2020 Profile of the Electrical Contractor

Topline report prepared by Renaissance Research & Consulting Inc. for **ELECTRICAL CONTRACTOR** magazine

2020 ELECTRICAL CONTRACTOR PROFILE STUDY
TOPLINE REPORT

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Contents

BACKGROUND and PURPOSE

For over fifty years, ELECTRICAL CONTRACTOR magazine has sponsored its exclusive "Profile of the Electrical Contractor." This survey is conducted biannually among its subscribers and aims to provide the most complete "picture" of the contracting industry available from the electrical contractor's point of view. The survey provides electrical contractors with an indication of where their business "fits" into the overall industry, while at the same time providing information that is used to guide and refine the magazine's editorial content.

METHODOLOGY

The survey was conducted by internet and postal mail among a random sample of ELECTRICAL CONTRACTOR subscribers. In addition, in 2020 as in 2018, about 100 members of the ELECTRICAL CONTRACTOR Subscriber Research Panel also participated in the survey. The field period for the survey began on February 21, 2020 and ran through April 13, 2020, which was the deadline for the July 2020 article. A total of 1635 completed the survey during that time period.

In 2020, we offered those in the mail sample a choice of either participating in the survey online, though a link, or to continue to receive a paper survey by postal mail. A total of 144 completed the survey by mail and another 53 completed the survey online.

The data were not weighted for two reasons – since the proportion of the total attributable to the print list was so low, weighting would distort the total statistics. The other reason was that comparing the unweighted 2020 results with the 2018 weighted results showed very little difference among the total sample.

Each respondent who received the survey through the internet was sent up to four follow-up emails. However, follow-up mailings were not made to nonresponders in the postal mail sample. An incentive was offered for participation in the survey: For each completed survey, ELECTRICAL CONTRACTOR would contribute $5 to charity, up to a total of $10,000. In addition, as was the case in 2018, the magazine also offered a sweepstakes drawing for one of five $150 Amazon e-gift cards.

The internet option was first introduced in 2004.

As was the case since 2004, the survey was produced in different versions. Starting with the 2008 Profile study, there were four versions of the survey, which differed from each other on fewer than 10 questions. The first 3 pages were common to all versions while the differences among the versions occurred on the last page. The major difference was that in the Internet portion respondents were *required* in almost all cases to have percentage questions add to 100%.

This research was conducted by New York, NY-based Renaissance Research & Consulting, Inc. (www.renaiss.com), an independent marketing research firm that has, as one of its specialties, market research for the construction industry.

METHODOLOGY, continued

In 2014, order to accommodate a longer list of questions while at the same time lessening the burden on the respondent, the survey was shortened from 5 print pages to 4. In order to accommodate all of the questions, the survey was produced in 8 versions (up from 4). This required a much larger sample size so that each of the questions would be asked of a large enough sample to allow for analysis – particularly by subgroups. In 2016, there were 7 versions; the two versions that deal with training (past 12 months and next 12 months) were combined. In 2018 and in 2020, there were also 7 versions.

In the 2018 Profile Study, for the first time, we also identified Subscriber Panel members who participated in the study as part of our random email survey invitation and also separately solicited Panel members to participate in the Profile survey by mailing them a separate survey link. In total, 95 Panel members participated in the 2020 Profile Study

Statistics

The margin of error on the total sample of 1635 is +/– 2% for percentages around 50% (i.e., we are confident that a reported 50% will fall between 52% on the plus side and 48% 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 2020 with a sample size of 1635 and 2018, where the sample size was 1597 is at least 1.5% at the 90% confidence level.

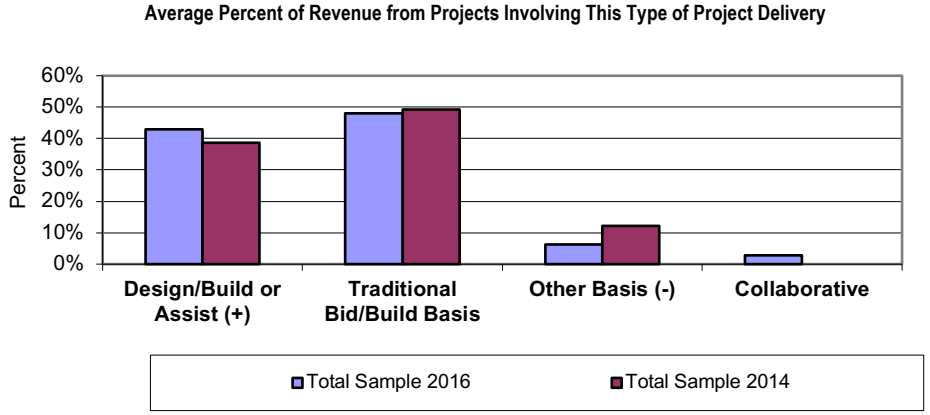
The report uses a few different graphics to indicate significant differences:

- In this example, the electrical contractors working in firms with 1- 4 (column ‘a’) or 1-9 employees (column ‘b’) are significantly older than those who work in firms with 10+ employees.

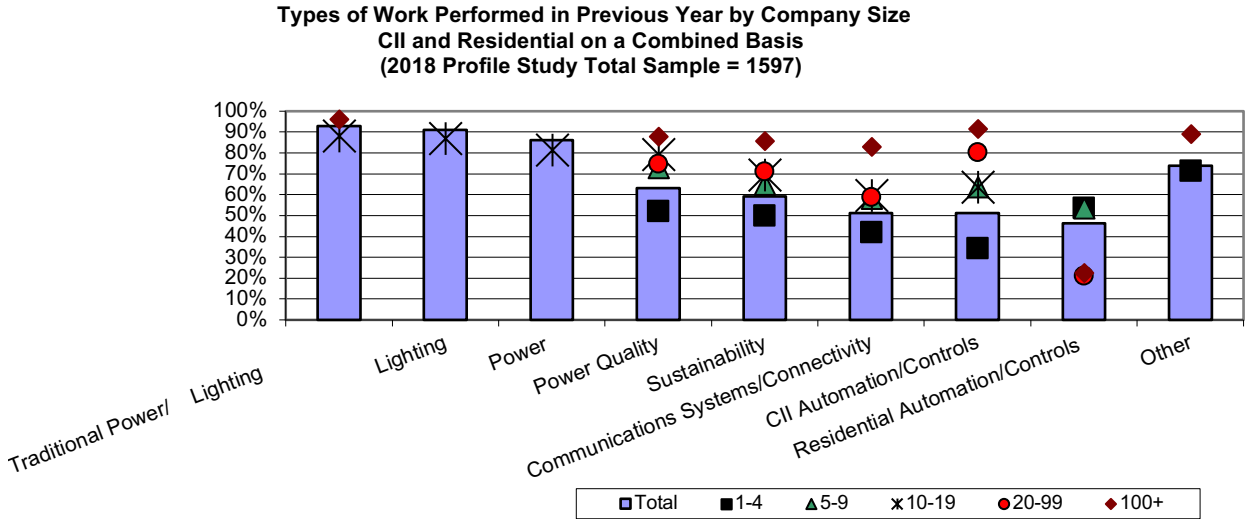
Average Age of Electrical Contractor in 2016 and Earlier				
		Firm Size		
	Total	1-4	1-9	10+
		(a)	(b)	(c)
Average Age (2016 Study) N=2419	57.3	**58.7>c**	**58.5>**	54.1
Average Age (2014 Study) N=2722	56.2	57.4	**57.1>**	53.3
Average Age (2012 Study) N=1024	56.1	57.5	**57.2>**	52.6
Average Age (2010 Study) N=1077	53	53.8	**53.8>**	50.4
Average Age (2008 Study) N=1157	51.2	**52. 6** >c	**52. 1**>c	49.2

The bolding and the arrow indicate significant difference and the direction of the difference.

Finally, on a column or bar chart, a (+) or (-) next to the title indicates a significant difference compared to its pair. In this example from the current study, the average revenue from Design/Build or Assist rose significantly vs. two years earlier.



How to read scatter plots: Subgroups that are shown above the blue bar are significantly larger than average while those within the bar are smaller than average. Subgroups that are average are not shown.



KEY FINDINGS

2019 will be remembered as a very good and productive year. The survey findings show that electrical contractors built on and added to the positive trajectory identified in the 2018 Profile Study report.

- Electrical contracting firms got larger: A substantial majority of the electrical contracting interviewed continue to be small in terms of both their number of employees and their revenue: 66% have between 1 and 9 employees and 62% have annual revenues of less than $1 million.

    - However, compared to 2018, a significantly higher percentage of the total is made up of larger firms (34% of firms now have 10+ employees vs. 29% in 2018) and 31% of firms now have annual revenue of more than $1 million compared with 27% two years ago)

- Across the total sample, about twice as many electrical contracting firms added employees (24%) as lost employees (11%), while a comfortable majority stayed the same in employee count (64%).

- This is the first time since at least 2006 that the average age of the electrical contractors participating in this survey did **not** get older. This is the case among the total sample and also among those in firms with 1-4 employees or with 1-9 employees. Although the average age did rise significantly among those in firms with 10+ employees, they are still younger on average than the respondents in firms with 1-9 employees.

- 53% said that they are extremely or very confident in the growth of the economy over the next few years. An additional 36% say that they are somewhat confident in the economy's near-term growth. Compared with the 2018 results, a higher percentage said that they were extremely confident (25% vs. 16%) while fewer said that they were very confident (to 28% from 36%) but the total of the two was a consistent 52% to 53% strongly positive outlook.
    - Interestingly, this confidence was not shaken by the early days of the Coronavirus pandemic. We looked at the portion of the sample that completed the survey March 13 to early April, which is when states began their coronavirus shutdowns and there was no statistically significant difference in the level of positive outlook.
        - We hypothesize that the lack of a strong difference between 2020 and 2018 as well as the responses once the pandemic had started reflect the good years leading up to when the question was asked as well as the long-term time frame of the question.
- During the survey period, 65% of firms said that they had difficulty finding trained workers and 29% said that they had trouble retaining trained workers.

The 2020 Profile Study brought more evidence that electrical contractors are continuing to move away from standard power and wiring to high(er) tech and more value-added areas such as Lighting and Industrial systems/controls.

- In 2020, with one exception – an increase in the average percentage from Industrial systems/controls compared with 2018 – there are no significant differences among the total sample in average revenue from the electrical projects included in this study. **This indicates that the dramatic decline in the percentage of average revenue from Electric Power Transmission and Distribution observed two years ago (from 43% in 2016 to 25% in 2018) was *not* an anomaly.**
    - Rather, the two top sources of revenue continue to be Lighting (26.8% average revenue) and Electric Power Transmission and Distribution (24.8% average revenue). The next highest average revenue source is Industrial Systems/Controls (9.7%, up significantly from 6.8% in 2018).

- Higher percentages of electrical contracting firms reported working on 19 of the up to 43 project types measured in this study, including but not limited to LEED and non-LEED energy efficiency projects, Electric vehicle charging equipment, Energy audits, Energy storage systems, LED lighting, Lighting controls, Daylighting/shading systems, Wire and cable, Industrial controls, Security, Home and building automation, and Programming and commissioning The remaining 24 project types were unchanged from what was reported two years ago.

    - Depending on the type of project and whether the project is in CII or Residential construction, we continue to see evidence that firms as small as 5-9 but also those with 10-19 and 20-99 employees work in numerous areas that were once the province of firms with 100+ employees.

        - Even firms as small as 1-4 work on a wide variety of project types –within Residential construction -- which tend to be province of smaller firms. (In fact, 43% work on *at least* 10 of the approximately 40 project types measured in this research)

- Use of BIM (Building Information Modeling) was up for the first time since 2012 when this question was first asked. Across the total sample, 27% of firms say that they use BIM, (up from 22% two years earlier). On average, BIM is now used on 8.2% of projects, up from 6.5 % of projects two years earlier. Further, almost 8 in 10 of the very largest firms, those with 100+ employees, make use of BIM on an average of 32% of projects.

- Given this list of high-tech project types and approaches (such as BIM), it should not be surprising that 53% of electrical contracting firms have a professional relationship with an engineer. Although these relationships are more prevalent among larger firms – it is 85% among firms with 10+ employees vs. 36% of firms with 1-9 employees, even 30% of firms with 1-4 employees report working with engineers.

- Although a consistent ~80% of electrical contractors say that they have or will take courses to improve or broaden skills or for certification, interest in a number of specific course topics increased compared to two years ago, including Safety, Grounding/Bonding, Green/Sustainable Energy and Estimating/Financial Management. Interest in three new topics was also substantial: Code Compliance (OSHA as well as non-OSHA) and in Personnel/Leadership.

But the story is not all high tech. In the 2020 Profile Study, when asked how jobs are bid, electrical contractors were given an expanded list of choices that included Time and Materials as well as Maintenance, Service and Repair in addition to Traditional Build/Build, Design/Build or Assist, on a Collaborative Basis or Other. The two new areas -- Time and Materials and Maintenance, Service, Repair -- were added because they received a high number of volunteered mentions in the 2018 Profile Study.

- In fact, the two new choices proved to be the most widely selected: 79% bid some portion of their jobs based on Time and Materials, 74% based on Maintenance, Service and Repair, 64% on a Traditional Bid/Build basis, 58% Design/Build or Assist and 7% on a Collaborative basis.

    - Average revenue (which adds to 100%) is in line with this: 28% of electrical contractors' revenue was each done on a Time and Materials basis or on a Traditional Bid/Build basis. On average, 22% was done on a Design/Build or Design/Assist basis and 19% was from Maintenance, Service or Repair. Less than 5% of average revenue was from Collaborative projects or on some "Other" basis. Note that Time and Materials and Maintenance, Service and Repair account for more revenue for firms with 1-9 employees than to firms with 10+ employees.

It appears that electrical contracting firms have identified M/S/R and Low-voltage as two promising areas. 40% of firms now have a separate Service and Maintenance division (first asked in 2020, so it can't be trended) and 22% have a separate Low-voltage unit (up dramatically and significantly from 11% two years ago). The latter should not be surprising as 96% of electrical contracting firms do some form of low-voltage work.

- Interestingly, larger firms (10+ employees) are even more likely than smaller firms to have a separate Service and Maintenance and/or a separate Low-voltage division.

- Nor should the emphasis on M/S/R be surprising. 70% of firms perform this type of work (unchanged from two years ago) and in fact, average revenue from M/S/R at 39% accounts for more average revenue than does New Construction, 33%, or from Modernization/Retrofit at 28%.

Electrical contractors continue to have wide discretion to influence brand choice.

- As has been the case in recent Profile Studies, about three-quarters of electrical contractors report having a “high” or “medium” ability to influence the overall electrical design or specifications with building owners and/or design team members
    - About 4 in 10 describe their level of influence as "high" -- 42%, while 30% characterize their level of influence as "medium."
        - Compared to two years ago, firms with 10+ employees are significantly more likely to report a “high” level of influence (43% in 2020 vs. 27% in 2018) and significantly less likely to report a “medium” level of influence (30% in 2020 vs. 50% in 2018.)
- About 70% of electrical contracting firms say that they receive incomplete plans and specs and about 70% report receiving incorrect plans and specs, both of which afford the electrical contractor the opportunity to influence the project and its specifications.
- In fact, from a separate set of questions, respondents were asked how much discretion they have in original brand selection of in making a brand substitution. Overall, contractors are able to make brand selections about 70% of the time; 74% in the case of firms with 1-9 employees and 61% in the case of firms with 10+ employees.
- Availability and price continue to top the list of reasons for original brand selection and/or substitution.

- **On the other hand, social media are not particularly used or trusted in the context of electrical products, materials or supplies.**

    - In a nutshell, trade magazines (print and online) continue to be used by more electrical contractors than any of the other listed media sources to learn about new products and new technology particularly when compared to social media.

    - Users tend to rate the sources that they use very highly on trustworthiness. The main exception is social media, which scores 13 to 28 percentage points lower than the other sources.

    - To the extent that they are utilized, social media are used more to publicize the electrical contractor than to take in information. The main exception is in the case of YouTube, which is used essentially to view "How To" videos.

    - Further, between one-half and two third of the participating electrical contractors say that they do not see advertising for electrical products, materials or supplies in social media. Of those that do see these ads, their level of positive influence never exceeds 15%, even in the case of YouTube, where there is an established work-related relevance because of "How to"/Instructional videos.

    - Brand "Influencers" are not particularly influential in ads for electrical products, materials or supplies and even less so in the context of social media advertising.

In the current Profile Study, for the first time, we asked a number of questions about administration. We learned that:

- There is a very consistent approximately 80%/20% split between the average percentage of the workforce that is considered onsite electrical workers vs. the average considered primarily business/office workers. This question was asked of the 1036 firms that have more than 3 employees and was first asked as part of the 2020 Profile study and cannot be trended.

- Safety is a key factor in the bid process: Across the total sample, slightly fewer than one half of firms (44%) say that they are required to have a prequalified standards and safety program in place in order to bid on a project. (70% in the case of firms with 10+ employees vs. 30% of firms with 1-9 employees).

    - Nevertheless, almost 6 in 10 firms (59%) say that they already have a certified safety program or that they plan to institute one in 2020; having a certified safety plan increases steadily with company size (from 37% among firms with 1-4 employees and up to 96% among firms with 100+ employees.)

- More than one-half of firms have worked on government projects since 2018 (57%); 54% said that they expect to work on government projects in 2020.

    - Regardless of the time frame of the work, more of the participation is closer to home, that is, work for local entities > state > federal projects.

    - Once again, larger firms are far more likely to perform government work (~80% among firms with 10+ employees vs. about 40% to 45% among firms with 1-9 employees.)

- About 7 in 10 electrical contracting firms offer benefits (57% among firms with 1-9 employees and 98% among firms with 10+ employees). Paid vacation (52%) and health insurance (44%) top the list.

    - Regardless of the number of employees, the vast majority of firms that offer benefits offer more than a single benefit. Smaller firms are most likely to offer 2-5 benefits, while larger firms are equally split between offering 2-5 of the listed benefits (49%) or 6-10 of the listed benefits (44%).

Electrical contractors continue to work on a very wide variety of project types. When asked about the types of work performed in the previous year (regardless of whether in Residential or CII), almost all firms do Low Voltage work (96%) and/or Traditional Power/Lighting (as a combined category), specifically:

- 95% work on Traditional Power/Lighting as a combined category
- 92% perform Lighting
- 90% perform Traditional Power
- 74% work in a Category that we call "Other", the largest component of which is Maintenance Service and Repair at 70%, but that also contains Prefab/Pre-assembly, HVAC Mechanical, and Water Utilities/Waste Water Treatment Plants.
- About two-thirds work on Power Quality and/or Sustainability
- 57% work on CII Automation Controls
- 52% Communications Systems/Connectivity
- 48% work on Residential Automation/Controls

Across the total sample, electrical contractors continue to get more of their average revenue from CII (Commercial, Industrial, Institutional and Public Places), 51% on average, than from Residential projects, 42% on average. Non-Building projects (Transportation/Lighting and Utility) account for about 7% of the contractors' business.

- Compared with two years earlier, among the total sample, the average percentage of revenue declined from Residential (from 44.4% to 41.8%).

    In the 2020 Profile Study, compared with the 2018 Profile Study, the percentage of average revenue from Single Family housing dropped significantly while the percentage of average revenue from another type of residential building -- Multifamily housing (6+ stories) rose significantly. Average revenue from Institutional building rose as did the following project non-building types – each small: a significantly higher percentage of average revenue now comes from Distributed Generation/Alternative Energy and/or from Electric Vehicle Charging Equipment than was the case in the 2018 Profile Study.

DETAILED FINDINGS

▲*"WHO" ARE THE ELECTRICAL CONTRACTORS?*

Size of Firms

A substantial majority of the electrical contracting interviewed continue to be small in terms of both their number of employees and their revenue: 66% have between 1 and 9 employees and 62% have annual revenues of less than $1 million,

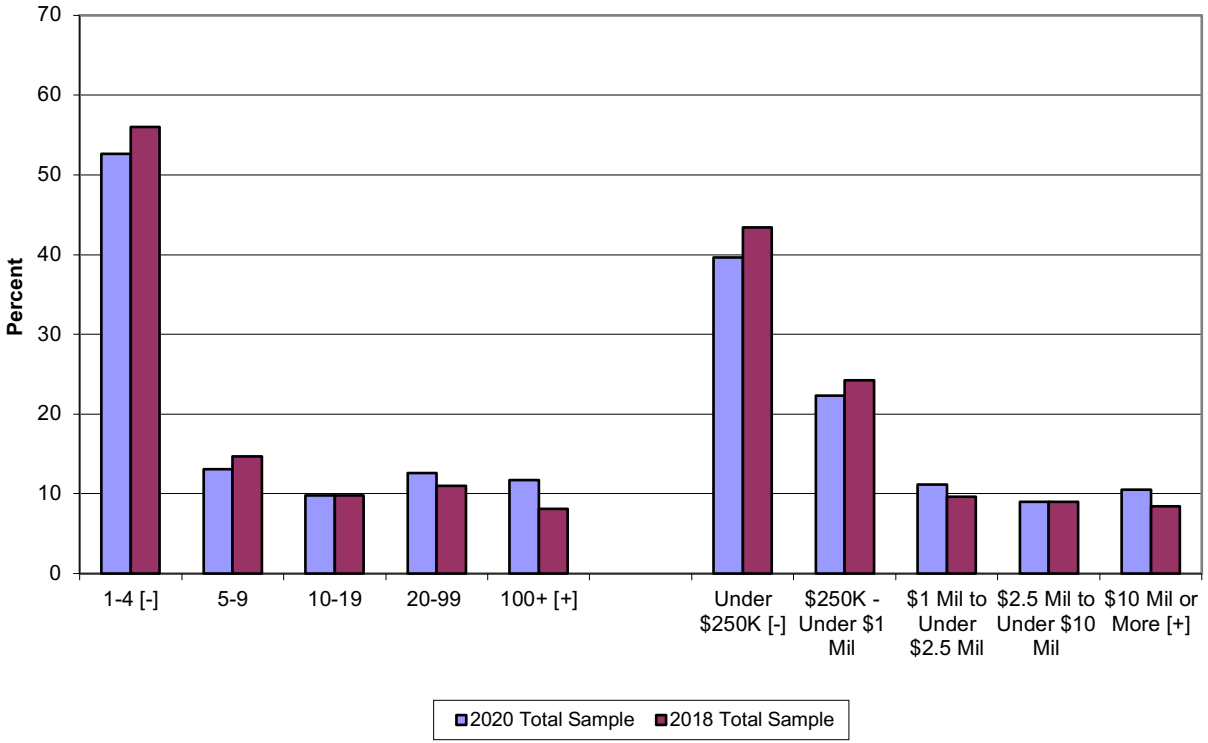
- However, compared to 2018, a significantly higher percentage of the total is made up of larger firms (34% of firms now have 10+ employees vs. 29% in 2018) and 31% of firms now have annual revenue of more than $1 million compared with 27% two years ago).

A decline in the percentage of smaller firms also took place between 2014 and 2016, but then stabilized as of the 2018 Profile Study.

As shown on the next page, the differences are at the extremes: there is a significant *decline* in firms with 1-4 employees and/or with revenue of under $250K and a significant *increase* in the percentage of firms with 100+ employees and/or with $10 million + in annual revenue.

The combined categories of 1-9 and Under $1 million are not shown

Company Size Trended 2020 Profile vs. 2018 Profile
(Reporting n Previous Year)

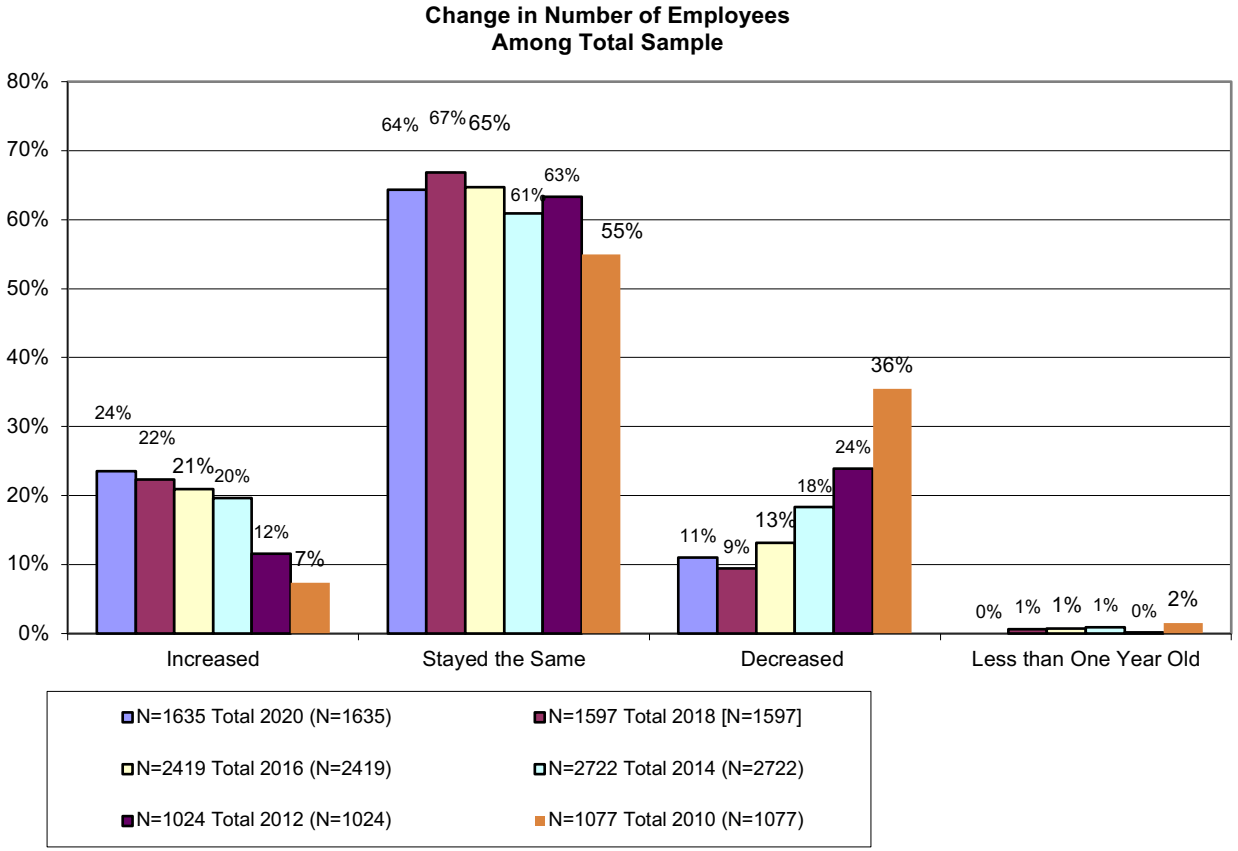


(-) and (+) indicate a significant difference from two years earlier at the 90% level of confidence

Change in Company Size During Past 12 - 18 Months

In the 2020 Profile Study, when questioned directly about changes in company size, the percent that said that their firm "increased" is more than twice as high as the percent that "decreased" (24% vs. 11%), while about two-thirds said that their firm size had stayed the same over the past 12 - 18 months.

- These results are statistically unchanged compared with two years ago.
    - Note the sharp, steady and continuing decline of firms that lost employees (decreased) between 2010 and 2020.



Change in Company Size During Past 12 - 18 Months, continued

The only change compared with two years earlier is that firms with 10+ employees were slightly but significantly more likely to have decreased in size to 13% from 10%. Nevertheless, the results shown below show strength rather than weakness, especially compared with 2010, but also with 2018.

- Among the total sample, a substantial majority of firms stayed the same, while about twice as many firms increased in size compared to those that lost employees.

- Among firms with 1-9 employees, the vast majority firms stayed the same with the remaining 20% being equally split between increasing and decreasing,

- Although firms with 10+ employees did experience an increase in the percentage of firms that lost employees, about of-half of these firms said that they experienced growth and almost 40% said that they stayed the same.

Change in Company Size During Past 12 - 18 Months						
	Total					
	2020	2018	2016	2014	2012	2010
	(1635)	(1597)	(2419)	(2722)	(1024)	(1077)
Increased	24%=	22%	21%	**20%>**	**12%>**	7%
Stayed the Same	64% =	67%	65%>	61%=	**63%>**	55%
Decreased	11%=	9%	<13%	**<18%**	**<24%**	**<36%**

Change in Company Size During Past 12 - 18 Months													
	1-9 Employees							10+ Employees					
	2020	2018	2016	2014	2012	2010		2020	2018	2016	2014	2012	2010
	(1075)	(1122)	(1744)	(2039)	(759)	(780)		(558)	(469)	(665)	(668)	(258)	(285)
Increased	10%	10%	11%	**12%>**	6%=	5%		49%=	**53%>**	**47%>**	**42%>**	**27%>**	15%
Stayed the Same	78%	**80%>**	**75%>**	70%=	**72%>**	67%		38%=	36% =	38%	35%=	**37%>**	23%
Decreased	10%	9%	<12%	**<17%**	**<20%**	**<26%**		**13%>**	10%	<15%	**<23%**	**<35%**	**<61%**

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

Confidence in Growth of the Economy Over the Next Few Years

More than one-half (53%) of electrical contractors that were asked this question say that they are "extremely" or "very" confident in the growth of the economy over the next few years. An additional 36% said that they were "somewhat' confident" for a total of almost 90% who have a positive outlook.

