Builders' and Remodelers' Use of Technology in 2019

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Surveys conducted by NAHB in 2019 show that, although use of some factory-produced components like trusses has become widespread, the newer and more innovative types of construction technology, such as 3D printing and robots, have so far penetrated the residential market only to a very limited extent. This is true for both single-family home builders and residential remodelers.

On the other hand, the vast majority of builders and remodelers have incorporated a variety of devices and other forms of Information Technology into their businesses by now, especially smart phones and computers. Although they are now making significant use of IT to monitor construction sites and interact with customers, managing internal business operations remains the most common use of IT within the industry.

In their use of technology, single-family builders and residential remodelers are generally quite similar to each other, but remodelers are distinctive in a few ways. For example, remodelers are significantly more likely than builders to use dust-free masonry tools, specialized design software and 3D graphics, and Houzz, a social media platform designed specifically for their segment of the market. The following sections describe the survey and discuss these results in more detail.

Construction Technology

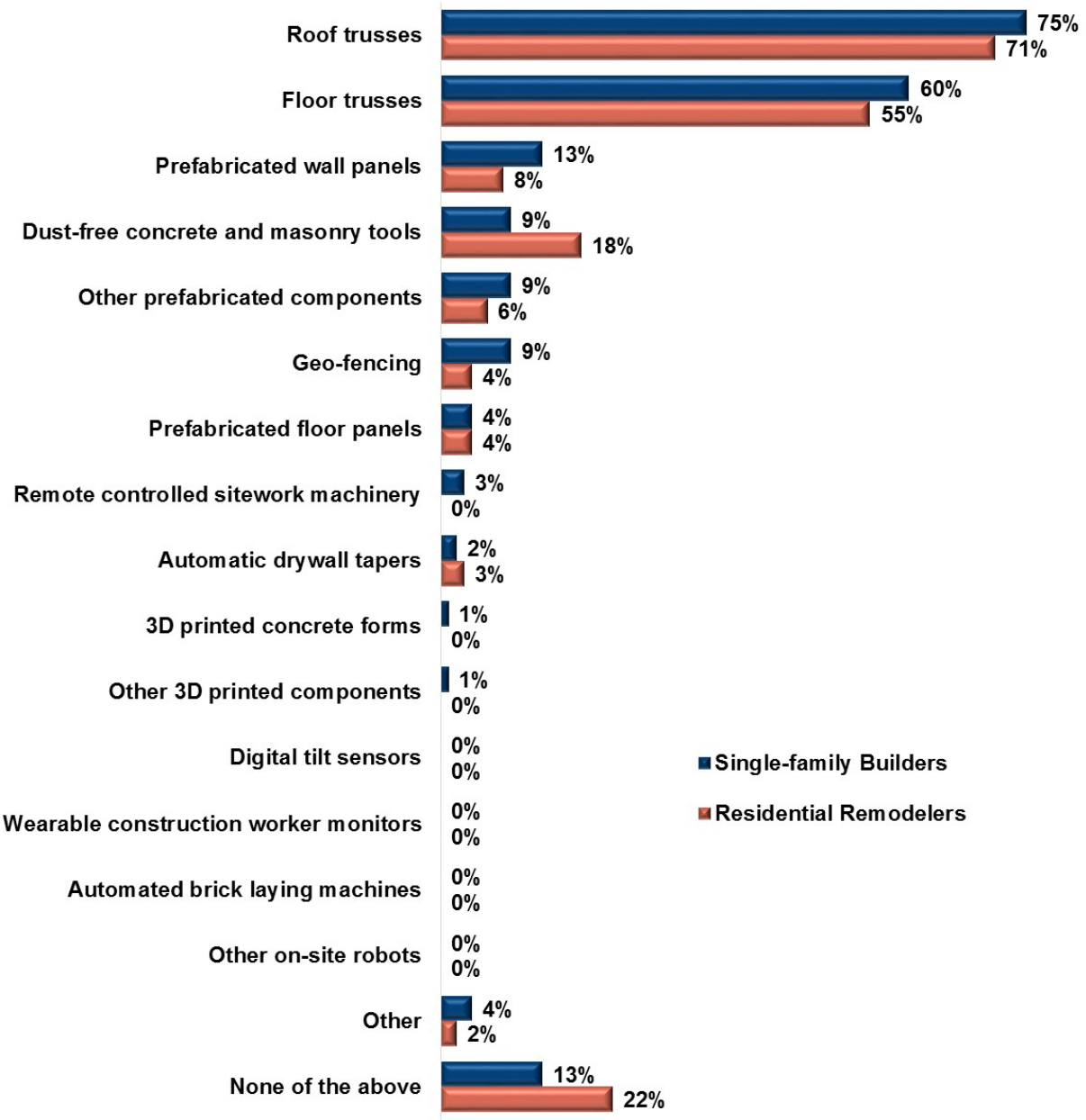
The data on use of technology come from special questions on two of the surveys NAHB conducts on a regular basis. NAHB canvasses its single-family builders once a month in the survey for the NAHB/Wells Fargo Housing Market Index (HMI), and its

