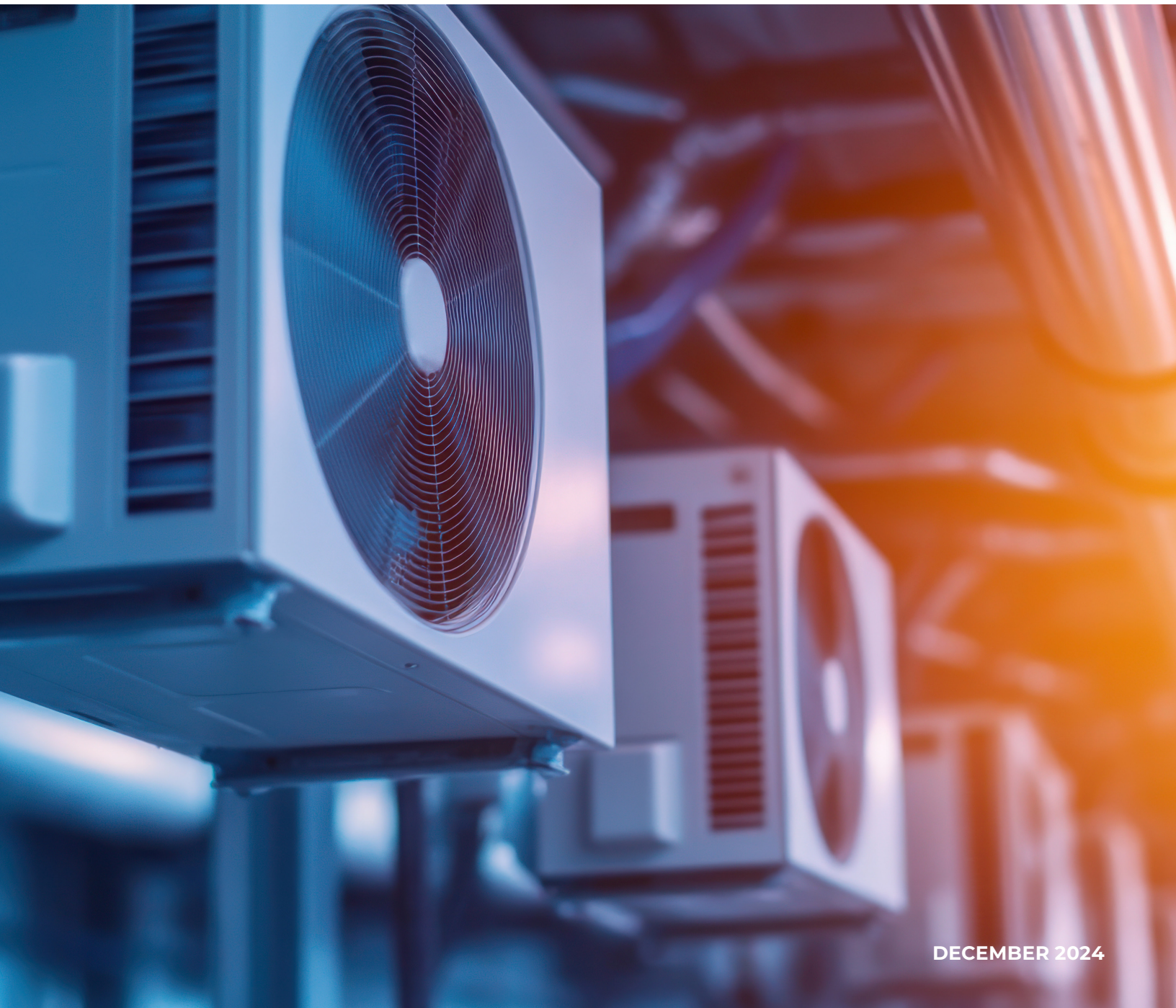




SECOND
EDITION

BUILDING PRODUCTS MARKET OVERVIEW



DECEMBER 2024

BUILDING PRODUCTS SPOTLIGHT

HVAC TRENDS IN 2024 AND BEYOND

The heating, ventilation, air conditioning and refrigeration (HVACR) market will experience remarkable changes over the next five years, primarily driven by environmental and sustainability initiatives, technology advances and economic factors. Most notable is the American Innovation and Manufacturing (AIM) Act of 2020, which necessitates the production and installation of HVACR systems compatible with cleaner refrigerants.

The market should see opportunities from legislation, tax credits and other incentives designed to promote energy efficiency. Yet, the market continues to be challenged by inflation and higher interest rates, as well as time spent preparing for the transition to newer refrigerants.

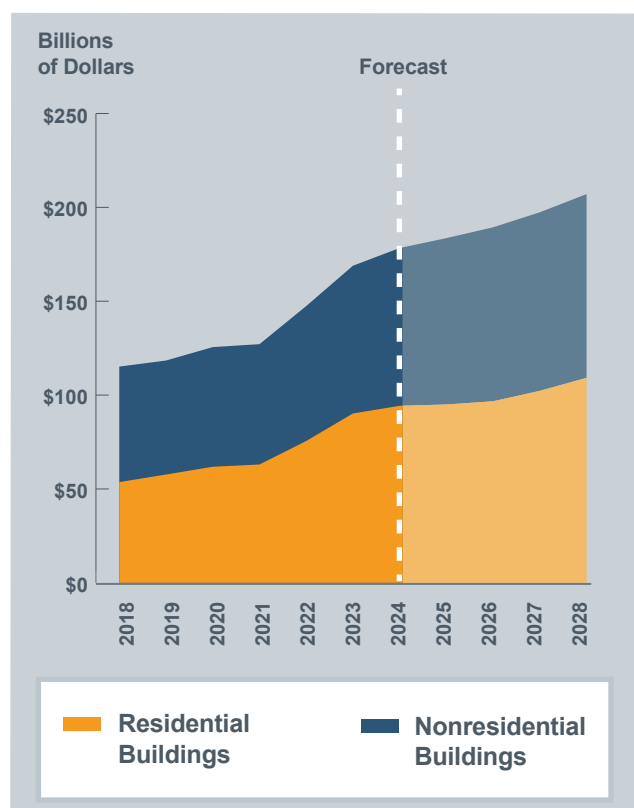
HVAC product manufacturers can position themselves for success by focusing on strategic relationships. Key relationships with end users, architects/engineers, distributors and mechanical contractors that work in targeted growth segments (e.g., data centers) will enable manufacturers to drive product adoption by both pushing product through architects and pulling product through contractors. In addition, manufacturers should be prepared to educate and advise stakeholders about the refrigeration transition, which also makes relationships with regulatory agencies critical in informing customers of changes in the market.

