



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-8000

December 16, 2020

**20-IW2-AC  
NEW**

ALL MANUFACTURED HOME MANUFACTURERS

Dear Manufacturer:

To promote the purposes of the National Manufactured Housing Construction and Safety Standards Act of 1974 (Act), as amended, and assist the manufactured housing industry that is currently faced with 25-ampere (amp), double-pole circuit breaker supply chain challenges, the U.S. Department of Housing and Urban Development (HUD) issues this Alternative Construction (AC) letter under the terms and conditions stated herein, where no affirmative action is needed to protect the public interest. In accordance with 24 Code of Federal Regulations (CFR) 3282.14(b)(3), the Department has determined that compliance with specific Standards stated herein would be unreasonable due to the COVID-19 pandemic.

Specifically, the supply chain is currently unable to supply 25-amp, double-pole circuit breakers that would allow water heater appliance installations to conform to certain standards within 24 CFR part 3280 titled "Manufactured Home Construction and Safety Standards," including the National Electric Code, 2005 edition, as incorporated by reference at 24 C.F.R. 3280.4. These supply chain issues, caused by the COVID-19 pandemic, has resulted in an industry-wide request for HUD to issue an AC letter specific to 25-amp, double-pole circuit breakers required to be installed for a Rheem-brand water heater with a 4,500-watt electrical element operating at 240 volts. 24 C.F.R. 3280.804(g)(1)(ii) requires maximum overcurrent protection of not more than 150 percent of appliance rating, or 28.125 amps for a 4,500-watt, 240-volt appliance ( $18.75 \text{ amps} \times 150\% = 28.125 \text{ amps}$  maximum, which equates to a 25-amp standard breaker rating). This requirement is supported by and reflected in product manufacturer's installation instructions for this water heater.

This AC letter is for production of manufactured homes at any Production Inspection Primary Inspection Agency (IPIA) certified manufactured home production facility until April 30, 2021 and includes an unlimited number of manufactured homes that may be constructed. Due to the supply chain shortage attributed to the COVID-19 pandemic, HUD will permit manufacturers to install Rheem-brand 4,500-watt, 240-volt water heaters on branch circuits sized for and protected by 30-amp overcurrent protection devices. This is supported by Rheem Manufacturing Company's issuance of a letter, dated August 26, 2020, attached and incorporated herein (see "Exhibit A"), permitting the use of 25- or 30-amp breakers for its 4,500-watt, 240-volt water heaters supplied by #10 AWG copper branch circuit conductors. As #10 copper AWG branch circuit wiring is rated at 30 amperes, overcurrent protection at 30 amperes will not adversely impact protection of the branch circuit. This, coupled with the product manufacturer's acknowledgement that its water heater can be protected at this overcurrent protection, supports the issuance of this AC letter.

This AC letter shall no longer be valid on or after May 1, 2021. As a reminder, all AC manufactured homes built must have the letters "AC" in the serial number stamped on the manufactured home's chassis and in all official paperwork.

The Department has determined that the issuance of this AC letter is consistent with the objectives of the Act. In accordance with 24 CFR § 3282.14(c) of the Manufactured Home Procedural and Enforcement Regulations (Regulations), HUD will not take enforcement action against the manufacturer for violations of 24 CFR § 3280.804(g)(1)(ii), insofar as these regulations reference a specific referenced standard, as long as the manufacturer meets the following requirements:

1. This AC letter is not manufactured housing model specific. Reapproval of all model and construction drawings is not necessary as the alternative water heater installation standard accepted in the AC letter is in lieu of the applicable 25-amp standard breaker, as it relates to Rheem Manufacturing Company's 4,500-watt, 240-volt water heaters under 24 CFR 3280.804(g)(1)(ii). This AC letter only permits nonconformance with 24 CFR 3280.804(g)(1)(ii) and does not permit nonconformance with any other regulations. Additionally, the installation of the Rheem's water heater must be completed in accordance with the remaining installation instructions.
2. This AC provides an alternative to full design review when the manufacturer is only exercising the limited option to incorporate the alternative breaker for the Rheem water heater installation. Rather, then, before any manufactured homes can be built in accordance with this AC letter, the manufacturer shall inform the Department and its IPIA and Design Approval Primary Inspection Agency (DAPIA) of its need and option to use this AC letter. The notification to HUD, including the specific production facilities to be included, can be sent via email to the Department at:

[MHSreporting@HUD.gov](mailto:MHSreporting@HUD.gov).

