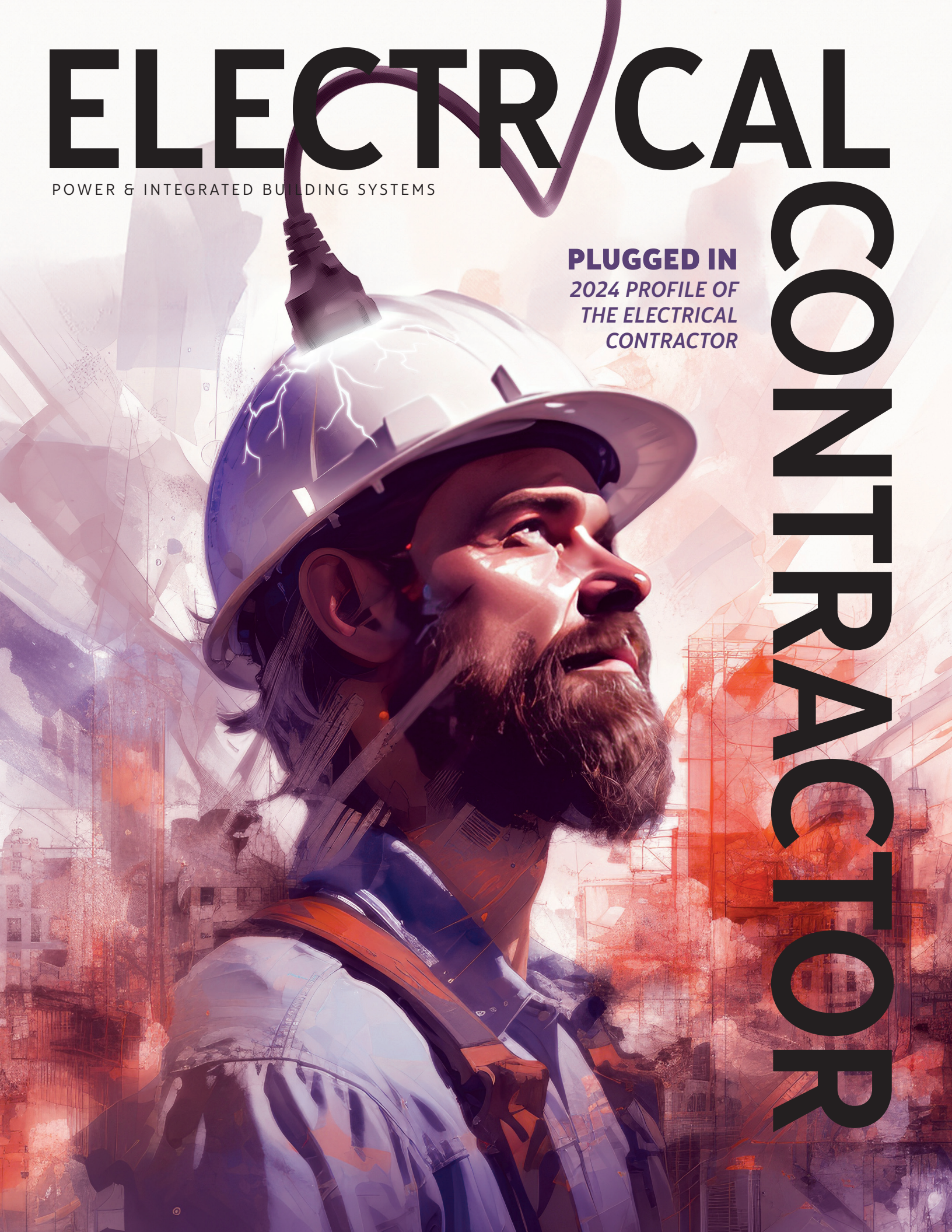


# ELECTR/CAL

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**PLUGGED IN**  
2024 PROFILE OF  
THE ELECTRICAL  
CONTRACTOR

# CONTRACTOR





# 2024 *of the*



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# Profile

## Electrical Contractor

BY CHUCK ROSS

**IT'S THAT TIME AGAIN.** To ensure we're fully plugged into the electrical construction market, we reached out to you with our biennial survey about your 2023 business experiences for this, the 2024 Profile of the Electrical Contractor. The 2020 and 2022 survey results captured snapshots of pre- and mid-pandemic life. By this year, we see businesses moving past supply chain disruptions, with responses providing an overall theme of recovery and growth.

We are optimistic because—in the responses from 828 of you—we found electrical contracting firms are getting larger and growing their revenues. While firms with nine or fewer employees still make up the majority of our respondents, that lead is narrow, at only 51%, continuing a trend we noted in 2022.

Compared to two years ago, the proportion of firms with 1-4 employees showed a

statistically significant decline, while the percentage of firms with 10 or more employees grew. We also found that nearly twice as many firms added employees (28%) as dropped them (15%). Two years ago, these figures were essentially equal.

Business revenues are also growing in parallel with employee numbers. That's good news and, compared to 2022, there are significantly fewer firms with revenues under

\$1 million and more with revenues over \$2.5 million, both in total and in each subsequent revenue break of \$10 million and \$25 million.

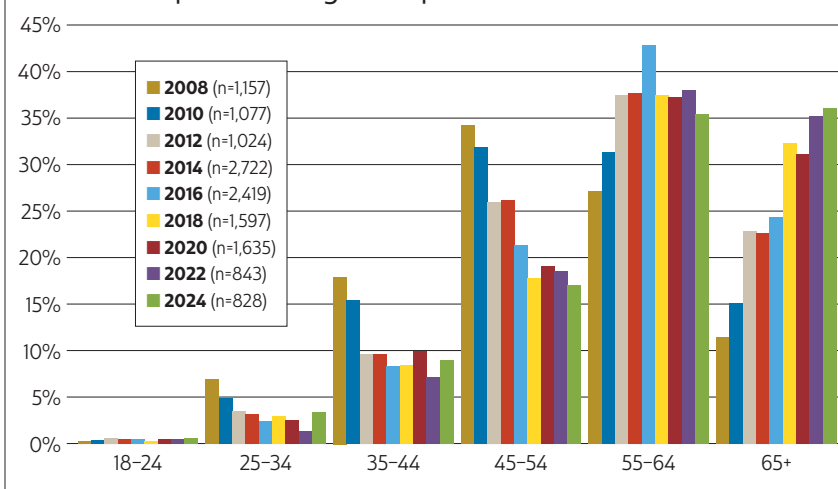
Where that revenue is coming from continues to shift. For example, electrical contractors are earning less from single-family projects, which accounted for 38.4% of revenue in 2018. This year's respondents said such work only added up to 29% of revenue during 2023, about equal to commercial.

These are just a few of the data points revealed in our 2024 survey's findings regarding the state of electrical construction in 2023. There is much more information to follow in this comprehensive two-part report. Visit [ECmag.com/profile](https://ecmag.com/profile) where we maintain an archive of past results for easy, over-time comparisons.

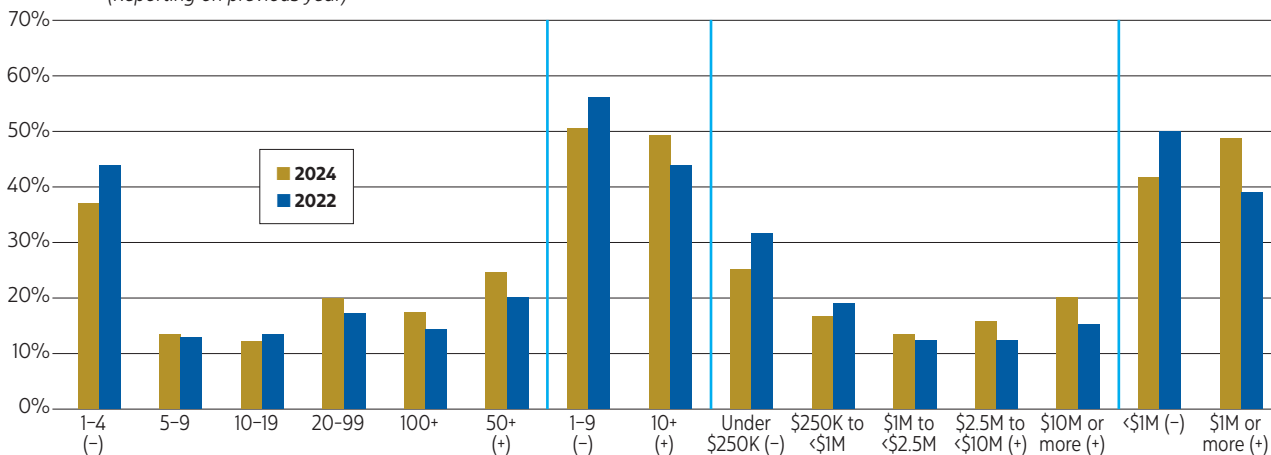
### Aging slowdown

This year, the average age of electrical contractors has remained statistically unchanged at 58.6 years old (versus 59.3 years old in 2022). Two years ago, it seemed electrical contractors had resumed trending older (see **Figure 1**).

