ELECTRICAL CONTRACTOR

2022 Profile of the Electrical Contractor

Electrical Contractors: Their Use, Purchase and Lease of: Electrical Testers/Multimeters, etc.

LAN/Datacom/Other low-voltage thermal imaging • Labeling identification• Smart/Mobile/Cellphones/Two-way radios/Push-to-talk tablets/Portable reading devices • Drones • 3D scanners • 3D printers • Robots

Their Ownership of Computers and Electronic Devices

Software usage

A special report prepared by Renaissance Research & Consulting, Inc. for ELECTRICAL CONTRACTOR Magazine, December 2022

2022 "ELECTRICAL CONTRACTOR MAGAZINE PROFILE"
DATABASE REPORT

ELECTRICAL CONTRACTORS:

THEIR USE, PURCHASE AND LEASE OF:

ELECTRICAL TESTERS/MULTIMETERS ETC.
LAN/DATACOM/OTHER LOW VOLTAGE
THERMAL IMAGING
LABELING/IDENTIFICATION
SMART/MOBILE/CELL PHONES/TWO-WAY RADIOS/PUSH-TO-TALK
TABLETS/PORTABLE READING DEVICES
DRONES
3D SCANNERS
3D PRINTERS
ROBOTS

THEIR OWNERSHIP OF COMPUTERS AND ELECTRONIC DEVICES

SOFTWARE USAGE

INCLUDING ESTIMATES BASED ON THE 2020 COUNTY BUSINESS PATTERNS

A SPECIAL REPORT PREPARED BY
RENAISSANCE RESEARCH & CONSULTING, INC.

FOR:
 ELECTRICAL CONTRACTOR MAGAZINE
WASHINGTON, DC 20004

DECEMBER 2022

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KEY FINDINGS

This report is volume two of a two-volume report covering different types of tools and equipment as well as use of electronic devices and software. Pages 1 and 2, as well as pages 9 –22 are common to both reports.

USE, PURCHASE AND RENTAL/LEASE BEHAVIOR OVERVIEW:

Tools and Equipment **<u>Used</u>** in 2021

In the 2022 Profile Study, electrical contractors were asked to indicate which of 28 types of tools and equipment they or their firm **used** in the *previous* year.

In 2022, the following four tool types were added to the list asked in the 2020 Profile study: Temporary power, Surveying tools and equipment, Wearable technology, Robots.

Not surprisingly, as was the case two and four years ago, many of the top categories mentioned were those that received high levels of purchase and/or rental/lease in previous Profile Studies, with about 8 in 10 mentioning: Hand tools, Electrical testers, multimeters, Power tools, and/or Fishing tools. About 7 in 10 mentioned Phones (including Smartphones, Mobile, Cell, Two-way radios and Push-to-talk phones), Measuring tools and/or Pipe threaders, benders, cutters on their list of items used in the previous year..

Between about 50% and 60% of the firms surveyed said that they or their firm used the following in 2021: Personal protective equipment (PPE), including apparel and accessories, Labeling/identification, Cable pullers, Job-site safety equipment, Cable pullers, Portable generators, Tablets or portable reading devices and/or Temporary job-site lighting,

Between about 40% and 46% used Aerial lifts/scaffolding, Temporary power (new in 2022), Job-site safety equipment, Trailers (to haul material/equipment), Thermal imaging and/or LAN, datacom, low voltage meters.

31% mentioned Digging/HDD/boring equipment, 26% mentioned Surveying tools and equipment (new in 2022),

About 20% mentioned Wearable technology (new in 2022), Cranes, Mobile office space (trailers)

The fewest mentioned these newer technology categories: Drones, 3D scanners, 3D printers or Robots.

Reported usage remained quite constant between 2019 and 2021 with only three statistically significant changes emerging: Usage of Thermal imaging rose significantly while two types of tools and equipment posted a significant decline compared to 2019: Labeling/identification and Job-site safety equipment. Interestingly, these two had risen between 2017 and 2019 and now appear to be returning to their 2017 level.

Note that in 2021, the vast majority of electrical contracting firms make ***use*** of **multiple** types of tools and equipment, about 90% across the total sample.

Tools and Equipment **Purchased** in 2021

Almost nine in ten of the electrical contractors surveyed (87%) reported purchasing tools and equipment in 2021, statistically unchanged from two years earlier.

