

Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
CINCINNATI, OH 45246



Report: DOAS Cx
Function: Commissioning
Date: 02/18/2023

PROJECT
04-10-23 CARVE AMERICAN GRILL -
AUSTIN, TX (TAB, CX)

4424 JACKSON AVE

AUSTIN, TX 78731

Client

Perrys Steakhouse
9805 Katy Freeway, Suite 650
Houston, TX 77024

National TAB

Project: 04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

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Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 4 - DOAS HEAT PUMP CONTROL MATRIX **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/10/2022 - Dan Hertenstein - National TAB

Completed Date : 07/19/2023 - Wesley John - National TAB

CheckList Item Details

BUILDING AUTOMATION SYSTEM (BAS)

BAS PROPERLY RECIEVES CONTROL INPUTS COMMUNICATED FROM CENTRAL DDC CONTROLLER.

Comment:

YES

BAS HAS PROVIDED ABILITY TO ADJUST SETPOINTS, SCHEDULING, AND MONITORING OF THE POINTS REMOTELY AS LISTED IN THE SCHEDULE FOR EACH UNIT.

Comment:

YES

SETPOINTS - DOAS

ALL TEMPERATURE/HUMIDITY SETPOINTS ARE READ/WRITE Pass

Comment:

DOAS 1 & 3: COOLING SPACE OCCUPIED: 70 DEG; DOAS 2: N/A Pass

Comment:

DOAS 1 & 3: COOLING SPACE UNOCCUPIED: 75 DEG; DOAS 2: N/A Pass

Comment:

DOAS 1 & 3: COOLING SUPPLY AIR TEMPERATURE SETPOINT: N/A; DOAS 2: 70 DEG. Pass

Comment:

DOAS 1,2, & 3: DEADBAND - MIN HEATING AND COOLING TEMP SETPOINT DIFFERENCE: 5 DEG. Pass

Comment:

DOAS 1 & 3: HEATING SPACE OCCUPIED SETPOINT: 70 DEG; DOAS 2: N/A Pass

Comment:

DOAS 1 & 3: HEATING SPACE UNOCCUPIED SETPOINT: 65 DEG; DOAS 2: N/A Pass

Comment:

DOAS 1 & 3: HEATING SUPPLY AIR TEMPERATURE SETPOINT: N/A; DOAS 2: 65 DEG. Pass

Comment:

DOAS 1,2, & 3: DEHUMIDIFICATION SETPOINT - HUMIDITY SENSOR FEEDBACK: 50% RH Pass

Comment:

PROGRAMMED CONTROL FEATURES (READ ONLY)

DOAS 1 & 3: HVAC SYSTEM OCCUPIED/UNOCCUPIED MODE - PROGRAMMABLE THERMOSTAT (READ ONLY FROM THERMOSTAT): YES; DOAS 2: N/A. Pass

Comment:

DOAS 1 & 3: REMOTE TEMPERATURE/HUMIDITY SENSOR: N/A; DOAS 2: YES Pass

Comment:

EQUIPMENT ACCESSORIES AND CONTROL MODULES

DOAS 1 & 3: RETURN AIR DAMPER - MOTOR OPERATED (MODULATING): YES; DOAS 2: N/A Pass

Comment:

DOAS 1,2, & 3: OUTDOOR AIR DAMPER - MOTOR OPERATED (MODULATING) Pass

Comment:

DOAS 1,2, & 3: LOW AMBIENT CONTROL KIT (26.7 DEG)

Pass

Comment:

DOAS 1,2, & 3: DEHUMIDIFICATION HOT GAS REHEAT

Pass

Comment:

DOAS 1,2, & 3: STAGED HEAT PUMP COIL WITH REVERSING VALVE

Pass

Comment:

DOAS 1,2, & 3: HEAT PUMP AUXILLARY HEATING COIL

Pass

Comment:

SUPPLY FAN CONTROL METHODS

DOAS 1 & 3: ON DURING OCCUPIED HOURS: N/A; DOAS 2: YES

Pass

Comment:

DOAS 1 & 3: CYCLE WITH LOADS DURING UNOCCUPIED HOURS: YES; DOAS 2: N/A

Pass

Comment:

DOAS 1 & 3: CONSTANT VOLUME FAN CONTROL: N/A; DOAS 2: YES

Pass

Comment:

DOAS 1 & 3: VARIABLE VOLUME - STAGED FAN CONTROL IN RESPONSE TO ACTIVE COOLING
COIL STAGES: YES, DOAS 2: N/A

Pass

Comment:

DOAS 1 & 3: MIN/MAX FAN SPEEDS BASED ON HOOD STATUS: YES; DOAS 2: N/A.

Pass

Comment:

SAFETIES, INTERLOCKS & ALARMS

DOAS 1,2 & 3: RETURN AIR SMOKE DETECTOR - UNIT SHUTDOWN: YES

Pass

Comment:

DOAS 1,2 & 3: LOW LIMIT FREEZESTAT: YES

Pass

Comment:

DOAS 1,2 & 3: WATER FLOW DIFFERENTIAL PRESSURE SWITCH WITH AUTOMATIC RESET
AFTER UNIT SHUTDOWN: YES

Pass

Comment:

DOAS 1,2 & 3: HIGH PRESSURE/LOW PRESSURE SWITCH - UNIT SHUTDOWN: YES

Pass

Comment:

DOAS 1,2 & 3: MAIN DRAIN PAN CONDENSATE OVERFLOW SWITCH - UNIT SHUTDOWN: YES

Pass

Comment:

DOAS 1,2 & 3: KITCHEN EXHAUST SYSTEM INTERLOCK: YES

Pass

Comment:



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 5 - DOAS1 FPT **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/12/2022 - Dan Hertenstein - National TAB

Completed Date : 06/22/2023 - Wesley John - National TAB

CheckList Item Details

Validate unoccupied, DOAS is off, OA damper is closed, RA damper is 100% open Pass

Comment:

Validate unoccupied - call for heat DOAS is on, RA damper is 100% open, OA damper is 100% closed Pass

Comment:

Validate unoccupied - call for cooling DOAS is on, RA damper is 100% open, OA damper is 100% closed Pass

Comment:

Validate Occupied, Hoods Off the OA damper is closed / RA damper is 100% open Pass

Comment:

MIN OPERATION: Drive all fan coils to Occupied-Hoods On mode, 50% hood exhaust

Validate and record the airflow/OA damper modulates to minimum OA position as set during TAB

Comment:

AIRFLOW 3578 CFM OA DAMPER POS 42%

Validate and record the the building pressure during this phase of operation

Comment:

0.013"

MODULATED OPERTION: Drive all fan coils to Occupied-Hoods on mode and add heat to the hood to slowly modulate exhaust fans from 50% to 100% drive

Validate and record the fan speed/OA damper incremental changes as the fan modulates to 100%

Comment:

50% 6.6 VDC 100% 8.4 VDC

Validate and record in 10% incremental increases the building pressure through the full range of modulation

Comment:

50% 0.011" 100% 0.006"

Additional Comments:

Comment:

HOOD EXHAUST FANS ONLY HAVE 2 SPEEDS.

MAX OPERATION: Drive all fan coils to Occupied-Hoods On mode, 100% hood exhaust

Validate and record the fan speed/OA damper final position as the fan modulates to 100%

Comment:

FAN SPEED 8.4 VDC OA DAMPER POS 100%

Validate and record the the building pressure during 100% hood operation

Comment:

0.006"

Additional Comments:

Comment:

Notes/Comments :

HVAC Plan shows DOAS 1 serving hood KEH5 and 4 diffusers, not ducted to FCU returns. FCU schedule indicates CU-1 (associated with DOAS 1) is providing OA to FCU's(oa-cfm): 1(420),2(420),3(420),4(10),5(60),6(90),7(775),8(775),9(270),10(180)

Date :06/22/2023



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 6 - DOAS2 FPT **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/14/2022 - Dan Hertenstein - National TAB

Completed Date : 06/22/2023 - Wesley John - National TAB

CheckList Item Details

Validate unoccupied, DOAS is off, OA damper is closed, RA damper is 100% open Pass

Comment:

NO RA DAMPER

Validate unoccupied - call for heat DOAS is on, RA damper is 100% open, OA damper is 100% closed N/A

Comment:

NO RA DAMPER

Validate unoccupied - call for cooling DOAS is on, RA damper is 100% open, OA damper is 100% closed N/A

Comment:

NO RA DAMPER

Validate Occupied, Hoods Off the OA damper is closed / RA damper is 100% open N/A

Comment:

NO RA DAMPER

MIN OPERATION: Drive all fan coils to Occupied-Hoods On mode, 50% hood exhaust

Validate and record the airflow/OA damper modulates to minimum OA position as set during TAB

Comment:

3783 CFM DAMPER 100%

Validate and record the the building pressure during this phase of operation

Comment:

0.011"

MODULATED OPERATION: Drive all fan coils to Occupied-Hoods on mode and add heat to the hood to slowly modulate exhaust fans from 50% to 100% drive

Validate and record the fan speed/OA damper incremental changes as the fan modulates to 100%

Comment:

FAN SPEED AND DAMPER ARE CONSTANT.

