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MAY/JUNE 2020

TOP 50 GLAZIERS
ADAPT TO A
COVID-19 WORLD

BUILDING A NEW NORMAL

MULTI-
FUNCTION,
FIRE-RATED

GLASS
BARRIERS
STOP VIRUS
SPREAD

OFFICIAL
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BUILDING DURING COVID-19



This year's Top 50 Glaziers survey, which opened in mid-March, captured responses from an industry facing unprecedented challenge and uncertainty due to the COVID-19 pandemic. Results from the survey, collected over a month, show the cascading effects of the coronavirus on the glazing industry, including increasing concern for worker safety, cancelled and delayed projects and supply chain disruptions.

Despite the disruptions, and sometimes because of them, companies have adapted and innovated, blazing trails and moving forward into uncharted territory. "I don't think we'll ever go back to what was normal before," says Nataline Lomedico, CEO and president, Giroux Glass, a Top 50 Glazier. "I think it will be a new type of normal."

I write this as I work from home, one of the many members of the workforce who is doing so as office spaces are closed, and stay-at-home orders are still in effect for most states as of late April. Construction field work, which cannot be done remotely, has proceeded with safety measures in place in states that deemed it an essential service, though some states, like New York, shut down all but the most essential construction work as the coronavirus continued to spread.

For those firms still operating, with reduced business or not, field work has posed new challenges. "We do daily cleaning of work stations, check people's temperatures—using an infrared thermal unit—promote frequent cleansing and washing of the hands, social distancing, and we have our project management meetings outside," says Ray Crawford, president of Crawford-Tracey Corp., a Top 50 Glazier.

Many companies reported difficulty acquiring PPE for workers to wear on the jobsite, which pushed glaziers to get creative. Giroux Glass leadership, for example, created its own face shields for field staff, says Lomedico.

Though some construction has persisted, many companies have faced jobsite closures. Data from the Associated General Contractors of America surveys in March and April paint a picture of rolling closures as the pandemic spread. The AGC survey, published April 3, compiling responses from March 30-April 2, recorded that 53 percent of contractors reported

"I DON'T THINK WE'LL EVER GO BACK TO WHAT WAS NORMAL BEFORE. I THINK IT WILL BE A NEW TYPE OF NORMAL."

delayed projects, and seven percent cancelled projects.

Business closures have resulted in furloughs and layoffs across industries, and historic levels of unemployment. March data from the Bureau of Labor Statistics shows that total nonfarm payroll employment fell by 701,000 in March, and the unemployment rate rose to 4.4 percent, the largest over-the-month unemployment increase since 1975. Nonresidential building construction lost 11,000 jobs in March.

While lack of cash flow and worksite closures put pressure on many businesses to furlough or lay off workers, Lomedico recommends keeping workers if at all possible. "You should be trying your best to keep your talent, because the work will return," she says. "It takes a long time to find the right people, and to have to lose them because of a short-term situation would be devastating. I would recommend doing everything in your power to find different ways to use your team."

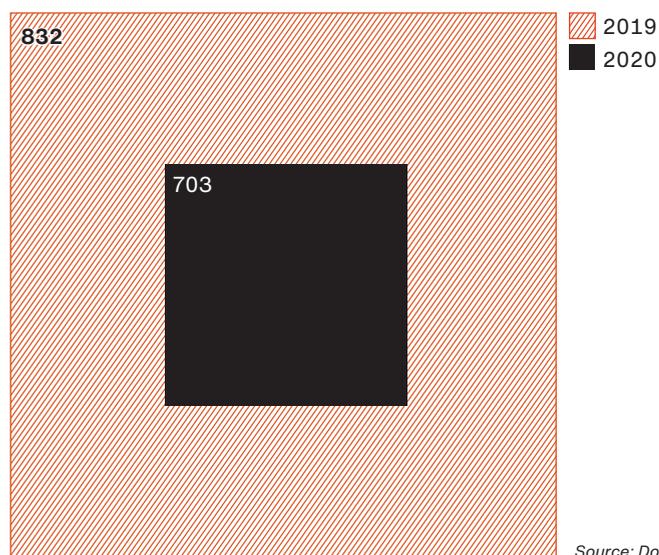
ECONOMIC OUTLOOK

Looking ahead to recovery, economists warn that the landscape has changed, and that construction recovery will take time. “I think the trend toward having less work is going to continue,” said Ken Simonson, chief economist for the Associated General Contractors, in an early April presentation. “I think that even if businesses start to reopen, if the extreme orders to stay at home are lifted, just getting businesses up and running again will be [owners’] priority. And so many businesses are not going to have either the immediate cash, or the expectation that they will need a project that they have been contemplating.”