3. This AC letter is water heater brand specific and only valid for Rheem brand 4,500-watt, 240-volt water heaters. Additional water heater brands and or models requires submission to HUD and an amendment to this AC letter.
4. This AC letter is specifically providing for alternative based upon supply by only #10 AWG copper branch circuit conductors. Use of any other wire gauge size or alternate metal conductor requires submission to HUD for an amendment to this AC letter.
5. This AC letter is **valid until April 30, 2021**, and for an **UNLIMITED** number of homes. This AC letter shall no longer be valid on or after May 1, 2021.
6. Manufactured homes sold directly to the Federal Emergency Management Agency (FEMA) must be reported on the HUD form 302 with purchaser/consumer information

for FEMA. FEMA is not a retailer of manufactured homes. Further, the location for shipment must reflect the physical address of the first destination of the home, whether it is a storage facility, holding facility, or FEMA field office for disaster deployment. Listing FEMA's headquarters as the shipping address is not appropriate. Manufactured homes sold to or through a retailer or distributor for consumer purchase shall be reported with retailer information and consumer information completed.

7. The manufacturer must ensure that FEMA or each prospective purchaser receives a copy of the enclosed "Notice to Purchaser" (see "Exhibit B") before entering into any sales agreement. The manufacturer must place the "Notice to Purchaser" in clear view in the kitchen area of the home. It must not be removed until the sale of the home is complete.
8. The manufacturer must provide HUD with a cumulative production status report (see "Exhibit C") by May 3, 2021. The production status reports must be cumulative for and include all the information identified in "Exhibit C." The manufacturer must submit this report electronically to the Department to:

[MHSreporting@HUD.gov](mailto:MHSreporting@HUD.gov)

If the manufacturer cannot send the report electronically, please send the paper copy report to the following address:

U.S. Department of Housing and Urban Development  
Office of Manufactured Housing Programs  
451 7th Street, SW, Room 9170  
Washington, DC 20410-8000

HUD is forwarding a copy of this letter to all IPIAs and DAPIAs. After the manufacturer has provided notification to the Department, the IPIA(s) and DAPIA(s) may use this AC letter, which authorizes the IPIA to permit the use of this AC letter and authorizes the DAPIA to approve plans that reference this AC letter provided that the conditions set forth in the letter are met. HUD also is forwarding a copy of this letter to all State Administrative Agencies (SAA).

The Department's decision does not affect any rights that manufactured home purchasers may have under the Act. This decision is limited solely to the subject request and only applies to the manufacturer's production operations that have been certified to build manufactured homes.

Please reference HUD File No. 20-IW2-AC in any correspondence about this specific AC letter. If you have any questions concerning this matter, please contact Mr. Jason McJury of this office at (202) 402-2480 or by email at [Jason.C.McJury@hud.gov](mailto:Jason.C.McJury@hud.gov).

Sincerely,

12/16/2020

X 

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Teresa B. Payne, Administrator  
Office of Manufactured Housing Programs  
Signed by: TERESA PAYNE

Enclosures

cc: IBTS; ALL SAAs; ALL IPIAs; ALL DAPIAs

## EXHIBIT A

### RHEEM MANUFACTURING COMPANY'S LETTER, DATED AUGUST 26, 2020



**Rheem Manufacturing Company**  
Water Heater Division (WHD)

August 26, 2020

**TO:** Inspectors, Installers  
**FROM:** James Courtney  
Sr. Product Manager

**SUBJECT: Residential Electric Water Heater Branch-circuit Overcurrent**

With respect to Rheem residential electric products, the Rheem Use and Care manual provides charts based on wattage and voltage for the overcurrent protection recommended based on NEC 2020, Article 422. The charts reference a minimum recommended amperage rating. The installed over current protection should be rated at the minimum recommended amperage rating or larger.

**Reference:**

Per NEC 2020, 422.13 Storage-Type Water Heaters. The branch-circuit overcurrent device and conductors for fixed storage-type water heaters that have a capacity of 120 gallons or less shall be sized not smaller than 125% of the rating of the water heater.

