcontractor is proposed to perform will not be evaluated.

If the prime vendor or intended subcontractor/partner submits a past performance example in which it served as a subcontractor, the prime/sub/partner shall clearly detail the work that it performed and the size (dollar value) of that subcontracted work only. A Past Performance example that does not differentiate between the overall contract effort and the subcontractor effort will not be evaluated.

Subcontractor performance (either the vendor's own subcontractor experience or proposed subcontractor's experience) of major or critical aspects of this requirement will be considered the same as prime contractor past performance information for the vendor. Failure of vendors to provide the required information and level of specificity will result in the contract reference not being evaluated.

(IX) FAR 52.212-2, EVALUATION- COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES (NOV 2021), applies to this acquisition. Offers will be evaluated based on price and the factors set forth in paragraph (a). The Government will award a contract resulting from this solicitation to the responsible offeror whose offer conforming to the solicitation will be most advantageous to the Government, price and other factors considered.

The evaluation will consider the Non-Price Technical Solution (Technical Approach and Past Performance) to be significantly more important than price. However, as quotes are determined to be more equal in the non-price evaluation factor, price becomes more important and may become the determining factor for award. If, at any stage of the evaluation, all vendors are determined to have submitted equal, or virtually equal, Non-Price Technical Solutions, price could become the factor in determining which vendor will receive the award.

The Government intends to evaluate the quotes and award a purchase order based on the vendor's initial quote; therefore, the vendor's initial quote should contain the vendor's best terms from a Non-Price Technical Solution and price standpoint.

The Government reserves the right not to award a purchase order depending on the quality of the quote(s) submitted and the availability of funds. Furthermore, the Government may waive informalities and minor irregularities or omissions in quotes received.

The Government may make award to other than the lowest-priced vendor or the vendor with the highest technical rating if the Contracting Officer determines that to do so would result in the best value to the Government. The Government will not make an award at a significantly higher overall price to achieve only slightly superior performance capability.

Paragraph (a) is hereby completed as follows: Evaluation will be based on the following:

1. Technical Approach and Capability.

The vendor's overall technical approach will be evaluated to assess the Government's level of confidence in the vendor's understanding of, approach to, and ability to successfully perform the requirements as described in the Statement of Work. Provide a detailed description of the company's experience performing similar services. A detailed technical approach write-up describing how the contractor will perform this service is required to be submitted with the quote regardless of whether a site visit was made or not. The technical approach write-up must not be a reiteration of the Statement of Work but how your company plans on performing the tasks listed in the attached Statement of Work. i.e. performance checklists, anticipated number of janitors, anticipated hours at the facility and/or confirmation of supplies being provided, etc

2. Past Performance. The vendor's past performance on related contracts will be evaluated to determine, as appropriate, successful performance of contract requirements, quality and timeliness of delivery of goods and services, cost management, communications between contracting parties, proactive management and customer satisfaction. The Government will use its discretion to determine the sources of past performance information used in the evaluation, and the information may be obtained from references provided by the vendor, the agency's knowledge of contractor performance, other government agencies or commercial entities, or past performance databases, and will be based on responsiveness, quality, and customer services. Quote shall include at least **two** references for **similar** services including the phone number, full address, and e-mail address.

Vendors lacking relevant past performance history, or for whom past performance information is either not available or has not been submitted to the Government, will receive a neutral rating for past performance.

3. Vendor must have experience with HVAC equipment and operations and a minimum of five (5) years of experience in BAS open-platform architecture.

4. Price. The quoted prices will be evaluated but not scored. The Government will evaluate the price quote for completeness and reasonableness in relation to the RFQ requirements. Quoted prices must be entirely compatible with the Non-Price Technical Solution.

The Government intends to award a trade-off, firm fixed-price purchase order on an all or some basis with payment terms of Net 30.

(b) 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. The Government may determine that an offer is unacceptable if the option prices are significantly unbalanced. Evaluation of options shall not obligate the Government to exercise the option(s).

(c) A written notice of award or acceptance of an offer, mailed or otherwise furnished to the successful offeror within the time for acceptance specified in the offer, shall result in a binding contract without further action by either

party. Before the offer's specified expiration time, the Government may accept an offer (or part of an offer), whether or not there are negotiations after its receipt, unless a written notice of withdrawal is received before award.
(End of provision)

"THE GOVERNMENT DOES NOT ACCEPT RESPONSIBILITY FOR NON-RECEIPT OF QUOTES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REQUEST AND RECEIVE A CONFIRMATION OF THE QUOTE RECEIPT".

CAM 1352.215-72 INQUIRIES (APR 2010)
OFFERORS MUST SUBMIT ALL QUESTIONS CONCERNING THIS SOLICITATION IN WRITING VIA EMAIL TO MICHELLE.WALTON@NOAA.GOV. QUESTIONS SHOULD BE RECEIVED NO LATER THAN 12:00 P.M. MDT/MST, 04/04/2023. Any responses to questions will be made in writing, without identification of the questioner, and will be included in an amendment to the solicitation. Even if provided in other form, only the question responses included in the amendment to the solicitation will govern performance of the contract.
(End of clause)

(X) FAR 52.212-3 OFFEROR REPRESENTATIONS AND CERTIFICATIONS-COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES (DEC 2022) (DEVIATION 2023-03) (DEC 2022)
The Offeror shall complete only paragraph (b) of this provision if the Offeror has completed the annual representations and certification electronically in the System for Award Management (SAM) accessed through <https://www.sam.gov>. If the Offeror has not completed the annual representations and certifications electronically, the Offeror shall complete only paragraphs (c) through (v) of this provision.

(a) *Definitions*. As used in this provision—

"Covered telecommunications equipment or services" has the meaning provided in the clause [52.204-25](#), Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

Economically disadvantaged women-owned small business (EDWOSB) concern means a small business concern that is at least 51 percent directly and unconditionally owned by, and the management and daily business operations of which are controlled by, one or more women who are citizens of the United States and who are economically disadvantaged in accordance with [13 CFR part 127](#), and the concern is certified by SBA or an approved third-party certifier in accordance with [13 CFR 127.300](#). It automatically qualifies as a women-owned small business eligible under the WOSB Program.

Forced or indentured child labor means all work or service—

(1) Exacted from any person under the age of 18 under the menace of any penalty for its nonperformance and for which the worker does not offer himself voluntarily; or

(2) Performed by any person under the age of 18 pursuant to a contract the enforcement of which can be accomplished by process or penalties.

Highest-level owner means the entity that owns or controls an immediate owner of the offeror, or that owns or controls one or more entities that control an immediate owner of the offeror. No entity owns or exercises control of the highest level owner.

Immediate owner means an entity, other than the offeror, that has direct control of the offeror. Indicators of control include, but are not limited to, one or more of the following: ownership or interlocking management, identity of interests among family members, shared facilities and equipment, and the common use of employees.

Inverted domestic corporation, means a foreign incorporated entity that meets the definition of an inverted domestic corporation under [6 U.S.C. 395\(b\)](#), applied in accordance with the rules and definitions of [6 U.S.C. 395\(c\)](#).

Manufactured end product means any end product in product and service codes (PSCs) 1000-9999, except—

- (1) PSC 5510, Lumber and Related Basic Wood Materials;
- (2) Product or Service Group (PSG) 87, Agricultural Supplies;
- (3) PSG 88, Live Animals;
- (4) PSG 89, Subsistence;
- (5) PSC 9410, Crude Grades of Plant Materials;
- (6) PSC 9430, Miscellaneous Crude Animal Products, Inedible;
- (7) PSC 9440, Miscellaneous Crude Agricultural and Forestry Products;
- (8) PSC 9610, Ores;
- (9) PSC 9620, Minerals, Natural and Synthetic; and
- (10) PSC 9630, Additive Metal Materials.

Place of manufacture means the place where an end product is assembled out of components, or otherwise made or processed from raw materials into the finished product that is to be provided to the Government. If a product is disassembled and reassembled, the place of reassembly is not the place of manufacture.

Predecessor means an entity that is replaced by a successor and includes any predecessors of the predecessor.

Reasonable inquiry has the meaning provided in the clause [52.204-25](#), Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

Restricted business operations means business operations in Sudan that include power production activities, mineral extraction activities, oil-related activities, or the production of military equipment, as those terms are defined in the Sudan Accountability and Divestment Act of 2007 (Pub. L. 110-174). Restricted business operations do not include business operations

that the person (as that term is defined in Section 2 of the Sudan Accountability and Divestment Act of 2007) conducting the business can demonstrate—

- (1) Are conducted under contract directly and exclusively with the regional government of southern Sudan;
- (2) Are conducted pursuant to specific authorization from the Office of Foreign Assets Control in the Department of the Treasury, or are expressly exempted under Federal law from the requirement to be conducted under such authorization;
- (3) Consist of providing goods or services to marginalized populations of Sudan;
- (4) Consist of providing goods or services to an internationally recognized peacekeeping force or humanitarian organization;
- (5) Consist of providing goods or services that are used only to promote health or education; or
- (6) Have been voluntarily suspended."Sensitive technology"—

Sensitive technology—

- (1) Means hardware, software, telecommunications equipment, or any other technology that is to be used specifically—
 - (i) To restrict the free flow of unbiased information in Iran; or
 - (ii) To disrupt, monitor, or otherwise restrict speech of the people of Iran; and
- (2) Does not include information or informational materials the export of which the President does not have the authority to regulate or prohibit pursuant to section 203(b)(3) of the International Emergency Economic Powers Act (50 U.S.C. 1702(b)(3)).

Service-disabled veteran-owned small business concern—

- (1) Means a small business concern—
 - (i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and
 - (ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a service-disabled veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.
- (2) Service-disabled veteran means a veteran, as defined in [38 U.S.C. 101\(2\)](#), with a disability that is service connected, as defined in [38 U.S.C. 101\(16\)](#).

Small business concern—

- (1) Means a concern, including its affiliates, that is independently owned and operated, not dominant in its field of operation, and qualified as a small business under the criteria in [13 CFR part 121](#) and size standards in this solicitation.
- (2) *Affiliates*, as used in this definition, means business concerns, one of whom directly or indirectly controls or has the power to control the others, or a third party or parties control or have the power to control the others. In determining whether affiliation exists, consideration is given to all appropriate factors including common ownership, common management, and contractual relationships. SBA determines affiliation based on the factors set forth at 13 CFR 121.103.

Small disadvantaged business concern, consistent with 13 CFR 124.1002, means a small business concern under the size standard applicable to the acquisition, that—

- (1) Is at least 51 percent unconditionally and directly owned (as defined at 13 CFR 124.105) by—
 - (i) One or more socially disadvantaged (as defined at 13 CFR 124.103) and economically disadvantaged (as defined at 13 CFR 124.104) individuals who are citizens of the United States; and
 - (ii) Each individual claiming economic disadvantage has a net worth not exceeding \$850,000 (DEVIATION 2023-03) after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and
- (2) The management and daily business operations of which are controlled (as defined at 13 CFR 124.106) by individuals, who meet the criteria in paragraphs (1)(i) and (ii) of this definition.

Subsidiary means an entity in which more than 50 percent of the entity is owned—

- (1) Directly by a parent corporation; or
- (2) Through another subsidiary of a parent corporation

Successor means an entity that has replaced a predecessor by acquiring the assets and carrying out the affairs of the predecessor under a new name (often through acquisition or merger). The term "successor" does not include new offices/divisions of the same company or a company that only changes its name. The extent of the responsibility of the successor for the liabilities of the predecessor may vary, depending on State law and specific circumstances.

Veteran-owned small business concern means a small business concern—

- (1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and
- (2) The management and daily business operations of which are controlled by one or more veterans.

Women-owned business concern means a concern which is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of its stock is owned by one or more women; and whose management and daily business operations are controlled by one or more women

Women-owned small business concern means a small business concern—

- (1) That is at least 51 percent owned by one or more women; or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and
- (2) Whose management and daily business operations are controlled by one or more women.

Women-owned small business (WOSB) concern eligible under the WOSB Program (in accordance with [13 CFR part 127](#)), means a small business concern that is at least 51 percent directly and unconditionally owned by, and the management and daily business operations of which are controlled by, one or more women who are citizens of the United States, and the concern is certified by SBA or an approved third-party certifier in accordance with [13 CFR 127.300](#).

(b)

(1) *Annual Representations and Certifications*. Any changes provided by the Offeror in paragraph (b)(2) of this provision do not automatically change the representations and certifications in SAM.

(2) The offeror has completed the annual representations and certifications electronically in SAM accessed through <http://www.sam.gov>. After reviewing SAM information, the Offeror verifies by submission of this offer that the representations and certifications currently posted electronically at FAR [52.212-3](#), Offeror Representations and Certifications-Commercial Products and Commercial Services, have been entered or updated in the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard(s) applicable to the NAICS code(s) referenced for this solicitation), at the time this offer is submitted and are incorporated in this offer by reference (see FAR [4.1201](#)), except for paragraphs _____.

[Offeror to identify the applicable paragraphs at (c) through (v) of this provision that the offeror has completed for the purposes of this solicitation only, if any.]

These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted electronically on SAM.]

(c) Offerors must complete the following representations when the resulting contract is for supplies to be delivered or services to be performed in the United States or its outlying areas, or when the contracting officer has applied [part 19](#) in accordance with [19.000\(b\)\(1\)\(ii\)](#). Check all that apply.

(1) *Small business concern.* The offeror represents as part of its offer that—

(i) It is, is not a small business concern; or

(ii) It is, is not a small business joint venture that complies with the requirements of [13 CFR 121.103\(h\)](#) and [13 CFR 125.8\(a\)](#) and (b). [The offeror shall enter the name and unique entity identifier of each party to the joint venture: ____.]

(2) *Veteran-owned small business concern.* [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents as part of its offer that it is, is not a veteran-owned small business concern.

(3) *Service-disabled veteran-owned small business concern.* [Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (c)(2) of this provision.] The offeror represents as part of its offer that—

(i) It is, is not a service-disabled veteran-owned small business concern; or

(ii) It is, is not a joint venture that complies with the requirements of [13 CFR 125.18\(b\)\(1\)](#) and (2).

[The offeror shall enter the name and unique entity identifier of each party to the joint venture: ____.] Each service-disabled veteran-owned small business concern participating in the joint venture shall provide representation of its service-disabled veteran-owned small business concern status.

(4) *Small disadvantaged business concern.* [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents, that it is, is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(5) *Women-owned small business concern.* [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents that it is, is not a women-owned small business concern.

(6) *WOSB joint venture eligible under the WOSB Program.* The offeror represents that it is, is not a joint venture that complies with the requirements of [13 CFR 127.506\(a\)](#) through (c). [The offeror shall enter the name and unique entity identifier of each party to the joint venture: ____.]

(7) *Economically disadvantaged women-owned small business (EDWOSB) joint venture.* The offeror represents that it is, is not a joint venture that complies with the requirements of [13 CFR 127.506\(a\)](#) through (c). [The offeror shall enter the name and unique entity identifier of each party to the joint venture: ____.]

(8) *Women-owned business concern (other than small business concern).* [Complete only if the offeror is a women-owned business concern and did not represent itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents that it is a women-owned business concern.

(9) *Tie bid priority for labor surplus area concerns.* If this is an invitation for bid, small business offerors may identify the labor surplus areas in which costs to be incurred on account of manufacturing or production (by offeror or first-tier subcontractors) amount to more than 50 percent of the contract price: _____

(10) *HUBZone small business concern.* [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents, as part of its offer, that—

(i) It is, is not a HUBZone small business concern listed, on the date of this representation, as having been certified by SBA as a HUBZone small business concern in the Dynamic Small Business Search and SAM, and will attempt to maintain an employment rate of HUBZone residents of 35 percent of its employees during performance of a HUBZone contract (see [13 CFR 126.200\(e\)\(1\)](#)); and

(ii) It is, is not a HUBZone joint venture that complies with the requirements of [13 CFR 126.616\(a\)](#) through (c). [The offeror shall enter the name and unique entity identifier of each party to the joint venture: ____.] Each HUBZone small business concern participating in the HUBZone joint venture shall provide representation of its HUBZone status.

(d) Representations required to implement provisions of Executive Order 11246-

(1) Previous contracts and compliance. The offeror represents that-

(i) It has, has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation; and

(ii) It has, has not filed all required compliance reports.

(2) *Affirmative Action Compliance.* The offeror represents that-

(i) It has developed and has on file, has not developed and does not have on file, at each establishment, affirmative action programs required by rules and regulations of the Secretary of Labor (41 CFR parts 60-1 and 60-2), or

(ii) It has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(e) *Certification Regarding Payments to Influence Federal Transactions* (31 <http://uscode.house.gov/> U.S.C. 1352). (Applies only if the contract is expected to exceed \$150,000.) By submission of its offer, the offeror certifies to the best of its knowledge and belief that no Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress on his or her behalf in connection with the award of any resultant contract. If any registrants under the Lobbying Disclosure Act of 1995 have made a lobbying contact on behalf of the offeror with respect to this contract, the offeror shall complete and submit, with its offer, OMB Standard Form LLL, Disclosure of Lobbying Activities, to provide the name of the registrants. The offeror need not report regularly employed officers or employees of the offeror to whom payments of reasonable compensation were made.

