SKAGIT COUNTY

“PARKER BUILDING HVAC REPLACEMENT”

Parker Building
1700 E College Way
Mount Vernon, WA 98273

PROJECT MANUAL

ENGINEER

Coffman Engineers, Inc.
135 W Fairhaven Ave, Ste 102
Burlington, WA 98233
Contact: Brian Niemi
Project 210094

Phone (360) 707-5656
www.coffman.com

May 01, 2023

SECTION 00 01 00

TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS

DIVISION 0 - INTRODUCTORY INFORMATION AND BIDDING REQUIREMENTS

DIVISION 1 – GENERAL REQUIREMENTS

Other applicable divisions have been integrated in the project drawings notes sections.

APPENDICES

Appendix A – Vendor Services Agreement for Information Only

END OF SECTION

SECTION 00 11 00

NOTICE OF CALL FOR BIDS

Skagit County HVAC REPLACEMENT
Parker Building, 1700 E College Way, Mount Vernon, WA 98273

NOTICE IS HEREBY GIVEN that sealed bids will be received on May 23, 2023 until 12:40 pm at the Skagit County Commissioners Administrative Building, 1800 Continental Place, Mount Vernon, Washington 98273. Bids must be received at the County Commissioners' Office prior to the bid opening time. Bid Proposals will be recorded as to time and date received and secured until the time set for the opening. All bids must be *plainly marked on the outside*;

Skagit County HVAC REPLACEMENT

OPENING OF THE BID PROPOSALS:

At 12:40 pm or as soon as possible thereafter on May 23, 2023, Bid Proposals will be opened and publicly read aloud in the Commissioners Hearing Room #100, 1800 Continental Place, Mount Vernon, WA. 98273. This event will be televised for remote viewing on Skagit 21 or online at https://www.skagitcounty.net/Departments/TV21/main.htm.

ITEM FOR BID:

The Project consists of furnishing all labor, materials, and other incidentals to replace the existing HVAC rooftop units with VRF and ERV systems in the County's 10,550 sf Parker Building. Work must occur outside normal business hours (8:00 am – 4:30 pm) or nights/weekends/holidays, and the Architect's project cost estimate is $250,000.

BID DOCUMENTS:
Free-of-charge access to project bid documents (plans, specifications, addenda, and Bidders List) is provided to Prime Bidders, Subcontractors, and Vendors through Builders Exchange of Washington by going to **www.bxwa.com, and clicking on "Posted Projects", "Public works", and "Skagit County"**or calling (425) 258-1303. "Harvesting" (downloading, copying, and transmitting) of any project information and/or project documents for purposes of reselling and/or redistributing information by any other party is not allowed by BXWA.

Plans and specifications may also be obtained from WCR Publications, Inc. (Western Construction Resources) www.wcrinc.com (info@wcrinc.com). Drawings can be obtained through Lithtex NW Printing Solutions, 2226 Market Street, Mount Vernon, WA, (info@lithtexnw.com / 360-424-5945) or Office Depot, 201-A E. College Way, Mount Vernon, WA (360-416-4979).

Bidders shall register to be automatically notified of addenda and will need to periodically check the on-line plan room for addenda issued on this project.

BXWA is the official plan center for the project.

A non-mandatory pre-bid conference for prospective bidders will be held on site at 9:00 am on Wednesday, May 10, 2023. The group will meet in front of the building's main entrance of the Skagit County Parker Building, 1700 E. College Way, Mount Vernon, WA.

Questions regarding the project must be submitted by email to Eric Peterson; email: epeterson@co.skagit.wa.us. Questions must be received by 3:00 pm on May 15, 2023. The County will provide a confirmation of the question(s) receipt within 24 hours; if a bidder does not receive such confirmation, it is solely responsible to re-send the question(s). County's responses will be provided to all bidders by addendum with final no later than May 17 2023. No oral responses from the Owner or its representatives may be relied upon by bidders.

CONTRACTOR REGISTRATION:

Pursuant to RCW 39.06, the Bidder shall be registered and licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27.

In order to perform public work, the successful Bidder and Subcontractors, prior to Contract award, shall hold or obtain such licenses and registrations as required by State Statutes and Codes, and Federal and local laws and regulations and a City of Mount Vernon business license.

BID SECURITY:

Certified check, bank cashier's check or bid bond congruent with the Form of Bid Bond as identified in the "Instructions to Bidders" is required to be submitted with each proposal, in the amount equal to five percent (5%) of the total basic bid plus additive alternate bids (if applicable). Make bid security payable to the Skagit County, a Municipal Corporation, furnish bond executed by a licensed bonding agency authorized to do business in the locality of the Project.

RIGHT TO ACCEPT OR REJECT:

The Owner shall reserve the right to reject any or all proposals and the right to waive any irregularities or informalities in any proposal, subject to the Laws of the State of Washington as pertinent to Public Works and congruent with requirements and policies of Skagit County, and as may be deemed in the best interest of the Owner. In particular, the Owner reserves the right to reject a proposal which is not accompanied by the required bid security or subcontractors listing as described heretofore, and incomplete or irregular proposals which may exclude any item(s) as may be required by the Bid Documents. NO PROPOSALS WILL BE ACCEPTED AFTER THE TIME SET FOR RECEIPT OF BID PROPOSALS.

Skagit County is an Equal Opportunity and Affirmative Action Employer.

Small, Minority and Women-Owned firms are encouraged to submit bids.

WITHDRAWAL OF BID:

No proposal may be withdrawn after the time set for the opening thereof, unless the Award of the Contract is delayed for a period of forty-five (45) calendar days.

NOTICE GIVEN BY ORDER OF THE BOARD OF COUNTY COMMISSIONERS THIS

_____day of _____2023.

_____

Clerk of the Board
Skagit County Commissioners

Published in the Skagit Valley Herald: May 4 and 11, 2023

END OF SECTION

SECTION 00 21 00

INSTRUCTION TO BIDDERS

A. EXAMINATION OF SITE AND CONSTRUCTION DOCUMENTS

1. Before submitting a proposal, the bidder shall:

   a. Carefully examine the drawings and specifications,

   b. Visit the site of the work,

   c. Fully inform itself of existing conditions and limitation, relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of its obligation to furnish all material and labor necessary to carry out the provisions of this contract.

   d. Rely entirely upon its own judgment in making its proposal,

   e. Include in its bid a sum sufficient to cover all items required by the contract including all labor, materials, and services necessary to complete this project.

B. ADDENDA AND INTERPRETATIONS

No interpretation of the meaning of the plans, specifications, or other pre-bid documents will be made to any bidder verbally. Every request for such interpretation should be in writing addressed to the Architect, and to be given consideration, must be received at least 7 days prior to date fixed for opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications. Failure of any bidder to receive addenda shall not relieve any such bidder from any obligation under its bid as submitted. All addenda so issued shall become part of the contract documents. Approval of requested substitutions or proposed equals will be by Addenda as above.

C. PRODUCT SUBSTITUTIONS

1. Substitutions: Bids must be based upon the specific articles and materials named in the Drawings and Specification. Substitution may be made only under the following conditions:

   a. Prior to Bid Opening: Not less than eight calendar days prior to bid opening, prime bidders may submit to the County written requests for approval of articles or materials, accompanied by complete descriptions, technical data and samples. Approval or rejection of the proposed substitutions will be made by addenda issued to all bidders. Submit material / product requests as specified in Section 01 60 00.

2. After Award of Contract: Approval of substitution will be made only in exceptional cases where the Contractor submits satisfactory evidence to the

Architect that through no fault of its own, specified or otherwise approved items cannot be obtained in time to avoid delay to the work. Approval in such cases shall conform to the other requirements above.

D. **INTERPRETATIONS AND CORRECTIONS TO BIDDING DOCUMENTS**

Bidders and Sub-bidders shall promptly notify the Architect of any ambiguity, inconsistency or error which they may discover upon examination of the Bidding Documents or of the site and local conditions. Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least three days prior to the date for receipt of Bids. Any interpretation, correction or change of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections and changes.

E. **FORM OF BID**

A Bid Form is attached to these Drawings and Specifications. Make Bid according to Form. Fill in all spaces. Bids shall not contain any recapitulation of work done. State numbers in writing and in figures. Completed form must be without interlineation, alteration or erasure. Signatures must be in longhand.

F. **POWER OF ATTORNEY**

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of the power of attorney.

G. **ORAL AND TELEPHONIC BIDS**

Oral and telephonic modifications of bids cannot be considered.

H. **SUBMISSION OF BID**

Enclose all items on Bid Submittal Checklist, Section 00 43 93, in opaque sealed envelope. Address to: Skagit County Board of Commissioners. Particulars are in the Advertisement for Bid. Deliver in person or by post. Bidder is responsible for delivery of bid at or before the time set for bid opening. The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. The Owner reserves the right to reject any bid of the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligation of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

I. **BID BOND**

Each bidder agrees to furnish a bid bond AIA Document A310 or a certified check amounting to five percent (5%) of the bid, included with its proposal. When left in escrow with the Owner its amount or penalty sum is the measure of damages which the Owner will sustain by the failure of the bidder to execute the Form of Agreement and furnish a 100 percent Performance and Payment Bond, AIA Document A312, and if the

bidder fails to deliver said documents within 10 days after written notice, notice of the award of the contract to him, then the check shall become the property of the Owner or the Bid Bond shall remain in full effect. But if the bid is not accepted within 45 days after the time set for opening bids, or if the bidder delivers said contract and the bonds, then the check shall be returned to him, or the bid bond shall become void. The right is reserved to hold the bid bonds of the three lowest bidders until the award of the contract or for a period of 45 days, whichever is the shorter time. Bids of all unsuccessful bidders will be returned as soon as feasible after the bid opening.

J. **WITHDRAWAL OF BIDS**

Any bidder may withdraw its bid either personally or by written request at any time prior to the hour set for the bid opening. No bid may be withdrawn or modified after the time set for opening unless and until the award of the contract is delayed for period exceeding (45) forty-five days.

K. **TIME OF COMPLETION**

With consent from the Facilities Management Department, Bidder may commence work any time after contract execution, however, the existing cooling systems may not be shut down during normal business hours until cooler outside temperatures return in late September. Vendor shall Substantially Complete the Work before November 15, 2023 and reach Final Completion by December 31, 2023. County will consider Contractor proposed phases of work that will complete sooner as long as comfortable temperatures can be maintained inside during normal business hours.

L. **SECURITY FOR FAITHFUL PERFORMANCE**

Simultaneously with its delivery of the executed contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of the Contract and for payment of all persons performing labor under the Contract and furnishing material or services in connection with the Contract as described in the Contract Documents. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner, registered in the State of Washington, Insurance Commissioner's Office. List Bonding Agent and address of same.

M. **CONTRACTOR'S AND SUBCONTRACTOR'S PUBLIC LIABILITY**

Vehicle Liability and Property Damage Insurance shall be furnished as required by the Supplementary General Conditions.

N. **BUILDER'S RISK INSURANCE**

Property Damage Insurance shall be as required by the Bonds and Certificates Section 00 61 00, Section 00 62 00, and the County Vendor Services Agreement.

LAWS AND REGULATIONS, PREVAILING WAGES

The Bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and rules and regulations of all authorities having jurisdiction over

construction of the project shall apply to the Contract throughout, and they shall be deemed to be included in the Contract the same as though written out in full therein. All persons or firms performing on public service or construction contracts shall submit to the State, in advance of the work of all trades, a completed Form SF 9882, "Statement of Intent to Pay Prevailing Wages," accompanied by the filing fees for each Statement (Statements are available at Offices of Washington State Department of Labor and Industries). Refer to Supplementary General Conditions for Prevailing Wage information applicable to this project required by law.

O. **QUALIFICATIONS OF BIDDERS**

1. The Architect and / or the Owner may make such investigations as necessary to determine the ability of a Bidder to perform the work, and the Bidder shall furnish all such information and date as may be requested prior to bidding. The Owner reserves the right to reject any bid if the evidence submitted by, or if investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to perform the obligations of the Contract and to complete the work contemplated therein. Conditional Bids will not be accepted.

2. To enable the Owner to evaluate the competency and financial responsibility of a Contractor, when requested by the Owner, furnish the following information, which shall be sworn to under oath by him or by a properly authorized representative of the Bidder.

    a. The address and description of the Bidder's plan and place of business.

    b. The name and/or Articles of Co-Partnership or Incorporation.

    c. A list of present contracts, including dollar values, percentage of completion and the names of all Owners involved.

    d. A statement regarding any past, present, and pending litigation with an Owner.

    e. Such additional information as may be required that will satisfy the Owner that the Bidder is adequately prepared, in technical experience or otherwise, to fulfill the contract.

    f. Sufficient documentation to ensure that the Contractor is in compliance with the current Fair Employment Practice requirements of the Owner.

P. **Prior to award of Bid the Owner shall verify all items listed under Bidder's Responsibility Criteria. If criteria cannot be verified bidder will be deemed non-responsive.**

Q. POST-BID INFORMATION

1. The successful bidder shall submit to the Architect, within ten calendar days of the notifications of selection for award of the Contract, the following:

    a. Statement of Cost for each major item of work or subcontract included in the Bid, equaling the total Contract award, and such other data as are required by the General Conditions, including Article 5.2.

R. LAWS AND REGULATIONS

The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they shall be deemed to be included in the Contract the same as though written out in full therein. Bidders are advised that if successful, they will be required to meet all applicable federal, state, and local laws pertaining to permits, licenses, fees, and taxes, as well as laws pertaining to employment and wages. Bidders are responsible for determining the extent and applicability of such laws.

S. DEFINITIONS

1. Bid Documents include the Instructions to Bidders, the Bid Form, and the contract Documents, including any Addenda.

2. Contract Documents consist of the Owner-contractor Agreement, the Conditions of the Contract (General, Supplementary, and other Conditions), the Drawings, the Specifications, and all Addenda issued prior to, and all Modifications issued after the execution of the Contract.

3. Addenda are written or graphic instruments issued prior to the execution of the contract which modify or interpret the Bidding Documents, including the drawings and specifications, by addition, deletion, clarification, or correction. Addenda issued prior to the receipt of Bids will be mailed, faxed, or delivered to each person or firm recorded by the Engineer as having received the Bid Documents.

T. AWARD OF THE CONTRACT(S) / REJECTION OF BIDS

1. The Contract will be awarded to the responsible bidder(s) submitting the lowest proposal complying with the condition of the Advertisement for Bid and these contract documents provided the bid is reasonable and in the best interest of Skagit County. Items in this bid, approved for contract by the Board of Commissioners, shall be awarded by Skagit County.

2. Skagit County reserves the right to reject any and all bids and to waive any informality in bids received whenever such rejection or waiver is in the interest of the County. Skagit County reserve the right to select all or individual alternate bid items whichever is determined to be in the best interest of the County.

3. The bidder to whom the award is made will be notified at the earliest practicable date.

U. DISQUALIFICATION OF BIDDERS

1. Any one or more of the following causes may be considered sufficient for the disqualification of a Bidder and the rejection of its bid or bids:

   a. Evidence of collusion among Bidders.

   b. Lack of expertise as shown by past work and judged from the standpoint of workmanship and performance history.

   c. Uncompleted work under other contracts which, in the judgment of the Skagit County, might hinder or prevent the prompt completion of additional work if awarded.

   d. Being in arrears on existing contracts, in litigation with an Owner, or having defaulted on a previous contract.

   e. Delinquent taxes due to State and Federal Government including B&O, L&I, payroll, social security and Medicare.

   f. Contractor's naming oneself as a Subcontractor for which they have no expertise and working knowledge directly within the firm.

   g. Federal or State debarment from contracts.

END OF SECTION

SECTION 00 31 00

INFORMATION AVAILABLE TO BIDDERS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

B. Structural Calculations (11 pages) in Appendix A.

C. Mechanical Permit Documents (48 pages) in Appendix B.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 00 41 00

BID FORM

Bidder's Firm Name: _____ Date: _____

Address: _____

_____

Telephone No.: _____

TO: Skagit County
Board of Commissioners
1800 Continental Place, Suite 100
Mount Vernon, WA 98273

Gentlemen and Ladies:

The undersigned having carefully examined the Bid Documents entitled “Skagit County HVAC Replacement”, dated May 01, 2023, and having visited the site and examined the conditions affecting the Work, hereby submits the following proposal:

The Undersigned proposes to furnish all labor, materials, services, and incidentals to perform all work necessary for the completion of the Work described in the Call for Bids and associated specifications for the following Stipulated Sum for each bid item:

BASE BID:

The Bidder further proposes to accept as full payment for the work proposed herein the amounts computed under the provisions of the contract documents and based upon the bid price for fully completed work as included in the proposal and the Lump Sum Bid Price represents a true measure of the labor and materials required to perform the work, including all allowances for overhead and profit for each type of work called for in these contract documents.

The following prices shall include all materials, labor, tools, and equipment without sales tax where shown. The bidders shall include the cost of the mobilization and general conditions within each separate bid item. The amounts shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.

Bid Item: Skagit County HVAC Replacement Base Bid

Base Bid $_____

_____ DOLLARS
(Please print dollar amount in words in space above for base bid not including sales tax.)

SALES TAX

The Undersigned certifies that the above-named construction costs do not include Washington State and Local Sales Taxes applicable to Skagit County as applied to materials and labor which will become a permanent part of the Work. All other Sales and Use Taxes properly levied by the State of Washington and Local Agencies on labor, materials, and equipment utilized on a temporary basis shall be included in the proposed amounts.

CONTRACT PROVISIONS

If the Undersigned is notified of the acceptance of this proposal within 45 days from the date set for the opening thereof, or at any time thereafter before this proposal is withdrawn, the undersigned agrees to execute a contract for the above Work for the above-named compensation in the required Form of Agreement containing the following provisions and to furnish the required bonds.

1. Time of Completion: The Undersigned agrees if awarded the Contract, to mobilize on site within 60 consecutive days of contract execution, be Substantially Complete within 180 consecutive calendar days after the contract execution and reach Final Completion of the Work within 60 consecutive calendar days thereafter.

2. Liquidated Damages: The Undersigned agrees that time is of the essence of this Contract and acknowledges that the amounts of damages specified are a measure of the damages which the Owner will sustain should the Undersigned fail to complete the Work within the Contract Time. Liquidated damages shall be Five Hundred Dollars ($500.00) per calendar day for failure to substantially complete the work within the time specified and ($500.00) per day thereafter for each consecutive calendar day that final completion is delayed.

BID GUARANTEE

The Undersigned agrees that the check or bid bond accompanying this proposal which amount is not less than 5 percent of the bid proposed, is left in escrow with the Owner, that the amount of the check, or penal sum of the bond, is the measure of damages which the Owner will sustain by failure of the Undersigned to execute said Contract and furnish required bonds, and that if the Undersigned fails to deliver said documents within 10 days after receipt of notice of award to him, the check shall become the property of the Owner and the bond shall remain in full effect. But if this proposal is not accepted within 45 days after the time set for the opening of bids, then the check shall be returned, and the bond shall become void.

NON-COLLUSION CERTIFICATE

The Undersigned, being duly sworn, deposes and says that the person, firm, associated, co-partnership or corporation herein named, has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in the preparation and submission of this proposal to the Skagit County Board of County Commissioners for consideration in the award of the contract.

ADDENDA

Receipt of Addenda numbered ___ ___ ___ is hereby acknowledged.

PREVAILING WAGES

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date (May 1, 2023), the bidder is not a "willful" violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

I certify under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct.

_____
Bidder's Business Name

_____
Signature of Authorized Official*

_____
Printed Name

_____
Title

_____ _____ _____
Date City State

Check One:

Sole Proprietorship ☐ Partnership ☐ Joint Venture ☐ Corporation ☐

State of Incorporation, or if not a corporation, State where business entity was formed:

_____

If a co-partnership, give firm name under which business is transacted:

_____

** If a corporation, proposal must be executed in the corporate name by the president or vice-president (or any other corporate officer accompanied by evidence of authority to sign). If a co-partnership, proposal must be executed by a partner.*

Subscribed and sworn to before me this_____day of_____, 2023

_____
Notary Public in and for the State of
Washington, residing in
Washington.

END OF SECTION

SECTION 00 43 00

BID SECURITY FORM

PART 1 - GENERAL

A. The "Bid Bond", AIA Document A310, 2010 Edition, is a part of these Contract Documents and is incorporated as fully as if bound herein.

B. The Bid Bond Form may be obtained from the Architect's office, or from the American Institute of Architects, 1735 New York Avenue NW, Washington D.C. 20006 as follows:

1. https://aiacontracts.com

C. Contractor may use their standard bid security form as acceptable substitution.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 00 43 36

PROPOSED SUBCONTRACTOR FORM

Bidder's Name: _____ Date: _____

Project Name: _____

Named subcontractors must have a reputation of competency in their respective fields of work. Contractor assumes responsibility for quality of work performed by their selected subcontractors. If a category of work will not be subcontracted bidder must list themselves. Subcontractor listings shall be due no later than (1) one hour after bid opening.

Designated Work	**Firm Name**
1. Fire Protection:	
2. HVAC:	
3. Electrical:	
4. Roofing:	
5. Other:	

_____ _____
Bidder's Signature Date

END OF SECTION

SECTION 00 43 93

BID SUBMITTAL CHECKLIST

The bidder's attention is called to this list of submittals, which is provided for the convenience of the bidders. This checklist and does not include full details for submittals or bidder responsibilities that can be found in other sections of this project manual.

A. BID FORM: The bid prices must be shown in the spaces provided, and any addenda must be acknowledged on the Bid Form where space is provided. Filled in its entirety, signed by the bidder, and submitted at time of bid submission.

B. BID SECURITY FORM: This form is to be executed by the bidder and the surety company unless bid is accompanied by a certified check. The amount of this bond shall not be less than five percent (5%) of the total amount of the bid and may be shown in dollars or on a percentage basis. To be submitted with bid proposal.

C. BIDDERS' QUALIFICATIONS: To be filled out in its entirety and submitted with the bid form at time of bid submission.

D. BIDDERS' RESPONSIBILITY CRITERIA **SUBMIT WITH BID**: **There are numerous forms and information contained within this section. Special attention is called to the Bidder to fill out, sign and provide all forms and information requested at the time of bid submission.**

1. Documentation confirming Contractor has been in business at least 5 years in WA
2. Certification Regarding Debarment Suspension or Ineligibility
3. Supplemental Bidder Responsibility (notarized)
4. Copy of standard subcontract form for Owner review
5. A list of prevailing wage complaints filed against Contractor within 5 years
6. List of any willful and/or serious safety violations
7. Details on at least one project of similar size and scope completed within 5 years

<u>Submitted no later than 10 days after bid opening by two lowest bidders</u>:

1. Public Works Projects completed within 3 years with specified details
    a. At least 3 projects for a Federal, State, or local governmental agency

E. SUBCONTRACTOR LISTING: Submit all subcontractors, and work categories listed on form attached, **within (1) one hour after specified time of bid opening.** Names of subcontractors performing structural steel installation and rebar installation may be submitted within 48 hours after bid opening.

The following forms are to be executed after the contract is awarded:

A. CONTRACT: This agreement to be signed by the successful bidder.

B. PERFORMANCE BOND: One hundred percent of the Contract Price to be executed by the successful bidder and their surety company. The surety on such bonds shall be a duly authorized surety company satisfactory of the Owner.

C. PAYMENT (LABOR MATERIALS AND TAXES) BOND: One hundred percent of the Contract Price to be executed by the successful bidder and their surety company. The surety on such bonds shall be a duly authorized surety company satisfactory of the Owner.

D. RETAINAGE INVESTMENT OPTION: This agreement to be executed by the successful bidder.

E. CONTRACTOR'S CERTIFICATION: Concerning Labor Standards and Prevailing Wage Requirements. Submit Statement of Intent to Pay Prevailing Wages. (Form F 700-029-000, available at Offices of Washington State Department of Labor and Industries).

END OF SECTION

SECTION 00 45 00

BIDDER'S QUALIFICATIONS

Each bidder submitting a proposal for this Project shall submit, as part of its bid, the following information:

1. Name of Bidder: _____

2. Business Address: _____

   _____

   _____

3. Telephone Number and Area Code: _____

4. IRS Federal Employer's Identification Number: _____

5. Current State Unified Business Identification Number: _____

6. Number of years engaged in the contraction business under the present firm name: _____

7. Total value of contracts in force: _____

8. General description of work for which Bidder is qualified: _____

   _____

   _____

   _____

9. Recent significant project completed by Bidder including owner's name, approximate cost, and completion date:

   1. _____

   2. _____

   3. _____

   4. _____

10. Washington State Contractor Registration Number: _____

11. Bonding Reference: _____

_____

_____

12. Bonding Capacity: _____

Bidder:

By: _____ Title: _____ Date: _____

END OF SECTION

SECTION 00 45 49

BIDDER RESPONSIBILITY CRITERIA

Low Responsible Bidder

It is the intent of the Owner to award a contract to the low responsible bidder. In determining the bidder's responsibility, the Owner shall consider an overall accounting of the items listed below. The bidder must submit the following information, demonstrating that they meet the listed criteria:

1-02 Bid Procedures and Conditions

1-02.1 Qualifications of Bidder

A. Bidders must meet the minimum qualifications of RCW 39.04.350, as amended:

"Before award of a public works contract, a bidder must meet the following responsibility criteria to be considered a responsible bidder and qualified to be awarded a public works project. The bidder must:

(a) At the time of bid submittal, have a certificate of registration in compliance with chapter 18.27 RCW.

(b) Have a current State unified business identifier number.

(c) If applicable, have industrial insurance coverage for the bidder's employees working in Washington as required in Title 51 RCW; an employment security department number as required in Title 50 RCW; and a State excise tax registration number as required in Title 82 RCW; and

(d) Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).

(e) If bidding on a public works project subject to the apprenticeship utilization requirements in RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the date of the bid solicitation; and

(f) Until December 31, 2019, not have violated RCW 39.04.370 more than one time as determined by the department of labor and industries.

B. In addition to the bidder responsibility criteria above, the bidder must also meet the following relevant supplemental bidder responsibility criteria applicable to the project:

a. The Bidder shall not currently be debarred or suspended by the Federal government. The Bidder shall not be listed as a current debarred or suspended bidder on the U.S. General Services Administration's "Excluded Parties List

System" website. Bidder debarment or suspension status may be verified through this website: http://www.epls.gov/. The Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with these criteria.

b. The Bidder shall not owe delinquent taxes to the Washington State Department of Revenue, without a payment plan approved by the Washington State Department of Revenue. The Bidder shall not be listed on the Washington State Department of Revenue's "Delinquent Taxpayer List", which may be verified at the following website: http://dor.wa.gov/content/fileandpataxes/latefiling/dtlwest.aspx. The Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with this supplemental criteria.

c. The Bidder shall not have been convicted of a crime involving bidding on a public works contract within five (5) years prior to the bid submittal deadline. The Bidder shall provide a duly executed sworn statement (on the included form, or on a form otherwise determined to be acceptable by the Owner), that the Bidder has not been convicted of a crime involving bidding on a public works contract. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.

d. The Bidder's standard subcontract form shall include the subcontractor responsibility language required by RCW 39.06.020, and the Bidder shall have an established written procedure which the Bidder uses to validate the responsibility of each of its subcontractors. The Bidder's subcontract form shall also include a requirement that each of its subcontractors shall have and document a similar procedure to determine whether the sub-tier subcontractors with whom it contracts are also "responsible" contractors as defined per RCW 39.06.020. The Bidder shall submit a copy of its standard subcontract form for review by the Owner, a written description of the Bidder's procedure for validating the responsibility of the subcontractors with which the Bidder contracts, and a duly executed sworn statement (on the included form, or in a form otherwise determined to be acceptable by the Owner) that the Bidder has properly decided of responsibility for all subcontractors for the project. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.

e. The Bidder shall not have a record of prevailing wage complaints filed against the Bidder within five (5) years prior to the bid submittal date that demonstrates a pattern of failing to pay workers prevailing wages, unless there are extenuating circumstances that are acceptable to the Owner. The Bidder shall submit a list of prevailing wage complaints filed against it within five (5) years of the bid submittal date along with a written explanation of each complaint, and how it was resolved. The Owner shall evaluate the explanations provided by the Bidder (and the resolution of each complaint) to determine whether the complaints demonstrate a

pattern of the Bidder failing to pay its workers prevailing wages as required. The Owner may also evaluate complaints filed within the time period specified that were not reported by the Bidder. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.

f. The Bidder shall not have had any public works contract terminated for cause by a government agency during the five (5) year period immediately preceding the bid submittal deadline for the project unless there are extenuating circumstances acceptable to the Owner. The Bidder shall provide a duly executed sworn statement (on the included form, or in a form otherwise determined to be acceptable by the Owner), that the Bidder has not had any public works contract terminated for cause by a government agency during the five (5) year period immediately preceding the bid submittal deadline for the project. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.

g. The Bidder shall not have a record of excessive claims filed against the retainage or payment bonds for public works projects within three (3) years of the bid submittal date, that demonstrate a lack of effective management by the Bidder of making timely and appropriate payments to its subcontractors, suppliers, and workers, unless there are extenuating circumstances which are acceptable to the Owner. The Bidder shall submit a list of all public works projects that the Bidder has completed within the previous three (3) years prior to the bid submittal date, and include for each project the following information:

    i. The owner for each public works project, and contact information for each owner.

    ii. A list of claims filed against the retainage and/or payment bond(s) for each of the public works project.

    iii. A written explanation of the circumstances surrounding each claim against the retainage and/or payment bond(s), and an explanation as to the ultimate resolution of each claim.

    The Owner may contact other previous owners to validate the information provided by the Bidder. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with these supplemental criteria.

h. Within five (5) years prior to the bid submittal date the Bidder must have completed a minimum of at least three (3) other projects for a Federal, State, or local governmental agency. The Bidder shall provide the following information pertaining to these three (3) projects:

    i. The contact information for the Federal, State, or local contracting agency for whom the project was completed.

ii. Description of the project;

iii. Start and completion dates for the project;

iv. Awarded contract amount;

v. Final contract amount;

vi. Other additional information or documentation pertaining to the projects as may be requested by the Owner.

The Owner may contact other previous owners to validate the information provided by the Bidder. The Owner may also use independent sources of information that may be available to otherwise determine whether the Bidder is in compliance with this supplemental criteria.

i. **The Bidder shall have been duly incorporated and actively doing business in the State of Washington for a minimum of at least five (5) years prior to the bid submittal date. The Bidder shall provide the Owner with a adequate documentation confirming that the Bidder has been duly incorporated and actively doing business in the State of Washington for a minimum of at least five (5) years prior to the bid submittal date, including, but not necessarily limited to, documentation from the Washington State Secretary of State's Office.** Such documentation shall include, but is not necessarily limited to, a copy of the Bidder's Certificate of Existence / Authorization, a copy of the Bidder's Certificate of Incorporation / Formation / Authority, a certified copy of the Bidder's Original Registration Document (i.e., Articles of Incorporation, Certificate of Authority, Certificate of Formation, or Foreign Limited Liability Registration), and any other supporting information or documentation as may otherwise be requested by the Owner (including, but not necessarily limited to, copies of the Bidder's business licenses and contractor's licenses for the previous five [5] years prior to the bid submittal date). The Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with this supplemental criteria.

j. Within two (2) years prior to the bid submittal date the Bidder shall not have received any willful safety violations, and the Bidder shall not have received more than two (2) serious safety violations (i.e., WISHA / OSHA written citations) from the Washington State Department Labor & Industries or analogous agency with jurisdiction in the location the work was performed, regardless of whether such willful and/or serious safety violations have been abated or not. The Bidder shall provide Owner with a list of any and all willful and/or serious safety violations (i.e., WISHA / OSHA written citations) from the Washington State Department Labor & Industries (or analogous agency with jurisdiction in the location the work was performed), regardless of whether such willful and/or serious safety violations have been abated or not. The Owner may verify such information provided with the Washington State Department Labor & Industries or analogous agency with jurisdiction in the location the work was performed. The Owner may also use other sources of information

that may be available to otherwise determine whether the Bidder is in compliance with this supplemental criteria.

k. Within five (5) years prior to the bid submittal date the Bidder shall have successfully completed at least one (1) other project of a similar size and scope as required by the contract documents for this project. The project must have had a total construction cost of at least $100,000. In evaluating whether the other project(s) was/were "successfully completed," the Owner may verify previous owner references for the previous project(s), and may evaluate the previous owner's assessment of the Bidder performance, including but not limited to the following areas:

   i. Quality control;

   ii. Safety record;

   iii. Timeliness of performance;

   iv. Use of skilled personnel;

   v. Management of subcontractors;

   vi. Availability of and use of appropriate equipment;

   vii. Compliance with contract documents;

   viii. Management of submittals process, change orders, and close-out.

   ix. Construction within occupied area.

   For the purposes of meeting this criterion, the Owner has determined that "similar size and scope" to this project means project(s) that have the following characteristics: (i) The awarded project(s) contract amount must have been of not less than $100,000; (ii) The project(s) must have included the renovation in excess of 3,000 square feet; and (iii) The project(s) must have included construction of within the occupied business spaces. The Bidder shall submit a list of other project(s) of similar size and scope to this project or larger, including information on a minimum of at least one (1) project of similar size and scope to this project or larger completed within five (5) years prior to the bid submittal date. The information about each project shall include the following:

      1. Owner's name and contact information for the owner's representative;

      2. Awarded contract amount;

      3. Final contract amount;

      4. A description of the scope of the project and how the project

is similar to this project;

5. The Bidder's assessment of its performance of each project, including but not limited to the following:

    a. Quality control;

    b. Safety record;

    c. Timeliness of performance;

    d. Use of skilled personnel;

    e. Management of subcontractors;

    f. Availability of and use of appropriate equipment;

    g. Compliance with contract documents;

    h. Management of submittals process and change orders.

    i. Construction within occupied areas.

