



March 23, 2009

## SAMPLE "GWO" MECHANICAL STATUS REPORT

Property Owner "X"  
Memphis, Tennessee

Reference: Good Working Order Survey  
Actual Property in Memphis  
Three Tenant Zones: Existing Tenant, Vacant Space #1, Vacant Space #2

### Basic Description of Mechanical Systems

There are three (3) tenant zones covered under the scope of this mechanical study. For your convenience and possible needed to segregate cost, we have noted which units serve each respective space.

The facility is served by a fourteen (14) large DX rooftop units with a total nominal cooling capacity of three hundred thirty (330) tons. Ten (10) units are equipped for variable air volume operation with VAV-boxes in the space. There are four (4) constant volume units with gas heating that serve interior spaces. There is no central building automation system, however there is an occupied/unoccupied zoning thermostat setup.

### Existing HVAC System Survey and Recommended Repair Scope

#### **ZONE "A" EXISTING TENANT**

<b>RTU 1-1</b>	York Model D1CV300A46ECB s/n NEEM051920 (1996 Model)
Description:	Cooling-only packaged rooftop unit rated for a nominal twenty-five (25) cooling tons. This unit has three stages of cooling and is wired for 460 volt, three phase power.
Location:	Roof
Area Served:	Office
Refrigerant:	R-22
Heating:	None
Supply Fan HP:	15
VAV setup:	Yes – inlet guide vanes
Belt:	(2) BX83
Filters:	(4) 16 x 25 x 2, (4) 16 x 20 x 2
Low Ambient Setup:	Yes – hot gas bypass and ODF fan switch
Economizer:	Yes

Condition: The following repairs are required for normal operation:

1. Provide and install one (1) variable frequency drive (VFD) without bypass to replace defective inlet guide vanes.
2. Provide and install DDC controls for standalone control of the supply fan for static pressure control
3. Provide labor and material to relocate static pickup two-thirds down the duct
4. Provide and install control cabling as required
5. Provide line voltage wiring as required for the VFD by licensed electrician
6. Provide and install one (1) replacement time clock to schedule the unit for on/off control
7. Replace one (1) 15HP supply fan motor
8. Replace blower wheel flange bearings
9. Replace one (1) contactor for #5 & #6 compressor
10. Replace one (1) contactor for condenser fan #1
11. Replace two (2) economizer drip eliminator filters
12. Replace eight (8) filters
13. Clean condenser coils (split type)
14. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

**RTU 1-2**  
 Description: York Model D1CV300A46ECB s/n NEEM051002 (1996 Model) Cooling-only packaged rooftop unit rated for a nominal twenty-five (25) cooling tons. This unit has three stages of cooling and is wired for 460 volt, three phase power.

Location: Roof  
 Area Served: Office  
 Refrigerant: R-22  
 Heating: None  
 Supply Fan HP: 15  
 VAV setup: Yes – inlet guide vanes  
 Belt: (2) BX83  
 Filters: (4) 16 x 25 x 2, (4) 16 x 20 x 2  
 Low Ambient Setup: Yes – hot gas bypass and ODF fan switch  
 Economizer: Yes

Condition: The following repairs are required for normal operation:

1. Provide and install one (1) variable frequency drive (VFD) without bypass to replace defective inlet guide vanes.
2. Provide and install DDC controls for standalone control of the supply fan for static pressure control
3. Provide labor and material to relocate static pickup two-thirds down the duct
4. Provide and install control cabling as required
5. Provide line voltage wiring as required for the VFD by licensed electrician

6. Provide and install one (1) replacement time clock to schedule the unit for on/off control
7. Replace one (1) tandem compressor unit for circuit #2
8. Replace one (1) 304S liquid refrigerant drier
9. Replace one (1) refrigerant sight glass
10. Replace one (1) compressor contactor
11. Install two (2) charges of acid-abatement chemical to treat circuit #2
12. Pressurize, leak check, evacuate and charge system with R-22 refrigerant as required for proper charge
13. Replace eight (8) filters
14. Clean condenser coils (split type)
15. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

***NOTE: internal pressure relief valve is tripping on compressor circuit #1. High head pressure could be due to extremely dirty condenser coils. If pressure is still causing internal relief tripping after coil cleaning, additional repairs may be required for this circuit.***

**RTU 2-1**

York Model D2CG240N32046ECD s/n NDEM043042 (1996 Model)

Description:

Packaged rooftop unit rated for a nominal twenty (20) cooling tons with gas heating rated for 400,000 input BTUH. This unit has two stages of cooling and two stages of heating and is wired for 460 volt, three phase power.