(f) *Buy American Certificate*. (Applies only if the clause at Federal Acquisition Regulation (FAR) [52.225-1](#), Buy American-Supplies, is included in this solicitation.)

(1)

(i) The Offeror certifies that each end product and that each domestic end product listed in paragraph (f)(3) of this provision contains a critical component, except those listed in paragraph (f)(2) of this provision, is a domestic end product.

(ii) The Offeror shall list as foreign end products those end products manufactured in the United States that do not qualify as domestic end products. For those foreign end products that do not consist wholly or predominantly of iron or steel or a combination of both, the Offeror shall also indicate whether these foreign end products exceed 55 percent domestic content, except for those that are COTS items. If the percentage of the domestic content is unknown, select "no".

(iii) The Offeror shall separately list the line item numbers of domestic end products that contain a critical component (see FAR 25.105).

(iv) The terms "commercially available off-the-shelf (COTS) item," "critical component," "domestic end product," "end product," "foreign end product," and "United States" are defined in the clause of this solicitation entitled "Buy American-Supplies."

(2) Foreign End Products:

Line Item No.	Country of Origin	Exceeds 55% domestic content (yes/no)
_____	_____	_____
_____	_____	_____
_____	_____	_____

[List as necessary]

(3) Domestic end products containing a critical component:

Line Item No. _____

[List as necessary]

(4) The Government will evaluate offers in accordance with the policies and procedures of FAR [part 25](#).

(g)

(1) *Buy American-Free Trade Agreements-Israeli Trade Act Certificate*. (Applies only if the clause at FAR [52.225-3](#), Buy American-Free Trade Agreements-Israeli Trade Act, is included in this solicitation.)

(i)

(A) The Offeror certifies that each end product, except those listed in paragraph (g)(1)(ii) or (iii) of this provision, is a domestic end product and that each domestic end product listed in paragraph (g)(1)(iv) of this provision contains a critical component.

(B) The terms "Bahrainian, Moroccan, Omani, Panamanian, or Peruvian end product," "commercially available off-the-shelf (COTS) item," "critical component," "domestic end product," "end product," "foreign end product," "Free Trade Agreement country," "Free Trade Agreement country end product," "Israeli end product," and "United States" are defined in the clause of this solicitation entitled "Buy American-Free Trade Agreements-Israeli Trade Act."

(ii) The Offeror certifies that the following supplies are Free Trade Agreement country end products (other than Bahrainian, Moroccan, Omani, Panamanian, or Peruvian end products) or Israeli end products as defined in the clause of this solicitation entitled "Buy American-Free Trade Agreements-Israeli Trade Act."

Free Trade Agreement Country End Products (Other than Bahrainian, Moroccan, Omani, Panamanian, or Peruvian End Products) or Israeli End Products:

Line Item No.	Country of Origin
_____	_____
_____	_____
_____	_____

[List as necessary]

(iii) The Offeror shall list those supplies that are foreign end products (other than those listed in paragraph (g)(1)(ii) of this provision) as defined in the clause of this solicitation entitled "Buy American-Free Trade Agreements-Israeli Trade Act." The Offeror shall list as other foreign end products those end products manufactured in the United States that do not qualify as domestic end products. For those foreign end products that do not consist wholly or predominantly of iron or steel or a combination of both, the Offeror shall also indicate whether these foreign end products exceed 55 percent domestic content, except for those that are COTS items. If the percentage of the domestic content is unknown, select "no".

Other Foreign End Products:

Line Item No.	Country of Origin	Exceeds 55% domestic content (yes/no)
_____	_____	_____
_____	_____	_____
_____	_____	_____

[List as necessary]

(iv) The Offeror shall list the line item numbers of domestic end products that contain a critical component (see FAR [25.105](#)).

Line Item No. _____

[List as necessary]

(v) The Government will evaluate *offers* in accordance with the policies and procedures of FAR [part 25](#).

(2) *Buy American-Free Trade Agreements-Israeli Trade Act Certificate, Alternate II*. If Alternate II to the clause at FAR [52.225-3](#) is included in this solicitation, substitute the following paragraph (g)(1)(ii) for paragraph (g)(1)(ii) of the basic provision:

(g)(1)(ii) The offeror certifies that the following supplies are Israeli end products as defined in the clause of this solicitation entitled "Buy American—Free Trade Agreements—Israeli Trade Act":

Israeli End Products:

Line Item No.

[List as necessary]

(3) *Buy American-Free Trade Agreements-Israeli Trade Act Certificate, Alternate III*. If Alternate III to the clause at [52.225-3](#) is included in this solicitation, substitute the following paragraph (g)(1)(ii) for paragraph (g)(1)(ii) of the basic provision:

(g)(1)(ii) The offeror certifies that the following supplies are Free Trade Agreement country end products (other than Bahrainian, Korean, Moroccan, Omani, Panamanian, or Peruvian end products) or Israeli end products as defined in the clause of this solicitation entitled "Buy American-Free Trade Agreements-Israeli Trade Act":

Free Trade Agreement Country End Products (Other than Bahrainian, Korean, Moroccan, Omani, Panamanian, or Peruvian End Products) or Israeli End Products:

Line Item No.	Country of Origin
_____	_____
_____	_____
_____	_____

[List as necessary]

(4) *Trade Agreements Certificate*. (Applies only if the clause at FAR [52.225-5](#), Trade Agreements, is included in this solicitation.)

(i) The offeror certifies that each end product, except those listed in paragraph (g)(5)(ii) of this provision, is a U.S.-made or designated country end product, as defined in the clause of this solicitation entitled "Trade Agreements."

(ii) The offeror shall list as other end products those end products that are not U.S.-made or designated country end products.

Other End Products:

Line Item No.	Country of Origin
_____	_____
_____	_____
_____	_____

[List as necessary]

(iii) The Government will evaluate offers in accordance with the policies and procedures of FAR [part 25](#). For line items covered by the WTO GPA, the Government will evaluate offers of U.S.-made or designated country end products without regard to the restrictions of the Buy American statute. The Government will consider for award only offers of U.S.-made or designated country end products unless the Contracting Officer determines that there are no offers for such products or that the offers for such products are insufficient to fulfill the requirements of the solicitation.

(h) *Certification Regarding Responsibility Matters (Executive Order 12689)*. (Applies only if the contract value is expected to exceed the simplified acquisition threshold.) The offeror certifies, to the best of its knowledge and belief, that the offeror and/or any of its principals—

(1) Are, are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(2) Have, have not, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a Federal, state or local government contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating Federal criminal tax laws, or receiving stolen property;

(3) Are, are not presently indicted for, or otherwise criminally or civilly charged by a Government entity with, commission of any of these offenses enumerated in paragraph (h)(2) of this clause; and

(4) Have, have not, within a three-year period preceding this offer, been notified of any delinquent Federal taxes in an amount that exceeds the threshold at [9.104-5\(a\)\(2\)](#) for which the liability remains unsatisfied.

(i) Taxes are considered delinquent if both of the following criteria apply:

(A) *The tax liability is finally determined*. The liability is finally determined if it has been assessed. A liability is not finally determined if there is a pending administrative or judicial challenge. In the case of a judicial challenge to the liability, the liability is not finally determined until all judicial appeal rights have been exhausted.

(B) *The taxpayer is delinquent in making payment*. A taxpayer is delinquent if the taxpayer has failed to pay the tax liability when full payment was due and required. A taxpayer is not delinquent in cases where enforced collection action is precluded.

(ii) *Examples*.

(A) The taxpayer has received a statutory notice of deficiency, under I.R.C. §6212, which entitles the taxpayer to seek Tax Court review of a proposed tax deficiency. This is not a delinquent tax because it is not a final tax liability. Should the taxpayer seek Tax Court review, this will not be a final tax liability until the taxpayer has exercised all judicial appeal rights.

(B) The IRS has filed a notice of Federal tax lien with respect to an assessed tax liability, and the taxpayer has been issued a notice under I.R.C. §6320 entitling the taxpayer to request a hearing with the IRS Office of Appeals contesting the lien filing, and to further appeal to the Tax Court if the IRS determines to sustain the lien filing. In the course of the hearing, the taxpayer is entitled to contest the underlying tax liability because the taxpayer has had no prior opportunity to contest the liability. This is not a delinquent tax because it is not a final tax liability. Should the taxpayer seek tax court review, this will not be a final tax liability until the taxpayer has exercised all judicial appeal rights.

(C) The taxpayer has entered into an installment agreement pursuant to I.R.C. §6159. The taxpayer is making timely payments and is in full compliance with the agreement terms. The taxpayer is not delinquent because the taxpayer is not currently required to make full payment.

(D) The taxpayer has filed for bankruptcy protection. The taxpayer is not delinquent because enforced collection action is stayed under 11 U.S.C. §362 (the Bankruptcy Code).

(i) *Certification Regarding Knowledge of Child Labor for Listed End Products (Executive Order 13126).* [The Contracting Officer must list in paragraph (i)(1) any end products being acquired under this solicitation that are included in the List of Products Requiring Contractor Certification as to Forced or Indentured Child Labor, unless excluded at [22.1503\(b\)](#).]

(1) *Listed end products.*

Listed End Product

Listed Countries of Origin

(2) *Certification.* [If the Contracting Officer has identified end products and countries of origin in paragraph (i)(1) of this provision, then the offeror must certify to either (i)(2)(i) or (i)(2)(ii) by checking the appropriate block.]

(i) The offeror will not supply any end product listed in paragraph (i)(1) of this provision that was mined, produced, or manufactured in the corresponding country as listed for that product.

(ii) The offeror may supply an end product listed in paragraph (i)(1) of this provision that was mined, produced, or manufactured in the corresponding country as listed for that product. The offeror certifies that it has made a good faith effort to determine whether forced or indentured child labor was used to mine, produce, or manufacture any such end product furnished under this contract. On the basis of those efforts, the offeror certifies that it is not aware of any such use of child labor.

(j) *Place of manufacture.* (Does not apply unless the solicitation is predominantly for the acquisition of manufactured end products.) For statistical purposes only, the offeror shall indicate whether the place of manufacture of the end products it expects to provide in response to this solicitation is predominantly-

(1) In the United States (Check this box if the total anticipated price of offered end products manufactured in the United States exceeds the total anticipated price of offered end products manufactured outside the United States); or

(2) Outside the United States.

(k) *Certificates regarding exemptions from the application of the Service Contract Labor Standards* (Certification by the offeror as to its compliance with respect to the contract also constitutes its certification as to compliance by its subcontractor if it subcontracts out the exempt services.) [The contracting officer is to check a box to indicate if paragraph (k)(1) or (k)(2) applies.]

(1) Maintenance, calibration, or repair of certain equipment as described in FAR [22.1003-4\(c\)\(1\)](#).

The offeror does does not certify that-

(i) The items of equipment to be serviced under this contract are used regularly for other than Governmental purposes and are sold or traded by the offeror (or subcontractor in the case of an exempt subcontract) in substantial quantities to the general public in the course of normal business operations;

(ii) The services will be furnished at prices which are, or are based on, established catalog or market prices (see FAR [22.1003-4\(c\)\(2\)\(ii\)](#)) for the maintenance, calibration, or repair of such equipment; and

(iii) The compensation (wage and fringe benefits) plan for all service employees performing work under the contract will be the same as that used for these employees and equivalent employees servicing the same equipment of commercial customers.

(2) Certain services as described in FAR [22.1003-4\(d\)\(1\)](#). The offeror does does not certify that-

(i) The services under the contract are offered and sold regularly to non-Governmental customers, and are provided by the offeror (or subcontractor in the case of an exempt subcontract) to the general public in substantial quantities in the course of normal business operations;

(ii) The contract services will be furnished at prices that are, or are based on, established catalog or market prices (see FAR [22.1003-4\(d\)\(2\)\(iii\)](#));

(iii) Each service employee who will perform the services under the contract will spend only a small portion of his or her time (a monthly average of less than 20 percent of the available hours on an annualized basis, or less than 20 percent of available hours during the contract period if the contract period is less than a month) servicing the Government contract; and

(iv) The compensation (wage and fringe benefits) plan for all service employees performing work under the contract is the same as that used for these employees and equivalent employees servicing commercial customers.

(3) If paragraph (k)(1) or (k)(2) of this clause applies—

(i) If the offeror does not certify to the conditions in paragraph (k)(1) or (k)(2) and the Contracting Officer did not attach a Service Contract Labor Standards wage determination to the solicitation, the offeror shall notify the Contracting Officer as soon as possible; and

(ii) The Contracting Officer may not make an award to the offeror if the offeror fails to execute the certification in paragraph (k)(1) or (k)(2) of this clause or to contact the Contracting Officer as required in paragraph (k)(3)(i) of this clause.

(l) *Taxpayer Identification Number (TIN)* ([26 U.S.C. 6109](#), [31 U.S.C. 7701](#)). (Not applicable if the offeror is required to provide this information to the SAM to be eligible for award.)

(1) All offerors must submit the information required in paragraphs (l)(3) through (l)(5) of this provision to comply with debt collection requirements of [31 U.S.C. 7701\(c\)](#) and [3325\(d\)](#), reporting requirements of [26 U.S.C. 6041](#), [6041A](#), and [6050M](#), and implementing regulations issued by the Internal Revenue Service (IRS).

(2) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government ([31 U.S.C. 7701\(c\)\(3\)](#)). If the resulting contract is subject to the payment reporting requirements described in FAR [4.904](#), the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(3) *Taxpayer Identification Number (TIN)*.

TIN: _____.

TIN has been applied for.

TIN is not required because:

Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

Offeror is an agency or instrumentality of a foreign government;

Offeror is an agency or instrumentality of the Federal Government.

(4) *Type of organization*.

Sole proprietorship;

Partnership;

Corporate entity (not tax-exempt);

Corporate entity (tax-exempt);

Government entity (Federal, State, or local);

Foreign government;

International organization per 26 CFR1.6049-4;

Other _____.

(5) *Common parent*.

Offeror is not owned or controlled by a common parent;

Name and TIN of common parent:

Name _____.

TIN _____.

(m) *Restricted business operations in Sudan*. By submission of its offer, the offeror certifies that the offeror does not conduct any restricted business operations in Sudan.

(n) Prohibition on Contracting with Inverted Domestic Corporations.

(1) Government agencies are not permitted to use appropriated (or otherwise made available) funds for contracts with either an inverted domestic corporation, or a subsidiary of an inverted domestic corporation, unless the exception at [9.108-2\(b\)](#) applies or the requirement is waived in accordance with the procedures at [9.108-4](#).

(2) *Representation*. The Offeror represents that—

(i) It is, is not an inverted domestic corporation; and

(ii) It is, is not a subsidiary of an inverted domestic corporation.

(o) Prohibition on contracting with entities engaging in certain activities or transactions relating to Iran.

(1) The offeror shall e-mail questions concerning sensitive technology to the Department of State at CISADA106@state.gov.

(2) *Representation and Certifications*. Unless a waiver is granted or an exception applies as provided in paragraph (o)(3) of this provision, by submission of its offer, the offeror—

(i) Represents, to the best of its knowledge and belief, that the offeror does not export any sensitive technology to the government of Iran or any entities or individuals owned or controlled by, or acting on behalf or at the direction of, the government of Iran;

(ii) Certifies that the offeror, or any person owned or controlled by the offeror, does not engage in any activities for which sanctions may be imposed under section 5 of the Iran Sanctions Act; and

(iii) Certifies that the offeror, and any person owned or controlled by the offeror, does not knowingly engage in any transaction that exceeds the threshold at FAR [25.703-2\(a\)\(2\)](#) with Iran's Revolutionary Guard Corps or any of its officials, agents, or affiliates, the property and interests in property of which are blocked pursuant to the International Emergency Economic Powers Act (et seq.) (see OFAC's Specially Designated Nationals and Blocked Persons List at <https://www.treasury.gov/resource-center/sanctions/SDN-List/Pages/default.aspx>).

