

1/19/2024
CJC North MAU Replacement

CONTRACT FOR CONSTRUCTION
(Cooperative Purchasing – BuyBoard – Contract Number #720-23)

PROJECT: **CJC North MAU Replacement** (“Project”)

GENERAL CONTRACTOR: **TD Industries, Inc.** (“GC”)
Billy Teston, Director, Service Operations
13200 Center Lake Drive
Austin, TX 78753

**ARCHITECT
& ENGINEER:** **K&W Engineering Solutions** (“A/E”)
Amber Kurkowski, Co-Owner
650 Shell Stone Trail
Georgetown, TX 78628

**COUNTY’S DESIGNATED
REPRESENTATIVE:** **Williamson County Facilities Management**
Attn: Director of Facilities
3101 SE Inner Loop
Georgetown, Texas 78626

THIS CONTRACT FOR GENERAL CONSTRUCTION ("Contract") is made and entered into effective as of the latest date of the signatories indicated at the conclusion of this document (the "Effective Date"), by and between **Williamson County**, a body corporate and politic under the laws of the State of Texas ("County") and GC.

R E C I T A L S

WHEREAS, County desires to retain a GC for the **CJC North MAU Replacement, which consists of replacement of two (2) existing make up air handling units in the Williamson County Justice Center** (hereinafter called the "Project");

WHEREAS, County desires a GC who will render, diligently and competently in accordance with the highest standards used in the profession, all general contractor services which shall be necessary or advisable for the expeditious, economical, and satisfactory completion of the Project; and

NOW, THEREFORE, County and GC, in consideration of the mutual undertakings herein contained, do mutually agree as follows:

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ARTICLE 1 SCOPE OF WORK

GC has overall responsibility for and shall provide complete construction services and furnish all materials, equipment, tools and labor as necessary or reasonably inferable to complete the Work, or any phase of the Work, in accordance with the Specifications and Drawings for the Project and County's requirements. The Specifications and Drawings were prepared for County by A/E. GC shall do everything required by the Contract Documents.

ARTICLE 2 GENERAL PROVISIONS

2.1 CONTRACT DOCUMENTS

2.1.1

The Contract Documents consist of this Contract and all exhibits and attachments listed, contained, or referenced in this Contract, the Williamson County Uniform General Conditions ("UGCs"), Supplementary or other Conditions, if any, the Drawings, Specifications, Addenda issued prior to the Effective Date of this Contract, The Bid/Proposal Documents as defined by the Invitation for Bidders/Request for Proposals, and all Change Orders and any other Modifications issued after the Effective Date of this Contract, all of which form this Contract and are as fully a part of this Contract as if attached to this Contract.

2.1.2

This Contract represents the entire and integrated agreement between the Parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. If anything in the other Contract Documents, other than a Modification, is inconsistent with this Contract, this Contract shall govern. To the extent of any direct conflict or inconsistency between any of the Contract Documents, GC shall immediately notify County and seek clarification from A/E and County.

2.1.3

The term "GC" shall be interchangeable with the terms "Proposer," "Bidder," "Respondent," "Contractor," and "General Contractor" or other similar terms as appropriate in the Contract Documents.

2.2 RELATIONSHIP OF THE PARTIES

GC accepts the relationship of trust and confidence established by this Contract and shall cooperate with A/E and County and exercise GC's skill and judgment in furthering the interests of County; to furnish efficient construction administration, management services and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious and economical manner consistent with County's interests.

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2.3 GENERAL CONDITIONS

2.3.1

The term "Contractor" as used herein or in the UGCs shall mean GC.

2.3.2

The term "Owner" as used herein or in the UGCs shall mean County.

2.3.3

The term "Architect" as used herein or in the UGCs shall mean A/E.

ARTICLE 3 CONTRACT TIME

3.1

County shall provide a Notice to Proceed in which a date for commencement of the work shall be stated. GC shall achieve Substantial Completion of the Work within **two hundred thirty-eight (238) calendar days** after such commencement date. As such completion date may be extended by approved Change Orders. Unless otherwise specified in writing, GC shall achieve Final Completion within **thirty (30) calendar days** of Substantial Completion. The time set forth for completion of the work is an essential element of the Contract.

3.2 LIQUIDATED DAMAGES

GC acknowledges and recognizes that County is entitled to full and beneficial occupancy and use of the completed Work following expiration of the Contract Time and that County has entered into, or will enter into, binding agreements upon GC's achieving Substantial Completion of the Work within the Contract Time. GC further acknowledges and agrees that if GC fails to complete substantially or cause the Substantial Completion of any Phase of the Work within the Contract Time, County will sustain extensive damages and serious loss as a result of such failure. In the cases of missed scheduled events, which incur exact losses of revenue and exact expenses for fees and other cancellation costs, GC shall be responsible for the exact amount of damages sustained by County. In other cases, the exact amount of such damages will be extremely difficult to ascertain. Therefore, County and GC agree as set forth below:

3.2.1

Subject to the other terms and conditions herein, if Substantial Completion is not achieved by the date specified above or by such date to which the Contract Time may be extended, the Contract Sum shall be reduced by **Five Hundred Dollars (\$ 500) per calendar day** as liquidated damages and not as a penalty, until the date of Substantial Completion. Force majeure shall apply relative to both rain/snow delays (acts of nature) and/or supply delays over which GC has no control, and such force majeure delays shall not be subject to such reduction of the Contract Sum.

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3.2.2

County may deduct liquidated damages described herein from any unpaid amounts then or thereafter due GC under this Contract. Any liquidated damages not so deducted from any unpaid amounts due GC shall be payable by GC to County at the demand of County, together with the interest from the date of the demand at a rate equal to the prime interest rate as published by the Wall Street Journal on the **first (1st) business day** after such amounts are demanded.

3.2.3

Notwithstanding anything to the contrary in this Contract, if County is unable to recover any portion of liquidated damages in accordance with the terms and conditions herein because it is found to be unenforceable or invalid as a penalty or otherwise, then, County shall be entitled to recover from GC all of County's actual damages in connection with the failure by GC to achieve Substantial Completion of the Work within the Contract Time, including, without limitation, direct, indirect, or consequential damages.

ARTICLE 4 GC REPRESENTATIONS

4.1

In order to induce County to enter into this Contract, GC makes the following representations:

4.1.1

GC has examined and carefully studied the Contract Documents and the other related data identified in the Bid/Proposal Documents.

4.1.2

GC has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

4.1.3

GC is familiar with and is satisfied as to all federal, state, and local laws and regulations that may affect cost, progress, and performance of the Work.

4.1.4

GC has considered the information known to GC; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by GC, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) GC's safety precautions and programs.

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4.1.5

Based on the information and observations referred to in **Paragraph 4.1.4** above, GC does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Sum, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

4.1.6

GC is aware of the general nature of work to be performed by County and others at the Site that relates to the Work as indicated in the Contract Documents.

4.1.7

GC has given A/E written notice of all conflicts, errors, ambiguities, or discrepancies that GC has discovered in the Contract Documents, and the written resolution thereof by A/E is acceptable to GC.

4.1.8

The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 5 THE CONTRACT SUM

5.1 Contract Sum.

County shall pay GC for completion of the Work in accordance with the Contract Documents the amount of **Two Hundred Eighty-Two Thousand Five Hundred Thirty-Seven Dollars (\$282,537)**.

5.2 Contract Payments.

Method and terms of payment of the Contract Sum shall be in accordance with the Contract Documents.

5.3 Owner's Contingency.

County and GC acknowledge the Work has become necessary due to **aging conditions of the MAU's coupled with the limited time constraints of fiscal year funding** that have not allowed for all plans and specifications to be fully developed. Therefore, County and GC anticipate the need for future Change Orders to be issued after the Work commences. To provide funding for such Change Orders, a not to exceed amount of **Twenty-Eight Thousand Two Hundred Fifty-Three Dollars (\$ 28,253.00)** shall serve as the Owner's Contingency from which such changes in the Work are to be paid in accordance with the General Conditions.

5.3.1

Owner's Contingency is controlled solely by County.

5.3.2

Expenditures from the Owner's Contingency must be made by Change Order issued by County in accordance with the General Conditions.

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5.3.3

Unless otherwise provided in the Contract Documents, County will not pay a mark-up for profit and overhead on any change paid out of the Owner's Contingency. GC shall not be entitled to any compensation from any unused amounts of the Owner's Contingency.

5.3.4

For purposes of **Local Government Code Section 262.031** (calculation for maximum change order cap), the Contract Sum set out in **Paragraph 5.1** above, plus the Owner's Contingency (set out in **Paragraph 5.3** above), shall serve as the original Contract price.

5.4 Allowable Overhead and Profit Markup on Changes in the Work.

In case of an increase in the Contract Sum due to a change in the Work and in accordance with **UGC 7**, the amounts GC may add to the pricing of a change for overhead and profit are as follows:

5.4.1

For Work performed directly by GC with its Own Employees: GC may add up to **fifteen percent (15%)** for Work performed directly by GC for any specific change.

5.4.2

For Managing Subcontracted Work: GC may add up to **ten percent (10%)** for managing subcontracted Work for any specific change.

Only one percentage, referenced above, shall be used for the purpose of calculating the markup for a specific change amount. For changes involving both additions and deletions, the allowed markup will be allowed only on the net addition. The allowed markup shall cover all overhead expenses and profit of any kind relating to the specific change.

ARTICLE 6 PROJECT TEAM

County's Designated Representative for purposes of this Contract is as follows:

**Williamson County Facilities Management
Attn: Director of Facilities
3101 SE Inner Loop
Georgetown, Texas 78626**

County shall have the right, from time to time, to change the County's Designated Representative by giving GC written notice thereof. With respect to any action, decision, or determination which is to be taken or made by County under this Contract, the County's Designated Representative may take such action or make such decision or determination or shall notify GC in writing of an individual responsible for, and capable of, taking such action, decision, or determination, and shall forward any communications and documentation to such individual for response or action. Actions, decisions or determinations by County's Designated Representative on behalf of County shall be done in his or her reasonable business judgment unless express standards or parameters therefor are included in this Contract, in which case, actions taken by County's Designated Representative shall be in accordance with such express standards or parameters. Any consent,

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approval, decision, or determination hereunder by County's Designated Representative shall be binding on County; *provided, however*, County's Designated Representative shall not have any right to modify, amend, or terminate this Contract or executed Contract Amendment. County's Designated Representative shall not have any authority to execute a Contract Amendment unless otherwise granted such authority by the Williamson County Commissioners Court.

GC's Designated Representative for purposes of this Contract is as follows:

**TD Industries, Inc.
Billy Teston, Director, Service Operations
13200 Center Lake Drive
Austin, TX 78753**

GC shall have the right, from time to time, to change GC's Designated Representative by giving County written notice thereof. With respect to any action, decision, or determination which is to be taken or made by GC under this Contract, GC's Designated Representative may take such action or make such decision or determination, or shall notify County in writing of an individual responsible for and capable of taking such action, decision, or determination and shall forward any communications and documentation to such individual for response or action. Actions, decisions, or determinations by GC's Designated Representative on behalf of GC shall be done in his or her reasonable business judgment unless express standards or parameters therefor are included in this Contract, in which case, actions taken by GC's Designated Representative shall be in accordance with such express standards or parameters. Any consent, approval, decision, or determination hereunder by GC's Designated Representative shall be binding on GC. GC's Designated Representative shall have the right to modify, amend, and execute Contract Amendments on behalf of GC.

ARTICLE 7 NOTICE

Any notice required to be given under the provisions of this Contract shall be in writing and shall be duly served when it shall have been deposited, enclosed in a wrapper with the proper postage prepaid thereon, and duly registered or certified, return receipt requested, in a United States Post Office, addressed to County or GC at the following addresses. If mailed, any notice or communication shall be deemed to be received **three (3) days** after the date of deposit in the United States Mail. Unless otherwise provided in this Contract, all notices shall be delivered to the following addresses:

County: Williamson County Judge
710 Main Street, Suite 101
Georgetown, Texas 78626

With copy to: Williamson County Facilities Management
Attn: Director of Facilities
3101 SE Inner Loop
Georgetown, Texas 78626

and to: Office of General Counsel
Williamson County Commissioners Court

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401 W. 6th Street
Georgetown, Texas 78626

GC: TD Industries, Inc.
13200 Center Lake Drive, Ste. 20
Austin, TX 78753

Attention: Billy Teston
Director, Service Operations

Either party may designate a different address by giving the other party **ten (10) days** written notice.

ARTICLE 8 DISPUTE RESOLUTION

Any Claim or Dispute between County and GC shall be resolved in accordance with the provisions set forth in **UGC 15**.

ARTICLE 9 MISCELLANEOUS PROVISIONS

9.1 MEANING OF TERMS

Terms in this Contract shall have the same meaning as those in the UGCs.

9.2 NO WAIVER OF IMMUNITY

Nothing herein shall be construed as a waiver of sovereign immunity by Williamson County.

9.3 GOVERNING LAW

This Contract and all of the rights and obligations of the parties and all of the terms and conditions shall be construed, interpreted and applied in accordance with and governed by and enforced under the laws of the State of Texas without reference to its conflicts of law provisions. Williamson County shall be the sole place of venue for any legal action arising from or related to this Contract or the Project in which County is a party.

9.4 ASSIGNMENT

County and GC, respectively, bind themselves, their agents, successors, assigns and legal representatives to this Contract. GC shall not assign this Contract without the written consent of County. If GC attempts to make an assignment without County's consent, GC shall nevertheless remain legally responsible for all obligations under this Contract.

9.5 OTHER PROVISIONS

9.5.1

GC represents and warrants the following to County (in addition to any other

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representations and warranties contained in the Contract Documents), as an inducement to County to execute this Contract, which representations and warranties shall survive the execution and delivery of this Contract, any termination of this Contract, and the final completion of the Work:

- .1 that it and its Subcontractors are financially solvent, able to pay all debts as they mature, and possessed of sufficient working capital to complete the Work and perform all obligations hereunder;
- .2 that it is able to furnish the tools, materials, supplies, equipment, and labor required to complete the Work and perform its obligations hereunder;
- .3 that it is authorized to do business in the State of Texas and properly licensed by all necessary governmental and public and quasi-public authorities having jurisdiction over it and over the Work and the project;
- .4 that its execution of this Contract and its performance thereof is within its duly authorized powers;
- .5 that its duly authorized representative has visited the site of the Project, familiarized himself with the local and special conditions under which the Work is to be performed, and correlated its observations with the requirements of the Contract Documents; and
- .6 that it possesses a high level of experience and expertise in the business administration, construction, construction management, and superintendence of projects of the size, complexity, and nature of this particular Project, and it will perform the Work with the care, skill, and diligence of such a contractor.

ARTICLE 10

SCOPE OF CONTRACT AND CONTRACT DOCUMENTS

10.1

This Contract represents the entire and integrated agreement between County and GC and supersedes all prior negotiations, representations, or agreements, either written or oral. This Contract may be amended only by written instrument signed by both County and GC.

10.2

The following documents comprise the Contract Documents:

1. This Contract between County and GC;
2. Cooperative Purchasing – BuyBoard – Contract Number #720-23
3. Exhibit A – Construction / Design Documents
4. Exhibit B – Minimum Insurance Coverages and Minimum Coverage Amounts
5. Exhibit C – Williamson County Vendor Reimbursement Policy
6. Exhibit D – Williamson County Uniform General Conditions

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10.3

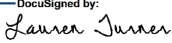
In the event of a dispute or conflict relating to the terms and conditions of the Contract Documents, applicable documents will be referred to for the purpose of clarification, conflict resolution or for additional detail in the following order of precedence:

- 1. Contract between County and GC;
- 2. Special Conditions or Supplementary Conditions (if any);
- 3. Williamson County Uniform General Conditions;
- 4. all Addenda issued prior to the Effective Date of the Contract between County and GC;
- 5. The Construction / Design Documents; and
- 6. Cooperative Purchasing – BuyBoard – Contract Number #720-23

ARTICLE 11
SIGNATORY WARRANTY

The undersigned signatory for GC hereby represents and warrants that the signatory is an officer of the organization for which he/she has executed this Contract and that he/she has full and complete authority to enter into this Contract on behalf of the Company. The above-stated representations and warranties are made for the purpose of inducing County to enter into this Contract.

IN WITNESS WHEREOF, County has caused this Contract to be signed in its name by its duly authorized County Judge, or presiding officer of the Williamson County Commissioners Court in the absence of the County Judge, thereby binding the parties hereto, their successors, assigns, and representatives for the faithful and full performance of the terms and provisions hereof. NO OFFICIAL, EMPLOYEE, AGENT, OR REPRESENTATIVE OF THE COUNTY HAS ANY AUTHORITY, EITHER EXPRESS OR IMPLIED, TO AMEND, TERMINATE, OR MODIFY THIS CONTRACT, EXCEPT PURSUANT TO SUCH EXPRESS AUTHORITY AS MAY BE GRANTED BY THE WILLIAMSON COUNTY COMMISSIONERS COURT.

GC:
TD Industries, Inc.
By: 
Signature
Lauren Turner
Printed Name
Executive Vice President
Title

COUNTY:
Williamson County, Texas
By: 
Signature
Bill Gravell
Printed Name
County Judge
Title

Date Signed: 2/14/2024

Date Signed: Mar 5, 2024



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EXHIBIT A
CONSTRUCTION / DESIGN DOCUMENTS

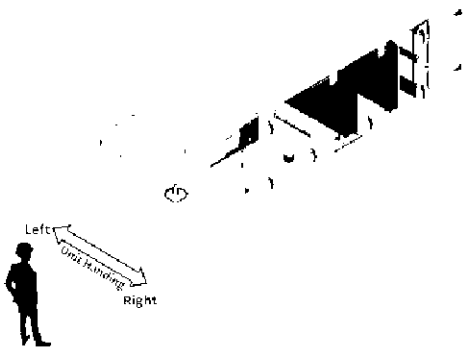
Attach documents below:

Replace two (2) existing Trane Make up Air Handlers with like for like replacement.

Trane Performance Climate Changer Air Handler

Unit Overview - RTU_1							
Application		Unit Size	External Dimensions			Weight	
		Height	Width	Length	Installed	Rigging	
Outdoor unit		CSAA021	59.0 in	80.0 in	187.0 in	4170 lb	3578 lb
Quantity of Shipping Sections			Largest Ship Split				
		Height	Width	Length	Heaviest Ship Split	Elevation	
1 piece(s)		59.0 in	80.0 in	186.9 in	3740 lb	0.00 ft	
Supply Fan							
Airflow	9370 cfm	Total Static Pressure	4.357 in H2O				
Note: Height includes air handler sloped roof panel and standing seam.							

Construction Features	
Panel	2in. foam injected R-13 with thermal break
Panel Material	All unit inner panels - galvanized
Integral Base Frame	6in. integral base frame
Paint	Deluxe beige
Short Circuit Current Rating	5 kA
Agency Approval	UL listed unit
Roof Curb Type	Standard roof curb



Unit Electrical					
Circuit	Voltage/Phase/Frequency	FLA	MCA	Max Fuse Size	
Circuit number 1 Supply fan motor(s)	460/3/60	14.00 A	17.50	30.00	
Circuit number 2 Lights + switch	115/1/60	2.61 A	3.26	15.00	

Unit Controls	
Controller Type	No controller

Warranty	
Warranty section	Extd. warranty
Labor - 1st year	1st year labor warranty

Air mixing section - Position: 1							
Openings							
Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop	Hood
Back	Outside	Parallel blade damper	9370 cfm	1084 ft/min	8.64 sq ft	0.219 in H2O	Yes
Filter							
Type	Frame	MERV Rating	Quantity	Size			
Pleated media - MERV 8	2"	MERV 8	12.00	16in.x25in.			
Pressure Drop	Condition	Face Velocity	Airflow	Area			
1.000	Dirty	281 ft/min	9370 cfm	33.33 sq ft			
Section Options							
Door Location		Both					
Marine Light		Marine LED light					

Access/blank/turning section - Position: 2	
Options	
Section Length	10.000 in

Job Name: Williamson County Justice Center (AHU Repl)

Heating coil section - Position: 3**Coil Construction**

Model	Hot water - 1/2" Unit Optimized, Low Water Flow (UA)
Rows	2
Tube Diameter	1/2in. tube diameter (12.7 mm)
Coil Connection	Standard
Tube Matl/Wall Thickness	.016" (0.406 mm) copper tubes
Fin Spacing	105 Per Foot
Fin Material	Aluminum fins
Fin Type	Delta flo E (energy efficient)
Face Area	20.81 sq ft
Coil (top/single) H x L	43 in. (1092 mm) X 69" (1753 mm) finned length
Casing	Galvanized
Turbulators	Yes
Rigging Weight	97.7 lb
Installed Weight	114.3 lb
Coil Section Options	
Extended Drain and Vent	Holes only
Drain Pan Size	Small
Door Location	Right
Marine Light	YES

Coil Performance

Capacity	
Total	421.71 MBh
Air	
Flow	9370 cfm
Entering Dry Bulb	24.00 F
Leaving Dry Bulb	65.50 F
Pressure Drop	0.150 in H2O
Face Velocity	450 ft/min
Fluid	
Flow	28.09 gpm
Entering	180.00 F
Leaving	150.00 F
Pressure Drop	4.50 ft fluid
Tube Velocity	2.83 ft/s
Reynolds Number	28694.20
Type	Water
Concentration	100.00 %
Fouling Factor	0.00025 hr-sq ft-deg F/Btu
Volume	1.99 gal
AHRI 410 Classification	
AHRI 410 Classification	AHRI ACHC Certified
Data Generation Date	5/2/2023
Trane Select Assist update number	2700

Note: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.

**Cooling coil section - Position: 4****Coil Construction**

Model	Chilled water - 5/8" Shipping Coil, General (W)
Rows	6
Tube Diameter	5/8in. tube diameter (15.875 mm)
Coil Connection	Standard
Tube Matl/Wall Thickness	.020" (0.508 mm) copper tubes
Fin Spacing	120 Per Foot
Fin Material	Aluminum fins
Fin Type	Prima flo H (Hi efficient)
Face Area	19.83 sq ft
Coil (top/single) H x L	42 in. (1067 mm) X 68" (1727 mm) finned length
Casing	Stainless steel
Turbulators	Not Included
Rigging Weight	439.1 lb
Installed Weight	584.3 lb
Coil Section Options	
Extended Drain and Vent	Holes only
Drain Pan	Stainless steel
Drain Pan Size	Extended medium
Drain Connection	Left
Minimum Trap Height (L)	7.418 in
H Trap Dimension	4.279 in
J Trap Dimension	2.139 in
Door Location	Right
Marine Light	YES

Coil Performance

Capacity	
Total	742.73 MBh
Sensible	360.83 MBh
Air	
Flow	9370 cfm
Entering Dry Bulb	89.00 F
Entering Wet Bulb	77.00 F
Leaving Dry Bulb	54.45 F
Leaving Wet Bulb	54.31 F
Pressure Drop	0.704 in H2O
Face Velocity	472 ft/min
Fluid	
Flow	148.01 gpm
Entering	44.00 F
Leaving	54.00 F
Pressure Drop	16.03 ft fluid
Tube Velocity	5.84 ft/s
Reynolds Number	20935.65
Type	Water
Concentration	100.00 %
Fouling Factor	0.00000 hr-sq ft-deg F/Btu
Volume	17.35 gal
AHRI 410 Classification	
AHRI 410 Classification	AHRI ACHC Certified
Data Generation Date	5/2/2023
Trane Select Assist update number	2700

Note: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.

Job Name: Williamson County Justice Center (AHU Repl)

Heating coil section - Position: 3**Coil Construction**

Model	Hot water - 1/2" Unit Optimized, Low Water Flow (UA)
Rows	2
Tube Diameter	1/2in. tube diameter (12.7 mm)
Coil Connection	Standard
Tube Matl/Wall Thickness	.016" (0.406 mm) copper tubes
Fin Spacing	105 Per Foot
Fin Material	Aluminum fins
Fin Type	Delta flo E (energy efficient)
Face Area	20.81 sq ft
Coil (top/single) H x L	43 in. (1092 mm) X 69" (1753 mm) finned length
Casing	Galvanized
Turbulators	Yes
Rigging Weight	97.7 lb
Installed Weight	114.3 lb
Coil Section Options	
Extended Drain and Vent	Holes only
Drain Pan Size	Small
Door Location	Right
Marine Light	YES

Coil Performance

Capacity	
Total	421.71 MBh
Air	
Flow	9370 cfm
Entering Dry Bulb	24.00 F
Leaving Dry Bulb	65.50 F
Pressure Drop	0.150 in H2O
Face Velocity	450 ft/min
Fluid	
Flow	28.09 gpm
Entering	180.00 F
Leaving	150.00 F
Pressure Drop	4.50 ft fluid
Tube Velocity	2.83 ft/s
Reynolds Number	28694.20
Type	Water
Concentration	100.00 %
Fouling Factor	0.00025 hr-sq ft-deg F/Btu
Volume	1.99 gal
AHRI 410 Classification	
AHRI 410 Classification	AHRI ACHC Certified
Data Generation Date	5/2/2023
Trane Select Assist update number	2700

Note: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.

**Cooling coil section - Position: 4****Coil Construction**

Model	Chilled water - 5/8" Shipping Coil, General (W)
Rows	6
Tube Diameter	5/8in. tube diameter (15.875 mm)
Coil Connection	Standard
Tube Matl/Wall Thickness	.020" (0.508 mm) copper tubes
Fin Spacing	120 Per Foot
Fin Material	Aluminum fins
Fin Type	Prima flo H (Hi efficient)
Face Area	19.83 sq ft
Coil (top/single) H x L	42 in. (1067 mm) X 68" (1727 mm) finned length
Casing	Stainless steel
Turbulators	Not Included
Rigging Weight	439.1 lb
Installed Weight	584.3 lb
Coil Section Options	
Extended Drain and Vent	Holes only
Drain Pan	Stainless steel
Drain Pan Size	Extended medium
Drain Connection	Left
Minimum Trap Height (L)	7.418 in
H Trap Dimension	4.279 in
J Trap Dimension	2.139 in
Door Location	Right
Marine Light	YES

Coil Performance

Capacity	
Total	742.73 MBh
Sensible	360.83 MBh
Air	
Flow	9370 cfm
Entering Dry Bulb	89.00 F
Entering Wet Bulb	77.00 F
Leaving Dry Bulb	54.45 F
Leaving Wet Bulb	54.31 F
Pressure Drop	0.704 in H2O
Face Velocity	472 ft/min
Fluid	
Flow	148.01 gpm
Entering	44.00 F
Leaving	54.00 F
Pressure Drop	16.03 ft fluid
Tube Velocity	5.84 ft/s
Reynolds Number	20935.65
Type	Water
Concentration	100.00 %
Fouling Factor	0.00000 hr-sq ft-deg F/Btu
Volume	17.35 gal
AHRI 410 Classification	
AHRI 410 Classification	AHRI ACHC Certified
Data Generation Date	5/2/2023
Trane Select Assist update number	2700

Note: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Supply fan section - Position: 5

Fan Data	
Wheel Diameter/Type/Class	24.5in. dd plenum, 80% width, H press
Fan Quantity	1
Discharge Location	Front top
Motor Location	Left side drive
Blades	Higher eff.(some bands lower,more spike)
Drive Service Factor	Direct drive
Fan K-factor	3285.00
Fan Performance	
Airflow	9370 cfm
Total Static Pressure	4.357 in H2O
Total Brake Power	9.890 hp
Operating Speed	1898 rpm
AMCA FEG	FEG85
Bare fan peak total efficiency	76.70 %
Unit Static Efficiency	65.08 %
Motor Interface Options	
Selection Type	VFD
Voltage	460/3
Mounting Location	Internal mounting
Motor Wire In Conduit	Motor wiring conduit
VFD Frequency	64.00 Hz

Motor Data	
Power / Fan	10 hp
Voltage	460/3
Speed	1800
Class	NEMA premium compliant ODP
Efficiency	91.92 %
Part Load Efficiency	89.03 %
Fan electrical power (FEP)	8.37 kW
FEI	1.30
AHRI VFD HP	10.000 hp
Wire to air static efficiency	57.25 %
Note: VFD driven motor fan electrical power calculated in accordance with AHRI 430.	
Note: Certified airflow performance per AHRI 430	

Fan Section Options	
Fan Wheel Balance	Inverter balance with shaft grounding
Door Location	Both
Door Guard	Yes
Marine Light	Marine LED light

Fan Discharge Options

Face	Type	Airflow	Face Velocity	Area	Pressure Drop	Exhaust Hood	Damper Torque Requirement
Front Face Feature		9370 cfm	384 ft/min	24.41 sq ft	0.023 in H2O	N/A	N/A

Note: Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Pressure Drop in (in w.g.)

Supply fan	
Air mixing section	1.42
Coil section	0.15
Coil section	0.70
Fan section	0.02
Controls section	0.06
Internal Static Pressure	2.36
External Static Pressure	2.00
Total Static Pressure	4.36

Starter/VFD only section - Position: 6

Supply Fan Motor Interface Door			Left			
Face	Path	Type	Openings Airflow	Face Velocity	Area	Pressure Drop
Bottom Face Feature	Supply	Rectangular	9370 cfm	1333 ft/min	7.03 sq ft	0.055 in H2O



Supply fan section - Position: 5

Fan Data		Motor Data	
Wheel Diameter/Type/Class	24.5in. dd plenum, 80% width, H press	Power / Fan	10 hp
Fan Quantity	1	Voltage	460/3
Discharge Location	Front top	Speed	1800
Motor Location	Left side drive	Class	NEMA premium compliant ODP
Blades	Higher eff.(some bands lower,more spike)	Efficiency	91.92 %
Drive Service Factor	Direct drive	Part Load Efficiency	89.03 %
Fan K-factor	3285.00	Fan electrical power (FEP)	8.37 kW
Fan Performance		FEI	1.30
Airflow	9370 cfm	AHRI VFD HP	10.000 hp
Total Static Pressure	4.357 in H2O	Wire to air static efficiency	57.25 %
Total Brake Power	9.890 hp	Note: VFD driven motor fan electrical power calculated in accordance with AHRI 430.	
Operating Speed	1898 rpm	Note: Certified airflow performance per AHRI 430	
AMCA FEG	FEG85	Fan Section Options	
Bare fan peak total efficiency	76.70 %	Fan Wheel Balance	Inverter balance with shaft grounding
Unit Static Efficiency	65.08 %	Door Location	Both
Motor Interface Options		Door Guard	Yes
Selection Type	VFD	Marine Light	Marine LED light
Voltage	460/3		
Mounting Location	Internal mounting		
Motor Wire In Conduit	Motor wiring conduit		
VFD Frequency	64.00 Hz		

Fan Discharge Options

Face	Type	Airflow	Face Velocity	Area	Pressure Drop	Exhaust Hood	Damper Torque Requirement
Front Face Feature		9370 cfm	384 ft/min	24.41 sq ft	0.023 in H2O	N/A	N/A

Note: Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Pressure Drop in (in w.g.)

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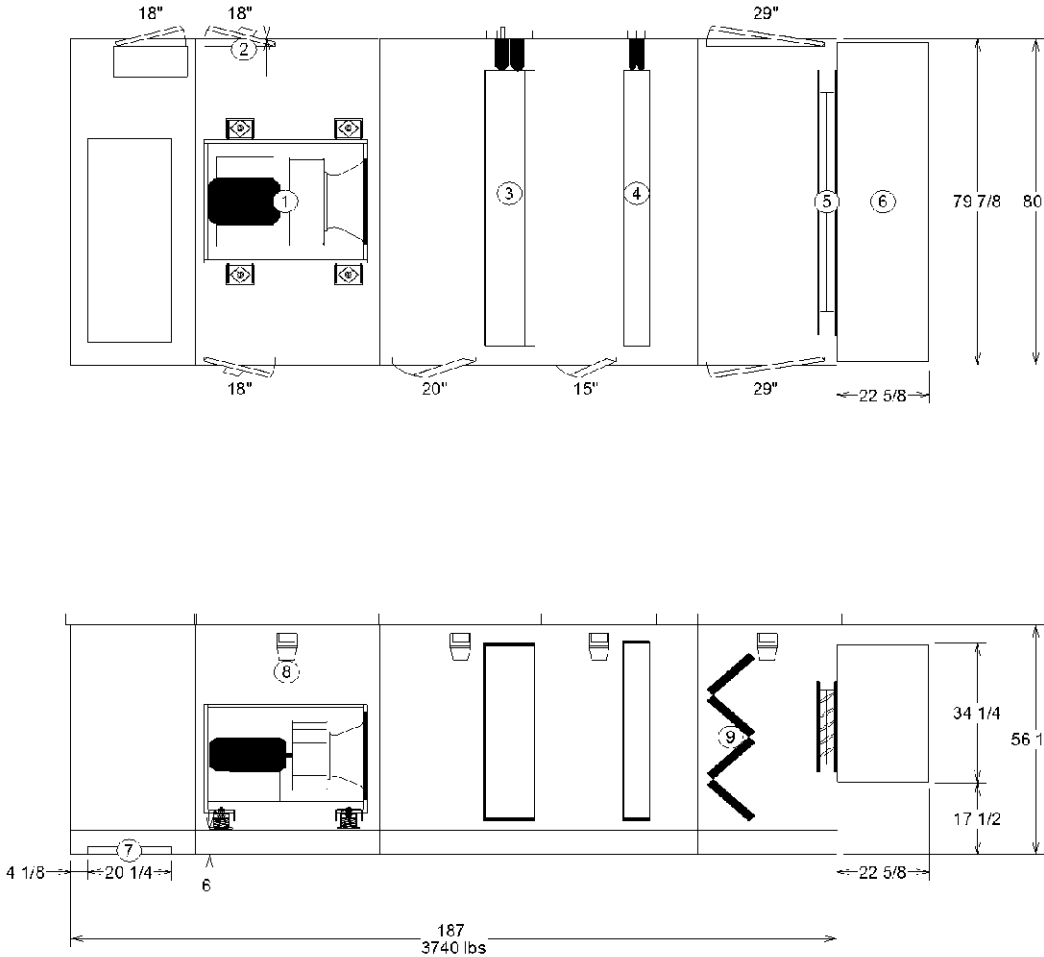
Starter/VFD only section - Position: 6

Supply Fan Motor Interface Door Left

Face	Path	Type	Openings Airflow	Face Velocity	Area	Pressure Drop
Bottom Face Feature	Supply	Rectangular	9370 cfm	1333 ft/min	7.03 sq ft	0.055 in H2O

CSAA
Quantity: 1
Tags: RTU_1

Job Name: Williamson County Justice Center (AHU Repl)



- 1 Plenum fan - 24.5in. cd plenum, 80% width, H press Supply fan 10 hp 460/3
- 2 Light switch and/or receptacle LH
- 3 Cooling coil - 6 Rows Coil type 5/8" Shipping Coil, General (W)
- 4 Heating coil - 2 Rows Coil type 1/2" Unit Optimized, Low Water Flow (UA)
- 5 Damper back-parallel blade 22.75 x 66
- 6 Hood back
- 7 Opening bottom 50 x 20.25
- 8 Marine light
- 9 Angled filters -

Doors
18 w dth x 46 he ght
20 w dth x 46 he ght
15 w dth x 46 he ght
29 w dth x 46 he ght

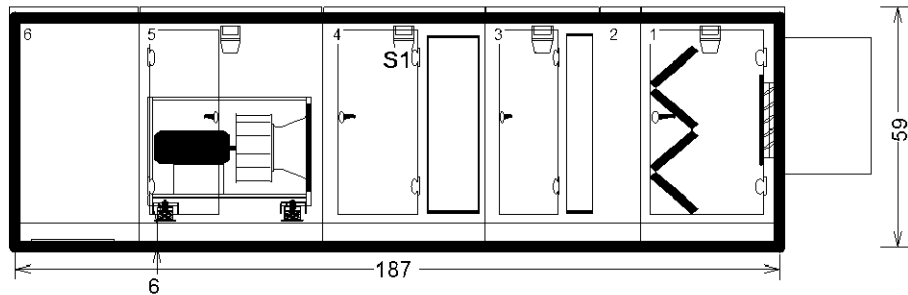
For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length shown.

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: Z1	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 9370	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_1
Paint: Deluxe beige		Rigging weight: 3578.4 / Installed weight: 4170.3

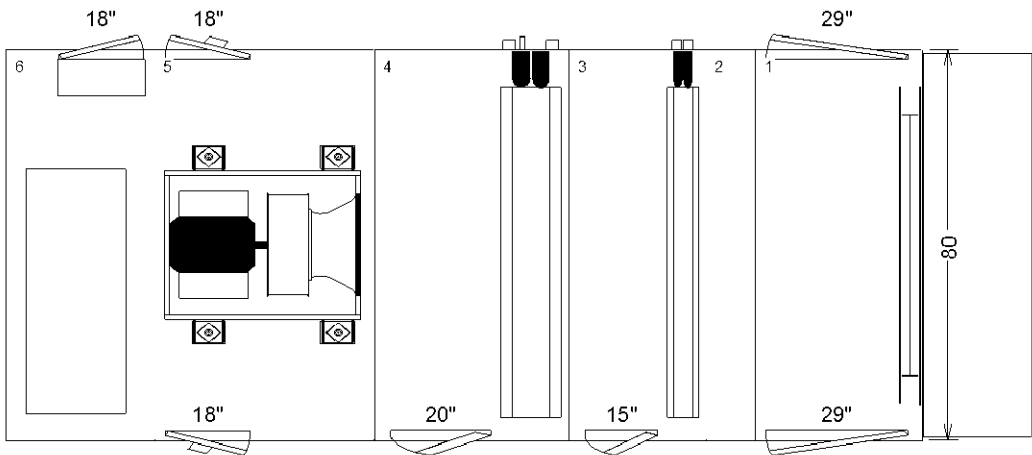


Shipping splits are indicated by thick black lines



For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length sh

Pos #	Module	Length	Weight
1	Air mixing section	34	564.18
2	Access section	10	118.11
3	Coil section	28	387.24
4	Coil section	39 5/8	976.36
5	Fan section	44 7/8	1242.14
6	Controls section	30 1/4	452.08
	Roof Curb		430.21
		Installed Unit Weight	4170.32 lbs



Basic Overall Plan View: Top - Measurements in inches

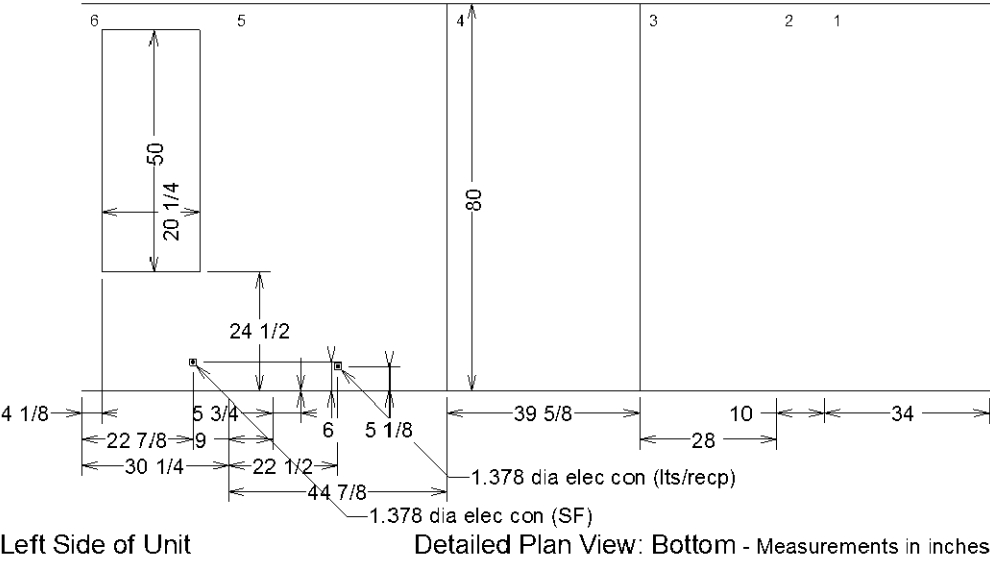
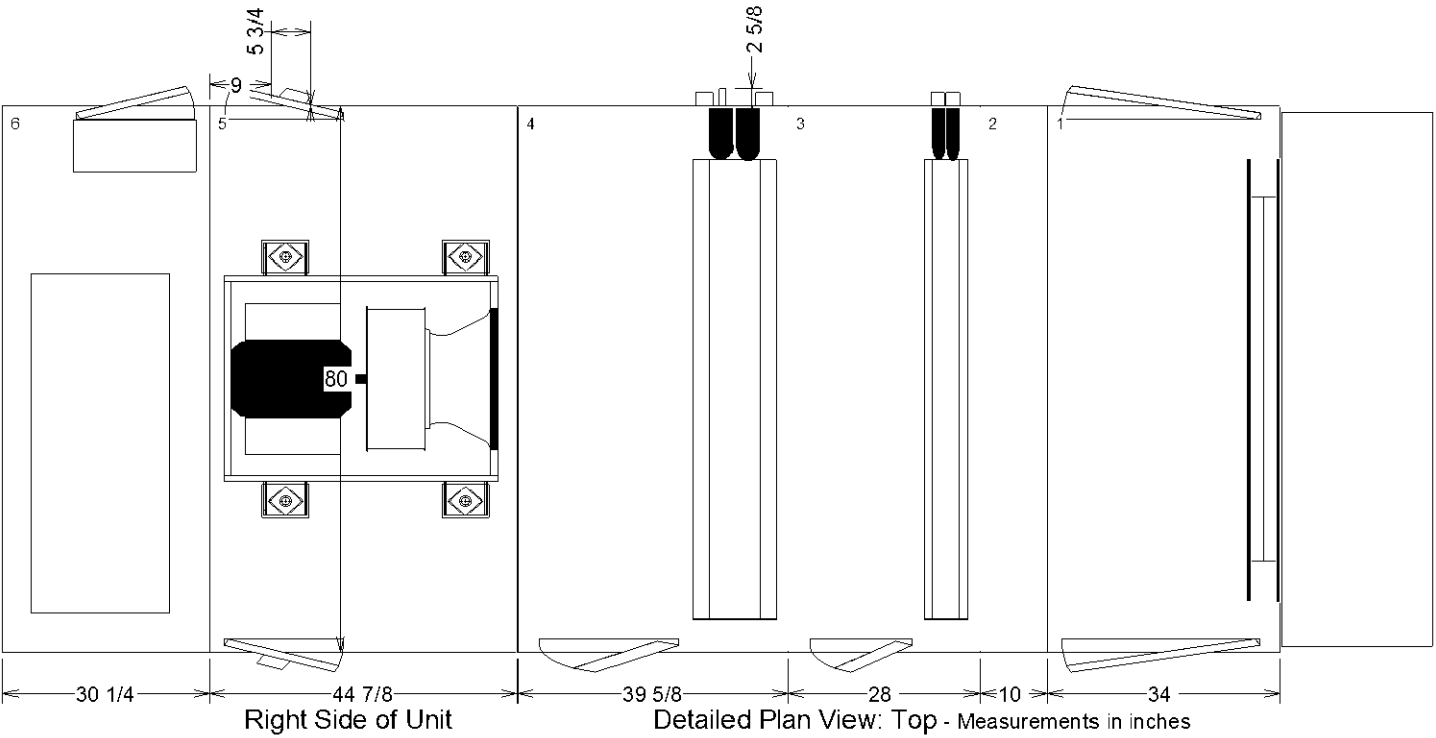
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 9370	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_1
Paint: Deluxe beige		Rigging weight: 3578.4 / Installed weight: 4170.3