Location:

Roof

Area Served:

Office

Refrigerant:

R-22

Heating:

Natural gas 400,000 BTUH

Supply Fan HP:

7.5

VAV setup:

No. Unit is constant volume

Belt:

(1) BX83

Filters:

(4) 16 x 25 x 2, (4) 16 x 20 x 2

Low Ambient Setup:

No

Economizer:

Yes

Condition:

The following repairs are required for normal operation:

1. Replace one (1) OEM heat exchanger
2. Replace one (1) thermostat with digital programmable model
3. Replace eight (8) filters
4. Clean condenser coils (split type)
5. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

**RTU 2-2** York Model D2CG240N32046ECD s/n NDEM043040 (1996 Model)

Description: Packaged rooftop unit rated for a nominal twenty (20) cooling tons with gas heating rated for 400,000 input BTUH. This unit has two stages of cooling and two stages of heating and is wired for 460 volt, three phase power.

Location: Roof

Area Served: Office

Refrigerant: R-22

Heating: Natural gas 400,000 BTUH

Supply Fan HP: 7.5

VAV setup: No. Unit is constant volume

Belt: (1) BX83

Filters: (4) 16 x 25 x 2, (4) 16 x 20 x 2

Low Ambient Setup: No

Economizer: Yes

Condition: The following repairs are required for normal operation:

1. Replace two (2) economizer filter
2. Clean burner pilot tube for heating stage #1
3. Replace one (1) flame sensor heating stage #1
4. Replace one (1) contactor for circuit #1
5. Pressurize, leak check, repair leak and charge cooling circuit #1 with R-22 refrigerant as required for proper charge
6. Pressurize, leak check, repair leak and charge cooling circuit #2 with R-22 refrigerant as required for proper charge
7. Replace one (1) C-164S liquid refrigerant drier
8. Replace eight (8) filters
9. Clean condenser coils (split type)
10. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

**RTU 1-9** York Model D1CV300A46ECB s/n NEEM051001 (1996 Model)

Description: Cooling-only packaged rooftop unit rated for a nominal twenty-five (25) cooling tons. This unit has three stages of cooling and is wired for 460 volt, three phase power.

Location: Roof

Area Served: Office

Refrigerant: R-22

Heating: None

Supply Fan HP: 15

VAV setup: Yes – inlet guide vanes

Belt: (2) BX83

Filters: (4) 16 x 25 x 2, (4) 16 x 20 x 2

Low Ambient Setup: Yes – hot gas bypass and ODF fan switch

Economizer: Yes  
Condition: The following repairs are required for normal operation:

1. Provide and install one (1) variable frequency drive (VFD) without bypass to replace defective inlet guide vanes.
2. Provide and install DDC controls for standalone control of the supply fan for static pressure control
3. Provide labor and material to relocate static pickup two-thirds down the duct
4. Provide and install control cabling as required
5. Provide line voltage wiring as required for the VFD by licensed electrician
6. Provide and install one (1) replacement time clock to schedule the unit for on/off control
7. Replace two (2) contactors (circuits #1 and #2)
8. Pressurize, leak check, repair leak, evacuate and charge cooling circuit #3 with R-22 refrigerant as required for proper charge
9. Replace eight (8) filters
10. Clean condenser coils (split type)
11. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

**RTU 1-8**  
Description: York Model D1CV300A46ECB s/n NEEM051921 (1996 Model) Cooling-only packaged rooftop unit rated for a nominal twenty-five (25) cooling tons. This unit has three stages of cooling and is wired for 460 volt, three phase power.