**FIGURE 1** Comparison of Age Composition Over Time

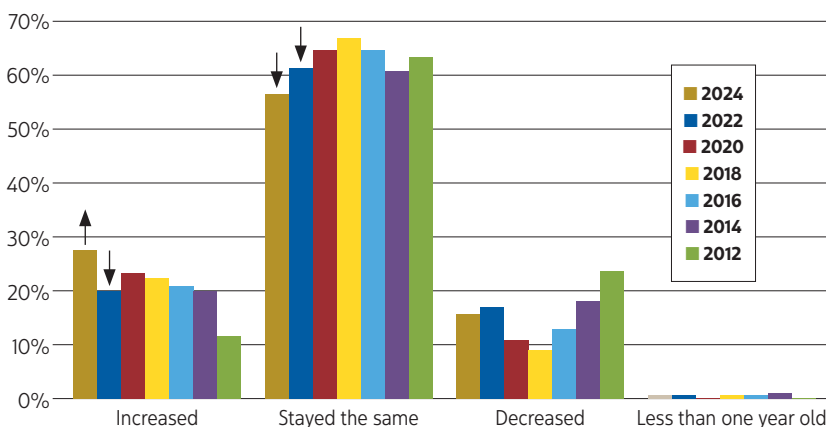


**FIGURE 2** Company Size Trended 2024 Profile vs. 2022 Profile  
(Reporting on previous year)



The symbols (+) and (-) indicate a significant change at the 90% level of confidence vs. 2022.

**FIGURE 3** Change in Number of Employees Among Total Sample



The symbols ↑ and ↓ indicate a significant change at the 90% level of confidence vs. 2022.

Now, we see some younger folks are getting into the industry, with the percentage of respondents aged 18–34 increasing to 3% from 1% two years ago. This is the only statistically significant age-group shift. The proportion for ages 35–54, 55–64 and 65+ remained unchanged from 2022's figures.

The age numbers also remained flat across firm size. However, ECs working for larger companies continue to be younger, on average, at 56.6 years, than those in companies with nine or fewer employees, where 60.7 years is the average.

Female respondents made up 5% of the total, statistically unchanged from 2022.

However, that figure jumps to 9% in the 35–54 age range. Like 2022's survey, these female electrical contractors are less likely to work in very small firms. They make up only 3% of those from companies with 1–4 employees and only 1% of those from companies with revenue under \$250,000.

We first asked our respondents about their years of electrical contracting experience in 2018, and the figure hasn't moved a great deal since then, with this year's participants averaging 33.2 years, statistically unchanged from 33.9 years in 2022. Also like our previous results, an impressive 7% have been in the industry more than 50 years.

Company owners and those in top management positions made up 72% of our survey respondents, and 12% are master electricians or hold similar titles, statistically unchanged from 10% in 2022. Owners and top managers are mostly in the 65-plus age group—not surprising, given the years of experience needed to reach that level.

### Growing trends

The last several Profile surveys have shown a steady decline in smaller firms, a rise in the proportion of companies with 10 or more employees and an increase in overall revenues. That trend continued this year as respondents described their companies' 2023 operations. As shown in **Figure 2**, the proportion of firms with 1–9 employees dropped to 51%, down from 56% in 2022 and 66% in 2020.

In our last survey, which looked at possible effects of COVID-19, we noted that staff rolls had remained stable, and that remains the case this year, with 56% reporting no change in company size. However, as **Figure 3** shows, growth was more common than decline for those whose size did shift, which differed from our 2022 results.

More than a quarter of respondents said their companies added new employees in the previous 18 months, compared to 15% that said their size had decreased. In 2022, there was an even split of about 20% who said their firms had grown or gotten smaller.



**FIGURE 4** Change in Company Size During the Past 12–18 Months 2024

	Total						1–9 employees						10+ employees					
	2024	2022	2020	2018	2016	2014	2024	2022	2020	2018	2016	2014	2024	2022	2020	2018	2016	2014
Increased	<b>28%&gt;</b>	20%	<b>&lt;24%</b>	22%	21%	<b>20%&gt;</b>	8%	7%	<b>&lt;10%</b>	10%	11%	<b>12%&gt;</b>	<b>47%&gt;</b>	36%<	<b>49%</b>	<b>53%&gt;</b>	<b>47%&gt;</b>	<b>42%&gt;</b>
Stayed the same	56%	<b>&lt;61%</b>	<b>&lt;64%</b>	67%	65%	61%	75%	76%	78%	<b>80%&gt;</b>	<b>75%&gt;</b>	70%	37%	42%	38%	36%	38%	35%
Decreased	15%	<b>17%&gt;</b>	11%	9%	<13%	<b>&lt;18%</b>	14%	<b>14%&gt;</b>	10%	9%	<12%	<b>&lt;17%</b>	16%	<b>&lt;21%</b>	13%>	10%	<15%	<b>&lt;23%</b>

**Bolded numbers > and < indicate statistically significant differences in the direction of the arrow.**

The likelihood of growth versus decline in our 2024 responses wasn't the same across all firm sizes, as seen in **Figure 4**. For example, companies with fewer than 10 employees were more likely to have gotten smaller (14%) than to have grown (8%). The situation was significantly more positive for organizations with 10 or more employees, with 47% adding staff and only 16% decreasing in size.

### Where is the skilled labor?

Finding qualified new employees continues to be a challenge, which has been the case at least back to our 2020 survey. Respondents were asked about the job market as they were completing the survey between January and March 2024.

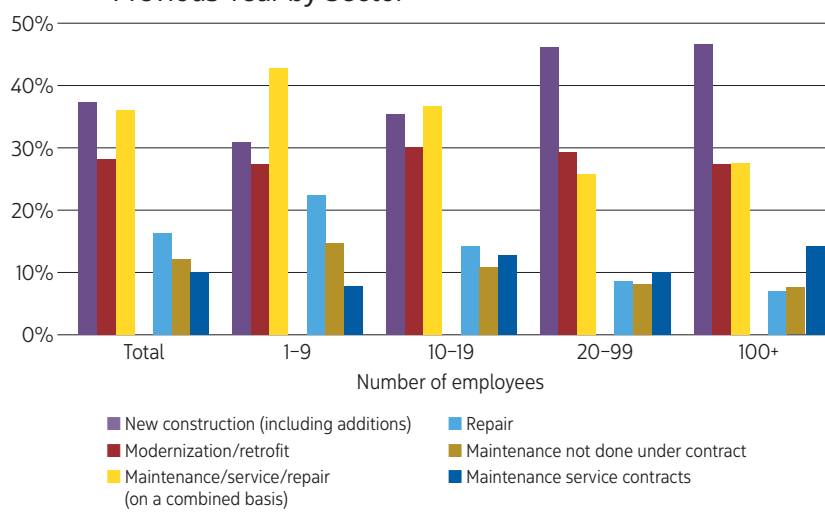
Across all company sizes, 63% said they had difficulty finding trained workers and 33% had trouble retaining trained workers. These issues were substantially more pronounced for larger companies, with 80% finding and 46% retaining, respectively.

The postpandemic recovery trend noted in 2022 continued in this year's survey, with significantly fewer firms with sub-\$1 million revenue, 42% compared to 50% two years ago. More respondents reported company revenue of more than \$2.5 million. Not surprisingly, though, income increases varied by company size, with 64% of those with 1–4 employees reporting revenue below \$250,000, while 63% of those with 100-plus workers reported revenue above \$25 million.

### Economics by category

Categories shifted some with our 2024 survey, as we asked respondents to look back at their 2023 earnings and the larger sectors they represented (see **Figure 5**). For one thing, new construction grew to

**FIGURE 5** Average Revenue From Types of Work Performed in Previous Year by Sector



36.6%, versus 31.8% in 2022, when we asked about 2021's financials. Maintenance/service or repair dropped to 35.7% from 38.7% in 2022's responses. This was due to a decrease in repair work, specifically, to 15% from 18% in 2022. The rise in new construction was especially notable in firms with 1–9 employees, rising to 30.3% of revenues, up from the 24.8% reported two years earlier.

