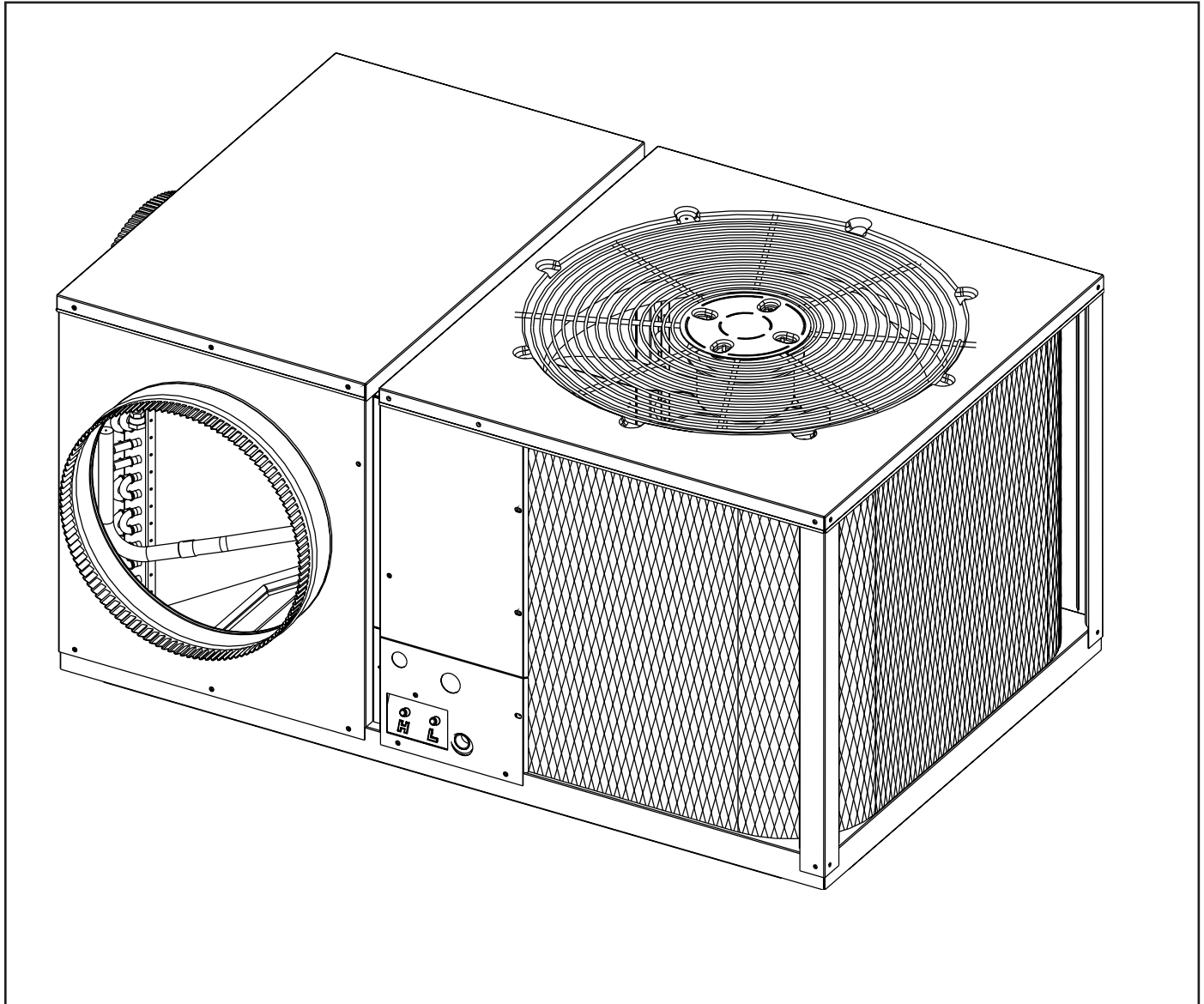


Design consideration for homes intended for field application of Platinum Series air conditioners



Scope

The purpose of this brochure is to describe the NORDYNE Platinum series concept and how it can affect the way manufactured housing manufacturers design and build homes. This brochure will define the

characteristics of a 'Platinum-ready' home along with recommendations for leveraging all of the advantages of the Platinum Series air conditioners.