TRANE®

Performance Climate Changer
Air Handlers

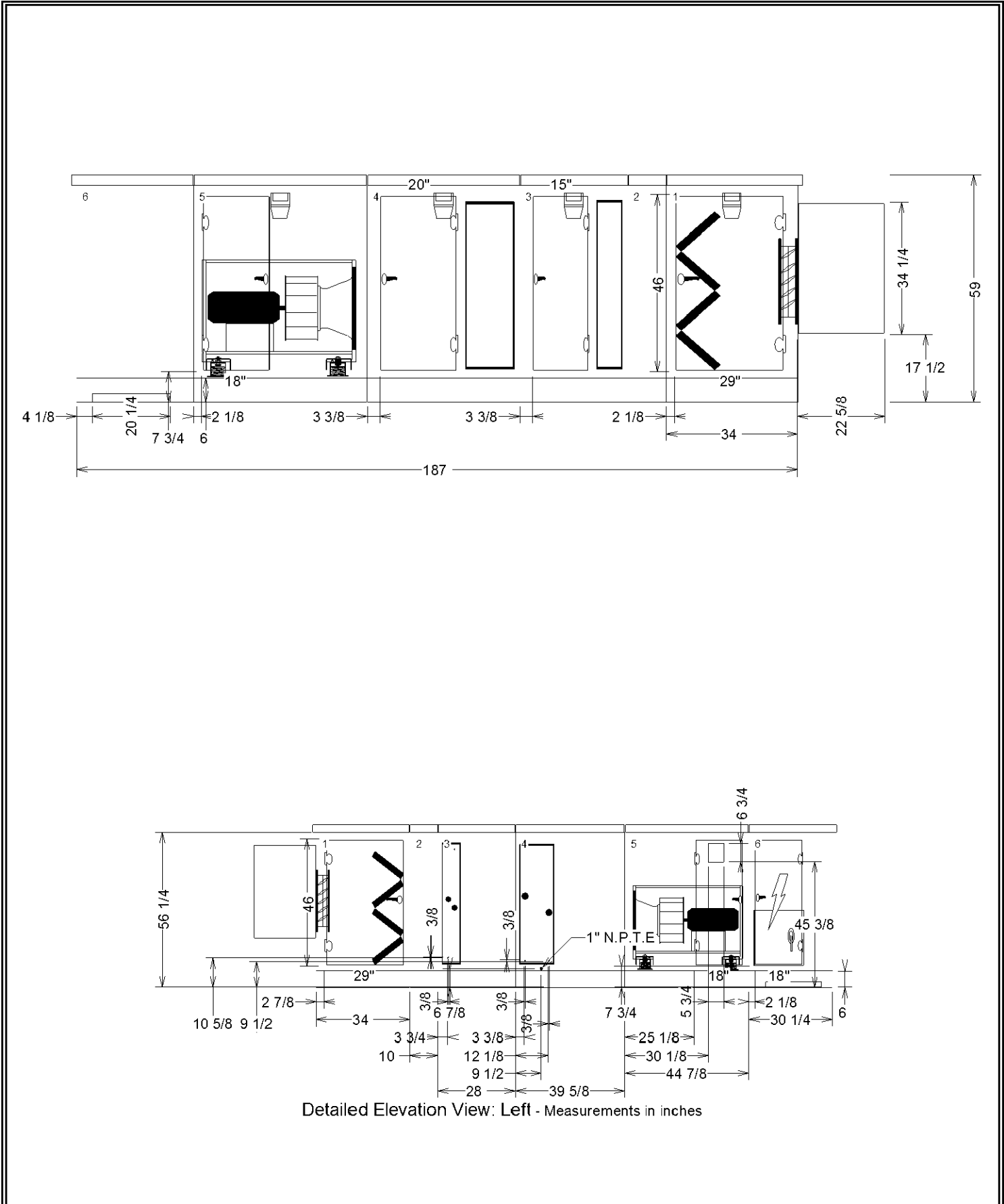


****Placement of electrical conduit may vary by a tolerance of 8" in any direction.**

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

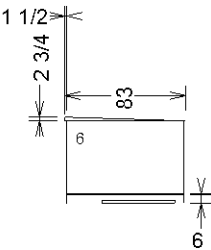
Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 9370	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_1
Paint: Deluxe beige		Rigging weight: 3578.4 / Installed weight: 4170.3



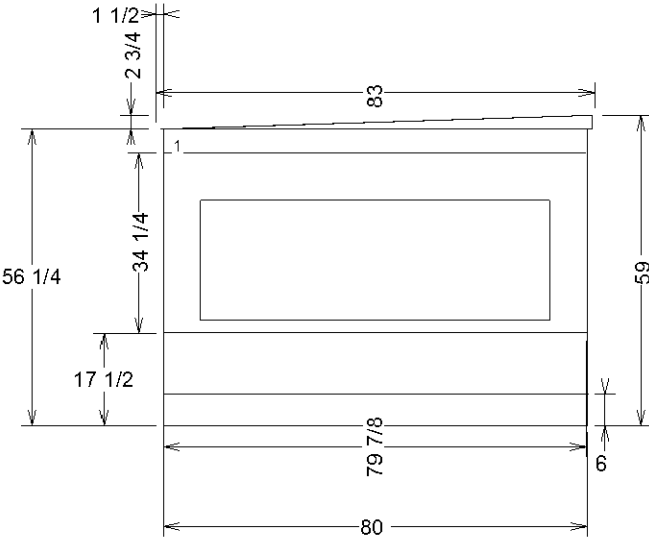


OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE			
Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam	TRANE® Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 9370	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_1	
Paint: Deluxe beige		Rigging weight: 3578.4 / Installed weight: 4170.3	

Job Name: Williamson County Justice Center (AHU Repl)



Detailed Elevation View: Front - Measurements in inches

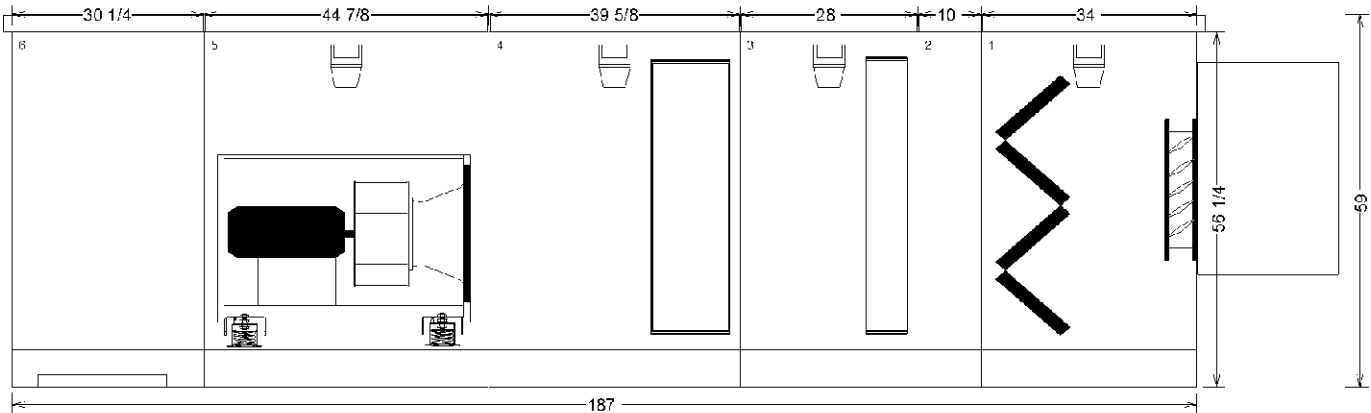


Detailed Elevation View: Back - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE			
Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam	 TRANE® Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 9370	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_1	
Paint: Deluxe beige		Rigging weight: 3578.4 / Installed weight: 4170.3	

Job Name: Williamson County Justice Center (AHU Repl)

CSAA
Quantity: 1
Tags: RTU_1

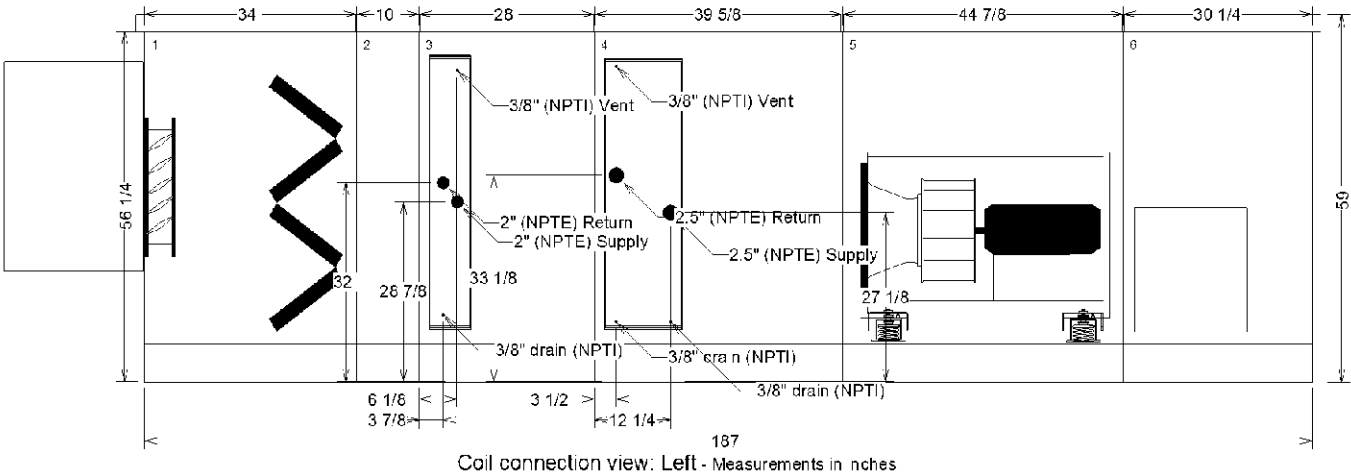


NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE			
Unit size: Z1	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam	TRANE Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 9370	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_1	
Paint: Deluxe beige		Rigging weight: 3578.4 / Installed weight: 4170.3	

Job Name: Williamson County Justice Center (AHU Repl)

CSAA
Quantity: 1
Tags: RTU_1



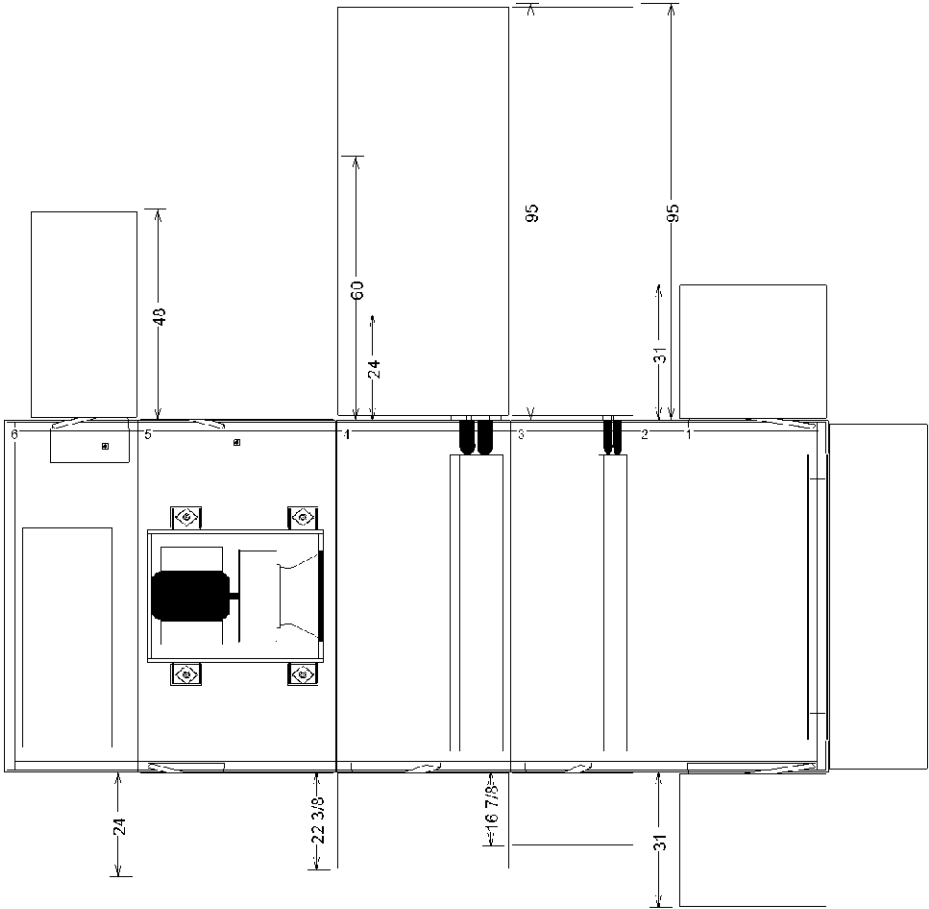
NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE			
Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam	
Product group: Outdoor unit	Actual airflow: 9370	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_1	
Paint: Deluxe beige		Rigging weight: 3578.4 / Installed weight: 4170.3	



CSAA
Quantity: 1
Tags: RTU_1

Job Name: Williamson County Justice Center (AHU Repl)



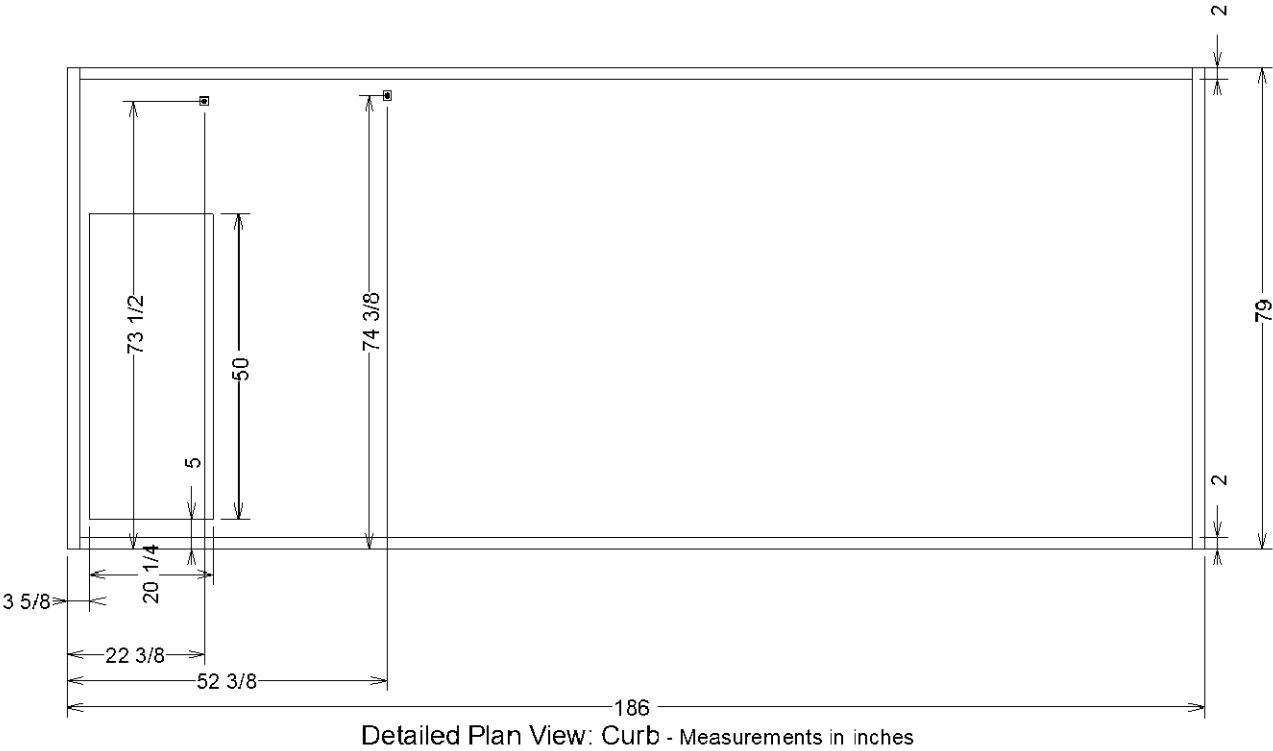
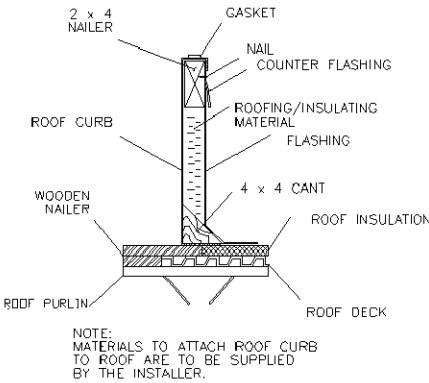
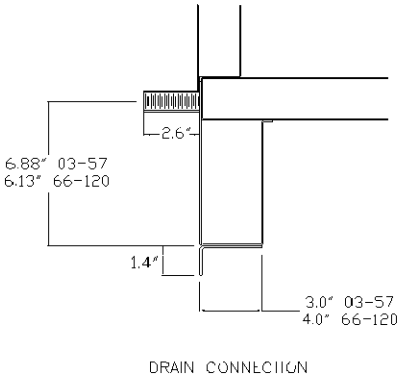
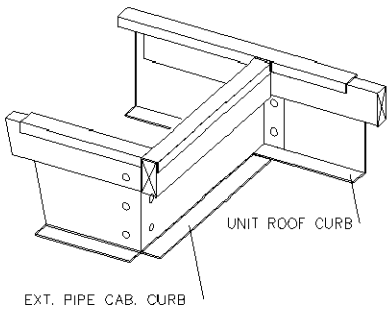
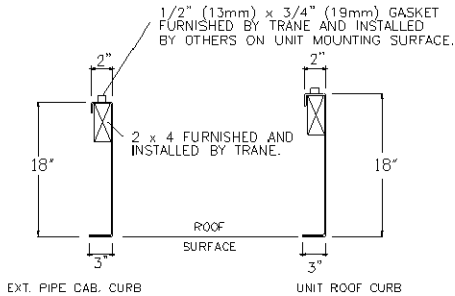
Basic Service Clearance - Plan - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: Z1	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 9370	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_1
Paint: Deluxe beige		Rigging weight: 3578.4 / Installed weight: 4170.3



Job Name: Williamson County Justice Center (AHU Repl)

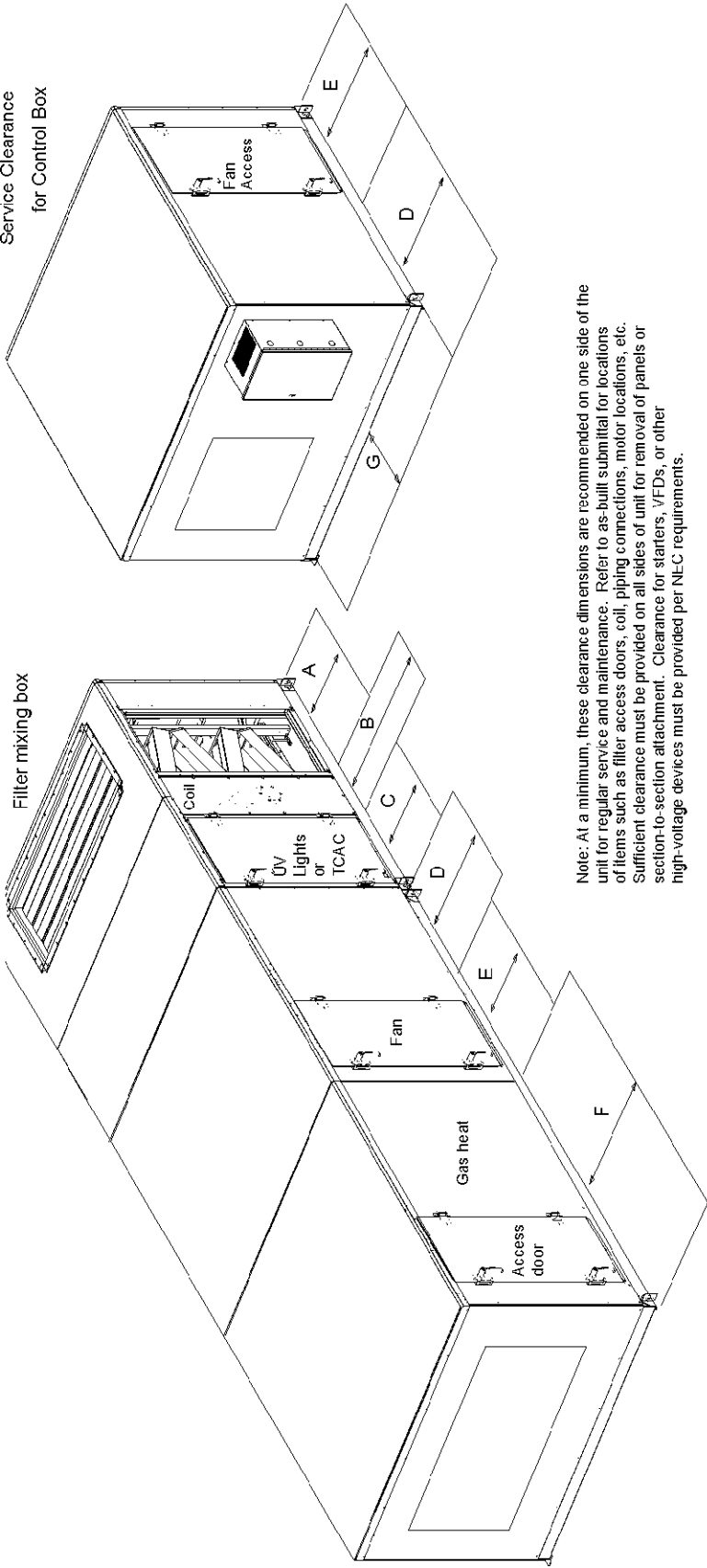


OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 9370	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_1
Paint: Deluxe beige		Rigging weight: 3578.4 / Installed weight: 4170.3



EXAMPLE UNIT - NOT CONFIGURED AS SELECTED.

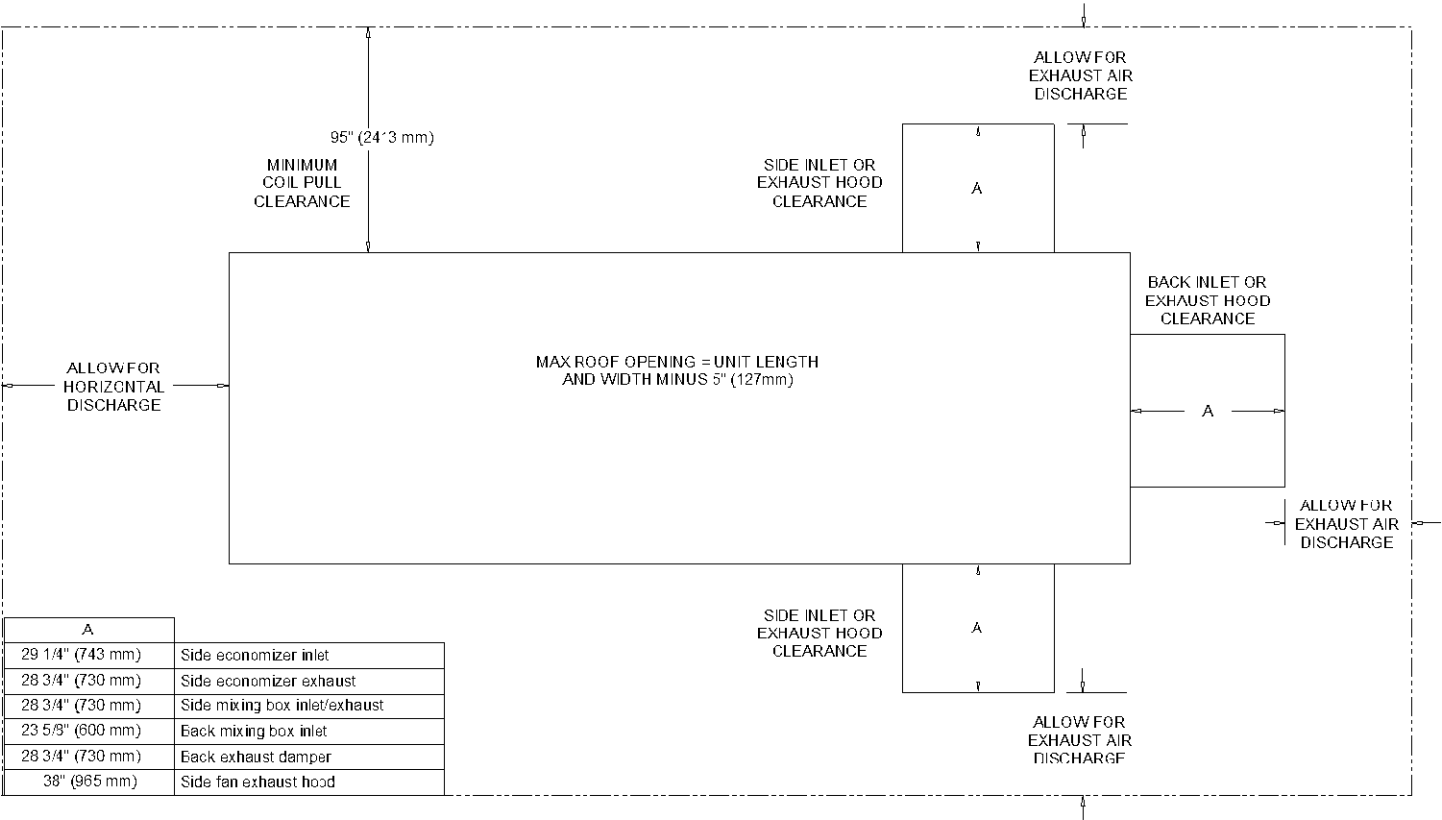


Note: At a minimum, these clearance dimensions are recommended on one side of the unit for regular service and maintenance. Refer to as-built submittal for locations of items such as filter access doors, coil, piping connections, motor locations, etc. Sufficient clearance must be provided on all sides of unit for removal of panels or section-to-section attachment. Clearance for starters, VFDs, or other high-voltage devices must be provided per NEC requirements.

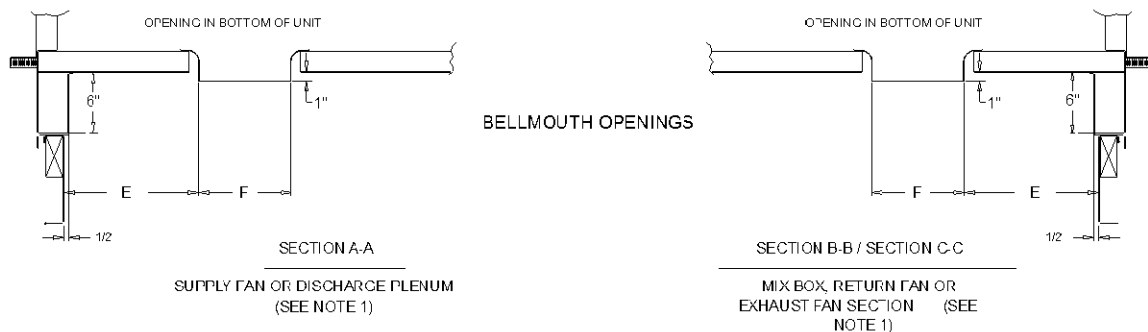
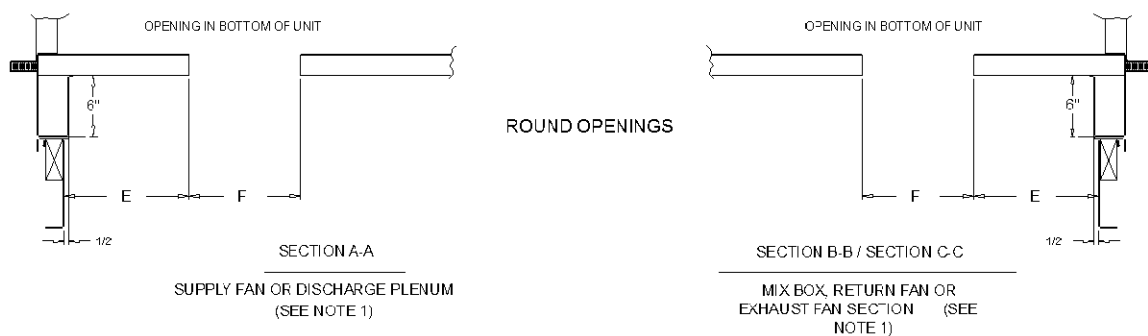
Component	3	4	6	8	10	12	14	17	21	25	30	35	40	50	57	66	80	100	120
A (filter)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	52	56	58	58
B (coil, humidifier)	48	59	66	77	82	87	87	87	95	95	109	115	128	141	141	156	156	170	197
B (staggered coil)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	67	67	76	80	88	96	96	105	105	113	129
C (UV Lights)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	52	56	58	58
C (TCAC)	43	59	59	63	75	81	83	83	58	58	83	75	83	83	83	83	83	75	83
D (External Starter, VFD, LV box or Overload box)	61	61	61	61	61	61	61	61	64	64	64	64	64	64	64	64	64	64	64
D (Internal Starter or VFD)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
E (fan)	48	48	48	48	51	54	58	61	60	66	66	66	70	77	77	93	93	101	101
F (Gas Heat Ext Vestible)	N/A	N/A	89	90	108	100	100	105	115	115	118	136	140	156	156	170	179	180	N/A
F (Gas Heat Int Vestible)	N/A	N/A	56	63	74	79	84	84	92	92	106	112	125	138	138	153	153	167	194

Component	All Sizes
G (Side mount LV box)	36
G (Front mount LV box)	13

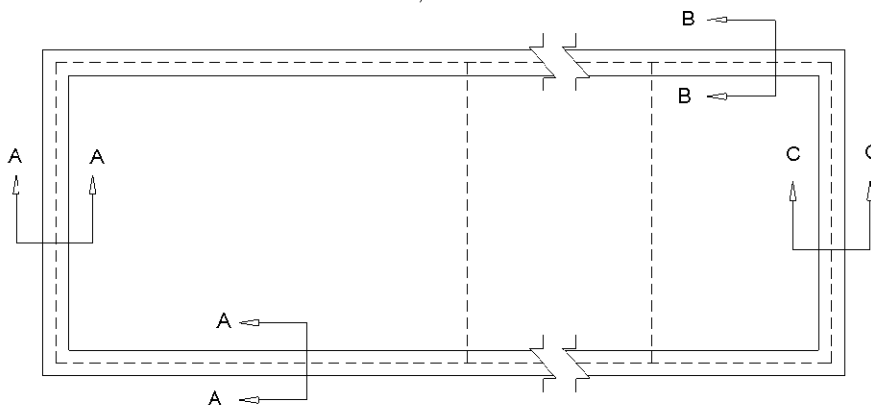
Job Name: Williamson County Justice Center (AHU Repl)



RELATIONSHIP OF CURB TO UNIT AS-BUILT



1. E and F are representative of dimensions on the accessory as-built used to locate opening(s) in the roof surface.



Base Detail

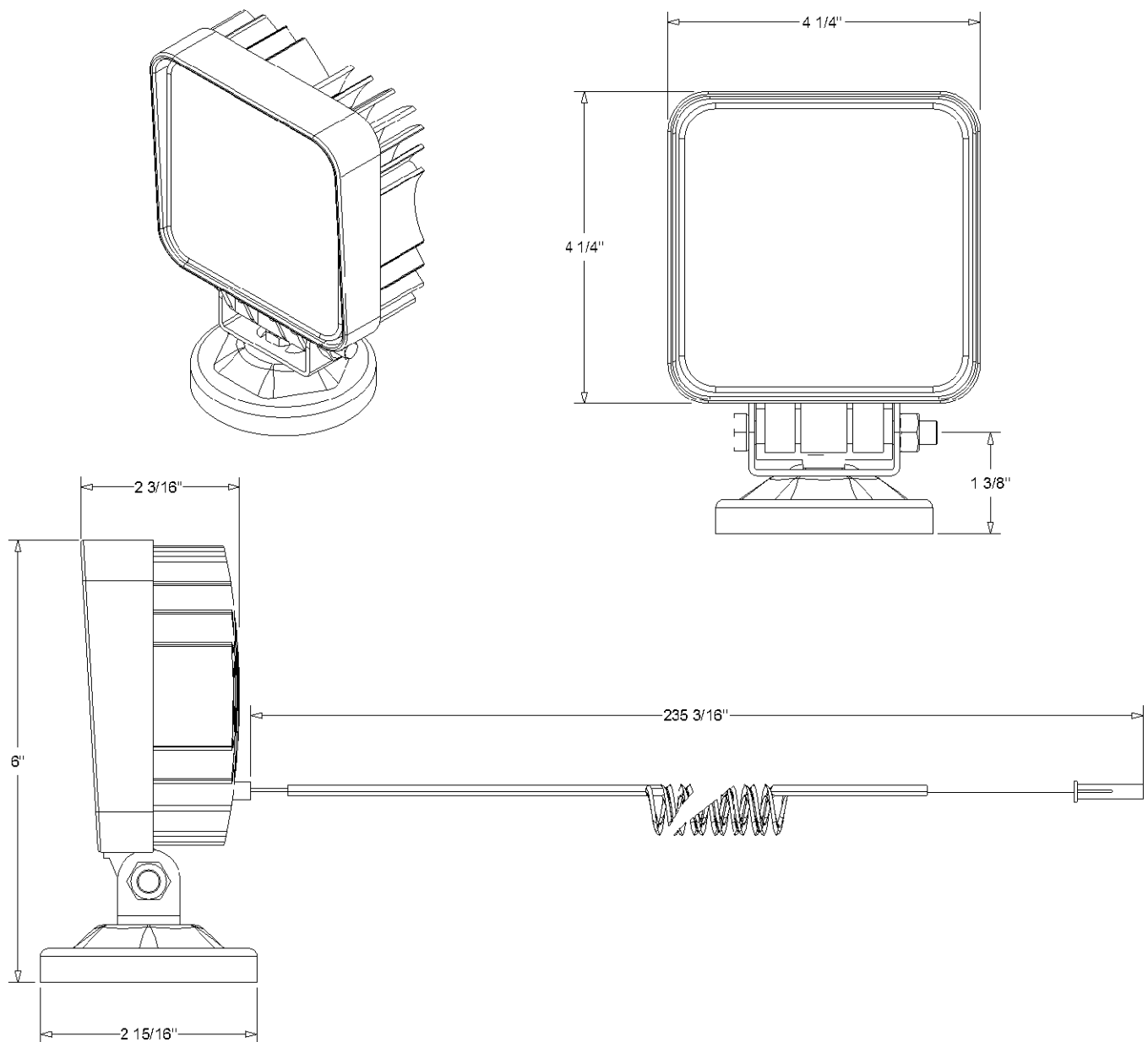


Job Name: Williamson County Justice Center (AHU Repl)

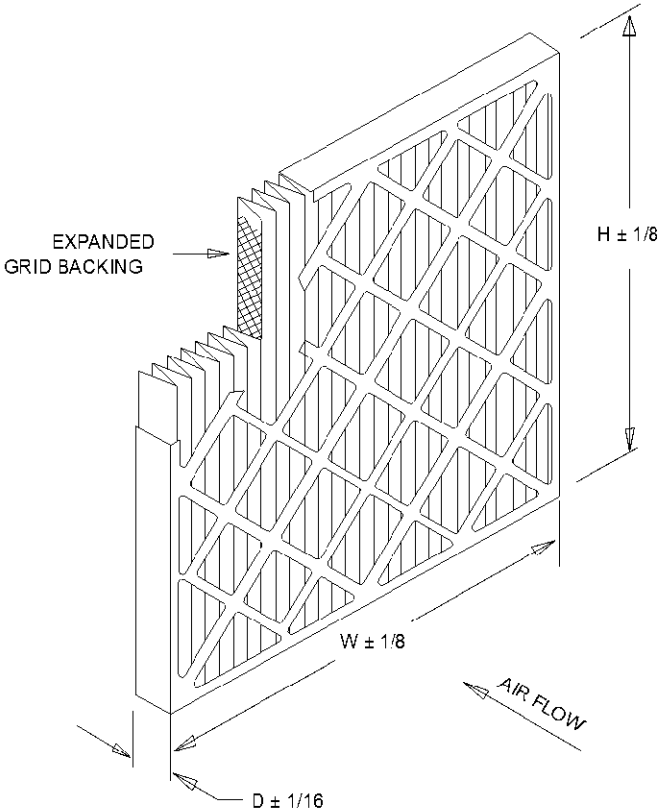
Marine LED Light

SPECIFICATIONS:

VOLTAGE: 24VAC +33 % -25 %
POWER CONSUMPTION: 19VA
WIRE: 16 GA RED AND BLACK
LIFE: 25,000 HRS
TEMPERATURE RANGE: -40C TO 40C
CONNECTION: AC SUPPLY
ENVIRONMENTAL PROTECTION: WATER/DUST INTRUSTION
IP RATING: IP65
MAGNETIC FLUX DENSITY: 1200 GAUSS $\pm$ 100



Job Name: Williamson County Justice Center (AHU Repl)



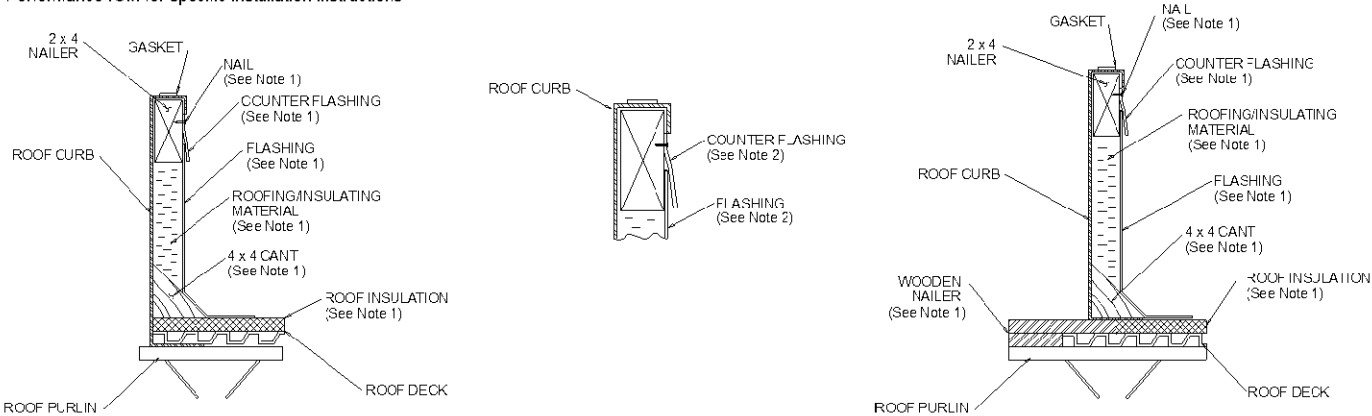
- STANDARD CONSTRUCTION
- 1. 100 % Synthetic White Un-Dyed Media
 - 2. 10.0 Pleats Per Foot
 - 3. Expanded Metal Pleat Supports
 - 4. Moisture Resistant Beverage Board Frame
 - 5. Double Wall Frame

- NOTES
- 1. MERV 8-A Per ASHRAE 52.2-2007 Appendix J.
 - 2. Final Resistance: 1/0" W.G.
 - 3. Rated Velocity: 500 FPM
 - 4. Class 2 Filter Per U.L. Standard 900
 - 5. Maximum Operating Temperature: 225 DEG. F

MODEL NUMBER	NOMINAL SIZE IN. W X H X D	ACTUAL SIZE IN. W X H X D	RATED AIR FLOW CFM	INITIAL RESISTANCE IN. W.G.	MEDIA AREA SQ. FT.
MX40-STD2-217	10 X 20 X 2	9-1/2 X 19-1/2 X 1-3/4	700	0.29	4.7
MX40-STD2-220	12 X 20 X 2	11-1/2 X 19-1/2 X 1-3/4	840	0.29	5.5
MX40-STD2-210	12 X 24 X 2	11-3/8 X 23-3/8 X 1-3/4	1000	0.29	6.2
MX40-STD2-239	14 X 20 X 2	13-1/2 X 19-1/2 X 1-3/4	980	0.29	5.7
MX40-2TD2-241	14 X 25 X 2	13-1/2 X 24-1/2 X 1-3/4	1220	0.29	7.1
MX40-STD2-245	15 X 20 X 2	14-1/2 X 19-1/2 X 1-3/4	1050	0.29	6.2
MX40-STD2-201	16 X 20 X 2	15-1/2 X 19-1/2 X 1-3/4	1120	0.29	6.7
MX40-STD2-216	16 X 24 X 2	15-3/8 X 23-3/8 X 1-3/4	1340	0.29	8.0
MX40-STD2-202	16 X 24 X 2	15-1/2 X 24-1/2 X 1-3/4	1400	0.29	8.0
MX40-STD2-280	15 X 20 X 2	17-1/2 X 19-1/2 X 1-3/4	1250	0.29	7.8
MX40-STD2-212	18 X 24 X 2	17-3/8 X 23-3/8 X 1-3/4	1500	0.29	9.3
MX40-STD2-285	18 X 25 X 2	17-1/2 X 24-1/2 X 1-3/4	1570	0.29	9.7
MX40-STD2-203	20 X 20 X 2	19-1/2 X 19-1/2 X 1-3/4	1400	0.29	8.3
MX40-STD2-211	20 X 24 X 2	19-3/8 X 23-3/8 X 1-3/4	1670	0.29	9.9
MX40-STD2-204	20 X 25 X 2	19-1/2 X 24-1/2 X 1-3/4	1750	0.29	10.3
MX40-STD2-205	24 X 24 X 2	23-3/8 X 23-3/8 X 1-3/4	2000	0.29	11.7
MX40-STD2-225	25 X 25 X 2	24-1/2 X 24-1/2 X 1-3/4	2170	0.29	13.6

Recommendation for Roof Curb Installation

Refer to Performance IOM for specific installation instructions

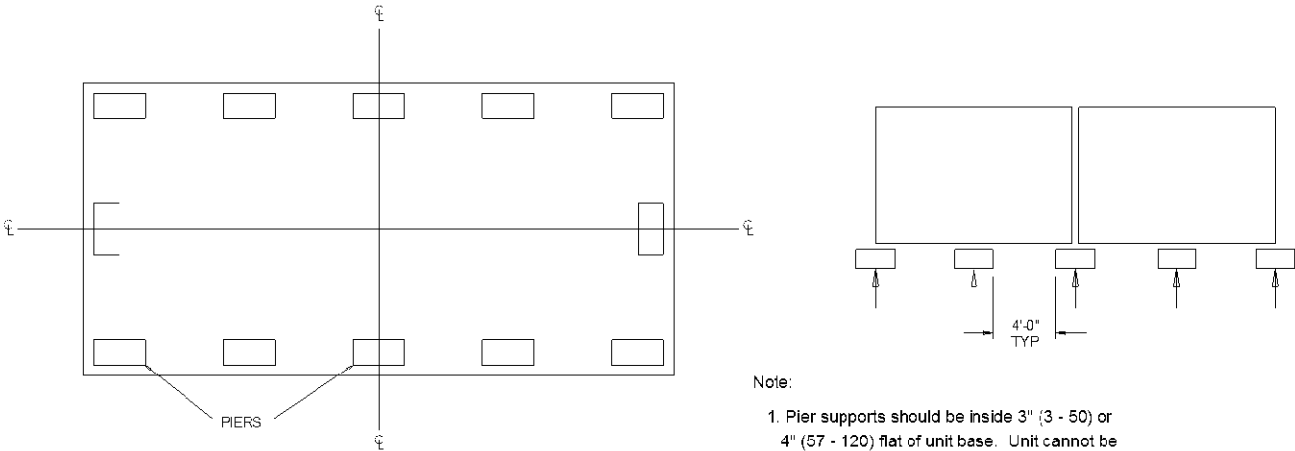


Note:

- 1. Materials to attach roof curb to roof are to be supplied by the installer.
- 2. Flashing or counter flashing should not come to or over top of curb.
- 3. Roof curb must be mechanically fastened to roof surface.

Recommendation for Pier Mounting

Refer to Performance IOM for specific installation instructions



Note:

- 1. Pier supports should be inside 3" (3 - 50) or 4" (57 - 120) flat of unit base. Unit cannot be supported by unit base drip leg.
- 2. Piers beneath shipping splits must be structurally sound to support the weight of the unit.

