

## 77 Central HVAC repair timeline

2022/2023

March 22, 2022

- CONTRACT NO: 43971-2203-01
- Owner: TIAA REALTY Inc
- Owner Representative: Pinnacle Property Management Services, LLC
- Owner's Address: 11235 SE 6th Street, Suite 200; Bellevue, WA 98004
- Contractor: Hermanson Company, LLP
- Contractor's Address: 1221 North 2nd Avenue, Kent WA 98032
- Property Name: 77 Central
- Property Address: 2630 77<sup>th</sup> Ave SE; Mercer Island, WA 98040
- Improvements/work: HVAC building system leak checks for refrigerant leaks
- Contract Sum: \$26,010.02
- Commencement Date: March 26, 2022
- Completion Date: July 31, 2022
- Leak Detection of the 7 VRF Zones

March 22, 2022

- Auburn Mechanical informs the site team they can no longer refill the VRF units on the roof until a leak check is performed on all 7 VRF units. This is due to environment codes about releasing so much refrigerant into the atmosphere. Vendor provided a proposal and ownership asked for additional bids on the leak detection. Construction Management procured those two other bids and Hermanson Mechanical was awarded the job. This took a while to get through all of these zones to find the leaks, document and repair the leaks, write the proposals for the failed coils that needed to be replaced. Hermanson was sending a change order for the extra work.

May 10, 2022

- Hermanson started the leak detection on the two system. They found 4 leaks that needed replacement parts and had order those said parts to complete the project. There were other leaks that were able to be fixed or welded. These parts pertained to #1 and #4 systems. Unit 501 coil was replaced, Hermanson had one in stock that would fit. Units 502, 411 and 211 coils are on order. When the remaining coils show up they would be installed.
  - This is the change order for the repairs to all 7 systems.

<b>RECOM</b> ITEM 1 Replace two compressors (HP-1)	\$ 12,932
ITEM 2 Replace shut off valves (HP-2 BC Box)	\$ 4,958
ITEM 3 Replace unit 407 Fan coil	\$ 13,648
ITEM 4 Investigate and repair fan coil 454	\$ 8,753
(Other option is to replace, same cost as Item 3)	
ITEM 5 Investigate drain switch, unit 346 FC	\$ 1,827
<b>Total Repairs</b>	<b>\$ 42,118.00</b>
This would be the better option	\$ 4,895.00

Item 4 overage is if you choose to replace the fan coil.

Sub total \$ 47,013.00 Tax 10.1% \$ 4,748.31 Grand Total **\$ 51,761.31** This is what the client paid to make the repairs on the change order.

June 22,2022

- The remaining 3 coils arrived and were installed by Hermanson. This was the last part of this project that they worked on. Currently all 7 zones were running through the summer.

CW0008

Winter comes and we start getting cold calls for zone 2, 3, and 7. The calls were random at times. When the system had a big load calling for heat it would stop heating but on days it is not so cold it would heat until the systems went completely flat, and no refrigerant left in the systems.

We call out Auburn Mechanical now after it was determined they had a preventative maintenance contract with the property.

#### October 2022

- Auburn Mechanical is now engaged to troubleshoot units 2, 3 and 7 of the VRF systems. They provided proposals and a price to leak check those 3 systems. This was brought to the attention of the site team by the residents that were being affected by having no heat.
- During the next few months, the Auburn team conduct the leak checks thoroughly and it is determined that we are fighting an uphill battle. They would pressurize the system with nitrogen on Friday and come back on a Monday or Tuesday of the following week the system would be flat again.

- CONTRACT NO: 43971-2203-04
- Owner: TIAA REALTY Inc
- Owner Representative: Pinnacle Property Management Services, LLC
- Owner's Address: 11235 SE 6th Street, Suite 200; Bellevue, WA 98004
- Contractor: Auburn Mechanical Inc
- Contractor's Address: PO Box 249, Auburn WA 98071
- Property Name: 77 Central
- Property Address: 2630 77th Ave SE; Mercer Island, WA 98040
- Improvements/work: CU-04 & CU-01 Repairs, RTU1 Troubleshoot & Repair
- Contract Sum: \$38,077.89
- Commencement Date: November 21, 2022
- Completion Date: December 31, 2022

- Troubleshoot CU1 and CU4: The week of 10/24/22
- Proposals and approvals: The week of 10/31/22 for CU1 & CU4
- Leak detection visits: The week of 10/24/22 for CU1 & CU4
- Parts ordered and arrival: The week of 11/15/22 for CU1 & CU4
- Coils replacement visits: The week of 12/1/22 for CU1 & CU4
  
- Troubleshoot CU2, CU3, and CU7: Was performed the week of 12/5/22
- Leak check CU-02 \$15,846.44 Proposal date 12-5-22 Change order #5
- Leak Check CU-03 \$15,846.44 Proposal Date 12-5-22 Change order #5
- Leak Check CU-07 \$15,846.44 Proposal Date 12-2-22 Change order #5

- Proposals and approvals: Proposal date 1/19/23 and the approval was on 2/21/23
- Leak detection visits: Was performed the week of 12/23/22
- Parts ordered and arrival: All the coils and the air handlers were ordered on the week of 2/27/23
- Dates that half of the coils arrived, Dates that the remaining coils are planning on arriving: The first batch of coils arrived the week of 3/20
- Schedule date for install of those 28 coils: Starting today the 5<sup>th</sup> Friday the 7<sup>th</sup> and the week of the 10<sup>th</sup>.
- Approx dates for the 10 new coils: Should arrive sometime the week of the 10<sup>th</sup> or the 17<sup>th</sup>.