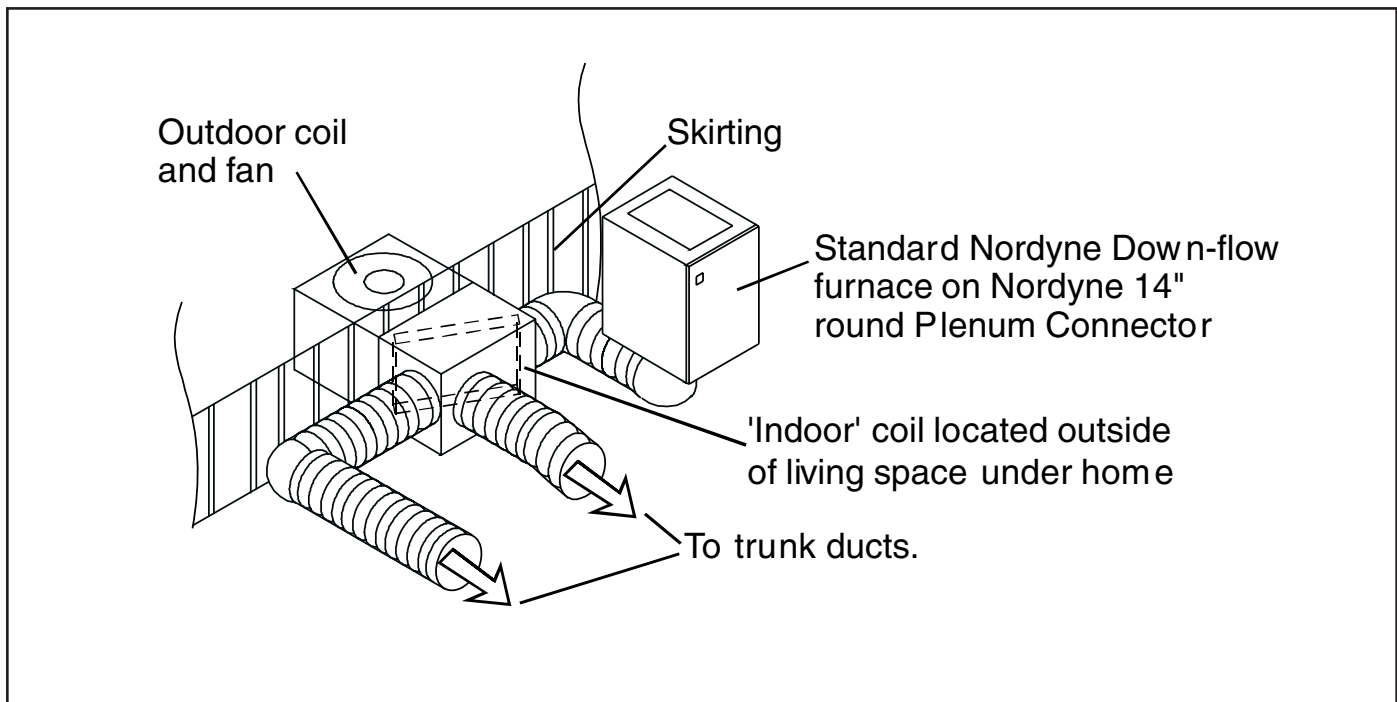


Figure 1. Platinum Overview

Platinum Overview

The Platinum concept is an approach to manufactured housing HVAC that is different than what has been traditionally available. A Platinum Series air conditioner (AC) is similar to a split system AC except that the indoor coil is in the Platinum unit instead of being field installed in the furnace. See Figure 1.

With the indoor coil located in the Platinum Series unit placed outdoors, there is no chance of condensate leakage in the home. Also, installation is simplified since there are no refrigerant lines to connect and no coil to install into the furnace. The vapor barrier as supplied by the home manufacturer is not compromised in the installation of the Platinum AC.

Further simplifying the installation of a Platinum Series unit is the fact that it is designed to be cord-connected, eliminating the need for an electrician in most cases.

Using the Platinum Series concept also creates flexibility to improve HVAC design and lower the manufactured cost of the home.