NOTES:

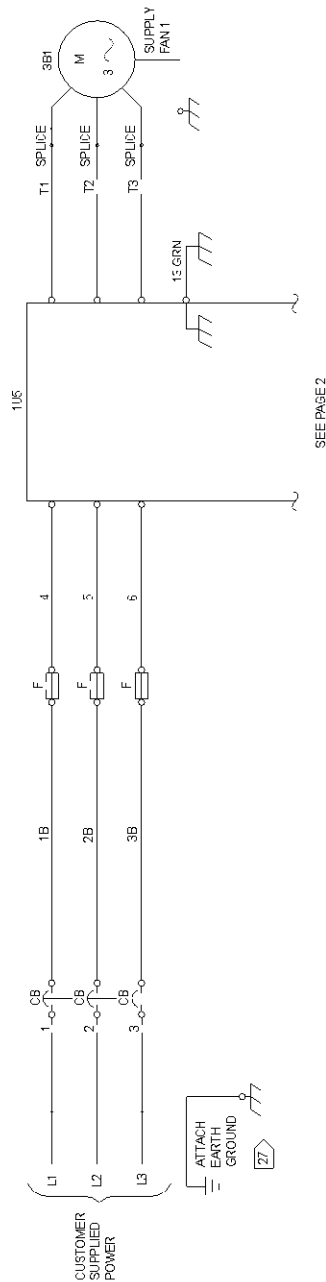
- 1 DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS.
- 2 PHANTOM LINES INDICATE CONTROL OPTION.
- 3 REF. CONTROL PANEL SCHEMATIC FOR SPECIFIC DETAIL.
- ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS, OTHER CODES, AND FIELD CONDITIONS. BELLS, BELLSMITHS, AND LOCAL REQUIREMENTS SHALL APPLY. CONDUITS SHALL HAVE INSULATION (AT MIN.) LESS THAN 800V JOEPPER CONDUCTORS ONLY.
- THE MINIMUM CIRCUIT CAPACITY, THE MAXIMUM USE SIZE AND DISCONNECT SIZE ARE CALCULATED BASED ON THE INVERTER INPUT LINE CURRENTS PER ARTICLE 430.2 OF THE NATIONAL ELECTRICAL CODE.

4 PROGRAM TERMINAL 18 AS RUN.

5 PROGRAM TERMINAL 27 INV. COASTING STOP.

6 CLOSERS TO RUN AUTO MODE OR BYPASS AUTO FOR OPTION VFD OR STARTER.

9 REMOVE JUMPER AND INSTALL FIELD SAFETY INTERLOCK



SEE PAGE 2

		VFD FUSES		
FUSE	VOLTAGE	PANEL -IP (INVA)	FIN	CLASS
	200/230	0.5-2	LP-10C10	CC
		5	LP-10C15	CC
		7.5-10	LP-10C25	CC
		15	LP-10C40	T
		20-25	LP-10C60	T
	460	30-40	LP-10C100	T
		50	LP-10C150	T
		0.5-2	LP-10C10	CC
		3-5	LP-10C15	CC
		7.5-10	LP-10C25	CC
	575	15-20	LP-10C40	T
		25-30	LP-10C60	T
		40	LP-10C100	T
		50-60	LP-10C125	T
		75-100	LP-10C200	T
	575	3-10	LP-10C20	CC
		15-20	LP-10C30	CC
		25-40	LP-10C50	CC
		50-75	LP-10C75	T
		100-125	LP-10C100	T

10 FIELD SUPPLIED CONTACTS:

27 ATTACH GROUND OR EQUIPMENT GROUND.

AREA	DEVICE PREFIX LOCATION CODE
1	HIGH VOLTAGE PANEL
2	LOW VOLTAGE PANEL (UNIT SCHEMATIC)
3	AIR HANDLER SECTION

LEGEND	
DEVICE DESIGNATION	DESCRIPTION
1CB11	CIRCUIT BREAKER
1F40 TO 1F42	VFD FUSES
1K3	START/STOP RELAY
1TB13	TERMINAL STRIP CONTROL CIRCUIT
1U5	VFD CONTROLLER
3BT	MOTOR 1

WARNING

HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER
INCLUDING REMOTE DISCONNECTS AND
FOLLOW LOCK OUT AND TAG PROCEDURES
BEFORE SERVICING. INSURE THAT ALL
MOTOR CAPACITORS HAVE DISCHARGED
STORED VOLTAGE. UNITS WITH VARIABLE
SPEED DRIVE, REFER TO DRIVE
INSTRUCTIONS FOR CAPACITOR DISCHARGE.
FAILURE TO DO THE ABOVE BEFORE
SERVICING COULD RESULT IN DEATH OR
SERIOUS INJURY.

AVERTISSEMENT

TENSION DANGEREUSE!
 COUPER TOUTES LES TENSIONS ET
 QUATRE LES SECTIONNEURS A DISTANCE,
 POUR SUIVRE LES PROCÉDURES D'OC
 VERIFICATION DES DÉTACHÉS AVANT
 TOUTE INTERVENTION. VÉRIFIER QUE TOUTS
 LES CONDENSATEURS DES MOTEURS SONT
 DÉCHARGÉS, DANS LE CAS CONTRAIRE,
 COMPORTANT DES ENTRAÎNEMENTS À
 VITESSE VARIABLE SE REPORTER AUX
 INSTRUCTIONS DE L'ENTRAÎNEMENT POUR
 DÉCHARGER LES CONDENSATEURS.
 NE PAS RESPECTER CES MESURES DE
 PRÉCAUTION PEUT ENTRAÎNER DES
 BLESSURES GRAVES POUVANT ÊTRE
 MORTELLES.

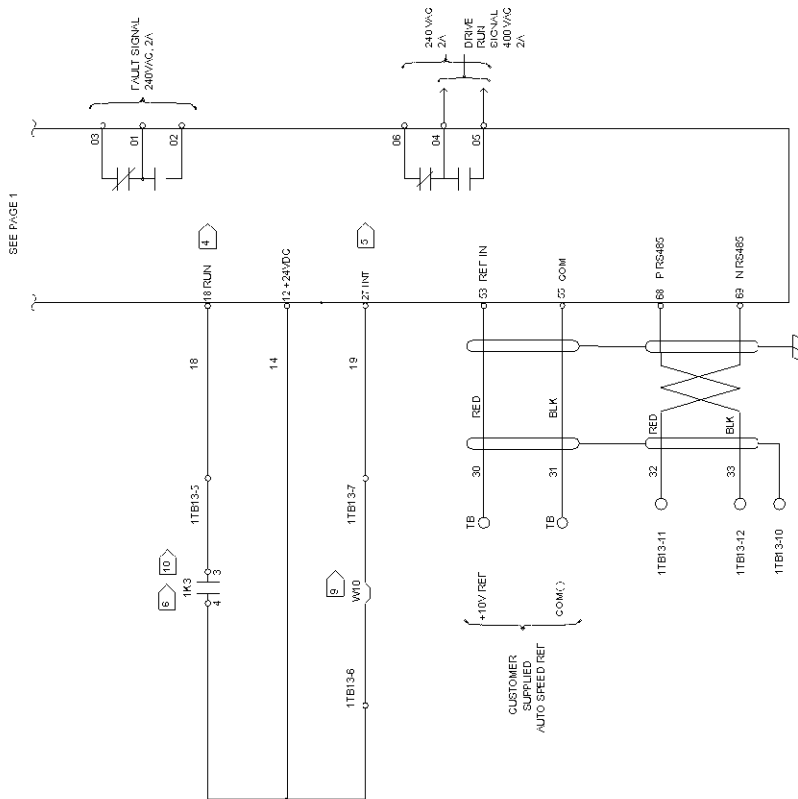
ADVERTENCIA

¡VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA
INCLUSO LAS DESCONECIONES REMATAS Y
SIGA LOS PROCEDIMIENTOS DE CIERRE Y
ETIQUETADO ANTES DE PROCEDER AL
SERVICIO. ASEGURESE DE QUE TODOS
LOS CAPACITORES DEL MOTOR HAYAN
DESCARGADO EL VOLTAJE ALMACENADO.
PARA LAS UNIDADES CON EJE DE
DIRECCIÓN DE VELOCIDAD VARIABLE,
CONSULTE LAS INSTRUCCIONES PARA LA
DESCARGA DEL CONDENSADOR.

EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

Job Name: Williamson County Justice Center (AHU Repl)

SUPPLY FAN 1 SCHEMATIC PAGE 2 OF 2



NOTES

- 1 DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS.
- 2 PHANTOM LINES INDICATE CONTROL OFFICIAL.
- 3 RET. CONTROL PANEL LOCATION FOR OFFICING DETAIL.
- 4 ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS OF OTHER COUNTIES.
- 5 FIELD CONDUCTORS SHALL HAVE INSULATION RATINGS NOT LESS THAN 800V COPPER CONDUCTORS ONLY.
- 6 THE MINIMUM CIRCUIT AMPLITUDE, THE MINIMUM FUSE SIZE, AND DISCONNECT SIZE ARE CALCULATED BASED ON THE MAXIMUM WIRE SIZE PER ARTICLE 430.32 OF THE NATIONAL ELECTRICAL CODE.

[4] PROGRAM TERMINAL 18 ÅS BLUN.

[5] PROGRAM TERMINAL 27 INV. COASTING STOP.

6 CLOSES TO RUN AUTO MODE OR BYPASS AUTO FOR OPTION VFD OR STARTER.

9 REMOVE JUMPER AND INSTALL FIELD SAFETY INTERLOCK.

1U > FIELD SUPPLIED CONTACTS.

27 ATTACH GROUND OR EQUIPMENT GROUND

FUSE	VOLTAGE	PANEL HP (MAX)	PIN	CLASS
1F40	480	5	LP-5C-10	CC
		3	LP-5C-15	CC
		3	LP-5C-25	CC
1F12	480	75-10	JN-80	T
		15	JN-80	T
		20-25	JN-100	T
1F12	480	30-40	JN-120	T
		50	JN-200	T
		0-2	LP-5C-10	CC
1F12	480	0-2	LP-5C-10	CC
		7.5-10	LP-5C-25	CC
		15-20	JIS-50	T
575	575	25-30	JIS-100	T
		40	JIS-100	T
		75-100	JIS-200	T
575	575	3-10	LP-5C-30	CC
		15-20	LP-5C-30	CC
		25-40	JIS-50	T
575	575	50-75	JIS-125	T
		75-100	JIS-125	T
		100-125	JIS-125	T

DEVICE PREFIX LOCATION CODE _____	
AREA	LOCATION
1	HIGH VOLTAGE PANEL
2	LOW VOLTAGE PANEL (UNIT SCHEMATIC)
3	AUX HANDLER SECTION

LEGEND	
DEVICE DESIGNATION	DESCRIPTION
1CB11	CIRCUIT BREAKER
1F40 TO 1F42	VFD FUSES
1K3	START/STOP RELAY
1TB13	TERMINAL STRIP CONTROL CIRCUIT
1U5	VFD CONTROLLER
3B1	MOTOR 1

CAUTION

USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT
OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE
EQUIPMENT.

ATTENTION

N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES
POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT
ENDOMMAGER L'EQUIPEMENT.

PRECAUCIÓN

UTILICE ÚNICAMENTE CONDUCTORES DE COBRE
LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS
PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

49514548

WARNING

HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER
INCLUDING REMOTE DISCONNECTS AND
FOLLOW LOCK OUT AND TAG PROCEDURES
BEFORE SERVICING. INSURE THAT ALL
MOTOR CAPACITORS HAVE DISCHARGED
STORED VOLTAGE. UNITS WITH VARIABLE
SPEED DRIVE, REFER TO DRIVE
INSTRUCTIONS FOR CAPACITOR DISCHARGE.
FAILURE TO DO THE ABOVE BEFORE
SERVICING COULD RESULT IN DEATH OR
SERIOUS INJURY.

⚠ Avertissement

TENSION DANGEREUSE!
COUVRIR TOUTES LES TENSION S ET
COUVRIR LES SECTIONNERS A DISTANCE.
NE PAS SUIVRE LES PROCEDURES DE
VERIFICATION ET DES ETIQUETTES AVANT
TOUTE INTERVENTION. VERNIER QUE TOUT
LES CONDENSA TEURS DES MOTEURS SONT
CORRECTEMENT ENTRETIENNES, SONT
COMPORTEMENT DES ENTRETIENNEMENTS,
TENSION VARIABLE SE REPORTER A
LES INSTRUCTIONS DE L'ENTRETIENMENT POUR
DECHARGER LES CONDENSA TEURS.
NE PAS RESPECTER CES MESURES DE
SECURITE PEUT CAUSER DES BLESSURES
GRAVES POUVANT ETRE FATALES.

ADVERTENCIA

[illegible]

CSAA
Quantity: 1
Tags: RTU 1



- 2023/05/02 10:08:29
Product Version: 1

GENERAL

Outdoor air handling units will be shipped with all openings covered to protect unit interior from in-transit debris.

Installing contractor is responsible for long term storage in accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX07*-EN).

Unit shall be UL and C-UL Listed.

Supply fans within the scope of AHRI Standard 430 are "Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third-party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org".

Unit sound performance data shall be reported as sound power. Trane, in providing this program and data, does not certify or warrant NC levels. These levels are affected by factors specific to each application and/or installation and therefore unable to be predicted or certified by Trane. Refer to product data for specific fan footnote references.

Manufacturer provided VFDs shall be certified to AHRI Standard 1210 "Performance Rating of Variable Frequency Drives" to ensure documented and reliable VFD efficiency.

Unit Construction

Outdoor unit roofs shall incorporate a standing seam on the exterior to ensure a rigid roof construction and prevent water infiltration. Roof assembly shall overhang all walls by 1.5-inch minimum to prevent sheeting from roof to side panels. Rain gutters shall also be provided over all doors shorter than total unit height to direct rain away from the door assembly. Outdoor roofs shall be sloped, not less than 0.125 inches per foot, for water drainage. Where outdoor units are shipped in multiple sections, provide standing-seam joiners at each split with adhesive, hardware, and cover strips for field joining by the installing contractor.

All unit panels shall be 2" solid, double-wall construction to facilitate cleaning of unit interior. Unit panels shall be provided with a mid-span, no-through-metal, internal thermal break. Casing thermal performance shall be such that under 55°F supply air temperature and design conditions on the exterior of the unit of 81°F dry bulb and 73°F wet bulb, condensation shall not form on the casing exterior.

All outdoor AHU interior casing panels will be made of galvanized steel.

External surface of unit casing will be coated with water-based polyurethane paint. Color to be "Deluxe beige". Factory-painted units will be able to withstand a salt spray test in accordance with ASTM B117 for a minimum of 500 consecutive hours and shall meet the following requirements following the salt-spray test:

- Mean scribe creepage rating of at least 6 per ASTM D1654 procedure A
- Blister size no larger than #6 per ASTM D714
- Blister density no greater than Medium per ASTM D714
- No onset of red rust

Casing Deflection

The casing shall not exceed 0.0042 inch deflection per inch of panel span at 1.00 times design static pressure. Maximum design static shall not exceed +8 inches w.g. in all positive pressure sections and -8 inches w.g. in all negative pressure sections.

Floor Construction

The unit floor shall be of sufficient strength to support a 300.0 lb load during maintenance activities and shall deflect no more than 0.0042 inch per inch of panel span.

Unit base

Manufacturer to provide a full perimeter integral base frame for either ceiling suspension of units or to support and raise all sections of the unit for proper trapping. Indoor unit base frame will either be bolted construction or welded construction. All outdoor unit base frames shall be welded construction. For indoor units, refer to schedule for base height and construction type. Contractor will be responsible for providing a housekeeping pad when unit base frame is not of sufficient height to properly trap unit. Unit base frames not constructed of galvanized steel shall be chemically cleaned and coated with both a rust-inhibiting primer and finished coat of rust-inhibiting enamel. Unit base height to be included in total height required for proper trap height.

Insulation

Panel insulation shall provide a minimum thermal resistance (R) value of 13 ft²-h-°F/Btu throughout the entire unit. Insulation shall completely fill the panel cavities in all directions so that no voids exist and settling of insulation is prevented. Panel insulation shall comply with NFPA 90A.

Drain Pan

In sections provided with a drain pan, the drain pan shall be designed in accordance with ASHRAE 62.1. To address indoor air quality (IAQ) the drain pan shall be sloped in two planes promoting positive drainage to eliminate stagnant water conditions. Drain pan shall be insulated, and of double wall construction. The outlet shall be the lowest point on the pan, and shall be of sufficient diameter to preclude drain pan overflow under normally expected operating conditions. All drain pans connections shall have a threaded connection, extending a minimum of 2-1/2" beyond the unit base, and shall be made from the same material as the drain pan. Drain pan located under a cooling coil shall be of sufficient size to collect all condensate produced from the coil.

Refer to Product Data for specific information on which sections are supplied with a drain pan, the drain pan material and connection location.

Access Door Construction

Access doors shall be 2" double wall construction. Interior and exterior door panels shall be of the same construction as the interior and exterior wall panels respectively. All doors shall be provided with a thermal break construction of door panel and door frame. Gasketing shall be provided around the full perimeter of the doors to prevent air leakage. Surface mounted handles shall be provided to allow quick access to the interior of the functional section and to prevent through cabinet penetrations that could likely weaken the casing leakage and thermal performance. Handle hardware shall be designed to prevent unintended closure. Access doors shall be hinged and removable for quick easy access. Hinges shall be interchangeable with the door handle hardware to allow for alternating door swing in the field to minimize access interference due to unforeseen job site obstructions. Door handle hardware shall be adjustable and visually indicate locking position of door latch external to the section. Door hinges shall be galvanized.

All doors shall be a minimum of 60" high when sufficient height is available or the maximum height allowed by the unit height.

Door handles shall be provided for each latching point of the door necessary to maintain the specified air leakage integrity of the unit. Optionally for indoor AHUs and as standard on outdoor AHUs, outward swing doors are provided with a single handle linked to multiple latching points. An optional shatterproof window shall be provided in access doors where indicated on the plans. Window shall either be single pane, or thermal dual pane, as defined on schedule. Window shall be capable of withstanding unit operating pressures and shall be safe for viewing UV-C lamps.

Refer to Product Data for specific information on which sections are supplied with an access door, the door location, a single handle and a window.

Factory-supplied Curb

Outdoor AHU will be provided with a factory-supplied roof curb. Curb will be shipped to jobsite disassembled. Contractor will be responsible for assembly and mounting to roof structure per the Roof Curb Manual. Units with factory-supplied external piping cabinet(s), the factory-supplied curb will include a curb section for the pipe cabinet(s).

Refer to the Roof Curb Detail drawing and Product Data section of submittal for height of factory-supplied roof curb(s).

Marine Light

A factory-mounted, weather resistant (enclosed and gasketed to prevent water and dust intrusion), light emitting diode (LED) fixture shall be provided in sections of the unit as specified for maintenance and service visibility. Fixture shall be complete with aluminum die cast housing, polycarbonate lens designed for maximum light output, and LEDs wired to a single switch within a factory provided service module. LED lighting shall provide instant-on "white" light and have a minimum 50,000 hour life. Fixtures shall be designed for flexible positioning during maintenance and service activities for optimal location. All lights within the unit shall be wired to a single switch within the factory provided service module.

Service module shall be provided on the fan section.

Refer to the Product Data section of the submittal for sections with marine lights.

Lifting Instructions

The air handling units must be rigged, lifted, and installed in strict accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX07G-EN). The units are also to be installed in strict accordance with the specifications. Units may be shipped fully assembled or disassembled to the minimum functional section size in accordance with shipping and job site requirements.

Outdoor units shall be shipped on 6" integral base frame for the purpose of mounting units on a roof curb or field-supplied pier support system. Refer to the Product Data section for type of the base frame provided (for roof curb or pier-mount).

All units will be shipped with an integral base frame designed with the necessary number of lift points for safe installation. All lifting lugs are to be utilized during lift. The lift points will be designed to accept standard rigging devices and be removable after installation. Units shipped in sections will have a minimum of four points of lift.

MIXING SECTION

A mixing section shall be provided to support the damper assembly for outdoor, return, and/or exhaust air.

Dampers

Dampers shall modulate the volume of outdoor, return, or exhaust air. The dampers shall be of double-skin airfoil design with metal, compressible jamb seals and flexible blade-edge seals on all blades. The blades shall rotate on stainless-steel sleeve bearings. The dampers shall be rated for a maximum leakage rate of 3 cfm/ft² at 1 in. w.g. complying with ASHRAE 90.1 maximum damper leakage. All leakage testing and pressure ratings shall be based on AMCA Standard 500-D. Dampers may be arranged in a parallel or opposed-blade configuration.

Inlet Hoods

Inlet hoods are provided on the outside air openings and equipped with high performance moisture eliminators to minimize water carryover from the outside into the unit casing. Eliminators also perform the function of a bird screen to prevent nesting.

Refer to the unit As-Built and Product Data section for specific information on which sections are supplied with inlet hood.

Title 24

The following specifications apply only to units with outside air and return air dampers, with actuators. The 5 year warranty applies only to these items.

This unit contains Economizer that meets or exceeds all mandatory requirements prescribed by Title 24, including but not limited to:

- 5 yr parts only warranty
- Successfully tested to 60,000 Actuations
- Less than 10 cfm/sq.ft. of damper leakage at 1" WG per AMCA 500L

Filters

Mixing sections shall be provided with a filter rack as indicated in the Product Data and As-Built sections of the submittal.

2-inch pleated media filters made with 100% synthetic fibers that are continuously laminated to a supported steel-wire grid with water repellent adhesive shall be provided. Filters shall be capable of operating up to 625 fpm face velocity without loss of filter efficiency and holding capacity. The filters shall have a MERV 8 rating when tested in accordance with the ANSI/ASHRAE Standard 52.2.

COIL SECTION WITH FACTORY INSTALLED COIL

The coil section shall be provided complete with coil and coil holding frame. The coils shall be installed such that headers and return bends are enclosed by unit casings. If two or more cooling coils are stacked in the unit, an intermediate drain pan shall be installed between each coil and be of the same material as the primary drain pan. Like the primary drain pan, the intermediate drain pan shall be designed being of sufficient size to collect all condensation produced from the coil and sloped to promote positive drainage to eliminate stagnant water conditions. The intermediate pan shall begin at the leading face of the water-producing device and be of sufficient length extending downstream to prevent condensate from passing through the air stream of the lower coil. Intermediate drain pan shall include downspouts to direct condensate to the primary drain pan. The outlet shall be located at the lowest point of the pan and shall be sufficient diameter to preclude drain pan overflow under any normally expected operating condition.

Coil with Inspection

The coil section shall include an inspection section complete with a double-wall, removable door downstream of the coil for inspection, cleaning, and maintenance. Interior and exterior door panels shall be of the same construction as the interior and exterior wall panels, respectively. All doors shall be provided with a thermal break construction of door panel and door frame.

Casing penetrations supplied for hydronic drain and vents. Piping contractor shall provide extended piping.

Water Coils (UP, WP, UW, UU, UA, 3W, 3U, W, 5W, 5A, WD, 5D, D1, D2, P, or TT)

The coils shall have aluminum fins and seamless copper tubes. Copper fins may be applied to coils with 5/8-inch tubes. Fins shall have collars drawn, belled, and firmly bonded to tubes by mechanical expansion of the tubes. The coil casing may be galvanized or stainless steel. Refer to the Product Data section of the submittal for the coil casing material.

The coils shall be proof-tested to 300 psig and leak-tested under water to 200 psig. Coils containing water or ethylene glycol are certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org. Propylene glycol and calcium chloride, or mixtures thereof, are outside the scope of AHRI Standard 410 and, therefore, do not require AHRI 410 rating or certification.

Coil connections are constructed of cast iron with female connections, steel block with female connections or steel pipe with male connections. Type P or TT coil connections do not extend out of unit casing. All other water coil types have connections that extend out beyond unit casing. Headers on downstream coil bank of staggered coil sections do not extend beyond the unit casing and must be completed by the on-site piping contractor.

Tubes are 1/2" [13 mm] OD 0.016" [0.406 mm] thick copper.

Tubes are 5/8" [16 mm] OD 0.020" [0.508 mm] thick copper.

ACCESS/INSPECTION / TURNING SECTION

A section shall be provided to allow additional access/inspection of unit components and space for field-installed components as needed. An access door shall be provided for easy access. All access sections shall be complete with a double-wall, removable door downstream for inspection, cleaning, and maintenance. Interior and exterior door panels shall be of the same construction as the interior and exterior wall panels, respectively. All doors downstream of cooling coils shall be provided with a thermal break construction of door panel and door frame.

DIRECT-DRIVE PLENUM FAN SECTION

The fan type shall be provided as required for stable operation and optimum energy efficiency. The fan shall be a single-width, single-inlet, multiblade-type direct-drive plenum fan. Motor bearing life of the direct-drive plenum fan shall be not less than L-10 250,000 hrs. *Refer to the Product Data section for fan quantity and number of blades selected within each unit.* Central Station Air Handling Unit Supply Fans are "Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third-party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org" Central Station Air Handling Unit Supply Fans shall be tested and rated in-accordance with AHRI Standard 260 for sound performance.

Fans that are selected with inverter balancing shall first be dynamically balanced at design RPM. The fans then will be checked in the factory from 25% to 100% of design RPM to insure they are operating within vibration tolerance specifications, and that there are no resonant frequency issues throughout this operating range. Inverter balancing that requires lockout frequencies inputted into a variable frequency drive to in order to bypass resonant frequencies shall not be acceptable. If supplied in this manner by the unit manufacturer, the contractor will be responsible for rebalancing in the field after unit installation. Fans selected with inverter balancing shall have a maintenance free grounding assembly installed on the fan motor to discharge both static and induced shaft currents to ground.

On units supplied with plenum or motorized impeller fans, door guard(s) shall be supplied on the access door(s) to the fan and those downstream access door(s) where unintended access to the plenum or motorized impeller fan could occur. Door guard is intended to deter unauthorized entry and incidental contact with rotating components. *Refer to the Product Data section for fans with access door guard(s).*

Motor Frame

The motor shall be mounted integral to the isolated fan assembly and furnished by the unit manufacturer. The motor is mounted inside the unit casing on an adjustable base to permit adjustment of drive belt tension (not applicable for direct drive plenum fans). The motor shall meet or exceed all NEMA Standards Publication MG 1 requirements and comply with NEMA Premium efficiency levels when applicable except for fractional horsepower motors which are not covered by the NEMA classification. The motor shall be T-frame, squirrel cage with size, type, and electrical characteristics as shown on the equipment schedule. *Refer to the Product Data section for selected fan motors within each unit.*

Two-Inch Spring Isolators

Direct-drive fan and motor assemblies shall be internally isolated from the unit casing with 2-inch (50.8 mm) deflection spring isolators. The isolation system shall be designed to resist loads produced by external forces, such as earthquakes, and conform to the current IBC seismic requirements.

Single transmitter

The fan shall have an airflow measurement system to measure fan airflow directly or to measure differential pressure that can be used to calculate fan airflow. The system shall predict airflow within +/-5 percent total accuracy (device & transmitter) when operating within the stable operating region of the fan curve. On units supplied with multiple direct drive fans, one fan is tubed and one transmitter is supplied for the total array. The submitted fan airflow performance and noise levels shall not be affected by the installation of the device. Any device that provides an obstruction to the fan inlet will not be accepted. Refer to the Product Data section for fans with flow meters.

Combination VFD / Disconnect

A combination Variable Frequency Drive (VFD) / disconnect shall be provided when variable air volume control is required for fan operation. Whether for single fan, dual fan, or fan array applications, a single VFD shall be provide to ensure proper operation and to optimize operating life. Each VFD / disconnect shall be properly sized, factory mounted in a full metal enclosure, wired to the fan motor(s), and commissioned to facilitate temporary heating, cooling, ventilation, and/or timely completion of the project. VFD / disconnects shall include a circuit breaker disconnect with a through-the-door interlocking handle and shall be lockable. The VFD package shall also include:

- a) Electronic manual speed control
- b) Hand-Off-Auto (H-O-A) selector switch
- c) Inlet fuses to provide maximum protection against inlet short circuit
- d) Current limited stall prevention
- e) Auto restart after momentary power loss
- f) Speed search for starting into rotating motor
- g) Anti-windmill w/DC injection before start
- h) Phase-to-phase short circuit protection
- i) Ground fault protection
- j) Manual motor protection MMP

Units with factory-mounted controls shall include power wiring from the VFD panel to the control system transformers, binary output on/off wiring, analog output-speed-signal wiring, and all interfacing wiring between the VFD and the direct digital controller.

The VFD shall be UL508C listed and CSA certified and conform to applicable NEMA, ICS, NFPA, & IEC standards.

The supply fan's Starter/VFD shall be mounted internal of unit casing in the controls section. The internal enclosure shall be an integral part of the unit casing to allow for thermal venting to casing interior, but shall be accessible from unit exterior through access door. Internally mounted starters shall have doors with the same construction as other doors on unit. An external disconnect shall be mounted through the door to the starter/VFD to disconnect full power from starter/VFD.

Motor Wiring Conduit

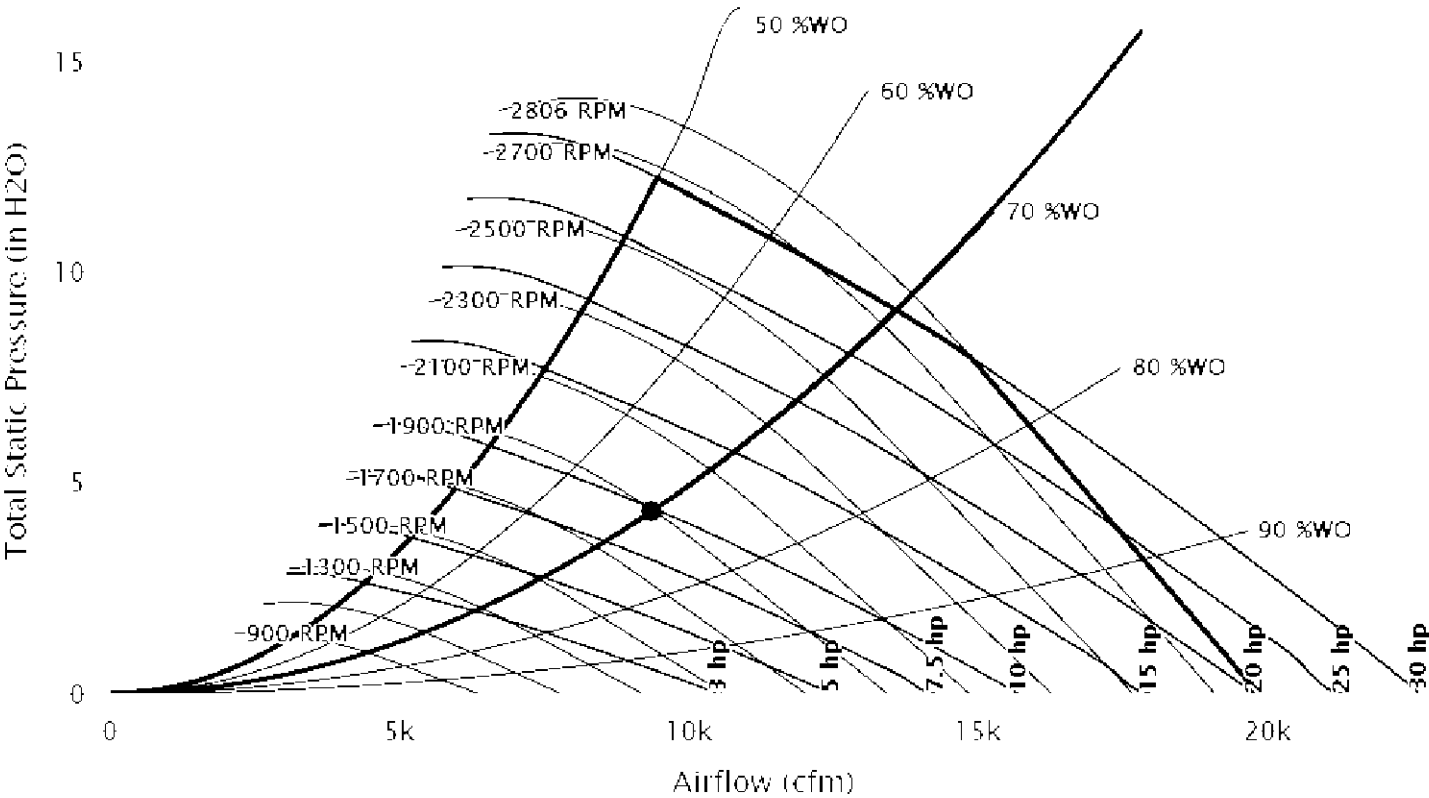
The fan motor wiring shall be factory-wired to the unit-mounted starter/disconnect, variable frequency drive, or external motor junction box within flexible metal conduit of adequate length so that the fan vibration isolation, if applicable, will not be restricted. *Refer to the Product Data section for fans with motor wiring conduit.*

Fan Details

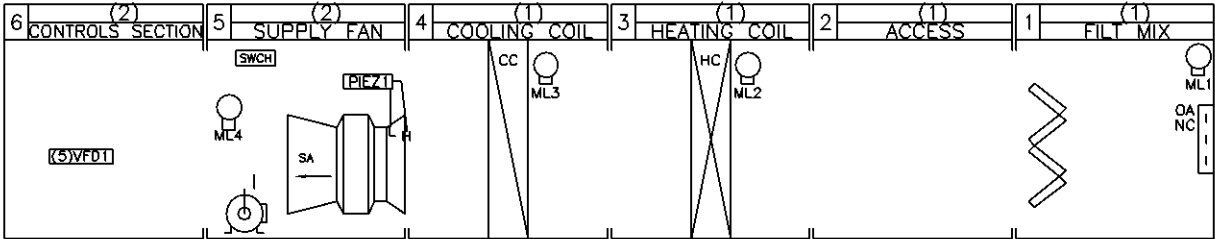
Unit Size	24UR	Operating Brake Power	9.890 hp
Motor Frequency	64.00 Hz	Altitude	0.00 ft
Operating Airflow	9,370 cfm	Design Temp.	70.00 F
Operating Static Pressure	4.357 in H2O	Efficiency	65.08 %
Operating RPM	1,898 rpm		

RTU_1 – Supply – Single Fan

Size 21 DDP 24.5 inch AF H Press 80% Width 9 blades



WIRING DETAIL 1 (OUTDOOR)



DRAWN BY	Trane	CSOA—SCHEMATIC UNIT SIZE: 21 UNIT TAG: RTU_1
SERVICE ACCOUNT		
DATE		
5/2/2023		
SOFTWARE VERSION		
1.4.0		
DRAWING VERSION		

[illegible]

OWNER BY SERVICE ACCOUNT	Trane	CSOA—SCHEMATIC UNIT SIZE: 21 UNIT TAG: RTU_1
DATE 5/2/2023		
SOFTWARE VERSION 1.0.0		
DRAWING VERSION		

LEGEND DETAIL 1
(OUTDOOR)

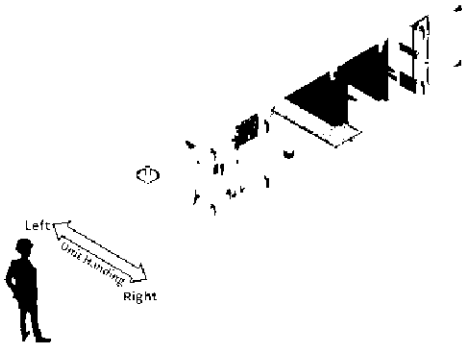
POS#	BUILD GROUP	DESCRIPTION	LABEL	PWR HR – WIRE	SIGNAL HR – WIRE	XFMR	POWER VA
0		150VA TRANSFORMER	2T3				
1		Marine Light	ML1	BLACK		2T3-1	22
3		Marine Light	ML2	BLACK		2T3-1	22
4		Marine Light	ML3	BLACK		2T3-1	22
5		Marine Light	ML4	PURPLE		2T3-2	22
5		Flow meter	PIEZ1				
6		Supply Fan VFD	VFD1				

DRAWN BY SERVICE ACCOUNT	Trane	
DATE 5/2/2023		
SOFTWARE VERSION 1.4.0		
DRAWING VERSION		
		CSOA – SCHEMATIC UNIT SIZE: 21 UNIT TAG: RTU_1

Trane Performance Climate Changer Air Handler

Unit Overview - RTU_2							
Application		Unit Size	External Dimensions			Weight	
		Height	Width	Length	Installed	Rigging	
	Outdoor unit	CSAA021	59.0 in	80.0 in	187.0 in	4429 lb	3837 lb
Quantity of Shipping Sections		Largest Ship Split			Heaviest Ship Split	Elevation	
		Height	Width	Length			
	1 piece(s)	59.0 in	80.0 in	186.9 in	3998 lb	0.00 ft	
Supply Fan							
Airflow	10920 cfm	Total Static Pressure	4.796 in H2O				
Note: Height includes air handler sloped roof panel and standing seam.							

Construction Features	
Panel	2in. foam injected R-13 with thermal break
Panel Material	All unit inner panels - galvanized
Integral Base Frame	6in. integral base frame
Paint	Deluxe beige
Short Circuit Current Rating	5 kA
Agency Approval	UL listed unit
Roof Curb Type	Standard roof curb



Unit Electrical					
Circuit	Voltage/Phase/Frequency	FLA	MCA	Max Fuse Size	
Circuit number 1 Supply fan motor(s)	460/3/60	21.00 A	26.25	45.00	
Circuit number 2 Lights + switch	115/1/60	2.61 A	3.26	15.00	

Unit Controls	
Controller Type	No controller

Warranty	
Warranty section	Extd. warranty
Labor - 1st year	1st year labor warranty

Air mixing section - Position: 1							
Openings							
Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop	Hood
Back	Outside	Parallel blade damper	10920 cfm	1264 ft/min	8.64 sq ft	0.298 in H2O	Yes
Filter							
Type	Frame	MERV Rating	Quantity	Size			
Pleated media - MERV 8	2"	MERV 8	12.00	16in.x25in.			
Pressure Drop	Condition	Face Velocity	Airflow	Area			
1.000	Dirty	328 ft/min	10920 cfm	33.33 sq ft			
Section Options							
Door Location		Right					
Marine Light		Marine LED light					

Access/blank/turning section - Position: 2	
Options	
Section Length	10.000 in

Job Name: Williamson County Justice Center (AHU Repl)

Heating coil section - Position: 3**Coil Construction**

Model	Hot water - 1/2" Unit Optimized, Low Water Flow (UA)
Rows	2
Tube Diameter	1/2in. tube diameter (12.7 mm)
Coil Connection	Standard
Tube Matl/Wall Thickness	.016" (0.406 mm) copper tubes
Fin Spacing	118 Per Foot
Fin Material	Aluminum fins
Fin Type	Delta flo E (energy efficient)
Face Area	20.81 sq ft
Coil (top/single) H x L	43 in. (1092 mm) X 69" (1753 mm) finned length
Casing	Galvanized
Turbulators	Yes
Rigging Weight	101.5 lb
Installed Weight	118.0 lb
Coil Section Options	
Extended Drain and Vent	Holes only
Drain Pan Size	Small
Door Location	Left
Marine Light	YES

Coil Performance

Capacity	
Total	491.47 MBh
Air	
Flow	10920 cfm
Entering Dry Bulb	24.00 F
Leaving Dry Bulb	65.50 F
Pressure Drop	0.205 in H2O
Face Velocity	525 ft/min
Fluid	
Flow	32.74 gpm
Entering	180.00 F
Leaving	150.00 F
Pressure Drop	5.88 ft fluid
Tube Velocity	3.30 ft/s
Reynolds Number	33440.84
Type	Water
Concentration	100.00 %
Fouling Factor	0.00025 hr-sq ft-deg F/Btu
Volume	1.99 gal
AHRI 410 Classification	
AHRI 410 Classification	AHRI ACHC Certified
Data Generation Date	5/2/2023
Trane Select Assist update number	2700

Note: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.

**Cooling coil section - Position: 4****Coil Construction**

Model	Chilled water - 5/8" Shipping Coil, General (W)
Rows	6
Tube Diameter	5/8in. tube diameter (15.875 mm)
Coil Connection	Standard
Tube Matl/Wall Thickness	.020" (0.508 mm) copper tubes
Fin Spacing	120 Per Foot
Fin Material	Aluminum fins
Fin Type	Prima flo H (Hi efficient)
Face Area	19.83 sq ft
Coil (top/single) H x L	42 in. (1067 mm) X 68" (1727 mm) finned length
Casing	Stainless steel
Turbulators	Not Included
Rigging Weight	439.1 lb
Installed Weight	584.3 lb
Coil Section Options	
Extended Drain and Vent	Holes only
Drain Pan	Stainless steel
Drain Pan Size	Extended medium
Drain Connection	Right
Minimum Trap Height (L)	8.018 in
H Trap Dimension	4.678 in
J Trap Dimension	2.339 in
Door Location	Left
Marine Light	YES

Coil Performance

Capacity	
Total	832.76 MBh
Sensible	406.59 MBh
Air	
Flow	10920 cfm
Entering Dry Bulb	89.00 F
Entering Wet Bulb	77.00 F
Leaving Dry Bulb	55.59 F
Leaving Wet Bulb	55.40 F
Pressure Drop	0.901 in H2O
Face Velocity	551 ft/min
Fluid	
Flow	165.96 gpm
Entering	44.00 F
Leaving	54.00 F
Pressure Drop	19.78 ft fluid
Tube Velocity	6.55 ft/s
Reynolds Number	23473.61
Type	Water
Concentration	100.00 %
Fouling Factor	0.00000 hr-sq ft-deg F/Btu
Volume	17.35 gal
AHRI 410 Classification	
AHRI 410 Classification	AHRI ACHC Certified
Data Generation Date	5/2/2023
Trane Select Assist update number	2700

Note: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Supply fan section - Position: 5

Fan Data		Motor Data	
Wheel Diameter/Type/Class	22.25in. dd plenum, full width, H press	Power / Fan	15 hp
Fan Quantity	1	Voltage	460/3
Discharge Location	Front top	Speed	1800
Motor Location	Right side drive	Class	NEMA premium compliant ODP
Blades	Higher eff.(some bands lower,more spike)	Efficiency	93.19 %
Drive Service Factor	Direct drive	Part Load Efficiency	91.05 %
Fan K-factor	2714.00	Fan electrical power (FEP)	11.78 kW
Fan Performance		FEI	1.19
Airflow	10920 cfm	AHRI VFD HP	15.000 hp
Total Static Pressure	4.796 in H2O	Wire to air static efficiency	52.18 %
Total Brake Power	14.175 hp	Note: VFD driven motor fan electrical power calculated in accordance with AHRI 430.	
Operating Speed	2327 rpm	Note: Certified airflow performance per AHRI 430	
AMCA FEG	FEG80	Fan Section Options	
Bare fan peak total efficiency	71.10 %	Fan Wheel Balance	Inverter balance with shaft grounding
Unit Static Efficiency	58.25 %	Door Location	Right
Motor Interface Options		Door Guard	Yes
Selection Type	VFD	Marine Light	Marine LED light
Voltage	460/3		
Mounting Location	Internal mounting		
Motor Wire In Conduit	Motor wiring conduit		
VFD Frequency	79.00 Hz		

Face	Type	Airflow	Face Velocity	Area	Pressure Drop	Exhaust Hood	Damper Torque Requirement
Front Face Feature		10920 cfm	447 ft/min	24.41 sq ft	0.031 in H2O	N/A	N/A

Note: Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Pressure Drop in (in w.g.)