Validate and record in 10% incremental increases the building pressure through the full range of modulation

Comment:

DOAS-2 DOES NOT MODULATE.

Additional Comments:

Comment:

HOOD EXHAUST FANS ONLY HAVE 2 SPEEDS.

MAX OPERATION: Drive all fan coils to Occupied-Hoods On mode, 100% hood exhaust

Validate and record the fan speed/OA damper final position as the fan modulates to 100%

Comment:

FAN SPEED CONSTANT AT 10.0 VDC.

Validate and record the the building pressure during 100% hood operation

Comment:

0.006"

Additional Comments:

Comment:



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 7 - DOAS3 FPT **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/14/2022 - Dan Hertenstein - National TAB

Completed Date : 06/22/2023 - Wesley John - National TAB

CheckList Item Details

Validate unoccupied, DOAS is off, OA damper is closed, RA damper is 100% open Pass

Comment:

NO RA DAMPER

Validate unoccupied - call for heat DOAS is on, RA damper is 100% open, OA damper is 100% closed N/A

Comment:

NO RA DAMPER

Validate unoccupied - call for cooling DOAS is on, RA damper is 100% open, OA damper is 100% closed N/A

Comment:

NO RA DAMPER

Validate Occupied, Hoods Off the OA damper is closed / RA damper is 100% open N/A

Comment:

NO RA DAMPER

MIN OPERATION: Drive all fan coils to Occupied-Hoods On mode, 50% hood exhaust

Validate and record the airflow/OA damper modulates to minimum OA position as set during TAB

Comment:

4391 CFM DAMPER 100%

Validate and record the the building pressure during this phase of operation

Comment:

0.010"

MODULATED OPERTION: Drive all fan coils to Occupied-Hoods on mode and add heat to the hood to slowly modulate exhaust fans from 50% to 100% drive

Validate and record the fan speed/OA damper incremental changes as the fan modulates to 100%

Comment:

50% 6.9 VDC 100% 10.0 VDC OUTSIDE AIR DAMPER IS CONSTANT.

Validate and record in 10% incremental increases the building pressure through the full range of modulation

Comment:

50% 0.009" 100% 0.006"

Additional Comments:

Comment:

HOOD EXHAUST FANS ONLY HAVE 2 SPEEDS.

MAX OPERATION: Drive all fan coils to Occupied-Hoods On mode, 100% hood exhaust

Validate and record the fan speed/OA damper final position as the fan modulates to 100%

Comment:

FAN SPEED 10.0 VDC

Validate and record the the building pressure during 100% hood operation

Comment:

0.006"

Additional Comments:

Comment:

Report By:

National TAB
1329 E. KEMPER ROAD
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CINCINNATI, OH 45246



Report: VRF SOO CX
Function: Commissioning
Date: 10/10/2022

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04-10-23 CARVE AMERICAN GRILL -
AUSTIN, TX (TAB, CX)

4424 JACKSON AVE

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- 10 - VRF CONTROL LOOPS
- 11 - VRF OPERATING MODE



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 8 - VRF SAFETIES, OVERRIDES, AND INTERLOCKS **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/10/2022 - Dan Hertenstein - National TAB

Completed Date :

CheckList Item Details

LEAK DETECTION INTERLOCK

THE UNIT IS AUTOMATICALLY DISABLED UPON DETECTION OF HIGH LEVEL WATER IN PRIMARY DRAIN PAN. Pass

Comment:

SMOKE DETECTION INTERLOCK

THE UNIT IS AUTOMATICALLY DISABLED VIA HARD WIRE INTERLOCK AT THE FAN START CIRCUIT ON ACTIVATION OF A SYSTEM SMOKE DETECTOR Pass

Comment:

FIRE ALARM CONTROL PANEL

INTERLOCK UNITS WITH FIRE ALARM CONTROL PANEL. IF A DUCT MOUNTED SMOKE DETECTOR IS TRIGGERED DE-ENERGIZE ANY ASSOCIATED FCU/OA DEVICE Pass

Comment:



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 9 - VRF DDC & CONTROL POINTS LIST **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/10/2022 - Dan Hertenstein - National TAB

Completed Date :

CheckList Item Details

DDC COMMUNICATION

FCU'S SHALL START PRIOR TO THE SCHEDULED OCCUPANCY BASED ON VRF'S HAVE BEEN FURNISHED WITH DDC CONTROLLERS Yes

Comment:

VRF OEM SUPPLIED GATEWAY TO COMMUNICATE WITH TRANE BAS SYSTEMS

Comment:

YES. (UNITS ARE LG).

VRF OEM HAS PROVIDED A MNET SUBNETWORK TO CONNECT ALL CONDENSERS AND AIR HANDLERS FOR EACH SYSTEM Yes

Comment:

MNEST SUBNETWORK IS PULLED INTO THE BACNet AND VISIBLE ON THE COMMON FRONT END. Yes

Comment:

VRF POINTS LIST - ZONE LEVEL SENSORS

ZONE TEMPERATURE POINT TYPE IS TYPE ANALOG VIRTUAL (AV)

Comment:

ZONE TEMPERATURE AV SETPOINT FOLLOWS SCHEDULED VALUES

Yes

Comment:

ZONE TEMPERATURE ALARM STATUS IS INDICATED WHEN ZONE TEMP <> SETPOINT RANGE

Yes

Comment:

VRF POINTS LIST - LEAK DETECTION

FCU-COND: CONDENSATE OVERFLOW DETECTION IS A BINARY INPUT TYPE CONTROL POINT

Comment:

UPON OVERFLOW CONDITION, ALARM STATUS IS INDICATED AND SIGNAL SENT/RECIEVED.

Comment:

UNABLE TO TEST. OVERFLOW DETECTION MODULES ARE INTERNAL TO FCU.

VRF POINTS LIST - AIR SENSING

Yes

Comment:

POINT TYPE ARE ANALOG INPUT (AI)

Comment:

SAT - SUPPLY AIR TEMPERATURE IS CONFIGURED AND ADJUSTABLE

Yes

Comment:

SAH - ZONE HUMIDITY IS CONFIGURED AND ADJUSTABLE

Yes

Comment:

VRF CONTROL SETPOINTS - BAS MONITORING, MANAGEMENT, AND ALARM WITH VRF CONTROLLER

ALL POINTS ARE OF TYPE BINARY VIRTUAL (BV)

Comment:

VRF FAN COIL UNIT STATUS IS CONFIGURED AND READABLE, POINT ID: FCU-ST-"X" FCU

Yes

Comment:

VRF FAN COIL UNIT ALARM STATUS IS CONFIGURED AND READABLE, POINT ID: FCU-ALM-"X" FCU Yes

Comment:

LIST ALL ALARMS THAT ARE REPORTED

Comment:

NONE REPORTED.

