

BULLETIN

Temperature Controls (Chilled / Hot Water)

(05-07-2013)

This bulletin is to advise you of the fees and responsibilities associated with the tenant's temperature controls.

Tenant Responsibility:

1. Unit power is by tenant. Tenant to provide permanent power prior to Roth Bros. commissioning.
 - a. A power whip (wires enclosed in some form of flexible protection) from the units disconnect.
2. Tenant shall provide a 2" x 4" junction box mounted vertical with conduit stubbed to ceiling space for each temperature sensor (installed by division 16). **The location of this box must be the same as the location indicated of the final approved construction drawings. If relocation is necessary then this must be approved by the landlord and a change order issued by the tenant before the sensor will be moved.**
3. Tenant shall have ceiling, walls, ductwork and electrical equipment powered to HVAC equipment completed and ready for installation.
4. Tenant shall contact Roth upon receiving approved Landlord drawings for pricing in order to avoid possible delays for material acquisition, which, can take 3 – 4 weeks.
5. Tenant will manually open chilled water valves 100% before performing final system flushing.
6. Contractor/Tenant shall provide 72 hour written notice by tenant's contractor to Roth when tenant space is ready for temperature controls commissioning.
7. Temperature controls material will be based from the Landlord approved drawings which the Tenant shall delivered to Roth.
8. Tenant shall provide the following information for equipment purchase:
 - a. Tenant name and space number
 - b. Number AHU units.
 - c. AHU Submittals for units to be installed
 - d. GPM per AHU
 - e. Estimated start time.
 - f. Estimated completion date.
 - g. General contractor name and phone number
 - h. Mechanical contractor name and phone number
9. Fax copy of all completed items to Roth at 330-799-3369 or email to simontenant@rothbros.com
10. Submit complete payment to Roth Bros., Inc. in order to initiate equipment order and schedule work. Fax 330-799-3369 or email simontenant@rothbros.com.
11. A **check** is to be issued for the Total Price before Roth proceeds with parts order.
12. The payment must be in the form of a certified check or company check (no personal checks). Please send checks attention:

Roth, a Sodexo Company
3821 Crum Road
Youngstown, Ohio 44515
Attn: Laura Fonce
Toll Free: (855) 463-2222

Note: If Roth responds to tenant's request for temperature control commissioning and the above requirements are not complete or requires partial commissioning of the control system or any problems are created by other contractors the applicable fees will be billed.

Roth Responsibility:

1. Provide Schneider Electric controller per unit.
2. Provide Space Temperature Sensor per unit.
3. Provide Supply Air Temperature Sensor per unit.
4. Provide Mixed Air Temperature Sensor per unit.
5. Provide Duct Low Temperature (freezestat).

6. Provide control transformer.
7. Provide all control cable.
8. Provide chilled water / hot water valve.
9. Provide outside air damper actuator.
10. Provide return air damper actuator.
11. Provide return and supply water temperature sensors.
12. All programming.
13. System commissioning.
14. Provide control drawing.

Simon Responsibility:

1. Facilitate work between tenant contractor and Roth Bros.

Tenant Contractors Responsibility:

1. Controls installation.
2. Valve Installation
3. On-site Commissioning with a Roth Representative via phone

Call Toll Free: (855) 463-2222

Tell Receptionist "you are calling to commission the controls for a Simon Tenant"