To drill down further, as in the past, we presented ECs with a list of 14 project types to rank by revenue, which you can see in **Figure 6**. Lighting, electric power transmission and distribution and industrial systems remained the top three revenue categories, as respondents looked back over their companies' 2023 performance. However, in a bit of a twist, industrial systems took a significant jump up to 10.8%, compared to 7.8% in responses from 2022.

For a more detailed view of ECs' busi-

nesses, we queried you about work you did in 2023 in a list of more than 40 different project types in residential and commercial/institutional/industrial (CII) settings. Responses are shown in **Figure 7**. Comparing this combination of residential and CII project types to responses from the 2022 survey, the results are relatively unchanged, and any differences are the result of business increasing in those categories. More of those increases occurred in residential construction. For example:

- More ECs said they are performing "other types of lighting" in residential and CII settings.
- Daylighting rose in residential construction and on a combined basis.
- Home automation/smart home connectivity and programming/commissioning both rose in residential construction.
- Electric vehicle charging equipment rose in both residential and CII settings.



- Both LEED projects and power quality as a broad category rose in residential projects and on a combined basis.

In terms of CII work on its own, percentages generally held steady across categories in comparison to our 2022 findings, with several notable exceptions. First, involvement in EV charging installation continues to grow, with 28% reporting work with this equipment, versus 24% two years earlier. However, security system work, including CCTV, access control and motion sensing decreased to 32% from 36%. Perhaps do-it-yourself wireless systems are having an effect in this area. Additionally, 17% worked on water utilities/wastewater

treatment plant projects in 2023, statistically unchanged from what was reported for 2021.

For residential and CII combined, there's evidence that electrical contractors continue to work in other nontraditional areas as well. For example, 38% worked on either HVAC controls and/or HVAC mechanical, with 15% working in both areas (this figure is a statistically significant drop from the 18% reported in 2022, regarding business in 2021).

As previous surveys have shown, the largest firms—those with 100 or more employees—work in more categories than their smaller counterparts, and they're above average in six of the queried categories. Smaller firms are more likely to be involved

in two to four of those categories, but which categories also varies by size. See **Figure 8**.

- Firms with 1–4 employees are more likely than average to work in traditional power, lighting and residential automation/controls.
- Those with 5–9 employees are also more likely than average to be involved with residential automation/controls and low-voltage work.
- Those with 100-plus employees are more likely than average to be involved in more complex projects, including prefabrication, power quality, sustainability and high voltage.

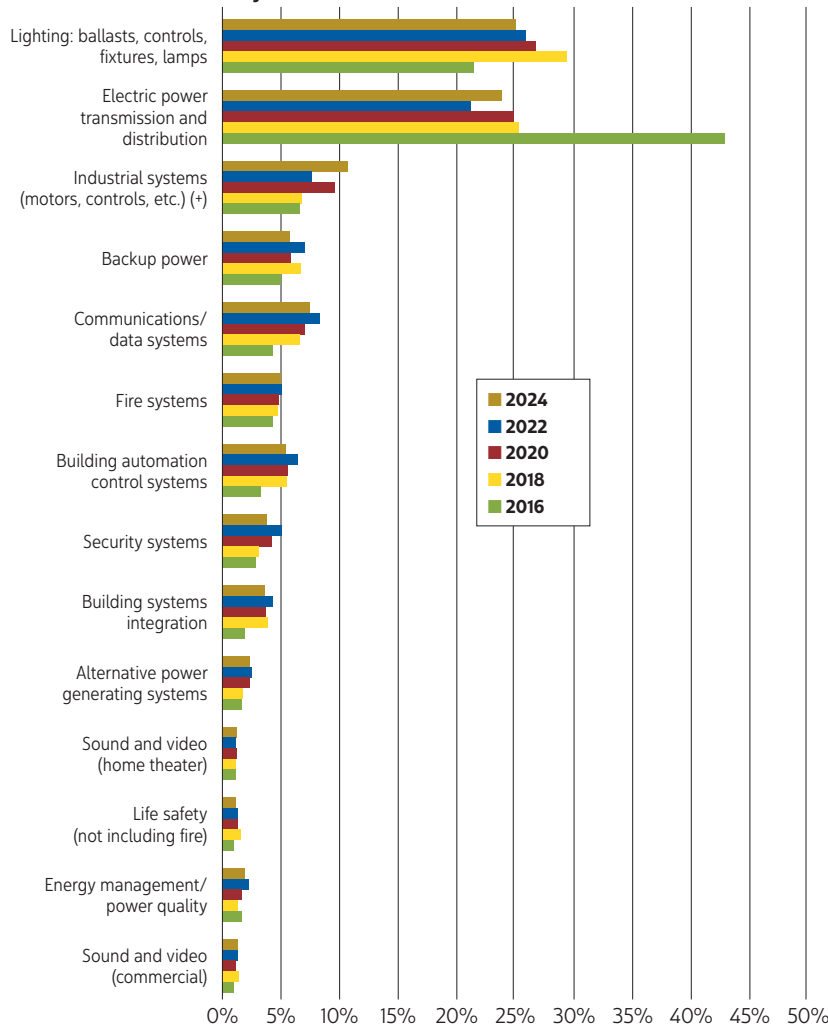
More than half of firms have worked on government projects since 2022 (57%), and 55% said that they expect to work on government projects in 2024. Regardless of the time frame of the work, more of the participation is close to home, i.e., more local government work than state or federal. Larger firms are far more likely to perform government work (some 73% among firms with 10+ employees compared to about 40%–42% among firms with 1–9 employees). Larger firms are about twice as likely to have done or plan to do local work, about four times more likely to have done or plan to do state work, and about six times more likely to have done federal work than smaller firms. See **Figure 9**.

In terms of where ECs do their work, the percentage of firms with projects in multiple states has held steady since the 2022 survey at 40%. As has been the case traditionally, larger firms are more likely to work in multiple states; 56% of those in firms with more than 10 employees reported their company worked in multiple states.

## High interest in low-voltage

Low-voltage is a very broad project category, including fiber optic cable installation, networking, LED lighting controls, structured wiring and more. So, it's not surprising that, across the entire sample, 95% of respondents reported involvement in low-voltage projects. As has been the case with the last several surveys, 26% of respondents said their firms currently have a separate low-voltage division, and this is more likely for those firms with 10 or more employees. In 2024, larger

**FIGURE 6** Average Sources of Revenue from Various Types of Electrical Projects—Trended



The (+) symbol indicates a significant change at the 90% level of confidence vs. 2022 study.



firms are more likely to plan to add a low-voltage division in the next one to two years compared to smaller firms.

Data/telecom center work will likely be getting more attention over the next few years, as the effort to build more facilities to support artificial intelligence integration kicks in. As **Figure 10** shows, more than half of respondents—56%—are already actively involved in systems integration or data centers, with low-voltage systems integration the most-mentioned task within this category, at 48%. This was followed by design or specification of low-voltage systems (36%), installation (29%), commissioning and programming (28%), and designing or specifying data/telecom centers (20%).

In terms of work with integrated systems, 59% of respondents said they specify and install lighting, which—as has been the case historically—is about double the percentage that only do installation. For most of the other integrated systems categories, between 15% and 27% of ECs specify and install equipment, except for HVAC (not including controls). Specify-and-install percentages dropped significantly for security and HVAC (not including controls) compared to the 2022 responses. See **Figure 11**.

## Revenue leaders

There was a bit of a shakeup at the top with this year's survey when looking at what areas of work were most important to electrical contractors' bottom lines. Looking at 2023's business, 37% of revenues on average came from new construction (up from 32% for 2021) and 36% from maintenance/service/repair (down from 39% for 2021), with 28% credited to modernization/retrofit projects. See **Figure 12**.

While this does represent a boost in new construction, this sector still hasn't recovered from the Great Recession. In our 2008 survey, which looked at business in 2007 just before the housing crash, new construction represented an average of 43% of revenue across all company sizes. This means there's room for upward movement.