- Electrical contractors in firms in the South, those with 50 + employees and/or those that added employees over the past 18 months are more likely to say that they are "extremely or very" confident in near-term economic growth.

- In contrast, firms in the North Central states and or those that stated the same in terms of number of employees or that decreased in size are less likely to say that they are "extremely or very" confident in near-term economic growth.

	Confidence in Growth of the Economy Over the Next Few Years						
	Total V5 2020	50+ Employees	North Central	South	Increased	Same	Decreased
Version 5	(320)	(54)	(87)	(101)	(87)	(194)	(35)
	%	%	%	%	%		
Extremely/Very	53	**63**		**64**	**63>**	*50*	*40*
Extremely	25			**33**	**33>**	23	*17*
Very	28		*19*				
Somewhat	36	*24*		*29*			
Not Very/Not At All	9		**16**				
Not Very	8		**13**				
Not at All	1						
Not Sure/No Answer	2						

Empty cells are not significantly different than the total sample
Bolded numbers > and < indicate statistically significant differences in the direction of the arrow

Confidence in Near-Term Growth of the Economy, continued

Very little has changed over time. We compared the Version 5 totals from 2020 to 2018 and also within 2020 by the two time periods of pre- and post- March 13 since this was when many states began their Coronavirus shutdowns. As shown below, comparing 2020 to 2018 in total shows that while more electrical contractors in 2020 said that they were "Extremely" confident and fewer said that they were "Very" confident there was no difference on an overall/combined basis of "Extremely" or "Very confident."

Nor were there any significant differences by when the respondent completed the survey in relation to the Coronavirus pandemic.

We hypothesize that the lack of a strong difference between 2020 and 2018 as well as the responses once the pandemic had started reflect the good years leading up to when the question was asked as well as the long-term time frame of the question.

Confidence in Growth of the Economy Over the Next Few Years					
				When the Profile Survey was Completed	
	Total V5 2020	Total V5 2018		February 24 through March 12	March 13 through April 7
Version 5	(320)	(241)		(160)	(143)
	%	%		%	%
Extremely/Very	53	52		57	50
Extremely	**25>**	16		27	24
Very	28	**<36**		30	26
Somewhat	36	36		32	39
Not Very/Not At All	9	10		9	9
Not Very	8	7		7	8
Not at All	1	3		2	1
Not Sure/No Answer	2	2		2	2

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

Annual Revenue

- 62% of firms have annual revenues of less than $1 million; 31% of firms have annual revenue of $1 million or more; 7% did not answer this question.

Number of Employees By Firm Revenue 2020 Profile Study								
	Total	(1-4)	(5-9)	1-9	10+	10-19	20-99	100+
	(1635)	(860)	(215)	(1075)	(558)	(160)	(206)	(192)
	%	%	%	%	%	%	%	%
Less than $ 1 Million	**62**	**92**	**70**	**88**	**12**	**25**	**10**	**3**
Less than $250K	40	71	11	59	2	4	2	0
Between $250K and <$1 Million	22	22	59	29	10	21	7	3
$ 1 Million or More	**31**	**1**	**24**	**6**	**79**	**68**	**84**	**82**
Between $1 Million and <$2.5 Million	11	1	22	5	22	49	19	4
Between $2.5 Million and <$10 Million	9	0	2	1	25	19	46	8
Between $10 Million and <$25 Million	4	0	0	0	11	0	15	16
$25 Million +	7	0	0	0	20	0	3	53
Don't Know/Not Answer*	7	6	6	6	10	7	7	16

*Prefer not to answer was an answer choice

Q3 N=1635

Compared to two years ago, more firms now fall into the $1 million or more revenue category 31% vs. 27%. This increase in the percentage of firms with revenues of over one million dollars was also observed in the period between 2014, when it was 23% and 2016, when it was 28%, but not between 2016 and 2018 (earlier years not shown).

- The subgroups are shown for context only but have not been significance tested. This is because we have a concern that the question may have been misinterpreted or misunderstood. Otherwise, it is difficult to explain, for example, how a how firm with 100+ employees could have a yearly revenue as low as $2.5 million.

Firm Revenue by Number of Employees
2020 Profile Study Vs. 2018 Profile Study (Reporting on Previous Year)

	Total		1-4		5-9		10-19		20-99		100+	
	2020	2018	2020	2018	2020	2018	2020	2018	2020	2018	2020	2018
	(1635)	(1597)	(860)	(893)	(215)	(229)	(160)	(157)	(206)	(178)	(192)	(134)
	%	%	%	%	%	%	%	%	%	%	%	%
Less than $ 1 Million	**62**	**<68**	**92**	**94**	**70**	**76**	**25**	**24**	**10**	**9**	**3**	**0**
Less than $250K	40	**<43**	71	72	11	13	4	6	2	2	0	0
Between $250K and <$1 Million	22	24	22	22	59	62	21	18	7	7	3	0
$ 1 Million or More	**31>**	**27**	**1**	**1**	**24**	**22**	**68**	**67**	**84**	**86**	**82**	**88**
Between $1 Million and <$2.5 Million	11	10	1	1	22	20	49	48	19	10	4	5
Between $2.5 Million and <$10 Million	9	9	0	0	2	2	19	19	46	57	8	6
Between $10 Million and <$25 Million	4	4	0	0	0	0	0.6	0.7	15	17	16	19
$25 Million +	7>	5	0	0	0	0	0	0	3	1.5	53	59
Don't Know/No Answer	7>	5	**6>**	5	**6>**	2	7	9	7	5	16	11

< Indicates a significant difference at the 90% level of confidence

Other Firm Characteristics Including Administration

(NECA Membership, Use of IBEW Labor, Percent of Workforce that is Business/Office Worker vs. Onsite Electrical Workers, Requirements to Bid on a Project, Business Development, Tax Status and Number of Years in Business)

- 18% of firms in this survey are NECA members, statistically unchanged from the 2018 level of 18%. NECA membership is significantly higher among firms with 20+ employees (rather than 10+ employees as was the case in 2018.) As has been observed, NECA membership skews to larger firms.
    - NECA membership is 8% among firms with 1-9 employees but 38% among firms with 10+ employees. Further, membership likelihood increases with company size:
        - NECA membership is 17% among firms with 10-19 employees; 36% among firms with 20-99 employees and 56% among firms with 100+ employees.
        - However, compared with two years ago, NECA membership levels dropped slightly but significantly among firms with 1-4 employees (from 8% in 2018 to 6% in 2020) and also significantly but far more dramatically among firms with 10-19 employees (from 26% in 2018 to 17% in 2020.)
- 19% of firms use IBEW labor. Use of IBEW labor skews to larger firms, particularly those with 20 or more employees. However, what is really going on is that small firms -- those with 1-4 employees -- are *unlikely* to make use of IBEW labor. About 17% of firms with 5-9 or with 10-19 employees make use of IBEW labor compared with 8% of firms with 1-4 employees. Usage rises substantially to 35% among firms with 20-99 employees and once again, to 56% among firms with 100+ employees. This question was first asked in 2020 and cannot be trended.

Firm Uses IBEW Labor								
		Number of Employees						
	Total	1-4	5-9	1-9	10+	10-19	20-99	100+
	(1635)	(860)	(215)	(1075)	(558)	(160)	(206)	(192)
	%	%	**%**	%	%	%	%	%
Yes	19	8	**<17**	10	**<37**	17 vs. 8%	**<35**	**<56**

< Indicates a significant difference at the 90% level of confidence

- There is a very consistent approximately 80%/20% split between the average percentage of the workforce that is considered onsite electrical workers vs. the average for being considered primarily business/office workers. This question was asked of the 1036 firms that have more than 3 employees and was first asked as part of the 2020 Profile study and cannot be trended.

    - The only exception is among firms with 100+ employees, where the average for business/office workers rises to 23.5% compared with 19.5% among firms with 10 - 99 employees (not shown).

Designations Firm Qualifies For

The vast majority of firms (86%) do not qualify for – or claim -- any of the designations listed below. Further, the vast majority of firms that do qualify (11%/13%) qualify for only a *single* designation. As shown on the next page, the low percentage of qualifying firms may negatively affect some firms as a higher percentage of electrical contractors (19%) say that they encounter **Female/Minority/Veteran Man-Hour Workforce Requirements in order to bid a job.**

Firm Qualifies for Any of These Designations								
		Number of Employees						
	Total	1-4	5-9	1-9	10+	10-19	20-99	100+
	(1635)	(860)	(215)	(1075)	(558)	(160)	(206)	(192)
	%	%	**%**	%	%	%	%	%
Any Designation	13	11	**<15**	12	**<16**	**19**	**19>**	10
Minority-Owned Business (MBE)								
Yes	7	6	9	6	9	8	**12>**	5
Women-Owned Business (WBE)								
Yes	6	4	7	5	**<9**	13	9	6
Disabled Veterans Business (DBVE)								
Yes	2	2	1	2	1	1	2	2
Hubzone								
Yes	1	1	1	1	1	0	**<3**	1

-- Requirements to Bid a Project

- Across the total sample, slightly fewer than one-half (44%) say that they are required to have a prequalified standards and safety program in place in order to bid on a project. Once again, what is really going on is that small firms -- those with 1-4 employees -- are far *less* likely to have these requirements placed on them. Around 53% - 55% of firms with 5-9 or with 10-19 employees encounter this requirement compared with 24% of firms with 1-4 employees. In contrast, three-quarters of firms with firms with 20+ employees encounter these requirements. This question was first asked in 2020 and cannot be trended.

- Across the total sample, about one in five (19%) say that they are required to have man-hour requirement for women/minorities or veterans in order to bid on a project. Once again, this requirement falls more heavily on larger firms and increases significantly and steadily from 9% among firms with 1-4 employees to about 40% for firms with 20+ employees.

- Nevertheless, almost 6 in 10 firms (59%) say that they already have a certified safety program or that they plan to institute one in 2020; having a certified safety plan increases steadily with company size.

Prequalified Standards and a Certified Safety Program Needed to Bid a Job (Q10D)								
		Number of Employees						
	Total	1-4	5-9	1-9	10+	10-19	20-99	100+
	(1635)	(860)	(215)	(1075)	(558)	(160)	(206)	(192)
	%	%	**%**	%	%	%	%	%
Yes	44	24	**<53**	30	**<70**	55	**<76**	**77**
Female/Minority/Veteran Man-Hour Workforce Requirement Needed to Bid a Job								
Yes	19	9	**<16**	11	**<36**	<26 vs. 16%	**<39**	**42**
Prequalified Standards and a Certified Safety Program In Place or Will be Added in 2020 (Q10E)								
Yes	59	37	**<68**	43	**<88**	77 vs. 68%	**<90**	**<96**

< Indicates a significant difference at the 90% level of confidence

-- Separate Divisions

- Four in ten electrical contracting firms (40%) currently have a separate division or department that handles service/ and maintenance. Larger firms are almost twice as likely to have a separate service and maintenance unit compared with smaller firms.

- About two in ten electrical contracting firms (22%) currently have a separate low -voltage division. Larger firms are more than three times as likely to have a low voltage unit compared with smaller firms.

- Fewer firms have either a separate business development unit (16%) or a separate HVAC unit (12%). Once again, in both cases, larger firms are more likely than smaller firms to have these separate units.

Presence of Separate Division or Department That Handles the Following Work			
	Total	1-9	10+
	(1635)	(1075)	(558)
	%	%	%
Separate Service and Maintenance Unit [Q7c]			
Currently Has	40	31	**<57**
Plans to Open in Next 1-2 Years	4	4	4
Total Current or Planned	44	36	**<61**
Separate Low-Voltage Unit [Q7a]			
Currently Has	22	12	**<40**
Plans to Open in Next 1-2 Years	5	5	6
Total Current or Planned	27	17	**<46**
Separate Business Development Unit [V5, 16]	(320)	(210)	(110)
Currently Has	16	3	**<41**
Separate HVAC Voltage Unit [7b]			
Currently Has	12	9	**<17**
Plans to Open in Next 1-2 Years	3	3	4
Total Current or Planned	15	12	**<21**

Separate Divisions, continued

- Having or planning to have a separate Low-Voltage Unit and/or HVAC Unit has risen significantly and dramatically compared with two years earlier – in total and among firms with 1-9 and 10+ employees.
- In contrast, having a separate Business Development Unit is statistically unchanged vs. two years ago.
- We cannot trend having a separate Service and Maintenance Unit since it was first asked in the 2020 Profile Study

Presence of Separate Division or Department That Handles the Following Work 2020 Profile Study Vs. 2018 Profile Study						
	Total		1-9		10+	
	2020	2018	2020	2018	2020	2018
	(1635)	(1597)	(1075)	(1122)	(558)	(469)
	%	%	%	%	%	%
Separate Service and Maintenance Unit						
Currently Has	40	NA	31	NA	57	NA
Plans to Open in Next 1-2 Years	4	NA	4	NA	4	NA
Total Current or Planned	44	NA	36	NA	61	NA
Separate Low Voltage Unit						
Currently Has	**22>**	11	**12>**	5	**40>**	25
Plans to Open in Next 1-2 Years	5	5	5	4	6	8
Total Current or Planned	**27>**	16	**17>**	8	**46>**	33
Separate Business Development Unit	(320)	(241)	(210)	(163)	(110)	(78)
Currently Has	16	16	3	5	41	40
Plans to Open in Next 1-2 Years	NA	2	NA	1	NA	5
Total Current or Planned	NA	18	NA	6	NA	44
Separate HVAC Voltage Unit						
Currently Has	**12>**	6	**9>**	4	**17>**	12
Plans to Open in Next 1-2 Years	3	3	3	3	4	3
Total Current or Planned	**15>**	9	**12>**	7	**21>**	15

Bold percentages are significantly higher than *italicized* percentages
Low Voltage, Business Development and HVAC asked slightly differently in 2018

-- Employee Relations

Electrical contractors were asked a series of questions about hiring and retaining workers, their use of contract labor, their extent of government work and the types of employee benefits offered by their firm.

In the then current job market (from February 21 through April 7), across the total Version 5 sample, 65% said that they had difficulty finding trained workers; separately, 29% said that they had difficulty *retaining* trained workers. Note that the second question (retaining) was not contingent on answers to the first question (difficulty finding trained workers). Not surprisingly, larger firms were more likely to agree with both questions.

Extent of Difficulty in Finding or Retaining Trained Workers			
Version 5_Question 18 - 19	2020 Profile Study		
	Total	Number of Employees	
		1-9	10+
	(320)	(210)	(110)
	%	%	%
Difficulty in Finding Trained Workers	65	*60*	**<76**
Difficulty in Retaining Trained Workers	29	*23*	**<41**

Bold percentages are significantly higher than *italicized* percentages

Perhaps as a result, 36% of firms say that they often or sometimes make use of independent or contract workers. There is no difference by number of employees (1-9 vs. 10+) in the percentages that say often, sometimes or rarely/never on a combined basis. (Not shown)

-- Participation in Government Work

Almost 6 in 10 of the electrical contractors who participated in Version 5 of the survey have done government work since about 2018. About 5 in 10 say that they expect to do government work in 2020. Note that in both instances, work for a local government is most prevalent and federal is mentioned least. Larger companies are more likely than smaller companies to do each of these types of work and to work for more than one governmental entity.

Involvement with Government Projects							
Version 5_Q22a and 22b	Completed Government Work Since About 2018				Expect to Work on Government Projects in 2020		
	Total	Number of Employees			Total	Number of Employees	
		1-9	10+			1-9	10+
	(320)	(210)	(110)		(320)	(210)	(110)
	%	%	%		%	%	%
Mentioned Any	57	*45*	**<81**		54	*41*	**<79**
Local	53	*43*	**<71**		48	*41*	**<63**
State	28	*15*	**<53**		27	*14*	**<52**
Federal	19	*6*	**<43**		16	*6*	**<36**
Mentioned Only 1	28	29	25		27	*26*	29
Mentioned 2+	30	*16*	**<56**		27	*15*	**<50**

Bold percentages are significantly higher than *italicized* percentages

-- Employee Benefits

Electrical contractors who participated in Version 5 of the Profile Study were also asked about the employee benefits -- if any -- that were offered by their firm. Overall, 71% of firms offer benefits. Not surprisingly, there are huge differences by number of employees. While a whopping 98% of larger firms offer employee benefits, almost 60% of smaller firms also do so. Regardless of the number of employees, the vast majority of firms that offer benefits offer more than a single benefit. Smaller firms are most likely to offer 2-5 benefits, while larger firms are equally split between offering 2-5 of the listed benefits (49%) or 6-10 of the listed benefits (44%).

	Employee Benefits Offered by Firm		
	Total	Number of Employees	
Version 5_Q21		1-9	10+
	(320)	(210)	(110)
	%	%	%
Mentioned Any	71	*57*	**<98**
Paid Vacation	52	*37*	**<80**
Health Insurance	44	*25*	**<80**
Paid Sick Leave	32	*23*	**<47**
Tools Reimbursement	31	27	***<39***
401 (K)	31	13	**<66**
Training Reimbursement	31	*19*	**<53**
Paid Time Off for Training	23	*14*	**<40**
Life Insurance	23	*8*	**<51**
Profit Sharing	17	*11*	**<29**
Contribution to a Joint-Employer Benefits Fund	14	*7*	**<27**
Pension Plan	12	*8*	**<19**
Paid Maternity and/or Paid Paternity Leave	11	*4*	**<25**
Other	4	4	4
Only 1 Benefit	8	**11>**	3
2+ Benefits	63	*46*	**<96**
2-5 Benefits	42	*38*	**<49**
6-10 Benefits	20	*8*	**<44**
11-12 Benefits	1	1	3

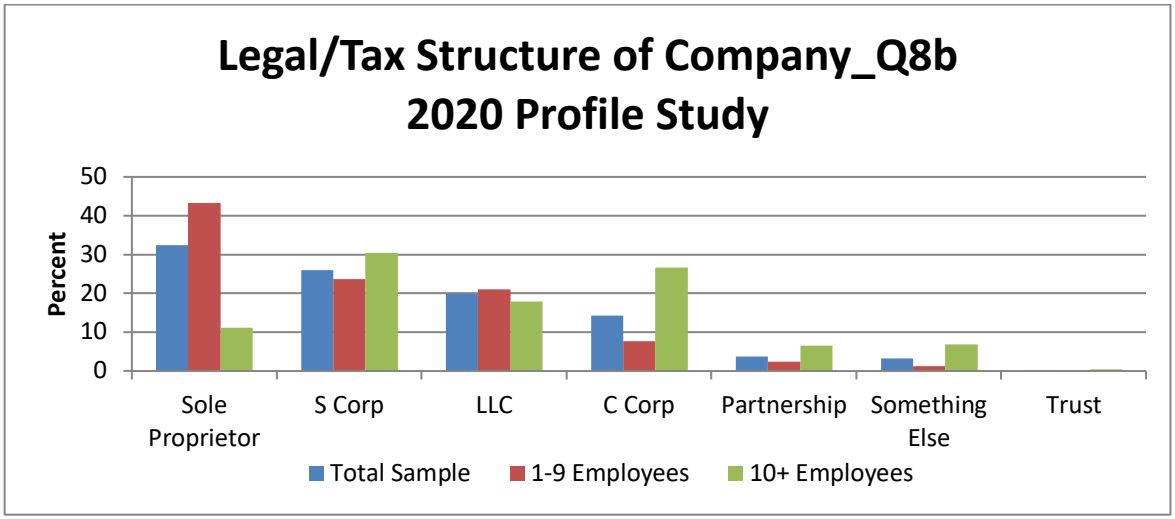
Bold percentages are significantly higher than *italicized* percentages

-- Legal/Tax Structure

Among the total sample, Sole Proprietorships (32%) are the most common form of legal/tax organization, followed by S Corp (26%), LLC (20%) and C Corp (14%). Partnerships, "Something else" and Trusts are mentioned much less often.

- Sole Proprietorships are most common among firms with 1-9 employees (43%) followed distantly by S Corp (24%) and LLC (21%). However, S Corp is also favored among firms with 10+ employees (31%) followed closely by C Corp (27%) and to a lesser extent, LLC (18%).

- Compared to two years ago, the percentage of the total sample that chose Sole Proprietorships, S Corp and Partnerships declined significantly while those selecting LLC rose significantly and dramatically (from 4% to 20%). The difference may be in part that LLC was a pre-listed choice in 2020, but not in 2018. (The 2018 results are not shown).

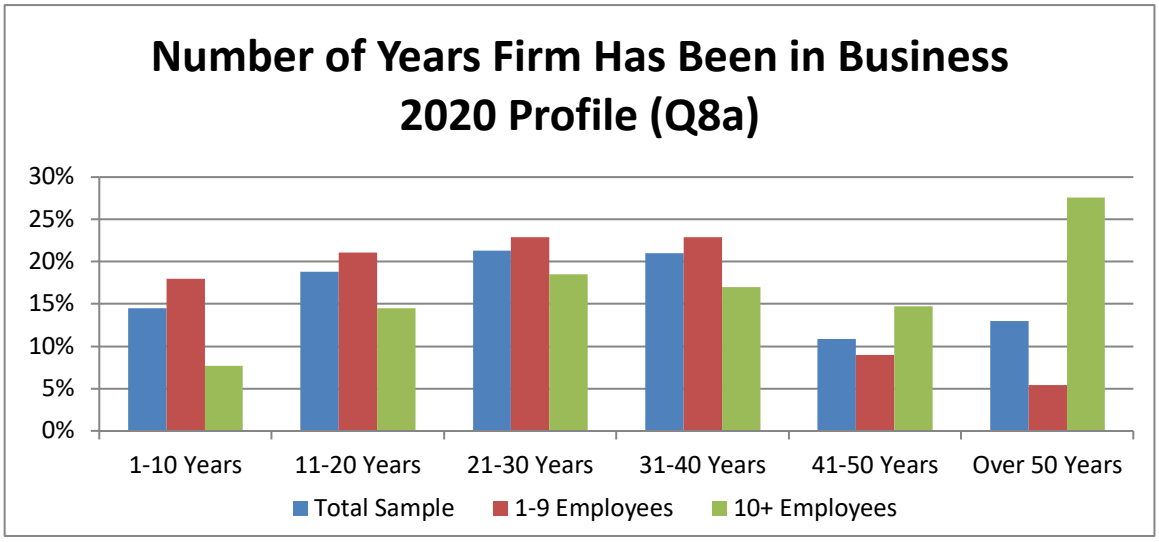


-- Length of Time Firm Has Been in Business

85% of the firms in this survey have been in business for more than 10 years! On average, the electrical contracting firms that participated in this study have been in business an average of 32 years.

- Not surprisingly, smaller firms tend to be newer than 40 years old while firms with 10+ employees are more likely than smaller firms to have been in business for 41 or more years. In fact, 52% of companies with 100+ employees have been in business for 50 years or more (not shown).

Number of Years Firm Has Been in Business (Q8a)			
	Total	1-9	10+
	(1635)	(1075)	(558)
	%	%	%
1-10	15	**18>**	8
11-20	19	**21>**	15
21-30	21	**23>**	19
31-40	21	**23>**	17
41-50	11	9	**<15**
More than 50 years	13	5	**<28**
Average Years in Business	32.4	26.8	**<43.1**



"WHO" WORKS FOR CONTRACTING FIRMS?

Age of Respondents

Regardless of company size (number of employees), the survey respondents tend to be at least middle aged, rather than young. Across the total sample, only 3% are aged 18-34, 29% are between the ages of 35 –54, 37% are aged 55-64 and 31% are aged 65+.

- With one exception, these results are statistically unchanged from what was observed in 2018. The only difference is that a slightly, but significantly higher percentage of respondents are aged 35-54 (29%) compared to two years ago, when it was 26%.

The average age of the electrical contractors participating in this is now 57.9, statistically unchanged from two years ago when it was 58.2.

- In contrast to two years ago, the average age did **not** rise among electrical contractors in the total sample, in firms with 1-4 employees or with 1-9 employees; in fact it declined slightly, but significantly among firms with 1-9 employees compared with 2018. However, the mean age did rise among firms with 10+ employees – caused by an increase in average age among firms with 20-99 employees (not shown) -- although the average age of firms with 10+ employees is still younger on average than those in firms with 1-9 employees.

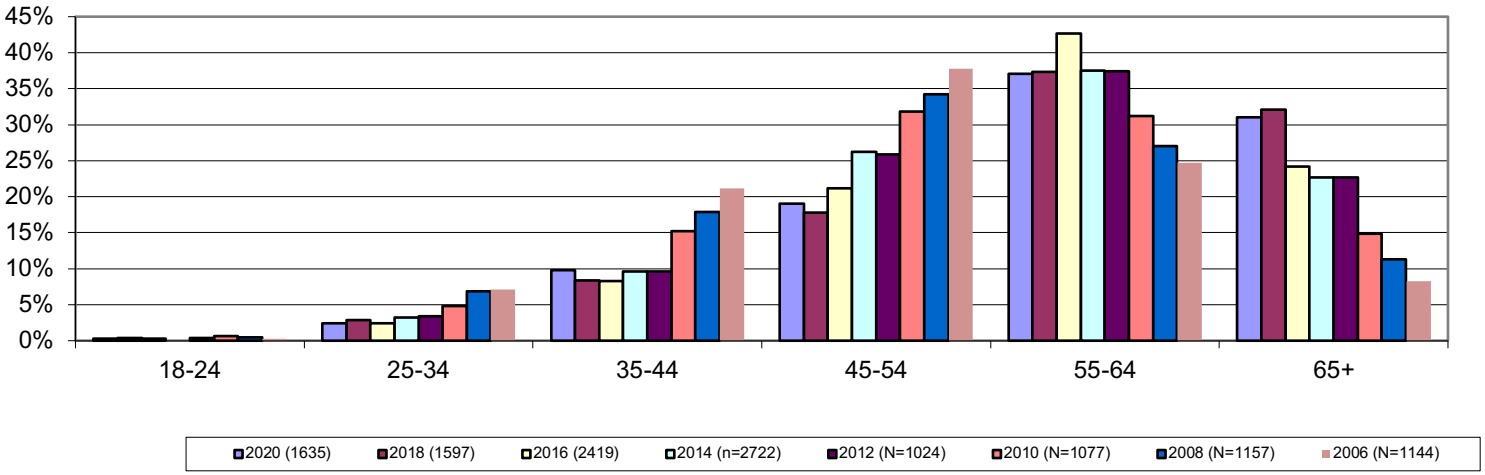
- Also as was the case in the recent past, the electrical contractors in smaller firms are older, on average, than those in larger firms. One hypothesis is that older electrical contractors may found their own -- smaller firms -- after working for others earlier in their careers.

Average Age of Electrical Contractor in 2020 and Earlier (Q11)				
		Firm Size		
	Total	1-4	1-9	10+
		(a)	(b)	(c)
Average Age (2020 Study) N=1635	57.9	59.9	59.3 (decline from 2018) **>c**	55.2 (increase from 2018)
Average Age (2018 Study) N=1597	58.2	60.6	**60.0 >c**	53.8
Average Age (2016 Study) N=2419	57.3	58.7	**58.5>c**	54.1
Average Age (2014 Study) N=2722	56.2	57.4	**57.1>c**	53.3
Average Age (2012 Study) N=1024	56.1	57.5	**57.2>c**	52.6
Average Age (2010 Study) N=1077	53	53.8	**53.8>c**	50.4
Average Age (2008 Study) N=1157	51.2	52. 6	**52. 1**>c	49.2

When looked at by the age brackets shown below, there is no statistically significant change in the age distribution compared to two years earlier. This is in contrast to earlier waves where the electrical contractors were trending older.

In fact, when we combine those aged 35-44 and those aged 45-54, there is a statistically significant *increase* in the percentage of 2020 electrical contractors that fall into this category compared to two years earlier (29% in 2020 compared with 26% in 2018). This is the first time that there has been a statistically significant increase in the percentage of any age group that are younger than 65.

