Brownsville Independent School District

Agenda Category: General Function **Board of Education Meeting:** 06/11/2024

Item Title: ESSER Perkins M.S. HVAC Upgrades Phase Phase I Project
CSP #23-154A
Substantial Completion

X **Action**
___ **Information**
___ **Discussion**

BACKGROUND:

The ESSER Perkins M.S. HVAC Upgrades, Phase I Project - CSP #23-154A, is ready for Substantial Completion acceptance by the Brownsville ISD Board of Trustees. The Project Engineer, General Contractor, and BISD Facilities Department Administrative staff conducted a walk-thru to provide a punch list report. As a result, the Administration recommends substantial completion acceptance for this project. Attached for reference, please find the following documents:

ESSER Perkins M.S. HVAC Upgrades, Phase I Project - CSP #23-154A:

- Certificate of Substantial Completion – AIA G704-2017
- Project Engineer – MEP Field Report #03 (punch list)

FISCAL IMPLICATIONS:

None

RECOMMENDATION:

Recommend approval to authorize the ESSER Perkins M.S. HVAC Upgrades, Phase I Project, under CSP #23-154A, as substantially complete.

Manuel Hinojosa, FAIA
Submitted by: Principal/Program Adm.

Alonso Guerrero
Recommended by: Health Services & Operations

Alejandro Cespedes
Approved by: Chief Financial Officer

Approved for Submission to Board of Education:

Dr. Jesus H. Chavez
Superintendent

When Necessary, Additional Background May Follow This.

AIA® Document G704® – 2017

Certificate of Substantial Completion

PROJECT: *(name and address)*	**CONTRACT INFORMATION:**	**CERTIFICATE INFORMATION:**
BISD CSP#23-154A Perkins MS HVAC Upgrades Phase 1 Package #2 4750 Austin Rd. Brownsville, Texas 78521	Contract For: HVAC Upgrades Date: October 07, 2022	Certificate Number: 001 Date: May 14, 2024
OWNER: *(name and address)*	**ARCHITECT:** *(name and address)*	**CONTRACTOR:** *(name and address)*
Brownsville Independent School District 1900 E. Price Rd., Brownsville, TX 78521	Ethos Engineering 1126 South Commerce St. Harlingen, TX 78550	Central Air and Heating Service, Inc. 3028 Wilson Road Harlingen, TX 78552

The Work identified below has been reviewed and found, to the Architect's best knowledge, information, and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion designated below is the date established by this Certificate.
(Identify the Work, or portion thereof, that is substantially complete.)
Perkins Middle School - 4750 Austin Rd., Brownsville, TX 78521

Ethos Engineering	Cesar Gonzalez	Cesar Gonzalez, Principal/ P.E	May 12, 2024
ARCHITECT *(Firm Name)*	**SIGNATURE**	**PRINTED NAME AND TITLE**	**DATE OF SUBSTANTIAL COMPLETION**

WARRANTIES
The date of Substantial Completion of the Project or portion designated above is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:
(Identify warranties that do not commence on the date of Substantial Completion, if any, and indicate their date of commencement.)

WORK TO BE COMPLETED OR CORRECTED
A list of items to be completed or corrected is attached hereto, or transmitted as agreed upon by the parties, and identified as follows:
(Identify the list of Work to be completed or corrected.)
See attached Field Report:

The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Unless otherwise agreed to in writing, the date of commencement of warranties for items on the attached list will be the date of issuance of the final Certificate of Payment or the date of final payment, whichever occurs first. The Contractor will complete or correct the Work on the list of items attached hereto within thirty (30) days from the above date of Substantial Completion.

Cost estimate of Work to be completed or corrected: $616,587.60

The responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work, insurance, and other items identified below shall be as follows:
(Note: Owner's and Contractor's legal and insurance counsel should review insurance requirements and coverage.)

The Owner and Contractor hereby accept the responsibilities assigned to them in this Certificate of Substantial Completion:

Central Air and Heating Service, Inc.	Chad W Ufland	Chad W Ufland, Director of Operations	05-14-2024
CONTRACTOR *(Firm Name)*	**SIGNATURE**	**PRINTED NAME AND TITLE**	**DATE**
Brownsville Independent School District			
OWNER *(Firm Name)*	**SIGNATURE**	**PRINTED NAME AND TITLE**	**DATE**

M.E.P. FIELD REPORT #03

Project: **BISD HVAC Replacement Group I – Pkg #2 Perkins MS & Vela MS**
Contractor: CAHS
Weather: Cloudly - 71°
Date: 03-05-2024

Project #: 21v84
Time: 8:30 AM
Est. % Complete: 95%

Present: Jose G. Leal III (Ethos)

The following items require the attention of the contractor for completion or correction. New items as a result of this dated visit are indicated in **"bold"** text. Please notify our office for a subsequent site inspection. References to direction are from plan north. This list may not be all-inclusive, to include any items on this list does not alter the responsibility of the contractor to complete all work in accordance with the contract documents.

ITEMS WILL REMAIN OPEN UNTIL CONTRACTOR PROVIDES WRITTEN RESPONSE OF ITEMS HAVING BEEN TAKEN CARE OF AND A SUBSEQUENT INSPECTION.

GENERAL COMMENTS: (PERKINS MS)

