

WHAT ARE BEST PRACTICE RECOMMENDATIONS AND REQUIREMENTS FOR SOLID FUEL COOKING IN KITCHEN VENTILATION?

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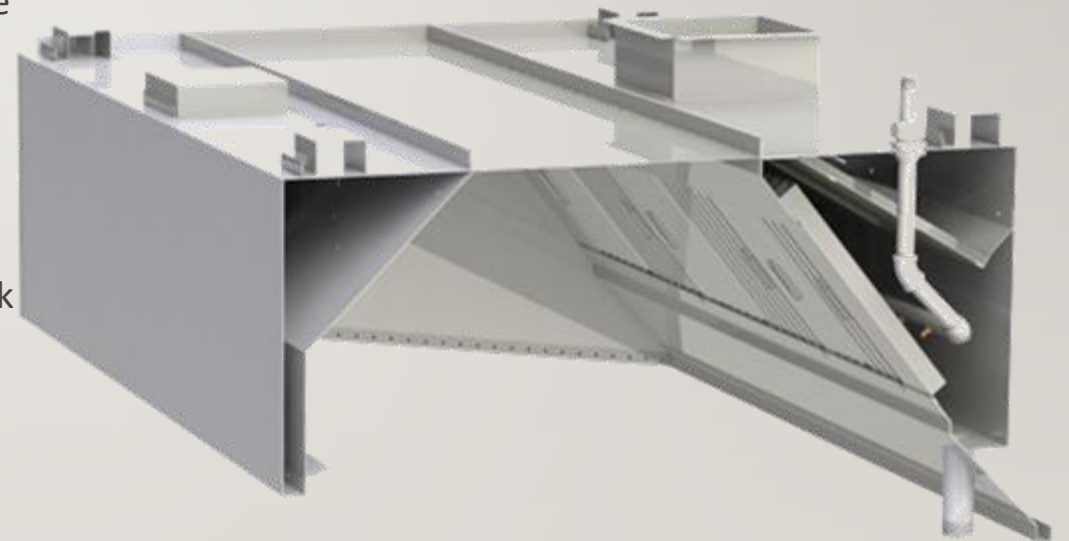
WHAT IS SOLID FUEL COOKING?

- Solid fuel cooking is defined by the IMC as “any bulk material such as hardwood, mesquite, charcoal or briquettes that is combusted to produce heat for cooking operations.”
- Typically used to cook proteins (steaks, hamburgers, chicken, etc.)
- Effluent emitted from solid fuel applications include particulate matter and grease vapor
 - Additionally, the combustion of wood generates particulate matter, ash, embers, and smoke
- The category of solid fuel cooking falls under “extra heavy-duty”.
- Unlike a typical type I hood, which can be combined on the same duct system within a hazard area, **solid fuel cooking must have its own duct system**. It can not be combined with any other duct system
 - See section 507.2.2 of the IMC for further details



EXHAUST HOOD SELECTION FOR SOLID FUEL COOKING VENTILATION

- A **continuous mist exhaust hood** with high-efficiency grease extraction should be used
- High-efficiency grease filters w/ spark arrestors provide grease extraction and some level of ember and ash protection as mandated by code
- Ash and embers that make it past the primary grease extractors then encounter continuous mist spray.
- The mist spray reduces sparks, embers, and ash that reach that section of the hood as well as reduces the temperature of the exhaust air stream which reduces the risk of duct fires
- The quantity of exhaust is greater than mixed lines because of the intensity of the heat and effluent generated. Attention should be made in determining the appropriate exhaust and make-up levels
- The listing for the exhaust hood is required to follow **U.L. 710** and be rated for “extra heavy-duty” or 700 degrees (solid fuel) and carry the label for the same



EXHAUST FANS FOR SOLID FUEL COOKING VENTILATION



- After the effluent leaves the hood it travels down the duct until it reaches its terminal point. A heavy-duty exhaust fan with the updated [U.L. 705](#) standard should be used
- Since the exhaust fan will see high temperatures, the motor should be isolated.
- In addition, the old UL762 has been merged into U.L. 705 (ULC S645) Standard for Power Roof Ventilators for Commercial and Institutional Kitchen Exhaust systems

POLLUTION CONTROL UNITS FOR SOLID FUEL COOKING VENTILATION

- A [pollution control unit](#) (PCU) should take the place of an exhaust fan if the final grease, smoke, and odor removal are required and/or if the local municipal code requires it
- A double-pass (two-stage) electrostatic precipitator with nightly washdown systems should be used because they are cleaned of grease nightly which reduces the fire risk compared to a dry filter PCU in the event that sparks and embers do reach the PCU
 - Dry filter units will load relatively quickly with grease which can lead to higher maintenance costs and an additional fuel source in the case of duct fires
- For smoke elimination, a HEPA filter with a minimum efficiency of 99.97% at 0.3 microns should be used
- For optimal odor reduction, UV lamps in combination with 2-stage carbon panels consisting of 2-inch-thick carbon filters should be used



NOTES ON MAINTENANCE AND FIRE SAFETY FOR SOLID FUEL COOKING VENTILATION

- A solid fuel cooking exhaust system requires ongoing and regular maintenance
- The byproducts from solid fuel cooking will coat the exhaust duct and load the filters of the pollution control system (if so equipped)
- If you are contemplating such a system, make sure you take into account ongoing maintenance costs
- In addition, the ductwork should be inspected regularly to prevent a build-up of combustible materials
- Fire safety is the main concern for commercial cooking operations and it is even more acute for solid fuel. If properly maintained, the risk can be mitigated



CONTACT THE EXPERTS

- Learn more about Halton Group's Solid Fuel Cooking Solutions along with their complete commercial kitchen line by going to <http://www.technicalair.com/halton>
- Contact the Technical Air Systems' Sales Engineering Team at **973-285-0333** or by email at solutions@technicalair.com
- Learn more about Technical Air Systems, Inc at <http://www.technicalair.com/>
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