Forecast data from Dodge Data & Analytics suggests that commercial construction starts will drop by 16 percent in 2020. “We are in recession, full-stop, no question about it,” says Richard Branch, chief economist for the organization. Branch projects a “short U” shape recession, meaning a more gradual recovery, rather than a quick rebound.

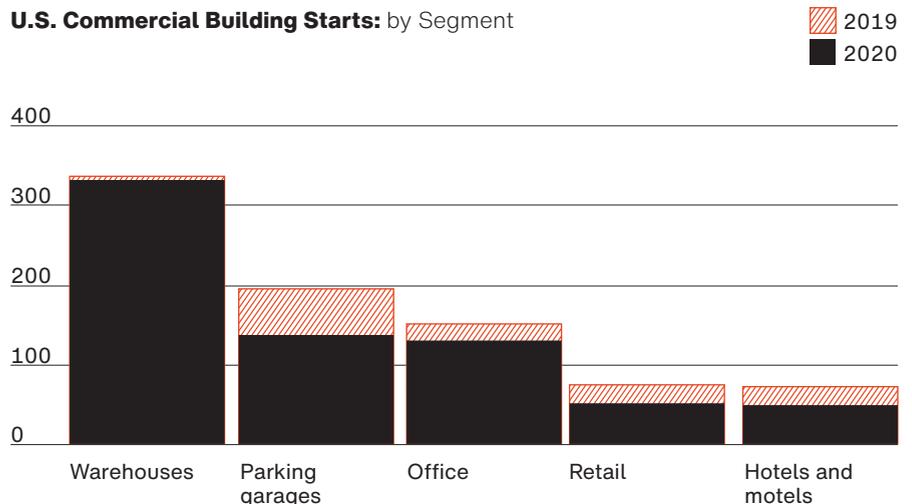
Branch says that not every market segment will rebound in the same way, or on the same timeline. He predicts that retail and hospitality will be the hardest-hit sectors, with projected 2020 declines of 33 percent and 31 percent respectively. Meanwhile, health care will be the strongest sector to recover. Branch forecasts a 5 percent rise in 2020. K-12 building will continue to ease, as will college and university building, the latter due to current financial strain, he says.

U.S. Commercial Building Starts
(in millions of square feet)



Source: Dodge Data & Analytics

U.S. Commercial Building Starts: by Segment



BEYOND THE PANDEMIC



Online

View a gallery of notable projects from Top 50 Glaziers at GlassMagazine.com.

It may be hard for companies to plan for the future when it is difficult to predict labor and market realities a week, let alone a month, in advance. However, some in the industry feel that the current situation is an opportunity for glaziers to pause, plan and prepare. Here are a few potential ways that business could change after COVID-19.

PREFABRICATION

The COVID-19 crisis has highlighted the potential use of prefabricated materials and modular building. Sixty-four percent of Top 50 Glaziers report fabricating curtain wall in-house. “Prefab could be a trend going forward—it’s a no-brainer with regards [to] the efficiency, and the quality control,” says Crawford. Dodge Data’s Commercial Construction Index for Q1 2020 reports that the top sector for the use of prefabricated materials is health care, which, given the likely stability of the health care market segment, may further push adoption of prefabrication.

MARKET DIVERSITY

Given the likelihood that the profitability of some industries will change temporarily, and possibly permanently, Lomedico says that the company is reconsidering what kinds of market segments to seek work in. “Some diversity is needed,

because we won’t know the impact of how it will trickle down to us through the different industries we work in,” she says. “We’re taking a better look at the owners of the projects in our backlogs, and asking, ‘Will they still have the funding? What is their financial strength? What else are they investing in?’”