1) HVAC Equipment:
   a) Provide windstorm certification for all RTU & exhaust installation.
   b) Ensure that all existing duct smoke detectors have been reconnected and reprogrammed.
   c) Provide 2" galvanized filter frames and replaceable filter media for RTU's.
   d) Provide caps for test ports drilled in RTU access panels after testing has been completed.
   e) RTUs: Ensure equipment condenser coils to be "e-coated" as per "ROOFTOP UNIT SCHEDULE".
   f) Submit start-up reports as per specifications. See specifications for those that call for factory-authorized service representative start-up in lieu of the contractor.
   g) Ensure that all outdoor air hoods and associated screens are installed correctly.
2) HVAC Accessories:
   a) Remove and dispose of all old accessories and materials not in use.
3) HVAC Test and Balance:
   a) Submit test and balance report for review.
   b) Submit documentation indicating completed checkout of HVAC controls as per specifications.
4) HVAC Controls:
   a) Remove all existing control wiring from inside of return ductwork. Ensure to seal all existing penetrations on existing ductwork.
   b) Provide a wall mounting plate where existing rough-in boxes are installed horizontally and install thermostat vertically.
   c) Provide a wall mounting plate to cover any opening that is bigger than the new thermostat when installed vertically.
   d) Finish installation of clear perforated locking covers for t'stats, CO2 sensors, etc.
   e) Finish programming t'stats.
   f) Submit documentation indicating completed checkout of HVAC controls as per specifications.
   g) Finish labeling space sensors with their corresponding unit/equipment as per specifications section 230900/3.4/E/1. Labels of space sensors are to be attached to the space sensor and not on the clear locking covers.
5) Electrical Panels:
   a) Provide typewritten up to date as-built list directories with room numbers/names to meet NEC requirements.
6) Electrical Raceway:
   a) Provide a watertight seal connection to RTU. Ensure to provide a watertight seal gasket at the point of electrical connection to RTU.
7) Electrical Receptacles:
   a) All new GFCI factory-installed convenience electrical outlets need to follow the NEC code.
   b) Provide missing circuit labels for receptacles.

8) Electrical Disconnects:
   a) Provide new fuses for all existing disconnects as per equipment connection schedule note #2 on sheet ME1.4.
   b) Finish installation of screw-in engraved nameplates for RTU integral disconnects as per detail #06 on sheet ME3.1.
9) The following systems will not be substantially accepted until the Owner has received demonstration, training, and testing in the presence of the MEP Engineer and submitted list of attendees:
   a) HVAC Controls.

COMMENTS: (PERKINS MS)

1) HVAC Equipment:
   a) Provide caps on knockout openings near electrical disconnects.

i)	RTU-05	viii)	RTU-31	xv)	RTU-52	xxii)	RTU-60	xxix)	RTU-86
ii)	RTU-13	ix)	RTU-37	xvi)	RTU-53	xxiii)	RTU-63	xxx)	RTU-87
iii)	RTU-14	x)	RTU-41	xvii)	RTU-54	xxiv)	RTU-70	xxxi)	RTU-90
iv)	RTU-16	xi)	RTU-48	xviii)	RTU-55	xxv)	RTU-76	xxxii)	RTU-93
v)	RTU-17	xii)	RTU-49	xix)	RTU-56	xxvi)	RTU-80	xxxiii)	RTU-96
vi)	RTU-18	xiii)	RTU-50	xx)	RTU-57	xxvii)	RTU-81	xxxiv)	RTU-97
vii)	RTU-19	xiv)	RTU-51	xxi)	RTU-58	xxviii)	RTU-82	xxxv)	RTU-10

   b) Replace the damaged screen for the outdoor air hood.
      i) RTU-04
      ii) RTU-32
      iii) RTU-39
      iv) RTU-45
      v) RTU-107
   c) Replace the damaged interior door of the supply section of RTU.
      i) RTU-61
      ii) RTU-63
   d) Provide missing screws to doors on RTU's.
      i) RTU-12
      ii) RTU-81
      iii) RTU-98
   e) Move or adjust the rail clip that is in the way of the door opening.
      i) RTU-81
   f) Replace the damaged retaining clip on RTU.
      i) RTU-86
   g) Replace damaged RTU door.
      i) RTU-03
      ii) RTU-12
      iii) RTU-74
      iv) RTU-86
   h) Replace the damaged outdoor air hood on RTU.
      i) RTU-02
   i) Replace the damaged top of RTU.
      i) RTU-12
   j) Fix the damaged drain pan and associated condensate line.
      i) RTU-71
   k) Provide missing screws for engraved nameplates on RTU's.
      i) RTU-40
      ii) RTU-60
   l) Provide missing retaining clips for RTU's.

i)	RTU-02	v)	RTU-71
ii)	RTU-10	vi)	RTU-75
iii)	RTU-41	vii)	RTU-96
iv)	RTU-43		

2) HVAC Accessories:
   a) Fix and adjust hail guards that are not installed properly.

i)	RTU-03	v)	RTU-40	ix)	RTU-74	xiii)	RTU-83	xvii)	RTU-93
ii)	RTU-04	vi)	RTU-41	x)	RTU-75	xiv)	RTU-85	xviii)	RTU-97
iii)	RTU-05	vii)	RTU-44	xi)	RTU-80	xv)	RTU-86	xix)	RTU-98
iv)	RTU-32	viii)	RTU-71	xii)	RTU-81	xvi)	RTU-87		

   b) Replaced damaged hail guard.
      i) RTU-04
   c) Attached condensate roof supports to the roof as per the manufacture's recommendation. Condensate roof supports are loose.

i)	RTU-02	xiv)	RTU-32	xxvii)	RTU-50	xl)	RTU-70	liii)	RTU-87
ii)	RTU-03	xv)	RTU-33	xxviii)	RTU-51	xli)	RTU-71	liv)	RTU-90
iii)	RTU-04	xvi)	RTU-36	xxix)	RTU-52	xlii)	RTU-72	lv)	RTU-91
iv)	RTU-05	xvii)	RTU-37	xxx)	RTU-53	xliii)	RTU-74	lvi)	RTU-93
v)	RTU-10	xviii)	RTU-38	xxxi)	RTU-54	xliv)	RTU-75	lvii)	RTU-96
vi)	RTU-12	xix)	RTU-39	xxxii)	RTU-55	xlv)	RTU-76	lviii)	RTU-97
vii)	RTU-13	xx)	RTU-40	xxxiii)	RTU-56	xlvi)	RTU-79	lix)	RTU-98
viii)	RTU-14	xxi)	RTU-41	xxxiv)	RTU-57	xlvii)	RTU-80	lx)	RTU-103
ix)	RTU-16	xxii)	RTU-43	xxxv)	RTU-58	xlviii)	RTU-81	lxi)	RTU-106
x)	RTU-17	xxiii)	RTU-44	xxxvi)	RTU-60	xlix)	RTU-82	lxii)	RTU-107
xi)	RTU-18	xxiv)	RTU-45	xxxvii)	RTU-61	l)	RTU-83		
xii)	RTU-19	xxv)	RTU-48	xxxviii)	RTU-63	li)	RTU-85		
xiii)	RTU-31	xxvi)	RTU-49	xxxix)	RTU-69	lii)	RTU-86		

   d) Secure condensate line to all roof supports.

