

How to Clean a Walk-In Cooler: Evaporator, Coil, and Heat Exchanger Maintenance SOP

This standard operating procedure explains how to clean a walk-in cooler evaporator, related HVAC coils, and heat exchanger tubes so that airflow, temperature control, and equipment life are protected. It walks through inspection, vacuuming, chemical application, brushing, rinsing, and final checks, based on a hands-on field demonstration of a three-year-old evaporator unit that had become dirty from nearby cardboard debris.

Purpose

The objective of this procedure is to remove dirt, dust, cardboard debris, and chemical residue from a walk-in cooler evaporator, its coils and fins, and connected HVAC coils and heat exchanger tubes. Regular cleaning controls the risk of restricted airflow, coil corrosion, compressor failure, and inconsistent cooler temperatures. Clean evaporators and clean condensers directly support system reliability and reduce the likelihood of premature compressor replacement.

Scope

This SOP covers the following areas and equipment:

- Walk-in cooler evaporator unit, typically mounted near the ceiling, including its fins and coils
- Temperature sensor and copper tubing mounted on or near the evaporator coil
- HVAC coils located in mechanical or utility rooms, including surrounding metal frames, mounting screws, and adjacent piping
- Heat exchanger tubes requiring periodic inspection and cleaning
- Drain line and drain pan connected to the evaporator, including fittings such as unions and slip couplings

The procedure applies to routine field maintenance visits and does not cover electrical repairs beyond powering the unit down and back up, or refrigerant-circuit servicing.

Supplies

Gather the following before starting:

- ☐ Foaming coil cleaner designed for refrigeration equipment (Nu-Brite Condenser Coil Cleaner by Nu-Calgon), which provides heavy-duty degreasing power and requires rinsing after use
- ☐ Vacuum cleaner fitted with a soft, furry head attachment (a RIDGID unit was used in this demonstration)
- ☐ Plastic brush with soft bristles — never a wire brush
- ☐ 5-gallon pump sprayer bottle for hot water rinsing
- ☐ Hot water source, ideally a heavy-duty garden hose rated for hot water (heavy black hoses, such as those available from Granger's, are recommended over standard hoses)
- ☐ Timer to track chemical dwell time
- ☐ Protective gloves, especially for anyone with sensitive skin
- ☐ Bucket and general cleaning cart for organizing supplies on site

Store the foaming coil cleaner according to its label instructions, and keep it separated from standard garden hoses, since it is an aggressive chemical that requires careful handling.

Safety Precautions

Follow these precautions before and during the cleaning process:

- ☐ Locate the breaker for the walk-in cooler and switch it off before starting work
- ☐ Find the power switch near the evaporator unit and turn it off as well
- ☐ Double-check outside the unit to confirm it is not running before you begin
- ☐ Never use a wire brush on coil fins or tubes, as it can puncture the coil and cause leaks
- ☐ Use only hot water for rinsing — never a torch or other heating device
- ☐ Do not let the foaming coil cleaner sit on the coil for more than 10 minutes, as prolonged exposure can damage the coil or leave residue
- ☐ Wear gloves when handling coil cleaner if you have sensitive skin, since the chemical can be harsh and cause irritation
- ☐ Use only hoses specifically rated for hot water; regular garden hoses can bubble and fail under hot water pressure
- ☐ Stay aware of copper pipes, brackets, and other fixed obstacles in tight mechanical rooms to avoid injury

- [] Use proper ergonomics and take breaks as needed when working in awkward or confined spaces
- [] Keep phones or cameras protected from water spray if documenting the process, or use water-resistant devices

Wet-floor signage and ventilation controls for the work area are not addressed in this demonstration; apply your site's standard wet-floor and ventilation protocols in addition to the steps above. Allergen controls are also not covered here and should follow your facility's food-safety policy for areas near stored product.

Cleaning Steps

Step 1: Prepare the work area and identify the evaporator

Locate the evaporator unit inside the walk-in cooler, typically mounted near the ceiling with visible fins and coils. Inspect the unit for buildup of dirt, dust, and debris, paying attention to fins and coils where dirt accumulates most, especially near frequently opened cardboard boxes.



Close-up of the evaporator coil with foaming cleaner applied, showing dirt and buildup on the fins

Identify the temperature sensor attached to the evaporator, which controls the cooler's internal temperature and is typically connected by a thin copper tube.