With respect to the amperage of residential electric water heaters, amperage can be determined by the following formula.

$$P/V = I$$

P= Power = Element wattage

V= Voltage

I = Amperage

For a common water heater, such as the Rheem PROF40 operating using an element rated at 4500 watts at 240 V, amperage can be calculated as follows:

$$P/V=I$$

P=4500 watts for the element

V= 240 V

$$4500/240 = I$$

$$18.75 A = I$$

Per NEC, 125% of the amperage rating is

$$18.75 * 1.25 = 23.4375 A$$

For this example, Rheem recommends a breaker rated for 25 A or 30A.

**NOTICE:** This guide recommends minimum branch circuit sizing and wire size based on National Electric Code. Refer to wiring diagrams in this manual for field wiring connections.

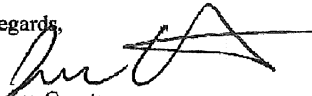
### Branch Circuit Sizing and Wire Size Guide

## Single Phase Wiring

Total Water Heater Wattage	Recommended Over Current Protection (fuse or circuit breaker ampere rating)		Copper Wire Size AWG Based on N.E.C Table 310-16 (75°C)	
	208V	240V	208V	240V
3,000	20	20	12	12
4,000	25	25	10	10
4,500	30	25	10	10
5,000	30	30	10	10
5,500	35	30	8	10

For any further questions, please contact our Application Engineering Department at [ApplicationEngineering@Rheem.com](mailto:ApplicationEngineering@Rheem.com)

Regards,

  
James Courtney  
Sr. Product Manager  
Rheem Manufacturing Company

## **EXHIBIT B**

### **20-IW2-AC ALL MANUFACTURED HOME MANUFACTURERS (25-AMPERE DOUBLE-POLE CIRCUIT BREAKERS)**

#### **NOTICE TO PURCHASER/OCCUPANT**

The U.S. Department of Housing and Urban Development (HUD) has issued an Alternative Construction (AC) Letter No. 20-IW2-AC, available to all manufactured home manufacturers.

As constructed in the factory, this home may not meet certain aspects of the Federal Manufactured Home Construction and Safety Standards (Standards). Specifically, the manufacturer installed a 30-ampere (amp) circuit breaker to provide the proper overcurrent protection for the 4,500-watt, 240-volt Rheem water heater where typically a 25-amp circuit breaker would be the recommended maximum overcurrent protection. While this alternate overcurrent option does not meet the specific standard outlined in HUD's 24 Code of Federal Regulations § 3280.804(g)(1)(ii), Rheem Manufacturing Company certified that the alternate overcurrent device meets the intent of Standards and the National Electrical Code (NEC), 2005.

The alternate overcurrent device was installed in accordance with the product manufacturer's installation instructions and supplemented by its letter dated August 26, 2020, DAPIA-approved designs, instructions, specifications, and meet the intent of the Standards and NEC, 2005 edition.

HUD evaluated this alternative construction concept and concludes that it provides levels of quality, durability, and safety that are equivalent to those required by the Federal Standards. To comply with the approval letter issued to the manufacturer, the letters "AC" must appear in your home's serial number.

For further information about the specific Federal Standards involved, a copy of the letter issued by HUD to the manufacturer pursuant to 24 CFR 3282.14(c) is available from this retailer/dealer or the manufacturer upon request.

A copy of this Notice and the manufacturer's supplemental letter dated August 26, 2020 must be provided to the Home Purchaser/Occupant and must be temporarily affixed in a location within the kitchen area of the home.

EXHIBIT C

20-IW2-AC ALL MANUFACTURED HOME MANUFACTURERS  
(25-AMPERE DOUBLE-POLE CIRCUIT BREAKERS)

CUMULATIVE PRODUCTION STATUS REPORT

Ending date: \_\_\_\_\_  
Plant Location: \_\_\_\_\_

(Reported Annually)

AC Valid thru: April 30, 2021  
Max. No. of Homes Approved: UNLIMITED

Serial Number	HUD Label Number	Retailer/Dealer Name and Location	Name, Address, Email & Phone # of Homeowner	Date of Manufacture

Authorized Manufacturer's Representative  
Title: \_\_\_\_\_ Date: \_\_\_\_\_