

# BULLETIN

## Temperature Controls (Chilled Water)

(3/11/2010)

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 or a dedicated circuit from the tenants breaker panel must be in place prior to installation.
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 will manually open chilled water valves 100% before performing final system flushing.
5. CA/Tenant shall provide 72 hour written notice by tenant's contractor to Roth Bros., Inc. when tenant space is ready for temperature controls installation.
6. Tenant shall provide the following information for equipment purchase:
  - a. Tenant name and space number
  - b. Number FCU units.
  - c. FCU Submittals for units to be installed
  - d. GPM per FCU
  - e. Estimated start time.
  - f. Estimated completion date.
  - g. General contractor name and phone number
  - h. Mechanical contractor name and phone number.
7. Fax copy of all completed items to Roth at 330-799-3369 or email to *JFitzgerald@rothbros.com*.
8. Submit complete payment to Roth Bros in order to initiate equipment order and schedule work. Fax 330-799-3369 or email *JFitzgerald@rothbros.com*.
9. A **check** is to be issued for the Total Price before Roth proceeds with parts order.
10. The payment must be in the form of a certified check or company check (no personal checks). Please send checks attention - *Laura Fonce*
11. All low voltage step-down transformers will be factory mounted and ordered by the tenant. A 75va transformer is required with terminations provided for EMS 24vac power.

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

**Roth Bros. Responsibility:**

1. Provide Andover 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 control transformer.
6. Provide all control cable.
7. Provide chilled water valve.
8. Provide return water temperature sensor for all tenants.
9. All programming.
10. System commissioning.
11. Provide as-built drawing.
12. Provide installation labor after Tenant Electrical and Mechanical Rough in.  
See below Appendix I and V.
13. Tie-in of junction box to Landlord's system.

**Simon Responsibility:**

1. Facilitate work between tenant contractor and Roth Bros.

**EXCLUSIONS:**

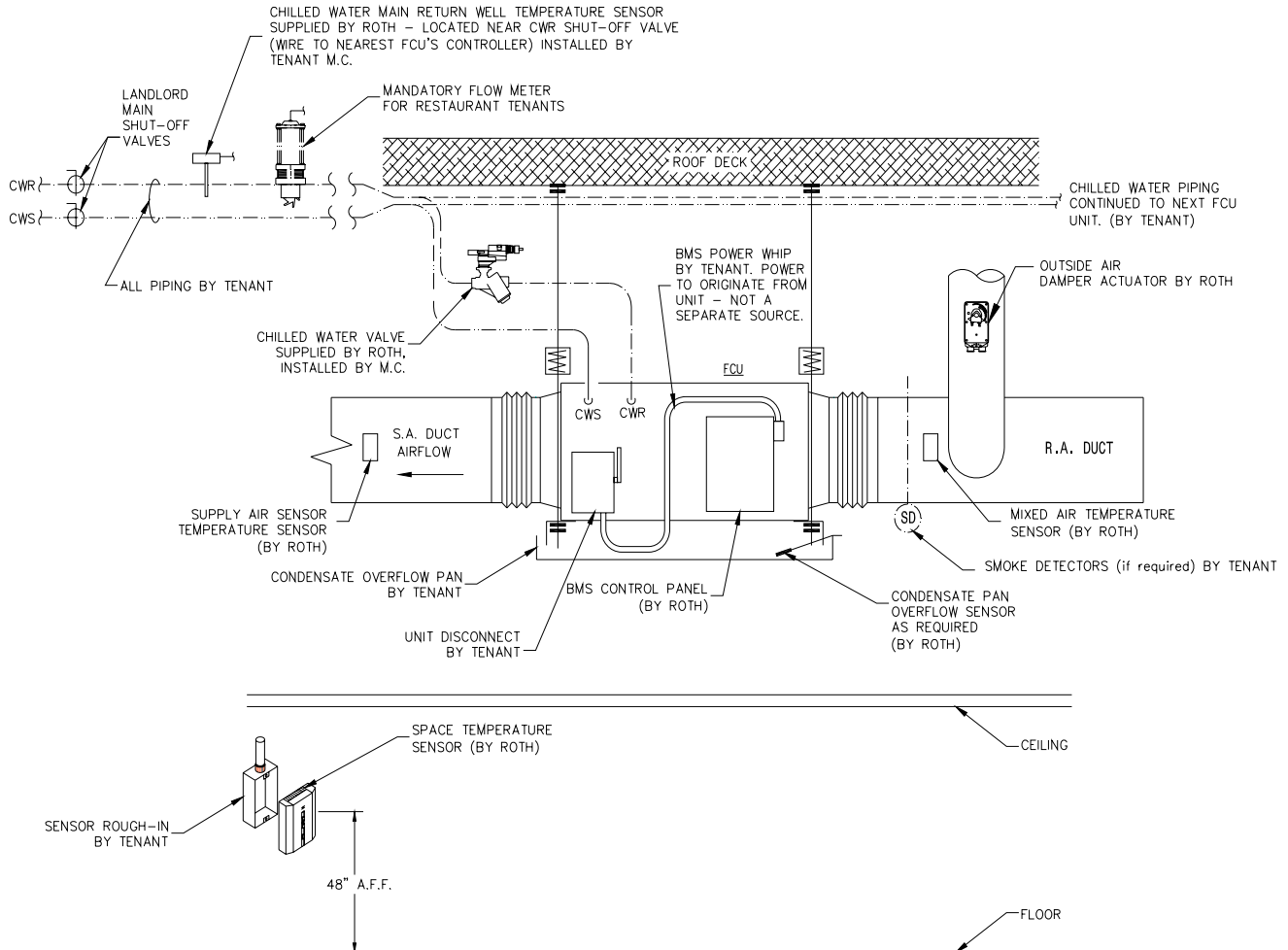
The following items are not included:

1. Fan Coil Unit supplied by owner
2. Smoke detectors or the installation and/or interlock wiring of smoke detectors
3. Fire Alarm tie-in
4. Installation of Fan Coil Unit
5. Air and water balance (by Simon contractor)
6. Disconnect/Starter for unit
7. After hours labor (All after hours labor will not commence until a signed purchase order has been sent to Roth Bros., Inc.)
8. Any scope deviations from the final bid set of Tenant Drawings provided to Roth by Tenant Architect or Engineers.

After Grand Opening or Partial Opening, additional fees will be applied.

# 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 required for a 16 deg.f. delta.
- NO valves will be installed until the tenant has provided the CA with a system flush report.

## Appendix II

### EMS Equipment Specification and Cost Breakdown

| Item | Note | Qty  | Device  | First Unit Cost    | Cost Additional per FCU Unit |
|------|------|------|---|--------------------|------------------------------|
| 1    | 3    | 1    | i2804/i2867 Fan Coil Andover controller                                 | \$767/unit (i2804) | \$271/unit (i2867)           |
| 2    | 3    | 1    | TTS-S Andover space sensor  | \$14/unit          | \$14/unit                    |
| 3    | 3    | 1    | TTS-Led-1 Andover Led Digital Display Sensor(Optional from TTS-S)       | \$45/Unit          | \$45/Unit                    |
| 4    | 3    | 2    | Discharge/Mixed Air Temp sensor   | \$29/unit          | \$29/unit                    |
| 5    | 3    | 1    | CHW Return Temp Sensor (1 <sup>st</sup> unit)                           | \$22/unit          | n/a                          |
| 6    | 3    | 1    | Condensate Pan Overflow   | \$20/unit          | \$20/unit                    |
| 8    | 1    | 1    | Enclosure   | \$72/unit          | \$72/unit                    |
| 9    | 1    | 3    | Fan/Heat relays   | \$55/unit          | \$55/unit                    |
| 10   | 2    | 100' | Infinet Communication Cable Model#D-73601-OR "Great Lakes Wire & Cable" | \$24/unit          | \$24/unit                    |
| 11   | 1    | 200' | Control Cable: 2 conductor, 18 awg, plenum, stranded                    | \$29/unit          | \$29/unit                    |
| 12   | 1    | 100' | Control Cable: 4 conductor, 18 awg, plenum, stranded                    | \$26/unit          | \$26/unit                    |
| 13   | 1    |      | Installation labor  | Per Mrkt Value     | Per Mrkt Value               |
| 14   | 3    |      | Control engineering labor   | \$80/unit          | \$65/unit                    |
| 15   | 3    |      | Commissioning labor   | \$300/unit         | \$150/unit                   |
| 16   | 3    |      | Programming labor   | \$200/unit         | \$80/unit                    |
| 17   | 3    |      | Panel Labor   | \$51/unit          | \$51/unit                    |
| 18   | 3    | 1    | Chilled water valve   | See Appendix III   | See Appendix III             |
| 19   | 3    | 1    | Outside air damper actuator   | \$106/unit         | \$106/unit                   |
| 20   | 1    | 12pt | Terminal strip communication  | \$17/unit          | \$17/unit                    |
| 21   | 3    | 1    | Fan Status CT   | \$29/unit          | \$29/unit                    |
|      |      |      |   |                    |                              |
|      |      |      |   |                    |                              |

\*\*If a retail space requires a BTU Meter, please refer to Appendix III.