DIGITIZATION

Another result of the pandemic may also be increased use of technology and software, both on and off the jobsite. Many companies, across industries, have had to set up remote work situations, some for the first time and in short order.

“This could change [the use of] technology; the face-to-face and social aspect of [work] might lessen, and many of our people are now learning how to work from home,” says Crawford. Crawford-Tracey already had a remote desktop set up for workers before the COVID-19 pandemic, a system that allows employees to access files from their office workstations at home.

Lomedico also feels that this marks a turning point in the adoption of technology. “We are all becoming accustomed to ever-changing information, and when this is over, we’ll be used to that,” she says. She characterizes this as an opportunity for glaziers to get the kind of systems that will work for them. “Software

companies, on the development side, are working at a rapid pace to customize what we need. We’re all going to reap the benefits of that,” she says.

Jeff Sample, director of strategic accounts at eSub, a construction software firm, also says this could be a “Big Bang” moment for glazing firms to digitize. “I think we won’t go back to business as usual across the board,” he says. “I think it will fundamentally be the digitization moment, the adoption in usage of technology and remote work ... We’ve just not had a reason to change the way we do things. And I feel like now we have one. And it’s on us now, as an industry, if we don’t embrace it.”

INDUSTRY RANKING AND MARKET REPORT

The following report includes a ranking of the Top 50 glazing firms serving the North American market, organized by 2019 gross sales information. For the industry ranking, see pages 48-51.

The report also includes in-depth market analysis of the state of the U.S. glazing market, based on statistics supplied by reporting companies. The report presents sales and growth information, an early look at how COVID-19 might affect construction in 2020 and beyond, as well as product and technology trends. For market information, see pages 52-57.

THE

\$	Rank	Previous Rank	Company	U.S. Locations	Full-time Employees	Total Employees
Over \$200 million	01	01	Permasteelisa North America permasteelisagroup.com, Windsor, CT	5	-	-
	02	02	Enclos Corp. enclos.com, Eagan, MN	14	550	550
	03	04	Harmon Inc. harmoninc.com, Bloomington, MN	18	598	599
	04	03	Benson Industries bensonglobal.com, Portland, OR	6	725	725
\$100-200 million	05	07	W&W Glass LLC wwglass.com, Nanuet, NY	1	55	200
	06	08	Walters & Wolf* waltersandwolf.com, Fremont, CA	7	-	-
	07	06	Crown Corr Inc. crowncorr.com, Gary, IN	4	400	400
	08	12	Massey's Plate Glass & Aluminum Inc. masseysglass.com, Branford, CT	3	200	300
	09	11	Architectural Glass & Aluminum aga-ca.com, Livermore, CA	3	350	350

The Top 50 Glaziers industry ranking, now in its 28th year, is the longest-running glass industry ranking. Companies on this list represent what editors believe to be the largest glazing firms serving the United States, ranked by gross sales volume. Sales volume information for 2019 was contributed by the companies. For those few companies that did not submit sales information, editors used independent sources to determine the most accurate ranking. If your company belongs on this list, or you want to update its information, contact Norah Dick, associate editor, at ndick@glass.org. It is only with the cooperation of industry companies that we can provide the most accurate ranking possible.

LIST

Rank	Previous Rank	Company	U.S. Locations	Full-time Employees	Total Employees	\$
10	-	Flynn Group of Companies flynncompanies.com, Toronto, Canada	34	5,500	5,500	\$100-200 million
11	09	Binswanger Glass binswangerglass.com, Memphis, TN	61	869	892	
12	-	Yuanda USA Corp. yuandacn.com, Chicago	5	20	20	
13	10	Karas & Karas Glass Co.* karasglass.com, Boston	2	90	147	\$50-100 million
14	14	Pioneer Cladding & Glazing Systems Inc. pioneerglazing.com, Mason, OH	6	302	302	
15	32	Dynamic Glass LLC dynamicglass.com, Houston	3	280	280	
16	16	TSI Corp. tsicorporations.com, Upper Marlboro, MD	1	200	200	
17	13	seele Inc. seele.com, New York	1	14	21	
18/19	18	RynoClad Technologies Inc. rynoclad.com, Ontario, CA	2	200	200	

*annual sales volume is an estimate, not confirmed by the company.