AIM Act

Signed in December 2020, the [AIM Act](#) authorizes the Environmental Protection Agency to address the effects of hydrofluorocarbons (HFCs) by reducing the production and consumption of HFCs and facilitating the transition to next-generation technologies, including alternative refrigerants that have a lower global warming potential (GWP). Specifically, R-410A and similar refrigerants may no longer be used in new equipment, although they can be used in existing systems until those systems need replacing.

The most common lower-GWP alternatives are part of the ASHRAE's [A2L classification](#), which has a similar toxicity but slightly higher flammability. It is important to note that while these refrigerants are considered more flammable,

U.S. HVAC MARKET OUTLOOK



SOURCE: FMI FORECAST Q4 2024

they are still rated as safe for domestic use and are far less flammable than refrigerants such as propane and isobutane.

MARKET SIZE

Residential

For residential segments, HVACR spending is expected to reach \$109 billion by 2028, influenced by strong growth in the single-family segment. A slowdown in multifamily

spending should be offset by repairs, as rising costs for equipment and installation could lead consumers to repair rather than replace their systems. However, some property owners may elect to replace their systems to take advantage of incentives tied to government legislation.

Nonresidential

HVACR spending in the nonresidential sector is expected to grow at a faster rate than on the residential side, approaching \$98 billion by 2028. Nonresidential HVACR systems generally last longer than residential ones, and systems running on older refrigerants could be prevalent for several decades. This does present a risk considering the phasing out of certain refrigerants and the resulting scarcity and increasing cost of procurement.

MARKET TRENDS AND DRIVERS

In addition to government action mandating the transition of refrigerants, the HVACR market is influenced by factors that will play a significant role in the coming years. These include:

- **Decarbonization and electrification.** While the adoption of heat pumps rose in the first part of this decade, 2024 saw a decline in the number of owners moving to these systems. Although the benefits of heat pumps remain attractive to certain owners, sales have slowed, and experts suggest that heat pumps may struggle to reach mass adoption without the provision of signifi-

cant government incentives. Alongside rising electricity prices, installing a heat pump in an existing building is often expensive, invasive to those using the building and time consuming.

- **Environmental factors.** Increasingly extreme temperatures will continue to drive demand for new systems, replacements and repairs. The summer of 2024 was one of the hottest in history. According to the Air-Conditioning, Heating and Refrigeration Institute (AHRI), 2024 U.S. shipments of air-conditioning units and air-source heat pumps was up by an average of 14% in June, July and August, compared to shipments in the same 2023 period.
- **Smart buildings.** Programmable, connected HVACR systems, such as those that integrate IoT (Internet of Things) are increasingly common in both residential and nonresidential buildings. These systems capture a wealth of data that can be used by owners monitoring system performance. This helps reduce energy consumption and ensure compliance with local regulations and prove eligibility for tax breaks and incentives.
- **Modular Construction.** As volumetric modular construction becomes more prominent, HVACR equipment manufacturers will have an opportunity to support modular manufacturers. A key component of a modular project's success is early coordination among the project team and suppliers, and modular manufacturers typically place a high value on units that are durable and simple to understand and that can be installed efficiently in a factory setting.





IMPACT ON PRODUCTS

Electrification

The rising trend of electrification presents formidable challenges. As electric heat pumps replace gas furnaces, the electric grid is stressed at a time when it is already under threat from aging infrastructure, increasingly severe storms and vandalism. While this strain on the system isn't solely caused by heat pumps, HVAC manufacturers can work with electric utilities and local governments to understand their needs and challenges and provide appropriate solutions.

New refrigerants

Adopting systems that use different refrigerants will require technicians to understand the products and be able to work safely with them. While new refrigerants are indeed considered safe for use in residences and businesses, manufacturers will need to support the industry by educating stakeholders, combatting misinformation and training installers. Additionally, because replacing systems in existing buildings can be disruptive to occupants, manufacturers can help installers understand this and prepare for questions and resistance.

Water scarcity

In response to extended low-water levels in the Colorado River in November 2022, the Las Vegas Valley Water District Board of Directors approved a measure to prohibit new permits for commercial and industrial buildings that plan to use evaporative cooling. Similar regulations could increase demand for alternative cooling products and lead contractors to install different technologies. Regulations against evaporative cooling system could spread to other jurisdictions.

SELECT SEGMENTS

Data centers

Data centers are among the fastest growing construction segments and considered critical infrastructure to support increases in remote work, e-commerce computer needs for handling logistics. FMI estimates that construction spending on data centers will grow to approximately \$38 billion by 2028, while a recent study from the [Electric Power Research Institute](#) indicates that data centers could constitute as much as 9% of U.S. electricity consumption by 2030.

The HVAC industry views data centers as an extremely specialized and high visibility segment, and competition is fierce to supply these buildings. Dedicated efforts to understand the data center market and develop innovative products that will best serve these unique buildings are underway across the industry.

Manufacturing

Legislation including the Infrastructure Investment and Jobs Act (IIJA), the CHIPS and Science Act, and Inflation Reduction Act (IRA) continue to stimulate a surge of manufacturing projects, including large, high-visibility investments in semiconductors, electric vehicles and pharmaceuticals. These facilities are subject to strict oversight and regulations, and the HVAC systems are critical in avoiding contamination and promoting worker safety. For example, manufacturing facilities often have clean rooms where air filtration, temperature and humidity are crucial. These systems typically incorporate high-efficiency particulate (HEPA) filters, which can remove extremely fine particles and microbes from the air.

