Metropolis – 8 W. Monroe St.

Fan Coil Unit Replacement Program

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Fan Coil Unit Replacement

Many owners have been looking to replace their fan coil unit(s) (FCU) and the Board of Managers, in order to obtain bulk pricing, has selected Unilux as the contractor to replace the (FCU) in your home.

Pricing for the replacement of your FCU, which will include connection to the riser, drywall removal to allow for installation (if necessary), installation of the FCU retrofit, repair of the drywall, and a smart thermostat, at a cost $9,300.

You may be asking Why Do I Need to Replace My FCU? Attached you will find the report that was commissioned by the Board of Managers back in 2022 by Sunnyside Design to assess the condition of the existing FCU's. This report gives a detailed account of the condition of the FCU's - please note that #22.1 on page 6 recommends mandatory replacement of all FCU's as soon as possible.

You may also be asking What's Involved in the FCU Replacement Process? Attached you will find an informative document "What to Expect" which will explain the process to replace your FCU.

We will be holding a one-hour look and learn seminar where you will be able to see what the new FCU looks like and Unilux will talk about the replacement process and answer any questions you may have.

When: Monday, April 27, 2026, 6:30 to 7:30 p.m.

Where: In person in the Social Room or virtually via Zoom

https://us06web.zoom.us/j/84691408851?pwd=F8UcofEoTXF6JbrjQxW7C8yW4YlPbO.1

You can sign up with Unilux at **https://uniluxpayments.com/metropolis**.

If you have any questions, please contact the Management Office.

Kim Wenkus

Community Association Manager

Sunnyside Design Group, Inc.

MECHANICAL & ELECTRICAL BUILDING SYSTEMS' CONSULTING

Ms. Kim L. Wenkus - Community Association Manager April 13, 2022
Metropolis Condominium Association - Eight West Monroe Street - Chicago, Illinois 60603

RE: **Metropolis Condominium Fan-Coil Units Investigation**
Eight West Monroe Street - Chicago, Illinois -
SDG Project #22–032

Dear Ms. Wenkus:

Per your request, and as a follow-up to our 08 MAR 2022 Site Visit, plus 18 MAR 2022 & 06 APR 2022 Site Surveys, the Sunnyside Design Group has conducted an Investigation of the Residential Vertical Concealed Closet Style Stacked 4-Pipe Fan-Coil HVAC Units (FCUs) and related HHW & CHW Risers, and reports as follows:

1.0 - A Conversion Drawing calls for all FCUs *"PROVIDE 2-WAY CONTROL VALVE FOR ALL UNITS EXCEPT UNITS AT LOWER TWO FLOORS OF EACH RISERS, PROVIDE 3-WAY CONTROL VALVES FOR LOWER UNITS AT EACH RISERS*.".

1.1 - The typical valve shown in **Photo #01** (as an example) happens to be on one of the lower two floors and is 2-way, 2-position - not 3-way. The purpose for the 3-way valves was to maintain chilled and heating hot water flow and distribution in the risers even when there is no call for cooling /heating. Without any - the system is compromised and can present expansion, vibration, noise issues and leaks.

1.2 - When only two-way control valves (which was not the design intent) are used, pump and water bypass or pump speed control must be included in the system to ensure that the continual targets water flow will be maintained and to avoid having the maximum close-off pressure rating of the valve exceeded.

1.3 - Three-way valves were presented on the design documents, yet none were observed where they were supposed to be located.

2.0 - A Conversion Drawing calls for all FCUs to have "*FACTORY MOUNTED PIPING PACKAGE INCLUDING SUPPLY LINE - BALL VALVE, BALANCING VALVE, CONTROL VALVE; RETURN LINE - BALL VALVE, CIRCUIT SETTER*.". A Conversion Drawing also stated for all equipment to have a "*…SWING JOINT (MINIMUM OF FOUR ELBOWS) AT RUN-OUTS TO EQUIPMENT*...".

2.1 - The piping/valves shown in **Photos #02 & #03** (as examples) appear to be part of a factory-installed piping package and meets the swing joint requirement, yet fails to include a supply line balancing valve or a return line circuit setter. Without proper balancing device it would be difficult to meet the space heating or space cooling design & distribution intents.

2.2 - The piping package with shut-off & control valves, plus pipe loops (swing joint) for the heating hot water supply & return, were integral parts of the FCUs (furnished by the manufacturer).

2.3 - It should be noticed how "clean" the factory-applied valve & piping solder joints appear and hold up; as compared to those in **Photos #04 & #05** (as an example).

3.0 - A Conversion Drawing calls for providing "*...1-1-1/2" THICK FIBERGLAS WITH ASJ (ALL SERVICE JACKET) INSULATION ON ALL... HEATING HOT WATER AND CHILLED WATER PIPING SYSTEMS*."

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3.1 - We find that 1/2-inch to 3/4-inch thickness flexible elastomeric "unicellular" insulation is used on all insulated heating hot water and chilled water pipe risers, pipe runouts, pipe fitting and on some valves. This is quite different from the expensive, more effective and better quality specified 1-1/2-inch thickness fiberglass insulation with an ASJ.

3.2 - **Photo #06** (as an example) shows such pipe insulation that is essentially ineffective, yet in one FCU these pipes are fully insulated (to a degree). **Photos #01, #03 & #04** (as examples) also show piping and valves within the FCU plenum that are not insulated. **Photos #07** & **#08** (as examples) presents labels showing signs of moisture damage (in part, probably due to condensation off the uninsulated piping/valves above). **Photo #09** (as an example) shows riser pipe insulation that has been breached.

3.3 - With any conventional pipe / fitting insulation, in general, it is applied to prevent heat loss on both hot (heating hot water) pipes & cold (chilled water) pipes, and to prevent condensation on cold (chilled water) pipes. It needs to be installed tight to the pipe / fitting, completely sealed without voids and open seams / joints - all so as not to allow moist air to breach the water vapor / heat barrier. During the in initial Survey, it was agreed not to simply pull apart any insulation to observe covered piping / fittings, given the fact that most of those such access openings are packed with insulation (**see Photo #10**). All this would need to be properly replaced following insulation guidelines besides needing wall openings/closings for proper access. This also applied to the similar sheet insulation applied on the inside of the FCU cabinet itself. Upon review of **Photos #11 & #12** it can be seen where that plenum insulation is already not secure. When the extra large openings on the side of the FCUs cabinet **Photo #13** (as an example) are left open to the FCU plenum, air from the riser pipe chase will easily infiltrate. Air readily comes from the riser cavity into the negative pressure FCU plenum by simply pushing open the dangling and unsecured cabinet sheet insulation.

3.4 - **Photo #14** shows an attempt to seal the FCU plenum from the open pipe chase cavity by applying a sealant.

3.5 - Any new application will need to address proper sealing to avoid pulling any riser chase cavity air into the FCU cavity. Insulation lining for FCU cabinet should adhere to the interior surface and lack voids and be tight up around the insulation on the runouts.

4.0 - Upon review of **Photos #15** & **#16** (as examples); is BX metal clad flexible electrical cable showing a sign of failure. BX has limited use in Chicago, yet is not allowed for this specific application. BX is not rigid, it settles and in this case, ended up resting next to and touching the easily penetrated unicellular insulation on a copper pipe. This raises safety, performance, Code violation, electrical and lower life expectancy concerns. Upon review of **Photos #11 & #17**, it can be noticed that the BX has electrical (black) tape applied to prevent galvanic corrosion and direct contact between these two dissimilar materials.

4.1 - Ref. - Department of Buildings Code Memorandum dated 07 FEB 2017 related to the limited metal-clad cable to be permitted for use in some existing walls or partitions, where other work <u>does not require or include removal of existing finished surfaces</u>, during existing building rehabilitation.

4.2 - Ref. - Chicago Electrical Code Article 334: Metal-Clad Cable: Type MC Paragraph 18-27-334.3 "*Uses permitted. Except where otherwise specified in this chapter and where not subject to physical damage, listed Type MC Cable with listed fittings shall be permitted for branch circuits in concealed work <u>fished into existing walls or partitions where it is not possible to install conduit</u>*.".

4.3 - In other words, for the case presented, the City of Chicago Code Electrical Code only allows for listed flexible cable (BX) with listed fittings to be when the work is "rehabilitation" in an existing building (which the Metropolis conversion was not). The conversion was a total re-do and it was possible to install rigid conduit.

5.0 - Upon review of **Photo #18**; there is clear and obvious evidence of galvanic corrosion where incompatible metals (steel versus copper) directly meet each other.

5.1 - This progresses rapidly and is especially true when the ambient environment where located has a high relative humidity level (as it does, at times, in the FCU plenum for which this appears).

6.0 - Upon review of **Photos #21** through **#26** (as examples) it can be noticed that on the external surfaces of the some readily accessible and physically observable copper piping, valves and pipe fittings; bluish-green patina oxidation appears and white efflorescence mineral residue has collected.

6.1 - The blue-green oxidation is common but can be a result of a very small less than a pinhole leak. The white build-up of minuscule quantities of calcium, sodium, etc. is also common. We find this quite often - with the patina attributed to a Pipe Fitter's failure to remove excess & residual flux after soldering. Upon review of the **Photos #04** & **#05** (as examples) it can be noticed that the Pipe Fitter(s) also failed to remove excess solder before it hardened.

6.2 - The Conversion Drawings fail to specify the copper pipe / fitting type. In general, for the applications observed, we find that Type "L" should be used in lieu of Type "M". Just looking at the 3/4-inch & 1/2-inch sizes; Type "L" is 41 percent to 43 percent thicker and heavier than Type "M". We could not confirm as to what Type is installed, or if the installations include both types. Granted the copper pipe / fittings themselves can last upwards to 50 years if properly installed, yet pinhole leaks, poor solder or soldering and corrosion will decrease that useful expected life span and can lead to major water leaks.

6.3 - This observation of minor pipe / fitting patina and efflorescence would be risky to ignore. On the other hand, that alone does not mean the subject pipe / fitting joint will continue to corrode and leak. However, teamed with the understanding that soft solder may have been used in lieu of silver (hard) solder (which holds up better against stress, pressure and high temperatures) - any poor and sloppy installation can be expected to fail at some point.

6.4 - Soft solders or other low-temperature lead alloys are typically not suitable for the applications observed.

7.0 - Shown is a recent leak (**see Photo #27**) that when accessed for repair, the male pipe simply separated and pulled out of the female flared joint with no evidence of any solder. This specific failed connection was repaired using a mechanical pressure (i.e. "Pro-Press") application (**see Photo #28**).

7.1 -When installed (**see Photo #29**), in this case (as an example), it becomes evident that the horizontal runout from the riser is not aligned, is distorted and not connected horizontally plumb. There also is little evidence of solder. We suspect that the piping may have been used as handles for lifting or moving the FCU, or damaged somehow by other improper handling. It just happens to be that this joint on other heating hot water runouts has been identified as the source of most, if not all, past leaks. In the referenced Photo, it can be noticed that the runout off the HHW riser appears plumb, yet the runout extension to the FCU's coil appears out-of-line. It should be noted that there are at least 1024 of these connections making it likely that more leaks will show up.

8.0 - Upon review on **Photos #30** through **#33** (as examples), the drain pans are in bad shape (rusted and in some cases not clean). They appear to be coming close to being subject to rust breakthroughs, resulting in leaks when there is any condensation produced off the cooling coil.