(3) The representation and certification requirements of paragraph (o)(2) of this provision do not apply if—

- (i) This solicitation includes a trade agreements certification (e.g., [52.212-3](#)(g) or a comparable agency provision); and
- (ii) The offeror has certified that all the offered products to be supplied are designated country end products.
- (p) *Ownership or Control of Offeror.* (Applies in all solicitations when there is a requirement to be registered in SAM or a requirement to have a unique entity identifier in the solicitation).
- (1) The Offeror represents that it has or does not have an immediate owner. If the Offeror has more than one immediate owner (such as a joint venture), then the Offeror shall respond to paragraph (2) and if applicable, paragraph (3) of this provision for each participant in the joint venture.
- (2) If the Offeror indicates "has" in paragraph (p)(1) of this provision, enter the following information:
 Immediate owner CAGE code: _____.
 Immediate owner legal name: _____.
 (Do not use a "doing business as" name)
 Is the immediate owner owned or controlled by another entity: Yes or No.
- (3) If the Offeror indicates "yes" in paragraph (p)(2) of this provision, indicating that the immediate owner is owned or controlled by another entity, then enter the following information:
 Highest-level owner CAGE code: _____.
 Highest-level owner legal name: _____.
 (Do not use a "doing business as" name)
- (q) *Representation by Corporations Regarding Delinquent Tax Liability or a Felony Conviction under any Federal Law.*
- (1) As required by sections 744 and 745 of Division E of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235), and similar provisions, if contained in subsequent appropriations acts, The Government will not enter into a contract with any corporation that—
- (i) Has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, where the awarding agency is aware of the unpaid tax liability, unless an agency has considered suspension or debarment of the corporation and made a determination that suspension or debarment is not necessary to protect the interests of the Government; or
- (ii) Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency is aware of the conviction, unless an agency has considered suspension or debarment of the corporation and made a determination that this action is not necessary to protect the interests of the Government.
- (2) The Offeror represents that—
- (i) It is is not a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability; and
- (ii) It is is not a corporation that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.
- (r) *Predecessor of Offeror.* (Applies in all solicitations that include the provision at [52.204-16](#), Commercial and Government Entity Code Reporting.)
- (1) The Offeror represents that it is or is not a successor to a predecessor that held a Federal contract or grant within the last three years.
- (2) If the Offeror has indicated "is" in paragraph (r)(1) of this provision, enter the following information for all predecessors that held a Federal contract or grant within the last three years (if more than one predecessor, list in reverse chronological order):
 Predecessor CAGE code: (or mark "Unknown").
 Predecessor legal name: _____.
 (Do not use a "doing business as" name).
- (s) [Reserved].
- (t) *Public Disclosure of Greenhouse Gas Emissions and Reduction Goals.* Applies in all solicitations that require offerors to register in SAM ([12.301](#)(d)(1)).
- (1) This representation shall be completed if the Offeror received \$7.5 million or more in contract awards in the prior Federal fiscal year. The representation is optional if the Offeror received less than \$7.5 million in Federal contract awards in the prior Federal fiscal year.
- (2) Representation. [Offeror to check applicable block(s) in paragraph (t)(2)(i) and (ii)].
- (i) The Offeror (itself or through its immediate owner or highest-level owner) does, does not publicly disclose greenhouse gas emissions, i.e., makes available on a publicly accessible website the results of a greenhouse gas inventory, performed in accordance with an accounting standard with publicly available and consistently applied criteria, such as the Greenhouse Gas Protocol Corporate Standard.
- (ii) The Offeror (itself or through its immediate owner or highest-level owner) does, does not publicly disclose a quantitative greenhouse gas emissions reduction goal, i.e., make available on a publicly accessible website a target to reduce absolute emissions or emissions intensity by a specific quantity or percentage.
- (iii) A publicly accessible website includes the Offeror's own website or a recognized, third-party greenhouse gas emissions reporting program.
- (3) If the Offeror checked "does" in paragraphs (t)(2)(i) or (t)(2)(ii) of this provision, respectively, the Offeror shall provide the publicly accessible website(s) where greenhouse gas emissions and/or reduction goals are reported: _____.
- (u)

(1) In accordance with section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions), Government agencies are not permitted to use appropriated (or otherwise made available) funds for contracts with an entity that requires employees or subcontractors of such entity seeking to report waste, fraud, or abuse to sign internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or subcontractors from lawfully reporting such waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

(2) The prohibition in paragraph (u)(1) of this provision does not contravene requirements applicable to Standard Form 312 (Classified Information Nondisclosure Agreement), Form 4414 (Sensitive Compartmented Information Nondisclosure Agreement), or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

(3) *Representation.* By submission of its offer, the Offeror represents that it will not require its employees or subcontractors to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or subcontractors from lawfully reporting waste, fraud, or abuse related to the performance of a Government contract to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information (e.g., agency Office of the Inspector General).

(v) *Covered Telecommunications Equipment or Services-Representation.* Section 889(a)(1)(A) and section 889 (a)(1)(B) of Public Law 115-232.

(1) The Offeror shall review the list of excluded parties in the System for Award Management (SAM) (<https://www.sam.gov>) for entities excluded from receiving federal awards for "covered telecommunications equipment or services".

(2) The Offeror represents that—

(i) It does, does not provide covered telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument.

(ii) After conducting a reasonable inquiry for purposes of this representation, that it does, does not use covered telecommunications equipment or services, or any equipment, system, or service that uses covered telecommunications equipment or services.

(End of Provision)

Alternate I (Oct2014). As prescribed in 12.301(b)(2), add the following paragraph (c)(11) to the basic provision:

(11) (Complete if the offeror has represented itself as disadvantaged in paragraph (c)(4) of this provision.)

Black American.

Hispanic American.

Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, Republic of Palau, Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

Individual/concern, other than one of the preceding.

The offeror shall complete the annual representations and certifications electronically in System for Award Management at <https://sam.gov/content/home>

(XI) The clause at FAR 52.212-4, CONTRACT TERMS AND CONDITIONS – COMMERCIAL PRODUCTS AND COMMERCIAL SERVICES (DEC 2022), applies to this acquisition.

(XII) The clause at FAR 52.212-5 Contract Terms and Conditions Required To Implement Statutes or Executive Orders— Commercial Products and Commercial Services (Mar 2023) (Deviation 2023-03) (Dec 2022) (Deviation 2021-06) (Sept 2021) (Deviation 2020-05) (Apr 2020) (Deviation 2017-05)(Sept 2017)

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) clauses, which are incorporated in this contract by reference, to implement provisions of law or Executive orders applicable to acquisitions of commercial Products and Commercial Services:

(1) [52.203-19](#), Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements (JAN 2017) (section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions)).

(2) [52.204-23](#), Prohibition on Contracting for Hardware, Software, and Services Developed or Provided by Kaspersky Lab and Other Covered Entities (Nov 2021) (Section 1634 of Pub. L. 115-91).

(3) [52.204-25](#), Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment. (Nov 2021) (Section 889(a)(1)(A) of Pub. L. 115-232).

(4) [52.209-10](#), Prohibition on Contracting with Inverted Domestic Corporations (Nov 2015).

(5) [52.232-40](#), Providing Accelerated Payments to Small Business Subcontractors (Mar 2023) (31 U.S.C. 3903 and 10 U.S.C. 3801).

- (6) [52.233-3](#), Protest After Award (AUG 1996) ([31 U.S.C. 3553](#)).
- (7) [52.233-4](#), Applicable Law for Breach of Contract Claim (OCT 2004)(dPublic Laws 108-77 and 108-78 ([19 U.S.C. 3805 note](#))).
- (b) The Contractor shall comply with the FAR clauses in this paragraph (b) that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial Products and Commercial Services:
[Contracting Officer check as appropriate.]
- ___ (1) [52.203-6](#), Restrictions on Subcontractor Sales to the Government (Nov 2021), with Alternate I (Oct 1995) (41 U.S.C. 4704 and 10 U.S.C.4655).
- ___ (2) [52.203-13](#), Contractor Code of Business Ethics and Conduct (Nov 2021)(41 U.S.C. 3509)).
- ___ (3) [52.203-15](#), Whistleblower Protections under the American Recovery and Reinvestment Act of 2009 (Jun 2020) (Section 1553 of Pub. L. 111-5). (Applies to contracts funded by the American Recovery and Reinvestment Act of 2009.)
- ___ (4) [52.203-17](#), Contractor Employee Whistleblower Rights and Requirement to Inform Employees of Whistleblower Rights (Jun 2020) (41 U.S.C. 4712) relating to whistleblower protections) (Deviation 2017-05)(Sept 2017).
- X (5) [52.204-10](#), Reporting Executive Compensation and First-Tier Subcontract Award (Jun 2020). (Pub. L. 109-282) (31 U.S.C. 6101 note).
- ___ (6) [Reserved].
- ___ (7) [52.204-14](#), Service Contract Reporting Requirements (Oct 2016) (Pub. L. 111-117, section 743 of Div. C).
- ___ (8) [52.204-15](#), Service Contract Reporting Requirements for Indefinite-Delivery Contracts (Oct 2016) (Pub. L. 111-117, section 743 of Div. C).
- X (9) [52.209-6](#), Protecting the Government’s Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment. (Nov 2021) (31 U.S.C. 6101 note).
- ___ (10) [52.209-9](#), Updates of Publicly Available Information Regarding Responsibility Matters (Oct 2018) (41 U.S.C. 2313).
- ___ (11) [Reserved].
- ___ (12)(i) [52.219-3](#), Notice of HUBZone Set-Aside or Sole-Source Award (Oct 2022) ([15 U.S.C. 657a](#)).
- ___ (13)(i) [52.219-4](#), Notice of Price Evaluation Preference for HUBZone Small Business Concerns (OCT 2022 (if the offeror elects to waive the preference, it shall so indicate in its offer) ([15 U.S.C. 657a](#)).
- ___ (ii) Alternate I (MAR 2020) of [52.219-4](#).
- ___ (14) [Reserved]
- X (15)(i) [52.219-6](#), Notice of Total Small Business Set-Aside (Nov 2020) ([15 U.S.C. 644](#)).
- ___ (ii) Alternate I (Mar 2020) of [52.219-7](#).
- ___ (16)(i) [52.219-7](#), Notice of Partial Small Business Set-Aside (Nov 2020) ([15 U.S.C. 644](#)).
- ___ (ii) Alternate I (Oct 1995) of [52.219-7](#).
- ___ (17) [52.219-8](#), Utilization of Small Business Concerns (Oct 2022) ([15 U.S.C. 637\(d\)\(2\)](#) and (3)). (DEVIATION 2023-03) (DEC 2022)
- ___ (18)(i) [52.219-9](#), Small Business Subcontracting Plan (Oct 2022) ([15 U.S.C. 637\(d\)\(4\)](#)).
- ___ (ii) Alternate I (Nov 2016) of [52.219-9](#).
- ___ (iii) Alternate II (Nov 2016) of [52.219-9](#).
- ___ (iv) Alternate III (Jun 2020) of [52.219-9](#).
- ___ (v) Alternate IV (Sep 2021) of [52.219-9](#).
- X (19)(i) [52.219-13](#), Notice of Set-Aside of Orders (Mar 2020) ([15 U.S.C. 644\(r\)](#)).
- ___ (ii) Alternate I (Mar 2020) of [52.219-13](#).
- ___ (20) [52.219-14](#), Limitations on Subcontracting (Oct 2022) ([15 U.S.C. 637\(s\)](#)). (Deviation 2021-06) (Sept 2021)
- ___ (21) [52.219-16](#), Liquidated Damages—Subcontracting Plan (Sep 2021) ([15 U.S.C. 637\(d\)\(4\)\(F\)\(i\)](#)).
- ___ (22) [52.219-27](#), Notice of Service-Disabled Veteran-Owned Small Business Set-Aside (Oct 2022) ([15 U.S.C. 657 f](#)).
- X (23) [52.219-28](#), (i) Post Award Small Business Program Rerepresentation (Mar 2023) ([15 U.S.C. 632\(a\)\(2\)](#)).
- ___ (ii) Alternate I (MAR 2020) of [52.219-28](#).
- ___ (24) [52.219-29](#), Notice of Set-Aside for, or Sole Source Award to, Economically Disadvantaged Women-Owned Small Business Concerns (Oct 2022) ([15 U.S.C. 637\(m\)](#)).
- ___ (25) [52.219-30](#), Notice of Set-Aside for, or Sole Source Award to, Women-Owned Small Business Concerns Eligible Under the Women-Owned Small Business Program (Oct 2022) ([15 U.S.C. 637\(m\)](#)).
- X (26) [52.219-32](#), Orders Issued Directly Under Small Business Reserves (Mar 2020) (15 U.S.C. 644(r)).
- ___ (27) [52.219-33](#), Nonmanufacturer Rule (Sep 2021) (15 U.S.C. 637(a)(17)).
- X (28) [52.222-3](#), Convict Labor (June 2003) (E.O. 11755).
- ___ (29) [52.222-19](#), Child Labor—Cooperation with Authorities and Remedies (Dec 2022) (E.O. 13126).
- X (30) [52.222-21](#), Prohibition of Segregated Facilities (Apr 2015).
- X (31) [52.222-26](#), Equal Opportunity (Sept 2016) (E.O. 11246).
- ___ (32) [52.222-35](#), Equal Opportunity for Veterans (Jun 2020)([38 U.S.C. 4212](#)).
- X (33) [52.222-36](#), Equal Opportunity for Workers with Disabilities (Jun 2020) ([29 U.S.C. 793](#)).
- ___ (34) [52.222-37](#), Employment Reports on Veterans (JUN 2020) (38 U.S.C. 4212).
- ___ (35) [52.222-40](#), Notification of Employee Rights Under the National Labor Relations Act (Dec 2010) (E.O. 13496).
- X (36)(i) [52.222-50](#), Combating Trafficking in Persons (Nov 2021) ([22 U.S.C. chapter 78](#) and E.O. 13627).
- ___ (ii) Alternate I (Mar 2015) of [52.222-50](#) ([22 U.S.C. chapter 78](#) and E.O. 13627).

___ (37) [52.222-54](#), Employment Eligibility Verification (May 2022). (Executive Order 12989). (Not applicable to the acquisition of commercially available off-the-shelf items or certain other types of commercial Products and Commercial Services as prescribed in [22.1803](#).)

___ (38)(i) [52.223-9](#), Estimate of Percentage of Recovered Material Content for EPA–Designated Items (May 2008) ([42 U.S.C. 6962\(c\)\(3\)\(A\)\(ii\)](#)). (Not applicable to the acquisition of commercially available off-the-shelf items.)

___ (ii) Alternate I (May 2008) of [52.223-9](#) ([42 U.S.C. 6962\(j\)\(2\)\(C\)](#)). (Not applicable to the acquisition of commercially available off-the-shelf items.)

___ (39) [52.223-11](#), Ozone-Depleting Substances and High Global Warming Potential Hydrofluorocarbons (JUN 2016) (E.O. 13693).

___ (40) [52.223-12](#), Maintenance, Service, Repair, or Disposal of Refrigeration Equipment and Air Conditioners (JUN 2016) (E.O. 13693).

___ (41)(i) [52.223-13](#), Acquisition of EPEAT®-Registered Imaging Equipment (JUN 2014) (E.O.s 13423 and 13514).

___ (ii) Alternate I (Oct 2015) of [52.223-13](#).

___ (42)(i) [52.223-14](#), Acquisition of EPEAT®-Registered Televisions (JUN 2014) (E.O.s 13423 and 13514).

___ (ii) Alternate I (Jun 2014) of [52.223-14](#).

___ (43) [52.223-15](#), Energy Efficiency in Energy-Consuming Products (MAY 2020) ([42 U.S.C. 8259b](#)).

___ (44)(i) [52.223-16](#), Acquisition of EPEAT®-Registered Personal Computer Products (OCT 2015) (E.O.s 13423 and 13514).

___ (ii) Alternate I (Jun 2014) of [52.223-16](#).

X (45) [52.223-18](#), Encouraging Contractor Policies to Ban Text Messaging While Driving (JUN 2020) (E.O. 13513).

___ (46) [52.223-20](#), Aerosols (JUN 2016) (E.O. 13693).

___ (47) [52.223-21](#), Foams (JUN 2016) (E.O. 13693).

___ (48)(i) [52.224-3](#), Privacy Training (JAN 2017) (5 U.S.C. 552a).

___ (ii) Alternate I (JAN 2017) of [52.224-3](#).

___ (49) (i) [52.225-1](#), Buy American-Supplies (Oct 2022) (41 U.S.C. chapter 83).

___ (ii) Alternate I (Oct 2022) of [52.225-1](#).

___ (50) (i) [52.225-3](#), Buy American-Free Trade Agreements-Israeli Trade Act (Dec 2022) ([19 U.S.C. 3301 note](#), [19 U.S.C. 2112 note](#), [19 U.S.C. 3805 note](#), [19 U.S.C. 4001 note](#), 19 U.S.C. chapter 29 (sections 4501-4732), Public Law 103-182, 108-77, 108-78, 108-286, 108-302, 109-53, 109-169, 109-283, 110-138, 112-41, 112-42, and 112-43.

___ (ii) Alternate I [Reserved].

___ (iii) Alternate II (Dec 2022) of [52.225-3](#).

___ (iv) Alternate III (Jan 2021) of [52.225-3](#).

___ (v) Alternate IV (Oct 2022) of [52.225-3](#).

___ (51) [52.225-5](#), Trade Agreements (DEC 2022) ([19 U.S.C. 2501](#), *et seq.*, [19 U.S.C. 3301](#) note).

X (52) [52.225-13](#), Restrictions on Certain Foreign Purchases (Feb 2021) (E.O.'s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).

___ (53) [52.225-26](#), Contractors Performing Private Security Functions Outside the United States (Oct 2016) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; 10 U.S.C. Subtitle A, Part V, Subpart G Note).