TOP 50 GLAZIERS

\$	Rank	Previous Rank	Company	U.S. locations	Full-time Employees	Total Employees	
\$50-100 million	18/19	15	Ventana Design-Build Systems ventana.vc, Chicago	3	32	32	
	20	17	Architectural Wall Systems LLC archwall.com, Des Moines, IA	2	115	115	
	21	20/21	Giroux Glass girouxglass.com, Los Angeles	5	223	227	
	22	20/21	Above All Store Fronts aboveallstorefronts.com, Hauppauge, NY	1	190	190	
	23	29/30	Cherry Hill Glass Co. cherryhillglass.com, Branford, CT	1	150	175	
	24	22	Admiral Glass Co. admiralglass.net, Houston	2	172	172	
	25	33	Ajay Glass Co. ajayglass.net, Canandaigua, NY	2	125	125	
	26	43	Tepcoglass LLC tepcoglass.com, Dallas	3	155	210	
	27/28	41/42	SPS Corp. spscorporation.com, Apex, NC	2	88	95	
	27/28	23/24	Haley-Greer Inc. haleygreer.com, Dallas	2	120	120	
\$40-50 million	29/30	41/42	Vision Enclosure Walls Inc. vewus.com, Dallas	1	15	100	
	29/30	26	Ranger Specialized Glass Inc. rangerglass.com, Houston	2	125	125	
	31	31	Alexander Metals Inc. alexandermetalsinc.com, Nashville, TN	1	86	86	
	32	25	Kensington Glass kensingtonglass.com, Ijamsville, MD	3	196	197	
	33	34	Crawford-Tracey Corp. crawfordtracey.com, Deerfield Beach, FL	2	131	131	
	34	47	Momentum Glass momentum-glass.com, Spring, TX	2	138	138	
	\$30-40 million						

Rank	Previous Rank	Company	U.S. locations	Full-time Employees	Total Employees
35		ACE Glass aceglass.net, Little Rock, AR	2	123	153
36	40	National Enclosure Co. nationalenclosure.com, Ypsilanti, MI	3	30	70
37		Metropolitan Glass Inc. metroglass.com, Denver	1	85	85
38		Denison Glass & Mirror Inc. denisonglass.com, Denison, TX	1	160	160
39	48	Synergi LLC synergillc.com, Elkridge, MD	2	61	70
40	38	Koch Corp. (Strong Tower Building Envelopes) kochcorporation.com, Louisville, KY	1	38	86
41		Horizon Glass & Glazing Co. horizonglass.net, Denver	1	119	120
42	44	Specified Systems Inc. specifiedsystems.com, Canonsburg, PA	2	39	84
43	28	Egan Co./InterClad eganco.com, Brooklyn Park, MN	4	75	75
44	49/50	AFI Glass & Architectural Metal Inc. afiglass.com, Poughkeepsie, NY	1	35	40
45		Austin Glass & Mirror Inc. austinglass.com, Austin, Texas	1	77	79
46	45	R&R Window Contractors Inc. rrwindow.com, Easthampton, MA	1	75	76
47		H.J. Martin and Son Inc. hjmartin.com, Green Bay, WI	2	930 (51 in glass and glazing division)	930
48		Key Glass Inc. keyglass.com, Bradenton, FL	1	54	54
49		U.S. Glass Inc. usglassco.com, Sacramento, CA	1	48	48
50	46	Wind Ready windready.com, Miami Gardens, FL	1	70	70