8.1 - These FCUs have a standard galvanized drain pan, yet were available with the factory-installed option of stainless steel which could have prevented any rusting and premature failure.

8.2 - There is always the likelihood of having drain pan debris from a rusted pan clogging the drain tube creating a drain pan overflow.

9.0 - The noticed water alarms & leak alerts electronic detectors (**see Photos #34** & **#35**, as examples), as placed on top of semi-porous sheet insulation at the bottom of the FCU cabinet, are not the best position for them to be located. This would be true even if there were a slow water leak, notwithstanding a failed pipe joint located outside of the FCU cabinet (i.e. off the riser).

12.0 - Unfortunately, most of the risers are too close to the FCU to allow for shut-off valves to be installed between the riser and FCUs (**see Photos #12 & #36**). The risers are typically located either at the side or back the FCUs. Where the risers are at the side of the FCU, any valves external to that FCUs would not be readily accessible (not enough wall space for an access panel). In the many other cases, where the risers are at the back of the FCU, any valves external to those FCUs would be inaccessible.

12.1 - If feasible, this would allow work to be performed on a FCU without draining the entire riser. However, this would only be an advantage if a problem with the FCU was internal (i.e. upstream of [or before} the supply shut-off valve, or downstream of (or after) the return shut-off valve).

12.2 - The subject leaks, as understood, were all before the supply shut-off valve, and/or after the return shut-off valve - leading to the need to drain the riser to fix the problem.

12.3 - In other words, once the problems are addressed related to where past leaks occurred, having internal shut-off valves would be of little concern.

13.0 - Upon further surveying, the chances of finding a clean, unrusted drain pan; clean air filter & coil face; properly sealed & fully insulated pipes / fittings; three-way control valves; riser isolation & drain valves; expansion loops or compensators; properly installed pipe guides & anchors; labeled circuit & breaker ampacity electrical distribution panel (**see Photo #37**); or a leaking pipe, valve or fitting - all appear to be limited.

14.0 - The Conversion Drawing Piping Diagram shows pipe anchors at the 6th, 11th & 18th floors for 12 of the 15 pipe risers ("R-1" & "R-5" through "R-15"); and at the 11th & 18th floors for 3 of the 15 pipe risers ("R-2", "R-3" & "R-4"), all without any details related to type or position (i.e. above and/or below the floor slab).

14.1 - Upon further investigation, we found copper pipe riser clamps with proper rigid inserts in place of the pipe insulation with the clamps resting on, or up to, the structural slab. As installed, these will prevent vertical movement (up and down) of a riser at the point of where the anchor is located and secured.

15.0 - The Conversion Drawing Piping Diagram also shows pipe expansion compensators at the 8th & 15th Floors for 12 of the 15 pipe risers ("R-1" & "R-5" through "R-15"); and only at the 15th Floor for 3 of the 15 pipe risers ("R-2", "R-3" & "R-4"), again all without any details related to type. These devices allow for minimal and controlled pipe vertical

movement (up & down) between anchor points. It should be noted, however, that the Conversion Drawings presented a "*TOTAL ANCHOR-TO-ANCHOR EXPANSION TABLE*" with directions on the specifics related to the copper piping. It simply shows the heating hot water expansion at 1.8' per 100' length (which could also be interpreted as height). There are no specifics for chilled water. It also has a "*PIPE EXPANSION LOOP DIMENSION SCHEDULE*" showing total anchor to anchor expansion for various pipe sizes with related loop height & width dimensions.

15.1 -Upon review of **Photos #38, #39 & #40**), shown are typical pipe riser anchor point "anchored" at the floor slab using a Unistruct support and two-piece Unistruct steel pipe clamps, tightened around insulation inserts. This has been discovered for each and every location accessed.

15.2 -With pipe anchors at each floor, the pipe riser expansion does not seem to be of concern or as being responsible for past leaks. The HHW loops within the FCU take-up limited pipe expansion, and work well as long as the runouts are positioned centered in the FCU cabinet's expansion slot and those runouts from the riser tee are at 90 degrees as they enter the cabinet prior to soldering of the joints.

15.3 -The design intent was to spread any expansion in opposite directions from the anchor points. Expansion compensators where shown included in the riser, having anchor points mid-way between each expansion compensators. On those 16-story risers (i.e. "R-1" & "R-5" through "R-15"), shown was an expansion compensator off floors 8 & 15 with an anchor on floors 6, 11 & 18. On those 12-story risers (i.e."R-2", "R-3" & "R-4"), shown was an expansion compensator off floor 15 with an anchor on floors 11 & 18. Various locations accessed on floors - & - did not show any evidence of an expansion compensator. **Photo #41** is typical of each place where we were able to a see up into a pipe chase. As such, we found no evidence of any pipe loops. There also was no evidence of any expansion compensators (as where presented on the design documents).

17.0 - The Conversion Drawings failed to show any riser pipe guide locations or specifications.

17.1 - **Photo #42** shows riser pipes sitting in a guide. Upon review of the close-up (**see Photo #43**) without having any control of lateral movement, whereby pipe insulation has probably worn away and the pipe is being allowed to rock from side to side and will make noise when doing so. **Photo #44** shows a pipe clamp at the 4th Floor performing as a pipe anchor.

17.2 - Investigation found sufficient pipe riser clamps with proper rigid inserts in place of the pipe insulation.

18.0 - We reached out to an Associate Vice President of the Client Service Group with AMS (sub-contractor responsible of the installation), stating "*We are in the process of directing the Metropolis Condominium at 8 West Monroe where it will be required to replace 256 vertical 4-pipe fan-coil units. These were installed years ago by AMS. However, the building lacks specifics on riser pipe sizes, anchors, expansion devices, etc. In the event the AMS still has any shop drawing or other data, that can help with any of those unknowns, we are hoping that you, or one of your colleagues, can point us in the right direction so that we can secure any available documentation. Please let us know if there is a chance of this happening*.". AMS immediately replied "Let me check with my design group and see what old information we might have. I will get back to you.".

18.1 - Reply "*I* (AMS) *had to poke my IT department. Since the job was so old it got archived on our server so I do not have direct access to any files easily. Let me poke them and see what I can get. Sorry for the delay.*".

19.0 - Lack of proper expansion and other movement control due to improper pipe anchoring, pipe guiding and fire-stopping can all lead to stress / strain on the pipe fittings (especially any that have been less-than-professionally

installed), along with having the pipes pushed up, down or over to touch steel - all leading to eventual distribution system failures and leaks.

20.0 - In regard to the total FCU count for floors 4-12 & 14-20, based on the Conversion Drawings, we find that 256 vertical FCUs are used to serve the living quarters on those floors.

20.1 - There are 13 FCUs on the 4th Floor.

20.2 - There are 14 FCUs on each the 2 floors 5 & 6 - of which, per floor, one is horizontal type serving common areas.

20.3 - There are 16 FCUs on the 7th Floor - of which four are horizontal types serving common areas.

20.4 - There are 17 FCUs on each of 12 floors 8-12 & 14-20 (noting that the Conversion Drawing Riser Diagram only shows 15).

20.5 - The preceding does not count any FCUs on the 21st Level Penthouse of which none show up on the riser diagram or floor plan.

21.0 - Finally, we find that the typical useful expected life of these types of FCUs range for 15 years to 25 years, with 20 years being the average. Good maintenance and better quality materials (such as a stainless steel drain pan) would have increased the life expectancy (i.e. 25 years); while the lack of maintenance and poor quality materials, teamed with some of the other less than acceptable installation issues discovered so far, have decreased the life expectancy of the Metropolis Condominium's Residential FCUs (i.e. 15 years). In other words, it appears the FCUs are coming at the end of, or may have already exceeded, their useful expected life span.

21.1 - As such, we find that mandatory replacement of each and every FCU is required - as soon as possible.

22.0 - We understand that the past water leaks have caused many problems and we expect that another leak could happen at any time. All that puts the Metropolis Condominiums in a bad situation. Nevertheless, servicing of each FCU is encouraged, as is repairing of any pipe / fitting that appears subject to failure, yet if it wasn't urgent, all that could be a waste of time & money, versus entertaining the required replacements of these aged (going on 18 years old) assemblies and, when replaced, having the pipe / fitting, electrical and insulation issues addressed. Most often any such replacement project would ideally take place in the intermediate season, like right now (starting of Spring 2022). Unfortunately, time is not on our side and the supply chain problems are equally against us. For the time being, we may need to relay on the water alarms warning us of failures until mandatory replacements are scheduled.

22.1 - Replacements could dictate 15 stages, one for each riser, with each stage taking at least 3 to 4 days.

22.2 - All will be disruptive, costly, inconvenience and will require scheduled shutdowns. To complicate matters, with the FCU isolation valves located within and being part of each FCU to be replaced, the HHWS, HHWR, CHWS & CHWR runouts will have to be cut at each of the 15 four-pipe risers. This will require each entire riser to be isolated and drained. Unfortunately, the Conversion Drawing Piping diagram and floor plan failed to show the location of, or existence of, any riser isolation and drain valves, nor are any pipe sizes shown (other than 2" for the chilled water and 1-1/2" for the heating hot water where the drop down from the 10th floor ceiling space). The only exception is that sizes are shown for the condensation drains.

23.0 - Once all FCUs are replaced and runouts properly installed, we would not expect any leaks, and also could conclude that external shut-off valves would be of little use.

24.0 - **Photo #46** shows a FCU with its face panel removed. In order to replace the FCU, a good portion of the finished wall will need to be removed, replaced and patched. The FCU cabinet itself is behind the finished wall. This becomes even more disruptive when it comes to wall removal / replacement to have access to the pipe risers, runout tees, stub out extensions and / or all related pipe insulation - for either repairs or replacements.

25.0 - In that the pipe anchors observed are confirmed as proper, once all pipe insulation issues addressed, the HHWS. HHWR, CHWS, CHWR & CD risers themselves can remain. However, each replaced FCU will require new branch runouts and runout connections at the related riser.

26.0 - Mandatory replacements shall include three-way control valves for FCUs on the lower two floors (**see 1.0**), HHW & CHW balancing valves for all FCUs (**see 2.0**), 1-1/2-inch thickness fiberglas insulation with an ASJ to replace compromised flexible elastomeric "unicellular" pipe insulation (**see 3.1**), properly applied FCU Insulation lining (**see 3.5**), rigid conduit versus cable (**see 4.0**), galvanic corrosion protection where incompatible metals (steel versus copper) directly meet each other (**see 5.0**), silver (hard) solder versus soft solder (**see 6.3**), remedy to correct "bad" pipe fitting joints (**see 7.0**), stainless steel drain pans (**see 9.0**), and properly placed water alarms & leak alerts (**see 9.0**).

The preceding initial review information is not to be construed as an endorsement, or as nonconstructive criticism, of any or all of the designed systems, or of those that designed such systems. This analysis was created to provide the Metropolis Condominium Association with accurate and authoritative information. It is intended that this information be reviewed by the Metropolis Condominium Association and the Building Group.

Very truly yours,

SUNNYSIDE DESIGN GROUP, INC.

Michael H Wulf Sr

Michael H. Wulf, Sr.
Building Systems' Consultant

MHWSR / kd

encl. - 43 Photographs (#01 thru #18 & #21 thru #45)

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Metropolis – 8 W. Monroe St. FAN COIL UNIT EDUCATIONAL EVENT

Dear Homeowners at 8 W. Monroe,

Thank you for attending the Unilux Suite Solutions educational event on the state of the building's fan coil units.