C. All Bidders must supply and provide the forgoing described bidder responsibility information, documentation, and materials to the satisfaction of the Owner. If a Bidder fails to supply the required bidder responsibility documentation, information, or materials, then Bidder may be determined by the Owner to be non-responsive, and the bid may be rejected on this basis. If the Owner determines the bidder does not meet the bidder responsibility criteria above and is therefore not a responsible bidder, the Owner shall notify the bidder in writing with the reasons for its determination. If the bidder disagrees with this determination, it may appeal the determination within twenty-four (24) hours of receipt of the Owner's determination by presenting additional written information to the Owner. The Owner will consider the additional information before issuing its final determination. If the Owner's final determination affirms that the bidder is not responsible, the Owner will not execute a contract with any other bidder until two (2) business days after the bidder determined to be not responsible has received the final determination. Please note that the above-described information, materials, and documentation requested by the Owner for purposes of determining Bidder responsibility is not necessarily exclusive, and the Owner expressly reserves the right to request additional information, materials, and documentation as may be determined to be necessary or desirable by the Owner in order to evaluate and determine Bidder's compliance with the above-described bidder responsibility criteria. At all times, the Owner may also use other sources of information that may be available to otherwise determine whether the Bidder is in compliance with the forgoing bidder responsibility criteria.

D. Certification Regarding Debarment Suspension or Ineligibility:

The Contractor certifies by signing this Agreement that Contractor is not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participating in this contract by any federal department or agency. Further, Contractor agrees not to enter into any arrangements or contracts related to this contract with any party that is on the "General Service Administration List of Parties Excluded from Federal Procurement or Non-procurement Programs" at http://epls.arnet.gov/.

CONTRACTOR:

_____

Authorizing Signature

_____

Date

Federal Tax ID#:_____

Contractor Lic.#:_____

This form is to be submitted by the bidder with his bid.

SUPPLEMENTAL BIDDER RESPONSIBILITY - DECLARATION OF BIDDER

In accordance with the Contract Provisions and Plans the Bidder must provide the following sworn statement relevant to the supplemental bidder responsibility applicable to the project.

Name of Bidder: _____

Address: _____

Telephone No.: _____

E-Mail: _____

I, _____, the undersigned declarant, as the duly authorized representative on behalf of _____ (herein the "Bidder") hereby make this declaration on the basis of facts within the scope of my firsthand knowledge and authority to which I am competent to testify:

1. I hereby certify, swear, and affirm under penalty of perjury, that the Bidder has not been convicted of a crime involving bidding on a public works contract within the five (5) year period immediately preceding the bid submittal deadline for the project; and

2. I hereby certify, swear and affirm under penalty of perjury, that as of the date of this declaration (below), that the Bidder has hereby made a proper determination of bidder responsibility for all subcontractors for the project in accordance with the terms of RCW 39.06, RCW 39.04.350, and in accordance with the terms of the Bidder's written procedure for validating the responsibility of all subcontractors for the project with which the Bidder contracts; and

3. I hereby certify, swear and affirm under penalty of perjury, that the Bidder, has not had any public works contract terminated for cause by any State, Federal, or local government agency during the five (5) year period immediately preceding the bid submittal deadline for the project.

This form is to be submitted by the bidder with his bid.

Signed under penalty of perjury under the laws of the State of Washington this _____ day of _____, 2023, at _____, Washington.

Name of Bidder: _____

By: _____

Print Name: _____

Title: _____

STATE OF WASHINGTON

ss.

COUNTY OF _____

I certify that I know or have satisfactory evidence that _____ is the person who appeared before me, and said person acknowledged that he/she signed this instrument, on oath stated that he/she was duly authorized execute the instrument and acknowledged it as the _____ of _____, to be the free and voluntary act of such party for the uses and purposes herein mentioned.

DATED this _____ day of _____, 2023.

(SEAL)

_____
Notary Public
print name: _____
Residing at _____
My commission expires _____

END OF SECTION

This form is to be submitted by the bidder with his bid.

Summary of Required Submittals with Bid

1-02.1, B., d.

…..”The Bidder shall **submit a copy of its standard subcontract form for review by the Owner, a written description of the Bidder’s procedure for validating the responsibility of the subcontractors with which the Bidder contracts**, and a duly executed sworn statement (on the included form, or in a form otherwise determined to be acceptable by the Owner) that the Bidder has properly made a determination of responsibility for all subcontractors for the project….”

The information above is to be submitted by the bidder with his bid.

1-02.1, B., e.

“…..The Bidder shall submit a list of prevailing wage complaints filed against it within five (5) years of the bid submittal date along with a written explanation of each complaint, and how it was resolved….”

The information above is to be submitted by the bidder with his bid if applicable. If no complaints have been filed against the bidder, so state on paper, reference this section and submit with bid.

1-02.1, B., g.

“…..The Bidder shall submit a list of all public works projects that the Bidder has completed within the previous three (3) years prior to the bid submittal date, and include for each project the following information:

i. The owner for each public works project, and contact information for each owner.

ii. A list of claims filed against the retainage and/or payment bond(s) for each of the public works project.

iii. A written explanation of the circumstances surrounding each claim against the retainage and/or payment bond(s), and an explanation as to the ultimate resolution of each claim…”

The information above is to be submitted by the bidder with his bid.

1-02.1, B., h.

“….Within five (5) years prior to the bid submittal date the Bidder must have completed a minimum of at least three (3) other projects for a Federal, State, or local governmental agency. The Bidder shall provide the following information pertaining to these three (3) projects:

iv. The contact information for the Federal, State, or local contracting agency for whom the project was completed;

v. Description of the project;
vi. Start and completion dates for the project;
vii. Awarded contract amount;
viii. Final contract amount;
ix. Other additional information or documentation pertaining to the projects as may be requested by the Owner…."

The information above is to be submitted by the bidder with his bid.

1-02.1, B., i.

".....The Bidder shall provide the Owner with adequate documentation confirming that the Bidder has been duly incorporated and actively doing business in the State of Washington for a minimum of at least five (5) years prior to the bid submittal date, including, but not necessarily limited to, documentation from the Washington State Secretary of State's Office. Such documentation shall include, but is not necessarily limited to, a copy of the Bidder's Certificate of Existence / Authorization, a copy of the Bidder's Certificate of Incorporation / Formation / Authority, a certified copy of the Bidder's Original Registration Document (i.e., Articles of Incorporation, Certificate of Authority, Certificate of Formation, or Foreign Limited Liability Registration), and any other supporting information or documentation as may otherwise be requested by the Owner (including, but not necessarily limited to, copies of the Bidder's business licenses and contractor's licenses for the previous five [5] years prior to the bid submittal date)…"

The information above is to be submitted after the bid opening by the (2) two low bidders within 10 days of the bid opening.

1-02.1, B., j.

".....The Bidder shall provide Owner with a list of any and all willful and/or serious safety violations (i.e., WISHA / OSHA written citations) from the Washington State Department Labor & Industries (or analogous agency with jurisdiction in the location the work was performed), regardless of whether such willful and/or serious safety violations have been abated or not…"

The information above is to be submitted by the bidder with his bid if applicable. If no safety violations have been filed against the bidder, so state on paper, reference this section and submit with bid.

1-02.1, B., k.

"….The Bidder shall submit a list of other project(s) of similar size and scope to this project, including information on a minimum of at least one (1) project of similar size and scope to this project completed within five (5) years prior to the bid submittal date. The information about each project shall include the following:

1. Owner's name and contact information for the owner's representative;
2. Awarded contract amount;
3. Final contract amount;

4. A description of the scope of the project and how the project is similar to this project;
5. The Bidder's assessment of its performance of each project, including but not limited to the following:
    a. Quality control;
    b. Safety record;
    c. Timeliness of performance;
    d. Use of skilled personnel;
    e. Management of subcontractors;
    f. Availability of and use of appropriate equipment;
    g. Compliance with contract documents; Management of submittals process and change orders…."

1-02.1, D.

A. Certification Regarding Debarment Suspension or Ineligibility:

The information above is to be submitted by the bidder with his bid.

SECTION 00 52 00

AGREEMENT FORM

PART 1 - GENERAL

A. The Skagit County Vendor Services Agreement

B. Document sample provided for informational purposes only in Appendix A of this project manual.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 00 61 00

BONDS AND CERTIFICATES

The bond and insurance requirements set forth on the following pages are required of the successful bidder.

1.01 **GENERAL:** In addition to the Bid Guarantee required in the advertisement, Skagit County requires the Contractor to furnish the following bonds and insurance. The inception date of the insurance coverage shall be the date the Contractor is ordered by Skagit County to proceed with the work and shall be maintained during the life of the Contract and for not less than one year thereafter.

1.02 **EVIDENCE OF COMPLIANCE:**

A. Performance, Labor and material Payment Bonds: Submitted at time of execution of the Contract and attached thereto.

B. Insurance: A Certificate of Insurance shall be filed with "Skagit County." This Certificate shall be reflective of all Insurance Coverage required by the County's contract documents. Any Certificate filed with the County found to be incomplete or not according to Form, will be returned as not satisfactory. Rejected Certificates shall be corrected as necessary and resubmitted to the county for approval. Certificates of Insurance shall indicate the following to be Additional Named Insureds:

In addition to the foregoing, the Certificate of Insurance must include a Cancellation Notification of not less than thirty (30) days. The Certificate should also contain the Contract Number and a "concise verbal definition" of the Contract to which the Certificate applies.

1.03 **INSURANCE GENERALLY:** The Contractor shall not commence work under this contract until he has obtained the insurance required hereunder and such insurance has been approved by the County. In like manner, the General Contractor shall not allow any subcontractor to commence work on any subcontract until the subcontractor has submitted to the General Contractor a Certificate of Insurance reflective of the coverage required by Skagit County. Skagit County's approval of insurance shall not relieve or decrease the Contractor's liability hereunder. Each policy shall contain an endorsement stating that the insurance company will not, prior to the completion of the Work or any expiration date shown on the policy and certificate, whichever occurs first, terminate the policy or change any coverage therein without first mailing, by registered mail, written notice of such action at least 30 days prior to the termination or change, to Skagit County.

1.04 **CONTRACTOR'S LIABILITY INSURANCE**: The insurance required, by Skagit County, is as specified below and in the amounts indicated:

A. Worker's Compensation and Employer's Liability Insurance: All employees of the Contractor and subcontractors shall be insured under Washington State Industrial Insurance. Employees not subject to the State Act shall be insured under Employer's

Liability with a $2,000,000.00 limit of liability. A separate Certificate of Insurance shall be furnished to Skagit County of any of the Contractor's payroll is not reported to the Washington State Industrial Insurance. The contractor shall be responsible for confirming compliance of all subcontractors with the above requirements.

B. Comprehensive General Liability and Comprehensive Automobile Liability Insurance: The Contractor shall obtain and retain Bodily Injury and Property Damage Liability Insurance providing the following:

1. Additional Insured: Skagit County, its employees, and Interface Engineering. shall be named as additional insured for liability arising out of the work of this Contract as a result of the negligence, real or alleged, on the part of the contractor and his subcontractors.

2. Limits of Liability: Limits shall equal or exceed the combination or primary and excess limits for bodily injury and property damage liability of $2,000,000.00 annual aggregate.

3. Coverage: Coverage shall be as is usual to the practice of the Insurance Industry; included but not limited to the following coverages:

   a. Premises and Operations including Explosion, Collapse and Underground Liability;

   b. Products and completed Operations;

   c. Owners and Contractors Protective Liability;

   d. Broad form Property Damage Liability;

   e. Blanket Contractual Liability;

   f. Personal Injury Liability, including coverage's A, B, and C;

   g. Employers "Stop-Gap" Liability;

   h. Automobile Liability for All Owned, Non-Owned, Hired Leased or Borrowed Vehicles:

   i. Un-insured and Under-insured Motorist Coverage should also be in effect.

4. Products and Completed Operations Insurance: This coverage must be maintained for a period of not less than two years after the final acceptance of the work performed.

1.05 **PROPERTY INSURANCE:** Unless otherwise provided, the Contractor shall purchase and maintain property insurance upon the entire Work at the site to 115 percent of the full value thereof. This insurance shall include the interests of Skagit County, the Contractor and all subcontractors in the Work being performed. The coverage should be written on a "Builder's Risk" basis. All materials which are to be made part of the

construction project are to be so insured while being stored at or off the job site(s) and / or while being transported to and from the job site(s). Insurance against loss of tools, equipment, construction, or otherwise not to be incorporated into the Work is the responsibility of the Contractor and the cost of such insurance shall not be included in the cost of insurance required herein before.

A. Endorsements: The policy shall be specifically endorsed as follows:

1. Payments: It is agreed that loss payments under the policy shall be made payable to Skagit County as trustee for each of the interests named in the policy.

B. Waiver: Skagit County and the contractor waive all rights against (1) each other and the subcontractors, sub-subcontractors, agents and employees each of the other, and (2) the Owner for damages caused by fire or other perils to the extent covered by insurance obtained pursuant to this Article or any other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by Skagit County, as trustee.

1.06 BONDS

A. Performance and Payment Bonds: Furnish surety bond in the form of AIA Document A312 in an amount equal to 100 percent of the Contract Sum covering faithful performance of the work and payment of labor and materials. Furnish bonds issued by a bonding company licensed to transact business in the locality of the Work and approved by the Owner.

END OF SECTION

SECTION 00 61 13

PERFORMANCE BOND AND PAYMENT BOND

PART 1 - GENERAL

A. The "Performance Bond and Payment Bond", AIA Document A312, 2010 Edition, is a part of these Contract Documents and is incorporated as fully as if bound herein.

B. The Performance Bond and Payment Bond Form may be obtained from the Architect's office, or from the American Institute of Architects, 1735 New York Avenue NW, Washington D.C. 20006; Seattle Chapter, American Institute of Architects, 1911 First Avenue, Seattle, WA 98101; and Northwest Washington Chapter, American Institute of Architects as follows:

1. https://aiacontracts.org

C. Contractor may use their standard bid security form as acceptable substitution.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 00 62 00

CERTIFICATES OF INSURANCE

Certificates of Insurance Requirements:

1. Certificate shall be issued on an ACORD Form, or a form that meets with Skagit County's approval.

2. The Insuring Company shall have a Best Rating of A+ or meet with Skagit County's approval.

3. The minimum acceptable General Liability Limit shall be $2,000,000 Aggregate / $2,000,000 Occurrence. Coverage shall include owners & Contractors Protective Liability and Employers Liability (Stop-Gap) Coverage.

   Coverage shall be written on an "Occurrence" Basis or meet with Skagit County's approval.

4. Automobile Coverage shall include "Any Auto" or "Scheduled Autos" and shall include Hired and Non-Owned Auto Liability.

   The minimum acceptable Automobile Liability Limit shall be $2,000,000.

5. Skagit County, it's Commissioners and Employees, and Interface Engineering., shall be added as Additional Insureds on the Certificate, and a separate endorsement shall be issued by the Company adding Skagit County, it's Commissioners and Employees, and Interface Engineering as Additional Insured to the General Liability and Automobile Policy and the Umbrellas Excess Policy, where required to meet minimum limits outlined in #3 and #4 above.

6. The "Cancellation" Block shall be altered to include the wording "Should any of the above described policies be canceled or materially reduced before expiration date thereof, the issuing company will mail 30 days written notice to the certificate holder named to the left."

If there are any questions regarding these requirements please contact Skagit County's Risk Manager, Mary Houben, 360-416-1384.

END OF SECTION

SECTION 00 62 91

RETAINAGE INVESTMENT OPTION

Contractor: _____ Project Name: _____

Date: _____ Project Number: _____

Pursuant to RCW 60.28.010, as amended, you may exercise an option as to how retainage under this contract will be invested. Please complete and sign this form indicating your preference; if you fail to do so, the Owner will deposit funds in a Guarantee Deposit account, and you will miss the benefit of any interest earned. Select one of the following options:

[ ] 1. Savings Account: Money will be placed in an interest-bearing account. The interest will be paid to you directly, rather than kept on deposit. If you prefer a particular bank, state its name:

[ ] 2. Escrow / Investments: The Owner will deliver retainage checks to a selected bank, pursuant to an escrow agreement. The bank will then invest the funds in securities or bonds selected by you, and interest will be paid to you as it accrues.

Preferred Bank: _____

Securities / Bonds: _____

[ ] 3. Guarantee Deposit: Retainage will be deposited in a manner selected by the Owner. No interest is payable to the Contractor.

Retainage is normally released 30 days after final acceptance of the work, or following receipt of Labor and Industries/Department of Revenue clearance, whichever date is the later. Retainage on landscaping work may be retained longer, due to its seasonal nature. State law allows for limited early release in certain circumstances.

_____
(Contractor's Signature)

_____
Title

END OF SECTION

SECTION 00 73 43

WAGE RATE REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. This schedule of prevailing wage rates for the locality or localities of the Work, as described by the Industrial Statistician of the Department of Labor and Industries, is included for ease of reference. Contractor remains solely responsible for verifying that the rates shown within this Section are accurate, current, and inclusive for all parts of this Work. Contractor is responsible for notifying the Architect, in writing, of any problems, errors, or discrepancies in this Section no later than 7 working days prior to Bid opening. Any off-site prefabrication may also require prevailing wages and the Contractor should contact the Department of Labor and Industries to ascertain those rates.

B. Contractor to provide the "Notice of Intent to Pay Prevailing Wage Rates", as required by RCW 39.04, 39.12, 43.19, and 49.28 as amended. All paperwork regarding "Notice of Intent to Pay Prevailing Wage Rates" shall be sent directly to the owner. The rules and regulations of the Department of Labor and Industries and the schedule of prevailing wage rates for the locality or localities where this Contract will be performed as determined by the Industrial Statistician of the Department of Labor and Industries, are by reference made a part of this Contract as though fully set forth herein.

Current prevailing wage data are available online or at the following:

ADDRESS: Department of Labor and Industries
Prevailing Wage Section
P.O. Box 44540
Olympia, Washington 98504-4540

https://lni.wa.gov/licensing-permits/public-works-projects/prevailing-wage-rates/

The General Contractor and his sub-contractors are to pay for all filing fees for Statements of Intent to Pay Prevailing Wages and Affidavits at $40.00 each document submitted. Pay for any change in rate during the course of construction.

Submit forms to: Department of Labor and Industries
Prevailing Wage Section
P.O. Box 44540
Olympia, Washington 98504-4540

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 00 82 50

SPECIAL CONDITIONS

The Project consists of furnishing all labor, materials, and other incidentals to replace the existing HVAC system comprised of two rooftop units with VRF and ERV systems in the 10,550 sf Parker Building, 1700 E. College Way, Mount Vernon, WA. This project is being bid as a nights and weekends or after business hours (08:00 am – 4:30 pm) project. County will try to accommodate daytime work in common / pubic areas, with no exceptions to noisy work performed while tenant staff are in the building during normal business hours.

1. A non-mandatory pre-bid conference for prospective bidders will be held onsite at 9:00 AM on May 10, 2023. Group will meet outside front entry of the Parker Building, 1700 E College Way, Mount Vernon, WA 98273.

2. The General Contractor will make application for the building permits. The Owner shall pickup and pay for the building permit. Contractor shall be responsible to pay for and procure separate electrical permit.

A. **ACCESS TO WORK**

The Owner's designated project Coordinator shall have access to the site outside normal working hours (8:00 am – 4:30 pm). Performance of work in shared public areas during normal working hours may be requested through the Facilities Management Department, although no guarantees can be offered due to staff and Community Court obligations.

B. **PREVAILING WAGES**

Contractor and subcontractors shall submit a "Statement of Intent to Pay Prevailing Wages" prior to submitting first application for payment. Each statement of intent to pay prevailing wages must be approved by the Industrial Statistician of the Department of Labor and Industries before it is submitted to the County. Unless otherwise authorized by the Department of labor and Industries, each voucher claim submitted by a Contractor for payment on a project estimate shall state that the prevailing wages have been paid in accordance with the pre-filed statement or statements of Intent to Pay prevailing Wages on file with the public agency.

C. **AFFIDAVIT OF WAGES PAID**

Following the final acceptance of a Public Works project, the Contractor and each and every subcontractor shall submit "Affidavit of Wages Paid" before the funds retained according to the provisions of RCW 60.28.010 are released to the Contractor. Each Affidavit of Wages Paid must be certified by the Industrial Statistician of the Department of Labor and Industries before it is submitted.

D. **SUBMITTAL FEES**

"Intent to Pay Prevailing Wages" and "Affidavit of Wages Paid" must be submitted to the Industrial Statistician of the Washington State Department of Labor and Industries accompanied by current rate for each individual form. This fee is to be paid by the Contractor. All bidders are advised to consider these charges when tabulating their bids.

E. **RETAINED PERCENTAGE**

The Contractor shall comply with Title 39 RCW and Ch. 60.28 RCW.

F. **SPECIAL REPORTS**

General: Submit special reports directly to the Owner within one day of an occurrence. Submit a copy of the report to the Architect and other entities that are affected by the occurrence.

Reporting Unusual Events: When an event of an unusual and significant nature occurs at the site, prepare and submit a special report. List chain of events, persons participating, response by the Contractor's personnel, and evaluation of the results or effects and similar pertinent information.

Reporting Accidents: Prepare and submit reports of significant accidents, at site and anywhere else work is in progress. Record and document data and actions. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

G. **PAYMENT REQUESTS**

Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issues by the Architect, the Owner shall make progress payments on account of the Contract Sums to the Contractor as provided in the Contract Documents for the period ending the twenty-fifth (25) day of the month as follows:

1. The Contractor shall submit Applications for Payment for the preceding month by the first day of each month. The Owner shall make progress payments to the Contractor not later than thirty (30) days following the Architect's receipt of the Application for Payment from the Contractor.

2. The Owner shall pay to the Contractor, on each application for Payment, materials, equipment incorporated in the Work and to materials and equipment suitably stored at the site or at some other location agreed upon in writing, for the period covered by the application for Payment, less the aggregate of previous payments made by the Owners.

The Owner will not be liable for interest or penalties charged by the Contractor on any Payments delayed due to Contractor's failure to inform himself of the Owner's normal procedures or to submit payment requests timely.

The Contract Sum and any agreed variations thereof, shall include all Federal, State and Local taxes imposed by laws, and properly chargeable to the project except the State of Washington Sales Tax. Washington State and Local Sales Taxes as applied to the materials and labor or equipment which becomes part of the Work will be paid by the Owner; a proportionate amount of the tax will be added to each payment voucher issued to the Contractor. The Contractor shall pay all other sales, consumer, use and similar taxes properly levied by Washington State and Local Agencies for the Work, or portions thereof provided by the Contractor which are legally enacted at the time bids are received, whether or

not yet effective. For payment requests, recommend AIA Form G702 or equivalent, fully completed, executed, and notarized. Submit the forms in triplicate, including attachment of waivers and similar documentation with one copy. Prior to the initial payment request, submit:

1. List of principal subcontractors and suppliers, including contact persons and their addresses and telephone numbers.

2. List of principal staff assignments with addresses and telephone numbers.

3. Schedule of Values.

4. Construction Schedule.

Following issuance by Architect of Certificate of Substantial completion, Contractor may submit special payment request, provided the following have been completed:

1. Obtain permits, certificates of inspection and other approval and releases by governing authorities, required for Owner's operational / maintenance personnel.

2. Complete final cleaning of work.

3. Submit as-built documents.

4. Submit listing of work to be completed before final acceptance.

Following completion of the following requirements, final payment request may be submitted:

1. Complete work listed as incomplete at time of substantial completion, or otherwise assure Owner of subsequent completion of individual incomplete items.

2. Settle liens and other claims or assure Owner of subsequent settlement.

3. Submit proof of payment on fees, taxes and similar obligations.

4. Transfer operational, access, security and similar provisions to Owner; and remove temporary facilities, tools and similar items.

5. Affidavits of Wages Paid from all entities who worked at the site.

6. Completion of requirements specified in "Contract Closeout" section.

7. Obtain consent of surety for final payment.

8. Provide evidence of full payment of all industrial insurance premiums as required by RCW 51.12.050 and / or RCW 51.12.070.

Payments will be mailed to Contractor's business and cannot be picked up personally.

END OF SECTION

SECTION 01 10 00

SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Summary of Work, including:

1. Project Description.
2. Contract Method.
3. Owner Furnished Products.
4. Permit Conditions.
5. Existing Utilities.
6. Objection to Application of Products.
7. Existing Information.
8. Time of Completion.
9. Contractor Use of Site.
10. Material Safety Data Sheets.
11. Construction Documents.
12. Permits.

1.03 PROJECT DESCRIPTION

A. Briefly and without force and effect upon the Contract Documents, the Work of this Contract can be summarized as follows:

1. Replace existing rooftop units with VRF and ERV systems in the 10,550 sf Parker Building located in Mount Vernon, Washington as shown on the Contract Drawings and Specifications. Work must occur outside normal business hours (8:00 am – 4:30 pm) or nights/weekends/holidays.

B. Provide materials, labor, equipment, temporary facilities, and construction expertise as required to complete the Project as shown in the Contract Documents.

C. Contractor represents that he has carefully examined prior to bidding, all Contract Documents and site conditions, and understands the character, quality and quantity of work called for and all conditions affecting the Contract Work.

1.04 CONTRACT METHOD

A. Construct the Work under a single Prime Contract Stipulated Sum.

B. The General Contractor is responsible for coordinating, understanding, and directing the work of all trades involved in the Project.

C. General Contractor is responsible for coordinating and scheduling work of each subcontractor to expedite progress of the Project. Cooperate and coordinate with any other separate Contractors under contract with the Owner.

1.05 OWNER FURNISHED PRODUCTS

A. Owner Furnished, Contractor Installed Items: Coordinate with Owner on delivery of items, any mechanical / electrical rough-in or backing required and any special installation requirements.

1. Notify Owner of required delivery schedule.

2. Obtain dimensions, installation instructions and any other information required for proper installation from manufacturer.

3. Coordinate installation with work sequence and work of other trades.

B. Owner Furnished, Owner Installed Items: Coordinate with Owner on any mechanical / electrical rough-in or backing required.

1. Notify Owner of required installation schedule to allow installation in the proper work sequence and maintain Project schedule.

2. Coordinate with Owner's separate Contractors and suppliers to accommodate their work on site and / or installation of their items.

1.06 PERMIT CONDITIONS

A. Conform to permit conditions and requirements imposed by authority(s) having jurisdiction.

1.07 EXISTING UTILITIES

A. The Drawings indicate existing above and below grade structures, drainage lines, storm drains, sewers, water, gas, electrical, and other similar items and utilities which are known to the Owner.

1.08 OBJECTIONS TO APPLICATION OF PRODUCTS

A. Subcontractors and suppliers submitting a bid for this Project shall thoroughly familiarize themselves with specified products and installation procedures and submit to Architect any objections (in writing) no later than ten days prior to Bid Date. Any response by the Architect shall be by addendum. Submittal of Bid constitutes acceptance of products and procedures specified.

1.09 EXISTING INFORMATION

A. Subcontractors and suppliers shall verify existing site conditions prior to bidding. Submit any discrepancies between the Contract Documents and existing conditions no later than ten days prior to Bid Date. Any response by the Architect shall be by addendum. Submittal of bid constitutes acceptance of existing conditions.

1.10 MISCELLANEOUS

A. Items include, but are not limited to:

1. Maintain pedestrian and vehicular access to and around site.

2. Do not encumber site access with materials or equipment.

3. Do not overload structure with weight endangering structure.

4. Obtain and pay for use of additional storage or work areas needed for operations.

1.11 COMPLETION TIMES

A. Time is of the essence; the Owner needs the Work completed within the times listed so that they can fully utilize the building. Provide the necessary management, equipment, and manpower, including any overtime, double-shifting or special work schedules, required to achieve completion of the Project within the times listed in the following Completion Schedule and Milestone Dates.

B. Completion Schedule and Milestone Dates:

1. Contract Award: On or about May 23, 2023 (as soon as possible after receipt of bids acceptable to the Owner, Contractor Qualification Statement and Post Bid Submittals and the execution of the Contract award approval process).

2. Construction Start / Notice to Proceed: As soon as possible after contract execution with an approved plan that will not impact inside temperatures during normal business hours. May need to conduct majority of work in late September / early October.

3. Substantial Completion Date: No later than November 15, 2023.

4. Final Completion: No later than December 31, 2023.

1.12 CONTRACTOR'S USE OF SITE

A. The Contractor has direct responsibility for and control of the construction site for the duration of the Project, subject to the following:

1. Contractor's Use of Site: Limit use of the site for work, storage and access only as required to achieve work of this contract.

2. Emergency Vehicle Access: Maintain access roadway and fire lanes on site for use by emergency vehicles. Coordinate requirements with local authority having jurisdiction.

3. Contractor’s Materials / Equipment Staging Area: Limit storage of materials and equipment to within the staging area and Contractor occupied construction areas.

4. Access Routes to Construction Areas: Contractor shall maintain site access routes in a clean and safe manner free of construction materials, debris and dirt.

5. Public Safety: Contractor is responsible for performing a safety analysis and implementing conclusions from their analysis and, for maintaining site in a manner which prevents any unsafe or potentially unsafe condition.

   a. Implement and enforce conclusions from safety analysis for duration of Project.

   b. Maintain site in a manner that prevents any unsafe or potentially unsafe condition.

6. Protection of Existing: Protect existing roadways, utilities, etc. from damage or defacement; repair / replace any damage.

7. Construction Areas: Monitor to prevent unauthorized vehicles and persons from entering site. After work hours leave Contractor’s work area locked and all tools in locked toolboxes. Post "DANGER - KEEP OUT - CONSTRUCTION AREA" signs at building entries and around perimeter of construction areas.

   a. Assume full responsibility for the protection and safekeeping of products under this Contract, stored on the site.

1.13 MATERIAL SAFETY DATA SHEETS

A. Post Material Safety Data Sheets (MSDS) for hazardous materials on site in accordance with the Hazard Communications Standard, WAC 296-62-054 through -05427 (available from the State Department of Labor and Industries).

B. Provide a bulletin board for hazard communications program in location accessible

24 hours a day and convenient to employees, subcontractors and their employees and representatives for Owner, Architect and other agencies that may visit Project site and cone into contact with hazardous chemical substances.

1.14 CONSTRUCTION DOCUMENTS

A. Contractor is responsible for posting any addendums in the Contract Drawings and Project Manual.

1.15 PERMITS

A. Contractor shall abide by provisions of the authorities having jurisdiction (AHJ).

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Contract Modification Procedures, including:

1. Supplemental Instructions.
2. Construction Change Authorization.
3. Documentation of Proposals and Claims.
4. Change Orders.
5. Distribution.

1.03 SUMMARY

A. Requirements Include:

1. Promptly implement change order and field order procedures.
    a. Provide full written data required to evaluate changes.
    b. Maintain detailed records of work done on a time-and-material/force account basis.
    c. Provide full documentation to Architect on request.

B. Related Requirements:

1. Coordinate related requirements specified in other parts of Project Manual including but not limited to the following:
    a. Change Orders / General Conditions (Vender Service Agreement), Article 7; Applications for Payment; Construction Schedules; Schedule of Values; Substitutions and Product Options; Project Record Documents.

2. Designate in writing the names of authorized members of Contractor's organizations who accept changes in the work and are responsible for informing other workers of the authorized changes.

3. Contractor agrees; Architect approves; Owner authorizes.

C. Definitions:

1. Change Order: County will provide a C hange Order form or Contractor can use Change Order Document AIA G701.

2. Architect's Supplemental Instructions: Work order, instructions, or interpretations, signed by Architect making minor changes in the work not involving a change in Contract Sum or Contract Time.

3. Construction Change Authorization: Written order to the Contractor, signed by Owner, Architect and Contractor amending Contract Documents as described. This order authorizes Contractor to proceed with a change altering Contract Sum or Contract Time and is to be included in a subsequent Change Order.

D. Preliminary Initiation / Changes:

1. Changes may be initiated by Owner and Architect through a Proposal Request submitted to Contractor. Request will include:

a. Detailed description of Change, Products, and location of change in Project.

b. Supplementary or revised Drawings and Specifications.

c. Projected time span for making change.

1) Statement as to whether overtime work is, or is not, authorized.

d. A specific period of time during which requested price will be considered valid.

e. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

E. Construction Change Authorization:

1. In lieu of Proposal Request, Architect may issue a construction change authorization for Contractor to proceed with a change for subsequent inclusion in Change Order.

2. Authorization describes work change additions and deletions, with attachments of revised Contract Documents to define details and designate any change in Contract Sum and Contract Time.

3. Owner and Architect will sign and date as authorization to proceed with changes. General Contractor cannot be paid for the work until it is incorporated into a change order and signed by all parties.

4. Contractor signs and dates to indicate agreement with terms.

F. Documentation of Proposals and Claims:

1. Support each lump sum proposal quotation, and each unit price (not previously established) with sufficient substantiating data.

2. On request provide additional data to support time and cost computations:

a. Labor Required; Hours, Hourly Rate.

b. Equipment Required.

c. Products Required.

1) Recommended source of purchase and unit cost.

2) Quantities required of each material.

3) Material unit costs and extended price.

d. Taxes, Insurance, and Bonds.

e. Documented credit for work deleted from Contract.

f. Overhead and Profit. Article 7 Supplementary Conditions.

g. Justification for any change in Contract Time.

3. Support each claim for additional costs, and time and material/force account work with documentation, as required for lump sum proposal. Include additional information:

a. Name of Owner's authorized agent who ordered work, and date of order.

b. Dates and times work was performed, and by whom.

c. Time record, summary of hours worked, and hourly rates paid.

d. Receipts and invoices for:

1) Equipment used, listing dates and times of use.

2) Products used, listing of quantities.