Upper right corner of the evaporator showing the temperature sensor and copper tubing

Step 2: Shut off power to the unit

Turn off the breaker for the walk-in cooler, then switch off the power near the evaporator unit itself. Confirm from outside the cooler that the unit has fully stopped running before continuing.

Step 3: Select and stage your coil cleaner

Choose a foaming coil cleaner designed for refrigeration equipment, such as Nu-Brite Condenser Coil Cleaner. Set a timer for five minutes in advance, since the cleaner needs adequate contact time on the coil once applied.



Hand holding a can of Nu-Brite Condenser Coil Cleaner next to other cleaning supplies

Step 4: Vacuum the coil before applying any chemical

Attach a soft, furry head to your vacuum and remove all loose dust and debris from the evaporator coil before spraying any cleaner. This step prevents loose dirt from turning into sludge once the foaming cleaner is applied.



Vacuum cleaner and cleaning supplies, including a sprayer and brushes, staged for use

Fill a 5-gallon pump sprayer with hot water in advance so it is ready for the rinse step later.



Hand holding a vacuum hose with a furry attachment near a stocked cleaning cart

Step 5: Rinse loose debris with hot water

Before applying the chemical cleaner, use the hot-water-filled sprayer to rinse away any remaining loose debris from the coil surface.



Hand operating an orange pump sprayer bottle near the vacuum and cleaning supplies

Step 6: Apply the foaming coil cleaner

Spray the coil cleaner evenly across the evaporator coil, making sure all visibly dirty areas are covered. Let the cleaner foam and penetrate the buildup for at least five minutes, as tracked by your timer, and no more than 10 minutes total.

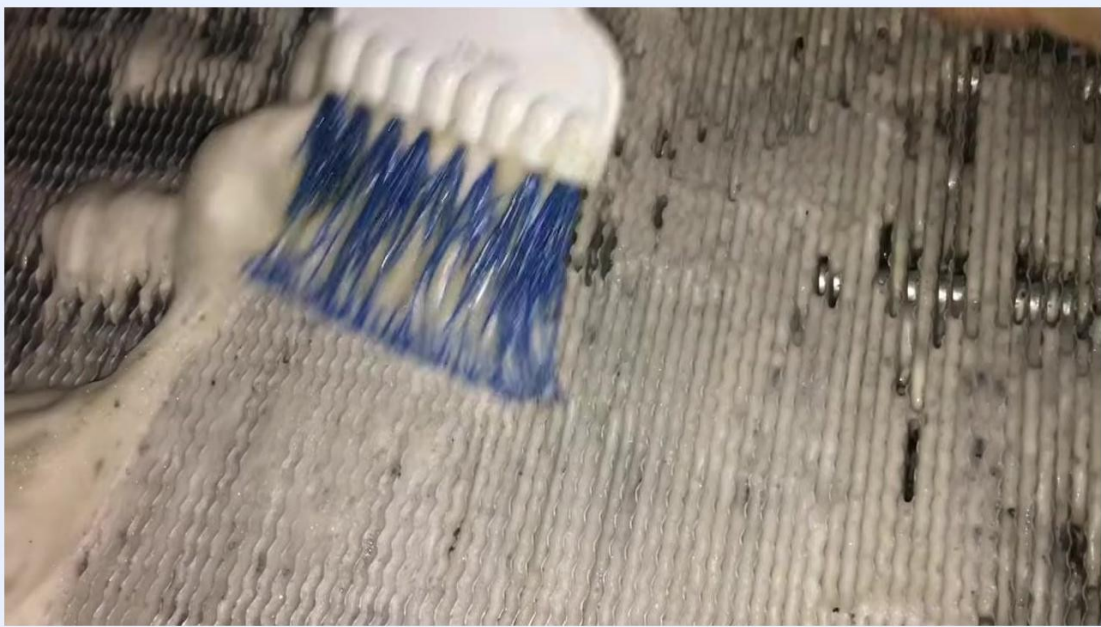
Step 7: Brush the coil fins in the correct direction

Use a plastic brush — never a wire brush — to push loosened debris into the coil and through the fin spaces, which run approximately 8 to 10 fins per inch on this type of unit. Move the brush up and down in the direction of the fins, since the internal tubes run horizontally; this dislodges dirt without bending the fins.



Close-up of a hand using a plastic brush with blue bristles on foamed evaporator coils

Inspect the fins as you go to confirm debris is being loosened and removed effectively by the combination of foam and brushing.