In 2021, Hand tools and Power tools continue to top the list at around 75% each, followed distantly by Electrical testers, mulitimeters, Measuring tools (including digital), Fishing tools and Phones at around 50%.
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Given the upsets caused by the COVID pandemic, the war in Ukraine, supply chain issues and other disruptions, it is quite impressive that purchase levels in 2021 are unchanged from what was reported in 2019.

As has been the case in earlier Profile studies, in 2021, the bulk of electrical contractors made purchases in *multiple* categories (83% in 2021), statistically unchanged compared to two years ago.

- There are no statistically significant differences between 2019 and 2021 in the number of category purchase made (that is, purchase in 2+, 4+, 6+ or 9+ categories).

Tools and Equipment **Rented/Leased** in 2021

In 2021, as was the case in 2019 and in 2017, six in ten electrical contractors (60%) *rented/leased* equipment. Note that in 2015 and 2013, the rental/lease rate was substantially and signficantly lower -- in the 37% to 40% range.

Nevertheless, as has been the case in recent Profile studies, fewer electrical contractors continue to obtain tools and equipment through rental/lease (61%) than through outright purchase (87%).

As was also the case two years ago, in addition to Aerial lifts/scaffolding and Digging/HDD/boring equipment, Cranes and Mobile office space (trailers) are the only four categories that are more likely to be obtained through *rental/lease* than through *purchase*. All are statistically unchanged compared to two years earlier.

Compared with two years earlier, rental/lease levels increased significantly only for three categories: Temporary job-site lighting, Electrical testers and multimeters and Measuring tools.

Rental/lease levels declined slightly but significantly in the case of Fishing tools and Labeling/identification (cable/panel) between 2019 and 2021.

- Among the total sample, four in ten electrical contractors rented or leased in *multiple* categories. This is statistically unchanged from two years earlier. Not surprisingly, rental/lease “Any”, and in multiple categories is higher among larger firms and/or among firms that work primarily on CII rather than smaller firms and/or those who work primarily on residential projects.

KEY FINDINGS: TOOLS

Electrical Testers and Multimeters

In 2021, 53% of respondent firms *purchased* Electrical testers and multimeters (etc.), statistically unchanged compared with two years earlier.

- 8.5% *rented/leased* in this category, a statistically significant rise that more than tripled its 2019 level of 2.5%.

There is no difference in *purchase* likelihood by either number of employees or by primary type of work performed.

Larger firms are more likely than smaller firms to have *rented or leased* in this category. However, there is no difference by primary type of construction work performed.

LAN, Datacom, Other Low Voltage Testing Equipment

25% of respondent firms *purchased* LAN, datacom, other low-voltage testing equipment in 2021, statistically unchanged compared with two years earlier.

- 2.8% rented/leased in this category, also statistically unchanged from two years earlier.

In 2021, *purchase* was significantly higher among larger companies (10+ employees) vs. smaller companies (1-9 employees) and/or among firms working primarily on CII projects rather than firms working on primarily residential projects.

- In 2021, there is no difference in *rental/lease* by subgroup.

Thermal Imaging

19% of electrical contracting firms purchased Thermal imaging in 2021, statistically unchanged compared to two years ago. The level of rental/lease, at 7%, is also statistically unchanged compared with 2019.

Larger firms are significantly more likely to have made a *purchase* of Thermal imaging compared with smaller firms. There is no difference in purchase likelihood of Thermal imaging devices by primary type of work performed.

Rental/lease is more prevalent among firms that work primarily on CII projects compared with firms that work primarily on residential projects. There is no statistically significant difference in renting/lease in this category by number of employees.

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Communications and Logistics

Labeling/Identification (Cable/Panel)

40% of electrical contracting firms purchased Labeling/identification (cable/panel) equipment in 2021; this is statistically unchanged from the 36% reported two years earlier.

- 0% rented/leased in this category in 2021 (it was only 1% two years earlier); as a result we are not including it in the analysis.

Larger firms and/or firms working primarily on CII projects are more likely to have made a past year purchase in this category.

Phones: Smart/Mobile/Cell, Two-Way Radios or Push-to-Talk Phones:

47% of electrical contracting firms *purchased* Phones: Smart/Mobile/Cell or Two-Way Radios/Push-to-Talk Phones in 2021. There is no statistically significant difference between 2021 and 2019.

- The percentage that *rent/lease* in this category is 2.8%, statistically unchanged from the 3.0% recorded in 2019.

Larger firms and/or those that work primarily on CII projects are significantly more likely to have made a past year *purchase* compared with smaller firms and/or those that work primarily on residential projects.