i)	RTU-02	xiv)	RTU-32	xxvii)	RTU-50	xl)	RTU-70	liii)	RTU-87
ii)	RTU-03	xv)	RTU-33	xxviii)	RTU-51	xli)	RTU-71	liv)	RTU-90
iii)	RTU-04	xvi)	RTU-36	xxix)	RTU-52	xlii)	RTU-72	lv)	RTU-91
iv)	RTU-05	xvii)	RTU-37	xxx)	RTU-53	xliii)	RTU-74	lvi)	RTU-93
v)	RTU-10	xviii)	RTU-38	xxxi)	RTU-54	xliv)	RTU-75	lvii)	RTU-96
vi)	RTU-12	xix)	RTU-39	xxxii)	RTU-55	xlv)	RTU-76	lviii)	RTU-97
vii)	RTU-13	xx)	RTU-40	xxxiii)	RTU-56	xlvi)	RTU-79	lix)	RTU-98
viii)	RTU-14	xxi)	RTU-41	xxxiv)	RTU-57	xlvii)	RTU-80	lx)	RTU-103
ix)	RTU-16	xxii)	RTU-43	xxxv)	RTU-58	xlviii)	RTU-81	lxi)	RTU-106
x)	RTU-17	xxiii)	RTU-44	xxxvi)	RTU-60	xlix)	RTU-82	lxii)	RTU-107
xi)	RTU-18	xxiv)	RTU-45	xxxvii)	RTU-61	l)	RTU-83		
xii)	RTU-19	xxv)	RTU-48	xxxviii)	RTU-63	li)	RTU-85		
xiii)	RTU-31	xxvi)	RTU-49	xxxix)	RTU-69	lii)	RTU-86		

3) HVAC Controls:
   a) Remove all existing control wiring from inside of return ductwork. Ensure to seal all existing penetrations on existing ductwork.

i)	RTU-03	xii)	RTU-32	xxiii)	RTU-48	xxxiv)	RTU-60	xlv)	RTU-80
ii)	RTU-04	xiii)	RTU-33	xxiv)	RTU-49	xxxv)	RTU-61	xlvi)	RTU-81
iii)	RTU-05	xiv)	RTU-36	xxv)	RTU-50	xxxvi)	RTU-63	xlvii)	RTU-82
iv)	RTU-10	xv)	RTU-37	xxvi)	RTU-51	xxxvii)	RTU-69	xlviii)	RTU-83
v)	RTU-13	xvi)	RTU-38	xxvii)	RTU-52	xxxviii)	RTU-70	xlix)	RTU-86
vi)	RTU-14	xvii)	RTU-39	xxviii)	RTU-53	xxxix)	RTU-71	l)	RTU-87
vii)	RTU-16	xviii)	RTU-40	xxix)	RTU-54	xl)	RTU-72	li)	RTU-91
viii)	RTU-17	xix)	RTU-41	xxx)	RTU-55	xli)	RTU-74	lii)	RTU-93
ix)	RTU-18	xx)	RTU-43	xxxi)	RTU-56	xlii)	RTU-75	liii)	RTU-96
x)	RTU-19	xxi)	RTU-44	xxxii)	RTU-57	xliii)	RTU-76	liv)	RTU-98
xi)	RTU-31	xxii)	RTU-45	xxxiii)	RTU-58	xliv)	RTU-79	lv)	RTU-107

b) Control flexible conduit and wiring for all RTU's should not be running inside the return ductwork. Please move conduit and wiring away from inside the return ductwork. Control conduit and wiring should be installed as per RTU installation instructions and detail #01 on sheet ME3.1. The RTU installation instructions show that the RTU's have dedicated provisions/knockouts located on the RTU for routing of the control wiring. The location of the dedicated provisions/knockouts is not standard on all units and will need to be verified with the RTU installation instructions based on the size of the RTU.
   i) RTU-32
   ii) RTU-96
   iii) RTU-107

c) Install thermostat vertically.
   i) RTU-12

d) Provide missing clear locking cover for new thermostat.
   i) RTU-03

e) Paint wall to match existing wall where footprint of existing thermostat was located.
   i) RTU-51
   ii) RTU-52
   iii) RTU-53
   iv) RTU-54

4) Electrical Receptacle:

a) Flexible conduit and wiring for all RTU's GFCI receptacles should not be running inside the return ductwork. Please move conduit and wiring away from inside the return ductwork. Electrical conduit and wiring should be installed as per RTU installation instructions and detail #01 on sheet ME3.1. The RTU installation instructions show that the RTU's have dedicated provisions/knockouts located on the RTU for routing of the electrical wiring. Flexible metal conduit should be used within the equipment for RTU wiring as per detail #01. The location of the dedicated provisions/knockouts is not standard on all units and will need to be verified with the RTU installation instructions based on the size of the RTU.

i)	RTU-02	viii)	RTU-38	xv)	RTU-50	xxii)	RTU-58	xxix)	RTU-83
ii)	RTU-03	ix)	RTU-39	xvi)	RTU-51	xxiii)	RTU-61	xxx)	RTU-85
iii)	RTU-04	x)	RTU-40	xvii)	RTU-52	xxiv)	RTU-69	xxxi)	RTU-91
iv)	RTU-12	xi)	RTU-43	xviii)	RTU-54	xxv)	RTU-71	xxxii)	RTU-96
v)	RTU-32	xii)	RTU-44	xix)	RUT-55	xxvi)	RTU-74	xxxiii)	RTU-106
vi)	RTU-33	xiii)	RTU-45	xx)	RTU-56	xxvii)	RTU-75	xxxiv)	RTU-107
vii)	RTU-36	xiv)	RTU-49	xxi)	RTU-57	xxviii)	RTU-79		

b) Provide missing GFCI cover.
   i) RTU-02

5) Electrical J-Boxes:

a) Provide type 4X SS boxes as per spec Section 260533/3.1/A.