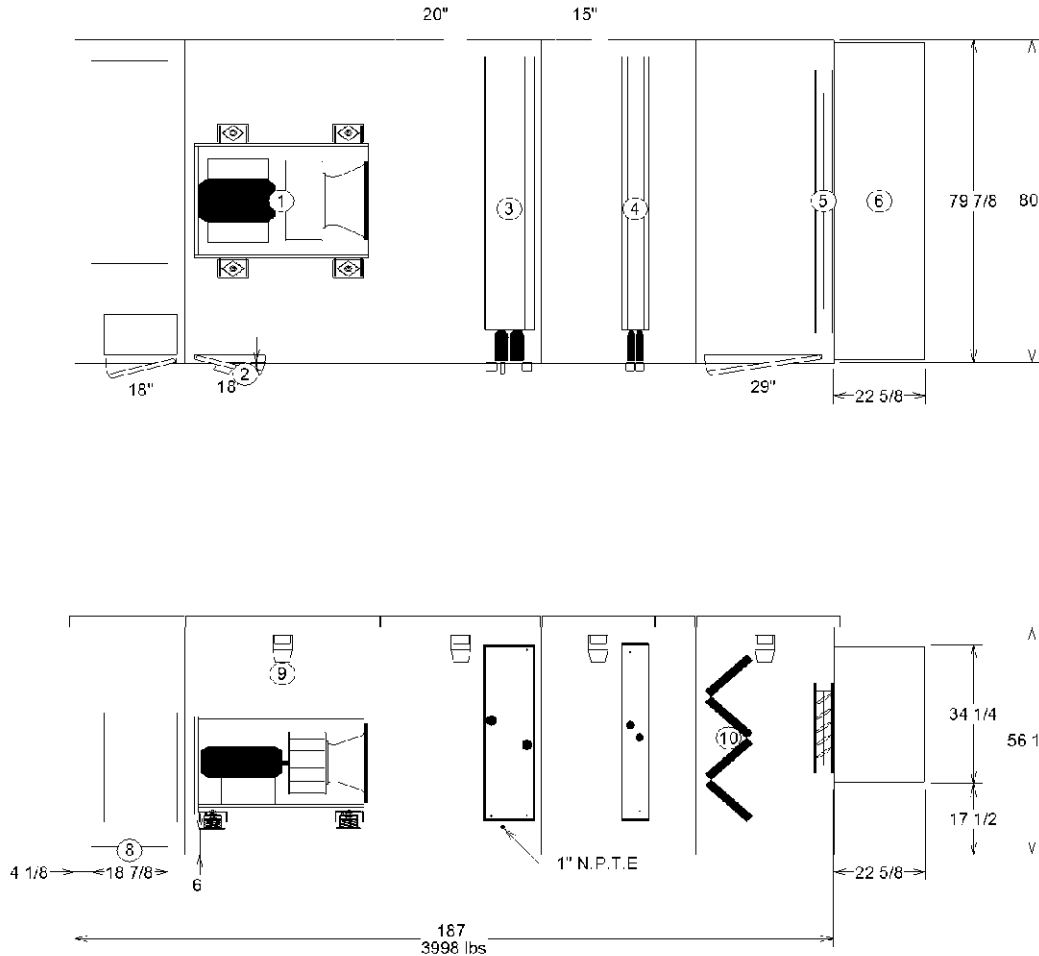
Supply fan	
Air mixing section	1.57
Coil section	0.21
Coil section	0.90
Fan section	0.03
Controls section	0.09
Internal Static Pressure	2.80
External Static Pressure	2.00
Total Static Pressure	4.80

Starter/VFD only section - Position: 6

Supply Fan Motor Interface Door			Right	Openings		
Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop
Bottom Face Feature	Supply	Rectangular	10920 cfm	1666 ft/min	6.55 sq ft	0.087 in H2O

CSAA
Quantity: 1
Tags: RTU_2

Job Name: Williamson County Justice Center (AHU Repl)



- 1 Plenum fan - 22.25in. dd plenum, full width, H press Supply fan 15 hp 460/3
- 2 Light switch anc/or receptacle RH
- 3 Cooling coil - 6 Rows Coil type 5/8" Shipping Coil, General (W)
- 4 Heating coil - 2 Rows Coil type 1/2" Unit Optimized, Low Water Flow (UA)
- 5 Damper back-parallel blade 22.75 x 66
- 6 Hood back
- 7 1" N.P.T.E
- 8 Opening bottom 50 x 18.875
- 9 Marine light
- 10 Angled flters -

Doors
18 width x 46 height
20 width x 46 height
15 width x 46 height
29 width x 46 height

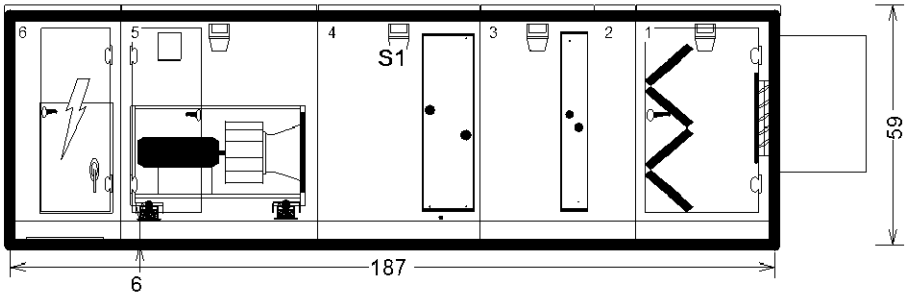
For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length shown.

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: Z1	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 10920	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_2
Paint: Deluxe beige		Rigging weight: 3836.7 / Installed weight: 4428.6

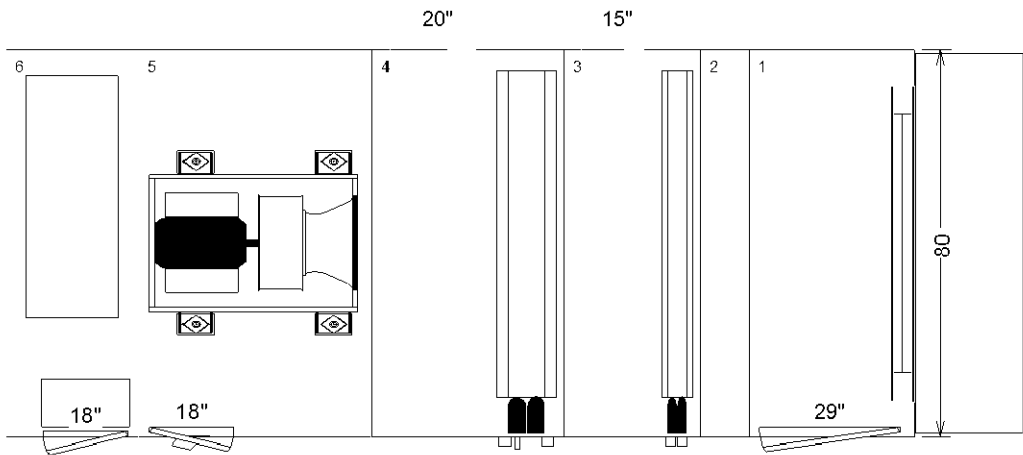


Shipping splits are indicated by thick black lines



For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length sh

Pos #	Module	Length	Weight
1	Air mixing section	34	564.18
2	Access section	10	118.11
3	Coil section	28	391.03
4	Coil section	39 5/8	976.36
5	Fan section	48	1460.14
6	Controls section	27 1/4	488.57
	Roof Curb		430.21
		Installed Unit Weight	4428.59 lbs



Basic Overall Plan View: Top - Measurements in inches

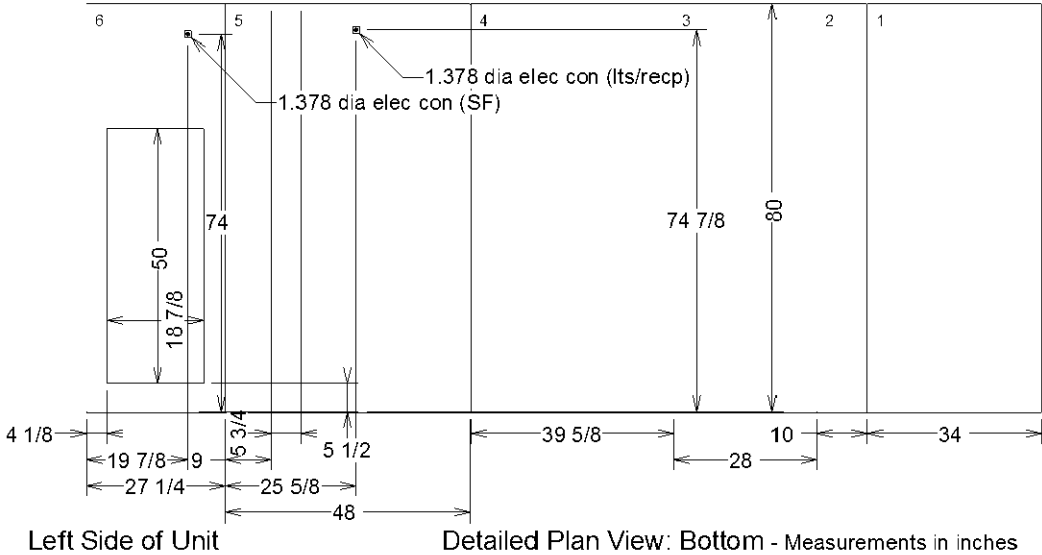
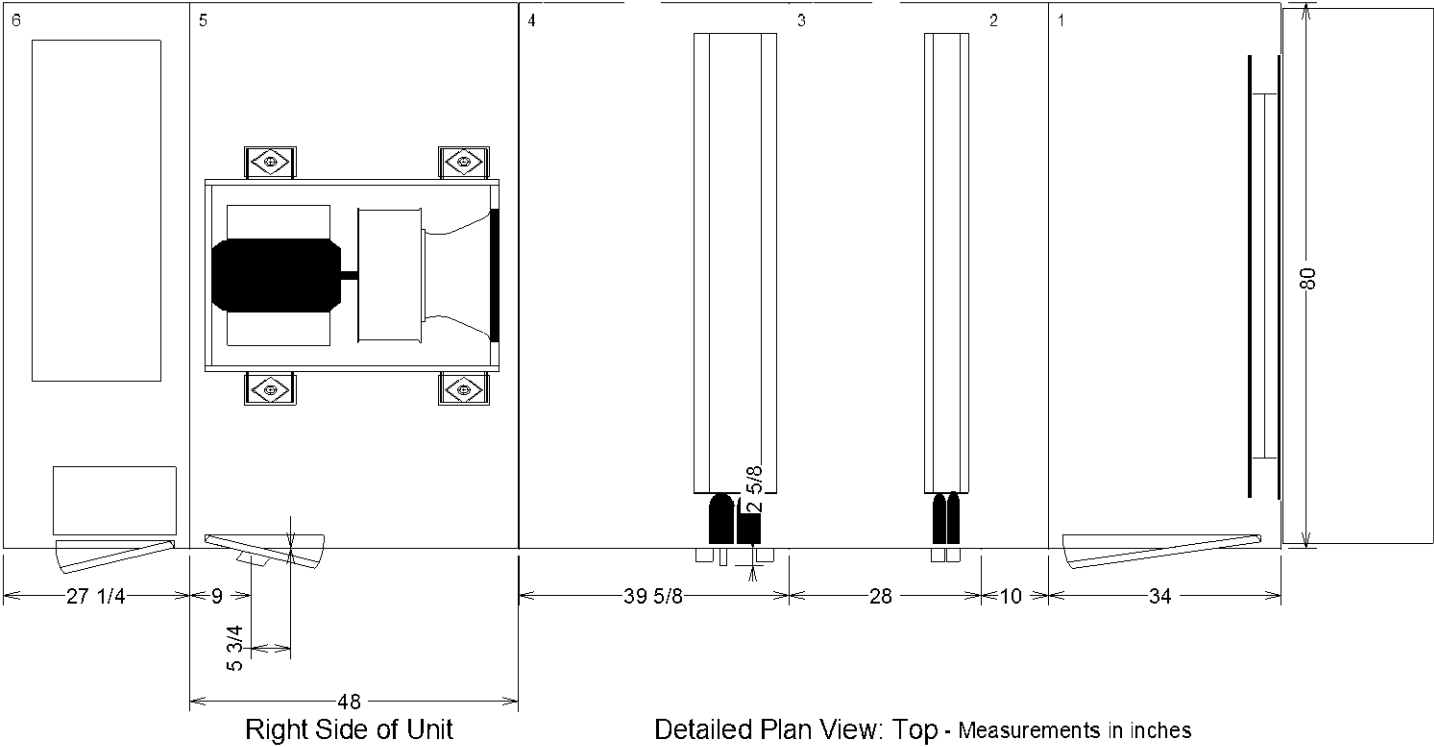
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 10920	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_2
Paint: Deluxe beige		Rigging weight: 3836.7 / Installed weight: 4428.6



TRANE

Performance Climate Changer
Air Handlers

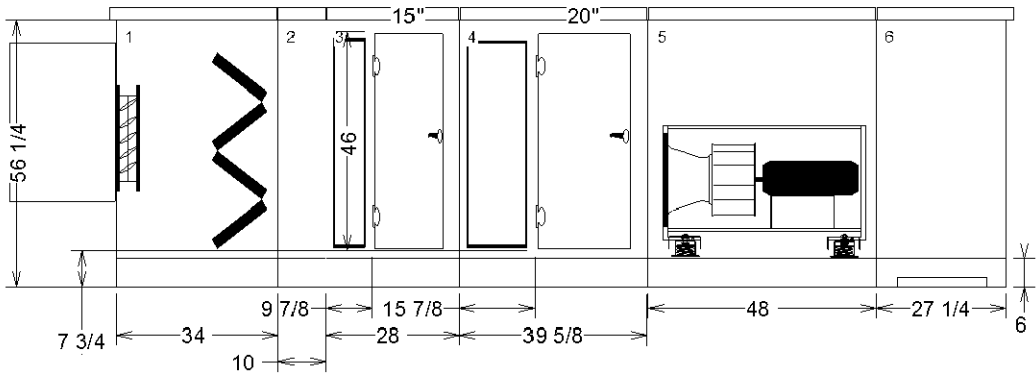
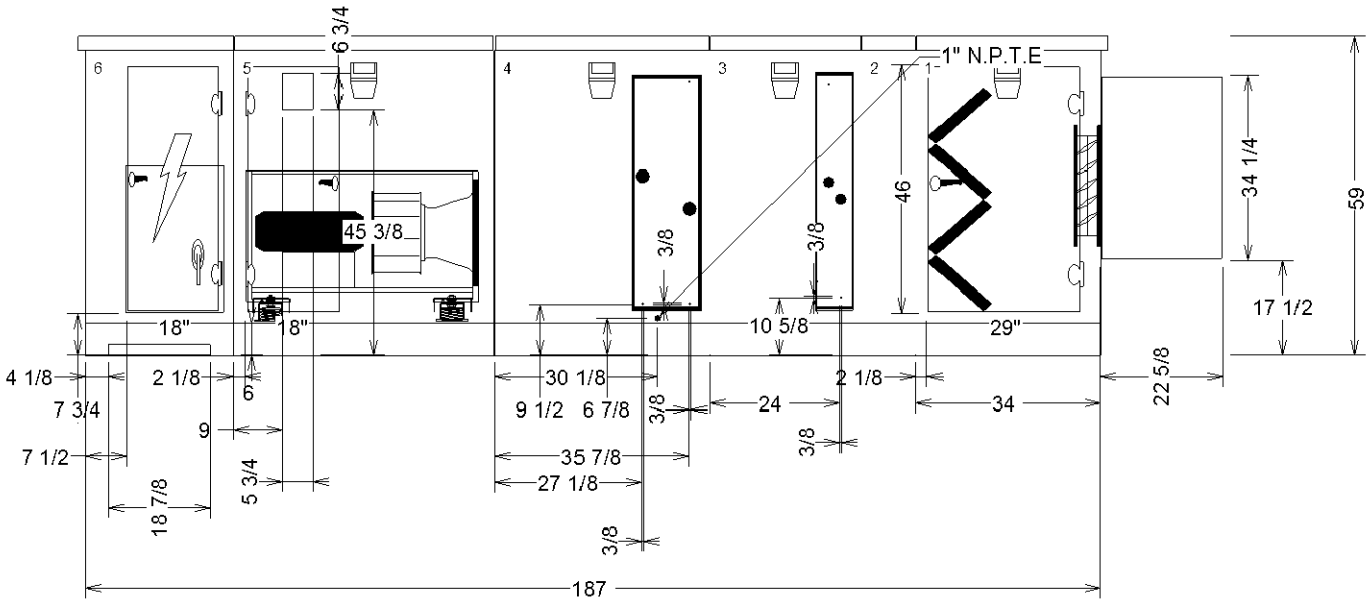


****Placement of electrical conduit may vary by a tolerance of 8" in any direction.**

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 10920	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_2
Paint: Deluxe beige		Rigging weight: 3836.7 / Installed weight: 4428.6





Detailed Elevation View: Left - Measurements in inches

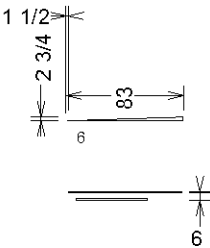
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Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 10920	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_2
Paint: Deluxe beige		Rigging weight: 3836.7 / Installed weight: 4428.6

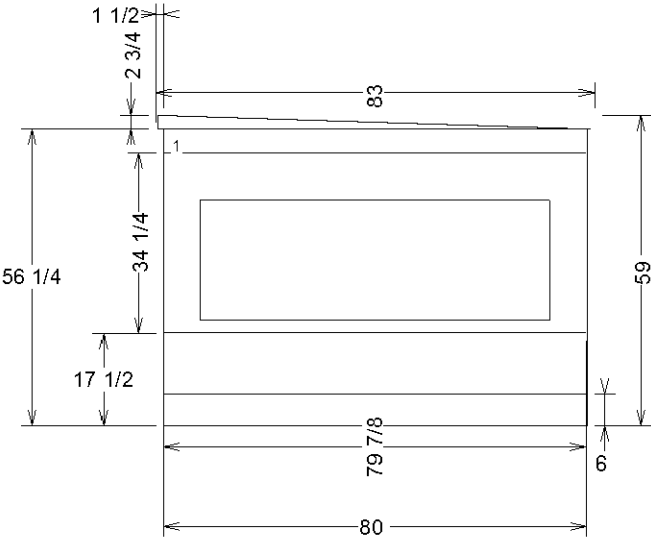


TRANE®

Performance Climate Changer
Air Handlers



Detailed Elevation View: Front - Measurements in inches



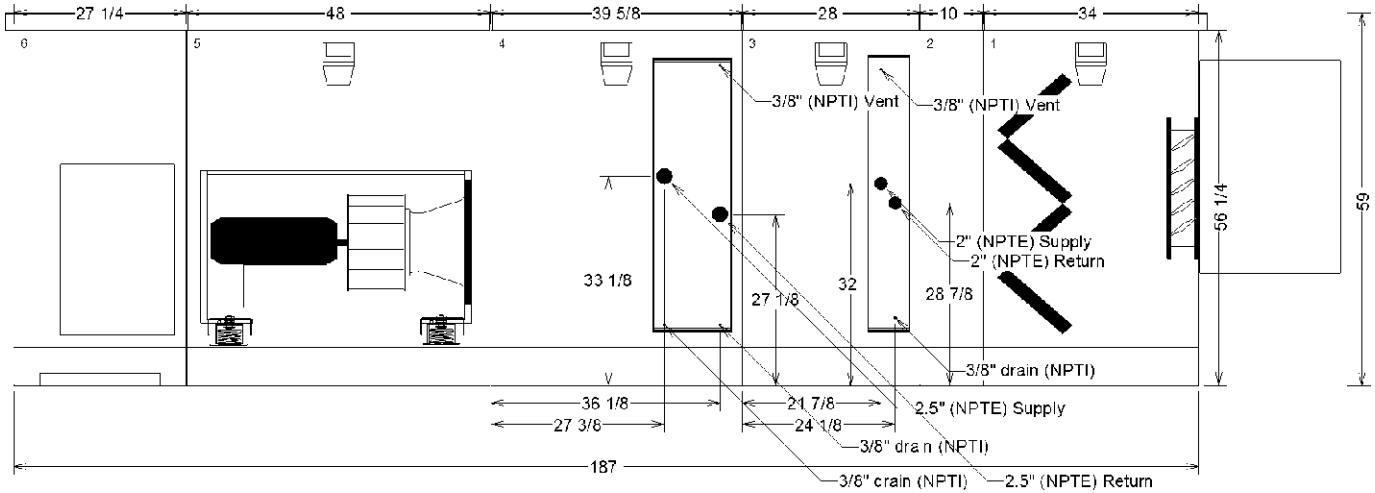
Detailed Elevation View: Back - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam	 TRANE® Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 10920	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_2	
Paint: Deluxe beige		Rigging weight: 3836.7 / Installed weight: 4428.6	

Job Name: Williamson County Justice Center (AHU Repl)

CSAA
Quantity: 1
Tags: RTU_2

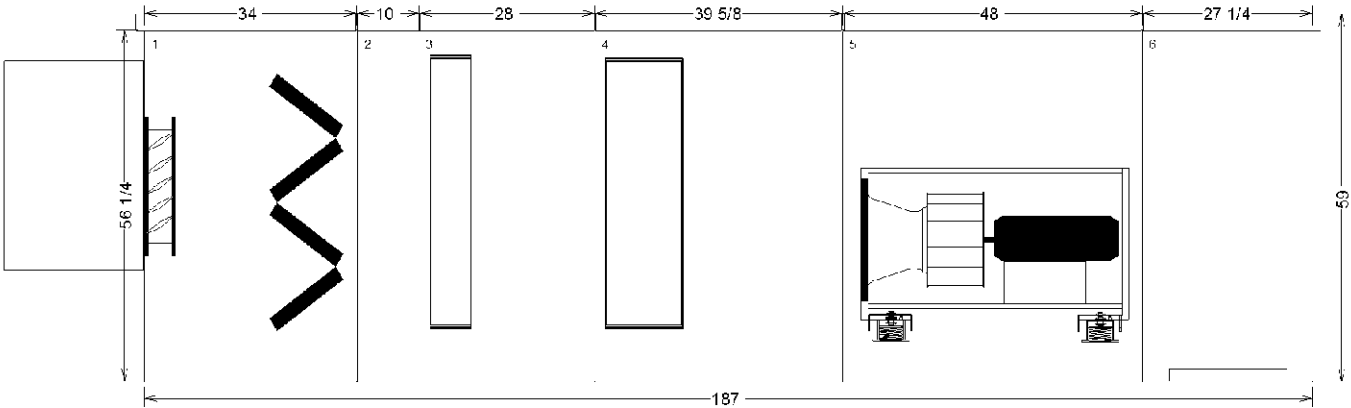


NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE			
Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam	 Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 10920	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_2	
Paint: Deluxe beige		Rigging weight: 3836.7 / Installed weight: 4428.6	

Job Name: Williamson County Justice Center (AHU Repl)

CSAA
Quantity: 1
Tags: RTU_2



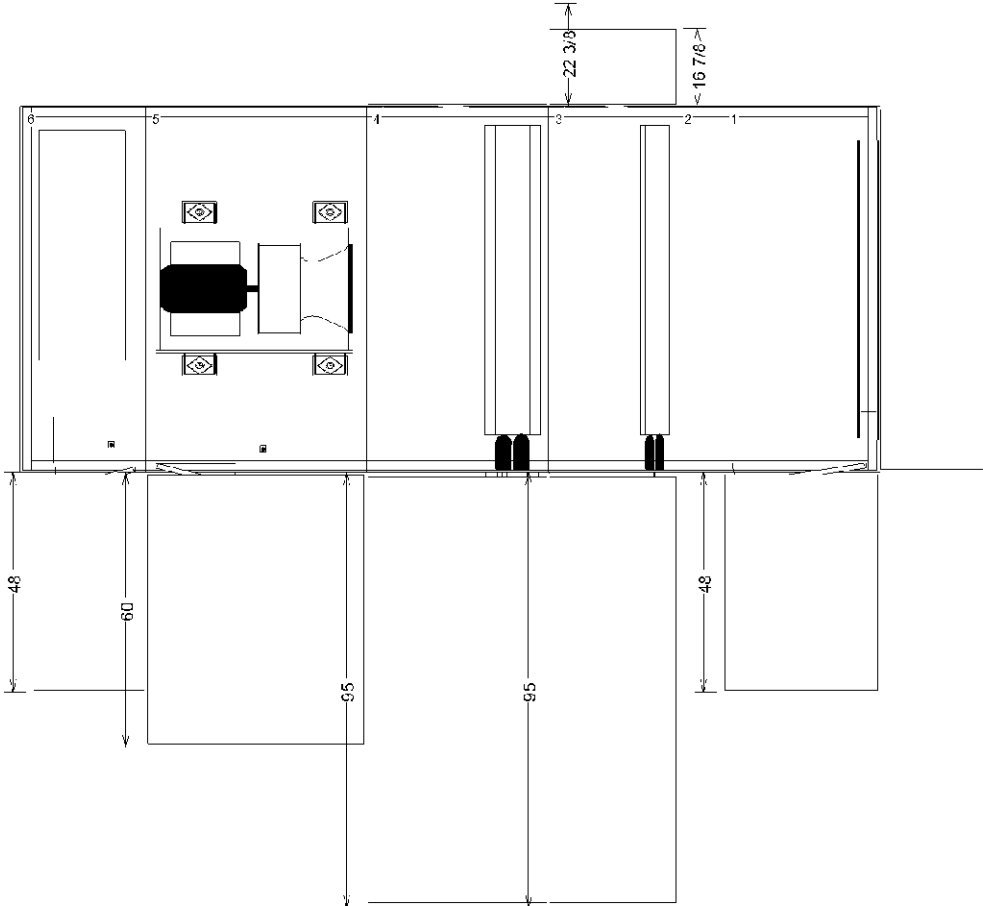
NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE			
Unit size: Z1	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam	
Product group: Outdoor unit	Actual airflow: 10920	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_2	
Paint: Deluxe beige		Rigging weight: 3836.7 / Installed weight: 4428.6	



Job Name: Williamson County Justice Center (AHU Repl)

CSAA
Quantity: 1
Tags: RTU_2



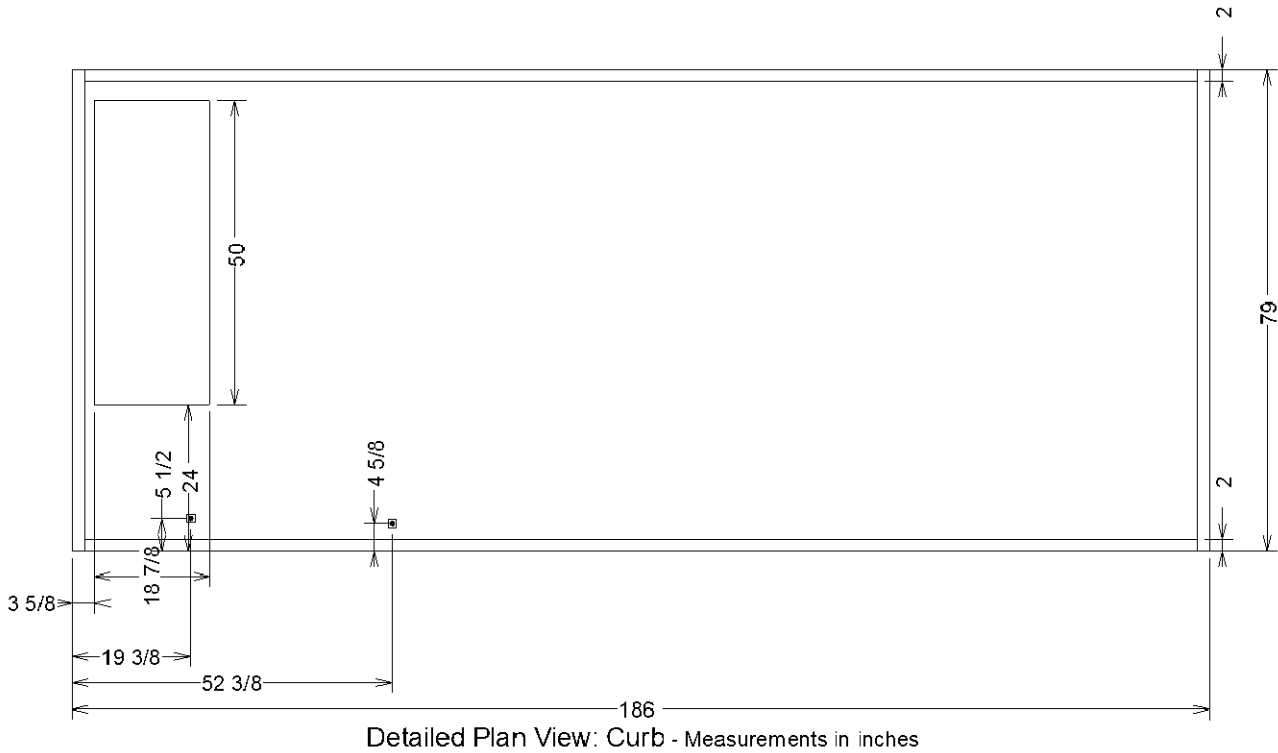
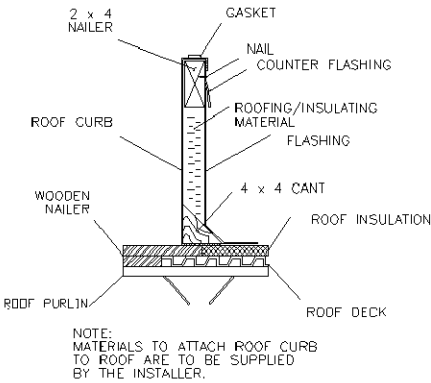
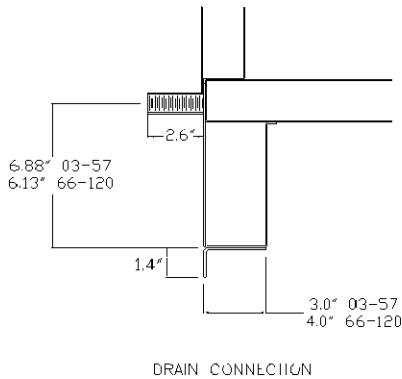
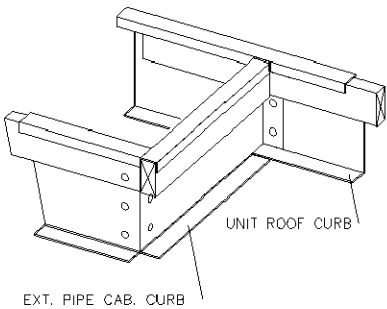
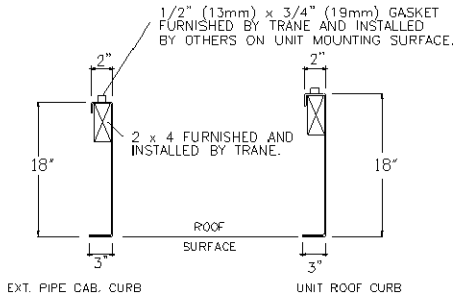
Basic Service Clearance - Plan - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 10920	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_2
Paint: Deluxe beige		Rigging weight: 3836.7 / Installed weight: 4428.6



Job Name: Williamson County Justice Center (AHU Repl)



OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

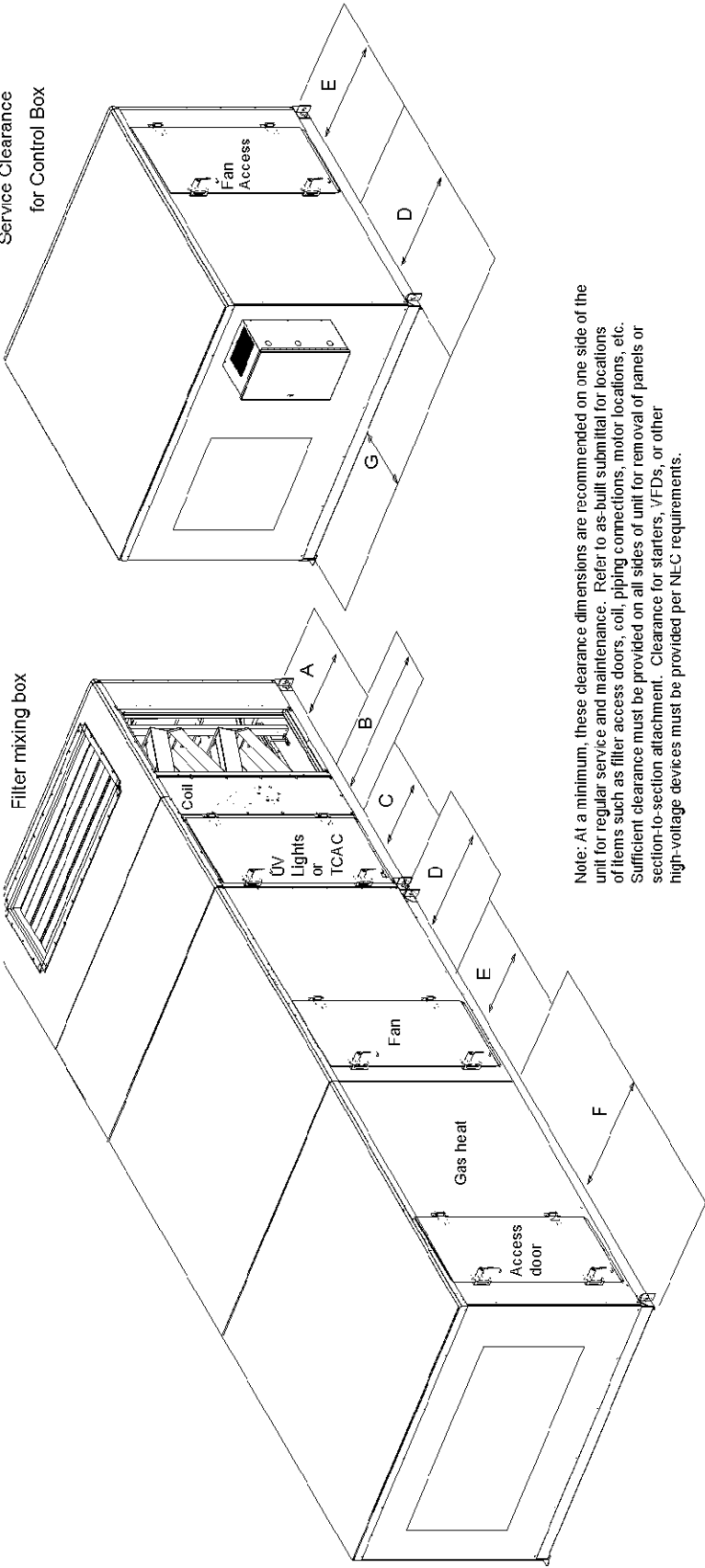
Unit size: 21	Job Name: Williamson County Justice Center (AHU Repl)	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 10920	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: RTU_2
Paint: Deluxe beige		Rigging weight: 3836.7 / Installed weight: 4428.6



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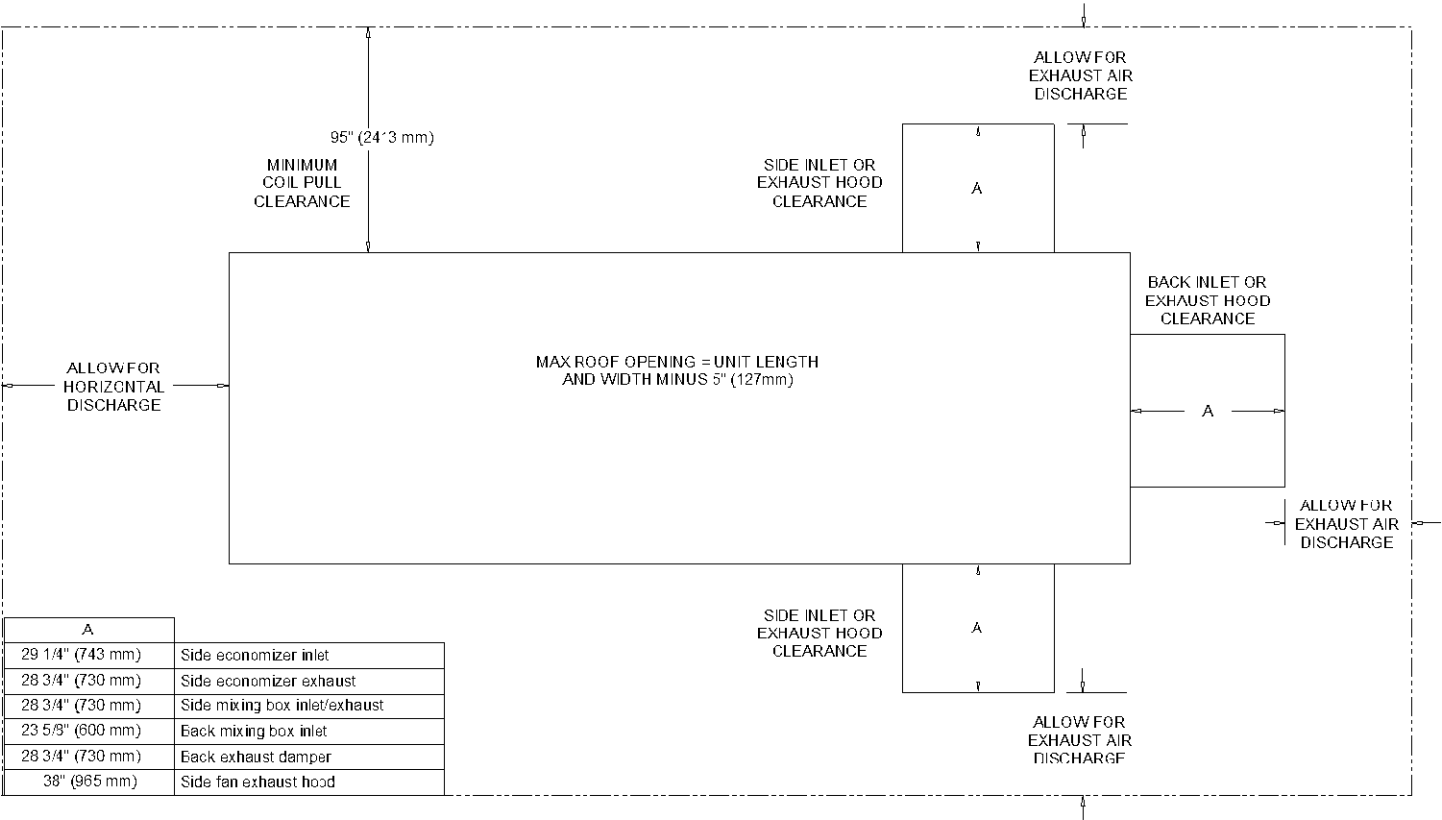
Performance Climate Changer
Air Handlers

EXAMPLE UNIT - NOT CONFIGURED AS SELECTED.



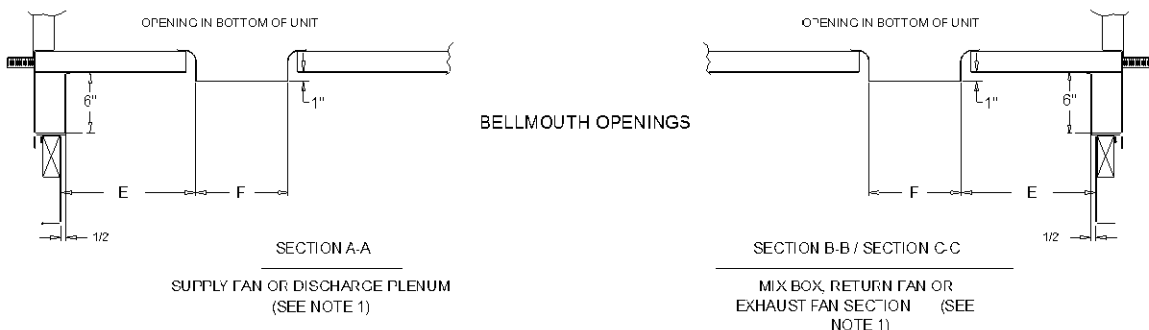
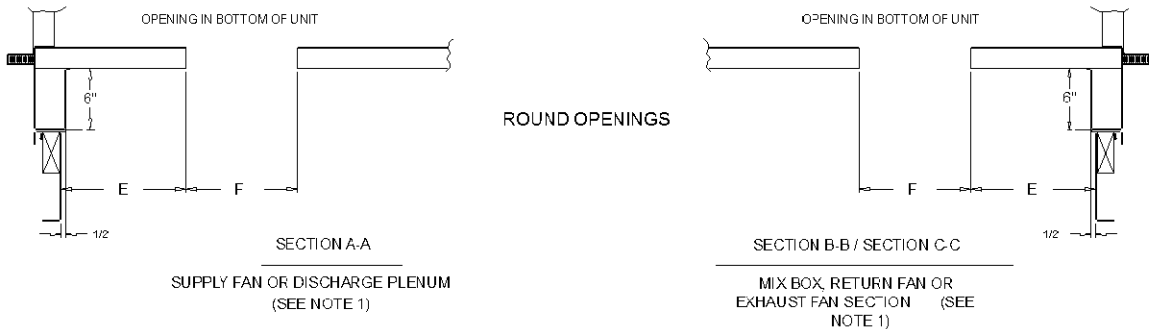
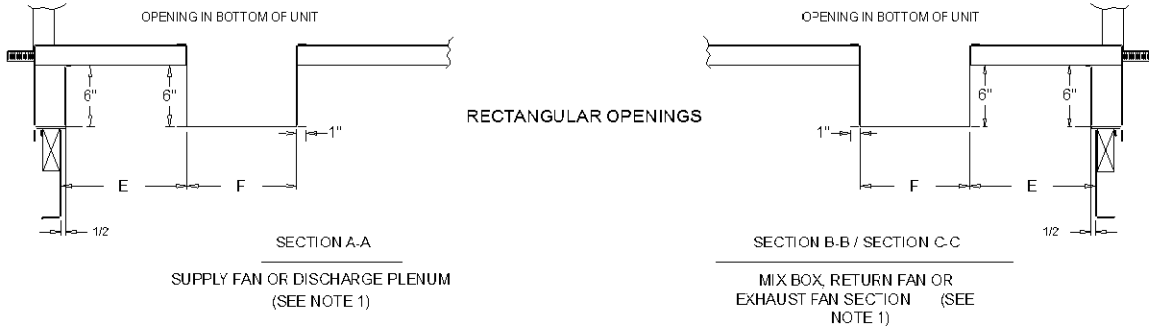
Component	3	4	6	8	10	12	14	17	21	25	30	35	40	50	57	66	80	100	120
A (filter)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	52	56	58	58
B (coil, humidifier)	48	59	66	77	82	87	87	87	95	95	109	115	128	141	141	156	156	170	197
B (staggered coil)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	67	67	76	80	88	96	96	105	105	113	129
C (UV Lights)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	52	56	58	58
C (TCAC)	43	59	63	75	81	83	83	83	58	58	83	75	83	83	83	83	83	75	83
D (External Starter, VFD, LV box or Overload box)	61	61	61	61	61	61	61	61	64	64	64	64	64	64	64	64	64	64	64
D (Internal Starter or VFD)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
E (fan)	48	48	48	48	51	54	58	61	60	66	66	66	70	77	77	93	93	101	101
F (Gas Heat Ext Vestible)	N/A	N/A	89	90	108	100	100	105	115	115	118	136	140	156	156	170	179	180	N/A
F (Gas Heat Int Vestible)	N/A	N/A	56	63	74	79	84	84	92	92	106	112	125	138	138	153	153	167	194

Component	All Sizes
G (Side mount LV box)	36
G (Front mount LV box)	13

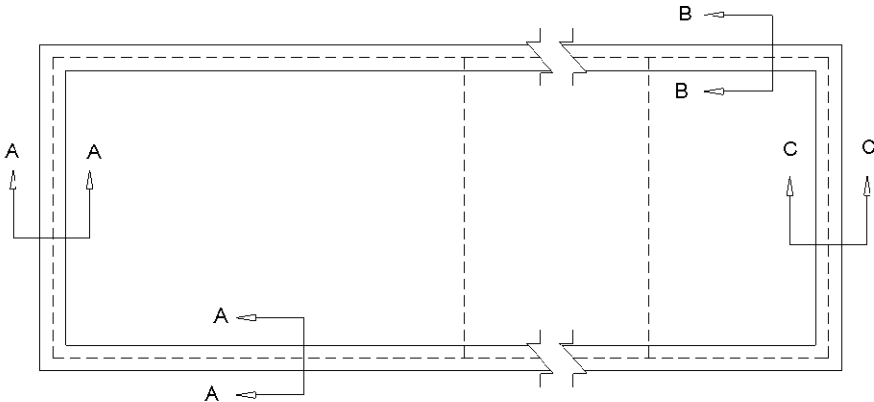


Job Name: Williamson County Justice Center (AHU Repl)

RELATIONSHIP OF CURB TO UNIT AS-BUILT



NOTE:
1. E and F are representative of dimensions on the accessory as-built used to locate opening(s) in the roof surface.