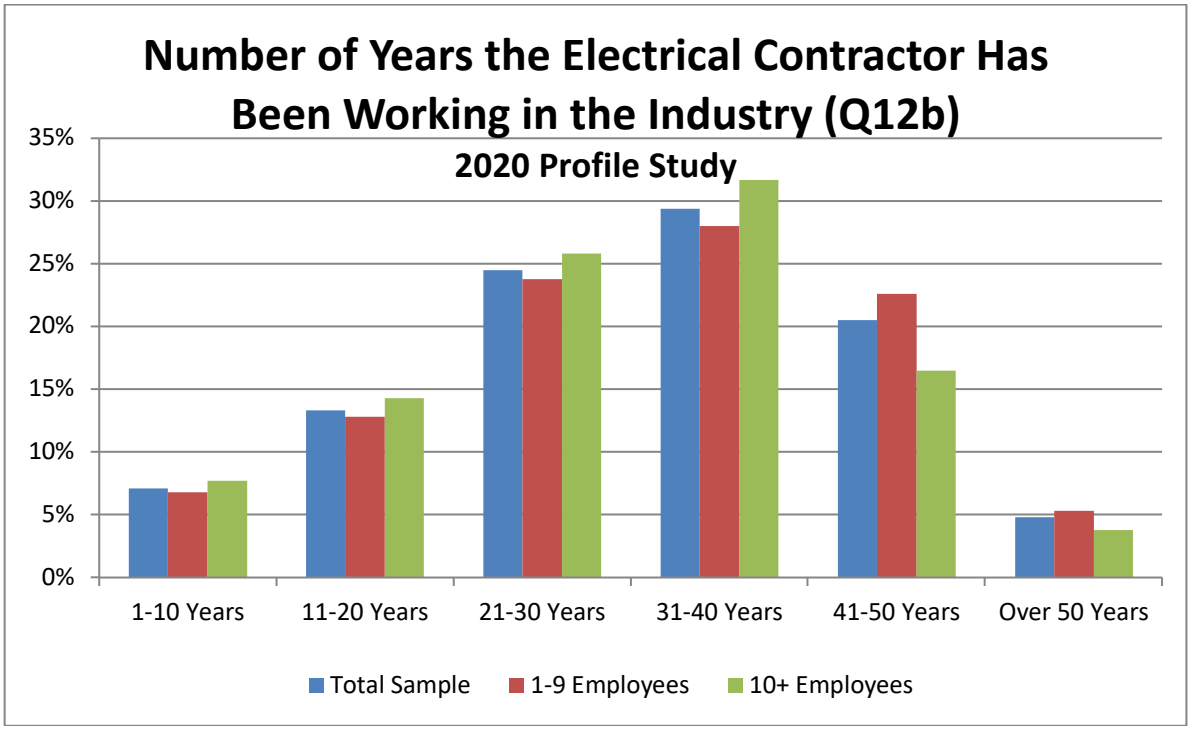
Comparison of Age Composition Over Time (Q11)



-- Number of Years the Electrical Contractor Has Been in the Industry

Given the average age of the survey respondents, it is not surprising that they have been in the electrical contracting industry an average of 32.4 years, statistically unchanged from two years ago.

5% have been in the industry more than 50 years. The only identifying feature of these electrical contractors, not surprisingly, is that 92% of them are older than 65 (not shown).
[Table 56; Section 57]



Respondent Education

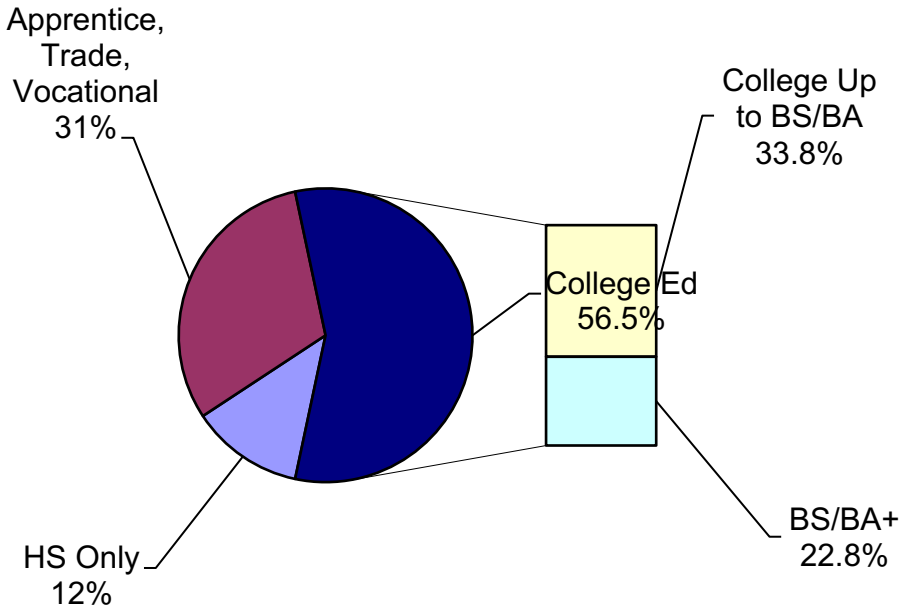
A majority of survey respondents --56.5% across the total sample -- have some college education. The findings among the total sample are consistent with those reported two years ago.

Those in larger firms (10+ employees) continue to be significantly more likely to have attended college than those in firms with 1- 9 employees (60% vs. 55%), particularly to hold a BA/BS degree (29% of those in firms with 10+ employees versus 19% for those in firms with 1- 9 employees).

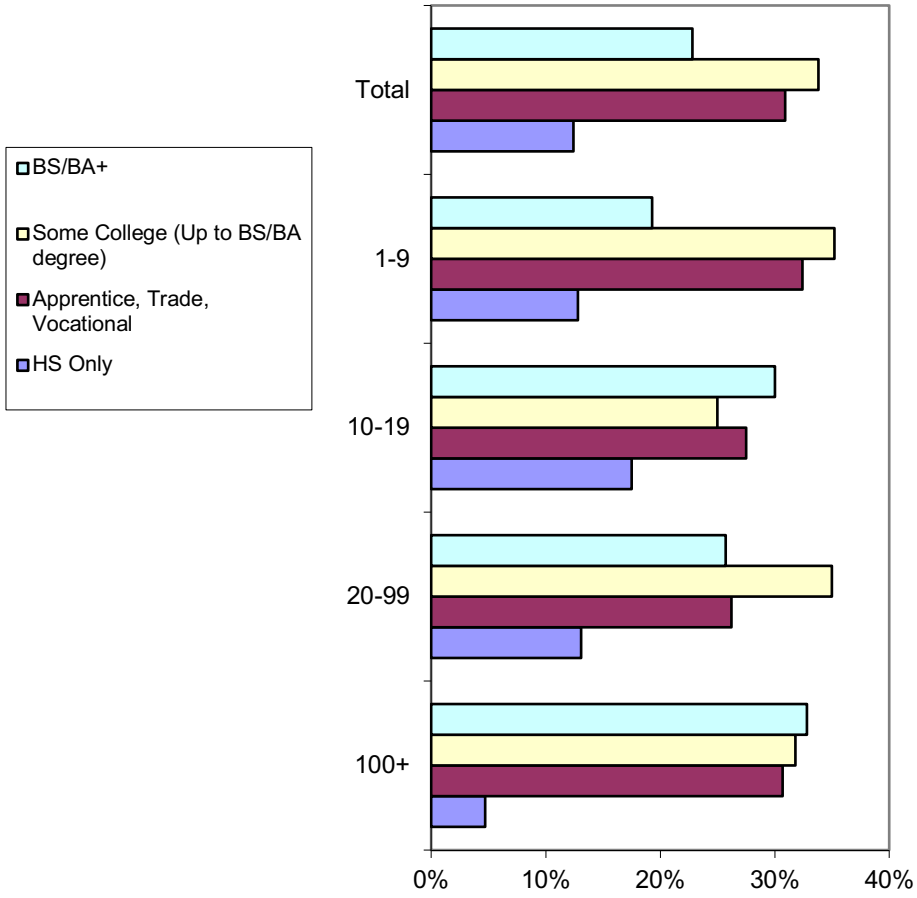
In 2020, there is once again a statistically significant difference, albeit small, between those in smaller firms (32%) and larger firms (28%) on their likelihood to have only Apprenticeship, Trade or Vocational School training. There was no difference in the 2018 Profile Study, but this difference did emerge in the 2016 Profile.

- Earlier years not shown.

Respondent Education
Among Total Sample
2020 Profile Study



Respondent Education by Number of Employees
2020 Profile Study



Level of Responsibility

69% of the sample is composed of company owners and top management, 14% say that they are Master Electrician or the equivalent title, 6% say that they are project managers, 3% are field managers and 6% say that they have another title.

- Compared with 2018, a higher percentage now say that their title is Master Electrician, Project Manager or Other while a lower percentage – although still substantial at 69% – are Owners or Top Managers.

Level of Responsibility						
	Total		Number of Employees			
Q13a			1-9		10+	
	2020	2018	2020	2018	2020	2018
	(1635)	(1597)	(1075)	(1122)	(558)	(469)
	%	%	%			
Owner/Top Management	*69*	**<77**	*77*	**<85**	55	59
Master Electrician or Equivalent Title	**14>**	*10*	**16>**	*10*	**12>**	*9*
Project Management	**6>**	*5*	1	1	16	14
Field Management	3	3	1	1	8	7
Other	**6>**	*5*	**5>**	*3*	10	11

Bold percentages are significantly higher than italicized percentages at 90% level of confidence

- There is no difference by region in having the level of Owner/Top Management. (In 2018 and 2016, those in the West were more likely to describe their responsibility as Owner/Top Management). As was the case in 2018, those in the West continue to be less likely to describe their responsibility level as Master Electrician or Equivalent (11% vs. 14% for the total sample). Those in the Northeast are less likely to describe themselves as Field Management (1.6% compared with 3.2% for the total sample). There is no regional skew for Field Management in 2020.

Gender

3% of the electrical contractors who participated in this survey are female, unchanged from 2018 or 2016. Because this question was asked of the entire sample, subgroup analysis was done and it shows that women are more prevalent in larger firms (5% among firms with 10+ employees vs. 3% among firms with 1-9 employees) and among firms with $2.5 million to under $10 million in revenue (7%). The females in this study were more likely to be aged 35-54 (5%) than 65+ (1%).

Use of Social Media

Almost 1,400 electrical contractors who participated in the 2020 Profile Study online were asked about their media habits and their interactions, if any, with social media. As part of the online sample, we hypothesize that they would be more tech-savvy and tech-friendly. Here's what we found.

Overview:

- In a nutshell, trade magazines (print and online) continue to be used by more electrical contractors than any of the other listed media sources to learn about new products and new technology particularly when compared to social media.

- Users tend to rate the sources that they use very highly on trustworthiness. The main exception is social media, which scores 13 to 28 points lower than the other sources.

- To the extent that it is utilized, social media are used more to publicize the electrical contractor than to take in information. The main exception is in the case of YouTube, which is used essentially to view "How To" videos.

- Further, between one-half and two thirds of the participating electrical contractors say that they do not see advertising for electrical products, materials or supplies in social media. Of those that do see these ads, their level of positive influence never exceeds 15%, even in the case of YouTube, where there is an established work-related relevance because of "How to"/Instructional videos.

- Brand "Influencers" are not particularly influential in ads for electrical products, materials or supplies and even less so in the context of social media advertising.

The first question in this series listed eight media sources and asked electrical contractors to select all that they use to learn about new products and new technology.

As shown below, trade magazines are chosen the most often by far. The results are equally strong both among small and large firms. Although trade magazines are chosen by significantly more electrical contractors who are older than 55 compared with those who are aged 35-54, all of the other media choices are lower among these younger electrical contractors. In fact, note the almost 50 percentage point difference between trade magazines and social media, even among electrical contractors aged 35-54. Larger firms are more likely to make use of 4 or more of the more of these sources (not shown).

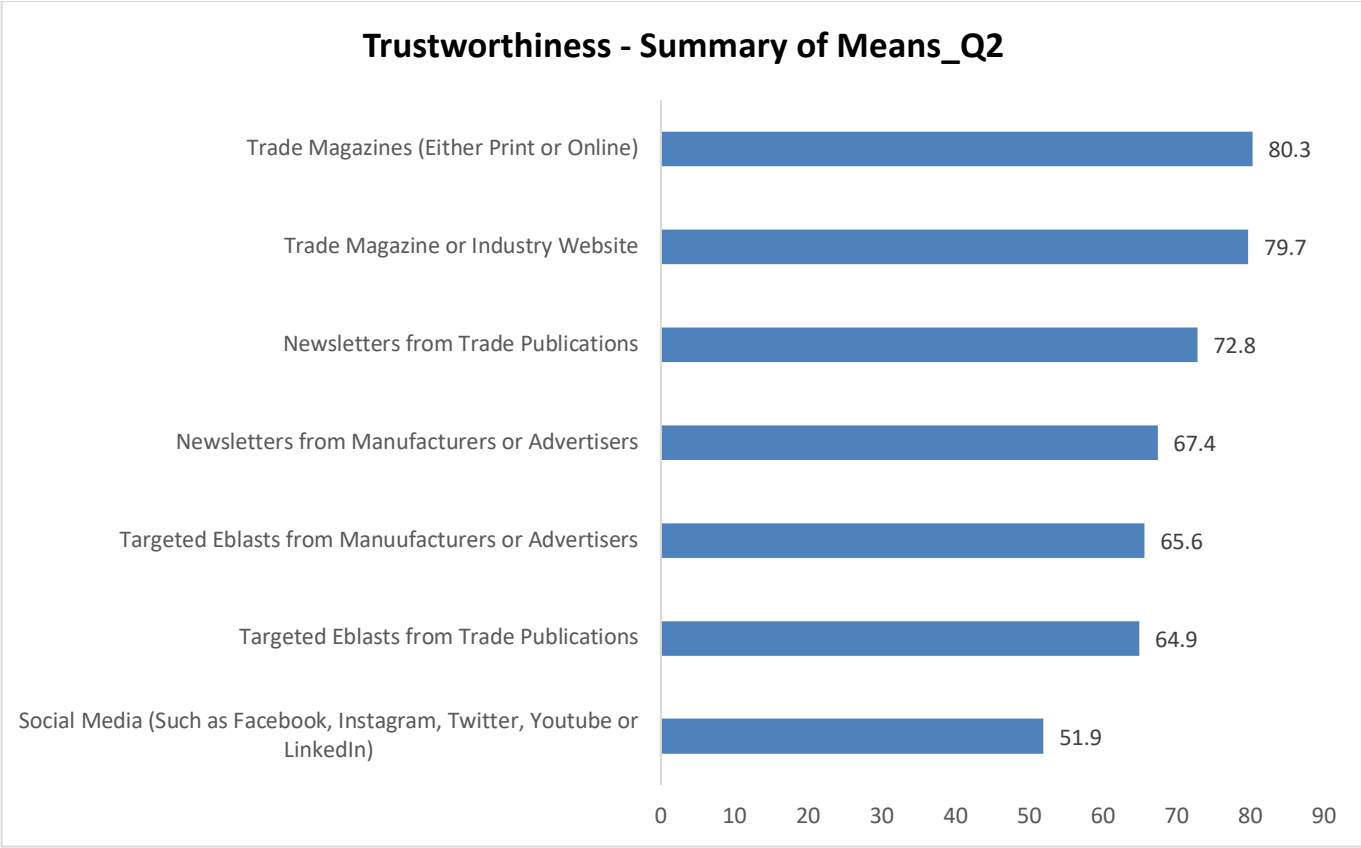
Q1 - Which of these media sources do you use to learn about new products and new technology? Select all that apply.

Media Sources Used to Learn About New Products and New Technology

	Total (1399)	1-9 Employees (900)	10+ Employees (499)	Aged 35-54 (431)	Aged 55-64 (532)	Aged 65+ (394)
Trade magazines (either print or online)	84%	84%	83%	77%	**<88%**	**88%**
Newsletters from trade publications	65%	62%	**<70%**	63%	64%	**<70%**
Trade magazine or industry website	55%	50%	**<62%**	56%	56%	52%
Newsletters from manufacturers or advertisers	48%	44%	**<56%**	46%	49%	49%
Social media (such as Linkedin, Facebook, Instagram, Twitter or You Tube)	20%	19%	20%	**28%>**	15%	15%
Targeted eblasts from trade publications	12%	10%	**<15%**	12%	13%	10%
Targeted eblasts from manufacturers or advertisers	11%	10%	**<15%**	12%	13%	9%

Bold percentages are significantly higher in the direction of the < or > at the 90% level of confidence. Percentages in gray indicate no significant difference within subgroups.

Those who use each of the sources selected in Q1 were asked to rate them on trustworthiness. As shown below users tend to rate the sources that they use very highly on trustworthiness. The main exception is social media, which scores 13 to 28 percentage points lower than the other sources.



In the next set of questions, electrical contractors were asked in which of the following ways, if any, they engage with these types of social media for business/work-related use.

YouTube receives the highest number of mentions (44%), essentially for their "How to/instructional videos" (38%). In the case of the other social media, any use ranges between 7% and 31%, with a substantial portion of the total relating to ***sending out messages*** – to publicize my company – rather than to take them in – view advertising or follow brand "Influencers."

- Note that viewing advertising for electrical products, materials or supplies never tops 12%.

Q3 - Switching topics, in which of the following ways, if any, do you engage with these types of social media for business/work-related use? (Please select all that apply)

Ways That Electrical Contractor Engages With Social Media (Q3)												
	Publicize my company		Follow trends relevant to my business		View advertising for electrical products, materials or supplies		Follow electrical product brand "Influencers"		View "How to"/ Instructional videos		Any of these ways		Total
Facebook	21%		12%		12%		7%		8%		31%		1399
Instagram	5%		4%		3%		3%		1%		9%		1399
Twitter	3%		2%		2%		2%		1%		7%		1399
YouTube	3%		10%		12%		9%		38%		44%		1399
LinkedIn	17%		12%		6%		6%		3%		27%		1399

Reactions to Advertising: Between about one-half and two-thirds of those polled say that they do **not** see advertising in these social media for electrical products and services. Of those that do see these ads, their level of positive influence never exceeds 15%, even in the case of YouTube, where there is an established work-related relevance because of "How to"/Instructional videos.

Q4 - How, if at all, does seeing an ad in any of these media for electrical products and services affect your likelihood to purchase that product?

	More likely	No effect on purchase likelihood	Less likely	Don't know	Don't see ads	No answer	Total
Facebook	9%	23%	5%	11%	51%	2%	1399
Instagram	4%	16%	4%	10%	65%	2%	1399
Twitter	2%	16%	4%	9%	67%	2%	1399
YouTube	15%	22%	4%	11%	45%	2%	1399
LinkedIn	7%	18%	4%	10%	59%	2%	1399

40% of this online sample said that they are familiar with the term brand "Influencer". It is higher among firms with 10+ employees (49%) than among firms with 1-9 employees (35%). [Q5]

However, only 22% of this online sample said that they are familiar with the term brand "Influencer in the context of electrical products and materials or supplies. In this case, there was no difference between firms with 1-9 employees or those with 10+ employees. [Q5a]

When asked specifically about the role brand "Influencers" in the case of *social media advertising* for electrical products and services, virtually all say that they are not positively affected by these "Influencers." The highest level, at 10%, is in the case of YouTube, where, as noted above, there is an established work-related relevance because of "How to"/Instructional videos.

Q6- How, if at all, does seeing an "Influencer" in any of these media for electrical products and services affect your likelihood to purchase that product?

	More likely	No effect on purchase likelihood	Less likely	Don't know	Don't see ads	No answer	Total
Facebook	5%	22%	5%	12%	52%	3%	1399
Instagram	3%	17%	4%	11%	62%	3%	1399
Twitter	2%	17%	4%	11%	63%	3%	1399
YouTube	10%	23%	5%	12%	48%	3%	1399
LinkedIn	4%	20%	4%	12%	58%	3%	1399

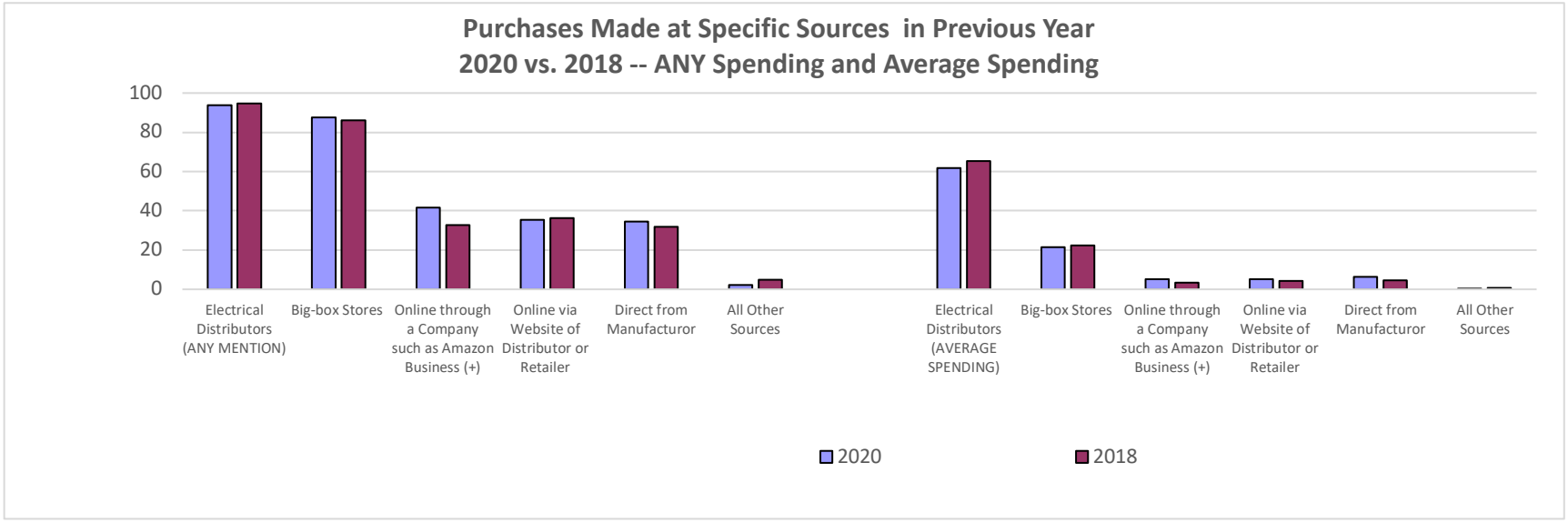
Where Purchases are Made

Consistent with ELECTRICAL CONTRACTOR Subscriber Research Panel studies and the 2018 Profile Study, about 60% of electrical contractor purchases are made at electrical distributors and about 20% at big-box stores. Note that this question was asked in terms of 2019 -- rather than 2020 – purchasing behavior.

Compared with the 2018 Profile Study, the only significant difference is that there was a slight but significant increase in purchases from online retailers such as Amazon Business. Note that this increase took place during the period that was *prior* to the Coronavirus pandemic. The pandemic, in turn, might result in an even higher percentage of purchases being made online.

In the second part of this question, we asked electrical contractors about their expectations for 2020 purchases compared with 2019. Of possible concern to electrical distributors is that there was a three-fold rise among firms with 1-4 employees in saying that they expect their purchases at electrical distributors to *decrease*, to 7.2% from 2.4% in 2018 (not shown below).

+/- next to the data labels indicate statistically significant differences from 2018 among the total sample



▲*"WHAT" TYPES OF WORK DO CONTRACTORS PERFORM?*

Types of Work Performed in Previous Year

Electrical contractors were shown a list of up to 43 different project types and were asked to indicate which they had performed in the previous year. Starting in 2014, the project types were asked separately for Residential and CII construction.

- No new project types were added in 2020.

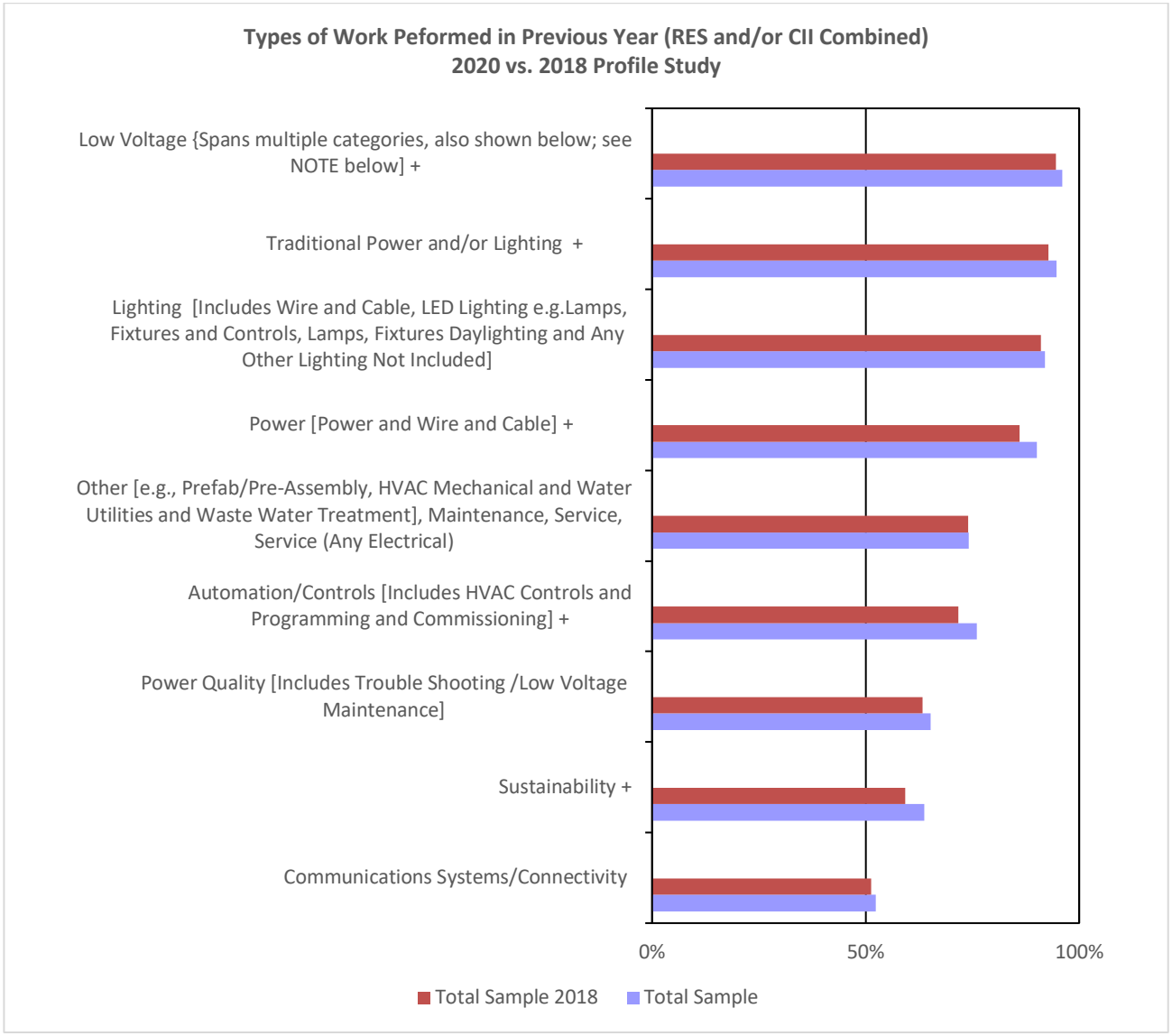
Overview of CII and/or Residential Work Performed (Combined Basis)

When asked about the types of work performed in the previous year (regardless of whether Residential or CII), almost all firms worked on Traditional Power and Lighting (95%). Note that there is a great deal of overlap across this category: 92% worked on Lighting; 90% work on Power

- About three-quarters worked on various aspects of a new category called "Other" (which includes Pre-Assembly/Prefabrication of Electrical Components, HVAC Mechanical, Water Utilities or Waste Water Treatment Plants and/or Any Electrical Maintenance/Service/Repair.
- About three-quarters work on some aspect or aspects of Automations/Controls: 57% worked on CII Automation/Controls*, 48% worked on Residential Automation Controls*
- About two-thirds worked on Power Quality (65%) and/or on Sustainability (64%)
- 52% worked Communications Systems/Connectivity

As shown on the next page, participation *increased* in a number of categories over what was reported in 2018.

*CII and Residential Automation/Controls are shown separately on the tables starting on page 47.



NOTE: LOW VOLTAGE (NET) - IN THIS TABLE - INCLUDES: NETWORKING, FIBER OPTICS, STRUCTURED WIRING/CABLING, DATA CENTERS, TROUBLE SHOOTING/ MAINTENANCE OF LOW VOLTAGE SYSTEMS, LED LIGHTING, LIGHTING CONTROLS, HOME AUTOMATION, FIRE/LIFE SAFETY, SECURITY, HOME THEATER/SOUND, AUTOMATED BUILDING SYSTEMS, INDUSTRIAL CONTROLS, SOUND AND VIDEO, PROGRAMMING AND COMMISSIONING, HVAC CONTROLS

+ indicates a statistically significant increase compared with 2018 results

The individual project types that make up each category are shown on the next page in total[1] and by whether the work was done in Residential or CII construction.

No new project types were added in the 2020 Profile Study.

As shown on the next page, certain types of work lend themselves more to CII projects than to Residential projects.

Note that there is repeated evidence throughout this report that electrical contractors are continuing to work in somewhat non-traditional areas. For example, 41% worked on either HVAC Controls and/or HVAC Mechanical; 17% work on ***both*** HVAC Controls **and** HVAC Mechanical [not shown]. 13% worked on Water Utilities/Waste Water Treatment Plant projects in the previous year.

96% performed Low Voltage work[2], mentioned here because it is <u>not</u> traditional power (although it often ties into it!).