However, there is no difference in rental/lease by subgroups.

Tablets or Portable Reading Devices

27% of electrical contracting firms reported a 2021 purchase of Tablets or portable reading devices, statistically unchanged from 2019.

- The percentage that rent/lease in this category is 1.9%

Firms with 10+ employees and/or firms that work primarily on CII projects are far more likely than firms with 1-9 employees and/or those that work primarily on residential projects to have made a 2021 Tablets or portable reading device purchase.

There is no statistically significant difference by subgroup among the small number of electrical contractors that rent or lease Tablets or portable reading devices.

New Technology: Drones, 3D Scanners, 3D Printers, Robots

We've categorized four products as new technology: Drones and 3D scanners, both of which were first asked in the 2018 Profile study and 3D printers which were first asked in 2020 and Robots, which were first asked about in 2022.

Drones

7% of electrical contracting firms reported purchasing a drone in 2021, statistically unchanged compared with two years earlier. About 2% reported renting/leasing a Drone, also statisitically unchanged compared with two years earlier.

In 2021, there was no difference by number of employees or primary type of work performed in the likelihood of purchasing or renting/leasing a Drone.

3D Scanners

6.6% of electrical contracting firms reported purchasing a 3D scanner 2021, statistically unchanged compared with two years earlier.

5.7% reported renting/leasing a 3D scanner 2021, which is also statistically unchanged from the level reported for 2019.

Although there is no difference by number of employees in terms of 3D scanner *purchase*, firms that work primarily on CII projects are far more likely than firms that work primarily on residential projects to have made a 2021 3D scanner *purchase*.

Larger firms and/or those that work primarily on CII projects are more likely to have made a 2021 3D scanner *rental/lease* compared with smaller firms and/or those that work primarily on residential projects.

3D Printers

8% of electrical contracting firms purchased a 3D printer in 2021, statistically unchanged from its 2019 level.

3.8% of electrical contracting firms rented/leased a 3D printer in 2021, also statistically unchanged from its 2019 level.

There is no difference in either the purchase of rental/lease likelihood by number of employees or by the primary type of work performed.

Robots

Both 2021 *purchase* and *rental/lease* is low in this category:

- 2.8% reported purchasing a Robot in 2021.
- 1.9% reported rental/lease of a Robot in 2021

Purchase levels are significantly higher among firms with 10+ employees and/or among firms that work primarily on CII projects compared with smaller firms and/or those that work primarily on residential projects.

Rental/lease levels: There are no statistically significant differences in rental/lease by either number of employees or primary type of work performed.

KEY FINDINGS: Ownership and Use of Computers and Electronic Devices

Certain questions in the 2022 Profile Survey were given to only a part of the sample in order to keep the overall survey shorter and more manageable. The findings in this section are based on a different set of respondents than those who answered the preceding questions on Tools and Equipment purchase.

99% of respondents reported they that they or their firm uses/owns one or more of the 16 types of computers and electronic devices measured in this survey, statistically unchanged from 2019.

Ownership of phones and computers are on a par, with 98% or 99% of survey participants reporting usage or ownership of *each*.

Use/ownership of the specific types of computer and electronic equipment tends to be significantly higher among larger electrical contracting firms compared to their smaller counterparts.

- As was the case at least two and four years ago, there are no categories where use/ownership is statistically higher among firms with 1-9 employees compared with their larger counterparts.

In addition, usage and ownership tends to be higher in some categories among firms that work primarily on CII construction compared to those firms that work primarily on residential construction. In other categories, there is no difference by primary type of work performed (CII vs. residential), rather than that use/ownership if higher among firms working primarily on residential projects.

67% of electrical contractors are considering adding computers and/or electronic devices in the next 12 months.

Overall, 26% of the electrical contractors surveyed said that they are considering a purchase of one or more of these “New Technology” devices: Drones, 11%, (up sigificanty from 3% two years ago), Thermal imaging cameras (10%, unchanged from two years earlier) and about 5% each for Wearable technology,a 3D scanner or a 3D printer (all unchanged from two years earlier) 4% are considering the purchase of a VR/AR headset or hardhat.

While these numbers are still small, we will be watching their progress and expect them to increase, perhaps even dramatically over time as has already happened in the case of Drones.

In the more mature categories of Computers and Phones, 45% of those surveyed are considering the purchase of a Desktop, Laptop and/or Tablet, as a broad category. 28% are considering the purchase of one or more type of Phone or Two-way radio/ Push-to-talk phone.