i)	RTU-02	xii)	RTU-31	xxiii)	RTU—48	xxxiv)	RTU-60	xlv)	RTU-80
ii)	RTU-03	xiii)	RTU-33	xxiv)	RTU-49	xxxv)	RTU-61	xlvi)	RTU-81
iii)	RTU-04	xiv)	RTU-36	xxv)	RTU-50	xxxvi)	RTU-63	xlvii)	RTU-82
iv)	RTU-05	xv)	RTU-37	xxvi)	RTU-51	xxxvii)	RTU-69	xlviii)	RTU-83
v)	RTU-10	xvi)	RTU-38	xxvii)	RTU-52	xxxviii)	RTU-70	xlix)	RTU-85
vi)	RTU-12	xvii)	RTU-39	xxviii)	RTU-53	xxxix)	RTU-71	l)	RTU-86
vii)	RTU-14	xviii)	RTU-40	xxix)	RTU-54	xl)	RTU-72	li)	RTU-87
viii)	RTU-16	xix)	RTU-41	xxx)	RTU-55	xli)	RTU-74	lii)	RTU-107
ix)	RTU-17	xx)	RTU-43	xxxi)	RTU-56	xlii)	RTU-75		
x)	RTU-18	xxi)	RTU-44	xxxii)	RTU-57	xliii)	RTU-76		
xi)	RTU-19	xxii)	RTU-45	xxxiii)	RTU-58	xliv)	RTU-79		

b) The electrical j-box that is in the way of the RTU door from opening. Please move or adjust j-box.
   i) RTU-60
   ii) RTU-63
   iii) RTU-72
   iv) RTU-81
   v) RTU-82
   vi) RTU-86

6) Electrical Raceway:
   a) Provide a watertight seal connection to RTU. Ensure to provide a watertight seal gasket at the point of electrical connection to RTU.
      i) RTU-10
      ii) RTU-63
   b) The flexible piping in the way of the RTU door from opening. Please move or adjust flexible piping.
      i) RTU-04
      ii) RTU-83
   c) Conductors shall not be routed through the supply section of the RTU. Please fix.
      i) RTU-72
7) Electrical Disconnect:
   a) Provide field-applied color coding tape on conductors as per spec Section 260553/3.2/D/d.

i)	RTU-02	xiv)	RTU-32	xxvii)	RTU-50	xl)	RTU-70	liii)	RTU-87
ii)	RTU-03	xv)	RTU-33	xxviii)	RTU-51	xli)	RTU-71	liv)	RTU-90
iii)	RTU-04	xvi)	RTU-36	xxix)	RTU-52	xlii)	RTU-72	lv)	RTU-91
iv)	RTU-05	xvii)	RTU-37	xxx)	RTU-53	xliii)	RTU-74	lvi)	RTU-93
v)	RTU-10	xviii)	RTU-38	xxxi)	RTU-54	xliv)	RTU-75	lvii)	RTU-96
vi)	RTU-12	xix)	RTU-39	xxxii)	RTU-55	xlv)	RTU-76	lviii)	RTU-97
vii)	RTU-13	xx)	RTU-40	xxxiii)	RTU-56	xlvi)	RTU-79	lix)	RTU-98
viii)	RTU-14	xxi)	RTU-41	xxxiv)	RTU-57	xlvii)	RTU-80	lx)	RTU-103
ix)	RTU-16	xxii)	RTU-43	xxxv)	RTU-58	xlviii)	RTU-81	lxi)	RTU-106
x)	RTU-17	xxiii)	RTU-44	xxxvi)	RTU-60	xlix)	RTU-82	lxii)	RTU-107
xi)	RTU-18	xxiv)	RTU-45	xxxvii)	RTU-61	l)	RTU-83		
xii)	RTU-19	xxv)	RTU-48	xxxviii)	RTU-63	li)	RTU-85		
xiii)	RTU-31	xxvi)	RTU-49	xxxix)	RTU-69	lii)	RTU-86		

   b) Finish installation of screw-in engraved nameplates for RTU electrical disconnects as per detail #06 on sheet ME3.1.

i)	RTU-02	xiv)	RTU-32	xxvii)	RTU-50	xl)	RTU-70	liii)	RTU-87
ii)	RTU-03	xv)	RTU-33	xxviii)	RTU-51	xli)	RTU-71	liv)	RTU-90
iii)	RTU-04	xvi)	RTU-36	xxix)	RTU-52	xlii)	RTU-72	lv)	RTU-91
iv)	RTU-05	xvii)	RTU-37	xxx)	RTU-53	xliii)	RTU-74	lvi)	RTU-93
v)	RTU-10	xviii)	RTU-38	xxxi)	RTU-54	xliv)	RTU-75	lvii)	RTU-96
vi)	RTU-12	xix)	RTU-39	xxxii)	RTU-55	xlv)	RTU-76	lviii)	RTU-97
vii)	RTU-13	xx)	RTU-40	xxxiii)	RTU-56	xlvi)	RTU-79	lix)	RTU-98
viii)	RTU-14	xxi)	RTU-41	xxxiv)	RTU-57	xlvii)	RTU-80	lx)	RTU-103
ix)	RTU-16	xxii)	RTU-43	xxxv)	RTU-58	xlviii)	RTU-81	lxi)	RTU-106
x)	RTU-17	xxiii)	RTU-44	xxxvi)	RTU-60	xlix)	RTU-82	lxii)	RTU-107
xi)	RTU-18	xxiv)	RTU-45	xxxvii)	RTU-61	l)	RTU-83		
xii)	RTU-19	xxv)	RTU-48	xxxviii)	RTU-63	li)	RTU-85		
xiii)	RTU-31	xxvi)	RTU-49	xxxix)	RTU-69	lii)	RTU-86		

   c) Disconnect is installed on the incorrect side of the RTU.
      i) RTU-96
8) Electrical Heater:
   a) Provide field-applied color coding tape on conductors as per spec Section 260553/3.2/D/d.