___ (54) [52.226-4](#), Notice of Disaster or Emergency Area Set-Aside (Nov 2007) ([42 U.S.C. 5150](#)).

___ (55) [52.229-12](#), Tax on Certain Foreign Procurements (Feb 2021).

___ (56) [52.226-5](#), Restrictions on Subcontracting Outside Disaster or Emergency Area (Nov 2007) ([42 U.S.C. 5150](#)).

___ (57) [52.232-29](#), Terms for Financing of Purchases of Commercial Products and Commercial Services (Nov 2021) ([41 U.S.C. 4505](#), [10 U.S.C. 3805](#)).

___ (58) [52.232-30](#), Installment Payments for Commercial Products and Commercial Services (Nov 2021) ([41 U.S.C. 4505](#), [10 U.S.C. 3805](#)).

X (59) [52.232-33](#), Payment by Electronic Funds Transfer—System for Award Management (Oct 2018) ([31 U.S.C. 3332](#)).

___ (60) [52.232-34](#), Payment by Electronic Funds Transfer—Other than System for Award Management (Jul 2013) ([31 U.S.C. 3332](#)).

___ (61) [52.232-36](#), Payment by Third Party (May 2014) ([31 U.S.C. 3332](#)).

___ (62) [52.239-1](#), Privacy or Security Safeguards (Aug 1996) ([5 U.S.C. 552a](#)).

___ (63) [52.242-5](#), Payments to Small Business Subcontractors (JAN 2017)(15 U.S.C. 637(d)(13)).

___ (64)(i) [52.247-64](#), Preference for Privately Owned U.S.-Flag Commercial Vessels (Nov 2021) ([46 U.S.C. Appx. 1241\(b\)](#) and [10 U.S.C. 2631](#)).

___ (ii) Alternate I (Apr 2003) of [52.247-64](#).

___ (iii) Alternate II (Feb 2006) of [52.247-64](#).

(c) The Contractor shall comply with the FAR clauses in this paragraph (c), applicable to commercial services, that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial Products and Commercial Services:

[Contracting Officer check as appropriate.]

X 1) [52.222-41](#), Service Contract Labor Standards (Aug 2018) ([41 U.S.C. chapter 67](#)).

X (2) [52.222-42](#), Statement of Equivalent Rates for Federal Hires (May 2014) ([29 U.S.C. 206](#) and [41 U.S.C. chapter 67](#)).

*This Statement is for Information Only;
It is not a Wage Determination*

Employee Class	Monetary Wage -- Fringe Benefits
23410 HVAC Mechanic	\$30.28-\$35.36 per hour plus 30%

___ (3) [52.222-43](#), Fair Labor Standards Act and Service Contract Labor Standards-Price Adjustment (Multiple Year and Option Contracts) (Aug 2018) ([29 U.S.C. 206](#) and [41 U.S.C. chapter 67](#)).

___ (4) [52.222-44](#), Fair Labor Standards Act and Service Contract Labor Standards—Price Adjustment (May 2014) ([29 U.S.C. 206](#) and [41 U.S.C. chapter 67](#)).

___ (5) [52.222-51](#), Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment—Requirements (May 2014) ([41 U.S.C. chapter 67](#)).

___ (6) [52.222-53](#), Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services—Requirements (May 2014) ([41 U.S.C. chapter 67](#)).

X (7) [52.222-55](#), Minimum Wages Under Executive Order 14026 (Jan 2022).

X (8) [52.222-62](#), Paid Sick Leave Under Executive Order 13706 (Jan 2022) (E.O. 13706).

___ (9) [52.226-6](#), Promoting Excess Food Donation to Nonprofit Organizations (Jun 2020) ([42 U.S.C. 1792](#)).

(d) *Comptroller General Examination of Record*. The Contractor shall comply with the provisions of this paragraph (d) if this contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, and does not contain the clause at [52.215-2](#), Audit and Records—Negotiation.

(1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to and right to examine any of the Contractor’s directly pertinent records involving transactions related to this contract.

(2) The Contractor shall make available at its offices at all reasonable times the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR [subpart 4.7](#), Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.

(3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of form. This does not require the Contractor to create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e)(1) Notwithstanding the requirements of the clauses in paragraphs (a), (b), (c), and (d) of this clause, the Contractor is not required to flow down any FAR clause, other than those in this paragraph (e)(1), in a subcontract for commercial items. Unless otherwise indicated below, the extent of the flow down shall be as required by the clause—

(i) [52.203-13](#), Contractor Code of Business Ethics and Conduct (Nov 2021) ([41 U.S.C. 3509](#)).

(ii) [52.203-19](#), Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements (Jan 2017) (section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions)).

(iii) [52.204-23](#), Prohibition on Contracting for Hardware, Software, and Services Developed or Provided by Kaspersky Lab and Other Covered Entities (Nov 2021) (Section 1634 of Pub. L. 115-91).

(iv) [52.204-25](#), Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment. (Nov 2021) (Section 889(a)(1)(A) of Pub. L. 115-232).

(v) [52.219-8](#), Utilization of Small Business Concerns (Oct 2022) ([15 U.S.C. 637\(d\)\(2\)](#) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds \$700,000 (\$1.5 million for construction of any public facility), the subcontractor must include [52.219-8](#) in lower tier subcontracts that offer subcontracting opportunities.

(vi) [52.222-21](#), Prohibition of Segregated Facilities (Apr 2015)

(vii) [52.222-26](#), Equal Opportunity (Sept 2016) (E.O. 11246).

(viii) [52.222-35](#), Equal Opportunity for Veterans (Jun 2020) ([38 U.S.C. 4212](#)).

(ix) [52.222-36](#), Equal Opportunity for Workers with Disabilities (Jun 2020) ([29 U.S.C. 793](#)).

(x) [52.222-37](#), Employment Reports on Veterans (Jun 2020) ([38 U.S.C. 4212](#)).

(xi) [52.222-40](#), Notification of Employee Rights Under the National Labor Relations Act (Dec 2010) (E.O. 13496). Flow down required in accordance with paragraph (f) of FAR clause [52.222-40](#).

(xii) [52.222-41](#), Service Contract Labor Standards (Aug 2018) ([41 U.S.C. chapter 67](#)).

(xiii) [52.222-50](#), Combating Trafficking in Persons (Nov 2021) ([22 U.S.C. chapter 78](#) and E.O 13627).

(B) Alternate I (Mar 2015) of [52.222-50](#) ([22 U.S.C. chapter 78](#) and E.O 13627).

(xiv) [52.222-51](#), Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment-Requirements (May 2014) ([41 U.S.C. chapter 67](#)).

(xv) [52.222-53](#), Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services-Requirements (May 2014) ([41 U.S.C. chapter 67](#)).

(xvi) [52.222-54](#), Employment Eligibility Verification (May 2022) (E.O. 12989).

(xvii) [52.222-55](#), Minimum Wages Under Executive Order 14026 (Jan 2022).

(xviii) [52.222-62](#), Paid Sick Leave Under Executive Order 13706 (Jan 2022) (E.O. 13706).
(xix)(A) [52.224-3](#), Privacy Training (Jan 2017) (5 U.S.C. 552a).
(B) Alternate I (Jan 2017) of [52.224-3](#).
(xx) [52.225-26](#), Contractors Performing Private Security Functions Outside the United States (Oct 2016) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; [10 U.S.C. Subtitle A, Part V, Subpart G Note](#)).
(xxi) [52.226-6](#), Promoting Excess Food Donation to Nonprofit Organizations (Jun 2020) (42 U.S.C. 1792). Flow down required in accordance with paragraph (e) of FAR clause [52.226-6](#).
(xxii) [52.232-40](#), Providing Accelerated Payments to Small Business Subcontractors (Mar 2023) (31 U.S.C. 3903 and 10 U.S.C. 3801). Flow down required in accordance with paragraph (c) of [52.232-40](#).
(xxiii) [52.247-64](#), Preference for Privately Owned U.S.-Flag Commercial Vessels (Nov 2021) ([46 U.S.C. Appx. 1241\(b\) and 10 U.S.C. 2631](#)). Flow down required in accordance with paragraph (d) of FAR clause [52.247-64](#).
(2) While not required, the Contractor may include in its subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.
(End of clause)

(XIII) THE FOLLOWING CLAUSES ARE ALSO APPLICABLE TO THIS ACQUISITION:

FAR 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates on or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this address: <https://www.acquisition.gov>

(End of Clause)

FAR 52.252-6 Authorized Deviations in Clauses (NOV 2020)

- (a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of “(DEVIATION)” after the date of the clause.
- (b) The use in this solicitation or contract of any Commerce Acquisition Regulation (48 CFR Chapter 1352) clause with an authorized deviation is indicated by the addition of “(DEVIATION)” after the name of the regulation.

(End of Clause)

PROVISIONS:

FAR 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this address: <https://www.acquisition.gov>

(End of provision)

FAR 52.252-5 AUTHORIZED DEVIATIONS IN PROVISIONS (NOV 2020)

- (a) The use in this solicitation of any Federal Acquisition Regulation (48 CFR Chapter 1) provision with an authorized deviation is indicated by the addition of “(DEVIATION)” after the date of the provision.
- (b) The use in this solicitation of any Commerce Acquisition Regulation (48 CFR Chapter 1352) provision with an authorized deviation is indicated by the addition of “(DEVIATION)” after the name of the regulation.

(End of provision)

FAR 52.204-7 SYSTEM FOR AWARD MANAGEMENT (OCT 2018)

FAR 52.204-24 Representation Regarding Certain Telecommunications and Video Surveillance Services or Equipment (Nov 2021)

The Offeror shall not complete the representation at paragraph (d)(1) of this provision if the Offeror has represented that it "does not provide covered telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument" in paragraph (c)(1) in the provision at 52.204-26, Covered Telecommunications Equipment or Services— Representation, or in paragraph (v)(2)(i) of the provision at 52.212-3, Offeror Representations and Certifications- Commercial Products and Commercial Services. The Offeror shall not complete the representation in paragraph (d)(2) of this provision if the Offeror has represented that it "does not use covered telecommunications equipment or services, or any equipment, system, or service that uses covered telecommunications equipment or services" in paragraph (c)(2) of the provision at 52.204-26, or in paragraph (v)(2)(ii) of the provision at 52.212-3.

(a) Definitions. As used in this provision—

Backhaul, covered telecommunications equipment or services, critical technology, interconnection arrangements, reasonable inquiry, roaming, and substantial or essential component have the meanings provided in the clause 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

(b) Prohibition.

(1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract or extending or renewing a contract with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(c) Procedures. The Offeror shall review the list of excluded parties in the System for Award Management (SAM) (<https://www.sam.gov>) for entities excluded from receiving federal awards for "covered telecommunications equipment or services".

(d) Representation. The Offeror represents that—

(1) It will, will not provide covered telecommunications equipment or services to the Government in the performance of any contract, subcontract or other contractual instrument resulting from this solicitation. The Offeror shall provide the additional disclosure information required at paragraph (e)(1) of this section if the Offeror responds "will" in paragraph (d)(1) of this section; and

(2)After conducting a reasonable inquiry, for purposes of this representation, the Offeror represents that—

It does, does not use covered telecommunications equipment or services, or use any equipment, system, or service that uses covered telecommunications equipment or services. The Offeror shall provide the additional disclosure information required at paragraph (e)(2) of this section if the Offeror responds “does” in paragraph (d)(2) of this section.

(e) Disclosures.

(1) Disclosure for the representation in paragraph (d)(1) of this provision. If the Offeror has responded “will” in the representation in paragraph (d)(1) of this provision, the Offeror shall provide the following information as part of the offer:

(i)For covered equipment—

(A)The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the original equipment manufacturer (OEM) or a distributor, if known);

(B)A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C)Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(ii)For covered services—

(A)If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B)If not associated with maintenance, the Product Service Code (PSC) of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(2) Disclosure for the representation in paragraph (d)(2) of this provision. If the Offeror has responded “does” in the representation in paragraph (d)(2) of this provision, the Offeror shall provide the following information as part of the offer:

(i)For covered equipment—

(A)The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the OEM or a distributor, if known);

(B)A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C)Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

(ii)For covered services—

(A)If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B)If not associated with maintenance, the PSC of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

(End of provision)

FAR 52.225-2 Buy American Act Certificate (Oct 2022)

(a) (1) The Offeror certifies that each end product, except those listed in paragraph (b) of this provision, is a domestic end product and that each domestic end product listed in paragraph (c) of this provision contains a critical component.

(2) The Offeror shall list as foreign end products those end products manufactured in the United States that do not qualify as domestic end products. For those foreign end products that do not consist wholly or predominantly of iron or steel or a combination of both, the Offeror shall also indicate whether these foreign end products exceed 55 percent domestic content, except for those that are COTS items. If the percentage of the domestic content is unknown, select "no".

(3) The Offeror shall separately list the line item numbers of domestic end products that contain a critical component (see FAR 25.105).

(b) Foreign End Products:

(4) The terms "commercially available off-the-shelf (COTS) item," "critical component," "domestic end product," "end product," and "foreign end product" are defined in the clause of this solicitation entitled "Buy American-Supplies."

Line Item No. Country of Origin

_____	_____
_____	_____
_____	_____

[List as necessary]

(c) Domestic end products containing a critical component:

Line Item No. ____

[List as necessary]

(d) The Government will evaluate offers in accordance with the policies and procedures of part 25 of the Federal Acquisition Regulation.

(End of provision)

IF YOUR SAM.GOV ACTIVE PROFILE HAS THE 52.225-2 BUY AMERICAN CERTIFICATE FILLED OUT THEN AN ADDITIONAL CERTIFICATE DOES NOT NEED TO BE FILLED OUT AND PROVIDED WITH YOUR QUOTE.

DEPARTMENT OF COMMERCE CLAUSES

FOR FULL TEXT OF A COMMERCE ACQUISITION REGULATION, CLAUSE OR PROVISION YOU MAY GO TO THE FOLLOWING WEBSITE,

https://www.ecfr.gov/cgi-bin/text-idx?SID=bf6e18a9476188ddcae1efa1cc9fcabd&mc=true&tpl=/ecfrbrowse/Title48/48cfr1352_main_02.tpl

- CAR 1352.201-70, CONTRACTING OFFICER'S AUTHORITY (APRIL 2010)
- CAR 1352.209-73, COMPLIANCE WITH THE LAWS (APRIL 2010)
- CAR 1352.209-74, ORGANIZATIONAL CONFLICT OF INTEREST (APRIL 2010)

CAR 1352.233-70 Agency Protests (APR 2010)

(a) An agency protest may be filed with either: (1) the contracting officer, or (2) at a level above the contracting officer, with the appropriate agency Protest Decision Authority. See 64 Fed. Reg. 16,651 (April 6, 1999)

(b) Agency protests filed with the Contracting Officer shall be sent to the following address:

Chad.M.Hepp@noaa.gov
WAD Director, AGO
NOAA/AGO Western Acquisition Division-Boulder

325 Broadway SOU6
Boulder, CO 80305

(c) Agency protests filed with the agency Protest Decision Authority shall be sent to the following address:
Barry Berkowitz, Senior Procurement Executive and Director, Office of Acquisition Management
U.S. Department of Commerce
Room 6422
Herbert C. Hoover Building
14th Street and Constitution Avenue, N.W.
Washington, D.C. 20230
FAX: (202) 482-1711

(d) A complete copy of all agency protests, including all attachments, shall be served upon the Contract Law Division of the Office of the General Counsel within one day of filing a protest with either the Contracting Officer or the Protest Decision Authority.

(e) Service upon the Contract Law Division shall be made as follows:
U.S. Department of Commerce
Office of the General Counsel
Chief, Contract Law Division
Room 5893
Herbert C. Hoover Building
14th Street and Constitution Avenue, N.W.
Washington, D.C. 20230
FAX: (202) 482-5858

(End of clause)

CAR 1352.233-71 GAO and Court of Federal Claims Protests (*APR 2010*)

(a) A protest may be filed with either the Government Accountability Office (GAO) or the Court of Federal Claims unless an agency protest has been filed.

(b) A complete copy of all GAO or Court of Federal Claims protests, including all attachments, shall be served upon (i) the Contracting Officer, and (ii) the Contract Law Division of the Office of the General Counsel, within one day of filing a protest with either GAO or the Court of Federal Claims.

(c) Service upon the Contract Law Division shall be made as follows:

U.S. Department of Commerce
Office of the General Counsel
Chief, Contract Law Division
Room 5893
Herbert C. Hoover Building
14th Street and Constitution Avenue, N.W.
Washington, D.C. 20230.
FAX: (202) 482-5858

(End of clause)

NOAA ACQUISITION MANUAL (NAM) CONTRACT LANGUAGE

NAM 1330-52.222-70 NOAA SEXUAL ASSAULT AND SEXUAL HARASSMENT PREVENTION AND RESPONSE POLICY (MAY 2018)

In accordance with NOAA Administrative Order (NAO) 202-1106, NOAA Sexual Assault and Sexual Harassment Prevention and Response Policy, it is the policy of NOAA to maintain a work environment free from sexual assault and sexual harassment. NOAA prohibits sexual assault and sexual harassment by or of any employee, supervisor, manager, contractor, vendor, affiliate, or other individual with whom NOAA employees come into contact by the virtue of their work for NOAA.