As we noted two and four years ago, the wide array of computers and electronic devices that electrical contractors are considering for purchase might provide a fruitful environment to Big Box electronics vendors such as Best Buy or even Amazon or e-Bay. It may be particularly helpful for merchants to maintain a constant presence in front of electrical contractors as they are making their purchase decisions.

Use of Software

The same group of respondents were shown a list of 17 types of business functions and asked how their firm handles these functions.

Starting in the 2018 Profile Study, we asked about respondent use of software in a different way than in previous Profile Studies. Instead of asking the participants about their use of "software", we asked if the respondents handled each of the (now 17) tasks "…internally, using a computer". This was done because we had concerns that the word "software" may be ambiguous to survey participants. Specifically, over the past few Profile Studies we came to believe that the use of software question did not accurately reflect the computer related activity of electrical contractors. For instance, eight years ago, only 73% of those who took the survey online (where the invitation was sent by e-mail) said that they or their firm uses computer software to access the Internet!

Overall, about 92% say that they handle one or more business functions in this way, which we see as another way of saying that they use software for these functions. Use of Any of these types of software is substantially and significantly higher among larger firms than among their smaller counterparts (100% vs.87%).

- Since larger firms are more likely than their smaller counterparts to currently use each of the different types of software included in this survey, as a consequence, they are also more likely to currently use 4 or more and 8 or more types of software compared with firms with 1-9 employees.

- Similarly, firms that derive more than one half of their revenue from CII projects are also more likely than firms that work primarily on residential projects to currently use each of the types of software included in the survey. Note that firms that work primarily on CII projects tend to be larger.

The most frequently cited types of business functions or activities that are "handled internally, using a computer are": Accounting/Payroll (80%), Estimating (78%), Productivity Software (72%) , Job Cost Control/Analysis (66%), Procurement (63%), Time and Attendance (60%), Project Management (59%), Scheduling Service Work/Logistics (59%), Take-Off (57%) and Workforce Management (51%).

METHODOLOGY

This report focuses on electrical contractors' use, purchase, rental/lease of hand tools and power tools and construction site equipment. In 2022, four new categories were included. They are: Robots, Surveying tools, Temporary power and Wearable technology. Please note that the Profile study is conducted in even years (2022 or 2020) and asks about the previous year (2021 or 2019).

The survey was conducted by internet among subscribers to ELECTRICAL CONTRACTOR magazine. In addition, in 2022, as in 2020 and 2018, about 100 members of the ELECTRICAL CONTRACTOR Subscriber Research Panel also participated in the survey. The field period for the survey began on January 26, 2022, and ran through April 15, 2022, which was the deadline for the July 2022 article. A total of 843 completed the survey during that time period.

As postal mail participation (also called the "print" sample, since they received their printed survey via postal mail) had dwindled, for the first time in 2022, the survey was only offered on the internet.

Since there was no print sample, the data were not weighted. Data were also not weighted in 2020. In that case, there was no weighting since the proportion of the total attributable to the print list was so low weighting would distort the total statistics.

Each respondent who received the survey through the internet was sent up to seven follow-up emails. 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 since 2018, the magazine also offered a sweepstakes drawing for a chance to win one of ten $150 Amazon e-gift cards. In 2018 and 2020, the drawing was 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 30 questions were common to all versions. Since 2018, there have been 7 versions.

This report and its companion report are drawn from Versions 3 – tools and equipment used, purchased, rented/leased -- and from Version 8 – business activities conducted in-house, using a computer – and use/ownership and planned acquisition of electronic devices. The base sizes of those version are as follows: Version 3 has a base size of 106 and Version 8 has a base size of 172.

As in the past, statistical testing was done at the 90% level of confidence.

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.

DETAILED FINDINGS

Tools and Equipment Use, Purchase and Rental/Lease Overview

Tools and Equipment Used in 2021

In the 2022 Profile study, electrical contractors were asked to indicate which of 28 types of tools and equipment they or their firm **used** in the *previous* year.

In 2022, the following four tool types were added to the list asked in the 2020 Profile study: Temporary power, Surveying tools and equipment, Wearable technology, Robots.