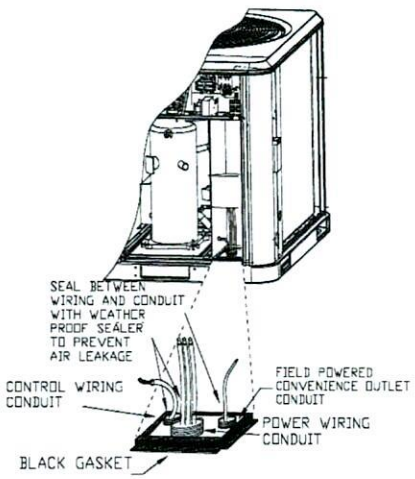
i)	RTU-02	xiv)	RTU-32	xxvii)	RTU-50	xl)	RTU-70	liii)	RTU-87
ii)	RTU-03	xv)	RTU-33	xxviii)	RTU-51	xli)	RTU-71	liv)	RTU-90
iii)	RTU-04	xvi)	RTU-36	xxix)	RTU-52	xlii)	RTU-72	lv)	RTU-91
iv)	RTU-05	xvii)	RTU-37	xxx)	RTU-53	xliii)	RTU-74	lvi)	RTU-93
v)	RTU-10	xviii)	RTU-38	xxxi)	RTU-54	xliv)	RTU-75	lvii)	RTU-96
vi)	RTU-12	xix)	RTU-39	xxxii)	RTU-55	xlv)	RTU-76	lviii)	RTU-97
vii)	RTU-13	xx)	RTU-40	xxxiii)	RTU-56	xlvi)	RTU-79	lix)	RTU-98
viii)	RTU-14	xxi)	RTU-41	xxxiv)	RTU-57	xlvii)	RTU-80	lx)	RTU-103
ix)	RTU-16	xxii)	RTU-43	xxxv)	RTU-58	xlviii)	RTU-81	lxi)	RTU-106
x)	RTU-17	xxiii)	RTU-44	xxxvi)	RTU-60	xlix)	RTU-82	lxii)	RTU-107
xi)	RTU-18	xxiv)	RTU-45	xxxvii)	RTU-61	l)	RTU-83		
xii)	RTU-19	xxv)	RTU-48	xxxviii)	RTU-63	li)	RTU-85		
xiii)	RTU-31	xxvi)	RTU-49	xxxix)	RTU-69	lii)	RTU-86		

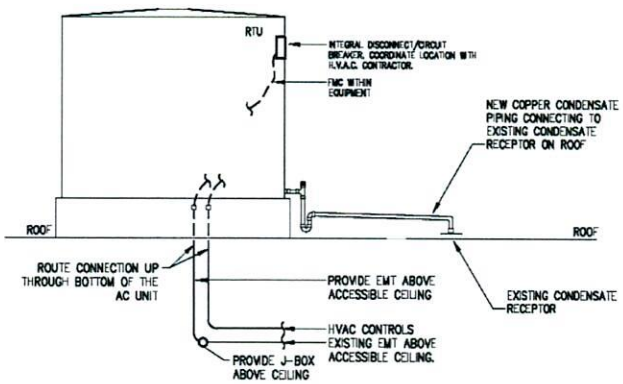
   b) Ensure that conductors identified by colored tape are connected to the terminal with the matching color coded conductors.

i) RTU-02
ii) RTU-03
iii) RTU-04
iv) RTU-05
v) RTU-10
vi) RTU-12
vii) RTU-13
viii) RTU-14
ix) RTU-16
x) RTU-17
xi) RTU-18
xii) RTU-19
xiii) RTU-31
xiv) RTU-32
xv) RTU-33
xvi) RTU-36
xvii) RTU-37
xviii) RTU-38
xix) RTU-39
xx) RTU-40
xxi) RTU-41
xxii) RTU-43
xxiii) RTU-44
xxiv) RTU-45
xxv) RTU-48
xxvi) RTU-49
xxvii) RTU-50
xxviii) RTU-51
xxix) RTU-52
xxx) RTU-53
xxxi) RTU-54
xxxii) RTU-55
xxxiii) RTU-56
xxxiv) RTU-57
xxxv) RTU-58
xxxvi) RTU-60
xxxvii) RTU-61
xxxviii) RTU-63
xxxix) RTU-69
xl) RTU-70
xli) RTU-71
xlii) RTU-72
xliii) RTU-74
xliv) RTU-75
xlv) RTU-76
xlvi) RTU-79
xlvii) RTU-80
xlviii) RTU-81
xlix) RTU-82
l) RTU-83
li) RTU-85
lii) RTU-86
liii) RTU-87
liv) RTU-90
lv) RTU-91
lvi) RTU-93
lvii) RTU-96
lviii) RTU-97
lix) RTU-98
lx) RTU-103
lxi) RTU-106
lxii) RTU-107

GENERAL COMMENTS: (VELA MS)

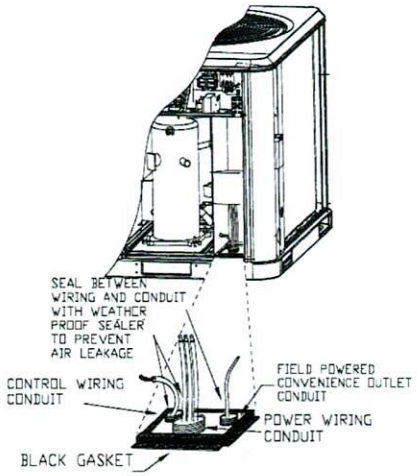
1) While visiting the site on 10/24/2023 I noticed that the electrical and controls conduit and wiring are being routed through the return section of the RTU's. The routing of the conduit and wiring for electrical and controls to RTU's was brought up on another BISD project. I did notify the general contractor to coordinate with their electrical and controls subcontractors prior to starting any RTU installation for this project. This was done to avoid this same type of installation for the electrical and controls.
   a) HVAC Controls:
      i) Control conduit and wiring should be installed as per RTU installation instructions and detail #01 on sheet ME3.1. The RTU installation instructions show that the RTU's have dedicated provisions/knockouts located on the RTU for routing of the control wiring. The location of the dedicated provisions/knockouts is not standard on all units and will need to be verified with the RTU installation instructions based on the size of the RTU. See the snapshots below.