residential remodelers once a quarter in the NAHB Remodeling Market Index (RMI) survey. The main purpose of the surveys is to provide the data for the NAHB indexes, but each survey also often includes a set of special questions on a topic of current interest to the industry. The special questions on technology were included on the surveys for the 2nd quarter 2019 RMI and June 2019 HMI. A total of 508 builders and 233 remodelers responded to the two surveys.

Trusses are the most common type of construction technology used in the residential sector, and by a wide margin. According to the NAHB surveys, over 70 percent of both builders and remodelers use roof trusses, and over 50 percent of both builders and remodelers use floor trusses. Use of any of the other 13 technologies listed is relatively uncommon—especially the newer, more exotic technologies.

One of the new technologies is 3D printing, which uses design software to create lightweight molds that can easily be transported to a construction site and filled with concrete to add architectural detail to a structure. In the NAHB surveys, only one percent of builders and zero percent of remodelers reported using 3D printed forms. Zero percent of both builders and remodelers reported using digital tilt sensors, wearable devices to monitor construction workers, automated brick laying machines or other robots (fig. 1). It is not surprising that these newer technologies have not penetrated the residential construction industry yet. The motivation for including them in the NAHB surveys was largely to establish a baseline for future reference.

Figure 1. Types of Construction Technology Used in 2019



Below trusses in figure 1, 13 percent of single-family builders use prefabricated wall panels, and 9 percent each use dust-free masonry tools, other prefabricated components, and geo-fencing (a perimeter established digitally, for example to keep construction tasks within safe boundaries). Most of these technologies are used less often by remodelers. Some of the technologies, such as prefabricated wall

