

Brownsville Independent School District

| Agenda Cat | egory: | General Function | Board of Educa | ation Meeting: <u>11-05-2025</u> | |
|------------------------|---------|---|----------------------|----------------------------------|--|
| Item Title: | Phase I | -148B El Jardin E.S. HVA Package I) Project tial Completion | C Upgrades, | X Action Information Discussion | |
| BACKGRO CSP#22-148E | | E.S. HVAC Upgrades, Pha | ase I (Package I) Pr | roject, is ready for Substantial | |

Completion acceptance by the Brownsville ISD Board of Trustees. The Project Engineer, General Contractor and, BISD Facilities Department Administration staff conducted a walk-thru to provide a Punch List. As a result, the Administration recommends substantial completion acceptance for this project.

Attached for reference find the following document(s).

El Jardin E.S. HVAC Upgrades, Phase I (Package 1) Project:

- AIA Document G704-2017
- Punch List
- Commissioning Report
- CSP #22-148B

FISCAL IMPLICATIONS:

None

RECOMMENDATION:

Recommend approval to authorize the El Jardin E.S. HVAC Upgrades, Phase I (Package 1) Project, under CSP # 22-148B, as substantially complete.

Alonso Guerrero

Alonso Guerrero

Alonso Guerrero

Recommended by: Health Services & Operations

Mary O. Jan

Mary D. Garza

Approved by: Interim-Chief Financial Officer

Approved for Submission to Board of Education:

Dr. Jesus H. Chavez, Superintendent

Esu H Chave



Certificate of Substantial Completion

PROJECT: (name and address)

ESSER III Phase I HVAC Upgrades Phase

I

CONTRACT INFORMATION:

Contract For: CSP 22-148B El Jardin

Elementary School

CERTIFICATE INFORMATION:

Certificate Number: 001

El Jardin Elementary School

Date: 10/03/2022

Date: 04/15/2024

OWNER: (name and address)
Brownsville Independent School District

Brownsville Independent School Distriction 1900 E. Price Road

Brownsville, Texas 78521

ARCHITECT: (name and address)
Halff Associates, Inc. (as Consultant not

Architect)
5000 West Military Highway Suite 100.

McAllen, Texas

CONTRACTOR: (name and address)
Central Air and heating Services, Inc.

3028 Wilson Road Harlingen, Texas 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.)

All project work

Halff Associates, Inc. (as Consultant not Architect)

ARCHITECT (Firm Name)

Gabriel Benavides, PE Vice President

Director of MEP

PRINTED NAME AND TITLE

04/15/2024

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.)
Punch list items reported on 01/31/2024.

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.)

Punch list items reported on 01/31/2024.

The failure to include any items on such list does not alter the responsibility of the Contract 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: \$5,000

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:

CAHS CONTRACTOR (Firm

Name)

Brownsville I.S.D.

OWNER (Firm Name)

Colin Eubanks (PM)

PRINTED NAME AND TITLE

Manuel Hinojosa, FAIA PRINTED NAME AND TITLE

04/15/2024

May 14, 2025

DATE



Punch List

To:

Manuel Hinojosa

Date:

2/1/2024

From:

Luis E Hernandez Nava

AVO:

45813.003

Email:

ihernandeznava@halff.com

Project:

HVAC Upgrades at El Jardin

Contract for:

BISD ESSER HVAC Upgrades at El Jardin Elementary

The following items require the attention of the Contractor for completion or correction. This list may not be all-inclusive, and the failure 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.

| LOCATION (AREA) | DESCRIPTION | COMPLETION DATE | A/E CHECK DATE |
|--------------------|---|--|---|
| All buildings | Add a dehumidification sequence to all RTUs. | | |
| All buildings | The GFCI convenience outlets are missing from all RTUs (except the ones at the Classroom Wing). For locations, please refer to drawing E1.01. | | |
| All buildings | Provide identification labels to all units as per specification 230553. | | |
| All buildings | P-traps should have vents closer to the unit closed to avoid bringing unconditioned outdoor air to the unit. | | |
| All buildings | The General Contractor shall insulate and watertight seal all roof curbs. Confirm all roof curbs and adapters are properly airtight sealed. Air leakage was confirmed during the site visit observation. | | |
| All buildings | The General Contractor shall confirm that the unit and access door panel are properly sealed. Condensation is present in the compressor's cabinet. | | |
| | All buildings All buildings All buildings All buildings All buildings All buildings | All buildings All buildings • Add a dehumidification sequence to all RTUs. • The GFCI convenience outlets are missing from all RTUs (except the ones at the Classroom Wing). For locations, please refer to drawing E1.01. All buildings • Provide identification labels to all units as per specification 230553. • P-traps should have vents closer to the unit closed to avoid bringing unconditioned outdoor air to the unit. • The General Contractor shall insulate and watertight seal all roof curbs. Confirm all roof curbs and adapters are properly airtight sealed. Air leakage was confirmed during the site visit observation. • The General Contractor shall confirm that the unit and access door panel are properly sealed. Condensation is | All buildings All buildings • Add a dehumidification sequence to all RTUs. • The GFCI convenience outlets are missing from all RTUs (except the ones at the Classroom Wing). For locations, please refer to drawing E1.01. All buildings • Provide identification labels to all units as per specification 230553. All buildings • P-traps should have vents closer to the unit closed to avoid bringing unconditioned outdoor air to the unit. • The General Contractor shall insulate and watertight seal all roof curbs. Confirm all roof curbs and adapters are properly airtight sealed. Air leakage was confirmed during the site visit observation. • The General Contractor shall confirm that the unit and access door panel are properly sealed. Condensation is |



| ITEM NO. | LOCATION (AREA) | DESCRIPTION | COMPLETION DATE | A/E CHECK DATE |
|-------------|--------------------|--|--------------------|-------------------|
| 7 | | Provide Test and Balance report. | | Tresmannes |
| 8 | Class Wing | RTU-13-608/640/612 missing convenience outlet. GC to confirm that all units have installed supply and return smoke detectors. | | |
| 9 | Building A | RTU-05-102 outside air damper not operable. Pending wiring connections. | | |
| 10 | Building B | GC to confirm that all units have installed supply and return smoke detectors. | | |
| 11 | Building C | RTU-04-105 is pending outside air damper and hinged access doors. | | |

| ☐ Attachments | | | | | | | | | | | |
|---------------------|-----------------|------|--|--|--|--|--|--|--|--|--|
| SIGNED: Luis E. Her | nandez Nava, PE | | | | | | | | | | |
| COPIES: ☐ Owner | ☐ Contractor ☒ | File | | | | | | | | | |



Punch List

To:

Manuel Hinojosa

Date:

2/1/2024

From:

Luis E Hernandez Nava

AVQ:

45813.003

Email:

Ihernandeznava@halff.com

Project:

HVAC Upgrades at El Jardin

Contract for:

BISD ESSER HVAC Upgrades at El Jardin Elementary

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| ITEM LOCATION NO. (AREA) | | DESCRIPTION | COMPLETION DATE | A/E CHECK DATE |
|-----------------------------|------------|--|--------------------|-------------------|
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| ☐ Attachments | | | | | | | | | |
|---------------------|---------------------|--|--|--|--|--|--|--|--|
| SIGNED: Luis E. Her | nandez Nava, PE | | | | | | | | |
| COPIES: ☐ Owner | ☐ Contractor ☒ File | | | | | | | | |

Final Commissioning Report

Prepared for:

BISD - El Jardin Elementary School



Friday, March 14, 2025 1025 Morningside Rd, Brownsville, Tx 78521

Texas Board of Professional Engineers

Registered Firm #F-312



Scope of Services for BISD - Commissioning

SCOPE OF WORK

Commissioning shall be provided by the Commissioning Agent (CxA), Halff Associates, Inc., to confirm the installed system's compliance with the Construction Documents for operation capacity and compliance with the project's Sequences of Operations (SOO).

