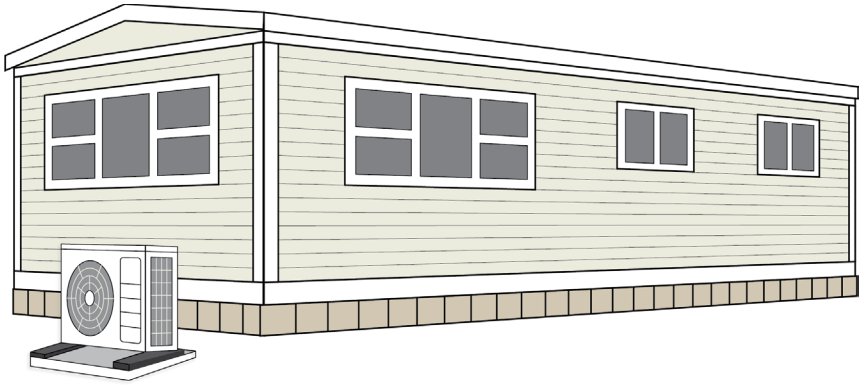
# How to partially install a heat pump in a manufactured home factory

The factory can take steps to prepare the home for heat pump installation on site that will prevent damage to the home's floor system and save the home buyer money. The factory can identify the heat pump equipment components that are correctly sized for the home and can install the air handler with the indoor heat pump coil included. This will help the factory ensure that HVAC contractors on site will install equipment specified by the factory, avoiding situations where the HVAC contractor might over-size heat pump equipment due to lack of confidence in the manufactured home's thermal performance.



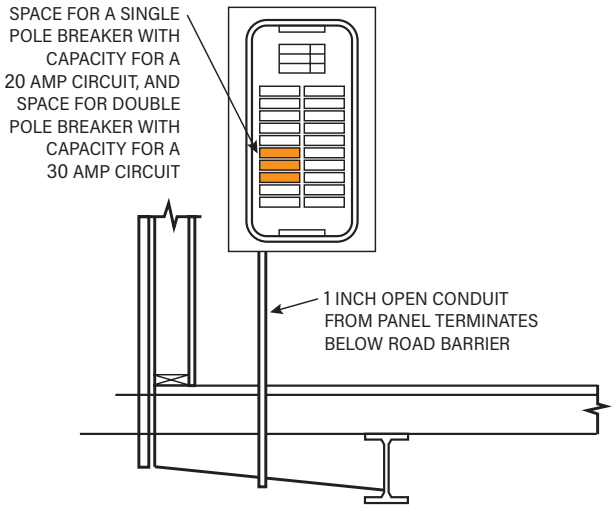
## FACTORY PREPARATION

Simplify and lower the cost of onsite heat pump installation and prevent unnecessary damage to the home's floor system during installation by completing the following four construction steps in the manufactured home factory.

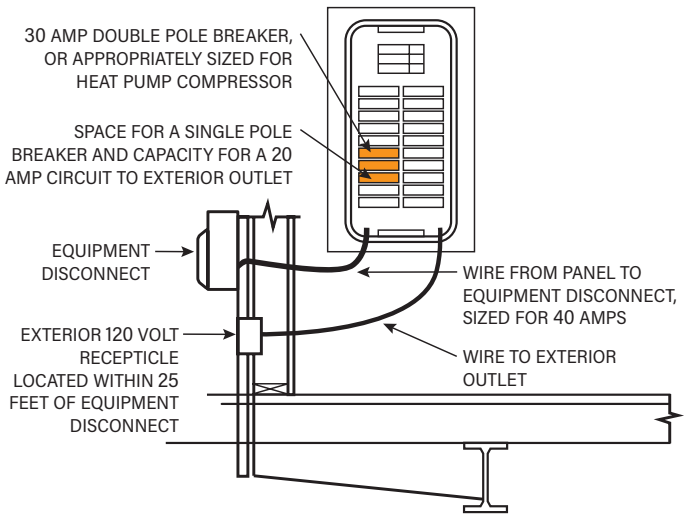
### STEP 1

**Run power for the outdoor heat pump unit**

**OPTION 1:** Run a supply conduit from main electric panel to under the home's floor. Leave space in the panel for a single and a double pole breaker and 45-amp of additional panel loading capacity (for a site installed outlet and equipment disconnect).




