

## Technical Bulletin

### 2019 Standards: HERS Verification of HVAC Air Filters

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Section 150.0(m)12 Requires MERV 13 filtration on all heating and cooling systems with ducts over 10', all supply only ventilation, and the supply side of balanced ventilation systems.

The protocols for this verification are found in RA3.1.4.5 and simply state, "Verification shall consist of a visual inspection to confirm that the air filter devices conform to the requirements given in Section 150.0(m)12." This does not provide much guidance, especially for designers or installers. Section 4.4.1.14 of the Residential compliance manual goes into much more detail on the filter requirements, which a designer might find more helpful.

Unfortunately, 150.0(m)12 is rather complex. Part A describes what types of systems need the filtration. Part B describes how the system should be designed to account for the extra resistance of the filters. Part C discusses the filter efficiency (MERV 13). Part D discusses the pressure drop criteria for the installed filters. Part E covers the requirements for filter labeling. Parts B and D are especially complex because they involve looking into how the system was designed and whether the installed filter is consistent with the design.

ACCA Manual D is the most common standard for designing residential heating and cooling duct systems and it does a good job of taking into account the pressure drop of the filter. It requires that the designer specify a pressure drop for the filter at the design cfm. Historically, a common value to use was 0.1 iwc. Whatever value they specify, the important part is installing an actual filter that does not exceed this pressure drop.

The design criteria are different for 2" filters than for 1" filters. For a 2" filter, they can specify whatever pressure drop they want and design to that. If they pass the airflow and fan watt tests with a 2" filter installed there is no need to see their design calculations. You should still confirm that the filter is properly labeled.

For a 1" filter, the designer should specify a pressure drop not greater than 0.1 iwc and a face velocity not greater than 150 fpm. In the field, check that the 1" MERV 13 filter is labeled for a pressure drop of no more than 0.1 iwc at the measured airflow. Check to make sure that the total installed filter area is at least the measured CFM x 0.96, in square inches. The registry will confirm this for you using measured airflow and filter dimensions when reporting results in the MCH-27.

For example, if the measured airflow is 1050, the required filter area should be at least  $1050 \times 0.96 = 1008$  square inches. If they installed a 20x30 and a 14 x30, this would be adequate at 1020 square inches. Note that this will require much larger filters than is typical.

Lastly, if the installer opts out of airflow and fan watt draw testing by sizing the return ducts to tables 150.0-B and 150.0-C (the approach verified by the CF3-MCH-28), they have to follow the filter area requirements in those tables, the max 0.1 iwc pressure drop requirement of the installed filter, and the labeling requirements.

Additional questions about HERS verification of filters may be directed to CalCERTS support: [support@calcerts.com](mailto:support@calcerts.com) or (916) 985-3400, ext.\*

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