3) Subcontracts.

4. Document requests for substitutions for Products as specified.

G. Preparation of Change Orders:

1. Contractor will prepare Change Orders for Architect review.

2. Change Order Form: County provided or AIA Document G701.

3. Change Order provides accounting of any Contract Sum and Contract Time adjustment.

H. Lump Sum / Fixed Price Change Order:

1. Content of Change Orders will be based on, either:

a. Architect's Proposal Request and Contractor's responsible Proposal as mutually agreed between Owner and Contractor.

b. Contractor's Change Proposal, as recommended by Architect.

2. Proper signatures (dated) authorize you to proceed with changes.

3. Sign and date Change Order if you agree with terms.

I. Unit Price Change Order:

1. Content of Change Orders will be based on, either:

a. Definition of extent of required changes.

b. Contractor's Proposal for change, as approved with appropriate signatures.

c. Survey of completed work.

2. The amount of unit prices is to be:

a. Any stated in the Bid Form / Agreement.

b. Those mutually agreed upon between Owner and Contractor.

3. When Change Order quantities can be determined prior to start of work:

a. Appropriate listed persons will sign and date as authorization for you to proceed.

b. Sign and date Change Order to indicate your agreement with terms.

4. When quantities cannot be determined prior to start of work the following procedures will be followed:

a. Appropriately signed and issued construction Modification Proposal will authorize you to proceed on unit price basis and cite applicable unit prices.

b. At completion of change, Architect will determine cost of work based on unit prices and quantities used.

1) Submit documentation establishing any claims for Contract Time change.

c. Architect signs and dates the Change Order establishing change in Contract Sum and Contract Time.

d. All pertinent listed parties sign and date Change Order indicating their agreement.

J. Time and Material / Force Account Change Order / Construction Change Authorization:

1. Appropriately executed and signed Change Order authorizes you to proceed.

2. At completion of change, submit itemized accounting and supporting data as provided in Article "Documentation of Proposals and Claims" of this Section.

3. All concerned sign and date Change Order and/or Construction change authorization establishing change in Contract Sum and Contract Time.

4. Contractor signs and dates indicating his agreement.

K. Correlation with Contractor's Submittals:

1. Quarterly revise Schedule of Values and Request for Payment forms to record each change as a separate item of work. Record adjusted Contract Sum.

2. Monthly revise Construction Schedule reflecting each change in Contract Time.

a. Revise sub schedules to show changes for other items of work affected by changes.

b. Upon completion of work under Change Order, enter pertinent changes in Record Documents.

L. Distribution:

1. Send copies to all concerned parties.

a. Change Orders:

1) Upon authorization, Owner transmits one signed copy each to Contractor and Architect.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 29 00

SCHEDULE OF VALUES AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Administrative and Procedural Requirements for the Schedule of Values and Payment Applications.

1.03 SUBMITTAL

A. Submit the Schedule of Values in PDF format via email to the Architect for review.

1. Transmit under transmittal letter. Identify Project by title and by contract number.

1.04 FORMAT

A. Schedule of Values: Submit on AIA Document G703 or accepted equivalent.

B. For Specification Divisions 02 through 33 of the Project Manual follow the Table of Contents for minimum listing of schedule of values. Identify each line item by number and title of each specification section. Complex line items may be required to be listed in component parts of the line item.

1. List material and labor costs on separate line items.

C. For Specification Division 01 as a minimum include one line item for each of the following: mobilization, General Conditions, bonds and insurance, submittals, punch list correction, "record" drawings, O and M manuals, operation instructions and demobilization.

1. Refer to the General Conditions of the Contract for limitations on mobilization and closeout line items

1.05 REQUIREMENTS

A. These requirements are in addition to the requirements found in the General Conditions of the Contract.

B. Two weeks prior to submission of first Application and Certificate for Payment,

submit schedule of values for each project to Architect and Owner for review.

C. List installed value of each major item of Work and each subcontracted item of Work as a separate line item to serve as a basis for computing values for Progress Payments; as a minimum, provide at least one line item for each specification section. Round off values to nearest dollar.

D. List guarantees / warranties as separate line items for each type of work, such as roofing, painting, etc. Show the value of each of these on the Schedule of Values.

E. For each major subcontract or work of a specification section, list materials and installation as separate line items.

F. Where the value of a line item exceeds $50,000, break down item by major products or operations as separate line items.

G. Line-item listings shall each include a directly proportional amount of Contractor's overhead and profit.

H. For items on which payments will be requested for stored products, list subcontractor values for cost of stored products.

I. Include separate line item for Project Closeout. Cost for this item shall be either one-half of the Contractor’s mobilization cost or 5 percent of the total Contract Amount, whichever amount is greater.

1.06 APPLICATIONS FOR PAYMENT

A. Applications for Payment: Submit on AIA Document G702 or accepted equivalent.

B. Preparation of Application for Each Progress Payment:

1. Application Form:

a. Fill in required information.

1) Include Change Orders approved prior to Application Submittal date.

2) Fill in summary of dollar values to agree with respective total indicated on any continuation sheets.

3) Sign by responsible officer of Contract firm.

4) Sign all copies; no photocopies of signatures permitted.

5) Indicate for each line item, the percentage of completion as reflected in the dollar value of completed work.

2. Continuation Sheets:

a. Totally fill in all scheduled component work items. Show item number / scheduled dollar value / item / Schedule of Values.

b. Fill in dollar value in each column for each scheduled line item.

1) Round off values to nearest dollar. Tally Sheet.

2) If no work has been performed enter zero.

c. At end of continuation sheets, list each Change Order approved prior to submission date.

1) List by Change Order Number, and description, as for an original component item of work.

C. Post Addendums in field Specifications prior to first Progress Payment.

D. Substantiating Data for Final Payment:

1. When Owner or Architect requires substantiating data, submit suitable information, with cover letter.

2. Submit one copy of data and cover letter for each copy of Application.

E. Preparation of Application for Final Payment:

1. Fill in application form, as specified, for progress payment.

2. Use continuation-sheet for presenting final accounting statement, as specified: Project Closeout.

F. Submittal Procedure:

1. Submit Application for Payment at times stipulated in Agreement. Allow stipulated time for processing.

2. Number: One (1) copy of each Application, unless otherwise directed at Pre-construction Meeting.

3. When Architect finds Application properly completed and correct, they will transmit Payment Certificate to Owner.

4. If Architect finds application improperly or incorrectly executed, an annotated copy is returned for NEW SUBMITTAL.

5. Submit revised Progress Schedule with each Application for Payment.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Administrative and Procedural Requirements for:

1. Project Management.
2. Coordination.
3. Variations, Revisions and Clarifications.
4. Preconstruction Conferences.
5. Preinstallation Conferences.
6. Progress Meetings.
7. Coordination Meetings.

1.03 PROJECT MANAGEMENT

A. General: Provide direct, effective, experienced, cooperative, team-oriented, hands-on management of the Work including the daily construction operations on the Project site and that part of the Work that the Contractor chooses to delegate to Subcontractors / Suppliers.

1. Project management personnel shall be employees of the Contractor and shall not be subcontracted or delegated to others.
2. Project requires a fulltime project manager, superintendent, and project engineer.

B. Submittals:

1. Refer to Section 01 33 00 for submittal procedures.

C. Superintendent: Employ a Project Superintendent (different person than the Project Manager) housed in a temporary office on the Project site to oversee, direct, and manage the construction of the Work and including, but not limited to, the following minimum characteristics and

responsibilities:

1. A good communicator, organized, effective and capable of managing multiple tasks, difficult personalities, and tight deadlines without losing self- control or management effectiveness.

2. Trained, knowledgeable and experienced in job site safety and shall be responsible for managing safety issues on site in conformance with Federal, State and Local regulations.

3. Superintendent shall become thoroughly familiar with the requirements of the Contract Documents before work is started.

4. Responsible for executing the Work in conformance with the adopted Construction Schedule so that Project is completed on time.

5. Oversee and direct the work of Subcontractors and suppliers and confirm they are conforming to the requirements of the Contract Documents.

6. Jointly with the Project Manager, coordinate the Work of this Project as specified under “Coordination” in this section.

7. Responsible for determining the means and methods used to execute the Work.

8. Responsible for coordinating Work requiring independent inspection with the testing agency(s).

9. Responsible for managing and controlling the quality of the Work (including work by Subcontractors) in conformance with the Contract Documents and good construction practice.

10. Responsible for coordinating with the Authority having jurisdiction and Building Inspector(s) inspections and requirements.

11. Responsible for coordinating with utility providers.

12. Responsible for coordinating the final inspections required by Authorities having jurisdiction required for issuance of the Certificate of Occupancy.

13. Responsible for inspecting the work jointly with the Project manager and preparing the Contractor’s Punch List specified in Section 01 78 00.

14. Provide a Daily Report for each day on which work is performed on the job site on the Daily Report Form included at the end of this section and submit to the Owner and Architect the next day.

D. Project Engineer: Employ a Project Engineer to support the work in the field including, but not limited to, the following minimum project management tasks:

1. Provide any task(s) required to support the construction of the Work and facilitate a planned, orderly and timely management of the Work.

2. Computer Skills: Experienced in using Microsoft Word, Excel, Adobe Acrobat (PDF files) e-mail, and whatever scheduling software is employed.

3. Submittal Review: Manage the submittal process specified in Section 01 33 00 so that submittals are reviewed and materials / equipment ordered and delivered so as to avoid delay in the Project Schedule.

   a. Review each submittal package for accuracy, completeness and conformance to the requirements of the Contract Documents.

   b. Review submittals for the quantity of items, field dimensions, coordination with adjacent work, and coordination of information.

   c. Apply Contractor's approval stamp to submittals before sending to Architect for review.

   d. Pick up and deliver submittals when required to meet ordering deadlines.

   e. Distribute submittals to Subcontractors and suppliers that have work that is affected by or requires coordination with the submittal.

4. Coordination: Jointly with the Project Superintendent, coordinate the Work of this Project as specified under "Coordination" in this section.

5. Field Engineering: Provide coordination drawing, field engineering and detailing services as required convert the design concept shown on the Drawings and specified into installation drawings required to construct the Work.

   a. Drawings may be hand drafted or drafted in AutoCAD / Revit.

   b. Maintain a file of completed drawings; enter pertinent data onto as- built drawings.

c. Provide copy of drawings to Architect upon request.

6. Field Quality Control: Manage the various aspects of quality control for the Project including the following:

   a. Inspect materials and equipment daily as they are delivered on site for conformance to the requirements of the Contract Documents and reviewed submittals; provide written notification of any non- conforming items to Subcontractor / Supplier responsible with copy to the Architect.

   b. Inspect, monitor and document the work in progress for compliance with the Contract Documents; provide written notification of any non-conforming Work to Subcontractor / Supplier responsible with copy to the Architect.

   c. Monitor geotechnical engineer and testing agency inspections and reports, take appropriate action to resolve any non-conforming work.

   d. Coordinate and monitor site visits and inspections by manufacturer's representatives; take appropriate action to resolve any non-conforming work or coordination issues.

7. RFI Coordination: Manage the preparation and distribution of RFI including the following:

   a. Review field questions to determine if they require an RFI or field engineering / coordination by Contractor

   b. Assign consecutive number to each RFI issued.

   c. Maintain up to date log of each RFI issued, listing date sent, date answer received and who RFI was distributed to.

8. Preinstallation Conferences: Schedule and lead pre-installation conferences specified in various sections of the Specifications and any other work category that requires coordination or review of technical requirements.

   a. Keep minutes of the conference and send out meeting minutes to attendees.

   b. Document any decisions made that modify or amend the requirements of the Contract Documents.

9. As-Built Drawings: Manage the preparation of the as-built drawings specified in Section 01 78 00.

   a. Coordinate Subcontractor as-built data incorporation into

the as- built drawing set.

b. Maintain up-to-date as-built drawing set in the field office for review by Architect and Engineers upon request or at monthly payment request review.

10. Operation and Maintenance Manual Coordination: Manage the information collection and preparation of the operation and maintenance manuals specified in Section 01 78 00.

11. Systems Start-Up / Shakedown: Coordinate the connection and testing of equipment / systems installed in the Project.

    a. Confirm each Subcontractor's work is completed and final connections / adjustments made.

    b. Coordinate connection and testing by Subcontractor responsible for equipment / system.

    c. Confirm proper operation of equipment / system including each different option, accessory and feature after start-up.

    d. Prepare a list of deficiencies and uncompleted items for equipment / systems and distribute to the Subcontractors responsible with copy to the Architect; manage completion / correction in timely manner.

12. Punch List Review: Together with the Project Superintendent, inspect the completed Work and prepare the Contractor's Punch List of deficiencies in the Work specified in Section 01 78 00.

    a. Manage the timely completion of Contractor's Punch List items.

    b. Submit copy of Contractor's Punch List showing that items have been satisfactorily completed when notifying Architect that work is substantially complete and ready for Architect's punch list review.

    c. Manage the timely completion of Architect / Consultant Punch List items.

    d. Provide written notification to Architect when deficiencies noted in Architect / Consultant Punch List have been completed.

1.04 COORDINATION

A. General Coordination:

1. Coordinate the Work of trades and other sections to ensure that elements of the work are installed in their proper sequence,

without the need for unplanned modifications to the structure, building systems or work already installed.

2. Provide direct coordination of the Work; do not delegate coordination responsibility to any subcontractor.

3. Plan out the Work in advance and anticipate the interrelationships between each subcontractor and their relationship to the overall Project.

4. Provide the leadership, direction and decisions necessary to prevent subcontractor and supplier problems and disputes from affecting the Project Schedule or the quality of the work.

5. Coordinate scheduling, submittals and work of the various sections of Specifications to assure proper, efficient and orderly sequence of preparation and installation of interdependent construction elements, with provisions for accommodating items installed later.

6. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

7. Coordinate completion and cleanup of Work of separate sections in preparation for Completion and for portions of the work designated for Owner's occupancy or use.

8. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

B. Site Utilities Coordination:

1. Coordinate utility connection work with each utility provider, including schedule, layout and any special requirements of the utility provider.

2. Coordinate the work of trades to assure proper fit and the proper operation of systems and equipment.

3. Coordinate space requirements and installation of utility work. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance and for repairs.

4. Lay out, work through and resolve any conflicts or problems involving site utility work that share the same space or require a special sequence of installation prior to starting any fabrication or installation. Provide coordination drawings wherever needed to maintain control of the installation in areas involving numerous

trades.

5. Leave adequate space for maintenance access, by a normal size maintenance man, to equipment and items without the need for special equipment or removal of items that block access.

1.05 VARIATIONS, REVISIONS AND CLARIFICATIONS

A. Variations, revisions and clarifications to the work not involving an adjustment to the Contract Sum or Contract Time will be confirmed in writing. These written confirmations may be included in the Project minutes, memos to the Contractor and Owner, e-mail correspondence, or in answers to written Requests for Information (RFI).

B. Requests for Information (RFI) shall be submitted on the RFI form attached at the end of this Section. This form must be completely filled out as applicable by the Contractor prior to submission. Submit RFI via e-mail.

C. Requests For Information (RFI) shall be limited to a single subject and discipline, do not submit RFI with multiple unrelated questions.

D. Adhere to the requirements of the General Conditions of the Contract for any variations, revisions and / or clarification to the work that the Contractor believes will involve a change in the Contract Sum or Contract Time.

E. For Shop Drawing variations conform to requirements of the General Conditions of the Contract and Section 01 33 00.

1.06 PRECONSTRUCTION CONFERENCE

A. Refer to Section 01 31 19.

1.07 PROGRESS MEETINGS

A. Refer to Section 01 31 19.

1.08 PREINSTALLATION CONFERENCES

A. Refer to Section 01 31 19.

1.09 COORDINATION MEETINGS

A. Refer to Section 01 31 19.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

0.0 CUTTING AND PATCHING

.Execute cutting and patching Work and structural reinforcing in a manner to prevent damage to other Work and to provide proper surfaces for installation of repairs, penetrations through surfaces, or other items.

A. For all new Work employ original installer or fabricator to perform cutting and patching for weather exposed or moisture resistance elements, fireproofing, and finished surfaces exposed to view.

B. Provide cutting and patching for all existing work, where mechanical and electrical utilities or similar services extend beyond limits of work for new construction, to match existing.

C. General: Provide and be responsible for all cutting, fitting, and patching required to complete the Work, or to:

1. Make its several parts fit together and to provide for installation of ill-timed Work.
2. Uncover portions of Work to provide for installation of ill-timed Work.
3. Remove and replace defective Work.
4. Remove and replace Work not conforming to Contract Document requirements.
5. Remove samples of installed Work as specified for testing.
6. Provide routine penetrations on non-structural surfaces for installation of piping.

D. Project Conditions:
1. Inspect existing conditions including elements subject to damage or movement during cutting and patching.
2. After uncovering Work, inspect conditions affecting installation of products or performance of Work.
3. Report unsatisfactory or questionable conditions to Architect in writing. Do not proceed with Work until Architect provides further instructions.

END OF SECTION

SKAGIT COUNTY
HVAC REPLACEMENT

REQUEST FOR INFORMATION

TO: Interface Engineering
100 SW Main Street, Suite 1600
Portland, OR 97204

ATTN: _____ RFI # _____

PROJECT NAME: _____PROJECT NUMBER: _____

REFERENCE DRAWING OR SPEC: _____

SUBJECT OF RFI: _____

DESCRIPTION:

CONTRACTOR: _____ RESPONSE REQUESTED BY (DATE): _____

BY: _____ DATE: _____

RESPONSE:

A/E: _____ BY: _____ DATE: _____

This is not an authorization to proceed with work involving additional cost and / or time. Contractor shall obtain approval / authorization *prior to* proceeding with this work if the response in this RFI will result in additional cost and / or time.

SECTION 01 31 19

PROJECT MEETINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Project Meetings, including:

1. Preconstruction Conferences.

2. Progress Meetings.

3. Preinstallation Conferences.

4. Coordination Meetings.

1.03 PRECONSTRUCTION CONFERENCE

A. Schedule a preconstruction conference before starting construction, at a time convenient to the Owner and the Architect, but no later than 10 days after execution of the Agreement. Hold the conference at the Project Site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

B. Attendees: Authorized representatives of the Owner, Architect, and their consultants; the Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

C. Agenda: Discuss items of significance that could affect progress, including the following:

1. Designation of personnel representing the parties in Contract and the Architect.

2. Discussion of list of Subcontractors, list of Products, schedule of values and progress schedule.

3. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and

Contract closeout procedures.

4. Scheduling.

5. Coordination with Owner.

6. Testing and inspection coordination.

7. Procedures for maintaining record documents.

8. Requirements for start-up of equipment.

9. Inspection and acceptance of equipment put into service during construction period.

10. Contractor Safety.

1.04 PROGRESS MEETINGS

A. Conduct progress meetings at the Project Sites at regular intervals. Notify the Owner and the Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.

B. Attendees: In addition to representatives of the Owner and the Architect, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.

1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.

2. Review the present and future needs of each entity present, including the following:

a. Approval of minutes of previous meetings.

b. Review of Work progress since previous meeting.

c. Review work planned.

d. Review Project Schedule (4-week and Master CPM Schedule).

e. Review submittal schedules; expedite as required.

f. Review of Request for Information (RFI).

g. Review deliveries.

h. Review proposed changes.

i. Review technical and administrative questions / concerns from Contractor, Owner, Architect, Consultants.

j. Review As-Built Drawings.

k. Field Observations.

D. Four-Week Schedule:

1. Prior to each meeting, prepare a four (4) week schedule showing work completed during the previous week, work that is in progress for the current week and work planned for the following two weeks. This four week schedule, which is revised weekly by the Contractor, will be presented by the Contractor at the progress meeting and a copy will be given to the Architect and to the Owner at that time.

2. In the event that a progress meeting is not scheduled for the current week, prepare the 4 week schedule and forward it to the Architect in the same week.

E. Reporting:

1. Architect will administer the meeting, record decisions and actions from the meeting and send copies of meeting notes to Owner and Contractor.

2. The Contractor will be responsible to distribute copies to his field representative and to Subcontractors.

3. Schedule Updating: Revise the Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

1.05 PREINSTALLATION CONFERENCES

A. When required in individual specification section or when Owner, Architect or Contractor determines the need, the Contractor shall convene a pre-installation conference at work site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Owner and Architect seven calendar days in advance of meeting date.

D. Prepare agenda, preside at conference, record minutes and distribute copies within two days after conference to participants.

E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

F. Schedule pre-installation conferences to occur immediately before or after the agreed on day / time for progress meetings.

1.06 COORDINATION MEETINGS

A. Conduct project coordination meetings at regular intervals convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special preinstallation meetings.

B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 32 00

CONSTRUCTION SCHEDULES AND REPORTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Progress Schedules and Reports, including:

1. Submittal Procedures.

2. Contractor's Construction Schedule.

3. Submittal Schedule.

4. Special Reports.

1.03 SUBMITTALS

A. Prepare and submit proposed Construction Schedule to Owner and Architect as soon as possible after Notice to Proceed and prior to first Application for Payment.

1. Submit schedule in both paper and digital computer formats acceptable to the Owner.

B. Submit updated schedule with each Application for Payment or more frequent if required.

C. Applications for Payment will not be processed until schedule is in conformance with requirements of the specifications.

1.04 DISTRIBUTION

A. Distribute copies of Construction Schedule to project site file, subcontractors, suppliers, Owner, Architect and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

C. Construction Office: Post a copy of the current Construction Schedule on the wall in the construction office where the job meetings will be held; suspend a moveable vertical line on the current date to facilitate review and discussion of schedule progress and issues at weekly job meetings.

1.05 GENERAL

A. The intent of the Construction Schedule is to assist the Contractor in planning and execution of the Work in a timely manner and assist the Contractor, Architect and Owner in monitoring the construction progress for the purpose of coordination, communication, evaluation of Applications and Certificates for Payment, and evaluation of time extension requests.

B. This section supplements the General Conditions and Special Conditions with additional schedule requirements, where conflicts exist, the most restrictive requirement shall govern.

C. Any plan by the Contractor to complete the Work or any part of the Work earlier than any contract required milestone or specific completion date shall not be construed as creating any responsibility or liability for the Owner or Architect should their actions, or lack thereof, prevent the Contractor from achieving the planned early completion. The Owner and Architect shall not be liable to the Contractor for any costs or other damages if the Contractor is unable to achieve early completion of the Work before a milestone or completion date.

D. Float Time: Float time is the amount of time between the earliest start date and the latest start date, or between the earliest finish date and the latest finish date of a chain of activities on the CPM Schedule. Float time belongs to the Project and is not for the exclusive use or benefit of either the Contractor or the Owner; float time may be used by either the Contractor or Owner for offsetting delays. Use of float suppression techniques such as preferential sequencing, special lead / lag logic restraints, zero total or free float constraints, extended activity times or imposed dates shall be cause for rejection of the Construction Schedule or any revisions or updates.

E. Scheduling Personnel: Contractor’s shall employ scheduling personnel or consultant with a minimum of 5 years of experience using the proposed scheduling software on projects of similar size and scope. If requested, provide a list of scheduling experience with copies of the schedules.

F. Schedule shall anticipate and include sufficient float time for weather dependent work tasks to allow for any delays due to normal inclement weather (defined as any inclement weather within the ten-year average of accumulated record mean values from climatological data compiled by the National Oceanic and Atmospheric Administration (NOAA), for the locale of the Project, over the full duration of the Contract Time).

1.06 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Construction Schedule:

1. Schedule Methodology: Critical Path Method (CPM) for the planning, scheduling and reporting of the work required by this contract.

2. Schedule Type: Precedence Diagramming Method (PDM).

3. Acceptable Software Programs:

   a. Microsoft Project.

   b. Primavera Project Planner.

4. Schedule Sheet Size: 11-inches x 17-inches preferred if readable, no larger than 24-inches x 36-inches.

5. Schedule Contents: Schedule shall contain the following information:

   a. Task ID number (numbered in ascending order, (e.g. *1, 2, 3, 4,* etc.)

   b. Task Name (activity), provide a two or three word description of each activity; identify each activity with the applicable Specification Section number (e.g. *Carpet – 09 68 00)*.

   c. Task Duration (e.g. *10 days*).

   d. Early Task Start Date (e.g. *Mon 7/22/20*).

   e. Late Task Start Date (e.g. *Mon 7/29/20*).

   f. Early Task Finish Date (e.g. *Mon 7/22/20*).

   g. Late Task Finish Date (e.g. *Mon 7/29/20*).

   h. Float Time (e.g. *7 days).*

   i. Predecessor Tasks.

   j. Successor Tasks.

   k. Calendar: List the Weeks, Months and Year(s) across top of each page of the schedule. Show a graphic task duration bar indicating the start and finish date corresponding to the calendar for each task.

B. Schedule Requirements: Include the following requirements:

1. List every work activity required to complete the Work in the Task Name column and include the following:

   a. Task Name shall describe individual work activities in a defined area of the Project, not multiple work activities for the entire project, e.g. *underslab plumbing rough-in – west wing* instead of *plumbing* for the entire project. Provide as many activities as necessary to clearly show how the Project will be constructed within the time allowed.

b. Include completion and milestone dates as specified in Section 01 10 00.

c. Include dates for submission of each submittal to Architect for review as required to assure materials / products / systems will be on site when required to allow conformance to the Project completion and milestone dates. When Architect's review time is critical to the Project completion schedule, identify the review return dates in the schedule.

d. Indicate date required for selection of colors and finishes as applicable.

e. Include product delivery dates, including those furnished and / or installed by separate contractors or the Owner.

f. Show dates when application for separate permits (i.e. fire alarm, fire sprinkler, etc.) will be made and when permit will be received.

g. Include dates for Contractor's Punch List review and Contractor's completion of punchlist items.

h. Include dates for Architect's Punch List review and Contractor's completion of punchlist items.

i. Show dates for pre-cover inspections and final inspections required by authorities having jurisdiction.

j. Include dates for preparation and submission of operation and maintenance manuals and project record drawings (minimum of 30 days before final completion). Show Architect's review time and resubmittal of corrected manuals and drawings.

2. Keep individual tasks listed to short durations with limited scope of work (one to two weeks maximum) unless the task is dependent on several activities of longer duration.

3. Each task shall have a corresponding time duration bar to the right of the columns graphically showing the duration of each activity on the calendar.

4. Show complete sequence of construction by activity, identifying work of separate contractors or Owner required to complete the Work.

5. Graphically indicate each task that is on the critical path for completion (by color or pattern) on the task duration bar. Show the interrelationship of each critical path task to other critical path tasks by drawing arrows between the task duration bar finish and start points.

6. Include sufficient additional float time in the duration of those specific

activities that are weather dependent (such as: underground utilities, pavement, painting, etc.) to prevent delaying critical path activities due to normal inclement weather based on the time of year the tasks are being accomplished and the corresponding historic weather data averages for those dates.

a. Weather related float time shall be calculated after late task finish date and shall be included in the critical path time calculation.

b. Identify additional weather-related time allowed in the duration or include as a separate task directly under the affected work task.

1.07 UPDATING SCHEDULES

A. Update the Construction Schedules monthly to reflect actual work activity dates accomplished and any revised work activity dates.

B. Maintain Construction Schedules to record actual start and finish dates of activities as they are completed.

C. Indicate progress of each activity at the time of the revision date. Update diagrams to graphically depict current status of Work.

D. Indicate revision date on revised schedule.

E. Show changes occurring since previous Schedule submission such as:

1. Any major changes in scope;

2. Activities modified since previous submission;

3. Revised projections for progress and completion, as applicable;

4. Any other identifiable changes.

F. Provide narrative report as needed to define:

1. Problem areas; anticipated delays; and impact on schedule.

2. Corrective action to be taken by the Contractor to get the Project back on schedule. This report will define how and when the Contractor will accomplish this.

1.08 RECOVERY SCHEDULE

A. Whenever completion of any critical path activity(s) extends beyond its late finish date or in any way jeopardizes timely completion of a Contract milestone date or completion date the Contractor shall prepare a recovery schedule showing how work activity start and finish dates will be revised to allow the completion of milestone and completion dates on schedule.

B. Recovery schedule shall be prepared as soon as possible after discovery of any delay affecting critical path activity(s), but not longer than 7 days.

1.09 SUBMITTAL SCHEDULE

A. After development and acceptance of the Contractor's Construction Schedule, prepare a complete schedule of submittals. Submit the schedule within 2 days of the date required for submittal of the Contractor's Construction Schedule.

1. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values and the list of products as well as the Contractor's Construction Schedule.

B. Prepare the schedule in chronological order. Provide the following information:

1. Scheduled date for the first submittal.

2. Related Section number.

3. Submittal category.

4. Name of the subcontractor.

5. Description of the part of the Work covered.

6. Scheduled date for resubmittal.

7. Scheduled date for the Architect final release or approval.

C. Distribution: Following the Architect’s response to the initial submittal, print and distribute copies to the Architect, Owner’s representatives, subcontractors, and other parties required to comply with submittal dates indicated.

1. Post copies in the Project meeting room and temporary field office.

2. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned part of the Work and are no longer involved in construction activities.

D. Schedule Updating: Revise the schedule after each meeting or other activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

E. Field Correction Reports: When the need to take corrective action that requires a departure from the Contract Documents arises, prepare a detailed report. Include a statement describing the problem and recommended changes. Indicate reasons the Contract Documents cannot be followed. Submit a copy to the Architect immediately.

1.10 SPECIAL REPORTS

A. General: Submit special reports directly to the Owner's representatives within one day of an occurrence. Submit a copy to the Architect and other parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at the site, prepare, and submit a special report. List the chain of events, persons participating, response by the Contractor's personnel, an evaluation of the results or effects and similar pertinent information. Advise the Owner's representatives in advance when such events are known or predictable.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Administrative and Procedural Requirements for Project Submittals.

1.03 ADMINISTRATIVE SUBMITTALS

A. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:

1. Permits.
2. Applications for Payment.
3. Performance and Payment Bonds.
4. Insurance Certificates.
5. List of Subcontractors.

1.04 SUBMITTAL PROCEDURES

A. Schedule submittals to expedite the Project. Transmit submittals in accordance with Construction Schedule and in such sequence to avoid delay in the Work. Coordinate submission of related items with schedule.

B. Electronic Submittals – Format: Shop Drawings, Product Data, Certificates, Warranties and any similar submittals, other than physical samples, shall be provided as digital submittals in PDF format suitable for sending via electronic mail or downloaded from internet file transfer website.

1. Submittal shall be submitted as one PDF and each item bookmarked to allow for efficient review.
2. Organize submittals per specification section. Include all items listed in each specification section to facilitate one review by the Design team per specification section.
3. PDF security permissions shall be formatted to allow printing, reviewing

and editing functions by Architect and Owner using any PDF compatible computer program.

4. When electronic submittals are required to be accompanied by a physical sample, the submittal will not be returned until both the electronic submittal and physical sample are reviewed.

C. Contractor Shall:

1. Review submittal for completeness before sending to Architect for review. Submittal shall have each of the items noted under the Submittals section in each specification section (Product Data, Drawings, Samples, Certifications, etc.).

   a. Incomplete submittals will be returned “Not Reviewed” by Architect.

2. Review and approve each submittal prior to submission to Architect.

3. Include a review priority for Architect if multiple and / or large submittals are transmitted to Architect in the same week.

4. Reproduce and distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions. Pay all costs for reproduction, distribution, and materials.

5. Coordinate submittals into logical groupings to facilitate inter-relation of the several items:

   a. Finishes which involve Architect selection of colors, textures, or patterns.

   b. Associated items which require correlation for efficient function or for installation.

6. Identify, in writing, variations from Contract Documents and product or system limitations which may be detrimental to successful performance of the completed Work.

7. Accompany submittals with transmittal letter containing:

   a. Date.

   b. Project title and number.

   c. Contractor's name and address.

   d. Number of copies of Shop Drawings, Product Data and Samples submitted.

   e. Identification of submittal as it relates to:

1) Subcontractor / Supplier / Manufacturer:

Name.

Address.

Telephone number. Representative's name.

2) Detail number and location in Construction Documents.

3) Specification reference number and paragraph.

4) Applicable Standards.

5) Finishes.

6) Identification of deviations from Contract Documents.

D. Additional Information Required:

1. Relation to adjacent structure or materials.

2. Fabrication methods, assembly, special installation requirements, accessories, fasteners and other pertinent information.

3. Field dimensions, clearly identified.

4. Coordination with other trades. Stamped and signed by affected trades.

E. Distribution:

1. Send submittals to Architect via electronic mail or from internet file transfer website.

2. Architect will return reviewed submittals to Contractor and Owner via electronic mail or Architect's internet file transfer system.

3. Send copy of Architect reviewed submittal to Subcontractors / Suppliers.

1.05 SUBCONTRACTOR AND SUPPLIER LIST

A. Prior to submission of First Application for Payment, submit complete list of subcontractors and suppliers to be used for the Work. Provide specification section identification number, addresses and telephone numbers for each listed subcontractor and supplier providing materials.

1.06 SHOP DRAWINGS

A. Present in clear and thorough manner. Title each drawing with Project name and number; identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents.

B. Identify field dimensions; show relation to adjacent or critical features or Work or products.

C. Do not submit freehand drawings or hand drafted drawings.

D. Shop Drawings requiring Code Agency Approval: Submit on format and media required by Approval Agency. Include information required by Project Documents and Approval Agency.

1.07 PRODUCT DATA

A. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.

B. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.

1.08 SAMPLES

A. Submit two samples of the specified color and texture for each product unless specified otherwise in individual specification sections; samples will be retained by Architect.

B. Where a specific color has not been specified, submit full range of manufacturer's standard and special finishes except when more restrictive requirements are specified, indicating colors, textures and patterns, for Architect selection.