\$

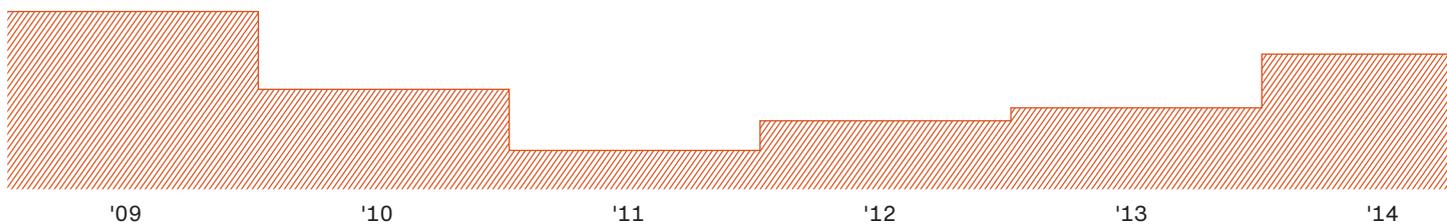
\$30-40 million

\$20-30 million

\$Under 20 million

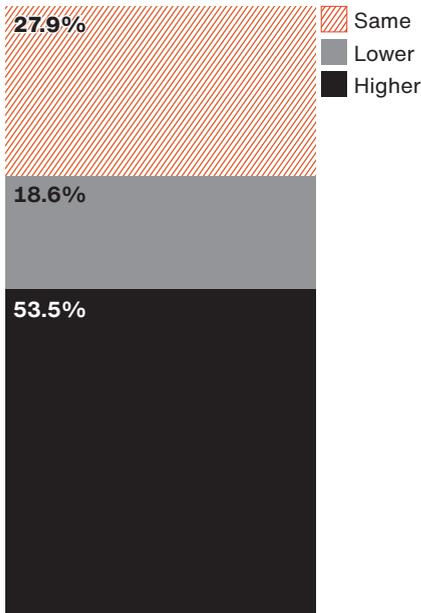
SALES AND MARKETS

As of press time, the U.S. is experiencing a recession due to the economic fallout of the COVID-19 pandemic. The severity and length of that recession, and the nature of economic recovery, remain to be seen. However, the 2020 Top 50 survey indicates that glazing firms entered the year with healthy backlogs and strong sales, building on a decade of market growth and advancement.



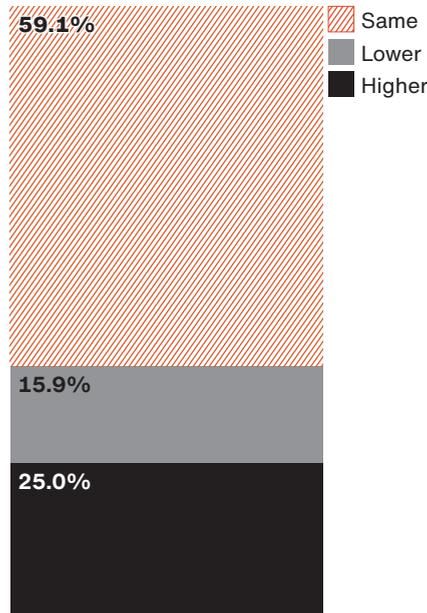
How does your backlog compare to the previous year?

A majority of Top 50 respondents, over 50 percent, reported a higher backlog in 2019 than the previous year. About a third reported that their backlog remained about the same as the previous year.



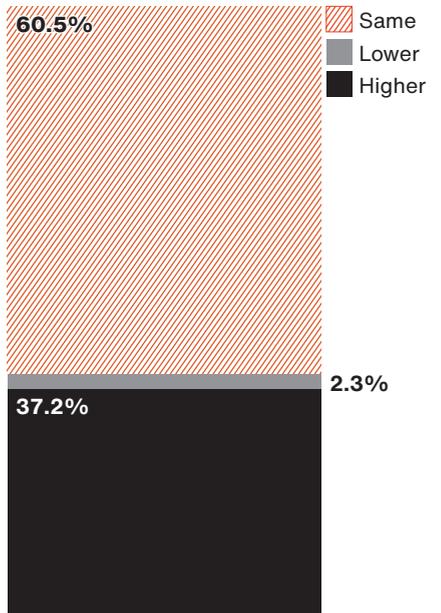
How did profit margin in 2019 compare to the previous year?