VRF FAN COIL MODE IS CONFIGURED AND READABLE, POINT ID: FCU-MODE-"X" FCU Yes

Comment:

COMPRESSOR STATUS IS CONFIGURED AND READABLE, POINT ID: CU-ST-"X" FCU Yes

Comment:

VRF POINTS LIST - FIRE ALARM/SMOKE

CONFIRM RETURN AIR DUCT SMOKE DETECTOR STATUS POINT ID: SD-RA

Comment:

CONFIRM POINT TYPE IS CONFIGURED AS BINARY INPUT (BI)

Comment:

CONFIRM ALARM IS SENT, RECIEVED, AND REPORTED "ON ACTIVATION" Yes

Comment:



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 10 - VRF CONTROL LOOPS **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/10/2022 - Dan Hertenstein - National TAB

Completed Date :

CheckList Item Details

CONTROL LOOPS - RESETS

FCU'S SHALL START PRIOR TO SCHEDULED OCCUPANCY BASED ON THE TIME NECESSARY FOR THE ZONES TO REACH THEIR OCCUPIED SETPOINTS Pass

Comment:

HEAT MODE: LIST THE SPACE TEMPERATURE OFFSET, BELOW THE SPACE SETPOINT, AND TIME PRIOR TO OCCUPANCY DETERMINED FOR FCU STARTUP.

Comment:

COOL MODE: LIST THE SPACE TEMPERATURE OFFSET, ABOVE THE SPACE SETPOINT, AND TIME PRIOR TO OCCUPANCY DETERMINED FOR FCU STARTUP.

Comment:

COMPONENT CONTROL LOOPS: FAN COIL UNIT CONTROL

OCCUPIED: FCU SHALL DELIVERY CONSTANT VOLUME OF AIR WITH VARIABLE REFRIGERATION TO MAINTAIN A MINIMUM 55 DEGREE S.A.T. (DURING FULL COOLING), A MAXIMUM OF 70 S.A.T (DURING LOW DEMAND COOLING) AND A MAXIMUM SUPPLY AIR DEWPOINT OF 58 DEG F (DURING ALL COOLING PERIODS). Pass

Comment:

UNOCCUPIED: FAN SHALL BE "OFF". ON "CALL FOR COOLING/HEATING" OR "OVERRIDE PERIOD", THE FCU SHALL OPERATE AS IN OCCUPIED PERIOD UNTIL SPACE IS SATISFIED OR OVERRIDE IS REMOVED. DOAS OA UNIT SHALL REMAIN OFF.

Pass

Comment:

FILTER MONITORING

OCCUPIED/UNOCCUPIED MODE: FAN RUNTIME SHALL BE MONITORED AND REPORTED TO PROVIDE MAINTENANCE REMINDERS AT 50% OF FILTER ELAPSE TIME OF 1100 HOURS (ADJUSTABLE) AND AN ALARM AT 100% OF ELAPSED TIME OF 2200 HOURS (ADJUSTABLE).

Comment:

FAN RUNTIMES ARE MONITORED FOR FILTER CHANGE ALERT PURPOSES HOWEVER THEY DO NOT APPEAR TO BE NECESSARILY GIVEN AT 1100 AND 2200 HOURS.

VALIDATE RUNTIME REPORT, ALERT AND ALARM ARE OPERATIONAL FOR ALL UNITS

Pass

Comment:



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 11 - VRF OPERATING MODE **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/10/2022 - Dan Hertenstein - National TAB

Completed Date : 06/22/2023 - Wesley John - National TAB

CheckList Item Details

OCCUPIED MODE

OCCUPANCY PERIODS HAVE BEEN PROGRAMMED PER SCHEDULED REQUIREMENTS Yes

Comment:

FCU SPACE CONTROLLER

IDENTIFY THE OEM AND MODEL OF THE SPACE THERMOSTAT/CONTROLLER

Comment:

M/N: PACS5A000 S/N: 206KBGW54159

IDENTIFY LOCATION OF THE OEM PROVIDED CONTROLLER ARE AS INDICATED BY PLAN

Comment:

MANAGERS OFFICE

COOLING MODE

INDICATE THE OCCUPIED COOLING SETPOINT OF EACH FCU (IE. FCU#: Sensible: >__deg-On / <__deg-Off, Dehumidification: >__% RH-ON / <__% RH-OFF)

Comment:

SET POINT 69.0 F SENSIBLE: >70 DEG ON, <68 DEG OFF DEHUM: >60% ON, <58% OFF

VALIDATE DURING OCCUPIED PERIODS, HOODS "ON" THE DOAS-OA UNIT SERVING THE ACTIVE SYSTEM IS "ON" WITH THE OA DAMPER 100% OPEN, RA DAMPER CLOSED. FAN COILS ARE RUNNING AT CONSTANT SPEED

Pass

Comment:

VALIDATE DURING OCCUPIED COOLING PERIOD - HOOD "OFF" THE DOAS-OA UNIT SERVING THE ACTIVE SYSTEM IS "OFF" WITH THE OA DAMPERS CLOSED, RA DAMPERS 100% OPEN, FAN COILS ARE AT CONSTANT SPEED.

Pass

Comment:

INDICATE THE UNOCCUPIED COOLING SETPOINT OF EACH FCU (IE. FCU#: Sensible: > __deg-On / < __deg-Off, Dehumidification: > __% RH-ON / < __% RH-OFF)

Comment:

SET POINT 75.0 F SENSIBLE: >76 DEG ON, <74 DEG OFF DEHUM: >60% ON, <58% OFF

VALIDATE DURING UNOCCUPIED COOLING PERIOD THE DOAS-OA UNIT SERVING THE ACTIVE SYSTEM IS "OFF" WITH OA DAMPERS CLOSED, RA DAMPERS 100% OPEN. DURING CALL FOR COOLING FAN COIL SHOULD RUN UNTIL THE SPACE IS SATISFIED

Pass

Comment:

HEATING MODE

INDICATE THE OCCUPIED HEATING SETPOINT OF EACH FCU (IE. FCU#: Sensible: < __deg-On / > __deg-Off)

Comment:

SET PONT 66.0 F SENSIBLE: <65.0 F-ON / >67.0 F-OFF

VALIDATE DURING HEATING OCCUPIED MODE WITH HOODS "ON" THE DOAS-OA UNIT SERVING THE ACTIVE SYSTEM IS "ON" AND THE OA DAMPERS ARE 100% OPEN, RA DAMPERS ARE CLOSED. FAN COILS ARE RUNNING AT CONSTANT SPEED.

Pass

Comment:

VALIDATE DURING OCCUPIED HEATING PERIOD - HOOD "OFF" THE DOAS-OA UNIT SERVING THE ACTIVE SYSTEM IS "OFF" WITH THE OA DAMPERS CLOSED, RA DAMPERS 100% OPEN. FAN COIL SHOULD RUN AT CONSTANT SPEED

Pass

Comment:

INDICATE THE UNOCCUPIED HEATING SETPOINT OF EACH FCU (IE. FCU#: Sensible: < __deg-On / > __deg-Off)

Comment:

SET POINT 63.0 F SENSIBLE: <62.0 F-ON / >64.0 F-OFF

VALIDATE DURING UNOCCUPIED-HEATING MODE THE DOAS-OA UNIT SERVING THE ACTIVE SYSTEM IS "OFF" WITH OA DAMPER CLOSED, RA DAMPER 100% OPEN. DURING CALL FOR HEATING THE FAN COIL SHOULD RUN UNTIL THE SPACE IS SATISFIED

Pass

Comment:

HEAT PUMP OPERATION LOW HEAT DEMAND AND DEFROST

VALIDATE DURING LOW HEAT DEMAND THAT AUXILLARY HEATING COIL IS KEPT "OFF" TO ALLOW THE HEATING DEMAND TO BE MET THROUGH HEAT PUMP HEAT CYCLE.

Pass

Comment:

VALIDATE DURING LOW HEAT DEMAND THAT DURING CALL FOR DEFROST AUXILLARY HEATING COIL IS ENERGIZED.

Pass

Comment:

Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
CINCINNATI, OH 45246



Report: VRF Fan Coil Cx Test

Function: Commissioning

Date: 02/18/2023

PROJECT

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

4424 JACKSON AVE

AUSTIN, TX 78731

Client

Perrys Steakhouse
9805 Katy Freeway, Suite 650

Houston, TX 77024

National TAB

Project: 04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

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- 13 - VRF BS1A/CU-4: FCU1,2,3,4,5,6 FPT
- 14 - VRF BS1B/CU-4: FCU7,8,9,10 FPT
- 15 - VRF BS-3/CU-6: FCU11,12,13,15 FPT



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 12 - VRF [BRANCH FITTINGS] CU-5: FCU 14,16,17,18 FPT **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/10/2022 - Dan Hertenstein - National TAB

Completed Date : 06/29/2023 - Wesley John - National TAB

CheckList Item Details

Does unit turn on/off by BAS occupancy command Pass

Comment:

Unit local override is disabled per plan note O, control method #2, Sheet M2.1 Pass

Comment:

When unit and supply fan is running, is the space temperature control enabled? Pass

Comment:

Record the space DB/WB/RH near the sensor from the thermostat and record the Commissioning agents space reading near each sensor and attach the report to this checklist item.