Education

Spending on both K-12 and higher education is expected to steadily increase through 2028, also driven by the IRA and similar acts. Among the primary uses of these funds are improvements and upgrades to HVAC systems, which focus on indoor air quality, noise reduction and student comfort — all of which are shown to have direct effects on student performance. Aside from classrooms, facilities such as cafeterias and dormitories have specific ventilation needs. School districts are also integrating smart systems and controls to reduce energy consumption.

M&A ACTIVITY

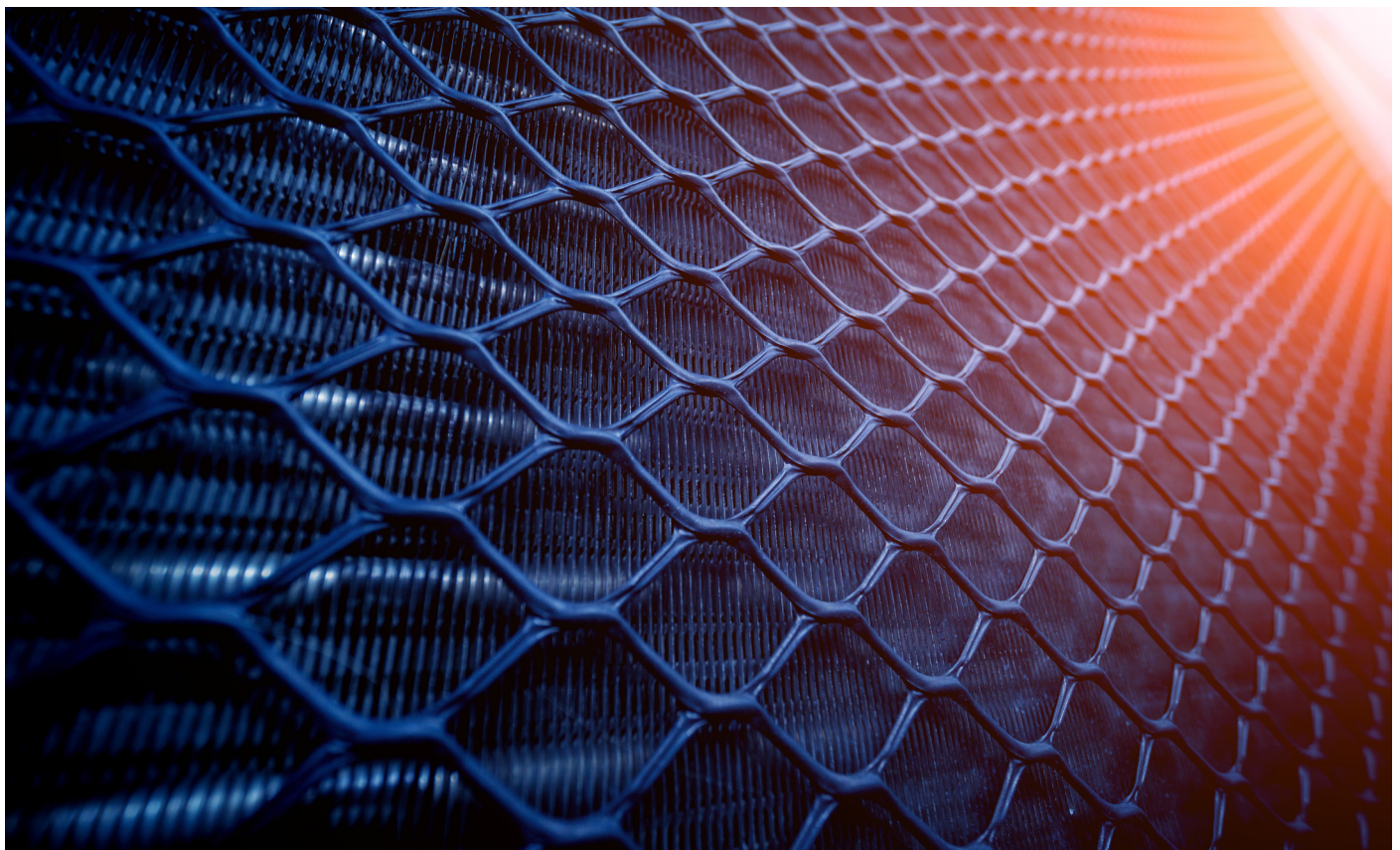
The North American HVAC industry is large, fragmented and dynamic, which creates an environment conducive to mergers and acquisitions (M&A). The market has seen multiple notable transactions, particularly in the previous 12 months, with the aim of increasing scale, expanding market reach and incorporating new capabilities.

On the services side, private equity firms have been especially active in buying and building large mechanical contractor platforms. Dozens of firms are active in this space

and competition is fierce for prime assets, particularly those that earn the bulk of their revenue from maintenance and services instead of construction. This consolidation activity is driving values higher and accelerating the trend toward multi-trade platforms, like HVAC, plumbing and electrical. This activity is expected to continue on both the residential and nonresidential sides.

HVAC distribution is likewise seeing increased acquisition activity, with interest from strategic and financial investors. The market remains highly fragmented, due partially to influence from large manufacturers, although those barriers are expected to shrink as distribution companies gain scale and market power.

Larger product manufacturers tend to dominate the equipment market, and there have been several notable transactions, including two in the last 12 months. Bosch's agreement to purchase Johnson Controls Residential and Light Commercial HVAC business represents the largest deal in Bosch's history at more than \$8 billion and should provide Bosch a foothold in the U.S. market. In addition, Rheem recently announced its intent to acquire Nortek Global HVAC to strengthen its position and expand its product portfolio.