C. Label each sample with identification required for transmittal letter.

D. Field samples are to be maintained at the site of the Work and are to be removed after substantial completion unless directed otherwise.

1.09 MANUFACTURER'S CERTIFICATES

A. When specified in individual specification sections, submit manufacturer's certificate to Architect for review.

B. Indicate material / product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits and certifications as appropriate.

C. Certificates may be recent or previous test results on material / product, but must be acceptable to Architect / Engineer.

1.10 CALCULATIONS

A. When specified in individual specification sections, submit calculations to

Architect for review.

1.11 CONTRACTOR REVIEW

A. Coordinate submittals with requirements of the Work and Contract Documents.

B. Apply Contractor's stamp with signature. The submittal signed by the Contractor certifies that the Contractor has reviewed the submittal for accuracy, completeness and compliance with the Contract Documents. It also certifies that the Contractor has verified products required, field dimensions, adjacent construction work, and coordination of information, in accordance with the requirements of the Work and Contract Documents. Submittals without Contractor's stamp and signature are rejected. Notify Architect in writing at time of submittal, of any deviations from requirements of Contract Documents.

1.12 RESUBMITTALS

A. Revise and resubmit submittals as required, identify changes made since previous submittal.

B. Shop Drawings, Product Data and Calculations:

1. Revise initial drawings, data or calculations and resubmit as specified for the initial submittal.

2. Indicate any changes which have been made including those requested by the Architect.

C. Samples: Submit new samples as required.

D. Architect reserves the right to charge the Contractor for reviewing non-responsive resubmittals.

1.13 ARCHITECT REVIEW

A. Architect or their consultant(s) will review shop drawings, product data, calculations and samples and return submittals to Contractor.

B. Architect’s review is qualified by the following language included on the review stamp: “This review is only for general conformance with design concept of the Project and general compliance with the information given in the Contract Documents. Corrections or comments made on the shop drawings during this review do not relieve the Contractor from compliance with the requirements of the plans and specifications. Approval of a specific item shall not include approval of an assembly of which the item is a component. Contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of his or her Work with that of all other trades; and for performing all work in a safe and satisfactory manner”.

1. Any action shown is subject to Contract Document's requirements.

Architect will mark the review submittal in one of the following boxes on review stamp:

- ❑ Reviewed
- ❑ Furnish as Corrected
- ❑ Rejected
- ❑ Revise and Resubmit
- ❑ Submit Specified Item

C. Architect / Engineer review of individual or separate items does not constitute review of assembly in which it functions.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Regulatory Requirements.

1.03 APPLICABLE CODES AND STANDARDS

A. Any specific reference in the Specifications to codes, regulations, reference standards, manufacturer's instructions or requirements of regulatory agencies shall mean the latest printed edition of each in effect at the date of submission of bids unless the document is shown dated.

B. Perform the Work in conformance with the applicable requirements of all regulatory agencies including, but not limited to, the following:

1. International Building Code (IBC).
2. National Electrical Code (NEC).
3. Uniform Plumbing Code (UPC).
4. International Mechanical Code (IMC).
5. Washington State Non-Residential Energy Code.
6. Washington State Ventilation and Indoor Air Quality Code.
7. Washington State Regulations for Barrier-Free Facilities.
8. Americans with Disabilities Act (ADA).

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 42 00

REFERENCES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. References, including:

1. Abbreviations.

2. Symbols.

3. Definitions.

1.03 ABBREVIATIONS

A. The following abbreviations of organizations may be used in the Contract Documents.

AAMA	Architectural Aluminum Manufacturer's Association
ACI	American Concrete Institute
AGC	Associated General Contractors of America
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute
APA	American Plywood Association
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWS	American Welding Society

AWI	Architectural Woodwork Institute
BHMA	Builder's Hardware Manufacturers Association
CLFMI	Chain Link Fence Manufacturers Institute
CRSI	Concrete Reinforcing Steel Institute
CS	U.S. Commercial Standard
DHI	Door and Hardware Institute
FGMA	Flat Glass Marketing Association
FM	Factory Mutual System
FS	Federal Specification
GA	Gypsum Association
IBC	International Building Code
ICC	International Code Council
MLSFA	Metal Lath / Steel Framing Association
NAAMM	National Association of Architectural Metal Manufacturers
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association; National Forest Products Association
NWMA	National Woodwork Manufacturers' Association
NWWDA	National Wood Window and Door Association
PCI	Prestressed Concrete Institute
PDCA	Painting and Decorating Contractors of America
PS	U.S. Product Standard
SDI	Steel Deck Institute; Steel Door Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc.

SSPC	Steel Structures Painting Council
TCA	Tile Council of America
TPI	Truss Plate Institute
UL	Underwriters' Laboratories, Inc.
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code
WABO	Washington Association of Building Officials
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation
WWPA	Western Wood Products Association

1. Additional abbreviations, used only on the Drawings, are listed thereon.

1.04 SYMBOLS

A. Symbols, used only on the Drawings, are shown thereon.

1.05 DEFINITIONS

A. Terms used on the Drawings or in the Specifications in addition to those shown in General Conditions shall have the following meanings:

TERM	MEANING
As Directed	"By the Architect"
As Required	"By Code; by good building practice; by the condition prevailing; by Contract Documents; by Owner, or by Architect"
As Selected	"By Architect"
Equal	In the opinion of the Architect. The burden of proof of equality is the responsibility of the Contractor.
Furnish	"Supply and deliver to the Project ready for installation and in operable condition."
Install	"Incorporate in the Work in final position, complete, anchored, connected, and in operable condition."
NIC	Not in Contract

Project	Total construction of which Work performed under the Contract Documents may be the whole or a part.
Provide	"Furnish and install complete." When neither "furnish", "install", nor "provide" is stated, "provide" is implied.
Shown	"As indicated on the Drawings"
Specified	"As written in the Project Manual"

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Administrative and Procedural Requirements for Project Quality Control.

1.03 REFERENCES

A. Conform to the requirements of the referenced standards referred to in individual specification sections. Reference standards shall be the edition current as of the date of the Contract Documents.

B. Obtain copies of reference standards that govern work performed on site.

C. Should specified reference standards conflict with Contract Documents, the most stringent and restrictive requirement shall prevail except where Architect / Engineer provides other direction; request clarification from Architect before proceeding.

D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

E. Americans with Disabilities Act (ADA).

F. ICC / ANSI A117.1 – Accessible and Usable Buildings and Facilities.

1.04 CONTRACTOR'S QUALITY ASSURANCE / CONTROL OF CONSTRUCTION

A. Employ / assign quality control personnel to monitor the work of this project for conformance to the requirements of the Contract Documents and to good construction practices.

1. Prior to starting their work, review the scope of work, performance requirements, materials and workmanship requirements with each trade and subcontractor.

2. Review materials when delivered to the site for conformance to the Contract Documents and submittals.

3. Monitor work in progress for conformance to the Contract Documents

and submittals.

B. Contractor is solely responsible for managing and controlling the quality of the work and conformance with the requirements of the Contract Documents.

C. Monitor quality control over suppliers, manufacturers, products, services, site conditions and workmanship, to produce Work of specified quality.

D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Work shall be performed by trained and experienced workers qualified to produce workmanship of specified quality.

F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

G. Inspections and reports issued by special inspector or testing laboratory do not relieve the Contractor from his responsibility to construct Work in conformance with the requirements of the Contract Documents.

H. Contractor is responsible to review and confirm that substrate construction, site conditions and work by others complies with requirements of Contract Documents and manufacturer's requirements for subsequent work prior to installation or cover.

1.05 ACCESSIBILITY REQUIREMENTS

A. Accessibility Requirements: The accessibility requirements shown on the Drawings are required for conformance with the Americans with Disabilities Act (ADA) and ICC / ANSI A117.1. Strict conformance with the accessibility requirements shown on the Drawings is required for this project; non-conforming work will require correction at Contractor's expense.

1. A copy of ICC / ANSI A117.1 shall be kept on the jobsite for reference during construction and reviewed to provide a full understanding of each accessible design requirement.

2. Construction Tolerances: Typical construction tolerances common to the construction industry are not acknowledged or permitted by the Americans with Disabilities Act (ADA) and ICC / ANSI A117.1. Therefore, Work must be constructed within the strict accessibility requirements without any allowable construction tolerances.

B. Submittal Review: Review submittals for conformance with the accessibility requirements of ICC / ANSI A117.1 shown on the Drawings; mark up submittals that have incorrect or missing accessibility requirements.

C. Review with Workers: Review the accessibility requirements of ICC / ANSI A117.1 and the Drawings with workers performing work that is required to conform to the accessibility requirements of ICC / ANSI A117.1.

D. Monitoring: Monitor the work of this project for compliance with the accessibility requirements of ICC / ANSI A117 shown on the Drawings.

E. Inspection: Inspect the completed work that is required to conform to accessibility requirements for conformance with ICC / ANSI A117.1. Inspection shall require accurate measurements to confirm that dimensions, slopes, and relationships shown on the Drawings have been constructed in accordance with accessibility requirements.

1.06 FIELD SAMPLES

A. Install field samples at the site as required by individual specifications sections for review.

B. Acceptable samples represent the quality level of the Work.

1.07 MOCK-UP

A. Provide where specified.

B. Assemble and install specified items, with specified attachment and anchorage devices, flashings, seals, and finishes. Install complete full-scale mock-up of assembly at project site.

C. Where mock-up is not a permanent part of the construction, remove at agreed upon time. Do not remove mock-up without Architect's approval.

1.08 INSPECTION AND TESTING AGENCY SERVICES

A. Owner will appoint, employ, and pay for services of an independent inspection and testing agency to perform inspection and testing.

B. The inspection and testing agency will perform inspections, tests and other services specified in individual specification sections, as noted on the Structural Drawings, and as required by the Owner or Architect.

C. Reports will be submitted by the inspection and testing agency to the Authority Having Jurisdiction, Architect, Engineer, Contractor, and Owner, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

D. Contractor's Responsibilities:

1. Cooperate with inspection and testing agency personnel and facilitate their inspection / testing work on the project site.
2. Coordinate the work and inspection / testing schedule directly with inspection and testing agency.
3. Notify inspection and testing agency and Architect 24 hours minimum prior to expected time for operations requiring inspection / testing.

4. Furnish inspection and testing agency with reviewed submittals, including concrete design mix, etc.

5. Furnish safe access to the work requiring testing / inspection, samples of materials, equipment, tools, storage, electrical power, and assistance as requested.

6. Make arrangements with inspection and testing agency and pay for additional samples and tests required for Contractor's use.

7. Correct / replace any work found by the inspection and testing agency to be not in conformance with the Contract Documents.

E. Site visits and retesting required because of scheduling problems caused by the Contractor and / or non-conformance to specified requirements shall be performed by the same inspection and testing agency. Payment for retesting will be charged to the Contractor by deducting inspection or testing charges from the Contract Sum
/ Price.

1.09 MANUFACTURER'S FIELD SERVICES AND REPORTS

A. When specified in individual specification sections or when required by field installation problems, questions or concerns, require material or product suppliers or manufacturers to provide qualified staff personnel to visit the jobsite and provide technical consultation, observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment as applicable, and to initiate instructions.

B. Representative to submit written report to Architect describing testing observations and recommendations. Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions shall also be included.

C. Submit report in duplicate within 30 calendar days of observation to Architect for review.

1.10 MANUFACTURER'S INSTRUCTIONS

A. Comply with manufacturer's installation / assembly instructions in full detail, including each step-in sequence.

B. Substrates, Site Conditions and Work By Others shall conform to manufacturer's requirements:

1. Inspect substrate, site conditions and work by others for conformance to manufacturer's requirements for material and condition prior to starting any work.

2. Do not start work if substrate construction, site conditions or work by others does not comply with manufacturer's recommendations; report any

problems to Contractor and Architect.

3. Start of work / installation indicates installer’s acceptance of substrate, site conditions and work by others as meeting manufacturer’s requirements.

C. Should manufacturer's instructions conflict with Contract Documents, request clarification from Architect before proceeding.

1.11 MANUFACTURER'S CERTIFICATES

A. When required in individual specification sections, submit manufacturer's certificate. Refer to Section 01 33 00, paragraph entitled "Manufacturer's Certificates."

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Administrative and Procedural Requirements for Materials and Equipment related to:

1. Transportation and Handling.

2. Storage and Protection.

3. Product Options.

4. Substitutions.

1.03 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the work. Products may also include existing materials or components required for reuse.

B. Provide interchangeable components of the same manufacturer, for similar components.

C. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

1.04 TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement or damage.

1.05 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.

B. For exterior storage of fabricated products, place on sloped supports, above ground.

C. Provide and pay for off-site storage and protection when site does not permit on- site storage or protection.

D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement or damage.

G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

1.06 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by naming a Manufacturer “or approved equal”, or with a provision for Substitution Request: Submit a request for substitution for any manufacturer not named.

D. Products Specified by "or approved equal" to a Listed Manufacturer: Products with same function and similar quality and features to listed manufacturer.

E. Products Specified by "Similar To" a Listed Manufacturer: Products with same function and similar quality and features to listed manufacturer.

1.07 SUBSTITUTIONS

A. Architect will consider requests for Substitutions up to 8 calendar days prior to bid opening date.

B. Substitutions may be considered after contract award only when a product becomes unavailable through no fault of the Contractor, or when the Owner

deems it to be in the Owner's best interest to do so.

1. Substitutions proposed to allow timely delivery due to Contractor's failure to order material / equipment on time will not be considered.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

D. A request constitutes a representation that the Bidder / Contractor:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.

2. Will provide the same warranty for the Substitution as for the specified product.

3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.

4. Waives claims for additional costs or time extension that may subsequently become apparent.

5. Will reimburse Owner for review or redesign services associated with re- approval by authorities.

6. Has investigated and determined that the proposed substitution will meet code requirements.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, if they have not been previously approved.

F. Substitution Submittal Procedure:

1. All substitution requests shall be accompanied with the Substitution Request Form completely filled out. Substitution Request Forms are bound in the Project Manual in Section 01 60 01. Limit each request form to one proposed substitution.

2. Submit one complete set of substitution request forms and supporting data via mail or e-mail.

3. Clearly indicate with red arrows on the supporting data the proposed substitution and accessories.

G. Substitution Review Procedure: Because of the number of substitution requests typically received before bidding and the coordination required to review these, the following procedures will apply:

1. Substitution requests received after the time specified in paragraph 1.07 A. will not be reviewed or listed in addenda.

2. Substitution requests will be evaluated and the request form will be annotated in the column marked "For Use by Architect." It will then be retained in the A / E's file.

3. The Substitution Request Form and submitted data will not be returned to the submitter. These forms are for the A / E's in-house use only.

4. Only approved substitutions will be listed on addenda. All proposed substitutions not listed on addenda shall be considered by the submitter and the Contractor as a non-acceptable substitution and shall not be used.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 60 01

SUBSTITUTION REQUEST FORM

SUBMITTED TO: Skagit County

PROJECT: Parker Building HVAC Replacement

SPECIFIED ITEM:

Section No.	Paragraph No.	Description of Specified Item

The Undersigned requests consideration for the following substitution to that specified:

PROPOSED SUBSTITUTION:

ATTACHED DATA:

Include product description, specifications, drawings, photographs, performance, and test data as necessary for evaluation. Clearly identify proposed substitution and portions of data from other items where more than one item is described. Include description of changes to Contract Documents required by proposed substitution.

CERTIFICATION:

The Undersigned certifies that the following paragraphs are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. The Undersigned will pay for changes to building design, including engineering design, detailing, and construction costs, caused by requested substitution.
3. Proposed substitution will have no adverse effect on other trades, Construction Schedule, or specified warranty requirements.
4. Maintenance and service parts will be locally available for proposed substitution.

Undersigned further states that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

SUBMITTED BY:

Signature _____

Firm _____

Address _____

Date _____

Telephone ( ) _____

FAX ( ) _____

FOR USE BY ARCHITECT:

☐ Approved ☐ Approved as Noted

☐ Not Approved ☐ Received too Late

By _____

Date _____

Remarks _____

END OF SECTION

SECTION 01 78 00

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Administrative and Procedural Requirements for the Contract Closeout including:

1. Closeout Procedures and Documents.
2. Final Cleaning.
3. Adjusting.
4. Extra Stock.
5. Spare Parts and Maintenance Materials.
6. AHJ Approved Permit Drawing Set.
7. As-Built Documents.
8. Operation and Maintenance Data and Bonds and Warranties.
9. Punch List.
10. Final Adjustment of Accounts.

1.03 CLOSEOUT PROCEDURES AND DOCUMENTS

A. Comply with the General Conditions of the Contract.

B. Submit draft As-Built Documents and draft Operations and Maintenance Data and Warranty documents prior to Substantial Completion.

C. Submit final closeout documents as required for Project closeout.

1.04 FINAL CLEANING

A. Execute final cleaning prior to Substantial Completion review and during the period between Substantial and Final Completion where punch list work causes waste, rubbish or debris.

B. Clean surfaces exposed to view, remove temporary labels, stains and foreign substances. Follow manufacturer's recommendations for cleaning installed products.

C. Clean equipment and fixtures to sanitary condition.

D. Clean dirt and debris from drainage systems.

E. Clean site; sweep paved areas, rake clean landscaped surfaces.

F. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.05 ADJUSTING

A. Adjust operating products and equipment in accordance with manufacturer's recommendations and specification section to ensure smooth and unhindered operation.

1.06 EXTRA STOCK

A. Provide extra stock in quantities specified in individual specification sections.

B. Make arrangements with the Owner’s representative to deliver extra stock items, prior to final payment.

C. Document receipt of extra stock by Owner's representative by listing each extra stock item and obtaining the signature of the Owner's representative for it. Include this document in Part 1 of the O and M Manual.

1.07 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.

B. Make arrangements with the Owner’s representative to deliver products, spare parts, maintenance and extra materials, prior to final payment.

C. Document receipt of products, spare parts, maintenance and extra materials by Owner's representative by listing each product, spare part, maintenance and extra material item and obtaining the signature of the Owner's representative for it. Include this document in Part 1 of the O and M Manual.

1.08 AHJ APPROVED PERMIT DRAWING SET

A. During construction, maintain Permit Set of drawings in good, clean condition and protect from damage or marks.

B. After obtaining the Certificate of Occupancy, make arrangements with the Owner’s representative to deliver AHJ approved Permit Set of drawings to the

Owner for their permanent record, prior to final payment.

C. Document receipt of Permit Set of drawings by Owner's representative by obtaining the signature of the Owner's representative for it. Include this document in Part 1 of the O and M Manual.

1.09 AS-BUILT DOCUMENTS

A. As-Built Documents shall consist of the following:

1. Contract Documents:

a. Contract Drawings with As-Built Revisions noted.

b. Reviewed Shop Drawings, Product Data and Samples.

2. Drawings of Contractor designed systems, (i.e. joists, trusses, fire sprinkler system, fire alarm system, controls system, etc.).

B. During Construction:

1. Maintain on-site throughout the construction period, one set of As-Built Documents and record actual revisions to the work on these documents. As-Built Documents and records specified below may be kept in electronic format with on-site access and with off-site weekly backup.

a. Store As-Built Documents separate from documents used for construction.

b. Record information concurrent with construction progress.

c. Contract Drawings: Legibly mark, cloud and flag each item to record actual construction including:

1) Surveyed as-built conditions.

2) Measured horizontal and vertical locations of underground utilities referenced to permanent surface improvements.

3) Measured location of internal utilities concealed in construction, referenced to visible and accessible features of the work.

4) Field changes of dimensions and detail.

5) Details not on original Contract Drawings.

C. Prior to Contract Closeout: Prepare and submit As-Built Documents to the Architect as follows:

1. As-Built Document Content:

    a. As-Built Utility Survey: Provide survey of site utility piping and structures with location and elevation, performed by a professional surveyor. Survey information shall be recorded on the Contract Drawings for inclusion in the As-Built Drawings.

    b. As-Built Project Drawings: Drawings shall be in good, clean condition and legibly marked in red ink (red text) to show revisions and changes made during construction and as-built conditions. Mark or stamp bottom of each sheet “As-Built Drawings, Name of Construction Company, Date”.

    c. Contractor Designed Systems: Electronically update the contractor designed system drawings with as-built conditions. Mark or stamp bottom of each sheet “As-Built Drawings, Name of Construction Company, Date”.

2. Draft Submittal:

    a. Submittals shall be submitted in the following packages:

        1) Civil.

        2) Landscape.

        3) Architectural.

        4) Structural.

        5) Plumbing.

        6) HVAC.

        7) Electrical.

    b. Digital Copy: Submit a digital draft copy in with the content described below in PDF format for review by Architect / Engineer and Owner. The digital copy will be returned to Contractor with Architect / Engineer and Owner comments. Revise content of documents as required by Architect / Engineer and Owner comments prior to submitting final documents. Organize the submittal as follows:

        1) As-Built Survey: Provide one PDF file and label the file “As- Built Utility Survey”.

        2) As-Built Project Drawings: Provide a separate PDF file for each discipline and label the file “As-Built_*Discipline*”. Each file shall have each page bookmarked and labeled to match the sheet numbers.

3) Contractor Designed Systems: Provide one PDF file for each set of system Drawings and label each file per its content.

3. Final Submittal:

a. Printed Copy (Hard Copy): Submit two (2) sets of revised documents. Organize the submittal as follows:

1) As-Built Survey: Provide printed copy on 20 lbs. white paper.

2) As-Built Project Drawings: Provide printed copy on 20 lbs. white paper in color so red ink (red text) is in color.

3) Contractor Designed Systems: Provide printed copy of each set on 20 lbs. white paper.

b. Digital Copy: Submit a digital copy of the revised documents in PDF format. Digital copy shall be in color so red ink (red text) is in color and matches the format of the draft submittal.

1.10 OPERATION AND MAINTENANCE DATA AND BONDS AND WARRANTIES

A. Operation and Maintenance Data: Refer to Section 01 78 23.

B. Bonds and Warranties: Refer to Section 01 78 33.

1.11 PUNCH LIST

A. Contractor Punch List: Upon completion of the Work, the Contractor shall walk- through each room / area in the building and around the entire exterior and site and prepare a punch list of each item of work that is not completed or does not conform to the requirements of the Contract Documents.

B. Architect's Punch List: After completion of the punch list by the Contractor, provide written notice that the Work has been substantially completed and schedule a room by room punch list walk-though with the Architect and Owner to review the finished work and Contractor's punch list items.

1. On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements.
2. Any additional items of uncompleted or unacceptable work that are found during this walk-through shall be added onto the Punch List for completion / correction.

3. The Architect will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

C. The project budget provides for two final visits to the project site by the Architect / Engineer for performing a punch list review of the work. The first visit will be in response to the Contractor's notice of substantial completion of the Work and if necessary, the second will be after notification by the Contractor that punch list items and deficiencies noted during punch list review have been corrected.

D. Should additional reviews by the Architect / Engineer be required due to the Contractor's failure to correct deficient work, the Owner will deduct the amount of Architect / Engineer compensation for re-review services from final payment to Contractor.

1.12 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting to Architect.

B. Reflect all adjustments to Contract Sum. Indicate following:

1. The Original Contract Sum;

2. Additions and deductions resulting from:

a. Previous change orders;

b. Alternates;

c. Unit price adjustments;

d. Deductions for uncorrected work;

e. Deductions for liquidated damages;

f. Deductions for additional review services;

g. Other adjustments;

3. Total Contract Sum, as adjusted;

4. Previous Payments; and

5. Sums remaining due.

C. Prior to processing of Final Application and Certificate for Payment, all Closeout Documents including Project Record Documents, Operations and Maintenance Manuals and Warranty Binders must be submitted, reviewed and accepted by the Architect.

PART 2 - PRODUCTS

2.01 BINDERS

A. Binders: Binders shall be black and have heavy-duty durable vinyl covers on front, back and spine, and have heavy duty metal D-rings.

B. Dividers: Similar to Avery *Print-On Dividers, 8 Tab*.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Operation and Maintenance Data.

1.03 SCOPE OF WORK

A. To aid the continued instruction of operating and maintenance personnel, and to provide a positive source of information regarding the products incorporated into the Work, furnish and deliver the data described in this Section and in pertinent other Sections.

B. Related Work:

1. Required contents of submittals also may be amplified in pertinent other Sections.

1.04 SUBMITTALS

A. Comply with applicable provisions of Section 01 33 00.

B. Submit one electronic (PDF) copy of a preliminary draft of the proposed Manual or Manuals to the Architect for review and comments.

C. Unless otherwise directed in other Sections, or in writing by the Architect, submit two printed copies of the final Manuals and one electronic (PDF) copy to the Architect prior to instruction of operation and maintenance personnel.

1.05 QUALITY ASSURANCE

A. In preparing data required by this Section, use only personnel who are thoroughly trained and experienced in operation and maintenance of the described items, completely familiar with the requirements of this Section, and skilled in technical writing to the extent needed for communicating the essential data.

PART 2 - PRODUCTS

2.01 INSTRUCTIONS

A. Where instruction Manuals are required to be submitted under other Sections of these Specifications, prepare in accordance with the provisions of this Section.

B. Format:

1. Size: 8-1/2-inch x 11-inch.

2. Paper: White bond, at least 20 lb wt.

3. Text: Neatly written or printed.

4. Drawings: 11-inch height (11x17) preferable; bind in with text; foldout acceptable; larger drawings acceptable but fold to fit within the Manual and provide a drawing pocket inside rear cover or bind in with text.

5. Flysheets: Separate each portion of the Manual, by Specification Section, with neatly prepared flysheets briefly describing contents of the ensuing portion; flysheets may be in color.

6. Measurements: Provide all measurements in U. S. standard units such as feet-and-inches, lbs, and cfm.

7. Manuals shall be clearly identified on the cover with at least the following information:

2.02 OPERATING AND MAINTENANCE INSTRUCTIONS

( )
(name and address of work)
_____

( )
(name of contractor)
_____

( )
(general subject of this Manual)
_____

( )
(space for approval signature of)
_____

( )
(the Architect and approval date)
_____

A. Contents: Include at least the following:

1. Neatly typewritten index near the front of the Manual, giving immediate information as to location within the Manual of all emergency information regarding the installation.

2. Complete instructions regarding operation and maintenance of all equipment involved including lubrication, disassembly, and re-assembly.

3. Complete nomenclature of all parts of all equipment.

4. Copy of all guarantees and warranties issued.

5. Manufacturers' bulletins, cuts, and descriptive data, where pertinent, clearly indication the precise items included in this installation and deleting, or otherwise clearly indicating, all manufacturers' data with which this installation is not concerned.

6. Such other data as required in pertinent Sections of these Specifications.

PART 3 - EXECUTION

3.01 INSTRUCTION MANUALS

A. Preliminary:

1. Prepare a preliminary draft of each proposed Manual.

2. Show general arrangement, nature of contents in each portion, probable number of drawings and their size, and proposed method of binding and covering.

3. Secure the Architect's approval prior to proceeding.

B. Final: Complete the Manuals in strict accordance with the approved preliminary drafts and the Architect's review comments.

C. Revisions:

1. Following the indoctrination and instruction of operation and maintenance personnel, review all proposed revisions of the Manual with the Architect.

2. If the Contractor is required by the Architect to revise previously approved Manuals, compensation will be made as provided for under "Changes" in the General Conditions.

END OF SECTION

SECTION 01 78 33

BONDS AND WARRANTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Bonds and Warranties.

1.03 SCOPE OF WORK

A. Compile specified certificates, bonds, and similar certification.

B. Compile specified services and maintenance contracts.

C. Co-execute submittals when so specified.

D. Review submittals to verify compliance with Contract Documents.

1. Submit to Architect on Contractor's letterhead. Architect reviews and transmits to Owner.

E. Related Requirements:

1. Coordinate related requirements specified in other parts of the Project Manual, including but not limited to following.

a. Operating and Maintenance Data with Section 01 78 23.

b. Each respective Section as required.

1.04 SUBMITTALS

A. Assemble executed certificates, warranties, bonds, and any required service and maintenance contracts from the respective manufacturers, suppliers, and subcontractors.

B. Number of original signed copies required: One printed copy of each and one electronic copy (PDF) of each.

C. Contents: Neatly type Table of Contents in orderly sequence. Furnish complete information for each item as follows:

1. Product or work item;

2. Firm, with name of principal, address, and telephone number;

3. Scope;

4. Date of beginning of warranty or service and maintenance contract;

5. Duration of warranty or service maintenance contract;

6. Information for Owner's personnel, including:

   a. Proper procedure in case of failure;

7. Instances which might affect validity of warranty or bond.

8. Contractor, name of responsible principal, address, and telephone number.

1.05 FORM OF SUBMITTALS

A. Prepare in duplicate, packets conforming to following requirements.

1. Size: 8-1/2-inch X 11-inch punched sheets for 3-ring binder. Fold larger sheets to fit into binders.

2. Binders: Commercial quality heavy-duty plastic or fiberboard 3-ring D-ring binders. All binding is subject to the Architect's approval.

3. Covers: Identify each packet with typed or printed title "WARRANTIES AND BONDS" and showing:

   a. Title of Project.

   b. Name of Contractor.

B. Format / Warranties / Guarantees:

1. In addition to guarantees required by "General Conditions of Contract", furnish written guarantees warranting certain portions of work for longer periods.

2. Address them to Owner.

3. Submit through Architect on Contractor's letterhead before final payment and acceptance of work by Owner.

4. Where more than one subcontractor is involved, submit guarantee for each.

C. Form of Guarantee for other specified installation:

1. I (We), (insert name of contractor), certify (insert name of trade or portion of work being guaranteed) installed by (insert name of appropriate subcontractor) on (insert name of job) located at (insert building/site name and address) is performed in strict accordance with Contract Documents. Further, I (We) guarantee this work to be (watertight, and without leaks) (other) caused by defects in materials and workmanship, for (fill in specific required guarantee period) years from (date of acceptance of work), and will repair, or replace, without delay, any defects in materials and workmanship discovered within guarantee period.

   Sincerely,

   (Name of Contractor / responsible principal / address/telephone number). Signed by Owner, Partner, or other person authorized to commit firm.)

1.06 TIME OF SUBMITTALS

A. For equipment or component parts of equipment put into service during progress of construction:

   1. Submit documents within ten days after final inspection and acceptance; or:

      a. Otherwise make submittals within ten days after Date of Substantial Completion, prior to final request for payment.

B. For items of work, where acceptance is delayed materially beyond the date of Substantial Completion, provide updated submittal within ten days after acceptance. List the date of acceptance as the start of the warranty period.

1.07 WARRANTY LENGTHS AND START DATES

A. All materials, parts, and labor shall be warranted for a minimum period of (1) one year; unless greater lengths for specific sections are specified elsewhere within the Project Manual.

B. Warranty periods shall begin on the date established as Substantial Completion.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 79 00

DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this section.

1.02 SECTION INCLUDES

A. Demonstration and Training.

1.03 SUMMARY

A. Work requiring instruction of Owner's personnel is specified in individual Sections.

B. Related Sections:

1. Operation and Maintenance Data: Section 01 78 23.

1.04 COMMISSIONING

A. Schedule instructional meeting or meetings within 2 weeks after Operation and Maintenance manuals have been accepted by the Architect.

B. Prior to final inspection, fully qualified manufacturers' representatives shall fully instruct Owner's designated operating and maintenance personnel in operation, adjustment, and maintenance of equipment and systems.

C. Basis of Instruction: Operation and maintenance manuals. Review contents of manuals with Owner's designated personnel, in full detail, to explain all aspects of operation and maintenance.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

Appendix A

Structural Calculations

COFFMAN ENGINEERS

Skagit County Parker Bldg
Mount Vernon, Washington

Structural Calculations

April 2023

CEI Project #210094

135 W Fairhaven Ave Suite | Burlington, WA 98233
Phone 360.707.5656

www.coffman.com

COFFMAN ENGINEERS

DESIGN CRITERIA

1700 E College Way, Mt Vernon, WA 98273, USA

Latitude, Longitude: 48.435309, -122.3199537

Date	2/17/2021, 6:29:20 AM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S_S	1.081	MCE_R ground motion. (for 0.2 second period)
S_1	0.385	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.298	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	0.865	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.461	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.553	Site modified peak ground acceleration
T_L	16	Long-period transition period in seconds
SsRT	1.081	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.188	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.385	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.431	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.91	Mapped value of the risk coefficient at short periods
C_{R1}	0.893	Mapped value of the risk coefficient at a period of 1 s

WIND LOAD CRITERIA - COMPONENTS & CLADDING

WIND LOAD CALCULATIONS ARE IN ACCORDANCE WITH THE 2018 IBC AND ASCE 7-16 AS ADOPTED BY THE CITY OF MOUNT VERNON, WA. ANALYSIS PROCEDURE IS CHAPTER 30, PART 1: ENCLOSED AND PARTIALLY ENCLOSED LOW RISE BUILDINGS (H <= 60FT).

VELOCITY PRESSURES

RISK CATEGORY		II
EXPOSURE CATEGORY		B
BASIC WIND SPEED	V =	100 MPH
DIRECTIONALITY FACTOR	Kd =	0.85
TOPOGRAPHIC FACTOR	Kzt =	1.00
GROUND ELEVATION ABOVE SEA LEVEL	Zg =	0.00 FT
GROUND ELEVATION FACTOR	Ke =	1.00
WIND IMPORTANCE FACTOR	Iw =	1.00

HEIGHT, Z (FT)	PRESSURE COEFFICIENT, Kz	VELOCITY PRESSURE, Qz (PSF)
0	0.70	15.24
15	0.70	15.24
20	0.70	15.24
25	0.70	15.24
30	0.70	15.24
40	0.76	16.55
50	0.81	17.64
60	0.85	18.58
*13	0.70	15.24
**18	0.70	15.24

*MEAN ROOF HEIGHT, h (FT)

**EVE HEIGHT, he (FT)

COMPONENTS & CLADDING DESCRIPTION

MOST CONSERVATIVE C&C PRESSURE WITH MINIMUM EFFECTIVE WIND AREA <= 10 S.F.