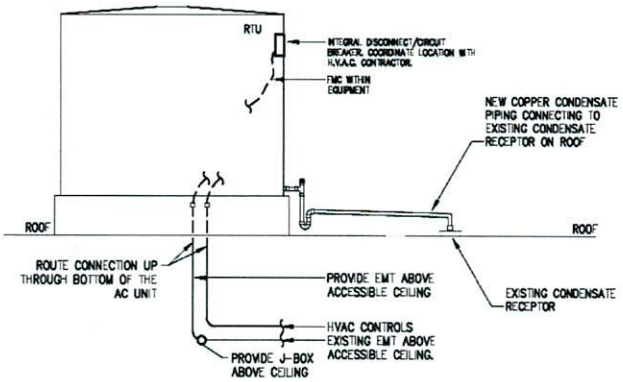




01 ROOFTOP UNIT CONNECTION DETAIL
SCALE : NOT TO SCALE

b) Electrical Raceway:
   i) Electrical conduit and wiring should be installed as per RTU installation instructions and detail #01 on sheet ME3.1. The RTU installation instructions show that the RTU's have dedicated provisions/knockouts located on the RTU for routing of the electrical wiring. Flexible metal conduit should be used within the equipment for RTU wiring as per detail #01. The location of the dedicated provisions/knockouts is not standard on all units and will need to be verified with the RTU installation instructions based on the size of the RTU. See the snapshots below.





01 ROOFTOP UNIT CONNECTION DETAIL
SCALE : NOT TO SCALE

2) HVAC Equipment:
- **a) Provide windstorm certification for all RTU & exhaust installation.**
- **b) Ensure that all existing duct smoke detectors have been reconnected and reprogrammed.**
- **c) Provide 2" galvanized filter frames and replaceable filter media for RTU's.**
- **d) Provide caps for test ports drilled in RTU access panels after testing has been completed.**
- **e) RTUs: Ensure equipment condenser coils to be "e-coated" as per "ROOFTOP UNIT SCHEDULE".**
- **f) Submit start-up reports as per specifications. See specifications for those that call for factory-authorized service representative start-up in lieu of the contractor.**
- **g) Ensure that all outdoor air hoods and associated screens are installed correctly.**

3) HVAC Accessories:
- **a) Remove and dispose of all old accessories and materials not in use.**

4) HVAC Test and Balance:
- **a) Submit test and balance report for review.**
- **b) Submit documentation indicating completed checkout of HVAC controls as per specifications.**

5) HVAC Controls:
- **a) Provide a wall mounting plate where existing rough-in boxes are installed horizontally and install thermostat vertically.**
- **b) Provide a wall mounting plate to cover any opening that is bigger than the new thermostat when installed vertically.**
- **c) Finish installation of clear perforated locking covers for t'stats, CO2 sensors, etc.**
- **d) Finish programming t'stats.**
- **e) Submit documentation indicating completed checkout of HVAC controls as per specifications.**
- **f) Finish labeling space sensors with their corresponding unit/equipment as per specifications section 230900/3.4/E/1. Labels of space sensors are to be attached to the space sensor and not on the clear locking covers.**

6) Electrical Panels:
- **a) Provide typewritten up to date as-built list directories with room numbers/names to meet NEC requirements.**

7) Electrical Receptacles:
- **a) All new GFCI factory-installed convenience electrical outlets need to follow the NEC code.**
- **b) Provide missing circuit labels for receptacles.**

8) Electrical Disconnects:
- **a) Provide new fuses for all existing disconnects as per equipment connection schedule note #2 on sheet ME2.4.**
- **b) Finish installation of screw-in engraved nameplates for RTU integral disconnects as per detail #06 on sheet ME3.1.**
- **c) Provide a watertight seal connection from the RTU to the electrical disconnect.**

9) The following systems will not be substantially accepted until the Owner has received demonstration, training, and testing in the presence of the MEP Engineer and submitted list of attendees:
- **a) HVAC Controls.**

COMMENTS: (Vela MS)

1) HVAC Equipment:
   a) Provide caps on knockout openings near electrical disconnects.
      i) RTU-04
      ii) RTU-07
      iii) RTU-11
      iv) RTU-14
      v) RTU-16
      vi) RTU-20
      vii) RTU-21
      viii) RTU-23
      ix) RTU-24
      x) RTU-25
      xi) RTU-29
      xii) RTU-31
      xiii) RTU-32
      xiv) RTU-35
      xv) RTU-36
      xvi) RTU-37
      xvii) RTU-38
      xviii) RTU-39
      xix) RTU-40
      xx) RTU-42
      xxi) RTU-43
      xxii) RTU-94
   b) Replace the damaged screen for the outdoor air hood.
      i) RTU-07
      ii) RTU-11
      iii) RTU-32
      iv) RTU-38
   c) Replace damaged RTU door.
      i) RTU-04
      ii) RTU-10
      iii) RTU-22
      iv) RTU-94
   d) Replace the damaged top of RTU.
      i) RTU-28
      ii) RTU-30
   e) Fix the damaged drain pan and associated condensate line.
      i) RTU-08
      ii) RTU-10
   f) Provide missing screws for engraved nameplates on RTU's.
      i) RTU-08
      ii) RTU-09
      iii) RTU-17
   g) Provide missing retaining clips for RTU's.
      i) RTU-9
      ii) RTU-10
      iii) RTU-94
   h) Provide missing screws to top of RTU.
      i) RTU-02
   i) Provide caps on open knockouts located inside the condenser section of the RTU.
      i) RTU-02
   j) Provide caps and seal open knockouts inside the return section of the RTU.
      i) RTU-04
   k) Clean or replace dirty covers for supply and return sections.
      i) RTU-07
   l) Adjust doors on RTU's.
      i) RTU-10
      ii) RTU-29
      iii) RTU-30
      iv) RTU-39
      v) RTU-45
   m) Replace damaged cover on return section of RTU.
      i) RTU-15
      ii) RTU-17
      iii) RTU-24
      iv) RTU-25
      v) RTU-44
      vi) RTU-45

n) Replace damaged cover on supply section of RTU.
   i) RTU-17
   ii) RTU-20
   iii) RTU-25
   iv) RTU-27
   v) RTU-29

o) Fix damaged insulation on supply door of RTU.
   i) RTU-16
   ii) RTU-20
   iii) RTU-22
   iv) RTU-31
   v) RTU-41

p) Replace damaged handle on RTU.
   i) RTU-22
   ii) RTU-29

q) Correctly install the weather stripping gasket on the supply & return covers for the RTU's.
   i) RTU-27
   ii) RTU-29
   iii) RTU-30
   iv) RTU-31
   v) RTU-32
   vi) RTU-39
   vii) RTU-40
   viii) RTU-45