Above Table is Table 39. Pg. 190 (Net), Table 37. Pg. 158 (CII), Table 35. Pg. 131 (Res)

[1] Without regard to whether the work was done in Residential or CII construction

[2] NOTE: LOW VOLTAGE (NET) - IN THIS TABLE - INCLUDES: NETWORKING, FIBER OPTICS, STRUCTURED WIRING/CABLING, DATA CENTERS, TROUBLE SHOOTING/MAINTENANCE OF LOW VOLTAGE SYSTEMS, LED LIGHTING, LIGHTING CONTROLS, HOME AUTOMATION, FIRE/LIFE SAFETY, SECURITY, HOME THEATER/ SOUND, AUTOMATED BUILDING SYSTEMS, INDUSTRIAL CONTROLS, SOUND AND VIDEO, PROGRAMMING AND COMMISSIONING, HVAC CONTROLS

Types of Work Performed by Company in 2019
Among Those That Work in Residential and /or CII Construction

(Base Answering: 1635)			
COMMUNICATIONS SYSTEMS/CONNECTIVITY	Any **52**	Res **26**	C/I/I **42**
Structured Wiring/ Cabling/Connectivity	45	22	36
Networking (VOIP/ Wireless/ Broadband, etc.)	29	12	25
Data Centers	23	5	20
Fiber Optics (Communications and Security)	19	3	18
SUSTAINABILITY	Any **64**	Res **37**	C/I/I **48**
Energy Efficiency Projects/ Upgrades (non-LEED)	38	16	32
Electric Vehicle Charging Equipment	31	21	17
LEED Projects	24	8	20
Solar/Photovoltaics	20	10	13
Energy Audits (including Thermal Imaging)	16	4	14
Smart or Net Metering	14	6	11
Cogeneration	9	3	7
Energy Storage	9	4	6
Geothermal	5	4	2
Wind Generation	4	1	3
Smart Grid Technology	4	1	3
Microgrids	3	0.4	2
Fuel Cells	3	0.6	3
POWER QUALITY	**Any 65**	**Res 37**	**C/I/I 50**
Backup Power/UPS	49	21	38
Trouble Shooting/Maintenance of Low Voltage Systems	41	22	31
TVSS/Lightning Surge Suppression	34	17	27
Energy Management/Power Quality	20	5	18

> or < indicates that the percentage is higher or lower at the 90% level of confidence

(Base Answering: 1635)			
TRADITIONAL POWER/LIGHTING	Any **95**	Res **69**	C/I/I **76**
Lighting	92	66	73
LED Lighting (Including Lamps, Fixtures and Controls)	89	63	68
Lighting Fixtures	82	57	63
Ballasts or LED Drivers	74	46	60
Lamps	71	48	53
Lighting Controls	73	44	54
Daylighting/Shading Systems	25	9	21
Any Other Lighting Not Included Above	24	13	19
Power	90	65	68
Power	81	58	60
Wire and Cable	84	59	62
AUTOMATION/CONTROL SYSTEMS	**Any 76**	**Res 48**	**CII 57**
Fire/Life Safety (including Alarms/Detectors)	49	28	36
HVAC Controls	36	20	26
Security: CCTV/ Access/Motion, etc	40	21	30
Industrial Controls (including PLCS and VFDS and Switchgear)	34	N/A	34
Home Automation/ Smart Home/Connectivity	26	26	N/A
Home Theater/Sound or VDV	17	17	N/A
Building Automation Systems/Facilities Connectivity	22	N/A	22
Sound and Video or VDV	18	N/A	18
Programming and Commissioning	18	6	17
OTHER	**Any 74**	**Res 49**	**C/I/I 61**
[NEW] (Any Electrical) Maintenance/Service/Repair	70	47	57
HVAC (Mechanical)	22	13	15
Pre-Assembly/Pre-Fabrication of Electrical Components	17	5	15
Water Utilities or Waste Water Treatment Plants	13	N/A	13

TRENDED RESULTS

In the case of Residential and CII projects on a *combined* basis, 19 of the up to 43 work types showed significant changes compared with two years earlier. In contrast to two years ago, where the changes were a combination of gains and losses, all of the changes between 2020 and 2018 were gains!

Compared with two years earlier, more companies worked on

- Traditional Power and Lighting as a broad category with more companies working on these individual project types compared with two years earlier:
    - LED lighting, Lighting controls and Daylighting posted significant increases, as did Wire and cable.
- Automation/Control Systems as a broad category with more companies working on these individual project types compared with two years earlier:
    - Security: CCTV/access/motion, etc., Industrial controls, Home automation, Building automation, Sound and video or VDV and Programming and commissioning.
- Sustainability as a broad category; these individual types of work posted an increase compared with two years earlier:
    - Electric vehicle charging equipment, Energy efficiency projects LEED), Solar/photovoltaics, Energy audits, Smart or net metering, Energy storage systems, Smart grid technology and Fuel cells.
- Low Voltage as a broad category, which overlaps with many of the listed project types and is composed of the project types listed at the bottom of this page.
- There was no change in the percentage of firms that did work in these broad categories: Power Quality or "Other". In the case of Communications Systems/Connectivity more firms reported working on Networking and Data centers.

NOTE: LOW VOLTAGE (NET) - IN THIS TABLE - INCLUDES: NETWORKING, FIBER OPTICS, STRUCTURED WIRING/CABLING, DATA CENTERS, TROUBLE SHOOTING/MAINTENANCE OF LOW VOLTAGE SYSTEMS, LED LIGHTING, LIGHTING CONTROLS, HOME AUTOMATION, FIRE/LIFE SAFETY, SECURITY, HOME THEATER/ SOUND, AUTOMATED BUILDING SYSTEMS, INDUSTRIAL CONTROLS, SOUND AND VIDEO, PROGRAMMING AND COMMISSIONING, HVAC CONTROLS

TRENDED RESULTS, continued

When results are limited to projects in **Residential** construction, there were changes in 9 of (the up to) 39[3] work types:

- Networking VOIP, Electric vehicle charging equipment, LEED projects, Smart or net metering, Energy audits, Security: CCTV/access/Motion, etc., Home automation/smart home/connectivity and Programming and commissioning all increased compared with two years earlier.

- Only work in Fiber optics (in Communications and security) declined compared with two years earlier.

When results are limited to projects in **CII** construction, there were changes in 25 of (the up to) 41[4] work types. Each of these posted increases compared with two years earlier:

- All aspects of Communications Systems/Connectivity: Structured wiring/ cabling/connectivity, Networking (VOIP/ Wireless/Broadband, etc.), Data centers, Fiber optics.

- Sustainability as a broad category and these aspects of Sustainability: Energy efficiency projects/upgrades (non-LEED), Electric vehicle charging equipment, LEED projects, Solar/photovoltaics, Energy audits (including thermal imaging), Smart or net metering, Cogeneration, Energy storage systems and Fuel cells.

- Traditional Power/Lighting and these aspects of Traditional Power/Lighting: Lighting as a broad category and these aspects of Lighting: LED lighting (including lamps, fixtures and controls), Lighting controls, Daylighting/shading systems, Other types of lighting (not included in the survey list); Power as a broad category and both project types: Power, Wire and cable.

- Automation/control systems and these aspects of Automation/control systems: Fire/life safety (including alarms/detectors), Security: CCTV/ access/motion, etc., Industrial Controls (including PLCS and VFDS and switchgear), Building automation systems/facilities connectivity, Sound and video or VDV and Programming and commissioning.

- Low-voltage as a broad category, which overlaps with many of the listed project types and is composed of the project types listed at the bottom of the preceding page.

+ and – on the next tables indicate significant changes at the 90% level of confidence vs. the 2018 Profile Study (each reporting on the previous year)

[3] Four work types -- Industrial controls, Building automation systems, Sound and video or VDV and Water utilities/ waste – do not pertain to Residential construction and were therefore not asked.

[4] Two work types –Home automation/smart home/connectivity and Home theater/sound or VDV – do not pertain to CII construction and were therefore not asked.

Types of Work Performed by Company in 2019 TRENDED Among Those That Work in Residential and /or CII Construction

(Base Answering: 1635)			
COMMUNICATIONS SYSTEMS/CONNECTIVITY	Any **52**	Res **26**	C/I/I **42+**
Structured Wiring/ Cabling/Connectivity	45	22	36+
Networking (VOIP/ Wire-less/Broadband, etc.)	29+	12+	25+
Data Centers	23+	5	20+
Fiber Optics (Communications and Security)	19	3-	18+
SUSTAINABILITY	Any **64+**	Res **37**	C/I/I **48+**
Energy Efficiency Projects/ Upgrades (non-LEED)	38	16	32+
Electric Vehicle Charging Equipment	31+	21+	17+
LEED Projects	24+	8+	20+
Solar/Photovoltaics	20+	10	13+
Energy Audits (including Thermal Imaging)	16+	4+	14+
Smart or Net Metering	14+	6+	11+
Cogeneration	9	3	7+
Energy Storage Systems	9+	4	6+
Geothermal	5	4	2
Wind Generation	4	1	3
Smart Grid Technology	4+	1	3
Microgrids	3	0.4	2
Fuel Cells	3+	0.6	3+
POWER QUALITY	**Any 65**	**Res 37**	**C/I/I 50+**
Backup Power/UPS	49	21	38+
Trouble Shooting/Maintenance of Low Voltage Systems	41	22	31
TVSS/Lightning Surge Suppression	34	17	27
Energy Management/Power Quality	20	5	18
LOW VOLTAGE	96+	68	78+

+ and - indicate significant changes at the 90% level of confidence vs. the 2018 Profile Study (each reporting on the previous year)

(Base Answering: 1635)			
TRADITIONAL POWER/LIGHTING	Any **95+**	Res **69**	C/I/I **76+**
Lighting	92	66	73+
LED Lighting (Including Lamps, Fixtures and Controls)	89+	63	68+
Lighting Fixtures	82	57	63
Ballasts or LED Drivers	74	46	60
Lamps	71	48	53
Lighting Controls	73+	44	54+
Daylighting/Shading Systems	25+	9	21+
Any Other Lighting Not Included Above	24	13	19+
Power	90+	65	68+
Power	81	58	60+
Wire and Cable	84+	59	62+
AUTOMATION/CONTROL SYSTEMS	**Any 76+**	**Res 48**	**CII 57+**
Fire/Life Safety (including Alarms/Detectors)	49	28	36+
HVAC Controls	36	20	26
Security: CCTV/ Access/Motion, etc	40+	21+	30+
Industrial Controls (including PLCS and VFDS and Switchgear)	34+	N/A	34+
Home Automation/ Smart Home/Connectivity	26+	26+	N/A
Home Theater/Sound or VDV	17	17	N/A
Building Automation Systems/Facilities Connectivity	22+	N/A	22+
Sound and Video or VDV	18+	N/A	18+
Programming and Commissioning	18+	6+	17+
OTHER	**Any 74**	**Res 49**	**C/I/I 61**
(Any Electrical) Maintenance/Service/Repair	70	47	57
HVAC (Mechanical)	22	13	15
Pre-Assembly/Pre-Fabrication of Electrical Components	17	5	15
Water Utilities or Waste Water Treatment Plants	13	N/A	13

2018 results are not shown on this table

Types of Work Performed by Company in 2019 vs. 2017
Residential and/or CII Construction on a Combined Basis

(Base Answering	(1635)		(1597)
COMMUNICATIONS SYSTEMS/CONNECTIVITY	2019 52		2017 51
Structured Wiring/Cabling	45		44
Networking VOIP/ Wireless/Broadband, etc.)	**29**	>	24
Data Centers	**23**	>	20
Fiber Optics: (Communications and Security)	19		17

SUSTAINABILITY	2019 **64**	>	2017 59
Energy Efficiency Projects/ Upgrades (non-LEED)	38		37
Electric Vehicle Charging Equipment	**31**	>	23
LEED Projects	**24**	>	20
Solar/Photovoltaics	**20**	>	16
Energy Audits (including Thermal Imaging)	**16**	>	12
Smart or Net Metering	**14**	>	10
Cogeneration	9		7
Energy Storage	**9**	>	6
Geothermal	5		5
Wind Generation	4		4
Smart Grid Technology	**4**	>	3
Fuel Cells	**3**	>	2
Microgrids	3		2

POWER QUALITY	2019 65		2017 63
Backup Power/UPS	49		47
Trouble Shooting/ Maintenance of Low Voltage Systems	41		40
TVSS/Lightning Surge Suppression	34		33
Energy Management/Power Quality	20		20

> and < indicate significant changes at the 90% level of confidence vs. the 2018 Profile Study (each reporting on the previous year)

Base Answering	(1635)		(1597)
TRADITIONAL POWER/LIGHTING	2019 **95**	>	2017 93
Lighting	92		91
LED Lighting (Including Lamps, Fixtures and Controls)	**89**	>	87
Lighting Fixtures	82		84
Ballasts or LED Drivers	74		75
Lamps	71		70
Lighting Controls	**73**	>	69
Daylighting/Shading Systems	**25**	>	22
Any Other Lighting Not Included Above	24		22
Power	**90**	>	86
Power	81		80
Wire and Cable	**84**	>	80

AUTOMATION/CONTROL SYSTEMS	2019 **76**	>	2017 72
Fire/Life Safety (including Alarms/Detectors)	49		47
HVAC Controls	36		34
Security: CCTV/Access/Motion, etc.	**40**	>	34
Industrial Controls (including PLCS and VFDS and Switchgear)	**34**	>	31
Home Automation/Smart Home/Connectivity	**26**	>	21
Home Theater/Sound or VDV	17		16
Building Automation Systems/Facilities Connectivity	**22**	>	18
Sound and Video or VDV	**18**	>	15
Programming and Commissioning	**18**	>	15

OTHER	2019 74		2017 74
MSR (Any Electrical)	70		70
HVAC (Mechanical)	22		22
Pre-Assembly/Prefabrication of Electrical Components	17		18
Water Utilities or Waste Water Treatment Plants	13		13

Types of Residential Work Performed by Company in 2019 vs. 2017

Base Answering	(1635)		(1597)
COMMUNICATIONS SYSTEMS/CONNECTIVITY	2019 26		2017 28
Structured Wiring/Cabling	22		24
Networking VOIP/ Wireless/Broadband, etc.)	**12**	>	10
Data Centers	5		5
Fiber Optics (Communications and Security)	3	<	**4**
SUSTAINABILITY	2019 37		2017 35
Energy Efficiency Projects/ Upgrades (non-LEED)	16		17
Electric Vehicle Charging Equipment	**21**	>	15
Solar/Photovoltaics	10		9
LEED Projects	**8**	>	7
Smart or Net Metering	**6**	>	4
Geothermal	4		3
Cogeneration	3		3
Energy Storage	4		3
Wind Generation	1		2
Energy Audits (including Thermal Imaging)	**4**	>	2
Smart Grid Technology	1		1
Microgrids	0.4		1
Fuel Cells	0.6		0.5
POWER QUALITY	2019 37		2017 37
Trouble Shooting/ Maintenance of Low Voltage Systems	22		23
Backup Power/UPS	21		22
TVSS/Lightning Surge Suppression	17		15
Energy Management/Power Quality	5		5

Base Answering	(1635)		(1597)
TRADITIONAL POWER/LIGHTING	2019 69		2017 70
Lighting	66		67
LED Lighting (Including Lamps, Fixtures and Controls)	63		62
Lighting Fixtures	57		60
Lamps	48		47
Ballasts or LED Drivers	46		46
Lighting Controls	44		43
Daylighting/Shading Systems	9		8
Any Other Lighting Not Included Above	13		11
Power	65		64
Wire and Cable	59		59
Power	58		58

AUTOMATION/CONTROL SYSTEMS	2019 48		2017 46
Fire/Life Safety (including Alarms/Detectors)	28		28
Home Automation/Smart Home/Connectivity	**26**	>	21
HVAC Controls	20		20
Security: CCTV/Access/Motion, etc.	**21**	>	18
Home Theater/Sound or VDV	17		16
Programming and Commissioning	**6**	>	4

OTHER	2019 49		2017 51
Maintenance/Service/Repair (Any Electrical)	47		49
HVAC (Mechanical)	13		13
Pre-Assembly/Prefabrication of Electrical Components	5		6

> and < indicate significant changes at the 90% level of confidence vs. two years ago

Types of CII Work Performed by Company in 2019 vs. 2017

Base Answering	(1635)		(1597)
COMMUNICATIONS SYSTEMS/CONNECTIVITY	2019 **42**	**>**	2017 38
Structured Wiring/Cabling	**36**	>	32
Networking VOIP/ Wireless/Broadband, etc.)	**25**	**>**	20
Data Centers	**20**	**>**	18
Fiber Optics Communications and Security)	**18**	**>**	15

SUSTAINABILITY	2019 **48**	**>**	2017 41
Energy Efficiency Projects/ Upgrades (non-LEED)	**32**	>	29
LEED Projects	**20**	>	16
Energy Audits (including Thermal Imaging)	**14**	>	11
Solar/Photovoltaics	**13**	>	11
Electric Vehicle Charging Equip[f]	**17**	**>**	11
Smart or Net Metering	**11**	>	8
Cogeneration	**7**	**>**	5
Energy Storage Systems	**6**	>	4
Wind Generation	3		3
Geothermal	2		2
Fuel Cells	**3**	>	2
Smart Grid Technology	3		2
Microgrids	2		2

POWER QUALITY	2019 **50**	>	2017 46
Backup Power/UPS	**38**	>	33
Trouble Shooting/ Maintenance of Low Voltage Systems	31		30
TVSS/Lightning Surge Suppression	27		25
Energy Management/Power Quality	18		17

> and < indicate significant changes at the 90% level of confidence vs. two years earlier

Base Answering	(1635)		(1597)
TRADITIONAL POWER/LIGHTING	2019 **76**	>	2017 71
Lighting	**73**	**>**	68
LED Lighting (Including Lamps, Fixtures and Controls)	**68**	>	63
Lighting Fixtures	63		61
Ballasts or LED Drivers	60		57
Lamps	53		52
Lighting Controls	**54>**		48
Daylighting/Shading Systems	**21**	**>**	18
Any Other Lighting Not Included Above	**19**	**>**	17
Power	**68**	**>**	62
Wire and Cable	**62**	**>**	58
Power	**60**	**>**	57

AUTOMATION/CONTROL SYSTEMS	2019 **57**	>	2017 51
Fire/Life Safety (including Alarms/Detectors)	**36**	>	32
Industrial Controls (including PLCS and VFDS, Switchgear)	**34**	>	31
HVAC Controls	26		25
Security: CCTV/Access/Motion, etc.	**30**	>	25
Building Automation Systems/Facilities Connectivity	**22**	**>**	18
Sound and Video or VDV	**18**	>	15
Programming and Commissioning	**17**	>	14
Home Automation/Smart Home/Connectivity	N/A		
Home Theater/Sound or VDV	N/A		

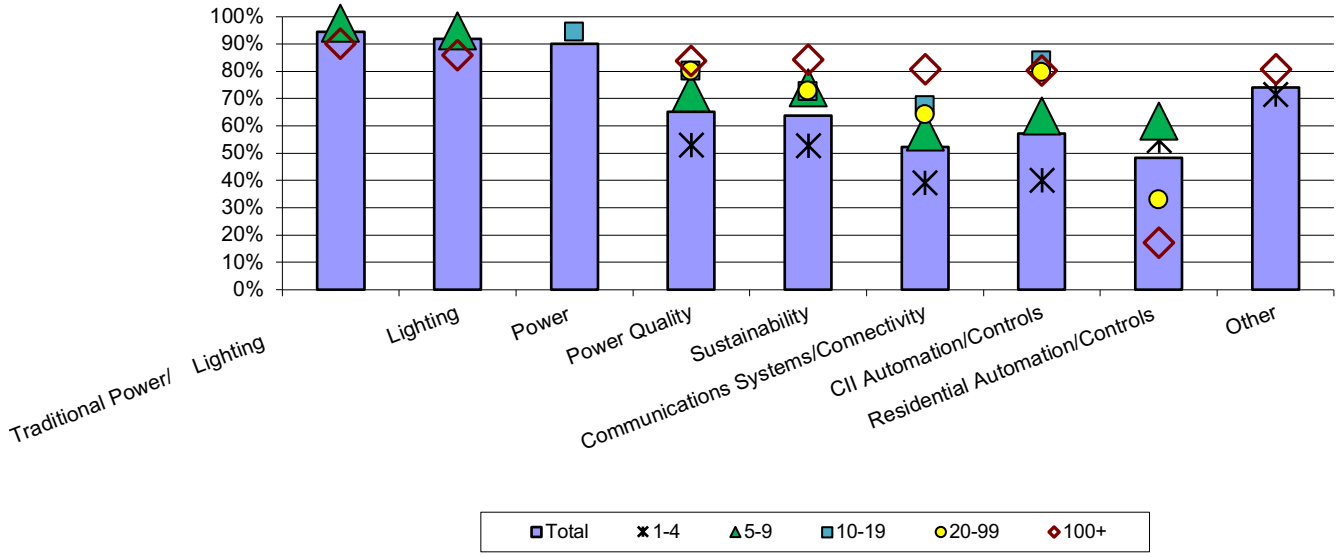
OTHER	2019 61		2017 59
Maintenance/Service/Repair (Any Electrical)	57		55
Pre-Assembly/Prefabrication of Electrical Components	15		16
HVAC (Mechanical)	15		15
Water Utilities or Waste Water Treatment Plants	13		13

The differences by category by company size are shown below:

- In a change from recent years, firms with 5-9 employees -- rather than the largest firms --are more likely than average to participate in more of the categories --7 of the 9 categories listed below. (Firms with 10-19 employees and firms with 100+ employees are each more likely than average to participate in 5 of the categories).
    - In contrast, in the past, lager firms -- particularly those with 100+ but also those with 20-99 employees – were more likely to perform most of the different types of work in the broad categories shown below (Earlier years not shown.)

- Firms with 1-4 employees are more likely to participate in only one of the categories listed below: Residential Automation Controls.

Types of Work Performed in Previous Year by Company Size
CII and Residential on a Combined Basis
(2020 Profile Study Total Sample = 1635)



Subgroups that are shown above the blue bar are significantly larger than average while those within the bar are smaller than average. Subgroups that are average are not shown . The value of the icon is measured at its center.

On the next pages, results by subgroup are compared to the total. Where a subgroup is greater than the total, the percentage is **bolded**; where it is smaller it is in *italic*s. Empty cells indicate that there is no difference between that subgroup and the total.

On the next few pages, we look at the individual project types that make up the broad categories shown in the chart above. Among firms working in Residential and/or CII on a combined basis:

- Firms with **10-19** employees are the most likely to perform almost all of the types of work shown on the next page – 24 of the listed 26. (This is indicated by the cells with bold percentage numbers). This is in contrast to two years ago, when firms with 100+ employees were the most likely to perform the most types of work on the list shown below.
- Firms with **20-99** and those with **100+** employees are each more likely than average to perform 18 of the 26 listed project types.
- As we've noted in the past, firms with **5-9** employees behave much more like larger firms, than they do with firms with **1-4** employees.
- Firms with **1-4** employees are *less* likely than average to perform almost all of the types of work shown on this page. Further, they **are not** *more* likely to perform any of the listed work types.

Types of Work Performed in Previous Year By Number of Employees
Total Sample (2020 Profile Study) Residential and/or CII Construction on a Combined Basis

	Total	1-4	5-9	1-9	10-19	20-99	100+
	%	%	%	%	%	%	%
Power	81	*79*		*80*	**91**		
Wire and Cable	84	*80*		*81*	**91**	**89**	
LED Lighting (Including Lamps, Fixtures, and Controls)	89	*81*	**92**		**94**		*82*
Lighting Fixtures	82		**89**		**89**		*75*
Lamps	71	*67*	**80**		**81**		
Lighting Controls	73	*65*	**82**	*68*	**84**	**82**	**79**
Ballasts or LED Drivers	74	*70*	**85**		**83**		
Daylighting/Shading Systems	25	*12*	**31**	*16*	**39**	**46**	**47**
Any Other Lighting Not Included Above	24	*16*	**30**	*19*		**35**	**40**
Structured Wiring/Cabling/Connectivity	45	*33*		*36*	**61**	**59**	**67**
Networking (VOIP/Wireless/Broadband, etc.)	29	*18*		*21*	**40**	**36**	**56**
Fiber Optics (Communications and Security)	19	*6*	*14*	*8*	**27**	**38**	**56**
Data Centers	23	*11*		*14*	**31**	**33**	**55**
Backup Power/UPS	49	*34*		*38*	**63**	**70**	**76**
Troubleshooting/Maintenance of Low-Voltage Systems	41	*31*		*33*	**49**	**52**	**64**
TVSS/Lightning Surge Suppression	34	*21*	**40**	*25*	**51**	**52**	**56**
Energy Management/Power Quality	20	*9*		*11*		**38**	**52**
Fire/Life Safety (Including Alarms/Detectors)	49	37		*40*	**65**	**67**	**68**
HVAC Controls	36	*32*		*32*	**43**		**49**
Security: CCTV/Access/Motion, etc.	40	*27*	**47**	*31*	**58**	**49**	**62**
Industrial Controls (Including PLCs and VFDs)	34	*18*	**41**	*23*	**49**	**53**	**67**
Home Automation/Smart Home/Connectivity	26	*27*	**40**	**29**	**36**	*18*	*7*
Home Theater/Sound or VDV	17		**27**	**19**	**23**	*12*	*6*
Building Automation Systems/Facilities Connectivity	22	*10*	*16*	*11*	**36**	**33**	**55**
Sound and Video or VDV	18	*9*		*10*	**27**	**29**	**43**
Programming and Commissioning	18	*9*		*10*	**24**	**30**	**45**

Table Continues on Next Page **Empty Cells Indicate no difference from Total Sample; bold indicates larger than average; *italics* indicates smaller than average**

The types of work on this page are in the categories of Sustainability and "Other" which covers miscellaneous project types.

- Sustainability projects are really the province of firms with 100+ employees. Firms with 20-99 employees perform more types of Sustainability projects than do firms with 10-19 or 5-9 employees. Firms with 5-9 employees are more likely than average to perform non-LEED energy efficiency projects, electric vehicle charging projects, MSR and Low voltage work. Firms with 1-4 employees are *less* likely than average to perform any of the types of Sustainability or any of the other work types shown on this page in Residential and CII work on a combined basis.

Number of project types

Types of Work Performed in Previous Year By Number of Employees, Total Sample (2020 Profile Study) Residential and /or CII Construction Combined							
	%	**%**	**%**	**%**	**%**	**%**	**%**
	Total	**1-4**	**5-9**	**1-9**	**10-19**	**20-99**	**100+**
Energy Efficiency Projects/Upgrades (Non-LEED)	38	*27*	**43**	*30*	**51**	**51**	**55**
LEED Projects	24	*13*		*15*	**31**	**38**	**57**
Electric Vehicle Charging Equipment	31	*25*	**43**	*29*		**37**	**39**
Solar/Photovoltaics	20	*13*		*14*		**26**	**40**
Energy Audits (Including Thermal Imaging)	16	*7*		*9*		**26**	**39**
Cogeneration	9	*6*	*5*	*5*			**27**
Smart or Net Metering	14	*8*		*10*	**19**		**32**
Geothermal	5	*4*					
Energy Storage	9	*5*		*5*			**27**
Wind Generation	4	*2*		*2*			**11**
Fuel Cells	3	*1*		*2*			**9**
Microgrids	3	*1*		*1*			**12**
Smart Grid Technology	4	*2*		*2*			**13**
HVAC (Mechanical)	22						
Pre-Assembly/Prefabrication of Elec Components	17	*9*		*11*	*12*	**28**	**48**
Water Utilities or Waste Water Treatment Plants	13	*7*		*8*		**19**	**35**
Maintenance/Service/Repair (Any Electrical)	70	*68*	**75**				
Any HVAC (Controls ***or*** Mechanical)	41	*39*		*38*			**53**
HVAC Controls *and* Mechanical	17						**22**
Any Low Voltage	96	*96*	**99**		**99**		*92*
Only 1 of 6 Categories	4	**6**		**6**	*1*	*1*	*2*
2	9	**14**	*4*	**12**	*5*	*4*	*3*
3	14	**19**		**18**	*7*	*8*	*4*
4	19	**21**	**21**				*10*
5	22	*22*	**29**				*13*
All 6	29	*16*		*19*	**43**	**40**	**63**
Mentioned 1-9 Types	28	**40**	*19*	**36**	*11*	*12*	*13*
Mentioned 10-11 Types	12	**15**		**14**		*8*	*2*
Mentioned 12+ Project Types	58	*43*	**67**	*48*	**78**	**76**	**80**
Mentioned 12-19	36	*34*	**44**		**46**		*22*
Mentioned 20 + (out of up to 43) Project Types	22	*8*		*11*	**33**	**38**	**58**

Among firms working in CII:

- As has been noted in earlier Profile Study reports, **CII** (Commercial, Industrial, Institutional) work is really the province of firms with 10+ employees. However, firms with 5-9 employees do play a role. As shown below, they are more likely than firms with 1-4 employees to perform projects in the areas of CII Power, most aspects of Lighting, TVSS/lightening/surge suppression, Industrial controls and Security.