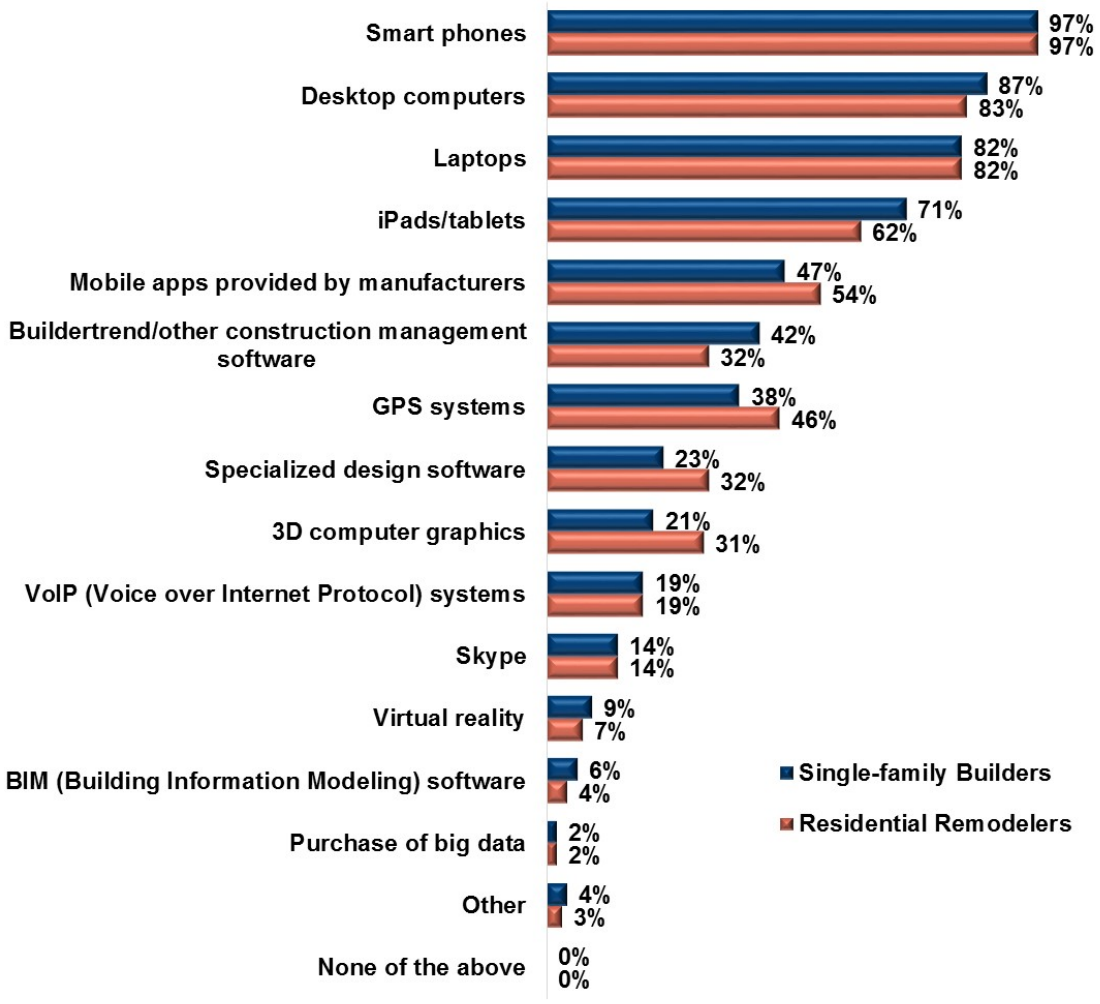
panels, are not relevant for all types of remodeling jobs. However, 18 percent of remodelers report using dust-free masonry tools—twice the share for single-family builders and the highest percentage for any of the listed items outside of trusses. Activities such as cutting, drilling and sanding masonry generate silica dust, which a known health risk. Power tools designed to handle dust automatically (for example, with an integrated vacuum system) can therefore increase productivity by eliminating the need for an extra worker to operate separate dust-control equipment.

Information Technology

The same surveys show that the most common types of IT in the residential construction industry are smart phones, desktop computers, and laptops—each used by over 80 percent of builders and remodelers (over 95 percent, in the case of smart phones). Next comes iPads or other tablets (used by over 60 percent of remodelers and over 70 percent of single-family builders), followed by mobile apps provided by manufacturers (used by roughly half of builders and remodelers). In addition, over 20 percent of builders and over 30 percent of remodelers use construction management software, GPS systems, design software, and 3D computer graphics. This is the second time that NAHB surveys have shown that remodelers are more likely than builders to use GPS. The last time we speculated that this may be due to differences between needing to find a relatively large number of isolated addresses vs. a more limited number of sites often within the same subdivision.

Nineteen percent of both builders and remodelers use voice over Internet Protocol, and 14 percent use Skype. So far, virtual reality, Building Information Modeling and big data purchases have penetrated the residential construction market only to a limited extent (fig. 2).