2) HVAC Accessories:

a) Fix and adjust hail guards that are not installed properly.
   i) RTU-07
   ii) RTU-12
   iii) RTU-19
   iv) RTU-20
   v) RTU-31
   vi) RTU-32
   vii) RTU-36
   viii) RTU-37
   ix) RTU-38
   x) RTU-40
   xi) RTU-42
   xii) RTU-44

b) Replaced damaged hail guard.
   i) RTU-21

c) Attached condensate roof supports to the roof as per the manufacture's recommendation. Condensate roof supports are loose.
   i) RTU-01
   ii) RTU-02
   iii) RTU-03
   iv) RTU-04
   v) RTU-05
   vi) RTU-06
   vii) RTU-07
   viii) RTU-08
   ix) RTU-09
   x) RTU-10
   xi) RTU-11
   xii) RTU-12
   xiii) RTU-13
   xiv) RTU-14
   xv) RTU-15
   xvi) RTU-16
   xvii) RTU-17
   xviii) RTU-18
   xix) RTU-19
   xx) RTU-20
   xxi) RTU-21
   xxii) RTU-22
   xxiii) RTU-23
   xxiv) RTU-24
   xxv) RTU-25
   xxvi) RTU-26
   xxvii) RTU-27
   xxviii) RTU-28
   xxix) RTU-29
   xxx) RTU-30
   xxxi) RTU-31
   xxxii) RTU-32
   xxxiii) RTU-33
   xxxiv) RTU-34
   xxxv) RTU-35
   xxxvi) RTU-36
   xxxvii) RTU-37
   xxxviii) RTU-38
   xxxix) RTU-39
   xl) RTU-40
   xli) RTU-41
   xlii) RTU-42
   xliii) RTU-43
   xliv) RTU-44
   xlv) RTU-45
   xlvi) RTU-50
   xlvii) RTU-52
   xlviii) RTU-55
   xlix) RTU-56
   l) RTU-57
   li) RTU-58
   lii) RTU-59
   liii) RTU-60
   liv) RTU-61
   lv) RTU-62
   lvi) RTU-63
   lvii) RTU-64
   lviii) RTU-65
   lix) RTU-66
   lx) RTU-67
   lxi) RTU-68
   lxii) RTU-69
   lxiii) RTU-70
   lxiv) RTU-71
   lxv) RTU-72
   lxvi) RTU-73
   lxvii) RTU-74
   lxviii) RTU-75
   lxix) RTU-76
   lxx) RTU-77
   lxxi) RTU-78
   lxxii) RTU-79
   lxxiii) RTU-80
   lxxiv) RTU-81
   lxxv) RTU-82
   lxxvi) RTU-83
   lxxvii) RTU-84
   lxxviii) RTU-85
   lxxix) RTU-86
   lxxx) RTU-87
   lxxxi) RTU-88
   lxxxii) RTU-89
   lxxxiii) RTU-90
   lxxxiv) RTU-92
   lxxxv) RTU-93
   lxxxvi) RTU-94
   lxxxvii) RTU-98
   lxxxviii) RTU-109

d) Secure condensate line to all roof supports.

i) RTU-01
ii) RTU-02
iii) RTU-03
iv) RTU-04
v) RTU-05
vi) RTU-06
vii) RTU-07
viii) RTU-08
ix) RTU-09
x) RTU-10
xi) RTU-11
xii) RTU-12
xiii) RTU-13
xiv) RTU-14
xv) RTU-15
xvi) RTU-16
xvii) RTU-17
xviii) RTU-18
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xx) RTU-20
xxi) RTU-21
xxii) RTU-22
xxiii) RTU-23
xxiv) RTU-24
xxv) RTU-25
xxvi) RTU-26
xxvii) RTU-27
xxviii) RTU-28
xxix) RTU-29
xxx) RTU-30
xxxi) RTU-31
xxxii) RTU-32
xxxiii) RTU-33
xxxiv) RTU-34
xxxv) RTU-35
xxxvi) RTU-36
xxxvii) RTU-37
xxxviii) RTU-38
xxxix) RTU-39
xl) RTU-40
xli) RTU-41
xlii) RTU-42
xliii) RTU-43
xliv) RTU-44
xlv) RTU-45
xlvi) RTU-50
xlvii) RTU-52
xlviii) RTU-55
xlix) RTU-56
l) RTU-57
li) RTU-58
lii) RTU-59
liii) RTU-60
liv) RTU-61
lv) RTU-62
lvi) RTU-63
lvii) RTU-64
lviii) RTU-65
lix) RTU-66
lx) RTU-67
lxi) RTU-68
lxii) RTU-69
lxiii) RTU-70
lxiv) RTU-71
lxv) RTU-72
lxvi) RTU-73
lxvii) RTU-74
lxviii) RTU-75
lxix) RTU-76
lxx) RTU-77
lxxi) RTU-78
lxxii) RTU-79
lxxiii) RTU-80
lxxiv) RTU-81
lxxv) RTU-82
lxxvi) RTU-83
lxxvii) RTU-84
lxxviii) RTU-85
lxxix) RTU-86
lxxx) RTU-87
lxxxi) RTU-88
lxxxii) RTU-89
lxxxiii) RTU-90
lxxxiv) RTU-92
lxxxv) RTU-93
lxxxvi) RTU-94
lxxxvii) RTU-98
lxxxviii) RTU-109

3) HVAC Controls:

a) Install thermostat vertically.

i) RTU-56
ii) RTU-26
iii) RTU-29
iv) RTU-01
v) RTU-02
vi) RTU-33

b) Provide missing clear locking cover for new thermostat.

i) RTU-01
ii) RTU-02
iii) RTU-03
iv) RTU-52
v) RTU-98
vi) RTU-109

c) Paint wall to match existing wall where footprint of existing thermostat was located.