Comment:

FCU-14: 69.0 F SENSOR 70.8 F / 57.1% FCU-16: 69.0 F SENSOR 70.2 F / 57.8% FCU-17: 69.0 F SENSOR 70.6 F / 58.1% FCU-18: 69.0 F SENSOR 70.6 F / 57.9%

If any sensor in the above test failed to meet the required tolerance has it been reported and resolved

Comment:

N/A

Does the auxiliary drain pan and moisture detector shut down the FCU and alarm the BAS

Pass

Comment:

OCCUPIED / HOODS "ON" TEST CU-5 BRANCH FITTINGS (100% SPACE DEMAND)

Record distribution valve positions for each FCU during: Full Cool, Dehumidification, Full Heat (visual inspection and BMS position)

Comment:

With all units at 100% demand, record the load voltage and amperage of the connected condensing units compressor

Comment:

COMPRESSOR A 486/487/486 9.1/9.3/9.0 COMPRESSOR B 486/487/486 8.0/7.8/7.7

FCU14: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 71.3 SAT 56.8 DEHUM EAT 71.8 RH 58.6% SAT 67.9 RH 51.4% HEAT EAT 72.2 SAT 98.4

FCU16: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 72.1 SAT 57.0 DEHUM EAT 71.8 RH 58.0% SAT 67.2 RH 52.0% HEAT EAT 71.9 SAT 99.1

FCU17: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 71.5 SAT 56.7 DEHUM EAT 72.0 RH 57.8% SAT 67.0 RH 51.8% HEAT EAT 72.2 SAT 99.5

FCU18: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 71.8 SAT 56.5 DEHUM EAT 72.3 RH 58.9% SAT 68.4 RH 52.1% HEAT EAT 71.7 SAT 99.0

OCCUPIED / HOODS "OFF" TEST CU-5 BRANCH FITTINGS (REDUCED DEMAND)

Cycle FCU14 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-5) compressor load voltage and amperage

Comment:

COMPRESSOR A 487/486/486 7.2/7.4/7.5 COMPRESSOR B 487/486/486 6.8/6.5/6.5

Record BMS discharge temperature of FCU14 and the position of the distribution valve

Comment:

74.8

Cycle FCU14 & 16 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-5) compressor load voltage and amperage

Comment:

COMPRESSOR A 486/486/487 6.9/7.0/6.8 COMPRESSOR B 486/486/487 6.0/6.5/6.3

Record BMS discharge temperature of FCU14 and 16 and the position of the distribution valve for each

Comment:

FCU-14 74.1 FCU-16 74.6

Cycle FCU14,16, & 17 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-5) compressor load voltage and amperage

Comment:

COMPRESSOR A 487/485/487 4.2/4.4/4.5 COMPRESSOR B 487/485/487 3.7/3.5/3.4

Record BMS discharge temperature of FCU14,16 & 17 and the position of the distribution valve for each

Comment:

FCU-14 75.1 FCU-16 75.3 FCU-17 74.8

Cycle FCU14,16,17, & 18 so that heat/cool/dehumidification are off: Validate that the connected condenser (CU-5) is "off" Pass

Comment:

Record BMS discharge temperature of FCU14,16,17 & 18 and the position of the distribution valve for each

Comment:

FCU-14 75.4 FCU-16 75.5 FCU-17 75.0 FCU-18 75.3

DEFROST

Validate that the Fan Coil Heat Pump cycles on Pass

Comment:

Validate that the auxillary Electric Heat cycles on Pass

Comment:

BAS SYSTEM

Attach report from BAS system showing 24 hour run time log for all Fan Coils during normal operation

Comment:

Notes/Comments :

UNABLE TO OBSERVE DISTRIBUTION VALVE POSITIONS.

Date :06/29/2023



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 13 - VRF BS1A/CU-4: FCU1,2,3,4,5,6 FPT **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/14/2022 - Dan Hertenstein - National TAB

Completed Date : 07/20/2023 - Wesley John - National TAB

CheckList Item Details

Does unit turn on/off by BAS occupancy command Pass

Comment:

Unit local override is disabled per plan note O, control method #2, Sheet M2.1 Pass

Comment:

When unit and supply fan is running, is the space temperature control enabled? Pass

Comment:

Record the space DB/WB/RH near the sensor from the thermostat and record the Commissioning agents space reading near each sensor and attach the report to this checklist item.

Comment:

FCU-1 SENSOR 70 70.2 / 57.5% FCU-2 SENSOR 70 70.6 / 58.1% FCU-3 SENSOR 70 70.1 / 57.8% FCU-4 SENSOR 70 70.6 / 58.2%
FCU-5 SENSOR 70 69.9 / 57.6% FCU-6 SENSOR 70 70.4 / 57.2%

If any sensor in the above test failed to meet the required tolerance has it been reported and resolved

Comment:

N/A

Does the auxiliary drain pan and moisture detector shut down the FCU and alarm the BAS Pass

Comment:

OCCUPIED / HOODS "ON" TEST CU-5 BRANCH FITTINGS (100% SPACE DEMAND)

Record distribution valve positions for each FCU during: Full Cool, Dehumidification, Full Heat (visual inspection and BMS position)

Comment:

UNABLE TO OBSERVE DISTRIBUTION VALVE POSITIONS.

With all units at 100% demand, record the load voltage and amperage of the connected condensing units compressor

Comment:

CU-4(M) COMPRESSOR A 488/487/487 14.2/14.0/14.3 COMPRESSOR B 488/487/487 12.4/12.7/12.9 CU-4(SL) COMPRESSOR A 488/487/488 10.8/10.4/10.6 COMPRESSOR B 488/487/488 8.8/8.9/8.6

FCU1: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 72.0 SAT 56.8 DEHUM EAT 71.3 RH 58.7% SAT 70.8 RH 52.8% HEAT EAT 71.7 SAT 98.4

FCU2: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 72.4 SAT 56.1 DEHUM EAT 71.5 RH 57.6% SAT 71.1 RH 52.4% HEAT EAT 71.0 SAT 99.2

FCU3: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 71.4 SAT 56.0 DEHUM EAT 70.9 RH 58.2% SAT 71.2 RH 51.3% HEAT EAT 71.0 SAT 95.6

FCU4: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 72.5 SAT 55.8 DEHUM EAT 72.1 RH 58.7% SAT 71.4 RH 53.0% HEAT EAT 71.2 SAT 99.6

FCU5: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 72.5 SAT 56.1 DEHUM EAT 72.2 RH 57.6% SAT 71.3 RH 53.1% HEAT EAT 71.1 SAT 96.8

FCU6: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 72.3 SAT 56.3 DEHUM EAT 72.5 RH 58.0% SAT 71.8 RH 51.9%

OCCUPIED / HOODS "OFF" TEST CU-5 BRANCH FITTINGS (REDUCED DEMAND)

Cycle FCU1 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-4) compressor load voltage and amperage

Comment:

CU-4(M) COMPRESSOR A 487/487/488 12.9/12.6/12.4 COMPRESSOR B 487/487/488 11.1/10.8/10.3 CU-4(SL) COMPRESSOR A 487/486/487 9.9/9.5/9.7 COMPRESSOR B 487/486/487 8.1/8.3/8.0

Record BMS discharge temperature of FCU11 and the position of the distribution valve

Comment:

SAT 73.4 UNABLE TO OBSERVE DISTRIBUTION VALVE POSITION.

Cycle FCU1 & 2 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-4) compressor load voltage and amperage

Comment:

CU-4(M) COMPRESSOR A 488/487/488 11.4/11.2/11.5 COMPRESSOR B 488/487/488 10.4/10.2/10.0 CU-4(SL) COMPRESSOR A 487/487/476 9.0/8.8/8.9 COMPRESSOR B 487/486/486 7.5/7.2/7.3

Record BMS discharge temperature of FCU1 and 2 and the position of the distribution valve for each

Comment:

FCU-1 SAT 72.5 FCU-2 SAT 71.9 UNABLE TO OBSERVE DISTRIBUTION VALVES.

