



# Brownsville Independent School District

Agenda Category: General Function Board of Education Meeting: 11-05-2025

Item Title: CSP #22-148A Morningside E.S. HVAC Upgrades, X Action  
Phase I (Package I) Project Information  
Substantial Completion Discussion

## **BACKGROUND:**

CSP#22-148A Morningside E.S. HVAC Upgrades, Phase I (Package I) Project, 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).

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

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

## **FISCAL IMPLICATIONS:**

None

## **RECOMMENDATION:**

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

Alonso Guerrero

Submitted by: Health Services & Operations

Alonso Guerrero

Recommended by: Health Services & Operations

Mary D. Garza

Approved by: Interim-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)*  
BISD ESSER HVAC Upgrades at  
Morningside

**CONTRACT INFORMATION:**  
Contract For:

Date: 05-23-2024

**CERTIFICATE INFORMATION:**  
Certificate Number: 001

Date: 05-23-2024

**OWNER:** *(name and address)*  
Brownsville Independent School District

1900 E Price Rd, Brownsville, TX 78521

**ARCHITECT:** *(name and address)*  
Half Associates, Inc. (As Consultant not  
Architect)

5000 West Military Highway Suite 100,  
McAllen, Texas

**CONTRACTOR:** *(name and address)*  
Central Air Heating Services

3028 Wilson Rd, 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.)*

  
ARCHITECT *(Signature)*

BY: Half Associates, Inc (as consultant not  
Architect) Gabriel Benavides, PE  
*(Printed name, title, and license number if  
required)*

*Original signature  
5-24-2024 resigned  
10-27-2025  
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.)*

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: \$10,000.00

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:

  
CONTRACTOR *(Signature)*

BY: Central Air Heating Services Colin Eubanks  
PM  
*(Printed name and title)*

05-24-2024  
Date

  
OWNER *(Signature)*

BY: Brownsville ISD  
*(Printed name and title)*

10-27-25  
Date



## Punch List

**To:** Manuel Hinojosa, AIA      **Date:** 2/20/2024  
**From:** Luis E Hernandez Nava      **AVO:** 45813.004  
**Email:** lhernandeznava@halff.com      **Project:** HVAC Upgrades at Morningside  
**Contract for:** BISD ESSER HVAC Upgrades at Morningside 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.

ITEM NO.	LOCATION (AREA)	DESCRIPTION	COMPLETION DATE	A/E CHECK DATE
1.	Wing 100	<ul style="list-style-type: none"><li>• The General Contractor shall confirm all RTU curb adapters and curbs are properly weathertight.</li><li>• Condensate drain line clogged or broken at condensate drain connection point. The General Contractor shall properly provide a new connection to discharge condensate from equipment to the nearest receptor.</li><li>• RTU-04-105 condensate drain line installation is not adequate. GC shall confirm the condensate drain is properly installed per the construction documents' details</li><li>• None of the convenience outlets integral to the units are energized.</li></ul>		

ITEM NO.	LOCATION (AREA)	DESCRIPTION	COMPLETION DATE	A/E CHECK DATE
2.	Wing 200	<ul style="list-style-type: none"> <li>The General Contractor shall confirm all RTU curb adapters and curbs are properly weathertight.</li> <li>The General Contractor shall confirm that all P-traps were installed as per the mechanical detail shown on the plans. The vent closer to the unit should be closed to avoid bringing unconditioned outdoor air.</li> <li>RTU-04-205 and RTU-04-208 present visible signs of condensation around the unit. GC to confirm the unit installation is properly sealed and not leaking air.</li> <li>None of the convenience outlets integral to the units are energized.</li> </ul>		
3.	Wing 300	<ul style="list-style-type: none"> <li>The General Contractor shall confirm all RTU curb adapters and curbs are properly weathertight.</li> <li>The General Contractor shall confirm that all P-traps were installed as per the mechanical detail shown on the plans. The vent closer to the unit should be closed to avoid bringing unconditioned outdoor air.</li> <li>RTU-04-311 panels are not properly sealed. Gasket visible on the exterior side of the unit.</li> <li>None of the convenience outlets integral to the units are energized.</li> </ul>		

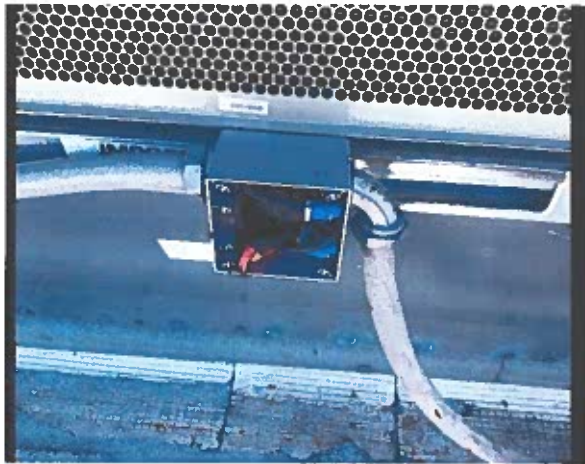
ITEM NO.	LOCATION (AREA)	DESCRIPTION	COMPLETION DATE	A/E CHECK DATE
5	Wing 400	<ul style="list-style-type: none"> <li>The General Contractor shall confirm all RTU curb adapters and curbs are properly weathertight.</li> <li>Condensate drain line clogged or broken at condensate drain connection point. The General Contractor shall properly provide a new connection to discharge condensate from equipment to the nearest receptor.</li> <li>RTU-04-412, RTU-04-414, RTU-04-411, RTU-04-406, condensate drain line installation is not adequate. GC shall confirm the condensate drain is properly installed per the construction documents' details.</li> <li>None of the convenience outlets integral to the units are energized.</li> </ul>		
6.	Cafeteria	<ul style="list-style-type: none"> <li>The General Contractor shall confirm all RTU curb adapters and curbs are properly weathertight.</li> <li>RTU Electrical J-Box is missing a cover plate.</li> <li>None of the convenience outlets integral to the units are energized.</li> </ul>		

☐ Attachments

**SIGNED: Luis E. Hernandez Nava, PE**

**COPIES:** ☐ Owner ☐ Contractor ☒ File







# Final Commissioning Report

Prepared for:

BISD – Morningside 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

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



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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 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



## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-04-111				Control System type		DDC						
Model Number		THC047E3REA2ECO1A1A6B00HA000C0000				Ambient Temperature		74.5F						
Serial Number		232512522L				Heat Fuel Type		N/A						
C/N Number						Air Filter Type		16x25x2		Pleated				
						Air Filter Condition		Dirty						
ELECTRICAL SYSTEM														
Unit Voltage and Phase		208-230v 3PH.				T1 Transformer Output Voltage		23.18						
Incoming Voltage Reading L1-L2		215.0				T18 Transformer Output Voltage		N/a						
Incoming Voltage Reading L1-L3		216.				T43 Transformer Output Voltage		N/a						
Incoming Voltage Reading L2-L3		214.7												
PRODIGY CONTROLLER							THERMOSTAT / DDC CONTROLS							
Completed Guided Setup		N/A				Controller Manufacturer		Trane						
Prodigy Unit Report Included		NO				Controller Model Number		Reliatel						
Prodigy Board Software Version#		8.00.0025				Controller Serial Number								
Display Software Version#						Network Address		42011						
COOLING SYSTEM														
Blower Motor	Horse Power	1hp		Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T	
	High Speed	NA												
	Low Speed	NA		1.2a	1.2a	N/a					Return	Supply		
Compressor	Stage 1	NA												
	Stage 2	NA		7.8a	7.7a	8.2a	135.2psig	263.5psig	70.3f	53.0f				
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1		1						1	12.8	12.8	13.2	75	86	
2		2						2	26.5a	27.0a	27.8			
OUTDOOR AIR														
Outdoor Air type		Yes				Power Exhaust Installed		N/A						
Econ Operation Mode		Yes				Power Exhaust Type								
OPERATIONAL RUN TEST														
Run test cooling system		Yes				Run test free cooling		Yes						
Run test heating system		Yes				Run test power exhaust		NA						
NOTES & DEFICIENCIES														

Halff Cx Agent

Signed\*:

Name:

Dean Lizzotte

Company:

Halff

Date:

Phone/Emails:

\*Involving Authority

General Contractors Representative

Signed:

Name:

Mike Rodriguez

Company:

CAHS

Date:

01/23/2024

Phone/Emails:

Owners Representative

Signed:

Name:

Company:

Date:

Phone/Emails:





## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-03-102			Control System type		DDC							
Model Number		THC037E3REA2DC0E1A1A6B00HA000B0000			Ambient Temperature		76.3f							
Serial Number		231612968L			Heat Fuel Type		N/A							
C/N Number					Air Filter Type		16x25x2		Pleated					
					Air Filter Condition		Dirty							
ELECTRICAL SYSTEM														
Unit Voltage and Phase					T1 Transformer Output Voltage		23.7v							
Incoming Voltage Reading L1-L2		216.6v			T18 Transformer Output Voltage		N/a							
Incoming Voltage Reading L1-L3		214.5v			T43 Transformer Output Voltage		N/a							
Incoming Voltage Reading L2-L3		214.6v												
PRODIGY CONTROLLER						THERMOSTAT / DDC CONTROLS								
Completed Guided Setup		N/A			Controller Manufacturer		Trane							
Prodigy Unit Report Included		NO			Controller Model Number		Reliatel							
Prodigy Board Software Version#		8.00.0025			Controller Serial Number									
Display Software Version#					Network Address									
COOLING SYSTEM														
Blower Motor	Horse Power	0.75hp	Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T		
	High Speed	NA					Return			Supply				
	Low Speed	NA		2.1a	2.0a	N/a								
Compressor	Stage 1	NA												
	Stage 2	NA		5.6a	5.3a	6.8a	132.0psig	295.1psig	73.5f	52.0f	19.5			
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1	N/a	N/a	---	-	-	1					77	
2	-	2	-	-				2	27.0a	27.9a	27.9a			
OUTDOOR AIR														
Outdoor Air type							Power Exhaust Installed							
Econ Operation Mode							Power Exhaust Type							
OPERATIONAL RUN TEST														
Run test cooling system							Run test free cooling							
Run test heating system							Run test power exhaust							
NOTES & DEFICIENCIES														

Halff Cx Agent

Signed\*:

Name:

Dean Lizzotte

Company:

Halff

Date:

1/23/24

Phone/Emails:

\*Inhalng Authority

General Contractor Representative

Signed:

Name:

Mike Rodriguez

Company:

CAHS

Date:

01/23/2024

Phone/Emails:

Owners Representative

Signed:

Name:

Company:

Date:

Phone/Emails:



## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-04-110				Control System type		DDC						
Model Number		THC047E3REA2ECO1A1A6BO0HA000C0000				Ambient Temperature		75.7f						
Serial Number		232512517L				Heat Fuel Type		N/A						
C/N Number						Air Filter Type 16x25x2		Pleated						
						Air Filter Condition		Dirty						
ELECTRICAL SYSTEM														
Unit Voltage and Phase		208-230v 3ph				T1 Transformer Output Voltage		23.0						
Incoming Voltage Reading L1-L2		213.9				T18 Transformer Output Voltage		N/a						
Incoming Voltage Reading L1-L3		215.6				T43 Transformer Output Voltage		N/a						
Incoming Voltage Reading L2-L3		214.0												
PRODIGY CONTROLLER							THERMOSTAT / DDC CONTROLS							
Completed Guided Setup		N/A				Controller Manufacturer		Trane						
Prodigy Unit Report Included		NO				Controller Model Number		Reliatel						
Prodigy Board Software Version#		8.00.0025				Controller Serial Number								
Display Software Version#						Network Address								
COOLING SYSTEM														
Blower Motor	Horse Power	1hp		Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T	
	High Speed	NA												
	Low Speed	NA		1.9a	1.8a	N/a					Return	Supply		
Compressor	Stage 1	NA												
	Stage 2	NA		8.1a	7.7a	7.7A	123.5psig	262.6	68.2f	45.0f				
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1	N/a	N/a-			-	1				65	73	
2	-	2	-					2	26.5a	20.9a	21.6a			
OUTDOOR AIR														
Outdoor Air type						Power Exhaust Installed								
Econ Operation Mode						Power Exhaust Type								
OPERATIONAL RUN TEST														
Run test cooling system						Run test free cooling								
Run test heating system						Run test power exhaust								
NOTES & DEFICIENCIES														

Halff Cx Agent

Signed\*:

Name: Dean Lizzotte

Company: Halff

Date: 01/23/24

Phone/Emails: \_\_\_\_\_

\*Indebted Authority

General Contractors Representative

Signed:

Name: Mike Rodriguez

Company: CAHS

Date: 01/23/2024

Phone/Emails: \_\_\_\_\_

Owners Representative

Signed:

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Date: \_\_\_\_\_

Phone/Emails: \_\_\_\_\_



## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-4-202				Control System type		DDC						
Model Number		THC047E3REA2ECO1A1A6B00HA000C0000				Ambient Temperature		77						
Serial Number		232512520L				Heat Fuel Type		N/A						
C/N Number						Air Filter Type		16x25x2		Pleated				
						Air Filter Condition		Dirty						
ELECTRICAL SYSTEM														
Unit Voltage and Phase		208-230v 3PH.				T1 Transformer Output Voltage		23.4v						
Incoming Voltage Reading L1-L2		216.0v				T18 Transformer Output Voltage		N/a						
Incoming Voltage Reading L1-L3		213.6v				T43 Transformer Output Voltage		N/a						
Incoming Voltage Reading L2-L3		214.1v												
PRODIGY CONTROLLER							THERMOSTAT / DDC CONTROLS							
Completed Guided Setup		N/A				Controller Manufacturer		Trane						
Prodigy Unit Report Included		NO				Controller Model Number		Reliatel						
Prodigy Board Software Version#		8.00.0025				Controller Serial Number								
Display Software Version#						Network Address		43017						
COOLING SYSTEM														
Blower Motor	Horse Power	1	Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T		
	High Speed	NA	-	-	-	Return	Supply							
	Low Speed	NA	1.2a	1.2a	N/a									
Compressor	Stage 1	NA												
	Stage 2	NA	9.7a	9.3a	8.5a	127.8psig	304.6psig	71.0	57.4					
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1						1	13.5a	13.2a	13.2a	73	79	
2	N/a	2						2	13.3a	13.2a	13.2a			
OUTDOOR AIR														
Outdoor Air type						Power Exhaust Installed								
Econ Operation Mode						Power Exhaust Type								
OPERATIONAL RUN TEST														
Run test cooling system						Run test free cooling								
Run test heating system						Run test power exhaust								
NOTES & DEFICIENCIES														

### Halff Cx Agent

Signed\*: \_\_\_\_\_  
 Name: Dean Lizzotte  
 Company: Halff  
 Date: \_\_\_\_\_  
 Phone/Emails: \_\_\_\_\_

\*Issuing Authority

### General Contractors Representative

Signed: \_\_\_\_\_  
 Name: Mike Rodriguez  
 Company: CAHS  
 Date: 01/23/2024  
 Phone/Emails: \_\_\_\_\_

### Owners Representative

Signed: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Phone/Emails: \_\_\_\_\_



## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-4-209				Control System type		DDC						
Model Number		THC047E3REA2ECO1A1A6BOOHA000C0000				Ambient Temperature		77						
Serial Number		232512537L				Heat Fuel Type		N/A						
C/N Number						Air Filter Type		16x25x2		Pleated				
						Air Filter Condition		Dirty						
ELECTRICAL SYSTEM														
Unit Voltage and Phase		208-230v 3PH.				T1 Transformer Output Voltage		23.3v						
Incoming Voltage Reading L1-L2		214.3v				T18 Transformer Output Voltage		N/a						
Incoming Voltage Reading L1-L3		211.9v				T43 Transformer Output Voltage		N/a						
Incoming Voltage Reading L2-L3		212.3v												
PRODIGY CONTROLLER							THERMOSTAT / DDC CONTROLS							
Completed Guided Setup		N/A				Controller Manufacturer		Trane						
Prodigy Unit Report Included		NO				Controller Model Number		Reliatel						
Prodigy Board Software Version#		8.00.0025				Controller Serial Number								
Display Software Version#						Network Address		43024						
COOLING SYSTEM														
Blower Motor	Horse Power	1		Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T	
	High Speed	NA		-	-	-	Return	Supply						
	Low Speed	NA		1.2a	1.1a	N/a								
Compressor	Stage 1	NA												
	Stage 2	NA		9.7a	9.2a	7.9a	118.7	282.9	72	56.9				
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1						1	13.4a	13.2a	13.0a	75	80	
2	N/a	2						2	13.0a	13.0a	12.9a			
OUTDOOR AIR														
Outdoor Air type								Power Exhaust Installed						
Econ Operation Mode								Power Exhaust Type						
OPERATIONAL RUN TEST														
Run test cooling system								Run test free cooling						
Run test heating system								Run test power exhaust						
NOTES & DEFICIENCIES														

### Halff Cx Agent

Signed\*: \_\_\_\_\_  
 Name: Dean Lizzotte  
 Company: Halff  
 Date: \_\_\_\_\_  
 Phone/Emails: \_\_\_\_\_

\*Inhalung Authority

### General Contractor's Representative

Signed: \_\_\_\_\_  
 Name: Mike Rodriguez  
 Company: CAHS  
 Date: 01/23/2024  
 Phone/Emails: \_\_\_\_\_

### Owners Representative

Signed: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Phone/Emails: \_\_\_\_\_





## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-04-304			Control System type			DDC						
Model Number		THC047E3REA2EC0E1A1A6B00HA000C0000			Ambient Temperature			77.0						
Serial Number		232512474L			Heat Fuel Type			N/A						
C/N Number					Air Filter Type			16x25x2 Pleated						
					Air Filter Condition			Dirty						
ELECTRICAL SYSTEM														
Unit Voltage and Phase		208-230v 3PH.			T1 Transformer Output Voltage			23.3v						
Incoming Voltage Reading L1-L2		214.1v			T18 Transformer Output Voltage			N/a						
Incoming Voltage Reading L1-L3		213.4v			T43 Transformer Output Voltage			N/a						
Incoming Voltage Reading L2-L3		215.7v												
PRODIGY CONTROLLER						THERMOSTAT / DDC CONTROLS								
Completed Guided Setup		N/A			Controller Manufacturer			Trane						
Prodigy Unit Report Included		NO			Controller Model Number			Reliatel						
Prodigy Board Software Version#		8.00.0025			Controller Serial Number									
Display Software Version#					Network Address			43015						
COOLING SYSTEM														
Blower Motor	Horse Power	1	Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T		
	High Speed	NA		-	-	-	Return			Supply				
	Low Speed	NA												
Compressor	Stage 1	NA		-	-	-	-	-	-	-	-			
	Stage 2	NA		7.8a	8.8a	7.8a	125.3psig	283.6psig	70.1	56.9f				
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1						1	13.2a	13.3a	13.1a	75	78	
2	N/a	2						2	13.2a	13.0a	13.2a			
OUTDOOR AIR														
Outdoor Air type					Power Exhaust Installed									
Econ Operation Mode					Power Exhaust Type									
OPERATIONAL RUN TEST														
Run test cooling system					Run test free cooling									
Run test heating system					Run test power exhaust									
NOTES & DEFICIENCIES														

### Halff Cx Agent

Signed\*:

Name: Dean Lizzotte

Company: Halff

Date: \_\_\_\_\_

Phone/Emails: \_\_\_\_\_

\*Issuing Authority

### General Contractors Representative

Signed:

Name: Mike Rodriguez

Company: CAHS

Date: 01/23/2024

Phone/Emails: \_\_\_\_\_

### Owners Representative

Signed:

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Date: \_\_\_\_\_

Phone/Emails: \_\_\_\_\_





## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-04-306			Control System type		DDC							
Model Number		THC047E3REA2EC0E1A1A6B00HA000C0000			Ambient Temperature		77.6							
Serial Number		232512490L			Heat Fuel Type		N/A							
C/N Number					Air Filter Type 16x25x2		Pleated							
					Air Filter Condition		Dirty							
ELECTRICAL SYSTEM														
Unit Voltage and Phase		2			T1 Transformer Output Voltage		23.7v							
Incoming Voltage Reading L1-L2		214.7v			T18 Transformer Output Voltage		N/a							
Incoming Voltage Reading L1-L3		214.6v			T43 Transformer Output Voltage		N/a							
Incoming Voltage Reading L2-L3		216.8												
PRODIGY CONTROLLER						THERMOSTAT / DDC CONTROLS								
Completed Guided Setup		N/A			Controller Manufacturer		Trane							
Prodigy Unit Report Included		NO			Controller Model Number		Reliatel							
Prodigy Board Software Version#		8.00.0025			Controller Serial Number									
Display Software Version#					Network Address		43014							
COOLING SYSTEM														
Blower Motor	Horse Power		Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T		
	High Speed	NA					Return			Supply				
	Low Speed	NA		0.8a	0.8a	N/a								
Compressor	Stage 1	NA		-	-	-	-	-	-	-	-			
	Stage 2	NA		6.2a	6.8a	5.7a	120.1psig	282.7psig	74.3f	56.9f				
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1	-	-	-		-	1	13.1a	13.3a	13.1a	77	80	
2	N/a	2	-	-				2	13.1a	13.0	13.a			
OUTDOOR AIR														
Outdoor Air type								Power Exhaust Installed						
Econ Operation Mode								Power Exhaust Type						
OPERATIONAL RUN TEST														
Run test cooling system								Run test free cooling						
Run test heating system								Run test power exhaust						
NOTES & DEFICIENCIES														

### Halff Cx Agent

Signed\*:

Name: Dean Lizzotte

Company: Halff

Date:

Phone/Emails:

\*Including Authority

### General Contractor Representative

Signed:

Name: Mike Rodriguez

Company: CAHS

Date: 01/23/2024

Phone/Emails:

### Owners Representative

Signed:

Name:

Company:

Date:

Phone/Emails:



## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-04-309				Control System type		DDC						
Model Number		THC047E3REA2EC0E1A1A6B00HA000C0000				Ambient Temperature		77.7						
Serial Number		232512502L				Heat Fuel Type		N/A						
C/N Number						Air Filter Type		16x25x2		Pleated				
						Air Filter Condition		Dirty						
ELECTRICAL SYSTEM														
Unit Voltage and Phase								T1 Transformer Output Voltage		23.6v				
Incoming Voltage Reading L1-L2				213.6v				T18 Transformer Output Voltage		N/a				
Incoming Voltage Reading L1-L3				215.2v				T43 Transformer Output Voltage		N/a				
Incoming Voltage Reading L2-L3				214.2v										
PRODIGY CONTROLLER							THERMOSTAT / DDC CONTROLS							
Completed Guided Setup				N/A				Controller Manufacturer		Trane				
Prodigy Unit Report Included				NO				Controller Model Number		Reliatel				
Prodigy Board Software Version#				8.00.0025				Controller Serial Number						
Display Software Version#								Network Address		43009				
COOLING SYSTEM														
Blower Motor	Horse Power	1hp		Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T	
	High Speed	NA		-	-	-	Return	Supply						
	Low Speed	NA		0.6a	0.6a	N/a								
Compressor	Stage 1	NA		-	-	-	-	-	-	-	-	-		
	Stage 2	NA		6.1a	5.8a	6.1a	116.3psig	260.2psig	71.3f	55.6f				
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS								ELECTRIC						
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1	-	-	-		-	1	13.3a	13.2a	13.2a	74	76	
2	N/a	2	-	-				2	12.9a	12.8a	12.9a			
OUTDOOR AIR														
Outdoor Air type								Power Exhaust Installed						
Econ Operation Mode								Power Exhaust Type						
OPERATIONAL RUN TEST														
Run test cooling system								Run test free cooling						
Run test heating system								Run test power exhaust						
NOTES & DEFICIENCIES														

### Halff Cx Agent

Signed\*:

Name: Dean Lizzotte

Company: Halff

Date:

Phone/Emails:

\*Initiating Authority

### General Contractors Representative

Signed:

Name: Mike Rodriguez

Company: CAHS

Date: 01/23/2024

Phone/Emails:

### Owners Representative

Signed:

Name:

Company:

Date:

Phone/Emails:



## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-04-402				Control System type		DDC						
Model Number		THC047E3REA2EC0E1A1A6B00HA000C0000				Ambient Temperature		77.0						
Serial Number		232512514L				Heat Fuel Type		N/A						
C/N Number						Air Filter Type		16x25x2		Pleated				
						Air Filter Condition		Dirty						
ELECTRICAL SYSTEM														
Unit Voltage and Phase		208-230v 3PH.				T1 Transformer Output Voltage		23.8						
Incoming Voltage Reading L1-L2		214.5v				T18 Transformer Output Voltage		N/a						
Incoming Voltage Reading L1-L3		216.7v				T43 Transformer Output Voltage		N/a						
Incoming Voltage Reading L2-L3		214.7												
PRODIGY CONTROLLER							THERMOSTAT / DDC CONTROLS							
Completed Guided Setup		N/A				Controller Manufacturer		Trane						
Prodigy Unit Report Included		NO				Controller Model Number		Reliatel						
Prodigy Board Software Version#		8.00.0025				Controller Serial Number								
Display Software Version#						Network Address		41002						
COOLING SYSTEM														
Blower Motor	Horse Power	1hp		Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T	
	High Speed	NA		-	-	-	Return	Supply						
	Low Speed	NA		1.8a	1.8a	N/a								
Compressor	Stage 1	NA		5.9a	5.7a	6.0a	115.4psig	283.2psig	69.8f	53.8f				
	Stage 2	NA												
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS								ELECTRIC						
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1	N/a	N/a	-		-	1	13.1a	13.3a	13.3a	70	73	3
2	-	2	-	-				2	13.1a	13.3a	13.2a			
OUTDOOR AIR														
Outdoor Air type						Power Exhaust Installed								
Econ Operation Mode						Power Exhaust Type								
OPERATIONAL RUN TEST														
Run test cooling system						Run test free cooling								
Run test heating system						Run test power exhaust								
NOTES & DEFICIENCIES														

### Halff Cx Agent

Signed\*:

Name: Dean Lizzotte

Company: Halff

Date: \_\_\_\_\_

Phone/Emails: \_\_\_\_\_

\*Including Authority

### General Contractors Representative

Signed:

Name: Mike Rodriguez

Company: CAHS

Date: 01/23/2024

Phone/Emails: \_\_\_\_\_

### Owners Representative

Signed:

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Date: \_\_\_\_\_

Phone/Emails: \_\_\_\_\_



## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-04-405				Control System type		DDC						
Model Number		THCD47E3REA2EC0E1A1A6800HA000C0000				Ambient Temperature		76.6f						
Serial Number		232512516L				Heat Fuel Type		N/A						
C/N Number						Air Filter Type		16x25x2		Pleated				
						Air Filter Condition		Dirty						
ELECTRICAL SYSTEM														
Unit Voltage and Phase		208-230v 3ph				T1 Transformer Output Voltage		23.5						
Incoming Voltage Reading L1-L2		216.1v				T18 Transformer Output Voltage								
Incoming Voltage Reading L1-L3		213.7v				T43 Transformer Output Voltage								
Incoming Voltage Reading L2-L3		213.4v												
PRODIGY CONTROLLER						THERMOSTAT / DDC CONTROLS								
Completed Guided Setup		N/A				Controller Manufacturer		Trane						
Prodigy Unit Report Included		NO				Controller Model Number		Reliatel						
Prodigy Board Software Version#		8.00.0025				Controller Serial Number								
Display Software Version#						Network Address		41013						
COOLING SYSTEM														
Blower Motor	Horse Power	1hp		Rotation Verified	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T		
	High Speed	NA					Return			Supply				
	Low Speed	NA		1.4a	1.4a	N/a								
Compressor	Stage 1	NA		-	-	-	-	-	-	-	-			
	Stage 2	NA		9.2a	8.7a	4.7a	120.5psig	253.2psig	68.7f	53.8f				
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1	N/a	N/a	-		-	1	12.9a	13.3a	13.3a	71	72	
2		2						2	13.1a	13.3	13.2a			
OUTDOOR AIR														
Outdoor Air type							Power Exhaust Installed							
Econ Operation Mode							Power Exhaust Type							
OPERATIONAL RUN TEST														
Run test cooling system							Run test free cooling							
Run test heating system							Run test power exhaust							
NOTES & DEFICIENCIES														

### Halff Cx Agent

Signed\*:

Name: Dean Lizzotte

Company: Halff

Date:

Phone/Emails:

\*Inhibiting Authority

### General Contractor Representative

Signed:

Name: Mike Rodriguez

Company: CAHS

Date: 01/23/2024

Phone/Emails:

### Owners Representative

Signed:

Name:

Company:

Date:

Phone/Emails:





## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-04-412			Control System type			DDC						
Model Number		THC047E3REA2EC0E1A1A6B00HA000C0000			Ambient Temperature			77.2						
Serial Number		232512563L			Heat Fuel Type			N/A						
C/N Number					Air Filter Type			16x25x2 Pleated						
					Air Filter Condition			Dirty						
ELECTRICAL SYSTEM														
Unit Voltage and Phase		208-230v 3PH.			T1 Transformer Output Voltage			23.3v						
Incoming Voltage Reading L1-L2		213.3v			T18 Transformer Output Voltage			N/a						
Incoming Voltage Reading L1-L3		212.9v			T43 Transformer Output Voltage			N/a						
Incoming Voltage Reading L2-L3		215.4v												
PRODIGY CONTROLLER						THERMOSTAT / DDC CONTROLS								
Completed Guided Setup		N/A			Controller Manufacturer			Trane						
Prodigy Unit Report Included		NO			Controller Model Number			Reliatel						
Prodigy Board Software Version#		8.00.0025			Controller Serial Number									
Display Software Version#					Network Address			41007						
COOLING SYSTEM														
Blower Motor	Horse Power	1hp	Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T		
	High Speed	NA												
	Low Speed	NA	1.4a	1.4a	N/a					Return	Supply			
Compressor	Stage 1	NA	-	-	-	-	-	-	-	-	-			
	Stage 2	NA	6.4a	7.0a	6.2a	126.6psig	310.8psig	69.8	59.7					
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1	-	-	-		-	1	13.0a	13.0a	13.0a	74	76	
2	N/a	2	-	-				2	12.9a	12.9a	13.2a			
OUTDOOR AIR														
Outdoor Air type					Power Exhaust Installed									
Econ Operation Mode					Power Exhaust Type									
OPERATIONAL RUN TEST														
Run test cooling system					Run test free cooling									
Run test heating system					Run test power exhaust									
NOTES & DEFICIENCIES														

### Halff Cx Agent

Signed\*:

Name: Dean Lizzotte

Company: Halff

Date:

Phone/Emails:

\*Inhalation Authority

### General Contractors Representative

Signed:

Name: Mike Rodriguez

Company: CAHS

Date: 01/23/2024

Phone/Emails:

### Owners Representative

Signed:

Name:

Company:

Date:

Phone/Emails:





## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-04-414				Control System type		DDC						
Model Number		THC047E3REA2ECO1A1A6B00HA000C0000				Ambient Temperature		77						
Serial Number		232512501L				Heat Fuel Type		N/A						
C/N Number						Air Filter Type		16x25x2		Pleated				
						Air Filter Condition		Dirty						
ELECTRICAL SYSTEM														
Unit Voltage and Phase		208-230v 3PH.				T1 Transformer Output Voltage		23.3v						
Incoming Voltage Reading L1-L2		213.0v				T18 Transformer Output Voltage		N/a						
Incoming Voltage Reading L1-L3		213.9				T43 Transformer Output Voltage		N/a						
Incoming Voltage Reading L2-L3		213.3v												
PRODIGY CONTROLLER							THERMOSTAT / DDC CONTROLS							
Completed Guided Setup		N/A				Controller Manufacturer		Trane						
Prodigy Unit Report Included		NO				Controller Model Number		Reliatel						
Prodigy Board Software Version#		8.00.0025				Controller Serial Number								
Display Software Version#						Network Address		41008						
COOLING SYSTEM														
Blower Motor	Horse Power	1	Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T		
	High Speed	NA	-	-	-	Return	Supply							
	Low Speed	NA	0.9a	0.9a	N/a									
Compressor	Stage 1	NA	-	-	-	-	-	-	-	-	-	-		
	Stage 2	NA	6.2a	6.2a	6.6a	126.7psig	263.1psig	70.1	54.8					
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1	-	-	-		-	1	12.9a	24.1a	13.2a	73	77	
2	N/a	2	-	-			2	13.1a	12.9a	13.1a				
OUTDOOR AIR														
Outdoor Air type						Power Exhaust Installed								
Econ Operation Mode						Power Exhaust Type								
OPERATIONAL RUN TEST														
Run test cooling system						Run test free cooling								
Run test heating system						Run test power exhaust								
NOTES & DEFICIENCIES														

### Halff Cx Agent

Signed\*: \_\_\_\_\_  
 Name: Dean Lizzotte  
 Company: Halff  
 Date: \_\_\_\_\_  
 Phone/Emails: \_\_\_\_\_

\*Inviting Authority

### General Contractors/Representative

Signed: \_\_\_\_\_  
 Name: Mike Rodriguez  
 Company: CAHS  
 Date: 01/23/2024  
 Phone/Emails: \_\_\_\_\_

### Owners Representative

Signed: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Phone/Emails: \_\_\_\_\_



## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-04-HALL NW				Control System type		DDC						
Model Number		THC047E3REA2EC0E1A1A8B00HA000C0000				Ambient Temperature		78.0						
Serial Number		232512525L				Heat Fuel Type		N/A						
C/N Number						Air Filter Type		16x25x2		Pleated				
						Air Filter Condition		Dirty						
ELECTRICAL SYSTEM														
Unit Voltage and Phase		208-230v 3PH.				T1 Transformer Output Voltage		23.4v						
Incoming Voltage Reading L1-L2		215.2v				T18 Transformer Output Voltage		N/a						
Incoming Voltage Reading L1-L3		212.7v				T43 Transformer Output Voltage		N/a						
Incoming Voltage Reading L2-L3		213.0v												
PRODIGY CONTROLLER							THERMOSTAT / DDC CONTROLS							
Completed Guided Setup		N/A				Controller Manufacturer		Trane						
Prodigy Unit Report Included		NO				Controller Model Number		Reliatel						
Prodigy Board Software Version#		8.00.0025				Controller Serial Number		-						
Display Software Version#						Network Address		43004						
COOLING SYSTEM														
Blower Motor	Horse Power		Rotation Verified		AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T		
	High Speed		NA											
	Low Speed		NA		2.5a	2.5a	N/a						Return	Supply
Compressor	Stage 1		NA		-	-	-	-	-	-	-	-		
	Stage 2		NA		9.8v	10.7v	8.1v	129.3psig	292.9psig	70.4f	55.8f			
	Stage 3		NA											
	Stage 4		NA											
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1	-	-	-		-	1	13.4a	13.0a	13.0a	74	80	
2	N/a	2					2	13.0a	13.1a	12.9a				
OUTDOOR AIR														
Outdoor Air type						Power Exhaust Installed								
Econ Operation Mode						Power Exhaust Type								
OPERATIONAL RUN TEST														
Run test cooling system						Run test free cooling								
Run test heating system						Run test power exhaust								
NOTES & DEFICIENCIES														

### Halff Cx Agent

Signed\*: \_\_\_\_\_  
 Name: Dean Lizzotte  
 Company: Halff  
 Date: \_\_\_\_\_  
 Phone/Emails: \_\_\_\_\_  
\*Inhaling Authority

### General Contractors Representative

Signed: \_\_\_\_\_  
 Name: Mike Rodriguez  
 Company: CAHS  
 Date: 01/23/2024  
 Phone/Emails: \_\_\_\_\_

### Owners Representative

Signed: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Phone/Emails: \_\_\_\_\_



## Pre-Functional Checklist-Roof Top Unit

UNIT INFORMATION														
RTU Number		RTU-10-CAFE2			Control System type		DDC							
Model Number		TSJ120A3SOK03C0E0A1A1A0C4000000000000B0			Ambient Temperature		77.0							
Serial Number		232612798L			Heat Fuel Type		N/A							
C/N Number					Air Filter Type 16x24x2 / 18x24x2		Pleated							
					Air Filter Condition		Dirty							
ELECTRICAL SYSTEM														
Unit Voltage and Phase		208-230v 3PH.			T1 Transformer Output Voltage		24.0v							
Incoming Voltage Reading L1-L2		214.4v			T18 Transformer Output Voltage		24.0v							
Incoming Voltage Reading L1-L3		214.2v			T43 Transformer Output Voltage		23.7v							
Incoming Voltage Reading L2-L3		216.7												
PRODIGY CONTROLLER						THERMOSTAT / DDC CONTROLS								
Completed Guided Setup		N/A			Controller Manufacturer		Trane							
Prodigy Unit Report Included		NO			Controller Model Number		Symbio							
Prodigy Board Software Version#		3.00.0012			Controller Serial Number									
Display Software Version#					Network Address		41018							
COOLING SYSTEM														
Blower Motor	Horse Power	5hp		Rotation Verified	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Suction Pressure	Discharge Pressure	Temperature Readings All Stages		Delta T		
	High Speed	NA												
	Low Speed	NA		3.2a	3.2a	3.2a					Return		Supply	
Compressor	Stage 1	NA												
	Stage 2	NA		14.8a	16.9a	14.9a	143.2psig	301.8psig	72.8f	56.4f				
	Stage 3	NA												
	Stage 4	NA												
HEATING SYSTEM														
GAS							ELECTRIC							
Stage	Inlet Pressure	Stage	Manifold Pressure		Return Temp	Supply Temp	Temp Rise Full Heat	Electric Heat Stage	AMPS L1-L2	AMPS L2-L3	AMPS L1-L3	Return Temp	Supply Temp	Temp Rise Full Heat
			Low	High										
1	N/a	1	N/a	N/a		-	-	1	19.7a	19.9a	20.1a		66	
2	-	2	-	-				2	39.8a	39.8a	40.1a			
OUTDOOR AIR														
Outdoor Air type							Power Exhaust Installed							
Econ Operation Mode							Power Exhaust Type							
OPERATIONAL RUN TEST														
Run test cooling system							Run test free cooling							
Run test heating system							Run test power exhaust							
NOTES & DEFICIENCIES														

Halff Cx Agent

Signed\*:

Name: Dean Lizzotte

Company: Halff

Date: 1/23/24

Phone/Emails: \_\_\_\_\_

\*Noting Authority

General Contractors Representative

Signed:

Name: Mike Rodriguez

Company: CAHS

Date: 01/23/2024

Phone/Emails: \_\_\_\_\_

Owners Representative

Signed:

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Date: \_\_\_\_\_

Phone/Emails: \_\_\_\_\_

### **Introduction**

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

### **Communication**

Documentation for pre-graphics review is attached. The documents after the competition shall be signed by the CxA, Owner's representative, and Contractor representative. An example of a Issues and Resolutions Log is also attached.