(a) Definitions. Contractor Employees - The term "contractor employees," as used in this solicitation and contract language, refers to employees of the prime contractor or its subcontractors, affiliates, consultants, or team members.

Sexual Assault - The term sexual assault, as used in this solicitation and contract language, means any conduct proscribed by state or federal sexual abuse laws, including, but not limited to, those defined in chapter 109A of title 18 of the U.S. Code (sexual abuse), and assaults committed both by offenders who are strangers to the victim and by offenders who are known or related by blood or marriage to the victim. Sexual Harassment - As defined by the Equal Employment Opportunity Commission, sexual harassment is a form of sex discrimination that violates Title VII of the Civil Rights Act of 1964. It includes unwelcome sexual advances, requests for sexual favors, and other verbal, non-verbal, or physical conduct of a sexual nature when any of the following are true:

- Submission to such conduct is made either explicitly or implicitly as a term or condition of an individual's employment;
- Submission to or rejection of such conduct by an individual is used as the basis for employment decisions affecting such individual;
- The conduct unreasonably interferes with an individual's work performance or creates an intimidating, hostile, or offensive working environment. The main characteristics of sexual harassment are that the harasser's conduct is targeted against the recipient's sex, gender identity, or sexual orientation, and is unwelcome to the recipient. It may include, but is not limited to: offensive jokes, slurs, epithets or name calling, undue attention, physical assaults or threats, unwelcome touching or contact, intimidation, ridicule or mockery, insults or put-downs, constant or unwelcome questions about an individual's identity, and offensive objects or pictures.

(b) Requirements.

1. It is the responsibility of the contractor to ensure that contractor employees maintain the highest degree of conduct and standards in performance of the contract. In support of this, NOAA urges its contractors to develop and enforce comprehensive company policy addressing sexual assault and sexual harassment.
2. The contractor shall include wording substantially the same as this solicitation and contract language in every subcontract so that it is binding upon each subcontractor.
3. If a contractor employee observes or is the object of sexual assault or sexual harassment, he or she is highly encouraged to report the matter, as soon as possible, to their immediate supervisor, the Contracting Officer's Representative (COR), subset of the COR (e.g. Task Manager or Assistant COR), or contracting officer (CO) if a COR is not assigned to the contract. The contract employee may also contact the NOAA Civil Rights Office to obtain guidance on reporting instances of sexual assault or sexual harassment. If deemed necessary, the contractor employee may also report such instances to local law enforcement. In the case where the incident occurs while performing at a remote location, such as at sea or in the field (at a field camp or other isolated location) where the above referenced individuals are unavailable, the contractor employee should follow the reporting procedure set forth in NAO 202-1106, Section 6, .07, Reporting from Remote Locations.
 - i. Swift reporting allows NOAA and the contractor to take the appropriate measures to ensure that offensive behavior stops and the complainants' needs are addressed.
 - ii. The COR (if assigned), CO, and contractor, where applicable, will work together to ensure appropriate action is taken in accordance with applicable laws and regulations, contract terms and conditions, and the contractor's written policy (where applicable).
4. The contractor shall provide all contractor employees assigned to perform under this contract with mandatory sexual assault and sexual harassment prevention and response training in compliance with the requirements of NAO 202-1106, Section 5, Prevention Training and Awareness, as part of their initial in-processing and on an annual basis thereafter. The initial training shall be completed within ____ business days [30 unless a different number is inserted] of contract award or the date a contractor employee is assigned to perform under the contract, as applicable. Evidence of initial training by name and date completed for each contractor employee, shall be submitted to the COR or contracting officer (if no COR assigned) within 10 business days of completion. Evidence of annual training by name and date completed for each contractor employee shall be submitted to the COR or contracting officer (if no COR assigned) no later than March 1st of each calendar year of contract performance.
 - i. The mandatory sexual assault and sexual harassment training provided by the contractor shall include the required elements set forth by NOAA's Workplace Violence Program Manager. A link to the website including the required elements of the training is provided at: http://www.ago.noaa.gov/quicklinks/harassment_training.html. The website will also provide training materials and resources to assist the contractor in conducting the training. The contractor may provide training that solely addresses the NOAA required elements or may supplement existing company sexual assault and sexual harassment training in a manner that ensures all of the elements are adequately addressed.
 - ii. The required elements of the training and resources available to the contractor for the training may be updated by NOAA periodically. The contractor is responsible for monitoring the website and incorporating any changes to the NOAA required elements into the contractor provided training.
 - iii. NOAA's Workplace Violence Program Manager, COR, or CO may periodically review the contractor's training outline to ensure all required elements are included and, if necessary, any appropriate adjustments are made to the training by the contractor.

iv. Contractor employees performing on assignments in a remote location, such as at a field camp or other isolated locations, are subject to receiving the same briefing on the parameters of the order provided to NOAA employees as set forth in Section 6 of NAO 202-1106.

5. The contractor shall provide a copy of this solicitation and contract language and NAO 202-1106 to contractor employees.

(c) Sexual Assault/Sexual Harassment (SASH) Helpline. For NOAA employees, affiliates, and contractors who have experienced sexual assault or sexual harassment, NOAA has established the NOAA Sexual Assault/Sexual Harassment (SASH) helpline. This helpline is designed to provide crisis intervention, referrals, and emotional support to those who are victims and/or survivors of sexual harassment or sexual assault within the workplace. Contractor employees may use the helpline to receive live, confidential, one-on-one support in an occurrence of sexual harassment or assault by a Federal Government employee. All services are anonymous, secure, and available worldwide, 24 hours a day, seven days a week. The NOAA SASH helpline is accessible through a variety of channels, including:

- Phone: 1-866-288-6558
- Website & Online Chat: <http://NOAASASHHelpline.org>
- Mobile App: NOAA SASH Helpline (available via iOS and Android App Stores)
- Text: (202) 335-0265

(d) Confidentiality. Any party receiving information from the filing of a complaint alleging sexual assault or sexual harassment, or while performing an investigation into such a complaint, shall keep the information confidential. "Confidentiality" means that the information shall only be shared with others who have a need to know the information to conduct their official duties.

(e) Remedies. In addition to other remedies available to the Government, contractor employee violations of Federal requirements (e.g., law, statutes, executive orders, code, rules, regulations) applicable to sexual assault and sexual harassment and/or failure to complete the mandatory training set forth in this solicitation and contract language, may result in:

1. Requiring the Contractor to remove a contractor employee or employees from the performance of the contract;
2. Requiring the Contractor to terminate a subcontract;
3. Suspension of contract payments until the Contractor has taken appropriate remedial action;
4. Termination of the contract for default or cause, in accordance with the termination clause of this contract;
5. Suspension or debarment; or 6. Other appropriate action.

NAM 1330-52.232-72 NOAA Transition to the Invoice Processing Platform Electronic Invoicing System (Feb 2023)

Beginning October 1, 2023, when NOAA implements the Department of Commerce Business Applications Solution, the Contractor must submit payment requests electronically through the U.S. Department of the Treasury's Invoice Processing Platform (the IPP) System. The Contractor must use the IPP website to register, access, and submit payment requests. The IPP website address is <https://www.ipp.gov>.

"Payment request" means any request for contract financing payment or invoice payment to the Contractor. To be considered proper, invoices must be prepared in accordance with, and contain all elements specified in, the contract payment clause (e.g., FAR 52.212-4(g), FAR 52.232-25(a)(3), FAR 52.232-26(a)(2), FAR 52.232-27(a)(2)). All supporting documents required by the Contracting Officer must be included as attachments to payment requests submitted through the IPP.

If the Contractor is unable to comply with the requirement to submit payment requests through the IPP due to a threat to national security; a matter of unusual or compelling urgency; or because the political, financial, or communications infrastructure of a foreign country does not support access to the IPP, the Contractor must request an exception in writing. Contact the Contracting Officer for more information about requesting an exception.

NAM 1330-52.237-70 CONTRACTOR COMMUNICATIONS (APR 2010)

(a) A contractor employee shall be identified both by the individual's name and the contractor's name when:

1. Included in NOAA's locator, and
2. When submitting any type of electronic correspondence to any NOAA employee or stakeholder.

- (b) Any written correspondence from a contractor or any contractor employee shall be printed on company/organization letterhead or otherwise clearly identify the sender as an employee of the company or organization and shall identify the contract number.
- (c) Contractors and/or contractor employees shall clearly identify themselves as such in any verbal communications, whether in informal discussion or a formal meeting.

NAM 1330-52.237-71 NOAA GOVERNMENT-CONTRACTOR RELATIONS – NON-PERSONAL SERVICES CONTRACT (SEPT 2017)

(a) The Government and the Contractor understand and agree that the services to be delivered under this contract by the Contractor to the Government are non-personal services as defined in FAR Part 37, Service Contracting, and the parties recognize and agree that no employer-employee relationship exists or will exist under the contract between the Government and the Contractor's personnel. It is, therefore, in the best interest of the Government to afford both parties an understanding of their respective obligations.

(b) Contractor personnel under this contract shall not:

(1) Be placed in a position where they are under relatively continuous supervision and control of a Government employee.

(2) Be placed in a position of command, supervision, administration, or control over Government personnel or over personnel of other Contractors performing under other NOAA contracts.

(c) The services to be performed under this contract do not require the Contractor or the Contractor's personnel to exercise personal judgement and discretion on behalf of the Government. Rather, the Contractor's personnel will act and exercise personal judgement and discretion on behalf of the Contractor.

(d) Rules, regulations, directives, and requirements that are issued by the Department of Commerce and NOAA under its responsibility for good order, administration, and security are applicable to all personnel who enter the Government installation and facilities, who are provided access to Government systems, or who travel on Government transportation. This is not to be construed or interpreted to establish any degree of Government control that is inconsistent with a non-personal services contract.

(e) Both parties are responsible for monitoring contract activities for indications of improper employee-employer relationships during performance. In the event a situation or occurrence takes place inconsistent with this contract language, the following applies:

(1) The Contractor shall notify the Contracting Officer in writing within 5 business days from the date of any situation or occurrence where the Contractor considers specific contract activity to be inconsistent with the intent of this contract language. The notice must include the date, nature and circumstance of the situation or occurrence, the name, function and activity of each Government employee or Contractor employee involved or knowledgeable about the situation or occurrence, provide any documents or the substance of any oral communications related to the activity, and an estimated date by which the Government is recommended to respond to the notice in order to minimize cost, delay, or disruption of performance.

(2) The Contracting Officer will review the information provided by the Contractor, obtain additional information (if needed), and respond in writing as soon as practicable after receipt of the notification from the Contractor. The Contracting Officer's response will provide a decision on whether the Contracting Officer determines the situation or occurrence to be inconsistent with the intent of this contract language and, if deemed necessary, will specify any corrective action(s) to be taken in order to resolve the issue.

NAM 1330-52.237-72 CONTRACTOR ACCESS TO NOAA FACILITIES (SEPT 2017)

(a)

1. NOAA may close and or otherwise deny contractor employees access to a NOAA facility for a portion of a business day or longer for various reasons including, but not limited, to the following events:
2. The performance of this contract requires employees of the prime contractor or its subcontractors, affiliates, consultants, or team members ("contractor employees") to have access to and to the extent authorized, mobility within, a NOAA facility.
 - i. Federal public holidays for Federal employees in accordance with 5 U.S.C. 6103;
 - ii. Fires, floods, earthquakes, and unusually severe weather, including but not limited to snow storms, tornadoes, and hurricanes;
 - iii. Occupational safety or health hazards;
 - iv. Lapse in Appropriations; or

- v. Federal Statute, Executive Order, Presidential Proclamation, or any other unforeseen reason.
3. In such events, the contractor employees may be denied access to a NOAA facility that is ordinarily available for the contractor to perform work or make delivery, as required by the contract.

(b) In all instances where contractors are denied access or required to vacate a NOAA facility, in part or in whole, the contractor shall be responsible to ensure contractor personnel working under the contract comply. If the circumstances permit, the contracting officer will provide direction to the contractor, either directly or through the Contracting Officer's Representative (COR), which could include continuing on-site performance during the NOAA facility closure period; however, if Government oversight is required and is not available, on-site performance shall not be allowed. In the absence of such direction, the contractor shall exercise sound judgment to minimize unnecessary contract costs and performance impacts, for example, performing required work off-site if possible or reassigning personnel to other activities if appropriate.

(c) The contractor shall be responsible for monitoring the Office of Personnel Management at opm.gov, the local radio, television stations, NOAA web sites, and other communication channels. Once the facility is accessible, the contractor shall resume contract performance as required by the contract.

(d) For the period that NOAA facilities were not accessible to contractors who required access in order to perform the services, the contracting officer may—

1. Adjust the contract performance or delivery schedule for a period equivalent to the period the NOAA facility was not accessible;
2. Forego the work; or
3. Reschedule the work by mutual agreement of the parties.

(e) Notification procedures of a NOAA facility closure, including contractor denial of access, are as follows:

1. The contractor shall be responsible for notification of its employees of the NOAA facility closure to include denial of access to the NOAA facility. The dismissal of NOAA employees in accordance with statute and regulations providing for such dismissals shall not, in itself, equate to a NOAA facility closure in which contractors are denied access. Moreover, the leave status of NOAA employees shall not be conveyed or imputed to contractor personnel. Accordingly, unless a NOAA facility is closed and the contractor is denied access to the facility, the contractor shall continue performance in accordance with the contract.
2. Access to Government facilities and resources, including equipment and systems, will be limited and personnel necessary to administer contract performance may not be available. Generally, supply and service contracts that are funded beyond the date of the lapse in appropriation and do not require access to Government facilities, active administration by Government personnel or the use of Government resources in a manner that would cause the Government to incur additional obligations during the lapse in appropriation may continue. If a delivery date for a contract falls during the period of a lapse in appropriations, Government personnel may not be available to receive delivery. Contractors are directed to consult with a contracting officer before attempting to make a delivery. Contracting officers will be available throughout the lapse in appropriation period to provide guidance.

Once OMB guidance is given, CORs, in consultation with the contracting officer, will notify those contractors that are deemed by the Program Office to be performing excepted work and identify the contractor personnel requiring access to NOAA facilities. CORs will also coordinate with directly with facility management or physical security personnel at respective locations to ensure that the names of contractor personnel requiring access to Government facilities during the lapse in appropriations are provided to physical security personnel.

Contractors who are not designated as performing excepted work are not allowed access to Government facilities or to utilize Government resources in a manner that would incur any additional obligation of funding on behalf of the Government during the lapse in appropriation.

3. Unless otherwise specified within the contract award, contractors requiring access to NOAA facilities outside normal business hours or outside the normal workweek shall submit a written request in writing through the COR to the contracting officer. The written request shall provide justification supporting the

required access and be submitted _____ hours/days (*contracting officer insert number of days. If blank, 72 hours applies*) before access to the NOAA facility is needed.

NAM 1330-52.270-304 NOAA ACQUISITION AND GRANTS OFFICE OMBUDSMAN (OCT 2022)

- a. The NOAA Acquisition and Grants Office (AGO) Ombudsman is available to organizations to promote responsible and meaningful exchanges of information. Generally, the purpose of these exchanges will be to:
 1. Allow contractors to better prepare for and propose on business opportunities.
 2. Advise as to technologies and solutions within the marketplace that the Government may not be aware of, or is not fully benefiting from.
 3. Identify constraints in transparency and process.
- b. The AGO Ombudsman will objectively, reasonably, and responsibly collaborate with parties and recommend fair, impartial, and constructive solutions to the matters presented to him/her. Further, the AGO Ombudsman will maintain the reasonable and responsible confidentiality of the source of a concern, when such a request has been formally made by an authorized officer of an organization seeking to do business with, or already doing business with NOAA.
- c. Before consulting with the AGO Ombudsman, interested parties must first address their concerns, issues, disagreements, and/or recommendations with the respective contracting officer for resolution. However, direct access to the AGO Ombudsman may be sought when an interested party questions the objectivity or equity of a contracting officer's decision, or when there is a bona fide reason to believe that reasonable, responsible, and objective consideration will not be received from an assigned contracting officer.
- d. There are several constraints to the scope of the AGO Ombudsman's authority, for instance:
 1. Consulting with the AGO Ombudsman does not alter or postpone the timelines of any formal process (e.g., protests, claims, debriefings, employee employer actions, activities involving A-76 competition performance decisions, judicial or congressional hearings, or proposal, amendment, modification or deliverable due dates, etc.).
 2. The AGO Ombudsman cannot participate in the evaluation of proposals, source selection processes, or the adjudication of protests or formal contract disputes.
 3. The AGO Ombudsman is not authorized to generate or alter laws, judicial decisions, rules, policies, or formal guidance.
 4. The AGO Ombudsman is not authorized to develop or alter opportunity announcements, solicitations, contracts, or their terms or conditions.
 5. The AGO Ombudsman cannot overrule the authorized decisions or determinations of the contracting officer.
 6. The AGO Ombudsman has no authority to render a decision that binds AGO, NOAA, the Department of Commerce, or the U.S. Government.
 7. The AGO Ombudsman is not NOAA's agent relative to the service of magistrate or judicial process and cannot be used to extend service of process to another party (whether federal, public, or a private entity).
- e. After review and analysis of a filed concern or recommendation, the AGO Ombudsman may refer the interested party to another more suitable federal official for consideration. Moreover, concerns, disagreements, and/or recommendations that cannot be resolved by the AGO Ombudsman will need to be pursued through

more formal venues.

f. The AGO Ombudsman is not to be contacted to request copies of forms and/or documents under the purview of a contracting officer. Such documents include Requests for Information, solicitations, amendments, contracts, modifications, or conference materials.

g. Questions regarding items (a) through (f) within this language shall be directed to ago.ombudsman@noaa.gov

(End of solicitation and contract language)

(XIV) Defense Priorities and Allocations System (DPAS) and assigned rating does not apply.