Location: Roof  
Area Served: Office  
Refrigerant: R-22  
Heating: None  
Supply Fan HP: 15  
VAV setup: Yes – inlet guide vanes  
Belt: (2) BX83  
Filters: (4) 16 x 25 x 2, (4) 16 x 20 x 2  
Low Ambient Setup: Yes – hot gas bypass and ODF fan switch  
Economizer: Yes  
Condition: The following repairs are required for normal operation:

1. Provide and install one (1) variable frequency drive (VFD) without bypass to replace defective inlet guide vanes.
2. Provide and install DDC controls for standalone control of the supply fan for static pressure control
3. Provide labor and material to relocate static pickup two-thirds down the duct
4. Provide and install control cabling as required
5. Provide line voltage wiring as required for the VFD by licensed electrician

6. Provide and install one (1) replacement time clock to schedule the unit for on/off control
7. Replace three (3) contactors (circuits #1, #2 and #3)
8. Replace one (1) supply fan motor pulley
9. Pressurize, leak check, repair leak, evacuate and charge cooling circuit #1 with R-22 refrigerant as required for proper charge
10. Replace eight (8) filters
11. Replace two (2) economizer filters
12. Clean condenser coils (split type)
13. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

**TOTAL LABOR AND MATERIAL COST FOR ZONE #1.....\$ \_\_\_\_\_**  
**(This repair investment will return all surveyed equipment to normal operating condition.)**

**ZONE “B” VACANT SPACE #1**

**RTU 1-3** York Model D1CV300A46ECB s/n NDEM046727 (1996 Model)  
 Description: Cooling-only packaged rooftop unit rated for a nominal twenty-five (25) cooling tons. This unit has three stages of cooling and is wired for 460 volt, three phase power.

Location: Roof  
 Area Served: Office  
 Refrigerant: R-22  
 Heating: None  
 Supply Fan HP: 15  
 VAV setup: Yes – inlet guide vanes  
 Belt: (2) BX83  
 Filters: (2) 16 x 25 x 2, (2) 16 x 20 x 2, (1) 14 x 20 x 2, (2) 14 x 25 x 2  
 Low Ambient Setup: Yes – hot gas bypass and ODF fan switch  
 Economizer: Yes  
 Condition: The following repairs are required for normal operation:

1. Provide and install one (1) variable frequency drive (VFD) without bypass to replace defective inlet guide vanes.
2. Provide and install DDC controls for standalone control of the supply fan for static pressure control
3. Provide labor and material to relocate static pickup two-thirds down the duct
4. Provide and install control cabling as required
5. Provide line voltage wiring as required for the VFD by licensed electrician
6. Provide and install one (1) package unit controller for cooling, heating and economizer control along with discharge air temperature.

7. Provide and install one (1) replacement time clock to schedule the unit for on/off control
8. Pressurize, leak check, repair leak, evacuate and charge cooling circuit #1 with R-22 refrigerant as required for proper charge
9. Replace eight (8) filters
10. Clean condenser coils (split type)
11. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

**RTU 1-10**

Description: York Model D1CV300A46ECB s/n NDEM046729 (1996 Model) Cooling-only packaged rooftop unit rated for a nominal twenty-five (25) cooling tons. This unit has three stages of cooling and is wired for 460 volt, three phase power.

Location: Roof

Area Served: Office

Refrigerant: R-22

Heating: None

Supply Fan HP: 15

VAV setup: Yes – inlet guide vanes

Belt: (2) BX83

Filters: (2) 16 x 25 x 2, (2) 16 x 20 x 2, (1) 14 x 20 x 2, (2) 14 x 25 x 2

Low Ambient Setup: Yes – hot gas bypass and ODF fan switch

Economizer: Yes

Condition: The following repairs are required for normal operation:

1. Provide and install one (1) variable frequency drive (VFD) without bypass to replace defective inlet guide vanes.
2. Provide and install DDC controls for standalone control of the supply fan for static pressure control
3. Provide labor and material to relocate static pickup two-thirds down the duct
4. Provide and install control cabling as required
5. Provide line voltage wiring as required for the VFD by licensed electrician
6. Provide and install one (1) package unit controller for cooling, heating and economizer control along with discharge air temperature.
7. Provide and install one (1) replacement time clock to schedule the unit for on/off control
8. Replace eight (8) filters
9. Clean condenser coils (split type)
10. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