- Confirmation of Owner-Provided-Requirements (OPR)
- Establishing communication between CxA and contractors
- Verification of integration between the DDC system and the connected equipment
- Graphics review of the BAS system for accuracy and usefulness
- Periodic sampling of the Test, Adjust, and Balance (TAB)
- Construction Document's SOO review
- Trend comparison between BAS and CxA's independent readings
- Witness Manufacturer's required startup of equipment
- Observe functional testing of equipment in compliance with the SOO



Commissioning Team Contact Information

| Company | Contact Person | Office # | Mobile # | Email Address |
|---|---|---|---|--|
| Brownsville Independent School District | Manuel Hinojosa | 956-698-2400 | | Mhinojosa1@bisd.us |
| Haiff | Luis Hernandez Nava | 956-664-0286 | | lhernandeznava@halff.com |
| Halff | Dean Lizzotte | 956-664-0286 | 956-369-9253 | Dlizzotte@halff.com |
| Central Air and Heating | Colin Eubanks | 926-428-4509 | 956-572-1738 | colin.eubanks@cahsinc.com |
| Central Air and Heating | Colin Eubanks | 926-428-4509 | 956-572-1738 | colin.eubanks@cahsinc.com |
| Pete's Electric LLC | | 956-230-8340 | | PETESELECTRICCO@AOL.COM |
| Automated Logic | Raul Gonzalez | 210-825-9354 | | raul.gonzalez@carrier.com |
| Testing & CX Service | Art Olivares | 956-874-5889 | | art@testandcx.com |
| | Brownsville Independent School District Halff Halff Central Air and Heating Central Air and Heating Pete's Electric LLC Automated Logic | Brownsville Independent School District Halff Luis Hernandez Nava Halff Dean Lizzotte Central Air and Heating Colin Eubanks Central Air and Heating Colin Eubanks Pete's Electric LLC Automated Logic Raul Gonzalez | Brownsville Independent School District Manuel Hinojosa 956-698-2400 Halff Luis Hernandez 956-664-0286 Halff Dean Lizzotte 956-664-0286 Central Air and Heating Colin Eubanks 926-428-4509 Central Air and Heating Colin Eubanks 926-428-4509 Pete's Electric LLC 956-230-8340 Automated Logic Raul Gonzalez 210-825-9354 | Brownsville Independent School District School Hinojosa 956-698-2400 |



| Description | Date | Form of Communication | Sent To | Sent By |
|------------------------|---------|---|------------------------|---------------------|
| Initial Cx Plan | | Email | Fernando Villarreal | Dean Lizzotte |
| Pre-functional testing | 1/21/24 | Site Visit | Colin Eubanks | Luis Hernandez Nava |
| Preliminary Cx Plan | 8/2/24 | Email | Colin Eubanks | Dean Lizzotte |
| Final Cx Report | 3/14/25 | Email | Manuel Hinojosa | Dean Lizzotte |
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Pre-functional Startup Testing

Introduction

The purpose of the pre-functional start-up testing is to verify that installation checklists and proper start-up protocols are followed. This allows for an alignment of the Owner's project requirements with the contractor's work. Any identified issues shall be documented in the issues and resolutions log for either the commissioning progress report or the final commissioning report. The pre-functional start-up scripts shall be provided by the contractor from the equipment manufacturer.

Communication

Documentation for pre-functional startup checklists is attached and represents manufacturers recommended practices for start-up. The documents shall be signed by the Cx agent, owner's representative, and contractor representative. An example of an Issues and Resolutions Log is also attached.

Procedures

- 1. The Contractor shall perform the startup while the CxA witnesses and observes the operation.
- 2. If any issues occur, they shall be promptly documented into the Issues and Resolution Log.
- 3. The potential resolution shall be submitted.
- 4. After the issue has been resolved the process shall be re-attempted.
- 5. If startup completes without any reported issues then the document shall be signed by witnessing parties: the CxA, the Contractor's representative, and the Owner's representative.

Notes: Any equipment started without witnessing by the CxA shall be documented



| re- | runctio | IId | Checkli | St-ROOI | тор | | NIT INFOR | RMATION | | | // | | | | | | | | |
|--------------|---------------------------|-------|-------------|-------------|----------------|----------------|---|---------------------|------|---------------|----------|----------------|-------------------------|----------------|--------------------------|-----|--------|------|----|
| RT | 'U Number | - | | Rtu-04-1 | 04 | | | Control System type | | | DDC | | | | | | | | |
| Mo | del Numb | er | | | 48A1000AC | | | Ambient Temperature | | | | | 74 | | | | | | |
| _ | rial Numbe | | | 2242143 | | | | Heat Fue | Ту | pe N/ | A | | | | | | | | |
| C/I | Number | | | | | | | Air Filter | | | | Pleate | ed | | | | | | |
| | | | | | | | _ | Air Filter | Con | dition | | Dirty | | | | | | | |
| | | 7 | 7 3 7 | | | ELE | CTRICAL | SYSTEM | | | | | J 4 8 | | | | | | |
| Un | Unit Voltage and Phase | | | | | 30 1ph. | | T1 Transf | orm | ner Out | put Vol | tage | 25.3v | | | | | | |
| | | | e Reading | L1-L2 | 241.9 | ٧ | | T18 Trans | sfor | mer Οι | itput Vo | oltage | N/a | | | | | | |
| Inc | oming Vol | tage | e Reading | L1-L3 | N/a | | | T43 Trans | sfor | mer Oı | itput Vo | oltage | N/a | | | | | | |
| - | | | e Reading | | N/a | | | | | | | | | | | | | | |
| | | | PRODIGY | CONTRO | LLER | | | | TH | HERMO | STAT | / DDC | CONT | ROLS | | | | | |
| Co | mpleted G | uid | ed Setup | | N/A | | | Controller | Ма | anufact | urer | Trane | | | - | | | | |
| Pro | odigy Unit | Rep | ort Include | ed | NO | | | Controller | Мо | del Nu | mber | UC60 | 0 | | | | | | |
| Pro | odigy Boar | d S | oftware Ve | rsion# | | 6.05 | 5 | Controller | Se | rial Nu | mber | E23C | 19018 | | | | | | |
| Dis | Display Software Version# | | | | | | | Network Address | | | | | | | | | | | |
| | | | | | | С | OOLING | SYSTEM | | | | | | | | | | | |
| Blower Motor | Horse Power 3 | /4 | Rotatio | on Verified | | | AMPS L2-L3 | AMPS L1-L3 | s | uction | Dischar | ge | Temperature Readings | | Delta | | | | |
| wer | High Spe | ed | NA | | | 1.7a | 1.7a | N/a | Pr | Pressure | Pressu | re | All Stages | | | | | | |
| 盎 | Low Spe | ed | NA | | NA | | NA | | | | | | | | | F | Return | Supp | ly |
| ř | Stage 1 | | NA | | NA | | | 8.7a | 8.6a | 4.5a | 138 | 8.0psig 275.4p | | sig | 71.0 | 52f | 52f | | |
| Compressor | Stage 2 | 2 | NA | | | | | | | | | | | | | | | | |
| omp | Stage 3 | 3 | NA | | | | | | | | | \bot | | | \perp | | | | |
| Ö | Stage 4 | 1 | NA | | | | | | | | | | | | | | | | |
| | | | | | | | EATING : | SYSTEM | | | | | | | | | | | |
| | | | | GAS | | | | <u> </u> | | | ELE | ECTRIC | - | | | | | | |
| Stage | inlet Pressure | Stage | | Pressure | Return Temp | Supply Temp | Temp Rise Full Heat | Electric H | eat | AMPS L1-L2 | | AMPS L1-L3 | | Supply Temp | Temp Rise Ful Heat | | | | |
| 4 | B1/- | - | Low | High | - | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | 1 | | 16.60 | 17.0a | N/a | <u> </u> | | | | | | |
| 1 | N/a | 1 | | * | ┨ | | - | 2 | | 10.0a | 17.0a | 1V/a | 74 | 87 | | | | | |
| 2 | N/a | 2 | | - | | | OUTDOO | | | | | | | | | | | | |
| Ou | tdoor Air t | VDA | | | | _ | OUTDOE | Power Ex | hau | ıst Inst | alled | | | - 100 | | | | | |
| - | on Operati | | | 1 | | | | Power E | - | | | | _ | | | | | | |
| | on Operati | | 71040 | 1 377 1 | | OPE | RATI <u>ONA</u> | L RUN TE | _ | | | | | 1 80 | | | | | |
| Ru | n test coo | lina | system | Yes | | | | Run test | | coolin | g | | | | | | | | |
| | n test hea | | - | Yes | | | | Run test | pow | er exh | aust | | 2001 | 3000 | | | | | |
| | | | | | | NOT | ES & DE | FICIENCIE | | | | | 2270 | | | | | | |

| Halff Cx Agent Jan & Honnot | General Contractors Representative | Owners Representative |
|------------------------------------|------------------------------------|-----------------------|
| Signed": | Signed: | Signed: |
| Name: Luis Hernandia Nama | Name: Mike Rodriguez | Name: |
| Company: Half | Company: Cahs | Company: |
| Date: | Date: <u>01/31/24</u> | Date: |
| Phone/Emails: Thermales note half- | Phone/Emails: | Phone/Emails: |