PRESSURE COEFFICIENTS

ENCLOSURE CLASSIFICATION		ENCLOSED
INTERNAL PRESSURE COEFF.	GCpi =	0.18 +/-
ROOF TYPE		[30.3-2A] GABLE, θ<7°
ROOF OVERHANG?		OVERHANG PRESENT
(1) ROOF FIELD	+GCp =	0.30
(1) ROOF FIELD	-GCp =	-1.70
(1) ROOF FIELD, OVERHANG	GCp =	-1.70
(1') ROOF MIDDLE	+GCp =	0.30
(1') ROOF MIDDLE	-GCp =	-0.90
(1') ROOF MIDDLE, OVERHANG	GCp =	-1.70
(2),(2e) ROOF EDGE	+GCp =	0.30
(2),(2e) ROOF EDGE	-GCp =	-2.30
(2),(2e) ROOF EDGE, OVERHANG	GCp =	-2.30
(2r),(2') ROOF RIDGE	+GCp =	N/A
(2r),(2') ROOF RIDGE	-GCp =	N/A
(2r),(2') ROOF RIDGE, OVERHANG	GCp =	N/A
(2n) ROOF EDGE (GABLE SIDE)	+GCp =	N/A
(2n) ROOF EDGE (GABLE SIDE)	-GCp =	N/A
(2n) ROOF EDGE (GABLE SIDE), OVERHANG	GCp =	N/A
(3),(3e) ROOF CORNER	+GCp =	0.30
(3),(3e) ROOF CORNER	-GCp =	-3.20
(3),(3e) ROOF CORNER, OVERHANG	GCp =	-3.20
(3r),(3') ROOF CORNER (RIDGE)	+GCp =	N/A
(3r),(3') ROOF CORNER (RIDGE)	-GCp =	N/A
(3r),(3') ROOF CORNER (RIDGE), OVERHANG	GCp =	N/A
(4) WALL FIELD	+GCp =	0.90
(4) WALL FIELD	-GCp =	-0.99
(5) WALL EDGE	+GCp =	0.90
(5) WALL EDGE	-GCp =	-1.26

DESIGN PRESSURES

ROOF SLOPE	θ =	1.19 DEG
BUILDING WIDTH	W =	75 FT
WIDTH OF PRESS. COEFF. ZONE	a =	7.2 FT

BUILDING SURFACE	MAX. POSITIVE DESIGN PRESSURES, p (PSF)	MAX. NEGATIVE DESIGN PRESSURES, p (PSF)
(1) ROOF FIELD	16.0	-28.7
(1) ROOF FIELD, OVERHANG		-28.7
(1') ROOF MIDDLE	16.0	-16.5
(1') ROOF MIDDLE, OVERHANG		-28.7
(2),(2e) ROOF EDGE	16.0	-37.8
(2),(2e) ROOF EDGE, OVERHANG		-37.8
(2r),(2') ROOF RIDGE		
(2r),(2') ROOF RIDGE, OVERHANG		
(2n) ROOF EDGE (GABLE SIDE)		
(2n) ROOF EDGE (GABLE SIDE), OVERHANG		
(3),(3e) ROOF CORNER	16.0	-51.5
(3),(3e) ROOF CORNER, OVERHANG		-51.5
(3r),(3') ROOF CORNER (RIDGE)		
(3r),(3') ROOF CORNER (RIDGE), OVERHANG		
(4) WALL FIELD	16.5	-17.8
(5) WALL EDGE	16.5	-22.0

COFFMAN ENGINEERS

GRAVITY DESIGN

Gravity Support

ERV Units will be located on existing roof curbs which currently support the existing air handler units which are much heavier than the new ERVs. Existing supports are adequate to support the ERV units.

CU-1 units will be located over the existing double trusses with blocking that bears on the wood stud wall below. Existing supports are adequate to support the CU-1 units.

Rooftop Unit Connections

Vreqd = 0.6*788lb = 473 lb (ASD, See RTU Spreadsheet)
Treqd = 569 lb each side (ASD, See RTU Spreadsheet)

ERV to (E) Curb
Choose (5) #10 Screws each side
Vallow = 20*370lb = 7400 lb > Vreqd
Tallow = 5*137lb = 685 lb > Treqd

CU-1 to Sleeper
Choose (2) 1/2" Diam Lag Screws each side
Vallow = 4*179lb = 716 lb > Vreqd
Tallow = 2*1177lb = 2354 lb > Treqd

Sleeper to (E) Truss
Choose (2) HL33 each side
Vallow = 2*1040lb = 2080 lb > Vreqd
Tallow = 2*740lb = 1480 lb > Treqd

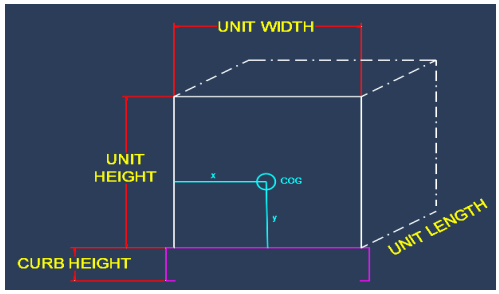
COFFMAN ENGINEERS

JOB: 210094
SUBJECT: Skagit County Tech Bldg HVAC
BY: BJW DATE: 11/7/2022
CHECKED:

Equipment Info - **CU-1**

Weight =	650	lbs
Unit Length =	49.00	in
Unit Width =	30.00	in
Curb Height	8.00	in
Unit Height =	72.00	in
COG =	44.00	in
Total Height	80.00	in

each unit of CU-1, (2) units total



From ASCE 7-16 Table 13.6-1 -

Component type: Air side HVAC, fans, air handlers, air conditioning units, cabinet heaters, air distribution boxes, and other mechanical

a_p =	2.5	R_p =	6

Seismic Loads: ASCE 7-16 Chapter 13

Spectral acceleration, S_{DS}	=	0.865	Building height, h	=	25 ft
Importance factor, I_p		1.0	Unit height, z	=	25 ft

$$F_p = \frac{0.4 a_p S_{DS} W_p}{R_p / I_P}\left(1 + 2\frac{z}{h}\right)$$ = 281 lbs (ASCE 7-16 13.3-1)

$F_{p,max} = 1.6 S_{DS} I_p W_p$ = 900 lbs (ASCE 7-16 13.3-2)

$F_{p,min} = 0.3 S_{DS} I_p W_p$ = 169 lbs (ASCE 7-16 13.3-3)

Forces:

F_{ph} =	281	lbs
F_{pv} =	±112	lbs

Reactions (LRFD)

1.2D + 1.0E	$C_{u,max}$ =	859	lbs	
0.9D - 1.0E	$T_{u,max}$ =	-176	lbs	Uplift Occurs

Reactions (ASD)

D + 0.7E	C_{max} =	653	lbs	
0.6D - 0.7E	T_{max} =	-133	lbs	Uplift Occurs

Wind Loads: ASCE 7-16 Section 29.4.1

Velocity Pressure, q_z	=	15.24
Force Coeffecient, C_{rh}	=	1.9
Force Coeffecient, C_{rv}	=	1.5

Forces:

F_{wh} =	788	lbs
F_{wv} =	233	lbs

Reactions (LRFD)

1.2D + 1.0W	$C_{u,max}$ =	1663	lbs		Wind Controls
0.9D - 1.0W	$T_{u,max}$ =	-980	lbs	Uplift Occurs	Wind Controls

Reactions (ASD)

D + 0.6W	C_{max} =	1089	lbs		Wind Controls
0.6D - 0.6W	T_{max} =	-569	lbs	Uplift Occurs	Wind Controls

Screw Capacities

Table Notes

1. Capacities based on AISI S100 Section E4.
2. When connecting materials of different steel thicknesses or tensile strengths, use the lowest values. Tabulated values assume two sheets of equal thickness are connected.
3. Capacities are based on Allowable Strength Design (ASD) and include safety factor of 3.0.
4. Where multiple fasteners are used, screws are assumed to have a center-to-center spacing of at least 3 times the nominal diameter (d).
5. Screws are assumed to have a center-of-screw to edge-of-steel dimension of at least 1.5 times the nominal diameter (d) of the screw.
6. Pull-out capacity is based on the lesser of pull-out capacity in sheet closest to screw tip or tension strength of screw.
7. Pull-over capacity is based on the lesser of pull-over capacity for sheet closest to screw header or tension strength of screw.
8. Values are for pure shear or tension loads. See AISI Section E4.5 for combined shear and pull-over.
9. Screw Shear (Pss), tension (Pts), diameter, and head diameter are from CFSEI Tech Note (F701-12).
10. Screw shear strength is the average value, and tension strength is the lowest value listed in CFSEI Tech Note (F701-12).
11. Higher values for screw strength (Pss, Pts), may be obtained by specifying screws from a specific manufacturer.

Allowable Screw Connection Capacity (lbs)

Thickness (Mils)	Design Thickness	Fy Yield (ksi)	Fu Tensile (ksi)	#6 Screw (Pss = 643 lbs, Pts = 419 lbs) 0.138" dia, 0.272" Head			#8 Screw (Pss= 1278 lbs, Pts = 586 lbs) 0.164" dia, 0.272" Head			#10 Screw (Pss= 1644 lbs, Pts = 1158 lbs) 0.190" dia, 0.340" Head			#12 Screw (Pss= 2330 lbs, Pts = 2325 lbs) 0.216" dia, 0.340" Head			¼" Screw (Pss= 3048 lbs, Pts = 3201 lbs) 0.250" dia, 0.409" Head		
				Shear	Pull-Out	Pull-Over	Shear	Pull-Out	Pull-Over	Shear	Pull-Out	Pull-Over	Shear	Pull-Out	Pull-Over	Shear	Pull-Out	Pull-Over
18	0.0188	33	33	44	24	84	48	29	84	52	33	105	55	38	105	60	44	127
27	0.0283	33	33	82	37	127	89	43	127	96	50	159	102	57	159	110	66	191
30	0.0312	33	33	95	40	140	103	48	140	111	55	175	118	63	175	127	73	211
33	0.0346	33	45	151	61	140	164	72	195	177	84	265	188	95	265	203	110	318
43	0.0451	33	45	214	79	140	244	94	195	263	109	345	280	124	345	302	144	415
54	0.0566	33	45	214	100	140	344	118	195	370	137	386	394	156	433	424	180	521
68	0.0713	33	45	214	125	140	426	149	195	523	173	386	557	196	545	600	227	656
97	0.1017	33	45	214	140	140	426	195	195	548	246	386	777	280	775	1,016	324	936
118	0.1242	33	45	214	140	140	426	195	195	548	301	386	777	342	775	1,016	396	1,067
54	0.0566	50	65	214	140	140	426	171	195	534	198	386	569	225	625	613	261	752
68	0.0713	50	65	214	140	140	426	195	195	548	249	386	777	284	775	866	328	948
97	0.1017	50	65	214	140	140	426	195	195	548	356	386	777	405	775	1,016	468	1,067
118	0.1242	50	65	214	140	140	426	195	195	548	386	386	777	494	775	1,016	572	1,067

Weld Capacities

Table Notes

1. Capacities based on the AISI S100 Specification Sections E2.4 for fillet welds and E2.5 for flare groove welds.
2. When connecting materials of different steel thicknesses or tensile strengths, use the lowest values.
3. Capacities are based on Allowable Strength Design (ASD).
4. Weld capacities are based on E60 electrodes. For material thinner than 68 mil, 0.030" to 0.035" diameter wire electrodes may provide best results.
5. Longitudinal capacity is considered to be loading in the direction of the length of the weld.
6. Transverse capacity is loading in perpendicular direction of the length of the weld.
7. For flare groove welds, the effective throat of weld is conservatively assumed to be less than 2t.
8. For longitudinal fillet welds, a minimum value of EQ E2.4-1, E2.4-2, and E2.4-4 was used.
9. For transverse fillet welds, a minimum value of EQ E2.4-3 and E2.4-4 was used.
10. For longitudinal flare groove welds, a minimum value of EQ E2.5-2 and E2.5-3 was used.

Allowable Weld Capacity (lbs / in)

Thickness (Mils)	Design Thickness	Fy Yield (ksi)	Fu Tensile (ksi)	Fillet Welds		Flare Groove Welds	
				Longitudinal	Transverse	Longitudinal	Transverse
43	0.0451	33	45	499	864	544	663
54	0.0566	33	45	626	1084	682	832
68	0.0713	33	45	789	1365	859	1048
97	0.1017	33	45	1125	1269	- [1]	- [1]
54	0.0566	50	65	905	1566	985	1202
68	0.0713	50	65	1140	1972	1241	1514
97	0.1017	50	65	1269	1269	- [1]	- [1]

[1] *Weld capacity for material thickness greater than 0.10" requires engineering judgment to determine leg of welds, W1 and W2.*

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LAG SCREW DESIGN

Lag Screw Diameter(in):	1/2
Lag Screw Length(in):	3.00

	Main Member	Side Member(s)
Material:	Hem Fir	Hem Fir
Angle to Grain(deg):	0.0	0.0
Side Member Thickness:		0.25

Penetration Depth into Main Member (Does not include length of tapered tip):	2.44

☐ Installed into End Grain of Main Member

Adjustment Factors	
C_d	1.60
C_M	1.00
C_t	1.00
C_g	1.00
C_Δ	1.00
$C_{eg\ -\ Lateral}$	1.00
$C_{eg\ -\ Withdrawal}$	1.00

Yield Mode	R_d	Single Shear
Im	4.00	1089
Is	4.00	112
II	3.60	421
IIIm	3.20	502
IIIs	3.20	266
IV	3.20	366
		112

Lateral Capacity =	**179**	**lbs**

Withdrawal Capacity =	**1177**	**lbs**

CITY MULTI® Model: PURY-P288TSNU-A(-BS)

Job Name:

Schedule Reference: | Date:

UNIT OPTION

- ☐ Standard Model PURY-P288TSNU-A
- ☐ Seacoast (BS) Model PURY-P288TSNU-A-BS

Minimum Operating Temperature
Heating (Outdoor): -25°F (-32°C) WB
Below -22°F (-30°C) WB,
an auxiliary heating source is highly recommended.
System requires firmware Ver. 26.35 or later.

ACCESSORIES

- ☐ Snow/Wind Guards - (See seperate submittal)
- ☐ Panel Heater - (PAC-PH02EHYU-E) (x2)

Note: Mitsubishi Electric (MESCA) supports the use of only MESCA supplied and approved Snow Guard / Wind Deflectors / Windscreens and accessories for proper functioning of the unit(s). Use of non-MESCA supported Snow Guard / Wind Deflectors / Windscreens and accessories will affect warranty coverage.

Outdoor Model				PURY-P288TSNU-A (-BS)	
Indoor Model				Non-Ducted	Ducted
Power source				3-phase 3-wire 208-230 V ±10% 60 Hz	
Cooling capacity *1 (Nominal)			BTU/h	288,000	
			kW	84.4	
	(208-230)	Power input	kW	26.47	
		Current input	A	81.6-73.8	
	(Rated)		BTU/h	274,000	
			kW	80.3	
	(208-230)	Power input	kW	24.33	24.68
		Current input	A	75.0-67.8	76.1-68.8
Temp. range of cooling		Indoor	W.B.	59~75°F (15~24°C)	
		Outdoor	D.B.	23~126°F (-5~52°C)	
Heating capacity *2 (Nominal)			BTU/h	323,000	
			kW	94.7	
	(208-230)	Power input	kW	27.65	
		Current input	A	85.2-77.1	
	(Rated)		BTU/h	304,000	
			kW	89.1	
	(208-230)	Power input	kW	25.22	25.98
		Current input	A	77.7-70.3	80.1-72.4
Temp. range of heating *3		Indoor	D.B.	59~81°F (15~27°C)	
		Outdoor	W.B.	-13~60°F (-25~15.5°C)	
Indoor unit connectable		Total capacity		50~150% of outdoor unit capacity	
		Model/Quantity		P05~P96/2~50	
Sound pressure level (measured in anechoic room) *4			dB <A>	68.0/68.5	
Sound power level (measured in anechoic room) *4			dB <A>	88.5/88.5	
Refrigerant piping diameter		High pressure	in. (mm)	1-1/8 (28.58) Brazed	
		Low pressure	in. (mm)	1-3/8 (34.93) Brazed	

Set Model

Model			PURY-P144TNU-A (-BS)	PURY-P144TNU-A (-BS)
Minimum Circuit Ampacity (*)		A	52-48	52-48
Maximum Overcurrent Protection (*)		A	80-70	80-70
FAN	Type x Quantity		Propeller fan x 2	Propeller fan x 2
	Airflow rate	cfm	9,550	9,550
		m3/min	270	270
	Control, Driving mechanism		Inverter-control, Brushless DC motor	Inverter-control, Brushless DC motor
	Motor output	kW	0.46+0.46	0.46+0.46
*5	External static press.		0 in.WG (0 Pa)	0 in.WG (0 Pa)
Compressor	Type x Quantity		Inverter scroll hermetic compressor x1	Inverter scroll hermetic compressor x1
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION	AC&R Works, MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter	Inverter
	Motor output	kW	9.9	9.9
	Case heater	kW	-	-
	Lubricant		MEL32	MEL32
External finish			Pre-coated galvanized steel sheet (+powder coating for -BS type) <MUNSELL 5Y 8/1>	Pre-coated galvanized steel sheet (+powder coating for -BS type) <MUNSELL 5Y 8/1>
External dimension H x W x D		in.	71-5/8 x 48-7/8 x 29-3/16	71-5/8 x 48-7/8 x 29-3/16
		mm	1,818 x 1,240 x 740	1,818 x 1,240 x 740
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)	High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection	Over-heat protection, Over-current protection
	Fan motor		-	-
Refrigerant	Type x original charge		R410A x 23 lbs + 12 oz (10.8 kg)	R410A x 23 lbs + 12 oz (10.8 kg)
	Control		Indoor LEV and BC controller	
Net weight		lbs (kg)	646 (293)	646 (293)
Heat exchanger			Salt-resistant cross fin & copper tube	Salt-resistant cross fin & copper tube
HIC circuit (HIC: Heat Inter-Changer)			-	-
Pipe between unit and distributor	High pressure	in. (mm)	7/8 (22.2) Brazed	7/8 (22.2) Brazed
	Low pressure	in. (mm)	1-1/8 (28.58) Brazed	1-1/8 (28.58) Brazed
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle)	
Optional parts	Outdoor Twinning kit: CMY-R300NCBK Joint: CMY-Y102SS-G2,CMY-Y102LS-G2,CMY-Y202S-G2,CMY-R160-J1 CMY-R201,202,203,204,205,306S-G, CMY-R302,303,304,305S-G1 Main BC controller: CMB-P108,1012,1016NU-JA1,CMB-P1016NU-KA1 Sub BC controller: CMB-P104,108NU-KB1			

Notes:
1.Nominal cooling conditions (Test conditions are based on AHRI 1230)
Indoor: 80°FD.B./67°FW.B. (26.7°CD.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
2.Nominal heating conditions (Test conditions are based on AHRI 1230)
Indoor: 70°FD.B. (21.1°CD.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
3.When applying product below -4°F, consult your design engineer for cold climate application best practices, including the use of a backup source for heating.
4.Cooling mode/Heating mode
5.External static pressure option is available (0.12 in.WG, 0.24 in.WG/30 Pa, 60 Pa, 80 Pa).
* Due to continuing improvement, above specifications may be subject to change without notice.

Specifications are subject to change without notice.

* All electrical work shall comply with National (CEC) and local codes and regulations.

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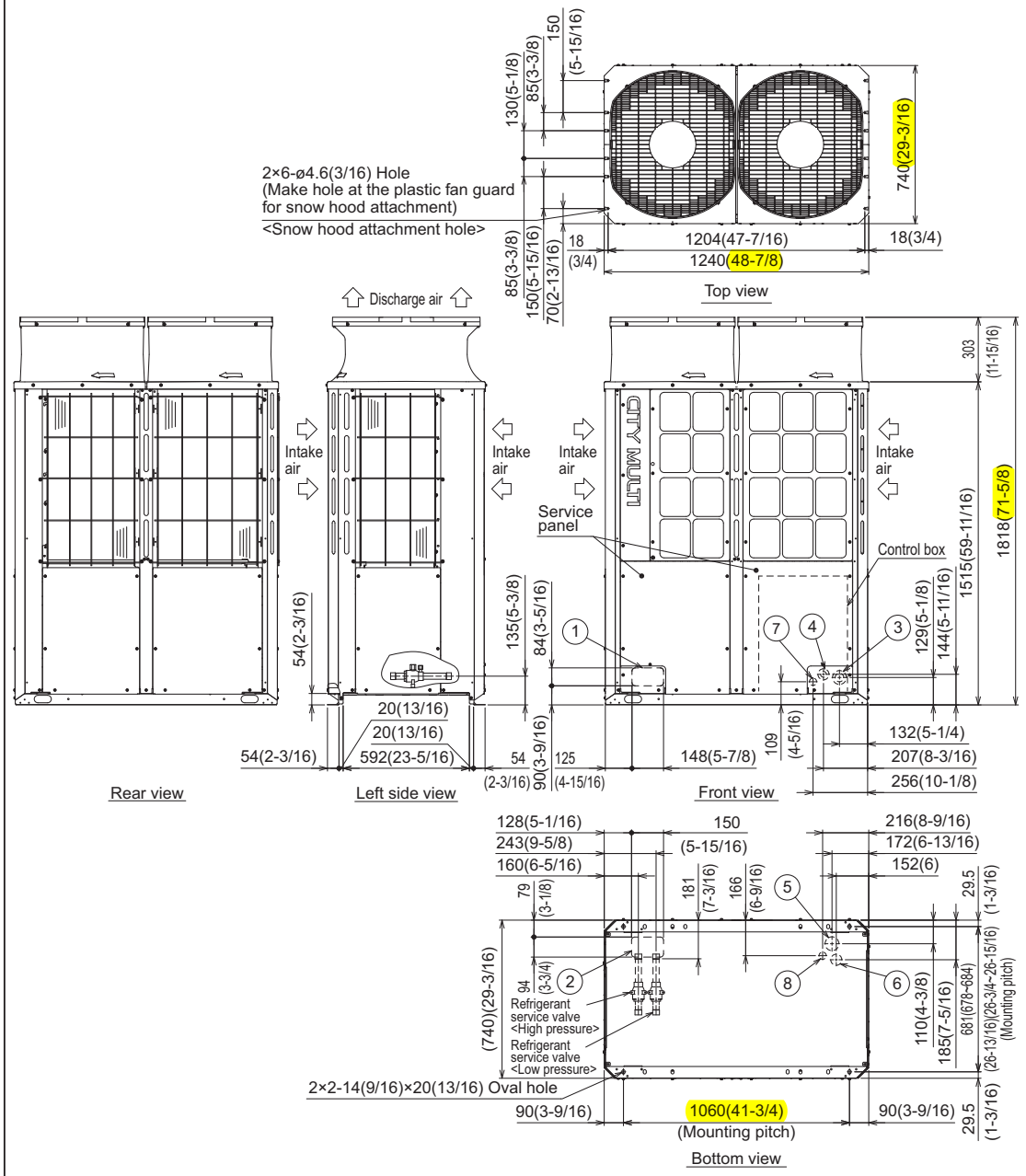
Module: PURY-P144TNU-A(-BS) - DIMENSIONS

Unit: mm (in.)



Note 1.Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2.At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C(248°F).

Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	High pressure	Low pressure	High pressure	Low pressure
P96	ø19.05(3/4) Brazed *1	ø22.2(7/8) Brazed *1	ø28.58(1-1/8)	ø28.58(1-1/8)
P120		ø28.58(1-1/8) Brazed		
P144	ø22.2(7/8) Brazed *1			

*1 Connect the refrigerant pipe to the service valve according to the Installation Manual.

NO.	Usage		Specifications
①	For pipes	Front through hole	148(5-7/8) × 84(3-5/16) Knockout hole
②		Bottom through hole	150(5-15/16) × 94(3-3/4) Knockout hole
③	For wires	Front through hole	ø62.7(2-1/2) or ø34.5(1-3/8) Knockout hole
④		Front through hole	ø43.7(1-3/4) or ø22.2(7/8) Knockout hole
⑤		Bottom through hole	ø65(2-9/16) Knockout hole
⑥		Bottom through hole	ø52(2-1/16) Knockout hole
⑦	For transmission cables	Front through hole	ø34(1-3/8) Knockout hole
⑧		Bottom through hole	ø34(1-3/8) Knockout hole

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Intertek

MITSUBISHI ELECTRIC
Heating and Cooling

Appendix B

Mechanical Permit Documents

MECHANICAL COMPLIANCE SUMMARY

2018 WSEC Compliance Forms for Commercial Buildings including Group R2, R3 & R4 over 3 stories and all R1

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Project & Applicant Information	**Project Title**	Skagit County Park Building - 2018 WSEC	For Building Department Use:	**Date: Apr 24, 2023**
	Project Address	1700 College Way E Mount Vernon, WA 98273		
	Applicant Name	Brian Niemi		
	Applicant Phone	360-828-3717		
	Applicant Email	brian.niemi@coffman.com		

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

General Occupancy	All Commercial		**General Building Use Type**	Office, Government/Municipal		**Building Cond. Floor Area**	10,485
General Project Types	Alteration	**New Building or Addition Mechanical Scope**		**Alteration Mechanical Scope**	Single Zone Systems & Equipment	**Project Cond. Floor Area**	10,485
						Floors Above Grade	1
						Compliance Method	Compliance Method 1 - General
Mechanical Project Description	This project is the renovation of the existing HVAC system to a new variable refrigerant volume system and two dedicated outdoor air systems.						

Mechanical Compliance Scope and Method	**Project Type**	**Mechanical Scope**	**Economizer Exception(s) Applied?**	**DOAS Ventilation Provided?**	**Higher Equipment Efficiency Option Applied?**	**Equipment Efficiency Compliance Verification**
	Alteration	Single Zone Systems & Equipment	No	Yes	NA	**COMPLIES**
Additional Efficiency Credits Included (AEC)						
Does building include occupancy classifications requiring DOAS?	Yes		**Does project include DOAS equipment?**			Yes
Based on project scope do TSPR requirements apply?	No		**Do all systems comply with Appendix D standard reference design or qualify for an exception to TSPR?**			No

Scope & Space Conditioning	**ALTERATION - SINGLE ZONE SYSTEMS & EQUIPMENT**	**Compliance Verification**	**COMPLIES**

Single Zone Air Systems Category - Fan coil unit, hydronic & VRF

Air Systems Summary Information

System/Equip ID	Quantity of Items	Supply Airflow Control	Ventilation Standard	Ventilation CFM (Total if Multiple Items)	Ventilation Air Source	Paired with DOAS
FC-1		Constant volume	IMC Ventilation	25	Separate DOAS	ERV-1
FC-2		Constant volume	IMC Ventilation	50	Separate DOAS	ERV-1
FC-3		Constant volume	IMC Ventilation	370	Separate DOAS	ERV-1
FC-4		Constant volume	IMC Ventilation	40	Separate DOAS	ERV-1
FC-5		Constant volume	IMC Ventilation	225	Separate DOAS	ERV-1
FC-6		Constant volume	Unoccupied, no ventilation requirement			
FC-7		Constant volume	IMC Ventilation	150	Separate DOAS	ERV-2
FC-8		Constant volume	IMC Ventilation	230	Separate DOAS	ERV-2
FC-9		Constant volume	Unoccupied, no ventilation requirement			
FC-10		Constant volume	IMC Ventilation	30	Separate DOAS	ERV-2
FC-11		Constant volume	IMC Ventilation	40	Separate DOAS	ERV-2
FC-12		Constant volume	IMC Ventilation	130	Separate DOAS	ERV-2
FC-13		Constant volume	IMC Ventilation	15	Separate DOAS	ERV-2
FC-14		Constant volume	IMC Ventilation	15	Separate DOAS	ERV-2
FC-15		Constant volume	IMC Ventilation	15	Separate DOAS	ERV-2
FC-16		Constant volume	IMC Ventilation	80	Separate DOAS	ERV-2

Air Systems & Equipment - Cooling											
System/ Equip ID	Cooling System/Equip Type	Specific Type	Cooling Capacity per item (Btu/h)	AEC Efficiency Multiplier	Econo Exception Multiplier (FL & PL)	Combined Efficiency Multiplier (AEC & Econo)	Proposed Cooling Efficiency	CE Units	Proposed Part Load Efficiency	PL Units	Efficiency Compliance Verification
FC-1	Fan coils, hydronic & VRF, cooling	VRF	11,060	1		0					COMPLIES
FC-2	Fan coils, hydronic & VRF, cooling	VRF	18,980	1		0					COMPLIES
FC-3	Fan coils, hydronic & VRF, cooling	VRF	49,810	1		0					COMPLIES
FC-4	Fan coils, hydronic & VRF, cooling	VRF	7,370	1		0					COMPLIES
FC-5	Fan coils, hydronic & VRF, cooling	VRF	22,130	1		0					COMPLIES
FC-6	Fan coils, hydronic & VRF, cooling	VRF	11,060	1		0					COMPLIES
FC-7	Fan coils, hydronic & VRF, cooling	VRF	22,130	1		0					COMPLIES
FC-8	Fan coils, hydronic & VRF, cooling	VRF	24,000	1		0					COMPLIES
FC-9	Fan coils, hydronic & VRF, cooling	VRF	7,370	1		0					COMPLIES
FC-10	Fan coils, hydronic & VRF, cooling	VRF	11,060	1		0					COMPLIES
FC-11	Fan coils, hydronic & VRF, cooling	VRF	11,060	1		0					COMPLIES
FC-12	Fan coils, hydronic & VRF, cooling	VRF	27,670	1		0					COMPLIES
FC-13	Fan coils, hydronic & VRF, cooling	VRF	7,370	1		0					COMPLIES
FC-14	Fan coils, hydronic & VRF, cooling	VRF	7,370	1		0					COMPLIES
FC-15	Fan coils, hydronic & VRF, cooling	VRF	7,370	1		0					COMPLIES
FC-16	Fan coils, hydronic & VRF, cooling	VRF	27,670	1		0					COMPLIES

Air Systems & Equipment - Heating										
System /Equip ID	Heating System/Equip Type	Specific Type	Heat Pump Heating Capacity (Btu/h)	Cooling Capacity (Btu/h)	AEC Efficiency Multiplier	Proposed Heat Pump Heating Efficiency	HPH Units	Proposed Low OSA Temp Efficiency	LTH Units	Efficiency Compliance Verification
FC-1	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-2	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-3	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-4	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-5	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-6	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-7	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-8	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-9	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-10	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-11	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-12	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-13	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-14	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-15	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES
FC-16	Fan coils, hydronic & VRF, heating	VRF			1					COMPLIES

Air Systems & Equipment Details			
System/Equip ID	Area(s) Served	Location In Project Documents - Plan/Detail #	
FC-1	Office 101	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-2	West Offices	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-3	Open Office 2	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		

	Heating Capacity Source: CU-1		
FC-4	Work Room 105	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-5	Open Office 1	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-6	Comm Room 108	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-7	Lobby 119	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-8	Conference Room 144	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-9	Storage	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-10	Office 143	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-11	Kitchen 142	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-12	Open Office 3 & 4	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-13	Office 140	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-14	Office 139	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: 5520		
	Heating Capacity Source: CU-1		
FC-15	Office 138	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		
FC-16	Office 5, 6, Open Office 5	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	Cooling Capacity Source: CU-1		
	Heating Capacity Source: CU-1		

Single Zone Equipment Category - Condensing Unit

Equipment Summary Information

System/Equip ID	Quantity of Items	
CU-1		

Air Systems & Equipment - Cooling

System/ Equip ID	Cooling System/Equip Type	Specific Type	Cooling Capacity per item (Btu/h)	AEC Efficiency Multiplier	Econo Exception Multiplier (FL & PL)	Combined Efficiency Multiplier (AEC & Econo)	Proposed Cooling Efficiency	CE Units	Proposed Part Load Efficiency	PL Units	Efficiency Compliance Verification
CU-1	Condensing unit, air cooled		307,900	1		0	10.6	EER	22.7	IEER	COMPLIES

Equipment Details

System/Equip ID	Area(s) Served	Location In Project Documents - Plan/Detail #	
CU-1	Entire Building	ALL	
	System/Equip ID for a single or multiple items?: Single item		
	WSEC Equip Efficiency Reference Table - Cooling: Table C403.3.2(1)A - Unitary Air Conditioners & Condensing Units		

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The following information is necessary to check a mechanical permit application for compliance with the mechanical systems and equipment requirements in the Washington State Energy Code, Commercial Provisions.