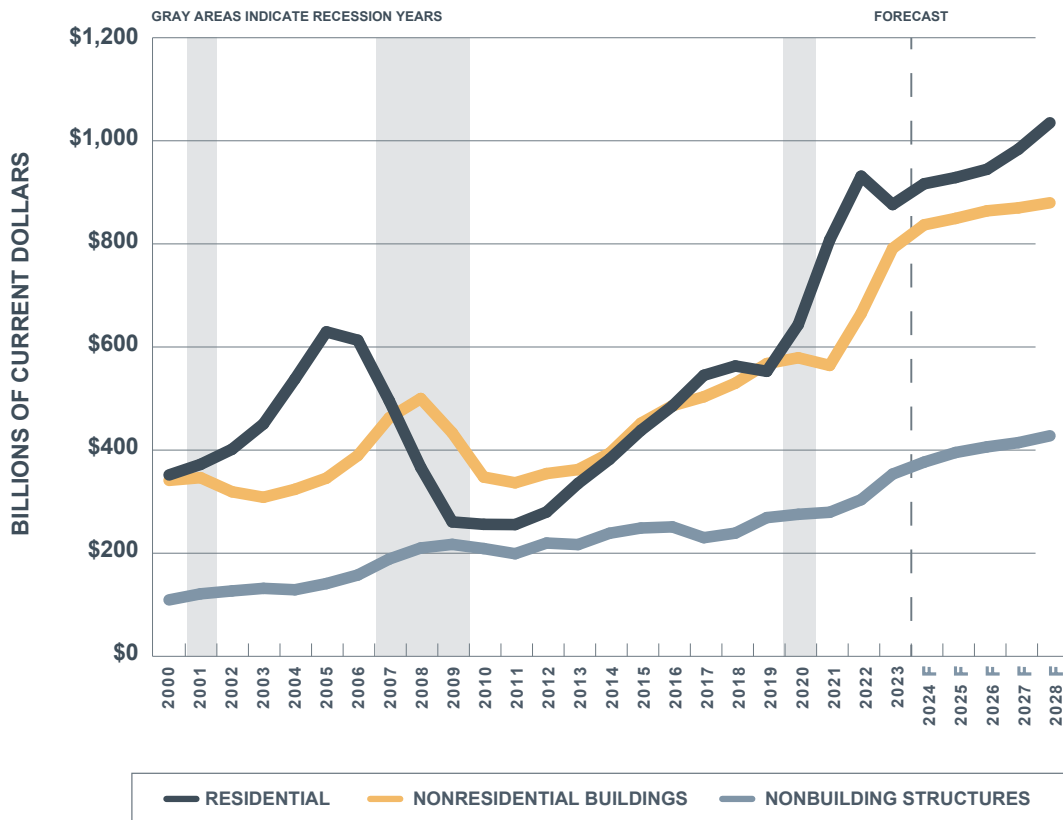


U.S. OVERALL ENGINEERING AND CONSTRUCTION MARKET

KEY TAKEAWAYS

- Total engineering and construction spending for the U.S. is forecast to end 2024 up 5%, or just below 2023 growth at approximately 6%. Anticipated growth in 2024 will remain strong across most sectors, led by nonbuilding structures.
- High-performing segments in 2024 point to strong investment growth across public safety, manufacturing, amusement and recreation, and water supply, each with anticipated year-end growth exceeding 10% above 2023 levels.
- Several of the segments sensitive to high interest rates, including multifamily residential, lodging and commercial, are expected to decline in 2024. Conversely, single-family residential, the largest segment in the industry, is expected to rebound from the large 12% drop in 2023.
- The fourth quarter 2024 Nonresidential Construction Index (NRCI) score of 48.4 is slightly higher than the prior quarter of 47.2 but maintains the index score under the neutral base of 50. Nine of the past 10 index readings have been under the neutral base of 50, suggesting participants continue to see contracting industry opportunities in the quarter and year ahead. Longer-term sentiment expectations showed the most strength this quarter.

TOTAL CONSTRUCTION PUT IN PLACE ESTIMATED FOR THE U.S.