| re- | runctio | Па | Checkli | St-ROUI | тор | | NIT INFOR | RMATION | | | | | | | | | | | | | | | |
|--------------|--------------------------------------|-------|-------------|-------------|----------------|----------------|-------------------|-------------------------|---------|---------------|---------------|---------------|----------------|----------------|-------------------------|-----|-----|--|--|---|--------|------|----|
| RT | U Number | r | | RTU-04-2 | 211 | | | Control System type DDC | | | | DDC | DC | | | | | | | | | | |
| - | del Numb | | | 4TCY504 | | 0AC | | Ambient Temperature 73 | | | | | | | | | | | | | | | |
| _ | rial Numbe | | | 2246102 | _ | | | Heat Fuel Type N/A | | | | | | | | | | | | | | | |
| | Number | | | | | | | Air Filter | Гуре | e18x18 | x2 | Pleate | :d | | | | | | | | | | |
| | | | | | | | | Air Filter (| Con | dition | | Dirty | | | | | | | | | | | |
| | - | - | | | | ELE | CTRICAL | SYSTEM | Ħ | - | 14.5 | WIL | | 4 | | | | | | | | | |
| Uni | Unit Voltage and Phase 208-230v 1ph. | | | | | | T1 Transf | orm | ner Out | put Vol | tage | 26.0a | | | | | | | | | | | |
| | | | Reading | L1-L2 | 244.3 | V | · · · · · · | T18 Trans | sfor | mer Ou | tput Vo | ltage | N/a | | | | | | | | | | |
| | | | e Reading | | N/a | - | | T43 Trans | sfor | mer Ou | itput Vo | ltage | N/a | | | | | | | | | | |
| | | | e Reading | | N/a | | | | | | | | | | | | | | | | | | |
| 1110 | orning vo. | | PRODIGY | | _ | 199 | 47 | | TH | HERMO | STAT | / DDC | CONT | ROLS | | | | | | | | | |
| Co | mpleted G | uid | ed Setup | | N/A | | | Controller | Ma | anufact | urer | Trane | | | - | | | | | | | | |
| | | | ort Include | d | NO | | | Controller | Mo | odel Nu | mber | UC600 |) | | | | | | | | | | |
| _ | | | oftware Ve | | | 6.05 | 5 | Controller | Se | rial Nu | mber | E22L0 | 5939 | | | | | | | | | | |
| Dis | Display Software Version# | | | | | | | Network Address | | | 23022 | | | | | | | | | | | | |
| | | | | 1 1 70 | | С | OOLING | SYSTEM | | | | | | | | | | | | | | | |
| Blower Motor | Horse Power 3 | /4 | Rotatio | on Verified | | AMPS L1-L2 | AMPS L2-L3 | AMPS L1-L3 SIK | | uction | Dischar | oe l | All Others | | Delta | | | | | | | | |
| ş | High Spe | ed | NA | | | 1.3a | 1.3a | N/a | • | essure | Pressure | | | | Т . | | | | | | | | |
| 8 | Low Spe | | | | NA | | NA | | NA | | NA | | | | | | 1 | | | F | Return | Supp | ly |
| Ţ | Stage 1 | | | | NA | | NA | | | 9.3a | 9.0a | 4.6a | 130.6psig 27 | | 276.8p | sig | 72f | | | | | | |
| Compressor | Stage 2 | | NA | | | | | | | | | | | | | | | | | | | | |
| Ē | Stage 3 | | NA | JA | | | | | | | | | | | | | | | | | | | |
| ŏ | Stage 4 | | NA | | | | | | | | | | | | | | | | | | | | |
| | | | | | | H | EATING : | SYSTEM | | | | | | | | | | | | | | | |
| | | | | GAS | | | | | | | ELE | CTRIC | : | | | | | | | | | | |
| Stage | inlet Pressure | Stage | Manifold | Pressure | Return Temp | Supply Temp | Temp Rise Full | Electric H Stage | | AMPS L1-L2 | AMPS L2-L3 | AMPS L1-L3 | Return Temp | Supply Temp | Temp Rise Fu Heat | | | | | | | | |
| | | ┖ | Low | High | - | " - | Heat | | | | 100 | 244 | ├ | | Tieac | | | | | | | | |
| 1 | N/a | 1 | | | 1 | | - | 1 | | 17.4a | 16.9a | N/a | 74 | 85 | | | | | | | | | |
| 2 | N/a | 2 | | | | | - CUEDOS | 2 | _ | | | | | | 11.25 | | | | | | | | |
| | | LV. | | | | | OUTDOO | Power Ex | ch a: | int land | alled | انستار | | | | | | | | | | | |
| | tdoor Air t | - | | 1 | | | | Power E | _ | | | | | 12 11 11 11 | | | | | | | | | |
| EC | on Operat | ion | wode | | | OPE | RATIONA | L RUN TE | | auət i) | Pe | | -AC | | 4 E : | | | | | | | | |
| D | n test coo | ling | evetem | Yes | | - O1 L. | | Run test | | coolin | a | | | | | | | | | | | | |
| - | n test coo | _ | | Yes | | | | Run test | | | | | | | | | | | | | | | |
| Ku | ii iesi iied | ur ıÿ | System | 163 | | NOT | ES & DE | FICIENCIE | | | | | | | 100000 | | | | | | | | |

| Halff Cx Agent 2 - C7// | General Contractors Representative | Owners Representative |
|--------------------------------------|------------------------------------|-----------------------|
| Signed*: | Signed: | Signed: |
| Name: Cuis Hernandes Norm | Name: Mike Rodriguez | Name: |
| Company. | Company: CAHS | Company: |
| Date: 431/24 | Date: <u>U1/31/24</u> | Date: |
| Phone/Emails: hernowder navy@Lalle | Phone/Emails: | Phone/Emails: |



| re- | Funct | iona | Checkli | St-KOOI | rop t | | NIT INFOR | RMATION | W. | | | | N. Ye | = 3 | | |
|--------------|---------------------------|---------|-------------|-------------|----------------|----------------|---------------------------|-----------------------|------|---------------|---------|-------------------------------|--------|----------------|----------------|-----------------------|
| RT | U Numb | er | | RTU-04-2 | 213 | | | Control S | yste | m type | | DDC | | | | |
| _ | del Nun | | | 4TCY504 | 8A100 | 0AC | | Ambient Temperature | | | | | 73 | | | |
| ⊢ | rial Num | | _ | 22431440 | 61L | | | Heat Fuel Type N/A | | | | | | | | |
| C/N | Numb | er | | | | | | | | | | Pleated | | | | |
| г | | | | | | | | Air Filter (| Con | dition | 1 | Dirty | | | | |
| | - W | | * T-1 | 4-1- | | ELE | CTRICAL | SYSTEM | | | | | | | | |
| Uni | it Voltag | e and | Phase | | 208-2 | 30v 1pt | 1 | T1 Transf | form | er Out | out Vol | tage | 25.7v | | | |
| Inc | oming \ | /oltag | e Reading | L1-L2 | 241.6 | / | | T18 Trans | sfor | mer Ou | tput Vo | ltage | N/a | | | |
| Inc | oming \ | /oltag | e Reading | L1-L3 | N/a | | | T43 Trans | sfor | mer Ou | tput Vo | oltage | N/a | | | |
| Inc | oming \ | /oltag | e Reading | L2-L3 | N/a | | | | | | | | | | | |
| | 777 | | PRODIGY | | LLER | | | | TH | HERMO | STAT | / DDC | CONT | ROLS | | |
| Co | mpleted | l Guid | ed Setup | | N/A | | | Controller | Ma | nufact | | Trane | | | | |
| Pro | digy Ur | nit Rep | ort Include | ed | NO | | | Controller | Mo | del Nu | mber | UC600 | | | | |
| Pro | digy Bo | ard S | oftware Ve | rsion# | | 6.05 | 5 | Controlle | Se | rial Nu | | E22L0 | 5966 | | | |
| Dis | Display Software Version# | | | | | | | Network Address 23021 | | | | | | | | |
| | | | | | | С | OOLING | SYSTEM | | | | | | | | - |
| Blower Motor | Horse Power | 3/4 | Rotati | on Verified | | AMPS L1-L2 | AMPS L2-L3 | AMPS L1-L3 | s | uction | Dischar | Temperature harge Readings | | dings | s D | |
| Wer | High S | peed | NA | | | | | | Pro | essure | Pressu | " | | tages | _ | T |
| ă | Low S | peed | NA | | | 1.1a | 1.1a | N/a | | | | | Seturn | Supp | - + | |
| ٦ | Stag | e 1 | NA | | | 9.3a | 9.3a | 4.5a | 130 | 0.4psig | 282.7p | sig 7 | 70.2f | 50.6 | f | |
| Compressor | Stag | e 2 | NA | | | | | | | | | | | ļ | \dashv | |
| Ē | Stag | e 3 | NA | | | | | | | | | | | | 4 | _ |
| பீ | Stag | e 4 | NA | | | | | | | | | | _ | | | |
| | | | | | W. T | ŀ | IEATING S | SYSTEM | | المنال | 51.5 | OTRIC | | | | - M |
| Щ | | | г | GAS | 1 | 1 | | | | 1 | ELE | ECTRIC | T | Ι | | |
| Stage | Inlet Pressu | | | Pressure | Return Temp | Supply Temp | Temp Rise Full Heat | Electric H Stage | | AMPS L1-L2 | | AMPS L1-L3 | | Supply Temp | Ris | emp e Full leat |
| H | NI/o | 1 | Low | High | - | | | 1 | | 16.9a | 16.7a | N/a | 70 | 0.5 | | |
| \vdash | N/a N/a | 2 | | | 1 | | _ | 2 | | 10.00 | 10.74 | | 1/3 | 85 | | |
| 2 | IN/2l | 4 | | | | | OUTDOO | | | 700 | | | LW | ALL IV | | |
| O. | tdoor A | ir tyne | | | | | | Power Ex | chau | ust Inst | alled | | | | | |
| | on Oper | | • | Ï | | | | Power E | | | | | | | | |
| | on open | 20011 | WALL WALL | | Burn | OPE | RATIONA | L RUN TE | | أحروا | | | | | | |
| Ru | n test c | ooling | system | Yes | | | | Run test | free | coolin | g | | | | | |
| _ | | | system | Yes | | | | Run test | pow | ver exh | aust | | | | | |
| 1 | | | | JA I.E. | | NOT | TES & DEI | FICIENCIE | S | | | | | 9. | | |