Types of Work Performed in Previous Year By Number of Employees, CII (2020 Profile Study)

	Total	1-4	5-9	1-9	10-19	20-99	100+
	%	%	%	%	%	%	%
Wire and Cable	62	*47*	**71**	*52*	**84**	**84**	**82**
Lighting Fixtures	63	*51*	**75**	*56*	**82**	**79**	**73**
Power	60	*44*	**71**	*50*	**83**	**77**	**81**
LED Lighting (Including Lamps, Fixtures, and Controls)	68	*56*	**78**	*61*	**86**	**84**	**80**
Lamps	53	*42*	**64**	*46*	**73**	**67**	**65**
Ballasts or LED Drivers	60	*47*	**75**	*53*	**77**	**72**	**72**
Lighting Controls	54	*37*	**64**	*42*	**76**	**78**	**77**
Daylighting/Shading Systems	21	*8*		*11*	**32**	**43**	**46**
Any Other Lighting Not Included Above	19	*10*	**24**	*13*	**25**	**32**	**40**
Structured Wiring/Cabling/Connectivity	36	*21*		*25*	**54**	**52**	**65**
Networking (VOIP/Wireless/Broadband, etc.)	25	*13*		*16*	**38**	**34**	**55**
Fiber Optics (Communications and Security)	18	*6*	*12*	*7*	**25**	**35**	**55**
Data Centers	20	*9*		*11*	**29**	**32**	**54**
Backup Power/UPS	38	*19*		*24*	**56**	**66**	**76**
Troubleshooting/Maintenance of Low-Voltage Systems	31	*17*		*20*	**45**	**47**	**63**
TVSS/Lightning Surge Suppression	27	*12*	**33**	*16*	**43**	**49**	**54**
Energy Management/Power Quality	18	*7*		*9*		**36**	**51**
Fire/Life Safety (Including Alarms/Detectors)	36	*18*		*22*	**59**	**63**	**66**
Industrial Controls (Including PLCs and VFDs and Switchgear)	34	*18*	**41**	*23*	**49**	**53**	**67**
HVAC Controls	26	*18*		*19*	**37**	**31**	**46**
Security: CCTV/Access/Motion, etc.	30	*15*	**35**	*19*	**48**	**44**	**58**
Building Automation Systems/Facilities Connectivity	22	*10*	*16*	*11*	**36**	**33**	**55**
Sound and Video or VDV	18	*9*		*10*	**27**	**29**	**43**
Programming and Commissioning	17	*7*		*9*	**23**	**28**	**44**
Home Automation/Smart Home/Connectivity	**N/A**						
Home Theater/Sound or VDV	**N/A**						

Table Continues on Next Page **Empty Cells Indicate no difference from Total Sample; bold indicates larger than average; *italics* indicates smaller than average**

Among firms working in **CII**: As has been the case in the recent past, the largest firms (100+ employees) are also the most likely to perform most types of Sustainability projects in CII construction. Sustainability project involvement increases along with firm size.

- Note that the largest firms (20+ employees) and firms with 5-9 employees are also more likely to perform Electrical M/S/R in a CII setting. In addition, firms with 5-9 employees are also more likely than smaller firms to perform non-LEED Efficiency projects and Low-voltage work.

Types of Work Performed in Previous Year By Number of Employees, CII (2020 Profile Study)							
	Total	**1-4**	**5-9**	**1-9**	**10-19**	**20-99**	**100+**
	%	%	%	%	%	%	%
Energy Efficiency Projects/Upgrades (Non-LEED)	32	*19*	**37**	*22*	**46**	**48**	**54**
LEED Projects	20	*9*		*11*		**35**	**55**
Solar/Photovoltaics	13	*5*		*6*		**20**	**38**
Energy Audits (Including Thermal Imaging)	14	*5*		*7*	**19**	**25**	**38**
Electric Vehicle Charging Equipment	17	*7*		*10*		**30**	**38**
Cogeneration	7	*4*	*3*	*3*			**25**
Smart or Net Metering	11	*5*		*6*			**31**
Energy Storage	6	*2*	*4*	*2*		**10**	**26**
Wind Generation	3	*1*		*1*			**11**
Geothermal	2	*1*		*1*			**7**
Fuel Cells	3	*1*		*1*			**9**
Smart Grid Technology	3	*1*		*2*	*1*		**13**
Microgrids	2	*1*		*1*	*1*		**12**
Pre-Assembly/Prefabrication of Electrical Comp'nts	15	*7*		*8*	*11*	**25**	**47**
HVAC (Mechanical)	15	*12*		*13*	**21**		**23**
Water Utilities or Waste Water Treatment Plants	13	*7*		*8*		**19**	**35**
Maintenance/Service/Repair (Any Electrical)	57	*47*	**69**	*52*	**69**	**63**	**71**
Any HVAC (HVAC ***or*** Mechanical)	30	*21*		*23*	**41**	**37**	**50**
HVAC Controls *and* Mechanical	11	*9*		*9*	**17**		**20**
Any Low Voltage	78	*67*	**85**	*70*	**94**	**92**	**91**
Only 1 of 6 Categories	6	**9**		**8**		*2*	*2*
2	11	**15**		**14**	***5***	***5***	*3*
3	11	13		13			*3*
4	15		**19**				*9*
5	16	*11*	**22**	*13*	**24**	**27**	
All 6	23	*9*		*11*	**34**	**35**	**62**
Number of Project Types (ANY)							
Mentioned 1-9 Types	30	**41**		**37**	***17***	***13***	*14*
Mentioned 10-11 Types	9	9	**14**	**10**			*2*
Mentioned 12+ Project Types	43	21	**50**	*27*	69	**71**	**77**
Mentioned 12-19	24	16	**34**	*20*	**44**	**37**	
Mentioned 20 + (out of 43) Project Types	18	5		***7***	**25**	**34**	**57**

Among Firms Working in **Residential** construction: What is interesting here is that the very smallest firms perform so many aspects of Traditional Power/Lighting, as well as some aspects of Power Quality, HVAC controls and mechanical work, Electrical Maintenance/Service/Repair and Low-voltage work. However, in contrast to two years ago, the smallest electrical contractors are now doing fewer types of work and are no longer more likely to be doing any Sustainability work compared with larger firms.

Note that their higher than expected involvement in so many categories only becomes evident when CII work (which tends to overshadow residential work) is excluded.

- Firms with 5-9 employees are also above average in their work in Residential construction.

Types of Work Performed in Previous Year By Number of Employees, Residential (2020 Profile Study)							
	Total	**1-4**	**5-9**	**1-9**	**10-19**	**20-99**	**100+**
	%	%	%	%	%	%	%
Power	58	**69**	**67**	**69**		*37*	*20*
Wire and Cable	59	**70**	**69**	**70**		*38*	*20*
Lighting Fixtures	57	**70**	**69**	**70**		*34*	*17*
LED Lighting (Including Lamps, Fixtures, and Controls)	63	**77**	**67**	**75**		*38*	*20*
Lamps	48	**57**	**57**	**57**		*29*	*14*
Lighting Controls	44	**51**	**54**	**52**		*29*	*18*
Ballasts or LED Drivers	46	**55**	**54**	**55**		*29*	*15*
Daylighting/Shading Systems	9	*7*	**14**		**16**		
Any Other Lighting Not Included Above	13				**18**		*6*
Structured Wiring/Cabling/Connectivity	22		27	**23**			*11*
Networking (VOIP/Wireless/Broadband, etc.)	12	*11*	**18**		**17**		*8*
Fiber Optics (Communications and Security)	3	*1*		*1*		**6**	**7**
Data Centers	5	*5*	**10**				
Troubleshooting/Maintenance of Low-Voltage Systems	22	**24**	**28**	**25**		*15*	*9*
Backup Power/UPS	21	**23**	**27**	**24**		*11*	*9*
TVSS/Lightning Surge Suppression	17	*16*	23		**29**	*36*	*10*
Energy Management/Power Quality	5	*4*		*4*	**8**		
Fire/Life Safety (Including Alarms/Detectors)	28		**38**	**30**			*13*
HVAC Controls	20	**26**		**25**		*10*	*6*
Home Automation/Smart Home/Connectivity	26	*27*	**40**	**29**	**36**	*18*	*7*
Home Theater/Sound or VDV	17	*17*	**27**	**19**	**23**	*12*	*6*
Security: CCTV/Access/Motion, etc.	21	*21*	**31**	**23**	**28**	*16*	*14*
Programming and Commissioning	6	*5*		*5*	**11**		
Building Automation Systems/Facilities Connectivity	**N/A**						
Industrial Controls (Including PLCs and VFDs and Switchgear)	**N/A**						
Sound and Video or VDV	**N/A**						

Table Continues on Next Page Empty Cells Indicate no difference from Total Sample; bold indicates larger than average; italics indicates smaller than average

Among Firms Working in Residential, continued:

- Firms with 5-9 employees are more likely than firms with 1-4 employees to work in two Sustainability project types: Geothermal and Cogeneration. Firms with 1-4 employees are more likely to work on HVAC Mechanical and, as might be expected, on Electrical Maintenance, Service and Repairs.

- Note that firms that do residential work tend **not** to work on all of the project types or categories. In contrast, larger firms working in CII tend to work on many more project types.

Types of Work Performed in Previous Year By Number of Employees, Residential (2020 Profile Study)							
	Total	**1-4**	**5-9**	**1-9**	**10-19**	**20-99**	**100+**
	%	%	%	%	%	%	%
Energy Efficiency Projects/Upgrades (Non-LEED)	16			**17**		*10*	*8*
Fuel Cells	0.6						
Electric Vehicle Charging Equipment	21	*22*	**34**	24		*17*	*9*
Solar/Photovoltaics	10						*6*
LEED Projects	8				**14**	*5*	
Smart or Net Metering	6	*5*			**12**		
Geothermal	4						*1*
Cogeneration	3					*1*	
Energy Audits (Including Thermal Imaging)	4	*3*			**8**		
Wind Generation	1						
Energy Storage	4						
Smart Grid Technology	1						
Microgrids	0.4						
Pre-Assembly/Pre-Fabrication of Electrical Components	5						
HVAC (Mechanical)	13	**16**		**16**		*6*	*4*
Water Utilities or Waste Water Treatment Plants	**N/A**						
Maintenance/Service/Repair (Any Electrical)	47	**57**	**55**	**57**		*27*	*14*
Any HVAC (HVAC ***or*** Mechanical)	24	**31**		**30**		*10*	*8*
HVAC Controls *and* Mechanical	9	**11**		**11**		*5*	*3*
Any Low Voltage	68	**82**	**77**	**81**		*43*	*24*
Only 1 of 6	7	**9**					
2 of 6	11	**15**		**14**		*6*	*3*
3 of 6	14	**20**		**18**	*8*	*10*	*2*
4 of 6	14	**17**		**17**		*5*	*4*
5 of 6	15	**16**	**21**	**17**		*10*	*4*
All 6	11	*10*	**17**		**17**		
Number of Project Types							
Mentioned 1-9 Types	33	**44**	*28*	**41**	**24**	***20***	*10*
Mentioned 10-11 Types	10	**14**	**14**	**14**	7	*5*	*1*
Mentioned 12+ Project Types	28	**29**	**38**	**31**	**38**	*21*	*15*
Mentioned 12-19	23	**25**	**29**	**26**		*18*	*10*
Mentioned 20 + (out of 43) Project Types	5	*4*	**8**		12		

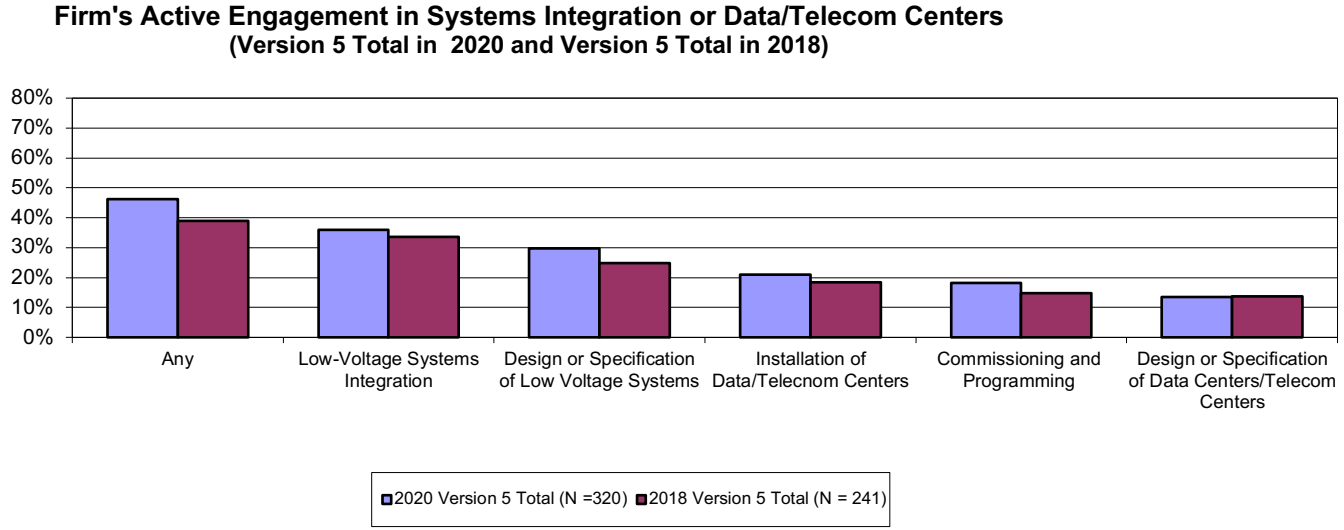
Low-Voltage: Firm's Active Engagement in Systems Integration or Data Centers

To put the following results into context, across the total sample 96% perform low-voltage work.

In the 2020 Profile Study, 22% of firms said that they currently have a separate low-voltage division, a dramatic and statistically significant increase from the 2018 level of 11%. As was the case two and four years ago, larger firms (those with 10+ employees) are more likely to have a separate low-voltage divisions (40% in 2020, up dramatically and significantly from 25% in both 2018 and 2016.) Larger firms are no longer more likely to plan to add a low-voltage division in the next 1-2 years, although this was the case in the 2018 Profile Study. Perhaps these firms already added the low-voltage units! [Separate low voltage division findings are not illustrated below, but can be found on page 23.]

Almost one-half of the electrical contractors interviewed are actively involved in systems integration or data centers: Low-voltage systems integration was mentioned most often (36%). Design or specification of low- voltage Systems, received the next the next most mentions at 30%. About 2 in 10 firms said that they installed data or telecom centers and/or that they performed commissioning and programming; 13% were involved in the design or specification of data or telecom centers.

There are no significant differences from two years ago.



Version 5_Q15

Roles Played by Firm in Integrated Systems, continued

Electrical contractors were asked to indicate the extent to which they specify, install or both specify **and** install selected integrated systems.

- 60% of electrical contractors say that they both **specify *and* install Lighting**. This is about double the percent that *only* install.
- For most of the other integrated systems, the percent that both specify **and** install is in the range of about 20% to 25%, with the exception of HVAC (not including controls) where it is 10%. Specifying without installing is in the single digits.

Starts at Table 170

Roles Played by Firm in Integrated Systems
2020 Profile Study

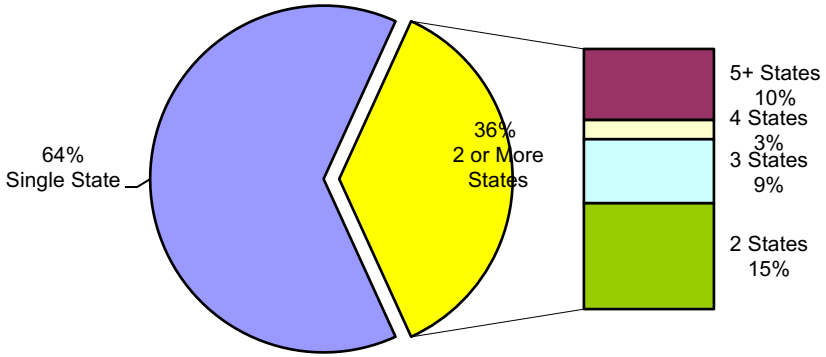
	Specify *Only*	Install *Only*	Specify *and* Install	Don't Work in This Category	No Answer
Version 7 Base (211)	%	%	%	%	%
Security	2	21	20	55	2
Fire/Life Safety	6	26	24	42	2
Lighting (including Controls)	3	28	60	7	2
Communications (VDV, etc.)	3	31	21	43	2
Building Controls (including HVAC)	1	31	17	49	2
HVAC (Not Including Controls)	4	23	10	60	2

▲*"WHERE DO CONTRACTORS PERFORM THE WORK?*

About one-third of electrical contracting firms perform their work in multiple states; issues of licensing and certification may suppress working in multiple states. Nevertheless, the proportion working in 2 or more states rose significantly to 36% from 33% two years ago. Note that the proportion working in 3+ (21% vs. 18%), 4+ (13% vs. 10%) and 5+ states (10% vs. 7%) each also rose significantly compared with two years ago.

These findings are consistent with respondent companies skewing larger (pages 12, 13 and 19) and shown below.

Number of States in Which Electrical Contracting Firm Performs Its Work
(2020 Profile Study)



Bold percentages are significantly higher than *italicized* percentages

Not surprisingly, larger firms are more likely to work in multiple states. This was also the case in earlier Profile Studies.

	Total	1-4	5-9	1-9	10+
Work in 2+ States (2020)	36%	*24%*	**<34%**	*26%*	**<56%**
Work in 2+ States (2018)	33%	*21%*	**<35%**	*24%*	**<55%**
Work in 2+ States (2016)	32%	22%	**30%**	*24%*	**<54%**
Work in 2+ States (2014)	31%	*20%*	**<37%**	*23%*	**<55%**

Bold percentages are significantly higher than *italicized* percentages in the direction of the arrow

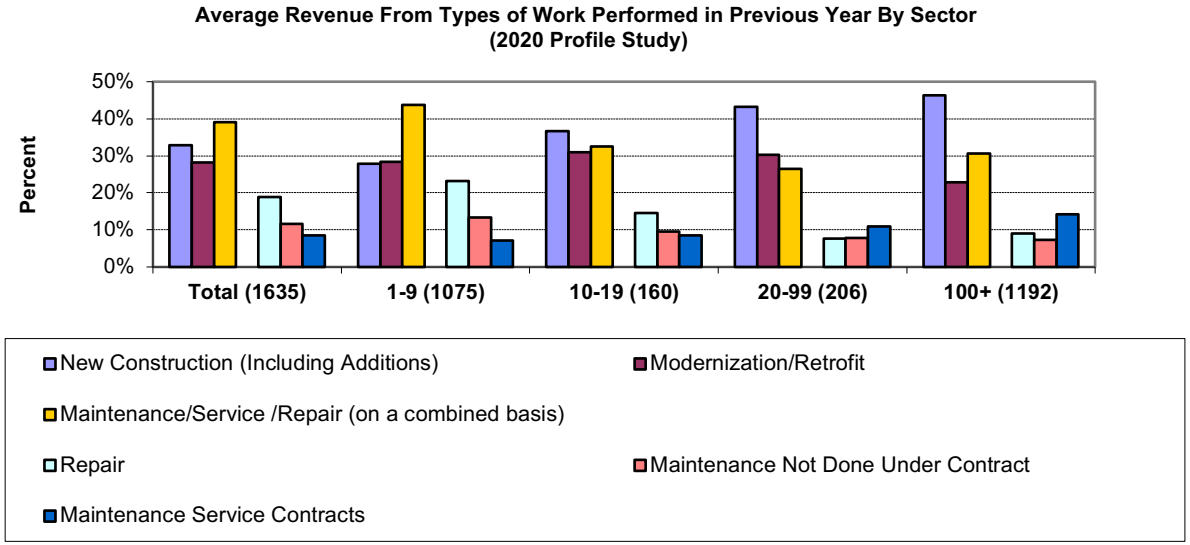
Types of Work: By Sector (New Construction Vs. Modernization Vs. Maintenance and Repair)

In the 2020 Profile study, on average, 39% of electrical contractor revenue comes from Maintenance/Service or Repair, which is slightly, but statistically lower than the 2018 level of 41%. On average, 33% of revenue comes from New Construction, which is statistically unchanged compared with 2018. Note that new construction which accounted for 43% of revenue on average in 2007 (not shown), has not yet recovered.

On average, 28% of revenue comes from or Modernization/Retrofit, which posted a slight, but statistically significant increase since 2018, when it was 27%.

As was the case in earlier Profile studies, New Construction (the blue bar) plays a proportionally larger role to firms with 10+ employees than to smaller firms, while Maintenance/Service/Repair – on a combined basis -- (the gold bar) accounts for a proportionally larger share of revenue among smaller firms. However, with the exception of firms with 10-19 employees, where there is no difference, Maintenance *Contracts* continue to play a proportionately bigger role to larger companies.

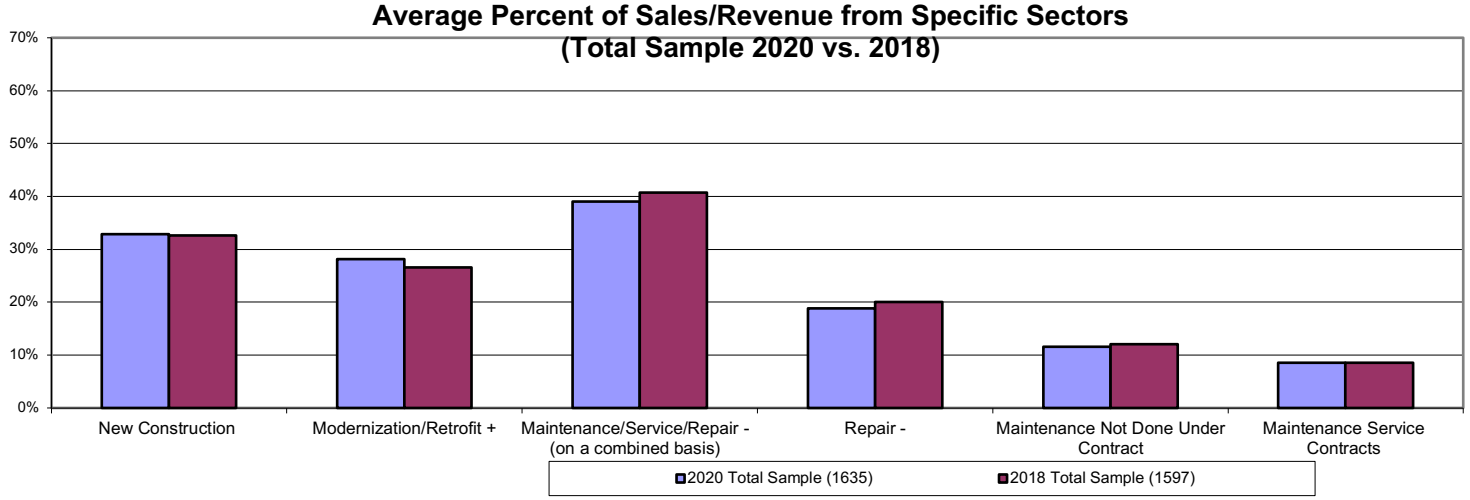
- In 2020, Maintenance Contracts accounted for a larger role among firms with 20+ employees, in 2018, they accounted for a larger role among firms with 100+ employees (2018 results are not shown below).



There are three significant differences among the total sample: On average, revenue from Modernization/Retrofit increased compared to two years ago, driven by increases among firms with 1-9 employees, while revenue from Repair declined, as did Maintenance/Service/Repair on a combined basis; the latter driven by decreases among firms with 1-9 employees.

Although there was no significant change among the total sample, revenue from Maintenance/Service Contracts increased among firms with 10+ employees. Subgroup differences are shown in the table below.

Statistically significant differences among the **total sample** (2020 compared with 2018) are shown below via + or – next to label



Average Percent of Sales/Revenue from Specific Sectors						
	Total		**1-9 Employees**		**10+ Employees**	
	2020	**2018**	**2020**	**2018**	**2020**	**2018**
New Construction	32.9%	32.6%	27.9%	28.2%	42.4%	43.6%
Modernization/Retrofit	**28.2%>**	26.6%	**28.3%>**	25.7%	27.9%	28.9%
Maintenance/Service/Repair	39.0%	**<40.7%**	43.8%	**<46.1%**	29.6%	27.5%
Repair	18.8%	**<20.1%**	23.2%	24.2%	10.1%	10.4%
Maintenance/Service Contracts	8.6%	8.5%	7.2%	8.3%	**11.4%>**	8.9%
Maintenance Not Done Under Contract	11.6%	12.1%	13.4%	13.6%	8.1%	8.2%

> or < indicates significant difference in the direction of the arrow

Types of Electrical Projects: Average Sources of Revenue

- In 2020, with one exception – an increase in the average percentage from Industrial Systems/Controls compared with 2018 -- there are no significant differences among the total sample in average revenue from the electrical projects included in this study. **This indicates that the dramatic decline in the percentage of average revenue from Electric Power Transmission and Distribution observed two years ago (from 43% in 2016) was *not* an anomaly.[5]**

- Rather, the two top sources of revenue continue to be Lighting (26.8% average revenue) and Electric Power Transmission and Distribution (24.8% average revenue). The next highest average revenue source is Industrial Systems/Controls (9.7%, up significantly from 6.8% in 2018).

    - Note, however, that there is no corresponding significant decline as a direct offset to the increase in Industrial Systems. Instead, the increase was the result of non-significant differences across the electrical projects included in this study.

    There are relatively few *subgroup* changes vs. two years ago:

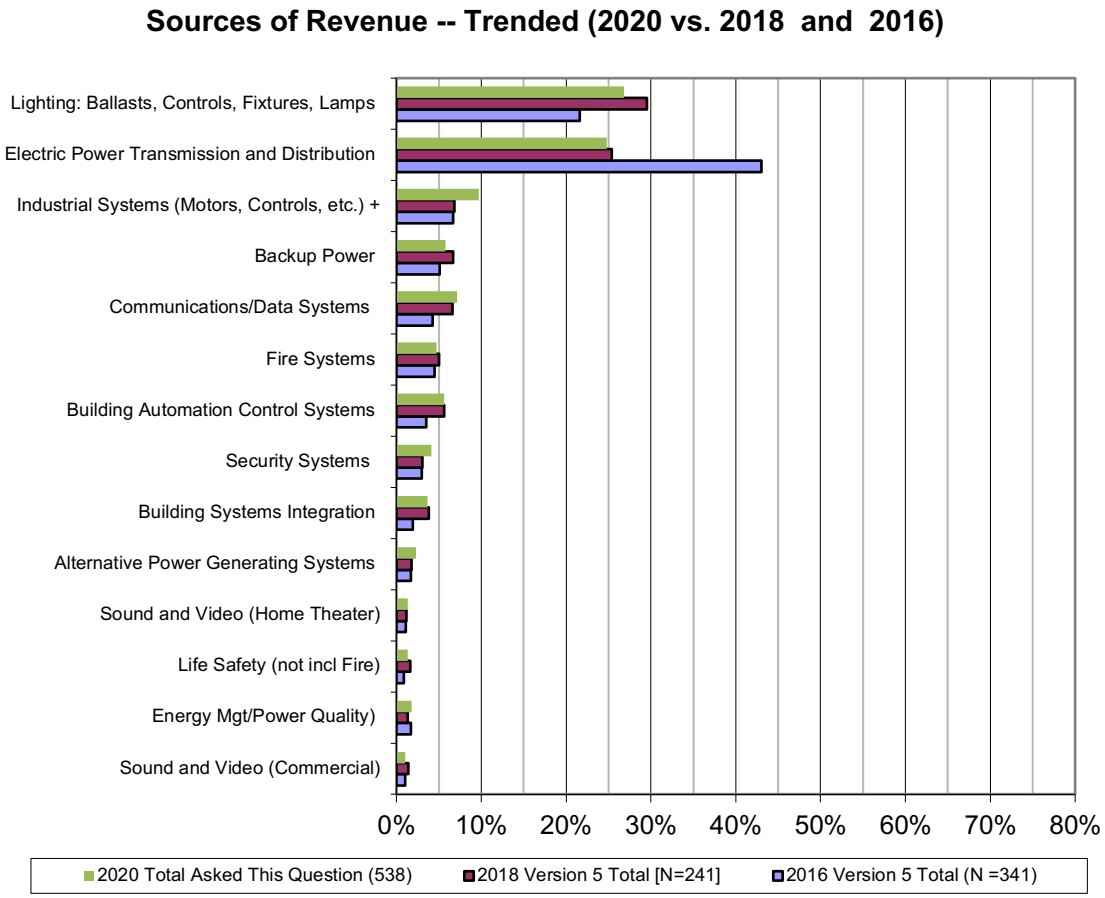
    - Among firms with 10+ employees, Lighting *declined* (to 19.8% from 26.9%) while the following project types *increased*: Industrial Systems/Controls (to 14.2% from 7.2%) and Alternative Power Generating Systems (to 3.8% from 1.7%).

    - Among firms with 1-9 employees, Security Systems *increased* (to 4.2% from 2.0%)

    [Only the total sample is shown below]

---

[5] In 2018, we noted: "For the first time since at least 2004, Electric Power Transmission and Distribution (formerly called Electrical/Power Distribution) no longer accounts for the largest *single* percent of company sales. Compared with two years ago, it dropped significantly and dramatically to 25.4% from 43% in 2016. Rather, Lighting edged into first place and now accounts for an average of almost 30% of company revenue. It rose significantly from 21% on average in 2016." We continued, "Although Electric Power Transmission and Distribution declined sharply compared with two years earlier, the average percent of revenue from Electrical/Power Distribution had been dropping steadily since 2004 when it was 69%.".