DESIGN CONSIDERATIONS – Furnace

Model Selection

For a Platinum ready home the choices are simple, use any E3EX series electric or M3RX series gas furnace specifically sized for the homes heating load requirements.

All E3EX and M3RX models come AC ready with a high efficiency, variable speed blower which covers the complete spectrum of Platinum AC applications. No more need for costly blower change outs, additional relay kits, or the installer requiring access to the inside of the home.

Return Air Options

For E3EX electric furnaces and M3RX series gas furnaces, there are new options since there is no need to install a coil on the unit. The return air can now be located high in the wall, which will improve air distribution and reduce the furnace sound that could be transmitted through the return air grill. Also an open return air weir can be considered and would eliminate the return air grill all together. See Figure 2.

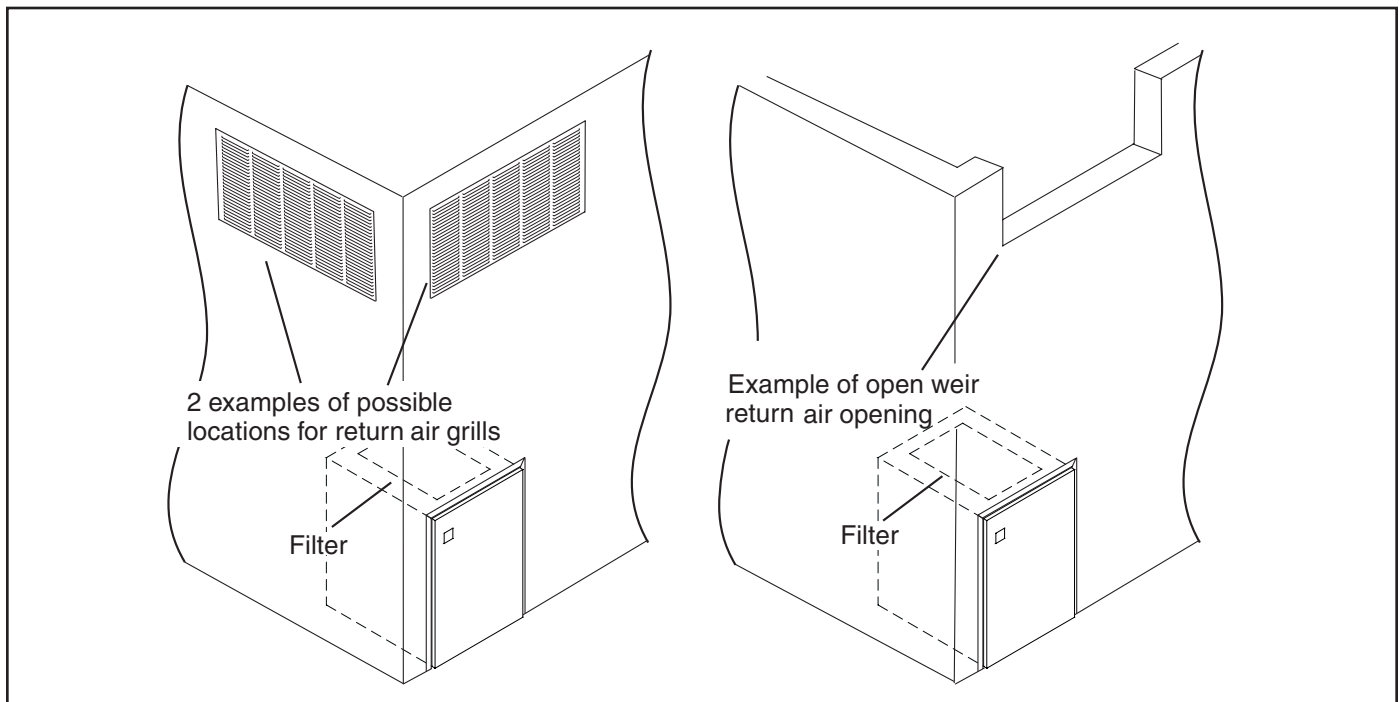


Figure 2. Return Air Options for Electric Furnaces

Location

The following factors should be considered to optimize furnace location:

- 1) If the unit can be located on an outside wall, the simpler, more cost effective through-the-wall Ventilair can be used.
- 2) Keeping the furnace close to the panel, (distribution box) can reduce cost, especially on electric furnaces.
- 3) Keeping the furnace location close to the intended location of the Platinum-Series AC will reduce the requirement for flex duct and thermostat wire when installed.
- 4) The furnace does not need to be directly over a trunk duct. With the flexibility the Platinum Series brings, you may locate the furnace where it makes sense for the floor plan.