Close-up of evaporator coil fins with foaming cleaner and loosened debris visible

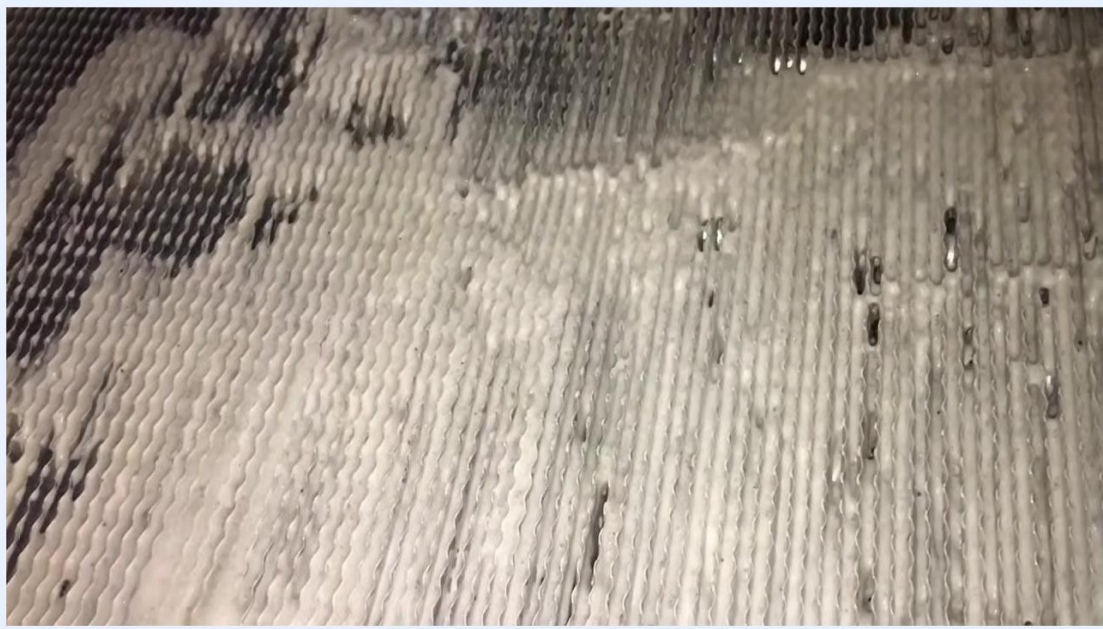
Step 8: Continue brushing stubborn areas

Repeat brushing on areas where dirt or foam remains, using light pressure to avoid bending or damaging the fins.



Hand brushing the foamed evaporator coil with a plastic brush

Check the coil after this pass; fins should look clean and intact, with some remaining foam still visible before the final rinse.



Evaporator coil after brushing, showing clean, intact fins with some remaining foam

Step 9: Work the brush vertically along all fin sections

Continue brushing in vertical strokes along the fins to address texture and buildup that the foam is breaking down.



Close-up of evaporator coil fins with foaming cleaner showing texture and buildup being addressed

Maintain the up-and-down brushing motion across the full coil face, since this technique dislodges dirt from the tubes and between the fins without bending them.



Hand brushing the evaporator coil in an up-and-down motion

Step 10: Monitor cleaner activity and dwell time

After about five minutes, the foaming cleaner should visibly break down and dissolve grime. Because this chemical is aggressive, do not let it sit on the coil beyond the recommended window.



Hand brushing the foamed evaporator coil, with visible cleaner and loosened debris

Step 11: Protect your hands during chemical handling

Wear protective gloves when handling coil cleaner, particularly if you have sensitive skin, since the chemical can be harsh.



Close-up of a hand with minor cuts and scars next to an orange pump sprayer and cleaning tools

Step 12: Inspect fins for cleanliness and damage before rinsing
Check the coil fins and tubes for remaining debris and look for any bent fins or punctures.



Evaporator coil fins after brushing, showing cleaner residue and improved cleanliness

Confirm the foaming cleaner has broken down the grime as expected before moving to the rinse.



