



# UL 391

## **STANDARD FOR SAFETY**

Solid-Fuel and Combination-Fuel Central and  
Supplementary Furnaces



UL Standard for Safety for Solid-Fuel and Combination-Fuel Central and Supplementary Furnaces, UL 391

Fifth Edition, Dated September 10, 2010

### **Summary of Topics**

***This revision of ANSI/UL 391 dated August 28, 2019 is being issued to update the title page to reflect the most recent designation as a Reaffirmed American National Standard (ANS). No technical changes have been made.***

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The requirements are substantially in accordance with Proposal(s) on this subject dated June 28, 2019.

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## **UL 391**

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## INTRODUCTION

### 1 Scope

1.1 These requirements apply to manually fueled, solid-fuel-fired central furnaces. Included are supplementary central furnaces intended for interconnection with forced-air central furnaces utilizing other fuels, and combination oil-fired and solid-fuel-fired, forced-air central furnaces.

1.2 The furnaces are intended to burn solid fuels, such as wood, coal, or any other biomass fuel, as specified by the manufacturer.

1.3 The furnaces are intended for connection to chimneys for residential and building heating appliances in compliance with the Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances, NFPA 211, and intended for installation in compliance with the Standard for Installation of Warm Air Heating and Air Conditioning Systems, NFPA 90B; and the National Electrical Code, ANSI/NFPA 70; and applicable mechanical codes such as the BOCA National Mechanical Code, the Standard Mechanical Code, and the Uniform Mechanical Code.

1.4 A product that contains features, characteristics, components, materials, or systems new or different from those covered by the requirements in this standard, and that involves a risk of fire or of electric shock or injury to persons shall be evaluated using appropriate additional component and end-product requirements to maintain the level of safety as originally anticipated by the intent of this standard. A product whose features, characteristics, components, materials, or systems conflict with specific requirements or provisions of this standard does not comply with this standard. Revision of requirements shall be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this standard.

### 2 Components

2.1 Except as indicated in 2.2, a component of a product covered by this standard shall comply with the requirements for that component. See Appendix A for a list of standards covering components generally used in the products covered by this standard.

2.2 A component need not comply with a specific requirement that:

- a) Involves a feature or characteristic not needed in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

2.3 A component shall be used in accordance with its recognized rating established for the intended conditions of use.

2.4 Specific components are recognized as being incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions for which they have been recognized.

### 3 Units of Measurement

3.1 If a value for measurement is followed by a value in other units in parentheses, the second value may be only approximate. The first stated value is the requirement.

### 4 Undated References

4.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

### 5 Glossary

5.1 For the purpose of this standard the following definitions apply.

5.2 AIR SHUTTER – An adjustable device for varying the size of the air inlet or inlets regulating primary air, secondary air, or both. It may be either manually or automatically operated.

5.3 APPLIANCE FLUE – The passages within the product that conduct the products of combustion (flue gases) through the product.

5.4 BURNER, OIL – A power-operated burner that prepares and delivers the oil and all or part of the air by mechanical process in controllable quantities for combustion.

5.5 CHIMNEY CONNECTOR – The pipe that connects a fuel-burning product to a chimney.

5.6 COMBUSTIBLE MATERIAL, COMBUSTIBLE PRODUCTS, NONCOMBUSTIBLE – These terms, as used in this standard, are defined in the Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances, NFPA 211.

5.7 CONTROL, LIMIT – An automatic control responsive to changes in pressure or temperature and intended to limit the operation of the controlled equipment.

5.8 CONTROL, PRIMARY SAFETY – The automatic control relied upon to reduce the risk of discharge of oil at the burner in case of loss of ignition or loss of flame.

5.9 CONTROL, SAFETY – Any automatic control, such as a relay or switch, used in conjunction with other auxiliary equipment to form a safety control system that is relied upon to reduce the risk of fire, electric shock, or injury to persons.

5.10 CONTROL, SAFETY COMBUSTION – A primary control directly responsive to flame properties. Senses the presence of flame and causes fuel to be shut off in event of loss of flame.

5.11 CONTROL, THERMOSTATIC DAMPER – An automatic control responsive to changes in temperature. Usually acts through direct mechanical linkage to reduce or increase the supply of air needed for combustion, thereby regulating the combustion rate and limiting the operation of the product when the product is burning solid fuel.

5.12 CONVENIENCE RECEPTACLE – A contact device provided with permanently connected electrical conductors intended for quick and easy connection to a plug attached to a flexible electric cord.

5.13 DAMPER – A valve or plate that regulates draft or flow of flue gases or inlet combustion air. May be either manually or automatically operated.