(XV) Quotes are required to be received in the contracting office no later than 5:00 P.M. MST/MDT on April 6, 2023. All quotes must be emailed to the attention of Michelle Walton. The email address is michelle.walton@noaa.gov

(XVI) Any questions regarding this solicitation should be directed to Michelle Walton, phone: 303-578-6582, email: michelle.walton@noaa.gov

STATEMENT OF WORK

1.0 Organization. The Northwest Fisheries Science Center (NWFSC) is a marine research organization owned and operated by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS). This Statement of Work requires the contractor to perform tasks at the Manchester Research Station.

2.0 Manchester Research Station (MRS). The Manchester facility is located on 22 acres land at 7305 Beach Drive, Port Orchard, WA 98366. The campus has 21 major buildings structures (see Figure 2a). Some of them were built in 1944 with the latest structure built in 2014. These buildings range from a simple 120 SF storage shed to a 9,300 SF 2-story stick built structure to a 15,000 SF fish tank butler style structure. The total square footage of all buildings is about 60,000 SF.



3.0 Services Required. The contractor shall provide all required service, labor, parts, equipment, and materials to replace the following components as described below. The contractor shall use only components and materials designed for marine coastal environment application where applicable. All work shall meet applicable federal, state, and local requirements. In particular all electrical work must comply with requirements outlined in the 2020 National Electrical Code and performed by qualified electrician with Level-01 certification in Washington State. If none exists, all work shall meet industry standards.

3.1 Task 1 – Building-12 Building Automation System. The Manchester Research Station (MRS) currently does not have a Building Automation System (BAS) to allow remote operation of HVAC systems on site.

3.1.1 NWFSC has recently replaced the heating and cooling system in Building 12. The building floor plans are provided as an attachment referenced in Section 7.1. The system can be summarized as follows:

3.1.1.1 Three outdoor condensing units provides both cooling and heating, depending on what each individual zoned fan coil requires; and

3.1.1.2 There is a total of 11 individual FXAQ fan coils connected to the condensing units via refrigerant R-410 piping through a four 4-port and six 6-port branch selector circuit boxes. This is where each fan coil determines whether it is in heating or cooling mode and refrigerant valves open / close to provide refrigerant cooling or refrigerant hot gas heating.

3.1.2 The current system has no mechanical issues, but many control problems. The entire system needs to be networked to a global controller that is wired to new thermostats. The system needs a global controller mounted in the building to able NWFSC to manage this system remotely. This system must provide a BACnet interface to allow this system to be tied into the NWFSC enterprise Building Management System (BMS) located at its regional headquarter in Seattle, WA. The installation of the thermostats and global controller shall not interfere with the fan coils / branch selector port operation.

3.1.3 The contractor shall provide and replace the parts/components outlined in Table 1.

Table 1 – Required parts/components for Manchester Building-12

Qty	Model No	Description
11	PAC-US444CN-1	Mistubishi or equivalent Thermostat Adapter Interface
11	VT7600B5000B	Viconics VT7600 BACnet or equivalent Thermostat
1	EasyIO FS-20	EasyIO Main Controller or equivalent with BACnet Interface
1	Main Panel	Main Panel with 110V / 24 V power supply

3.1.4 Work shall include all control wiring, factory authorized start up and commissioning, BACnet controls integration with campus BMS including global controller interface, communications wiring, network drivers, and graphics.

3.1.5 The contractor shall install a BACnet interface to allow this system to be tied into the campus BMS. NWFSC installed a new BAS in 2019 using EasyIO or equivalent controllers and open source platform. All work and system components must comply with the requirements outlined in the NWFSC BAS Control Specifications as referenced in Section 7.2.

3.1.6 *Work Plan Requirements.* The contractor shall submit a work plan to NWFSC for approval. It must address, but not limited to, the following:

3.1.6.1 Key Personnel. Project manager must have a minimum 5 years of experience in BAS open-platform architecture.

3.1.6.2 Project schedule

3.1.6.3 Meetings, communication, site access, etc.;

3.1.6.4 Building-12 controls, thermostats, and BAS;

3.1.6.5 Testing and commissioning;

3.1.6.6 Operation and Maintenance schedules, instructions, and procedures;

3.1.6.7 As-built drawings; and

3.1.6.8 Training;

3.1.7 *Construction Phase.* The contractor shall provide all necessary labor, materials, tools, and equipment to complete the task as specified in the approved work plan.

3.1.8 *Test and commission.* The contractor shall test and commission the new BAS components and system operations before turning them over to NWFSC for acceptance. The contractor shall prepare and submit a report on the testing and commissioning effort and results.

3.1.9 Operation and Maintenance. The contractor shall provide develop the operation and maintenance manual as well as the preventive maintenance schedule including the procedures and consumable parts.

3.1.10 Training. The contractor shall provide 8 hours of training and system performance demonstration to NWFSC maintenance personnel within 5 working days after a successful completion of testing and commission. The training shall cover both operations and preventive scheduled maintenance work on the system. The contractor shall submit the training records upon completion of training.

3.1.11 Warranty. The contractor shall complete the required documents and register all system components for warranty purposes. The warranty shall provide a minimum of 3-year extended warranty on all parts and labor.

3.1.12 As-built Drawings. The contractor shall provide (2) hard copies, one (1) electronic PDF copy of the hard copy, and one (1) ACAD format copy of all drawings (e.g., air-handling/evaporator units, condensers, specs on air flow, BAS, thermostats, sensors, locations, etc.)

3.2 Task 2 – Refrigerant Recovery. The Manchester has 9 non-operational legacy chillers that need to have the refrigerant recovered. Some are believed to be empty while others to have some residual refrigerant. The contractor shall recover the refrigerant of these legacy chillers by EPA certified refrigerant technicians. The contractor shall perform the following:

3.2.1 The contractor shall recover refrigerant from all legacy chillers listed in Table 3.1.1-1. If the estimated pounds of refrigerant is empty or unknown, the contractor shall verify the chillers are indeed empty.

3.2.2 All work must comply with EPA requirements.

3.2.3 Recycle or dispose of recovered refrigerant in compliance with EPA requirements.

3.2.4 Affix label or annotation on the legacy chillers as per EPA requirements and be ready for pickup by a recycler.

3.2.5 Issue refrigerant recovery, disposal, and/or recycle certificates on all legacy chillers as listed in Table 3.3.1-1.

Table 3.3.1-1 Manchester Non-operational Legacy Chillers

Chiller #	Estimated Pounds of Refrigerant	Type of Refrigerant
1	Unknown	R22
2	Unknown	R22
3	17	R22
4	40	R22
5	7	R22

6	0	R22
7	0	R22
8	0	R22
9	135	R22

4.0 NOAA NWFSC Contact Information: will be provided at time of award

5.0 Place of Performance. Services are to be provided at the NWFSC Manchester Research Station located at 7305 Beach Drive, Port Orchard, WA 98366.

6.0 Submittals. The contractor shall provide the following submittals for NWFSC review and approval before fieldwork can begin.

Task	Task Description	Deliverable	Due Date
1	Manchester BAS	3.1.1 BAS work plan	30 CD after award
2	Refrigerant recovery	3.3.5 Refrigerant certificates	5 WD after recovery completion

7.0 Attachments.
BAS Controls Specifications

8.0 Period of Performance (POP). 120 days after award

9.0 General Requirements.

9.1 Safety Plans and Project Schedules:

9.1.1 OSHA Safety Plan. Provide electronic copies for review prior to work start. Incorporate all elements needed to create and maintain safety the vicinity of the work area.

9.1.2 If required, coordinate fire safety measures with local fire code regulators for any welding operations.

9.1.3 Project Schedule. Provide estimated project schedule prior to work start. Update the project schedule and coordinate project efforts with NWFSC's TPOC on a weekly basis.

9.2 Product Substitution Submittal Requests. Submit all product substitution requests to TPOC for substitution approval. Allow 7 days for review

9.3 Provide the following Warranties:

9.3.1 Labor and Craftsmanship: All work conducted by the contractor, including subcontractor work, shall be guaranteed against defect for a period of one (1) year after final acceptance of the work. If such defects are found within warranty period, the contractor agrees to repair and replace the defective work at no cost to the government.

9.3.2 Manufacturer's warranties on parts and materials: The contractor shall provide the manufacturer's standard warranty in addition to the one-year standard contract warranty on all equipment (if applicable).

10.0 Special Site Requirements

10.1 Site Disruption. The contract work must be carried out in a manner that minimizes disruption of the operation of the Newport Research Station and its research activities.

10.2 Work Hours. Regular working hours are from 8:00 a.m. to 4:30 p.m., Monday through Friday. If the Contractor desires to work outside the regular working hours, the Contractor shall notify the TPOC or TM at least 24 hours in advance to enable satisfactory arrangements to be made by the Government for inspecting the work in progress.

10.3 Site Debris Collection. Allow no debris to accumulate in Buildings or on Grounds.

10.4 Site Debris Removal. Haul debris away from Site as soon as daily work is completed. The Contractor shall legally dispose of all debris generated by work described in this scope of work at the Contractor's expense.

10.5 During construction, all openings must be protected when not in use, such that the weather elements do not enter the building. Each opening must be secured at the end of each day

10.6 The government will allow the use of their 120 volt receptacles for tools used in the construction.

10.7 Contractor shall provide potable water, and restroom facilities for construction staff

END OF SOW

NWFSC BAS Controls Specifications

PART 1 GENERAL

1.1 SUMMARY

- A. The Northwest Fisheries Science Center (NWFSC) intends to install a direct digital control system that is a non-proprietary, open protocol, open vendor Ethernet based building management system. All programming to be completed with open, non-proprietary software tools and all software deployed on site shall be available for offsite analysis and commissioning. Contractor shall understand and agree to the Compliance Statement as set forth in Division 1.
- B. The building services Ethernet network shall be utilized as the principal communications network for the new BMS and isolated from other Ethernet traffic. The BMS system connectivity, hardware and software architecture shall be based upon the six-layer hierarchical model:
 - 1. Presentation Layer (GUI, HMI, HTML5)
 - 2. Application Layer (integration, analytics)
 - 3. Data Layer (warehousing and management)
 - 4. Communications Layer (BACnet, Modbus, API)
 - 5. Network Layer (routing, switching, and security)
 - 6. Process Layer (equipment and systems)
- C. Building services data gathered in the Process Layer shall be encapsulated in open based communication protocols and directly and securely transported via the Network and Communications Layers to the Data Layer. Historical and real-time data shall be stored and managed in the Data Layer where it can be accessed by programs residing in the Application Layer. Application Layer programs shall be configured to manage and pass selected data upon schedule or by demand, to the Presentation Layer where it can be accessed by operators utilizing presentation tools that shall enable operators to:
 - 1. Provide a comfortable environment for occupants.
 - 2. Monitor, override, report on and analyze system operating performance.
 - 3. Implement, monitor and review new strategies to improve system efficiencies.
 - 4. Work in an environment that supports dashboards, web pages and mobile devices.
 - 5. Have open access to all data available within each system.
 - 6. Convert system data into information for improved decision making and corrective actions.
 - 7. Select from multiple vendors to support or extend the system.
 - 8. Support multiple system integration and interoperability from the process layer to the application layer
- D. Contractor shall furnish all labor, materials, equipment, and service necessary for a complete and operating Integrated Building Management System (IBMS), utilizing Direct Digital Controls as shown on the drawings, as in attached Input / Output Summary and as described herein. Drawings are diagrams only.
- E. Direct Digital Control (DDC) refers to the system controlling the HVAC (air-conditioning) equipment throughout the site. The DDC may also monitor other equipment directly connected. DDC encompasses supervisory, edge, plant and unitary controllers.
- F. Integrated Building Management System (IBMS) refers to the overarching integrated data management and presentation system of which the DDC forms one component. Other components of the BMS may

NWFSC BAS Controls Specifications

- include access control, security, utility and services metering and energy management, lighting controls, lifts management and people counters.
- G. All labor, material, equipment and software not specifically referred to herein or on the plans, that is required to meet the functional intent of this specification, shall be provided without additional cost to the NWFSC.
 - H. NWFSC shall be the named license holder of any and all software associated with any and all incremental work on the project(s).
 - I. NWFSC retains ownership of all data whether local or cloud based.
 - J. No ongoing or recurring fees associated with hardware/software licensing, maintenance or other such fee. Yearly maintenance for firmware updates optional but not mandatory.
 - K. All materials and services shall be provided by any trained and authorized representative that meets manufacturers training requirements and not limited to exclusive agreements or territory restrictions.
 - L. Hardware and software products that are exclusively available from a single vendor or restricted to vendors within a geographic region will not be considered.

1.2 SYSTEM DESCRIPTION

- A. The entire Integrated Building Management System (IBMS) shall be comprised of a network of interoperable, stand-alone digital controllers communicating via BACnet IP and/or IP communication protocols to a Supervisory Controller.
- B. The IBMS shall be comprised of a network of interoperable, stand-alone digital controllers communicating on an open protocol communication network to a host computer within the facility (where specified) and communicating via the Internet to a host computer in a remote and/or central location. The IBMS shall communicate to third party systems such as Chillers, Boilers, Air-Handling Systems, Energy metering systems, Lighting Management System & other energy management systems, security systems and other building management related devices with open, interoperable communication capabilities as well as utilizing API to connect to financial and operating systems
- C. The IBMS framework shall utilize open source and open communication automation products and services with built-in Internet connectivity and accessible via a broad range of manufacturer and integration partners. The Framework shall bring together the computerization of control applications under the umbrella of single integrated system architecture. The suite of component software applications shall support multi-vendor interoperability, resulting in lower automation and information infrastructure costs. The Supervisory Controller(s) shall run a Sedona Virtual Machine (SVM) platform and use a common set of tools for accessing and integrating multiple communication protocols.
- D. The IBMS shall be integrated with Supervisory Controller(s). The Supervisory Controller(s) shall connect to the local or wide area network, depending on configuration. Access to the system, either locally in each building, or remotely from a central site or sites, shall be accomplished through standard Web browsers, via the Internet and/or local area network. Each Supervisory Controller(s) shall communicate to open protocol systems/devices.
- E. All wireless devices and communication shall be WIFI only meeting the latest wireless communication and 802.1x security standards. A wireless site survey must be completed prior to installation of wireless devices.
- F. Commissioning shall be conducted third-party against specification and points list prior to close out.