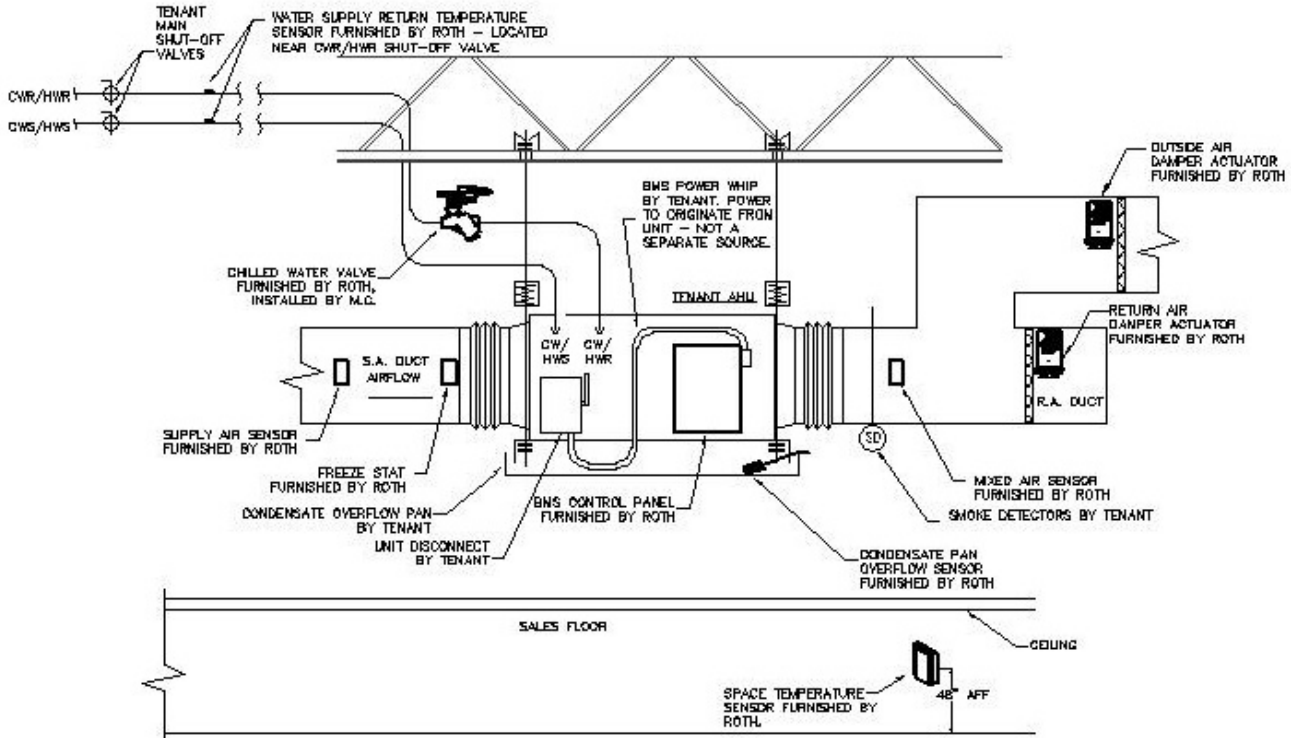
EXCLUSIONS:

The following items are not included:

1. Air Handler Unit supplied by owner
2. Fire Alarm tie-in
3. Installation of Air Handler Unit
4. Air and water balance (by Landlord Designated Contractor)
5. Disconnect/Starter for unit
6. Any scope deviations from the final bid set of Tenant Drawings provided to Roth by Tenant Architect or Engineers.

Appendix I

Typical Unit Layout



See Appendix V for installation and supplier responsibilities.

Note:

- NO circuit setters are needed for this project. All Valves are ordered to fit the size of coils and the GPM
- Control Termination Drawings will be furnished with the equipment