### **Procedures**

1. Access to the project's BAS
2. Analysis shall be performed for any graphical glitches or major issues.
3. The individual views shall be compared against the installed schedules to verify if all the proper equipment is on the screen.
4. The information on the BAS shall be compared to the information from the installed equipment itself or if available testing instrumentation.
5. The alarms shall then be tested to verify proper setup.
6. Any identified issues shall be documented in the Issues and Resolutions Log.
7. If resolved the building automation system shall be reviewed once more.
8. When the review has been completed the document shall be signed by the witnessing parties including up to the CxA, the Owner's representative, and the Contractor's representative.

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

## Graphics Review

Job Name	Morningside Elementary School			
	Yes	No	N/A	Initials
Are all the VFDs displayed on the screen?			X	DEL
Are all dedicated outside air systems displayed on the screen?			X	DEL
Are all pumps displayed on the screen?			X	DEL
Are all chillers displayed on the screen?			X	DEL
Are all the fan arrays displayed on the screen?			X	DEL
Are all rooftop units displayed?	X			DEL
Are all boilers displayed on the screen?			X	DEL
Are all water coils displayed on the screen?			X	DEL
Are all flow rates displayed on the screen?			X	DEL
Are all pressures displayed on the screen?			X	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?	X			DEL
Notes:				

### Halff Cx Agent

Signed\*: *Dean Cizotte*  
 Name: Dean Cizotte  
 Company: Halff  
 Date: 3/8/25  
 Phone/Emails: 617.204.1040 halff.com

\*Initiating Authority

### Controls Contractors Representative

Signed: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Phone/Emails: \_\_\_\_\_

### Owners Representative

Signed: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 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:** 45830.004

**Project:** BISD Morningside Elementary

**Contract for:** Brownsville ISD

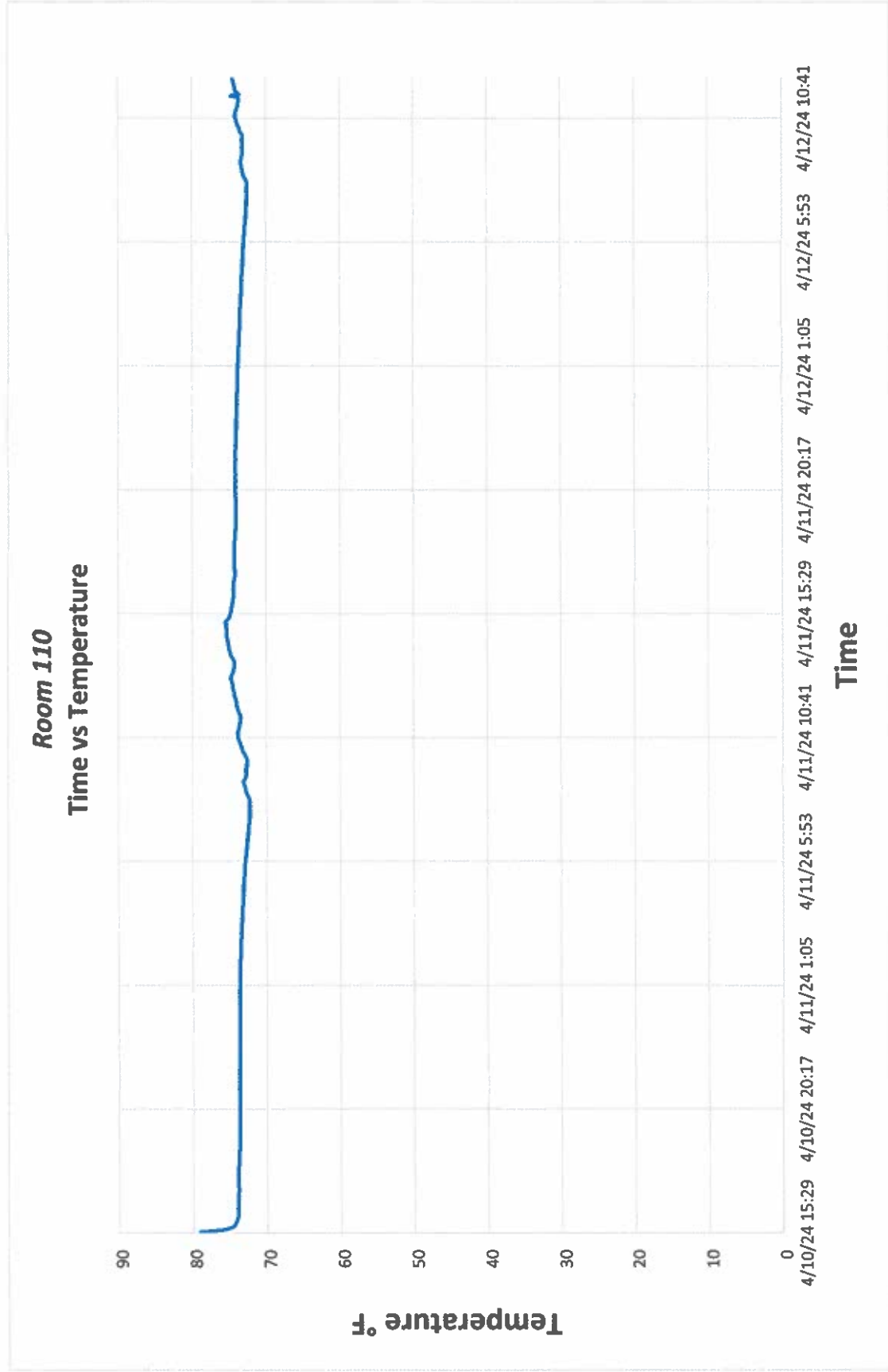
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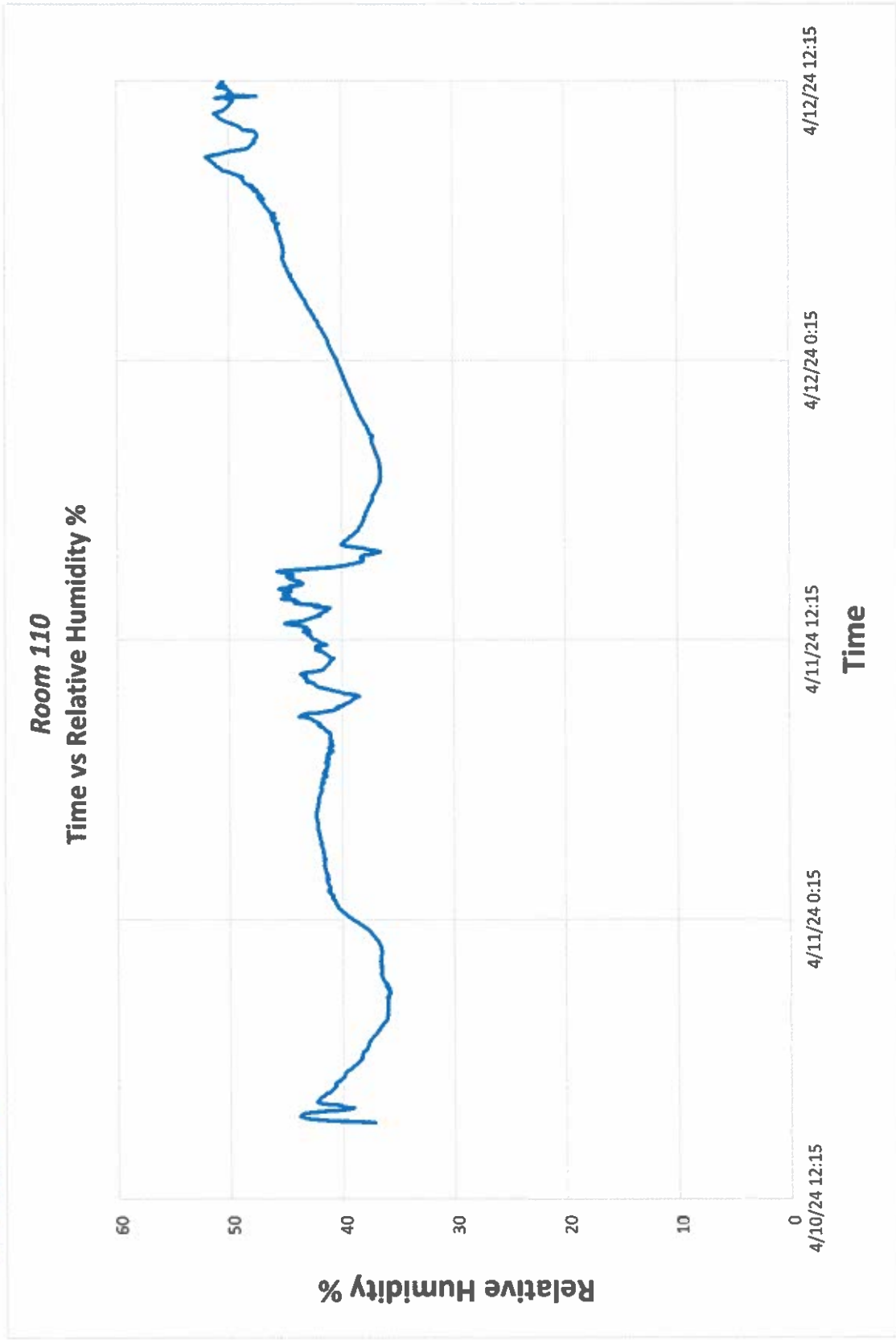
The following items require the attention of the Contractor for completion or correction. This list may not be all-inclusive, and the failure to include any items on this list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