Twenty-five percent of companies said profit margins increased in 2019, compared to 31 percent in 2018. About 16 percent of respondents reported that margins decreased in 2019, up slightly from 7 percent of 2019 respondents.



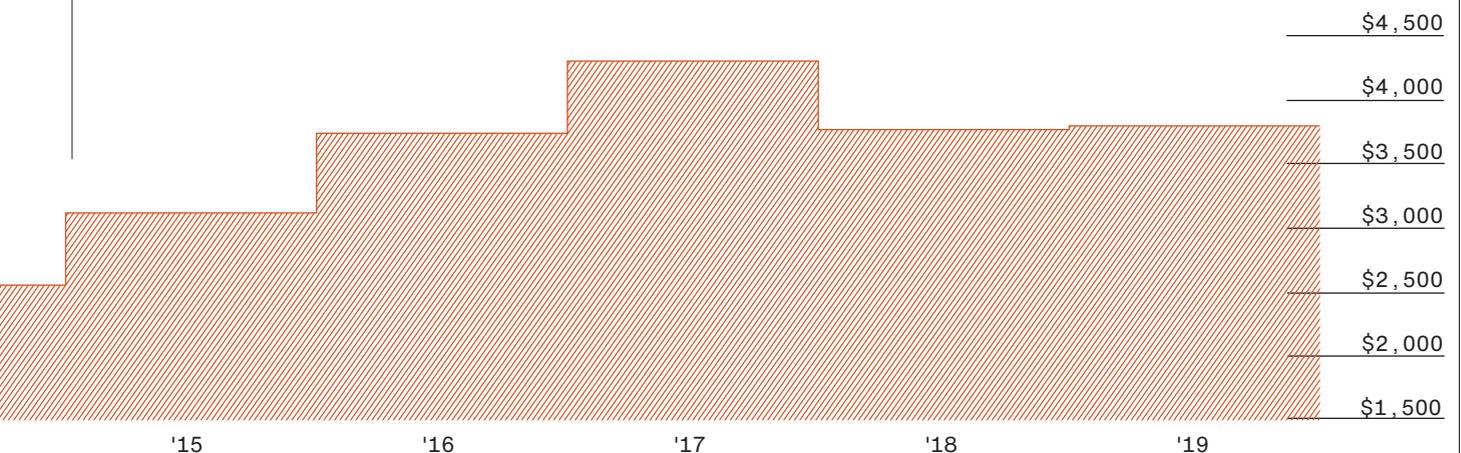
How did bid levels in 2019 compare to the previous year?

Bid levels remained steady in 2019, with a significant majority of respondents, 60 percent, saying that they were about the same as the previous year. Thirty-seven percent reported higher bid levels, and only 2 percent lower.



Total gross sales, 2009-2019 (in millions)

Combined gross sales for Top 50 companies continued to grow in 2019, showing a 0.9 percent year-over-year increase. Post-recession Top 50 sales peaked in 2017, with combined sales of \$4.3 billion, dipping in 2018 to \$3.7 billion.