Figure 2. Types of Information Technology Used

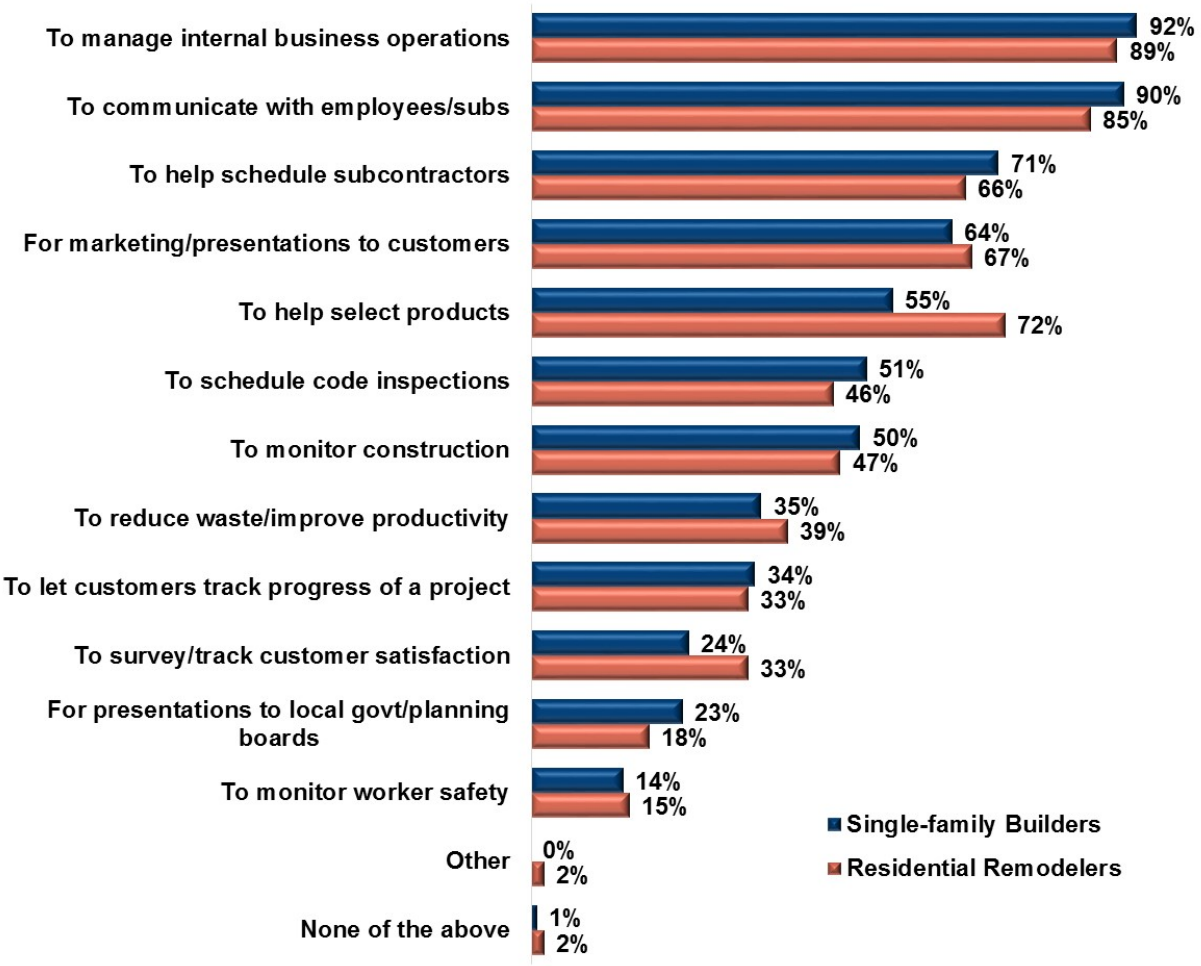


Information technology has many potential applications in the residential construction industry. In the HMI survey, roughly 90 percent of single-family builders report using IT for internal management of their businesses and to communicate with their employees.

Although builders still tend to use IT more for these internal operations than for other purposes, a number of other uses have become reasonably widespread. About two-thirds of single-family builders use IT to help schedule subcontractors and for marketing. About half use IT to help select products, schedule code

inspections, and monitor construction. About a third use IT to reduce waste and increase productivity, and to let customers track progress of a project (fig. 3).