Not surprisingly, as was the case two and four years ago, many of the most mentioned categories were those that received high levels of purchase and/or rental/lease in previous Profile Studies, with about 8 in 10 mentioning: Hand tools, Electrical testers, multimeters, Power tools, and/or Fishing tools. About 7 in 10 mentioned Phones (including Smartphones, Mobile, Cell, Two-way radios and Push-to-talk phones), Measuring tools and/or Pipe threaders, benders, cutters on their list of items used in the previous year.

Between about 50% and 60% of the firms surveyed said that they or their firm used the following in 2021: Personal protective equipment (PPE), including apparel and accessories, Labeling/identification, Cable pullers, Job-site safety equipment, Cable pullers, Portable generators, Tablets or portable reading devices and/or Temporary job-site lighting,

Between about 40% and 46% used Aerial lifts/scaffolding, Temporary power (new in 2022), Job-site safety equipment, Trailers (to haul material/equipment), Thermal imaging and/or LAN, datacom, low voltage meters.

31% mentioned Digging/HDD/boring equipment, 26% mentioned Surveying tools and equipment (new in 2022),

About 20% mentioned Wearable technology (new in 2022), Cranes, Mobile office space (trailers)

The fewest -- in the 6% to 12% range-- mentioned these newer technology categories: Drones, 3D scanners, 3D printers or Robots.

The table follows on the next page.

Reported usage remained quite constant between 2019 and 2021 with only three statistically significant changes emerging: Usage of Thermal imaging rose significantly while two types of tools and equipment posted a significant decline compared to 2019: Labeling/identification and Job-site safety equipment. Interestingly, these two had risen between 2017 and 2019 and now appear to be returning to their 2017 level.

In 2022, we did not include individual[1] types of software in this question. This was done because we believe that the word “software” may have been ambiguous to survey participants, for example, if it comes pre-loaded is it viewed as “software”? Instead, in a separate part of the survey, we asked if the respondent handled each of 13 tasks “internally” using a computer. Based on asking the question this way, we believe that asking about *individual* types of software had underestimated software usage.

[1]Such as BIM, CAD, Estimating, Project management, Tool/ equipment inventory control, Scheduling /service work/logistics. Etc.

Tools and Equipment Used	Total 2021		Total 2019		Total 2017
	(106)		(236)		(234)
	%		%		%
"Any"	91		90		91
Hand tools	82		81		82
Electrical testers, multimeters, etc.	78		78		80
Power tools	77		79		82
Fishing tools	75		76		N/A
Phones: smart/mobile/cell or two-way radios/push-to-talk	74		71		71
Measuring tools (including digital)	72		78		N/A
Pipe Threaders, benders, cutters	69		70		71
Personal protective equipment, including apparel and accessories	59		65		59
Labeling/identification (cable/panel)	56	<	67	>	55
Cable pullers	54		54		53
Portable generators	51		51		46
Tablets or portable reading devices	50		51	>	42
Temporary job-site lighting	49		48		48
Aerial lifts/scaffolding	46		49		52
Job-site safety equipment	44	<	58	>	45
Trailers (to haul equipment/materials)	43		46	>	39
Thermal imaging	42	>	32		26
LAN, datacom, other low-voltage	40		37		34
Digging/HDD/boring equipment	31		33		26
Cranes	18		14		11
Mobile office space (construction trailers)	17		14		13
Drones	12		8		5
3D scanner	9		8		5
3D printer	9		8		N/A
Software (e.g. CAD, estimating, procurement, etc.)	NA		50		45
Temporary power	46		NA		NA
Surveying tools and equipment	26		NA		NA
Wearable technology (such as smart watches or heated outerwear)	20		NA		NA
Robots	6		NA		NA

Note that the vast majority of electrical contracting firms make ***use*** of **multiple** types of tools and equipment, about 90% across the total sample.

- Reported use of 4-5 types of tools is higher among firms with 1-9 employees compared with firms with 10+ employees, while firms with 10+ employees are significantly more likely to use 6+ categories of tools and equipment, particularly 9+ types of equipment.

- The main finding by primary type of work performed is that firms that work primarily on CII projects are significantly more likely to make use of 9 or more types of tools and equipment compared with firms that work primarily on residential projects (80% vs. 58%). Another interesting finding is the high percentage of smaller firms and firms that work primarily on residential construction that make use of 6 or more types of tools and equipment (67% and 75%, respectively).