| laiff Cx Agen | it 1: 67/ | | Intractors Representative | Owners Representative | 1 |
|-------------------|------------------|------------------------|---------------------------|-----------------------|----|
| igned*: | Lui Harrend Hour | - Augment | Mike Rodriguez | Name: | -1 |
| Name: | Malt Harris Hour | Name: Company: | Cahs | Company: | |
| Company! Date: | 1/31/24 | Date: | 01/31/24 | Date: | |
| hone/Emails: | hernote navioled | E ✓◆ Phone/Emai | ils: | Phone/Emails: | |



| re | -Functi | ona | l Checkli | st-Roof | Top | | NIT INFOR | MATION | | | | | | | | |
|--------------|---|------------|--------------|---------------------------------------|----------------|----------------|-------------------|--|------|---------------|---------------|---------------|----------|--|----------------------|------|
| DT | 1 I. Niconale | •• | | RTU-04-5 | :02 | UI | VII IIVI OI | Control S | veto | m tuno | | DDC | | | | |
| | U Numb | | | 4TCY504 | | 10.4.0 | | | | | | | 69 | | | |
| <u> </u> | del Num | | . | | | JUAG | | Ambient Temperature Heat Fuel Type N/A | | | | | | | | |
| - | rial Num | | | 2244141 | I OL. | | | | | | | Pleate | eted | | | |
| C/I | N Numbe | er | | | | | | ти тисе зуротоптоп | | | Dirty | | | | | |
| | | _ | | | _ | C16 | CTRICAL | SYSTEM | _ | aluon | | Dirty | - | | | |
| | | | - | | 200.2 | 30 1ph | CIRICAL | T1 Transf | | on Out | aut Vali | 2000 | 25.7v | | | |
| _ | it Voltag | | | | 242.1 | • | | T18 Trans | | | | | N/a | | | |
| \vdash | | | e Reading | | - | <u>v</u> | | | | | | | N/a | | | |
| | | | e Reading | | N/a | ···-· | | T43 Trans | STOT | mer Ou | tput vo | ntage | IV/a | | | |
| Inc | oming V | oltag | e Reading | L2-L3 | N/a | | - | (1) | TI | IEDMO | STAT | / DDC | CONT | POI S | 7 | |
| | | | PRODIGY | CONTRO | | | | 0-1-11 | | | | Trane | CONT | ROLS | | |
| _ | THE RESERVE TO SHARE THE PARTY OF THE PARTY | | ed Setup | | N/A | | | Controller | | | | UC60 | 0 | | | |
| | | | ort Include | | NO | | | Controller | | | | E22L0 | | | | |
| | | | oftware Ve | rsion# | | 6.03 | | Controller | | | mber | | | | | |
| Dis | splay So | ftware | Version# | | | = 342 | | Network / | Addi | ress | | 22020 | | | | |
| | | | | | | | OOLING | | | | | | | | | |
| Blower Motor | Horse : | 3/4 | Rotatio | on Verified | | AMPS L1-L2 | AMPS L2-L3 | AMPS L1-L3 | S | uction | Dischar | Boodi | | Temperature Readings | | elta |
| Wer | High S | peed | NA | | | 1.5a | 1.5a | N/a | Pre | essure | Pressu | ire | All S | tages | | T |
| 윮 | Low S | | NA | | | | | | | | | F | Return | Supp | ly | |
| ٦ | Stage | | NA | | | 8.5a | 8.2a | 4.6a | 124 | 4.5psig | 248.2p | sig | 69 | 50 | | |
| Compressor | Stage | | NA | | | | | | | | | | | | | |
| Jdilli | Stage | *** | NA | | | • | | | | | | | | | | |
| ŭ | Stage | | NA | · · · · · · · · · · · · · · · · · · · | | | | | | | | | | | | |
| | | T'T | THE RESERVE | | | | EATING S | SYSTEM | | | | | | | | |
| | | | | GAS | | | | | | | ELE | CTRIC | <u> </u> | , | | |
| Stage | Inlet Pressur | o Stage | Manifold | Pressure | Return Temp | Supply Temp | Temp Rise Full | Electric H Stage | | AMPS L1-L2 | AMPS L2-L3 | AMPS L1-L3 | 1 5 - | Supply Temp | Ten Rise l Hea | Full |
| | | | Low | High | <u>"</u> | w. | Heat | | | | | | | | nea | |
| 1 | N/a | 1 | | | 1 | | - | 1 | | 16.8a | 16.4a | N/a | 71 | 85 | | |
| 2 | N/a | 2 | | | | | | 2 | | | | _ | ' ' | 00 | | |
| | | | | | | | OUTDOC | | | | | | | | | |
| _ | ıtdoor Ai | _ | | | | | | Power Ex | | | | | | | | |
| Ec | on Oper | ation | Mode | | | 0.55 | DATIONA | Power E | _ | iust I) | /pe | | | | -5-11 | |
| * | | | | L. | | OPE | RATIONA | L RUN TE | | analie. | ~ | | | W | | |
| | in test co | | | Yes | | | <u> </u> | Run test | | | | | | | | |
| Rυ | ın test he | eating | system | Yes | | MOS | | Run test | | rer exn | aust | | 100 | | - | |
| | | | | | | NO | ES & DE | FICIENCIE | .3 | | | 100000 | | | - 10 | |

| Halff Cx Agent + 20// / General Contract | tors Representative | Owners Representative |
|--|---------------------|-----------------------|
| Signed*: Signed: | | Signed: |
| | 1 | Name: |
| Company: Company: Ca | 1115 | Company: |
| Date: 01 | | Date: |
| Phone/Emails:Phone/Emails: | | Phone/Emails: |