Evaporator coil fins with foaming cleaner breaking down grime after several minutes

Step 13: Stage the rinse equipment

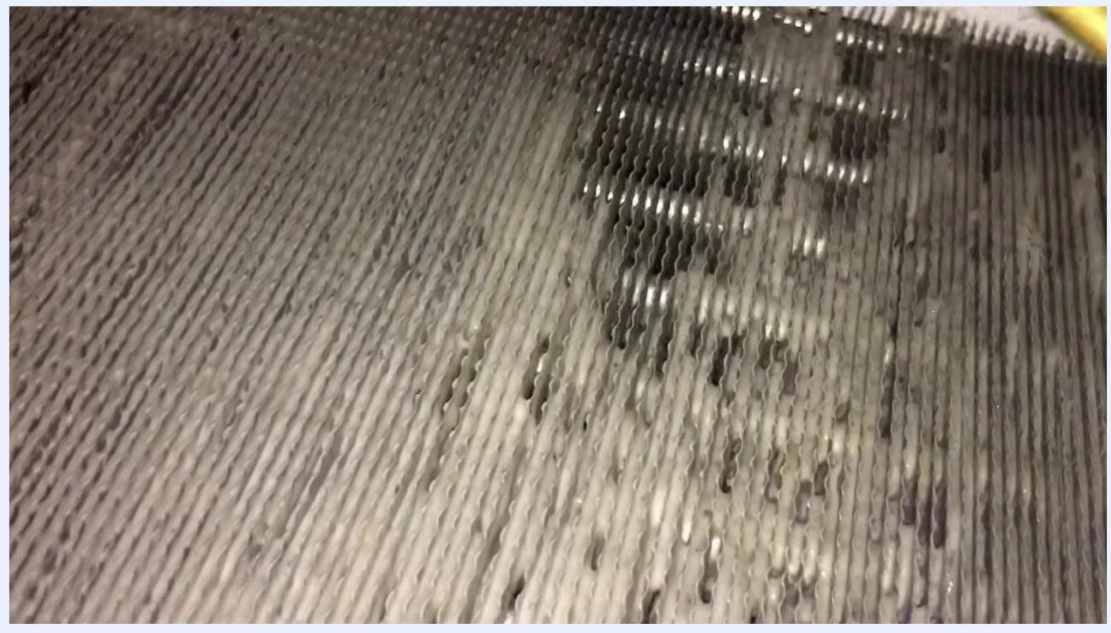
Place your hot-water pump sprayer on a cart for easy access, or connect a hot-water-rated garden hose if one is available, so it is ready for a thorough rinse.



Brass nozzle positioned above the evaporator coil, ready for rinsing with hot water

Step 14: Rinse the evaporator coil thoroughly

Direct a steady stream of hot water vertically along the fins to flush out all remaining coil cleaner, loosened grime, and debris. Continue rinsing until the water runs clear and no foam or cleaner residue remains visible on the coil surface.



Evaporator coil fins with visible foam and residual grime, showing the need for thorough rinsing

Step 15: Inspect the connected HVAC coil before cleaning

Observe the HVAC coil and surrounding metal frame for visible dirt, debris, water spots, or residue, and confirm the area is accessible and safe to work in.



Close-up of HVAC coil and metal frame showing water spots and residue before cleaning

Step 16: Begin washing the HVAC coil with the hottest available water. Direct the water spray onto the coil surface, focusing on areas with visible dirt or buildup, using a wand or nozzle to control the spray.



Water spray directed at the coil, with a nozzle in use

Move the nozzle close to the coil surface for a thorough wash, ensuring even coverage across stubborn spots.



Close-up of coil surface with cleaning in progress and improved cleanliness

Step 17: Check the coil from multiple angles

Step back periodically to view the coil from a wider perspective and confirm all areas are receiving coverage, noting nearby pipes and walls typical of a mechanical room setting.



Wider view of the coil and surrounding area, including pipes and wall

Step 18: Continue washing until dirt and residue are fully removed
Repeat the washing motion with a consistent spray pattern so no section of the coil is missed.



Coil surface with ongoing water spray, showing progress in removing dirt

Step 19: Focus on stubborn buildup

Direct the water spray on persistent dirt or residue, moving the nozzle slowly and methodically for maximum effect until the coil is thoroughly washed.



Nozzle spraying hot water directly onto coil, with visible improvement in cleanliness

Confirm the coil looks clean once the washing pass is complete.



Clean coil surface with water spray, showing improved appearance

Step 20: Work carefully around fixed piping

Take care not to bump copper pipes mounted on the wall and secured with brackets while you move around the mechanical room.