	Use in Multiple Categories in 2021					
		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	(58)	(48)		(36)*	(50)
	%	%	%		%	%
Any Use	91	88	94		89	92
Use Only 1 Category	2	3	0		6	0
Use in **Multiple** Categories	89	85	94		83	92
Use in 2 – 3 Categories	5	**5**	4		0	**<6**
Use in **4+** Categories	84	79	90		83	86
Use in 4 – 5 Categories	8	**12>**	2		8	4
Use in 6+ Categories	76	67	**<88**		75	82
Use 6-8	7	**10>**	2		**17>**	2
Use 9+ Categories	70	57	<85		58	**<80**

* Caution – small base

Bolded numbers denote and arrows significant differences at the 90% level of confidence

Percent That Purchase Different Types of Tools and Equipment

Almost nine in ten electrical contractors (87%) reported purchasing tools and equipment in 2021, statistically unchanged from two years earlier.

In 2021, Hand tools and Power tools continue to top the list at around 75% each, followed distantly by Electrical testers, mulitimeters, Measuring tools (including digital), Fishing tools and Phones at around 50%.

About 4 in 10 electrical contracting firms reported a 2021 purchase of: Personal protective equipment, including apparel and accessories, Labeling/identification (cable/panel), Pipe Threaders, benders, cutters and Job-site safety equipment.

About one-quarter of electrical contracting firms reported a 2021 purchase of: Tablets or portable reading devices, Temporary power, LAN, datacom, other low-voltage, Cable pullers and Temporary job-site lighting.

Between 10% and 20% of electrical contracting firms reported a 2021 purchase of: Thermal imaging, Trailers (to haul equipment/materials), Portable generators, Wearable technology (such as Smart watches or Heated outerware), Surveying tools and Aerial lifts/scaffolding.

Fewer than 10% of electrical contracting firms reported a 2021 purchase of: 3D printers, 3D scanners, Drones, Digging/HDD/boring equipment, Mobile office space (trailers, Robots or Cranes.

Given the upsets caused by the COVID pandemic, the war in Ukraine, supply chain issues and other disruptions, it is quite impressive that purchase levels in 2021 are unchanged from what was reported in 2019.

PURCHASE OF TOOLS AND EQUIPMENT									
V3, Q 14A, T74 (Trend p.211)	**In 2021**		**In 2019**		**In 2017**		**In 2015**		**In 2013**
	Total		**Total**		**Total**		**Total**		**Total**
Bolded numbers denote and arrows significant differences at the 90% level of confidence	(106)		(236)		(234)		(376)		(374)
	%		%		%		%		%
"Any" Purchase …	87	=	84	=	81	>	79	<	**84**
Power tools	75	=	68	=	66	=	70	=	**72**
Hand tools	74	=	74	=	70	=	70	<	**77**
Electrical testers, multimeters, etc.	53	=	55	>	45	=	46	<	**60**
Measuring tools (including digital) (first asked in 2020 Profile Study)	52	=	49		N/A		N/A		N/A
Fishing tools (first asked in 2020 Profile Study)	47	=	46		N/A		N/A		N/A
Phones: smart/mobile/cell or two-way radios/push-to-talk	47	=	43	=	37	=	37	<	47
Personal protective equipment, including apparel and accessories	44	=	43	=	**42**	>	31	<	44
Labeling/identification (cable/panel)	40	=	36	=	**34**	>	22	<	33
Pipe Threaders, benders, cutters	36	=	35	=	**28**	>	22	<	28
Job-site safety equipment	35	=	34	=	28	=	26	<	32
Tablets or portable reading devices	27	=	31	=	**24**	>	16	<	22
Temporary power (first asked in 2022)	26		NA		NA		NA		NA
LAN, datacom, other low-voltage	25	=	**22**	>	**14**	>	9	<	16
Cable pullers (first asked in 2014 Profile Study)	24	=	25	=	**19**	>	10	<	14
Temporary job-site lighting (first asked in 2016)	23	=	26	=	**23**	>	15		N/A
Thermal imaging (first asked in 2014)	19	=	12	=	10	=	8	=	10
Trailers (to haul equipment/materials) (first asked in 2016)	18	=	17	=	**12**	=	9		N/A
Portable generators (first asked in 2016 Profile Study)	16	=	19	=	16	=	19		N/A
Wearable technology (first asked in 2022)	14		NA		NA		NA		NA
Surveying tools (first asked in 2022)	14		NA		NA		NA		NA
Aerial lifts/scaffolding	10	=	**11**	>	6	<	10	<	16
3D printer (first asked in 2020 Profile Study)	8	=	4		N/A		N/A		N/A
3D scanner (first asked in 2018 Profile Study)	7	=	5	=	2		N/A		N/A
Drones (first asked in 2018 Profile Study)	7	=	5	>	2		N/A		N/A
Digging/HDD/boring equipment	5	=	**9**	>	4	=	7	=	9
Mobile office space (construction trailers) (first asked in 2016 Profile Study)	3	=	5	=	3	=	4		N/A
Robots (first asked in 2022)	3		NA		NA		NA		NA
Cranes (first asked in 2016 Profile Study)	2	=	3	=	1		2		N/A

