Commercial RTU Health Audit Template

The rooftop unit audit we use before scoping a repair-or-replace analysis.

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1. Purpose

Use this template to walk your roof before peak summer dispatch season and before any repair-or-replace conversation with your commercial HVAC vendor. Document equipment condition in writing, verify AHRI certification, and apply the replace-or-repair decision framework consistently.

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2. Pre-Audit Equipment Inventory

For each RTU at the property, document:

- Manufacturer and model number
- Serial number
- Installation year (nameplate or maintenance records)
- Refrigerant type (R-22, R-410A, R-454B, R-32)
- Refrigerant charge quantity
- Nominal tonnage / Btu/hr capacity
- AHRI certification number (look up at ahridirectory.org)
- Zone served (tenant, common area, building portion)

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3. Visual Inspection Checklist

Cabinet and envelope

- Cabinet corrosion, penetration, or structural damage
- Weatherstripping and gasket condition
- Condensate drain clear, no ponding
- Roof curb condition

Coils

- Condenser coil fouling (debris, tree canopy, particulate)
- Evaporator coil condition (accessible through supply plenum)

- Coil fins bent or damaged
- Coil-cleaning history on service tickets

Belts and bearings

- Belt tension within manufacturer spec
- Belt wear (glazing, cracking, missing ribs on ribbed belts)
- Bearing noise (evidence of lubrication schedule)

Electrical

- Contactor contact condition (pitting, welding)
- Dual-run capacitor MFD rating vs spec (within 80% is PM replace; under 70% is failed)
- Electrical connection torque (loose connections = intermittent failures)
- Disconnect switch condition

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4. Performance Metrics

Measurement	Target range	Flag
Subcooling at condenser	Mfr spec ± 2°F	Outside = charge issue
Superheat at evaporator	Mfr spec ± 3°F	Outside = TXV or charge issue
TD across evap	18-22°F typical	Low = airflow or charge
Compressor amp (RLA)	70-90% of nameplate	Rising 8-12% over 2 years = wear
Blower motor amp	80-95% of nameplate	High = bearing or belt issue
Static pressure	Mfr spec	High = coil or duct fouling

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5. Refrigerant Status

- Refrigerant charge last verified (date)
- Top-off quantity in last 12 months (0-2 lb normal; 4+ lb = leak; accelerating = replacement plan)
- Section 608 threshold — is charge over 50 lb?
- Annual leak rate calculation (if over 50 lb): 20% comfort / 30% process thresholds
- AIM Act refrigerant status — R-22 end-of-life, R-410A phase-down active

6. Year 12-15 Replace-or-Repair Decision Tree

1. Current repair cost < 40% of replacement cost? → REPAIR
2. Current repair cost 40-50% of replacement cost? → ANALYZE
3. Current repair cost > 50% of replacement cost? → REPLACE
4. Multiple decline indicators (amp rise + refrigerant loss + increasing calls)? → REPLACE
5. Building lifecycle horizon < 5 years? → REPAIR unless catastrophic
6. Efficiency gap > 30% vs modern replacement? → REPLACE (payback justification)
7. R-22 refrigerant? → REPLACE (refrigerant cost trajectory alone)

7. AHRI Directory Certification Lookup

For every RTU, verify AHRI certification at ahridirectory.org. Search by:

- Manufacturer + model number
- Certification reference number (from nameplate)

Document: rated capacity, rated EER/SEER2/IEER, sound rating, certification status (active, expired, withdrawn). This supports energy modeling, code compliance verification, and replacement evaluation.

8. Technical References

- Trane Commercial — Packaged RTU technical documentation — trane.com/commercial
- Carrier Commercial — RTU lifecycle whitepapers — carrier.com/commercial
- DOE — Commercial HVAC energy efficiency — energy.gov/eere/buildings
- AHRI Directory — ahridirectory.org
- ASHRAE Standard 180 — Inspection protocol

Emergency HVAC Repair Pros — Commercial Division

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