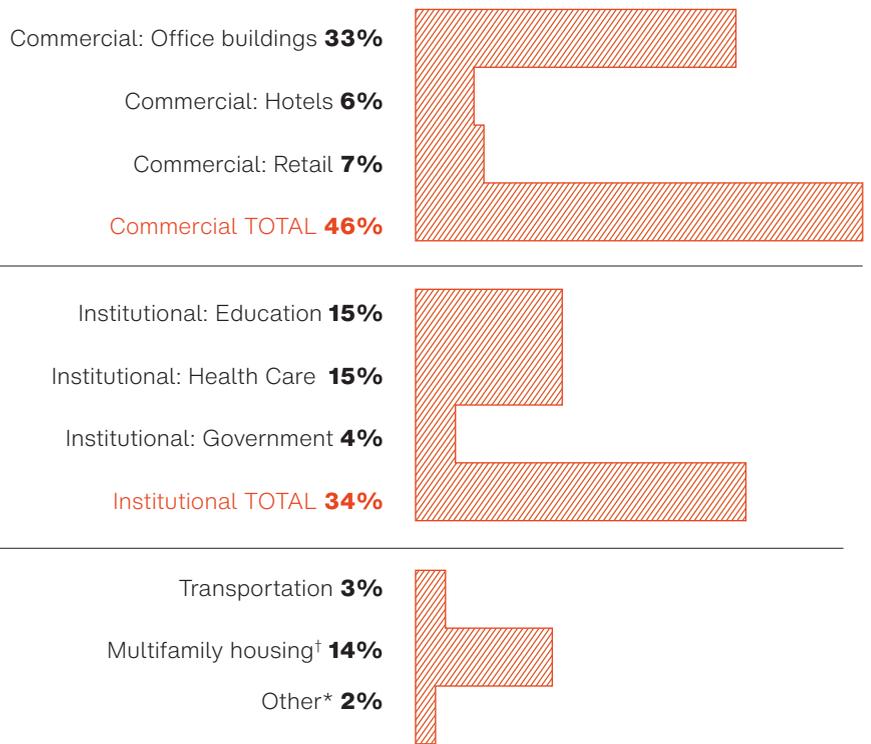
TOP 50 GLAZIERS

Construction Segment While market segments are likely to rearrange next year, given the disruption in commercial work and the commercial industries that glaziers work in, Top 50 Glaziers showed continuity in the construction markets for 2019.

Top 50 companies reported office building construction as the largest market segment in 2019, at 33 percent. Responses remained similar across the different market segments, with institutional work showing a small increase from 2018.

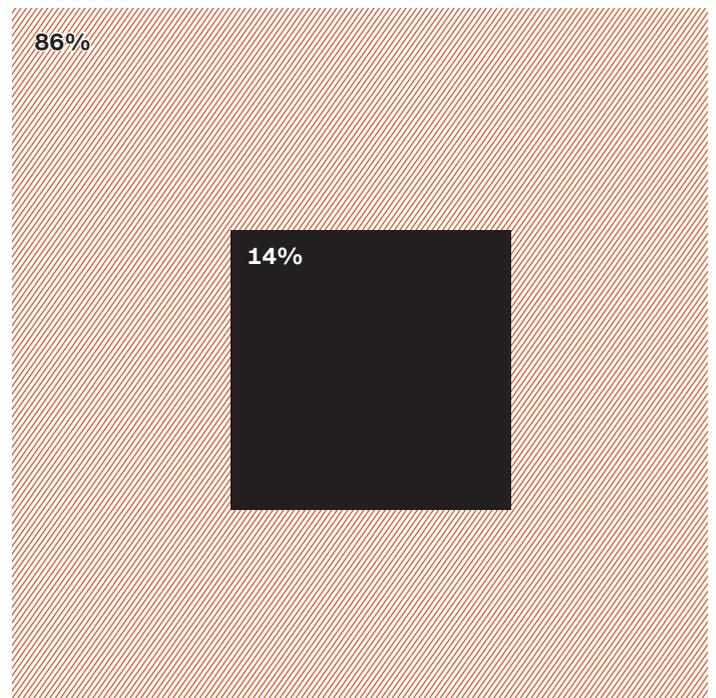
†High-rise apartments, condos

**Includes sports facilities/stadiums, museums, convention centers, houses of worship*



What percentage of your commercial business is new construction/renovation?

The market breakdown between new construction and renovation also remained similar in 2019; Top 50 Glaziers reported that an 86 percent average of their projects were allocated to new construction in 2019, up slightly from 83.5 percent the previous year.