| 16 | Functio | rigi | CHECKI | 31-11001 | ТОР | | VIT INFOR | RMATION | - 1 | W. P. | 100000 | | - 10 | - 100 | | |
|--------------|-------------------|-------|-------------|-------------|----------------|----------------|---------------------------|-------------------------------|-------|----------------|---------------|--------|---------------|----------------|--------------------------|--|
| RT | U Numbe | - | | RTU-05- | 101 | | | Control S | yste | m type | | DDC | | | | |
| - | del Numb | | | 4TCY506 | 60A100 | 0AB | | Ambient Temperature | | | | · | 79.5F | | | |
| Se | rial Numbe | er | | 2250119 | 31L | - | | Heat Fuel Type N/A | | | | | | | | |
| C/I | Number | | | | | | <u> </u> | Air Filter Type 18x18x2 Pleat | | | | Pleate | ated | | | |
| | | | | | | | | Air Filter (| Con | dition | | Dirty | Dirty | | | |
| | | | | V | | ELE | ECTRICAL | SYSTEM | | | | | | | | |
| Un | it Voltage | and | Phase | | 208-2 | 30v, 1p | h. | T1 Transf | orm | er Out | put Vol | tage | 25.8v | | | |
| | oming Vo | • | | L1-L2 | 242.2 | / | | T18 Trans | sfori | mer Ou | tput Vo | ltage | N/a | | | |
| Inc | oming Vol | tage | e Reading | L1-L3 | N/a | | | T43 Trans | sfori | mer Ou | tput Vo | ltage | N/a | | | |
| _ | oming Vol | _ | | | N/a | | | | | | | | | | | |
| | | | PRODIGY | | LLER | | | | TH | HERMO | STAT | / DDC | CONT | ROLS | | |
| Co | mpleted G | iuid | ed Setup | | N/A | | | Controller | Ма | nufact | urer | Trane | | | | |
| Pro | odigy Unit | Rep | ort Include | ed | NO | | | Controller | Мо | del Nu | mber | UC60 | 0 | | | |
| Pro | odigy Boar | d S | oftware Ve | rsion# | | 6.05 | 5 | Controller | Se | rial Nu | mber | E22E0 | 7676 | | | |
| Dis | play Softv | vare | Version# | | | | | Network / | Addı | ress | | 21002 | ! | | | |
| | | | | | | С | OOLING | SYSTEM | | V - | | | | | | |
| Blower Motor | Horse Power | | Rotatio | on Verified | | MPS _1-L2 | AMPS L2-L3 | AMPS L1-L3 | S | uction | Dischar | ge | Tempe Read | | Delta | |
| Wer | High Spe | ed | NA | | | 1.7a | 1.7a | N/a | Pre | essu re | Pressu | ire | All S | tages | тт | |
| 商 | Low Spe | ed | NA | | | | | | | | | F | Return | Supp | ly | |
| ٥٠ | Stage | ı | NA | | 1 | 0.6a | 10.9a | 6.3a | 116 | 6.9psig | 271.9p | sig | 69.7 | 51f | | |
| Compressor | Stage 2 | 2 | NA | | | | | | | | | | | | | |
| dmo | Stage 3 | 3 | NA | | | | | | | | | | | | | |
| Ö | Stage 4 | 4 | NA | | | | | | | | | | | | | |
| | | | | | | ۲ | EATING : | SYSTEM | | | | | <u> </u> | <u> </u> | | |
| | | | | GAS | | | | | _ | _ | ELE | CTRIC | ; 1 | | | |
| Stage | Inlet Pressure | Stage | | Pressure | Return Temp | Supply Temp | Temp Rise Full Heat | Electric H Stage | eat | AMPS L1-L2 | AMPS L2-L3 | | | Supply Temp | Temp Rise Ful Heat | |
| | hl/m | 1 | Low | High | | | <u> </u> | 1 | | 16.62 | 16.7a | N/a | | - | | |
| 2 | N/a N/a | 2 | | | ł | 1 | _ | 2 | _ | 10.00 | 10.74 | 100 | 71 | 85 | | |
| 2 | IV/a | | | - 3 - | 100 | | OUTDOO | | - 10 | | | | | | | |
| OII | tdoor Air t | vne | | | | _ | 00.000 | Power Ex | hau | ıst Inst | alled | | | | | |
| | on Operat | | | | | | | Power E | | | | | | 77 | 1/2 | |
| | on operat | | | | | OPE | RATION <u>A</u> | L RUN TE | _ | | • | 100 | | 44.5 | TA L | |
| Ru | n test coo | ling | system | Yes | | | | Run test | free | coolin | g | | | | | |
| = | n test hea | _ | <u> </u> | Yes | | | | Run test | | | | | 311 | | | |
| | | | - W. 21 | | 2=1 | NOT | res & dei | FICIENCIE | S | 1 1 8 | | | | | | |

| Halff Cx Agent Signed*: Name: Company: Date: General Contractors Representative Signed: Name: Company: Date: General Contractors Representative Signed: Name: CAHS 01/31/24 | Owners Representative Signed: Name: Company: Date: |
|---|--|
| Phone/Emails: Phone/Emails: Phone/Emails: | Phone/Emails: |



| | -Functio | | | | | | NIT INFO | RMATION | | | | | | | | |
|------------|--------------------------------|----------|-----------------|------------------|----------------|----------------|---------------------------|--------------------------|----------------------|---------------|----------|---------------|---------------|------------------|--------------------------|--|
| R | TU Numbe | - | | Rtu-13-6 | 81012 | | | Control S | yste | em type |) | DDC | | | | |
| М | odeł Numb | er | *** | TSJ150A3SOG | 602C0E0A | FA1A0C400 | 00000000000000000 | Ambient Temperature | | | | | 71f | | | |
| Se | erial Numbe | er er | | 2329132 | 76L | | | Heat Fuel Type N/A | | | | | | | | |
| C/ | 'N Number | | | | | | | | | | | Pleated | | | | |
| | | | Ca - Main - A | in the second | | | | Air Filter | Con | ndition | | Dirty | , | | | |
| | | | | | | ELI | ECTRICAL | SYSTEM | V. | | | | 2.05 | | | |
| Ur | nit Voltage | and | Phase | 77 | 208-2 | 30v 3p | 7 | T1 Transi | forn | ner Out | put Vol | tage | 23.7v | | | |
| Ine | coming Vol | tag | e Reading | L1-L2 | 210.4 | ٧ | | T18 Trans | sfor | mer Oı | itput Vo | oltage | 23.7v | | | |
| lne | coming Vol | tag | e Reading | L1-L3 | 209.6 | v | | T43 Trans | sfor | mer Ou | itput V | oltage | 23.7v | | | |
| Inc | coming Vol | tag | e Reading | L2-L3 | 209.8 | ٧ | | | | | | | | | | |
| | | | PRODIGY | CONTRO | LLER | | | | TI | HERMO | DSTAT | / DDG | CONT | ROLS | | |
| Co | mpleted G | uid | ed Setup | | N/A | | | Controller | Ma | anufact | urer | Trane | € | | | |
| Pr | odigy Unit | Rep | ort Include | ed | NO | | | Controller | Mo | odel Nu | mber | Symt | oio | | | |
| Pr | rodigy Board Software Version# | | | rsion# | | 3.00.0 | 012 | Controller Serial Number | | | 2321 | 01405 | | | | |
| Di | Display Software Version# | | | | | | | Network / | Network Address 2202 | | | | 8 | | | |
| Ь | | | | | | C | OOLING | SYSTEM | | | | 4 | | | | |
| Motor | Horse Power 5 | | Rotatio | on Verified | | AMPS L1-L2 | AMPS L2-L3 | AMPS L1-L3 | s | uction | Dischar | œ l | Tempe Read | erature dings | Delta | |
| Blower | High Spe | ed | NA | | | 7.0a | 7.0a | 7.2a | Pr | essure | Pressu | ~ | All S | tages | Т | |
| ਲ | Low Spec | | NA | | | | | | 1 | | | | Return | Supp | ly | |
| 5 | Stage 1 | | NA | | | | | | | | | | | | | |
| Compressor | Stage 2 | ? | NA | | | 6.4a | 6.9a | 7.1a | 12 | 9.4psig | 260.8p | sig | 71.3f | 52.5 | if | |
| ф | Stage 3 | } | NA | | | | | | | | | | | | | |
| O | Stage 4 | l l | NA | | | | | | | | | | | | | |
| | | | | | | H | EATING S | SYSTEM | | | | | | | | |
| | | | | GAS | | | | | | | ELE | CTRI | c <u> </u> | | | |
| Stage | Inlet Pressure | Stage | Manifold Low | Pressure High | Return Temp | Supply Temp | Temp Rise Full Heat | Electric Ho Stage | eat | AMPS L1-L2 | | AMPS L1-L3 | | Supply Temp | Temp Rise Ful Heat | |
| 1 | N/a | 1 | 2011 | riigii | | | _ | 1 | | | | | | | | |
| 2 | | 2 | | | | | - | 2 | | | | | 1 | | | |
| | 70 T | Ī | | 5.8 | | 188 | OUTDOO | RAIR | T | | 1-4 | - | | 1111 | | |
| Οu | tdoor Air ty | /pe | | | | | | Power Ex | hau | ust Insta | alled | | | | | |
| Ec | on Operati | on l | Mode | | | | | Power E | xha | aust Ty | ре | Section | | | | |
| | | | | | | OPE | RATIONAL | L RUN TE | ST | | | | | | | |
| Ru | n test cool | ng | system | Yes | | | | Run test f | ree | cooling | 9 | 3 | 70.25 | 50% | - 3- | |
| Ru | n test heat | ing | system | Yes | 39 - 13 | 100000 | | Run test p | oow | er exha | aust | | | 176 | | |
| | | | | | | NOT | ES & DEF | FICIENCIE | S | | | | | | | |