Cycle FCU1, 2, & 3 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-4) compressor load voltage and amperage

Comment:

CU-4(M) COMPRESSOR A 487/487/488 9.8/9.3/9.1 COMPRESSOR B 488/488/487 8.4/8.6/8.7 CU-4(SL) COMPRESSOR A 487/486/486 7.4/7.7/7.8 COMPRESSOR B 487/486/487 6.8/6.5/5.4

Record BMS discharge temperature of FCU1,2 & 3 and the position of the distribution valve for each

Comment:

FCU-1 SAT 72.4 FCU-2 SAT 71.8 FCU-3 SAT 72.5 UNABLE TO OBSERVE DISTRIBUTION VALVE POSITIONS.

Cycle FCU1, 2, 3, & 4 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-4) compressor load voltage and amperage

Comment:

CU-4(M) COMPRESSOR A 488/488/487 6.2/6.8/6.4 COMPRESSOR B 488/488/487 6.1/5.7/5.6 CU-4(SL) COMPRESSOR A 487/487/487 5.9/5.4/5.5 COMPRESSOR B 487/486/486 5.2/5.4/5.7

Record BMS discharge temperature of FCU1,2, 3, & 4 and the position of the distribution valve for each

Comment:

FCU-1 SAT 71.8 FCU-2 SAT 71.1 FCU-3 SAT 72.2 FCU-4 SAT 72.0 UNABLE TO OBSERVE DISTRIBUTION VALVE POSITIONS.

Cycle FCU1, 2, 3,4, & 5 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-4) compressor load voltage and amperage

Comment:

CU-4(M) COMPRESSOR A 487/487/488 3.1/3.5/3.4 COMPRESSOR B 488/488/488 4.5/4.3/4.4 CU-4(SL) COMPRESSOR A 487/488/488 3.8/3.7/3.8 COMPRESSOR B 487/487/487 4.9/4.8/4.8

Record BMS discharge temperature of FCU1,2, 3, 4, & 5 and the position of the distribution valve for each

Comment:

FCU-1 SAT 71.4 FCU-2 SAT 71.6 FCU-3 SAT 70.9 FCU-4 SAT 71.2 FCU-5 SAT 70.6

Cycle FCU1,2,3,4,5 & 6 so that heat/cool/dehumidification are off: Validate that the connected condenser (CU-4) is "off" Pass

Comment:

Record BMS discharge temperature of FCU 1,2,3,4,5,& 6 and the position of the distribution valve for each

Comment:

FCU-1 SAT 72.0 FCU-2 SAT 72.0 FCU-3 SAT 72.0 FCU-4 SAT 72.0 FCU-5 SAT 72.0 FCU-6 SAT 72.0 UNABLE TO OBSERVE DISTRIBUTION VALVE POSITIONS.

DEFROST

Validate that the Fan Coil Heat Pump cycles on Pass

Comment:

Validate that the auxillary Electric Heat cycles on Pass

Comment:

PASS

BAS SYSTEM

Attach report from BAS system showing 24 hour run time log for all Fan Coils during normal operation

Comment:

UNABLE TO GENERATE REPORT.



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 14 - VRF BS1B/CU-4: FCU7,8,9,10 FPT **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/10/2022 - Dan Hertenstein - National TAB

Completed Date : 07/20/2023 - Wesley John - National TAB

CheckList Item Details

Does unit turn on/off by BAS occupancy command Pass

Comment:

Unit local override is disabled per plan note O, control method #2, Sheet M2.1 Pass

Comment:

When unit and supply fan is running, is the space temperature control enabled? Pass

Comment:

Record the space DB/WB/RH near the sensor from the thermostat and record the Commissioning agents space reading near each sensor and attach the report to this checklist item.

Comment:

FCU-7: SENSOR 69 F / SPACE 69.8 F 53.9% FCU-8: SENSOR 69 F / SPACE 70.2 F 54.1% FCU-9: SENSOR 70 F / SPACE 70.7 F 54.0 % FCU-10: SENSOR 69 F / SPACE 69.6 F 53.7%

If any sensor in the above test failed to meet the required tolerance has it been reported and resolved

Comment:

N/A

Does the auxiliary drain pan and moisture detector shut down the FCU and alarm the BAS Pass

Comment:

YES

OCCUPIED / HOODS "ON" TEST CU-4 BRANCH FITTINGS (100% SPACE DEMAND)

Record distribution valve positions for each FCU during: Full Cool, Dehumidification, Full Heat (visual inspection and BMS position)

Comment:

UNABLE TO OBSERVE DISTRIBUTION VALVE POSITIONS.

With all units at 100% demand, record the load voltage and amperage of the connected condensing units compressor

Comment:

CU-4(M) COMPRESSOR A 488/486/487 14.5/14.3/14.0 COMPRESSOR B 488/486/486 12.1/11.9/11.7 CU-4(SL) COMPRESSOR A 488/487/488 10.9/10.4/10.5 COMPRESSOR B 488/487/488 8.8/8.4/8.6

FCU7: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 72.4 SAT 56.2 DEHUM EAT 72.2 RH 58.4% SAT 71.2 RH 53.2% HEAT EAT 72.1 SAT 98.7

FCU8: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 72.4 SAT 55.7 DEHUM EAT 72.4 RH 57.9% SAT 72.1 RH 54.9% HEAT EAT 72.1 SAT 99.8

FCU9: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 71.9 SAT 55.8 DEHUM EAT 72.3 RH 58.0 % SAT 71.4 RH 55.2% HEAT EAT 71.9 SAT 100.4

FCU10: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 71.4 SAT 55.7 DEHUM EAT 71.7 RH 59.1% SAT 70.9 RH 56.1% HEAT EAT 72.1 SAT 100.0

OCCUPIED / HOODS "OFF" TEST CU-4 BRANCH FITTINGS (REDUCED DEMAND)

Cycle FCU7 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-4) compressor load voltage and amperage

Comment:

CU-4(M) COMPRESSOR A 487/487/488 13.8/13.4/13.5 COMPRESSOR B 487/488/487 11.9/11.7/11.7 CU-4(SL) COMPRESSOR A 488/488/487 9.8/10.1/9.6 COMPRESSOR B 488/488/487 8.0/8.4/8.7

Record BMS discharge temperature of FCU7 and the position of the distribution valve

Comment:

FCU-7 73.0 UNABLE TO OBSERVE DISTRIBUTION VALVE

Cycle FCU7 & 8 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-4) compressor load voltage and amperage

Comment:

CU-4(M) COMPRESSOR A 487/487/486 10.1/10.6/10.4 COMPRESSOR B 487/486/486 10.7/10.5/10.4 CU-4(SL) COMPRESSOR A 487/487/487 7.5/7.7/7.8 COMPRESSOR B 487/486/487 7.1/6.8/6.8

Record BMS discharge temperature of FCU7 and 8 and the position of the distribution valve for each

Comment:

FCU-7 73.0 FCU-8 72.0 UNABLE TO OBSERVE DISTRIBUTION VALVE.

Cycle FCU7,8, & 9 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-4) compressor load voltage and amperage

Comment:

CU-4(M) COMPRESSOR A 486/486/487 9.4/9.5/9.1 COMPRESSOR B 487/487/486 8.9/8.4/8.6 CU-4(SL) COMPRESSOR A 486/487/486 7.1/7.0/7.1 COMPRESSOR B 486/487/487 6.8/6.7/6.9

Record BMS discharge temperature of FCU7,8 & 9 and the position of the distribution valve for each

Comment:

FCU-7 72.0 FCU-8 72.0 FCU-9 72.0 UNABLE TO OBSERVE DISTRIBUTION VALVE.

Cycle FCU7,8,9, & 10 so that heat/cool/dehumidification are off: Validate that the connected condenser (CU-4) is "off" Pass

Comment:

Record BMS discharge temperature of FCU7,8,9 & 10 and the position of the distribution valve for each

Comment:

FCU-7 72.0 FCU-8 72.0 FCU-9 72.0 FCU-10 72.0 UNABLE TO OBSERVE DISTRIBUTION VALVES.