**Notes:**

1. Tenant may purchase from other vendor.
2. If ininet 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 Bros., Inc.**

**Jim Fitzgerald**

**3821 Crum Road**

**Youngstown, Ohio 44515**

**Toll Free: 800-872-7684**

**Office: 330-270-2526**

**Fax: 330-799-3369**

## Appendix III

### Restaurant Flow Water Meter monitoring pricing

| Item | Qty  | Water Flow Monitoring Devices for Restaurants                           | Cost       |
|------|------|---|------------|
| 2    | 1    | Flow meter with transmitter   | \$775      |
| 5    | 100' | Infinet Communication Cable Model#D-73601-OR "Great Lakes Wire & Cable" | \$25       |
| 6    | 100' | Control Cable: 2 conductor, 18 awg, plenum, stranded                    | \$20       |
| 7    | 100' | Control Cable: 4 conductor, 18 awg, plenum, stranded                    | \$20       |
| 8    |      | Electrical and Mechanical Installation labor (not included)             | \$250      |
| 9    |      | Control engineering labor   | \$80       |
| 10   |      | Commissioning labor   | \$195      |
| 11   |      | Programming labor   | \$130      |
| 12   | 12pt | Terminal strip communication  | \$15       |
|      |      | Total (if purchased thru Roth)  | \$1,510.00 |
|      |      |   |            |
|      |      |   |            |
|      |      |   |            |

## Appendix IV

### 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 IV (cont.)

### Valve Pricing Schedule

| Model                     | GPM | Valve Size | Price      |
|---------------------------|-----|------------|------------|
| PICCV-40-026-PT ARX24-MFT | 26  | 1-½"       | \$707.00   |
| PICCV-40-027-PT ARX24-MFT | 27  | 1-½"       | \$707.00   |
| PICCV-40-028-PT ARX24-MFT | 28  | 1-½"       | \$707.00   |
| PICCV-40-029-PT ARX24-MFT | 29  | 1-½"       | \$707.00   |
| PICCV-40-030-PT ARX24-MFT | 30  | 1-½"       | \$707.00   |
| PICCV-40-031-PT ARX24-MFT | 31  | 1-½"       | \$707.00   |
| PICCV-40-032-PT ARX24-MFT | 32  | 1-½"       | \$707.00   |
| PICCV-40-033-PT ARX24-MFT | 33  | 1-½"       | \$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 V

## Responsibility Matrix

| Task Description                           | Tenant Mech. Furnish | Tenant Mech. Install | Roth DDC Furnish | Roth Elec. DDC Install | Tenant Elect. Furnish | Tenant Elect. Install |
|--|----------------------|----------------------|------------------|------------------------|-----------------------|-----------------------|
| <b>HVAC Controls</b>                       |                      |                      |                  |                        |                       |                       |
| Hardware (Control Panels)                  |                      |                      | x                | x                      |                       |                       |
| PCIV 2 way CHW Control Valve               |                      | x                    | x                |                        |                       |                       |
| Conduits and back box for T-Stat/Sensor    |                      |                      |                  |                        | x                     | x                     |
| BAS Communication cabling                  |                      |                      | x                | x                      |                       |                       |
| 120v/240v/277v/480v to Control Panel       |                      |                      |                  |                        | x                     | x                     |
| <b>AHUs</b>                                | x                    | x                    |                  |                        |                       |                       |
| Duct Heater                                | x                    | x                    | x                | x                      |                       |                       |
| Minimum OA Damper provided                 | x                    | x                    |                  |                        |                       |                       |
| All Other Control Dampers or VAV/FPB's     | x                    | x                    | x                |                        |                       |                       |
| Control Valves                             |                      | x                    | x                |                        |                       |                       |
| Starters and or Contactors                 | x                    |                      |                  | x                      |                       |                       |
| Test and Balance                           | x                    |                      |                  |                        |                       |                       |
| <b>Terminal Boxes VAV / FPB</b>            | x                    | x                    |                  |                        |                       |                       |
| DDC Controller                             |                      |                      | x                | x                      |                       |                       |
| Flow Transmitter                           |                      |                      | 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                           |                      |                      |                  |                        |                       |                       |
| <b>Fan Coil Units</b>                      | x                    | x                    |                  |                        |                       |                       |
| Conduits and back box for T-Stat/Sensor    | x                    | x                    |                  |                        |                       |                       |
| 120v/240v/277v/480v to Control Panel       |                      |                      |                  |                        | x                     | x                     |
| CHW Control Valves                         | x                    | x                    |                  |                        |                       |                       |
| Test and Balance                           |                      |                      |                  |                        |                       |                       |
| <b>Fire Alarm System / Smoke Detectors</b> |                      |                      |                  |                        |                       |                       |
| Hardware - Smoke Duct Detectors            | x                    | x                    |                  |                        |                       |                       |
| Addressable equipment shut down relays     |                      |                      |                  |                        | x                     | x                     |
| Power / Shutdown Cabling                   |                      |                      |                  |                        | x                     | x                     |
| Remote Reset                               | x                    |                      |                  |                        |                       | x                     |
|  |                      |                      |                  |                        |                       |                       |
| <b>Commissioning</b>                       | x                    | x                    | x                | x                      | x                     | x                     |
|  |                      |                      |                  |                        |                       |                       |