Base Detail

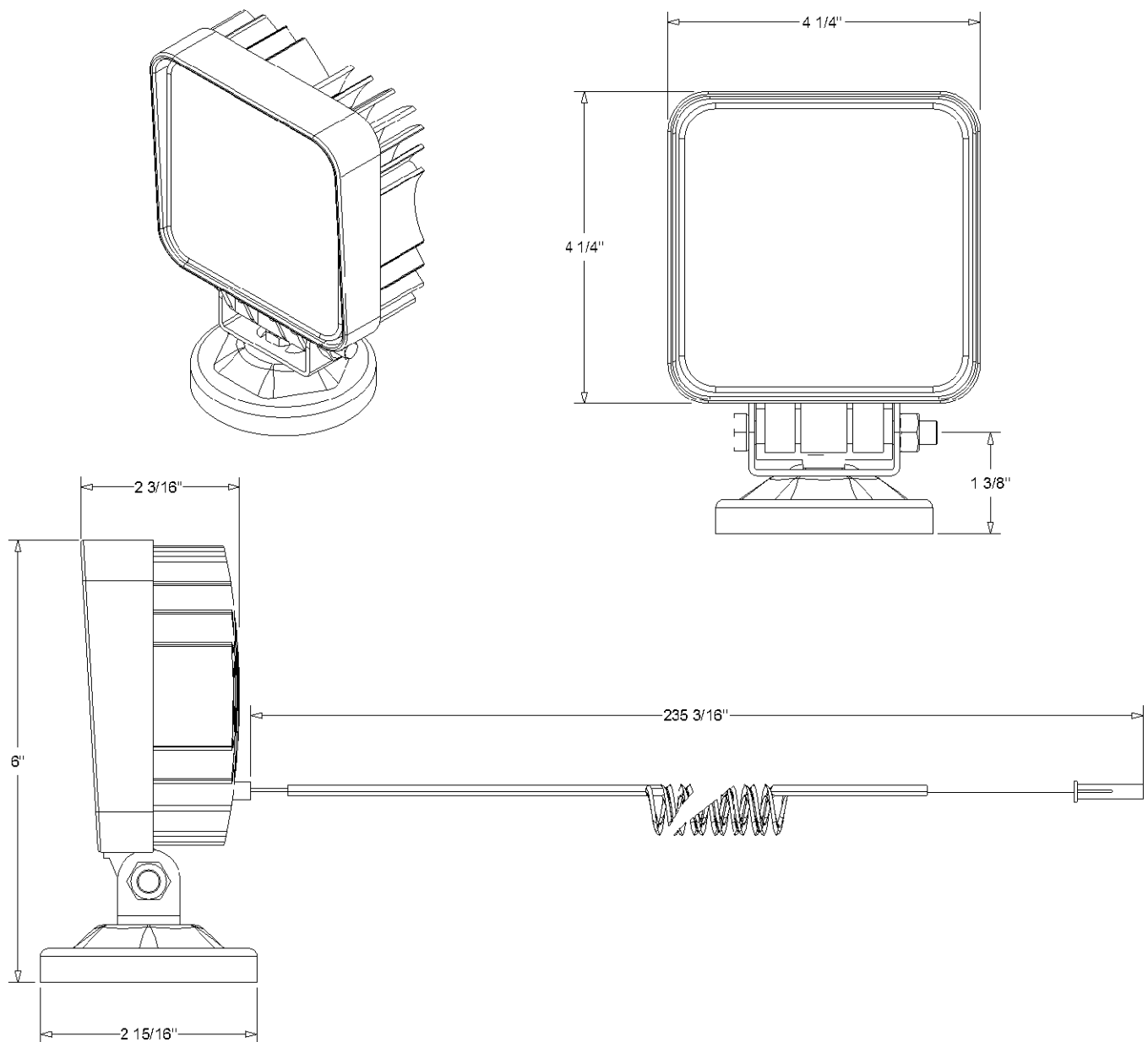


Job Name: Williamson County Justice Center (AHU Repl)

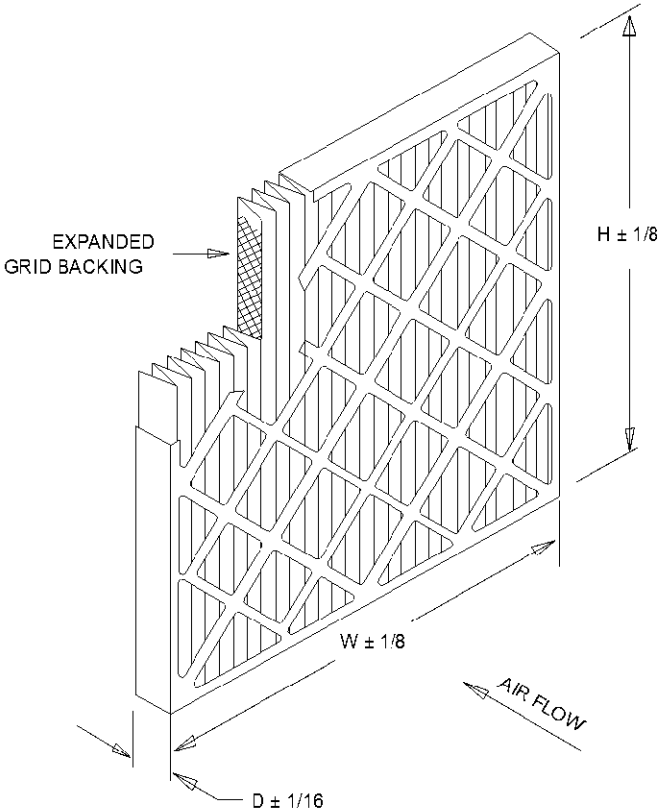
Marine LED Light

SPECIFICATIONS:

VOLTAGE: 24VAC +33 % -25 %
POWER CONSUMPTION: 19VA
WIRE: 16 GA RED AND BLACK
LIFE: 25,000 HRS
TEMPERATURE RANGE: -40C TO 40C
CONNECTION: AC SUPPLY
ENVIRONMENTAL PROTECTION: WATER/DUST INTRUSTION
IP RATING: IP65
MAGNETIC FLUX DENSITY: 1200 GAUSS $\pm$ 100



Job Name: Williamson County Justice Center (AHU Repl)



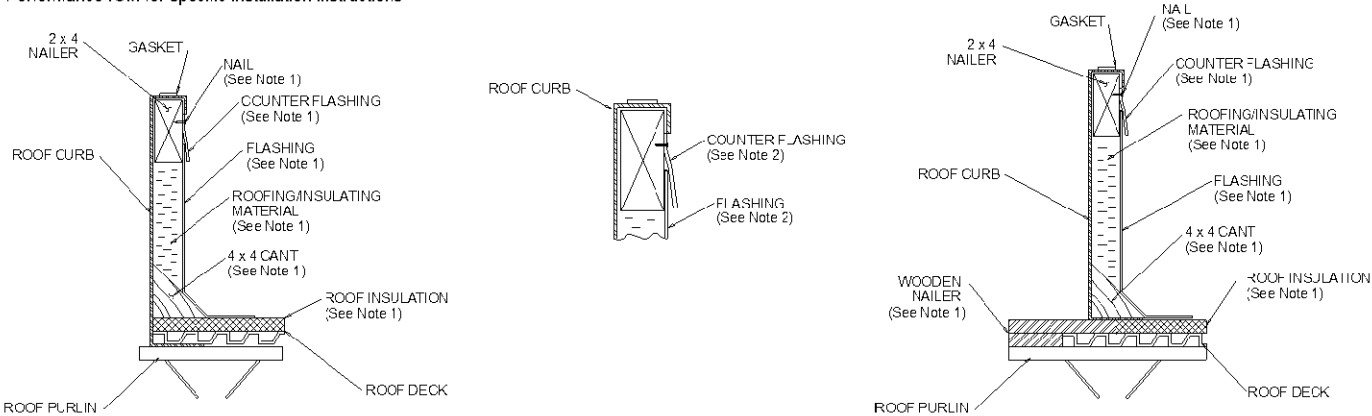
- STANDARD CONSTRUCTION
- 1. 100 % Synthetic White Un-Dyed Media
 - 2. 10.0 Pleats Per Foot
 - 3. Expanded Metal Pleat Supports
 - 4. Moisture Resistant Beverage Board Frame
 - 5. Double Wall Frame

- NOTES
- 1. MERV 8-A Per ASHRAE 52.2-2007 Appendix J.
 - 2. Final Resistance: 1/0" W.G.
 - 3. Rated Velocity: 500 FPM
 - 4. Class 2 Filter Per U.L. Standard 900
 - 5. Maximum Operating Temperature: 225 DEG. F

MODEL NUMBER	NOMINAL SIZE IN. W X H X D	ACTUAL SIZE IN. W X H X D	RATED AIR FLOW CFM	INITIAL RESISTANCE IN. W.G.	MEDIA AREA SQ. FT.
MX40-STD2-217	10 X 20 X 2	9-1/2 X 19-1/2 X 1-3/4	700	0.29	4.7
MX40-STD2-220	12 X 20 X 2	11-1/2 X 19-1/2 X 1-3/4	840	0.29	5.5
MX40-STD2-210	12 X 24 X 2	11-3/8 X 23-3/8 X 1-3/4	1000	0.29	6.2
MX40-STD2-239	14 X 20 X 2	13-1/2 X 19-1/2 X 1-3/4	980	0.29	5.7
MX40-2TD2-241	14 X 25 X 2	13-1/2 X 24-1/2 X 1-3/4	1220	0.29	7.1
MX40-STD2-245	15 X 20 X 2	14-1/2 X 19-1/2 X 1-3/4	1050	0.29	6.2
MX40-STD2-201	16 X 20 X 2	15-1/2 X 19-1/2 X 1-3/4	1120	0.29	6.7
MX40-STD2-216	16 X 24 X 2	15-3/8 X 23-3/8 X 1-3/4	1340	0.29	8.0
MX40-STD2-202	16 X 24 X 2	15-1/2 X 24-1/2 X 1-3/4	1400	0.29	8.0
MX40-STD2-280	15 X 20 X 2	17-1/2 X 19-1/2 X 1-3/4	1250	0.29	7.8
MX40-STD2-212	18 X 24 X 2	17-3/8 X 23-3/8 X 1-3/4	1500	0.29	9.3
MX40-STD2-285	18 X 25 X 2	17-1/2 X 24-1/2 X 1-3/4	1570	0.29	9.7
MX40-STD2-203	20 X 20 X 2	19-1/2 X 19-1/2 X 1-3/4	1400	0.29	8.3
MX40-STD2-211	20 X 24 X 2	19-3/8 X 23-3/8 X 1-3/4	1670	0.29	9.9
MX40-STD2-204	20 X 25 X 2	19-1/2 X 24-1/2 X 1-3/4	1750	0.29	10.3
MX40-STD2-205	24 X 24 X 2	23-3/8 X 23-3/8 X 1-3/4	2000	0.29	11.7
MX40-STD2-225	25 X 25 X 2	24-1/2 X 24-1/2 X 1-3/4	2170	0.29	13.6

Recommendation for Roof Curb Installation

Refer to Performance IOM for specific installation instructions

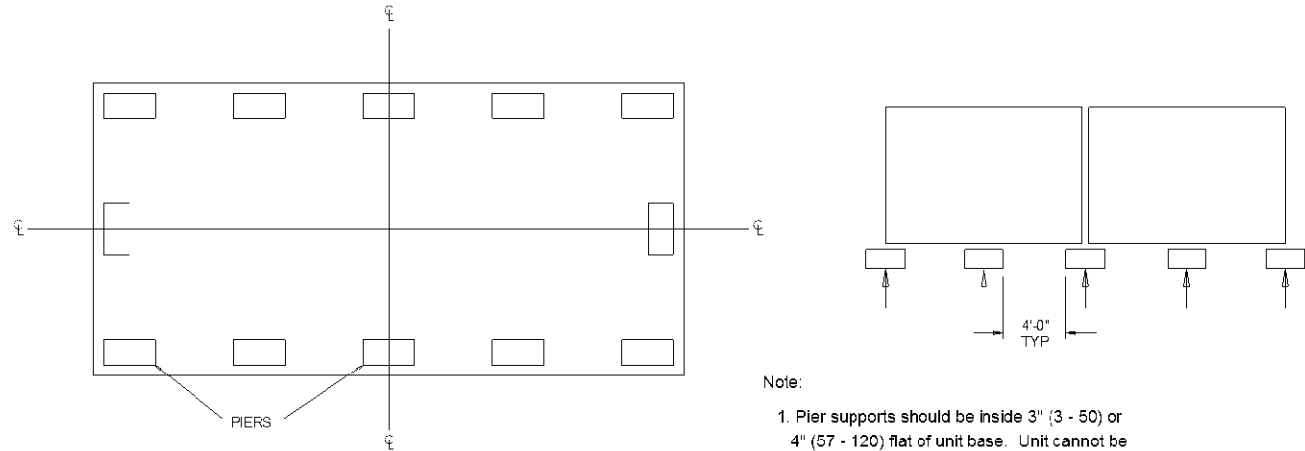


Note:

- 1. Materials to attach roof curb to roof are to be supplied by the installer.
- 2. Flashing or counter flashing should not come to or over top of curb.
- 3. Roof curb must be mechanically fastened to roof surface.

Recommendation for Pier Mounting

Refer to Performance IOM for specific installation instructions



Note:

- 1. Pier supports should be inside 3" (3 - 50) or 4" (57 - 120) flat of unit base. Unit cannot be supported by unit base drip leg.
- 2. Piers beneath shipping splits must be structurally sound to support the weight of the unit.

SUPPLY FAN 1 SCHEMATIC PAGE 1 OF 2

49514548

WARNING

• AZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER
INCLUDING REMOTE DISCONNECTS AND
FOLLOW LOCK OUT AND TAG PROCEDURES
BEFORE SERVICING. INSURE THAT ALL
STORED CAPACITORS HAVE DISCHARGED
STORED VOLTAGE. UNITS WITH VARIABLE
SPEED DRIVE, REFER TO DRIVE
INSTRUCTIONS FOR CAPACITOR DISCHARGE.
FAILURE TO DO THE ABOVE BEFORE
SERVICING COULD RESULT IN DEATH OR
SERIOUS INJURY.

AVERTISSEMENT

TENSION D'ANGLEUSE!
COUPER TOUTES LES TENSIONS ET
RETOURNER LES SECTIONES A DISTANCE,
SEPARER LES SECTIONES DE
VERROUILLAGE ET DES TOUTES AVANT
TOUTE INTERVENTION. VERIFIER QUE TOUTES
LES TENSIONNEURS DES MOTEURS SONT
LIBRES DE CHARGES, DANS LE CAS CONTRAIRE,
COMPORTANT DES ENTRAÎNEMENTS A
VITESSE VARIABLE, SE REPORTER AUX
INSTRUCTIONS DE L'ENTRAÎNEMENT POUR
RECHARGER LES CONDENSATEURS.
NE PAS PRESCRIRE CES MESURES DE
PRECAUTION PEUT ENTRAÎNER DES
BLESSURES GRAVES POUSANT ÊTRE
MORTELLES.

ADVERTENCIA

VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA Y
CUALQUIERA LAS DESCARGAS RESIDUALES Y
CUALQUIERA LOS COMPONENTES DE CIERRE Y
REINTEGRACIÓN ANTES DE PROCEDER AL
SERVICIO. ASEGURESE DE QUE TODOS
LOS CAPACITORES DEL MOTOR HAYAN
SIDO DESCARGADO EL VOLTAJE ALMACENADO.
PARA LAS UNIDADES CON ELE
MOTOR DE VELOCIDAD VARIABLE,
CONSULTE LAS INSTRUCCIONES PARA LA
DESCARGA DEL CONDENSADOR.
NO REALIZAR EL MANTENIMIENTO
INDICADO, PODRÍA OCASIONAR LA MUERTE
O SERIAS LESIONES PERSONALES.

CAUTION

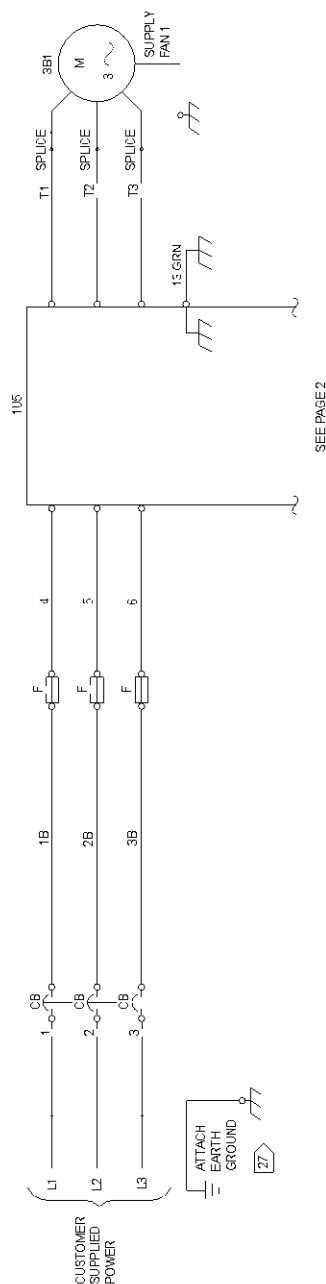
USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT
OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE
EQUIPMENT.

ATTENTION

NE PAS
UTILISER QUE DES CONDUCTEURS EN CUIVRE !
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES
POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT
ENDOMMAGER L'ÉQUIPEMENT.

PRECAUCIÓN

UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS
PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.



SEE PAGE 2

- 10 FIELD SUPPLIED CONTACTS.
- 27 ATTACH GROUND OR EQUIPMENT GROUND.

DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	HIGH VOLTAGE PANEL
2	LOW VOLTAGE PANEL (UNIT SCHEMATIC)
3	AIR HANDLER SECTION

LEGEND	
DEVICE DESIGNATION	DESCRIPTION
1CB11	CIRCUIT BREAKER
1F40 TO 1F42	VFD/FUSES
1K3	START/STOP RELEV
1TB13	TERMINAL STRIP CONTROL CIRCUIT
1U5	VFD CONTROLLER
951	MOTOR 1

- NOTES:

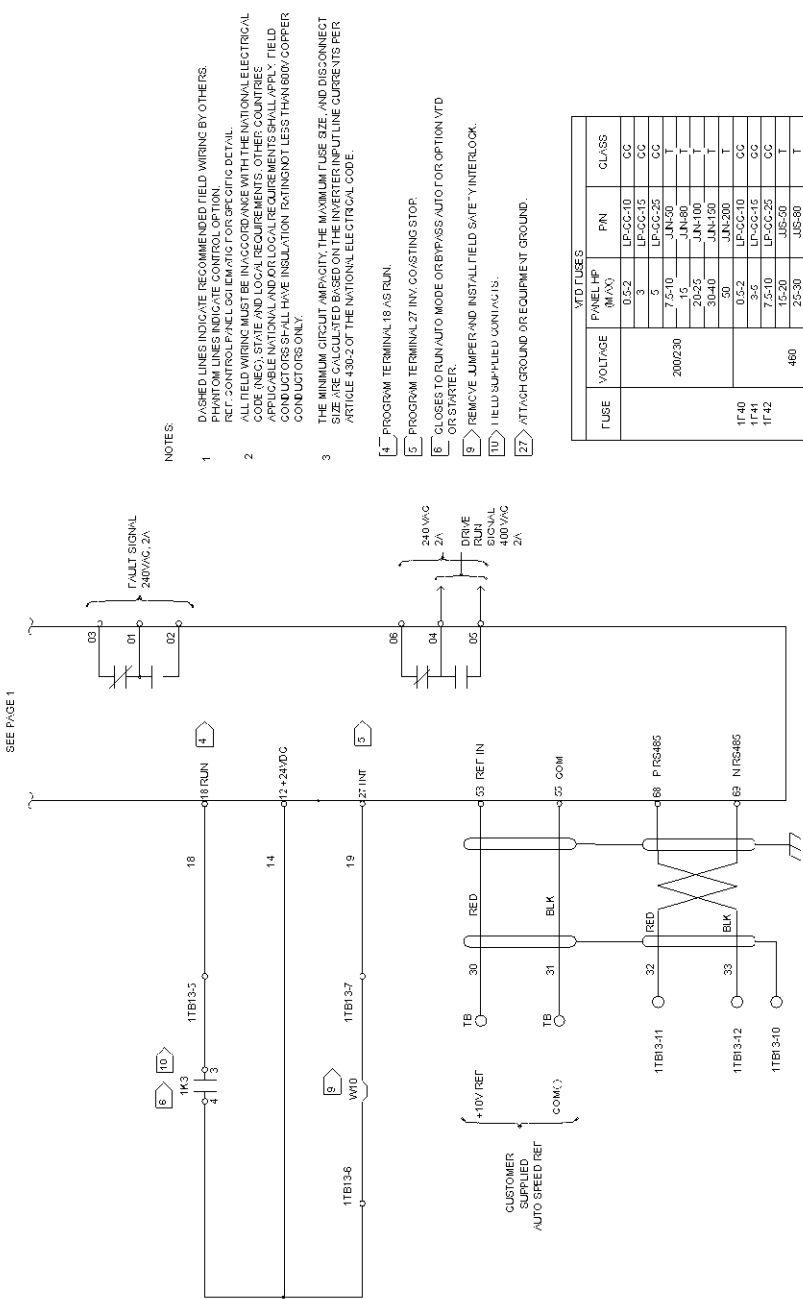
- 1 DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS.
- 2 PHANTOM LINES INDICATE CONTROL OPTION.
- 3 REF. CONTROL PANEL SCHEMATIC FOR SPECIFIC DETAIL.
- ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS, OTHER GOVERNING FIELD CODES, AND ALL APPLICABLE LOCAL REQUIREMENTS. SAFETY: FIELD CONDUITS SHALL HAVE INSULATION (MINIMUM 1/8" LESS THAN 600V) UPPER CONDUCTORS ONLY.
- THE MINIMUM CIRCUIT AMPACITY, THE MAXIMUM FUSE SIZE AND DISCONNECT SIZE ARE CALCULATED BASED ON THE INVERTER INPUT LINE CURRENTS PER ARTICLE 430.2 OF THE NATIONAL ELECTRICAL CODE.

- 4 PROGRAM TERMINAL 18 AS RUN.
- 5 PROGRAM TERMINAL 27 INV. COASTING STOP.
- 6 CLOSURES TO RUN AUTO MODE OR BYPASS AUTO FOR OPTION VFD OR STARTER.
- 9 REMOVE JUMPER AND INSTALL FIELD SAFETY INTERLOCK

VFD FUSES		PANEL 4P (MAX)		P/N		CLASS	
FUSE	VOLTAGE						
		0.5-2	LP-CC-10	CC			
		3	LP-CC-15	CC			
		6	LP-CC-25	CC			
	200/230	7.5-10	JUN-50	T			
		15	JUN-80	T			
		20-25	JUN-100	T			
		30-40	JUN-150	T			
		50	JUN-200	T			
1F-40		0.5-2	LP-CC-10	CC			
1F-41		3-5	LP-CC-15	CC			
1F-42		7.5-10	LP-CC-25	CC			
	460	15-20	JOS-30	T			
		25-30	JOS-80	T			
		40	JOS-100	T			
		50-60	JOS-125	T			
		75-100	JOS-200	T			
		3-10	LP-CC-20	CC			
	575	15-20	LP-CC-30	CC			
		25-40	JOS-50	T			
		40-60	JOS-125	T			
		50-65	JOS-150	T			

Job Name: Williamson County Justice Center (AHU Repl)

SUPPLY FAN 1 SCHEMATIC PAGE 2 OF 2



- NOTES:
1. DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS.
 2. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS, OTHER COUNTRIES' APPLICABLE NATIONAL AND/OR LOCAL REQUIREMENTS SHALL APPLY. FIELD CONDUCTORS SHALL HAVE INSULATION RATING NOT LESS THAN 800V COPPER CONDUCTORS ONLY.
 3. THE MINIMUM CIRCUIT AMPACITY, THE MAXIMUM FUSE SIZE, AND DISCONNECT SIZE ARE CALCULATED BASED ON THE INVERTER INPUT LINE CURRENTS PER ARTICLE 430-2 OF THE NATIONAL ELECTRICAL CODE.

4. PROGRAM TERMINAL 18 AS RUN.
5. PROGRAM TERMINAL 27 INV. COASTING STOP.
6. CLOSES TO RUN/AUTO MODE OR BYPASS AUTO FOR OPTION VFD OR STARTER.
9. REMOVE JUMPER AND INSTALL FIELD SAFE "INTERLOCK."
10. 1 FIELD SUPPLIED CURRENTS.
27. ATTACH GROUND OR EQUIPMENT GROUND.

FUSE	VOLTAGE	PANEL HP (MAX)	PIN	CLASS
140	200/230	0.5-2	LP-CG-10	CG
140	200/230	3	LP-CG-15	CG
140	200/230	5	LP-CG-25	CG
140	200/230	7.5-10	JUN-50	T
140	200/230	15	JUN-80	T
140	200/230	20-25	JUN-100	T
140	200/230	30-40	JUN-150	T
140	200/230	50	JUN-200	T
140	200/230	0.5-2	LP-CG-10	CG
140	200/230	3	LP-CG-15	CG
140	200/230	7.5-10	LP-CG-25	CG
140	200/230	15-20	JES-50	T
140	200/230	25-30	JES-80	T
140	200/230	40	JES-100	T
140	200/230	50-60	JES-125	T
140	200/230	75-100	JES-200	T
140	200/230	3-10	LP-CG-30	CG
140	200/230	15-20	LP-CG-30	CG
140	200/230	25-30	JES-50	T
140	200/230	50-75	JES-125	T
140	200/230	100-125	JES-200	T

DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	HIGH VOLTAGE PANEL
2	LOW VOLTAGE PANEL UNIT SCHEMATIC
3	AIR HANDLER SECTION

DEVICE	DESCRIPTION
10B1	CIRCUIT BREAKER
1K3	VFD FUSES
1K3	START/STOP RELAY
1TB13	TERMINAL STRIP CONTROL CIRCUIT
1U5	VFD CONTROLLER
3B1	MOTOR 1

CAUTION

USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

ATTENTION

N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR REÇOIR D'AUTRES TYPES DE CONDUCTEURS.
L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT ENDOMMAGER L'EQUIPEMENT.

PRECAUCIÓN

¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

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WARNING

HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRICAL POWER.
INCLUDING REMOTE DISCONNECTS AND FOLLOW-UP LOCKOUT AND TAG PROCEDURES.
BYPASSING SAFETY FEATURES WILL CAUSE THE MOTOR CAPACITORS TO BE DISCHARGED.
STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE.
FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

AVERTISSEMENT

TENSION DANGEREUSE!
COUPEZ TOUTES LES TENSIONS ET COUVER LES SECTIONNEURS A DISTANCE.
PLUS SUIVRE LES PROCEDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUTES LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. LES UNITÉS À VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DÉCHARGER LES CONDENSATEURS.
NE PAS RESPECTER CES MESURES DE SÉCURITÉ POURRAIT ENTRAÎNER DES BLESSURES GRAVES POURANT ÊTRE MORTELLES.

ADVERTENCIA

¡VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUIDO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ¡ASEGURESE DE QUE TODOS LOS CONDENSADORES DE LOS MOTORES SEAN DESCARGADOS EL VOLTAJE ALMACEENADO. PARA LAS UNIDADES CON VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR.
EL NO REALIZARLO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

CSAA
Quantity: 1
Tags: RTU 2



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GENERAL

Outdoor air handling units will be shipped with all openings covered to protect unit interior from in-transit debris.

Installing contractor is responsible for long term storage in accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX07*-EN).

Unit shall be UL and C-UL Listed.

Supply fans within the scope of AHRI Standard 430 are "Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third-party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org".

Unit sound performance data shall be reported as sound power. Trane, in providing this program and data, does not certify or warrant NC levels. These levels are affected by factors specific to each application and/or installation and therefore unable to be predicted or certified by Trane. Refer to product data for specific fan footnote references.

Manufacturer provided VFDs shall be certified to AHRI Standard 1210 "Performance Rating of Variable Frequency Drives" to ensure documented and reliable VFD efficiency.

Unit Construction

Outdoor unit roofs shall incorporate a standing seam on the exterior to ensure a rigid roof construction and prevent water infiltration. Roof assembly shall overhang all walls by 1.5-inch minimum to prevent sheeting from roof to side panels. Rain gutters shall also be provided over all doors shorter than total unit height to direct rain away from the door assembly. Outdoor roofs shall be sloped, not less than 0.125 inches per foot, for water drainage. Where outdoor units are shipped in multiple sections, provide standing-seam joiners at each split with adhesive, hardware, and cover strips for field joining by the installing contractor.

All unit panels shall be 2" solid, double-wall construction to facilitate cleaning of unit interior. Unit panels shall be provided with a mid-span, no-through-metal, internal thermal break. Casing thermal performance shall be such that under 55°F supply air temperature and design conditions on the exterior of the unit of 81°F dry bulb and 73°F wet bulb, condensation shall not form on the casing exterior.

All outdoor AHU interior casing panels will be made of galvanized steel.

External surface of unit casing will be coated with water-based polyurethane paint. Color to be "Deluxe beige". Factory-painted units will be able to withstand a salt spray test in accordance with ASTM B117 for a minimum of 500 consecutive hours and shall meet the following requirements following the salt-spray test:

- Mean scribe creepage rating of at least 6 per ASTM D1654 procedure A
- Blister size no larger than #6 per ASTM D714
- Blister density no greater than Medium per ASTM D714
- No onset of red rust

Casing Deflection

The casing shall not exceed 0.0042 inch deflection per inch of panel span at 1.00 times design static pressure. Maximum design static shall not exceed +8 inches w.g. in all positive pressure sections and -8 inches w.g. in all negative pressure sections.

Floor Construction

The unit floor shall be of sufficient strength to support a 300.0 lb load during maintenance activities and shall deflect no more than 0.0042 inch per inch of panel span.

Unit base

Manufacturer to provide a full perimeter integral base frame for either ceiling suspension of units or to support and raise all sections of the unit for proper trapping. Indoor unit base frame will either be bolted construction or welded construction. All outdoor unit base frames shall be welded construction. For indoor units, refer to schedule for base height and construction type. Contractor will be responsible for providing a housekeeping pad when unit base frame is not of sufficient height to properly trap unit. Unit base frames not constructed of galvanized steel shall be chemically cleaned and coated with both a rust-inhibiting primer and finished coat of rust-inhibiting enamel. Unit base height to be included in total height required for proper trap height.

Insulation

Panel insulation shall provide a minimum thermal resistance (R) value of 13 ft²-h-°F/Btu throughout the entire unit. Insulation shall completely fill the panel cavities in all directions so that no voids exist and settling of insulation is prevented. Panel insulation shall comply with NFPA 90A.

Drain Pan

In sections provided with a drain pan, the drain pan shall be designed in accordance with ASHRAE 62.1. To address indoor air quality (IAQ) the drain pan shall be sloped in two planes promoting positive drainage to eliminate stagnant water conditions. Drain pan shall be insulated, and of double wall construction. The outlet shall be the lowest point on the pan, and shall be of sufficient diameter to preclude drain pan overflow under normally expected operating conditions. All drain pans connections shall have a threaded connection, extending a minimum of 2-1/2" beyond the unit base, and shall be made from the same material as the drain pan. Drain pan located under a cooling coil shall be of sufficient size to collect all condensate produced from the coil.

Refer to Product Data for specific information on which sections are supplied with a drain pan, the drain pan material and connection location.

Access Door Construction

Access doors shall be 2" double wall construction. Interior and exterior door panels shall be of the same construction as the interior and exterior wall panels respectively. All doors shall be provided with a thermal break construction of door panel and door frame. Gasketing shall be provided around the full perimeter of the doors to prevent air leakage. Surface mounted handles shall be provided to allow quick access to the interior of the functional section and to prevent through cabinet penetrations that could likely weaken the casing leakage and thermal performance. Handle hardware shall be designed to prevent unintended closure. Access doors shall be hinged and removable for quick easy access. Hinges shall be interchangeable with the door handle hardware to allow for alternating door swing in the field to minimize access interference due to unforeseen job site obstructions. Door handle hardware shall be adjustable and visually indicate locking position of door latch external to the section. Door hinges shall be galvanized.

All doors shall be a minimum of 60" high when sufficient height is available or the maximum height allowed by the unit height.

Door handles shall be provided for each latching point of the door necessary to maintain the specified air leakage integrity of the unit. Optionally for indoor AHUs and as standard on outdoor AHUs, outward swing doors are provided with a single handle linked to multiple latching points. An optional shatterproof window shall be provided in access doors where indicated on the plans. Window shall either be single pane, or thermal dual pane, as defined on schedule. Window shall be capable of withstanding unit operating pressures and shall be safe for viewing UV-C lamps.

Refer to Product Data for specific information on which sections are supplied with an access door, the door location, a single handle and a window.

Factory-supplied Curb

Outdoor AHU will be provided with a factory-supplied roof curb. Curb will be shipped to jobsite disassembled. Contractor will be responsible for assembly and mounting to roof structure per the Roof Curb Manual. Units with factory-supplied external piping cabinet(s), the factory-supplied curb will include a curb section for the pipe cabinet(s).

Refer to the Roof Curb Detail drawing and Product Data section of submittal for height of factory-supplied roof curb(s).

Marine Light

A factory-mounted, weather resistant (enclosed and gasketed to prevent water and dust intrusion), light emitting diode (LED) fixture shall be provided in sections of the unit as specified for maintenance and service visibility. Fixture shall be complete with aluminum die cast housing, polycarbonate lens designed for maximum light output, and LEDs wired to a single switch within a factory provided service module. LED lighting shall provide instant-on "white" light and have a minimum 50,000 hour life. Fixtures shall be designed for flexible positioning during maintenance and service activities for optimal location. All lights within the unit shall be wired to a single switch within the factory provided service module.

Service module shall be provided on the fan section.

Refer to the Product Data section of the submittal for sections with marine lights.

Lifting Instructions

The air handling units must be rigged, lifted, and installed in strict accordance with the Installation, Operation, and Maintenance manual (CLCH-SVX07G-EN). The units are also to be installed in strict accordance with the specifications. Units may be shipped fully assembled or disassembled to the minimum functional section size in accordance with shipping and job site requirements.

Outdoor units shall be shipped on 6" integral base frame for the purpose of mounting units on a roof curb or field-supplied pier support system. Refer to the Product Data section for type of the base frame provided (for roof curb or pier-mount).

All units will be shipped with an integral base frame designed with the necessary number of lift points for safe installation. All lifting lugs are to be utilized during lift. The lift points will be designed to accept standard rigging devices and be removable after installation. Units shipped in sections will have a minimum of four points of lift.

MIXING SECTION

A mixing section shall be provided to support the damper assembly for outdoor, return, and/or exhaust air.

Dampers

Dampers shall modulate the volume of outdoor, return, or exhaust air. The dampers shall be of double-skin airfoil design with metal, compressible jamb seals and flexible blade-edge seals on all blades. The blades shall rotate on stainless-steel sleeve bearings. The dampers shall be rated for a maximum leakage rate of 3 cfm/ft² at 1 in. w.g. complying with ASHRAE 90.1 maximum damper leakage. All leakage testing and pressure ratings shall be based on AMCA Standard 500-D. Dampers may be arranged in a parallel or opposed-blade configuration.

Inlet Hoods

Inlet hoods are provided on the outside air openings and equipped with high performance moisture eliminators to minimize water carryover from the outside into the unit casing. Eliminators also perform the function of a bird screen to prevent nesting.

Refer to the unit As-Built and Product Data section for specific information on which sections are supplied with inlet hood.

Title 24

The following specifications apply only to units with outside air and return air dampers, with actuators. The 5 year warranty applies only to these items.

This unit contains Economizer that meets or exceeds all mandatory requirements prescribed by Title 24, including but not limited to:

- 5 yr parts only warranty
- Successfully tested to 60,000 Actuations
- Less than 10 cfm/sq.ft. of damper leakage at 1" WG per AMCA 500L

Filters

Mixing sections shall be provided with a filter rack as indicated in the Product Data and As-Built sections of the submittal.

2-inch pleated media filters made with 100% synthetic fibers that are continuously laminated to a supported steel-wire grid with water repellent adhesive shall be provided. Filters shall be capable of operating up to 625 fpm face velocity without loss of filter efficiency and holding capacity. The filters shall have a MERV 8 rating when tested in accordance with the ANSI/ASHRAE Standard 52.2.

COIL SECTION WITH FACTORY INSTALLED COIL

The coil section shall be provided complete with coil and coil holding frame. The coils shall be installed such that headers and return bends are enclosed by unit casings. If two or more cooling coils are stacked in the unit, an intermediate drain pan shall be installed between each coil and be of the same material as the primary drain pan. Like the primary drain pan, the intermediate drain pan shall be designed being of sufficient size to collect all condensation produced from the coil and sloped to promote positive drainage to eliminate stagnant water conditions. The intermediate pan shall begin at the leading face of the water-producing device and be of sufficient length extending downstream to prevent condensate from passing through the air stream of the lower coil. Intermediate drain pan shall include downspouts to direct condensate to the primary drain pan. The outlet shall be located at the lowest point of the pan and shall be sufficient diameter to preclude drain pan overflow under any normally expected operating condition.

Coil with Inspection

The coil section shall include an inspection section complete with a double-wall, removable door downstream of the coil for inspection, cleaning, and maintenance. Interior and exterior door panels shall be of the same construction as the interior and exterior wall panels, respectively. All doors shall be provided with a thermal break construction of door panel and door frame.

Casing penetrations supplied for hydronic drain and vents. Piping contractor shall provide extended piping.

Water Coils (UP, WP, UW, UU, UA, 3W, 3U, W, 5W, 5A, WD, 5D, D1, D2, P, or TT)

The coils shall have aluminum fins and seamless copper tubes. Copper fins may be applied to coils with 5/8-inch tubes. Fins shall have collars drawn, belled, and firmly bonded to tubes by mechanical expansion of the tubes. The coil casing may be galvanized or stainless steel. Refer to the Product Data section of the submittal for the coil casing material.

The coils shall be proof-tested to 300 psig and leak-tested under water to 200 psig. Coils containing water or ethylene glycol are certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org. Propylene glycol and calcium chloride, or mixtures thereof, are outside the scope of AHRI Standard 410 and, therefore, do not require AHRI 410 rating or certification.

Coil connections are constructed of cast iron with female connections, steel block with female connections or steel pipe with male connections. Type P or TT coil connections do not extend out of unit casing. All other water coil types have connections that extend out beyond unit casing. Headers on downstream coil bank of staggered coil sections do not extend beyond the unit casing and must be completed by the on-site piping contractor.

Tubes are 1/2" [13 mm] OD 0.016" [0.406 mm] thick copper.

Tubes are 5/8" [16 mm] OD 0.020" [0.508 mm] thick copper.

ACCESS/INSPECTION / TURNING SECTION

A section shall be provided to allow additional access/inspection of unit components and space for field-installed components as needed. An access door shall be provided for easy access. All access sections shall be complete with a double-wall, removable door downstream for inspection, cleaning, and maintenance. Interior and exterior door panels shall be of the same construction as the interior and exterior wall panels, respectively. All doors downstream of cooling coils shall be provided with a thermal break construction of door panel and door frame.

DIRECT-DRIVE PLENUM FAN SECTION

The fan type shall be provided as required for stable operation and optimum energy efficiency. The fan shall be a single-width, single-inlet, multiblade-type direct-drive plenum fan. Motor bearing life of the direct-drive plenum fan shall be not less than L-10 250,000 hrs. *Refer to the Product Data section for fan quantity and number of blades selected within each unit.* Central Station Air Handling Unit Supply Fans are "Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third-party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org" Central Station Air Handling Unit Supply Fans shall be tested and rated in-accordance with AHRI Standard 260 for sound performance.

Fans that are selected with inverter balancing shall first be dynamically balanced at design RPM. The fans then will be checked in the factory from 25% to 100% of design RPM to insure they are operating within vibration tolerance specifications, and that there are no resonant frequency issues throughout this operating range. Inverter balancing that requires lockout frequencies inputted into a variable frequency drive to in order to bypass resonant frequencies shall not be acceptable. If supplied in this manner by the unit manufacturer, the contractor will be responsible for rebalancing in the field after unit installation. Fans selected with inverter balancing shall have a maintenance free grounding assembly installed on the fan motor to discharge both static and induced shaft currents to ground.

On units supplied with plenum or motorized impeller fans, door guard(s) shall be supplied on the access door(s) to the fan and those downstream access door(s) where unintended access to the plenum or motorized impeller fan could occur. Door guard is intended to deter unauthorized entry and incidental contact with rotating components. *Refer to the Product Data section for fans with access door guard(s).*

Motor Frame

The motor shall be mounted integral to the isolated fan assembly and furnished by the unit manufacturer. The motor is mounted inside the unit casing on an adjustable base to permit adjustment of drive belt tension (not applicable for direct drive plenum fans). The motor shall meet or exceed all NEMA Standards Publication MG 1 requirements and comply with NEMA Premium efficiency levels when applicable except for fractional horsepower motors which are not covered by the NEMA classification. The motor shall be T-frame, squirrel cage with size, type, and electrical characteristics as shown on the equipment schedule. *Refer to the Product Data section for selected fan motors within each unit.*

Two-Inch Spring Isolators

Direct-drive fan and motor assemblies shall be internally isolated from the unit casing with 2-inch (50.8 mm) deflection spring isolators. The isolation system shall be designed to resist loads produced by external forces, such as earthquakes, and conform to the current IBC seismic requirements.

Single transmitter

The fan shall have an airflow measurement system to measure fan airflow directly or to measure differential pressure that can be used to calculate fan airflow. The system shall predict airflow within +/-5 percent total accuracy (device & transmitter) when operating within the stable operating region of the fan curve. On units supplied with multiple direct drive fans, one fan is tubed and one transmitter is supplied for the total array. The submitted fan airflow performance and noise levels shall not be affected by the installation of the device. Any device that provides an obstruction to the fan inlet will not be accepted. Refer to the Product Data section for fans with flow meters.

Combination VFD / Disconnect

A combination Variable Frequency Drive (VFD) / disconnect shall be provided when variable air volume control is required for fan operation. Whether for single fan, dual fan, or fan array applications, a single VFD shall be provide to ensure proper operation and to optimize operating life. Each VFD / disconnect shall be properly sized, factory mounted in a full metal enclosure, wired to the fan motor(s), and commissioned to facilitate temporary heating, cooling, ventilation, and/or timely completion of the project. VFD / disconnects shall include a circuit breaker disconnect with a through-the-door interlocking handle and shall be lockable. The VFD package shall also include:

- a) Electronic manual speed control
- b) Hand-Off-Auto (H-O-A) selector switch
- c) Inlet fuses to provide maximum protection against inlet short circuit
- d) Current limited stall prevention
- e) Auto restart after momentary power loss
- f) Speed search for starting into rotating motor
- g) Anti-windmill w/DC injection before start
- h) Phase-to-phase short circuit protection
- i) Ground fault protection
- j) Manual motor protection MMP

Units with factory-mounted controls shall include power wiring from the VFD panel to the control system transformers, binary output on/off wiring, analog output-speed-signal wiring, and all interfacing wiring between the VFD and the direct digital controller.

The VFD shall be UL508C listed and CSA certified and conform to applicable NEMA, ICS, NFPA, & IEC standards.

The supply fan's Starter/VFD shall be mounted internal of unit casing in the controls section. The internal enclosure shall be an integral part of the unit casing to allow for thermal venting to casing interior, but shall be accessible from unit exterior through access door. Internally mounted starters shall have doors with the same construction as other doors on unit. An external disconnect shall be mounted through the door to the starter/VFD to disconnect full power from starter/VFD.