i) RTU-01
ii) RTU-03
iii) RTU-04
iv) RTU-05
v) RTU-06
vi) RTU-07
vii) RTU-08
viii) RTU-09
ix) RTU-10
x) RTU-11
xi) RTU-12
xii) RTU-13
xiii) RTU-14
xiv) RTU-15
xv) RTU-16
xvi) RTU-17
xvii) RTU-18
xviii) RTU-19
xix) RTU-21
xx) RTU-22
xxi) RTU-23
xxii) RTU-24
xxiii) RTU-25
xxiv) RTU-26
xxv) RTU-27
xxvi) RTU-28
xxvii) RTU-29
xxviii) RTU-30
xxix) RTU-31
xxx) RTU-32
xxxi) RTU-34
xxxii) RTU-35
xxxiii) RTU-36
xxxiv) RTU-39
xxxv) RTU-40
xxxvi) RTU-41
xxxvii) RTU-42
xxxviii) RTU-43
xxxix) RTU-44
xl) RTU-50
xli) RTU-55
xlii) RTU-56
xliii) RTU-57
xliv) RTU-60
xlv) RTU-61
xlvi) RTU-62
xlvii) RTU-63
xlviii) RTU-64
xlix) RTU-65
l) RTU-66
li) RTU-68
lii) RTU-69
liii) RTU-70
liv) RTU-71
lv) RTU-72
lvi) RTU-73
lvii) RTU-74
lviii) RTU-75
lix) RTU-76
lx) RTU-77
lxi) RTU-78
lxii) RTU-79
lxiii) RTU-80
lxiv) RTU-81
lxv) RTU-82
lxvi) RTU-83
lxvii) RTU-85
lxviii) RTU-86
lxix) RTU-87
lxx) RTU-88
lxxi) RTU-89
lxxii) RTU-90
lxxiii) RTU-92

4) Electrical Receptacle:

a) Provide missing GFCI cover.

i) RTU-02

b) Provide missing GFCI receptacle as per RTU schedule.

i) RTU-44

5) Electrical Raceway:

a) Ground wire has been pinched by door in supply section and damaged the conductor insulator. Please fix.

i) RTU-43

6) Electrical Disconnect:
   a) Provide field-applied color coding tape on conductors as per spec Section 260553/3.2/D/d.
      i) RTU-08 vi) RTU-14 xi) RTU-24 xvi) RTU-37 xxi) RTU-43
      ii) RTU-09 vii) RTU-16 xii) RTU-26 xvii) RTU-38 xxii) RTU-44
      iii) RTU-11 viii) RTU-17 xiii) RTU-29 xviii) RTU-39 xxiii) RTU-45
      iv) RTU-12 ix) RTU-18 xiv) RTU-32 xix) RTU-40 xxiv) RTU-92
      v) RTU-13 x) RTU-19 xv) RTU-36 xx) RTU-41
   b) Finish installation of screw-in engraved nameplates for RTU electrical disconnects as per detail #06 on sheet ME3.1.
      i) RTU-01 xix) RTU-19 xxxvii) RTU-37 lv) RTU-62 lxxiii) RTU-80
      ii) RTU-02 xx) RTU-20 xxxviii) RTU-38 lvi) RTU-63 lxxiv) RTU-81
      iii) RTU-03 xxi) RTU-21 xxxix) RTU-39 lvii) RTU-64 lxxv) RTU-82
      iv) RTU-04 xxii) RTU-22 xl) RTU-40 lviii) RTU-65 lxxvi) RTU-83
      v) RTU-05 xxiii) RTU-23 xli) RTU-41 lix) RTU-66 lxxvii) RTU-84
      vi) RTU-06 xxiv) RTU-24 xlii) RTU-42 lx) RTU-67 lxxviii) RTU-85
      vii) RTU-07 xxv) RTU-25 xliii) RTU-43 lxi) RTU-68 lxxix) RTU-86
      viii) RTU-08 xxvi) RTU-26 xliv) RTU-44 lxii) RTU-69 lxxx) RTU-87
      ix) RTU-09 xxvii) RTU-27 xlv) RTU-45 lxiii) RTU-70 lxxxi) RTU-88
      x) RTU-10 xxviii) RTU-28 xlvi) RTU-50 lxiv) RTU-71 lxxxii) RTU-89
      xi) RTU-11 xxix) RTU-29 xlvii) RTU-52 lxv) RTU-72 lxxxiii) RTU-90
      xii) RTU-12 xxx) RTU-30 xlviii) RTU-55 lxvi) RTU-73 lxxxiv) RTU-92
      xiii) RTU-13 xxxi) RTU-31 xlix) RTU-56 lxvii) RTU-74 lxxxv) RTU-93
      xiv) RTU-14 xxxii) RTU-32 l) RTU-57 lxviii) RTU-75 lxxxvi) RTU-94
      xv) RTU-15 xxxiii) RTU-33 li) RTU-58 lxix) RTU-76 lxxxvii) RTU-98
      xvi) RTU-16 xxxiv) RTU-34 lii) RTU-59 lxx) RTU-77 lxxxviii) RTU-109
      xvii) RTU-17 xxxv) RTU-35 liii) RTU-60 lxxi) RTU-78
      xviii) RTU-18 xxxvi) RTU-36 liv) RTU-61 lxxii) RTU-79
   c) Finish painting the existing disconnect.
      i) RTU-24
      ii) RTU-25
   d) Install disconnect at the allowable height as per NEC code.
      i) RTU-12

7) Electrical Heater:
   a) Ensure that conductors identified by colored tape are connected to the terminal with the matching color coded conductors.
      i) RTU-02 x) RTU-14 xix) RTU-23 xxviii) RTU-32 xxxvii) RTU-43
      ii) RTU-04 xi) RTU-15 xx) RTU-24 xxix) RTU-35 xxxviii) RTU-44
      iii) RTU-07 xii) RTU-16 xxi) RTU-25 xxx) RTU-36 xxxix) RTU-45
      iv) RTU-08 xiii) RTU-17 xxii) RTU-26 xxxi) RTU-37 xl) RTU-92
      v) RTU-09 xiv) RTU-18 xxiii) RTU-27 xxxii) RTU-38 xli) RTU-94
      vi) RTU-10 xv) RTU-19 xxiv) RTU-28 xxxiii) RTU-39
      vii) RTU-11 xvi) RTU-20 xxv) RTU-29 xxxiv) RTU-40
      viii) RTU-12 xvii) RTU-21 xxvi) RTU-30 xxxv) RTU-41
      ix) RTU-13 xviii) RTU-22 xxvii) RTU-31 xxxvi) RTU-42