These averages can shift when looking into performance by company size. Taking this view, new construction is even more important to firms with more than

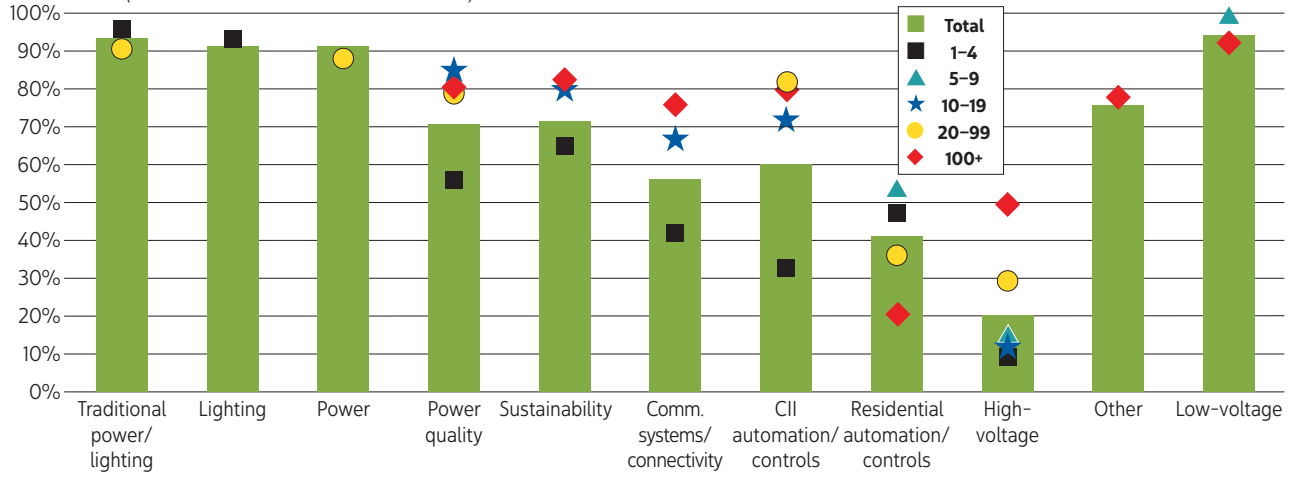
**FIGURE 7** Types of Work Performed by Company in 2023  
Percentage of business from residential and/or CII construction on a combined basis

Communications systems/connectivity	Any	Res	CII
Structured wiring/cabling	45	18	37
Networking (VoIP/wireless/broadband, etc.)	36	13	29
Data centers	23	4	21
Fiber optics (communications and security)	26	4	24
Sustainability	Any	Res	CII
Energy-efficiency projects/upgrades (non-LEED)	40	16	32
Electric vehicle charging equipment	47+	31+	28+
LEED projects	28+	10+	22
Solar/photovoltaics	22	10	16
Energy audits (including thermal imaging)	19	4	15
Smart or net metering	17	6	14
Cogeneration	8	3	7
Energy storage	13	6	9
Geothermal	5	3	3
Wind generation	4	1	3
Smart grid technology	6+	2	5
Fuel cells	3	1	2
Microgrids	4	1	3
Power quality	Any	Res	CII
Backup power/UPS	55	23	43
Troubleshooting/maintenance of low-voltage systems	44	20	35
TVSS/lightning surge suppression	41	18	34
Energy management/power quality	26	5	23
Low-voltage	Any	Res	CII
	95	60	76
High-voltage	Any	Res	CII
	20	NA	20
Distribution	17	NA	17
Substations	11	NA	11
Transmission	6	NA	6
Traditional power/lighting	Any	Res	CII
	94	61	76
Lighting	Any	Res	CII
	90	59	71
LED lighting (including lamps, fixtures and controls)	87	56	66
Lighting fixtures	80	49	62
Ballasts or LED drivers	71	37	58
Lamps	65	38	50
Lighting controls	72	39	55
Daylight/shading systems	32+	13+	25
Any other lighting not included above	32+	16+	24+
Power	Any	Res	CII
	91	59	70
Power	84	54	64
Wire and cable	83	52	65
Automation/control systems	Any	Res	CII
	77	41	59
Fire/life safety (including alarms/detectors)	52	24	40
HVAC controls	34	15	27
Security (CCTV/access/motion, etc.)	41	19	32-
Industrial controls (including PLCs, VFDs and switchgear)	39	NA	39
Home automation/smart home/connectivity	25+	25+	NA
Home theater/sound or VDV	14	14	NA
Building automation systems/facilities connectivity	28	NA	28
Programming and commissioning	25	7+	22
Sound and video or VDV	19	NA	19
Other	Any	Res	CII
	75	43	61
MSR (any electrical)	70	41	56
HVAC (mechanical)	19	9	14
Pre-assembly/prefabrication of electrical components	23+	6	21
Water utilities or wastewater treatment plants	17	NA	17

The symbols (+) and (-) indicate a significant change at the 90% level of confidence versus the 2022 Profile (each reporting on the previous year).



**FIGURE 8** Types of Work Performed in Previous Year by Company Size  
(CII and residential on a combined basis)



**FIGURE 9** Involvement with Government Projects

	Completed Since About 2022			Expect to Work on in 2024		
	Total	Number of Employees		Total	Number of Employees	
		1-9	10+		1-9	10+
<b>Mentioned Any</b>	57%	42%	<73%	55%	40%	<73%
<b>Local</b>	51%	38%	<65%	49%	34%	<65%
<b>State</b>	33%	13%	<53%	34%	17%	<51%
<b>Federal</b>	19%	5%	<34%	18%	5%	<33%
<b>Mentioned only 1</b>	24%	29%	18%	21%	20%	22%
<b>Mentioned 2+</b>	34%	13%	<56%	34%	17%	<52%

Bolded percentages with > and < indicate statistically significant differences in the direction of the arrow.

20 employees than it is for smaller firms. Maintenance/service/repair—which fell across the entire sample thanks to a drop in repair work—is a bigger revenue contributor for smaller companies, topping 40% for those with 1-9 employees.

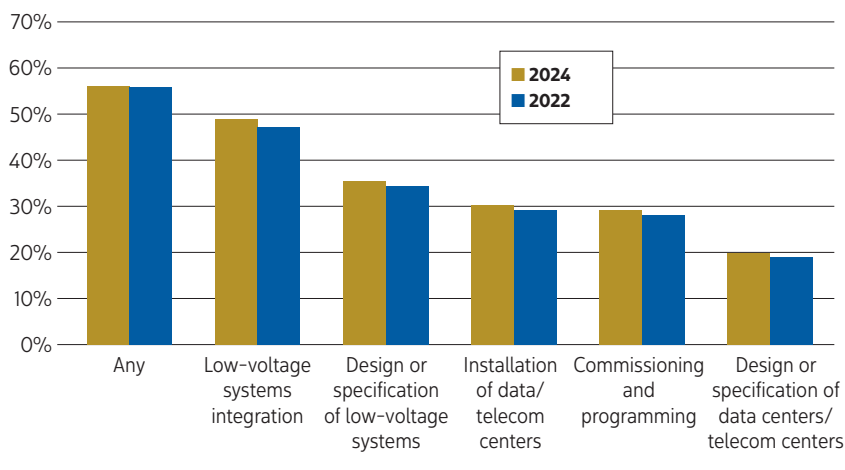
### Earnings by building type

Looking at earnings by building type (Figure 13), the increase we noted in CII work for 2021 in the 2022 survey, along with a slip in residential work, has held steady. Respondents reported an average of 55% of revenue coming from CII projects, 35% from residential and 10% from nonbuilding efforts. CII and nonbuilding (which includes transportation lighting and utility) account for more average revenue for the largest firms than for other company sizes.

These figures have maintained a shift we noted in the 2022 survey, when industrial work (not broken out in this figure) jumped from 13.6% in 2020 to 16.7% across all firm sizes. Additionally, the figure indicates how quickly residential work's importance drops as company size grows. Although it accounts for more than 50% for businesses with fewer than 10 employees, it falls by half with the 10-19 cohort and is just more than 9% for companies with 100-plus workers.

With this year's survey, we found that commercial and single-family housing categories contributed equivalent percentages

**FIGURE 10** Firm's Active Engagement in Systems Integration or Data/Telecom Centers



**FIGURE 11** Roles Played by Firm in Integrated Systems

	Specify only	Install only	Specify and install	Don't work in this category
Security	1%	36%	15% <b>&lt;25%</b>	48%
Fire/life safety	2%	31%	25%	42%
Lighting (including controls)	2%	29%	59%	10%
Communications (VDV, etc.)	2%	31%	27%	40%
Building controls (including HVAC)	1%	41%	15%	43%
HVAC (not including controls)	2%	24%	5% <b>&lt;10%</b>	69%

The symbols > or < indicates difference from the 2022 result; only significant differences are shown.