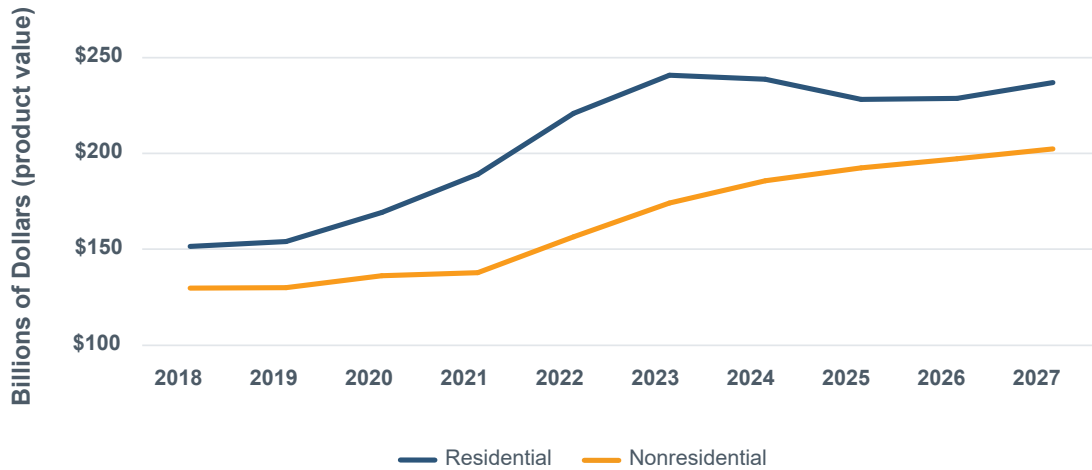


SOURCE: FMI FORECAST Q4 2024

BUILDING PRODUCTS MANUFACTURER SPENDING

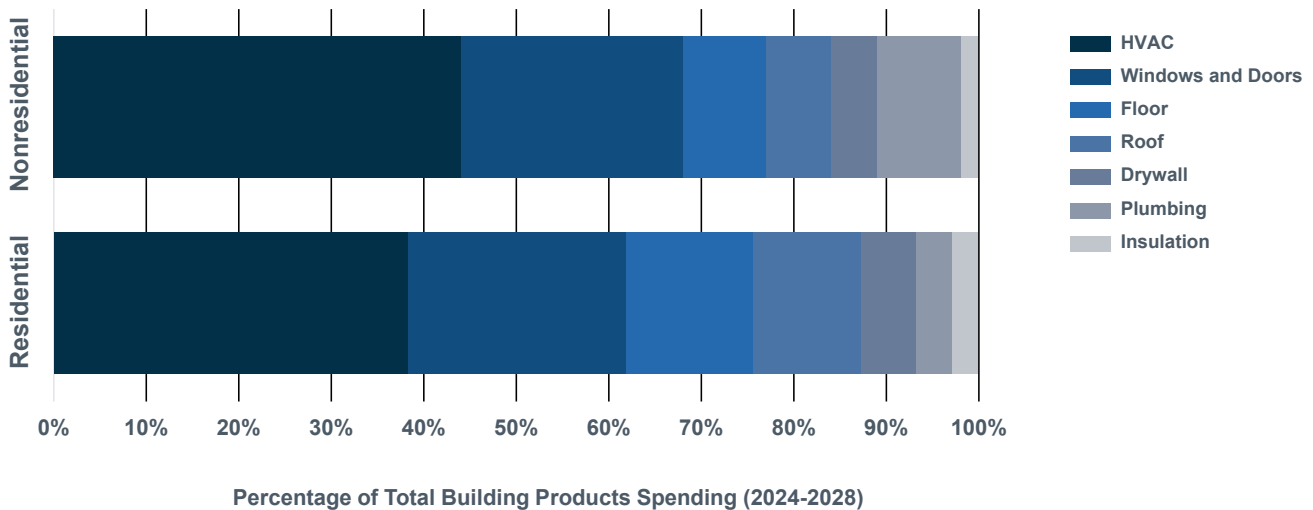
- Spending for the assessed building product categories is anticipated to increase to \$501 billion in 2028 from \$442 billion in 2024, yielding total growth of 13%. Over the forecast period, building product spending in the assessed categories is anticipated to reach \$279 billion in the residential segment and \$221 in the nonresidential segment.
- Residential building products spending will see total growth of 12% during the forecast period, with HVAC (16%) and windows and doors (14%) anticipated to experience the most growth.
- Nonresidential building products spending is expected to experience total growth of 16% during the forecast period. Similar to the residential market, HVAC and windows and doors are anticipated to experience the highest growth rates. However, roofing, plumbing, drywall and flooring are expected to see favorable growth in nonresidential over the forecast period compared to the residential sector.
- Although the HVAC and windows and doors segments are anticipated to represent the largest percentage of building products spending through 2028, flooring and roofing represent the next largest product categories, with consistent growth projected over the next several years.