The original fan coils are 20+ years old, past their useful lifespan.

In their current state, these fan coils have a much higher risk of:

- Flooding, as the drain pan develops corrosion, the drain line can get clogged with debris.
- Poor heating and cooling as debris accumulates on the fan and coil.
- Compromised Indoor Air Quality (IAQ) from deteriorated fiberglass insulation and microbial growth.

For more information related to the April 27th presentation including the slides, the Zoom replay of tonight's event, and to place an order, please visit:

www.uniluxpayments.com/metropolis

or, call our Chicago Office at 773-891-7565.

About Unilux Suite Solutions

Unilux, established in 1972, is one of the largest manufacturers and installers of fan coil unit systems in North America. For more information, please visit www.uniluxsuitesolutions.com or contact us at info@uniluxsuitesolutions.com.

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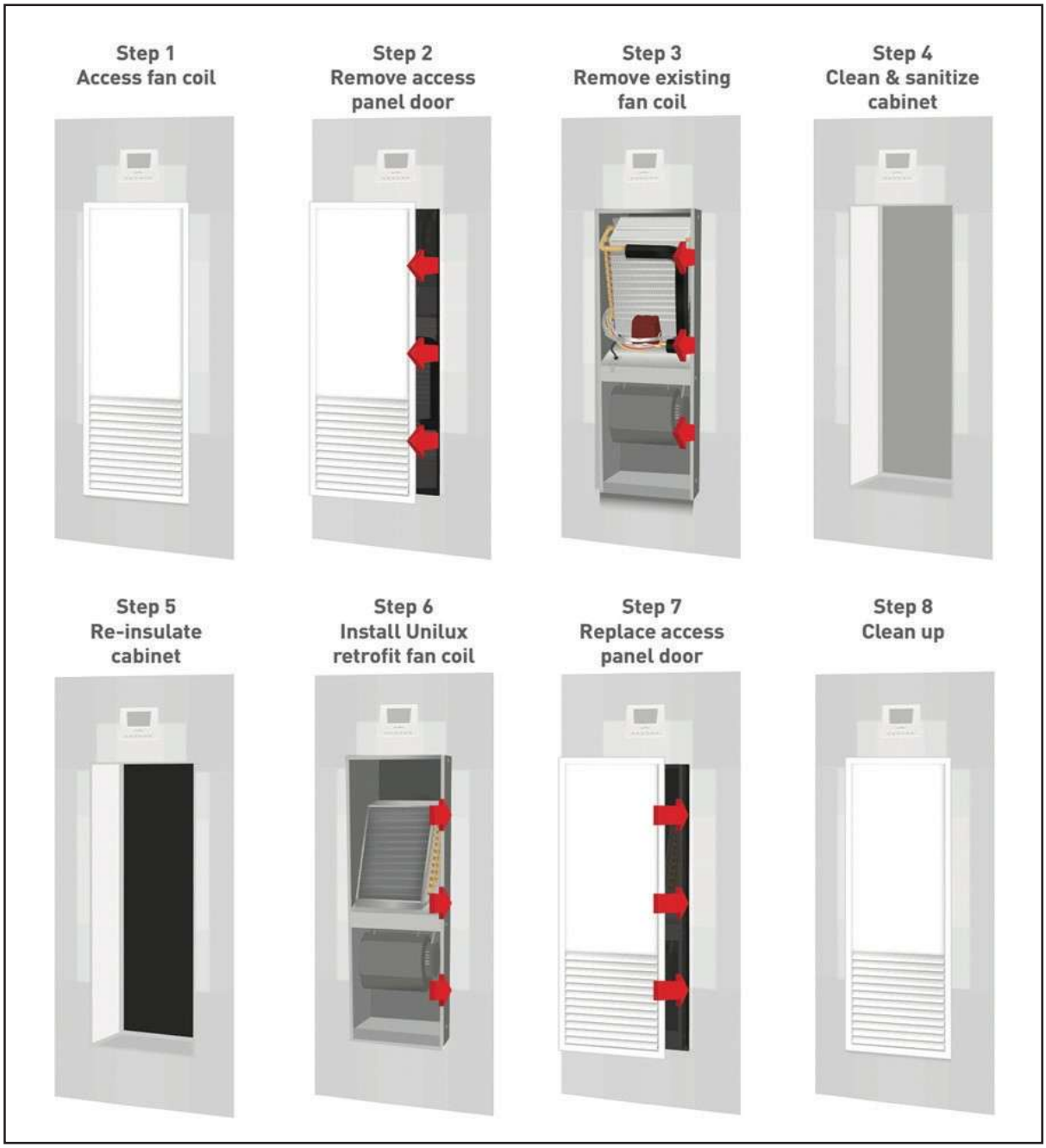
www.uniluxsuitesolutions.com

The Retrofit Process

The Unilux retrofit insert is designed to minimize the disturbance to the resident but still meet the same standards in quality and longevity of the original fan coils installed during the building's construction.

The retrofit insert unit replaces all the functional components of the fan coil without damaging the existing drywall, trim, or paint.



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Scope of Work

UNILUX
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1. *Remediation and Removal*

- Protect floors and walls around fan coil with mats and plastic sheets.
- Erect negative-pressure tent to prevent fiberglass and microbial growth from contaminating the suite.
- Disconnect existing equipment from power and water supply.
- Remove original equipment and interior cabinet components including coil, blower, drain pan, fan housing, wiring, and fiberglass insulation.
- Remediation in accordance with Illinois Department of Public Health guidelines.

2. *Supply and Install Fan Coil*

- Install closed-cell anti-microbial foam insulation along cabinet walls.
- Supply and install Unilux retrofit fan coil unit to match existing capacity.
- Water Coil: 4-pipe; 1/2" copper with corrugated aluminum fins; manual air bleeder.
- All stainless-steel chassis.
- Drain pan fully welded and positively sloped to center.
- ECM motor, 3-speed fan, flood sensor, ecobee smart thermostat.
- 3-way valve and actuator.
- Reconnect system to power and water supply, and test.
- Change isolation valves.
- 2-year warranty (optional 5-years).

3. *Replace riser T-connection (branch line connection to main riser)*

- Turn off water to the riser and drain system.
- Cover floors and furniture with plastic; cut drywall in front of risers.
- Remove existing riser T-connection.
- Furnish and install new cooper Ts, connecting riser with fan coil branch line.
- Four connections per fan coil (hot supply, hot return, cold supply, cold return)
- Pressure test; refill riser.
- Replace drywall, plaster, and prime paint (color match not included)

Pricing:

- $9,300 per fan coil unit model SC300-800

5545 N. Northwest Highway, Chicago, IL 60630
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www.uniluxsuitesolutions.com

Two payment options

1. 30% deposit, 70% upon completion
2. 30% deposit, 70% spread across 12 equal monthly payments ($300 admin fee)

Notes

1. This quotation is valid for 30 days.
2. Fan coils have a 2-year warranty on manufacturing and installation defects. Plumbing work has a 1-year warranty on workmanship.
3. If owners do not opt in to riser repair option, then the building's chief engineer will be required to drain and refill the risers.
4. Permits, permit drawings, and structural engineering is not included. If risers are not properly anchored, Unilux will notify management before any work commences.
5. This Quotation is based upon the specifications provided. Every attempt has been made to comply fully with all applicable sections, except as noted. All equipment proposed is itemized for your review. Any item that should have been specified, but is not listed, is not included. A careful review of the Specifications, Drawings and any addenda should be made and compared for compliance with this Quotation.

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Metropolis
8 W. Monroe Street
April 27, 2026

Fan Coil **Unit**

UNILUX
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About **Unilux**

- Established in 1972
- Offices in Chicago, Toronto, and Maryland

- Over two million units built
- Largest FCU manufacturer in North America

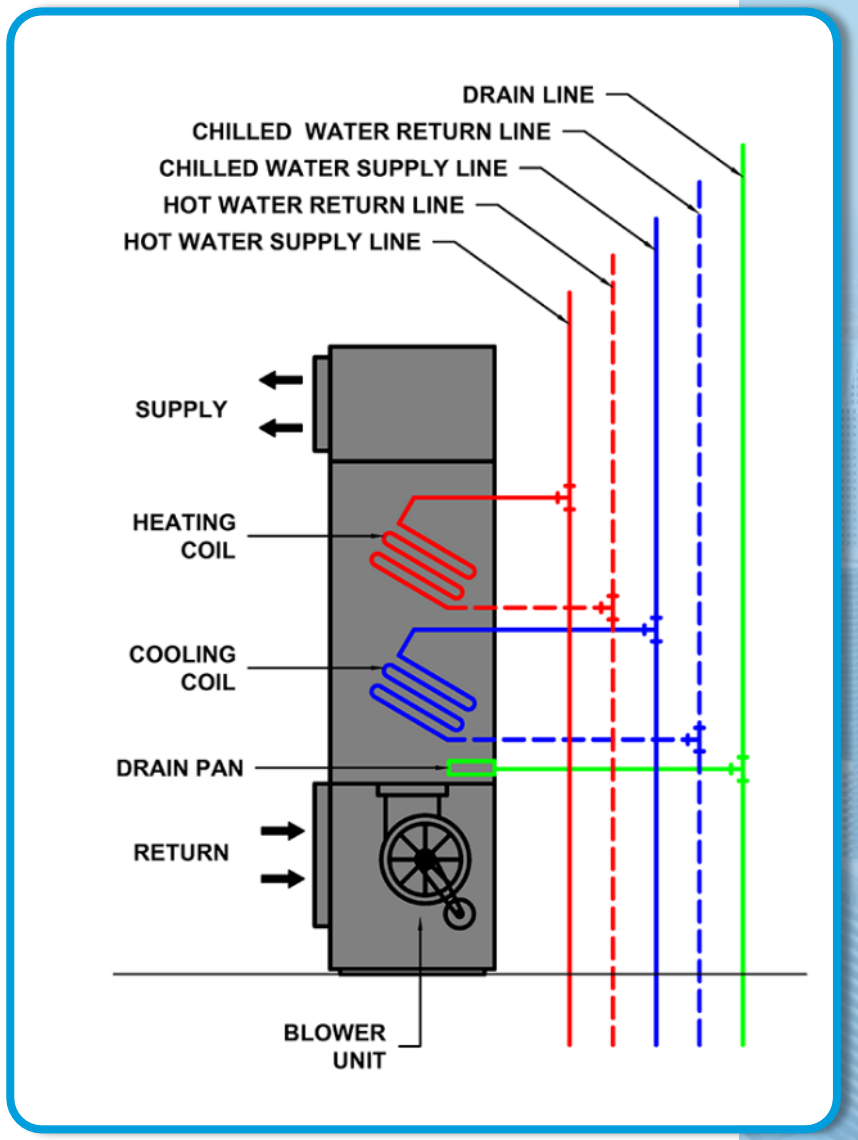
Building System
HVAC Overview

Your **Fan Coil Unit (FCU)** filters your air and provides your condo with heating and air conditioning.

For heating, a **boiler** produces hot water which is pumped throughout the building through a series of vertical pipes called **risers**.

For cooling, a **chiller** produces cold water which is pumped throughout the building via its risers.

Your FCU is connected to one of the many risers in the building, the same **risers** as the unit above and below you.