Appendix II

EMS Equipment Specification and Cost Breakdown

Item	Note	Qty	Device	First Unit Cost	Cost Additional Per AHU Unit
1	3	1	i2804 Air Handler Andover controller *	\$ 771.00 /unit	\$ 771.00 /unit *
2	3	1	TTS-SE-1 Schneider Space Sensor	\$ 42.00 /unit	\$ 42.00 /unit
3	3	3	Supply/Mixed/Return Air Temp Sensor	\$ 30.00 /unit	\$ 30.00 /unit
4	3	1	Low Limit (Freezestat)	\$ 80.00 /unit	\$ 80.00 /unit
5	3	2	Supply/Return Water Temp Sensor	\$ 8.00 /unit	\$ 8.00 /unit
6	3	1	Transformer	\$ 20.00 /unit	\$ 20.00 /unit
7	3	1	Enclosure/Interface Panel Components	\$ 200.00 /unit	\$ 200.00 /unit
8	3	1	Fan/Heat relays	\$ 20.00 /unit	\$ 20.00 /unit
9	2	100'	Infinet Communication Cable Model#D-73601-OR "Great Lakes Wire & Cable"	\$ 140.00 /unit	\$ 140.00 /unit
10	1	1	Condensate Overflow Sensor	\$ 22.00 /unit	\$ 22.00 /unit
19	3	12pt	Terminal strip communication	\$ 20.00 /unit	\$ 20.00 /unit
20	3	1	Fan Status CT	\$ 35.00 /unit	\$ 35.00 /unit
11	1	200'	Control Cable: 2 conductor, 18 awg, plenum, stranded	\$ 50.00 /unit	\$ 50.00 /unit
12	1	100'	Control Cable: 4 conductor, 18 awg, plenum, stranded	\$ 89.00 /unit	\$ 89.00 /unit
13	3		Control engineering labor	\$ 200.00 /unit	\$ 100.00 /unit
14	3		Commissioning labor	\$ 400.00 /unit	\$ 219.00 /unit
15	3		Programming labor	\$ 300.00 /unit	\$ 250.00 /unit
16	3		Panel Labor	\$ 100.00 /unit	\$ 100.00 /unit
17	3	1	Chilled Water Valve **	See Appendix III	See Appendix III **
18	3	2	Outside Air damper actuator (NFB24)	\$ 363.00 /unit	\$ 363.00 /unit
SubTotal				\$2,890.00	\$2,559.00
*** Total Price				Subtotal + Valve	Subtotal + Valve ***

* Based on the equipment which controller will be needed.

** Valve price will vary depending on Tenants Mechanical design plan

*** Total Price to tenant will be determined once the final Tenants Mechanical design plan

Notes:

1. Tenant may purchase from other vendor.
2. If infinet communication cable is not purchased through Roth Bros., Inc., contractor must follow cable specification. Please have Roth Bros., approve cable prior to purchase.
3. Item supplied by Roth Bros., Inc. – No Exception

Roth contact information:

Roth, a Sodexo Company
Simon Property Group "Tenant Coordinator"
3821 Crum Road
Youngstown, Ohio 44515
Toll Free: (855) 463-2222
Office: 330-270-4905
Fax: 330-799-3369

Appendix III

Valve Pricing Schedule

Model	GPM	Valve Size	Price
P2050B005	0.5	1/2"	\$293.00
P2050B010	1	1/2"	\$293.00
P2050B015	1.5	1/2"	\$306.00
P2050B020	2	1/2"	\$306.00
P2050B025	2.5	1/2"	\$306.00
P2050B030	3	1/2"	\$306.00
P2050B035	3.5	1/2"	\$306.00
P2050B040	4	1/2"	\$306.00
P2050B045	4.5	1/2"	\$306.00
P2050B050	5	1/2"	\$306.00
P2050B055	5.5	1/2"	\$306.00
P2075B060	6	3/4"	\$317.00
P2075B065	6.5	3/4"	\$317.00
P2075B070	7	3/4"	\$317.00
P2075B075	7.5	3/4"	\$317.00
P2075B080	8	3/4"	\$317.00
P2075B085	8.5	3/4"	\$317.00
P2075B090	9	3/4"	\$317.00
P2075B095	9.5	3/4"	\$317.00
P2075B100	10	3/4"	\$317.00
PICCV-25-011-PT LRX24-MFT	11	1"	\$360.00
PICCV-25-012-PT LRX24-MFT	12	1"	\$360.00
PICCV-25-013-PT LRX24-MFT	13	1"	\$360.00
PICCV-25-014-PT LRX24-MFT	14	1"	\$360.00
PICCV-25-015-PT LRX24-MFT	15	1"	\$360.00
PICCV-25-016-PT LRX24-MFT	16	1"	\$360.00
PICCV-25-017-PT LRX24-MFT	17	1"	\$360.00
PICCV-25-018-PT LRX24-MFT	18	1"	\$360.00
PICCV-25-019-PT LRX24-MFT	19	1"	\$360.00
PICCV-32-018-PT ARX24-MFT	18	1-1/4"	\$660.00
PICCV-32-019-PT ARX24-MFT	19	1-1/4"	\$660.00
PICCV-32-020-PT ARX24-MFT	20	1-1/4"	\$660.00
PICCV-32-021-PT ARX24-MFT	21	1-1/4"	\$660.00
PICCV-32-022-PT ARX24-MFT	22	1-1/4"	\$660.00
PICCV-32-023-PT ARX24-MFT	23	1-1/4"	\$660.00
PICCV-32-024-PT ARX24-MFT	24	1-1/4"	\$660.00
PICCV-32-025-PT ARX24-MFT	25	1-1/4"	\$660.00
PICCV-32-026-PT ARX24-MFT	26	1-1/4"	\$660.00