Motor Wiring Conduit

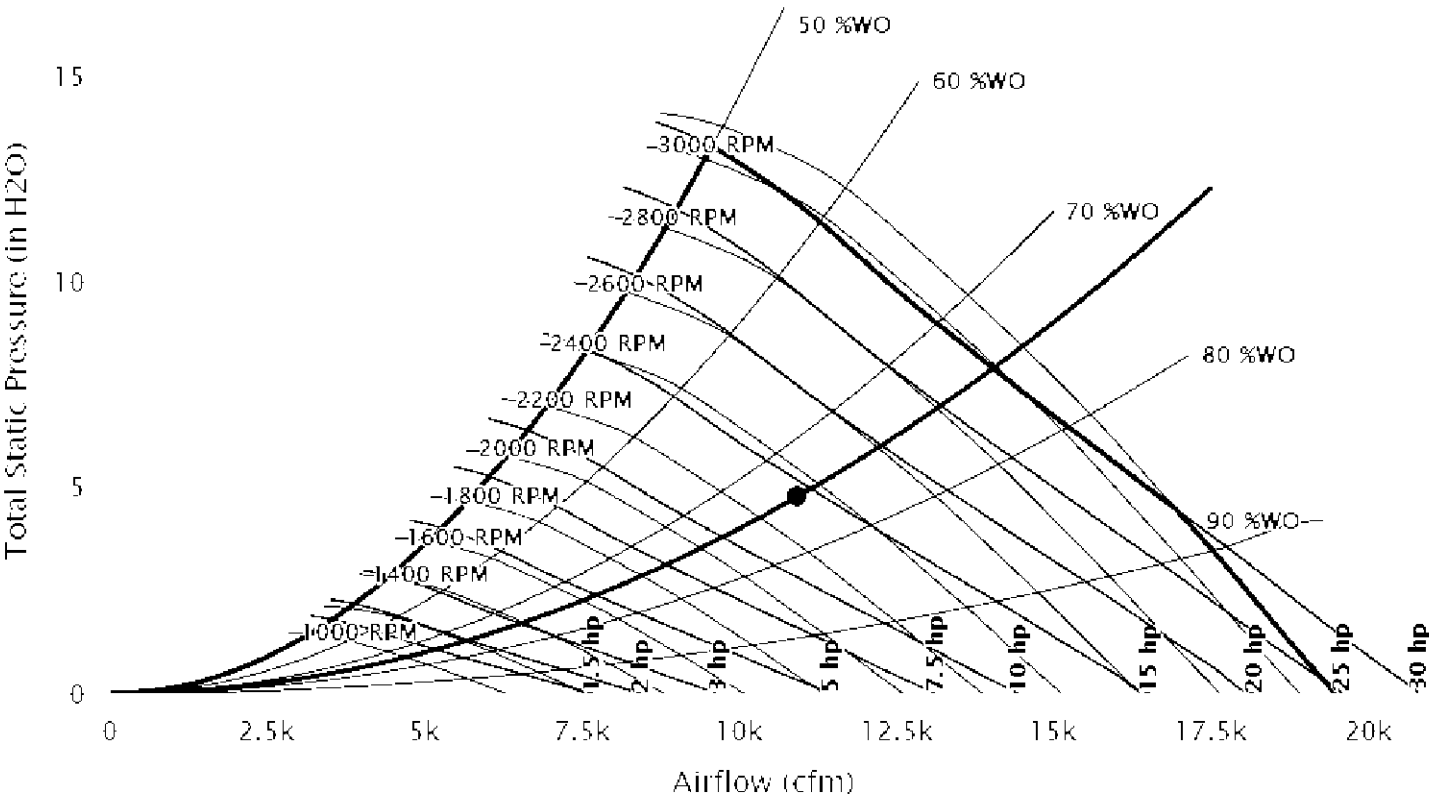
The fan motor wiring shall be factory-wired to the unit-mounted starter/disconnect, variable frequency drive, or external motor junction box within flexible metal conduit of adequate length so that the fan vibration isolation, if applicable, will not be restricted. *Refer to the Product Data section for fans with motor wiring conduit.*

Fan Details

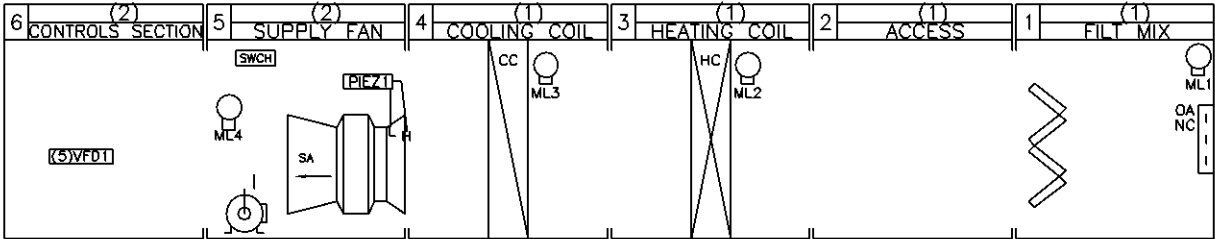
Unit Size	22UF	Operating Brake Power	14.175 hp
Motor Frequency	79.00 Hz	Altitude	0.00 ft
Operating Airflow	10,920 cfm	Design Temp.	70.00 F
Operating Static Pressure	4.796 in H2O	Efficiency	58.25 %
Operating RPM	2,327 rpm		

RTU_2 – Supply – Single Fan

Size 21 DDP 22.25 inch AF H Press 100% Width 9 blades



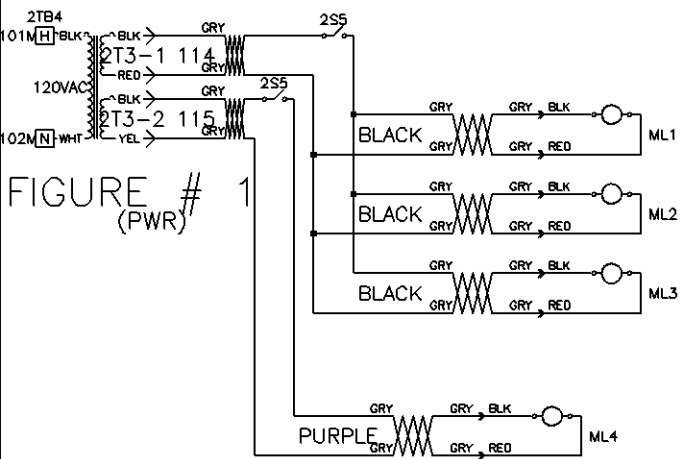
WIRING DETAIL 1 (OUTDOOR)



DRAWN BY	Trane	CSOA—SCHEMATIC UNIT SIZE: 21 UNIT TAG: RTU_2
SERVICE ACCOUNT		
DATE		
5/2/2023		
SOFTWARE VERSION		
1.4.0		
DRAWING VERSION		

MARINE LIGHT BOX

(SEPARATE BOX)



DRAWN BY	Trane	CSOA-SCHEMATIC UNIT SIZE: 21 UNIT TAG: RTU_2
SERVICE ACCOUNT		
DATE		
5/2/2023		
SOFTWARE VERSION		
1.4.0		
DRAWING VERSION		

LEGEND DETAIL 1
(OUTDOOR)

POS#	BUILD GROUP	DESCRIPTION	LABEL	PWR HR - WIRE	SIGNAL HR - WIRE	XFMR	POWER VA
0		150VA TRANSFORMER	2T3				
1		Marine Light	ML1	BLACK		2T3-1	22
3		Marine Light	ML2	BLACK		2T3-1	22
4		Marine Light	ML3	BLACK		2T3-1	22
5		Marine Light	ML4	PURPLE		2T3-2	22
5		Flow meter	PIEZ1				
6		Supply Fan VFD	VFD1				

DRAWN BY SERVICE ACCOUNT	Trane	
DATE 5/2/2023		
SOFTWARE VERSION 1.4.0		
DRAWING VERSION		
		CSOA-SCHEMATIC UNIT SIZE: 21 UNIT TAG: RTU_2

SCALE: 1/8" = 1'



1. EQUIPMENT SHALL BE INSTALLED PER THE STATE CODE AND THE EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. THE MORE STRICT REQUIREMENT SHALL APPLY.
2. HANGERS, ANCHORS AND SUPPORTS SHALL SUPPORT THE PIPING AND THE CONTENT OF THE PIPING. HANGERS AND STRAPPING MATERIALS SHALL BE OF APPROVED MATERIALS THAT WILL NOT PROMOTE GALVANIC ACTION.
3. SUPPLY AIR DUCTWORK SHALL BE CLASSIFIED FOR 2" WC.
4. ALL DUCTWORK JOINTS SHALL BE SECURELY FASTENED AND SEALED WITH MASTICS.
5. DUCTWORK SHALL BE SUPPORTED AT MAXIMUM 8 FEET ON CENTERS. FLEXIBLE DUCTS SHALL BE SUPPORTED PER MANUFACTURER'S INSTALLATION MANUAL.
6. DUCT INSULATION SHALL HAVE FLAME INDEX OF 25 OR LESS AND SMOKE INDEX OF 50 OR LESS. EXTERNAL DUCT INSULATION FACTORY INSULATED FLEXIBLE DUCT SHALL HAVE IDENTIFIED THE MANUFACTURER, R-VALUE, FLAME AND SMOKE INDEX.
7. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE, THE MECHANICAL CONTRACTOR SHALL INCLUDE ALL NEEDED OFFSETS, CHANGES IN DIRECTION, TRANSITIONS, ETC. NEEDED FOR COMPLETE AND OPERATIONAL SYSTEMS.
8. PERFORM ALL WORK IN ACCORDANCE WITH THE RULES & REGULATIONS OF THE APPROPRIATE STATE AND LOCAL BUILDING CODES AND SUBTITLES.
9. QUESTIONS REGARDING THESE DRAWINGS SHALL BE ADDRESSED TO THE ENGINEER PRIOR TO THE AWARDING OF THE CONTRACT. OTHERWISE THE ENGINEER'S INTERPRETATION OF THE MEANING AND INTENT OF THE DRAWINGS SHALL BE FINAL.
10. THE MECHANICAL CONTRACTOR SHALL ACCURATELY COORDINATE THE SIZES AND LOCATION OF ALL DUCTWORK, PIPING, AND EQUIPMENT WITH THE LOCATION OF LIGHTING FIXTURES, STRUCTURAL MEMBERS, AND THE WORK OF ALL OTHERS TRADES TO PREVENT CONFLICT. DUCTWORK CONFLICTING WITH LIGHTING FIXTURE LOCATIONS SHALL BE MOVED AT THIS CONTRACTOR'S EXPENSE.
11. MECHANICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR AND ELECTRICAL CONTRACTOR FOR FINAL EQUIPMENT BALANCING AND TESTING OF CONTROLS.
12. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO ORDERING ANY MECHANICAL EQUIPMENT.

- ① CONTRACTOR SHALL INSTALL NEW RTU AND CURB AT EXISTING RTU OPENING.
- ② DUCT MOUNTED SMOKE DETECTOR TO BE INSTALLED IN BOTH SUPPLY & RETURN AIR DUCT BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO FURNISH & WIRE DUCT MOUNTED SMOKE DETECTORS.
- ③ CONNECT NEW RTU TO EXISTING DUCT WORK. CONNECT TO EXISTING CWR, CWS, HWR, AND HWS LINES.



THE SEAL APPEARING ON THIS
DOCUMENT WAS AUTHORIZED BY
CHARLES A. WITT III,
P.E. 114625, ON
21 JUN. 2023.

Charles A. Quinto III

[illegible]

**ENGINEERING
SOLUTIONS**

50 SHELL STONE TRAIL
GEORGETOWN, TX 78628
C: 512-639-3131
CO. # F-15327

MECHANICAL PLAN- ROOF

JUSTICE CENTER MAU REPLACEMENT-PO # 183238
 WILLIAMSON COUNTY
 GEORGETOWN, TX

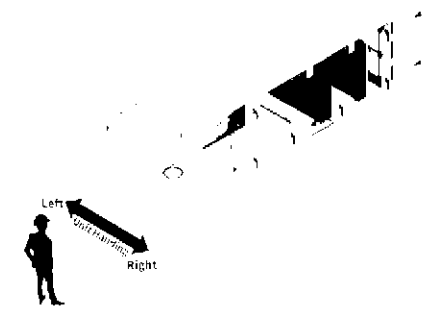
SHEETNUMBER

M 1.0

Trane Performance Climate Changer Air Handler

Unit Overview - RTU_1						
Application	Unit Size	External Dimensions		Length	Installed Weight	Rigging
Outdoor unit	CSAA021	Height 59.0 in	Width 80.0 in	187.0 in	4170 lb	3578 lb
Quantity of Shipping Sections		Height	Largest Ship Split Width	Length	Heaviest Ship Split	Elevation
1 piece(s)		59.0 in	80.0 in	186.9 in	3740 lb	0.00 ft
Airflow	9370 cfm	Total Static Pressure 4.357 in H2O		Note: Height includes air handler sloped roof panel and standing seam.		

Construction Features

- Panel Zn, foam injected R-13 with thermal break
 - Panel All unit inner panels - Material galvanized
 - Base Frame 6in. integral base frame
 - Paint Deluxe beige
 - Short Circuit 5 kA
 - Current Rating
 - Agency Approval UL listed unit
 - Roof Curb Standard roof curb Type
- 

Unit Electrical					
Circuit	Voltage/Phase/Frequency	FLA	MCA	Max Fuse Size	
Circuit number 1 Supply fan motor(s)	460/3/60	14.00 A	17.50	30.00	
Circuit number 2 Lights + switch	115/1/60	2.61 A	3.26	15.00	

Unit Controls	
Controller Type	No controller

Warranty	
Warranty section	Extd. warranty
Labor - 1st year	1st year labor warranty

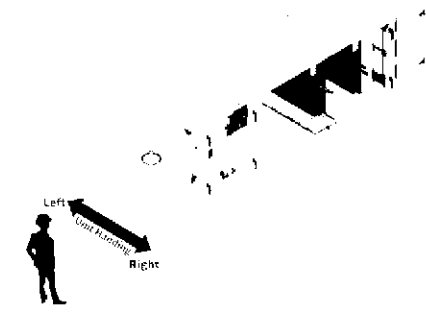
Air mixing section - Position: 1							
Openings							
Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop	Hood
Back	Outside	Parallel blade damper	9370 cfm	1084 f/min	5.64 sq ft	0.219 in H2O	Yes
Type		Frame 2"	Filter				
Pleated media - MERV 8			MERV Rating	Quantity			Size
Pressure Drop 1.000		Condition Dirty	MERV 8	12.00			16in.x25in.
			Face Velocity	Airflow	Area		
			281 f/min	9370 cfm	33.33 sq ft		
			Section Options				
		Door Location	Both				
		Marine Light	Marine LED light				

Access/blank/turning section - Position: 2	
Options	
Section Length	10.000 in

Trane Performance Climate Changer Air Handler

Unit Overview - RTU_2						
Application	Unit Size	External Dimensions		Length	Installed Weight	Rigging
Outdoor unit	CSAA021	Height 59.0 in	Width 80.0 in	187.0 in	4429 lb	3837 lb
Quantity of Shipping Sections		Height	Largest Ship Split Width	Length	Heaviest Ship Split	Elevation
1 piece(s)		59.0 in	80.0 in	186.9 in	3998 lb	0.00 ft
Airflow	10920 cfm	Total Static Pressure 4.796 in H2O		Note: Height includes air handler sloped roof panel and standing seam.		

Construction Features

- Panel Zn, foam injected R-13 with thermal break
 - Panel All unit inner panels - Material galvanized
 - Base Frame 6in. integral base frame
 - Paint Deluxe beige
 - Short Circuit 5 kA
 - Current Rating
 - Agency Approval UL listed unit
 - Roof Curb Standard roof curb Type
- 

Unit Electrical					
Circuit	Voltage/Phase/Frequency	FLA	MCA	Max Fuse Size	
Circuit number 1 Supply fan motor(s)	460/3/60	21.00 A	26.25	45.00	
Circuit number 2 Lights + switch	115/1/60	2.61 A	3.26	15.00	

Unit Controls	
Controller Type	No controller

Warranty	
Warranty section	Extd. warranty
Labor - 1st year	1st year labor warranty

Air mixing section - Position: 1							
Openings							
Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop	Hood
Back	Outside	Parallel blade damper	10920 cfm	1264 f/min	6.64 sq ft	0.298 in H2O	Yes
Type		Frame	Filter		Quantity	Size	
Pleated media - MERV 8		2"	MERV Rating MERV 8		12.00	16in.x25in.	
Pressure Drop 1.000		Condition Dirty	Face Velocity 328 f/min		Airflow 10920 cfm	Area 33.33 sq ft	
Section Options							
Door Location			Right				
Marine Light			Marine LED light				

Access/blank/turning section - Position: 2	
Options	
Section Length	10.000 in

Heating coil section - Position: 3		
Coil Construction		Coil Performance
Model	Hot water - 1/2" Unit Optimized, Low Water Flow (UA)	Capacity
Rows	2	Total 421.71 MBh
Tube Diameter	1/2in. tube diameter (12.7 mm)	Air
Coil Connection	Standard	Flow 9370 cfm
Tube Mat/Wall Thickness	.016" (0.406 mm) copper tubes	Entering Dry Bulb 24.00 F
Fin Spacing	105 Per Foot	Leaving Dry Bulb 65.50 F
Fin Material	Aluminum fins	Pressure Drop 0.150 in H2O
Fin Type	Delta flo E (energy efficient)	Face Velocity 450 f/min
Face Area	20.81 sq ft	Fluid
Coil (top/side) H x L	43 in. (1092 mm) X 69" (1753 mm)	Flow 28.09 gpm
	finned length	Entering 180.00 F
Casing	Galvanized	Leaving 150.00 F
Turbulators	Yes	Pressure Drop 4.50 ft fluid
Rigging Weight	97.7 lb	Tube Velocity 2.83 f/s
Installed Weight	114.3 lb	Reynolds Number 28984.20
Coil Section Options		Type Water
Extended Drain and Vent Holes only		Concentration 100.00 %
Drain Pan Size Small		Fouling Factor 0.00025 hr-sq ft-deg F/Btu
Door Location Right		Volume 1.99 gal
Marine Light YES		AHRI 410 Classification
		AHRI 410 Classification AHRI ACHC Certified
		Data Generation Date 5/2/2023
		Trane Select Assist update number 2700

Note: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.

Cooling coil section - Position: 4		
Coil Construction		Coil Performance
Model	Chilled water - 5/8" Shipping Coil, General (W)	Capacity
Rows	6	Total 742.73 MBh
Tube Diameter	5/8in. tube diameter (15.875 mm)	Sensible 360.83 MBh
Coil Connection	Standard	Air
Tube Mat/Wall Thickness	.020" (0.508 mm) copper tubes	Flow 9370 cfm
Fin Spacing	120 Per Foot	Entering Dry Bulb 89.00 F
Fin Material	Aluminum fins	Entering Wet Bulb 77.00 F
Fin Type	Prima flo H (Hi efficient)	Leaving Dry Bulb 54.45 F
Face Area	19.83 sq ft	Leaving Wet Bulb 54.31 F
Coil (top/side) H x L	42 in. (1067 mm) X 68" (1727 mm)	Pressure Drop 0.704 in H2O
finned length		Face Velocity 472 ft/min
Casing	Stainless steel	Fluid
Turbulators	Not Included	Flow 148.01 gpm
Rigging Weight	439.1 lb	Entering 44.00 F
Installed Weight	584.3 lb	Leaving 54.00 F
Coil Section Options		Pressure Drop 16.03 ft fluid
Extended Drain and Vent Holes only		Tube Velocity 5.84 f/s
Drain Pan	Stainless steel	Reynolds Number 20935.65
Drain Pan Size	Extended medium	Type Water
Drain Connection	Left	Concentration 100.00 %
Minimum Trap Height (L)	7.418 in	Fouling Factor 0.00000 hr-sq ft-deg F/Btu
H Trap Dimension	4.279 in	Volume 17.35 gal
J Trap Dimension	2.139 in	AHRI 410 Classification
Door Location	Right	AHRI 410 Classification AHRI ACHC Certified
Marine Light	YES	Data Generation Date 5/2/2023
		Trane Select Assist update number 4700

Note: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.

Heating coil section - Position: 3		
Coil Construction	Coil Performance	
Model Hot water - 1/2" Unit Optimized, Low Water Flow (UA)	Capacity	
Rows 2	Total 491.47 MBH	
Tube Diameter 1/2in. tube diameter (12.7 mm)	Air	
Coil Connection Standard	Flow 10920 scfm	
Tube Mat/Wall Thickness .016" (0.406 mm) copper tubes	Entering Dry Bulb 24.00 F	
Fin Spacing 118 Per Foot	Leaving Dry Bulb 65.50 F	
Fin Material Aluminum fins	Pressure Drop 0.205 in H2O	
Fin Type Delta flo E (energy efficient)	Face Velocity 525 f/min	
Face Area 20.81 sq ft	Fluid	
Coil (top/side) H x L 43 in (1092 mm) X 69" (1753 mm)	Flow 32.74 gpm	
finned length	Entering 180.00 F	
Casing Galvanized	Leaving 150.00 F	
Turbulators Yes	Pressure Drop 5.88 ft fluid	
Rigging Weight 101.5 lb	Tube Velocity 3.30 f/s	
Installed Weight 118.0 lb	Reynolds Number 33440.84	
Coil Section Options	Type Water	
Extended Drain and Vent Holes only	Concentration 100.00 %	
Drain Pan Size Small	Fouling Factor 0.00025 hr-sq ft-deg F/Btu	
Door Location Left	Volume 1.99 gal	
Marine Light YES	AHRI 410 Classification	
	AHRI 410 Classification AHRI ACHC Certified	
	Data Generation Date 5/2/2023	
	Trane Select Assist update number 4700	

Note: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Cooling coil section - Position: 4

Coil Construction		Coil Performance	
Model	Chilled water - 5/8" Shipping Coil, General (W)	Capacity	Total 832.76 MBh
Rows	6	Sensible	406.59 MBh
Tube Diameter	5/8in. tube diameter (15.875 mm)	Air	Flow 10920 cfm
Coil Connection	Standard	Entering Dry Bulb	89.00 F
Tube Mat/Wall Thickness	.020" (0.508 mm) copper tubes	Entering Wet Bulb	77.00 F
Fin Spacing	120 Per Foot	Leaving Dry Bulb	55.59 F
Fin Material	Aluminum fins	Leaving Wet Bulb	55.43 F
Fin Type	Prima flo H (Hi efficient)	Pressure Drop	0.901 in H ₂ O
Face Area	19.83 sq ft	Face Velocity	551 f/min
Coil (top/side) H x L	42 in (1067 mm) X 68" (1727 mm)	Fluid	Flow 165.96 gpm
finned length		Entering	44.00 F
Casing	Stainless steel	Leaving	54.00 F
Turbulators	Not Included	Pressure Drop	19.78 ft fluid
Rigging Weight	439.1 lb	Tube Velocity	6.55 f/s
Installed Weight	584.3 lb	Reynolds Number	23473.61
Coil Section Options		Type	Water
Extended Drain and Vent	Holes only	Concentration	100.00 %
Drain Pan	Size Stainless steel	Fouling Factor	0.00000 hr-sq ft-deg F/Btu
Drain Pan Size	Extended medium	Volume	17.35 gal
Drain Connection	Right	AHRI 410 Classification	
Minimum Trap Height (L)	8.018 in	AHRI 410 Classification	AHRI ACHC Certified
H Trap Dimension	4.678 in	Data Generation Date	5/2/2023
J Trap Dimension	2.339 in	Trane Select Assist update number	4700
Door Location	Left		
Marine Light	YES		

Note: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Supply fan section - Position: 5		
Fan Data		Motor Data
Wheel Diameter/Type/Class	24.5 in. cid plenum, 80% width, H press	Power / Fan 10 hp
Fan Quantity	1	Voltage 460/3
Discharge Location	Front top	Speed 1800
Motor Location	Left side drive	Class NEMA premium compliant ODP
Blades	Higher eff.(some bands lower, more spikes)	Efficiency 91.92 %
Drive Service Factor	Direct drive	Part Load Efficiency 89.03 %
Fan K-factor	3265.00	Fan electrical power (FEP) 9.37 kW
Air Performance		FEI 1.30
Airflow	9370 cfm	AHR VFD HP 10.000 hp
Total Static Pressure	4.357 in H2O	Wire to air static efficiency 57.25 %
Total Brake Power	9.890 hp	
Operating Speed	1800 rpm	
ANCA FEG	FEG60	
Bare fan peak total efficiency	76.70 %	
Unit Static Efficiency	65.08 %	
Motor Interface Options		Fan Section Options
Selection Type	VFD	Fan Wheel Balance
Voltage	460/3	Inverter balance with shaft grounding
Mounting Location	Internal mounting	Door Location Both
Motor Wire In Conduit	Motor wiring conduit	Door Guard Yes
VFD Frequency	64.00 Hz	Marine Light Marine LED light

Fan Discharge Options							
Face	Type	Airflow	Face Velocity	Area	Pressure Drop	Exhaust Hood	Damper Torque Requirement
Front Face Feature		9370 cfm	384 f/min	24.41 sq ft	0.023 in H2O	N/A	N/A

Note: Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing. Fan performance ratings independently measured and are third party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Pressure Drop in (in w.g.)	
Supply fan	
Air mixing section	1.42
Coil section	0.15
Coil section	0.70
Fan section	0.02
Controls section	0.06
Internal Static Pressure	2.36
External Static Pressure	2.00
Total Static Pressure	4.36

Starter/VFD only section - Position: 6						
Face	Path	Type	Openings Airflow	Face Velocity	Area	Pressure Drop
Bottom Face Feature	Supply	Rectangular	9370 cfm	1333 f/min	7.03 sq ft	0.055 in H2O



Supply fan section - Position: 5		
Fan Data		Motor Data
Wheel Diameter/Type/Class	22.25in. cid plenum, full width, H press	Power / Fan 15 hp Voltage 460/3
Fan Quantity	1	Speed 1800
Discharge Location	Front top	Class NEMA premium compliant ODP
Motor Location	Right side drive	Efficiency 93.19 %
Blades	higher eff.(some bands lower,more spikes)	Part Load Efficiency 91.05 %
Drive Service Factor	Direct drive	Fan electrical power (FEP) 11.78 kW FEI 1.19
Fan K-factor	2714.00	AHRF VFD hp 15.000 hp
Fan Performance		Wire to air static efficiency 52.18 %
Airflow	10520 cfm	
Total Static Pressure	4.796 in H2O	
Total Brake Power	14.277 hp	
Operating Speed	2327 rpm	
AMCA FEG	FE686	
Bare fan peak total efficiency	71.18 %	
Unit Static Efficiency	58.25 %	
Motor Interface Options		Fan Section Options
Selection Type	VFD	Fan Wheel Balance Inertial balance with shaft grounding
Voltage	460/3	Door Location Right
Mounting Location	Internal mounting	Door Guard Yes
Motor Wire In Conduit	Motor wiring conduit	Marine Light Marine LED light
VFD Frequency	75.00 Hz	

EXHIBIT B

MINIMUM INSURANCE COVERAGES AND MINIMUM COVERAGE AMOUNTS

Minimum Insurance Requirements

- A. Contractor shall carry insurance in the types and amounts indicated below for the duration of the Contract/Agreement, which shall include items owned by Owner in the care, custody and control of Contractor prior to and during construction. Contractor must also complete and file the declaration pages from the insurance policies with Owner whenever a previously identified policy period expires during the term of the Agreement, as proof of continuing coverage. Contractor shall update all expired policies prior to submission of any payment requests hereunder. Failure to update policies shall be reason for payment to be withheld until evidence for renewal is provided to the Owner. If the Contractor fails to obtain, maintain or renew any insurance required by this Contract/Agreement, the Owner may, among other remedies available hereunder or at law, obtain insurance coverage directly and recover the cost of that insurance from the Contractor or declare this Contract/Agreement void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the Owner.
- B. All policies of insurance provided by the Contractor must comply with the requirements set forth herein, the Contract/Agreement and the laws of the State of Texas.
- C. The Contractor shall provide and maintain, until the Work covered in the Contract/Agreement is completed and accepted by the Owner, the minimum insurance coverages in the minimum amounts as described below.

- | | Type of Coverage | Limits of Liability |
|----|---|------------------------|
| 1. | Worker's Compensation | Statutory |
| 2. | Employer's Liability | |
| | Bodily Injury by Accident | \$500,000 Ea. Accident |
| | Bodily Injury by Disease | \$500,000 Ea. Employee |
| | Bodily Injury by Disease | \$500,000 Policy Limit |
| 3. | Commercial general liability including completed operations and contractual liability insurance for bodily injury, death, or property damages in the following amounts: | |

COVERAGE	PER OCCURRENCE
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Commercial General Liability (including premises, completed operations and contractual)	\$1,000,000
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Aggregate policy limits:	\$2,000,000
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4. Comprehensive automobile and auto liability insurance (covering owned, hired, leased and non-owned vehicles):

COVERAGE	PER PERSON	PER OCCURRENCE
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Bodily injury (including death)	\$1,000,000	\$1,000,000
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Property damage	\$1,000,000	\$1,000,000
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Aggregate policy limits	No aggregate limit	
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5. Builder's Risk Insurance (all-risks)

An all-risk policy, in the amount equal at all times to 100% of the Contract Price or Contract Sum. The policy shall include coverage for loss or damage

caused by certified acts of terrorism as defined in the Terrorism Risk Insurance Act. The policy shall be issued in the name of the Contractor and shall name its Subcontractors as additional insureds. The Owner shall be named as a loss payee on the policy. The builders risk policy shall have endorsements as follow:

- a. This insurance shall be specific as to coverage and not considered as contributing insurance with any permanent insurance maintained on the present premises. If off-site storage is permitted, coverage shall include transit and storage in an amount sufficient to protect property being transported or stored.
 - b. For renovation projects and or portions of work contained within an existing structure, the Owner waives subrogation for damage by fire to existing building structure(s), if the Builder's Risk Policy has been endorsed to include coverage for existing building structure(s) in the amount described in the Special Conditions. However, Contractor shall not be required to obtain such an endorsement unless specifically required by the Special Conditions in the Contract Documents. The aforementioned waiver of subrogation shall not be effective unless such endorsement is obtained.
6. Flood insurance when specified in Supplementary General Conditions or Special Conditions.
 7. Umbrella coverage in the amount of not less than \$5,000,000.

D. Workers' Compensation Insurance Coverage:

1. Definitions:

- (a) Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the Texas Workers' Compensation Commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the Project.
- (b) Duration of the Project - includes the time from the beginning of the work on the Project until the Contractor's/person's work on the Project has been completed and accepted by the Owner.

(c) Coverage – Workers' compensation insurance meeting the statutory requirements of the Texas Labor Code, §401.011(44).

(d) Persons providing services on the Project ("subcontractor") - includes all persons or entities performing all or part of the services the Contractor has undertaken to perform on the Project, regardless of whether that person contracted directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the Project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

2. The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, §401.011(44) for all employees of the Contractor providing services on the Project, for the duration of the Project.
3. The Contractor must provide a certificate of coverage prior to execution of the Agreement/Contract, and in no event later than ten (10) days from Notice of Award. Failure to provide the insurance in a timely fashion may result in loss of Contractor's bid bond.
4. If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the Project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the Owner showing that coverage has been extended.
5. The Contractor shall obtain from each person providing services on a project, and provide to the Owner:

(a.) a certificate of coverage, prior to that person beginning work on the Project, so the Owner will have on file certificates of coverage showing coverage for all persons providing services on the Project; and

(b.) no later than seven days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project.

6. The Contractor shall retain all required certificates of coverage for the duration of the Project and for one year thereafter.
7. The Contractor shall notify the Owner in writing by certified mail or personal delivery, within 10 days after the Contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project.
8. The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the Project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.
9. The Contractor shall contractually require each person with who it contracts to provide services on a project, to:
 - (a) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas labor Code, Section 401.011(44) for all of its employees providing services on the Project, for the duration of the Project;
 - (b) provide to the Contractor, prior to that person beginning work on the Project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the Project, for the duration of the Project;
 - (c) provide the Contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;
 - (d) obtain from each other person with whom it contracts, and provide to the Contractor:
 - i. a certificate of coverage, prior to the other person beginning work on the Project; and
 - ii. a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the Project;
 - (e) retain all required certificate of coverage on file for the duration of the Project and for one year thereafter;

(f) notify the Owner in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project; and

(g) contractually require each person with whom it contracts, to perform as required by paragraphs (a)-(g), with the certificates of coverage to be provided to the person for whom they are providing services.

10. By signing the Agreement/Contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the Owner that all employees of the Contractor who will provide services on the Project will be covered by workers' compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the Commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

11. The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the Owner to declare the Agreement/Contract void if the Contractor does not remedy the breach within ten days after receipt of notice of breach from the Owner.

E. If insurance policies are not written for the amounts specified herein, Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of primary coverage.

F. Insurance coverage required hereunder shall be written on an occurrence basis by companies authorized and admitted to do business in the State of Texas and rated A- or better by A.M. Best Company, or otherwise acceptable to Owner.

G. **The Owner ("Williamson County, Texas"), its officials, employees and volunteers shall be named as an additional insured on all required policies.** These insurance policies shall contain the appropriate additional insured endorsement signed by a person authorized by that insurer to bind coverage on its behalf.

H. The furnishing of the above listed insurance coverage, as may be modified by the Contract Documents, must be tendered prior to execution of the Agreement/Contract,

and in no event later than ten (10) days from Notice of Award. Failure to provide the insurance in a timely fashion may result in loss of Contractor's bid bond.

- I. Owner reserves the right to review the insurance requirements set forth herein during the Contract/Agreement and to make reasonable adjustments to the insurance coverage and their limits when deemed necessary and prudent by the Owner based upon changes in statutory law, court decisions, or the claims history of the industry as well as the Contractor.
- J. Owner shall be entitled, upon request, and without expense, to receive complete copies of the policies with all endorsements and may make any reasonable requests for deletion, or revision or modification of particular policy terms, conditions, limitations, or exclusions, except where policy provisions are established by law or regulation binding upon the Parties or the underwriter of any of such policies. Damages caused by the Contractor and not covered by insurance shall be paid by the Contractor.
- K. Contractor shall be responsible for payment of premiums for all of the insurance coverages required hereunder. Contractor further agrees that for each claim, suit or action made against insurance provided hereunder, with respect to all matters for which the Contractor is responsible hereunder, Contractor shall be solely responsible for all deductibles and self-insured retentions. Any deductibles or self-insured retentions over \$75,000 in the Contractor's insurance must be declared and approved in writing by Owner in advance.
- L. Contractor shall contractually require each person or entity with whom it contracts to provide services in relation to the Work, to comply with every insurance requirement that Contractor must comply with hereunder. More specifically, each person or entity with whom Contractor contracts to provide services on the in relation to the Work must comply with each insurance requirement hereunder just as if such person or entity was the Contractor. Thus, every reference to Contractor under each insurance requirement hereunder shall mean and include each person or entity with whom Contractor contracts to provide services in relation to the Work. If any such person or entity with whom Contractor contracts to provide services in relation to the Work fails to obtain, maintain or renew any insurance required by this Contract/Agreement, Owner may, among other remedies available hereunder or at law, obtain insurance coverage directly and recover the cost of that insurance from the Contractor or declare this Contract/Agreement void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the Owner.

EXHIBIT C

Williamson County

Vendor Reimbursement Policy

The purpose of this Williamson County Vendor Reimbursement Policy ("Policy") is to provide clear guidelines to vendors on Williamson County's expectations and requirements regarding allowable reimbursable expenditures and required backup. The Policy will also minimize conflicts related to invoice payments and define non-reimbursable items. This Policy is considered a guideline and is not a contract.

This Policy may be altered, deleted or amended, at any time and without prior notice to vendors, by action of the Williamson County Commissioners Court. Unenforceable provisions of this Policy, as imposed by applicable law, regulations, or judicial decisions, shall be deemed to be deleted. Any revisions to this Policy will be distributed to all current vendors doing business with the County.

1. Invoices and Affidavits

- 1.1 Invoices must adequately describe the goods or services provided to County and include all required backup (i.e. reimbursable expenses, mileage log, timesheets, receipts detailing expenses incurred etc.) that is in a form acceptable to the Williamson County Auditor. Invoices that do not adequately describe the goods or services provided to County or contain backup that is satisfactory to the Williamson County Auditor will be returned to vendor for revisions and the provision above relating to invoice errors resolved in favor of the County shall control as to the required actions of vendor and when such invoice must be paid by the County.
- 1.2 In the event an invoice includes charges based upon hourly billing rates for services or any other rates based upon the amount of time worked by an individual or individuals in performing services, whether the charges are being billed directly to the County or whether they are the basis of invoices from subcontractors for which the vendor seeks reimbursement from the County, the charges shall be accompanied by an affidavit signed by an officer or principal of the vendor certifying that the work was performed, it was authorized by the County and that all information contained in the invoice that is being submitted is true and correct.
- 1.3 Upon County's request, vendor must submit all bills paid affidavits wherein vendor must swear and affirm that vendor has paid each of its subcontractors, laborers, suppliers and material in full for all labor and materials provided to vendor for or in connection with services and work performed for County and, further, vendor must swear and affirm that vendor is not aware of any unpaid bills, claims, demands, or causes of action by any of its subcontractors, laborers, suppliers, or material for or in connection with the furnishing of labor or materials, or both, for services and work performed for County.

2. Travel Reimbursement

- 2.1 The County will only cover costs associated with travel for vendors outside a 45-mile radius from the Williamson County Courthouse, 710 Main Street, Georgetown, Texas 78626.
- 2.2 The County will only cover costs associated with travel as documented work for County. If a vendor is also doing business for another client, the travel costs must be split in proportion to the amount of work actually performed for the County and the other client. The only allowable travel expense will be for the specific days worked for Williamson County.
- 2.3 No advance payments will be made to vendor for travel expenditures. The travel expenditure may only be reimbursed after the expenditure/trip has already occurred and vendor has provided the Williamson County Auditor with all necessary and required backup.

- 2.4 Vendors must submit all travel reimbursement requests on each employee in full. Specifically, a travel reimbursement request must include all related travel reimbursement expenses relating to a particular trip for which vendor seeks reimbursement. Partial travel reimbursement requests will not be accepted (i.e. vendor should not submit hotel and mileage one month then the next month submit rental car and airfare). If the travel reimbursement appears incomplete, the invoice will be sent back to the vendor to be submitted when all information is ready to submit in full.
- 2.5 Reimbursement for transportation costs will be at the most reasonable means of transportation (i.e.: airline costs will be reimbursed for coach rate, rental car costs will only be reimbursed if rental car travel was most reasonable means of travel as compared to travel by air).
- 2.6 The County will not be responsible for, nor will the County reimburse additional charges due to personal preference or personal convenience of individual traveling.
- 2.7 The County will not reimburse airfare costs if airfare costs were higher than costs of mileage reimbursement.
- 2.8 Additional expenses associated with travel that is extended to save costs (i.e. Saturday night stay) may be reimbursed if costs of airfare would be less than the cost of additional expenses (lodging, meals, car rental, mileage) if the trip had not been extended. Documentation satisfactory to the Williamson County Auditor will be required to justify expenditure.
- 2.9 County will only reimburse travel expense to necessary personnel of the vendor (i.e. no spouse, friends or family members).
- 2.10 Except as otherwise set forth herein, a vendor must provide a paid receipt for all expenses. If a receipt cannot be obtained, a written sworn statement of the expense from the vendor may be substituted for the receipt.
- 2.11 Sales tax for meals and hotel stays are the only sales taxes that will be reimbursed. Sales tax on goods purchased will not be reimbursed. A sales tax exemption form is available from the Williamson County Auditor's Office upon request.
- 2.12 The County will not pay for any late charges on reimbursable items. It is the responsibility of the vendor to pay the invoice first and seek reimbursement from the County.

3. Meals

- 3.1 Meal reimbursements are limited to a maximum of \$59.00 per day on overnight travel. On day travel (travel that does not require an overnight stay), meal reimbursements are limited to a maximum of \$25.00 per day. The travel must be outside the Williamson County Courthouse, 710 Main Street, Georgetown, Texas 78626 by a 45-mile radius.
- 3.2 Receipts are required on meal reimbursement amounts up to the maximum per day amount stated for overnight or day travel. If receipts are not presented, the vendor can request per diem (per diem limits refer to 3.2). However, a vendor cannot combine per diem and meal receipts. Only one method shall be allowed.
- 3.3 Meals are reimbursable only to vendors who do not have necessary personnel located within a 45-mile radius of the Williamson County Courthouse, 710 Main Street, Georgetown, Texas 78626, who are capable of carrying the vendor's obligations to the County. Meals will not be reimbursed to vendors who are located within a 45-mile radius of the Williamson County Courthouse.
- 3.4 County will not reimburse for alcoholic beverages.
- 3.5 Tips are reimbursable but must be reasonable to limitation of meal allowance
- 3.6 No meals purchased for entertainment purposes will be allowed.
- 3.7 Meal reimbursement must be substantiated with a hotel receipt.

4. Lodging

- 4.1 Hotel accommodations require an itemized hotel folio as a receipt. The lodging receipt should include name of the motel/hotel, number of occupant(s), goods or services for each individual charge (room rental, food, tax, etc.) and the name of the occupant(s). Credit card receipts or any other form of receipt are not acceptable.
- 4.2 Vendors will be reimbursed for a single room rate charge plus any applicable tax. If a single room is not available, the vendor must provide documentation to prove that a single room was not available in order to justify the expense over and above the single room rate. A vendor may also be required to provide additional documentation if a particular room rate appears to be excessive.
- 4.3 Personal telephone charges, whether local or long distance, will not be reimbursed.

5. Airfare

- 5.1 The County will only reimburse up to a coach price fare for air travel.
- 5.2 The County will exclude any additional charges due to personal preference or personal convenience of the individual traveling (i.e. seat preference charges, airline upgrades, etc. will not be an allowable reimbursement)
- 5.3 Air travel expenses must be supported with receipt copy of an airline ticket or an itinerary with actual ticket price paid. If tickets are purchased through a website, vendor must submit a copy of the webpage showing the ticket price if no paper ticket was issued.
- 5.4 Cancellation and/or change flight fees may be reimbursed by the County but vendor must provide the Williamson County Auditor with documentation in writing from a County department head providing authorization for the change.
- 5.5 The County will not reimburse vendor for tickets purchased with frequent flyer miles.

6. Car Rental

- 6.1 Vendors that must travel may rent a car at their destination when it is less expensive than other transportation such as taxis, airport shuttles or public transportation such as buses or subways.
- 6.2 Cars rented must be economy or mid-size. Luxury vehicle rentals will not be reimbursed. Any rental costs over and above the cost of a mid-size rental will be adjusted.
- 6.3 Vendors will be reimbursed for rental cars if the rental car cost would have been less than the mileage reimbursement cost (based on the distance from vendor's point of origin to Williamson County, Texas) had the vendor driven vendor's car.
- 6.4 Vendors must return a car rental with appropriate fuel levels as required by rental agreement to avoid the car rental company from adding fuel charges.
- 6.5 Rental agreement and credit card receipt must be provided to County as back up for the request for reimbursement.
- 6.6 Insurance purchased when renting vehicle may also be reimbursed.
- 6.7 Car Rental optional extras such as GPS, roadside assistance, and administrative fees on Tolls will not be reimbursed.

7. Personal Car Usage

- 7.1 Personal vehicle usage will be reimbursed in an amount equal to the standard mileage rate allowed by the IRS.
- 7.2 Per code of Federal Regulations, Title 26, Subtitle A, Chapter 1, Subchapter B, Part IX, Section 274(d), all expense reimbursement requests must include the following:
 - 7.2.1.1 Date
 - 7.2.1.2 Destination
 - 7.2.1.3 Purpose

- 7.2.1.4 Name of traveler(s)
- 7.2.1.5 Correspondence that verifies business purpose of the expense
- 7.3 The mileage for a personal vehicle must document the date, location of travel to/from, number of miles traveled and purpose of trip.
- 7.4 Mileage will be reimbursed on the basis of the most commonly used route.
- 7.5 Reimbursement for mileage shall not exceed the cost of a round trip coach airfare.
- 7.6 Reimbursement for mileage shall be prohibited between place of residence and usual place of work.
- 7.7 Mileage should be calculated from employee's regular place of work or their residence, whichever is the shorter distance when traveling to a meeting or traveling to Williamson County, Texas for vendors who are located outside of the Williamson County Courthouse, 710 Main Street, Georgetown, Texas 78626 by at least a 45-mile radius.
- 7.8 When more than one person travels in same vehicle, only one person may claim mileage reimbursement.
- 7.9 Tolls, if reasonable, are reimbursable. Receipts are required for reimbursement. If a receipt is not obtainable, then written documentation of expense must be submitted for reimbursement (administrative fees on Tolls will not be reimbursed).
- 7.10 Parking fees, if reasonable are reimbursable for meetings and hotel stays. For vendors who contract with a third party for visitor parking at vendor's place of business, Williamson County will not reimburse a vendor based on a percentage of its contracted visitor parking fees. Rather, Williamson County will reimburse Vendor for visitor parking on an individual basis for each time a visitor uses Vendor's visitor parking. Receipts are required for reimbursement. If a receipt is not obtainable, then written documentation of expense must be submitted for reimbursement.
- 7.11 Operating and maintenance expenses as well as other personal expenses, such as parking tickets, traffic violations, and car repairs and collision damage are not reimbursable.

8. Other Expenses

- 8.1 Taxi fare, bus tickets, conference registrations, parking, etc. must have a proper original receipt.