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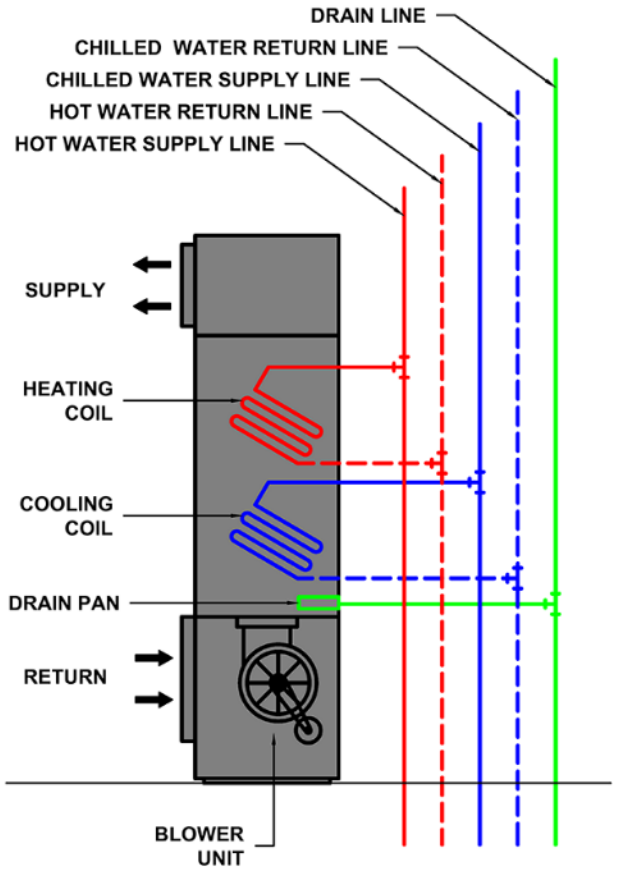
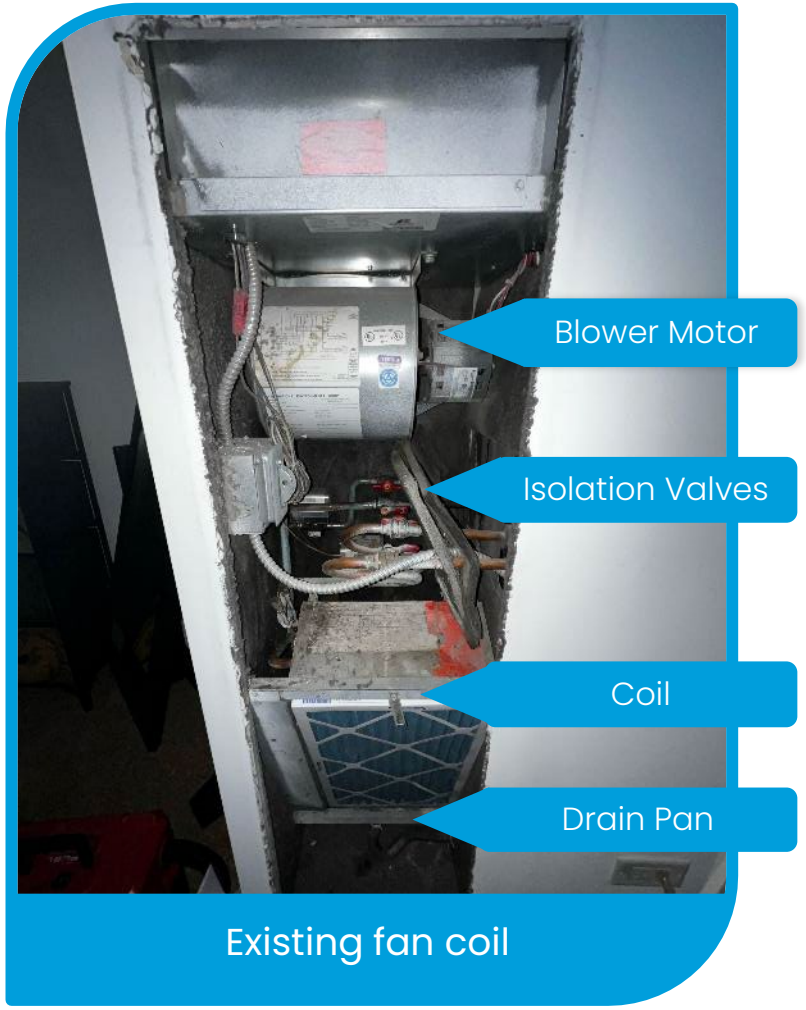
Current Equipment
Overview





Existing fan coil

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Risks with fan coils
over 20-years old

- Riser Ts and branch lines
- Dust and debris
- Clogged coils and flood risks
- Reduced air flow
- Microbial growth

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Riser Ts & **branch lines**

Open cavity

Insulation peeled back

Insulation peeled back

Open cavity

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Increased **Flood Risk from existing Riser Ts**

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Deteriorating fiberglass **insulation**

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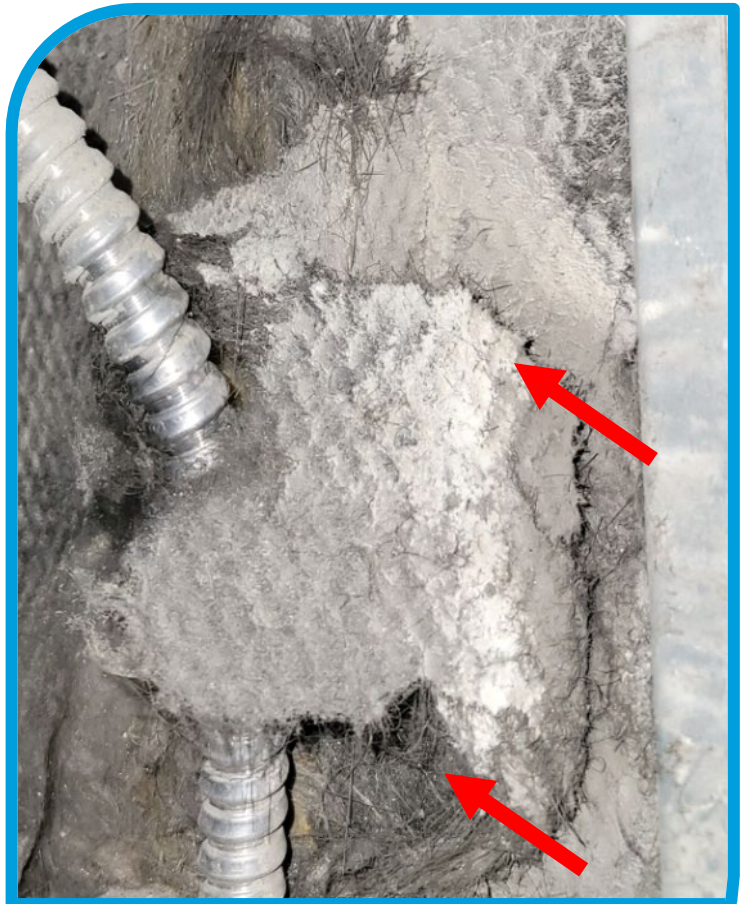

Side Cabinet Wall

Bottom of Cabinet

Side Cabinet Wall

Increased **Flood Risk**

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Drain pan

Dust Buildup

Drain pan compromised + Leak

Dust **build up**

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Coil housing

Cabinet walls

Coil housing

Clogged coil – **example 1**

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Significant blockage

Significant blockage

Significant blockage

Clogged coil – **example 2**

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Less air flow & drain clog risk

Less air flow & drain clog risk

Less air flow & drain clog risk

Flooding – **example 1**

Water overflowing from pan

Wet spots and mold growth

- The larger clumps of dust fall into the drain pan and eventually clog the drain line and cause a flood.
- Unilux's inspections found multiple units which were in the process of flooding. Management was notified immediately and rectified the issue.

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Flooding – example 2

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- The larger clumps of dust fall into the drain pan and eventually clog the drain line and cause a flood.
- Unilux's inspections found multiple units the process of flooding. Management was notified immediately and rectified the issue.

Water overflowing from pan

Water marks

Flooding – example 3

- The larger clumps of dust fall into the drain pan and eventually clog the drain line and cause a flood.

Water overflowing from pan

Water marks

Visible **microbial growth**

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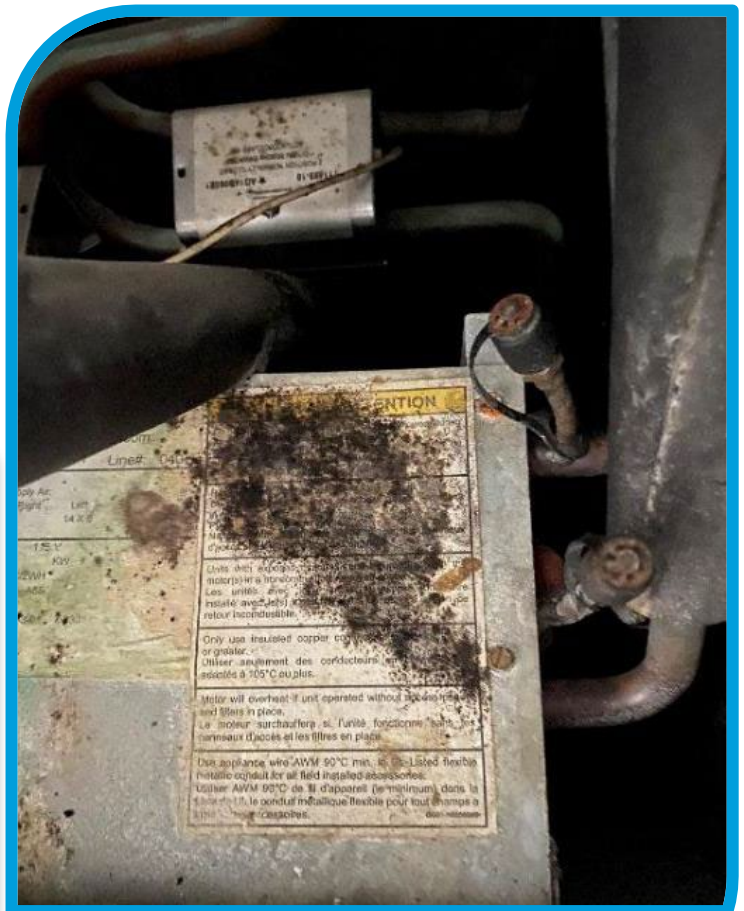
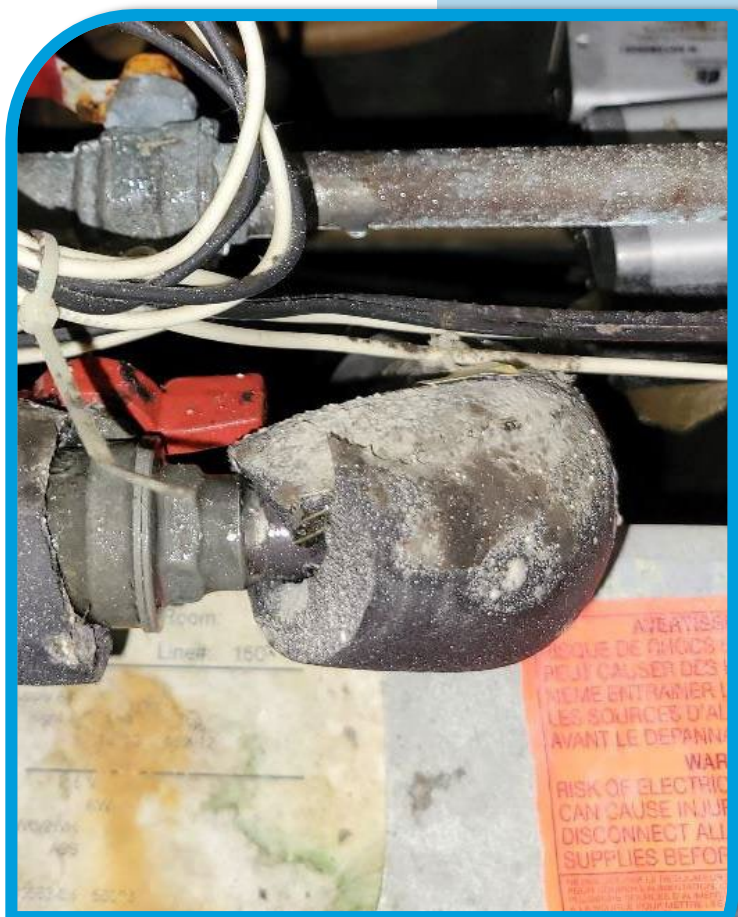
Bottom of Cabinet



