

Best Practice – Evaporative Coolers

Date: Revised October 2020

Subject: Evaporative Coolers

Problem or Question(s):

Which Evaporative Cooler (EC) components should be inspected during the initial assessment?

How can our agency justify, using the energy audit or the Priority List, to determine if the existing EC should be repaired or replaced in a way consistent with WAP's rules and regulations?

Discussion: It is widely known that ECs can be an extremely efficient cooling option for dry climate zones; however their components have a tendency to deteriorate over time. Existing ECs can often experience issues with rusting, water calcification/mineral deposits, pump/motor failures, or cooling pads efficiency loss.

During the whole house assessment, assessors should inspect each component of the EC to determine proper operation and identify any component(s) that should be addressed to ensure the system is a fully functional cooling system. Ensure assessor's clearly document within their assessment notes the reason for addressing any identified component and take photographs to support the suggested actions.

An EC assessment at minimum should include an inspection of the following components:

- Cooler Pads
 - Inspect pads to determine if pads can be cleaned/rotated or replacement as needed.
 - Cleaning/Rotating of pads can often be performed by soaked in soapy water to remove dirt and then rotated to distribute the wear and dirt/scale buildup which remains in the pad after cleaning.
 - Replace the pads when they become non-absorbent, thin, or unable to be cleaned/rotated
 - Inspect pad(s) for proper pad saturation
 - Inspect EC cabinet louvers to ensure proper airflow
- Reservoir
 - Inspect float assembly operation to ensure water level allows for proper pump operation, but does not exceed the drain overflow
 - Inspect pan for signs of water leakage or severe rusting
 - Inspect reservoir to determine if cleaning to remove dirt, scale, and biological matter is needed
- Inspect fan motor/blower assembly
 - Inspect the squirrel cage for proper operation and to determine the need for cleaning
 - Inspect blower motor, belt, & pulley for wear/proper operation
 - Inspect fan motor or squirrel cage bearings to determine if lubrication is necessary
- Pump & water distribution
 - Inspect pump for proper operation & flow
 - Inspect hoses & water distribution to the pad drip reservoirs
 - If there is a bleed tube inspect discharge flow & rate

WAP rules and regulations allow ECs to be addressed in the following ways:

For LIHEAP Only units:

- ECs can be addressed as a Secondary Measure on the LIHEAP Priority List (PL), if all the Major Measures on the PL have been evaluated and properly addressed.
 - **Repair, Service, or Replacement of deteriorated components** can be an allowable measure(s) if documented/justified by the assessment and the total repair cost is below 75% of a newly installed EC replacement cost (to include labor).
 - **Full EC replacement** can be allowed for units with a repair, service, or component replacement cost that meets or exceeds 75% of a newly installed EC replacement cost (to include labor).
 - **Note**-Full EC replacement will require an itemized repair, service, or component estimate to document the repair cost exceeding the cost threshold along with photo documentation to be retained in the client file.
 - **An exception is approved by Department Training Staff granting specific guidance for extraordinary reasons on a specific unit.**
 - **Note**-Exception approvals will require subrecipients to submit a detailed written submission through the WUFOO portal describing the reason an exception is being requested, documentation that all major measures have been evaluated/addressed, and provide adequate picture documentation to support the request
- ECs can be address as a Health & Safety measure **for household containing Vulnerable Population clients** per the Texas Health & Safety State Plan (see excerpt below).
 - “Red tagged”, inoperable or nonexistent primary heating and/or cooling system replacement, repair, or installation is allowed due to extreme climate conditions in Texas for Vulnerable Populations.

For DOE & DOE/LIHEAP leveraged units:

- **Repair, Service, or Replacement of deteriorated components** is limited to the Tune-up Mandatory ECM option provided within the energy audit. Cost will be limited to the ranking dollar value listed on the Suggested Measures Report and only allowed if the EC Tune-Up is properly modeled in the energy audit resulting in an SIR of 1.0 or greater.
 - **Note**- DOE WPN 19-5 Repair Guidance does not allow for these measures to be modeled as Repairs within the energy audit.
- **Full EC replacement** is an energy conservation measure (ECM) option provided within the energy audit. Replacement will only be allowed if the EC is properly modeled and ranks for replacement in the Recommended Measures Report with an SIR of 1.0 or greater.
- ECs can be address as a Health & Safety measure **for household containing Vulnerable Population clients** per the Texas Health & Safety State Plan (see excerpt below).
 - “Red tagged”, inoperable or nonexistent primary heating and/or cooling system replacement, repair, or installation is allowed due to extreme climate conditions in Texas for Vulnerable Populations.

Recommendation Summary: Subrecipients can utilize the Best Practice information listed above to determine what is considered a complete EC assessment & determine if repair/replacement is allowed by program guidelines.

<http://www.tdhca.state.tx.us/ea/wap.htm>