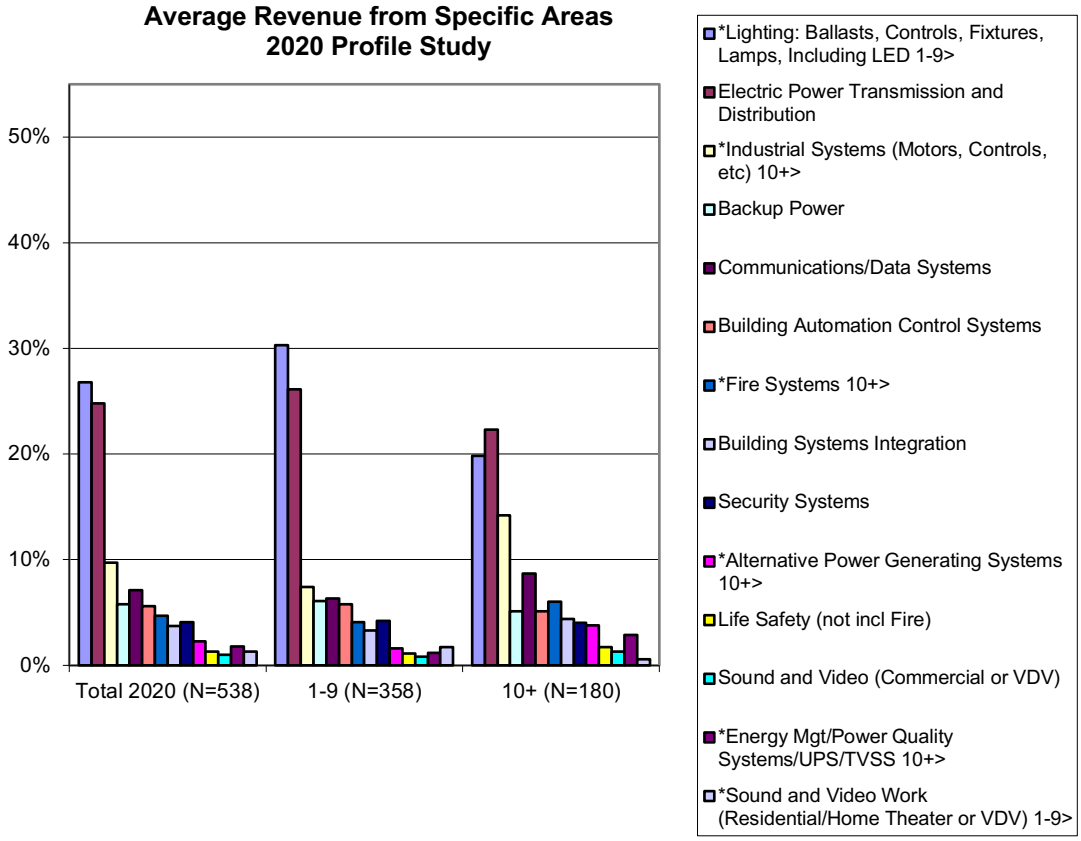
+ and – indicate significant changes at the 90% level of confidence vs. the 2018 Profile Study (each reporting on the previous year)

As will be shown on the next page, there are relatively few significant differences in average revenue by company size

Table 255, V4_Q16, V5_Q14

In the current wave, there are only six significant differences in average revenue by number of employees.

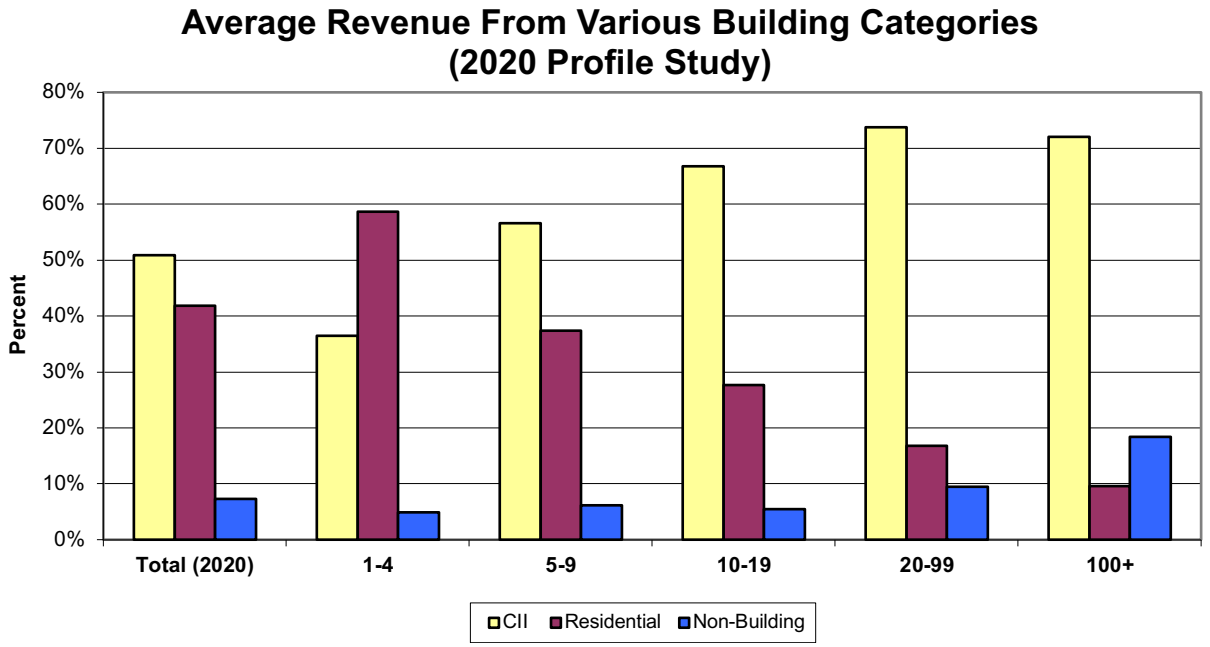
- In these four cases, average revenue is significantly higher among firms with 10+ employees compared with firms with 1-9 employees: Industrial Systems, Fire Systems, Alternative Power Generating Systems and Energy Management Systems.
- In these two cases, average revenue is significantly higher among firms with 1-9 employees compared with firms with 10+ employees: Lighting, Residential Sound and Video/Home Theater.



The * indicates that there is a significant difference by number of employees

Work in Various Building Categories (Residential vs. CII and Non-Building)

Across the total sample, electrical contractors continue to get more of their average revenue from CII (Commercial, Industrial, Institutional and Public Places), 51% on average, than from Residential projects, 42% on average. Non-Building projects (Transportation/Lighting and Utility) account for about 7% of the contractors' business.



Q4_ N=1635

CII = **Commercial** (Offices, Stores, Hospitality, etc); **Institutional** (Schools/Hospitals/Stadiums/Parks/Terminal/Cultural/Correctional, etc); **Industrial** (Manufacturing Plants/Process Industries/Factories/Warehouses, etc); **Residential**: Single Family; Multifamily (1-5 stories); Multifamily (6+ stories) **Non-Building:** Line Work (Overhead/Underground Construction/Transmission & Distribution/Maintenance and Repair, Transportation Lighting, and Communications (Airport Runway/Highway/Street Lighting including Parking Garages and Traffic Controls/Electric Signage/Traffic Calming Signs); Power Generation and/or Substations; Distributed Generation/Alternative Energy; Smart Grid; Electric Vehicle Charging Equipment; Energy Storage was first added in 2016.

Table 23

Work in Various Building Categories (Residential vs. CII and Non-Building), continued

Compared with two years earlier, the average percentage of revenue declined from Residential (from 44.4% to 41.8%).

- There were no statistically significant differences in the average revenue derived from Non-building or CII as broad categories.
- Although not shown below, average revenue from Institutional work increased among the total sample. Average revenue from Single Family housing declined among the total sample and among firms with 10+ employees.

	Average Revenue in Previous Year From Specific Categories											
	Total		**1-9**		**10+**		**10-19**		**20-99**		**100+**	
	2020	**2018**	**2020**	**2018**	**2020**	**2018**	**2020**	**2018**	**2020**	**2018**	**2020**	**2018**
	(1635)	(1597)	(1075)	(1122)	(558)	(469)	(160)	(157)	(206)	(178)	(192)	(134)
CII	50.9%	48.9%	40.5%	39.6%	71.2%	71.7%	66.8%	67.2%	73.8%	75.4%	72.0%	72.1%
Residential	41.8%	**<44.4%**	54.4%	55.5%	17.4%	17.2%	27.7%	26%	16.8%	14.9%	9.6%	9.8%
Non-Building	7.3%	6.7%	5.1%	4.9%	11.4%	11.1%	5.5%	6.8%	9.5%	9.7%	18.4%	18%

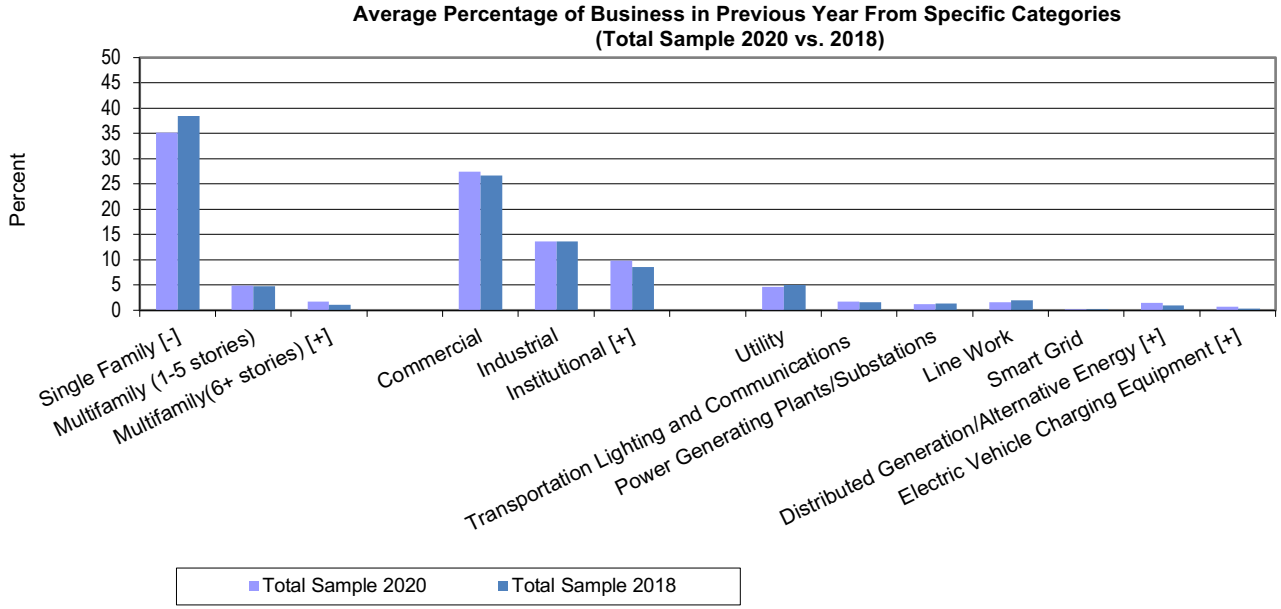
> or < indicates significant difference in the direction of the arrow

Types of Residential and CII Work Performed

- Although on average, the greatest portion of electrical contractors' revenue comes from CII work, Single Family housing accounts for the *single* largest source of revenue (35.2% in the 2020 Profile Study). Also within the housing category, a higher percentage of revenue comes from Multi-Family housing with 1-5 stories compared with taller Residential buildings. This was also the case two and four years ago.

- As was also the case for at least the last eight years, within the broad CII category, a greater percentage of electrical contractors' revenue is from Commercial construction (27.5%) than from Industrial (13.6%) or Institutional projects (9.9%).

    - In the 2020 Profile Study, compared with the 2018 Profile Study, the percentage of average revenue from Single Family housing dropped significantly while the percentage of average revenue from another type of residential building -- Multifamily housing 6+ stories -- rose significantly. Average revenue from Institutional building rose as did the following project non-building types – each small: a significantly higher percentage of average revenue now comes from Distributed Generation/Alternative Energy and/or from Electric Vehicle Charging Equipment than was the case in the 2018 Profile Study. There are no other changes.



(+) Denotes significantly higher than two years earlier (2020 vs. 2018 Profile Study)

Table 23

As noted in previous Profile reports, while Single Family projects account for a high percentage of revenue across the total sample, this type of work is extremely important to electrical contracting firms with 1-9 employees. On average, these small firms derive almost one-half of their revenue from Single Family projects.

- Electrical contracting firms with 10-99 employees derive the greatest percentage of their revenue from Commercial projects. Firms with 10+ employees derive a disproportionate percentage of their revenue from Industrial work (even higher among firms with 20+ employees) and/or Institutional work (highest among firms with 100+ employees).
    - In addition, electrical contracting firms with 100+ employees get a disproportionate percentage of their revenue from Utility/Non-Building work.

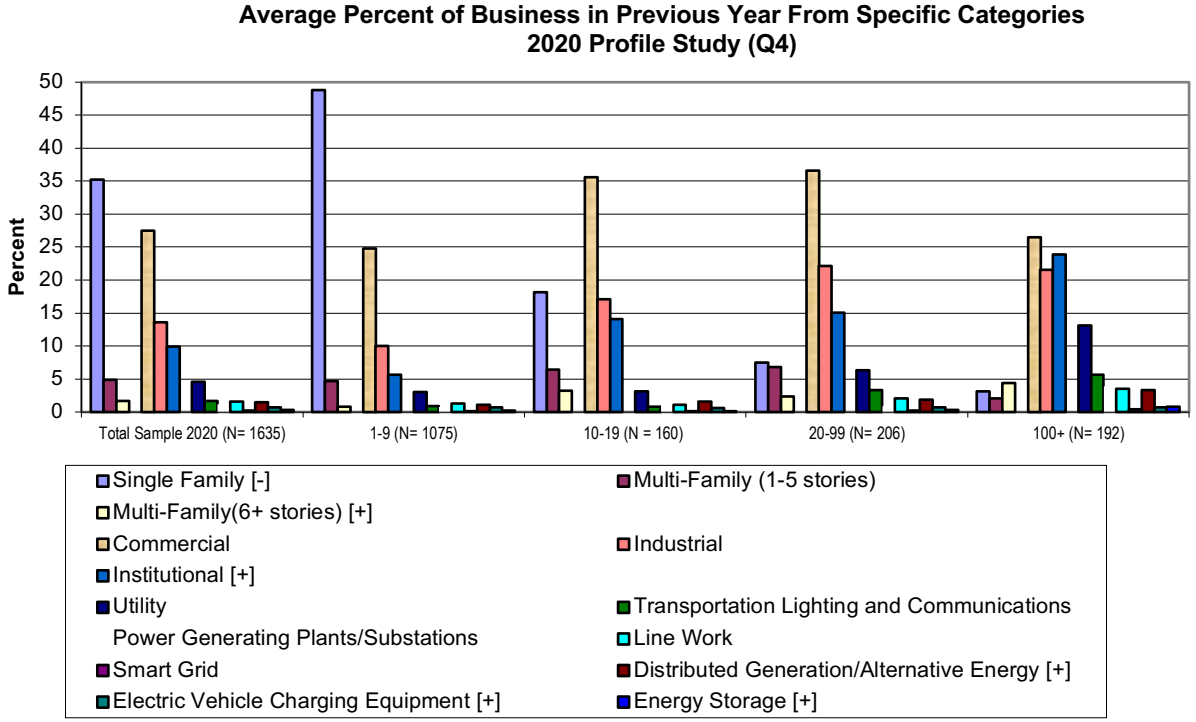


Table 23

[+] or [-] indicates significant change among the total sample vs. 2018

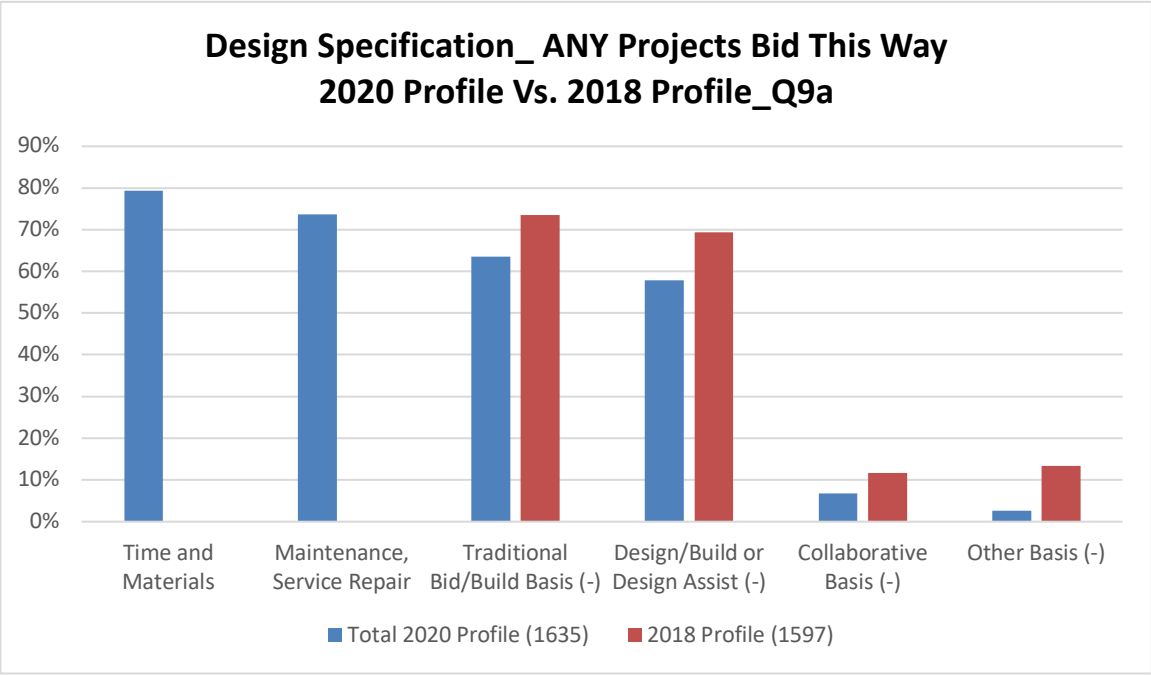
▲ *"HOW" DO CONTRACTORS PERFORM THEIR WORK?*

Roles in Specification/Types of Project Delivery (Design/Build or Design/Assist)

In the 2020 Profile Study, electrical contractors were given an expanded list of choices that included Time and Materials and Maintenance, Service and Repair in addition to Traditional Build/Build, Design Build or Assist, on a Collaborative Basis or Other.

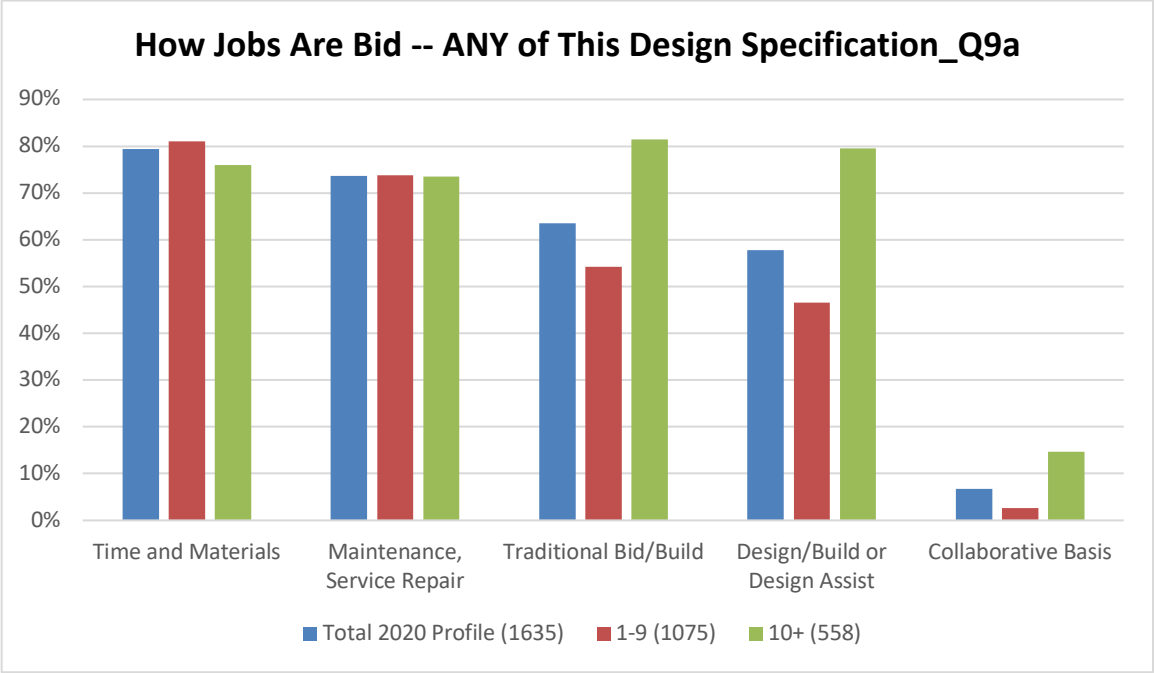
As shown below, the two new choices, which were added based on their high number of volunteered mentions in 2018, actually proved to be the most widely selected.

- In fact, all of the original choices, displayed in red, posted statistically significant declines.



Across the total sample, 58% of electrical contractors performed (**any**) Design/Build or Design/Assist work in the previous year. As in the past, larger firms are even more likely than smaller firms to have engaged in D/B or D/A work:

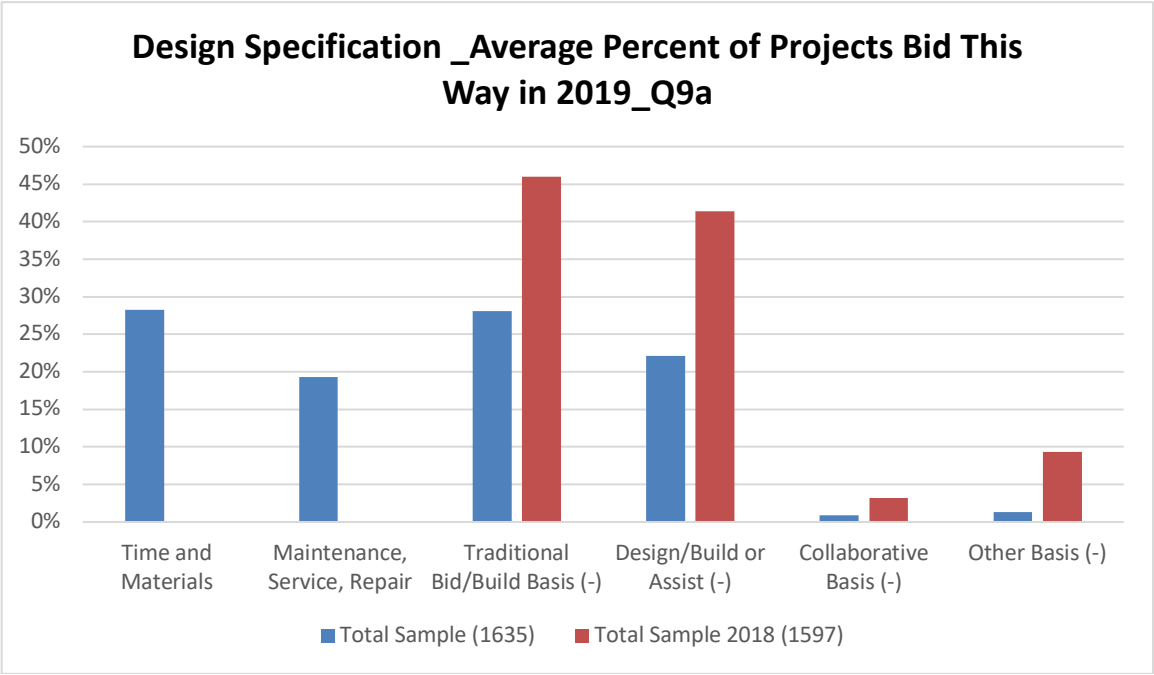
- While 47% of firms with 1-9 employees performed **any** DB or DA work in 2019, **any** D/B//D/A work was performed by 80% of firms with 10+ employees.
    - Interestingly, the percentage of small firms performing **any** DB or DA build work declined significantly from 65% in 2017 to 47% in 2019 while the percentage of larger firms performing **any** DB or DA work held constant at about 80%.
        - Note that while there is no size-related skew for Maintenance, Service and Repair, Time and Materials skews to smaller firms while Traditional Bid/Build, Design/Build or Assist and Collaborative each skew to larger firms.



The chart on the previous pages show whether the electrical contractor does any work on this basis. The next few pages focus on the *amount* of work done, expressed as average revenue.

As shown below, an average of 28% of electrical contractors' revenue each was done on a Time and Materials basis or on a Traditional Bid/Build basis. On average, 22% was done on a Design/Build or Design/Assist basis and 19% was from Maintenance, Service or Repair. On average, only about 1% of projects were bid on a Collaborative basis or on some "Other" basis in 2019.

As shown below, the two new choices, which were added based on their high number of volunteered mentions in 2018, accounted for enough average revenue that average revenue from the four original design specification options declined dramatically and statistically significantly.



Smaller firms get significantly more of their average revenue from Time and Materials and/or from Maintenance Service or Repair compared with larger firms. In contrast, larger firms get significantly more of their average revenue from Traditional Bid/Build projects, those bid on a Design/Build or Design Assist on a combined basis or, to a much lesser extent from Collaborative building.

Design Specification _Average Percent of Projects Bid This Way in 2019								
	Total	**1-4**	**5-9**	**1-9**	**10+**	**10-19**	**20-99**	**100+**
	%	%	%	%	%	%	%	%
Time and Materials	28.3	**37.1**		**35.2>**	*15.3*	*21.6*	*13.2*	*12.2*
Traditional Bid/Build	28.1	*20.9*	**<31.9**	*23.1*	**<37.5**	**35.4**	**41.2**	**35.3**
Design/Build or Design/Assist	22.1	*17.2*		*17.7*	**<30.5**	**28.1**	**29.2**	**33.9**
Maintenance, Service and Repair	19.3	**22.7**		**22.1>**	*14.0*	*13.5*	*13.6*	*14.8*
Collaborative Basis	0.9	*.05*	*.02*	*.04*	**<2.0**	*.05*	**1.8**	**3.3**

Empty cells are not significantly different than the total sample
Bolded numbers > and < indicate statistically significant differences in the direction of the arrow

In the 2018 Profile Study, the average percent of revenue from Design/Build or Design/Assist on a combined basis was significantly higher among firms with 1-9 employees. This is no longer the case now that the options of Time and Materials and Maintenance/Service/Repair were offered. [Earlier years are not illustrated]

Note the relative importance of Design/*Assist* in the 2020 Profile Study among firms with 100+ employees.

- This was also the case in the 2018 Profile Study (not shown).

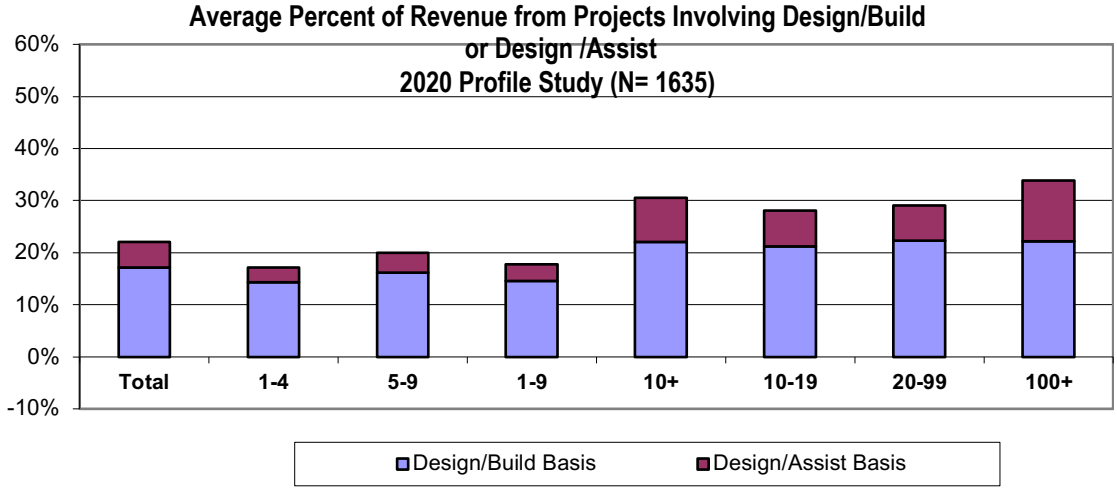


Table 53

BIM (Building Information Modeling)

Electrical contractors were asked to estimate the percentage of the time that they or someone in their firm uses BIM (Building Information Modeling). This question was first asked in the 2012 Profile Study.

As shown below, across the total sample, the use of BIM had been fairly steady between 2012 and 2018 but both **"Any"** use and **average** use rose significantly between 2018 and 2020.