Blower Housing



On Pipe Insulation

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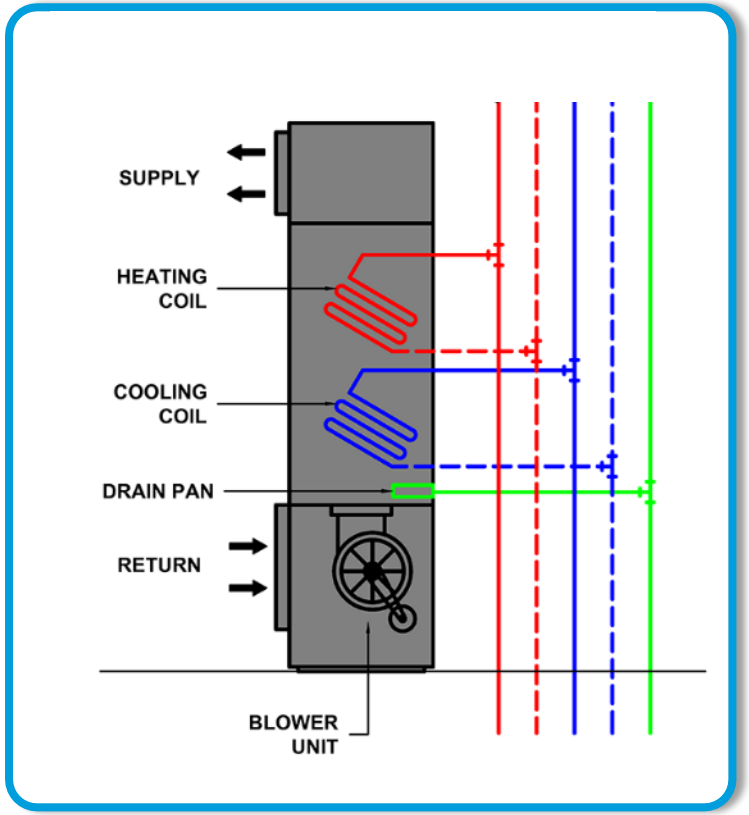
Part Two:

Phase 1: Riser T Replacement

Phase 2: FCU Replacement



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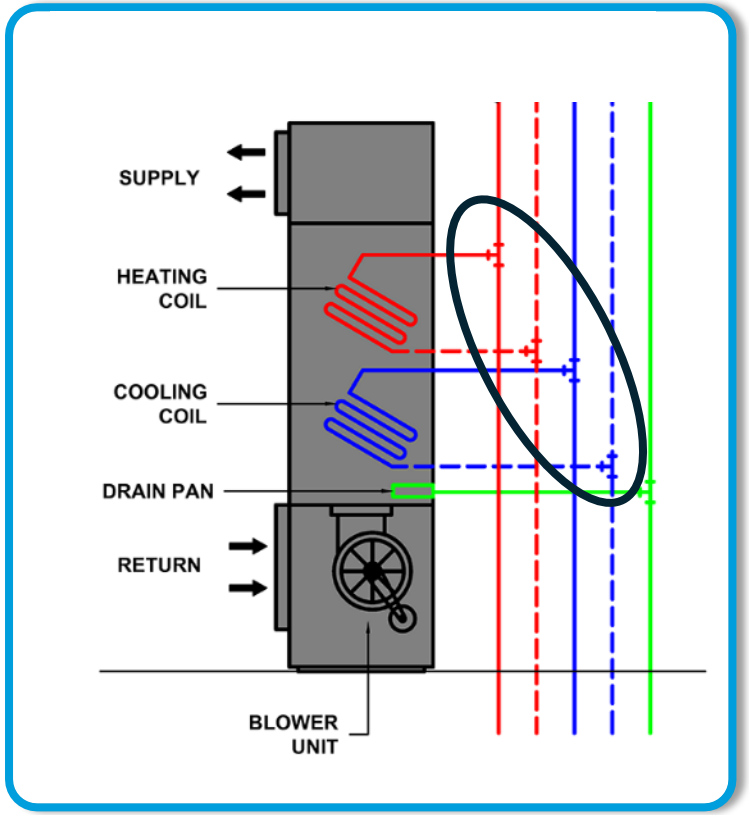
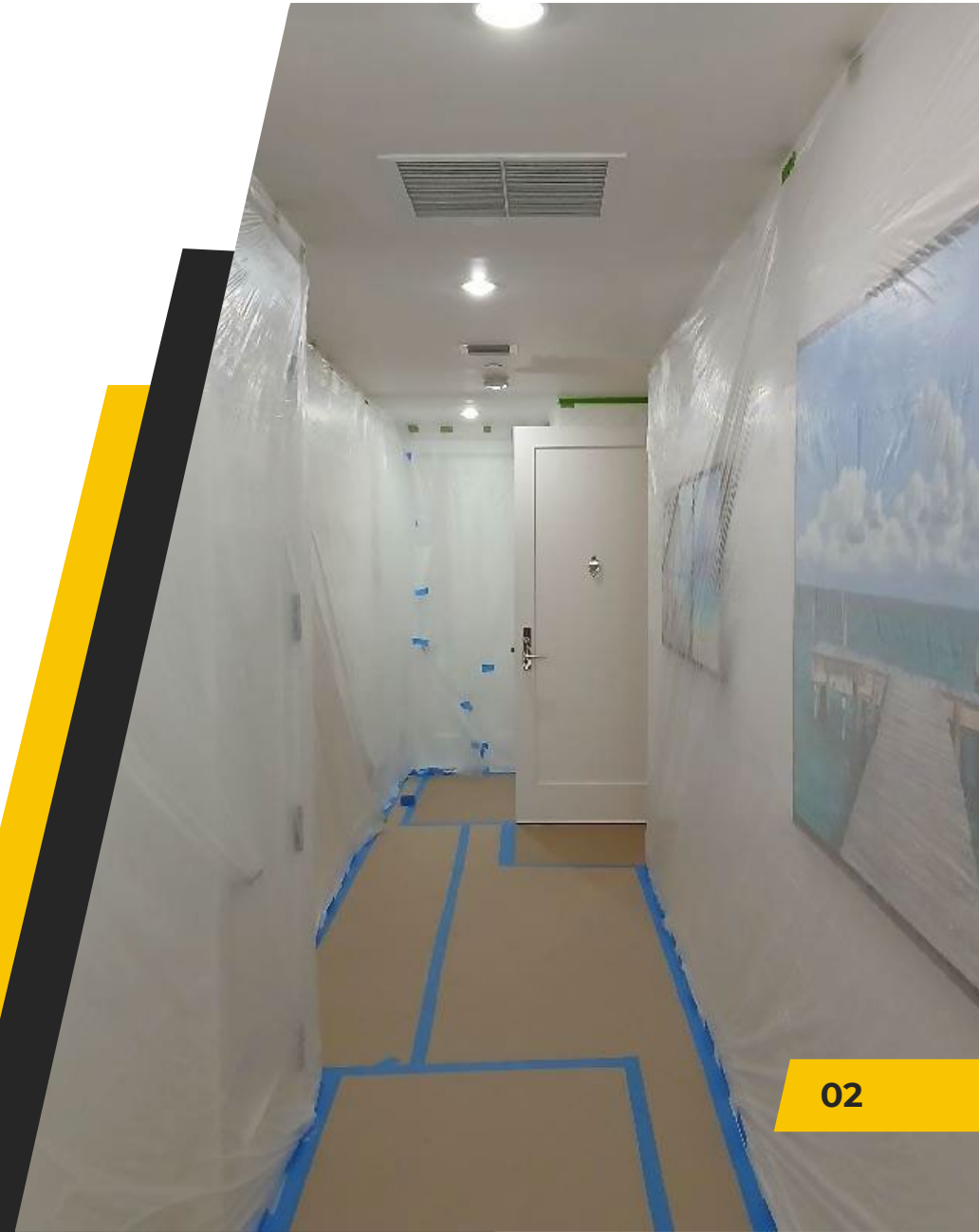
Phase 1: Riser T Replacement

Phase 2: FCU Replacement



STEP 1: PROTECT WORKING AREA

- All work areas are fully sealed using protective plastic barriers to limit dust and debris
- Floors are covered with durable protective materials to prevent damage
- Furniture and personal belongings are carefully wrapped or relocated as needed



STEP 2: ACCESS

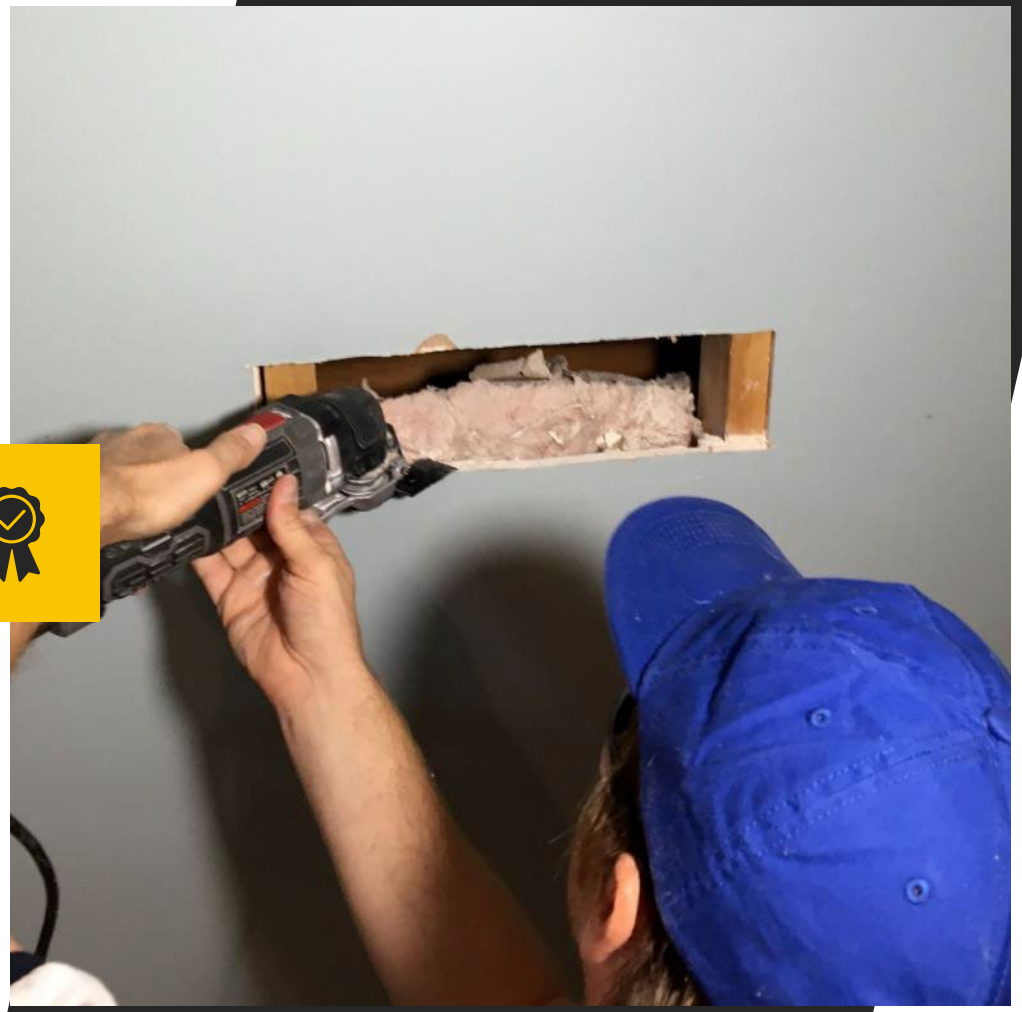
Potential Access: Cut Hole On The Left, Right, Or Back of the Cabinet