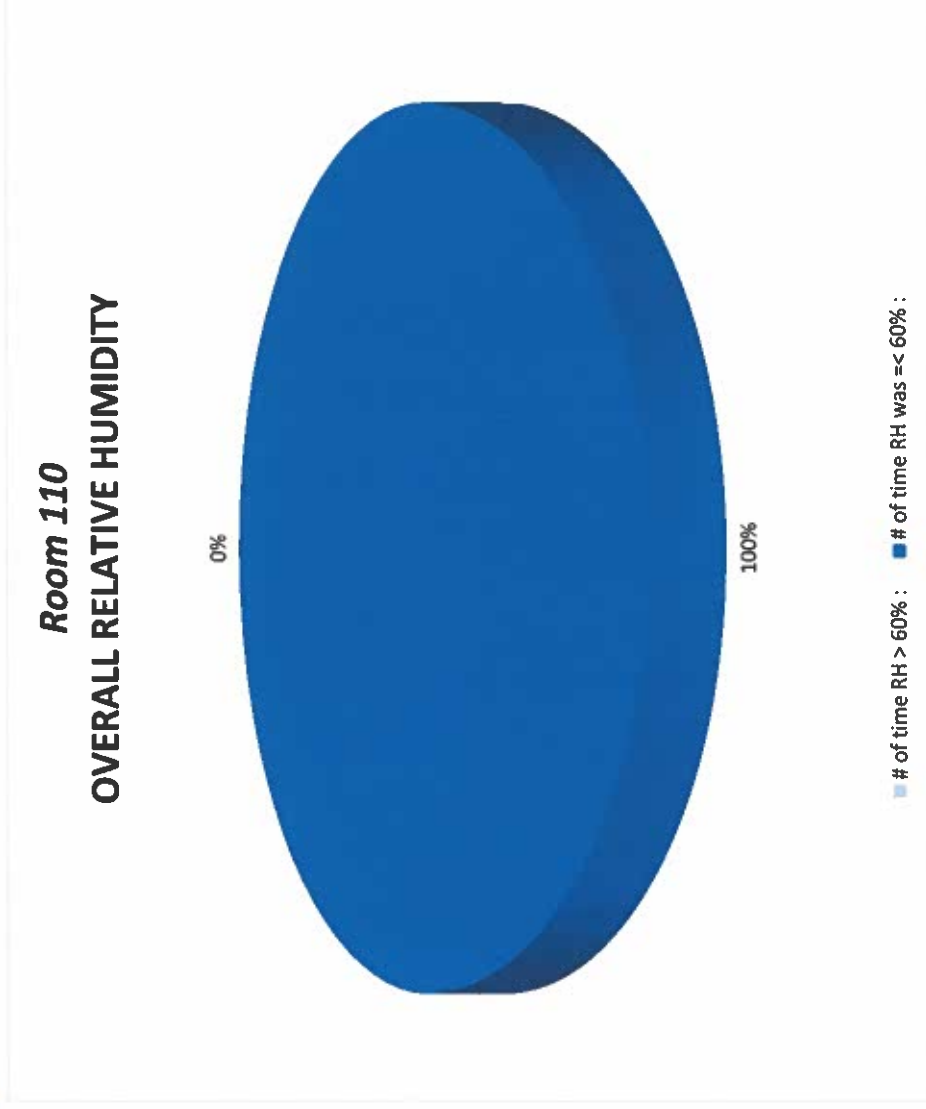
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ITEM NO.	LOCATION	UNIT	TEMPERATURE	RH %
1.	Unit 101	RTU-04-101	76.41	48
2.	Unit 102	RTU-03-102	73	41
3.	Unit 103	RTU-04-103	74.5	55
4.	Unit 104	RTU-04-104	75.8	36
5.	Unit 105	RTU-04-105	74.6	54.9
6.	Unit 106	RTU-04-106	74.7	55.7
7.	Unit 107	RTU-04-107	73.5	56.6
8.	Unit 108	RTU-03-108	74.6	54.9
9.	Unit 109	RTU-04-109	74.9	55
10.	Unit 110	RTU-04-110	74.3	54.2
11.	Unit 111	RTU-04-111	75.2	54.6
12.	Unit 112	RTU-04-112	74.9	54.9
13.	Unit 114	RTU-04-114	73.4	54.5
14.	Unit 201	RTU-04-201	75.8	36
15.	Unit 202	RTU-04-202	74.7	54.7
16.	Unit 203	RTU-04-203	74.2	54.5
17.	Unit 204	RTU-04-204	74.3	54.3
18.	Unit 205	RTU-04-205	73.9	54.7
19.	Unit 206	RTU-04-206	74.4	54.3
20.	Unit 207	RTU-04-207	72.7	54.8
21.	Unit 208	RTU-04-208	73.3	36
22.	Unit 209	RTU-04-209	72	54.4

ITEM NO.	LOCATION	UNIT	TEMPERATURE	RH %
23.	Unit 210	RTU-04-210	73.7	53.5
24.	Unit 211	RTU-04-211	76.5	44
25.	Unit 212	RTU-04-212	75.9	53.3
26.	Unit 301	RTU-04-301	74.8	55.1
27.	Unit 302	RTU-04-302	73.3	35
28.	Unit 303	RTU-04-303	74.7	41
29.	Unit 304	RTU-04-304	74.8	54.6
30.	Unit 305	RTU-04-305	74.2	55.0
31.	Unit 306	RTU-04-306	74.5	54.5
32.	Unit 307	RTU-04-307	69.6	68.5
33.	Unit 308	RTU-04-308	74.8	54.8
34.	Unit 309	RTU-04-309	74.1	54.6
35.	Unit 310	RTU-04-310	74.8	54.4
36.	Unit 311	RTU-04-311	75.2	54.3
37.	Unit 312	RTU-04-312	75.6	54.1
38.	Unit 401	RTU-04-401	74.4	---
39.	Unit 402	RTU-04-402	72.4	54.5
40.	Unit 403	RTU-04-403	74.7	53.6
41.	Unit 404	RTU-04-404	73.3	55.5
42.	Unit 405	RTU-04-405	74.6	54.6
43.	Unit 406	RTU-04-406	73.5	54.4
44.	Unit 407	RTU-04-407	74.8	54.5
45.	Unit 409	RTU-04-409	74.9	54.7
46.	Unit 410	RTU-04-410	72.3	54.9
47.	Unit 411	RTU-04-411	75.2	54.9
48.	Unit 412	RTU-04-412	73.3	62.2
49.	Unit 413	RTU-04-413	74.4	52.6
50.	Unit 414	RTU-04-414	75.6	48.6
51.	Café 1	RTU-10-CAFE1	---	---
52.	Café 2	RTU-10-CAFE2	---	---
53.	Café 3	RTU-10-CAFE3	---	---
54.	Café 4	RTU-10-CAFE4	---	---
55.	Hall NE	RTU-04-HALL NE	75.8	45
56.	Hall NW	RTU-04-HALL NW	73	45
57.	Library S	RTU-04-LIBRARY S	77	39
58.	Library N	RTU-04-LIBRARY N	76	40

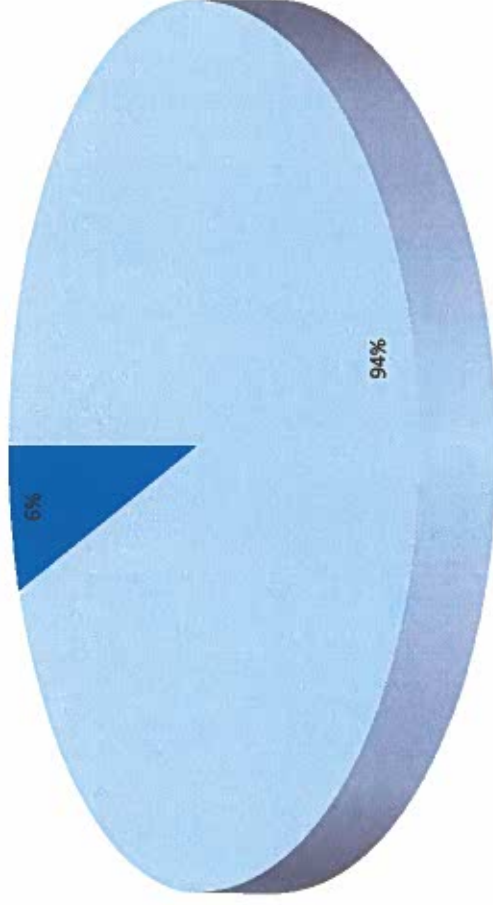






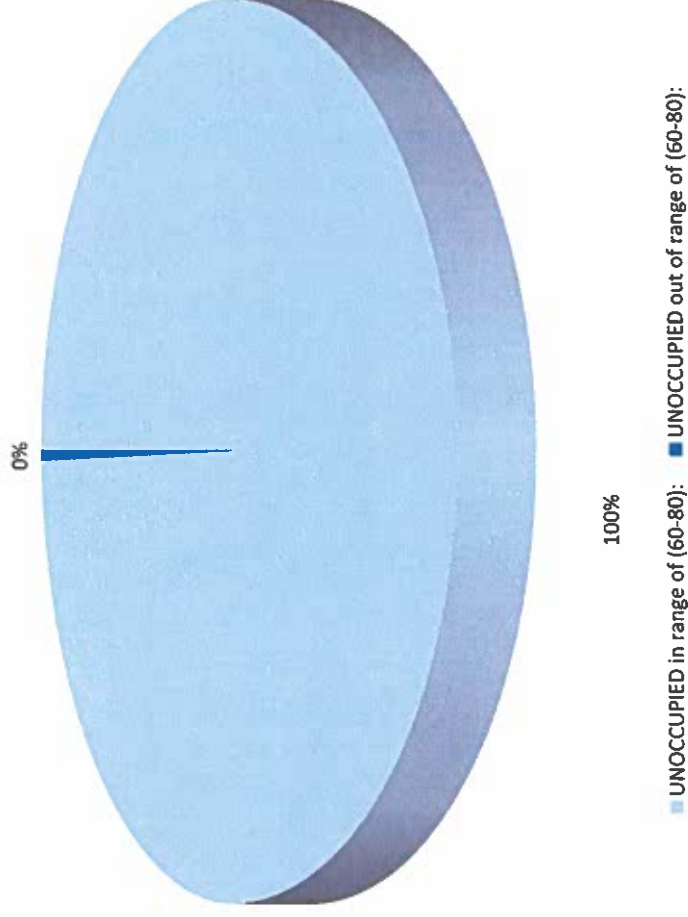


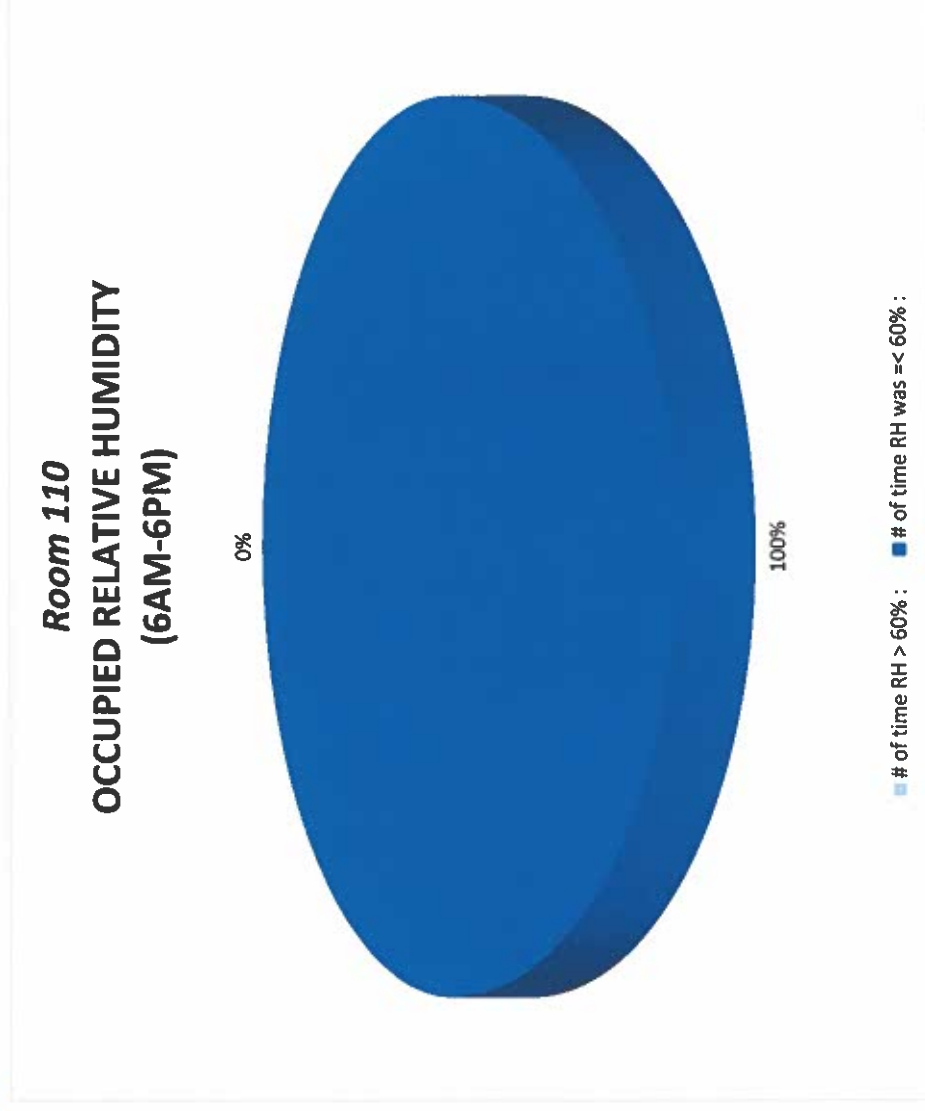
**Room 110**  
**TEMPERATURE RANGE FROM 6AM-6PM**