DEFROST

Validate that the Fan Coil Heat Pump cycles on Pass

Comment:

Validate that the auxillary Electric Heat cycles on Pass

Comment:

BAS SYSTEM

Attach report from BAS system showing 24 hour run time log for all Fan Coils during normal operation

Comment:

UNABLE TO GENERATE REPORT.



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 15 - VRF BS-3/CU-6: FCU11,12,13,15 FPT **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/10/2022 - Dan Hertenstein - National TAB

Completed Date : 07/20/2023 - Wesley John - National TAB

CheckList Item Details

Does unit turn on/off by BAS occupancy command Pass

Comment:

Unit local override is disabled per plan note O, control method #2, Sheet M2.1 Pass

Comment:

When unit and supply fan is running, is the space temperature control enabled? Pass

Comment:

Record the space DB/WB/RH near the sensor from the thermostat and record the Commissioning agents space reading near each sensor and attach the report to this checklist item.

Comment:

FCU-11 DB 70.2 RH 54.2% FCU-12 DB 70.5 RH 55.1% FCU-13 DB 70.4 RH 54.8% FCU-15 DB 70.3 RH 54.6%

If any sensor in the above test failed to meet the required tolerance has it been reported and resolved

Comment:

N/A

Does the auxiliary drain pan and moisture detector shut down the FCU and alarm the BAS Pass

Comment:

OCCUPIED / HOODS "ON" TEST CU-5 BRANCH FITTINGS (100% SPACE DEMAND)

Record distribution valve positions for each FCU during: Full Cool, Dehumidification, Full Heat (visual inspection and BMS position)

Comment:

UNABLE TO OBSERVE DISTRIBUTION VALVE POSITIONS.

With all units at 100% demand, record the load voltage and amperage of the connected condensing units compressor

Comment:

488/487/487 17.3/17.1/16.9

FCU11: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 72.4 SAT 56.4 DEHUM EAT 72.0 RH 56.1% SAT 70.2 RH 52.1 % HEAT EAT 72.1 SAT 100.2

FCU12: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 71.9 SAT 55.9 DEHUM EAT 71.7 RH 57.8% SAT 69.9 RH 55.5% HEAT EAT 71.9 SAT 97.6

FCU13: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 72.4 SAT 55.6 DEHUM EAT 72.2 RH 58.0% SAT 70.3 RH 55.4% HEAT EAT 71.8 SAT 98.5

FCU15: Test 1 - COOLING EAT & SAT / Test 2 - DEHUMIDIFICATION EAT/RH% & SAT/RH% / Test 3 - FULL HEAT EAT & SAT

Comment:

COOLING EAT 72.0 SAT 56.1 DEHUM EAT 72.3 RH 57.2% SAT 70.1 RH 54.6% HEAT EAT 72.1 SAT 99.4

OCCUPIED / HOODS "OFF" TEST CU-5 BRANCH FITTINGS (REDUCED DEMAND)

Cycle FCU11 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-6) compressor load voltage and amperage

Comment:

487/487/488 15.8/15.2/15.4

Record BMS discharge temperature of FCU11 and the position of the distribution valve

Comment:

FCU-11 72.0 UNABLE TO OBSERVE DISTRIBUTION VALVE POSITION.

Cycle FCU11 & 12 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-6) compressor load voltage and amperage

Comment:

487/488/488 14.8/14.5/14.4

Record BMS discharge temperature of FCU11 and 12 and the position of the distribution valve for each

Comment:

FCU-11 72.0 FCU-12 72.0 UNABLE TO OBSERVE DISTRIBUTION VALVE POSITION.

Cycle FCU11,12, & 13 so that heat/cool/dehumidification are off: Record the connected condenser unit (CU-6) compressor load voltage and amperage

Comment:

487/488/488 10.9/10.7/10.5

Record BMS discharge temperature of FCU11,12 & 13 and the position of the distribution valve for each

Comment:

FCU-11 72.0 FCU-12 72.0 FCU-13 72.0 UNABLE TO OBSERVE DISTRIBUTION VALVE POSITION.

Cycle FCU11,12,13, & 15 so that heat/cool/dehumidification are off: Validate that the connected condenser (CU-6) is "off" Pass

Comment:

Record BMS discharge temperature of FCU11,12,13 & 15 and the position of the distribution valve for each

Comment:

FCU-11 72.0 FCU-12 72.0 FCU-13 72.0 FCU-15 72.0 UNABLE TO OBSERVE DISTRIBUTION VALVE POSITION.

DEFROST

Validate that the Fan Coil Heat Pump cycles on Pass

Comment:

Validate that the auxillary Electric Heat cycles on Pass

Comment:

BAS SYSTEM

Attach report from BAS system showing 24 hour run time log for all Fan Coils during normal operation

Comment:

UNABLE TO GENERATE REPORT.

Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
CINCINNATI, OH 45246



Report: KVS Cx Test
Function: Commissioning
Date: 02/18/2023

PROJECT
04-10-23 CARVE AMERICAN GRILL -
AUSTIN, TX (TAB, CX)

4424 JACKSON AVE

AUSTIN, TX 78731

Client

Perrys Steakhouse
9805 Katy Freeway, Suite 650
Houston, TX 77024

National TAB

Project: 04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

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CheckList List

- 1 - KITCHEN HOOD FPT
- 2 - KITCHEN HOOD PCU-EXHAUST FPT



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 1 - KITCHEN HOOD FPT **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/10/2022 - Dan Hertenstein - National TAB

Completed Date :

CheckList Item Details

All hood accessories are properly installed Yes

Comment:

The hood is flush against the wall and caulked to prevent any smoke / grease to accumulate behind the hood Yes

Comment:



HOOD_CAULK
06/13/2023

Captive-Aire Startup Report has been completed and added to this checklist

Comment:

CONTACTED CAPTIVE-AIRE TO ASK FOR START UP REPORT. THEY SENT AN E-COPY OF THE MAUALS.

Hood TAB was completed and set to within design rates

Yes

Comment:

TAB firm and commissioning firm completed and observed hot smoke test with 100% capture rate

Pass

Comment:

Kitchen hood On/Off switch is properly interlocked to energize/de-energize the hood exhaust fans and MUA simultaneously.

Pass

Comment:

Hood Lights properly function

Pass

Comment:

Hood has automatic temperature sensing to turn the hood on/off based on heat demand

Pass

Comment:

Hood life safety test was performed with all proper interlocks per local fire code

Pass

Comment:



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 2 - KITCHEN HOOD PCU-EXHAUST FPT **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/10/2022 - Dan Hertenstein - National TAB

Completed Date :

CheckList Item Details

INSTALLATION OF PCU

ORIENTATION OF FILTERED POLLUTION CONTROL UNIT (PCU) IS CORRECT Yes

Comment:



FILTER_ORIENTATION.jp..
06/13/2023

NEW FILTERS HAVE BEEN INSTALLED AS PER OEM REQUIREMENTS (TYPE, SIZE, QUANTITY) Yes

Comment:

DRAIN KIT IS INSTALLED IN THE BOTTOM OF THE PCU TO ALLOW CLEANING OF UNIT AND DISPOSAL OF WATER/CLEANING AGENT.

Yes

Comment:



DRAIN_KIT
06/13/2023

UNIT HAS A INTEGRATED FIRE SUPPRESSION SYSTEM WHICH HAS BEEN TAGGED AND INSPECTED BY THE CITY OFFICIAL

Yes

Comment:



FIRE_SUPPRESSION
06/13/2023

VALIDATE ALL FILTER SECTIONS ARE EASILY ACCESSIBLE AND FILTERS CAN BE EASILY REMOVED AND INSTALLED FOR EACH PANEL

Yes

Comment:

VALIDATE THEIR IS A MINIMUM OF 18" CLEARANCE AROUND ALL SIDES TO MAINTAIN THE CLEARANCE FROM COMBUSTABLE REQUIREMENTS. NOTE, FILTER ACCESS DOORS SHOULD HAVE MINIMUM 36" CLEARANCE FOR SERVICE.