Plenum Connector

Use the 14" round plenum connector to simplify connection to the Platinum Series AC. Installation of the 14" plenum connector is the same as for the traditional square connector except there is no connection to the duct system at the time of plenum installation.

Thermostat

All Platinum Series AC models are designed to work with a standard 4-wire AC thermostat.

In a Platinum-ready home, all thermostat cable is run by the home manufacturer - from the thermostat to the furnace and from the furnace to the Platinum unit location. The thermostat cable wired from the furnace to the Platinum unit location also includes an additional 6 feet of extra cable coiled and attached to the bottom of the home near the receptacle for use during Platinum unit installation.

Reference Figure 3 for thermostat wiring. Since the installer of the Platinum unit might not enter the structure during installation, it is important to follow the color scheme shown in Figure 3.

IMPORTANT! Notice that the red and white wires are joined with a wire nut at the end intended for the Platinum unit. This is required to allow for heat operation when a Platinum AC is used or if no AC unit is used at all.

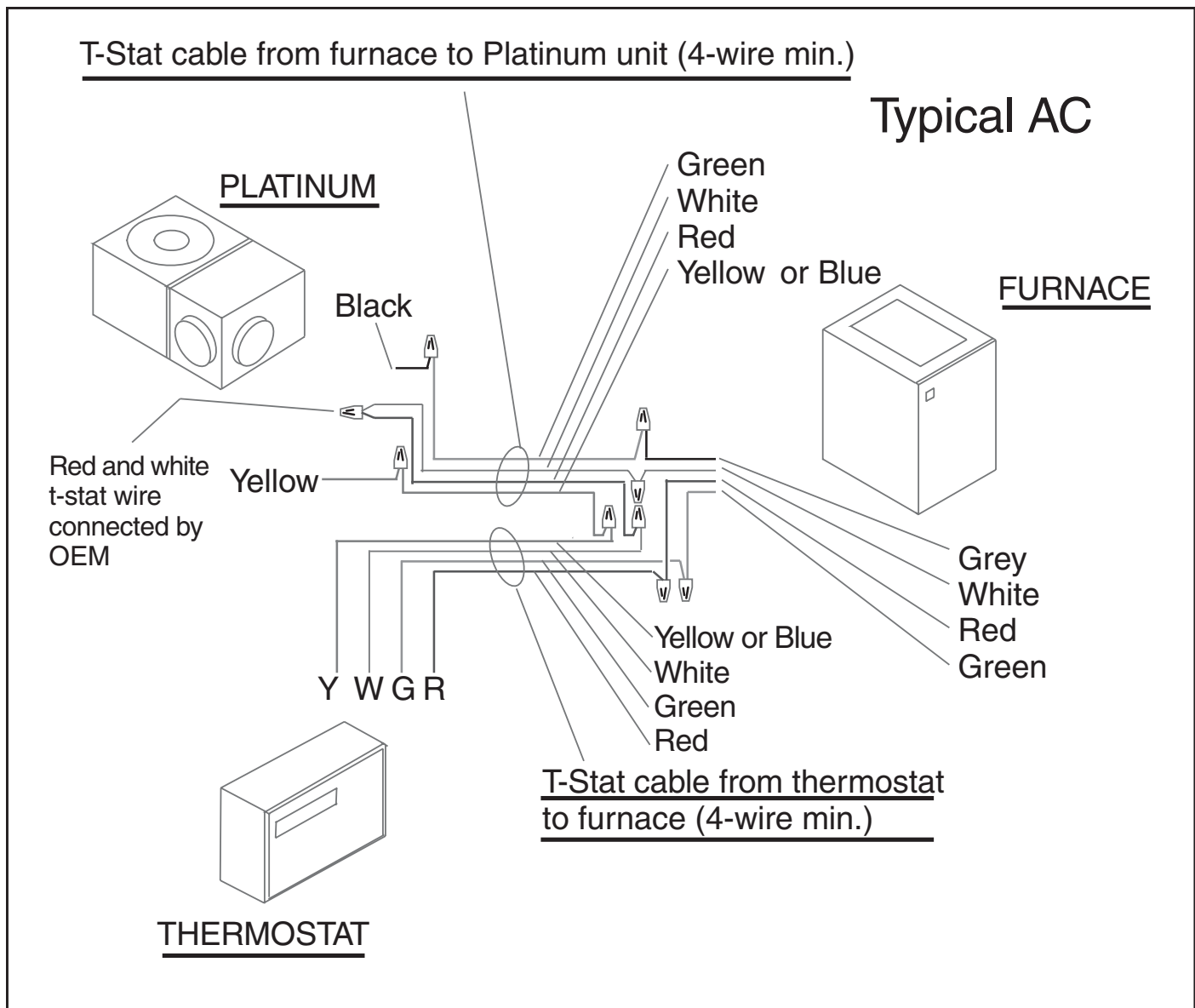


Figure3. Typical Low Voltage Wiring

DESIGN CONSIDERATIONS – Duct

GENERAL

Beyond these specific points described below, the duct is designed using standard design principles. Use NORDYNE's Certiduct duct certification program to aide in the design and certification of the duct design.

Floor Ducts

In a Platinum-ready home design, the furnace is not directly on a duct trunk. See Figure 4. All trunks are equipped with 12" drop-outs (duct connectors) located where performance is maximized. Locating the drop-

outs at the center of a trunk generally provides the best performance, however, this must be balanced with the desire to minimize the length of flex duct required to connect to the Platinum at its intended location. Generally, it is a good idea to keep the drop-outs in the center 1/3 of the trunks, and, keep the length of flex duct required to no more that 25 feet for any single run.

Platinum air conditioners have 2-12" supply connections for 12" flex duct. For homes with more than 2 main trunks, crossovers and/or 'weye' connections are required to feed the smaller trunk(s). For homes with only one trunk, 2-12" drop-outs may be used or, in the case of homes where a small cooling and/or heating load is anticipated, the trunk may be designed with