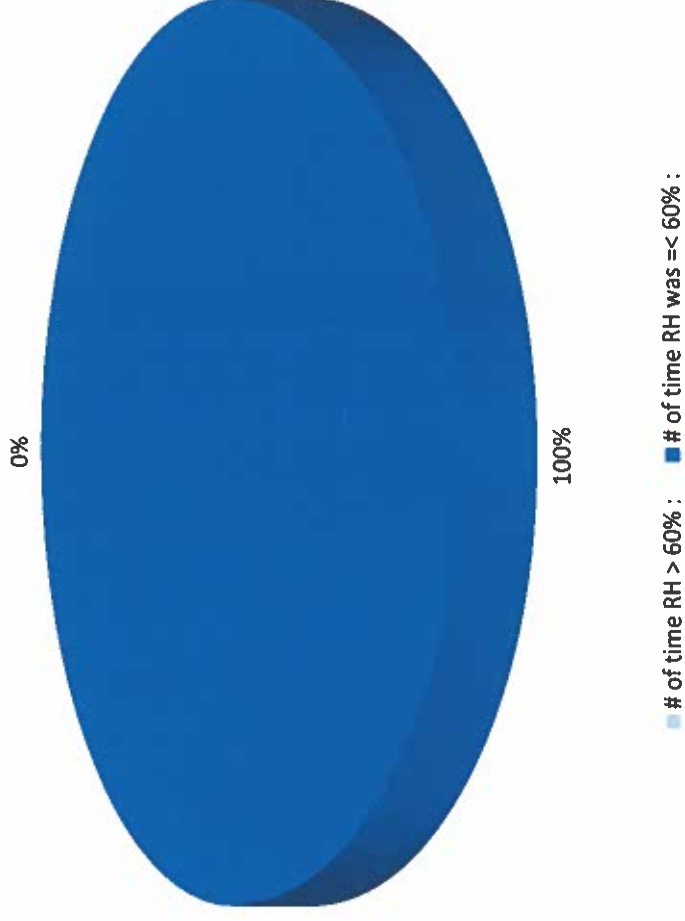
■ OCCUPIED in range of (69-75):   ■ OCCUPIED out of range of (69-75):

**Room 110**  
**TEMPERATURE RANGE FROM 6PM-6AM**





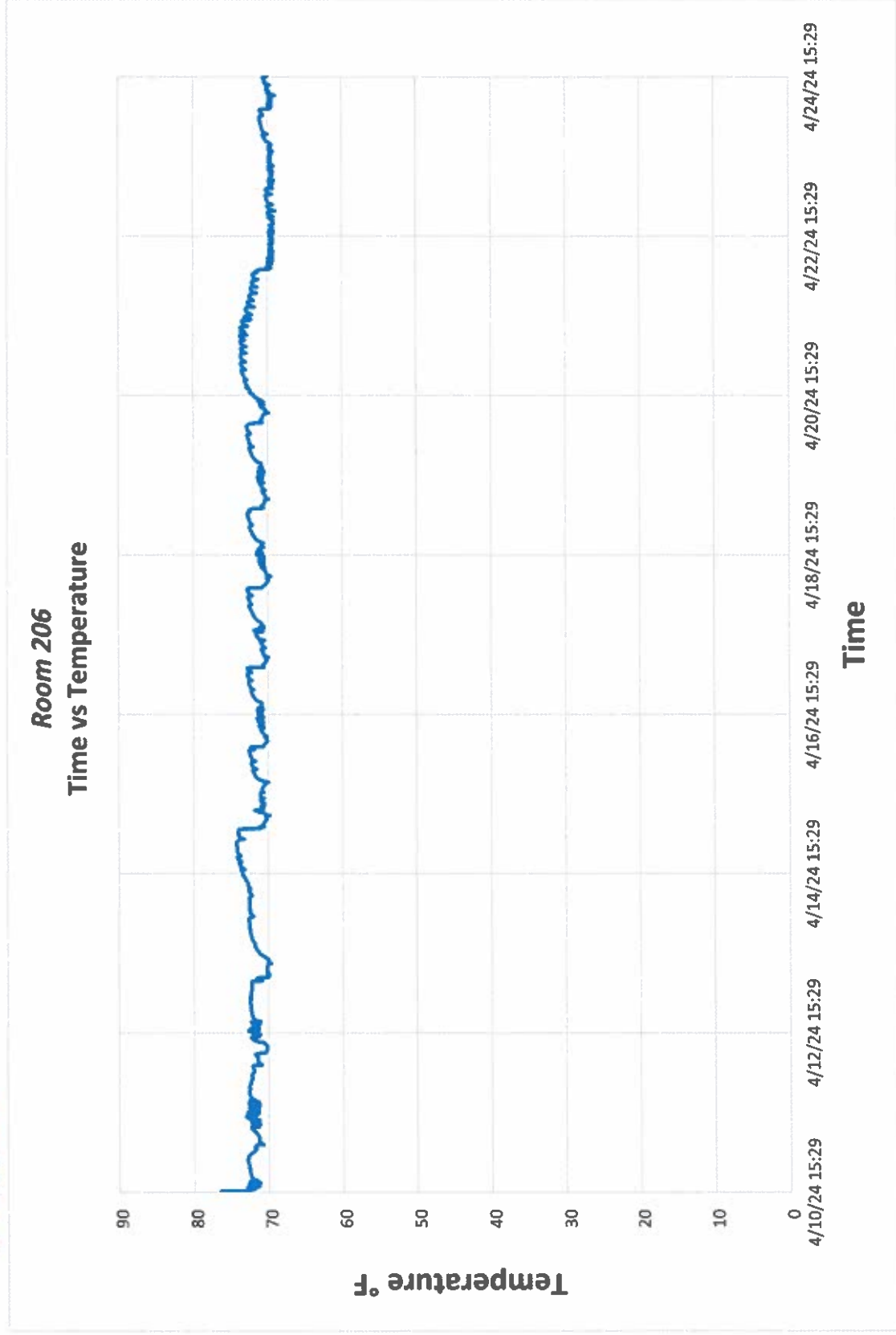
*Room 110*  
**UNOCCUPIED RELATIVE HUMIDITY  
(6PM-6AM)**



