



March 3, 2025

CSDS

Standard Number: UL 507

Edition Date: November 9, 2017

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Re: *FORMAL INTERPRETATION REQUEST - Standard for Safety for Electric Fans*

U.S. Consumer Product Safety Commission technical staff (CPSC staff<sup>1</sup>) appreciates the opportunity to comment on the February 7, 2025, formal interpretation request for UL 507, Electric Fans, that was circulated to the Technical Committee for balloting. Staff assesses that in Section 178.1, the reference to fans installed in unattended areas is intended to include radon fan products regardless of whether the installation is inside or outside the structure, because these products can be installed and operated in unattended locations or in situations in which the occupant may not detect or be notified of a locked rotor condition.

Radon fans can be installed using different methods for a home, depending on home foundation type (basement, crawl space, or slab-on-grade) and home layout. The timing of installation, in particular whether the fan is installed during construction or after a home is built, may also determine the type and location of radon fan installation. Radon fans installed in an attic, outside, or in a basement may operate unattended or in situations in which the user will not detect or be notified of a locked rotor condition. Even though a passive manometer may be installed for the system, it is not required, and the absence of such a capability the homeowner has to actively check that the system is working.

For example, CPSC staff is aware of two incidents involving radon-mitigating ventilation fans, as summarized in the following:

- In November 2019, fire response units were dispatched to a structure fire in a residential neighborhood. The Deputy State Fire Marshal concluded that the fire was an accident and that it had originated in the area of a radon ventilation fan located in the attic space of the carport. The fire report hypothesis, which is supported by the evidence and information, is that most probable cause of this fire is the radon fan motor stopped / seized while in operation and being energized at the time of the stoppage allowing the current flow to increase. This allowed the motor windings to overheat, getting hot enough to melt the plastics associated with the construction of the motor, thus produced enough heat to the surrounding combustible structural wood members in the carport. The owner noticed audible noise from the fan prior to the fire. This indicates that without an adequate integral alerting system

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<sup>1</sup> This letter was prepared by the CPSC staff. It has not been reviewed or approved by, and may not represent the views of, the Commission.



on the ventilation fan assembly, consumers may not be aware of the fire risk.

- In July 2016, a radon fan experienced a locked rotor failure. The homeowner had a radon system monitor (vacuum manometer) that was showing the system stopped running. When the contractor inspected the system, he found the fan was too hot to touch, had a strong burning smell, and was humming and buzzing. The contractor operated the fan and used an infrared thermometer to determine the motor temperature maintained a temperature above 300°F for an extended period of time. This incident had limited information on the installation location of the fan.

In response to question 1 of the ballot, staff assess that, as written, the current Scope of Section 178 excludes radon fans installed outdoors from meeting the requirements as they are not within the building structure and thus not required to comply with the requirements in Section 178. Regarding question 2, staff assesses that according to the current Scope of Section 178, a radon fan installed in an unfinished basement in an unattended area should be subject to the requirements in Section 178 unless it has an automated active alert to inform the occupant of a locked rotor condition when not in the vicinity of the fan or either of the exceptions to 178.1. As outlined previously, Staff's assessment is that such fans should be included in both cases.

We look forward to discussing this topic with UL and all interested stakeholders.

Sincerely,

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CC: Jacqueline Campbell, CPSC Voluntary Standards Coordinator