| Halff Cx Agent | General Contractors Representative | Owners Representative |
|--|------------------------------------|-----------------------|
| Signed*: Just (Isho | Signed: | Signed: |
| Name: Lus Herronies Nove | Name: | Name: |
| Company: Takt | ompany: | Company: |
| | Date: | Date: |
| Phone/Emails: Therapides Mara Challen | Phone/Emails: | Phone/Emails: |
| Charles all and the second sec | | |



| Mod Seri C/N Unit Inco | | ber ber | | RTU-04-5 4TCY504 | | | | Control Sy | /ste | m type | | DDC | _ | | | |
|------------------------------------|---------------------------|------------|---------------------------------|---------------------|--------|----------------|-------------------|-----------------------------|------|---------------|----------|---------------|-------------------------|----------------|----------|---------------|
| Mod Seri C/N Unit Inco | lel Num al Num Numb | ber ber | | 4TCY504 | | | | | | | - 1 | | | | | |
| C/N Unit Inco | Numbe | | | | I8A10(| 00AC | | Ambient Temperature | | | | | 69f | | | |
| C/N Unit Inco | Numbe | | erial Number 224611 N Number | | | | ÷ | Heat Fuel Type N/A | | | | | | | | |
| Unit Inco | | 14 Hamber | | | | | | Air Filter Type 18x18 Pleat | | | | Pleate | ated | | | |
| Inco | 14-44 | | | | | | | Air Filter Condition Dirty | | | | Dirty | у | | | |
| Inco | 3.4.44 | | | 1 | | ELE | CTRICAL | SYSTEM | | | | | | | | |
| Inco | voitag | e and | Phase | | 208-2 | 30v 1ph | | T1 Transf | огт | er Out | out Volt | age | 25.4v | | | |
| | | | Reading | L1-L2 | 242.4 | | | T18 Trans | forr | ner Ou | tput Vo | ltage | N/a | | | |
| | | | Reading | | N/a | | | T43 Trans | fort | ner Ou | tput Vo | ltage | N/a | | | |
| Inco | | | Reading | | N/a | | | | | | | | | | | |
| | | | PRODIGY | | LLER | | | DIO 10 | TH | IERMO | STAT | / DDC | CONT | ROLS | | |
| Con | npleted | Guide | ed Setup | | N/A | | | Controller | Ма | nufact | ırer | Trane | | <u> </u> | <u> </u> | |
| Proc | digy Un | it Rep | ort Include | d | NO | | | Controller | Мо | del Nu | mber | UC600 | | | | |
| Proc | digy Bo | ard So | oftware Ve | rsion# | | 6.03 | | | | | | LO594 | | | | |
| Disp | olay So | ftware | Version# | | | | | Network A | \ddr | ress | | 22021 | | | | _ |
| | | | | | | С | OOLING : | SYSTEM | | | | | | | | |
| | Horse Power | 3/4 | Rotatio | on Verified | | AMPS L1-L2 | AMPS L2-L3 | AMPS L1-L3 | e. | uction | Dischar | | Temperature Readings | | - | Delta |
| Z F | High S | nood | NA | _ | | 1.8a | 1.9a | N/a | - | essure | Pressu | ~ | All S | tages | | Т |
| | Low S | | NA | | | | | | | | | F | Return Supply | | y | |
| \pm | Stag | | NA | | | 8.1a | 8.6a | 4.6a | 12 | 6psig | 238ps | sig | 70 | 51f | | |
| Compressor | Stag | | NA | | | - | | | | | | | | | | |
| | Stag | | NA | | | | | | | | | | | | | |
| اة | Stag | | NA | | - | | | | | | | | | | | |
| | | | THE EXT | | T | h | EATING : | SYSTEM | | | | | | | | |
| | | | | GAS | | | | | | | ELE | CTRIC | | | | |
| Stage | inlet | o Stage | Manifold | Pressure | Return | Supply Temp | Temp Rise Full | Electric H | eat | AMPS L1-L2 | | AMPS L1-L3 | | Supply Temp | Ris | emp e Full |
| ν. | Pressur | e v | Low | High | 1 & - | ∞ ⊢ | Heat | Otage | | | | | <u> </u> | S - | Н | eat |
| 1 | N/a | 1 | - | - | _ | | _ | 1 | | 16.9a | 16.8a | N/a | 71 | 85 | | |
| 2 | N/a | 2 | | | | | | 2 | | | | | / | 00 | | |
| | | | | | | | OUTDOO | | | | | | | | | |
| | door A | _ | | | | | | Power Ex | | | | | | | | |
| Eco | n Oper | ation l | Mode | | | 0.05 | | Power E | | aust ly | /pe | | | | | |
| | | | TIEVILLE. | | | OPE | RATIONA | RUN TE | _ | coolin | 2 | | | | | |
| | | | system | Yes | | | | Run test | - | | | - | | | | |
| Run | test h | eating | system | Yes | | NO | | FICIENCIE | | rei exfi | ausl | | | | | |

| Halff Cx Agent Signed*: Name: Luis Henridos Nava Company: Date: 1/1/24 Phone/Fmails: Decoade & page (Na) | General Contractors Representative Signed: Name: Mike Rodriguez Company: CAHS Date: 01/31/24 Phone/Emails: M.rodriguez@cahsir | Owners Representative Signed: Name: Company: Date: Phone/Emails: |
|--|---|--|
| Phone/Emails: Thernande Enoug Shallon | Phone/Emails: Will Our Igue 2 @ Carlsii | Prione/Emails: |



Graphics Review

Introduction

The graphics review aims to align the Controls Subcontractor with the Owner's project requirements. The review shall examine the general aesthetics of the BAS system, verify that all the equipment is readily available, and report accuracy. The graphics review requires the CxA to receive access to the BAS during and after installation.

Communication

Attached is the documentation for pre-graphics review. After the completion, the documents shall be signed by the CxA, the Owner's representative, and the Contractor's representative. An example of an Issues and Resolutions Log is also attached.

Procedures

- 1. Access to the project's BAS
- 2. The CxA shall review any graphical glitches or significant issues.
- The CxA will review individual views and compare them against the installed schedules to verify if all the proper equipment is on the screen.
- 4. The CxA will review the information on the BAS and compare it to the information from the installed equipment itself or if available, testing instrumentation.
- 5. The CxA shall test alarms specified under the sequence of operations to verify proper setup.
- 6. The CxA will document any identified issues in the Issues and Resolutions Log.
- 7. If resolved, the CxA will log into the BAS and review the information again to confirm functionality.
- 8. Once the review has been completed, the document shall be signed by the witnessing parties, including the CxA, the Owner's representative, and the Contractor's representative.

Note: The CxA shall need remote access to the BAS during and after the graphics review.



Graphics Review

| Job Name El Jardin Elementary School | Yes | No | N/A | Initials |
|--|-----|----|-----|----------|
| Are all the VFDs displayed on the screen? | | | Х | DEL |
| Are all dedicated outside air systems displayed on the screen? | | | Х | DEL |
| Are all pumps displayed on the screen? | | | Х | DEL |
| Are all chillers displayed on the screen? | | | Х | DEL |
| Are all the fan arrays displayed on the screen? | | | Х | DEL |
| Are all rooftop units displayed? | Χ | | | DEL |
| Are all boilers displayed on the screen? | | | X | DEL |
| Are all water coils displayed on the screen? | | | Х | DEL |
| Are all flow rates displayed on the screen? | | | Х | DEL |
| Are all pressures displayed on the screen? | | | Х | DEL |
| Are all maintenance reminders displayed on the screen? | | X | | DEL |
| Do the graphics make sense for the general user? | X | - | | DEL |
| Do all the alarms display accurately and prominently? | Х | | | DEL |
| | | | | DEL |
| Notes: | | | | |

| Halff Cx Agent Signed*: Dean Litto He Company: Date: Phone/Emails: Cliffo Headway Com | Controls Contractors Representative Signed: Name: Company: Date: Phone/Emails: | Owners Representative Signed: Name: Company: Date: | |
|--|--|--|--|
| Initialing Authority | | Phone/Emails: | |



Sequence of Operations Review and Verification

Introduction

The purpose of the sequence of operations review is to verify that the equipment functions normally during intended conditions. The SOO review and data logger confirmation must be performed after TAB and controls subcontractors have concluded their work.