Copper pipes mounted on a textured wall with brackets nearby

Be mindful of tight clearances between piping and walls, which can make the cleaning process physically demanding.



Close-up of copper pipes and wall showing a tight workspace

Use proper posture and take breaks as needed if the confined space causes strain.



Another view of copper pipes and wall showing the workspace environment

Step 21: Repump the sprayer as pressure drops

Monitor sprayer pressure during cleaning, and repump as soon as the spray weakens to keep adequate pressure for rinsing.



Close-up of the HVAC coil, sprayer wand tip, yellow bucket, and pipes in the mechanical room

Step 22: Use hot-water-rated equipment for best results

Where available, use a hot water garden hose rather than relying solely on a hand sprayer for improved cleaning power.



Storage area with cleaning supplies, a yellow bottle, red-lidded bin, and black hose

Inspect the coil after washing with hot water to check for remaining dirt or residue.



HVAC coil and white frame with pipes and wiring visible during post-cleaning inspection

Apply hot water directly from the source whenever possible for the most effective cleaning.



HVAC coil, white frame, and mechanical room piping, emphasizing direct hot water application

Step 23: Use heavy-duty, hot-water-rated hoses

Use heavy black garden hoses built for hot water rather than standard hoses, which can bubble or burst under heat and pressure.



HVAC coil, white frame, and visible wiring and pipes, highlighting the need for durable hoses



HVAC coil and mechanical room ceiling, reinforcing the importance of hot-water-rated hoses

Step 24: Inspect the coil and hardware after washing

Check the coil from a different angle, focusing on the white metal frame, mounting screws, and attached pipes, and confirm there are no leaks at hoses or fittings.



Angle of HVAC coil showing white metal frame, mounting screws, and attached pipes

Step 25: Rinse off all coil cleaner residue

Use plenty of hot water to completely rinse away the aggressive coil cleaner from the surface, since leftover chemical residue can affect the coil over time.



Close-up of HVAC coil, white metal frame, mounting screws, and copper pipe during thorough rinsing

Visually confirm all dirt, debris, and cleaner have been removed from the coil surface.



HVAC coil with copper pipe or wand positioned over it during post-rinse inspection

Aim for a spotless coil surface with no visible debris or residue, especially in settings where the client expects a high standard of cleanliness.



Clean HVAC coil and white frame with no visible debris or residue

Step 26: Confirm the coil's condition supports system reliability
Examine the clean, wavy metal fins and white frame closely, understanding that clean evaporators and condensers help prevent compressor failures and temperature control issues.



Close-up of clean HVAC coil fins and white frame



Detailed view of clean HVAC coil fins, unobstructed and free of buildup

Step 27: Complete a final visual pass on the HVAC coil
Check the coil and frame from a slightly different angle to confirm the entire surface is clean.



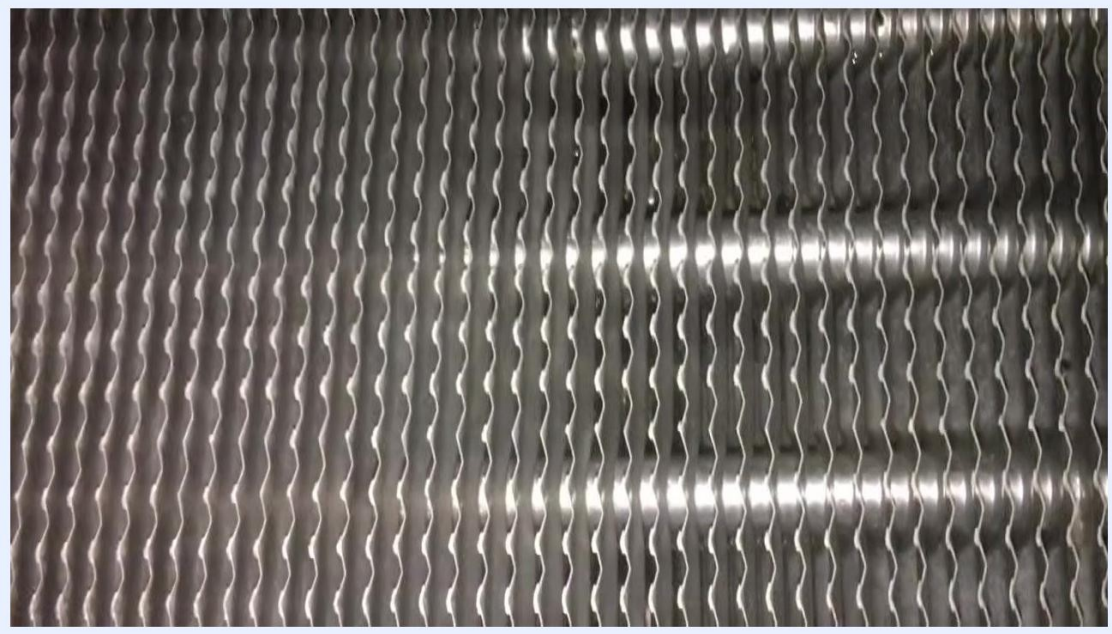
HVAC coil and white frame viewed from a different angle