BERNA CONSTRUCTION

STEP 3: REPLACE AND INSTALL VALVES AND PIPE




BERNA CONSTRUCTION



STEP 4: FINAL RESTORATION & FINISHING

- All opened walls and ceilings will be professionally patched
- Drywall repairs will be finished to a smooth, paint-ready surface
- Work areas will be thoroughly cleaned and cleared of debris

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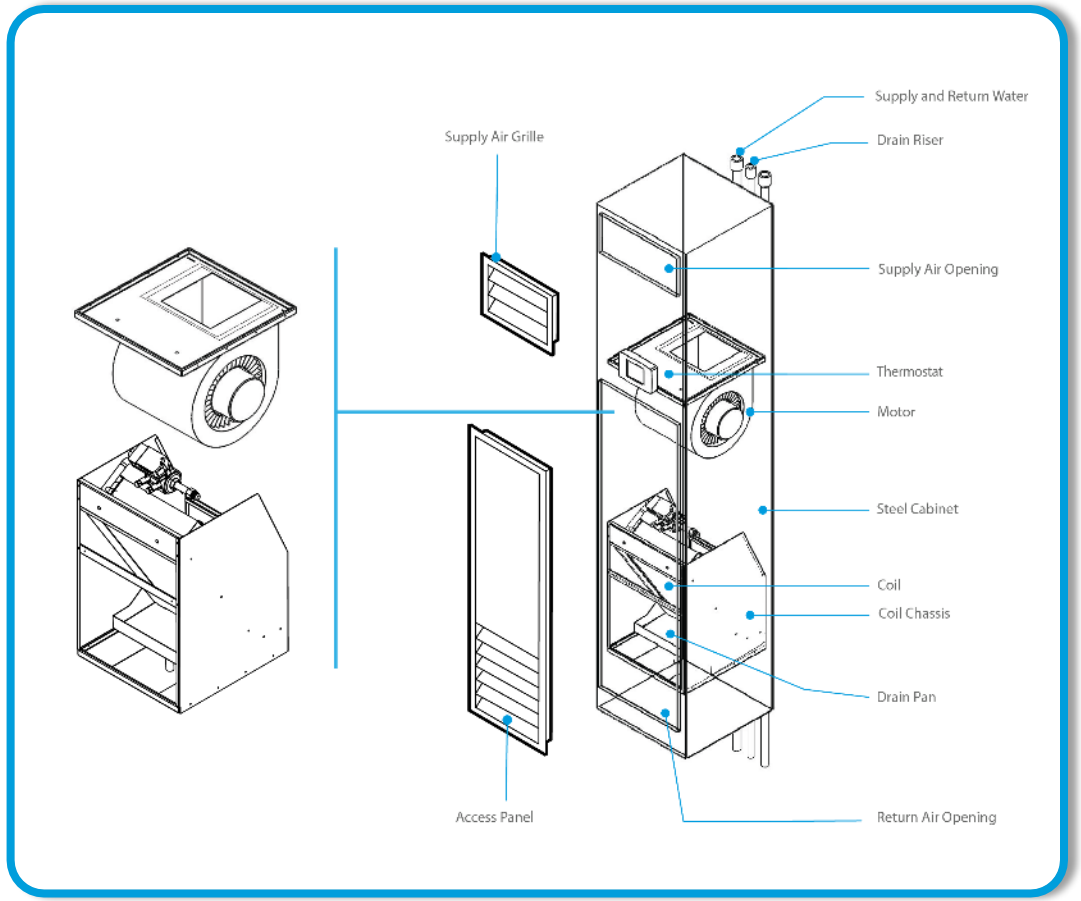
Phase 1: Riser T Replacement

Phase 2: FCU Replacement



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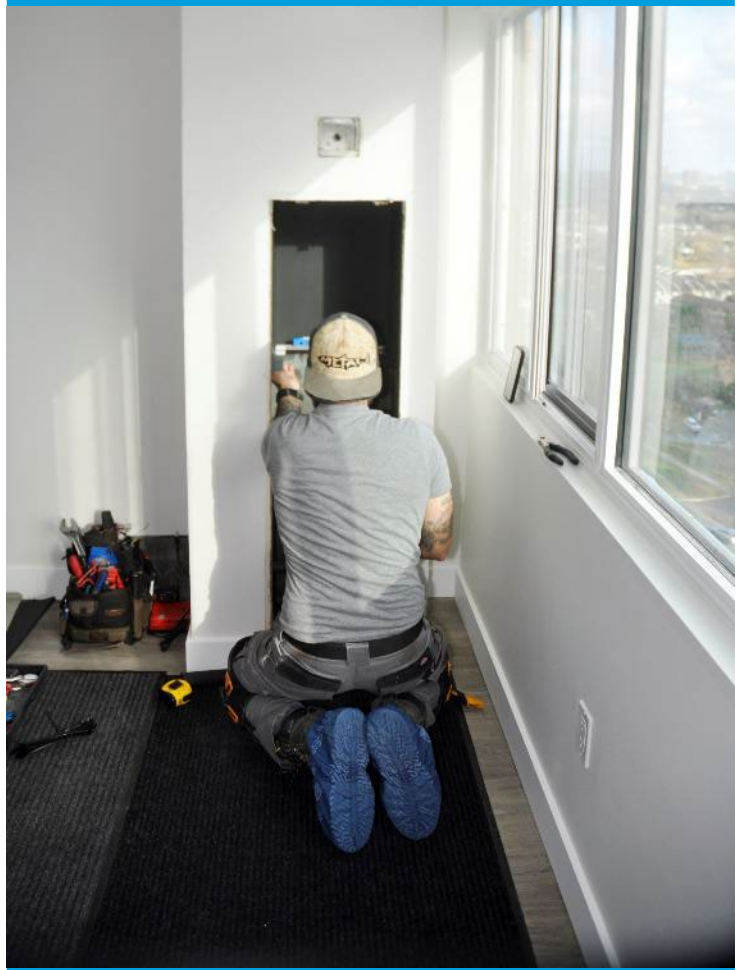
2-step replacement **process**

1. FCU Removal

2. FCU Installation



Fan coil **removal**

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1. FCU Removal

- Floor coverings provided
- Remediation done under Illinois Department of Health guidelines
- Negative Pressure from vacuum protects the indoor environment
- Waste bagged within the tent and removed
- Technicians wear full hazmat suits and respirators
- Residents are safe to be within the condo

Fan coil **installation**

2. Installation

- **Cabinet cleaned and reinsulated with closed cell foam insulation**
  - Does not absorb moisture
  - Anti-microbial properties
  - Thermal barrier
  - Sound dampening
- Unilux Technicians will need access to each condo on the same riser to perform final testing and commissioning

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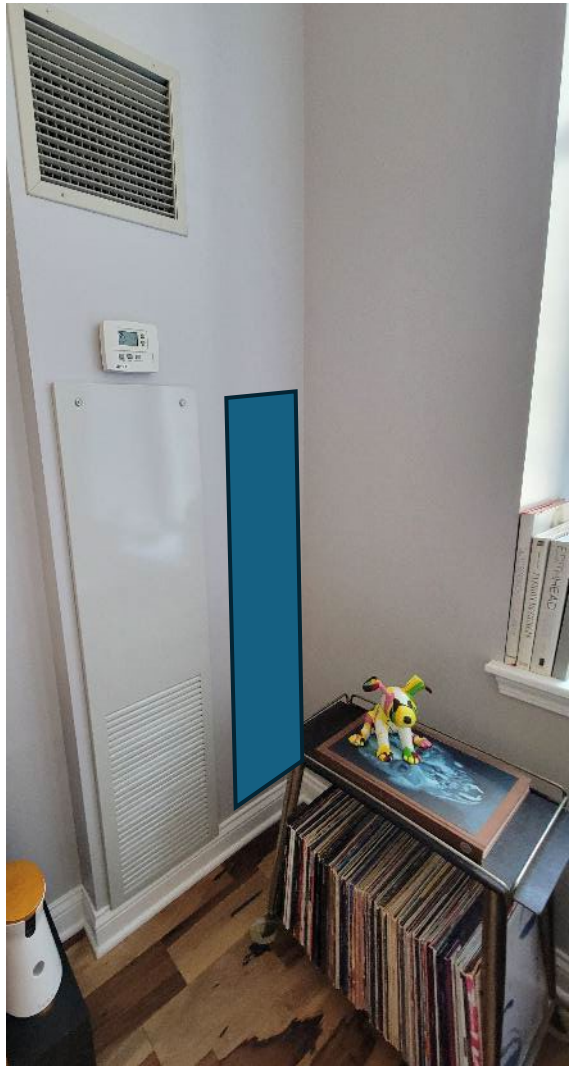
Timing

- Aiming to complete one riser per week (up to 1.5 weeks if all 15 units sign up)
- We need access to your unit for 4 days to complete the work

Day 1	Cut wall, replace riser-T and isolation valves
Day 2 to 4	Drywall, plaster, and primer
Day 3 to 4	Old fan coil removed and new one installed



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How to **prepare**

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- Clear path from the door to the fan coil unit wide enough (3’ +) to fit a technician and their tools.
- Remove any pictures or wall mounted items in both rooms front and back of the fan coil unit.
- We require a 4’ x 6’ working area in front of the fan coil but understand walls and windows can get in the way.