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

Project:
Skagit County Park Building - 2018 WSEC
1700 College Way E
Mount Vernon, WA 98273

Date: 2023-04-24

Applies	Code Section	Code Provision	Compliance Information Required In Permit Documentation	Location in Documents	Building Department Notes
SCOPE					
	C103.1	Construction documents - General	For a shell & core or tenant space (first build-out) project, indicate if there is no mechanical scope included in the project.		
NA	C103.1	Construction documents - General	For an alteration project, indicate if there is no mechanical scope included in the project.		
PERFORMANCE CRITERIA & SYSTEM DESIGN					
NA	C403.1	Exempt process equipment	Identify equipment used by manufacturing, industrial or commercial processes that are not for space conditioning or maintaining comfort and amentities for occupants; identify provisions applicable to this equipment per C403.1 exception		
	C403.1.1	HVAC total system performance ratio (TSPR)	For systems serving office, retail, library or education occupancies, provide a TSPR report that demonstrates the proposed design ratio is equal to or greater than the standard reference design ratio, or exception applied		
YES	C403.1.2	Calculation of heating and cooling loads	Provide load calculations performed per ASHRAE Std 183 or equivalent, using design parameters per C302 and Appendix C; include load adjustments to account for energy recovery	Included in Appendix	
NA	C403.1.3	Data centers	Provide documentation that demonstrates that data center systems comply with the maximum allowed Design MLC and Annualized MLC per ASHRAE 90.4 with 2018 WSEC adjustments per climate zone		
NA	C403.2.1 C403.4.2.2	Zone isolation	If there are HVAC zones that are intended to be occupied non-simultaneously, identify isolation zone areas on plans; if multiple zones intended to be occupied simultanteously will be combined into a single isolation zone, include on plans that the combined zone area does not exceed 25,000 sf and does not include more than one floor; or exception applied		
NA			Indicate locations of associated zone isolation dampers in HVAC distribution system		
NA			Refer to HVAC Controls section in Requirements List for applicable automatic setback and shutdown controls requirements		
EQUIPMENT SELECTION & PERFORMANCE					

YES	C403.3.1	Equipment and system sizing	Indicate that output capacities of heating and cooling equipment and systems are no greater than the smallest available equipment size that exceeds the calculated loads; note exceptions applied	M0.1-M4.0	
YES	C403.3.2 C403.9.1	HVAC equipment performance requirements (efficiency)	Provide equipment schedules on plans and in WSEC mechanical equipment compliance reports; indicate equipment type, calculated loads, capacity, rated and WSEC minimum efficiencies for all heating and cooling equipment; include supply and ventilation air cfms and operating hours for all air systems; identify heating and cooling equipment that does not have a corresponding WSEC minimum efficiency (manufacturer rated)	M0.1-M4.0	
YES	C405.8	Electric motor efficiency	List all motors ≥ 1/12 hp (that are not integral to a rated piece of equipment) in the mechanical or electrical equipment schedules on plans; indicate motor type and applicable efficiency table, hp, rpm, number of poles and rated efficiency, or exception applied	M0.1-M4.0	
NA	C403.3.2	Gas and oil-fired forced air furnace and unit heaters	For forced air furnaces with capacity ≥ 225,000 Btu/h and all unit heaters, indicate in equipment schedule intermittent ignition or IID, flue or draft damper, and rated jacket loss		
NA	C403.3.2.4	Packaged electric heating / cooling equipment	Verify all packaged electric equipment with > 6,000 Btu/h cooling capacity and any amount of heating is a heat pump; include in equipment schedules		
NA	C403.3.3	Hot gas bypass limitation for DX cooling equipment	For cooling equipment with hot gas bypass, provide either multiple step unloading or continuous capacity modulation; indicate bypass capacity per Table C403.3.3		
NA	C403.3.2.5	Humidification	For cooling systems with humidification equipment that are also required to have air economizer, indicate humidifier is adiabatic (direct evaporative or fog atomization), or exception applied		
	C403.3.2	Hydronic equipment	Refer to Requirements List section Hydronic Systems - Equipment Selection & Performance for selection criteria specific to chillers and boilers		
NA	C403.9	Heat rejection equipment	Refer to Requirements List section Heat Rejection Systems - Equipment Selection & Performance for selection criteria specific to cooling towers, dry coolers and condensers (air-cooled and evaporative)		

EQUIPMENT SELECTION & PERFORMANCE - DEDICATED OUTSIDE AIR SYSTEMS (DOAS)

YES	C403.3.5 C403.3.5.4	Dedicated outdoor air systems	For buildings with occupancies required to comply with the DOAS provisions per Table C403.3.5, identify on plans all occupancies in the building and indicate which occupied spaces are required to have ventilation air delivered by a DOAS; or exception applied	M0.1-M4.0	
NA			If natural ventilation exception is applied, identify these spaces on plans; indicate operable window area complies with IMC Section 402; provide documentation describing how required ventilation will be provided during all occupied hours, including during inclement weather		
NA			If high efficiency VAV exception is applied, identify these spaces on plans; refer to Single Zone VAV section for Groups A-1, A-2 and A-3 occupancy classifications, or Multiple Zone VAV for other than Groups A-1, A-2 and A-3 (per Table C403.3.5)		
NA			If compliance with the DOAS provisions is deemed to be impractical, provide documentation that demonstrates the alternate design strategy applied that achieves a comparable level of energy efficiency, as pre-approved by the AHJ		
NA			Refer to Requirements List section after Multiple-Zone Air Systems for High Efficiency Multiple-Zone VAV Systems exception to C403.3.5 DOAS		
NA			Refer to Requirements List section after High Efficiency Multiple-Zone Air Systems for High Efficiency Single-Zone VAV Systems exception to C403.3.5 DOAS		
YES	C403.3.5.1	DOAS energy recovery method and effectiveness	For all DOAS systems, indicate exhaust air ER method and basis of rated effectiveness (sensible or latent); indicate ≥ 60% sensible or ≥ 50% enthalpy ER effectiveness based on delta between outdoor air and return air enthalpies at design conditions; or exception applied	M0.1-M4.0	
NA			If applying exception for DCV, identify occupant load in space and airflow control configured to reduce ventilation rate by ≥ 50% when occupancy is less than design occupancy		
YES	C403.3.5.1	DOAS fan power	For DOAS with total system fan hp < 5 hp, indicate total system fan power does not exceed 1 watt per cfm	M0.1-M4.0	
NA			For DOAS with total system fan hp ≥ 5 hp, indicate total system fan power complies with fan power limitation per Section C403.8.1		

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YES	C403.3.5.2	Heating / cooling system controls with DOAS	Indicate systems and equipment associated with the delivery of zone level heating and cooling (fans, hydronic pumps, primary air dampers, etc) are configured to shut off, and central eqiupment is configured to turn down, when there is no call for heating or cooling in the zone they serve	M0.1-M4.0	
NA			If applying Exception to heating / cooling fans used for air mixing in the space during deadband periods, include fan watts per cfm in equipment schedule		
YES	C403.3.5.3	Decoupled DOAS supply air	Indicate method of delivery of DOAS supply air to the occupied space (directly into space, downstream of terminal heating / cooling coils); or exception applied	M0.1-M4.0	
NA	C403.6.1	Multiple zone DOAS	For DOAS serving multiple zones, indicate controls configured to reduce the volume of outdoor air in each zone independently when the zone is unoccupied; or exception applied		
ADDITIONAL EFFICIENCY CREDITS - DEDICATED OUTSIDE AIR SYSTEMS (DOAS)					
	C406.6	DOAS	For building occupancies not subject to the requirements of Section C403.3.5, to comply with this additional efficiency credit, provide calculations that demonstrate 90% or more of the total floor area of all occupied, conditioned spaces are served by a DOAS per C403.3.5		
	C406.7	High performance DOAS - Energy recovery effectiveness and fan power	For all building occupancies, to comply with this additional efficiency credit, demonstrate compliance with C406.6		
			Indicate energy recovery sensible effectiveness of all DOAS is ≥ 80%		
			For each system, indicate that total system fan power does not exceed 0.5 watts per cfm		
FANS AND FAN CONTROLS					
YES	C403.8.1	Fan power limitation	For all HVAC fan systems that provide heating and / or cooling and all DOAS, provide system total nameplate hp in equipment schedules on project plans	M0.1-M4.0	
NA			For all applicable HVAC systems with total fan motor nameplate hp > 5hp, verify fan system motor hp or bhp complies with fan power limits per equations in Table C403.8.1(1)		
NA			Terminal units installed in conjunction with a DOAS (hydroninc heat pumps, VRF heat pumps, chilled/hot water terminal units, variable volume terminal units) shall be treated as independent air-handling units for purposes of fan power calculations		

NA	C403.8.2	Motor nameplate hp	For all applicable HVAC systems with total fan motor nameplate hp > 5hp, indicate fan motors specified are the smallest available motor hp size greater than fan bhp, note exceptions applied		
YES	C405.8	Fractional hp fan motors	For all fractional hp fan motors (1/12 - 1 hp), indicate that motors comply with applicable WSEC efficiency tables; if motor type is not listed in an efficiency table, indicate whether fan has an electronically commutated motor, has motor rated efficiency of at least 70%, or exception applied	M0.1-M4.0	
NA	C403.8.3	Fan efficiency	For individual fans > 5hp, and multiple fans combined in series or parallel that operate as the functional equivalent of a single fan with a combined total motor hp > 5hp, indicate in equipment schedule that rated FEG for all applicable fans is ≥ 67, or exception applied; indicate these fans are sized so total efficiency is within 15% of the fan maximum total efficiency		
	C403.8.4	Group R occupancy exhaust fan efficacy	For all exhaust fans ≤ 400 cfm in Group R occupancies, indicate in equipment schedule the fan flow rate and efficacy (cfm/watt), or exception applied; refer to Table C403.8.4		
NA	C403.2.3	Variable flow capacity - fans	For fan motors ≥ 7.5 hp, indicate method of variable flow control (VSD or equivalent method) in equipment schedule, or exception applied		
NA	C403.8.5.1	Fan airflow control	For DX air handling units with cooling capacity ≥ 42,000 Btu/h and evaporative and chilled water air handling units with fan ≥ 0.25 hp, indicate whether system is single zone or multiple zone and related control method (cooling capacity controlled in response to space temperature, space temperature is controlled by modulating supply airflow, or both)		
NA			For mechanical cooling systems (includes DX and chilled water coils) that control cooling capacity in response to space temperature - Provide a minimum of two stages of fan control; indicate minimum fan speed is ≤ 66% of full speed drawing ≤ 40% of full speed fan power during periods of low cooling or ventilation only		

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NA			For other mechanical cooling systems (includes DX and chilled water coils) that control space temperature by modulating airflow (in lieu of, or in addition to, controlling capacity in response to space temperature) - Provide fan controls for modulating supply airflow; indicate minimum fan speed is ≤ 50% of full speed drawing ≤ 30% of full speed fan power during periods of low cooling or ventilation only; or exception applied		
ADDITIONAL EFFICIENCY PACKAGE OPTION, MORE EFFICIENT HVAC EQUIPMENT & FAN PERFORMANCE - MUST COMPLY WITH ALL 3 PROVISIONS TO BE ELIGIBLE					
	C406.2.1	HVAC system selection	To comply with this additional efficiency credit, provide calculations that demonstrate (based on heating and cooling output capacity) that 90% or more of all HVAC equipment serving conditioned floor areas have a corresponding WSEC listed efficiency; or exception applied		
	C406.2.2	Minimum equipment efficiency	In addition to system selection requirement, indicate that all associated heating and cooling equipment have a rated efficiency for all equipment performance criteria (heating, cooling, full load, part load) that is at least 15% better than the listed WSEC efficiency; include specific equipment exceptions applied		
			For systems required to provide a TSPR report per C403.1.1, demonstrate that the proposed design ratio is at minimum 10% higher than the standard reference design ratio		
			For projects complying via weighted average efficiency exception, include calculations that demonstrate the overall average better than code efficiency of all equipment performance criteria for all equipment is ≥ 15%; indicate that all equipment has at least 5% better than code efficiency		
			For systems serving low energy and semi-heated spaces, indicate that 90% or more of installed heating output capacity is provided by electric infrared or gas-fired radiant equipment for localized heating applications only		
	C406.2.3	Minimum fan efficiency grade	In addition to system selection and efficiency requirements, indicate rated FEG of all ≥ 1 hp (750 watt) stand alone supply, return and exhaust fans is ≥ 71; indicate these fans are sized so the fan efficiency at design conditions is within 10% of the maximum total or static efficiency		
VENTILATION, EXHAUST & ENERGY RECOVERY					
YES	C403.2.2.1	Ventilation	Indicate method of ventilation air delivery (natural or mechanical) for each zone	M0.1-M4.0	

YES			If mechanically delivered, indicate that ventilation systems are configured to provide not more than 150% of, but at least the minimum required volume of outdoor air to each zone per IMC, ASHRAE 62.1 or other applicable code (WAC, OSHA, etc); or exception applied	M0.1-M4.0	
			If delivered via natural ventilation, identify required elements per IMC including: minimum openable area to the outdoors or qualifying adjoining spaces; criteria for ensuring required ventilation is provided during all occupied hours of the year (including during inclement outdoor conditions)		
YES	C403.2.2.2	Exhaust	Indicate that exhaust systems are configured to provide not more than 150% of, but at least the minimum required volume from each zone per IMC, or other applicable code (WAC, OSHA, etc); or exception applied	M0.1-M4.0	
YES	C403.4.2.4	Exhaust system off-hour controls	Refer to Requirements List section HVAC Controls for off-hour controls requirements for exhaust systems	M0.1-M4.0	
	C403.3.6	Balanced ventilation for Group R-2 occupancy	For Group R-2 dwelling and sleeping units, indicate that each habitable space is provided with a balanced ventilation system; indicate system is provided with energy recovery with 60% sensible recovery effectiveness		
NA	C403.7.1	Demand controlled ventilation	Identify spaces > 500 sf with occupant load ≥ 25 people/1,000 sf per IMC; for each space indicate whether it is served by an HVAC system with total design ventilation air > 3,000 cfm, and / or the system has airside economizer or automatic modulating outdoor air damper; indicate controls are configured to provide demand controlled ventilation or provide supporting documentation for applied exception		
NA	C403.7.2	Occupancy sensors	For gyms, classrooms, auditoriums, conference rooms and other spaces with occupant load ≥ 25 people/1,000 sf per IMC, that have an area > 500 sf, indicate occupancy-based ventilation air control when space is unoccupied and method (closes outdoor air damper or shuts-off equipment); or alternate means provided to automatically reduce ventilation air when space is partially occupied; or exception applied		
NA	C403.7.3	Ventilation air heating control	For ventilation air systems that operate in conjunction with heating and cooling systems, indicate that ventilation air is tempered (via heating or heat recovery) to no greater than 60F when the space conditioning system is in cooling mode		

	C403.7.4.2	Ventilation controls for Group R-1 guestrooms	Refer to Requirements List section HVAC Controls for Group R-1 temperature setback and set-up controls		
			Indicate method of ventilation and exhaust isolation for each guest room and automatic controls that are configured to turn off ventilation and exhaust airflow when each room is unoccupied		
	C403.8.4	Group R occupancy exhaust fan efficacy	Refer to Requirements List section Fans & Fan Controls		
	C403.7.5 C403.7.5.1	Enclosed loading dock ventilation	For enclosed loading docks, indicate ventilation / exhaust system method of activation (gas detection system for CO and NO2, or occupancy sensors), and control method (staged or modulating)		
	C403.7.5 C403.7.5.2	Enclosed parking garage ventilation	For enclosed parking garages, indicate ventilation / exhaust system activated by gas detection system for CO and NO2, and control method (staged or modulating); or exception applied		
NA	C403.7.6	Ventilation / exhaust systems energy recovery	For systems with design ventilation air > 5,000 cfm, or design supply air cfm and % ventilation air exceeding the values in Tables C403.7.6(1) or (2), indicate exhaust air energy recovery method; or exception applied with supporting calculations		
NA			For rooms served by multiple systems with aggegate design ventilation air > 5,000 cfm, or aggregate design supply air cfm and % ventilation air exceeding the values in Tables C403.7.6(1) or (2), indicate exhaust air energy recovery method; or exception applied with supporting calculations		
NA			Indicate energy recovery rated effectiveness that increases outdoor air enthalpy by ≥ 50% based on delta between outdoor air and return air enthalpies at design conditions		
	C403.7.7.1.1 C403.7.7.1.2 C403.7.7.1.3	Kitchen exhaust hood system	Indicate on plans the type, duty, UL rating and exhaust airflow rate of each kitchen hood		
			Provide calculations that show a balanced accounting of total kitchen exhaust (include all hoods) with % of: supply air, transfer air from adjacent spaces, and make-up air		
			For hoods with make-up air drawn directly into the exhaust air cavity of each hood, indicate that replacement air does not exceed 10% of hood exhaust airflow rate		
			For kitchens with total hood exhaust exceeding 2,000 cfm, indicate that each hood is UL 710 rated and maximum exhaust airflow rate of each hood is per Table C403.7.7.1.2; or exception applied		

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			For kitchens with total hood exhaust exceeding 2,000 cfm, indicate energy efficiency compliance method (demand ventilation, energy recovery, or transfer air that would otherwise be exhausted); or exception applied		
	C403.7.7.2	Laboratory exhaust systems energy recovery	For buildings with total lab exhaust > 5,000 cfm, indicate method of energy recovery used to pre-condition laboratory make-up air; energy recovery effectiveness (min 25°F increase in outside air temperature); or alternative method per exception (VAV exhaust, semi-conditioned makeup, or CERM calculation)		
NA	C403.7.7.3	Transfer air	For spaces where conditioned supply air is utilized as transfer air to balance mechanical exhaust, indicate basis of transfer airflow (supply required to meet loads, health/safety requirement, air that would normally be exhausted); or exception applied		
YES	C403.7.8.1 C403.7.8.3	Shutoff dampers for building isolation	Indicate locations of outdoor air intake, exhaust and relief outlet dampers on plans; indicate whether dampers are Class 1 motorized, or gravity and exception applied (include leakage rating, cfm/sf)	M0.1-M4.0	
			Indicate location of stairway and elevator hoistway shaft vent dampers on plans; verify dampers are Class 1 motorized; or exception applied		
NA	C403.7.8.2 C403.7.8.3	Shutoff dampers for return air	Indicate locations of return air dampers that are integral to airside economizer operation; verify dampers are motorized; indicate whether dampers are Class 1, or within packaged equipment eligible for leakage rating exception (include leakage rating, cfm/sf)		
YES	C403.7.8.4	Damper actuation	Indicate automatic controls configured to close outdoor air intake, exhaust and relief outlet dampers during unoccupied equipment operation; not including economizer cooling, night flush or IMC required outdoor air / exhaust	M0.1-M4.0	
			Indicate method of activation of stairway and elevator hoistway shaft vent dampers (fire alarm or interruption of power)		
	C404.11.4	Exhaust system energy recovery for heated indoor pools and permanent spas	For buildings with pools or spas with water surface area > 200 sf, indicate exhaust air energy recovery method and use of waste heat (preheat ventilation air, pool water or service hot water); or exception applied		
			Indicate energy recovery system has the rated effectiveness and is configured to decrease the exhaust air temperature at design conditions by ≥ 36°F		

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HVAC CONTROLS					
YES	C403.4.1	Thermostatic controls (thermostats and humidistats)	Indicate locations of thermostatic and humidity control devices and the zones they serve on plans, including perimeter system zones	M0.1-M4.0	
			Where adjacent (neighboring) zones are controlled by separate thermostats (including perimeter systems used to offset heat gain or loss), and are connected by permanent openings > 10% of either zone sf area, indicate controls configured to prevent adjacent zones from operating in conflicting modes (one in heat, other in cool); applies to adjacent perimeter zones, adjacent nonperimeter zones, and adjacent perimeter and nonperimeter zones		
			If applying Exception 2 to nonperimeter zones adjacent to perimeter zones, indicate that setpoints and deadband settings in these zones are coordinated so cooling in a nonperimeter zone does not occur until the temperature in that zone is 5°F higher than the adjacent perimeter zone temperature in heating		
YES			If applying Exception 3 for DOAS, indicate supply air temperature heating setpoint is ≤ 65°F and cooling setpoint is ≥ 72°F, or method of supply air temperature reset	M0.1-M4.0	
NA	C403.4.1.1	Heat pump supplementary heat	Indicate staged heating operation with compression as the first stage of heating and supplemental heating controlled with outdoor lock-out temperature set to 40°F or less		
	C403.4.1.2	Deadband	Indicate zone thermostatic controls configured with 5°F minimum deadband for systems that control both heating and cooling		
	C403.4.1.3	Setpoint overlap restriction (thermostats)	If separate heating and cooling thermostatic control devices are used to serve a zone, indicate locations of both thermostatic control devices and the zone they serve on plans		
			Indicate a limit switch, mechanical stop or DDC control with programming to prevent simultaneous heating and cooling		
NA	C403.4.1.4	Heated or cooled vestibules	Indicate thermostatic controls within heating or cooled vestibules with a heating setpoint ≤ 60°F and cooling setpoint ≥ 85°F; indicate controls are configured to turn off heating when outdoor temperature is > 45°F; or note exception applied		
NA	C403.4.1.4	Heated air curtains	Indicate controls are configured to turn off air curtain heating when outdoor temperature is > 45°F		

NA	C403.4.1.6	Door switches for HVAC system thermostatic control	Where doors open to the outdoors from a conditioned space, indicate automatic controls configured to setback the HVAC system(s) when the door is open for > 5 minutes; indicate method of HVAC system setback control (turns off the HVAC system or resets the heating setpoint to 55°F and cooling setpoint to 85°F), or exception applied		
YES	C403.4.2 C403.4.2.1 C403.4.2.2	Automatic setback and shutdown	Indicate zone thermostatic controls configured with required automatic setback and manual override functions, setback temperatures, and control method (automatic time clock or 7 day programmable controls); note exceptions applied	M0.1-M4.0	
YES	C403.4.2.3	Automatic (optimum) start and stop	Indicate all HVAC systems are provided with automatic start and stop controls; indicate start controls are configured to adjust the equipment start time as required to bring each area served up to design temperature just prior to scheduled occupancy; indicate stop controls are configured to reduce heating setpoint and increase cooling setpoint by at least 2°F prior to scheduled unoccupied periods	M0.1-M4.0	
YES	C403.4.2.4	Exhaust system off-hour controls	For exhaust systems serving conditioned spaces in all occupancies other than Group R, indicate method of control and that controls are configured to turn exhaust systems on and off in concert with the ventilation air systems providing their make-up air, or exception applied	M0.1-M4.0	
NA	C403.4.2.5	Transfer and destratification fan system off-hour controls	For transfer fan or mixing fan systems serving conditioned spaces in all occupancies other than Group R, indicate method of control and that controls are configured to turn fans on and off in concert with the associated HVAC systems, or exception applied		
NA	C403.4.7	Combustion heating equipment	For combustion heating equipment other than boilers or radiant heaters with output capacity > 225,000 Btu/h, indicate modulating or staged combustion control		
NA	C403.4.7.1	Combustion decorative vented appliance, combustion fireplace and fire pit controls	Indicate controls that are configured to limit operation of combustion appliance, fireplace and fire pit to ≤ 1 hour without override, or that occupancy sensor controls are provided		

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	C403.7.4.1	Temperature setpoint controls for Group R-1 guestrooms	For hotels / motels with over 50 guest rooms, indicate automatic controls for HVAC equipment serving guest rooms are configured to setback (heating) and set-up (cooling) temperature setpoint by at least 4°F when room is unoccupied, and adjust setpint to 60°F (heating) and 80°F (cooling) when room is unrented / vacated; indicate control method - activated by room entry, occupancy sensor or networked guestroom control system		
	C403.7.4.2	Ventilation controls for Group R-1 guestrooms	Refer to Requirements List section Ventilation, Exhaust & Energy Recovery		
	C403.4.9 C403.4.10	Thermostatic controls for Group R2 / R3 dwelling units and Group R2 sleeping units	For primary space conditioning systems, indicate 5-2 programmable thermostats capable of two setback periods per day; indicate each non-primary system is provided with at minimum an adjustable thermostat, or exception applied. For all thermostats indicate purpose (heating only, cooling only, or both) and required temperature range; indicate thermostats are configured for at minimum a 5°F deadband		
NA	C403.4.11.1 C403.4.11.2 C403.4.11.3	DDC system applications, controls and display	Provide central and zone level DDC controls as required based on system application, capacity or size thresholds and other qualification per Table C403.4.11.1		
NA			Identify all DDC system input / output control points in project documents		
NA			Indicate control capability includes monitoring zone and system level demand for fan pressure, pump pressure, heating and cooling; indicate capability to transfer demand information from zones to air / hydronic distribution system controllers, and to central plant systems and equipment controllers		
NA			Indicate system has the capability for trending and graphically displaying input / output points		
NA	C403.5.1	DX air handler variable cooling control(Located under Integrated Economizer Control)	For DX air handlers with cooling capacity ≥ 65,000 Btu/h, indicate number of cooling stages provided and method (multiple compressors and / or variable speed compressors); indicate minimum displacement (capacity reduction) as % of full load; indicate thermostats are configured with the same number of cooling stages and displacement		
NA			Indicate control method (cooling capacity controlled in response to space temperature, space temperature controlled by modulating supply airflow, or both)		
DUCTWORK, SHAFTS AND PLENUMS					

YES	C403.10.1.1 C403.10.2	Duct construction	Indicate on plans that all ductwork is constructed and sealed per IMC	M0.1-M4.0	
YES			For outdoor air ductwork, also indicate on plans that ductwork meets air leakage requirements per C402.5 and vapor retarder requirements per the IBC	M0.1-M4.0	
YES	C403.10.2.1 C403.10.2.2 C403.10.2.3	Duct pressure classifications	Identify location of low, medium and high pressure ductwork on plans	M0.1-M4.0	
NA	C403.10.2.3	High pressure duct leakage test	Indicate high pressure duct leakage testing requirements on plans; provide test results to jurisdiction when completed		
YES	C403.10.1.1 C403.10.1.2	Duct insulation	For outdoor air ductwork located within conditioned space (upstream or downstream of shutoff damper), identify climate zone and indicate ductwork insulation R-value per Table C403.10.1.1 on plans; or exception applied	M0.1-M4.0	
YES			For supply and return air ductwork located within unconditioned space or outdoors, identify climate zone and indicate ductwork insulation R-value per Table C403.10.1.2 on plans; or exception applied	M0.1-M4.0	
YES			For supply air ductwork located within conditioned space, identify on plans if design supply air temperature is < 55°F or > 105°F; indicate ductwork insulation R-value per Table C403.10.1.2 on plans; or exception applied	M0.1-M4.0	
YES			For return and exhaust air ductwork located within conditioned space (upstream of the shutoff damper) and downstream of an energy recovery media, indicate ductwork insulation R-value per Table C403.10.1.2; or exception applied	M0.1-M4.0	
YES			For exhaust and relief air ductwork located within conditioned space and downstream of the shutoff damper, indicate ductwork insulation R-value per Table C403.10.1.2; or exception applied	M0.1-M4.0	
NA	C403.10.1.1 C402.1.3	Shaft and plenum insulation	For outdoor air shafts and plenums, indicate on plans that the R-value of insulation on these elements complies with Table C402.1.3 for steel-framed walls		
PIPING					
	C403.10.3	Piping insulation	Indicate design temperature range of fluid conveyed in piping and thickness of insulation (in inches) on hydronic piping plans; or exception applied		
	C403.10.3.1	Protection of piping insulation	Indicate method of protection of pipe insulation from damage / degredation on hydronic piping plans		

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ECONOMIZERS					
NA	C403.5	Air economizer required	Identify all cooling systems requiring air economizer controls in equipment schedules on plans and in WSEC mechanical equipment compliance reports		
YES			Indicate all systems utilizing air economizer exceptions in WSEC mechanical equipment compliance report, including those with water-side economizer in lieu of air economizer; indicate on plans and in WSEC mechanical equipment compliance reports all eligible exception(s) taken and measures to comply with exception(s)	M0.1-M4.0	
NA	C403.4.1 C403.5.1	Integrated economizer operation - air and water	Indicate air and water-side economizers are configured for partial cooling operation even where additional mechanical cooling is required to meet the load		
NA			For DX air handlers with single or multiple stages of mechanical cooling; indicate controls are configured with air economizer as the first stage of cooling		
NA			Refer to Requirements List section HVAC Controls for additional requirements for DX air handlers		
NA	C403.5.2	Economizer heating system impact - air and water	Verify control method of HVAC systems with economizers does not increase building heating energy usage during normal operation		
NA	C403.5.3.1	Air economizer capacity	Indicate modulating outdoor air and return air dampers are configured to provide up to 100% outdoor air for cooling		
NA	C403.5.1 C403.5.3.2	Air economizer controls and integrated operation	Indicate that economizer controls are configured to provide partial economizer cooling when additional mechanical cooling is also required to meet the cooling load		
NA			Indicate that control of economizer dampers is not based only on mixed air temperature; or exception applied for systems with cooling capacity ≤ 65,000 Btu/h		
NA	C403.5.3.3	Air economizer high limit controls	Indicate high limit shut-off control method and required high limit per Table C403.5.3.3		
NA	C403.5.3.4	Relief of excess outdoor air	Refer to Requirements List section Ventilation, Exhaust & Energy Recovery		
NA			Indicate relief air outlets are sized and configured to relieve excess building air during air economizer operation to prevent building over-pressurization		
NA			Indicate relief air outlet are located to avoid recirculation into the building		

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	C403.5.4.1	Water economizer capacity	For eligible systems where water-side economizer may be provided in lieu of air economizer, indicate system is capable of 100% design cooling capacity at 50°F db / 45°F wb outdoor air temperatures; indicate if threshold for 100% design cooling capacity via economizer must be lowered to 45°F db / 40°F wb due to dehumidification requirements		
	C403.5.4.2	Water economizer maximum pressure drop	Indicate that the pressure drop across precooling coils and heat exchangers in water economizer systems do not exceed 15 feet (4572 mm)		
NA	C403.5.5	DX equipment economizer fault detection and diagnostics	For DX air handlers with economizer and cooling capacity ≥ 54,000 Btu/h, provide a fault detection and diagnostics (FDD) system to monitor economizer system operation and report faults		
HYDRONIC SYSTEMS - EQUIPMENT SELECTION & PERFORMANCE					
	C403.3.2.1	Maximum air cooled chiller capacity	For chilled water plants and buildings with > 500 tons of cooling capacity, indicate air-cooled chiller capacity is ≤ 100 tons, or exception applied		
	C403.6.7	Large capacity cooling systems	For buildings ≥ 300 tons of cooling capacity, indicate method of multi-stage or variable capacity control (VSD, multiple staged compressors, or max capacity of any single unit		
	C403.3.2.2	Non-standard water-cooled centrifugal chillers	For water-cooled centrifugal chillers not designed for operation at standard conditions, provide calculations documenting maximum full load and part load rated equipment performance requirements		
	C403.3.3	Hot gas bypass limitation for chillers	For cooling equipment with hot gas bypass, provide either multiple step unloading or continuous capacity modulation; indicate bypass capacity per Table C403.3.3		
	C403.4.3 C403.3.4	Large capacity boiler systems	For hydronic systems with only a single boiler that has > 500,000 Btu/h input capacity, indicate multi-stage or modulating burner		
			For boiler system (single or mulltiple) with > 1,000,000 Btu/h input capacity, indicate turndown ratio per Table C403.3.4 and method (multiple single input boilers, modulating boilers, or combination)		
	C403.2.3	Variable flow capacity - pumps	For pump motors ≥ 7.5 hp, indicate method of variable flow control (VSD or equivalent method) in equipment schedule, or exception applied		
HYDRONIC SYSTEMS - CONTROLS					
	C403.4.3	Boiler sequencing	Indicate automatic controls that sequence operation of multiple boilers		

	C403.4.3.2	Two-pipe changeover systems	Indicate changeover deadband is ≥ 15°F outdoor air temperature; indicate controls are configured so that heating / cooling modes are active for at minimum 4 hours before changeover and that the delta between heating / cooling supply temperatures at changeover point is		
	C403.4.1.5	Heating water temperature setback	For boilers that provide building heating via one- or two-pipe systems, indicate controls that provide heating water temperature setback based on outdoor temperature		
	C403.4.4	Hydronic system part load controls and supply-water temperature reset	For heating and chilled water systems with ≥ 300,000 Btu/h output capacity, indicate system controls are configured to automatically reset supply water temperature based upon demand; or exception applied		
			Indicate automatic pump flow controls are configured to reduce system flow rate by ≥ 50%, or the maximum allowed by the equipment manufacturer, based upon the heating or cooling loads; or decribe why not required		
			For hydronic systems with output capacity ≥ 300,000 Btu/h that serve heating water systems, chilled water systems and water-cooled unitary air conditioners, indicate that pumps are provided with a variable speed drive if one of the following conditions apply: 1) System pump motor hp is ≥ 2 hp and pumps are designed to operate continuously or per time schedule; 2) System pump motor hp is ≥ 7.5 hp and pumps are controlled by automatic DDC configured to only operate pumps when there is a call for zone heating or cooling		
			Where variable speed drives are required, indicate system is configured so that pump motor power is ≤ 30% of design wattage at 50% of design flow rate; indicate pump flow is controlled to maintain one control valve nearly wide open, or to maintain a mimimum differential pressure; or exception applied		
	C403.4.6	Hydronic system variable pump flow control	For individual pumps required to have variable speed controls, indicate manner of pump speed control (differential pressure, static pressure setpoint, zone heating or cooling demand, or based on the relationship between variable speed controller fequency and power)		
	C403.4.5	Chiller / boiler plant pump isolation	Indicate controls are configured to automatically reduce overall plant flow and shut-off flow through individual chillers and boilers when not in use		

	C403.4.3.3.1	Water loop heat pump - temperature deadband	Indicate method of water loop temperture control (central plant equipment controls are configured to provide ≥ 20°F water supply temperature deadband between heat rejection and heat addition modes, or controls are configured for system loop temperature optimization		
	C403.4.3.3.2	Water loop heat pump - heat rejection equipment	Indicate type of cooling tower (open- or closed-circuit) in equipment schedule; indicate whether the cooling tower is used directly in the heat pump loop or in conjunction with a separate heat exchanger; indicate method used to limit system heat loss when heat rejection is not needed		
	C403.4.3.3.3	Water loop heat pump - isolation valves	For hydronic heat pump systems with total system power > 10 hp, indicate 2-way isolation valves on each heat pump and variable flow system control		
HEAT REJECTION SYSTEMS - EQUIPMENT SELECTION & PERFORMANCE					
	C403.9.1.3	Centrifugal fan open-circuit cooling towers	For open-circuit centrifugal fan cooling towers with ≥ 1,100 gpm capacity, indicate cooling towers comply with efficiency requirements for axial fan open circuit cooling towers		
HEAT REJECTION & RECOVERY - CONTROLS					
	C403.9.1.1C 403.9.1.2	Fan speed control	For each fan powered by an individual motor or array of motors, with total connected fan power ≥ 5 hp (including motor service factor), indicate method of automatic fan speed control (adjusted based on leaving fluid temperature or condenser temperature / pressure of heat rejection device); verify fan selection provides ≤ 30% design wattage at 50% design airflow		
			For multiple-cell heat rejection equipment with VSD, indicate controls are configured to ramp all fans in unison (not staged on / off operation)		
	C403.9.1.4	Cooling tower flow turndown	For open-circuit cooling towers configured with multiple- or variable-speed condenser water pumps, indicate system is designed so all cells can be run in parallel; indicate method of condenser pump turn down control		
	C403.9.2.1	Heat recovery for service water heating	For buildings with 24-hour operation and > 1,500,000 Btu/h of heat rejection capacity and design service hot water load > 250,000 Btu/h, indicate condenser heat recovery to pre-heat service water; or exception applied. Provide calculations showing the amount of recovered heat that is utilized (60% of peak heat rejection load or pre-heat service water to 85°F).		