9. Repayment of Non-reimbursable Expense.

Vendors must, upon demand, immediately repay County for all inappropriately reimbursed expenses whenever an audit or subsequent review of any expense reimbursement documentation finds that such expense was reimbursed contrary to these guidelines and this Policy. Williamson County reserves the right to retain any amounts that are due or that become due to a vendor in order to collect any inappropriately reimbursed expenses that a vendor was paid.

10. Non-Reimbursable Expenses

In addition to the non-reimbursable items set forth above in this Policy, the following is a non-exhaustive list of expenses that will not be reimbursed by Williamson County:

- 10.1 Alcoholic beverages/tobacco products
- 10.2 Personal phone calls
- 10.3 Laundry service
- 10.4 Valet service (excludes hotel valet)
- 10.5 Movie rentals
- 10.6 Damage to personal items
- 10.7 Flowers/plants

- 10.8 Greeting cards
- 10.9 Fines and/or penalties
- 10.10 Entertainment, personal clothing, personal sundries and services
- 10.11 Transportation/mileage to places of entertainment or similar personal activities
- 10.12 Upgrades to airfare, hotel and/or car rental
- 10.13 Airport parking above the most affordable rate available
- 10.14 Excessive weight baggage fees or cost associated with more than two airline bags
- 10.15 Auto repairs
- 10.16 Babysitter fees, kennel costs, pet or house-sitting fees
- 10.17 Saunas, massages or exercise facilities
- 10.18 Credit card delinquency fees or service fees
- 10.19 Doctor bills, prescription and other medical services
- 10.20 Hand tools
- 10.21 Safety Equipment (hard hats, safety vests, etc.)
- 10.22 Office Supplies
- 10.23 Lifetime memberships to any association
- 10.24 Donations to other entities
- 10.25 Any items that could be construed as campaigning
- 10.26 Technology Fees
- 10.27 Sales tax on goods purchased
- 10.28 Any other expenses which Williamson County deems, in its sole discretion, to be inappropriate or unnecessary expenditures.

EXHIBIT D

UNIFORM GENERAL CONDITIONS

TABLE OF ARTICLES

1	GENERAL PROVISIONS
2	OWNER
3	CONTRACTOR
4	ARCHITECT
5	SUBCONTRACTORS
6	CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7	CHANGES IN THE WORK
8	TIME
9	PAYMENTS AND COMPLETION
10	PROTECTION OF PERSONS AND PROPERTY
11	INSURANCE AND BONDS
12	UNCOVERING AND CORRECTION OF WORK
13	MISCELLANEOUS PROVISIONS
14	TERMINATION OR SUSPENSION OF THE CONTRACT
15	CLAIMS AND DISPUTES

ARTICLE 1 GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 CONTRACT DOCUMENTS

Contract Documents are enumerated in the Contract between the Owner and Contractor (hereinafter the Contract) and consist of the Contract, Conditions of the Contract as revised, Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Contract and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Owner or the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

1.1.2 CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor.

1.1.3 WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

1.1.8 KNOWLEDGE

The terms "knowledge," "recognize," and "discover," their respective derivatives, and similar terms in the Contract Documents, as used in reference to the Contractor, shall be interpreted to mean that which the Contractor knows (or should know), recognizes (or should recognize), and discovers (or should discover) in exercising the care, skill, and diligence required by the Contract Documents. Analogously, the expression "reasonably inferable" and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a contractor familiar with the Project and exercising the care, skill, and diligence required of the Contractor by the Contract Documents.

1.1.9 PRODUCT

Materials, systems, and equipment incorporated or to be incorporated in the Work.

1.1.10 PROVIDE

Furnish and install and shall include, without limitation, labor, materials, equipment, transportation, services, and other items required to complete the referenced tasks.

1.1.11 FURNISH

Pay for, deliver (or receive), unload, inspect, and store products, materials, equipment, and accessories as specified while retaining care, custody and control until received for installation based on a signed receipt.

1.1.12 INSTALL

Receive, unload, inspect, and store as specified while retaining care, custody and control; set or place in position, make required connections; and adjust and test as specified in the Contract Documents for satisfactory performance and operation.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS**1.2.1**

The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary,

and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results. In the event of inconsistencies within or between parts of the Contract Documents, or between the Contract Documents and applicable standards, codes, and ordinances, the Contractor shall (i) provide the better quality or greater quantity of Work or (ii) comply with the more stringent requirement; either or both in accordance with the Owner or the Architect's interpretation. The terms and conditions of this **Paragraph 1.2.1**, however, shall not relieve the Contractor of any of the obligations set forth in the Contract Documents.

1.2.2

Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

1.2.3

Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

- .1** Whenever a product is specified in accordance with a Federal Specification, an ASTM Standard, an American National Standards Institute Specification, or other Association Standard, the Contractor, if required by the Specifications or if requested by the Owner, shall present evidence from the manufacture, certifying the product complies with the particular Standard or Specification. When required by the Contract Documents, supporting data shall be submitted to substantiate compliance.
- .2** Whenever a product is specified or shown by describing proprietary items, model numbers, catalog numbers, manufacturer, trade names, or similar reference, no substitutions may be made unless accepted in strict accordance with the Substitution requirements stated in the Specifications or, if no Substitution requirements are stated in the Specifications, in accordance with the requirements stated elsewhere in the Contract Documents. Where two or more products are shown or specified, the Contractor has the option to use either of those shown or specified.

1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article

is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

1.5 USE OF DRAWINGS AND OTHER INSTRUMENTS OF SERVICE

1.5.1

The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights, except as provided in the Owner-Architect Agreement. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

1.5.2

The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall establish the necessary protocols governing such transmissions in writing, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

2.1 GENERAL

The Owner means Williamson County acting through any duly authorized representative as provided in the Contract, and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization ("Owner's Designated Representative"). The term "Owner" means the Owner or the Owner's authorized representative.

2.2 OWNER

2.2.1 Appropriation of Funds by Owner

Owner believes it has sufficient funds currently available and authorized for expenditure to finance the costs of the Agreement between Owner and Contractor. Contractor understands and agrees that the Owner's payment of amounts under the Agreement between Owner and Contractor is contingent on the Owner receiving appropriations or other expenditure authority sufficient to allow the Owner, in the exercise of reasonable administrative discretion, to continue to make payments under the Agreement.

2.2.2

Unless specifically stated otherwise in the Contract Documents, Contractor shall secure and pay for necessary permits, approvals, assessments, and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

2.2.3

The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. Except for surveys or grade information, the Contractor shall compare the information furnished by the Owner, including, but not limited to, soil tests, with visibly observable physical conditions and the Contract Documents and, on the basis of such review, promptly report to the Owner and the Architect any known conflicts, errors or omissions. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

2.2.4

The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

2.2.5

Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions.

2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by **Section 12.2** or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a **ten (10)-calendar day** period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

2.5 EXTENT OF OWNER RIGHTS

2.5.1

The rights stated in this **Article 2** and elsewhere in the Contract Documents are cumulative and not in limitation of any rights of the Owner (1) granted in the Contract Documents, (2) at law, or (3) in equity.

2.5.2

In no event shall the Owner have control over, charge of, or any responsibility for construction means, methods, techniques, sequences, or procedures or for safety precautions and programs in connection with the Work, notwithstanding any of the rights and authority granted the Owner in the Contract Documents.

2.6 OWNER'S RIGHT TO RECORDS

2.6.1

The Contractor's records, which shall include but not be limited to accounting records, written policies and procedures, subcontractor files (including proposals of successful bidders), original estimates, estimating work sheets, correspondence, schedules, change order files (including documentation covering negotiated settlements), and any other supporting evidence necessary to substantiate charges related to this contract (all foregoing hereinafter referred to as "records") and shall be open to inspection and subject to audit and/or reproduction, during normal working hours, by Owner's agent or its authorized representative to the extent necessary to adequately permit evaluation and verification of any invoices, payments or claims submitted by the Contractor or any of his payees. Such records subject to examination shall also include, but not be limited to, those records necessary to evaluate and verify direct and indirect costs (including overhead allocations) as they may apply to costs associated with this Contract.

2.6.2

For the purpose of such audits, inspections, examinations and evaluations, the Owner's agent, or authorized representatives shall have access to said records from the effective date of this Contract for the duration of Work and until **three (3) years** (or longer if required by law) after the date of final payment by Owner to Contractor.

2.6.3

Owner's agent or its authorized representative shall have access during normal business hours to the Contractor's facilities, shall have access to all necessary records and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with this **Section 2.6**. Owner's agent or authorized representative shall give auditees reasonable advance notice of intended audits.

2.6.4

Contractor shall require all subcontractors, insurance agents, and material suppliers (payees) with cost plus contracts, if permitted, and not fixed price contracts to comply with the provisions of this **Article 2** by insertion of the requirements hereof in a written contract agreement between Contractor and payee. Failure to obtain such written contracts which include such provisions shall be reason to exclude some or all of the related payee's costs from amounts payable to the Contractor pursuant to this contract.

ARTICLE 3 CONTRACTOR

3.1 GENERAL**3.1.1**

The Contractor is the person or entity identified as such in the Contract and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under the Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative, and if these General Conditions are used in conjunction with the Contract between Owner and Construction Manager-At-Risk, the term "Contractor" shall mean the Construction Manager.

3.1.2

The Contractor shall perform the Work in strict accordance with the Contract Documents.

3.1.3

The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's

administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.1

Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents. Prior to execution of the Contract, the Contractor and each Subcontractor shall have evaluated and satisfied themselves as to the observable conditions and limitations under which the Work is to be performed, including, without limitation, (i) the location, condition, layout, and nature of the Project site and surrounding areas, (ii) generally prevailing climatic conditions, (iii) anticipated labor supply and costs, (iv) availability and cost of materials, tools, and equipment, and (v) other similar issues. The Owner assumes no responsibility or liability for the physical condition or safety of the Project site or any improvements located on the Project site. Except as set forth in **Section 10.3**, the Contractor and its Subcontractors shall be responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the Contract Sum or the Contract Time in connection with any failure by the Contractor or any Subcontractor to have complied with the requirements of **this Section 3.2**.

3.2.2

Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to **Paragraph 2.2.3**, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Owner and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner. The Contractor shall verify the accuracy of elevations, dimensions, locations, and field measurements. In all cases of the interconnection of its Work with existing or other Work, the Contractor shall verify at the site all dimensions relating to such existing or other Work.

- .1 All of Contractor's and Subcontractors' work shall conform to the Contract Documents. Contractor shall be responsible for the details of the Work necessary to carry out the intent of the drawings and specifications, or which are customarily performed. When more detailed information is required for performance of the Work or when an interpretation of the Contract Documents is requested, the Contractor shall submit a written request for information to the Architect or Owner (as required), and the Owner or Architect shall furnish such information or interpretation. Where only part of the Work is indicated, similar parts shall be considered repetitive. Where any detail is shown and components thereof are fully described, similar details not fully described shall be considered to incorporate the fully described details and components.
- .2 The Contractor has had an opportunity to examine, and has carefully examined, all of the Contract Documents and Project site, and has fully acquainted itself with the scope of work, design, availability of materials, existing facilities, access, general topography, soil structure, subsurface conditions, obstructions, and all other conditions pertaining to the Work, the site of the Work, and its surrounding; that it has made necessary investigations to a full understanding of the difficulties which may be encountered in performing the Work; and that anything in any Contract Documents, or in any representations, statements, or information made or furnished by Owner or its representatives notwithstanding, Contractor will complete the Work for the compensation stated in the Contract. In addition thereto, Contractor represents that it is fully qualified to do the Work in accordance with the terms of the Contract in the time specified.

3.2.3

The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Owner and the Architect any nonconformity discovered by or made known to the Contractor as a request for information.

3.2.4

If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to **Paragraphs 3.2.2 or 3.2.3** above, the Contractor shall make Claims as provided in **Article 15**.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1

The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. Subcontractors are responsible for directing their forces on their portions of the Work. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor and Subcontractors shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

3.3.2

The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

3.3.3

The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

3.3.4

Inspection of the progress, quantity, or quality of the Work done by the Owner, any Owner's representative, any governmental agency, or the Architect, or any inspector, shall not relieve the Contractor of any responsibility for the compliance of the Work with the Contract Documents. The Owner or its approved representative (heretofore referred to as Owner's representative) shall have access to the worksite and all Work. No supervision or inspection by the Owner's representative, nor the authority to act nor any other actions taken by the Owner's representative shall relieve the Contractor of any of its obligations under the Contract Documents nor give rise to any duty on the part of the Owner.

3.4 LABOR AND MATERIALS

3.4.1

Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

.1 Duty to Pay Prevailing Wage Rates. The Contractor shall pay not less than the wage scale of the various classes of labor as shown on the "Prevailing Wage Schedule" provided by the Owner. The specified wage rates are minimum rates only, and are not representations that qualified labor adequate to perform the Work is available locally at the prevailing wage rates. The Owner is not bound to pay—and will not consider—any claims for additional compensation made by any Contractor because the Contractor pays wages in excess of the applicable minimum rate contained in the Contract Documents. The "Prevailing Wage Schedule" is not a representation that quantities of qualified labor adequate to perform the Work may be found locally at the specified wage rates.

a) For classifications not shown, workers shall not be paid less than the wage indicated for Laborers. The Contractor shall notify each worker commencing work on the Project the worker's job classification and the established minimum wage rate required to be paid, as well as the actual amount being paid. The notice must be delivered to and signed in acknowledgement of receipt by the employee and must list both the monetary wages and fringe benefits to be paid or furnished for each classification in which the worker is assigned duties. When requested by Owner, competent evidence of compliance with the Texas Prevailing Wage Law shall be furnished by Contractor.

b) A copy of each worker wage rate notification shall be submitted to the Owner with the Application for Payment for the period during which the worker began on-site activities.

.2 Prevailing Wage Schedule. The "Prevailing Wage Schedule" shall be determined by the Owner in compliance with **Texas Government Code, Chapter 2258**. Should the Contractor at any time become aware that a particular skill or trade not reflected on the Owner's Prevailing Wage Schedule will be or is being employed in the Work, whether by the Contractor or by a subcontractor, the Contractor shall promptly inform the Owner and shall specify a wage rate for that skill or trade, which shall bind the Contractor.

- .3 Penalty for Violation.** The Contractor and any Subcontractor shall pay to the Owner a penalty of **sixty dollars (\$60.00)** for each worker employed for each calendar day, or portion thereof, that the worker is paid less than the wage rates stipulated in the Prevailing Wage Schedule or any supplement thereto pursuant to **Paragraph 3.4.1.2** above. The Contractor and each Subcontractor shall keep, or cause to be kept, an accurate record showing the names and occupations of all workers employed in connection with the Work, and showing the actual per diem wages paid to each worker, which records shall be open at all reasonable hours for the inspection by the Owner.
- .4 Complaints of Violations of Prevailing Wage Rates.** Within **thirty-one (31) days** of receipt of information concerning a violation of **Texas Government Code, Chapter 2258**, the Owner shall make an initial determination as to whether good cause exists to believe a violation occurred. The Owner's decision on the initial determination shall be reduced to writing and sent to the Contractor or Subcontractor against whom the violation was alleged, and to the affected worker. When a good cause finding is made, the Owner shall retain the full amounts claimed by the claimant or claimants as the difference between wages paid and wages due under the Prevailing Wage Schedule and any supplements thereto, together with the applicable penalties, such amounts being subtracted from successive progress payments pending a final decision on the violation.
- .5 Arbitration Required if Violation not Resolved.** After the Owner makes its initial determination, the affected Contractor or Subcontractor and worker have **fourteen (14) days** in which to resolve the issue of whether a violation occurred, including the amount that should be retained by Owner or paid to the affected worker. If the Contractor or Subcontractor and affected worker reach an agreement concerning the worker's claim, the Contractor shall promptly notify the Owner in a written document signed by the worker. If the Contractor or Subcontractor and affected worker do not agree before the **fifteenth (15th) day** after the Owner's determination, the Contractor or Subcontractor and affected worker must participate in binding arbitration in accordance with the **Texas General Arbitration Act, Chapter 171, Tex. Civ. Prac. & Rem. Code**. The parties to the arbitration have **ten (10) days** after the expiration of the **fifteen (15) days** referred to above, to agree on an arbitrator; if by the **eleventh (11th) day** there is no agreement to an arbitrator, a district court shall appoint an arbitrator on the petition of any of the parties to the arbitration.
- .6 Arbitration Award.** If an arbitrator determines that a violation has occurred, the arbitrator shall assess and award against the Contractor or Subcontractor the amount of penalty as provided in this **Section 3.4** and the amount owed the worker. The Owner may use any amounts retained hereunder to pay the worker the amount as designated in the arbitration award. If the Owner has not retained enough from the Contractor or Subcontractor to pay the worker in accordance with the arbitration

award, the worker has a right of action against the Contractor and Subcontractor as appropriate, and the surety of either to receive the amount owed, attorneys' fees and court costs. The Contractor shall promptly furnish a copy of the arbitration award to the Owner.

.7 Prevailing Wage Retainage. Money retained pursuant to this **Section 3.4** shall be used to pay the claimant or claimants the difference between the amount the worker received in wages for labor on the Project at the rate paid by the Contractor or Subcontractor and the amount the worker would have received at the general prevailing wage rate as provided by the agreement of the claimant and the Contractor or Subcontractor affected, or in the arbitrator's award. The full statutory penalty of **sixty dollars (\$60.00) per day** of violation per worker shall be retained by the Owner to offset its administrative costs, pursuant to **Texas Government Code, §2258.023**. Any retained funds in excess of these amounts shall be paid to the Contractor on the earlier of the next progress payment or final payment. Provided, however, that the Owner shall have no duty to release any funds to either the claimant or the Contractor until it has received the notices of agreement or the arbitration award as provided under **Paragraphs 3.4.2 and 3.4.3**.

.8 No Extension of Time. If the Owner determines that good cause exists to believe a violation has occurred, the Contractor shall not be entitled to an extension of time for any delay arising directly or indirectly from of the procedures set forth in this **Section 3.4**.

3.4.2

Except in the case of minor changes in the Work authorized by the Owner or Architect in accordance with **Paragraphs 3.12.8 or Section 7.4**, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive. If the Contractor desires to submit an alternate product or method in lieu of what has been specified or shown in the Contract Documents, the Contractor shall comply with the Substitution requirements listed in the Specifications, or if there are no Substitution requirements listed in the Specifications, then the following provisions apply:

.1 The Contractor must submit to the Architect and the Owner (1) a full explanation of the proposed substitution and submittal of all supporting data, including technical information, catalog cuts, warranties, test results, installation instructions, operating procedures, and other like information necessary for a complete evaluation of the substitution; (2) the adjustment, if any, in the Contract Sum, in the event the substitution is acceptable; (3) the adjustment, if any, in the time of completion of the Contract and the construction schedule in the event the substitution is acceptable; and (4) a statement indicating Contractor accepts the warranty and correction obligations in connection with the proposed substitution as if originally specified by the Architect.

Proposals for substitutions shall be to the Architect in sufficient time to allow the Architect no less than **ten (10) working days** for review. No substitutions will be considered or allowed without the Contractor's submittal of complete substantiating data and information as stated hereinbefore.

3.4.3

The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

3.4.4

The Contractor shall only employ or use labor in connection with the Work capable of working harmoniously with all trades, crafts, and any other individuals associated with the Project.

3.4.5.

In case the progress of the Work is affected by any undue delay in furnishing or installing any items or materials or equipment required under the Contract Documents because of such conflict involving any such labor agreement or regulation, the Owner may require that other material or equipment of equal kind and quality be provided pursuant to a Change Order or Construction Change Directive.

3.5 WARRANTY

3.5.1

The Contractor warrants to the Owner: (1) that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise; (2) that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit; (3) that the Work will be done strictly in accordance with the Contract Documents; (4) that all products are installed per the manufacturer's instructions, and in such a way that the manufacturer's warranties are preserved, including the use of a manufacturer-certified installer, if required by the manufacturer; (5) and that the Work, when finally completed, will provide a complete Project that meets the intent of the Contract Documents.

The Contractor represents and warrants to the Owner that its materials and workmanship, including without limitation, construction means, methods, procedures and techniques necessary to perform the Work, use of materials, selection of equipment and requirements of product manufacturers are and shall be consistent with: (1) good and sound practices within the construction industry; (2) generally prevailing and accepted industry standards applicable to the Work; (3) requirements of any warranties applicable to the Work subject to **Paragraph 3.2.3.** Work, materials, or equipment not conforming to these requirements shall

be considered defective, and promptly after written notification of non-conformance shall be repaired or replaced by Contractor with Work conforming to this warranty. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Owner or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

- .1 Contractor further warrants that all materials or equipment of a category or classification will be a product of the same manufacturer and such materials or equipment shall be of the same lot, batch or type and that such materials and equipment will be as specified.

3.5.2

The Contractor agrees to assign to the Owner at the time of final completion of the Work any and all manufacturer's warranties relating to materials and labor used in the Work and further agrees to perform the Work in such manner so as to preserve any and all such manufacturer's warranties.

3.6 TAXES

State Sales and Use Taxes. Sales, use or similar taxes imposed by a governmental authority that are related to the Work and for which the Contractor is liable; provided, however, Owner is a body corporate and politic under the laws of the State of Texas and claims exemption from sales and use taxes under Texas Tax Code Ann. 151.309, as amended, and the services and materials subject of the Contract are being secured for use by Owner. Exemption certificates will be provided to Contractor upon request. As a precondition to the Owner reimbursing Contractor for allowable sales and use taxes, Contractor must, on its own, first attempt to use such tax exemption certificates in order to assert the exemption. In the event Contractor's efforts to use the tax exemption certificate is unsuccessful and provided that under the laws of the State of Texas an exemption from sales and use taxes is allowed. Owner will reimburse Contractor for such sales and use taxes upon Contractor providing sufficient and satisfactory documentation to the Williamson County Auditor.

3.7 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

3.7.1

Unless otherwise provided, the Contractor shall secure, pay for, and, as soon as practicable, furnish the Owner with copies or certificates of all permits and fees, licenses, and inspections necessary for the proper execution and completion of the Work, including, without limitation, all building permits. All connection charges, assessments, or inspection fees as may be imposed by any municipal agency or utility company are included in the Contract Sum and shall be the Contractor's responsibility.

3.7.2

The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

3.7.3

If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction and damages resulting therefrom.

3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than **twenty-one (21) calendar days** after first observance of the conditions. The Owner will promptly investigate such conditions and, if the Owner determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will authorize an equitable adjustment in the Contract Sum or Contract Time, or both. If the Owner determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Owner shall promptly notify the Contractor in writing, stating the reasons. If the Contractor disputes the Owner's determination, the Contractor party may assert a Claim as provided in **Article 15**.

3.7.5

If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in **Article 15**.

3.8 ALLOWANCES

3.8.1

The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

3.8.2

Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contractor shall, prior to purchasing any such materials, notify the Owner in writing of the cost and whether such cost will exceed the amount of the allowance. If Owner authorizes Contractor to proceed, after receiving the Contractor's estimate of the total cost, then the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under **Paragraph 3.8.2.1** and (2) changes in Contractor's costs under **Paragraph 3.8.2.2**.

3.9 SUPERINTENDENT

3.9.1

The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent or Contractor's project manager shall be as binding as if given to the Contractor. Important oral communications shall be immediately confirmed in writing.

3.9.2

The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Owner or Architect may reply within **fourteen (14) calendar days** to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Owner and Architect require additional time to review. Failure of the Owner or Architect to reply within the **fourteen (14)-calendar day** period shall constitute notice of no reasonable objection.

3.9.3

The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES**3.10.1**

The Contractor, as provided in the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

3.10.2

The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

3.10.3

The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

3.10.4

The construction schedule shall be a detailed precedence-style critical path management ("CPM") schedule in a format satisfactory to the Owner that shall (1) provide a graphic representation of all activities and events that will occur during performance of the Work; (2) identify each phase of construction and occupancy; and (3) set forth dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents (hereinafter referred to as the "Milestone Date"). Upon review and acceptance by the Owner of the Milestone Dates, the construction schedule shall be deemed part of the Contract Documents. If not accepted, the construction schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and resubmitted for acceptance. The Contractor shall monitor the progress of the Work for conformance with the requirements of the construction schedule and shall promptly advise

the Owner of any delays or potential delays. The accepted construction schedule shall be updated to reflect actual conditions as set forth in **Paragraph 3.10.1** or if requested by the Owner. In the event any progress report indicates any delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor, if necessary. In no event shall any progress report constitute an adjustment in the Contract Time, any Milestone date, or the Contract Sum unless any such adjustment is agreed to by the Owner and authorize pursuant to a Change Order.

3.10.5

In the event the Owner determines that the performance of the Work, as of a Milestone Date, has not progressed or reach the level of completion required by the Contract Documents, the Owner shall have the right to order the Contractor to take corrective measures necessary to expedite the progress of construction, including without limitation, (1) working additional shifts or overtime, (2) supplying additional manpower, equipment, and facilities, and (3) other similar measures. Such measures so continue until the progress of the Work complies with the stage of completion required by the Contract Documents. The Owner's right to require such measures is solely for the purpose of ensuring the Contractors compliance with the construction schedule.

3.11 DOCUMENTS AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

3.12 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

3.12.1

Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

3.12.2

Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

3.12.3

Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

3.12.4

Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of **Paragraph 4.2.7**. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

3.12.5

The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

3.12.6

By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

3.12.7

The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals until the respective submittal has been approved by the Architect.

3.12.8

The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by the Architect's approval thereof.

3.12.9

The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

3.12.10

The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this **Paragraph 3.12.10**, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

3.14 CUTTING AND PATCHING**3.14.1**

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly as required by the Contract Documents. All

areas requiring cutting, fitting, and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

3.14.2

The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

3.15 CLEANING UP

3.15.1

The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

3.15.2

If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

3.16 ACCESS TO WORK

The Owner and Architect shall, at all times, have access to the Work in preparation and progress wherever located.

3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

3.18 INDEMNIFICATION

3.18.1 INDEMNITY

OTHER THAN EMPLOYEE PERSONAL INJURY CLAIMS. TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR SHALL INDEMNIFY, DEFEND, AND HOLD HARMLESS OWNER, ITS EMPLOYEES, AND ASSIGNS (THE "INDEMNIFIED PARTIES" OR "INDEMNITEES") FROM AND AGAINST CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING BUT NOT LIMITED TO ATTORNEYS' FEES, ARISING OUT OF OR ALLEGED TO BE RESULTING FROM THE PERFORMANCE OF THIS CONTRACT, TO THE EXTENT CAUSED BY THE NEGLIGENT OR WILLFUL ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, SUB-SUBCONTRACTORS, OR ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THEM OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE. CONTRACTOR SHALL NOT BE REQUIRED TO INDEMNIFY, HOLD HARMLESS OR DEFEND THE INDEMNIFIED PARTIES AGAINST A CLAIM CAUSED BY THE NEGLIGENCE OR FAULT, OR THE BREACH OR VIOLATION OF A STATUTE, ORDINANCE, GOVERNMENTAL REGULATION, STANDARD, OR RULE OF THE INDEMNITEE, OR OTHER PARTY OTHER THAN CONTRACTOR OR ITS AGENT, EMPLOYEE, OR SUBCONTRACTOR OF ANY TIER, EXCEPT THAT CONTRACTOR SHALL INDEMNIFY, HOLD HARMLESS AND DEFEND THE INDEMNIFIED PARTIES AGAINST ANY CLAIMS FOR THE BODILY INJURY OR DEATH OF AN EMPLOYEE OF CONTRACTOR, ITS AGENTS, OR IT SUBCONTRACTORS OF ANY TIER.

3.18.2 INDEMNITY – EMPLOYEE PERSONAL INJURY CLAIMS

TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR SHALL INDEMNIFY, DEFEND, AND HOLD HARMLESS THE INDEMNIFIED PARTIES AND SHALL ASSUME ENTIRE RESPONSIBILITY AND LIABILITY (OTHER THAN AS A RESULT OF AN INDEMNIFIED PARTY'S GROSS NEGLIGENCE) FOR ANY CLAIM OR ACTION BASED ON OR ARISING OUT OF THE PERSONAL INJURY, INCLUDING THE DEATH, OF ANY EMPLOYEE OF THE CONTRACTOR, SUBCONTRACTORS, OR ANY SUB-SUBCONTRACTOR, OR OF ANY OTHER ENTITY FOR WHOSE ACTS THEY MAY BE LIABLE, WHICH OCCURRED OR WAS ALLEGED TO HAVE OCCURRED ON THE PROJECT SITE OR IN CONNECTION WITH THE PERFORMANCE OF THE WORK OF THIS CONTRACT. CONTRACTOR HEREBY INDEMNIFIES THE INDEMNIFIED PARTIES EVEN TO THE EXTENT THAT SUCH PERSONAL INJURY WAS CAUSED OR ALLEGED TO HAVE BEEN CAUSED BY THE COMPARATIVE OR CONCURRENT NEGLIGENCE OF THE STRICT LIABILITY OF ANY INDEMNIFIED PARTY. THIS INDEMNIFICATION SHALL NOT BE LIMITED TO DAMAGES, COMPENSATION, OR BENEFITS PAYABLE UNDER INSURANCE POLICIES, WORKERS COMPENSATION ACTS, DISABILITY BENEFITS ACTS, OR OTHER EMPLOYEES BENEFIT ACTS.

3.18.3

THE CONTRACTOR'S INDEMNITY OBLIGATIONS UNDER THIS **SECTION 3.18** SHALL ALSO SPECIFICALLY INCLUDE, WITHOUT LIMITATION, ALL FINES, PENALTIES,

DAMAGES, LIABILITY, COSTS, EXPENSES (INCLUDING, WITHOUT LIMITATION, REASONABLE ATTORNEYS' FEES) ARISING OUT OF, OR IN CONNECTION WITH, ANY (1) VIOLATION OF OR FAILURE TO COMPLY WITH ANY LAW, STATUTE, ORDINANCE, RULE, REGULATION, CODE OR REQUIREMENT OF A PUBLIC AUTHORITY THAT BEARS UPON THE PERFORMANCE OF THE WORK BY THE CONTRACTOR, A SUBCONTRACTOR, OR ANY PERSON OR ENTITY FOR WHOM EITHER IS RESPONSIBLE, (2) MEANS, METHODS, PROCEDURES, TECHNIQUES, OR SEQUENCES OF EXECUTION OR PERFORMANCE OF THE WORK, AND (3) FAILURE TO SECURE AND PAY FOR PERMITS, FEES, APPROVALS, LICENSES, AND INSPECTIONS AS REQUIRED UNDER THE CONTRACT DOCUMENTS, OR ANY VIOLATION OF ANY PERMIT OR OTHER APPROVAL OF A PUBLIC AUTHORITY APPLICABLE TO THE WORK, BY THE CONTRACTOR, A SUBCONTRACTOR, OR ANY PERSON OR ENTITY FOR WHOM EITHER IS RESPONSIBLE.

ARTICLE 4 ARCHITECT

4.1 GENERAL

4.1.1

The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Contract and is referred to throughout the Contract Documents as if singular in number.

4.1.2

Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

4.1.3

In the event that Owner has not engaged an architect and an architect is not identified in the Contract, but, rather, engages an engineer for the Project, all references made in these General Conditions to the "Architect" shall mean and include the engineer identified as the "Engineer" in the Contract and all duties, responsibilities and limitations of authority of the Architect, as set forth in the Contract Documents, shall apply to the Engineer.

4.2 ADMINISTRATION OF THE CONTRACT

4.2.1

The Architect will provide administration of the Contract as described in the Owner-Architect Agreement. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

4.2.2

The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in **Paragraph 3.3.1**.

4.2.3

On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

4.2.4 COMMUNICATIONS AND CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to relate relevant communications between Owner and Architect to the Architect. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

4.2.5

If included in Architect's scope of work, the agreement between Owner and Architect, or if requested by the Owner, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts based on the Architect's evaluations of the Contractor's Applications for Payment.

4.2.6

To the extent permitted by the agreement between Owner and Architect, the Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect, in consultation with the Owner,

will have authority to require inspection or testing of the Work in accordance with **Paragraphs 13.5.2 through 13.5.3**, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Owner to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

4.2.7

To the extent provided in the agreement between Owner and Architect, the Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Owner and Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under **Sections 3.3, 3.5, and 3.12**. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

4.2.8

If requested by Owner, the Architect will prepare Change Orders and Construction Change Directives with the Owner's prior written consent, but the Architect may authorize minor changes in the Work as provided in the agreement between Owner and Architect, or in **Section 7.4**. If requested by Owner, the Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in **Paragraph 3.7.4**.

4.2.9

If requested by Owner, the Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to **Section 9.8**; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to **Section 9.10**; and issue a final Certificate for Payment pursuant to **Section 9.10**.

4.2.10

If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities, and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

4.2.11

If requested by Owner, the Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

4.2.12

Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings.

4.2.13

The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents, and if approved by Owner.

4.2.14

The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1

A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

5.1.2

A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is

referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

5.2 AWARD OF SUBCONTRACTS

5.2.1 FOR CONSTRUCTION MANAGER AT-RISK CONTRACTS

The Construction Manager shall publicly advertise for bids or proposals and receive bids or proposals from trade contractors or Subcontractors for the performance of all major elements of the work other than the minor work that may be included in the general conditions. The Construction Manager may seek to perform portions of the work itself if:

- .1 the Construction Manager submits its bid or proposal for those portions of the Work in the same manner as all other trade contractors or Subcontractors; and
- .2 the Owner determines that the Construction Manager's bid or proposal provides the best value for the Owner.
- .3 **Review of Bids or Proposals.** Construction Manager shall review all trade contractor or Subcontractor bids or proposals in a manner that does not disclose the contents of the bid or proposal during the selection process to a person not employed by the Construction Manager, Architect, Engineer, or Owner. All bids or proposals shall be made available to the Owner on request and to the public after the later of the award of the Contract or the **seventh (7th) business day** after the date of final selection of bids or proposals. If the Construction Manager reviews, evaluates, and recommends to the Owner a bid or proposal from a trade contractor or subcontractor but the Owner requires another bid or proposal to be accepted, the Owner shall compensate the Construction Manager by a change in the Contract Sum, Contract Time, or Cost of the Work for any additional cost and risk that the Construction manager incurs because of the Owner's requirement that another bid or proposal be accepted.

5.2.2

The Contractor shall not contract with a proposed Subcontractor, person, or entity to whom the Owner has made reasonable objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made a reasonable objection.

5.2.3

If the Owner has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time may be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract

Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

5.2.4

The Contractor shall not substitute a Subcontractor, person, or entity previously selected if the Owner makes reasonable objection to such substitution.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.3.2

All subcontracts shall be in writing and, if requested, Contractor shall provide Owner with copies of executed subcontracts.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1

The Contract is for Owner's benefit, its successors and assigns who, as well as Contractor, may directly enforce all rights and warranties, express or implied herein, but Subcontractors shall have recourse only against Contractor and not against Owner. Owner may rely solely upon Contractor for enforcement of all Subcontracts. To effect such purpose, Contractor assigns to Owner all right to bring any actions against subcontractors and material vendors without waiver by Owner of his right against Contractor because of defaults, delays and

effects for which a subcontractor or material vendor may also be liable, said assignment being effective only if:

- .1 Contractor is in default under the Contract Documents; or
- .2 Owner has terminated the Contract in accordance with the Contract Documents; and
- .3 Only for those subcontract agreements which the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .4 The assignment is subject to the prior rights of the surety, if any, obligated under any bond relating to the Contract.

5.4.2

Upon such assignment, if the Work has been suspended for more than **thirty (30) calendar days**, the Subcontractor's compensation may be equitably adjusted for increases in cost resulting from the suspension.

5.4.3

Upon such assignment to the Owner under this **Section 5.4**, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

5.4.4

The Architect and the Owner shall have the right to request from any Subcontractor at any time during the course of construction, a notarized affidavit stating the amount of monies which have been paid to the Subcontractor as of any certain stipulated date.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1

The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in **Article 15**.

6.1.2

When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Contract.

6.1.3

The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

6.2 MUTUAL RESPONSIBILITY**6.2.1**

The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

6.2.2

If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect and the Owner apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

6.2.3

The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

6.2.4

The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in **Paragraph 10.2.5**.

6.2.5

The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in **Section 3.14**.

6.2.6

All separate contractors shall sign a site access agreement with Contractor setting forth duties, responsibilities, safety, and administrative requirements.

6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

7.1 GENERAL

7.1.1

Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this **Article 7** and elsewhere in the Contract Documents.

7.1.2

A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Owner or Architect alone.

7.1.3

Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work. Except as permitted in **Section 7.3** and **Paragraph 9.7.2**, a change in the Contract Sum or the Contract Time shall be accomplished only by Change Order. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that Owner has been unjustly enriched by any alteration of or addition to the Work, whether or not there is, in fact, any unjust enrichment to the Work, shall be the basis of any Claim to an increase in any amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents.

7.2 CHANGE ORDERS

7.2.1

A Change Order is a written instrument signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

- .1** The change in the Work;
- .2** The amount of the adjustment, if any, in the Contract Sum; and
- .3** The extent of the adjustment, if any, in the Contract Time.

7.2.2

Contractor's Change Order shall set forth in clear and precise detail breakdowns of labor and materials for all trades involved and the estimated impact on the dates of Substantial Completion. Contractor shall furnish supporting data as reasonably requested by Owner.

7.2.3

Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and the construction schedule.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.1

A Construction Change Directive is a written order signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

7.3.2

A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

7.3.3

If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1** Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in **Paragraph 7.3.7**.

7.3.4

If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

7.3.5

Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

7.3.6

A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

7.3.7

If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Owner shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Contract, or if no such amount is set forth in the Contract, a reasonable amount. In such case, and also under **Paragraph 7.3.3.3**, the Contractor shall keep and present, in such form as the Owner or Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this **Paragraph 7.3.7** shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

7.3.8

The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Owner or the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

7.3.9

Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Owner will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Owner determines to be reasonably justified. The Owner's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of Contractor to disagree and assert a Claim in accordance with **Article 15**.

7.3.10

When the Owner and Contractor agree with a determination made concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

7.4 MINOR CHANGES IN THE WORK

If permitted in the agreement between Owner and Architect, the Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents.

ARTICLE 8 TIME

8.1 CONTRACT TIME

TIME IS AN ESSENTIAL ELEMENT OF THE CONTRACT. The Contract Time is the time between the dates indicated in the Notice to Proceed for commencement of the Work and for achieving Substantial Completion. The Contract Time can be modified only by Change Order. Failure to achieve Substantial Completion within the Contract Time, as otherwise agreed to in writing, will cause damage to Owner and may subject Contractor to liquidated damages as provided in the Contract. If Contractor fails to achieve Final Completion within **thirty (30) calendar days** after Substantial Completion or a mutually agreed upon longer period of time between Contractor and Owner, Contractor shall be responsible for Owner's additional inspection, project management, and maintenance cost to the extent caused by Contractor's failure to achieve Final Completion.

8.2 NOTICE TO PROCEED

Owner will issue a Notice to Proceed which shall state the dates for beginning the Work and for achieving Substantial Completion of the Work.

8.3 WORK PROGRESS SCHEDULE

Unless indicated otherwise, Contractor shall submit to Owner and Architect the initial Work Progress Schedule for the Work in relation to the entire Project not later than **twenty-one (21) calendar days** after the effective date of the Notice to Proceed. Unless indicated otherwise, the Work Progress Schedule shall be computerized Critical Path Method (CPM) with fully editable logic. This initial schedule shall indicate the dates for starting and completing the various aspects required to complete the Work, including mobilization, procurement, installation, testing, inspection, delivery of Close-out Documents, and acceptance of all the Work of the Contract. When acceptable to Owner, the initially accepted schedule shall be the Baseline Schedule for comparison to actual conditions throughout the Contract duration.

8.3.1 SCHEDULE REQUIREMENTS

Contractor shall submit electronic and paper copy of the initial Work Progress Schedule reflecting accurate and reliable representations of the planned progress of the Work, the Work to date if any, and of Contractor's actual plans for its completion. Contractor shall organize and provide adequate detail, so the schedule is capable of measuring and forecasting the effect of delaying events on completed and uncompleted activities.

- .1 Contractor shall resubmit initial schedule as required to address review comments from Architect and Owner until such schedule is accepted as the Baseline Schedule.
- .2 Submittal of a schedule, schedule revision or schedule update constitutes Contractor's representation to Owner of the accurate depiction of all progress to date and that Contractor will follow the schedule as submitted in performing the Work.

8.3.2 SCHEDULE UPDATES

Contractor shall update the Work Progress Schedule and the Submittal Register monthly, as a minimum, to reflect progress to date and current plans for completing the Work, while maintaining original schedule as Baseline Schedule and submit electronic copies of the update to Owner and Architect as directed, but as a minimum with each request for payment. Owner has no duty to make progress payments unless accompanied by the updated Work Progress Schedule. Show the anticipated date of completion reflecting all extensions of time granted through Change Order as of the date of the update. Contractor may revise the Work Progress Schedule when in Contractor's judgment it becomes necessary for the management of the Work. Contractor shall identify all proposed changes to schedule logic to Owner and to Architect via an executive summary accompanying the updated schedule for review prior to final implementation of revisions into a revised Baseline Schedule. Schedule changes that materially impact Owner's operations shall be communicated promptly to Owner and Architect and shall not be incorporated into the revised Baseline Schedule without Owner's consent.

8.3.3

The Work Progress Schedule is for Contractor's use in managing the Work and submittal of the schedule, and successive updates or revisions, is for the information of Owner and to demonstrate that Contractor has complied with requirements for planning the Work. Owner's acceptance of a schedule, schedule update, or revision constitutes Owner's agreement to coordinate its own activities with Contractor's activities as shown on the schedule.

- .1 Acceptance of the Work Progress Schedule, or update and/or revision thereto does not indicate any approval of Contractor's proposed sequences and duration.
- .2 Acceptance of a Work Progress Schedule update or revision indicating early or late completion does not constitute Owner's consent, alter the terms of the Contract, or waive either Contractor's responsibility for timely completion or Owner's right to damages for Contractor's failure to do so.
- .3 Scheduled dates for completion of any activity or the entire Work do not constitute a change in terms of the Contract. Change Orders are the only method of modifying the Substantial Completion Date(s) and Contract Time.

8.4 COMPLETION OF WORK

Contractor is accountable for completing the Work within the Contract Time stated in the Contract, or as otherwise amended by Change Order.

8.4.1

If, in the judgment of Owner, the work is behind schedule and the rate of placement of Work is inadequate to regain scheduled progress to ensure timely completion of the entire Work or

a separable portion thereof, Contractor, when so informed by Owner, shall immediately take action to increase the rate of work placement by:

- .1 An increase in working forces.
- .2 An increase in equipment or tools.
- .3 An increase in hours of work or number of shifts.
- .4 Expedite delivery of materials.
- .5 Other action proposed, if acceptable to Owner.

8.4.2

Within **ten (10) calendar days** after such notice from Owner, Contractor shall notify Owner in writing of the specific measures taken or planned to increase the rate of progress. Contractor shall include an estimate as to the date of scheduled progress recovery and an updated Work Progress Schedule illustrating Contractor's plan for achieving timely completion of the Project. Should Owner deem the plan of action inadequate, Contractor shall take additional steps or make adjustments, as necessary, to its plan of action until it meets with Owner's approval.

8.5 MODIFICATION OF CONTRACT TIME

8.5.1

Delays and extension of time as hereinafter described are valid only if executed in accordance with provisions set forth in **Article 7**.

8.5.2

When a delay defined herein as excusable prevents Contractor from completing the Work within the Contract Time, Contractor is entitled to an extension of time. Owner will make an equitable adjustment and extend the number of days lost because of excusable delay or Weather Days, as measured by Contractor's progress schedule. All extensions of time will be granted in calendar days. In no event, however, will an extension of time be granted for delays that merely extend the duration of non-critical activities without delaying the project Substantial Completion date(s).

- .1 A "Weather Day" is a day on which Contractor's current schedule indicates Work is to be done, and on which inclement weather or related site conditions prevent Contractor from performing **seven (7) continuous hours** of Work on the critical path between the hours of 7:00 a.m. and 6:00 p.m.