New included **Thermostat**

Ecobee Smart Thermostat Lite Pro

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Part Three: **Next steps**

1. **Signing up**
   The sign-up process
2. **Financing**
   Options
3. **Benefits**
   Benefits of replacement

Owner **Participation Program**

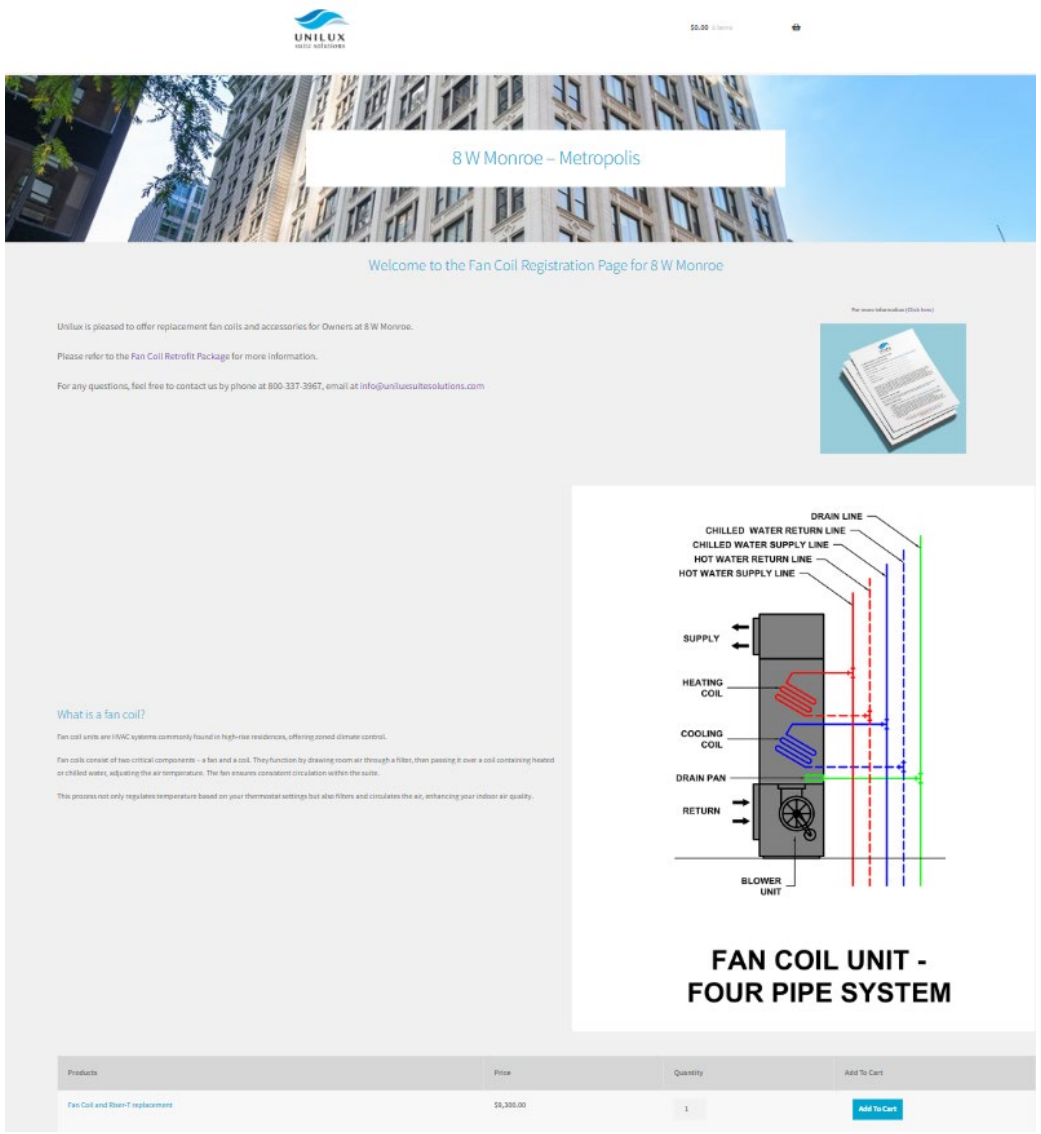
www.uniluxpayments.com/metropolis

Cost

- Cost for EACH FCU System replacement is $10,300 less a $1,000 Manufacturer's Temporary Discount. The final price for each FCU system replacement is $9,300.
- Please note that Unilux pricing is temporary and subject to change after the sign-up deadline.

Timing

- Deadline to sign up for 2026 replacements is SUNDAY May 31st, 2026
- Fan Coil Unit System replacements begin in August.



Payment **options**

30% down, **70%** upon completion (**No financing, no additional fee)**	Example with **ONE $9,300 fan coil unit**	30% down: **$2,790** 70% balance: **$6,510**
30% down, remaining **70%** upon completion spread across 12 equal monthly payments at 0% (**$300 admin fee)**	Example with **ONE $9,300 fan coil unit**	30% down: **$2,880** 70% balance: **$560 x 12 months**
3rd-Party Financing through our partner, Regions Bank • **6.99% APR for 60 monthly payments (subject to credit approval). Please contact administrator@uniluxsuitesolutions.com to learn more.**	Example with **ONE $9,300 fan coil unit**	**0% down** **60 monthly payments of $184.11**

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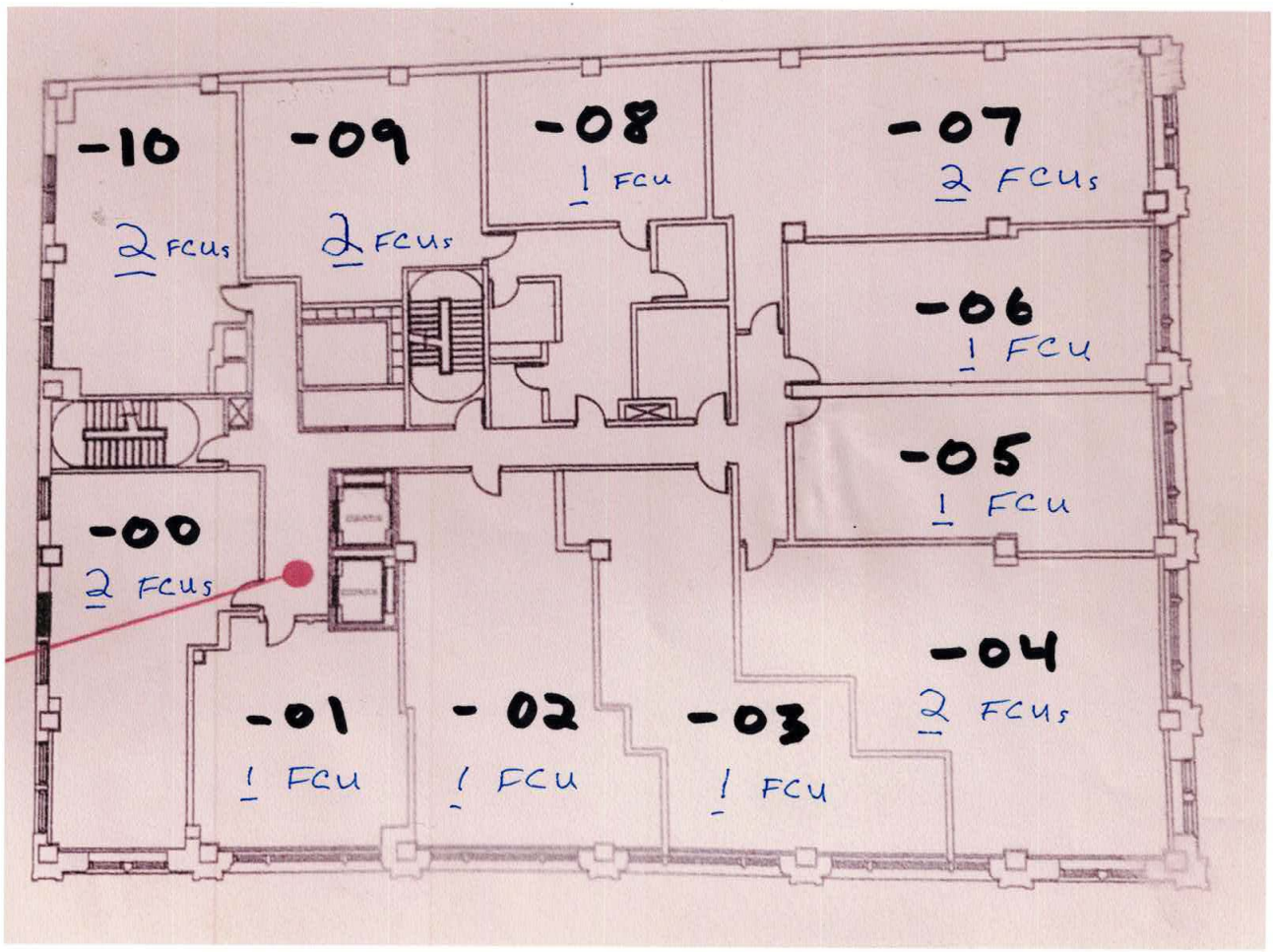
How many **FCUs do I have?**



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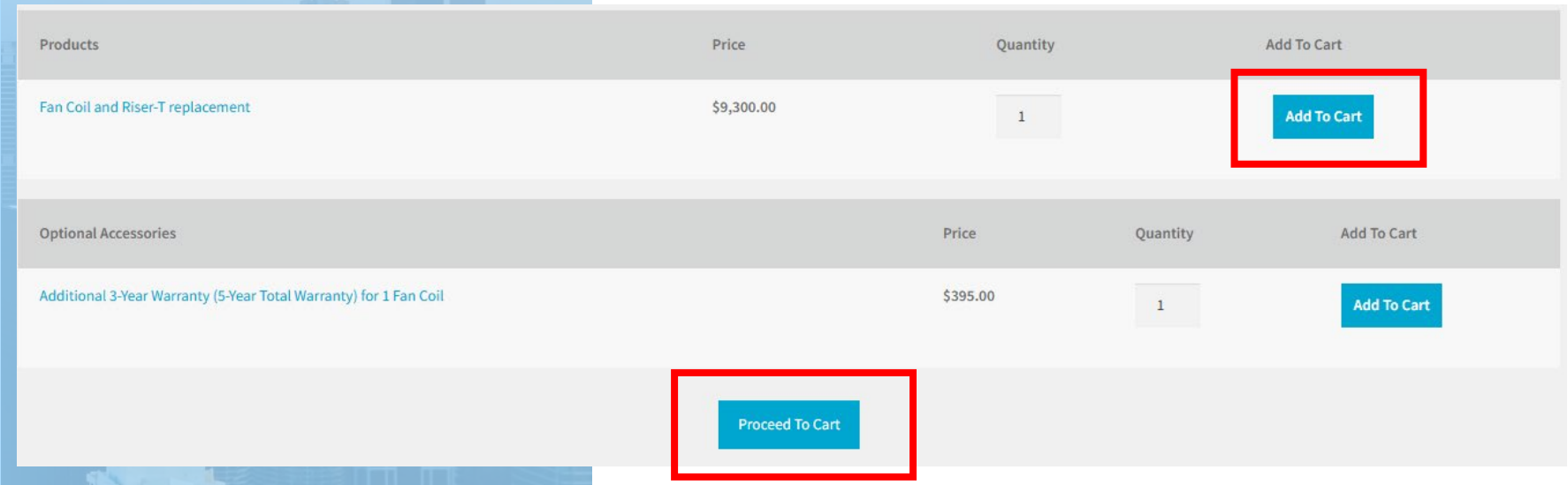
Using the **portal** – Step 1



1. Select product option and quantity
2. Add product(s)to cart
3. Select optional accessories and quantities
4. Add accessories to cart
5. Click “Proceed To Cart” button