RESIDENTIAL AND NONRESIDENTIAL BUILDING PRODUCTS SPENDING



SOURCE: FMI FORECAST Q4 2024

DISTRIBUTION OF BUILDING PRODUCTS SPENDING



SOURCE: FMI FORECAST Q4 2024

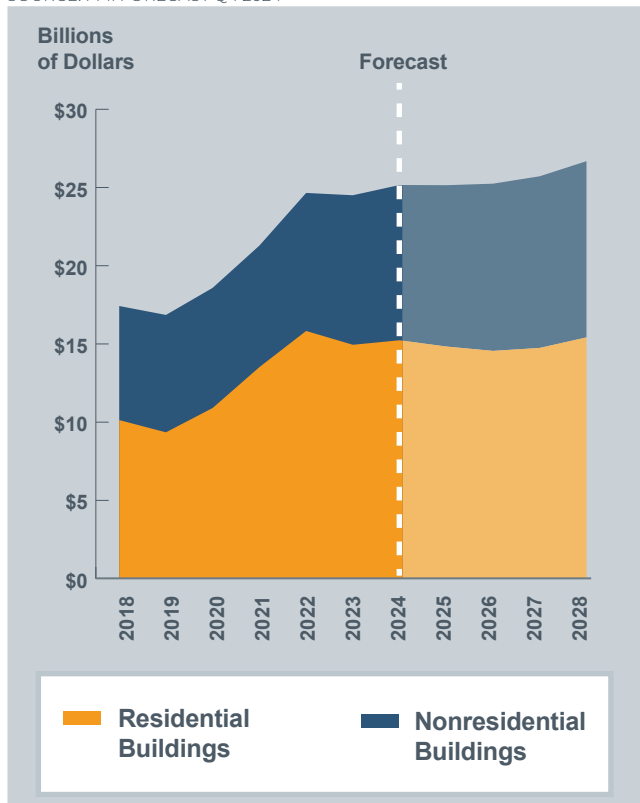
SECTOR TRENDS: BUILDING PRODUCTS





DRYWALL

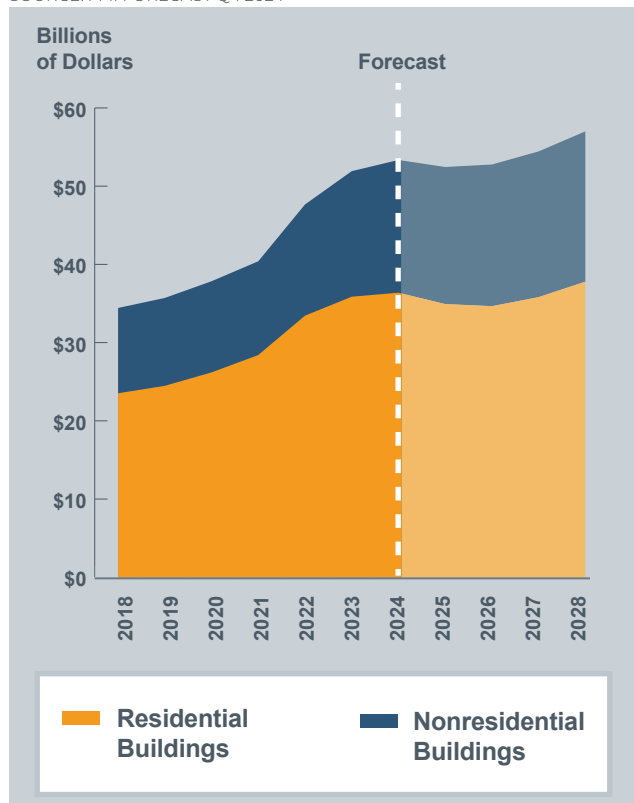
SOURCE: FMI FORECAST Q4 2024



- Combined drywall spending in 2025 is expected to be \$25.1 billion, of which 39% is nonresidential and 61% residential. Spending is projected to grow at a compound annual growth rate (CAGR) of 1.2% through 2028.
- The drywall market is experiencing significant consolidation among distributors, which results in manufacturers dealing with fewer, yet larger, key clients. This shift enables the remaining distributors to gain more influence over pricing. While this may present challenges for manufacturers in terms of margins and end-user pricing, it also reflects a more consolidated market dynamic wherein strategic negotiations can play a key role.
- The increased push for net-zero carbon emissions has further facilitated a decline in production of synthetic gypsum. This trend is pushing manufacturers to prioritize long-term sourcing strategies for natural gypsum. The move toward more sustainable practices is likely to continue influencing raw material procurement strategies in the future.
- The wallboard market is highly dependent on the residential construction sector, with 80% of its applications tied to housing and renovation projects. This dependence makes the market particularly vulnerable to fluctuations in housing demand and broader economic factors that affect residential construction activities.

FLOORING

SOURCE: FMI FORECAST Q4 2024

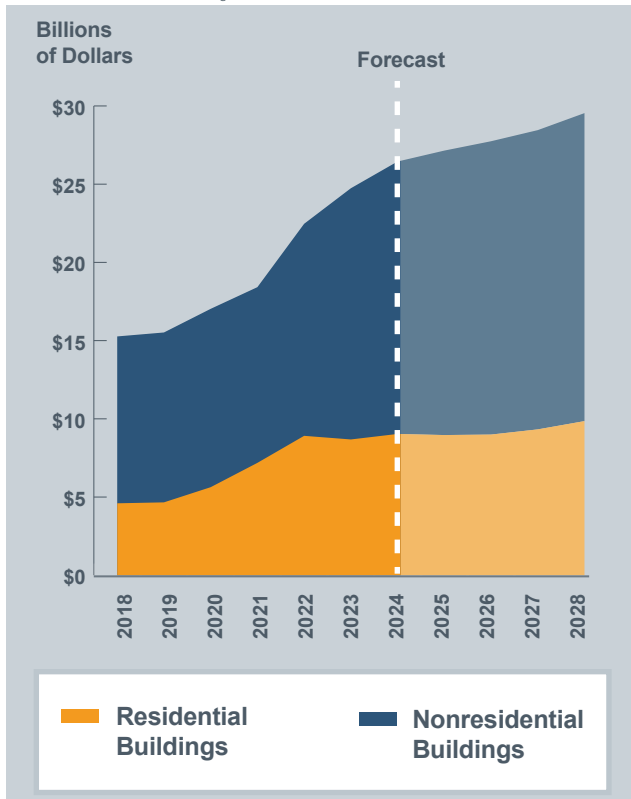


- Combined floor spending in 2025 is expected to be \$52.5 billion, with 33% in nonresidential and 67% residential. Floor spending is expected to grow at a CAGR of 1.3% through 2028.
- The emergence of electric vehicle (EV) battery plants, data centers and semiconductors is driving increased demand for highly durable floor coatings. These facilities necessitate flooring solutions that not only ensure product effectiveness but also safeguard personnel. Flooring in these specialized environments must be capable of safely dissipating static electricity to prevent damage to delicate equipment and uphold worker safety standards.
- Despite recent interest rate reductions, the residential flooring market is recovering at a slower rate than the non-residential sector. Elevated financing and mortgage rates, coupled with reduced homebuyer activity, have left consumers less willing to spend on discretionary upgrades, hindering growth in the residential segment.
- The nonresidential flooring market is experiencing more favorable growth, driven by demand across sectors like education, health care and manufacturing. These facilities require flooring solutions that can endure high foot traffic and heavy equipment, fueling the adoption of durable, high-performance materials.