**FIGURE 12** Average Percentage of Sales/Revenue From Specific Sectors

	Total		1–9 employees		10+ employees	
	2024	2022	2024	2022	2024	2022
New construction	<b>36.6%</b> >	31.8%	<b>30.3%</b> >	24.8%	43.3%	40.5%
Modernization/retrofit	27.7%	29.5%	27.0%	28.6%	28.3%	30.6%
Maintenance/service/repair	35.7%	<b>&lt;38.7%</b>	42.7%	<b>&lt;46.6%</b>	28.4%	28.9%
Repair	15.4%	<b>&lt;17.5%</b>	21.8%	24%	8.8%>	9.3%
Maintenance service contracts	9.1%	9.5%	6.7%	7.9%	11.7%	11.4%
Maintenance not done under contract	11.2%	11.8%	14.2%	14.6%	8.0%	8.2%

**Bolded numbers** are significantly higher than *italicized* percentages in the direction of the arrow.

of revenue in 2023 across companies of all sizes, at 29%. This isn't a big change from our 2022 survey, but it does continue a decrease in single-family housing's importance since 2018, when it averaged 38.4% of all revenue.

Other findings of note:

- Commercial work quickly becomes the most important revenue category as firms expand beyond 10 employees, rising to more than 30% for those with 10–19 workers, while single-family jobs fall to 20%.
- Industrial work jumps noticeably, to more than 20% of average revenue, as firms grow above 20 employees.
- For the largest firms, nonbuilding projects (including utility work) pulls even with industrial work in terms of revenue proportion.

### Bidding requirements

Questions about bidding requirements have now become standard for these surveys, as this is the third round where we've queried electrical contractors on the topic. Across the whole sample, 48% say a prequalified standards and safety program is a necessity. But, as has been the case previously, this need increases with company size. So, only 18% of firms with 1–4 employees face this requirement, but that jumps to 39% for those with 5–9 employees, 57% for those with 10–19 workers, and up to 82% for those with more than 100 employees.

Project owners also often raise man-hour targets for women, minorities or veterans as prerequisites for bidding, and across the board, 25% say they face this requirement. Again, it's a more common need for larger

firms, increasing from 6% among firms with 1–4 employees, up to 56% for those with more than 100 workers.

As we noted in our 2022 report, there's a disconnect between the percentage of companies that have encountered special-designation requirements and those that actually qualify under the requirements. The vast majority (82%) of companies don't claim or qualify for any of these designations. Two company-size groups—those with 5–9 employees (versus those with 1–4 employees) and 20–99 employees (compared to those with 100+)—are more likely than others to report they do qualify under one of these designations.

### Training priorities

Electrical contracting isn't a one-and-done profession when it comes to education and training, a fact our respondents know well. About 85% of them said they or someone in their firm had taken a training course in the past 12 months or had plans to take one in the next 12 months for certification or to improve or broaden skills. This training could be online, in classrooms or through correspondence.

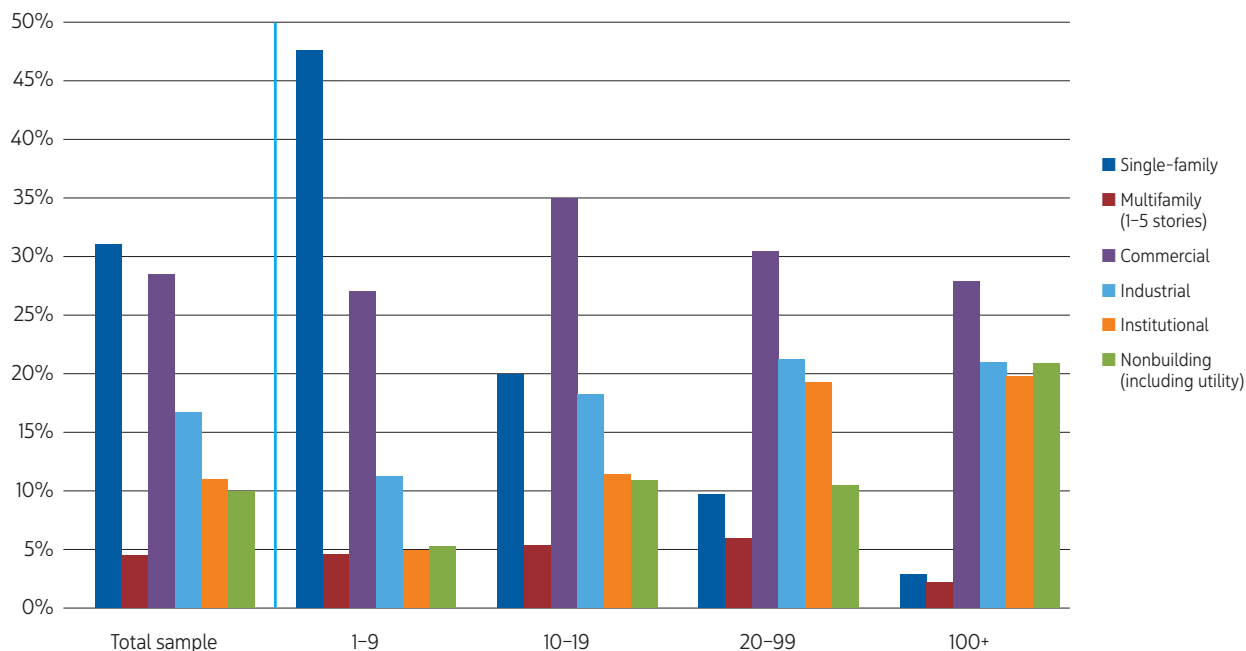
In the last survey, with the pandemic era's rise of video conferencing and online training, we started asking whether training might take a hybrid form, combining online and in-person classwork. As in 2022, about half reported they had already or would be taking hybrid training. And 72% said they think the hybrid approach will continue in the future. Both these figures are essentially unchanged from 2022's responses.

In our last survey, we noted a rise in respondents reporting they had attended college, which remained statistically unchanged this year at 60%. See **Figure 14**. However, respondents in firms with 10-plus employees are significantly more likely to hold a bachelor's degree or higher, at 31%, than those in smaller companies, at 23%.

As **Figure 15** illustrates, the most popular courses involve safety (electrical/personal/on-site/job site) at 64%, personnel/leadership at 51% and *National Electrical Code* use or changes at 50%. While interest in most of the individual course topics are statistically unchanged from the 2022 survey, there are some notable exceptions:



**FIGURE 13** Average Percentage of Business in Previous Year from Specific Categories



## Methodology

The survey was conducted exclusively online among subscribers to **ELECTRICAL CONTRACTOR** magazine. In addition, more than a hundred members of the **ELECTRICAL CONTRACTOR** Subscriber Research Panel also participated in the survey. The field period for the survey ran from Jan. 24 through March 31, 2024. A total of 828 participants completed the survey in that time.

As in 2022, the 2024 survey was only offered on the internet because of the dwindling participation in previous years through the mailed printed surveys. The online option was introduced in 2004.

We also attracted respondents through the weekly **ELECTRICAL CONTRACTOR** e-newsletter and with advertisements in the February and March print magazine that included a link to the survey using their subscriber number, which was then authenticated online.

As in 2020 and 2022, the proportion of the total respondents attributable to the print list was so low that weighting the data would distort the total statistics.

Each respondent who received the online survey was sent up to seven follow-up emails. For each completed survey, **ELECTRICAL CONTRACTOR** contributes \$5 to charity, up to a total of \$10,000. In addition, the magazine offered a sweepstakes drawing for a chance to win one of ten \$150 Amazon gift cards. Panel members were also entitled to be entered into the monthly Panel

sweepstakes for completing the Profile survey. Since 2004, we have produced different versions of the survey. For the 2008 through 2016 Profile studies, there were four versions that had 30 common questions, differing on fewer than 10 questions. Since 2018, there have been seven versions.

This research was conducted by New York-based Renaissance Research & Consulting Inc. ([www.renaiss.com](http://www.renaiss.com)), an independent market research firm that specializes in the construction industry.

## Statistics

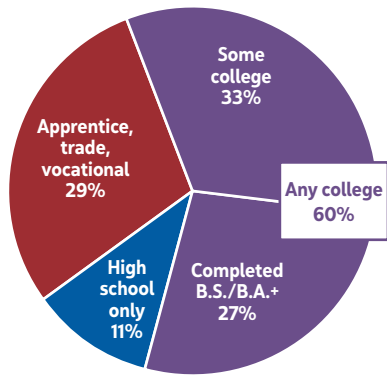
The margin of error on the total sample of 828 is +/-2.9% for percentages around 50%, (i.e., we are confident that a reported 50% will fall between 53% on the plus side and 47% on the minus side 90% of the time).