NWFSC BAS Controls Specifications

- G. Acceptable manufacturers include the following. The listing of a manufacturer as "acceptable" does not imply automatic approval. It is the sole responsibility of the contractor to ensure that any product, price and submittals are acceptable substitutions. The Owner reserves the right to reject any component or manufacturer as non-compliant and Contractor is responsible for providing the necessary substitution for no cost to the Owner.
1. EasyIO

1.3 SUBMITTAL

- A. Copies of shop drawings of the components and devices for the entire DDC system shall be submitted and shall consist of a complete list of equipment and materials, including manufacturers catalog data sheets and installation instructions for all controllers, valves, dampers, sensors, routers, etc. Shop drawings shall also contain complete wiring and schematic diagrams, software descriptions, calculations, and any other details required to demonstrate that the system has been coordinated and will properly function as a system. Terminal identification for all control wiring shall be shown on the shop drawings. A complete written Sequence of Operation shall also be included with the submittal package. IBMSDDC contractors supplying products and systems, as part of their packages shall provide catalog data sheets, wiring diagrams and point lists to other contractors for proper coordination of work.
- B. Submittal shall also include a trunk cable schematic diagram depicting operator workstations, control panel locations and a description of the communication type, media and protocol. IBMSDDC contractors shall provide these diagrams for their portions of work; the Systems Integrator shall be responsible for integrating those diagrams into the overall trunk cable schematic diagrams for the entire Wide Area Network (WAN) and IBMS.
- C. Submittal shall also include a complete point list of all points to be connected to the IBMS.
- D. Upon completion of the work, provide a complete set of 'as-built' drawings and application software on cloud-based, secure portal. Drawings shall be provided as PDF documents. IBMSDDC contractors shall provide as built for their portions of work. The IBMSIBMS contractor shall be responsible for as-built pertaining to overall IBMS architecture and network diagrams. IBMS
- E. As-built documentation including sequence of operations, datasheets, user guides, wireless site survey, network diagrams and all other system documents shall be stored and accessible via IBMS.
- F. Quality Assurance: The contractor shall employ a quality assurance process for the development and implementation of this system. This shall include all aspects of the project:
1. Design
 2. Documentation
 3. Project Management
 4. Installation and Commissioning
 5. Testing and Inspection
 6. Risk Management Plan

1.4 SPECIFICATION NOMENCLATURE

- A. Acronyms used in this specification are as follows:

FMCS	Facility Management and Control System
BMS	Building Management System
DDC	Direct Digital Controller
IBC	Interoperable BACnet Controller

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GUI	Graphical User Interface
WBI	Web Browser Interface
PMI	Power Measurement Interface
LAN	Local Area Network
WAN	Wide Area Network
OOT	Object Oriented Technology
PICS	Product Interoperability Compliance Statement
HMI	Human Machine Interface
IBMS	Integrated Building Management System
RDMS	Relational Database Management System

1.5 DIVISION OF WORK

- A. The DDC contractor shall be responsible for all controllers (DDC), control devices, control panels, controller programming, controller programming software, controller input/output and power wiring and controller network wiring.
- B. The DDC contractor shall also be responsible for the Supervisory Controller(s), plant controllers, unitary controllers, edge controllers, field controllers, software and programming of the controllers including graphical user interface software (GUI), development of all graphical screens, Web browser pages, setup of schedules, logs and alarms, Sedona/BACnet network over IP management and connection to the local or wide area network (WAN). These applications shall be incorporated into the IBMS by the IBMS contractor.
- C. The DDC contractor shall provide a letter from manufacturer that contractor is manufacturer trained in the installation and programing of any and all equipment provided by said contractor.

1.6 AGENCY AND CODE APPROVALS

- A. All products shall be provided with the following agency approvals. Verification that the approvals exist for all submitted products shall be provided with the submittal package. Systems or products not currently offering the following approvals are not acceptable.

1.7 SOFTWARE LICENSE AGREEMENT

- A. The NWFSC shall agree to the manufacturer's standard software and firmware licensing agreement as a condition of this contract. Such license shall grant use of all programs and application software to Owner as defined by the manufacturer's license agreement but shall protect manufacturer's rights to disclosure of trade secrets contained within such software.
- B. The NWFSC shall be the named license holder of all software associated with any and all incremental work on the project(s). In addition, NWFSC shall receive ownership of all job specific configuration documentation, data files, and application-level software developed for the project. This shall include all custom, job specific software code (also known as backups) and documentation for all configuration and programming that is generated for a given project and/or configured for use with the SUPERVISORY CONTROLLER(S), IBMS Server(s), and any related LAN / WAN / Intranet and Internet connected routers and devices. Any and all required IDs and passwords for access to any component or software program shall be provided to the owner.
- C. DDC Contractor shall provide all source code or programmed and configured devices.

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1.8 DELIVERY, STORAGE AND HANDLING

- A. Provide factory-shipping cartons for each piece of equipment and control device. Maintain cartons through shipping, storage, and handling as required to prevent equipment damage. Store equipment and materials inside and protected from weather based on manufacturer's storage requirements.

1.9 JOB CONDITIONS

- A. Cooperation with Other Contractors: Coordinate the Work of this section with that of other sections to ensure that the Work will be carried out in an orderly fashion. It shall be this Contractor's responsibility to check the Contract Documents for possible conflicts between his Work and that of other crafts in equipment location, pipe, duct and conduit runs, electrical outlets and fixtures, air diffusers, and structural and architectural features.
- B. IBMS contractors shall program the databases to comply with data exchange rules for the listed protocols including but not limited to all physical, virtual and calculated points and operating parameters for their respective system. All setpoints, schedules, overrides, alarms functions and any data value within the entire system architecture shall provide read/write access to the IBMS based on the data exchange rule sets and the sub-system functionality.
- C. DDC Contractor shall coordinate with IT contractor in all network design. Contractor shall coordinate with IT contractor for wireless site survey and wireless device placement.

PART 2 MATERIALS

2.1 GENERAL

- A. The IBMS shall be comprised of a network of interoperable, stand-alone digital controllers, a computer system, graphical user interface software / web browser, printers, network devices, valves, dampers, sensors, and other devices as specified herein.
- B. The installed system shall provide secure password access to all features, functions and data contained in the overall IBMS.

2.2 OPEN, INTEROPERABLE, INTEGRATED ARCHITECTURES

- A. The intent of this specification is to provide a networked, stand-alone, distributed control system with the capability to integrate systems and sub-systems in one open, interoperable system via open communication protocols and APIs and provide data to the IBMS for site control and monitoring.
- B. The IBMS software platform will provide the graphical user interface for monitoring and operating the mechanical and selected other systems in the building. The platform will display values from the DDC system including:
 - 1. Values from sensors, actuators and digital outputs
 - 2. Alarms
 - 3. Calculated values
 - 4. Setpoints, timers and tuning parameters
 - 5. Trends configured in the DDC controllers and the server
 - 6. Time and holiday schedules
- C. The supplied computer software shall employ object-oriented technology (OOT) for representation of all data and control devices within the system. In addition, adherence to industry standards, BACnet and Sedona-Sox Network to assure interoperability between all system components is required. Minimum compliance is Level 3; with the ability to support data read and write functionality. Physical connection

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of BACnet/ Sedona-Sox Network devices shall be via Ethernet (BACnet/Sedona over Ethernet/IP,) Wireless, and/or RS-485 (BACnet MSTP) as specified.

- D. The Ethernet port shall connect to IP networks via SOX protocol or TCOM. It shall seamlessly integrate with a network controller to provide management functions such as site-wide control strategies, histories, schedules and alarming.
- E. The RS485 port, when used in conjunction with the controller operating in IP mode, can read and control other Modbus devices, such as VSD's and Power Meters. In the IP mode, the Controller concurrently, supports BACnet IP, SOX, Modbus and IP and Modbus Slave.
- F. The Controller shall have IP Based Ethernet connectivity and support the following protocols at a minimum:
 - 1. Modbus Server and NWFSC at TCP and RS485 level, BACnet, supporting both NWFSC and Server at the TCP/IP and MSTP levels, Supports Modbus and BACnet concurrently
 - 2. All components and controllers supplied under this Division shall be non-polling peer-to-peer (P2P) or change of value (COV) communicating devices.
- G. The supplied system must incorporate the ability to access the GUI using standard Web browsers without requiring proprietary operator interface and configuration programs. A Relational Database Management System (RDMS) is required for all data storage. This data shall reside on a supplier-installed server for all database access or at the controller level. Systems requiring proprietary database and user interface programs shall not be acceptable.
- H. DDC controllers shall have the following features at a minimum:
 - 1. Onboard data storage capability for redundancy and failover at the edge.
 - 2. Engineering and programming via one web-based tool that allows live programming.
 - 3. Ability to write and compile custom programs
 - 4. Onboard logging with graphical and tabular format, synchronized to the control's architecture
 - 5. Ability to store onboard a minimum of 100,000 history records
 - 6. Built-in Relational Database Management System (RDMS) such as SQL
 - 7. Built-in HTML5 Graphics
 - 8. Onboard VPN NWFSC and server at the supervisory level
 - 9. Ability to Email and/or text alarms
 - 10. No Browser Plugins are allowed, this includes proprietary plugins, Flash and JAVA

PART 3 DDC

3.1 NETWORK CAPABILITY

- A. The Local Area Network (LAN) shall be a 100 / 1000 Megabits/sec Ethernet network supporting BACnet, SOX, Modbus, Java, XML, HTTP, HTTPS, MQTT, FTP, FTPS, SSH, and SOAP at a minimum for maximum flexibility for integration of building data with enterprise information systems and providing support for multiple Supervisory Controller(s), field controllers, HMI, user workstations and, if specified, a local server.
- B. Local area network minimum requirements:
 - 1. Ethernet; IEEE standard 802.x

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2. Ethernet support for IP, UDP, TCP/IP, ICMP, HTTP, FTP
 3. Cable; 100 Base-T, UTP-8 wire, category X
 4. Minimum throughput; 100 Mbps.
 5. DHCP
 6. TLS 1.2
- C. All controllers shall meet minimal security requirements:
1. IPv6 or greater
 2. SSL/TTL
 3. 802.1x or greater
 4. WPA enterprise (for wireless)
 5. Manufacturer shall certify that all processors are not affected by Meltdown, Spectre or Krack vulnerabilities.

3.2 NETWORK ACCESS

- A. The hardware and software standards documented here represent the requirements for software and hardware that will function properly, be supported within the Customer's environment and conforms to their IT standards and policies. The use of IT infrastructure by any building sub-system must meet the following standards:
1. Server
 - a. HP BL series or HP DL series
 - b. Two Xeon processors – 2.2 Ghz minimum
 - c. RAM – 32 GB minimum
 - d. Mirrored OS Drives – 200 GB
 - e. Microsoft Windows 10, Server 2010 or greater, or
 - f. RedHat Linux ver. 5.x
 2. Server Virtualization
 - a. VMWare version 6.X
 - b. Hyper-V – version 9.0
 3. Network Storage
 - a. Network Appliance
 4. Database
 - a. Microsoft SQL version 2010
 5. Network Access
 - a. Router
 - b. Switch
 - c. VPN
 - d. Gateway

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- e. Firewall
 - f. Other
6. Windows operating system, Linux/Redhat
 7. Applications are accessed via separate VLAN and/or VPN
- B. Coordination
1. The Division 25 contractor shall coordinate with each sub-system contractor regarding network addressing and database exchange. This must include the timing sequence for the updates of the data exchange between the systems and the validation that all sub-system data values are available for IBMS commissioning and operation.
 2. The DDC and IBMS contractor shall coordinate with IT contractor on the requirements for the DDC and IBMS network architecture.
 3. The DDC and IBMS contractor shall coordinate with the IT contractor to meet all established networking standards and security requirements.
 4. The DDC and IBMS contractor shall utilize wireless site surveys and wireless topology as determined by IT contractor and/or coordinate the placement of all wireless building equipment including thermostats, sensors and/or controllers with the assistance of IT contractor.
- C. Remote Access
1. For Local Area Network installations, provide access to the LAN from a remote location, via the Internet. The NWFSC shall provide a connection to the Internet to enable this access.

3.3 SUPERVISORY CONTROLLER(S)

- A. The DDC contractor shall supply one or more Supervisory Controller(s), plant controllers, field controllers, unitary controllers and/or edge controllers as necessary to support the control and monitoring of multiple systems via the IBMS as part of this contract. Number of area controllers required is dependent on the type and quantity of devices provided in IO Summary.
- B. The s Supervisory Controller(s) shall provide the interface between the LAN or WAN and the field control devices and provide global supervisory control functions over the control devices connected to the Supervisory Controller(s). It shall be capable of executing application control programs to provide at a minimum:
1. Calendar functions
 2. Scheduling
 3. Trending
 4. Alarm monitoring and routing
 5. Time synchronization
 6. Integration of Modbus controller data and BACnet controller data
- C. The Network Area Controller must provide the following hardware features as a minimum:
1. All supervisors, plant and edge devices shall communicate on BACnet IP
 2. One Ethernet Port
 3. One RS-485 ports

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4. IP Protocols supported shall include BACnet IP, Modbus IP, TCOM, SOX and MQTT. The controller shall be able to communicate using all the above protocols concurrently.
 5. Flash memory for long term data backup (If battery backup or flash memory is not supplied, the controller must contain a hard disk with at least 1 gigabyte storage capacity)
 6. The Supervisory Controller(s) must be capable of operation over a temperature range of 32°F to 150°F
 7. The Supervisory Controller(s) must be capable of withstanding storage temperatures of between -4°F and 150°F
 8. The Supervisory Controller(s) must be capable of operation over a humidity range of 10% to 75% RH, non-condensing
- D. The controller will support remote VPN access to provide secure login via remote browser.
- E. The Supervisory Controller(s) shall provide multiple user access to the system and support for RDMS.
- F. The Supervisory Controller(s) shall support standard Web browser access utilizing HTML-5 at a minimum, via the Intranet/Internet.
- G. Programmable to meet the specific needs of the project
- H. Each DDC Controller shall operate as a stand-alone controller capable of performing its specified control responsibilities, including PID loop control, independently of other controllers in the network.
- I. Provision shall be available for connecting laptops or PC or portable operator terminal directly to DDC for any detailed evaluation locally
- J. All DDCs should have minimum 15% of spare points for each I/O point category separately (AI, AO, DI, DO)
- K. DDC software is a graphically programming tool that enables user(s) to make the function diagrams, to parameter, commission all the automation stations and to change the parameters while the system is in operation (live programming).
- L. API
1. In addition, an Application Programming Interface (API) shall be available to qualified System Integrators to develop custom drivers to communicate with other devices.
 2. Web Services, for REST interfaces, or other open API to push data to cloud data services or integrate third party systems for interoperability such as lighting control, work order, preventative maintenance, asset management at a minimum
 3. Web based, using Open Web Server and built-in RDMS such as SQL, PHP5 and HTML5.
 4. Data transport via MQTT
- M. Input / Outputs
1. The control hardware shall support 16 Universal Inputs, 8 Digital Outputs and 8 Universal Outputs on the main board.
 2. Universal Inputs:
 - a. Universal Inputs shall support the following input signals:
 - b. Resistance (500 - 500k Ohm), Voltage (0-10Vdc), Current (0-20ma), Digital (voltage free contact), Pulse (max 20hz, min 50ms pulse duration).
 - c. The following Thermistor types shall be supported: 10k, 10k shunt, 1k Balco & 1k Platinum.

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- d. Current input shall be powered from the controller, for input impedance up to 25 ohms.
- e. Input Analogue to Digital (A2D) conversion shall be a 12 bit. To maximize signal accuracy at the lower end of the range the hardware shall include a Programmable Gain Amplifier (adjustable window of measurement spanning A2D converter range see LIM)
- 3. Digital Outputs:
 - a. Depending on model the controller shall have up to 2 dry relay digital outputs. Each shall have a LED for status and be rated at 1 amp for 24 VAC/VDC.
- 4. Universal Outputs:
 - a. 4 Universal Outputs shall each support 0-10VDC, 0-20ma and 4-20ma signals. A current signal shall be able to drive load impedance up to 800 ohms.

3.4 Data Collection and Storage

- A. The Supervisory Controller(s) shall have the ability to collect data for any property of any object and store this data for future use via RDMS.
- B. The data collection shall be performed by log objects, resident in the Supervisory Controller(s) that shall have, at a minimum, the following configurable properties:
 - 1. Designating the log as interval or deviation.
 - 2. For interval logs, the object shall be configured for time of day, day of week and the sample collection interval.
 - 3. For deviation logs, the object shall be configured for the deviation of a variable to a fixed value. This value, when reached, will initiate logging of the object.
 - 4. For all logs, provide the ability to set the maximum number of data stores for the log and to set whether the log will stop collecting when full, or rollover the data on a first-in, first-out basis.
 - 5. Each log shall have the ability to have its data cleared on a time-based event or by a user-defined event or action.
- C. All log data shall be stored in a relational database in the Supervisory Controller(s) and the data shall be accessed from a server (if the system is so configured) or a standard Web browser.
- D. All log data, when accessed from a server, shall be capable of being manipulated using a RDMS.
- E. All log data shall be available to the user in the following data formats:
 - 1. HTML
 - 2. Plain Text
 - 3. Comma or tab separated values
- F. Systems that do not provide log data in HTML and XML formats at a minimum shall not be acceptable.
- G. The Supervisory Controller(s) shall have the ability to archive its log data either locally (to itself), or remotely to a server or other Supervisory Controller(s) on the network. Provide the ability to configure the following archiving properties, at a minimum:
 - 1. Archive on time of day
 - 2. Archive on user-defined number of data stores in the log (buffer size)
 - 3. Archive when log has reached its user-defined capacity of data stores
 - 4. Provide ability to clear logs once archived

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3.5 DATABASE BACKUP AND STORAGE

- A. The Supervisory Controller(s) shall have the ability to backup its database. The database shall be backed up based on a user-defined time interval.
- B. Copies of the current database and, at the most recently saved database shall be stored in the Supervisory Controller(s). The age of the most recently saved database is dependent on the user-defined database save interval.