This is the current scope of work to replace the 28 failed coils and the 10 failed air handling units with obsolete coils.

**SCOPE OF WORK**

Auburn Mechanical will provide and install the following:

- Dispose of existing equipment offsite
- Remove existing coils from air handler and refrigeration piping
- **Provide and install (29) Mitsubishi indoor coils and 9 Mitsubishi air handlers**
  - (1) R61 Y17 483 Indoor Coil
  - (11) R61 Y12 483 Indoor Coils
  - (11) R61 Y15 483 Indoor Coils
  - (6) R61 Y11 483 Indoor Coils
  - (3) PEFY-P27 Complete air handlers
  - (6) PEFY-P24 Complete air handlers
  - 270 Lbs. of R410A Refrigerant
- Install new coils and air handlers, pressure test for any leaks than prepare for start and test
- Add required refrigerant per system, start and test
- Project management
- One-year warranty on all Auburn Mechanical provided equipment and labor

**For the process to move quickly and reduce delays, all personal items need to be removed from around and beneath the work area**

Equipment \$56,546.00

Labor \$70,878.00

- **Proposed amount - Total \$127,424.00 This is currently under contract with Auburn Mechanical**

These are the dates and times the HVAC techs were on site and the number of hours they work each day during these troubleshooting and leak detections from 11/2022 until 12/2022

Date of Service	Description	Technician	Hours
<b>Cost Type: 1 - Labor</b>			
11/07/22	Labor - Service	Morfin, Juan G	5.00
11/10/22	Labor - Service	Morfin, Juan G	5.00
11/09/22	Labor - Service	Morfin, Juan G	5.00
11/14/22	Labor - Service	Morfin, Juan G	4.00
11/15/22	Labor - Service	Morfin, Juan G	4.00
11/16/22	Labor - Service	Morfin, Juan G	4.00
11/17/22	Labor - Service	Morfin, Juan G	2.00
11/22/22	Labor - Service	Morfin, Juan G	1.50
11/23/22	Labor - Service	Morfin, Juan G	1.50
12/01/22	Labor - Service	Karlson, Nigel I	6.00
12/02/22	Labor - Service	Karlson, Nigel I	3.50

These dates were call outs for no heat.

These were  
dates during  
leak detection

Date of Service	Description	Technician	Quantity
<b>Cost Type: 1 - Labor</b>			
01/03/23	Labor - Service	Karlson, Nigel I	8.00
01/03/23	Labor - Service	Morfin, Juan G	10.00
01/04/23	Labor - Service	Karlson, Nigel I	8.00
01/04/23	Labor - Service	Morfin, Juan G	5.00
01/06/23	Labor - Service	Karlson, Nigel I	4.00
01/11/23	Labor - Service	Morfin, Juan G	2.00
01/12/23	Labor - Service	Karlson, Nigel I	4.00
01/12/23	Labor - Service	Morfin, Juan G	2.00
01/13/23	Labor - Service	Morfin, Juan G	3.00
01/16/23	Labor - Service	Morfin, Juan G	3.00
01/18/23	Labor - Service	Morfin, Juan G	1.00
01/23/23	Labor - Service	Karlson, Nigel I	3.00

Typical Work order we would receive every time they would show up.

Tech: Nigel I Karlson, Date: 1/17/23 - Assisted with leak check. Turned in quote info to Jim Moore.

Tech: Juan G Morfin, Date: 1/18/23 - 1.3.23 - Performed leak check on VRF system CU-2. Upon arrival found system had leaked out all refrigerant, system in fault and nonoperational due to loss of charge. Proceeded to setup pressure test. Pressure tested and calibrated all pressure test gauges and equipment. Corrected any leaking gear and and proceeded to setup pressure test gauges on every section of system related to CU-2 to be isolated. Pumped system up to test pressure and isolated outdoor unit, line set, and every individual branch on fan coils connected to BC-2. Will return next day to review results of pressure test overnight.

1.4.23 - Returned to site next day and reviewed results of pressure test. Found branch 3 for unit A411 had lost 100% pressure down to 0 PSIG nitrogen indicating leak. No other branches showed signs of leak. Isolated branch 3 serving unit A411. Removed all pressure test equipment and opened all isolation valves except branch 3. Proceeded to perform triple evacuation. Picked up refrigerant from vendor.

1.5.23 - Once triple evacuation was complete proceeded to charge system to 75lbs R410A. Brought unit back in to service - Removed lockout tagout and closed disconnect. Performed startup and monitored during initialization sequence. Put unit into full heat and ran system until initialization sequence completed and unit entered normal operation. Will contact management about access to 411 to inspect for leaks.

Tech: Juan G Morfin, Date: 1/18/23 - Follow up visits related to gathering data related to proposed repairs and building repair proposals. Due to size of proposed repairs, all gathered information has been handed off to project manager for more comprehensive proposal.

Also gathered data to build a complete and accurate DSB report since we did not have one for CU-2. Entered all line lengths and elevations into DSB file and calculated accurate system refrigerant charge.

This is a timeline from Auburn Mechanical for the 5 VRF units we have been dealing with since Oct 2022. This was only the Auburn Mechanical piece of this ongoing project. Hermanson Mechanical started this back in March 2022.

# 77 Central Indoor Coils

The leaks that are appearing on the indoor coils are in a very hard place to repair between the steel header end plates and the copper tubes. At the factory, the tubes are expanded to create a tight fit between the tubes, steel end plates and the aluminum fins.

The problem with the coils at 77 Central is that there are several small leaks on several tubes on both ends of the coils, and there's really no way to fix this problem other than replacement.