Please note that different rules apply to testing of averages, which were also tested at the 90% level of confidence and are noted in the report.

A significant difference in the total sample between 2024 with a sample size of 828 and 2022 with a sample size of 843 is at least 4% at the 90% confidence level.

Bold text and an arrow in the charts indicate significant difference and the direction of the difference. A (+) or (-) next to the title indicates a significant difference compared to its pair.

**FIGURE 14** Respondent Education Among Total Sample



- Significantly more electrical contractors are interested in business management topics than technical skills, notably, OSHA compliance (39%), estimating (35%), developing a new business (22%) and financial management (14%).
- Interest in courses related to prefabricated/off-site building also posted a statistically significant increase to 12%.

Also, there was a strong uptick—to 83%—in ECs saying they had taken or will take three or more training courses, and an impressive 59% mentioned six or more courses (though this figure is statistically unchanged from 2022).

### Putting it together

If our last survey showed an industry weathering the challenges presented by the COVID-19 pandemic, this edition sees electrical contractors growing their businesses in size and revenue. Companies are beginning to benefit from an increase in new construction opportunities. It will be interesting to see how these figures might continue to shift over the next two years, as the budding industrial construction boom really kicks into gear.

### Still to come

There's just too much information from our biennial survey to fit into one article, so next month's will cover firms' business operations, including collaborative versus more traditional bidding formats. We'll also look at the role ECs play in specifying and substituting the products they install. ⚡

**FIGURE 15** Courses Taken or Will Take

	2024	2022	2020	2018
Have taken training in past 12 months	85%	83%	79%	74%
Will take training in next 12 months	86%	85%	80%	77%
Courses taken or will take				
Mentioned any	100%	98%	96%	97%
NEC changes	50%	54%	50%	54%
Lighting (net)	46%	37%	40%	46%
Controls/systems	35%	24%	27%	33%
LED fixtures	30%	23%	NA	NA
Lighting design	17%	16%	17%	18%
Lamp technology, including LED	16%	17%	21%	33%
Drivers/ballasts	13%	13%	18%	23%
Safety (electrical/personal/on-site/job site)	64%	53%	53%	37%
Grounding/bonding	34%	44%	43%	32%
Automation/controls (net)	35%	35%	32%	32%
Fire/life safety systems	22%	15%	18%	20%
Building automation systems	12%	8%	15%	15%
Home automation systems	12%	8%	12%	9%
Security systems	10%	12%	14%	13%
Electrical testing and maintenance	25%	28%	28%	27%
Green/sustainable (net)	41%	32%	32%	23%
EV charging stations	29%	22%	18%	10%
Energy storage	15%	10%	13%	6%
Alternative energy systems	13%	11%	15%	11%
Energy use regulations	7%	5%	8%	6%
LEED certification	6%	4%	6%	6%
Green/sustainable building/energy audits	5%	7%	7%	7%
Community solar	NA	NA	NA	6%
Cabling (net)	18%	23%	14%	23%
Data and telecom (cable, conduit, etc.)	13%	16%	7%	15%
Data and telecom (testing)	10%	11%	5%	13%
Power	8%	13%	8%	14%
Estimating/financial management	37%	23%	26%	13%
Estimating	35%	22%	24%	NA
Financial management	14%	4%	9%	NA
Developing new business opportunities	22%	5%	12%	8%
Increasing productivity	19%	13%	11%	9%
Electrical system design or BIM	16%	11%	10%	9%
Design/build	14%	9%	12%	11%
How to use new software	14%	15%	12%	9%
Systems integration	13%	14%	9%	9%
Power quality	12%	14%	15%	14%
Prefab/off-site building	12%	5%	5%	3%
Sound and video/VDV (commercial or residential)	10%	10%	6%	NA
HVAC	7%	9%	6%	10%
Internet of things	3%	7%	7%	7%
Line work	3%	7%	3%	4%
Drones	3%	3%	2%	2%
Renovations/MACS/maintenance	1%	1%	5%	3%
Collaborative building (includes IPD)	1%	3%	4%	2%
New in 2020				
Personnel/leadership	51%	44%	24%	NA
OSHA code compliance	39%	26%	35%	NA
Code compliance (non OSHA)	35%	27%	37%	NA
Project management training	32%	24%	15%	NA
Foreman development	21%	17%	10%	NA
Executive leadership	16%	12%	7%	NA
Lean, Agile, Six Sigma	0%	1%	4%	NA
New in 2022				
Safety and Wellness	24%	23%	NA	NA
New in 2024				
Bidding/writing proposals for govt. work	10%	NA	NA	NA
Mentioned 1	6%	17%	19%	24%
Mentioned 2	11%	10%	8%	15%
Mentioned 3 or more	83%	71%	69%	58%
Mentioned 6 or more	59%	49%	42%	35%

Bolded percentages > and < indicate that the percentage is higher or lower at the 90% level of confidence.





# 2024 PROFILE of the Electrical Contractor

## PART 2

### IN PART 1 OF THE 2024 PROFILE OF THE ELECTRICAL CONTRACTOR,

we described how electrical contractors' businesses expanded over the last two years since 2022's findings, with more electrical workers at larger firms earning higher revenue. In Part 2, we look at some of the particulars of how electrical contractors do their work, including team structures, partnerships and product specification. Read on for the details.

#### Bidding efforts

In our biennial survey, we always ask you about your work over the previous year and how projects are bid. This is the third survey to include the categories of time and materials and maintenance, service and repair. Other choices in this year's survey included traditional bid-build, design-build (D-B) or design-assist (D-A), "on a collaborative basis" and the catchall "other."

Yet again, the two newest options of how projects are bid led the pack. As **Figure 1** shows, these remain statistically unchanged,

with time and materials at 76% and maintenance, service and repair (MSR) at 75%.

Almost all categories held steady compared to what ECs reported for 2021, except for "on a collaborative basis," which posted significant gains—as it did in our 2022 survey. Though from a low starting point, D-B, which showed a gain over results in 2022, remained statistically unchanged this year. In addition, the percentage performing any D-B or D-A work also remained unchanged at 62%. Though traditional bid-build shifted slightly upward, to 65% from 63% two

years ago, that change is not statistically significant.

As **Figure 2** shows, these broad figures don't accurately reflect the importance of each type of work to a firm's bottom line, and that factor—as we've seen in previous surveys—varies greatly by company size.

For example, while "time and materials" accounted for about 23% of projects across our entire sample, it accounted for more than 35% for companies with 1-4 employees. MSR showed a similar pattern, at 19.6% for the entire sample, versus 27.8% for the smallest firms.

For larger organizations, however, traditional bid-build, D-B or D-A approaches were most important. "On a collaborative basis" also has a small but significant impact at 5.5% with companies having more than 100 employees.

These findings underscore a shift we first noted in 2020, when we first included time and materials and MSR as categories for this question. In the 2018 survey, the last to not include these options, D-B and D-A were significantly higher for the smallest firms. Since they were added—thanks to the large number of write-in responses from participants—these two categories have taken the top two spots for companies with 1-4 and 1-9 employees.

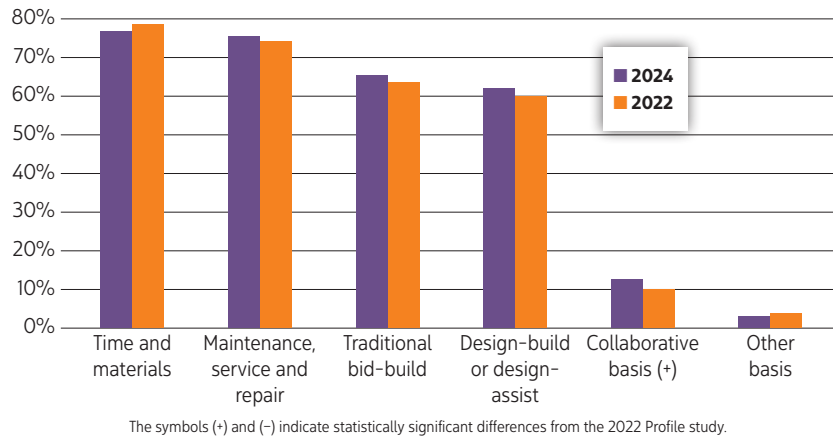
Building information modeling (BIM) has been a part of our survey since 2012. This year, as in the past, we asked ECs to estimate how much they or someone in their firm use the technology. Since 2020, the answer of "any" use has risen sharply, steadily and significantly, hitting 35.8% of all responses this year. Also, "average" use rose significantly between 2022 and this year's responses, jumping to 12.1% from 9.2%.