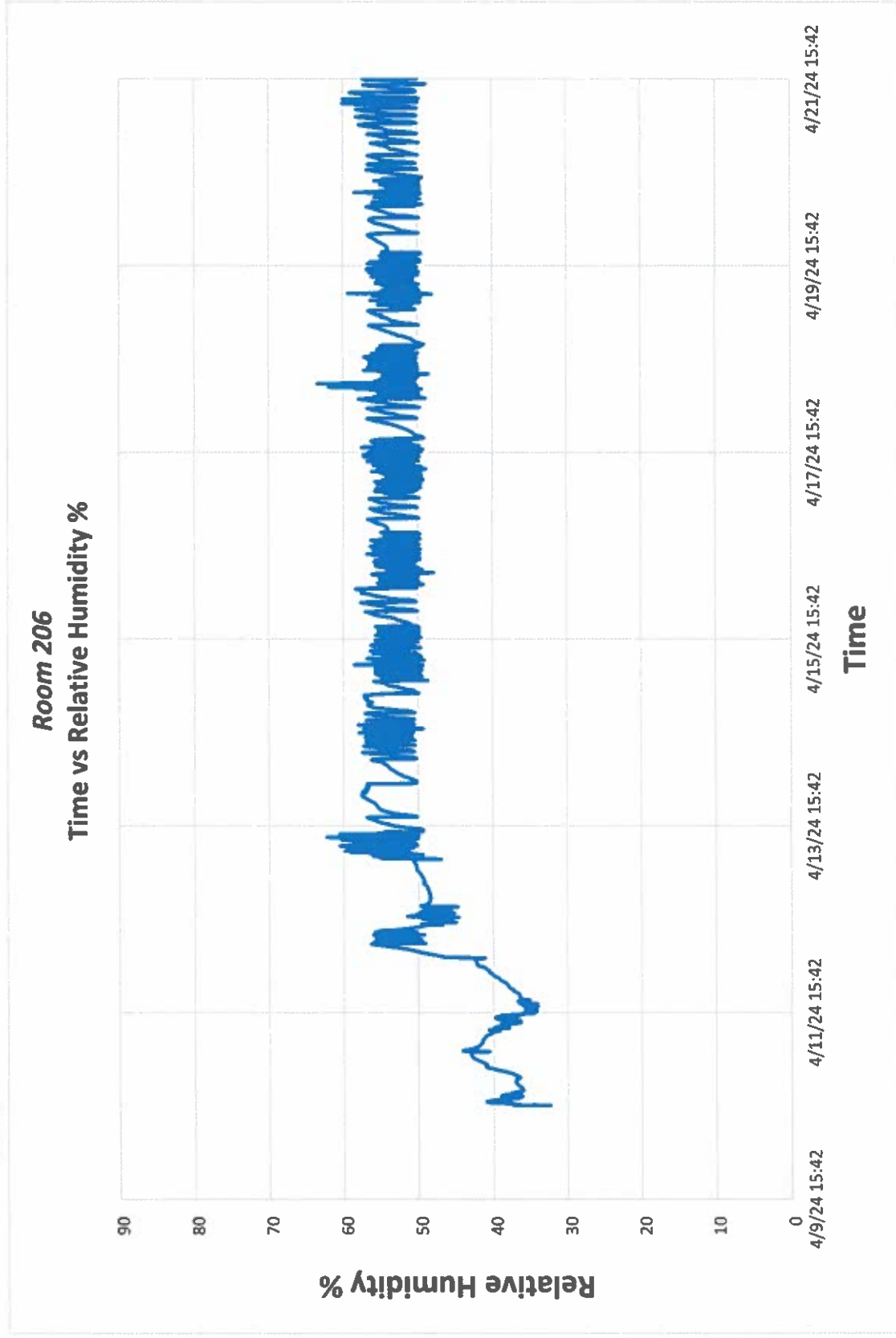


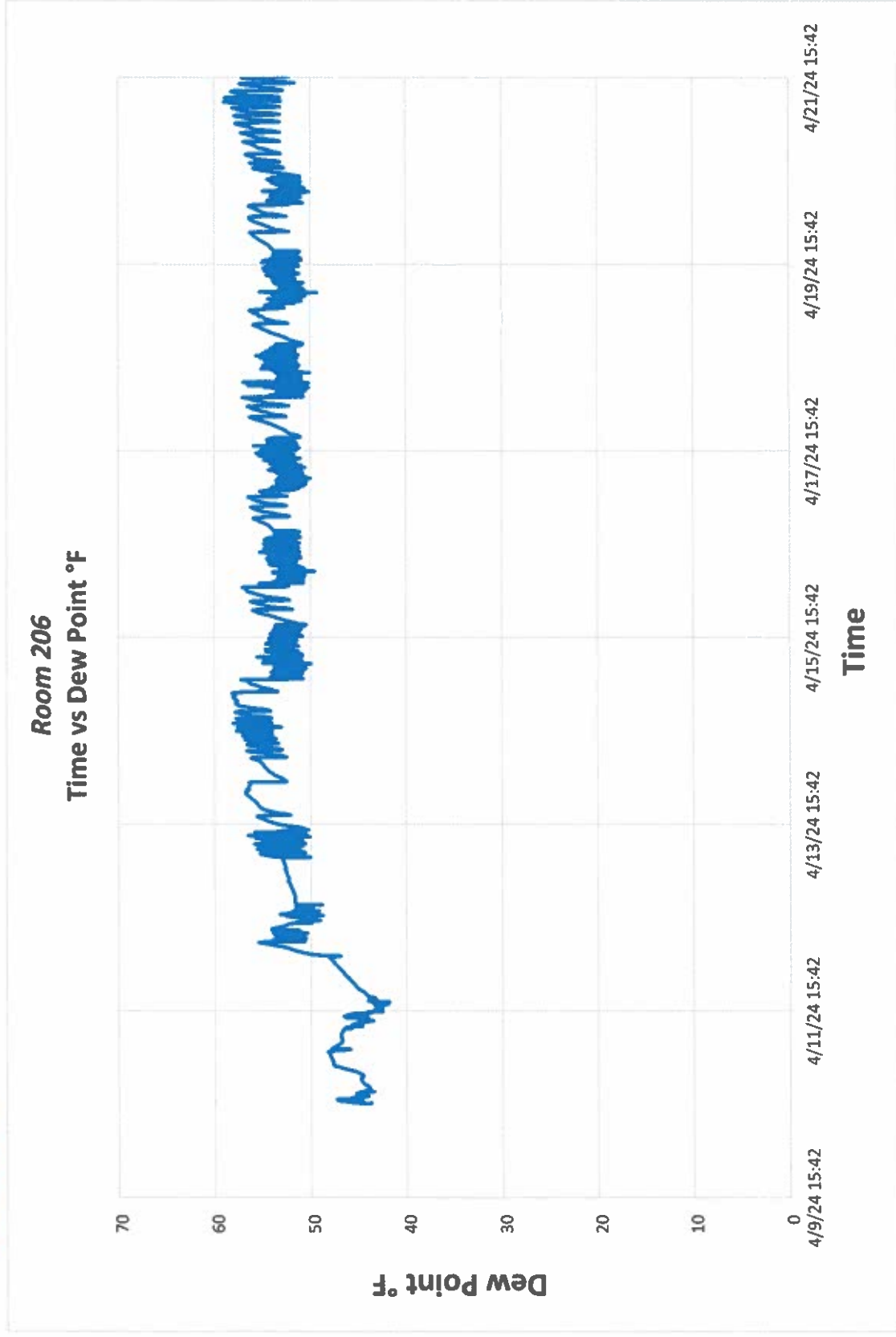
## Morning Side Hobos Data

March 7<sup>th</sup>, 2025

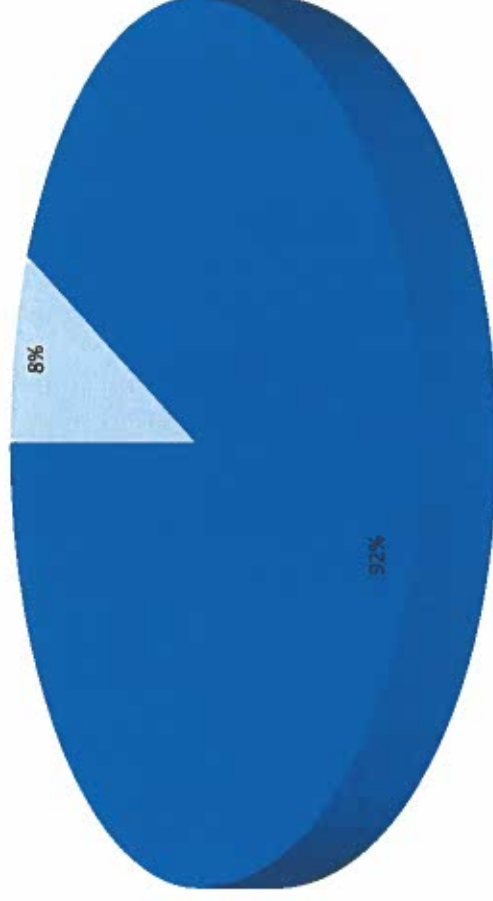






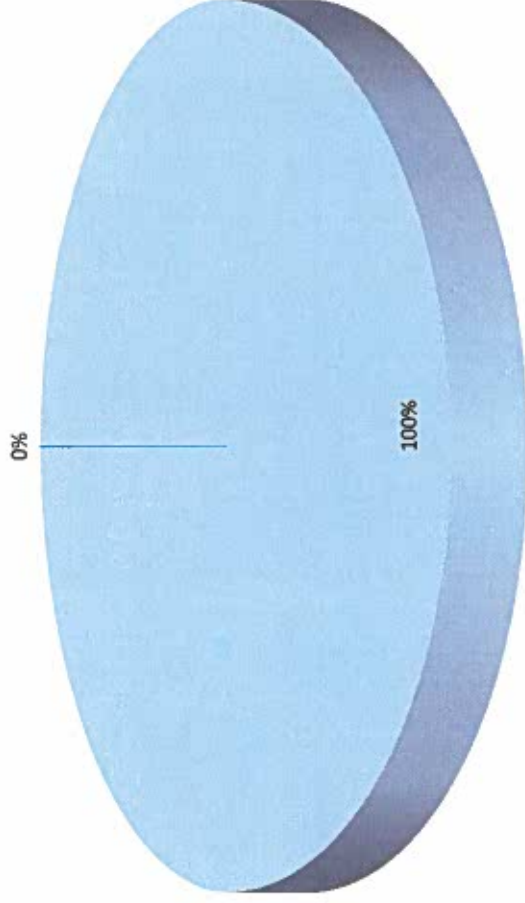


**Room 206**  
**OVERALL RELATIVE HUMIDITY**



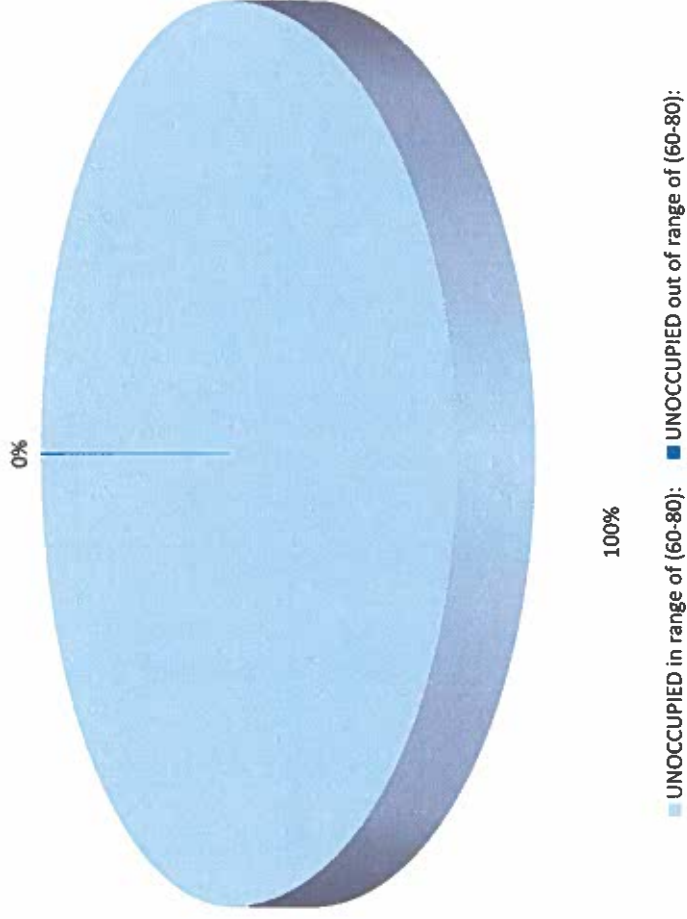
■ # of time RH > 60% : ■ # of time RH was ≤ 60% :

**Room 206**  
**TEMPERATURE RANGE FROM 6AM-6PM**



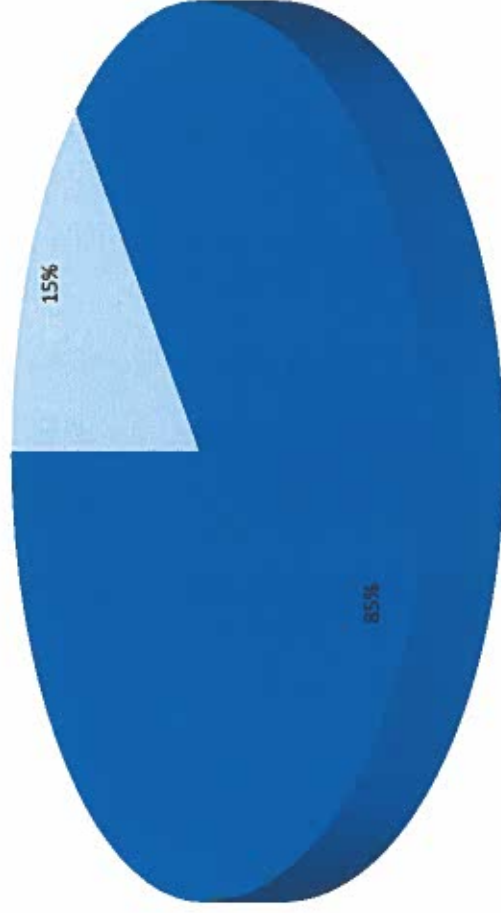
■ OCCUPIED in range of (69-75): ■ OCCUPIED out of range of (69-75):

**Room 206**  
**TEMPERATURE RANGE FROM 6PM-6AM**



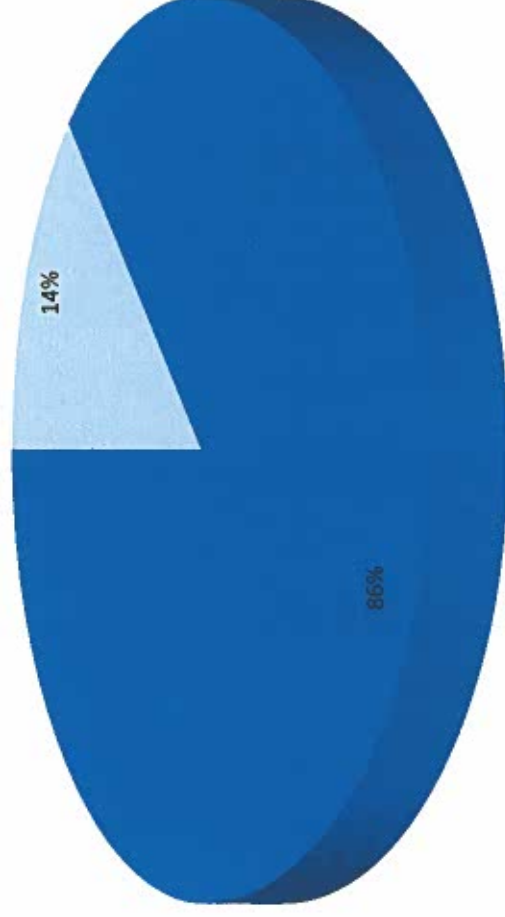


**Room 206**  
**OCCUPIED RELATIVE HUMIDITY**  
**(6AM-6PM)**



■ # of time RH > 60% : ■ # of time RH was ≤ 60% :