Close-up of clean HVAC coil fins with bright reflections indicating a well-maintained surface

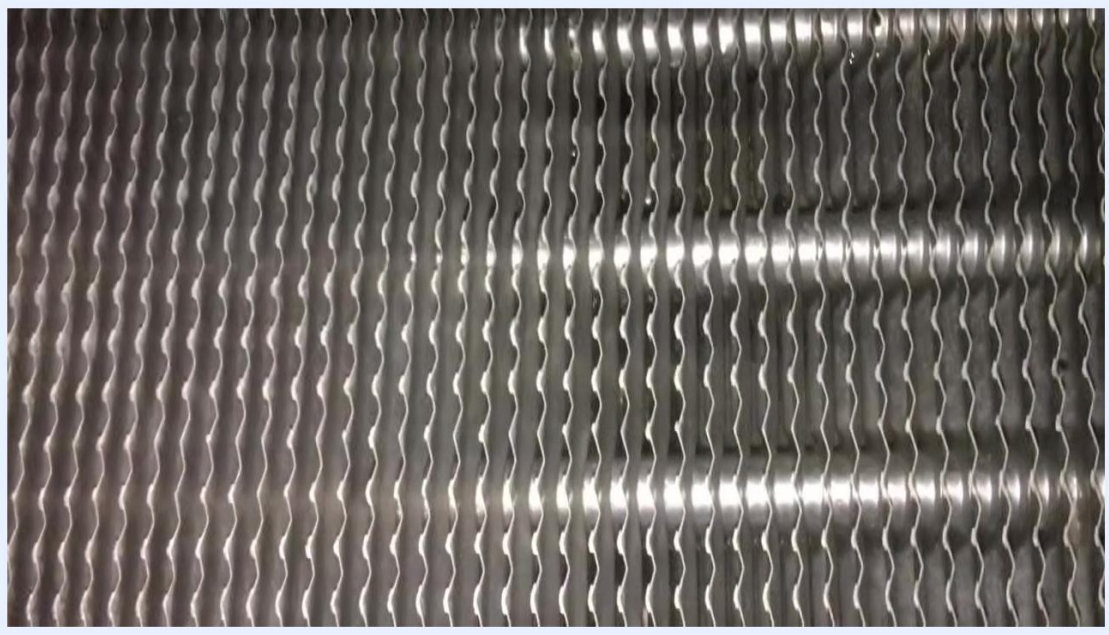
Step 28: Inspect the heat exchanger tubes

After cleaning, confirm that all visible dirt and debris have been removed from the heat exchanger tubes and that they appear metallic and free of buildup.