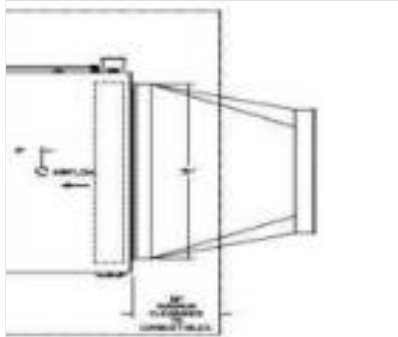
Yes

Comment:

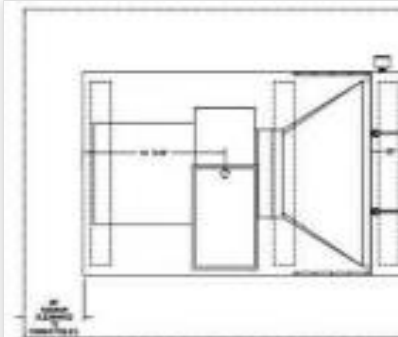
VALIDATE THAT INLET AND DISCHARGE TRANSITIONS TO AND FROM THE PCU ARE AS DETAILED WITH PROPER STRAIGHT LENGTHS AT EACH END

Yes

Comment:



PCU_INLET_DETAIL
10/12/2022



PCU_DISCHARGE_DETAIL...
10/12/2022

OPERATION OF PCU

WITH THE HOOD TURNED ON AND EXHAUST FAN RUNNING. RECORD THE DIFFERENTIAL PRESSURE ACROSS FILTERS SECTION #1 (CAPTRATE SOLO FILTERS - MERV 8) ESTIMATED DP: 0.203" W.C.

Comment:

PCU-1: 0.208" PCU-2: 0.189"

WITH THE HOOD TURNED ON AND EXHAUST FAN RUNNING. RECORD THE DIFFERENTIAL PRESSURE ACROSS FILTERS SECTION #2 (HIGH EFFICIENCY FILTERS - MERV 15) ESTIMATED DP: 0.133" W.C.

Comment:

PCU-1: 0.217" PCU-2: 0.137"

WITH THE HOOD TURNED ON AND EXHAUST FAN RUNNING. RECORD THE DIFFERENTIAL PRESSURE ACROSS FILTERS SECTION #3 (HEPA FILTERS - MERV 18) ESTIMATED NEW DP: 0.408" W.C.

Comment:

PCU-1: 0.326" PCU-2: 0.309"

WITH THE HOOD TURNED ON AND EXHAUST FAN RUNNING. RECORD THE DIFFERENTIAL PRESSURE ACROSS FILTERS SECTION #4 (DC 100% CARBON) ESTIMATED NEW DP: 0.382" W.C.

Comment:

PCU-1: 0.323" PCU-2: 0.363"

WITH THE HOOD TURNED ON AND EXHAUST FAN RUNNING. RECORD THE DIFFERENTIAL PRESSURE ACROSS FILTERS SECTION #4 (DC 100% CARBON PANEL) ESTIMATED NEW DP: 0.706" W.C.

Comment:

PCU-1: 0.574" PCU-2: 0.495"

CONFIRM TOTAL DP ACROSS ENTIRE PCU IS NEAR THE MFG CALCULATED VALUE OF 1.832" W.C.

Comment:

PCU-1: 1.648" PCU-2: 1.493"

STARTUP REPORT

INSERT THE CAPTIVE-AIRE STARTUP REPORT

Comment:

CALLED CAPTIVE-AIRE TO GET START UP REPORT. THEY SENT UNIT MANUALS.

STARTUP REPORT HAS BEEN REVIEWED BY CX AGENT AND VALIDATED ALL MONITORS, CONTROLS, AND SYSTEMS ARE FUNCTIONING AS REPORTED

No

Comment:

INSTALLATION OF EXHAUST FAN

EXHAUST FAN IS INSTALLED AND SECURED WITH PROPER DISTANCE AND TRANSITION OF GREASE DUCT BETWEEN THE PCU AND EXHAUST FAN

Yes

Comment:

EXHAUST FAN DISCHARGE IS A MINIMUM 10FT FROM ALL FRESH AIR INTAKE OR A MINIMUM OF 36" ABOVE FRESH AIR INTAKES AND OPERATING WINDOWS

Yes

Comment:

MOTOR IS ACCESSIBLE FOR PROPER SERVICE

Yes

Comment:

FAN ISOLATION SPRINGS HAVE BEEN INSTALLED AT THE BASE OF THE FAN

Comment:

VIBRATION DAMPING PADS USED IN PLACE OF SPRINGS.



VIBRATION_PADS
06/13/2023

GREASE CUP HAS BEEN INSTALLED ON THE BOTTOM OF THE FAN BLOWER HOUSING

Yes

Comment:

OPERATION OF EXHAUST FAN

FAN ROTATION HAS BEEN VERIFIED AND IS CORRECT

Yes

Comment:

NO UNUSUAL NOISE OR VIBRATION IS OCCURRING DURING FAN STARTUP AND FULL SPEED OPERATION

Pass

Comment:

CAPTIVE-AIRE STARTUP REPORT HAS BEEN COMPLETED AND ADDED TO THIS CHECKLIST

No

Comment:

TAB REPORT HAS BEEN COMPLETED WITH AIRFLOW WITHIN DESIGN TOLERANCE

Yes

Comment:

MOTOR RUNNING AMP LOAD IS BELOW THE FULL LOAD RATING OF THE FAN'S MOTOR

Yes

Comment:

Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
CINCINNATI, OH 45246



Report: General Purpose Fans & Patio Heaters Cx Test

Function: Commissioning

Date: 02/18/2023

PROJECT

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

4424 JACKSON AVE

AUSTIN, TX 78731

Client

Perrys Steakhouse
9805 Katy Freeway, Suite 650

Houston, TX 77024

National TAB

Project: 04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

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| General Purpose Fans & Patio Heaters | 3 |

CheckList List

- 3 - GENERAL PURPOSE EXHAUST FANS FPT
- 16 - Patio Heaters FPT



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 3 - GENERAL PURPOSE EXHAUST FANS FPT **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/12/2022 - Dan Hertenstein - National TAB

Completed Date :

CheckList Item Details

Fan labeled / tagged properly & BAS Tag Matches physical label?

Comment:

FANS ARE LABELED. FANS ARE NOT CONTROLLABLE. RUN 24/7.

Manufacturer

Comment:

CAPTIVE-AIRE

Serial Number

Comment:

5243916

Unit is balanced and reported on the TAB report

Yes

Comment:

Measured electrical tolerance is acceptable and below full load of motor rating

Yes

Comment:

Fan is properly fastened to curb and sealed to prevent air leakage

Yes

Comment:

If exhaust fan required to be interlocked with occupied timer clock or occupancy switch. Verify interlock On/Off operates as intended

Comment:

FANS OPERATE 24/7. EF-1 (RESTROOMS) SHOULD BE INTERLOCKED WITH TIME CLOCK AND SET TO BUILDING OCCUPANCY. EF-2 (DISHWASHER) SHOULD BE INTERLOCKED WITH DISHWASHER OPERATION. SEE SHEET M-2.1 FAN SCHEDULE NOTES H AND I.

Does BAS graphically show that fan is on?

Fail

Comment:

Is BAS programmed for fan to run on a schedule?

Fail

Comment:

In hand, does fan start/stop manually?

Comment:

FANS RUN WHEN POWER IS APPLIED TO UNIT. THERE IS NO HAND MODE.

When manually turned on/off, does BAS visually show that fan is on/off?

Fail

Comment:

General comments

Comment:



Comfort. Under control.

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : 16 - Patio Heaters FPT **Status :** Completed

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

Created Date : 10/18/2022 - Dan Hertenstein - National TAB

Completed Date :

CheckList Item Details

All unit heaters installed per plan: Type, Model, Location Pass

Comment:

Remote Sensors installed in the office, accessible and properly labeled

Comment:

PATIO HEATER CONTROLLERS ARE MOUNTED IN SERVER AREA IN BAR DINING. CONTROLLERS ARE NOT LABELED.

Stage each remote sensor on/off and ensure each remote sensor is correctly assigned to each patio heater

Comment:

ALL CONTROLLERS ENABLE PATIO HEATERS. THEY ARE UNLABELED.