3.6 GENERAL PURPOSE APPLICATION CONTROLLERS

- A. General Purpose Application Controllers (plant, field, edge, unitary controllers) shall have onboard inputs/outputs to minimize additional hardware and cost.
- B. Plant controllers shall have a minimum 32-point input / output hardwired point capability and support up to 1,000 third party software data points. In addition, the hardware shall support:
 - 1. 31 BACnet and 31 Modbus devices simultaneously
 - 2. 30 points each device
 - 3. 512 AV BACnet server points
 - 4. 512 BV BACnet server points
 - 5. Unlimited web NWFSC connections
 - 6. Unlimited backup storage
- C. The controller(s) shall use a Linux operating system, with two processors, and flash memory storage capable.
- D. The controller(s) shall utilize a RDMS such as SQL database for historical data logging
- E. The memory shall allow continuous auto backup of the control logic, graphics, time schedules, historical data logging database and shall store the control logic and graphics configuration tools.
- F. The controller(s) shall be configured with a web server and 2 RS 485 ports for subnet expansion.
- G. The controller(s) shall be capable of being powered from both 24 AC and 24 DC power sources.
- H. The controller(s) shall maintain data and logic in the event of a power outage for a minimum number of days as specified by operator.
- I. The controller(s) shall handle processing of the control engine, a RDMS such as SQL database, web server and other controller functions.
- J. The controller(s) shall be equipped with memory sufficient to store all system data, control programs, graphics, historical data and engineering tools.
- K. A real-time hardware clock shall maintain time in the event of power failure.
- L. The control hardware shall support Universal Inputs, Digital Outputs and Universal Outputs on the main board.
- M. Universal Inputs shall support the following input signals: Resistance (500 - 500k Ohm), Voltage (0-10Vdc), Current (0-20ma), Digital (voltage free contact), Pulse (max 20hz, min 50ms pulse duration).
- N. Input Analog to Digital (A2D) conversion shall be a 12 bit. To maximize signal accuracy at the lower end of the range the hardware shall include a Programmable Gain Amplifier (adjustable window of measurement spanning A2D converter range see LIM)

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- O. The controller shall have as a minimum 8 dry relay digital outputs. Each shall have a LED for status and be rated at 1 amp for 24 VAC/VDC.
- P. 8 Universal Outputs shall each support 0-10VDC, 0-20ma and 4-20ma signals. A current signal shall be able to drive load impedance up to 800 ohms.
- Q. Each controller shall have as a minimum, the following communication ports;
 - 1. 1 x RJ45, 2 x RS485, 1 x mini USB
 - 2. Ethernet support for IP, UDP, TCP/IP, ICMP, HTTP, FTP, shall be included.
 - 3. IP Protocols supported shall include BACnet IP, Modbus IP, TCOM, SOX and MQTT.
 - 4. The controller shall be able to communicate using all the above protocols concurrently.
 - 5. The RS 485 ports shall provide Modbus RTU (9.6k, 19.2k, 38.4k, 57.6k, 116.2k baud speed) and BACnet MSTP (9.6k, 19.2k, 38.4k, 78.8k baud speed), support for up to 31 devices / port.
- R. Wireless Controllers
 - 1. Wireless devices shall support WIFI 802.11b/g/n or current standard.
 - 2. WIFI functionality shall be included on board the main processor.
 - 3. The control hardware shall support between 2 Universal Inputs and 2 Universal Outputs on the main board.
 - 4. Wireless devices shall support BACnet IP and MSTP and support up to 5 devices.
 - 5. Daisy chaining of wireless devices shall adhere to IT networking standards
 - 6. A site survey shall be conducted to determine device placement.
 - 7. Wireless Controllers shall have input / output hardwired point capability and support up to 30 3rd party software data points.
 - 8. The controller shall use a Linux operating system, with two processors, and flash memory storage.
 - 9. The memory shall allow continuous auto backup of the control logic, graphics, time schedules, historical data logging database and shall store the control logic and graphics configuration tools.
 - 10. The controller shall be configured with a web server and minimum 1 RS 485 ports for subnet expansion.
 - 11. The controller shall be capable of being powered from both 24 AC and 24 DC power sources.
 - 12. The controller shall maintain data and logic in the event of a power outage for XX days. Energy from a capacitor shall be used to achieve this function, batteries shall not be used.
 - 13. Controllers shall include isolation transformer to minimize impact of noise.
 - 14. WIFI and Switch functionality shall be included on board the main processor.
 - 15. A real-time hardware clock shall maintain time in the event of power failure.
 - 16. Each controller shall support 2 Access Points. One Access Point shall allow other controllers to communicate to it. The other Access Point shall allow communication to the on board “web server”.
- 17. The device shall have the capability of supporting Ethernet communications via:
 - a. WIFI to an “Access Point” (central or on other WIFI controller)

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- b. Hardwired via RJ45 port. Controllers shall be able to communicate via Serial “Daisy Chain” CAT 5/5e/6 cable.
- c. The device shall be able to switch between “hardwired” ethernet and WIFI in the event of failure of either network.
- d. The WIFI network shall be capable of being configured in a mesh network.

S. Expansion Modules

- 1. Up to 31 expansion modules shall be supported. Generally, these will provide additional input/output capacity to be processed by the main controller processors.
- 2. The expansion modules shall have the capability of storing and executing control logic on board.
- 3. The control hardware shall support 12 Universal Inputs, 4 Digital Outputs and 4 Universal Outputs on the main board.
- 4. Universal Inputs shall support the following input signals: Resistance (0 - 300k Ohm), Voltage (0-10Vdc), Current (0-20ma), Digital (volt free contact), Pulse (up to 4 of the inputs, max 20hz, min 50ms pulse duration).
- 5. Input Analogue to Digital (A2D) conversion shall be a 12 bit. To maximize signal accuracy at the lower end of the range the hardware shall include a Programmable Gain Amplifier.
- 6. The controller shall have as a minimum 4 dry relay digital outputs. Each shall have a LED for status and be rated at 1 amp for 24 VAC/VDC.
- 7. 4 Universal Outputs shall each support 0-10VDC, 0-20ma and 4-20ma signals. A current signal shall be able to drive load impedance up to 800ohms.

T. RDMS

- A. The controller shall include a Relational Database Management System (RDMS) for historical data logging. The RDMS shall run in the controller’s memory.
- B. The database shall be capable of holding 50 log items of data.
- C. The data held in the database shall be displayed on the web server graphics.
- D. Database queries shall be able to be run on the database from within the controller automatically. The query result shall be:
 - a) Displayed on the web server graphics
 - b) Used in the control logic
 - c) Sent on a scheduled basis to an email address held in the controller
 - d) Queries shall also be able to run across an IP connection from a remote browser

U. Historical Data Logging

- 1. All points (hardware and software) shall be capable of being logged within the controller, the results stored in the RDMS. Minimum logging interval shall be 1 minute.
- 2. Logged data shall be displayed on the web server graphics and made available for export to an enterprise system.

V. Web / FTP Server

- A. The controller shall include a web server that supports full dynamic graphics. The web server shall display user created graphics, time schedules, historical logged data, input/output point data and 3rd party interface data.
- B. The web server shall be capable of being viewed via the following browsers MS Edge, Firefox, Chrome and Safari. The web server will support the current version of the browser.

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- C. The web server will use HTML5.
- D. Dashboards shall also be accessible via a browser and configurable from a browser to allow either “widgets” from the internal library or from an external web site e.g. freebase.

3.7 SYSTEM PROGRAMMING

- A. Design team shall provide all naming conventions.
- B. The controller shall be fully customizable and programmable with a complete software platform for developing, deploying, integrating, and managing pervasive device applications at the lowest level.
- C. Source code shall be available and provided at customer’s request.
- D. There shall be one software tool to program and manage all DDC.
- E. All engineering tools shall be provided as a one-time cost with no additional, recurring fees.
- F. Controllers can remotely add, remove, and modify the components in the application, in real-time.
- G. DDC Contractor shall provide all original programming, applications, kits, widgets, objects and/or graphics at project close. A Graphical User Interface software (GUI) shall provide the ability to perform system programming and graphic display engineering as part of a complete software package. Access to the programming functions and features of the GUI shall be through password access as assigned by the system administrator.
- H. A library of control, application, and graphic objects shall be provided to enable the creation of all applications and user interface screens. Applications are to be created by selecting the desired control objects from the library, dragging or pasting them on the screen, and linking them together using a built-in graphical connection tool. Completed applications may be stored in the library for future use. Graphical User Interface screens shall be created in the same fashion. Data for the user displays is obtained by graphically linking the user display objects to the application objects to provide “real-time” data updates. Any real-time data value or object property may be connected to display its current value on a user display.
- I. Programming Methods
 - 1. Provide the capability to copy objects from the supplied libraries, or from a user-defined library to the user’s application. Objects shall be linked by a graphical linking scheme by dragging a link from one object to another. Object links will support one-to-one, or one-to-many relationships. Linked objects shall maintain their connections to other objects regardless of where they are positioned on the page and shall show link identification for links to objects on other pages for easy identification. Links will vary in color depending on the type of link; i.e., internal, external, hardware, etc.
 - 2. Configuration of each object will be done through the object’s property sheet using fill-in the blank fields, list boxes, and selection buttons. Use of custom programming, scripting language, or a manufacturer-specific procedural language for configuration will not be accepted.
 - 3. The software shall provide the ability to view the logic in live mode. This will provide the NWFSC / Programmer the ability to view the logic in real time for easy diagnosis of the logic execution.
 - 4. All programming shall be done in real-time. Systems requiring the uploading, editing, and downloading of database objects shall not be allowed.
 - 5. The system shall support object duplication within a customer’s database. An application, once configured, can be copied and pasted for easy re-use and duplication. All links, other than to the hardware, shall be maintained during duplication.

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3.8 OBJECT LIBRARIES

- A. A standard library of objects shall be included for development and setup of application logic, user interface displays, system services, and communication networks.
- B. The objects in this library shall be capable of being copied and pasted into the user's database and shall be organized according to their function. In addition, the user shall have the capability to group objects created in their application and store the new instances of these objects in a user-defined library.
- C. All BACnet specific control objects shall conform to the BACnet specification.
- D. The library shall include applications or objects for the following functions, at a minimum:
 1. Scheduling Object. The schedule must conform to the schedule object as defined in the BACnet specification, providing 7-day plus holiday & temporary scheduling features and a minimum of 2 on/off events per day.
 2. Calendar Object. The calendar must conform to the calendar object as defined in the BACnet specification, providing 12-month calendar features to allow for holiday or special event data entry.
 3. Temperature Override Object. Provide a temperature override object that is capable of overriding equipment turned off by other energy saving programs (scheduling, duty cycling etc.) to maintain occupant comfort or for equipment freeze protection.
 4. Start-Stop Time Optimization Object. Provide a start-stop time optimization object to provide the capability of starting equipment just early enough to bring space conditions to desired conditions by the scheduled occupancy time. Also, allow equipment to be stopped before the scheduled un-occupancy time just far enough ahead to take advantage of the building's "flywheel" effect for energy savings. Provide automatic tuning of all start / stop time object properties based on the previous day's performance.
- E. The library shall include control objects for the following functions. All control objects shall conform to the objects as specified in the BACnet specification.
 1. Analog Input Object - Minimum requirement is to comply with the BACnet standard for data sharing. Allow high, low and failure limits to be assigned for alarming. Also, provide a time delay filter property to prevent nuisance alarms caused by temporary excursions above or below the user defined alarm limits.
 2. Analog Output Object - Minimum requirement is to comply with the BACnet standard for data sharing.
 3. Binary Input Object - Minimum requirement is to comply with the BACnet standard for data sharing. The user must be able to specify either input condition for alarming. This object must also include the capability to record equipment run-time by counting the amount of time the hardware input is in an "on" condition. The user must be able to specify either input condition as the "on" condition.
 4. Binary Output Object - Minimum requirement is to comply with the BACnet standard for data sharing. Properties to enable minimum on and off times for equipment protection as well as inter-start delay must be provided. The BACnet Command Prioritization priority scheme shall be incorporated to allow multiple control applications to execute commands on this object with the highest priority command being invoked. Provide sixteen levels of priority as a minimum. Systems not employing the BACnet method of contention resolution shall not be acceptable.
 5. PID Control Loop Object - Minimum requirement is to comply with the BACnet standard for data sharing. Each individual property must be adjustable as well as to be disabled to allow proportional control only, or proportional with integral control, as well as proportional, integral and derivative control.

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6. Comparison Object - Allow a minimum of two analog objects to be compared to select either the highest, lowest, or equality between the two linked inputs. Also, allow limits to be applied to the output value for alarm generation.
7. Math Object - Allow a minimum of four analog objects to be tested for the minimum or maximum, or the sum, difference, or average of linked objects. Also, allow limits to be applied to the output value for alarm generation.
8. Interlock Object - Provide an interlock object that provides a means of coordination of objects within a piece of equipment such as an Air Handler or other similar types of equipment. An example is to link the return fan to the supply fan such that when the supply fan is started, the return fan object is also started automatically without the user having to issue separate commands or to link each object to a schedule object. In addition, the control loops, damper objects, and alarm monitoring (such as return air, supply air, and mixed air temperature objects) will be inhibited from alarming during a user-defined period after startup to allow for stabilization. When the air handler is stopped, the interlocked return fan is also stopped, the outside air damper is closed, and other related objects within the air handler unit are inhibited from alarming thereby eliminating nuisance alarms during the off period.
9. Temperature Override Object - Provide an object whose purpose is to provide the capability of overriding a binary output to an “On” state in the event a user specified high or low limit value is exceeded. This object is to be linked to the desired binary output object as well as to an analog object for temperature monitoring, to cause the override to be enabled. This object will execute a Start command at the Temperature Override level of start/stop command priority unless changed by the user.
10. For BACnet devices, provide the following objects at a minimum:
 - a. Analog In
 - b. Analog Out
 - c. Analog Value
 - d. Binary
 - e. Binary In
 - f. Binary Out
 - g. Binary Value
 - h. Multi-State In
 - i. Multi-State Out
 - j. Multi-State Value
 - k. Device
11. For each BACnet object, provide the ability to assign the object a BACnet device and object instance number.

3.9 MODBUS SYSTEM INTEGRATION

- A. The controller(s) shall support the integration of device data from Modbus RTU devices. The connection to the Modbus system shall be via RS-232, RS485, or Ethernet IP as required by the device.

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- B. Provide the required objects in the library, included with the Graphical User Interface programming software, to support the integration of the Modbus system data into the IBMS. Objects provided shall include at a minimum:
 - 1. Read/Write Modbus AI Registers
 - 2. Read/Write Modbus AO Registers
 - 3. Read/Write Modbus BI Registers
 - 4. Read/Write Modbus BO Registers
- C. All scheduling, alarming, logging and global supervisory control functions, of the Modbus system devices, shall be performed by the Network Area Controller.
- D. The IBMS supplier shall provide a Modbus system communications driver. The equipment system vendor that provided the equipment utilizing Modbus shall provide documentation of the system's Modbus interface and shall provide factory support at no charge during system commissioning

4.0 ENCLOSURES AND CABLING

- A. Enclosures and Panels
 - 1. All the controllers shall be housed in Lockable Vandal proof boxes which shall either be floor mounted or wall mounted. These shall be free standing, totally enclosed, dust and vermin proof and suitable for tropical climatic conditions.
 - 2. The panel shall be metal enclosed 14 SWG CRCA sheet steel cubicle with gaskets between all adjacent units and beneath all covers to render the joints dust proof. All doors and covers shall be hinged and latched and shall be folded and braced as necessary to provide a rigid support. Joints of any kind in sheet metal shall be seam welded with welding slag grounded off and welding pits wiped smooth with plumber metal.
 - 3. All panels and covers shall be properly fitted and secured with the frame and holes in the panels correctly positioned. Fixing screws shall enter holes tapped into an adequate thickness of metal or provided with nuts. Self-threading screws shall not be used in the construction of control panels. Knockout holes of approved size and number shall be provided in the panels in conformity with the location of incoming and outgoing conduits/cables. The dimension of the boxes shall depend on the requirement with the color decided in consultation with the Architect/Consultant.
 - 4. Note: All panel enclosures used in plant room spaces and external to building shall be suitable for outdoor application (IP 54 protection) and UL listed.
- B. Conduits, Cabling and Wiring
 - 1. Prior to laying and fixing of conduits, the contractor shall carefully examine the drawings indicating the layout, satisfy himself about the sufficiency of number and sizes of conduits, sizes and location of conduits and other relevant details. Any discrepancy found in the drawings shall be brought to the notice of Architect/Engineers Any modifications suggested by the Contractor shall be got approved by the Architect /Engineers before the actual laying of conduits is commenced.
 - 2. Where necessary, bends or diversions may be achieved by means of bends and/or circular inspection boxes with adequate and suitable inlet and outlet screwed joints. In case of recessed system each junction box shall be provided with a cover properly secured and flush with a finished wall surface. No bends shall have radius less than 2-1/2 times the outside diameter of the conduit.
- C. Connections
 - 1. All jointing methods shall be subject to the approval of the Architect/Engineer. Separate conduits shall run for all power wiring.
- 2. The threads and sockets shall be free from grease and oil. Connections between conduit and controller metal boxes shall be by means of brass hexagon smooth bore bush, fixed inside the box and connected through a coupler to the conduit. The joints in conduits shall be smooth to avoid damage to insulation of conductors while pulling them through the conduits.