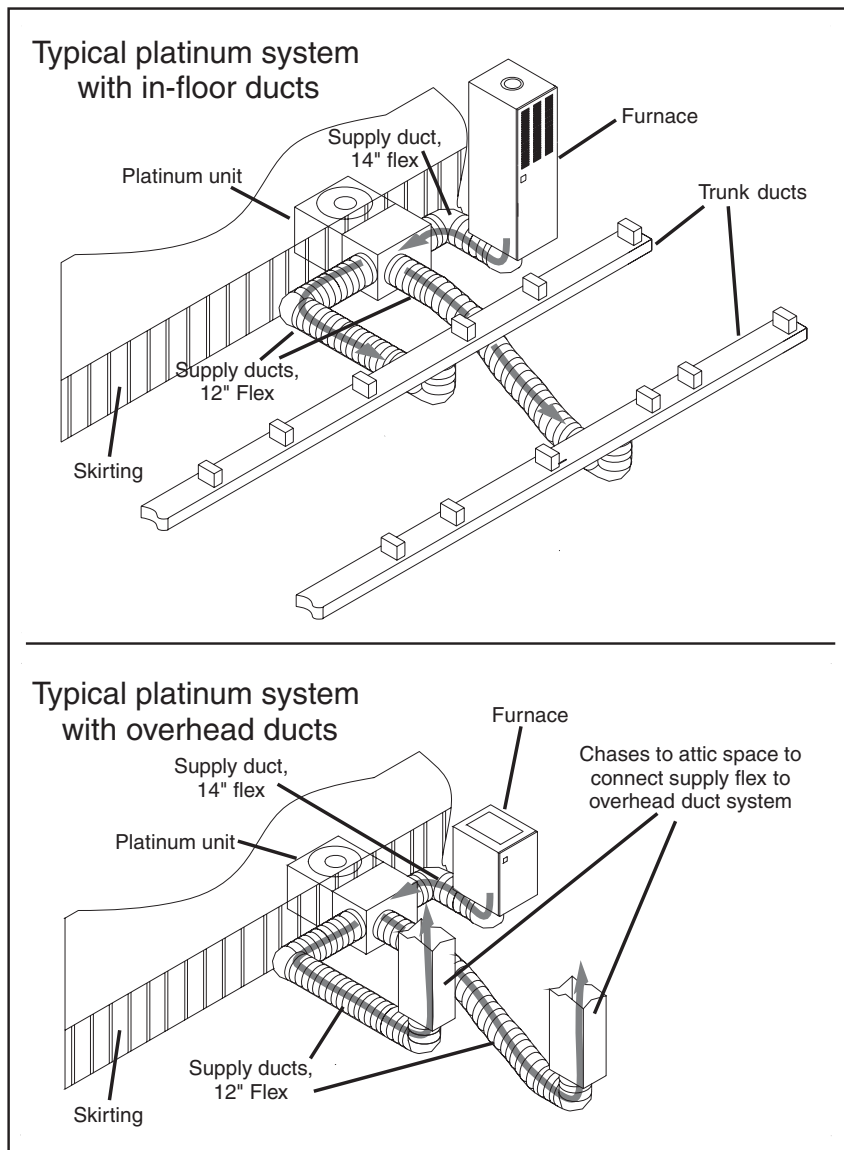


Figure 4. Typical Platinum Systems

only 1-12" drop-out. In this case, the installer of the Platinum AC will be required to seal one of the supply connections at the unit using a kit available from NORDYNE.

Over-head Ducts

Overhead duct system design for a Platinum-ready home is the same as a traditional system except there are no attic cross-overs (in 2-section homes) and a standard down-flow furnace is used. See Figure 4.

The overhead duct system connects to Platinum AC through 12" flex duct that is routed from the attic to below the home through chases in each section of the

home. For 3 or more section homes, the additional sections may be supplied with attic cross-overs or by splitting the 12" supply lines with "wye" connectors below the home.

It is recommended that the length of flex duct required to reach the intended location of the Platinum AC be included and compressed into the chase for shipment. The Platinum installer can then simply pull the flex down to make the connection to the Platinum unit.

Alternately, fixed round or rectangular ducts can be used to connect the attic duct system to the bottom of the home. In this case, any suitable method may be used as long as the bottom of the duct terminates in

a 12" round duct connection which can then be used to connect the Platinum unit.

DESIGN CONSIDERATIONS – Platinum Unit

Although the manufacturer of the home does not install the Platinum air conditioner, it is critical that the manufacturer carefully plans for and makes certain arrangements for installation. In the design of a Platinum-ready home, the **intended location** of the Platinum unit is predetermined and communicated to the retailer. The retailer is not required to install the Platinum unit in the intended location, but it will be much easier than installing it in another location.

It is recommended that the home manufacturer include an outline of the Platinum unit on floor plans to insure that all involved are aware of the intended location.

Platinum Power Supply

A Platinum-ready home includes a specially designed approved receptacle and weather-proof cover located within 12" of the left edge of the intended location of the Platinum unit. This receptacle is to be located as low as practical. If the receptacle is mounted as low as possible – even below floor level – small location adjustments can be made during Platinum installation if required.

All Platinum unit sizes are approved for installation on a branch circuit using 8-gauge wire protected by a 40-amp circuit breaker. In a Platinum-ready home, this circuit is supplied by the home manufacturer.

Power to the Platinum unit is supplied through this circuit and connected with a cord set supplied with the Platinum unit.