Bolded numbers denote and arrows significant differences at the 90% level of confidence

Purchase in Multiple Categories

As has been the case in earlier Profile studies, in 2021, the bulk of electrical contractors made purchases in *multiple* categories (83% in 2021), statistically unchanged compared to two years ago.

- There are no statistically significant differences between 2019 and 2021 in the number of category purchases made.

PURCHASE IN MULTIPLE CATEGORIES

V3, Q 14A, T74 (Trend p.216)	In 2021		In 2019		In 2017		In 2015		In 2013		In 2011
	Total		**Total**		**Total**		**Total**		**Total**		**Total**
	(106)		(236)		(234)		(376)		(374)		(234)
	%		%		%		%		%		%
Any Purchase	87	=	84	=	81	=	79	<	**84**	>	77
Purchased Only 1 Category	4	=	5	=	6	=	5	=	3		5
Purchase in **Multiple** (2+) Categories	83	=	79	=	75	=	**74**	<	**81**	>	72
Purchased in 2 – 3 Categories	16	=	13	<	22	=	21	=	20		17
Purchase in **4+** Categories	67	=	66	≥	53	=	53	≤	61		55
Purchased in 4 – 5 Categories	9	=	13	=	16	=	18	=	19		24
Purchased in 6+ Categories	58	=	53	>	37	=	**35**	<	**42**	>	31
Purchased in 6-8 Categories	20	=	17		--		--		--		--
Purchased in 9+ Categories	38	=	36		--		--		--		--

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow.

Purchase in Multiple Categories, continued

By number of employees: Those in smaller firms were significantly more likely to have purchased in only 1 category or in 2-3 categories, while those in larger firms are significantly more likely to have purchased in 6+ categories, particularly in 9+ categories

By primary type of work: Firms that work on primarily residential projects are more likely to have purchases in only a single category in 2021, while firms working primarily on CII projects are significantly more likely to have made purchases in 9+ categories.

	PURCHASE IN MULTIPLE CATEGORIES (2021)					
		Number of Employees			Work Primarily In	
		1-9	**10+**		**Residential**	**CII**
	(106)	(58)	(48)		(36)*	(50)
	%	**%**	**%**		**%**	**%**
Any Purchase	87	88	85		89	82
Purchased Only 1 Category	4	**7>**	0		**11>**	0
Purchase in **Multiple** (2+) Categories	83	81	85		78	82
Purchased in 2 – 3 Categories	16	**24>**	6		17	12
Purchase in **4+** Categories	67	57	**<79**		61	70
Purchased in 4 – 5 Categories	9	12	6		14	8
Purchased in 6+ Categories	58	45	**<73**		47	62
Purchased in 6-8 Categories	20	22	17		25	16
Purchased in 9+ Categories	38	22	**<56**		22	**<46**

V3, Q 14A, T74 (Trend p.216), B1, p 244, 249; B2, p259

* Caution: small base

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow.

Trended Results

There are no statistically significant differences between 2021 and 2019 in the table shown below among the total sample or by number of employees.

- Given the number of crises and disruptions that took place in 2021, this type of stability is remarkable.

PURCHASE in MULTIPLE CATEGORIES (By Firm Size)

	Total Sample				**1-9 Employees**				**10+ Employees**			
	2021	**2019**	**2017**	**2015**	**2021**	**2019**	**2017**	**2015**	**2021**	**2019**	**2017**	**2015**
	(106)	(236)	(234)	(376)	(58)	(150)	(162)	(278)	(48)	(85)	(71)	(98)
	%	%	%	%	%	%	%	%	%	%	%	%
Any Purchase	87	84	81	79	88	83	78 =	81	85	87	**87** >	74
Only 1 Category	4	5	6	5	7	**7**	9 =	5	0	1	0 =	3
In **Multiple Categories**	83	79	75	**74**	81	75	69 =	75	85	86	**87** >	71
In 2 – 3 Categories	16	13	< **22**	21	24	18	< **27 =**	25	6	5	10	10
In **4+** Categories	67	**66** >	53	53	57	**57** >	**42**	< **51**	79	81	**77** >	61
In 4 – 5 Categories	9 =	13	16	18	12	15	18 =	21	6	8	11	10
In 6+ Categories	58	**53** >	37	35	45	**42** >	24 =	30	73	73	**66** >	51
In 6-8 Categories	20	17	--	--	22	19	--	--	17	14	--	--
In 9+ Categories	38	36	--	--	22	23	--	--	56	59	--	--