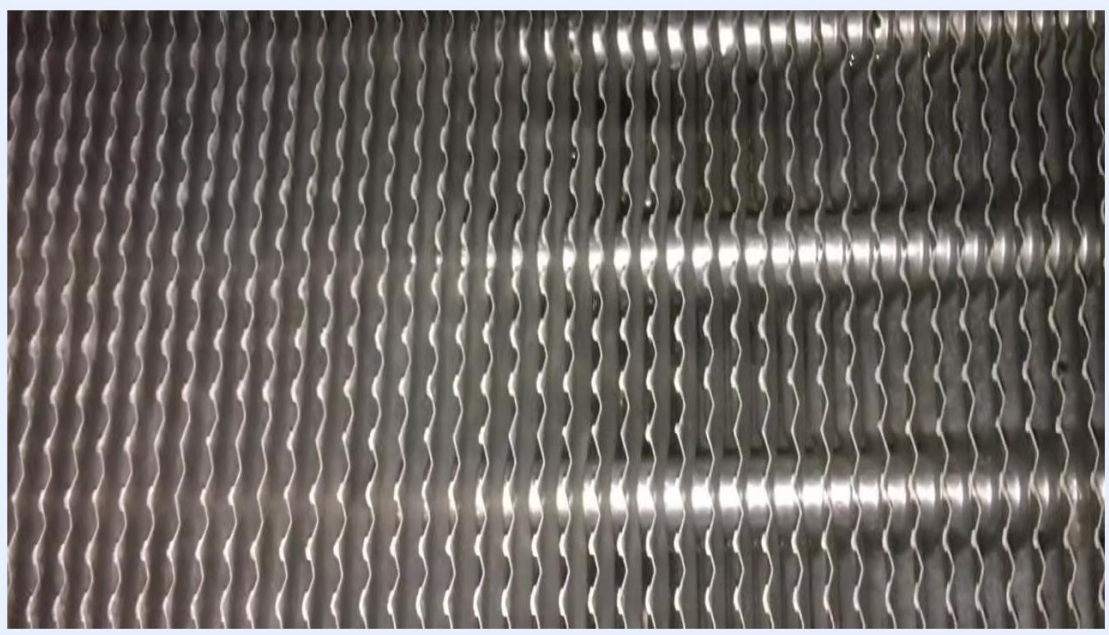


Close-up of clean, metallic heat exchanger tubes with no visible dirt or debris

Check the tubes from different angles for any remaining spots or residue.



Another close-up of heat exchanger tubes showing a clean surface with minor spots



Wider view of heat exchanger tubes showing consistent cleanliness across the surface

Step 29: Maintain the routine and watch for leftover material
Continue to vacuum and hose the tubes with water regularly to prevent buildup.



Heat exchanger tubes viewed from a different angle, still clean and metallic

Check for foam or residue that may remain trapped in the fins or tubes even after cleaning, and remove it if found.



Heat exchanger tubes with a partial view of a white panel and label marking the inspection area

Note that water spray during rinsing can reach nearby equipment, including phones or cameras used for documentation; keep such devices protected.



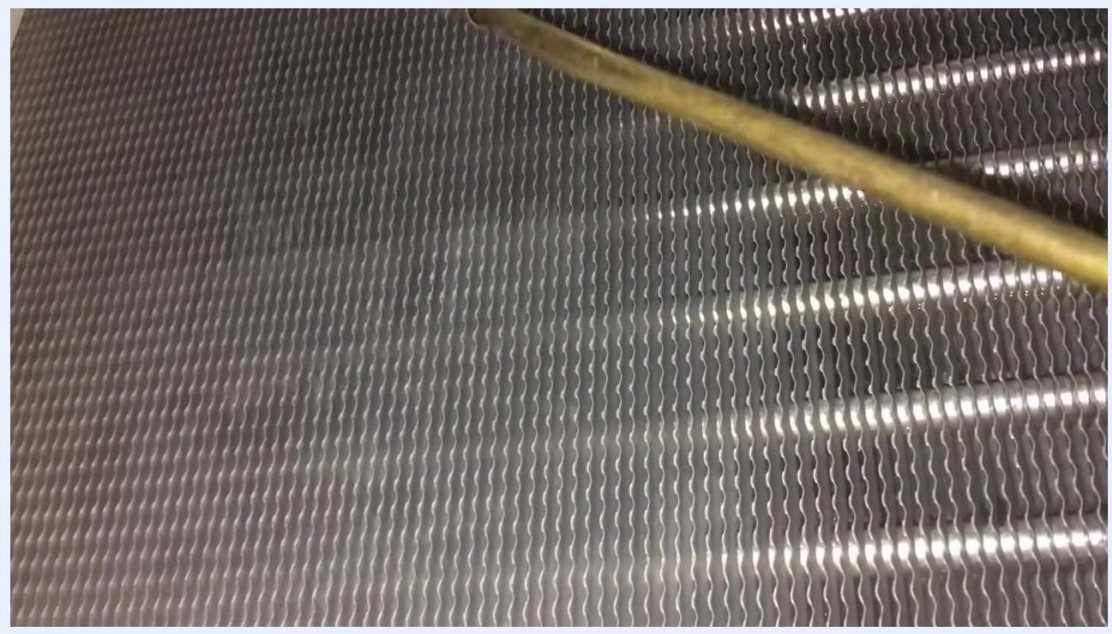
Heat exchanger tubes with visible water droplets from recent cleaning



Heat exchanger tubes, clean and metallic, with some water droplets visible

Step 30: Inspect the evaporator coil corner to corner

Scan the evaporator coil from the upper right corner all the way down the side, checking that the metallic, wavy fin structure is free of debris.