**OPTION 2:** Run 30-amp 240V circuit to equipment disconnect at location identified by home buyer or retailer. Also, ensure there is a 120V outlet within 25 feet of the equipment disconnect.

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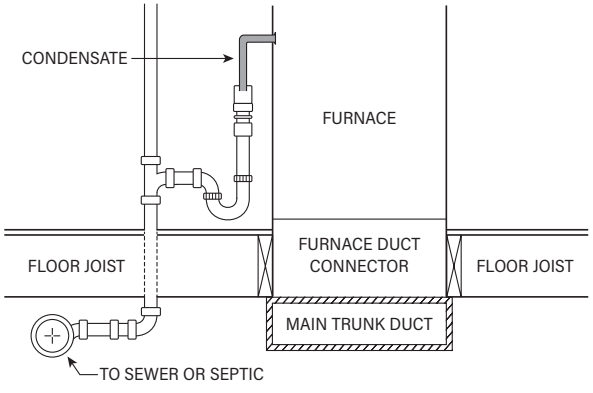
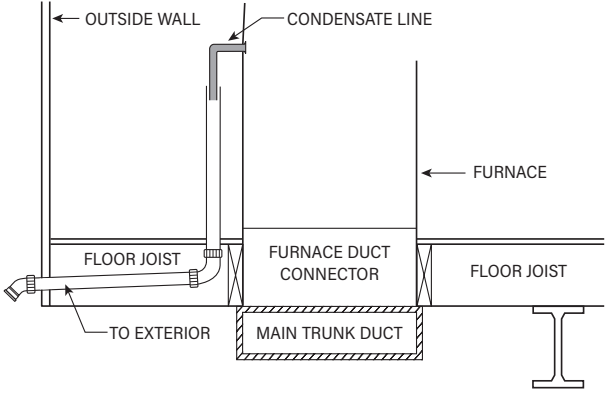
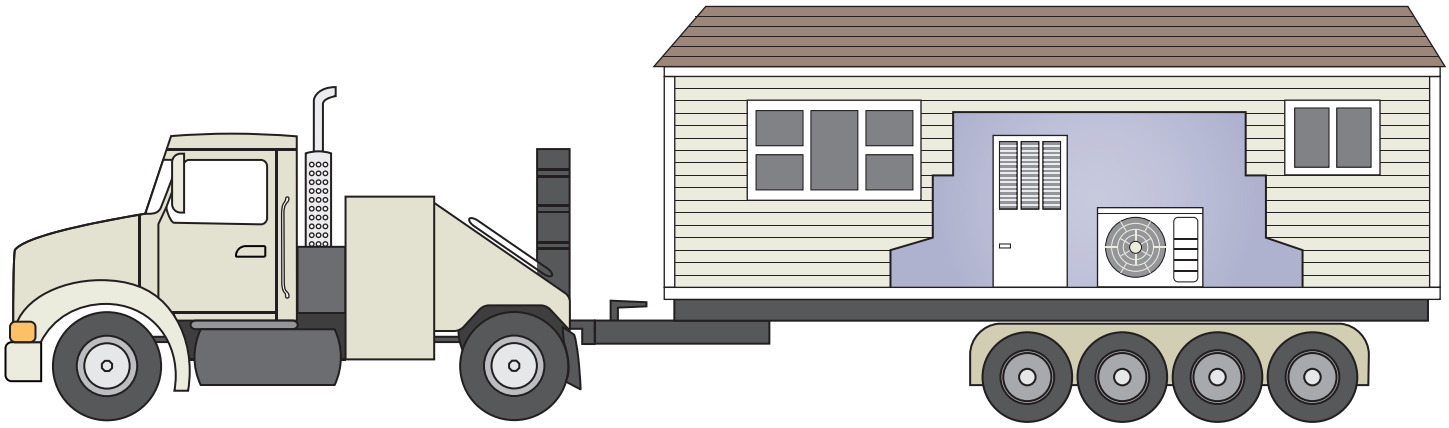
**OPTION 1:** Connect condensate line with the waste plumbing




**OPTION 2:** Route condensate line through the floor to the exterior of the home



## FACTORY HEAT PUMP EQUIPMENT SELECTION AND INSTALLATION (or partial installation)



A split-system heat pump consists of three pieces of equipment: the outdoor compressor, the indoor air handler (aka furnace) and the indoor refrigerant coil (which is housed with the air handler). Manufactured home factories currently typically install only the air handler/furnace, leaving the decisions around heat pump equipment sizing and selection to the home retailer or home buyer and their local HVAC contractor.