Communication

The documents after the completion shall be signed by the CxA, the Owner's representative, and the Contractor representative. The Issues and Resolution Log is attached.

Procedures

- 1. First, a sample of equipment is taken from the schedule.
- 2. The controls sequences for the selected sample are tested and verified per the Construction Documents.
- 3. The data collected shall span a month after the completion of the SOO review.
- 4. The CxA shall review the data from the BAS and the CxA data loggers for the same areas to ensure the HVAC system stability.



Unit Status

Date:

3/9/2025

AVO:

45813.03

Project:

BISD El Jardin Elementary

Contract for:

Brownsville ISD

The following items require the attention of the Contractor for completion or correction. This list may not be all-inclusive, and the failure 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.

| ITEM NO. | LOCATION | UNIT | TEMP | RH % | COMMENT |
|------------|----------|--------------|------|------|----------------------------|
| Building A | | | | | |
| 1. | Unit 100 | RTU-05-100 | 77.2 | 33.6 | N/A |
| 2. | Unit 101 | RTU-05-101 | 75 | 39.5 | N/A |
| 3. | Unit 102 | RTU-05-102 | 73 | 34.2 | N/A |
| Building C | | • | | | |
| 4. | CR 103 | RTU-04-103 | | | BAS not showing Temp or RH |
| 5. | CR 104 | RTU-04-104 | 78.1 | 42.6 | N/A |
| 6. | CR 105 | RTU-04-105 | 70.9 | 41 | N/A |
| 7. | CR 106 | RTU-04-106 | 79.6 | 43.5 | N/A |
| Building B | - | • | | • | |
| 8. | Café 1 | RTU-07-CAFE1 | 73.7 | 55.1 | N/A |
| 9. | Café 2 | RTU-07-CAFE2 | 73.7 | 39.1 | N/A |
| 10. | Café 3 | RTU-07-CAFE3 | 73.7 | 41.1 | N/A |
| 11. | Café 4 | RTU-07-CAFE4 | 74.8 | 54.2 | N/A |
| Building D | - | | | | |
| 12. | CR 206 | RTU-04-206 | 76.3 | 48.6 | N/A |
| 13. | CR 208 | RTU-04-208 | 77.7 | 45.9 | N/A |
| 14. | CR 209 | RTU-05-209 | 75.2 | 47.8 | N/A |
| 15. | CR 210 | RTU-04-210 | 74.2 | 52.3 | N/A |
| 16. | CR 211 | RTU-04-211 | 76.7 | 44.7 | N/A |
| 17. | CR 212 | RTU-04-212 | 76 | 42.7 | N/A |
| 18. | CR 213 | RTU-04-213 | 75.8 | 47.6 | N/A |
| 19. | CR 214 | RTU-04-214 | 75.2 | 38.6 | N/A |
| 20. | CR 215 | RTU-04-215 | 75.1 | 41.4 | N/A |

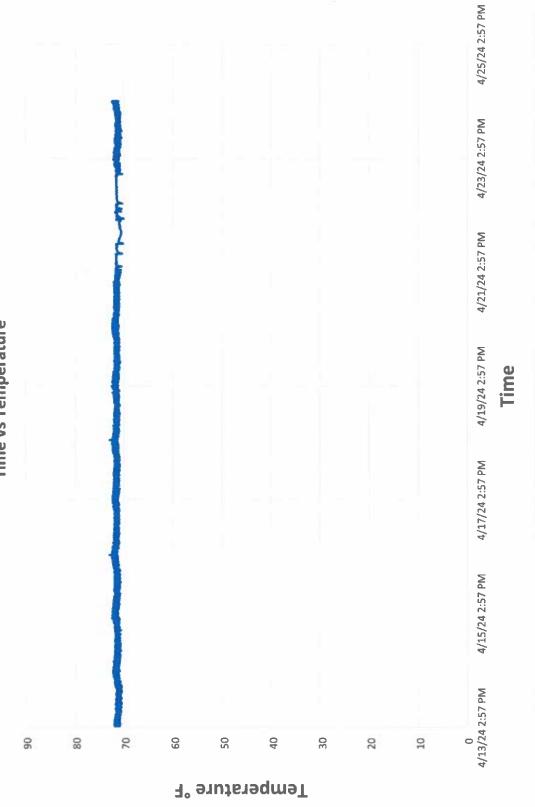


| ITEM NO. | LOCATION | UNIT | TEMP | RH % | COMMENT |
|------------|----------|--------------------------|------|------|---------|
| 21. | CR 216 | RTU-04-216 | 74.7 | 42.2 | N/A |
| Building F | - | | | • | |
| 22. | Unit 500 | RTU-04-500 | 74.2 | 53.6 | N/A |
| 23. | Unit 501 | RTU-04-501 | 74 | 52.9 | N/A |
| 24. | Unit 502 | RTU-04-502 | 77.2 | 50.2 | N/A |
| 25. | Unit 503 | RTU-04-503 | 75.8 | 38.1 | N/A |
| 26. | Unit 504 | RTU-04-504 | 78.7 | 44.6 | N/A |
| 27. | Unit 505 | RTU-04-505 | 75.9 | 51.8 | N/A |
| 28. | Unit 506 | RTU-04-506 | 74.1 | 49.2 | N/A |
| Building E | | | | • | • |
| 29. | Unit 601 | RTU-04- Lounge and RR | 72.8 | 56 | N/A |
| 30. | Unit 602 | RTU-04- 602/604/606 | 72.7 | 56.6 | N/A |
| 31. | Unit 603 | RTU-04- 601/603/605 | 70.4 | 56.7 | N/A |
| 32. | Unit 604 | RTU-04- 608/610/612 | 73.2 | 55.8 | N/A |
| 33. | Unit 605 | RTU-04- 607/609/611 | 76.6 | 57.8 | N/A |

halff

(Room #102)

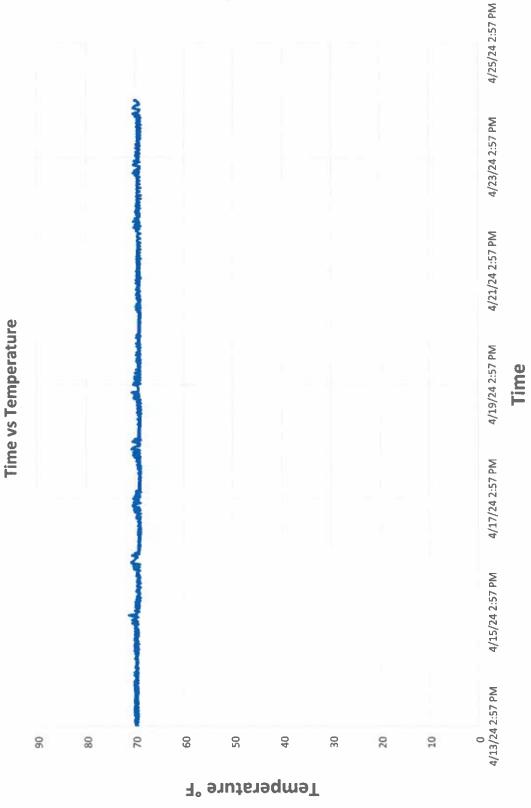
Time vs Temperature



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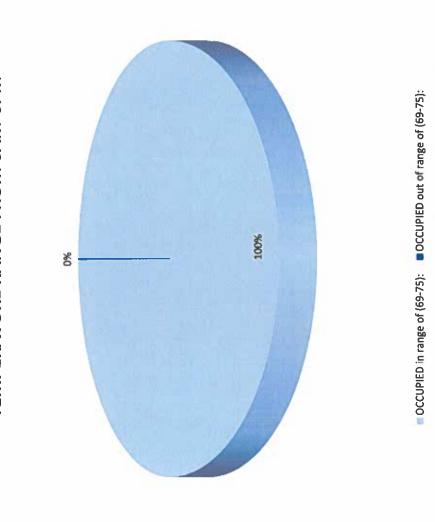
(Room #105)