Close-up of clean evaporator coil fins with a brass rod pointing at the metallic, wavy surface



Close-up of evaporator coil fins showing a clean, metallic surface with uniform wavy patterns

Step 31: Account for tight installation clearances

Recognize when the evaporator is installed close to a wall with limited working space, and be prepared to use appropriate tools or techniques to reach all surfaces around insulated pipes and nearby storage containers.



Evaporator unit installed close to the wall, with insulated pipes and food storage containers below

Step 32: Confirm the coil is free of spots or discoloration

Examine the coil for any remaining spots, discoloration, or buildup, confirming the surface is clean and metallic overall.



Close-up of evaporator coil fins showing a clean surface with minor spots and a uniform wavy pattern

Step 33: Check corners and edges for integrity

Inspect all visible areas, including corners and edges near mounting screws, for cleanliness and signs of corrosion or damage.



Close-up of the upper left corner of the evaporator coil showing clean metallic fins and a mounting screw

Step 34: Verify the final rinse result

Examine the coil surface closely for any remaining debris or buildup; it should appear metallic and clean, with uniform wavy fins and visible light reflections.



Close-up of evaporator coil fins showing a clean, metallic surface with bright reflections

Step 35: Identify and re-treat any leftover residue

Look for dark spots of leftover residue between the fins after the initial rinse, and plan to rinse or clean those areas again if found.



Close-up of evaporator coil with visible dark spots or residue between the fins

Assess the overall effectiveness of the coil cleaner, and apply additional hot water or cleaner to any stubborn areas as needed.



Close-up of evaporator coil showing a mostly clean surface with some minor dark areas

Step 36: Check the drain line for a union fitting

Locate the drain line connected to the evaporator pan and identify whether a union fitting is present. If the pan ever needs to be removed for service, plan the cut location and installation of a union fitting to make future servicing easier.



Hand holding a copper drain line connected to the evaporator pan, showing where a union could be installed

Note that a slip coupling, unlike a union, does not allow for easy removal or servicing of the drain pan.



Hand pointing at a copper drain line with a slip coupling, highlighting the lack of a union fitting

Step 37: Review the drain line routing and workspace access

Observe the routing of the copper drain line and its connections, and confirm there is adequate access for future maintenance around any food storage containers or piping.



Wide view of the copper drain line running along the wall, with food storage containers below

Confirm at the evaporator pan connection whether a union fitting is present; if only a slip coupling exists, plan to upgrade it during a future service visit.



View of the evaporator pan drain connection showing a slip coupling and no union fitting

Step 38: Perform the final reset

Reassemble any covers or panels removed during cleaning, restore power to the unit at the breaker and local switch, and verify normal operation before leaving the site.



Final close-up of the evaporator coil showing a clean, metallic, and uniform surface with no visible debris

Inspection

Use the following acceptance criteria to confirm the job is complete:

- ☐ Evaporator and HVAC coil surfaces appear metallic, uniform, and free of foam, dirt, or debris
- ☐ No dark spots or residue remain between the fins after rinsing
- ☐ Fins show no signs of bending, punctures, or damage from brushing
- ☐ All coil cleaner has been rinsed away with no chemical smell or foam remaining
- ☐ Drain line connections are reviewed, with a union fitting installed or planned where only a slip coupling exists
- ☐ Power has been restored and the unit is confirmed running normally

If the coil still shows dark spots, residue, or "scudge" after the rinse, reapply hot water or additional coil cleaner to the affected areas and repeat the brushing and rinsing steps until the surface is uniformly clean. Supervisor sign-off criteria and formal failed-inspection escalation are not addressed in this demonstration;

apply your facility's standard supervisor review process in addition to the visual checks above.

Frequency

This cleaning process has been performed on the demonstrated evaporator every six months for the last three years, and this interval is recommended for optimal performance. Between full cleanings, maintain the coil by regularly vacuuming and hosing the tubes with water to prevent buildup from accumulating. Daily, weekly, and monthly cleaning intervals for this equipment are not specified in this demonstration; set those cadences according to your facility's broader maintenance schedule.