PLUMBING

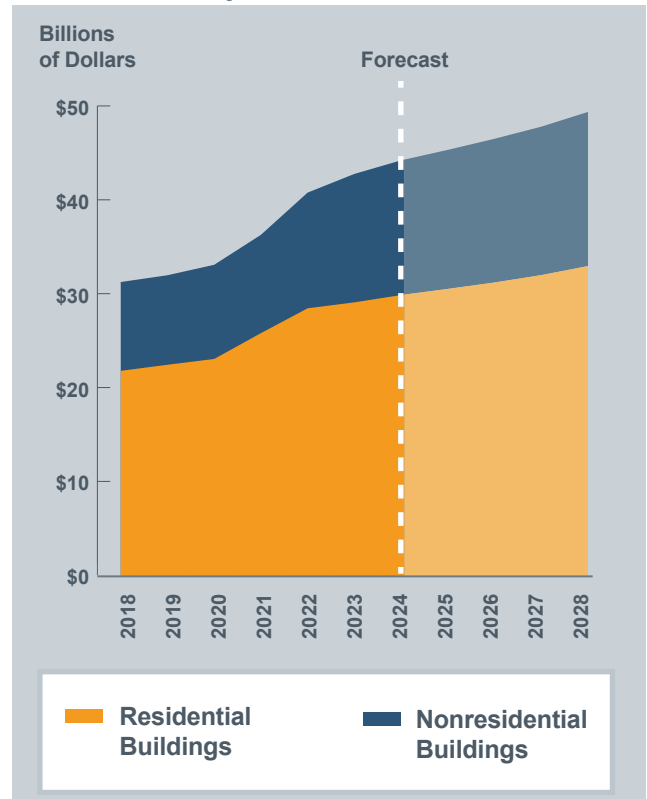
SOURCE: FMI FORECAST Q4 2024



- Combined spending in plumbing in 2025 is expected to be \$27.1 billion, of which 67% is nonresidential and 33% residential. Spending is expected to grow at a CAGR of 2.2% through 2028.
- PEX is gaining traction as one of the fastest-growing plumbing materials due to its combination of strength, flexibility and cost effectiveness, and key manufacturers are expanding production. PEX is significantly cheaper than copper, making it the material of choice for large-scale commercial construction projects. Ease of installation and its ability to withstand extreme temperatures contribute to PEX’s popularity in both new builds and renovation projects, positioning it as a versatile solution for a wide range of applications.
- As urbanization accelerates, more commercial buildings are being constructed, driving up demand for cost-effective plumbing materials like PEX and PVC. This trend is expected to continue as cities expand and populations increase.
- Despite PEX’s growing popularity, copper remains the preferred choice for many residential plumbing contractors.
- Smart plumbing products are gaining market share as consumers and businesses alike seek more sustainable and efficient systems. This growing interest in smart technology aligns with broader sustainability trends and is reshaping consumer preferences within the plumbing sector.

ROOFING

SOURCE: FMI FORECAST Q4 2024

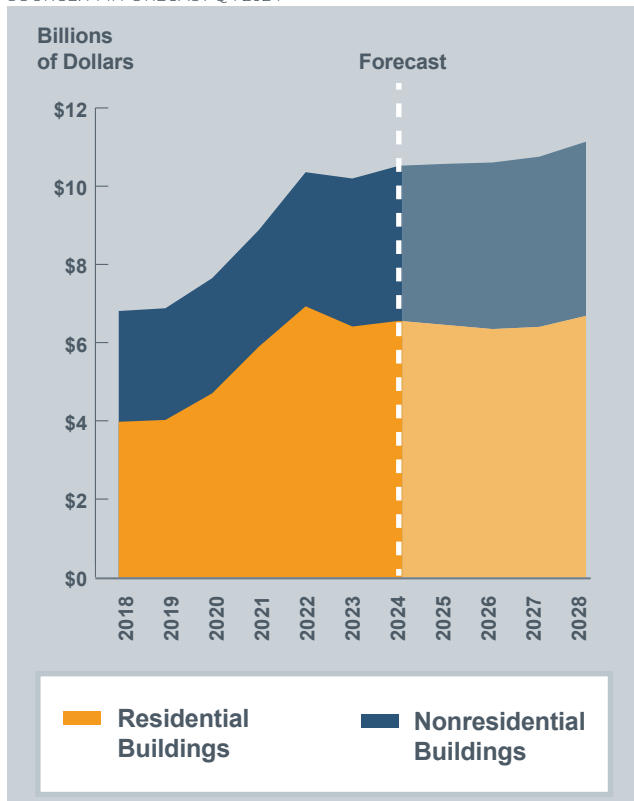


- Combined roofing spending in 2025 is expected to be \$45.3 billion, with 33% in nonresidential and 67% in residential. Spending is anticipated to grow at a CAGR of 2.2% through 2028.
- The U.S. Department of Energy (DOE) is backing advancements in solar roofing technology, exemplified by investments such as the new solar shingle test facility by GAF. This initiative focuses on studying the efficiency improvements in home heating and air conditioning provided by solar shingles, which could hasten their adoption in residential settings.
- The new administration may change government funding for renewable energy projects, including solar technology, which could alter the trajectory of long-term investments in solar initiatives.
- Continuous innovations in solar roofing technology aim to simplify the installation process and minimize the differences between solar shingles and traditional roofing materials, enhancing their attractiveness to homeowners.
- Day-to-day fluctuations in roofing material prices pose increasing challenges, complicating budget planning for projects and escalating overall material costs. This volatility impacts both contractors and consumers, particularly when it comes to large-scale projects.



INSULATION

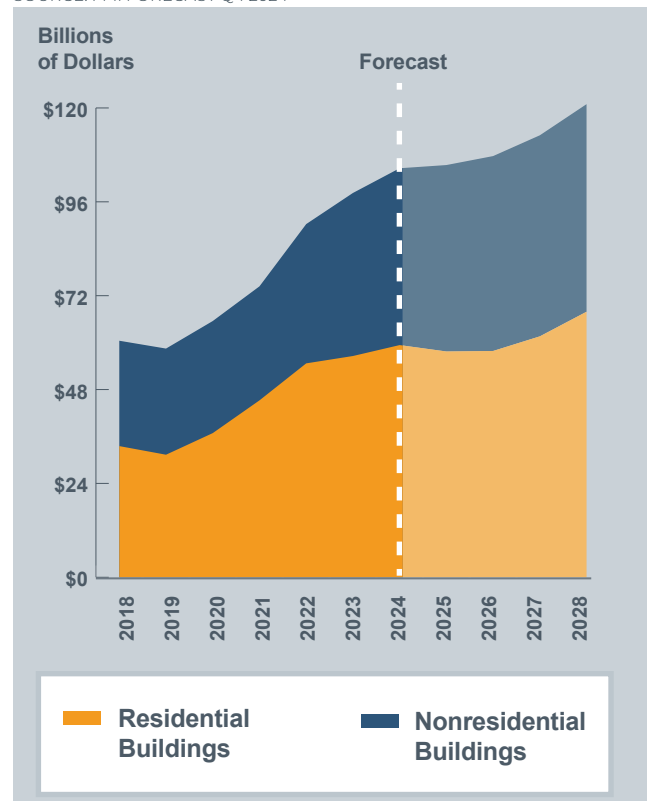
SOURCE: FMI FORECAST Q4 2024



- Spending in 2025 is expected to be \$10.6 billion, of which 39% is nonresidential and 41% is residential. Spending is expected to grow at a CAGR of 1.1% through 2028.
- Despite fiberglass remaining the leader in the insulation space, there has been a shift toward alternative materials such as elastomeric, which is gaining popularity in HVAC and refrigerant systems. As such, alternative materials have gained share over traditional options like fiberglass due to specific performance characteristics (e.g., superior water vapor barrier properties).
- The adoption of elastomeric materials is further encouraged by government regulations and incentives focused on promoting energy efficiency. Spray foam is another growing alternative to fiberglass because of the capacity challenges faced by major insulation manufacturers.
- The residential sector continues to be a key growth driver, particularly as energy efficiency codes become more stringent. The ongoing construction of new homes and enhanced retrofitting activities, backed by government incentives, are fueling demand.
- Similarly, the commercial sector is demonstrating strong growth potential, with institutional buildings like hospitals and schools increasingly investing in high-performance insulation systems to meet energy standards and sustainability goals.