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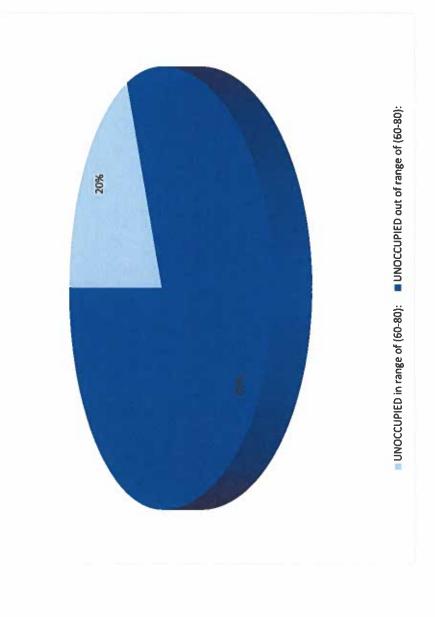
TEMPERATURE RANGE FROM 6AM-6PM





half

TEMPERATURE RANGE FROM 6PM-6AM



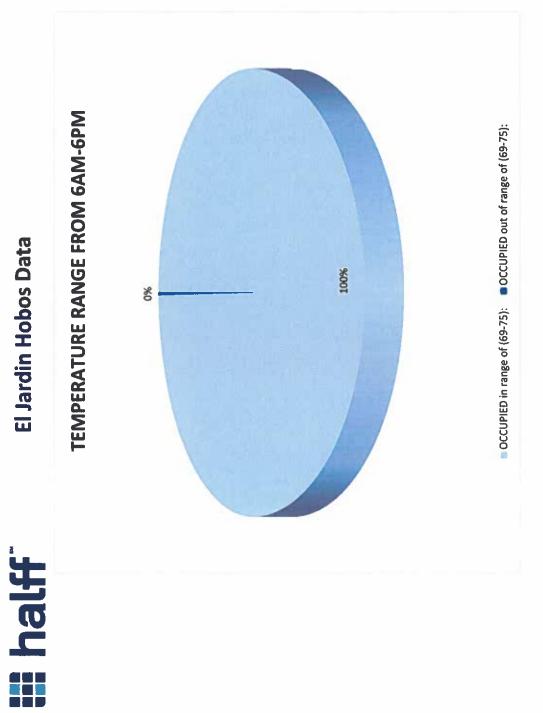
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(Room #207)

Time vs Temperature



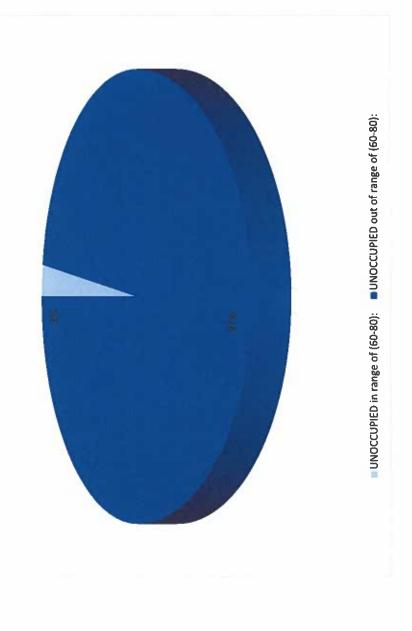






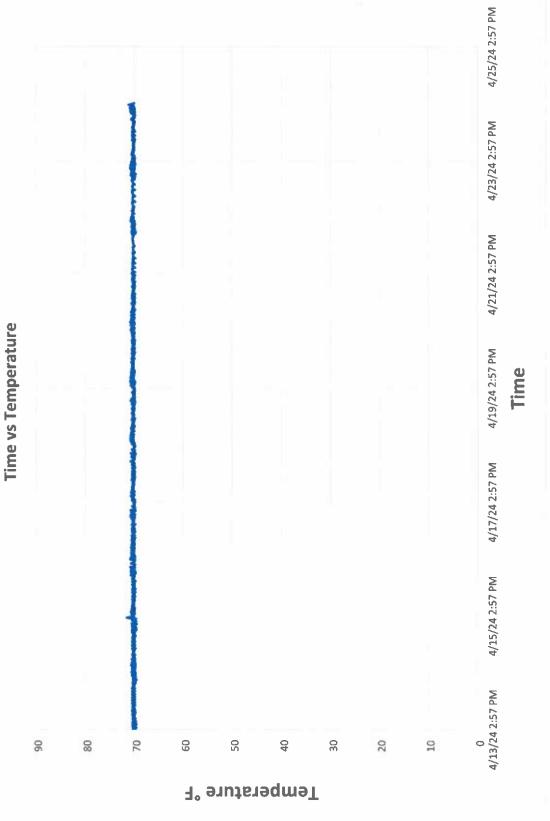
■ half

TEMPERATURE RANGE FROM 6PM-6AM



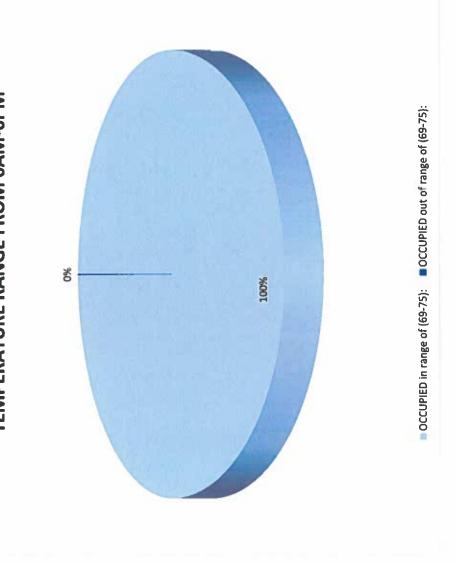
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(Room #217



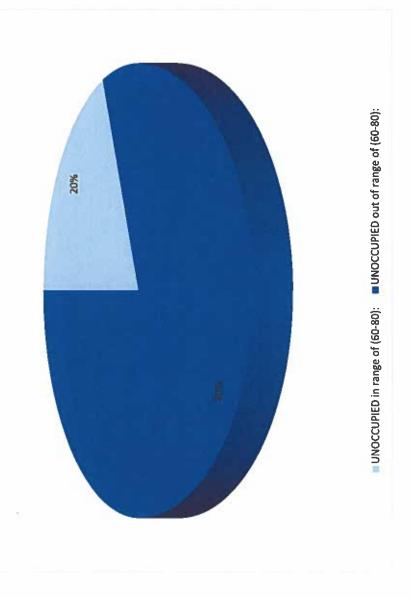
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TEMPERATURE RANGE FROM 6AM-6PM



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TEMPERATURE RANGE FROM 6PM-6AM





Brownsville Independent School District

| Agenda Cat | egory: Bids / Proposals Boa | rd of Education Meeting: | 06/23/2022 |
|-------------|--|--------------------------|------------|
| Item Title: | CSP #22-148B ESSER El Jardin ES | X Actio | o n |
| | HVAC Upgrades Phase 1 (Package 1) Proj | | mation |
| | | Discu | ıssion |

BACKGROUND:

On May 26, 2022, BISD Purchasing Department received and opened bid packages from one (1) vendor for CSP #22-148B ESSER El Jardin ES HVAC Upgrades Phase 1 (Package 1) project. On June 15, 2022, the ranking committee members evaluated the one (1) qualified vendor and selected Central Air and Heating Services, Inc. (CAHS) of Harlingen. Texas, which has received the highest-ranking scores and is recommended for the Construction Services. Administration recommends approving Central Air and Heating Services, Inc. for Construction Services for the project as mentioned above in the amount not to exceed \$1,791,352.00. The construction project is scheduled to achieve substantial completion in Two Hundred Fifteen days (215) contingent upon equipment delivery from the Notice to Proceed date. For reference, please find the attached documents as follows:

- Department Recommendation Forms
- The Bid Tabulation Sheet
 - The average ranking scores for the one (1) competitive scaled proposal received
 - The bid opening report received from submitted vendors
 - Agenda Project Authorization and Delivery method from Board of Trustees

FISCAL IMPLICATIONS:

ESSER III Fund 282 - \$1,791,352.00

RECOMMENDATION:

Recommend awarding of CSP #22-148B ESSER El Jardin ES HVAC Upgrades Phase 1 (Package 1) project to Central Air and Heating Services, Inc. (CAHS) of Harlingen, Texas in the amount not to exceed \$1,791,352.00, to authorize the Administration to enter negotiations, and to execute the contract. ESSER III Fund 282.

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|---|--|
| Fernando E Villarreal Rosario Peña | Approved for Submission to Board of Education: |
| Submitted by: Principal / Purchasing Director | |
| Manuel Harojosa FAIA / David Robledo | L- |
| Recommended by: District Architect CFO | 1 |
| | - Jene guleny |
| And Cal | Dr. René Gutiérrez |
| Dr. Nellie Cantu | Superintendent |
| Approved by: Deputy Superintendent | |
| 6/11/22 | |

When Necessary, Additional Background May Follow This.