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	C403.9.2.2	Steam condensate systems heat recovery	For buildings with on-site steam heating systems, indicate condensate water heat recovery and use of recovered heat		
			For buildings that use off-site generated steam where condensate is not returned to the source, indicate on-site condensate water heat recovery		
	C403.9.2.3	Refrigeration condenser heat recovery	For buildings with food service, meat or deli departments that have ≥ 500,000 Btu/h of remote refrigeration capacity for coolers / freezers, indicate condenser heat recovery and use of captured energy (service water heating, space heating, or dehumidification reheating)		
			For buildings with ≥ 40,000 sf conditioned floor area and ≥ 1,000,000 Btu/h of remote refrigeration capacity, indicate condenser heat recovery to pre-heat service water; indicate remaining recovered heat is applied to space heating or dehumidification reheating		
	C403.9.2.4	Heat recovery for space heating	For buildings that operate > 70 hour per week, that are not served by a DOAS with energy recovery, and have > 1,500,000 Btu/h of heat rejection capacity and ≥ 0.45 cfm per sf of design minimum supply airflow with reheat, indicate condenser heat recovery is provided for space heating that complies with Sections C403.9.2.4.1 or C403.9.2.4.2 or C403.9.2.4.4		
	C403.9.2.4.1 C403.9.2.4.4	Water to water heat recovery	Indicate that 90% or more of the total building space heating and ventilation air design loads are served by heat energy rejected from either a heat recovery chiller or the cooling loop of water to water heat pump equipment		
	C403.9.2.4.2	Exhaust heat recovery	Indicate that waste heat is recovered from least 90% of the total building exhaust airflow such that leaving exhaust air temperature while in heat recovery mode is 55 deg F dry bulb; note exhaust air systems eligible for exception to this requirement		
	C403.9.2.4.3	Process heat recovery	In spaces with 5 watts per sf year-round cooling loads from lights and equipment, indicate these spaces are served by water-cooled equipment configured for heat recovery		
			If these spaces are served by economizer (air or water), indicate automatic controls are configured to disable economizer operation while system is in heat recovery mode		

MULTIPLE ZONE AIR SYSTEMS

	C403.6.1	Air systems serving multiple zones	Identify supply air systems serving multiple zones and the zones they serve on plans; indicate whether system is VAV and method of primary air control; or provide supporting documentation for applied exception to VAV		
	C403.6.1	VAV air terminal primary supply airflow	Provide equipment schedules on plans that list all VAV air terminals and types (fan-powered series and parallel air terminals, single duct and dual duct air terminals, etc)		
			For each air terminal include: maximum primary supply airflow rates during zone peak heating and zone peak cooling; maximum terminal airflow during reheating, recooling or mixing; minimum ventilation airflow rate, and the basis for these values; if IMC or ASHRAE 62.1 multiple zone equation is the basis for minimum flow rates, provide this calculation on plans		
	C403.6.2	Single duct VAV terminal units	Indicate single duct terminal units are configured to reduce primary supply air before reheating or recooling		
	C403.6.3	Dual duct systems - terminal units	For systems with separate warm air and cool air ducts, indicate terminal units are configured to reduce the flow from one duct to minimum before mixing with air from the other duct		
	C403.6.8C403.6.9	VAV system static - pressure sensors and DDC set points	Indicate locations of duct static pressure sensors on plans; include at least one sensor per major duct branch; verify controller setpoint pressure at each sensor is ≤ 1.2 inch w.g.		
			For systems with zone level DDC, indicate controls are configured to monitor zone damper positions and reset static pressure setpoint based on the zone requiring most pressure; include control logic that automatically detects and generates an alarm if any zone excessively drives reset logic, and allows building operators to exclude zones from reset logic		
	C403.6.4	VAV system supply air reset	Indicate controls automatically reset supply air temperature in response to building loads or outdoor air temperature; or exception applied		
	C403.6.5	Multiple-zone VAV system ventilation optimization controls	For systems with zone level DDC controls, indicate controls are configured to automatically reduce outdoor airflow in response to changes in system ventilation efficiency; or exception applied		

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The following information is necessary to check a mechanical permit application for compliance with the mechanical systems and equipment requirements in the Washington State Energy Code, Commercial Provisions.
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	C403.6.6	Parallel fan powered VAV air terminals	Indicate controls automatically activate or shut off the air terminal fan based on call for heating and / or ventilation; indicate controls are configured to activate the terminal fan as the first stage of heating prior to activating the heating coil; indicate control method of primary air during warmup or temperature setback mode		
HIGH EFFICIENCY MULTIPLE-ZONE VAV SYSTEMS - EXCEPTION TO C403.3.5 DOAS, MUST COMPLY WITH ALL 15 PROVISIONS TO BE ELIGIBLE					
	C403.6.10,Item 1	Minimum area served and zoning	Indicate that each high efficiency multiple-zone VAV systems serves an area ≥ 3,000 sf and includes ≥ 5 zones		
	C403.6.10, Item 2	Air economizer	Indicate system is configured for 100% air economizer operation and complies with all related economizer requirements per C403.5 (without economizer exceptions)		
	C403.6.10, Item 3	Direct digital controls (DDC)	Provide DDC controls for all components of system per C403.4.11 (regardless of system size); identify all DDC system input / output control points; indicate capability for trending and graphical display		
	C403.6.10, Items 4 and 5	Supply and outdoor airflow measurement and control	For systems with minimum required outdoor air > 2,500 cfm, provide an airflow monitoring station that is configured to measure outdoor air intake under all load conditions; indicate control sequence that increases or reduces outdoor air cfm based on VAV terminal feedback of ventilation efficiency (per C403.6.5 without exceptions) or and DCV (per C403.7.1)		
			Provide a suppy airflow monitoring station that is configured to measure supply air delivered to VAV terminals under all load conditions		
	C403.6.10,Item 6	Zone isolation and maximum area served	Verify maximum area served by a single VAV system is ≤ 50,000 sf, or one entire floor, whichever is greater; in addition if a system serves > 25,000 sf, that includes areas that are expected to be occupied non-simultaneously, indicate zone isolation controls per C403.2.1		
	C403.6.10, Item 7	Interior / exterior zone design supply air temperature	Verify that VAV terminals serving interior cooling driven loads are sized per a design supply air temperature that is 5°F higher than VAV terminals serving exterior zones while in cooling mode		
	C403.6.10, Item 8	Maximum air terminal inlet velocity and fan power	Identify all air terminals with minimum primary airflow setpoints > 50% of maximum setpoint in mechanical equipment schedule for these air terminals indicate inlet velocity does not exceed 900 fpm		

	C403.6.10,Item 8	Maximum allowable system brake horsepower	For each multiple-zone VAV system, provide calculations that verify total fan system bhp is ≤ 90% of the total allowable fan system bhp per Option 2 equation in Table C403.8.1.1		
	C403.6.10,Item 9	Fan-powered terminal unit motor and control	Indicate all series and parallel fan-powered terminals have electronically commutated motors (ECM); indicate DDC control system is configured to vary air terminal fan speed as a function of the load; indicate fan speed during periods of low heating, low cooling, or ventilation-only mode is ≤ 66% of peak design air flow, or provide supporting documentation for applied exception		
	C403.6.10, Item 10	Application of single duct and fan-powered terminal units	Indicate VAV terminal types on plans; verify fan-powered terminal units only serve perimeter zones with envelope loads and interior zones with high occupant density and DCV per C403.7.1; verify all other zones are served by single duct terminal units		
	C403.6.10, Item 11	Fan-powered terminal unit primary air reset	Indicate DDC controls are configured to automatically reset the primary supply air cfm setpoint of all fan-powered terminal units to the minimum required to maintain ventilation during occupied heating or deadband mode, based upon the VAV air handling unit minimum ventilation air fraction		
	C403.6.10,Item 12	Controls for high occupant density spaces	For zones > 150 sf with high occupant density (≥ 25 people / 1000 sf), indicate zone is served by a dedicated terminal unit with DCV control that resets terminal unit ventilation setpoint based on measured CO2; also indicate occupancy sensor control that automatically reduces minimum ventilation to zero and sets back room heating and cooling setpoints by ≥ 5°F when space in unoccupied		
	C403.6.10, Item 13	Dedicated cooling systems serving data centers and server, electronic equipment and telecom spaces	For data centers and server, electronic equipment, telecom or similar spaces with design cooling loads > 5 W/sf, indicate spaces are served by dedicated cooling systems that are independent of the HPVAV systems serving the rest of building		
			Indicate dedicated cooling systems are configured for 100% air economizer operation and comply with all related economizer requirements per C403.5 (without economizer exceptions), or heat recovery per C403.5, Exception 9		
	C403.6.10, Item 14	Central plant efficiency	Indicate whether systems are served by a high efficiency heating water plant, or a high efficiency chilled water plant		

			If complying via high efficiency heating water plant: Indicate all VAV terminals have hydronic heating coils served by a heating water system with either gas-fired boiler(s) with thermal efficiency (Et) ≥ 92%, air-to-water heat pumps, or heat recovery chillers; indicate hydronic heating coils are sized per a maximum 120°F entering water temperature during peak demand		
			If complying via high efficiency chilled water plant: Indicate all VAV air handlers have cooling coils served by chillers with rated IPLV efficiency that exceeds WSEC listed IPLV by at least 25% per Table C403.3.2(7) (note water-cooled IPLV is max, all others are min); indicate smallest chiller or compressor in plant is ≤ 20% of the total plant capacity, or provide thermal storage sized for ≥ 20% of total plant capacity		
	C403.6.10, Item 15	Fault detection and diagnostics	Indicate DDC system includes automatic fault detection and diagnostics (FDD) configured to monitor operation and provide fault reporting of all required parameters for all VAV air handlers and VAV air terminal units in the HPVAV system		
HIGH EFFICIENCY SINGLE-ZONE VAV SYSTEMS - EXCEPTION TO C403.3.5 DOAS, MUST COMPLY WITH ALL 8 PROVISIONS TO BE ELIGIBLE					
	C403.12, Item 1	Air economizer	Indicate system is configured for 100% air economizer operation and complies with all related economizer requirements per C403.5 (without economizer exceptions)		
	C403.12, Item 2	Direct digital controls (DDC)	Provide DDC controls for all components of system per C403.4.11 (regardless of system size); identify all DDC system input / output control points; indicate capability for trending and graphical display		
	C403.12,Item 3	Outdoor airflow measurement and control	For systems with minimum required outdoor air ≥ 1,000 cfm, provide an airflow monitoring station that is configured to measure outdoor air intake under all load conditions; indicate controls that adjust outdoor air cfm via DCV per C403.7.1		
	C403.12,Item 4	Maximum allowable system brake horsepower	For each single-zone VAV system, provide calculations that verify total fan system bhp is ≤ 90% of the total allowable fan system bhp per Option 2 equation in Table C403.8.1.1		
	C403.12, Item 5	Supply airflow control	Provide controls that adjust supply airflow based on the heating and cooling loads; indicate control sequence that limits minimum fan speed to 30% of peak design airflow or required ventilation during unoccupied mode, whichever is less		

	C403.12,Item 6	Controls for high occupant density spaces	For zones > 150 sf with high occupant density (≥ 25 people / 1000 sf), indicate DCV control that resets ventilation setpoint based on measured CO2; also indicate occupancy sensor control that automatically reduces minimum ventilation to zero and sets back room heating and cooling setpoints by ≥ 5°F when space in unoccupied		
	C403.12, Item 7	High efficiency system option	Indicate which system performance option is applied - high efficiency DX cooling and heat pump or high efficiency gas heating; or heating coils served by a high efficiency heating water plant; or cooling coils served by high efficiency chilled water plant		
			If complying via high efficiency DX: Indicate full load and part load rated cooling efficiency exceeds WSEC listed efficiency by at least 15%; if heating is supplied by a gas-fired furnace, indicate thermal efficiency (Et) is ≥ 90%; if system is a heat pump, indicate heating efficiency (HSPF or COP) exceeds WSEC listed efficiency by at least 10%; control of cooling and heating coil output shall be configured with a minimum of 2-stages or modulating		
			If complying via high efficiency heating water plant: Indicate hydronic heating coils are served by a heating water system with either gas-fired boiler(s) with thermal efficiency (Et) ≥ 92%, air-to-water heat pumps, or heat recovery chillers; indicate hydronic heating coils are sized per a maximum 120°F entering water temperature during peak demand		
			If complying via high efficiency chilled water plant: Indicate cooling coils are served by chillers with rated IPLV efficiency that exceeds WSEC listed IPLV by at least 25% per Table C403.3.2(7) (note water-cooled IPLV is max, all others are min); indicate smallest chiller or compressor in plant is ≤ 20% of the total plant capacity, or provide thermal storage sized for ≥ 20% of total plant capacity		
	C403.12, Item 8	Fault detection and diagnostics	Indicate DDC system includes automatic fault detection and diagnostics (FDD) configured to monitor operation and provide fault reporting of all required parameters for all HPVAV single-zone air systems		
EXTERIOR HEATING SYSTEMS					
	C403.11.1	Heating outside a building	Indicate systems providing heating in non-enclosed outdoor occupied spaces are radiant systems		

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			Indicate occupancy sensing or timer switch controls configured to automatically shut off heating system when area served is unoccupied		
	C403.11.2	Snow melt systems	Indicate automatic controls configured to shut off system when pavement temperature exceeds 50°F and no precipitation is falling, and when outdoor air temperature exceeds 40°F		
	C403.11.3	Freeze protection system controls	Indicate automatic controls to shut off system when outdoor temperature exceeds 40°F, or conditions protect fluid from freezing		
HVAC EQUIPMENT ENERGY USE METERING					
	C409.3.1	HVAC equipment energy use metering	For new buildings > 50,000 sf and building additions > 25,000 sf, verfiy energy use metering of all equipment used to provide space heating and cooling, dehumidification and ventilation will be provided per C409; indicate equipment eligible for exception		
DOCUMENTATION AND SYSTEM SPECIFIC REQUIREMENT TO SUPPORT COMMISSIONING (CX)					
	C408.1	Scope of mechanical systems commissioning	For buildings with ≥ 240,000 Btu/h total output cooling capacity or ≥ 300,000 Btu/h total output heating capacity, indicate that all mechanical systems regardless of individual capacity are required to be commissioned; or provide building heating / cooling capacity calculation demonstrating eligibilty for exception		
			Indicate that all systems, equipment and controls for which the WSEC requires control functions and / or configuration to perform specific functions are included in the Cx scope		
	C408.1.1 C408.1.4.1	Commissioning requirements in construction documents	Indicate in plans and specifications that Cx per C408 is required for all applicable mechanical systems		
			Include general summary that includes at minimum: narrative description of activites, responsibilities of the Cx team, schedule of activities including verification of project close out documentation per C103.6, and conflict of interest plan (if required)		
			Include in general summary that a Cx project report or Compliance Checklist (Figure C408.1.4.1) shall be completed by the Certified Cx Professional and provided to the owner prior to the final mechanical inspection.		

	C408.1.2.2	Functional performance testing criteria	Identify in plans and specifications the intended operation of all equipment and controls during all modes of operation, including interfacing between new and existing-to-remain systems		
	C408.2.2	Air system and hydronic system balancing	Indicate in plans that air and fluid flow rates shall be tested and balanced within the tolerances defined in the specifications; indicate systems shall be balanced in a manner to first minimize throttling losses, then adjusted to meet design flow conditions		
	C408.2.2.1	Air system balancing devices	Indicate devices that provide the capability to balance all supply air outlets, zone terminals and air handling equipment requiring system balancing		
	C408.2.2.2	Hydronic system balancing devices	Indicate devices that provide the capability to isolate, balance and measure flow across all hydronic equipment requiring system balancing including heating and cooling coils and pumps; or exception applied		
PROJECT CLOSE OUT DOCUMENTATION					
YES	C103.6	Documentation and project close out submittal requirements	Indicate in plans that project close out documentation and training of building operations personnel is required for all mechanical components, equipment and systems governed by this code; indicate close out documentation shall include: record documents, O&M manuals, applicable WSEC mechanical equipment compliance reports and calculations	M0.1-M4.0	

Room Checksums

By Coffman Engineers, Inc.

1 - Open Office Area

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 95 / 70 / 70

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	3,072	3,072	11
Glass Solar	3,644	0	3,644	13
Glass/Door Cond	2,378	0	2,378	9
Wall Cond	424	230	654	2
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	2,127		2,127	8
Sub Total ==>	8,573	3,302	11,875	43
Internal Loads				
Lights	3,864	966	4,829	18
People	3,150	0	3,150	11
Misc	2,415	0	2,415	9
Sub Total ==>	9,428	966	10,394	38
Ceiling Load	799	-799	0	0
Ventilation Load	0	0	5,011	18
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			212	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	18,801	3,469	27,493	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 15
OADB: 95

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	3,644	22
Glass/Door Cond	2,378	14
Wall Cond	424	3
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	1,624	10
Sub Total ==>	8,069	48
Internal Loads		
Lights	3,864	23
People	1,750	10
Misc	2,415	14
Sub Total ==>	8,028	48
Ceiling Load	799	5
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
System Plenum Heat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	16,897	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-2,137	8.94
Glass Solar	0	0	0.00
Glass/Door Cond	-5,760	-5,760	24.09
Wall Cond	-765	-1,196	5.00
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	10.49
Adjacent Floor	0.00	0.00	0.00
Infiltration	-4,025	-4,025	16.84
Sub Total ==>	-13,058	-15,625	65.37
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-479	0	0.00
Ventilation Load	0	-9,482	39.67
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		1,203	-5.03
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-13,537	-23,904	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	85.6
Ra Plenum	73.8	70.9
Return	73.8	70.9
Ret/OA	77.3	61.6
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	896	896
Terminal	896	896
Main Fan	896	896
Sec Fan	0	0
Nom Vent	150	150
AHU Vent	150	150
Infil	64	64
MinStop/Rh	90	90
Return	746	746
Exhaust	0	0
Rm Exh	214	214
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	16.7	16.7
cfm/ft²	0.63	0.63
cfm/ton	391.17	
ft²/ton	617.61	
Btu/hr·ft²	19.43	-16.89
No. People	7.0	4.9/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	2.3	27.5	24.4	896	77.6	62.5	60.8	55.0	51.8	52.7
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.3	27.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	1,415		
Part	0		
Int Door	1		
ExFlr	440		
Roof	1,415	0	0
Wall	560	176	31
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-23.9	896	61.6	85.6
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-23.9			

Room Checksums

By Coffman Engineers, Inc.

101 - Office

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 18
Outside Air: OADB/WB/HR: 91 / 67 / 63

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	540	540	4
Glass Solar	6,814	0	6,814	55
Glass/Door Cond	1,147	0	1,147	9
Wall Cond	510	272	782	6
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	249		249	2
Sub Total ==>	8,720	812	9,531	77
Internal Loads				
Lights	642	160	802	6
People	900	0	900	7
Misc	401	0	401	3
Sub Total ==>	1,943	160	2,103	17
Ceiling Load	141	-141	0	0
Ventilation Load	0	0	589	5
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			157	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	10,803	831	12,380	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 18
OADB: 91

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	6,814	66
Glass/Door Cond	1,147	11
Wall Cond	510	5
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	218	2
Sub Total ==>	8,689	84
Internal Loads		
Lights	642	6
People	500	5
Misc	401	4
Sub Total ==>	1,543	15
Ceiling Load	141	1
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	10,373	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-355	3.86
Glass Solar	0	0	0.00
Glass/Door Cond	-3,142	-3,142	34.17
Wall Cond	-463	-713	7.76
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	27.28
Adjacent Floor	0.00	0.00	0.00
Infiltration	-669	-669	7.27
Sub Total ==>	-6,781	-7,386	80.33
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-80	0	0.00
Ventilation Load	0	-1,580	17.19
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		-228	2.48
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-6,861	-9,195	100.00

TEMPERATURES

	Cooling	Heating
SADB	57.8	81.4
Ra Plenum	73.9	70.9
Return	73.9	70.9
Ret/OA	74.5	68.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	661	661
Terminal	661	661
Main Fan	661	661
Sec Fan	0	0
Nom Vent	25	25
AHU Vent	25	25
Infil	11	11
MinStop/Rh	66	66
Return	636	636
Exhaust	0	0
Rm Exh	36	36
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	3.8	3.8
cfm/ft²	2.81	2.81
cfm/ton	640.37	
ft²/ton	227.79	
Btu/hr·ft²	52.68	-39.13
No. People	2.0	8.5/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	1.0	12.4	11.9	661	74.7	61.1	58.9	57.8	54.6	58.8
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.0	12.4								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	235		
Part	0		
Int Door	1		
ExFlr	440		
Roof	235	0	0
Wall	325	96	30
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-9.2	661	68.8	81.4
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-9.2			

Room Checksums

By Coffman Engineers, Inc.

102 - Office

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 18
Outside Air: OADB/WB/HR: 91 / 67 / 63

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	367	367	5
Glass Solar	4,024	0	4,024	52
Glass/Door Cond	382	0	382	5
Wall Cond	281	139	420	5
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	169		169	2
Sub Total ==>	4,857	506	5,363	69
Internal Loads				
Lights	437	109	546	7
People	900	0	900	12
Misc	273	0	273	4
Sub Total ==>	1,610	109	1,719	22
Ceiling Load	96	-96	0	0
Ventilation Load	0	0	588	8
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			87	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	6,563	519	7,757	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 18
OADB: 91

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	4,024	66
Glass/Door Cond	382	6
Wall Cond	281	5
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	148	2
Sub Total ==>	4,836	79
Internal Loads		
Lights	437	7
People	500	8
Misc	273	4
Sub Total ==>	1,210	20
Ceiling Load	96	2
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	6,142	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-242	3.87
Glass Solar	0	0	0.00
Glass/Door Cond	-1,047	-1,047	16.78
Wall Cond	-194	-290	4.64
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	40.18
Adjacent Floor	0.00	0.00	0.00
Infiltration	-455	-455	7.29
Sub Total ==>	-4,204	-4,542	72.76
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-54	0	0.00
Ventilation Load	0	-1,580	25.32
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		-120	1.93
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-4,258	-6,242	100.00

TEMPERATURES

	Cooling	Heating
SADB	56.9	82.5
Ra Plenum	73.9	70.9
Return	73.9	70.9
Ret/OA	75.0	67.1
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	366	366
Terminal	366	366
Main Fan	366	366
Sec Fan	0	0
Nom Vent	25	25
AHU Vent	25	25
Infil	7	7
MinStop/Rh	37	37
Return	341	341
Exhaust	0	0
Rm Exh	32	32
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	6.8	6.8
cfm/ft²	2.29	2.29
cfm/ton	565.65	
ft²/ton	247.53	
Btu/hr·ft²	48.48	-39.02
No. People	2.0	12.5/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.7	7.8	7.3	366	75.3	61.3	59.1	56.9	53.9	57.8
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.7	7.8								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	160		
Part	0		
Int Door	1		
ExFlr	440		
Roof	160	0	0
Wall	125	32	26
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-6.2	366	67.1	82.5
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-6.2			

Room Checksums

By Coffman Engineers, Inc.

103 - Office

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 18
Outside Air: OADB/WB/HR: 91 / 67 / 63

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	299	299	4
Glass Solar	4,024	0	4,024	54
Glass/Door Cond	382	0	382	5
Wall Cond	196	111	307	4
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	138		138	2
Sub Total ==>	4,740	410	5,149	70
Internal Loads				
Lights	355	89	444	6
People	900	0	900	12
Misc	222	0	222	3
Sub Total ==>	1,477	89	1,566	21
Ceiling Load	78	-78	0	0
Ventilation Load	0	0	588	8
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			83	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	6,294	420	7,385	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 18
OADB: 91

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	4,024	68
Glass/Door Cond	382	7
Wall Cond	196	3
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	121	2
Sub Total ==>	4,723	80
Internal Loads		
Lights	355	6
People	500	9
Misc	222	4
Sub Total ==>	1,077	18
Ceiling Load	78	1
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
System Plenum Heat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	5,877	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-196	3.24
Glass Solar	0	0	0.00
Glass/Door Cond	-1,047	-1,047	17.26
Wall Cond	-135	-212	3.49
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	41.34
Adjacent Floor	0.00	0.00	0.00
Infiltration	-370	-370	6.10
Sub Total ==>	-4,060	-4,333	71.42
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-44	0	0.00
Ventilation Load	0	-1,580	26.05
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		-154	2.54
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-4,104	-6,067	100.00

TEMPERATURES

	Cooling	Heating
SADB	56.8	82.6
Ra Plenum	73.9	70.9
Return	73.9	70.9
Ret/OA	75.1	66.9
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	348	348
Terminal	348	348
Main Fan	348	348
Sec Fan	0	0
Nom Vent	25	25
AHU Vent	25	25
Infil	6	6
MinStop/Rh	35	35
Return	323	323
Exhaust	0	0
Rm Exh	31	31
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	7.2	7.2
cfm/ft²	2.68	2.68
cfm/ton	565.62	
ft²/ton	211.23	
Btu/hr·ft²	56.81	-46.67
No. People	2.0	15.4/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.6	7.4	6.9	348	75.3	61.3	59.1	56.8	54.0	58.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.6	7.4								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	130		
Part	0		
Int Door	1		
ExFlr	440		
Roof	130	0	0
Wall	100	32	32
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-6.1	348	66.9	82.6
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-6.1			

Room Checksums

By Coffman Engineers, Inc.

104 - Office

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 18
Outside Air: OADB/WB/HR: 91 / 67 / 63

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	299	299	4
Glass Solar	4,024	0	4,024	54
Glass/Door Cond	382	0	382	5
Wall Cond	196	111	307	4
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	138		138	2
Sub Total ==>	4,740	410	5,149	70
Internal Loads				
Lights	355	89	444	6
People	900	0	900	12
Misc	222	0	222	3
Sub Total ==>	1,477	89	1,566	21
Ceiling Load	78	-78	0	0
Ventilation Load	0	0	588	8
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			83	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	6,294	420	7,385	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 18
OADB: 91

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	4,024	68
Glass/Door Cond	382	7
Wall Cond	196	3
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	121	2
Sub Total ==>	4,723	80
Internal Loads		
Lights	355	6
People	500	9
Misc	222	4
Sub Total ==>	1,077	18
Ceiling Load	78	1
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
System Plenum Heat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	5,877	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-196	3.24
Glass Solar	0	0	0.00
Glass/Door Cond	-1,047	-1,047	17.26
Wall Cond	-135	-212	3.49
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	41.34
Adjacent Floor	0.00	0.00	0.00
Infiltration	-370	-370	6.10
Sub Total ==>	-4,060	-4,333	71.42
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-44	0	0.00
Ventilation Load	0	-1,580	26.05
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		-154	2.54
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-4,104	-6,067	100.00

TEMPERATURES

	Cooling	Heating
SADB	56.8	82.6
Ra Plenum	73.9	70.9
Return	73.9	70.9
Ret/OA	75.1	66.9
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	348	348
Terminal	348	348
Main Fan	348	348
Sec Fan	0	0
Nom Vent	25	25
AHU Vent	25	25
Infil	6	6
MinStop/Rh	35	35
Return	323	323
Exhaust	0	0
Rm Exh	31	31
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	7.2	7.2
cfm/ft²	2.68	2.68
cfm/ton	565.62	
ft²/ton	211.23	
Btu/hr·ft²	56.81	-46.67
No. People	2.0	15.4/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.6	7.4	6.9	348	75.3	61.3	59.1	56.8	54.0	58.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.6	7.4								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	130		
Part	0		
Int Door	1		
ExFlr	440		
Roof	130	0	0
Wall	100	32	32
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-6.1	348	66.9	82.6
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-6.1			

Room Checksums

By Coffman Engineers, Inc.

105 - Work Room

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 95 / 70 / 70

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	760	760	13
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	481		481	9
Sub Total ==>	481	760	1,241	22
Internal Loads				
Lights	956	239	1,195	21
People	1,350	0	1,350	24
Misc	597	0	597	11
Sub Total ==>	2,903	239	3,142	56
Ceiling Load	198	-198	0	0
Ventilation Load	0	0	1,222	22
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			37	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	3,582	801	5,641	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 16
OADB: 94

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	391	13
Sub Total ==>	391	13
Internal Loads		
Lights	956	33
People	750	26
Misc	597	21
Sub Total ==>	2,303	79
Ceiling Load	210	7
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	2,904	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-529	8.41
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	39.90
Adjacent Floor	0.00	0.00	0.00
Infiltration	-996	-996	15.84
Sub Total ==>	-3,504	-4,032	64.15
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-119	0	0.00
Ventilation Load	0	-2,529	40.23
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		275	-4.37
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-3,622	-6,286	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	93.2
Ra Plenum	73.8	70.9
Return	73.8	70.9
Ret/OA	79.3	56.4
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	154	154
Terminal	154	154
Main Fan	154	154
Sec Fan	0	0
Nom Vent	40	40
AHU Vent	40	40
Infil	16	16
MinStop/Rh	15	15
Return	114	114
Exhaust	0	0
Rm Exh	56	56
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	26.0	26.0
cfm/ft²	0.44	0.44
cfm/ton	327.67	
ft²/ton	744.51	
Btu/hr·ft²	16.12	-17.96
No. People	3.0	8.6/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.5	5.6	4.8	154	79.5	64.0	64.9	55.0	51.5	51.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.5	5.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	350		
Part	0		
Int Door	1		
ExFlr	440		
Roof	350	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-6.3	154	56.4	93.2
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-6.3			

Room Checksums

By Coffman Engineers, Inc.

108 - Conference Room

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 95 / 70 / 70

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	515	515	5
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	258		258	3
Sub Total ==>	258	515	773	8
Internal Loads				
Lights	655	164	819	9
People	5,400	0	5,400	56
Misc	410	0	410	4
Sub Total ==>	6,465	164	6,629	69
Ceiling Load	211	-211	0	0
Ventilation Load	0	0	2,150	22
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			57	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	6,934	467	9,608	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 16
OADB: 94

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	268	6
Sub Total ==>	268	6
Internal Loads		
Lights	655	14
People	3,000	66
Misc	410	9
Sub Total ==>	4,065	89
Ceiling Load	223	5
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	4,556	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-360	3.89
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	27.14
Adjacent Floor	0.00	0.00	0.00
Infiltration	-683	-683	7.39
Sub Total ==>	-3,191	-3,551	38.43
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-112	0	0.00
Ventilation Load	0	-5,689	61.57
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-3,303	-9,240	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	84.3
Ra Plenum	74.8	70.5
Return	74.8	70.5
Ret/OA	82.3	49.9
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	242	242
Terminal	242	242
Main Fan	242	242
Sec Fan	0	0
Nom Vent	90	90
AHU Vent	90	90
Infil	11	11
MinStop/Rh	24	24
Return	152	152
Exhaust	0	0
Rm Exh	101	101
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	37.2	37.2
cfm/ft²	1.01	1.01
cfm/ton	301.81	
ft²/ton	299.74	
Btu/hr·ft²	40.03	-38.50
No. People	12.0	50.0/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.8	9.6	7.4	242	82.5	66.4	71.7	55.0	53.4	58.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.8	9.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	240		
Part	0		
Int Door	1		
ExFlr	440		
Roof	240	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-9.2	242	49.9	84.3
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-9.2			

Room Checksums

By Coffman Engineers, Inc.

119 - Lobby

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 95 / 70 / 70

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	2,416	2,416	12
Glass Solar	1,656	0	1,656	8
Glass/Door Cond	1,081	0	1,081	6
Wall Cond	174	97	271	1
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	1,644		1,644	8
Sub Total ==>	4,555	2,513	7,068	36
Internal Loads				
Lights	3,058	765	3,823	20
People	2,700	0	2,700	14
Misc	1,911	0	1,911	10
Sub Total ==>	7,669	765	8,434	43
Ceiling Load	814	-814	0	0
Ventilation Load	0	0	3,915	20
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			145	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	13,038	2,464	19,561	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 15
OADB: 95

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	1,656	14
Glass/Door Cond	1,081	9
Wall Cond	174	2
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	1,285	11
Sub Total ==>	4,196	37
Internal Loads		
Lights	3,058	27
People	1,500	13
Misc	1,911	17
Sub Total ==>	6,469	56
Ceiling Load	814	7
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	11,479	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,683	9.66
Glass Solar	0	0	0.00
Glass/Door Cond	-2,618	-2,618	15.03
Wall Cond	-314	-497	2.85
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	14.40
Adjacent Floor	0.00	0.00	0.00
Infiltration	-3,186	-3,186	18.29
Sub Total ==>	-8,626	-10,492	60.23
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-477	0	0.00
Ventilation Load	0	-7,586	43.55
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		659	-3.78
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-9,103	-17,419	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	85.5
Ra Plenum	74.3	70.7
Return	74.3	70.7
Ret/OA	78.4	59.7
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	610	610
Terminal	610	610
Main Fan	610	610
Sec Fan	0	0
Nom Vent	120	120
AHU Vent	120	120
Infil	50	50
MinStop/Rh	61	61
Return	490	490
Exhaust	0	0
Rm Exh	170	170
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	19.7	19.7
cfm/ft²	0.54	0.54
cfm/ton	374.21	
ft²/ton	687.08	
Btu/hr·ft²	17.47	-15.55
No. People	6.0	5.4/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	1.6	19.6	17.2	610	78.6	63.1	62.1	55.0	52.1	53.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.6	19.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	1,120		
Part	0		
Int Door	1		
ExFlr	440		
Roof	1,120	0	0
Wall	240	80	33
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-17.4	610	59.7	85.5
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-17.4			

Room Checksums

By Coffman Engineers, Inc.