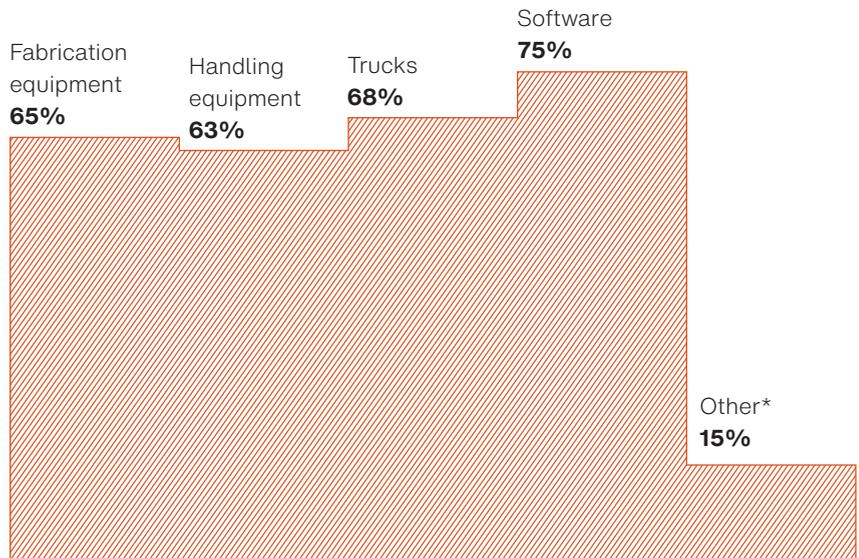
 New construction
 Renovation

PRODUCTS AND TECHNOLOGY

Top 50 companies continue to innovate and expand their fabrication and design capabilities. They are meeting demands for increased use of prefabricated systems, investing in new equipment and making strides to move toward 3D modeling.

Has your company made capital acquisitions in the past year? A

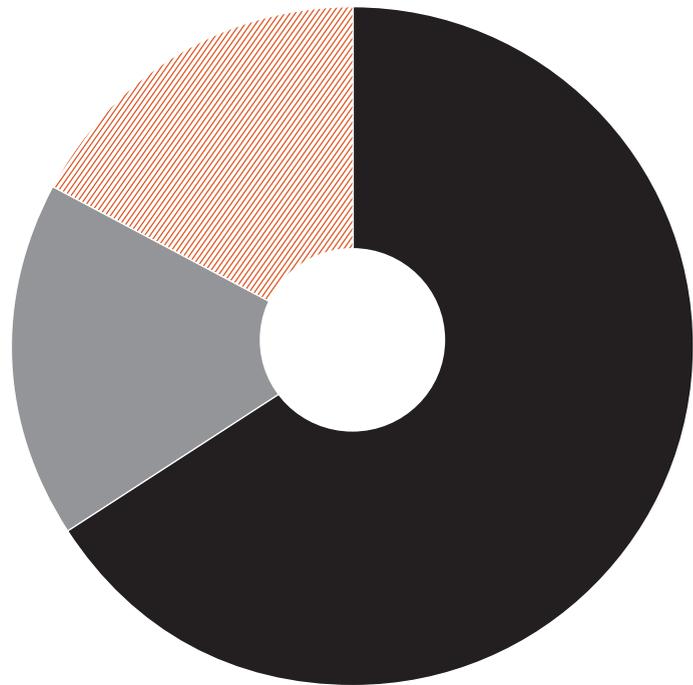
strong majority of reporting companies made capital acquisitions in 2019 in several key categories. Three quarters of firms invested in software, suggesting the significant spread of IT infrastructure among companies. Half of Top 50 Glaziers reported using some kind of software, with Revit and Rhino, both 3D modeling software, topping the list. Software used also included those not specific to construction work, including Microsoft Suite and CRM, customer relationship management software which helps companies track interactions with customers. In addition to software, 68 percent of companies invested in trucks, 65 percent in fabrication equipment and 63 percent in handling equipment.



Is your company doing any 3D modeling/BIM?

A significant majority, 66 percent, of Top 50 Glazier respondents said that they do 3D modeling and/or building information modeling in-house, and another 17 percent say that they plan to do so in the future. Respondents said some of the major benefits provided by the systems were better coordination with other trades and improved accuracy, especially for complex geometric designs. Challenges included the cost of the software and the need to train staff to use it.

- Yes **66%**
- No **17%**
- ▨ No, but planning to do so **17%**



Are you fabricating unitized curtain wall in-house?

A majority of Top 50 Glaziers, 64 percent, report that their companies are fabricating unitized curtain wall in-house. Prefabrication is not without its challenges; respondents said finding storage and space for units was a major challenge, as well as finding skilled workers to fabricate the systems.

- Yes **64%**
- ▨ No **36%**

