



“As a production builder we constantly have to balance cost with performance. Ducts inside provide extra value at an affordable price.”

Tom Melia, Purchasing Manager,
Arbor Custom Homes

Company Profile

Name	Arbor Custom Homes	Location	Beaverton, Oregon	Climate Zone	Marine	# of Homes Per Year	250
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History Arbor Custom Homes has been building homes in Oregon for 23 years. The company specializes in single-family and multifamily residences. Building both custom (40%) and speculative homes (60%), the company is well respected and one of the market leaders in the Portland metropolitan area and Northern Willamette Valley.

Project Description & Specs

Designer: Arbor Custom Homes

HVAC Contractor: Pyramid Heating & Cooling, Milwaukie, Oregon; and Sun Glow Heating & Air Conditioning, Portland, Oregon

House Size: 1500-4000 Sq. Ft.

Levels: 2

Spec or Custom: 60% Speculative / 40% Custom

Green Certifications: ENERGY STAR® Homes, Earth Advantage® New Homes

Ducts Inside Approach Used: Open Web Floor Trusses

Air Handler Location: Second Floor Hall Closet

HVAC System Type & Efficiency: 92% Gas Furnaces

Fuel Type: Natural Gas

Summary

Builder Motivations

Arbor Custom Homes offers customers an extensive line of home designs. All of Arbor’s homes are built and third-party verified to ENERGY STAR® and Earth Advantage® standards. Three years ago the company started building projects with ducts inside the conditioned envelope as part of its goal to build energy efficient, healthy homes. Subsequently, Arbor has converted approximately 70% of its plans to include ducts inside. The company intends to convert the remaining 30% of its designs to include ducts inside. All new designs are drawn to include ducts inside, and Arbor has built approximately 75 homes with ducts inside conditioned spaces.

The company views ducts inside as a cornerstone of energy efficiency in the homes it constructs. The intention is to continue to improve the quality and efficiency of its homes. A significant benefit to the entire company has been a passion and pride felt by building a higher quality, healthier and more efficient product. Arbor’s vision is to continue to be a market leader with a goal of being the builder of choice for high performance homes.

Summary Continued on Back...



Ducts Inside Case Study

“Arbor Custom considers ducts inside a cornerstone of building a high performance home. It has brought more passion and pride to our organization because we are building a better, more energy efficient home.”

Tom Melia, Purchasing Manager,
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Summary Continued...

Experience With Subcontractors

The transition to building with ducts inside went smoothly for the company. Successful implementation was attributed to good planning at the design stage as well as involvement of the HVAC contractor early in the process. The HVAC contractor was enthusiastic and cooperative due to the fact that they were involved in the problem solving and design of the duct layout. The HVAC contractor continues to be involved as Arbor Custom Homes creates new designs. The builder recommends conducting a review meeting with the HVAC contractor on site, prior to wall cover, with every new design. The feedback from these meetings is crucial to the success of creating a template that can be replicated consistently and efficiently.

Successful Strategies & Lessons Learned

The typical ducts inside strategy for the builder is to use open web floor trusses between floors to run the ductwork. The air handler is typically installed in a closet off the second floor hallway. Initially, the company tried to locate the air handler in a conditioned attic mechanical room but this strategy proved not to be cost effective for Arbor's price structure.

The customers continue to provide positive feedback to the builder about the comfort and efficiency of their homes. The warranty department of Arbor Custom Homes has never received a single complaint of noise from the air handler located inside the upstairs closet.

The sales staff is currently being trained on the advantages of building with ducts inside. The company plans to launch a marketing campaign, which will include the benefits of ducts inside. Arbor plans to devote a section of its showroom and design center to educate potential customers about ducts inside.

Cost Data

For converted plans that include ducts inside there is an increase of about \$250 for soffits. Converting an existing plan costs approximately \$750 in design and engineering.