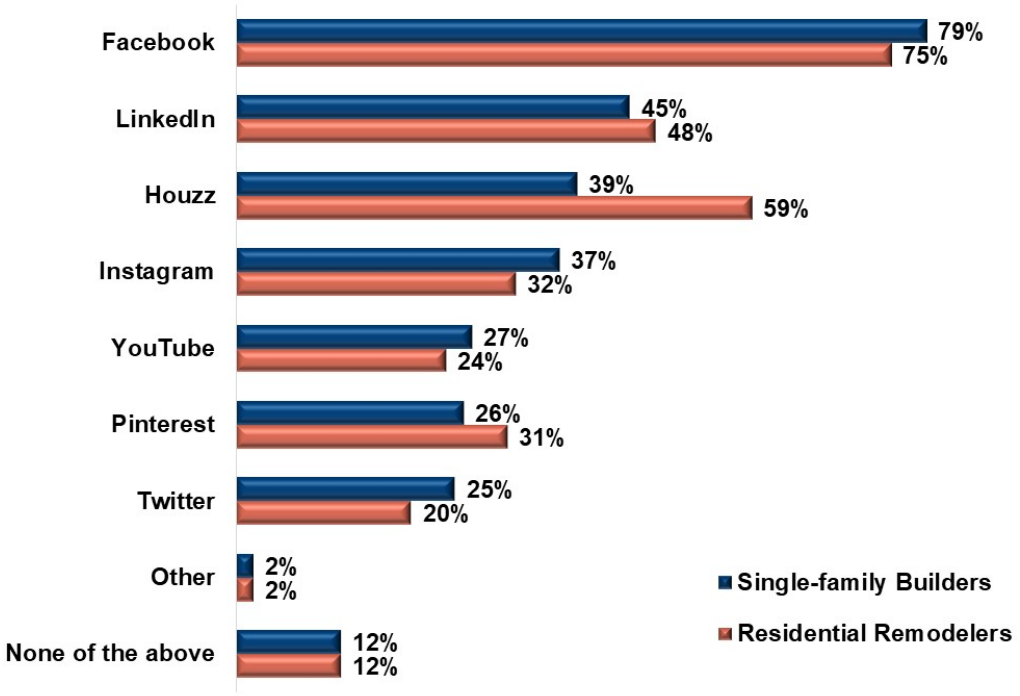
Figure 3. How Residential Construction Businesses Use the Information Technology



Remodelers are generally quite similar to single-family builders in their uses of IT. Of the twelve uses shown in Figure 3, the spread between builders and remodelers is greater than five percentage points for only two. Thirty-three percent of remodelers use IT to survey or track customer satisfaction, 9 points above the 24 percent for single-family builders. More notably, 72 percent of remodelers use IT to help select products, 17 points above the 55 percent for single-family builders.

Many of the generally popular social media platforms are also popular among builders and remodelers. Builders and remodelers do, however, differ from the general population in being somewhat less likely to use YouTube and Twitter, and more likely to use a couple of more specialized platforms. In third place among remodelers (with 48 percent using it) and second place among single-family builders (45 percent) is LinkedIn, a business-oriented platform intended primarily for professional networking (fig. 4).

Figure 4. Social Media Platforms Used



In second place among remodelers (with 59 percent usage) and third place among builders (with 39 percent) is Houzz. Houzz was created specifically to distribute information about interior design and home improvement, so it is far from surprising that it tends to be used differentially by residential construction professionals in general, and by residential remodelers in particular.[1]

Nevertheless, in first place among both builders and remodelers (used by 79 and 75 percent, respectively) is the general-purpose platform Facebook. Facebook is

widely regarded as the most popular social media platform in the world, and by market cap the fifth largest company in the S&P 500.

[1] Any number of web sites report statistics on general usage of social media platforms. An example of one based on the number of active users is https://datareportal.com/social-media-users.