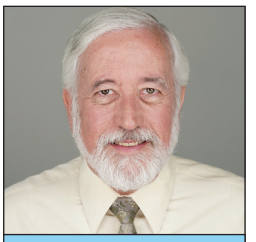
MECHANICAL CODE DISCUSSION

2021 IMC: COMMERCIAL KITCHENS—Type I Hood Exception


BRENT URSENBACH

BRENT URSENBACH

HVAC EDUCATOR/ EXPERT WITNESS
bursenbach@gmail.com
801-381-1449

AT THE REQUEST OF SEVERAL MEMBERS, this discussion is written for those who install commercial systems, specifically in restaurants. Recently, I've received several questions from mechanical contractors, code officials, and contractors regarding relatively small self-contained deep-fat fryers, griddles, and ovens. These are commercial cooking appliances, designed to *not* require a Type I Hood, as these systems capture smoke and grease within the unit. As the code requirements for commercial kitchens are complex and lengthy, I've only quoted a few partial sections; however, I recommend grabbing you IMC, as you may want to refer to full sections referenced in quoted sections. IMC commercial kitchen requirements are found in Chapter 5, sections 506 through 509, plus portions of the IBC and IFC address.

2021 INTERNATIONAL MECHANICAL CODE (IMC)

SECTION 202 - GENERAL DEFINITIONS

HOOD. An air intake device used to capture by entrapment, impingement, adhesion, or similar means, grease, moisture, heat and similar contaminants before they enter a duct system.

Type I. A kitchen hood for collecting and removing grease vapors and smoke. Such hoods are equipped with a fire suppression system.

Type II. A general kitchen hood for collecting and removing steam, vapor, heat, odors, and products of *combustion.*

SECTION 507 - COMMERCIAL KITCHEN HOODS

507.1 General. Commercial kitchen exhaust hoods shall comply with the requirements of this section. Hoods shall be Type I or II and shall be designed to capture and confine cooking vapors and residues. A Type I or Type II hood shall be installed at or above *appliances* in accordance with Sections 507.2 and 507.3. Where any cooking *appliance* under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed. Where a Type I hood is installed, the installation of the entire system, including the hood, ducts, exhaust *equipment* and *makeup air* system shall comply with the requirements of Sections 506, 507, 508 and 509.

Exceptions: *(4 total, quoting only Exception #2)*

2. Factory-built commercial cooking recirculating systems that are *listed* and *labeled* in accordance with UL 710B, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3.1.1. For the purpose of determining the floor area required to be ventilated, each individual *appliance* shall be considered as occupying not less than 100 sq. ft. (9.3 m2).

Generally, the code requires a Type I hood anytime the cooking process is at a commercial level and creates smoke or grease. The code further requires welded or factory grease ducts, fire-rated shafts or fire-wrapped ducts, fire suppression systems, tempered make-up air, and more. Full Type I hood systems are expensive to install, test, balance, operate, and maintain. The exception above provides a possibly less expensive option where the cooking process is limited in volume. While make-up air may not be required, please note additional ventilation will be required. Of course, these systems will add a significant internal heat gain to the space, which must be included in the HVAC system design.

The image provided is a Wells Manufacturing UL 710B listed self-contained griddle and deep-fat fryer for

use in smaller commercial restaurants. The manufacturer's specifications, required to meet UL-710B include:

- *Interlock System will not allow the appliance to be energized if any of the filters are not in place.*
- *Airflow Sensing System continually monitors airflow through the filtration system, optimizing performance and grease removal.*
- *Early warning system for filter replacement.*
- *Ansul® R-102 Fire Suppression System is built into the ventless hood to provide ultimate protection. Meets NFPA-96 Standards (**Please note: before the unit can be turned on it MUST be charged, commissioned, and tagged by a licensed ANSUL Fire Suppression contractor**).*
- *Four-stage filtration system; grease filter, prefilter, HEPA filter, and charcoal filter.*
- *Removable/Replaceable multi-stage filter system exceeds EPA-202 for particulate emissions.*
- *Total Stainless-Steel construction for durability and ease of cleaning.*
- *Built-in efficient electric deep fryer with a stainless-steel heating element, and a positive-off thermostat with a manual reset safety feature that turns the fryer off if an over-temperature situation occurs.*

Photo: Courtesy Wells Manufacturing

These appliances may be ideal for small sandwich shops and cafes. This discussion briefly introduced these appliances, applicable codes, and touched on commercial cooking codes. Please study the IMC and reach out to me with questions. For those who are wondering about cost, the unit shown here is about $42,000. Expensive, but less than a Type I hood with exhaust systems, grease ducts, shafts/fire wrap, suppression systems, etc.

*If you are interested in a class on commercial kitchens or other mechanical systems, please plan on attending the **RMGA Education Summit** next week, Wednesday, September 11. You'll have the opportunity to make suggestions, share opinions, and ask questions. **Hope to see you there! —Brent*** ■

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B&M HOME SUPPLY AND SERVICES
Alveni G. Belisaro Marin
7702 Locus Street
Midvale, UT 84047
alvenib@bmhomesupply.com
bmhomesupply.com

BK HVAC LLC
Brian King
4415 W 1775 N
Plain City, UT 84404
801-928-6394
brian@bkhvac.net

ANY HOUR SERVICES
Jordan Finley
1374 W 130 S
Orem, UT 84058
jordan.finley@anyhour.com
www.anyhourservices.com

MAP CONSULTING
Chad Hall
20101 SW Birch Street, Ste 250
Newport Beach, CA 92660
509-280-2598
chall@mapconsulting.com
www.mapconsulting.com