

## Study Session

# 2

## 2009 IMC Sections 301 – 304.5 General Regulations I

**OBJECTIVE:** To develop an understanding of the code provisions applicable to the listing and labeling of equipment and appliances, the protection of the structure and the installation of equipment and appliances.

**REFERENCE:** Sections 301 to 304.5, 2009 *International Mechanical Code*

- KEY POINTS:**
- What equipment and appliances are governed by IMC Chapter 3?
  - What other *International Codes* apply to the installation of heating, ventilating and air conditioning systems?
  - When are appliances and equipment required to be listed and labeled? What are the exceptions?
  - What type of samples are required for testing mechanical equipment and appliances?
  - What are the required qualifications for an independent testing agency? How are they confirmed?
  - What information is required on an appliance's permanent label?
  - What document governs all electrical components for mechanical equipment and appliances?
  - What portion of the equipment and appliances are regulated by the plumbing code?
  - In addition to fuel type, what other feature must be considered in the design of fuel-fired equipment?
  - Under what conditions may equipment or appliances be converted to a different fuel type?
  - When replacing parts or doing repair work, what must always be preserved?
  - Under what conditions are mechanical equipment, appliances and supports required to be installed to resist wind pressures?
  - When located in a flood hazard area, a mechanical system must be located at what minimum elevation?
  - What would be required of mechanical systems, equipment and appliances in order to locate them below the design flood elevation?
  - What areas are required to be protected against the entrance of rodents?
  - What creates the need for supports to be designed to meet seismic forces?

- KEY POINTS:**
- (Cont'd)**
- How close to the top or bottom of a solid wood joist are holes permitted to be bored?
  - What is the maximum size of bored holes in relationship to the depth of the joist?
  - What limitations are placed on both the location and the depth of notches in the top or bottom of joists?
  - What is the maximum cut or notch permitted in a stud located in an exterior wall or a bearing wall? In a nonload bearing partition?
  - Bored holes in a stud are limited to what percentage of the stud depth?
  - Under what condition are engineered wood products permitted to be cut, notched or bored?
  - What is required when it is necessary to alter a truss?
  - What is required prior to installing HVAC equipment in a truss-framed attic area?
  - Under what conditions are appliances permitted to be located in a hazardous area?
  - What areas are prohibited as locations for the installation of fuel-fired appliances? Are there exceptions?
  - When subject to mechanical damage, how are appliances to be located?
  - Unless listed for closet or alcove installation, what is the minimum volume of a room or space housing a fuel-fired appliance? A boiler?
  - What is required for appliances installed in other than indoor locations?
  - What is the required separation from the sides of the pit to the appliance when located under the floor?
  - When a pit or excavation containing an appliance exceeds 12 inches in depth, what additional provisions apply?
  - Sources of ignition are required to be placed how many inches above the floor of garages as a minimum?
  - What prohibits the placement of such equipment in Group H occupancies or control areas where open use, handling or dispensing of combustible, flammable or explosive materials occur?
  - What are the limitations on size and output capacity of hydrogen-generating appliances?
  - What are the requirements for natural ventilation for indoor locations intended for hydrogen-refueling operations?
  - When louvers and grilles are provided in ventilation openings serving hydrogen-refueling operations, what are the minimum requirements?

**Topic:** Labeling  
**Reference:** IMC 301.5

**Category:** General Regulations  
**Subject:** Approval and Installation

**Code Text:** Labeling shall be in accordance with the procedures set forth in Sections 301.5.1 through 301.5.2.3, which include requirements for 1) testing, 2) inspection and identification, 2.1) independence of the agency, 2.2) equipment and 2.3) personnel.

**Discussion and Commentary:** The labeling of appliances is an important issue insofar as most code officials will accept the label in approving the appliance. The code official may ask for reports to determine that in-plant inspections are occurring, that the testing agency is independent from the manufacturer, that the agency has the proper equipment for testing and that the agency personnel are capable of conducting the tests.



AMERICAN STANDARD INC.  
 THE TRANE COMPANY  
 TRENTON, N.J. 08619

MADE IN U.S.A.

**FORCED AIR FURNACE** CATEGORY I  
**ANS Z21.47 - 1990 CENTRAL FURN**  
 FOR INDOOR INSTALLATION IN A BUILDING  
 CONSTRUCTED ON SITE. **NRTL**

MODEL NO. TUD080R936A1	SERIAL NO. G36519785	EQUIPPED FOR NAT. GAS
INPUT 80,000 BTU/HR.	LIMIT SETTING 190 °F	MFRD. 09/92
TEMP. RISE °F FROM 30 TO 60	MAX. EXT. STATIC PRESS .50 INCHES WATER	MAX. DESIGN AIR TEMP. 100 °F
VOLTS/PHASE/HERTZ 115/1/60	TOTAL AMPS 8.5	SERVICE CODE 1

MANIFOLD PRESSURE (IN INCHES OF WATER)  
 NAT. 3.5 LP 10.5  
 SUPPLY PRESSURE (IN INCHES OF WATER)  
 MAX. NAT. 10.5, L P 13.0  
 MIN. NAT. 4.5 L P 11.0 FOR PURPOSE OF INPUT ADJUSTMENT.

LOW INPUT 52,000 BTU/HR

MINIMUM CLEARANCE COMBUSTIBLE MATERIALS:

FOR CLOSET	INSTALLATION AS FOLLOWS:
SIDES 0 IN. W/SINGLE WALL VENT	
FLUE 6 IN. W/SINGLE WALL VENT	1 IN. W/TYP E B-1 VENT
FRONT 6 IN.	BACK 0 IN. TOP 1 IN.

**UPFLOW UNITS. FOR INSTALLATION COMBUSTIBLE FLOORING. 21D340159 P91**

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Code officials rely on the approved label for several manufacturers' requirements, including specific clearances. In many cases, due to the changing technology, the code refers to the manufacturer's installation instructions in lieu of providing code specific language.