**TOTAL LABOR AND MATERIAL COST FOR ZONE “B”.....\$ \_\_\_\_\_**

**(This repair investment will return all surveyed equipment to normal operating condition.)**

## **ZONE “C” VACANT SPACE #2**

<b>RTU 1-4</b>	York Model D1CV300A46ECB s/n NDCM046725 (1996 Model)
Description:	Cooling-only packaged rooftop unit rated for a nominal twenty-five (25) cooling tons. This unit has three stages of cooling and is wired for 460 volt, three phase power.
Location:	Roof
Area Served:	Office
Refrigerant:	R-22
Heating:	None
Supply Fan HP:	15
VAV setup:	Yes – inlet guide vanes
Belt:	(2) BX83
Filters:	(4) 16 x 25 x 2, (4) 16 x 20 x 2
Low Ambient Setup:	Yes – hot gas bypass and ODF fan switch
Economizer:	Yes
Condition:	The following repairs are required for normal operation: <ol style="list-style-type: none"><li>1. Provide and install one (1) variable frequency drive (VFD) without bypass to replace defective inlet guide vanes.</li><li>2. Provide and install DDC controls for standalone control of the supply fan for static pressure control</li><li>3. Provide labor and material to relocate static pickup two-thirds down the duct</li><li>4. Provide and install control cabling as required</li><li>5. Provide line voltage wiring as required for the VFD by licensed electrician</li><li>6. Provide and install one (1) replacement time clock to schedule the unit for on/off control</li><li>7. Provide and install one (1) digital programmable thermostat</li><li>8. Replace one (1) contactors (circuits #3)</li><li>9. Pressurize, leak check, repair leak, evacuate and charge cooling circuit #1 with R-22 refrigerant as required for proper charge</li><li>10. Pressurize, leak check, repair leak, evacuate and charge cooling circuit #3 with R-22 refrigerant as required for proper charge</li><li>11. Replace eight (8) filters</li><li>12. Clean condenser coils (split type)</li><li>13. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system</li></ol>

**RTU 1-5** York Model D1CV300A46ECB s/n NDEM046726 (1996 Model)

Description: Cooling-only packaged rooftop unit rated for a nominal twenty-five (25) cooling tons. This unit has three stages of cooling and is wired for 460 volt, three phase power.

Location: Roof

Area Served: Office

Refrigerant: R-22

Heating: None

Supply Fan HP: 15

VAV setup: Yes – inlet guide vanes

Belt: (2) BX83

Filters: (4) 16 x 25 x 2, (2) 16 x 20 x 2, (1) 14 x 20 x 2, (2) 14 x 25 x 2

Low Ambient Setup: Yes – hot gas bypass and ODF fan switch

Economizer: Yes

Condition: The following repairs are required for normal operation:

1. Provide and install DDC controls for standalone control of the supply fan for static pressure control
2. Provide labor and material to relocate static pickup two-thirds down the duct
3. Provide and install control cabling as required
4. Provide and install one (1) replacement time clock to schedule the unit for on/off control
5. Replace eight (8) filters
6. Clean condenser coils (split type)
7. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

**RTU 2-3** York Model D2CG240N32046ECD s/n NDEM043044 (1996 Model)

Description: Packaged rooftop unit rated for a nominal twenty (20) cooling tons with gas heating rated for 400,000 input BTUH. This unit has two stages of cooling and two stages of heating and is wired for 460 volt, three phase power.

Location: Roof

Area Served: Office

Refrigerant: R-22

Heating: Natural gas 400,000 BTUH

Supply Fan HP: 7.5

VAV setup: No. Unit is constant volume

Belt: (1) BX83

Filters: (4) 16 x 25 x 2, (4) 16 x 20 x 2

Low Ambient Setup: No

Economizer: Yes

Condition: The following repairs are required for normal operation:

1. Replace one (1) OEM heat exchanger

2. Clean pilot tubes for stage #1 and #2 heating
3. Reconnect economizer linkage
4. Replace eight (8) filters
5. Clean condenser coils (split type)
6. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

**RTU 2-4**

York Model D2CG240N32046ECD s/n NDEM0430414 (1996 Model)

Description: Packaged rooftop unit rated for a nominal twenty (20) cooling tons with gas heating rated for 400,000 input BTUH. This unit has two stages of cooling and two stages of heating and is wired for 460 volt, three phase power.