## Appendix VI

### Potential construction change order items

| <b>Description of problem</b>                                    | <b>Cost/event</b> |
|--|-------------------|
| Transformer replaced due to Tenant improper Power Wiring         | \$140.00          |
| Replace Andover Microprocessors Controllers                      | \$350.00          |
| Rewire units contactors  | \$75.00           |
| Rewire Unit Factory Controls due to Tenant altering              | \$75.00           |
| Remobilization to site after the Initial Installation Checkout * | \$500.00          |
| Replace the Rewired Damage Cabling (Comm or other)               | \$90.00           |
| Rework Factory Mounted Dampers not to Simon Spec                 | \$65.00           |
| Power Control Box (Item #1 Bulletin #2 of Simon TC Doc.)         | \$125.00          |
| Adding Space Sensor if initial rough in was not performed        | \$90.00           |
| Premium Labor  | \$87.00           |
| Lift charge if not provided by Tenant G.C.                       | \$125.00          |

\* Not a per unit charge See Change Order below.



# CHANGE ORDER

Request

3847 Crum Rd.  
Youngstown, Ohio 44515  
Phone: (330) 793-5571  
Fax: (330) 799-3369

No

Page No. 1 of 1 Pages

|                            |                |               |            |
|----------------------------|----------------|---------------|------------|
| C.O. Request Submitted To: |                | Phone:        | Date:      |
| Street:                    |                | Job Name:     |            |
| City, State and Zip Code:  |                | Job Location: |            |
| Contact:                   | Date of Plans: |               | Job Phone: |

**We hereby propose the furnished material and labor necessary for the completion of:**

Total \$0.00

| QTY.                 | Unit Cost |               |
|----------------------|-----------|---------------|
|                      |           |               |
|                      |           |               |
|                      |           |               |
|                      |           |               |
| Tax                  |           | inc.          |
| Shipping (Overnight) |           | inc.          |
| <b>Total</b>         |           | <b>\$0.00</b> |

|  |   |
|--|---|
| WE PROPOSE hereby the furnished material and labor - complete in accordance with above specifications, for the sum of:   |   |
| Payments to be made as follows:  |   |
| All material is guaranteed to be completed in a substantial workmanlike manner according to specifications submitted, per standard practices. Any alterations or deviations from above specifications involving extra cost will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents, or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workman's Compensation Insurance. | Authorized Signature<br><br><b>James H. Fitzgerald</b><br><br>Note: This proposal may be withdrawn by us if not accepted within <u>30</u> days. |
| <b>ACCEPTANCE OF CHANGE ORDER</b> The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payments will be made as outlined above.<br><b>Date of Acceptance:</b> _____   | Signature _____<br><br>Signature _____  |

## Appendix VII

### Sequence of Events

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

I have read this bulletin and understand all of its contents

General Contractor - \_\_\_\_\_

Representative - \_\_\_\_\_

Mechanical Contractor - \_\_\_\_\_

Representative - \_\_\_\_\_

Electrical Contractor - \_\_\_\_\_

Representative - \_\_\_\_\_