Unsurprisingly for a technology that requires capital investment and training, BIM usage increases with company size. The "any" use category is 16.7% for companies with 1-4 employees and climbs to 81% for firms with more than 100 employees. These differences in "any" use remained stable from 2022 to 2024, with none of the individual employee-size subgroups posting significant gains. In contrast, though, "average" use rose significantly among firms with 1-4 and 1-9 employees between the two surveys.

### Where purchases are made

As **Figure 3** shows, the average percentage of purchases made at electrical distributors

**FIGURE 1** Any Projects Bid This Way in the Previous Year

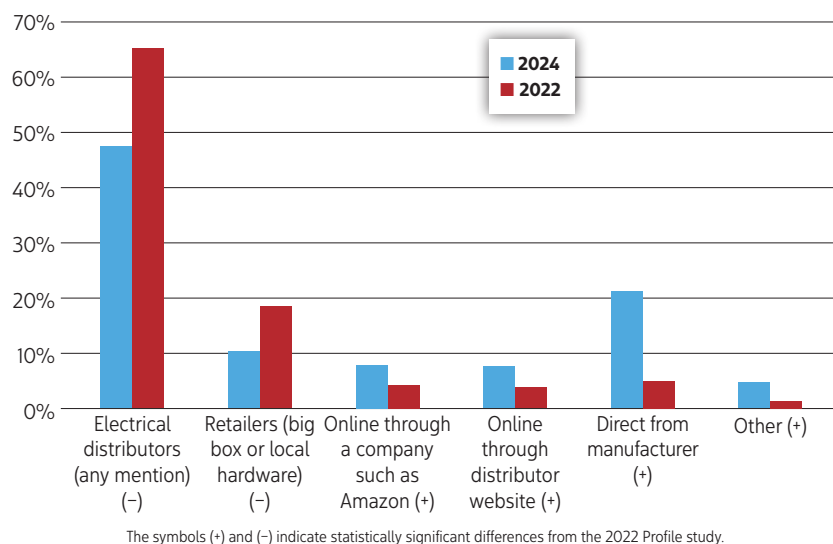


**FIGURE 2** Average Percentage of Projects Bid This Way in 2023

	Total	1-4	5-9	1-9	10+	10-19	20-99	100+
<b>Traditional bid-build</b>	28.3%	17.7%		20.7%	<b>&lt;36.2%</b>		<b>40.6%</b>	<b>33.8%</b>
<b>Design-build or design-assist</b>	25.0%	16.2%		18.4%	<b>&lt;31.6%</b>		<b>30.5%</b>	<b>35.6%</b>
<b>Time and materials</b>	23.4%	<b>35.5%</b>		<b>32.8%</b>	13.8%		11.4%	11.4%
<b>Maintenance, service and repair</b>	19.6%	<b>27.8%</b>		<b>25.5%</b>	13.5%		12.9%	11.6%
<b>Collaborative basis</b>	2.2%	1.4%		1.5%	<b>&lt;2.9%</b>	0.8%		<b>5.5%</b>

Empty cells are not significantly different from the total sample. **Bolded numbers** and *italicized numbers* indicate a significant difference from the total. An arrow > or < indicates a significant difference between a mutually exclusive pair.

**FIGURE 3** Average Spending for Purchases Made at Specific Sources in Previous Year



significantly dropped from 65% to 48%. The decline in spending at distributors was mostly among electrical contracting firms that are not members of the National Electrical Contractors Association (NECA). The average percentage of purchases declined

to 42% this year from 62% in 2022. Only 10% of these firms plan to increase their spending at distributors, which is a decrease from the 26% we saw two years go.

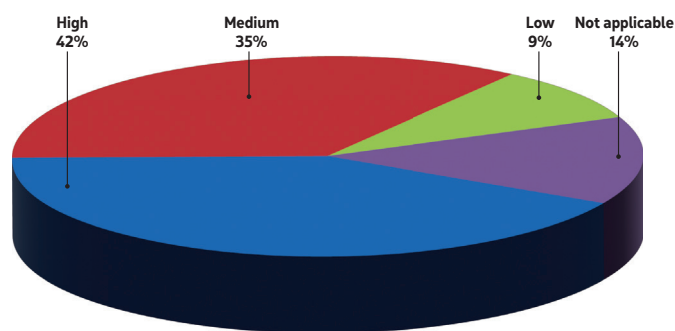
NECA member firms' spending stayed statistically unchanged, and 33% plan to



**FIGURE 4** Professional Relationship with Engineer(s)

	Total	2024 Profile Study		2024 Profile Study		2022 Profile Study	
		1-9	10+	1-9	1-9	10+	10+
<b>Any professional relationship</b>	59%	40%	<80%	40%	46%	80%	83%
<b>Consulting (not on staff)</b>	55%	37%	<75%	37%	43%	75%	75%
<b>On staff/separate division</b>	25%	10%	<42%	10%	16%	42%	27%
<b>Both</b>	21%	8%	<37%	8%	13%	37%	19%

**Bold** and *italicized* percentages are significantly different than the total. Arrows indicate significant differences between pairs.

**FIGURE 5** Ability to Influence Overall Design or Specifications with Building Owner and/or Design Team

increase it, up from 13% in 2022. Also, a broadened category encompassing big box and local hardware stores declined from 19% to 10% in 2024. This may have been because respondents differentiated between brick-and-mortar stores and those explicitly identified as online, all of which had significant increases.

The category “retailers” was called “big-box stores” in 2022, so the results are not strictly comparable as “retailers” now also includes local hardware stores.

Also, the percentage of money spent directly with manufacturers is up dramatically, from 5.5% in 2022 to 21.1% in 2024, which is statistically significant.

### Teaming up

In 2016, we began asking whether electrical contractors worked with engineers. If they did, we asked who they worked with: a staff engineer, one who is in another division or someone not on staff through a consulting relationship. The questions on these relationships are asked separately, in case firms use in-house and outside engineering services.

Across the total sample in the 2024 survey, 59% of firms have a professional

relationship with an engineer, statistically unchanged from 2022’s findings. As **Figure 4** shows, consulting relationships continue to be more prevalent, at a statistically unchanged 55%, and 25% report having an engineer on staff or in a separate engineering division, which is also similar to what we found two years ago. Just over 20% use both consulting and in-house engineers.

Larger firms are more likely to engage with engineers. Those with 10 or more employees are significantly more likely than smaller companies to work with engineers in any capacity. The relationship continues to grow with firm size, climbing up to 92% for those with more than 100 employees (not shown). This question was not directed to the entire pool of respondents, but based on this smaller sample, this conclusion can be viewed as suggestive of ECs’ relationships with engineers.

### Making choices

Electrical contractors continue to make solid contributions to their projects’ overall plans, with almost 8 in 10 reporting they have a “high” or “medium” ability to influence overall electrical designs or specifications with building owners or design team members.

As **Figure 5** illustrates, this includes 42% who chose the “high” description and 35% selecting “medium.” These figures are statistically unchanged from those seen in our 2022 survey, both among the total sample and in firms with 1-9 or more than 10 employees (not shown in table).

This level of influence is especially important given the challenges ECs can face with incomplete and incorrect plans and specifications. The jump in frequency we noted in our 2022 survey, which we posited might have related to issues raised by the pandemic, has continued, with percentages remaining statistically unchanged.

Looking at work completed during 2023:

- Across the total sample, 79% said they had received some incomplete plans and specifications. On average, 38% of plans and specifications received were incomplete.
- 83% said they had received some incorrect plans and specifications, with 35% of those received being incorrect.

In both cases, these numbers can shift when looking at projects involving different building types, as shown in **Figure 6**, which looks at the issue of incomplete plans and specifications. There’s a 10% difference between the prevalence of any incomplete plans or specifications in commercial, industrial and institutional construction (54%) compared to single-family projects (44%), with multifamily construction falling right in the middle (49%).

When looking at how big a share of plans and specifications are incomplete, it’s 24% noted for single-family buildings and 11% found for multifamily.

In terms of shifts from 2022’s report, significantly fewer contractors reported receiving any incomplete plans and specifications for commercial and single-family housing work, according to respondents working in those categories. However, there were no statistically significant differences in institutional, industrial and multifamily plans and specifications. About 8 in 10 firms say they receive incomplete or incorrect plans and specs, which also affords the electrical contractor the opportunity to influence the project and its specifications.