Location: Roof

Area Served: Office

Refrigerant: R-22

Heating: Natural gas 400,000 BTUH

Supply Fan HP: 7.5

VAV setup: No. Unit is constant volume

Belt: (1) BX83

Filters: (4) 16 x 25 x 2, (4) 16 x 20 x 2

Low Ambient Setup: No

Economizer: Yes

Condition: The following repairs are required for normal operation:

1. Replace one (1) OEM tandem (double) compressor component for cooling circuit #1
2. Replace one (1) liquid refrigerant line drier
3. Pressurize, leak check, repair leak, evacuate and charge cooling circuit #2 with R-22 refrigerant as required for proper charge
4. Replace one (1) condenser fan motor
5. Replace one (1) condenser fan blade
6. Replace one (1) condenser fan motor contactor
7. Replace one (1) belt
8. Re-align supply fan motor and pulley
9. Replace one (1) heating ignition control module
10. Replace one (1) heating ignitor
11. Replace one (1) heating flame sensor
12. Clean pilot tube for second stage heating
13. Replace eight (8) filters
14. Clean condenser coils (split type)
15. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system
16. Replace thermostat with digital programmable unit

**RTU 1-7** York Model D1CV300A46ECB s/n NDEM046724 (1996 Model)  
Description: Cooling-only packaged rooftop unit rated for a nominal twenty-five (25) cooling tons. This unit has three stages of cooling and is wired for 460 volt, three phase power.

Location: Roof  
Area Served: Office  
Refrigerant: R-22  
Heating: None  
Supply Fan HP: 15  
VAV setup: Yes – inlet guide vanes  
Belt: (2) BX83  
Filters: (4) 16 x 25 x 2, (2) 16 x 20 x 2, (1) 14 x 20 x 2, (2) 14 x 25 x 2  
Low Ambient Setup: Yes – hot gas bypass and ODF fan switch  
Economizer: Yes  
Condition: The following repairs are required for normal operation:

1. Provide and install DDC controls for standalone control of the supply fan for static pressure control
2. Provide labor and material to relocate static pickup two-thirds down the duct
3. Provide and install control cabling as required
4. Provide and install one (1) replacement time clock to schedule the unit for on/off control
5. Replace eight (8) filters
6. Clean condenser coils (split type)
7. Adjust refrigerant charge after condenser coils are cleaned
8. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

**RTU 1-6** York Model D1CV300A46ECB s/n NDEM0467284 (1996 Model)  
Description: Cooling-only packaged rooftop unit rated for a nominal twenty-five (25) cooling tons. This unit has three stages of cooling and is wired for 460 volt, three phase power.

Location: Roof  
Area Served: Office  
Refrigerant: R-22  
Heating: None  
Supply Fan HP: 15  
VAV setup: Yes – inlet guide vanes  
Belt: (2) BX83  
Filters: (4) 16 x 25 x 2, (2) 16 x 20 x 2, (1) 14 x 20 x 2, (2) 14 x 25 x 2  
Low Ambient Setup: Yes – hot gas bypass and ODF fan switch  
Economizer: Yes  
Condition: The following repairs are required for normal operation:

1. Provide and install DDC controls for standalone control of the supply fan for static pressure control
2. Provide labor and material to relocate static pickup two-thirds down the duct
3. Provide and install control cabling as required
4. Provide and install one (1) replacement time clock to schedule the unit for on/off control
5. Replace contactor for circuit #3
6. Replace two (2) belts
7. Replace one (1) condenser fan motor
8. Replace one (1) condenser fan blade
9. Replace eight (8) filters
10. Clean condenser coils (split type)
11. Adjust refrigerant charge after condenser coils are cleaned
12. Clean condensate drain pan and insure proper drainage of condensate drain line to sanitary system

**TOTAL LABOR AND MATERIAL COST FOR ZONE “C”.....\$ \_\_\_\_\_**  
**(This repair investment will return all surveyed equipment to normal operating condition.)**

**TOTAL COST FOR ALL THREE ZONES.....\$ \_\_\_\_\_**  
**(This repair investment will return all surveyed equipment to normal operating condition.)**

Sincerely,

Jerry D. Edwards  
 Executive Vice President