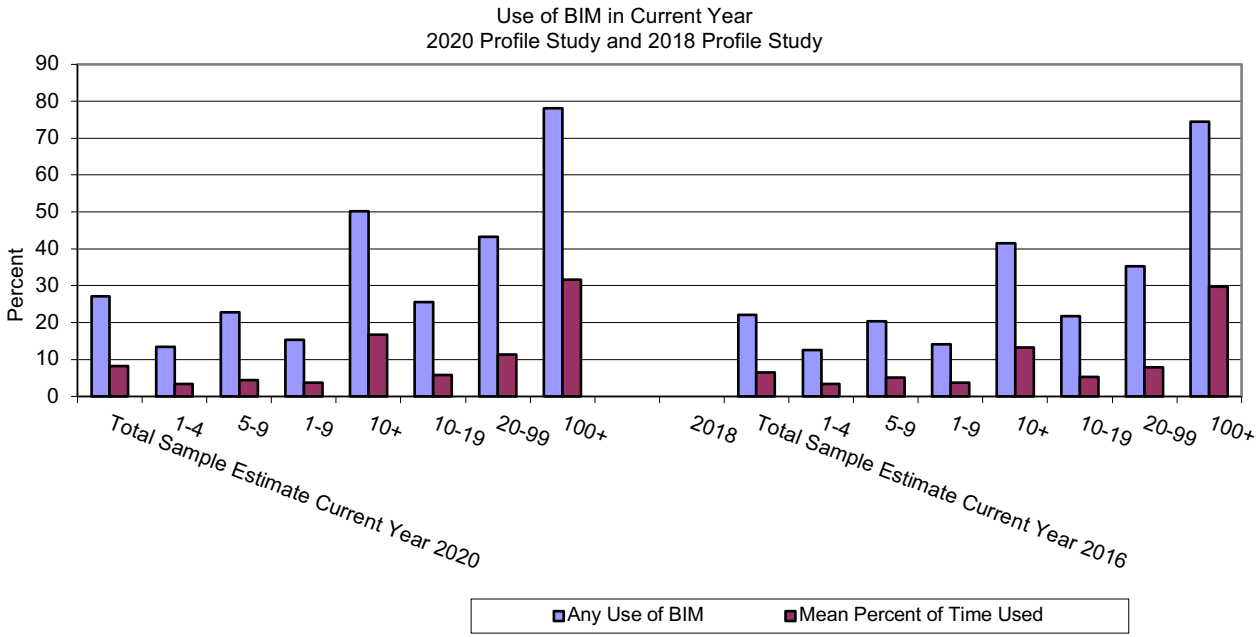
Use of Building Information Modeling (BIM)										
	2020		2018		2016		2014		2012	
	Any Use	Average	Any Use	Average	Any Use	Average	Any Use	Average	Any Use	Average
Survey Year (Current Use)	↑27.2%	↑8.2%	22.1%	6.5%	22.3%	6.0%	23.7%	7.1%	20%	5.8%

↑ indicates a statistically significant increase vs. 2018.

Table is Table 55

As we mentioned in the 2018 and in 2016 Profile Study reports, in 2020, looking at BIM usage among the total sample obscures a larger finding: that while BIM usage is low among firms with 1 - 4 employees, it increases as firm size increases. The increase in "Any" use and average use is evident among firms as small as 5 - 9 employees or 10-19 employees, but the increase is really dramatic among firms with 20+ employees.

- Compared to two years ago, among firms with 10+ employees, "Any" use of BIM increased dramatically and significantly from 42% to 50%, while *average* use also rose significantly among firms with 10+ employees to 16.8% from 13.3%. Within the 10+ employee range, firms with 20-99 employees posted a significant increase in average use of BIM, to 11.3% from 7.8%.
    - *Is this another example of technology becoming more accessible and used by smaller firms – in this case, firms with 10+ employees and not just firms with 100+ employees?*



Completeness and Correctness of Plans and Specifications

In 2020, for the first time, electrical contractors were asked about receiving *incorrect* plans and specs in the previous year in addition to being asked about receiving *incomplete* plans and specs in 2019.

- Across the total sample, about 70 in 10 electrical contractors said that they had received ANY **incomplete** plans and specs in 2019. On average, 33% of the plans and specs that they received were incomplete.

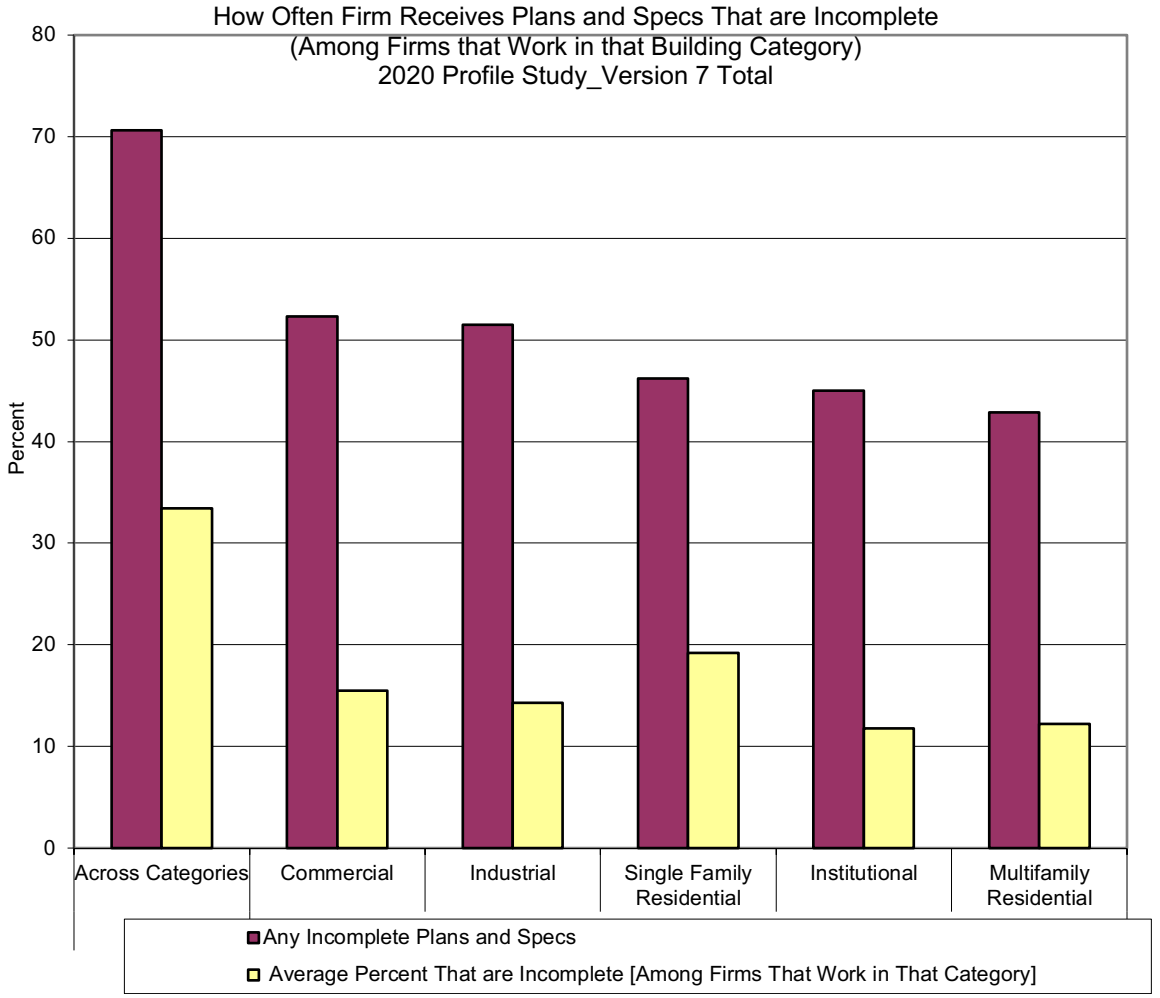
- Across the total sample, approximately the same proportion – 7 in 10 -- electrical contractors said that they had received ANY **incorrect** plans and specs in 2019. On average, 27% of the plans and specs that they had received were incorrect.

    - Note that although the average percentage of incomplete plans and specs declined significantly compared with two years ago, it may be that some of the decline was accounted for by having a second – and possibly more precise choice -- in the form of "incorrect" plans and specs.[6]

	Completeness and Correctness of Plans and Specs			
Version 7, Q14a and Q14b	**ANY**		**Mean**	
	2020	**2018**	**2020**	**2018**
	(211)	(243)	(211)	(243)
Incomplete Plans and Specs	71%	73%	33%	<42%
Incorrect Plans and Specs	70%	--	27%	--

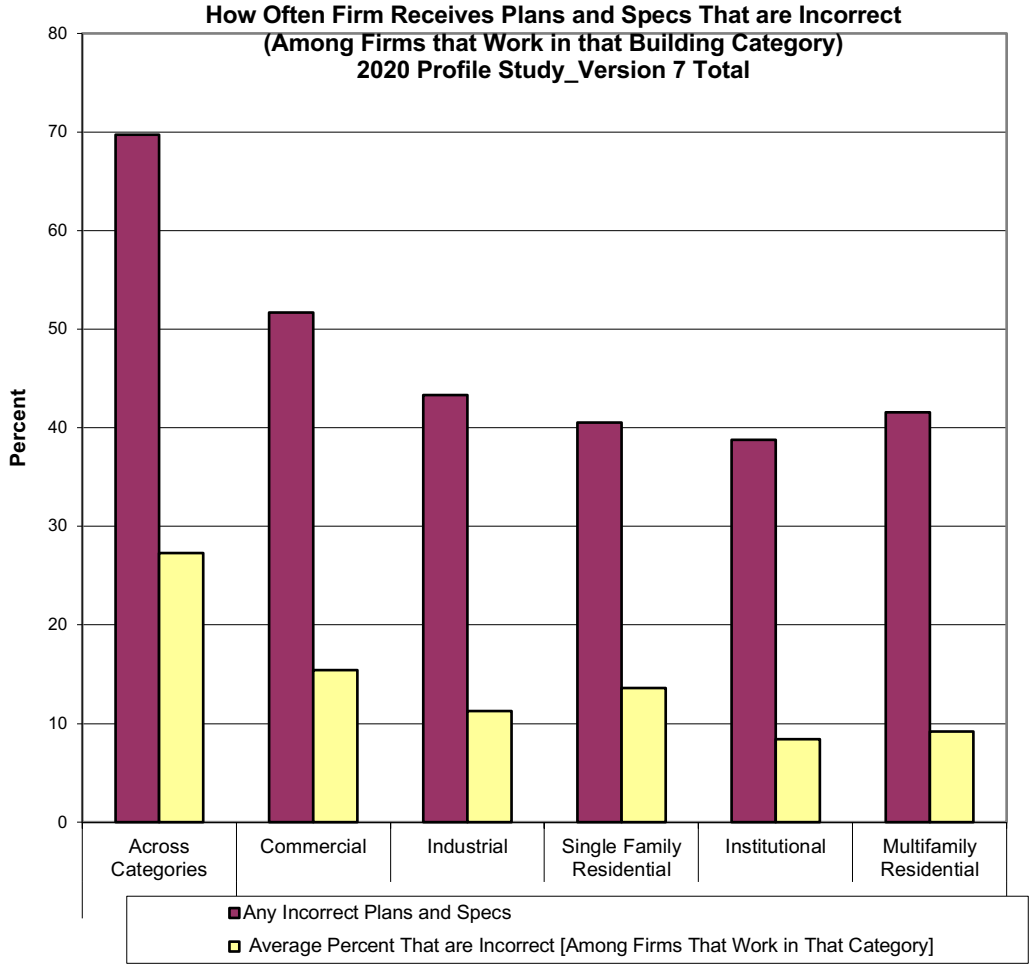
[6] **Because of the addition of "incorrect" plans and specs, we are not trending by subgroup because if there are differences, we won't necessarily know the cause: *"did the results really change or is the difference due to the addition of another answer choice?"***

Although about 70% of electrical contractors report receiving **any** *incomplete* plans and specs, the percent varies somewhat by building type, but within a fairly narrow 10-point range (from 42% to 52%). The mean percent of incomplete plans and specs is also within a fairly tight range around 12% to 16%, with the exception of single-family construction, where the mean is 19%.



As above, although about 70% of electrical contractors report receiving **any** *incorrect* plans and specs, the percent varies somewhat by building type, but within a slightly wider 13-point range (from 39% to 52%). The mean percent of incorrect plans and specs is also within a fairly wider range of 8% to 15%. In this case, both commercial and single-family construction are at the higher end of the range.

Nevertheless receipt of incomplete and/or incorrect plans and specs afford the electrical contractor expanded opportunities for brand decision-making.



Role of Engineers within Electrical Contracting Firms

Starting with the 2016 Profile Study, electrical contractors were asked about the professional relationship(s) that their firm has with engineers:

- Consulting Relationship, that is, the engineer is not on staff
- On staff or in a separate engineering division
    - These questions were asked independent of each other since we did not want to assume that one type of relationship would rule out the other.

In the current wave, across the total sample, about one-half of firms (53%) have a professional relationship with an engineer, statistically unchanged from the 2018 Profile Study level of 47%.

- In 2020, *consulting* relationships continue to be more prevalent (51%, which is a statistically significant increase from the 2018 level of 42%). In addition, 17% report having an engineer on staff and/or having a separate engineering division, which is statistically unchanged from two years ago. 15% have **both** a consulting relationship as well as having an engineer on staff or a separate engineering division, about double the 2018 level of 8%.

Not surprisingly, the practice of working with engineers is far more common among large firms and the prevalence rises with firm size, especially among firms with 100+ employees, where the level rises to 92% (not shown). However, even among firms with 1-4 employees, about 30% have a professional relationship with an engineer (not shown). **As shown below, significantly more firms with 10+ employees now have varying types of professional relationships with engineers than was the case in 2018.** There is no change between 2018 and 2020 in the case of firms with 1-9 employees (not shown).

The high prevalence of working with engineers speaks to the complexity of much of the work performed by electrical contractors.

Professional Relationship With Engineer(s)						
			Number of Employees			
			2020 Profile Study			**2018 Profile Study**
	TOTAL		**1-9**	**10+**		**10+**
	(211)		(171)	(74)		(70)
	%		%	%		%
Any Professional Relationship	53		*36*	**<85**	>	*73*
Consulting	51		*34*	**<82**	>	*63*
On staff/separate Division	17		*6*	**<38**		
Both	15		*4*	**<35**	>	*20*

Bold percentages are significantly higher than *italicized* percentages
Blank cells are not statistically different from the total sample

Project Collaboration/Level of Influence

As has been the case in recent Profile Studies, about three-quarters of electrical contractors report having a “high” or “medium” ability to influence the overall electrical design or specifications with building owners and/or design team members

- About 4 in 10 describe their level of influence as "high" -- 42%, while 30% characterize their level of influence as "medium."

- There are no meaningful differences by company size.

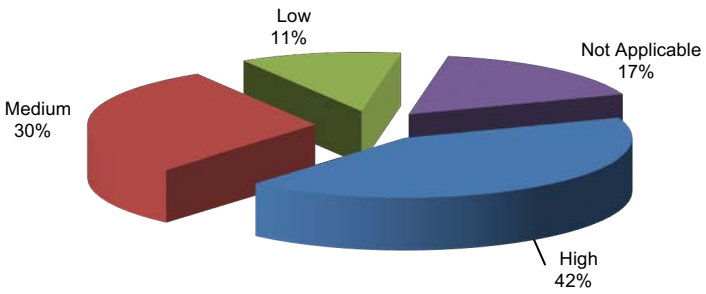
Compared to two years ago, firms with 10+ employees are significantly more likely to report a “high” level of influence (43% in 2020 vs. 27% in 2018) and significantly less likely to report a “medium” level of influence (30% in 2020 vs. 50% in 2018. The change among firms with 10+ employees is not illustrated.)

It is encouraging that large firms -- that usually work on large and complex projects -- are showing an increasingly high level of influence with the building owner and/or the design team. In 2020, the ability of influence it was comparable to that experienced by firms with 1-9 employees (not shown).

- Two years ago, firms with 1-9 employees were significantly and dramatically more likely to report a “high” level of influence (39%) compared with firms with 10+ employees (27%).

2020 Profile Study

Ability to Influence Overall Design or Specifications With Building Owner and/or Design Team
Version 7 Total Sample



2020 Profile Study: Q 16a Version 7 Total = 211 Table 195

Electrical contractors were also asked about their current level of collaboration with these key trades: Mechanical, HVAC, Plumbing and Systems Integrator from Other Trades.

- In 2020, as was the case two years ago, project collaboration is higher with Mechanical and HVAC trades. However, in 2020, project collaboration is also higher with Systems integrators from other trades than it was two years ago. This is as a result of more electrical contractors reporting a "medium" level of collaboration with them.

- More electrical contractors now report a "high" level of collaboration with Mechanical trades compared with two years ago.[7]

    - There are no meaningful differences by number of employees (not shown).

Current Level of Project Collaboration 2020 Profile Study					
	Building Owner/Other Design Team Members	Mechanical	HVAC	Plumbing	Systems Integrator from Other Trades
Base: Version 7 (N=211)	%	%	%	%	%
High or Medium	72	56	53	40	↑47 [36]
High	42	↑22 [14]	19	14	15
Medium	30	34	34	27	↑32 [23]
Low	11	21	23	26	19
Not Applicable	17	23	23	33	33
Don't Know/No Answer	0.5	0.5	0.9	0.5	1

Tables 196ff

[7] **[ ] indicates the 2018 percentage if significantly different from 2020. ↑ indicates a statistically significant increase vs. 2018.**

Building Stage That Electrical Contracting Firm Gets Involved in Project Collaboration

Starting with the 2016 Profile Study, electrical contractors were asked at what stage their firm typically gets involved in Project Collaboration. As was the case in 2018, in the 2020 Profile Study, "Construction" and "It depends" were tied at about one-third each. About 20% say that they get involved in the "Pre-Construction" phase while about 10% say that they get involved in the "Project Design" stage. Only 4% say that they get involved in "Procurement." Procurement was the only stage that posted an increase vs. 2018, when it was 1%.

- In contrast to 2018, when there were no significant differences between firms with 1-9 and 10+ employees in terms of when they typically get involved in project collaboration, in 2020, significantly more electrical contractors in *large firms* get involved either in project design (23% for firms with 10+ employees or in the procurement phase, 8%).
    - This finding is consistent with more of the larger electrical contractors saying that they have a "high" level of influence in 2020 compared to 2018, reported a few pages earlier.
- In contrast, firms with 1-9 employees are significantly more likely to say that the stage in which they get involved "depends" (34%).

Building Stage in Which EC Firm Gets Involved in Project Collaboration							
Version 7_16c	2020 Profile Study				2018 Profile Study		
	Total	Number of Employees			Total	Number of Employees	
		1-9	10+			1-9	10+
	(211)	(137)	(74)		243	(171)	(70)
	%	%	%		%	%	%
Project Design	12	*7*	**<23**		10		
Pre-Construction	21				20		
Procurement	↑4 [1]	*2*	**<8**		1		
Construction	32				34		
It depends	30	**34>**	*23*		32		
Don't Know/No Answer	1				3		

Q16c_Version 7 Table 200

Bold percentages are significantly higher than *italicized* percentages
Blank cells are not statistically different from the total sample

[ ] indicates the 2018 percentage if significantly different from 2020. ↑ indicates a statistically significant increase vs. 2018.

Brand Specification Options

Respondents were shown a list of four options and were asked what percentage of the specifications that their company receives fall into each category. On average, a "single" brand is specified about one-quarter of the time. In all other cases, other factors -- multiple brands, "or equal to" or performance specified – come into play.

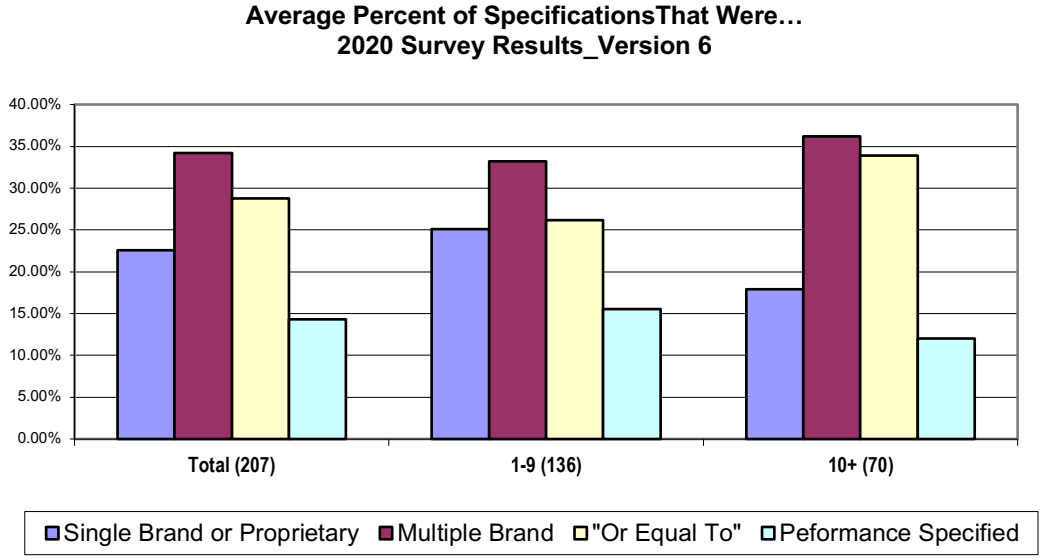
- With the exception of single brand or proprietary, which is significantly higher among firms with 1-9 employees, there is no statistically significant difference between firms with 1-9 and 10+ employees in terms of brand specification options.

- Compared to two years ago, among firms with 10+ employees:

    - "performance specified", which had risen sharply between 2016 and 2018, *dropped* back to an average of 12% in 2020 from its average level of 21% in 2018 among firms with 10+ employees.

    - In contrast, "multiple brands" *rose* to an average of 36% from 26% two years earlier among firms with 10+ employees [2018 results are not shown].

- There were no statistically significant differences observed from 2018 to 2020 among firms with 1-9 employees.

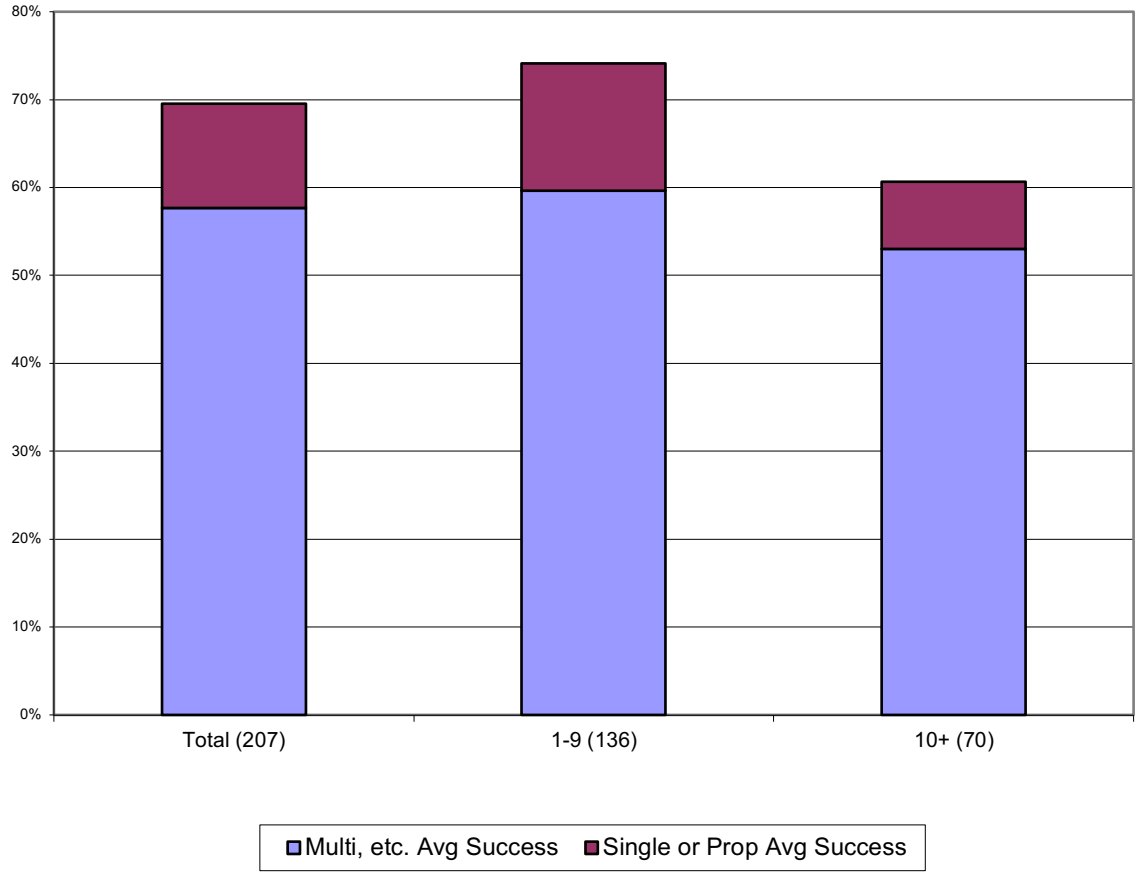


Version 6 Q14 N=207

Table 152

Respondents were then asked how much discretion they have in making a brand selection. Overall, contractors are able to make the brand selection about 70% of the time; 74% in the case of firms with 1-9 employees and 61% in the case of firms with 10+employees.

Average Extent of Electrical Contractor Influence In Brand Selection
2020 Profile Survey
Version 6 Total



"Where a 'single or proprietary' specification is indicated, what percentage of the time are you or someone in your firm able to successfully make a substitution?"
"Where 'multiple or equal or performance' specification is indicated, what percentage of the time do you or someone in your firm make the brand decision for installation?" N=207 Tables 152,154, 160

Main Reasons for Original Brand Selection and Substitution

Original Brand Selection: Among the total sample, Availability and Price trump all other attributes as a top-3 reason for original brand selection. Note that as a first choice, Availability completely overshadows all of the other attributes. (This has been the case since at least the 2014 Profile Study.)

Compatibility with Existing Systems, which was first asked in 2014, had resonance with 31% of electrical contractors. It is now comparable with Ease of Installation and Prior Experience. Durability scores about 8 percentage points lower and the attributes of Made in America and Manufacturer Reputation score about 12 -13 percentage points lower.

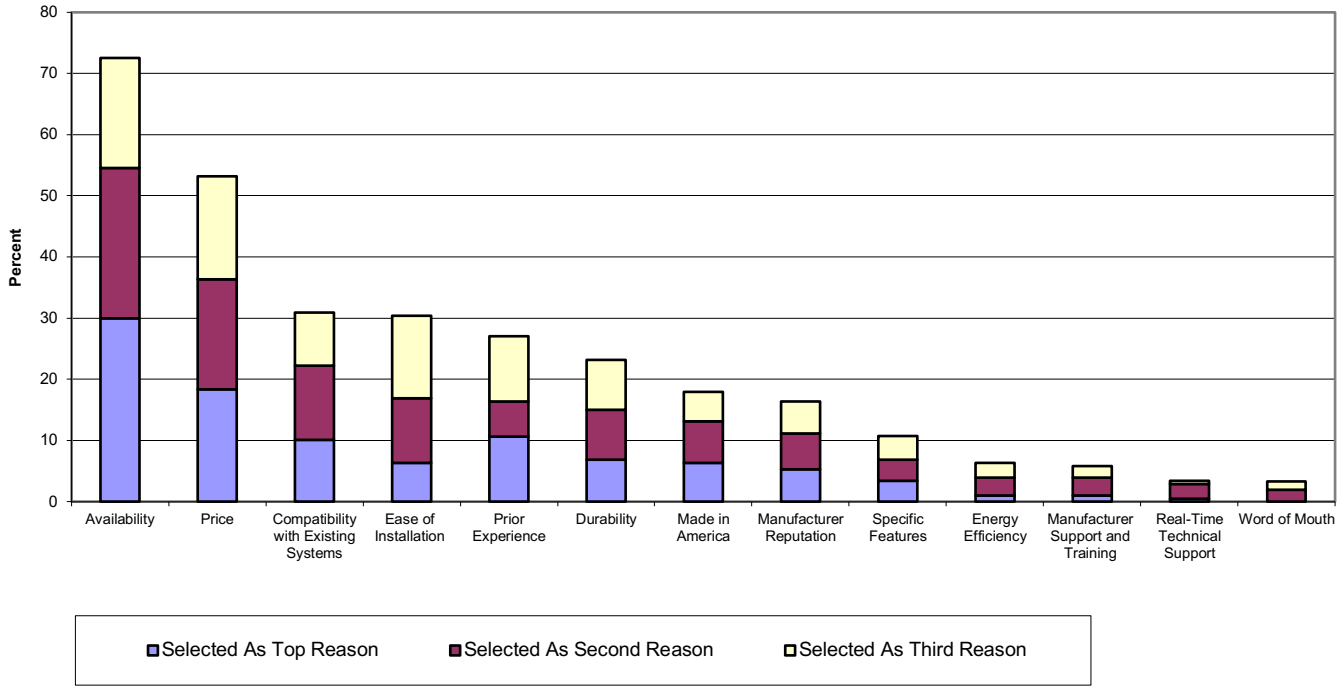
Specific Features, Energy Efficiency, Real-Time Technical Support, Manufacturer Support and Training and Word of Mouth were chosen by between around 10% or less of electrical contractors.

Once again, it is somewhat surprising that Energy Efficiency does not play a larger role as a top-3 reason for original brand selection.