Since original equipment manufacturer (OEM) manufactured housing HVAC equipment is largely sold through specialized distribution channels (or is not a featured product line at regional distribution houses), many local HVAC contractors are less likely to purchase the matching outdoor compressors and indoor coils for the OEM furnaces that come in manufactured homes. Instead, HVAC contractors often remove the OEM furnace and use traditional residential heat pump equipment with which they are familiar. This can result in an improperly sized heat pump system, equipment that connects poorly to the duct system, and/or duct system modification/replacement to make the chosen equipment function in the application. This costs the end customer more money, wastes the OEM furnace equipment, and complicates home servicing/warranty claims. Additionally, the makers of the OEM furnace miss out on many potential heat pump sales.

The manufactured home factory could develop a heat pump partial installation option, where the appropriate indoor coil would be installed into the furnace at the factory and a label with model information for the outdoor compressor would be attached to the furnace cabinet (ideally with information and links to a tool that helps them connect to local contractors who have been trained to install the equipment).

Customers buying this option would get good heat pump performance (because the equipment is properly sized) and at a good price (because the contractor can access the OEM compressor match for the furnace and indoor coil already in the home). The factory would retain nearly the same HVAC performance risks as with just installing the furnace, or possibly reduced risk owing to properly sized equipment getting installed on site. A local contractor is still involved with the heat pump system installation and servicing.

The primary changes are the manufactured home factories purchasing furnaces with indoor coils installed (or installing them in the factory), training home retailers to promote the option, and engaging with the equipment suppliers to provide HVAC contractor training and job referral services.

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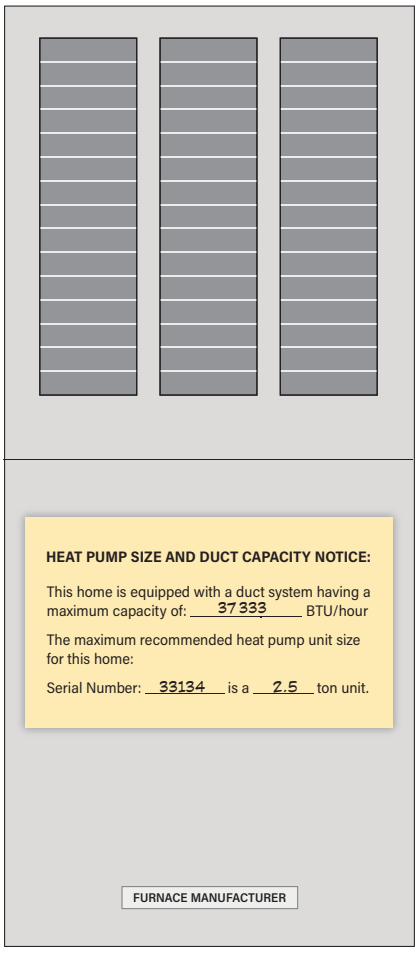
**The manufactured home factory would take the following steps for each home receiving this option:**

### STEP 1

**Install furnace/air handler with appropriate matching coil, so the home ships with a complete heating system.**

### STEP 2

**Ship the home with information about the outdoor unit model to be purchased and installed, preferably putting the information on a label that gets attached to the furnace access panel.**




### STEP 3

**The customer uses the information on the furnace label to engage a local HVAC contractor, who would obtain the outdoor compressor and the rest of the heat pump system components and complete the installation.**

**Note:** If the OEM HVAC equipment distributor was actively involved in coordinating job leads or generating contractor locator tools for home retailers, it might be possible for the outdoor unit to be shipped loose with the home, and a local HVAC contractor to supply the balance of system components, complete installation and register the system for warranty.

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