WINDOWS AND DOORS

SOURCE: FMI FORECAST Q4 2024



- Construction spending on windows and doors in 2025 is expected to be \$105.4 billion. Of that, 45% is nonresidential and 55% residential. Spending is expected to increase at a CAGR of 3.0%.
- Current economic uncertainty, waning consumer confidence and overall affordability have hindered investment in home improvement projects compared to the increased investment during COVID, resulting in a downturn in demand for residential doors. Despite recent cuts in interest rates, consumers continue to hesitate. That said, repair and remodeling activity is expected to recover as interest rates potentially fall further.
- While lower interest rates could make financing home improvements more affordable, many customers continue to delay spending as inflation and other costs remain elevated.
- With its strategic acquisition of Masonite, Owens Corning aims to bolster its presence in the residential building products market. The company anticipates that doors will become a significant area of growth, with demand expected to be evenly distributed between new construction and repair or remodel projects.
- Banks' increased willingness to lend and interest rate cuts are poised to boost acquisition financing within the windows and doors market – providing the necessary liquidity to facilitate further market transactions and supporting a more dynamic M&A environment.

TOTAL MATERIAL VALUE AT THE MANUFACTURER LEVEL

MILLIONS OF CURRENT DOLLARS

	2018	2019	2020	2021	2022	2023F	2024F	2025F	2026F	2027F	2028F
RESIDENTIAL											
HVAC	53,658	57,685	61,834	63,038	73,917	91,297	91,474	92,292	93,054	98,249	106,030
Plumbing	4,600	4,660	5,630	7,184	8,853	8,691	8,596	8,615	8,731	9,166	9,908
Roof	21,779	22,427	23,046	25,793	28,415	28,993	29,533	30,266	31,003	31,854	32,913
Drywall	10,132	9,351	10,907	13,517	15,748	14,975	14,501	14,253	14,123	14,474	15,460
Floor	23,523	24,471	26,190	28,408	32,982	35,856	35,533	34,234	33,846	34,971	37,147
Insulation	3,975	4,023	4,704	5,898	6,910	6,419	6,233	6,198	6,171	6,306	6,730
Windows and Doors	33,539	31,338	36,860	45,233	54,086	56,778	56,708	55,472	55,670	59,597	66,862
Total Residential	\$151,205	\$153,955	\$169,170	\$189,071	\$220,911	\$243,009	\$242,579	\$241,332	\$242,597	\$254,617	\$275,051
NONRESIDENTIAL											
HVAC	61,526	60,739	63,733	64,091	70,563	77,852	84,088	89,423	93,247	95,501	98,278
Plumbing	10,668	10,860	11,400	11,233	13,155	15,668	17,302	18,240	18,596	18,853	19,459
Roof	9,463	9,538	10,033	10,475	12,102	13,449	14,264	14,818	15,260	15,714	16,336
Drywall	7,293	7,503	7,678	7,769	8,664	9,380	9,954	10,407	10,715	10,954	11,271
Floor	10,906	11,238	11,654	11,984	13,916	15,804	16,935	17,616	18,036	18,446	19,091
Insulation	2,833	2,856	2,945	2,984	3,353	3,715	3,972	4,152	4,253	4,323	4,436
Windows and Doors	26,941	27,136	28,661	29,155	34,705	40,940	45,274	48,044	49,499	50,638	52,507
Total Nonresidential	\$129,630	\$129,868	\$136,104	\$137,692	\$156,458	\$176,808	\$191,789	\$202,701	\$209,606	\$214,428	\$221,378

TOTAL MATERIAL VALUE AT THE MANUFACTURER LEVEL

CHANGE FROM PRIOR YEAR – CURRENT DOLLAR BASIS

	2018	2019	2020	2021	2022	2023F	2024F	2025F	2026F	2027F	2028F
RESIDENTIAL											
HVAC	0%	8%	7%	2%	17%	24%	0%	1%	1%	6%	8%
Plumbing	3%	1%	21%	28%	23%	-2%	-1%	0%	1%	5%	8%
Roof	4%	3%	3%	12%	10%	2%	2%	2%	2%	3%	3%
Drywall	-4%	-8%	17%	24%	17%	-5%	-3%	-2%	-1%	2%	7%
Floor	3%	4%	7%	8%	16%	9%	-1%	-4%	-1%	3%	6%
Insulation	3%	1%	17%	25%	17%	-7%	-3%	-1%	0%	2%	7%
Windows and Doors	-3%	-7%	18%	23%	20%	5%	0%	-2%	0%	7%	12%
Total Residential	0%	2%	10%	12%	17%	10%	0%	-1%	1%	5%	8%
NONRESIDENTIAL											
HVAC	1%	-1%	5%	1%	10%	10%	8%	6%	4%	2%	3%
Plumbing	4%	2%	5%	-1%	17%	19%	10%	5%	2%	1%	3%
Roof	4%	1%	5%	4%	16%	11%	6%	4%	3%	3%	4%
Drywall	3%	3%	2%	1%	12%	8%	6%	5%	3%	2%	3%
Floor	3%	3%	4%	3%	16%	14%	7%	4%	2%	2%	3%
Insulation	4%	1%	3%	1%	12%	11%	7%	5%	2%	2%	3%
Windows and Doors	3%	1%	6%	2%	19%	18%	11%	6%	3%	2%	4%
Total Nonresidential	2%	0%	5%	1%	14%	13%	8%	6%	3%	2%	3%

The numbers include new, renovation and replacement spending.

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