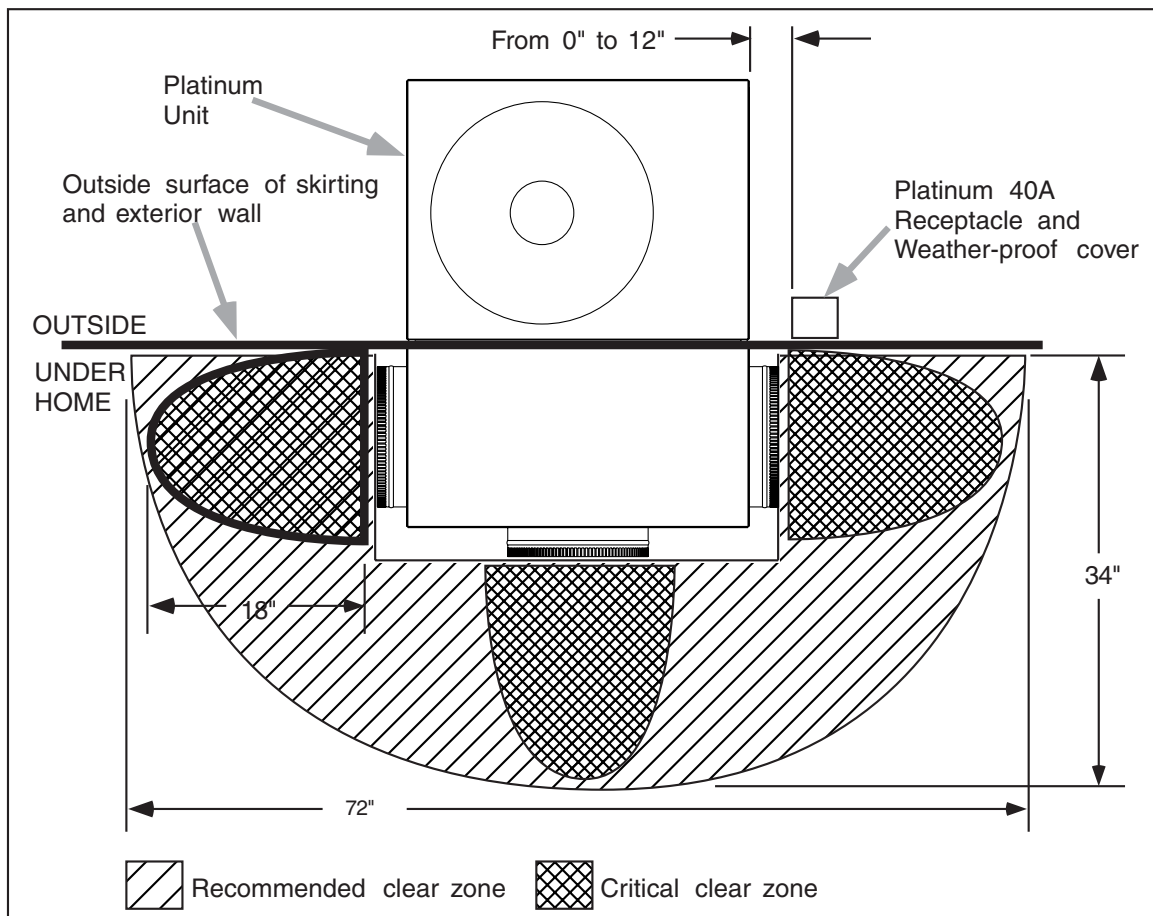


Figure5. Platinum Location Considerations

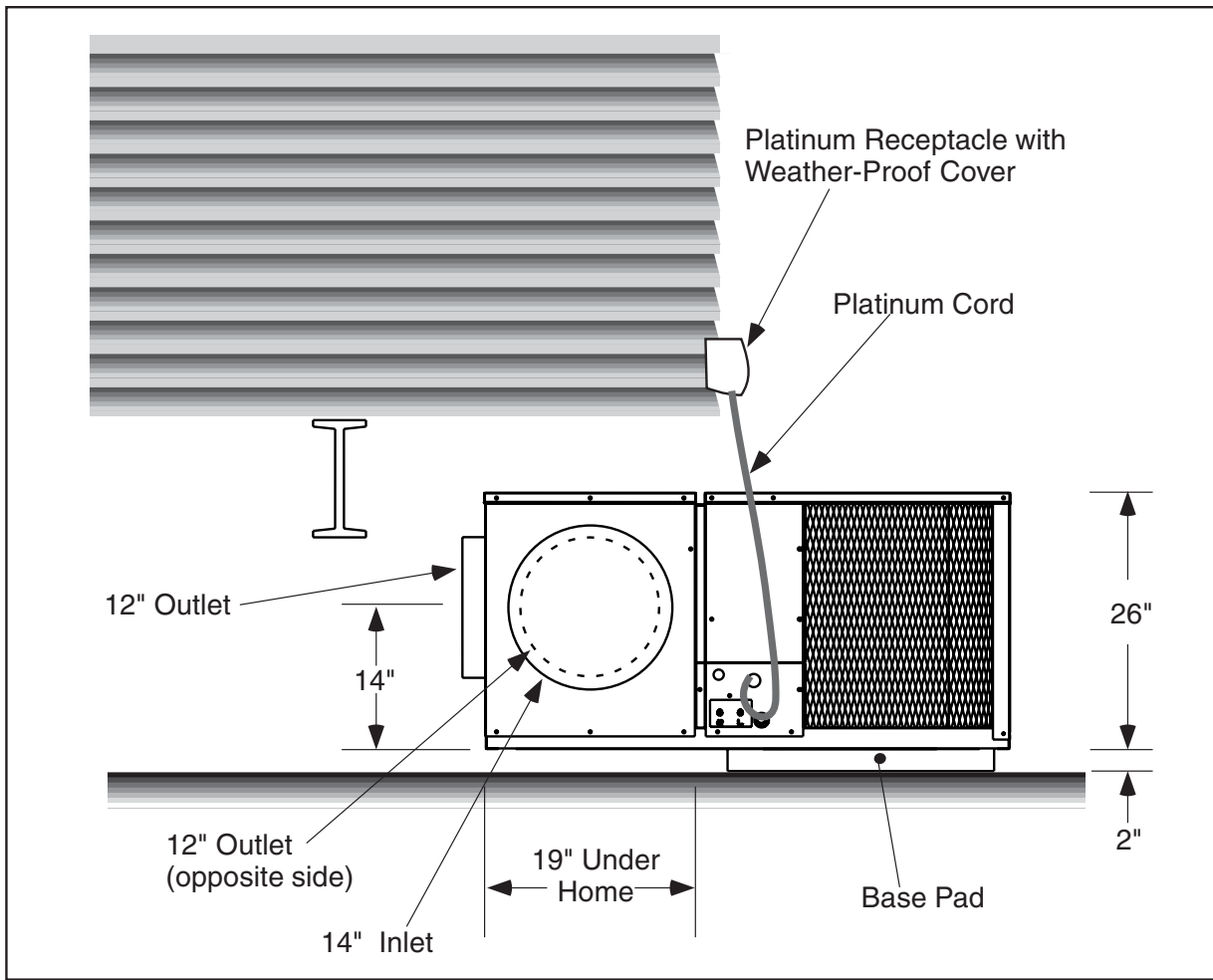


Figure 6. Platinum Location Considerations, Side View


Clearance Requirements

The Platinum unit is installed partially under the home and therefore requires that area to be clear of supports, pipes, drains, traps, service connections, etc. Figure 5 shows the areas required to be clear at the intended location of the Platinum unit. Figure 6 shows the side view of a typical Platinum unit installation. Note that the I-beam is not a problem since the duct can be routed below the I-beam if needed.

It is recommended that the home manufacturer mark the intended location of the Platinum unit on the home and in the set-up instruction to instruct the set-up personnel not to place supports or create other obstructions in that area.

Platinum Home Design Checklist

Use this checklist along with the Platinum Series Design Guide to Insure Successful Platinum-ready home

	Platinum Design Consideration	Page and Section
	Select to appropriate E3EX or M3RX furnace model	2 Model Selection
	Optimize return air configuration	2 Return Air Options
	Optimize furnace location	3 Location
	Use the 14" round plenum connector	3 Plenum Connector
	Select a 4-wire "A/C" thermostat	3 Thermostat
	Make special provisions for thermostat pre-wiring	3 Thermostat
	Do not locate furnace on a main trunk duct	4 Floor Ducts
	Use 12" 'drop-outs' in trunk ducts for Platinum connections	4 Floor Ducts
	Optimize location of 12" drop-outs	4 Floor Ducts
	Locate risers for overhead ducts if applicable	5 Over-head Ducts
	Include intended location of Platinum unit in set-up instructions	6 Design Considerations
	Define location of power supply receptacle	6 Platinum Power Supply
	Use 40 amp circuit with #8 wire for Platinum power supply	6 Platinum power Supply
	Define location of power supply receptacle	6 Platinum Power Supply
	Verify needed clearance at the intended location of the Platinum unit	6 Design Considerations
	Verify piers or supports called out in set-up instructions do not interfere with intended location of Platinum unit	7 Clearance Requirements



Platinum
Series

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