- A. Weather days are excusable delays and, in the event of precipitation, Contractor may claim **one (1) Weather Day** for each day of the duration of the precipitation plus an additional day for each **tenth (1/10th) of an inch** of accumulation as determined by a third-party website agreed upon by Owner and Contractor.
 - B. At the end of each calendar month, Contractor shall submit to Owner and Architect a list of Weather Days occurring in that month along with documentation of the impact on critical activities. Based on confirmation by Owner, any time extension granted will be issued by Change Order. If Contractor and Owner cannot agree on the time extension, Owner may issue a Construction Change Directive (CCD) for a fair and reasonable time extension.
- .2 Excusable Delay.** Contractor is entitled to an equitable adjustment of the Contract Time, issued via Change Order, for delays caused by the following:
- A. Errors, omissions, and imperfections in design, which Architect corrects by means of changes in the Drawings and Specifications.
 - B. Unanticipated physical conditions at the Site, which Architect corrects by means of changes to the Drawings and Specifications or for which Owner directs changes in the Work identified in the Contract Documents.
 - C. Failure of Owner to have secured property, right-of-way, or easements necessary for Work to begin or progress.
 - D. Changes in the Work that effect activities identified in Contractor's schedule as "critical" to completion of the entire Work, if such changes are ordered by Owner or recommended by Architect and ordered by Owner.
 - E. Suspension of Work for unexpected natural events, Force Majeure (sometimes called "acts of God"), civil unrest, strikes or other events which are not within the reasonable control of Contractor.
 - F. Suspension of Work for convenience of Owner, which prevents Contractor from completing the Work within the Contract Time.
 - G. Administrative delays caused by activities or approval requirements related to an Authority Having Jurisdiction.

8.5.3

Contractor's relief in the event of such delays is the time impact to the critical path as determined by analysis of Contractor's schedule. In the event that Contractor incurs additional direct costs because of the excusable delays other than described in **Subparagraph**

8.5.2.2.D and within the reasonable control of Owner, the Contract Sum and Contract Time are to be equitably adjusted by Owner pursuant to the provisions of **Article 7**.

8.6 NO DAMAGES FOR DELAY

Due to the unique requirements of working within a public facility which may be shared with other user-groups and adjacent to other public facilities, Owner may, at any time, restrict the Work to non-disruptive activities to reduce noise, vibration, air pollution, or any other nuisance, intrusion, or danger affecting adjacent public functions and duties. In each case, Owner will make a good faith effort to provide sufficient advanced notice of restriction to Contractor; and, Contractor shall make a good faith effort to reallocate activities, materials, and forces onsite to avoid delay to the project schedule. Contractor has no claim for monetary damages for delay or hindrances to the Work from any cause, including, without limitation, any act or omission of Owner.

8.7 CONCURRENT DELAY

When the completion of the Work is simultaneously delayed by an excusable delay and a delay arising from a cause not designated as excusable, Contractor may not be entitled to a time extension for the period of concurrent delay.

8.8 OTHER TIME EXTENSION REQUESTS

Time extensions requested in association with changes to the Work directed or requested by Owner shall be included with Contractor's proposed costs for such change. Time extensions requested for inclement weather are covered by **Paragraph 8.5.2.1** above. If Contractor believes that the completion of the Work is delayed by a circumstance other than for changes directed to the Work or weather, they shall give Owner written notice, stating the nature of the delay and the activities potentially affected, within **five (5) calendar days** after the onset of the event or circumstance giving rise to the excusable delay. Contractor shall provide sufficient written evidence to document the delay. In the case of a continuing cause of delay, only one claim is necessary. State claims for extensions of time in numbers of whole or half days.

8.8.1

Within **ten (10) calendar days** after the cessation of the delay, Contractor shall formalize its request for extension of time in writing to include a full analysis of the schedule impact of the delay and substantiation of the excusable nature of the delay. All changes to the Contract Time or made as a result of such claims is by Change Order, as set forth in **Article 7**.

8.8.2

No extension of time releases Contractor or the Surety furnishing a performance or payment bond from any obligations under the Contract or such a bond. Those obligations remain in full force until the discharge of the Contract.

8.8.3 CONTENTS OF TIME EXTENSION REQUESTS

Contractor shall provide with each Time Extension Request a quantitative demonstration of the impact of the delay on project completion time, based on the Work Progress Schedule. Contractor shall include with Time Extension Requests a reasonably detailed narrative setting forth:

- .1 The nature of the delay and its cause; the basis of Contractor's claim of entitlement to a time extension.
- .2 Documentation of the actual impacts of the claimed delay on the critical path indicated in Contractor's Work Progress Schedule, and any concurrent delays.
- .3 Description and documentation of steps taken by Contractor to mitigate the effect of the claimed delay, including, when appropriate, the modification of the Work Progress Schedule.

8.8.4 OWNER'S RESPONSE

Owner will respond to the Time Extension Request by providing to Contractor written notice of the number of days granted, if any, and giving its reason if this number differs from the number of days requested by Contractor.

- .1 Owner will not grant time extensions for delays that do not affect the Contract Substantial Completion date.
- .2 Owner will respond to each properly submitted Time Extension Request within **fifteen (15) calendar days** following receipt. If Owner cannot reasonably make a determination about Contractor's entitlement to a time extension within that time, Owner will notify Contractor in writing. Unless otherwise agreed by Contractor, Owner has no more than **fifteen (15) additional calendar days** to prepare a final response. If Owner fails to respond within **forty-five (45) calendar days** from the date the Time Extension Request is received, Contractor is entitled to a time extension in the amount requested.

8.9 FAILURE TO COMPLETE WORK WITHIN THE CONTRACT TIME

TIME IS AN ESSENTIAL ELEMENT OF THE CONTRACT. Contractor's failure to substantially complete the Work within the Contract Time or to achieve Substantial Completion as required will cause damage to Owner. These damages shall be liquidated by agreement of Contractor and Owner, in the amount per day as set forth in the Contract.

8.10 LIQUIDATED DAMAGES

Owner may collect liquidated damages due from Contractor directly or indirectly by reducing the Contract Sum in the amount of liquidated damages stated in the Contract.

ARTICLE 9 PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

The Contract Sum is stated in the Contract and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price ("GMP"), the Contractor shall submit to the Owner and Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Owner may require. This schedule, unless objected to by the Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment.

9.3 APPLICATIONS FOR PAYMENT

9.3.1

As provided in the Contract and in the Contract Documents, the Contractor shall submit to the Owner and Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under **Section 9.2.**, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

- .1** As provided in **Paragraph 7.3.9**, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Owner or the Architect, but not yet included in Change Orders.
- .2** Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.
- .3** If requested by Owner or required elsewhere in the Contract Documents, Each Application for Payment shall be accompanied by the following, all in a form and substance satisfactory to the Owner:

- a) With each Application for Payment: a current Sworn Statement from the Contractor setting forth all Subcontractors and all material suppliers with whom the Contractor has subcontracted, the amount of each such subcontract, the amount requested for any Subcontractor or material supplier in the Application for Payment, and the amount to be paid to the Contractor from such progress payment;
- b) With each Application for Payment: a duly executed Conditional Waiver and Release on Progress Payment from the Contractor and Subcontractors establishing receipt of payment or satisfaction of the payment requested by the Contractor in the current Application for Payment;
- c) Commencing with the second Application for Payment submitted by the Contractor, a duly executed Unconditional Waiver and Release on Progress Payment from Contractor and all Subcontractors, material suppliers and, where appropriate, lower tier subcontractors that have billed more than **five thousand dollars (\$5,000)** on a single application of payment, establishing receipt of payment or satisfaction of payment of all amounts requested on behalf of such entities and disbursed prior to submittal by the Contractor of the current Application for Payment;
- d) With the Final Application for Payment: Contractor shall submit a Conditional Waiver and Release on Final Payment as required by **Texas Property Code, §53.284**. Upon receipt of final payment, Contractor shall submit an Unconditional Waiver and Release on Final Payment as required by **Texas Property Code, §53.284**; and
- e) Such other information, documentation, and materials as the Owner, or the title insurer may require in order to ensure that Owner's property is free of lien claims. Such other documents may include, without limitation, original copies of lien or bond claim releases suitable for filing with the County Clerk in Williamson County, Texas.

9.3.2

Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

9.3.3

The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, bond claims, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

- .1 The Contractor further expressly undertakes to defend Owner, at the Contractor's sole expense, against any actions, lawsuits, or proceedings brought against Owner as a result of liens filed against the Work, the site of any of the Work, the Project site and any improvements thereon, or any portion of the property of any of Owner (referred to collectively as "liens" in this **Paragraph 9.3.3**), provide the Owner has paid Contractor pursuant to the requirements of the Contract Documents. The Contractor hereby agrees to indemnify and hold Owner harmless against any such liens or claims of lien and agrees to pay any judgment or lien resulting from any such actions, lawsuits, or proceedings.
- .2 The Owner shall release any payments withheld due to a lien or bond claims if the Contractor obtains security acceptable to the Owner, however, the Contractor shall not be relieved of any responsibilities or obligations under this **Paragraph 9.3.3**, including, without limitation, the duty to defend and indemnify Owner.
- .3 **Retainage.** The Owner shall withhold from each progress payment, as retainage, **five percent (5%)** of the total earned amount. Retainage so withheld shall be managed in conformance with **Texas Government Code, Chapter 2252, Subchapter B**. Any request for reduction or release of retainage shall be accompanied by written consent of the Contractor's Surety. No such request shall be made until the Contractor has earned at least **sixty-five percent (65%)** of the total Contract Sum.
- .4 For purposes of **Texas Government Code, §2251.021 (a)(2)**, the date the performance of service is completed is the date when the Owner's representative approves the Application for Payment.

9.4 CERTIFICATES FOR PAYMENT**9.4.1**

The Architect will, within **seven (7) business days** after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the

Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in **Paragraph 9.5.1**.

9.4.2

The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

9.5.1

The Owner or Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Owner or Architect's opinion the representations to the Owner required by **Paragraph 9.4.2** cannot be made. If the Owner or Architect is unable to certify payment in the amount of the Application, the Owner or Architect will notify the Contractor. If the Contractor and Architect, or Contractor and Owner, as the case may be, cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount that can be certified. The Owner or Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Owner or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in **Paragraph 3.3.2**, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims;

- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- .6 failure to maintain the scheduled progress, or reasonable evidence that the Work will not be completed within the Contract Time;
- .7 failure to comply with the requirements of **Texas Government Code, Chapter 2258** (Prevailing Wage Law);
- .8 failure to include sufficient documentation to support the amount of payment requested for the Project;
- .9 failure to obtain, maintain, or renew insurance coverage, payment/performance bonds or warranty bond required by the Contract Documents; or
- .10 repeated failure to carry out the Work in accordance with the Contract Documents.

9.5.2

When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

9.6 PROGRESS PAYMENTS

9.6.1

The Owner shall make payment in the manner and within the time provided in the Contract Documents and in accordance with **Texas Government Code, Chapter 2251**.

9.6.2

The Contractor shall pay each Subcontractor no later than **ten (10) calendar days** after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

9.6.3

The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the

Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within **seven (7) calendar days**, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

9.6.4

Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in **Paragraph 9.6.2**.

9.6.5

A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

9.7 FAILURE OF PAYMENT

9.7.1

If the Architect is required to issue Certificates for Payment and, through no fault of the Contractor, the Architect fails to timely issue Certificates for Payment in the time permitted in the Contract Documents, or if the Owner does not pay the Contractor by the date established in the Contract Documents, then the Contractor may, upon **twenty-one (21) business days** written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received.

9.7.2

If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to the Contract Documents, such payment shall be made promptly upon demand by the Owner. Notwithstanding anything contained in the Contract Documents to the contrary, if the Contractor fails to promptly make any payment due the Owner, or if the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective work, the Owner shall have an absolute right to offset such amount against the Contract Sum and may, in the Owner's sole discretion, elect either to (1) deduct an amount equal to that which the Owner is entitled from any payment then or thereafter due the Contractor from the Owner, or (2) issue a written notice to the Contractor reducing the Contract Sum by an amount equal to that which the Owner is entitled.

9.8 SUBSTANTIAL COMPLETION

9.8.1

Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use; provided, however, that as a

condition precedent to Substantial Completion, the Owner has received all certificates of occupancy and any other permits, approvals, licenses, and other documents from any governmental authority having jurisdiction thereof necessary for the beneficial occupancy of the Project.

9.8.2

When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Owner and Architect a comprehensive list of items to be completed or corrected prior to final payment (punch list). Failure to include an item on the punch list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

9.8.3

Upon receipt of the Contractor's punch list, the Owner and Architect will examine the Work to determine whether the Work or designated portion thereof is substantially complete. If the Owner and/or Architect's examination discloses any item, whether or not included on the Contractor's punch list, that is not sufficiently complete in accordance with the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Owner or Architect. In such case, the Contractor shall then submit a request for another examination by the Owner or Architect to determine Substantial Completion.

9.8.4

When the Work or designated portion thereof is substantially complete, the Architect, if required by the Contract Documents, or Owner will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Unless otherwise provided, Contractor shall complete all items on the punch list within **thirty (30) calendar days** of Substantial Completion. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

9.8.5

The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1

The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under **Paragraph 11.3.1.5**, the surety, and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under **Paragraph 9.8.2**. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld.

9.9.2

Immediately prior to partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.9.3

Partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1

Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Owner and Architect will make such inspection and, when the Owner and Architect find the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in **Paragraph 9.10.2** as precedent to the Contractor's being entitled to final payment have been fulfilled. All warranties and guarantees required under or pursuant to the Contract Documents shall be assembled and delivered by the Contractor to the Architect as part of the final Application for Payment. The final Certificate for Payment will not be issued by the Architect until all warranties and guarantees have been received and accepted by the Owner.

9.10.2

Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner and Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work have been paid or otherwise satisfied, within the period of time required by **Texas Government Code, Chapter 2251**, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least **thirty (30) business days** prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety to final payment, (5) a warranty bond in a form acceptable to Owner, and (6) other data establishing payment or satisfaction of obligations, such as receipts, unconditional full and final releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner.

9.10.3

The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of warranties required by the Contract Documents.

9.10.4

Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor and its Subcontractors shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1

The Contractor and its Subcontractors shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement during construction.

10.2.2

The Contractor and its Subcontractors shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury, or loss. Notwithstanding any language to the contrary, the Owner shall not have any responsibility for job site inspections or safety recommendations. Any inspections or observations by the Owner or the Architect are solely for the benefit of the Owner and shall not create any duties or obligations to anyone else.

10.2.3

The Contractor and its Subcontractors shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

10.2.4

When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

10.2.5

The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in **Paragraphs 10.2.1.2 and 10.2.1.3** caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under **Paragraphs 10.2.1.2 and 10.2.1.3**, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of

the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under **Section 3.18**.

10.2.6

The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

10.2.7

The Contractor and its Subcontractors shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding **twenty-one (21) calendar days** after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

10.2.9

When all or a portion of the Work is suspended for any reason, the Contractor shall securely fasten down all covering and fully protect the Work, as necessary, from injury or damage by any cause.

10.2.10

The Contractor shall promptly report in writing to the Owner and Architect all accidents arising out of or in connection with the Work that cause death, personal injury, or property damage.

10.3 HAZARDOUS MATERIALS

10.3.1

The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

10.3.2

Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written notice from the Owner.

10.3.3

The Owner shall not be responsible under this **Section 10.3** for materials or substances the Contractor brings to the site unless such materials or substances are expressly required by the Contract Documents. The Owner shall be responsible for materials or substances expressly required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

10.3.4

The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site or negligently handles, or (2) where the Contractor fails to perform its obligations under **Paragraph 10.3.1**, except to the extent that the cost and expense are due to the Owner's fault or negligence.

10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time, if any, claimed by the Contractor on account of an emergency shall be determined as provided in **Article 7** and **Article 15**.

ARTICLE 11 INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE**11.1.1**

The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;

- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations, which coverage shall be maintained for no less than **four (4) years** following final payment; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under **Section 3.18**.

11.1.2

The insurance required by **Paragraph 11.1.1** shall be written for not less than limits of liability specified in the Contract or the Contract Documents. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

11.1.3

Unless otherwise provided, copies of the insurance policies, in form acceptable to the Owner, shall be provided to Owner within **thirty (30) calendar days** of Owner's request. Except as otherwise provided, all of the policies provided shall name Owner as an additional insured, and such policies shall immediately deliver to Owner copies of all such insurance policies, together with certificates by the insurer evidencing Owner's coverage there under. Each policy of insurance obtained by Contractor pursuant to the Contract Documents shall provide, by endorsement or otherwise (1) that such policy shall not be canceled, endorsed, altered or reissued to effect a change in coverage for any reason or to any extent whatsoever unless the insurer shall have first given Owner and Lender at least **thirty (30) calendar days** prior written notice thereof, and (2) that Owner may, but shall not be obligated to, make premium payments to prevent the cancellation, endorsement, alteration or reissuance of such

policy and such payments shall be accepted by the insurer to prevent the same. Such policies shall provide, by endorsement or otherwise, that Contractor shall be solely responsible for the payment of all premiums under the policies, and that Owner shall have no obligation for the payment thereof, notwithstanding that Owner is named as additional insured under the policy. Any insured loss or claim of loss shall be adjusted to the Owner, and any settlement payments shall be made payable to the Owner as a trustee for the insureds, as their interests may appear. Upon the occurrence of an insured loss or claim of loss, monies received will be held by Owner who shall make distribution in accordance with an agreement to be reached in such event between Owner and Contractor. If the parties are unable to agree between themselves on the settlement of the loss, such dispute shall be resolved in accordance with **Article 15**, below, but the Work of the Project shall nevertheless progress during any such period of dispute without prejudice to the rights of any party to the dispute. The Contractor shall be responsible for any loss within the deductible area of the policy. If Owner is damaged by the failure of Contractor to purchase or maintain such insurance, then Contractor shall bear all costs properly attributable thereto. The Contractor shall affect and maintain similar property insurance on portions of the Work stored off the site or in transit when such portions of the Work are to be included. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until Final Completion of the Project.

11.1.4

The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

11.3 PROPERTY INSURANCE

11.3.1

Unless otherwise provided in the Contract Documents, the Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in **Section 9.10** or until no

person or entity other than the Owner has an insurable interest in the property required by this **Section 11.3** to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

- .1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss as well as coverage for building materials while in transit or building materials suitably stored at a temporary location. Property insurance provided by the Contractor shall not cover any tools, apparatus, machinery, scaffolding, hoists, forms, staging, shoring, and other similar items commonly referred to as construction equipment that may be on the site and the capital value of which is not included in the Work. The Contractor shall make its own arrangements for any insurance it may require on such construction equipment. Any such policy obtained by the Contractor under this **Paragraph 11.3.1** shall include a waiver of subrogation in accordance with the requirements of **Paragraph 11.3.4**.
- .2 If the Contractor does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Contractor shall so inform the Owner in writing prior to commencement of the Work. If the Owner is damaged by the failure or neglect of the Contractor to purchase or maintain insurance as described above, without so notifying the Owner in writing, then the Contractor shall bear all reasonable costs properly attributable thereto.
- .3 Contractor shall be responsible for any deductibles to the extent that the loss arose out of or was caused by Contractor's negligence or breach of the Contract.
- .4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.
- .5 Partial occupancy or use in accordance with **Section 9.9** shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

11.3.2 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in **Article 6**, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent of actual recovery of any insurance proceeds under any property insurance obtained pursuant to this **Section 11.3** or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance. However, this waiver shall not apply to property insurance purchased by Owner after completion of the Work or Final Payment, whichever comes first. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in **Article 6**, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

11.3.3

A loss insured under the property insurance shall be adjusted in good faith and made payable to the Owner in good faith for the insureds, as their interests may appear. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

11.4 BONDS

11.4.1

The Contractor is required to tender to Owner, prior to commencing the Work, performance and payment bonds, as required by law. In the event Contractor fails to provide such bonds within the time provided by the Contract, Owner may immediately, upon notice of such failure, or within a reasonable time thereafter, at its sole option and discretion: (1) void this Contract in its entirety; or (2) procure such bonds on behalf of the Contractor, deducting such amounts from the Contract Sum. In the event Owner voids the Contract under this **Section 11.4**, Contractor may forfeit its bid bond.

11.4.2

A Performance Bond is required if the Contract Sum is in excess of **fifty thousand dollars (\$50,000)**. The performance bond is solely for the protection of the Owner, in the full amount of the Contract Sum and conditioned on the faithful performance of the Work in accordance with the Contract Documents. The form of the bond shall be approved by the Owner.

11.4.3

A Payment Bond is required if the Contract Sum is in excess of **twenty-five thousand dollars (\$25,000)**. A payment bond is payable to the Owner, in the full amount of the Contract Sum and solely for the protection and use of payment bond beneficiaries who have a direct contractual relationship with the Contractor or a supplier of required materials or labor. The form of bond shall be approved by the Owner.

11.4.4 Warranty Bond.

Prior to final final payment, Contractor shall provide Owner with a Warranty Bond in the sum of ten percent (10%) of the Contract Sum or ten percent (10%) of the GMP for Construction Manager At-Risk Contracts for twelve (12) months from Substantial Completion of the Work. The form of bond shall be approved by the Owner.

11.4.5

Corporate sureties authorized to issue bonds shall be qualified and comply with relevant provisions of the Texas Insurance Code.

11.4.6

Each bond shall be executed by a corporate surety or sureties authorized to do business in the State of Texas and acceptable to the Owner. If any bond is for more than **ten percent (10%)** of the surety's capital and surplus, the Owner may require certification that the company has reinsured the excess portion with one or more reinsurers authorized, accredited, or trusted to do business in the State. A reinsurer may not reinsure for more than **ten percent (10%)** of its capital and surplus. If a surety upon a bond loses its authority to do business in the State, the Contractor shall within **thirty (30) calendar days** after such loss furnish a replacement bond at no added cost to the Owner.

11.4.7

Each bond shall be accompanied by a valid Power-of-Attorney (issued by the surety company and attached, signed and sealed with the corporate embossed seal, to the bond) authorizing the attorney in fact who signs the bond to commit the company to the terms of the bond, and stating any limit in the amount for which the attorney can issue a single bond.

11.4.8

The process of requiring and accepting bonds and making claims thereunder shall be conducted in compliance with **Texas Government Code, Chapter 2253**. If for any reason a statutory payment or performance bond is not honored by the surety, the Contractor shall fully indemnify and hold the Owner harmless of and from any costs, losses, obligations or liabilities it incurs as a result.

11.4.9

Owner shall furnish certified copies of a payment bond and the related Contract between Owner and Contractor to any qualified person seeking copies who complies with **Texas Government Code, §2253.026**.

11.4.10 Claims on Payment Bonds.

Claims on payment bonds must be sent directly to the Contractor and its surety in accordance with Texas Government Code, §2253.041. All Payment Bond claimants are cautioned that no lien exists on the funds unpaid to the Contractor on such contract, and that reliance on notices sent to the Owner may result in loss of their rights against the Contractor and/or its surety. The Owner is not responsible in any manner to a claimant for collection of unpaid bills, and accepts no such responsibility because of any representation by any agent or employee.

11.4.11 Payment Claims when Payment Bond not Required.

When the value of the Contract between Owner and the Contractor is less than twenty-five thousand dollars (\$25,000), claimants and their rights are governed by Texas Property Code, §53.231-239. These provisions set out the requirements for filing a valid lien on funds unpaid to the Contractor as of the time of filing the claim, actions necessary to release the lien and satisfaction of such claims.

11.4.12

Sureties shall be listed on the **Department of the Treasury's Listing of Approved Sureties** stating companies holding Certificates of Authority as acceptable sureties on Federal Bonds and acceptable reinsuring companies (Department Circular 570).

11.5 GENERAL REQUIREMENTS**11.5.1**

Unless otherwise provided in the Contract Documents, all insurance coverage procured by the Contractor shall be provided by insurance companies having policy holder ratings no lower than "A" and financial ratings not lower than "VIII" in the Best's Insurance Guide, the latest edition in effect as of the date of the Contract, and subsequently in effect at the time of renewal of any policies required by the Contract Documents.

11.5.2

If the Owner is damaged by failure of the Contractor to purchase or maintain insurance required under this **Article 11**, then the Contractor shall bear all reasonable costs (including attorneys' fees and court and settlement expenses) properly attributable thereto.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.1

If a portion of the Work is covered contrary to the Owner or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Owner or Architect, be uncovered for examination and be replaced at the Contractor's expense without change in the Contract Time. If prior to the date of Substantial Completion the Contractor, a Subcontractor, or anyone for whom either is responsible uses or damages any portion of the Work (other than start-up), including, without limitation, mechanical, electrical, plumbing, and other building systems, machinery, equipment, or other mechanical device, the Contractor shall cause such item to be restored to "like new" condition at no expense to the Owner.

12.1.2

If a portion of the Work has been covered that the Owner or Architect has not specifically requested to examine prior to its being covered, the Owner or Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

12.2 CORRECTION OF WORK

12.2.1

The Contractor shall promptly correct Work rejected by the Owner or Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

12.2.2 AFTER SUBSTANTIAL COMPLETION

- .1** In addition to the Contractor's obligations under **Section 3.5**, if, within **one (1) year** after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under **Paragraph 9.9.1**, or by terms of an applicable special warranty required by the Contract Documents, any

of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so. The Owner shall give such notice promptly after discovery of the condition. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may, without prejudice to any other remedies, correct it in accordance with **Section 2.4** or file a claim with the surety of any applicable warranty bond.

- .2** The **one (1)-year** period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

12.2.3

The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

12.2.4

The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

12.2.5

Nothing contained in this **Section 12.2** shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the **one (1)-year** period for correction of Work as described in **Paragraph 12.2.2** relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

The Contract shall be governed by the law of Williamson County, Texas.

13.2 SUCCESSORS AND ASSIGNS

The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in the Contract Documents or by law, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

13.4 RIGHTS AND REMEDIES

13.4.1

Except as expressly provided in the Contract Documents, duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

13.4.2

No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

13.5 TESTS AND INSPECTIONS

13.5.1

Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority. The Contractor shall give the Owner and Architect timely notice of when and where tests and inspections are to be made so that the Owner and Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals where building

codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

13.5.2

If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under **Paragraph 13.5.1**, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Owner and Architect of when and where tests and inspections are to be made so that the Owner and Architect may be present for such procedures.

13.5.3

If such procedures for testing, inspection or approval under **Paragraphs 13.5.1 and 13.5.2** reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense. The Contractor also agrees the cost of testing services related to remedial operations performed to correct deficiencies in the Work, shall be borne by the Contractor.

13.5.4

Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Owner and Architect.

13.5.5

If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

13.5.6

Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

13.6 INTEREST

The rate of interest that accrues on an overdue payment is the rate in effect on September 1 of the fiscal year in which the payment becomes overdue. The rate in effect on September 1 is equal to the sum of:

13.6.1

one percent (1%); and

13.6.2

the prime rate as published in the Wall Street Journal on the **first (1st) day of July** of the preceding fiscal year that does not fall on a Saturday or Sunday pursuant to **Texas Government Code, §2251.025**.

13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the time limits provided by law. Nothing herein shall be construed as shortening the period of time Owner has for commencing claims to less than what is required by law.

13.8 APPLICATION TO SUBCONTRACTS

Any specific requirement in the Contract that the responsibilities or obligations of Contractor also apply to a Subcontractor is added for emphasis and are also hereby deemed to include a Subcontractor of any tier. The omission of a reference to a Subcontractor in connection with any of Contractor's responsibilities or obligations shall not be construed to diminish, abrogate or limit any responsibilities or obligations of a Subcontractor of any tier under the Contract Documents or the applicable subcontract.

13.9 GENERAL PROVISIONS**13.9.1**

All personal pronouns used in the Contract, whether used in the masculine, feminine, or neuter gender, shall include all other genders; and the singular shall include the plural and vice versa. Titles of articles, sections, and paragraphs are for convenience only and neither limit nor amplify the provisions of the Contract. The use herein of the word "including," when following any general statement, term, or matter, shall not be construed to limit such statement, term, or matter to the specific items or matters set forth immediately following such word or to similar items or matters, whether or not non-limiting language (such words as "without limitation," or "but not limited to," or words of similar import) is used with reference thereto, but rather shall be deemed to refer to all other items or matters that could reasonably fall within the broadest possible scope of such general statement, term, or matter.

13.9.2

Wherever possible, each provision of this Contract shall be interpreted in a manner as to be effective and valid under applicable law. If, however, any provision of this Contract, or portion thereof, is prohibited by law or found invalid under any law, only such provision or portion thereof shall be ineffective, without in any manner invalidating or affecting the remaining provisions of this Contract or valid portions of such provision, which are hereby deemed severable.

13.10 NO ORAL WAIVER

The Provisions of the Contract Documents shall not be changed, amended, waived, or otherwise modified in any respect except by a writing signed by Owner. No person is authorized on behalf of Owner to orally change, amend, waive, or otherwise modify the terms of the Contract Documents or any of the Contractor's duties or obligations under or arising out of the Contract Documents. Any change, waiver, approval, or consent granted to the Contractor shall be limited to the specific matters stated in the writing signed by Owner, and shall not relieve Contractor of any other of the duties and obligations under the Contract Documents. No "constructive" changes shall be allowed.

13.11 TEXAS PUBLIC INFORMATION ACT

To the extent, if any, that any provision in the Contract Documents is in conflict with Tex. Gov't Code 552.001 et seq., as amended (the "Public Information Act"), the same shall be of no force or effect. Furthermore, it is expressly understood and agreed that Owner, its officers and employees may request advice, decisions and opinions of the Attorney General of the State of Texas in regard to the application of the Public Information Act to any information or data furnished to Owner whether or not the same are available to the public. It is further understood that Owner, its officers and employees shall have the right to rely on the advice, decisions and opinions of the Attorney General, and that Owner, its officers and employees shall have no liability or obligation to Contractor for the disclosure to the public, or to any person or persons, of any software or a part thereof, or other items or data furnished to Owner by Contractor in reliance of any advice, decision or opinion of the Attorney General of the State of Texas.

13.12 EQUAL OPPORTUNITY IN EMPLOYMENT

The Contractor agrees that during the performance of the Contract it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Parties will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; termination; rates of pay or other forms of compensation, and selection for training, including apprenticeship.

ARTICLE 14

TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR**14.1.1**

The Contractor may terminate the Contract if the Work is stopped for a period of **ninety (90) consecutive days** through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing

portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped; or
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in **Paragraph 9.4.1**, or because the Owner has not made payment on an undisputed Certificate for Payment within the time stated in the Contract Documents.

14.1.2

The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in **Section 14.3** constitute in the aggregate more than **one hundred percent (100%)** of the total number of days scheduled for completion, or **one hundred twenty (120) days** in any **three hundred sixty-five (365)-day** period, whichever is less.

14.1.3

If one of the reasons described in **Paragraph 14.1.1 or 14.1.2** exists, the Contractor may, upon **thirty (30) business days** written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

14.2 TERMINATION BY THE OWNER FOR CAUSE

14.2.1

The Owner may terminate the Contract if the Contractor

- .1 fails to commence the Work in accordance with the provisions of the Contract,
- .2 fails to prosecute the Work to completion thereof in a diligent, efficient, timely, workmanlike, skillful and careful manner and in strict accordance with the provisions of the Contract,
- .3 fails to use an adequate amount or quality of personnel or equipment to complete the Work without undue delay,

- .4 fails to perform any of its obligations under the Contract,
- .5 fails to make prompt payments when due to its Subcontractors and Suppliers, or as required by **Texas Government Code, Chapter 2251**,
- .6 files any petition or other pleading seeking any relief under any provisions of the Federal Bankruptcy Act, as amended, or any other federal or state statute or law providing for reorganization of debts or other relief from creditors, permits a receiver or other person to be appointed on account of its insolvency or financial condition, or becomes insolvent,
- .7 creates any situation or state of facts which would authorize or permit an involuntary petition in bankruptcy to be filed against Contractor, or
- .8 has not met or in Owner's opinion will not meet the dates of Substantial Completion set forth in the Contract Documents.

14.2.2

When any of the above reasons exist, the Owner, in its sole and absolute discretion, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, **thirty (30) calendar days** written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to **Section 5.4**; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

14.2.3

When the Owner terminates the Contract for one of the reasons stated in **Paragraph 14.2.1**, the Contractor shall not be entitled to receive further payment until the Work is finished. In the event that a final decision under **Article 15**, below, is rendered that sufficient cause did not exist for termination under this **Section 14.2**, then the termination shall be considered a termination for convenience, under **Section 14.4**, below.

14.2.4

If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages and costs incurred by the Owner in finishing the Work and not expressly waived,

such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner.

14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

14.3.1

The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

14.3.2

The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in **Paragraph 14.3.1**. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

14.4.1

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

14.4.2

Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

14.4.3

Upon such termination, the Contractor shall recover the amounts provided in **Paragraph 12.1.3** of the Contract.

ARTICLE 15 CLAIMS AND DISPUTES

15.1 CLAIMS

15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

15.1.2 NOTICE OF CLAIMS

Claims for events arising during the performance of the Work by Contractor must be initiated by written notice to the other party with a copy sent to the Owner; provided, however, that the claimant shall use its best efforts to furnish the other party, as expeditiously as possible, with notice of any Claim including, without limitation, those in connection with concealed or unknown conditions, once such claim is recognized, and shall take steps to mitigate the alleged or potential damages, delay, or other adverse consequences arising out of the condition that is the cause of such a Claim. Claims by Contractor must be initiated within **ten (10) business days** after occurrence of the event giving rise to such Claim or within **ten (10) business days** after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims may also be reserved in writing within the time limits set forth in this **Paragraph 15.1.2**. Any notice of Claim or reservation of Claim must clearly identify the alleged cause and the nature of the Claim and include data and information available to the claimant that will facilitate prompt verification and evaluation of the Claim.

15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in **Section 9.7** and **Article 14**, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the Contract Documents.

15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under **Section 10.4**.

15.1.5 CLAIMS FOR ADDITIONAL TIME

- .1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.
- .2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

15.2 MEDIATION

15.2.1

Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived shall be subject to mediation as a condition precedent to seeking redress in a court of competent jurisdiction.

15.2.2

The parties shall endeavor to resolve their Claims by mediation, which shall consist of a single mediator who is knowledgeable about the subject matter of the Contract. A request for mediation shall be made in writing, delivered to the other party to the Contract.

15.2.3

The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in Williamson County, Texas. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

15.2.4

All disputes not resolved through mediation shall be decided in litigation in Williamson County, Texas.

15.2.5 NO WAIVER OF IMMUNITY

Nothing in the Contract Documents shall be deemed to waive, modify or amend any legal defense available at law or in equity to Owner, its past or present officers, employees, or agents, nor to create any legal rights or claim on behalf of any third party. Owner does not waive, modify, or alter to any extent whatsoever the availability of the defense of governmental immunity under the laws of the State of Texas and of the United States.

Certificate Of Completion

Envelope Id: DB83B125D9234E1EBDF4FB70F3680D10

Status: Completed

Subject: Complete with DocuSign: Williamson County CJC North MAU Replacement-4509_COOP1_TD Industries_2024.

Source Envelope:

Document Pages: 162

Signatures: 1

Envelope Originator:

Certificate Pages: 5

Initials: 1

Michele Cromer

AutoNav: Enabled

13850 Diplomat Dr

Envelopeld Stamping: Enabled

Dallas, TX 75234-8812

Time Zone: (UTC-06:00) Central Time (US & Canada)

Michele.Cromer@TDIndustries.com

IP Address: 144.91.233.244

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Status: Original

Holder: Michele Cromer

Location: DocuSign

2/14/2024 9:20:08 AM

Michele.Cromer@TDIndustries.com

Signer Events	Signature	Timestamp
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Billy Teston

billy.teston@tdindustries.com

Security Level: Email, Account Authentication (None)

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Bt

Sent: 2/14/2024 9:24:17 AM

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Signed: 2/14/2024 10:05:07 AM

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Accepted: 2/14/2024 10:04:55 AM

ID: ac980c30-d556-416b-906e-2f4663e301f6

Lauren Turner

lauren.turner@tdindustries.com

Vice President

TDIndustries

Security Level: Email, Account Authentication (None)

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Lauren Turner

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Certified Delivery Events	Status	Timestamp
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Carbon Copy Events	Status	Timestamp
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Jeff Halvordson

jeff.halvordson@tdindustries.com

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Notary Events	Signature	Timestamp
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Envelope Summary Events	Status	Timestamps
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Envelope Sent	Hashed/Encrypted	2/14/2024 9:24:17 AM
Certified Delivered	Security Checked	2/14/2024 11:08:21 AM
Signing Complete	Security Checked	2/14/2024 11:08:27 AM
Completed	Security Checked	2/14/2024 11:08:29 AM

Payment Events	Status	Timestamps
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Electronic Record and Signature Disclosure
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ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, TDIndustries, Inc (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through the DocuSign system. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to this Electronic Record and Signature Disclosure (ERSD), please confirm your agreement by selecting the check-box next to 'I agree to use electronic records and signatures' before clicking 'CONTINUE' within the DocuSign system.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. You will have the ability to download and print documents we send to you through the DocuSign system during and immediately after the signing session and, if you elect to create a DocuSign account, you may access the documents for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a \$0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. Further, you will no longer be able to use the DocuSign system to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through the DocuSign system all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact TDIndustries, Inc:

You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:

To contact us by email send messages to: valerie.thomas@tdindustries.com

To advise TDIndustries, Inc of your new email address

To let us know of a change in your email address where we should send notices and disclosures electronically to you, you must send an email message to us at valerie.thomas@tdindustries.com and in the body of such request you must state: your previous email address, your new email address. We do not require any other information from you to change your email address.

If you created a DocuSign account, you may update it with your new email address through your account preferences.

To request paper copies from TDIndustries, Inc

To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an email to valerie.thomas@tdindustries.com and in the body of such request you must state your email address, full name, mailing address, and telephone number. We will bill you for any fees at that time, if any.

To withdraw your consent with TDIndustries, Inc

To inform us that you no longer wish to receive future notices and disclosures in electronic format you may:

- i. decline to sign a document from within your signing session, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;
- ii. send us an email to valerie.thomas@tdindustries.com and in the body of such request you must state your email, full name, mailing address, and telephone number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

The minimum system requirements for using the DocuSign system may change over time. The current system requirements are found here: <https://support.docusign.com/guides/signer-guide-signing-system-requirements>.

Acknowledging your access and consent to receive and sign documents electronically

To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please confirm that you have read this ERSD, and (i) that you are able to print on paper or electronically save this ERSD for your future reference and access; or (ii) that you are able to email this ERSD to an email address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format as described herein, then select the check-box next to 'I agree to use electronic records and signatures' before clicking 'CONTINUE' within the DocuSign system.

By selecting the check-box next to 'I agree to use electronic records and signatures', you confirm that:

- You can access and read this Electronic Record and Signature Disclosure; and
- You can print on paper this Electronic Record and Signature Disclosure, or save or send this Electronic Record and Disclosure to a location where you can print it, for future reference and access; and
- Until or unless you notify TDIndustries, Inc as described above, you consent to receive exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you by TDIndustries, Inc during the course of your relationship with TDIndustries, Inc.

Enclosure #1 – Proposal

AbbiVe

January 12, 2024

January 12, 2024

Mr. Daniel Shea
Williamson County
3101 SE Inner Loop, Georgetown, TX 78626
dshea@wilco.org

Re: Proposal for Justice Center RTU 1 & 2 Replacement
Buy Board Contract: 720-23

Dear Mr. Shea:

Proposal for the Install at Williamson County Justice center to replace (2) existing Trane Make up air handlers with Like for like replacement. Our proposal is based on coordination with Automated Logic and equipment supplier (Basis of design Trane). Scope of mechanical work will be completed on the weekend with crane lift to be done from Forest Drive. Electrical Scope is included. Equipment lead time currently is 34 weeks

Total Price for Install..... \$ 282,537

The following enclosures are included for clarification of our proposal:

Enclosure #1: Proposal

Enclosure #2: Scope of Work:

- Install
- Mechanical Equipment spec
- Clarifications and Exclusions

Sincerely,

Jeff Halvordson
TDI Special Projects

Enclosure #2 – Scope of Work: Install
January 12, 2024

Scope of work Based on Docs provided (Justice Center MAU Replacement-22JUN23)

Install: RTU 1 & 2

1. Pre Job coordination meeting with stakeholder, review scope schedule and crane plane
2. Demo Existing Air Handler and make ready for lift
 - i) Disconnect Piping
 - ii) Disconnect Electrical (Electrical scope included)
3. crane set up on Forrest street, will require road shut down (Picture 1)
4. Receive new air handler, transport to job site
5. Lift New adapter curbs and air handler 1 & 2 on to existing roof penetrations
6. Install per mechanical plans Acknowledging mechanical Tag notes 1-3
 - i) Install New RTU and Curb at existing opening
 - ii) Duct Mounted supply and return smoke detectors
 - iii) Connect New CWR,CWS, HWR,HWS to existing lines
7. Note: New unit will not have a dog house as existing units do this will require (Included)
 - i) Exterior rated pipe insulation and Heat trace (wiring included)
 - ii) Sealing existing roof penetration (TDI will contract approved roofers)
 - iii) Extend pipe to meet new AHU unit height
8. Reconnect Electrical and install new heat trace
9. Install new control valves (provided by ALC)
10. Insulated new pipe
11. Start Up VFDS
12. Test and Balance Report (Unit Airflow performance only) verify unit performance and provide TAB Report

Picture 1: Crane lift location (X)



Exclusions:

- BAS system integration (AHU 's provided with unwired end devices)
- Control Valves (ALC provided)

Enclosure #2 – Scope of Work: Install
January 12, 2024

RTU 1 & 2 Equipment specifications

(Qty: 2) Performance Climate Changer - Tag(s): RTU-1 & RTU-2

- Outdoor Unit Cabinet Construction
- 2" Double Wall R-13 Insulation
- 6" Integral Base Rail
- 460/60/3 Power with 115v GFCI and Marine Light – Requires Separate Line of Power by Electrician
- 2" Angled Filter Rack with 1 Set of Pleated MERV-8 Filters
- Backside Outdoor Air Intake with Hood
- Hot Water Heating Coil with Galvanized Steel Casing
- Chilled Water Cooling Coil with Stainless Steel Casing and Drain pan
- Copper tubes, Aluminum fins, extended Drain and Vent Connections
 - RTU-1: LH Coil / Motor Connections
 - RTU-2: RH Coil / Motor Connections
- Direct Drive Plenum Fan with VFD for Variable Speed Control
- 15 HP Inverter Rated Supply Fan Motor with Shaft Grounding
- Unwired End Devices: *DAT sensor, flow meter, overflow and low limit switches*
- Curb Adapters
- *1st Year Parts & Labor Warranty*

Enclosure #2 – Scope of Work: Install
January 12, 2024

General Clarifications and Exclusions:

1. This proposal is subject to:
 - a) A mutually agreeable subcontract.
 - b) A copy furnished of all contract documents
 - c) Review after ten (10) days from the date of this letter.
 - d) A review of final plans and specifications.
 - e) The award of our contract and project start not later than 90 days from today.
 - f) TDIndustries Proposal Letter dated January 12, 2024 to be incorporated into this Contract.
2. This proposal is based on performing work during the weekend
3. In the event of significant delay or price increase of material occurring during the performance of the contract through no fault of TDIndustries, the contract sum, time of performance, or contract requirements shall be equitably adjusted by change order.
4. For work in Dallas/Fort Worth, Texas: TDIndustries is licensed and regulated by: Texas Department of Licensing and Regulation, PO Box 12157, Austin, Texas 78711, 1.800.803.9202 or 1.512.463.6599, and Texas State Board of Plumbing Examiners, 929 East 41st Street, PO Box 4200, Austin, Texas 78765, 1.800.845.6584. License #M18944 (RMP Wesley Baker) and License #TACLA12338C.
5. Delays Caused By Coronavirus Concerns. Notwithstanding any other provision of this Agreement, any construction delay caused by good faith actions taken by Owner, Design-Builder, or federal, state or local government agencies in an effort to thwart, limit, prevent or treat coronavirus shall be excused. This excuse shall also apply to a shortage of materials or labor as a result of the coronavirus threat.
6. Exclusions:
 - a) Escalation.
 - b) Payment and Performance Bond.
 - c) Seismic or sway bracing.
 - d) Vibration isolation
 - e) Any cost associated with structural load engineering services for plumbing, piping, and ductwork hangers. We assume the building structure has been designed to properly support the plumbing systems, equipment, and distribution.
 - f) Handling and setting of equipment provided by others.
 - g) Warranty on and assembly of equipment furnished by others except as detailed in the documents.
 - h) Preventive and required maintenance during first year.
 - i) Warranty beyond the first year after substantial completion.
 - j) Liquidated damages.