**Room 206**  
**UNOCCUPIED RELATIVE HUMIDITY**  
**(6PM-6AM)**

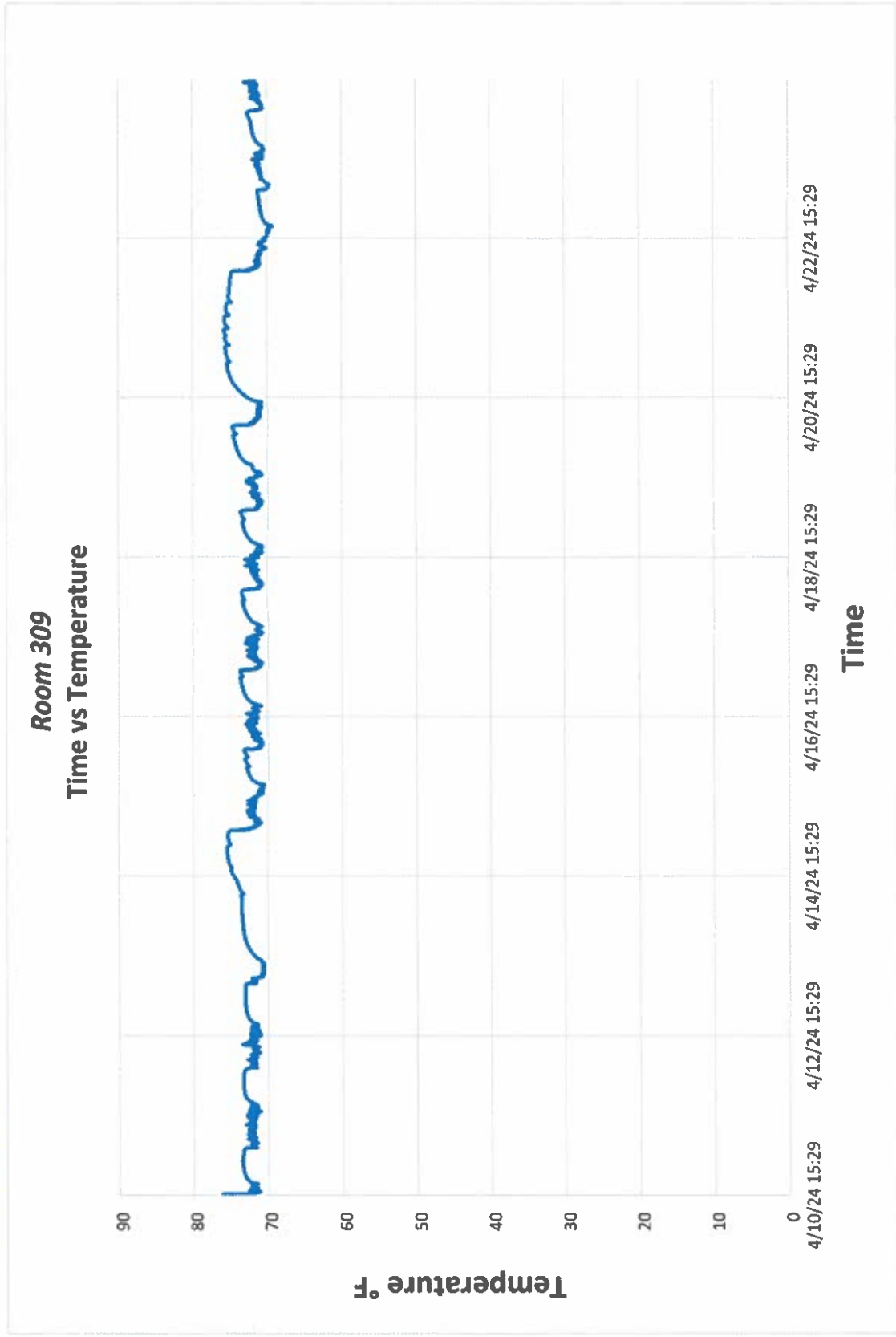


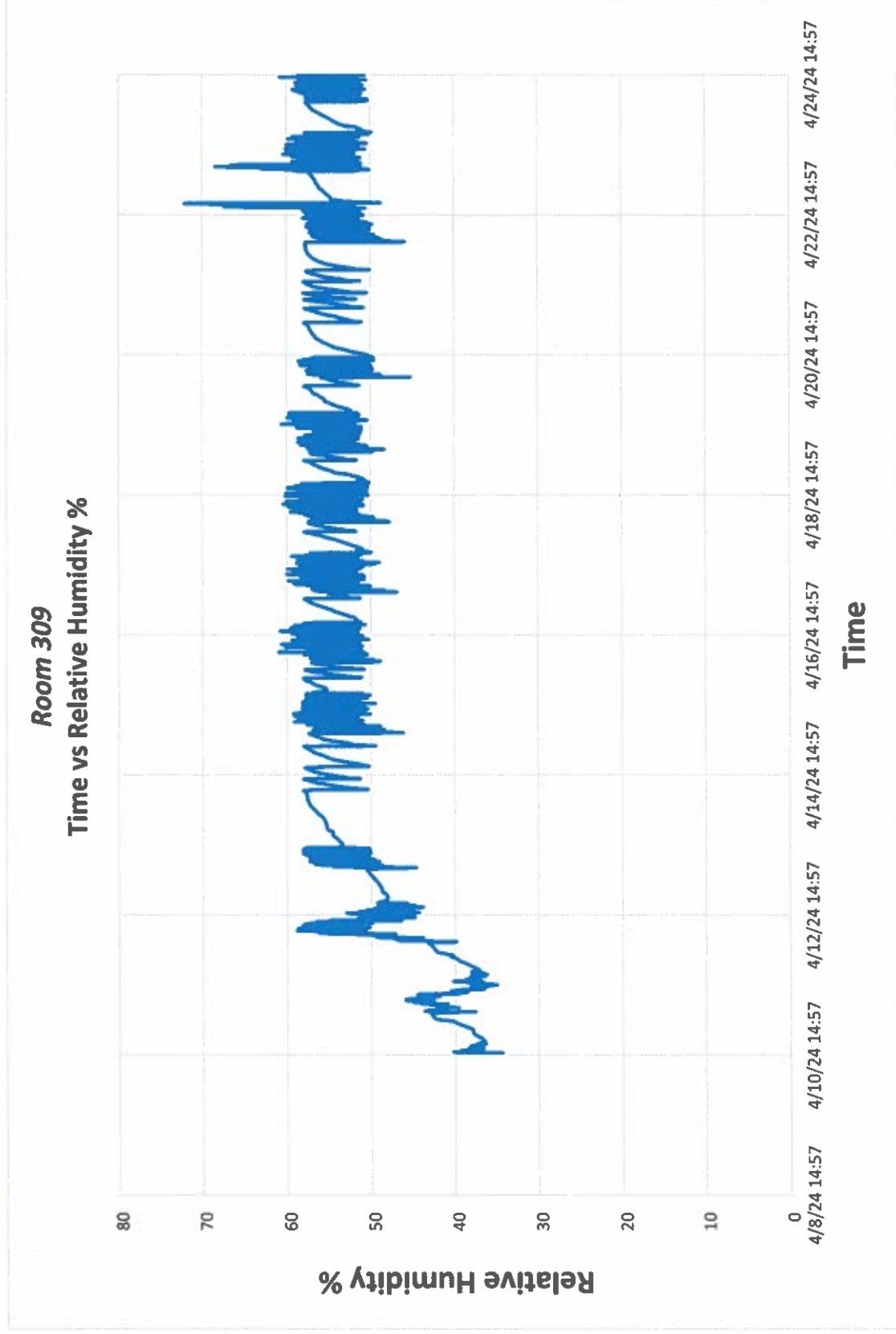
■ # of time RH > 60% : ■ # of time RH was ≤ 60% :



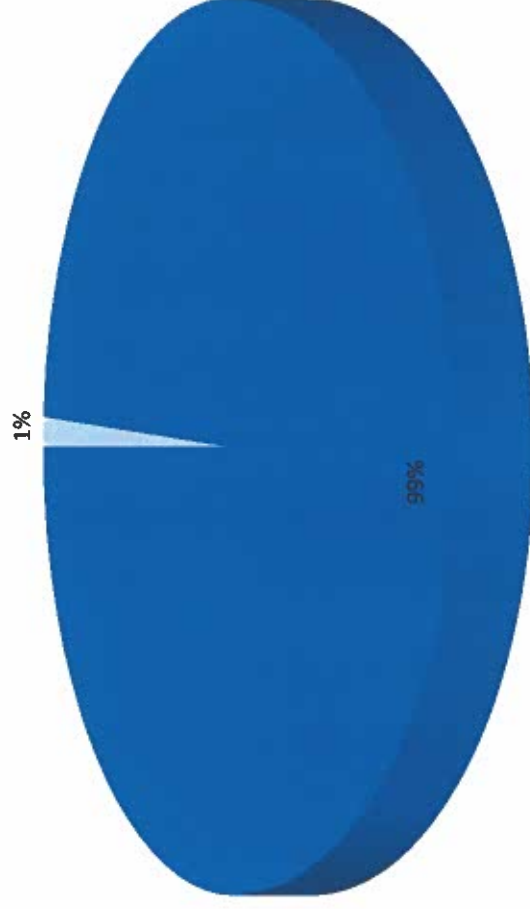
## Morning Side Hobos Data

March 7<sup>th</sup>, 2025



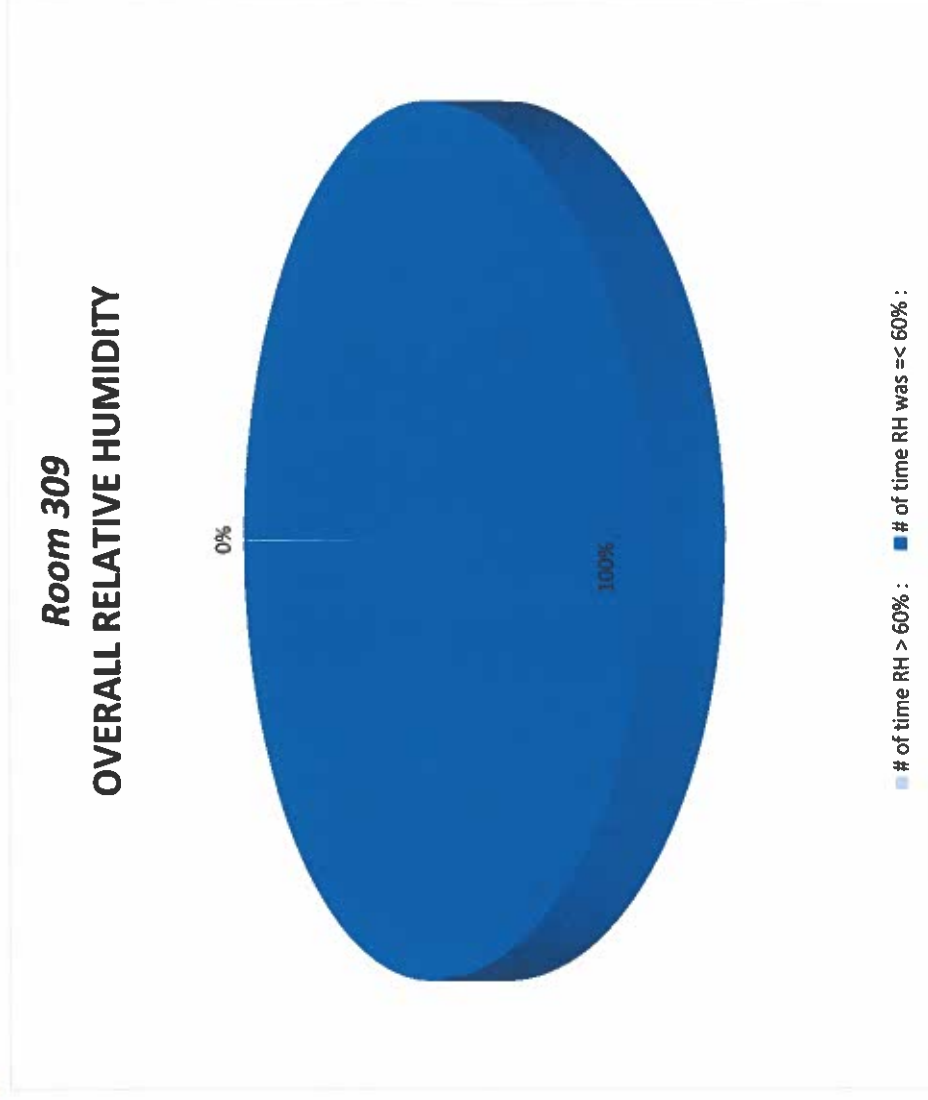


**Room 309**  
**UNOCCUPIED RELATIVE HUMIDITY**  
**(6PM-6AM)**

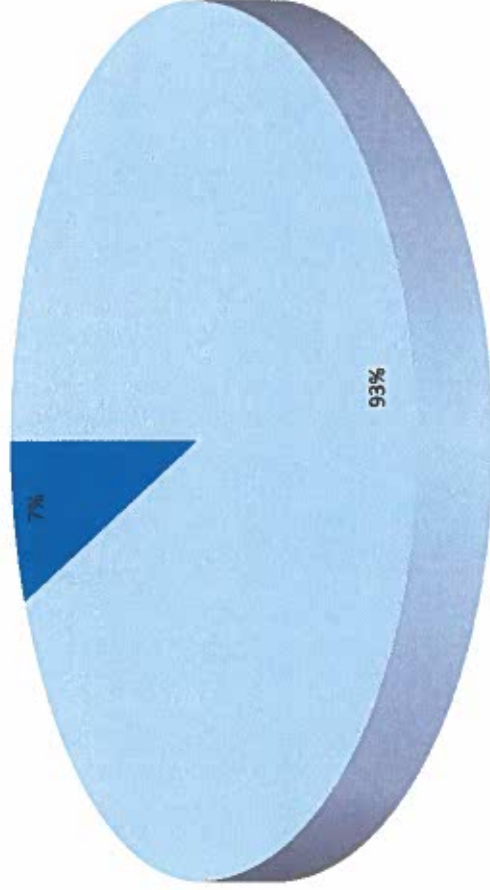


■ # of time RH > 60% : ■ # of time RH was ≤ 60% :





**Room 309**  
**TEMPERATURE RANGE FROM 6AM-6PM**



■ OCCUPIED in range of (69-75): ■ OCCUPIED out of range of (69-75):



# Brownsville Independent School District

Agenda Category: Bids / Proposals Board of Education Meeting: 06/23/2022

Item Title: CSP #22-148A ESSER Morningside ES X Action  
HVAC Upgrades Phase 1 (Package 1) Project Information  
Discussion

## **BACKGROUND:**

On May 26, 2022, BISD Purchasing Department received and opened bid packages from one (1) vendor for CSP #22-148A ESSER Morningside 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 \$2,332,531.00. 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 sealed 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 – \$2,332,531.00

## **RECOMMENDATION:**

Recommend awarding of CSP #22-148A ESSER Morningside 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 \$2,332,531.00, to authorize the Administration to enter negotiations, and to execute the contract. ESSER III Fund 282.

Fernando E Villarreal / Rosario Peña

Submitted by: Principal / Purchasing Director

Manuel Minojosa, FAIA / David Robledo

Recommended by: District Architect / CFO

Dr. Nellie Cantu

Approved by: Deputy Superintendent

Approved for Submission to Board of Education:

Dr. René Gutiérrez  
Superintendent

When Necessary, Additional Background May Follow This.