Appendix III (cont.)

Valve Pricing Schedule

Model	GPM	Valve Size	Price
PICCV-40-026-PT ARX24-MFT	26	1-1/2"	\$707.00
PICCV-40-027-PT ARX24-MFT	27	1-1/2"	\$707.00
PICCV-40-028-PT ARX24-MFT	28	1-1/2"	\$707.00
PICCV-40-029-PT ARX24-MFT	29	1-1/2"	\$707.00
PICCV-40-030-PT ARX24-MFT	30	1-1/2"	\$707.00
PICCV-40-031-PT ARX24-MFT	31	1-1/2"	\$707.00
PICCV-40-032-PT ARX24-MFT	32	1-1/2"	\$707.00
PICCV-40-033-PT ARX24-MFT	33	1-1/2"	\$707.00
PICCV-50-033-PT ARX24-MFT	33	2"	\$797.00
PICCV-50-034-PT ARX24-MFT	34	2"	\$797.00
PICCV-50-035-PT ARX24-MFT	35	2"	\$797.00
PICCV-50-036-PT ARX24-MFT	36	2"	\$797.00
PICCV-50-037-PT ARX24-MFT	37	2"	\$797.00
PICCV-50-038-PT ARX24-MFT	38	2"	\$797.00
PICCV-50-039-PT ARX24-MFT	39	2"	\$797.00
PICCV-50-040-PT ARX24-MFT	40	2"	\$797.00
PICCV-50-044-PT ARX24-MFT	44	2"	\$2,104.00
PICCV-50-048-PT ARX24-MFT	48	2"	\$2,104.00
PICCV-50-052-PT ARX24-MFT	52	2"	\$2,104.00
PICCV-50-056-PT ARX24-MFT	56	2"	\$2,104.00
PICCV-50-060-PT ARX24-MFT	60	2"	\$2,104.00
PICCV-50-065-PT ARX24-MFT	65	2"	\$2,104.00
PICCV-50-070-PT ARX24-MFT	70	2"	\$2,104.00
PICCV-50-075-PT ARX24-MFT	75	2"	\$2,104.00
PICCV-50-080-PT ARX24-MFT	80	2"	\$2,104.00
PICCV-50-090-PT ARX24-MFT	90	2"	\$2,104.00
PICCV-50-100-PT ARX24-MFT	100	2"	\$2,104.00

Appendix IV

Typical Sequence of Operation

Air Handler Control:

When the Occupy is On, the supply Fan will be enabled. Once the Fan is proven On, Outside Air Temperature will determine if the Outside Air Damper and/or the CHWV/HWV will operate to maintain their respective setpoints(adj.). If the Mixed Air Temperature is less than 40 Degrees or the Freeze Stat Sensor is Proven On then, the Supply Fan will be Shutdown. The Float, when reaching the upper limit shall turn off the fan.

Outside and Return Air Dampers Control:

If the Supply Fan has proven On, the Outside Air Damper will modulate to Minimum Position (adj.) If the Outside Air Temperature is below the EconLockout (adj), the Outside Air Damper will modulate to maintain the MAT at Mixed Air Setpt. as reset by space temperature. If the Outside Air Temperature is above the EconLockout, the Outside Air Damper will be closed to Minimum Position. If the Supply Fan has proven Off, the Outside Air Damper will be closed completely.