Patio heaters stage to full heat and fully off on command Pass

Comment:

Record outdoor temperature and unit heater and Leaving temperature measured 1 foot from heating element with all Patio heaters staged to full heating:

PH1

Comment:

OUTDOOR 81.4 F HEATER 111.4 F

PH2

Comment:

OUTDOOR 81.4 F HEATER 108.6 F

PH3

Comment:

OUTDOOR 81.4 F HEATER 109.3 F

PH4

Comment:

OUTDOOR 81.4 F HEATER 112.9 F

PH5

Comment:

OUTDOOR 81.4 F HEATER 110.1 F

PH6

Comment:

OUTDOOR 81.4 F HEATER 107.8 F

Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
CINCINNATI, OH 45246



Report: Hot Water & Gas Line Cx

Function: Commissioning

Date: 07/24/2023

PROJECT

04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

4424 JACKSON AVE

AUSTIN, TX 78731

Client

Perrys Steakhouse
9805 Katy Freeway, Suite 650

Houston, TX 77024

National TAB

Project: 04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

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CheckList List

- Connected Gas Line (FIV)
- DOMESTIC - HOT WATER FPT



04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : Connected Gas Line (FIV) **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 10/18/2022 - Dan Hertenstein - National TAB
Completed Date : 07/20/2023 - Wesley John - National TAB

CheckList Item Details

CONNECTED GAS LINE CFH VERIFICATION - VERIFY CONNECTED APPLIANCE AND RATED INPUT/OUTPUT CFH.

COOKLINE: ITEM 108, 1", 70 CFH EACH (X 3 UNITS)

Comment:

YES

COOKLINE: ITEM 109, 1.25", 180 CFH EACH

Comment:

YES

COOKLINE: ITEM 110, 0.75", 50 CFH EACH

Comment:

YES

COOKLINE: ITEM 112, 1", 120 CFH

Comment:

YES

COOKLINE: ITEM 115, 0.75", 50 CFH

Comment:

YES

COOKLINE: ITEM 118, 1.25", 160 CFH

Comment:

YES

COOKLINE: ITEM 119, 1", 84 CFH

Comment:

YES

COOKLINE: ITEM 63, 1.25", 215 CFH

Comment:

YES

COOKLINE: ITEM 60, 1", 110 CFH EACH (X2)

Comment:

YES

COOKLINE: ITEM 59, 0.75", 50 CFH EACH (X2)

Comment:

YES

PATIO: ITEM FP, 1", 102 CFH EACH (X2)

Comment:

YES

PATIO: ITEM PH, 0.75", 40 CFH EACH (X 6)

Comment:

PATIO HEATERS ARE ELECTRIC.

TOTAL CONNECTED LOAD OF ALL APPLIANCES: 1833 CFH

Comment:

TOTAL CONNECTED LOAD OF ALL GAS APPLIANCES: 1773 CFH. DISCREPANCY DUE TO PATIO HEATERS BEING ELECTRIC. ALSO GRILL UNDER HOOD-1 CHANGED FROM SOLID FUEL TO GAS (180 CFH).



04-10-23 CARVE AMERICAN GRILL - AUSTIN, TX (TAB, CX)

CheckList Information

Name : DOMESTIC - HOT WATER FPT **Status :** Completed
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB
Created Date : 10/14/2022 - Dan Hertenstein - National TAB
Completed Date : 07/20/2023 - Wesley John - National TAB

CheckList Item Details

IS BACKFLOW PREVENTOR CERTIFIED

No

Comment:

NO CERTIFICATION TAG FOUND. PLUMBER SHOULD PROVIDE PROOF OF CITY TEST.



BACKFLOW_PREVENTOR.jp..
07/19/2023

RECORD THE STATIC WATER PRESSURE SET AT THE INLET CW PRV

Comment:

NO PRV OR PRESSURE GAUGE PRESENT.

RECORD THE RUNNING WATER PRESSURE (65 PSI MINIMUM)

Comment:

N/A

VALIDATE THE EXPANSION TANK IS OF TYPE AMITROL ST-25V, 10.3 GALLON TANK SIZE

Comment:

DATA TAG OF EXPANSION TANK USED IS UPLOADED.



EXPANSION_TANK
07/19/2023

EXPANSION TANK CHARGE PRESSURE IS SET TO THE SAME PSI AS THE PRV STATIC WATER INLET PRESSURE

Comment:

NO PRV INSTALLED. EXPANSION TANK PRESSURE MEASURED AT 58 PSI.

VERIFY THE AQUASTAT IS TYPE: HONEYWELL L6006C

Comment:

MANUFACTURER: RESIDEO



AQUASTAT
07/19/2023

AQUASTAT SETPOINT: RECIRCULATION PUMP "OFF" SET TO HW HEATER SETPOINT: 140 DEG

Comment:

YES

AQUASTAT SETPOINT: RECIRCULATION PUMP "ON" SET TO 10 DEG BELOW HW SETPOINT: 130 DEG

Comment:

YES

VALIDATE THE AQUASTAT WILL ENERGIZE AND DE-ENERGIZE THE RECIRCULATION PUMP AT TEMPERATURE INTERVALS INDICATED

Comment:

YES

OCCUPANCY TIMER INSTALLED AND OPERATING FOR OPERATION OF THE RECIRCULATION PUMP

Comment:

YES

VALIDATE THE RECIRCULATION PUMP IS OF TYPE BELL & GOSSETT PL-30, 120V/1P, 1/6 HP FLOW RATE OF 5 GPM.

Comment:

ARMSTRONG ASTRO 280SS 115V/1P 218 W



RECIRCULATION_PUMP.jp..
07/19/2023

HOT WATER HEATER ALARMS INSTALLED AND OPERATING (ALARM BELOW 120 DEG F., SHUT-OFF ALARM ABOVE 125 DEG F.)

Comment:

YES



WH-2_FAULT
07/19/2023

VALIDATE ELECTRIC WATER HEATER ARE OF TYPE A.O. SMITH DRE-80-36

Comment:

WATER HEATERS ARE NATURAL GAS. MANUFACTURER: RHEEM M/N: GHE100SU-200



WH_DATA_TAG
07/19/2023

VALIDATE ELECTRIC HW TANK SIZE IS 80 GALLONS FOR EACH WATER HATER

Comment:

CAPACITY FOR BOTH IS 100 GALLONS.

VALIDATE EACH TANK IS 480V/3P/36KW

Comment:

WATER HEATERS ARE NATURAL GAS 120V

VERIFY THE HW ELECTRIC HEATER HIGH LIMIT TEMPERATURE CUT-OFF TEMPERATURE

Comment:

UNABLE TO FIND INFO ON HIGH LIMIT CUT OFF TEMP.

HW HEATER OPERATING TEMP SET TO 140 DEG

Comment:

ADJUSTED DOWN TO 140 FROM 150.

VERIFY ADJUSTABLE TEMPERATURE MIXING VALVES OF TYPE TMV-2 ARE INSTALLED AT EACH TRIPLE AND VEGITABLE SINK AND SET TO 140 DEG F.

Comment:

YES

WITH THE HW HEATERS TEMP BELOW 135 DEG, TURN ON THE TRIPLE SINK FAUCET, MEASURE THE RESPONSE TIME TO ACHIEVE 140+ DEG WATER TEMPERATURE

Comment:

1M 12S

VERIFY AUTOMATIC TEMPERATURE MIXING VALVES OF TYPE TMV-1 ARE INSTALLED AT ALL HAND WASH STATIONS (PRESET TO 110 DEG F).

Comment:

YES

WITH THE HW HEATERS TEMP BELOW 135 DEG, TURN ON A HAND WASH SINK AND MEASURE THE RESPONSE TIME TO ACHIEVE 110 DEG HAND SINK TEMPERATURE. (AUTOMATIC TMV-1)

Comment:

38S

TRIPLE SINK HW TEMP (140 DEG STPT)

Comment:

YES

HAND SINK - KITCHEN WORK AREA 3 (110 DEG STPT)

Comment:

YES

VEGEGATABLE SINK - KITCHEN WORK AREA 3 (140 DEG STPT)

Comment:

YES

HAND SINK - OPEN KITCHEN BACK LINE (110 DEG STPT)

Comment:

YES

HAND SINK - OPEN KITCHEN COOKLINE (110 DEG STPT)

Comment:

YES

HAND SINK - OPEN KITCHEN HOOD RIGHT (110 DEG STPT)

Comment:

YES

MENS RR (110 DEG STPT)

Comment:

YES

WOMENS RR (110 DEG STPT)

Comment:

YES