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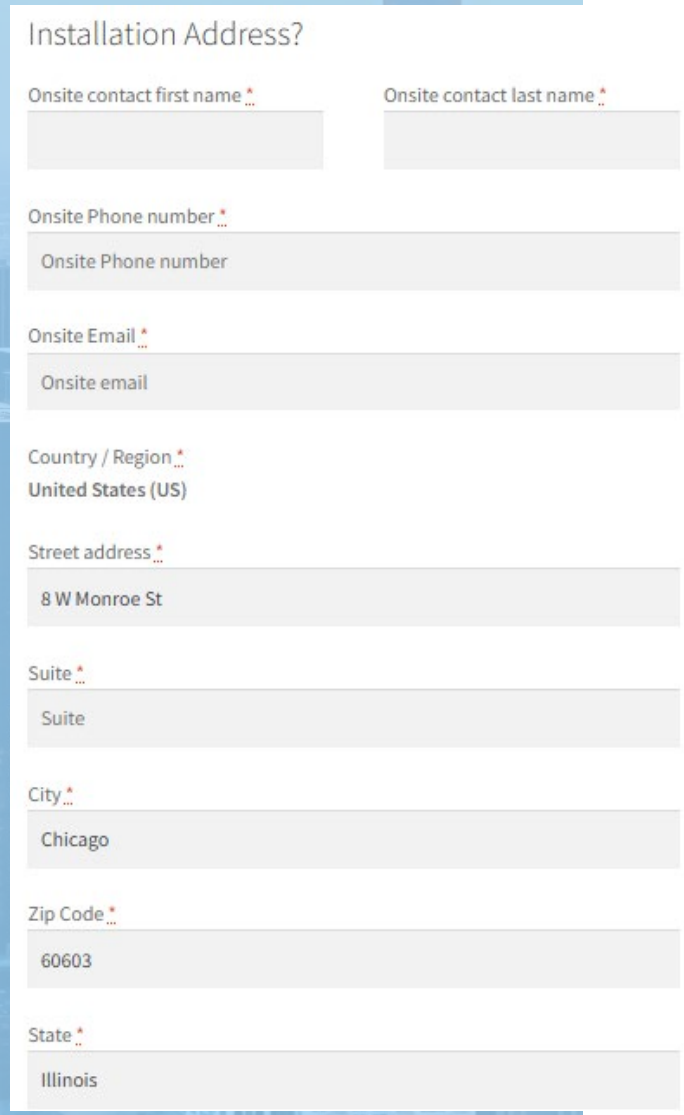
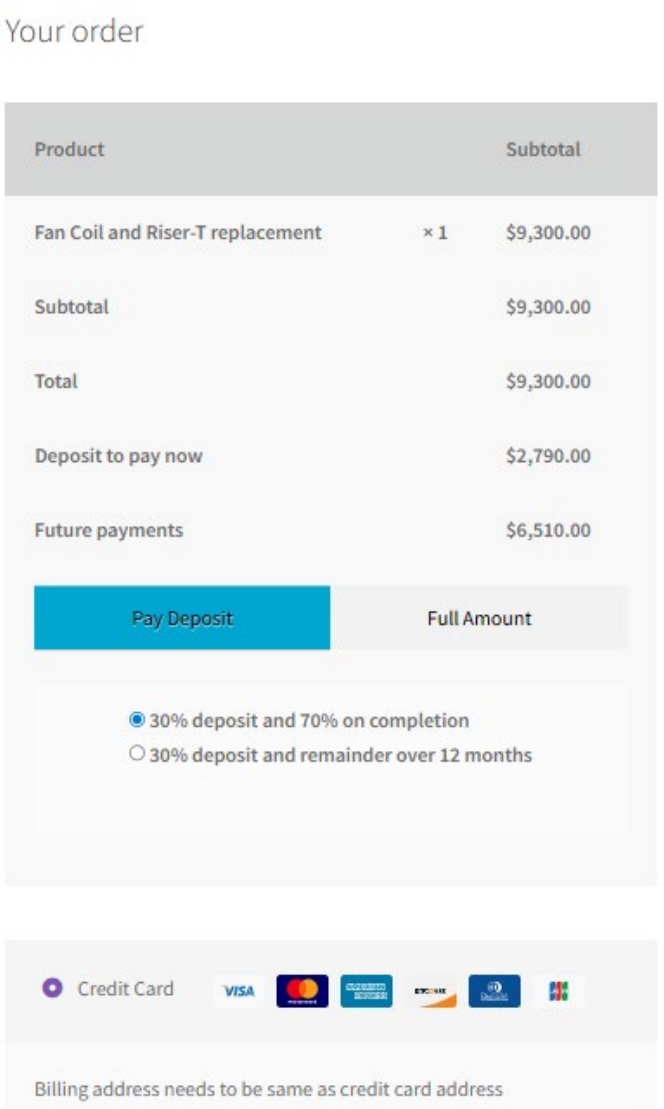
Using the **portal** – Step 2





1. Enter your contact information
2. Enter your suite number (your installation address is pre-populated)
3. Click link to copy over billing address or enter a different one
4. Choose payment plan
5. Enter credit card details

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Using the **paper form**

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Metropolis, 8 W. Monroe: Fan Coil Sign Up Form

Thank you for choosing Unilux to replace your aging HVAC fan coil units.

To sign up, please order here www.uniluxpayments.com/metropolis preferred) or complete the below form. Payments will be processed upon receipt. Deliver the form and deposit check in an sealed envelope to your building management office. Unilux will pick these up from the office weekly.

Step 1:

Please enter desired fan coil unit quantity. **Please calculate the subtotal and deposit amount (teal columns) and the total deposit amount (green).**

Product	Quantity		Cost Per		Subtotal	Down Payment %	Deposit Amount
Fan Coil Unit Replacment - Metropolis		X	$9,300	=		X30%=	
Extended Warranty (Optional)		X	$395	=		X30%=	
Total							

Step 2:

Please choose a payment option:

- Payment Option A:
  - 30% down payment required during sign-up period.
  - Remaining 70% balance due upon completion.
  - No Financing

- Payment Option B:
  - 30% down payment required during sign-up period.
  - Remaining 70% balance split evenly across 12 equal monthly payments.
  - Additional $300 finance charge will be added to total cost. There is 0% interest.

- Payment Option C
  - 0% down. 100% of financing through our banking partner, Regions Bank.
  - Entire Cost of Fan Coil and Accessories purchase can be financed at 6.99%* for 5 years* (*subject to prevailing interest rates and credit approval).
  - Unilux will contact you to provide further instructions.

Step 3.

Please complete the form below by **Sunday May 31st, 2026**

If paying by credit card: the deposit will be charged upon receipt. The balance will be charged after installation.

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If paying by check: deliver a check for the deposit amount along with this form to the management office. We will call you to collect the balance after completion.

Name of Suite Owner(s):	
Installation Address:	Metropolis – 8 W. Monroe Street
Suite #	
30% Total Deposit Amount (calculated on previous page in green column)	
Phone #	
Email Address:	
Payment Method: *(Check or Credit Card)*	Credit Card ☐ Check ☐
Payment Details: *If paying by check, please make check payable to "Unilux Suite Solutions". Payment must be included at time of order. If you would like to leave your credit card details blank for privacy concerns, we can call you to take them over the phone.*	Check # Credit Card Holder Name: Credit Card # Exp. Date: CVC Code: **Billing Address for Credit Card:**
Owner's Signature:	
Date of Acceptance:	

Questions? Call or email us at

P. 800-337-3967 | **E.** info@uniluxsuitesolutions.com

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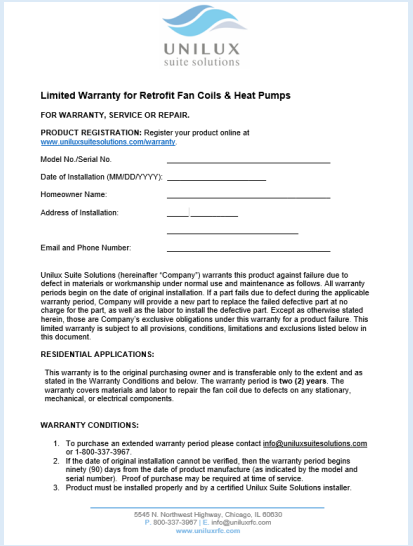
Optional item – Extended Warranty

Additional 3 years of warranty (5-year total warranty)

- 1-year warranty on riser T replacement
- Standard 2-year warranty included with FCU purchase price
- Option to upgrade warranty for an extra 3 years (total 5-year warranty for fan coil only)



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Limited Warranty for Retrofit Fan Coils & Heat Pumps

FOR WARRANTY, SERVICE OR REPAIR.

PRODUCT REGISTRATION: Register your product online at www.uniluxsuitesolutions.com/warranty

Model No./Serial No. _____

Date of Installation (MM/DD/YYYY): _____

Homeowner Name: _____

Address of Installation: _____

_____

Email and Phone Number: _____

Unilux Suite Solutions (hereinafter "Company") warrants this product against failure due to defect in materials or workmanship under normal use and maintenance as follows. All warranty periods begin on the date of original installation. If a part fails due to defect during the applicable warranty period, Company will provide a new part to replace the failed defective part at no charge for the part, as well as the labor to install the defective part. Except as otherwise stated herein, those are Company's exclusive obligations under this warranty for a product failure. This limited warranty is subject to all provisions, conditions, limitations and exclusions listed below in this document.

RESIDENTIAL APPLICATIONS:

This warranty is to the original purchasing owner and is transferable only to the extent and as stated in the Warranty Conditions and below. The warranty period is **two (2) years**. The warranty covers materials and labor to repair the fan coil due to defects on any stationary, mechanical, or electrical components.

WARRANTY CONDITIONS:

1. To purchase an extended warranty period please contact info@uniluxsuitesolutions.com or 1-800-337-3967.
2. If the date of original installation cannot be verified, then the warranty period begins ninety (90) days from the date of product manufacture (as indicated by the model and serial number). Proof of purchase may be required at time of service.
3. Product must be installed properly and by a certified Unilux Suite Solutions installer.

5545 N. Northwest Highway, Chicago, IL 60630
P. 800-337-3967 | E. info@uniluxnfc.com
www.uniluxnfc.com

$395

Benefits of FCU **replacement**

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Before

After

Improved Indoor Air Quality:

- Closed cell anti-microbial foam insulation
- Improved air flow and ventilation

New High Efficiency ECM Motor:

- Energy efficient
- Quieter operation

Reduced Risk of Flooding:

- Drain pan with a 3-sided angled design
- Flood sensor

Program summary

- Existing fan coils are past their useful life of 20 years, and branch lines need to be replaced.
- Clogged fan coils, flood signs, and reduced air flow have all been observed.
- The deadline to sign up is Sunday May 31st, 2026
- Fan Coil Unit Replacement-- $9,300 per fan coil unit system replacement (price includes $1,000 temporary manufacturer's discount).
- The fan coil unit replacement project start date is targeted for late Summer or Fall 2026.

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www.uniluxpayments.com/metropolis

Metropolis, 8 W. Monroe: Fan Coil Sign Up Form

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  - No Financing

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  - Remaining 70% balance split evenly across 12 equal monthly payments.
  - Additional $300 finance charge will be added to total cost. There is 0% interest.

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30% Total Deposit Amount (calculated on previous page in green column)	
Phone #	
Email Address:	
Payment Method: *(Check or Credit Card)*	Credit Card  ☐ Check ☐
Payment Details: *If paying by check, please make check payable to "Unilux Suite Solutions". Payment must be included at time of order.* *If you would like to leave your credit card details blank for privacy concerns, we can call you to take them over the phone.*	Check # Credit Card Holder Name: Credit Card # Exp. Date: CVC Code: **Billing Address for Credit Card:**
Owner's Signature:	
Date of Acceptance:	

Questions? Call or email us at

P. 800-337-3967 | **E.** info@uniluxsuitesolutions.com