138 - Cash Balance

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 95 / 70 / 70

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	194	194	9
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	84		84	4
Sub Total ==>	84	194	278	13
Internal Loads				
Lights	246	61	307	15
People	900	0	900	43
Misc	154	0	154	7
Sub Total ==>	1,299	61	1,361	65
Ceiling Load	65	-65	0	0
Ventilation Load	0	0	414	20
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			26	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	1,449	190	2,079	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 16
OADB: 94

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	101	9
Sub Total ==>	101	9
Internal Loads		
Lights	246	23
People	500	47
Misc	154	14
Sub Total ==>	899	84
Ceiling Load	68	6
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	1,068	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-135	3.22
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	59.71
Adjacent Floor	0.00	0.00	0.00
Infiltration	-256	-256	6.09
Sub Total ==>	-2,764	-2,899	69.02
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-38	0	0.00
Ventilation Load	0	-1,264	30.10
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		-37	0.88
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-2,802	-4,201	100.00

TEMPERATURES

	Cooling	Heating
SADB	63.2	95.0
Ra Plenum	74.3	70.7
Return	74.3	70.7
Ret/OA	78.1	60.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	110	110
Terminal	110	110
Main Fan	110	110
Sec Fan	0	0
Nom Vent	20	20
AHU Vent	20	20
Infil	4	4
MinStop/Rh	11	11
Return	90	90
Exhaust	0	0
Rm Exh	24	24
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	18.2	18.2
cfm/ft²	1.22	1.22
cfm/ton	634.23	
ft²/ton	519.57	
Btu/hr·ft²	23.10	-46.67
No. People	2.0	22.2/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.2	2.1	1.8	110	78.3	65.8	75.9	63.2	60.0	72.8
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.2	2.1								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	90		
Part	0		
Int Door	1		
ExFlr	440		
Roof	90	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-4.2	110	60.5	95.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-4.2			

Room Checksums

By Coffman Engineers, Inc.

139 - Work Room

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 95 / 70 / 70

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	302	302	12
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	149		149	6
Sub Total ==>	149	302	452	18
Internal Loads				
Lights	382	96	478	19
People	900	0	900	35
Misc	239	0	239	9
Sub Total ==>	1,521	96	1,617	63
Ceiling Load	102	-102	0	0
Ventilation Load	0	0	475	18
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			28	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	1,772	296	2,570	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 16
OADB: 94

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	156	11
Sub Total ==>	156	11
Internal Loads		
Lights	382	28
People	500	36
Misc	239	17
Sub Total ==>	1,121	81
Ceiling Load	107	8
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
System Plenum Heat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	1,384	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-210	4.81
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	57.34
Adjacent Floor	0.00	0.00	0.00
Infiltration	-398	-398	9.11
Sub Total ==>	-2,906	-3,117	71.26
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-60	0	0.00
Ventilation Load	0	-1,264	28.91
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		7	-0.16
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-2,966	-4,374	100.00

TEMPERATURES

	Cooling	Heating
SADB	61.3	95.0
Ra Plenum	74.3	70.7
Return	74.3	70.7
Ret/OA	77.9	61.1
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	116	116
Terminal	116	116
Main Fan	116	116
Sec Fan	0	0
Nom Vent	20	20
AHU Vent	20	20
Infil	6	6
MinStop/Rh	12	12
Return	96	96
Exhaust	0	0
Rm Exh	26	26
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	17.2	17.2
cfm/ft²	0.83	0.83
cfm/ton	542.84	
ft²/ton	653.61	
Btu/hr·ft²	18.36	-31.24
No. People	2.0	14.3/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.2	2.6	2.2	116	78.1	65.1	72.4	61.3	58.0	67.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.2	2.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	140		
Part	0		
Int Door	1		
ExFlr	440		
Roof	140	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-4.4	116	61.1	95.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-4.4			

Room Checksums

By Coffman Engineers, Inc.

140 - Office

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 95 / 70 / 70

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	302	302	12
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	149		149	6
Sub Total ==>	149	302	452	18
Internal Loads				
Lights	382	96	478	19
People	900	0	900	35
Misc	239	0	239	9
Sub Total ==>	1,521	96	1,617	63
Ceiling Load	102	-102	0	0
Ventilation Load	0	0	475	18
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			28	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	1,772	296	2,570	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 16
OADB: 94

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	156	11
Sub Total ==>	156	11
Internal Loads		
Lights	382	28
People	500	36
Misc	239	17
Sub Total ==>	1,121	81
Ceiling Load	107	8
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
System Plenum Heat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	1,384	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-210	4.81
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	57.34
Adjacent Floor	0.00	0.00	0.00
Infiltration	-398	-398	9.11
Sub Total ==>	-2,906	-3,117	71.26
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-60	0	0.00
Ventilation Load	0	-1,264	28.91
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		7	-0.16
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-2,966	-4,374	100.00

TEMPERATURES

	Cooling	Heating
SADB	61.3	95.0
Ra Plenum	74.3	70.7
Return	74.3	70.7
Ret/OA	77.9	61.1
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	116	116
Terminal	116	116
Main Fan	116	116
Sec Fan	0	0
Nom Vent	20	20
AHU Vent	20	20
Infil	6	6
MinStop/Rh	12	12
Return	96	96
Exhaust	0	0
Rm Exh	26	26
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	17.2	17.2
cfm/ft²	0.83	0.83
cfm/ton	542.84	
ft²/ton	653.61	
Btu/hr·ft²	18.36	-31.24
No. People	2.0	14.3/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.2	2.6	2.2	116	78.1	65.1	72.4	61.3	58.0	67.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.2	2.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	140		
Part	0		
Int Door	1		
ExFlr	440		
Roof	140	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-4.4	116	61.1	95.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-4.4			

Room Checksums

By Coffman Engineers, Inc.

141 - Storage & Corridor

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 95 / 70 / 70

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,510	1,510	16
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	350	113	463	5
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	1,001		1,001	10
Sub Total ==>	1,352	1,623	2,975	31
Internal Loads				
Lights	1,911	478	2,389	25
People	1,800	0	1,800	19
Misc	1,195	0	1,195	12
Sub Total ==>	4,906	478	5,384	55
Ceiling Load	508	-508	0	0
Ventilation Load	0	0	1,272	13
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			73	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	6,766	1,593	9,703	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 15
OADB: 95

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	350	6
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	803	14
Sub Total ==>	1,153	20
Internal Loads		
Lights	1,911	33
People	1,000	17
Misc	1,195	21
Sub Total ==>	4,106	71
Ceiling Load	508	9
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	5,768	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,052	13.15
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-277	-367	4.59
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	31.35
Adjacent Floor	0.00	0.00	0.00
Infiltration	-1,991	-1,991	24.89
Sub Total ==>	-4,776	-5,918	73.97
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-298	0	0.00
Ventilation Load	0	-2,529	31.61
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		446	-5.58
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-5,074	-8,001	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	86.9
Ra Plenum	74.3	70.7
Return	74.3	70.7
Ret/OA	77.0	63.4
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	307	307
Terminal	307	307
Main Fan	307	307
Sec Fan	0	0
Nom Vent	40	40
AHU Vent	40	40
Infil	32	32
MinStop/Rh	31	31
Return	267	267
Exhaust	0	0
Rm Exh	72	72
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	13.0	13.0
cfm/ft²	0.44	0.44
cfm/ton	379.25	
ft²/ton	865.75	
Btu/hr·ft²	13.86	-11.43
No. People	4.0	5.7/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.8	9.7	8.5	307	77.2	62.7	62.4	55.0	51.8	52.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.8	9.7								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	700		
Part	0		
Int Door	1		
ExFlr	440		
Roof	700	0	0
Wall	120	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-8.0	307	63.4	86.9
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-8.0			

Room Checksums

By Coffman Engineers, Inc.

142 - Kitchen

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 14
Outside Air: OADB/WB/HR: 94 / 70 / 72

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	493	493	6
Glass Solar	1,815	0	1,815	20
Glass/Door Cond	272	0	272	3
Wall Cond	273	127	400	4
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	396		396	4
Sub Total ==>	2,756	620	3,376	38
Internal Loads				
Lights	710	177	887	10
People	1,800	0	1,800	20
Misc	444	0	444	5
Sub Total ==>	2,954	177	3,131	35
Ceiling Load	173	-173	0	0
Ventilation Load	0	0	2,369	26
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			74	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	5,883	624	8,950	100.00

CLG SPACE PEAK

Mo/Hr: 9 / 14
OADB: 83

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	2,777	49
Glass/Door Cond	127	2
Wall Cond	320	6
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	142	3
Sub Total ==>	3,366	60
Internal Loads		
Lights	710	13
People	1,000	18
Misc	444	8
Sub Total ==>	2,154	38
Ceiling Load	125	2
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	5,644	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-391	4.30
Glass Solar	0	0	0.00
Glass/Door Cond	-708	-708	7.80
Wall Cond	-225	-330	3.63
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	27.63
Adjacent Floor	0.00	0.00	0.00
Infiltration	-740	-740	8.15
Sub Total ==>	-4,181	-4,677	51.53
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-111	0	0.00
Ventilation Load	0	-4,425	48.75
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		25	-0.28
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-4,291	-9,076	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.7	84.4
Ra Plenum	74.1	70.7
Return	74.1	70.7
Ret/OA	78.7	58.1
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	311	311
Terminal	311	311
Main Fan	311	311
Sec Fan	0	0
Nom Vent	70	70
AHU Vent	70	70
Infil	12	12
MinStop/Rh	31	31
Return	241	241
Exhaust	0	0
Rm Exh	82	82
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	22.5	22.5
cfm/ft²	1.20	1.20
cfm/ton	417.34	
ft²/ton	348.59	
Btu/hr·ft²	34.42	-34.91
No. People	4.0	15.4/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.8	9.0	7.4	311	78.9	63.1	61.7	55.7	53.3	57.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.8	9.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	260		
Part	0		
Int Door	1		
ExFlr	440		
Roof	260	0	0
Wall	140	32	23
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-9.1	311	58.1	84.4
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-9.1			

Room Checksums

By Coffman Engineers, Inc.

143 - Office

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 8 / 14
Outside Air: OADB/WB/HR: 91 / 68 / 65

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	422	422	6
Glass Solar	2,260	0	2,260	34
Glass/Door Cond	225	0	225	3
Wall Cond	299	140	438	7
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	295		295	4
Sub Total ==>	3,078	561	3,640	55
Internal Loads				
Lights	710	177	887	13
People	900	0	900	14
Misc	444	0	444	7
Sub Total ==>	2,054	177	2,231	34
Ceiling Load	156	-156	0	0
Ventilation Load	0	0	631	10
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			75	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	5,288	583	6,576	100.00

CLG SPACE PEAK

Mo/Hr: 9 / 14
OADB: 83

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	2,777	54
Glass/Door Cond	127	2
Wall Cond	320	6
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	142	3
Sub Total ==>	3,366	65
Internal Loads		
Lights	710	14
People	500	10
Misc	444	9
Sub Total ==>	1,654	32
Ceiling Load	125	2
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	5,144	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-391	6.20
Glass Solar	0	0	0.00
Glass/Door Cond	-708	-708	11.23
Wall Cond	-225	-330	5.23
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	39.78
Adjacent Floor	0.00	0.00	0.00
Infiltration	-740	-740	11.73
Sub Total ==>	-4,181	-4,677	74.17
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-111	0	0.00
Ventilation Load	0	-1,580	25.07
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		-48	0.76
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-4,291	-6,305	100.00

TEMPERATURES

	Cooling	Heating
SADB	57.3	84.3
Ra Plenum	73.9	70.7
Return	73.9	70.7
Ret/OA	75.2	66.3
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	316	316
Terminal	316	316
Main Fan	316	316
Sec Fan	0	0
Nom Vent	25	25
AHU Vent	25	25
Infil	12	12
MinStop/Rh	32	32
Return	291	291
Exhaust	0	0
Rm Exh	37	37
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	7.9	7.9
cfm/ft²	1.21	1.21
cfm/ton	575.83	
ft²/ton	474.42	
Btu/hr·ft²	25.29	-24.25
No. People	2.0	7.7/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.6	6.6	6.0	316	75.4	61.4	59.2	57.3	54.2	58.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.6	6.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	260		
Part	0		
Int Door	1		
ExFlr	440		
Roof	260	0	0
Wall	140	32	23
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-6.3	316	66.3	84.3
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-6.3			

Room Checksums

By Coffman Engineers, Inc.

144 - Conference Room

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 95 / 70 / 70

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,273	1,273	8
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	729		729	4
Sub Total ==>	729	1,273	2,001	12
Internal Loads				
Lights	1,611	403	2,014	12
People	5,400	0	5,400	32
Misc	1,007	0	1,007	6
Sub Total ==>	8,018	403	8,421	50
Ceiling Load	429	-429	0	0
Ventilation Load	0	0	6,311	38
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			85	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	9,175	1,247	16,818	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 16
OADB: 94

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	659	10
Sub Total ==>	659	10
Internal Loads		
Lights	1,611	24
People	3,000	45
Misc	1,007	15
Sub Total ==>	5,618	84
Ceiling Load	449	7
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing		
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
System Plenum Heat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	6,726	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-887	4.63
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	13.08
Adjacent Floor	0.00	0.00	0.00
Infiltration	-1,678	-1,678	8.76
Sub Total ==>	-4,186	-5,073	26.47
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-251	0	0.00
Ventilation Load	0	-14,540	75.86
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		445	-2.32
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-4,438	-19,167	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	83.2
Ra Plenum	74.3	70.7
Return	74.3	70.7
Ret/OA	87.6	34.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	357	357
Terminal	357	357
Main Fan	357	357
Sec Fan	0	0
Nom Vent	230	230
AHU Vent	230	230
Infil	27	27
MinStop/Rh	36	36
Return	127	127
Exhaust	0	0
Rm Exh	257	257
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	64.4	64.4
cfm/ft²	0.61	0.61
cfm/ton	255.01	
ft²/ton	420.99	
Btu/hr·ft²	28.50	-32.49
No. People	12.0	20.3/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	1.4	16.8	13.9	357	87.8	67.6	69.3	55.0	52.2	54.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.4	16.8								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	590		
Part	0		
Int Door	1		
ExFlr	440		
Roof	590	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-19.2	357	34.8	83.2
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-19.2			

Room Checksums

By Coffman Engineers, Inc.

2 - Open Office Area

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 8 / 15
Outside Air: OADB/WB/HR: 91 / 68 / 64

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	3,480	3,480	6
Glass Solar	27,338	0	27,338	47
Glass/Door Cond	3,415	0	3,415	6
Wall Cond	1,584	872	2,456	4
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	2,057		2,057	4
Sub Total ==>	34,393	4,352	38,745	67
Internal Loads				
Lights	5,024	1,256	6,280	11
People	4,050	0	4,050	7
Misc	3,140	0	3,140	5
Sub Total ==>	12,214	1,256	13,470	23
Ceiling Load	946	-946	0	0
Ventilation Load	0	0	4,968	9
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			795	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	47,554	4,662	57,978	100.00

CLG SPACE PEAK

Mo/Hr: 9 / 14
OADB: 83

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	33,635	69
Glass/Door Cond	1,818	4
Wall Cond	1,449	3
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	1,003	2
Sub Total ==>	37,904	77
Internal Loads		
Lights	5,024	10
People	2,250	5
Misc	3,140	6
Sub Total ==>	10,414	21
Ceiling Load	677	1
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
System Plenum Heat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	48,995	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-2,779	7.70
Glass Solar	0	0	0.00
Glass/Door Cond	-9,949	-9,949	27.58
Wall Cond	-1,375	-2,136	5.92
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	6.95
Adjacent Floor	0.00	0.00	0.00
Infiltration	-5,234	-5,234	14.51
Sub Total ==>	-19,066	-22,606	62.67
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-623	0	0.00
Ventilation Load	0	-12,643	35.05
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		-822	2.28
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-19,689	-36,070	100.00

TEMPERATURES

	Cooling	Heating
SADB	58.8	77.3
Ra Plenum	73.6	70.9
Return	73.6	70.9
Ret/OA	74.7	67.6
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	3,353	3,353
Terminal	3,353	3,353
Main Fan	3,353	3,353
Sec Fan	0	0
Nom Vent	200	200
AHU Vent	200	200
Infil	83	83
MinStop/Rh	335	335
Return	3,153	3,153
Exhaust	0	0
Rm Exh	283	283
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	6.0	6.0
cfm/ft²	1.82	1.82
cfm/ton	694.02	
ft²/ton	380.84	
Btu/hr·ft²	31.51	-19.60
No. People	9.0	4.9/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	4.8	58.0	55.2	3,353	74.9	61.1	59.1	58.8	55.1	59.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	4.8	58.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	1,840		
Part	0		
Int Door	1		
ExFlr	440		
Roof	1,840	0	0
Wall	990	304	31
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-36.1	3,353	67.6	77.3
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-36.1			

Room Checksums

By Coffman Engineers, Inc.

3,4 - Open Office

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 10
Outside Air: OADB/WB/HR: 83 / 64 / 60

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	353	353	1
Glass Solar	15,178	0	15,178	59
Glass/Door Cond	1,089	0	1,089	4
Wall Cond	740	396	1,135	4
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	478		478	2
Sub Total ==>	17,485	749	18,234	71
Internal Loads				
Lights	2,184	546	2,730	11
People	1,800	0	1,800	7
Misc	1,365	0	1,365	5
Sub Total ==>	5,350	546	5,896	23
Ceiling Load	245	-245	0	0
Ventilation Load	0	0	1,129	4
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			342	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	23,080	1,049	25,600	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 10
OADB: 83

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	15,178	68
Glass/Door Cond	1,089	5
Wall Cond	740	3
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	447	2
Sub Total ==>	17,454	78
Internal Loads		
Lights	2,184	10
People	1,000	4
Misc	1,365	6
Sub Total ==>	4,550	20
Ceiling Load	245	1
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	22,249	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,202	6.09
Glass Solar	0	0	0.00
Glass/Door Cond	-6,283	-6,283	31.83
Wall Cond	-938	-1,439	7.29
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	12.70
Adjacent Floor	0.00	0.00	0.00
Infiltration	-2,276	-2,276	11.53
Sub Total ==>	-12,005	-13,709	69.44
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-341	0	0.00
Ventilation Load	0	-5,373	27.22
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		-661	3.35
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-12,346	-19,742	100.00

TEMPERATURES

	Cooling	Heating
SADB	58.1	79.7
Ra Plenum	73.0	70.7
Return	73.0	70.7
Ret/OA	73.6	67.4
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	1,442	1,442
Terminal	1,442	1,442
Main Fan	1,442	1,442
Sec Fan	0	0
Nom Vent	85	85
AHU Vent	85	85
Infil	36	36
MinStop/Rh	144	144
Return	1,357	1,357
Exhaust	0	0
Rm Exh	121	121
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	5.9	5.9
cfm/ft²	1.80	1.80
cfm/ton	675.94	
ft²/ton	375.00	
Btu/hr·ft²	32.00	-24.68
No. People	4.0	5.0/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	2.1	25.6	24.7	1,442	73.8	60.7	58.8	58.1	54.6	58.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.1	25.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	800		
Part	0		
Int Door	1		
ExFlr	440		
Roof	800	0	0
Wall	655	192	29
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-19.7	1,442	67.4	79.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-19.7			

Room Checksums

By Coffman Engineers, Inc.

5 - Open Office Area

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 8 / 11
Outside Air: OADB/WB/HR: 84 / 65 / 62

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	435	435	2
Glass Solar	17,316	0	17,316	62
Glass/Door Cond	1,119	0	1,119	4
Wall Cond	740	414	1,154	4
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	537		537	2
Sub Total ==>	19,713	849	20,562	73
Internal Loads				
Lights	2,184	546	2,730	10
People	1,800	0	1,800	6
Misc	1,365	0	1,365	5
Sub Total ==>	5,350	546	5,896	21
Ceiling Load	269	-269	0	0
Ventilation Load	0	0	1,267	5
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			375	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	25,331	1,126	28,100	100.00

CLG SPACE PEAK

Mo/Hr: 8 / 11
OADB: 84

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	17,316	71
Glass/Door Cond	1,119	5
Wall Cond	740	3
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	462	2
Sub Total ==>	19,638	80
Internal Loads		
Lights	2,184	9
People	1,000	4
Misc	1,365	6
Sub Total ==>	4,550	19
Ceiling Load	269	1
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
System Plenum Heat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	24,457	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,202	6.05
Glass Solar	0	0	0.00
Glass/Door Cond	-6,283	-6,283	31.64
Wall Cond	-844	-1,315	6.62
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	12.63
Adjacent Floor	0.00	0.00	0.00
Infiltration	-2,276	-2,276	11.46
Sub Total ==>	-11,911	-13,584	68.40
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-341	0	0.00
Ventilation Load	0	-5,373	27.06
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		-901	4.54
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-12,252	-19,858	100.00

TEMPERATURES

	Cooling	Heating
SADB	58.1	79.0
Ra Plenum	73.1	70.7
Return	73.1	70.7
Ret/OA	73.6	67.7
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	1,583	1,583
Terminal	1,583	1,583
Main Fan	1,583	1,583
Sec Fan	0	0
Nom Vent	85	85
AHU Vent	85	85
Infil	36	36
MinStop/Rh	158	158
Return	1,498	1,498
Exhaust	0	0
Rm Exh	121	121
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	5.4	5.4
cfm/ft²	1.98	1.98
cfm/ton	675.96	
ft²/ton	341.64	
Btu/hr·ft²	35.12	-24.82
No. People	4.0	5.0/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	2.3	28.1	27.1	1,583	73.8	60.7	58.9	58.1	54.6	58.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.3	28.1								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	800		
Part	0		
Int Door	1		
ExFlr	440		
Roof	800	0	0
Wall	615	192	31
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-19.9	1,583	67.7	79.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-19.9			

Room Checksums

By Coffman Engineers, Inc.

Vestibule

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 95 / 70 / 70

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	302	302	7
Glass Solar	994	0	994	23
Glass/Door Cond	649	0	649	15
Wall Cond	190	85	275	6
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	198		198	5
Sub Total ==>	2,031	387	2,417	57
Internal Loads				
Lights	382	96	478	11
People	450	0	450	11
Misc	239	0	239	6
Sub Total ==>	1,071	96	1,167	27
Ceiling Load	102	-102	0	0
Ventilation Load	0	0	629	15
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			45	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	3,204	381	4,258	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 15
OADB: 95

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	994	34
Glass/Door Cond	649	22
Wall Cond	190	6
Partition/Door	0	0
Floor	0.00	0
Adjacent Floor	0.00	0.00
Infiltration	161	5
Sub Total ==>	1,993	67
Internal Loads		
Lights	382	13
People	250	8
Misc	239	8
Sub Total ==>	871	29
Ceiling Load	102	3
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	2,966	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 15

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-210	3.29
Glass Solar	0	0	0.00
Glass/Door Cond	-1,571	-1,571	24.55
Wall Cond	-343	-504	7.88
Partition/Door	0	0	0.00
Floor	-2,508	-2,508	39.19
Adjacent Floor	0.00	0.00	0.00
Infiltration	-398	-398	6.22
Sub Total ==>	-4,820	-5,191	81.12
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-60	0	0.00
Ventilation Load	0	-1,264	19.76
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		56	-0.88
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-4,880	-6,400	100.00

TEMPERATURES

	Cooling	Heating
SADB	58.0	95.0
Ra Plenum	74.3	70.7
Return	74.3	70.7
Ret/OA	76.5	64.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	191	191
Terminal	191	191
Main Fan	191	191
Sec Fan	0	0
Nom Vent	20	20
AHU Vent	20	20
Infil	6	6
MinStop/Rh	19	19
Return	171	171
Exhaust	0	0
Rm Exh	26	26
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	10.5	10.5
cfm/ft²	1.37	1.37
cfm/ton	539.16	
ft²/ton	394.55	
Btu/hr·ft²	30.41	-45.71
No. People	1.0	7.1/1000 ft²

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter gr/lb	Leave DB °F	Leave WB °F	Leave gr/lb
Main Clg	0.4	4.3	3.9	191	76.7	62.6	62.7	58.0	55.1	60.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.4	4.3								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	140		
Part	0		
Int Door	1		
ExFlr	440		
Roof	140	0	0
Wall	210	48	23
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-6.4	191	64.8	95.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-6.4			

Appendix C

Vendor Services Agreement

(For Information Only)

VENDOR SERVICES AGREEMENT

Skagit County, through the Department of Facilities Management (hereinafter referred to as County) and _____ (hereinafter referred to as Contractor), for and in consideration of the mutual benefits do hereby agree as follows:

1. Contractor will provide the following service/products at such time and in such manner as described in **"Exhibit A".** In the event of any inconsistency or ambiguity in the Bid and Contract Documents, the higher quality, quantity or cost shall prevail and govern.

2. County will compensate Contractor a maximum of $_____ plus any applicable taxes, chargeable to GL expenditure code #340 56449056220, or any others that may apply.

3. The parties agree that Contractor is an independent contractor, and not an employee nor agent of Skagit County. Contractor hereby agrees not to make any representations to any third party, nor to allow such third party to remain under the misimpression that Contractor is an employee of Skagit County. All payments made hereunder and all services performed shall be made and performed pursuant to this Agreement by the Contractor as an independent contractor. Contractor will defend, indemnify and hold harmless the County, its officers, agents or employees from any loss or expense, including but not limited to settlements, judgments, setoffs, attorneys' fees or costs incurred by reason of claims or demands because of breach of the provisions of this paragraph. Further the Contractor represents that all employees and sub-contractors are covered under Industrial Insurance in compliance with R.C.W. Title 51.

4. Defense & Indemnity Agreement:
The Contractor agrees to defend, indemnify and save harmless the County, its appointed and elective officers and employees, from and against all loss or expense, including but not limited to judgments, settlements, attorney's fees and costs by reason of any and all claims and demands upon the County, its elected or appointed officials or employees for damages because of personal or bodily injury, including death at any time resulting therefrom, sustained by any person or persons and on account of damage to property including loss of use thereof, whether such injury to persons or damage to property is due to the negligence of the Contractor, its subcontractors, its elected officers, employees or their agents, except only such injury or damage as shall have been occasioned by the sole negligence of the County, its appointed or elected officials or employees. It is further provided that no liability shall attach to the County by reason of entering into this contract, except as expressly provided herein.

5. This Contract shall commence on date of execution and continue until either party terminates by giving 30 days notice in writing either personally delivered or mailed postage prepaid by certified mail, return receipt requested to the party's last known address, but in no event shall the contract continue for more than one year from date of execution.

Information Only

6. The Contractor shall not assign any interest in this Contract and shall not transfer any interest in same without prior written County consent.

7. The Contractor will secure, at his own expense, all personnel required in performing said services under this Contract. Contractor shall be personally liable for applicable payroll, labor and industries premiums and all applicable taxes and shall hold County harmless therefrom.

8. The Contractor shall provide proof of insurance for general comprehensive liability in the amount of $2,000,000 to cover Contractor's activities during the term of this Contract. Proof of insurance shall be in a form acceptable and approved by the County. A certificate of insurance naming the County, its elected officials, and employees as additional insured's and naming the County as a certificate holder shall accompany this Contract for signing. Thirty (30) days' written notice to the County of cancellation of the insurance policy is required. No contract shall form until and unless a copy of the certificate of insurance, in the amount required, is attached hereto as set forth in **"Exhibit "B"**. The contractors insurance shall be primary. Any insurance or self-insurance maintained by the County, its officers, officials, employees or volunteers shall be excess of Contractors insurance and shall not contribute to it.

9. Prevailing Wages:
Contractor and subcontractor shall submit a "Statement of Intent to Pay Prevailing Wages" prior to submitting first application for payment. Each statement of intent to pay prevailing wages must be approved by the Industrial Statistician of the Department of Labor and Industries before it is submitted to the County. Unless otherwise authorized by the Department of Labor and Industries, each voucher claim submitted by a Contractor for payment on a project estimate shall state that the prevailing wages have been paid in accordance with the pre-filed statement or statements of Intent to Pay Prevailing Wages on file with the public agency.

10. Termination for Public Convenience:
The County may terminate the contract in whole or in part whenever the County determines, in its sole discretion that such termination is in the best interests of the County. Whenever the contract is terminated in accordance with this paragraph, the Contractor shall be entitled to payment for actual work performed at unit contract prices for completed items of work. An equitable adjustment in the contract price for partially completed items of work will be made, but such adjustment shall not include provision for loss of anticipated profit on deleted or uncompleted work. Termination of this contract by the County at any time during the term, whether for default or convenience, shall not constitute a breach of contract by the County. If sufficient funds are not appropriated or allocated for payment under this contract for any future fiscal period, the County will not be obligated to make payments for services or amounts incurred after the end of the current fiscal period. No penalty or expense shall accrue to the County in the event this provision applies.

Information Only

CONTRACTOR:

_____
Signature & Title of Signatory
(Date _____)

_____
Print Name

_____
Title

Mailing Address:
_____
_____

Telephone No. _____
Fed. Tax ID # _____
Contractor Lic. #. _____

Information Only

DATED this _____ day of _____, 2023.

BOARD OF COUNTY COMMISSIONERS
SKAGIT COUNTY, WASHINGTON

_____
Ron Wesen, Chair

_____
Lisa Janicki, Commissioner

Attest: _____
Peter Browning, Commissioner

_____
Clerk of the Board

For contracts under $5,000:
Authorization per Resolution R20030146

Recommended: _____
County Administrator

_____
Department Head

Approved as to form:

_____
Civil Deputy Prosecuting Attorney

Approved as to indemnification:

_____
Risk Manager

Approved as to budget:

_____
Budget & Finance Director

Information Only

EXHIBIT "A"

SCOPE OF SERVICES

Project Title: Parker Building HVAC Replacement (VRF and ERV)
Location: Parker Building, 1700 E College Way, Mount Vernon, WA 98273

Vendor will supply all labor, demolition, materials, equipment, and supervision for a prevailing wage project to replace the Parker Building HVAC with Variable Refrigerant Flow (VRF) and Energy Recovery Ventilation (ERV) systems. Work must be completed outside the normal business hours (8:00 am – 4:30 pm) or on weekends / holidays. Vendor may request ability to complete nondisruptive work in common areas at least 24 hours ahead with the Facilities Management Department but cannot proceed until coordination with other departments and approval is received.

Full scope of this Agreement is included in the following drawings and specifications:

1. HVAC Replacement Drawings dated April 24, 2023 (21 pages)
2. HVAC Replacement Project Manual dated May 1, 2023 (185 pages)

Contractor shall not start work until a schedule has been provided to County Facilities Management and an official Notice to Proceed has been issued.

COMPENSATION

Labor and Materials	$
Washington State Tax Rate - 8.8%	$
Project Total	$

Total compensation shall not exceed $_____

Notes:

- Any invoice may be submitted to the following Skagit County Facilities Management email address scfacilities@co.skagit.wa.us.
- An Intent to Pay Prevailing Wages will need to be filed with the Department of Labor and Industries for value and duration of the contract prior to any work, with Affidavits filed prior to the County submitting a Notice of Completion. Intent and affidavit instructions can be located at https://lni.wa.gov/licensing-permits/public-works-projects/contractors-employers/.
- Prevailing wage rates may be found at https://lni.wa.gov/licensing-permits/public-works-projects/prevailing-wage-rates/.
- Washington State Sales Tax Rate: https://webgis.dor.wa.gov/taxratelookup/SalesTax.aspx shall be added to the contract based on location of services.
- All identified deficiencies shall be shared with Skagit County Facilities Management for option to correct with County technicians or to authorize Contractor to make repairs.
- All applicable city, county, state permits, inspections will be the responsibility to procure or be onsite by the selected contractor and be present for all required inspections.

Information Only

EXHIBIT "B"

PROOF OF INSURANCE

The Contractor shall provide proof of insurance for Commercial General Liability or Professional Liability in the amount of $2,000,000.00 to cover Contractor's activities during the term of this Contract. Proof of insurance shall be in a form acceptable and approved by the County. Contractors insurance shall be primary.

The type of insurance required by this Agreement is marked below.

✓ 1) Commercial General Liability Insurance
Certificate Holder – Skagit County
The Certificate must name the County as additional insured: Skagit County, its elected officials, officers and employees are named as additional insured.
Thirty (30) days written notice to the County of cancellation of the insurance policy.

☐ 2) Professional Liability
Certificate Holder – Skagit County
Thirty (30) days written notice to the County of cancellation of the insurance policy

NOTE: No contract shall form until and unless a copy of the Certificate of Insurance, properly completed and in the amount required, is attached hereto.

☐ 3) Insurance is waived

Date:_____
Risk Manager

Information Only