Chilled Water Valve / Hot Water Valve Control:

If the Supply Fan has proven On, the CHWV/HWV will modulate to maintain Discharge Air Setpt (adj.) If the Supply Fan has proven Off, the CHWV/HWV will be closed completely. The CHWV/HWV will open for freeze protection.

Changeover Cooling Heating:

Local supply water temperature to determine mode of operation

Appendix V

Responsibility Matrix

Task Description	Tenant Mech. Furnish	Tenant Mech. Install	Roth DDC Furnish	Roth DDC Install	Tenant Elect. Furnish	Tenant Elect. Install
HVAC DDC Controls						
DDC Control Hardware (Control Panels)		x	x			
PCIV 2 way Control Valve Actuator		x	x			
EMS Communication cabling		x	x			
EMS Control cabling		x	x			
120v/240v/277v/480v to Control Panel					x	x
AHUs	x	x				
Duct Heater (if required)	x	x				
Outside Air Damper	x	x				
Return Air Damper	x	x				
CHW/HW Control Valve		x	x			
Starters and or Contactors	x	x				
120v/240v/277v/480v to Control Panel					x	x
Unit Startup	x	x				
Conduits and back box for T-Stat/Sensor					x	x
Test and Balance	x					
Terminal Boxes VAV / FPB (if required)	x	x				
DDC Controller		x	x			
Flow Cross	x	x				
120v/240v/277v/480v to Control Panel					x	x
Conduits and back box for T-Stat/Sensor					x	x
Test and Balance	x	x				
Fire Alarm System / Smoke Detectors						
Hardware - Smoke Duct Detectors					x	x
Addressable equipment shut down relays					x	x
Power / Shutdown Cabling					x	x
Remote Reset	x					x
Controls Commissioning	x	x	x		x	x

Appendix VI

Potential construction change order and Warranty

Any changes required due to mechanical engineering revisions or tenant equipment changes may constitute additional Roth fees for material, engineering, software and commissioning.

LIMITED WARRANTY - Roth warrants its devices, if properly used and installed, to be free from defects in material and workmanship for a period of time at 1 year of invoice.

This limited warranty does not cover any failure(s) or defect(s) caused by misuse, accident, abnormal use, improper handling, neglect, abuse, alteration, improper installation, unauthorized repair or modification, improper testing or causes external to the product such as, but not limited to, excessive heat or humidity, power failures, power surges or acts of God. This limited warranty will be void if evidence is seen by manufacturer, burned-out chips, evidence of repair work performed or damage caused by a party other than the Tenants contractor

Roth reserves the right to request the total cost of the replacement products in advance. If the manufacturer later determines the device to have been a manufactured defect, Roth will reimburse the Tenant contractor. In order to obtain a warranty replacement refund, the device must be returned to Roth for factory examination and determination of cause of defect.

Appendix VII

Sequence of Events

1. Contact Roth for pricing.
2. Elec. rough-in temperature sensor conduits prior to sheetrock and stub-out above ceiling.
3. Mechanical rough-in of ductwork
4. Control rough-in of communication and stat wiring
5. Mechanical equipment installation
6. Mechanical complete piping, ductwork, smoke detectors, & drain pan.
7. Control power installed adjacent to controller location, unit and duct heater power completed and smoke detectors wired to unit for shutdown.
8. Prior to ceiling grid, the control panel, unit sensors, dampers and valves should all be installed.
9. Complete mechanical start-up – fan rotation, etc. are completed by unit manufacturer or certified mechanical contractor.
10. Contact Roth to commission the controls via phone

Call Toll Free: (855) 463-2222

Tell Receptionist "you are calling to commission the controls for a Simon Tenant"

I have read this bulletin and understand all of its contents

General Contractor - _____

Representative - _____

Mechanical Contractor - _____

Representative - _____

Electrical Contractor - _____

Representative - _____