- One hypothesis is that energy efficiency takes place long after the project has been specified and installed and there is no mechanism for the electrical contractor to be tied to the energy savings.

- Another hypothesis is that energy efficiency is so integral to electrical products that it is not seen as a separate feature.

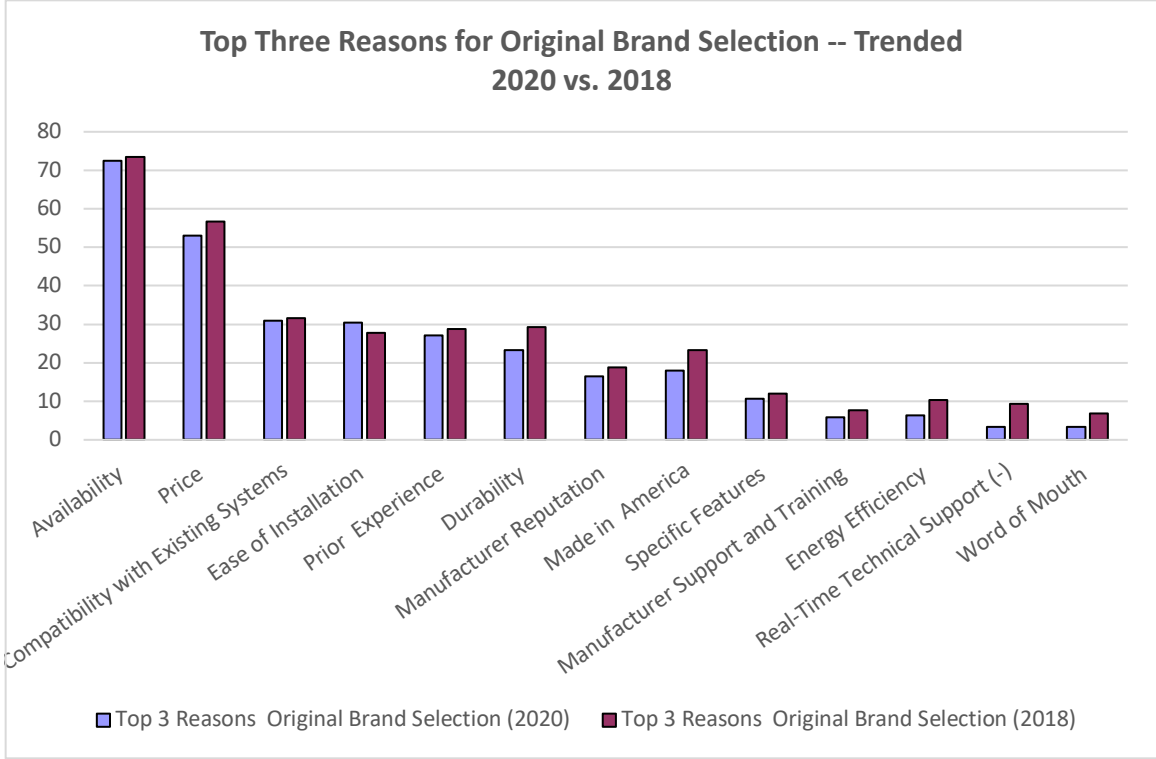
Top 3 Reasons for Original Brand Selection
Base: 2020 Version 6 Total (N= 207)



Top 3 Reasons for Original Brand Selection – Trended

In 2020, compared with 2018, Availability continues to be the leading top-3 reason for original brand selection as does Price. Note that as a first and top-3 choice, Availability completely overshadows all of the other attributes. This was also the case in 2018.

- There is only one statistically significant difference between 2018 and 2020 among the total sample: Real-Time Technical Support declined significantly from 9% to 3% and among firms with 1-9 employees (from 10% to 3%). Made in American dropped significantly and dramatically among firms with 10+ employees (from 27% to 11%) but the change among the total sample was not significant.
    - This is in contrast to the time period between 2016 and 2018 when Manufacturer Reputation, Specific Features and Manufacturer Support and Training all dropped significantly between 2016 and 2018. During that time period, Availability rose.



(-) indicates a significant difference between 2020 (N- 207) and 2018 (N=203)

Brand Substitution: In 2020, the top-3 reasons for brand substitution mirror those for original brand selection. Among the total sample, Availability and Price trump all other attributes as a top -3 reason for brand substitution. Note that as a first and top-3 choice, Availability completely overshadows all of the other attributes. This was also the case in 2018 and in 2016.

Compatibility with Existing Systems, which was first asked in 2014, had resonance with 32% of electrical contractors. Ease of Installation and Prior Experience were chosen by between 20% - 25% of electrical contractors on a top-3 reason basis. Made in America, and Durability form the next tier: they were chosen by between 15% and 17% of electrical contractors as a top-3 reason for making a brand substitution.

Manufacturer Reputation and Specific Features were chosen by about 10% each. Energy Efficiency, Manufacturer Support and Training Real-Time Technical Support, Word of Mouth and were each chosen by between 2% and 5%.

Once again, it is somewhat surprising that Energy Efficiency does not play a larger role as a top-3 reason for brand substitution.

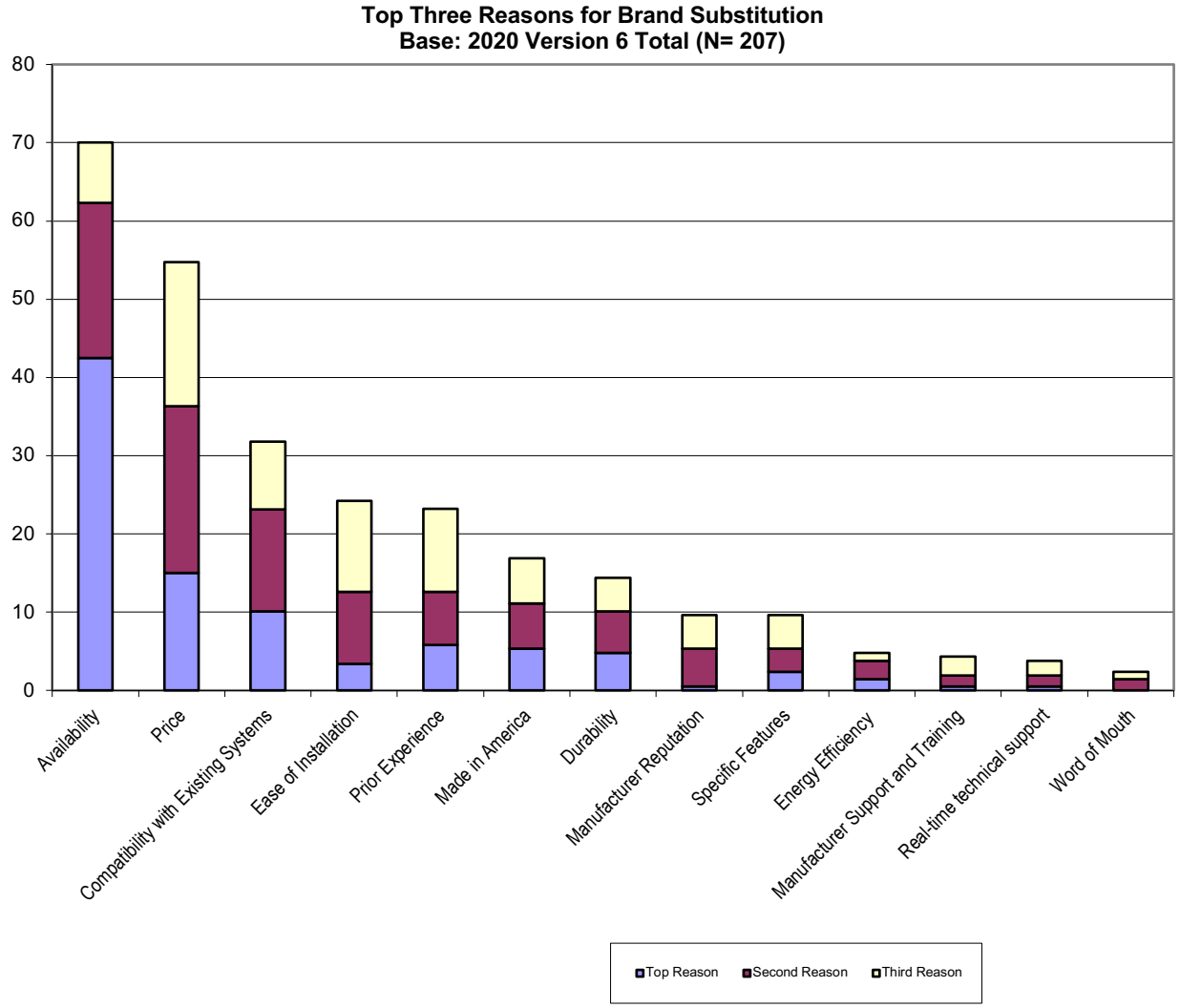


Table 157 ff (for top 3 reasons)

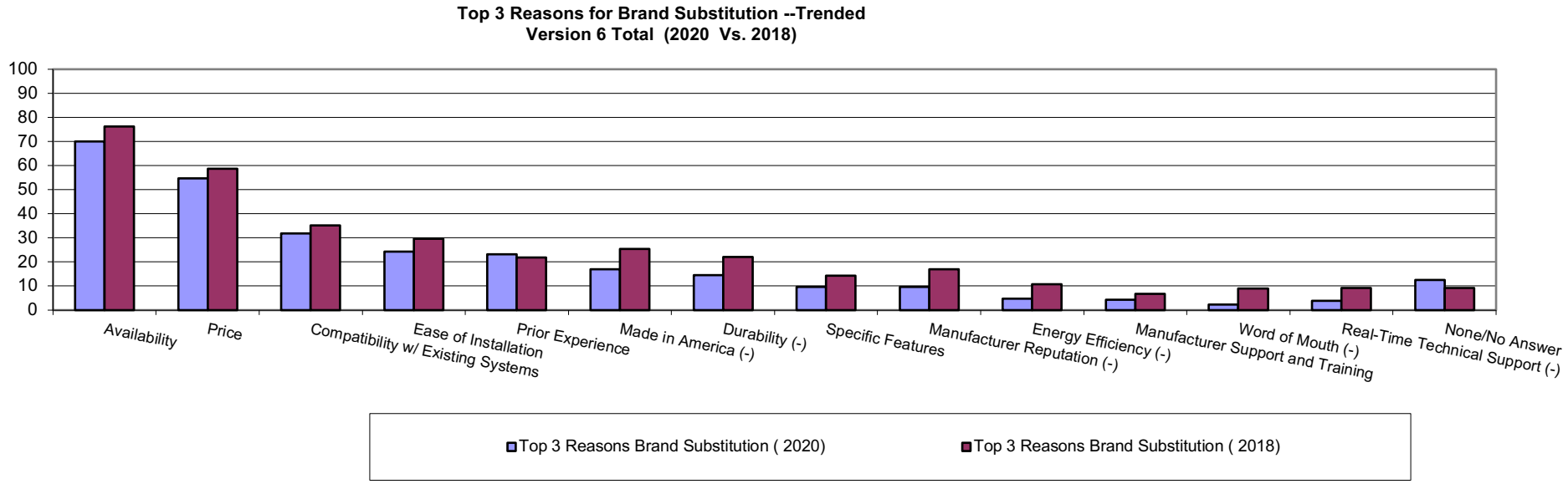
Top 3 Reasons for Brand Substitution – Trended

In 2020, compared with 2018, Availability continues to be top-3 reason for original brand selection, as does Price. Both are statistically unchanged compared with two years earlier.

In contrast to what was observed in the case of the top-3 reasons for **original** brand selection, there were significant changes between 2018 and 2020 on a number of items. (Note that there also had been changes between 2016 and 2018 in the case of top-3 reasons for brand substitution but not in the case of original brand selection[8] (Please see footnote.)

Between 2018 and 2020, each of these posted a significant *decline* among the total sample compared with two years earlier:

- Made in America, Durability, Manufacturer Reputation, Energy Efficiency, Word of Mouth and Real-Time Technical Support. With the exception of Made in America which declined among firms with 10+ employees, all of the other declines among the total sample were driven by decreases among firms with 1-9 employees (not shown).



(-) Indicates a significant decline vs. 2018 (+) Indicates a significant increase vs. 2018 [NB: none of the reasons is higher in 2020 than in 2018]

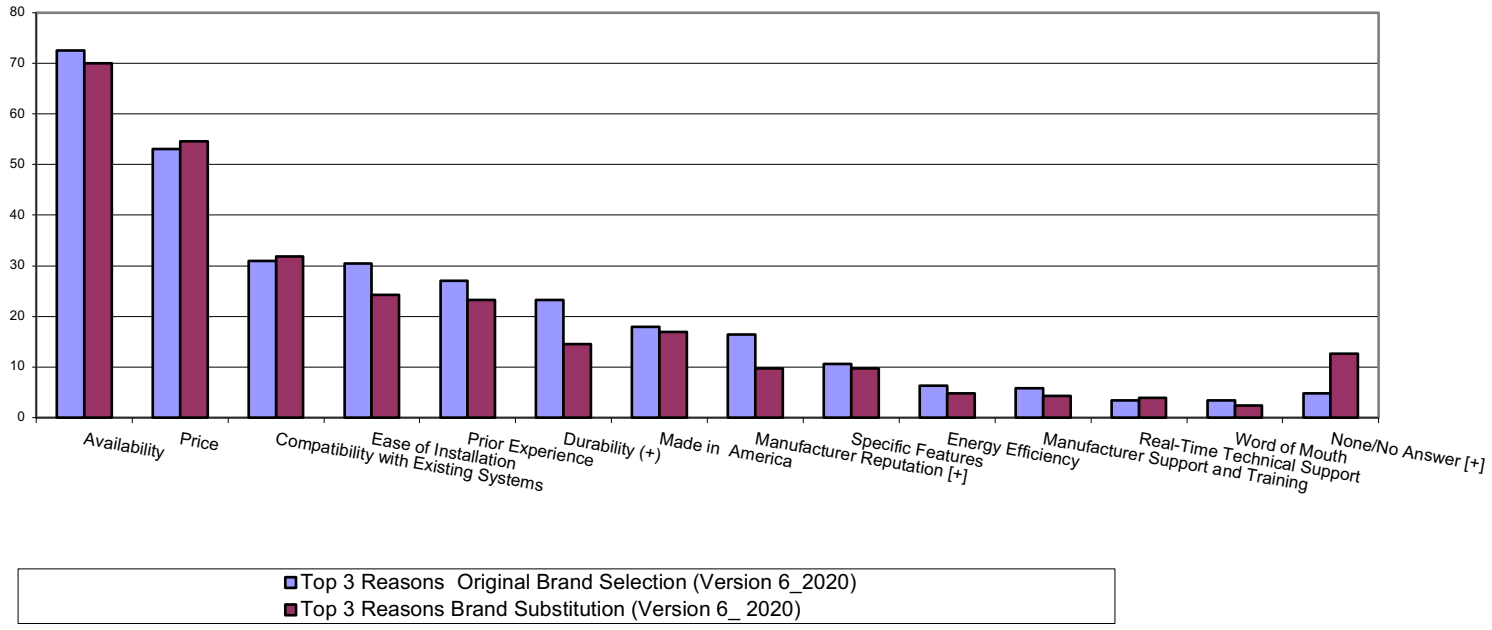
[8] In 2018, Ease of Installation posted a significant increase vs. 2016 while and Manufacturer Support and Training posted a significant decline compared with two years earlier

Comparison of Main Reasons for Original Brand Selection Vs. Substitution

Regardless of whether the context is original brand selection or brand substitution, Availability and Price emerge as substantially more important than any of the other attributes as the reason for originally selecting a brand and for brand substitution. Compatibility with Existing Systems, which was first introduced in 2014, is now comparable to Ease of Installation and Prior Experience and scores at least 7 to 10 percentage points higher than Durability, Made in America and Manufacturer Reputation.

- There are only two statistically significant differences shown below. Durability and Manufacturer Reputation each assume higher importance in the original specification may play greater role in the case of original brand selection than in the case of brand substitution. The difference between the percentages choosing Ease of Installation for original brand selection vs. brand substitution is just short of statistical significance.

Top 3 Reasons for Originally Selecting a Brand Versus Making a Substitution
2020 Profile Study
(Base: Version 6 Total N = 207)



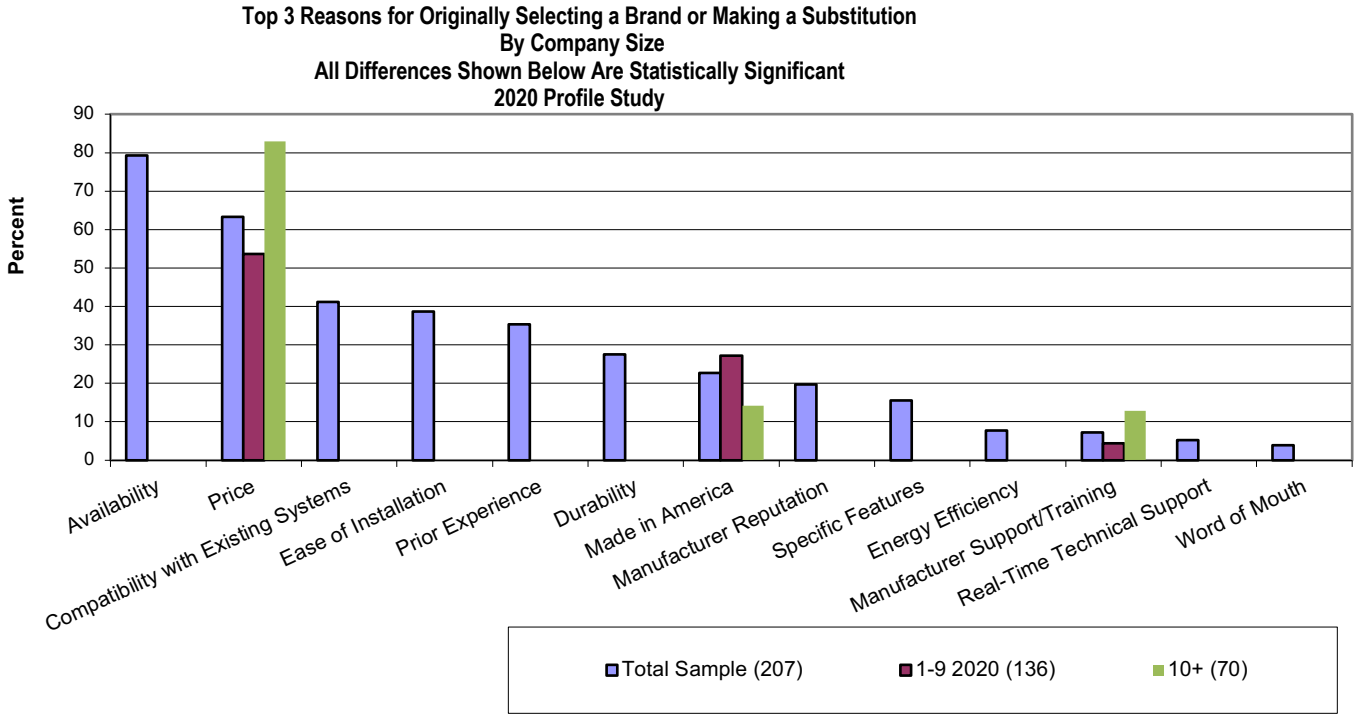
(+) Indicates that reason is significantly higher than corresponding bar at the 90% level of confidence

Brand Choice: Main Reasons for Original Brand Selection /Substitution

Of the 13 reasons for original brand selection/brand substitution (on a combined basis), those in small companies are more likely than their larger counterparts to mention Made in America (driven by firms with 1-4 employees). Firms with 1-9 employees are less likely than those with 10+ employees to mention Price and or Manufacturer Support/Training.

- As was the case in 2018, 2016 and 2014, Price continues to be more important to larger firms (10+ employees) than to their smaller counterparts (1-9 employees). (Not shown)

- Although not shown below, as was the case in 2018, Made in America continues to be more important to firms with 1-4 employees than to firms with 5-9 employees.



Only significant differences by company size are shown

Brand Choice: Main Reasons for Original Brand Selection /Substitution – By Age

- Respondents who are aged 65+ are more likely than those aged 55-64 to cite Manufacturer Reputation and less likely to cite Price.

- Those aged 35-54 are less likely than the total sample to cite Specific Features.

Main Reasons for Original Brand Selection/Substitution
-- By Respondent Age
2020 Profile Study (Only Statistically Significant Differences Are Shown)

	Total Sample (207)	35-54 (52)	55-64 (86)	65+ (62)
	%	%	%	%
Availability	79			
Price	63		**71>**	*53*
Compatibility with Existing Systems	41			
Ease of Installation	38			
Prior Experience	35			
Durability	28			
Made in America	23			
Manufacturer Reputation	20		*14*	**<27**
Specific Features	16	*6*		
Energy Efficiency	8			
Manufacturer Support/Training	7			
Real-Time Technical Support	5			
Word of Mouth	4			

On this table, results by subgroup are compared to the total. Where a subgroup is greater than the total, the percentage is **bolded**; where it is smaller it is in *italic*s. Empty cells indicate that there is no difference between that subgroup and the total.

▲*TRAINING and TOPICS OF INTEREST*

Will Take/Have Taken Training and What Was Studied

About 80% of electrical contractors say that they, or someone in their firm, has taken training in the past 12 months or plans to take training in the next 12 months to improve or broaden skills or for certification. This training could be in the form of on-line, correspondence or classroom training. There is no statistically significant difference between the percentages that took training (79%) vs. those who plan to take training (80%). Further, there is no change in the percent taking training or planning to take training versus two years ago.

In contrast to two years ago, when there had been a widespread decline in interest in many of the course types, in 2020, interest picked up substantially and significantly in the case of: Safety, Grounding/Bonding, Green/Sustainable and Estimating/Financial Management. Further, between about one-quarter and 40% expressed interest in these three new course topics: Code Compliance non_OSHA, (37%), OSHA Code Compliance (35%) and Personnel/Leadership (24%). Only Cabling received fewer mentions in the current study than two years ago. All of the other topics were statistically unchanged since the 2018 Profile Study.

Also in contrast to two years ago, a substantially and significantly higher percentage mentioned 3 or more courses (69% vs. 58% two years ago), although interest is not as high as in 2016 when 78% mentioned 3 or more courses.

Two years ago we hypothesized that the consistent decline in percentage mentioning many of the individual courses was because they were busier with paid work. However, since 2019 appears to have been even more successful than 2017, perhaps the reason for renewed interest is that electrical contractors see these areas as particularly promising and/or that there is new material to be mastered.

Further, topics such as Drones or the Internet of Things has not yet attracted large attendance.

Courses Taken or Will Take

	2020 (239)	2018 (233)	2016 (350)	2014 (560)
	%	%	%	%
Have Taken Training in Past 12 Months	79	74	70	76
Will Take Training in Next 12 Months	80	77	78	74
Courses Taken or Will Take Base	(195)	(189)	(282)	(414)
	%	%	%	%
MENTIONED ANY	96	97	98	97
NEC Changes	50	54<	**71**	67
LIGHTING (Net)	40	46<	**58**	58
Lamp Technology, incl. LED	21<	**33**	39	33
Controls/Systems	27	33<	**44**	50
Drivers/Ballasts	18	23<	**30**	35
Lighting Design	17	18<	**26**	31
Safety (Electrical/Personal/On-site/Jobsite	**53>**	37	42	47
Grounding/Bonding	**43>**	32<	**49**	50
AUTOMATION/CONTROLS (Net)	32	32<	**43**	**<52**
Fire/Life Safety Systems	18	20	23	**<30**
Building Automation Systems	15	15	17	**<25**
Security Systems	14	13	13	**<20**
Home Automation Systems	12	9<	**23**	20
Electrical Testing and Maintenance	28	27<	**34**	N/A
GREEN/SUSTAINABLE (Net)	**32>**	23<	**40**	39
Alternative Energy Systems	15	11<	22	24
Electric Vehicle Charging Stations	**18>**	10	14	13
Green/Sustainable Building/Energy Audits	7	7	8	10
LEED Certification	6	6<	**12**	12
Energy Use Regulations	8	6<	**11**	12
Community Solar	N/A	6	10	N/A
Energy Storage	**13>**	6	9	8

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

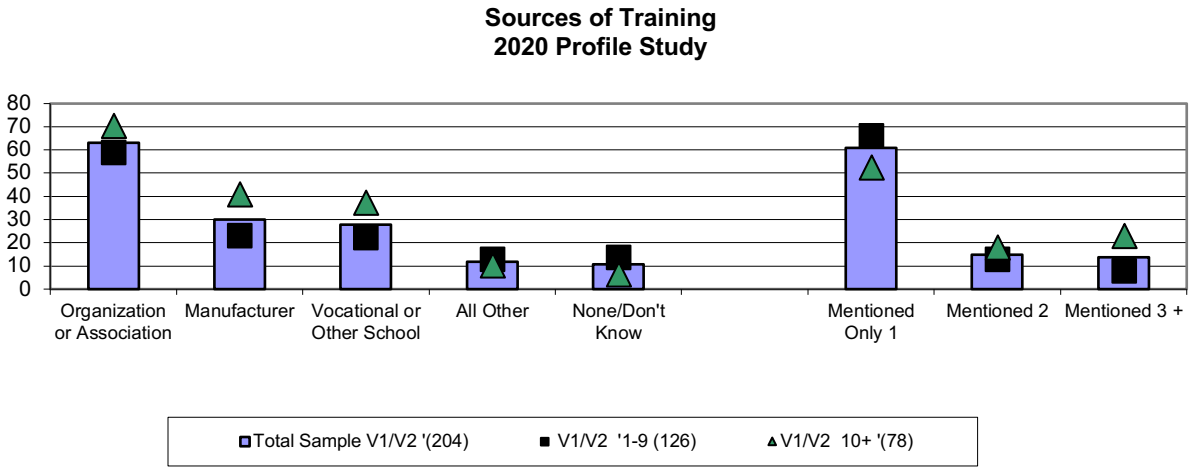
Courses Taken or Will Take

	2020 (195)	2018 (189)	2016 (282)	2014 (414)
	%	%	%	%
CABLING (Net)	14<	**23**<	33	37
Data and Telecom: Cable, Conduit, etc.	7<	**15**	19	23
Power	8<	**14**<	24	24
Data and Telecom: Testing	5<	**13**	16	18
Estimating/Financial Management	**26>**	13<	**19**	21
Estimating	24	N/A	N/A	N/A
Financial Management	9	N/A	N/A	N/A
Power Quality	15	14	19	21
Design/Build	12	11<	**25>**	19
How to Use New Software	12	9<	**15**	N/A
Developing New Business Opportunities	12	8<	**21**	17
Increasing Productivity	11	9<	**17**	20
Electrical System Design or BIM	10	9<	**22**	18
Systems Integration	9	9	11	**<21**
Internet of Things	7	7	N/A	N/A
HVAC	6	10	N/A	N/A
Sound and Video/VDV (Residential)	6	7	11	12
Sound and Video/VDV (Commercial)	6	5<	**11**	13
Pre-Fab/Off-site Building	5	3<	**10**	N/A
Renovation/MACS/Maintenance	5	3<	**9**	**<17**
Collaborative Building (Including IPD)	4	2<	**5**	N/A
Line Work	3	4<	**8**	8
Drones	2	2	N/A	N/A
NEW In 2020				
Code Compliance (non_OSHA)	37	N/A	N/A	N/A
OSHA Code Compliance	35	N/A	N/A	N/A
Personnel/Leadership	24	N/A	N/A	N/A
Project Management Training	15	N/A	N/A	N/A
Foreman Development	10	N/A	N/A	N/A
Executive Leadership	7	N/A	N/A	N/A
Lean, Agile, Six Sigma	4	N/A	N/A	N/A
Mentioned 1	19	24>	9	12
Mentioned 2	8	**<15**	**11>**	7
Mentioned 3 or more	**69>**	58<	**78**	78
Mentioned 6 or more	42	35<	**50**	49

Sources of Training

Organizations/Associations continue to be among the most frequently mentioned sources of training. Although not shown below, mentions of Organizations/Associations posted a significant rise of 12 percentage points among the total sample, driven by a significant rise in mentions by small firms (+11 percentage points) but also a directional increase among firms with 10+ employees. This raises the question of what Organizations/Associations are doing to foster this increase and how can they keep doing it!

- Not surprisingly, electrical contractors in small firms (1-9 employees) are more likely to only mention one training source compared with those in larger firms.



Sources of Certification

Almost 9 in 10 who have or who will take certification named a source. Organizations/Associations continue to be the most frequently mentioned sources of certification. As was the case with training and although not shown below, mentions of Organizations/Associations posted a significant rise of 15 percentage points among the total sample, driven by a significant increase in mentions by small firms (+17 percentage points) but also a directional increase among firms with 10+ employees. As we asked in the section on training: what are Organizations/Associations doing to foster this increase and how can they keep doing it!

Not surprisingly, electrical contractors in small firms (1-9 employees) are more likely to only mention one certification source compared with those in larger firms. Although not shown below, mentions of 3 + sources is significantly higher than two years ago, driven by firms with 10+ employees where mentions of 3+ sources is 18 percentage points higher than 2 years ago.

Version 1/Version 2 (Sources of Certification; Sample = 204)