### What specs look like

Whether they’re incomplete or not, specifications typically fall into one of several

categories, and we asked respondents to tell us what percentage of each they typically receive. The categories include single brand or proprietary, multiple brands, “or equal to” and performance-specified.

On average, participants told us single or proprietary brand, multiple brands and “or equal to” each received about 30%, while performance-specified accounted for 12% of received specifications. In a couple of cases, however, the figures varied by company size:

- Smaller firms (1–9 employees) more often specify a single or proprietary brand (37%) compared to 19% for larger companies.
- Larger companies said multiple brands more often (36%), versus 27% for those with 1–9 employees.

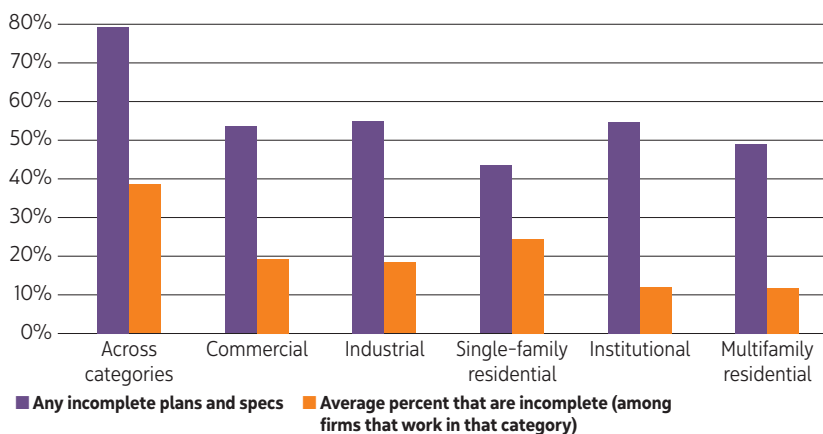
Respondents told us they continue to have a good amount of discretion in deciding what brands are selected. Overall, they said they can specify brands 65% of the time. There was some variation based on firm size, with that number rising to 69% in the case of firms with 1–9 employees and falling to 61% for larger companies. These figures are similar to what we found in 2022.

**Figure 7** illustrates how electrical contractors chose products. Regardless of whether they’re making the original brand selection or need a substitute product, availability and price are respondents’ No. 1 and 2 reasons, as they were in 2022. (Availability has been No. 1 in terms of original selection since 2014 and brand substitution since 2016.) Compatibility with existing systems takes third place for original selection and substitution as in 2022.

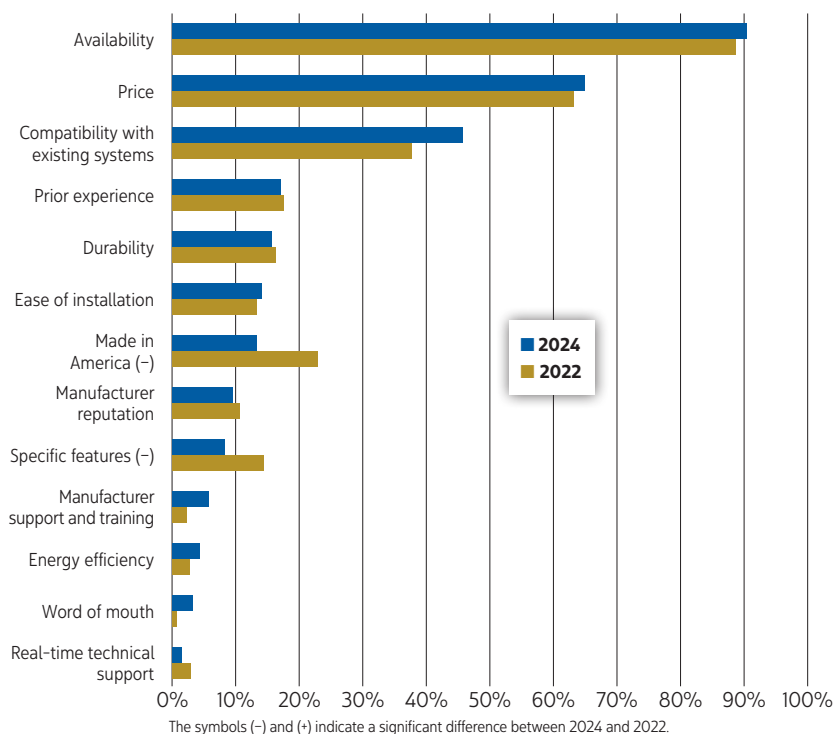
Looking just at original brand selection, results generally mirror those from 2022. However, two options down the list shifted. Energy efficiency more than tripled to a still-modest 7%, perhaps indicating a growing interest in meeting larger building performance targets. And Made in America dropped by almost three-quarters, down to 5% from 18% in 2022. This might have been a more critical characteristic for those looking at their work in 2021, given the supply chain issues that arose during the pandemic.

Looking at brand substitution, compatibility with existing systems finished third, at 46% of respondents’ top three list. This might be a knock-on effect of the growing smart-building market, which has increased the need for various building systems to communicate with each other. This option rose noticeably among com-

**FIGURE 6** How Often Firms Receive Incomplete Plans and Specs



**FIGURE 7** Top Three Reasons for Brand Substitution—Trended



panies of 1–9 employees, the firms most likely to be working with single-family homes. The need for consumers in Apple and Android camps to ensure devices will work as expected also could be playing a role. Additionally, Made in America dropped in this category, to 13% from 23%.

### Back on track

Our surveys track specific points in time. Here, we’ve checked in with ECs as pandemic-era supply chain stress has moved into the rear-view mirror and inflation is slowly cooling, though interest rates remain high. With this survey coverage wrapped up,

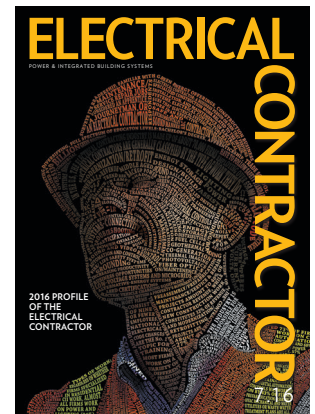
we’ll be watching to see if these positive trends continue over the next two years. Will interest rates start coming down again, which could spur construction, especially in the struggling residential sector? And what impact might this year’s presidential election have on future growth? We’ll be back in a couple years with the 2026 Profile of the Electrical Contractor to let you know the answers we’ve found.

**ROSS** has covered building and energy technologies and electric-utility business issues for more than 25 years. Contact him at [chuck@chuck-ross.com](mailto:chuck@chuck-ross.com).



# ABOUT THE PROFILE

Every two years, **ELECTRICAL CONTRACTOR** magazine conducts a benchmark research study—the Profile of the Electrical Contractor—that takes the temperature of the electrical construction industry. The Profile offers insight to help you better understand just how pervasive the changes in the EC's role in design/specification are to you, whether you're an electrical contractor exploring new business avenues or an advertiser looking to learn more about our market. Check out recent studies at [www.ecmag.com/profile](http://www.ecmag.com/profile) and [www.ecmag.com/market-research](http://www.ecmag.com/market-research).



## For advertising questions and information

### PUBLISHER

**Andrea Klee**

**PHONE:** 202.991.5264

**EMAIL:** [andrea.klee@necanet.org](mailto:andrea.klee@necanet.org)

**PUBLISHER** Andrea Klee

[andrea.klee@necanet.org](mailto:andrea.klee@necanet.org)

**MANAGING EDITOR** Julie H. Mazur

[julie.mazur@necanet.org](mailto:julie.mazur@necanet.org)

**SENIOR EDITOR** Colleen Beaty

[colleen.beaty@necanet.org](mailto:colleen.beaty@necanet.org)

**SENIOR ASSOCIATE EDITOR** Holly Sauer

[holly.sauer@necanet.org](mailto:holly.sauer@necanet.org)

**EDITORIAL ASSISTANT** Caroline Coppersmith

[caroline.coppersmith@necanet.org](mailto:caroline.coppersmith@necanet.org)

**EDITORIAL ASSISTANT** Tabitha Brower

[tabitha.brower@necanet.org](mailto:tabitha.brower@necanet.org)



# ELECTRICAL CONTRACTOR

### BUSINESS OPERATIONS & AUDIENCE MANAGER

Astra Hudson

[astra.hudson@necanet.org](mailto:astra.hudson@necanet.org)

### CREATIVE SERVICES

**ART DIRECTION** Paul Philpott/BonoTom Studio Inc.

[ec@bonotom.com](mailto:ec@bonotom.com) [www.bonotom.com](http://www.bonotom.com)