V3, Q 14A, T74 (Trend p.216), B1, p 244, 249; B2, p259

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow.

Percent That Rent/Lease Different Types of Tools and Equipment

In 2021, as was the case in 2019 and in 2017, six in ten electrical contractors (60%) *rented/leased* equipment. Note that in 2015 and 2013, the rental/lease rate was substantially and signficantly lower -- in the 37% to 40% range.

Nevertheless, as has been the case in recent Profile studies, fewer electrical contractors continue to obtain tools and equipment through rental/lease (61%) than through outright purchase (87%).

As was also the case two and four years ago, in addition to Aerial lifts/scaffolding and Digging/HDD/boring equipment, Cranes and Mobile office space (trailers) are the only four categories that are more likely to be obtained trhough *rental/lease* than through *purchase.* All are statistically unchnaged compared to two years earlier.

Aerial Lifts/scaffolding and Digging/HDD/boring equipment continue to be the two categories that are obtained through rental/lease most often. Both are statistically unchanged compared to two years earlier.(There was also no statistically significant change between 2019 and 2017 on this measure.)

- Compared with two years earlier, rental/lease levels increased significantly only for three categories: Temporary job-site lighting, Electrical testers and multimeters and Measuring tools.

- Rental/lease levels declined slightly but significantly in the case of Fishing tools and Labeling/identification (cable/panel) between 2019 and 2021.

RENTAL/LEASE OF TOOLS AND EQUIPMENT									
	In 2021		**In 2019**		**In 2017**		**In 2015**		**In 2013**
	Total		**Total**		**Total**		**Total**		**Total**
	(106)		(236)		(234)		(376)		(374)
	%		%		%		%		%
"Any" Lease/Rental…	61		60	=	**57**	>	37		40
Software	NA		4.2	=	**2.6**	>	0.9		1
Aerial lifts/scaffolding	48		45	=	**46**	>	28		29
Digging/HDD/boring equipment	30		34	=	**28**	>	12	=	16
Cranes	23		**25**	>	**17**	>	6		N/A
Mobile office space (trailers)	20		14	=	**12**	>	6		N/A
Portable generators	15		13	=	**11**	>	4		N/A
Trailers (to haul equipment/materials)	12		9	=	8	>	3		N/A
Temporary job-site lighting	**10**	>	5	=	4	=	2		N/A
Power Tools	9	=	**12**	>	**8**	>	4	<	7
Electrical testers, multimeters, etc.	**9**	>	3	=	4	=	2		3
Hand tools	8		6	=	4	=	2	<	**5**
Cable pullers	7		8	=	**8**	>	3		4
Thermal imaging	7		5	=	**4**	>	1	<	**3**
3D scanner	5.7	=	2.1	=	1.6		N/A		N/A
Measuring tools (including digital)	**5.7**	>	1.7		N/A		N/A		N/A
Job-site safety equipment	4		7	=	6	>	1		4
Pipe threaders, benders, cutters	4		6	=	5	>	2		5
3D printer	4		2		N/A		N/A		N/A
Phones: smart/mobile/cell or two-way radios/push-to-talk	3	=	3	=	**3**	>	0.8		**3**
LAN, datacom, other low-voltage	3	=	2	=	**2.8**	>	0.6		1
Personal protective equipment, including apparel and accessories	2		3	=	2	=	0.6		1
Tablets	1.9		1.7	=	0.4	=	1		1
Drones	1.9		1.7	=	0.4		N/A		N/A
Fishing tools	0	<	**3**		N/A		N/A		N/A
Labeling/identification (cable/panel)	0	<	**1.3**	=	0.4	=	0.6		1
Temporary power	8		NA		NA		NA		NA
Surveying tools	7		NA		NA		NA		NA
Wearable technology	1.9		NA		NA		NA		NA
Robots	1.9		NA		NA		NA		NA

V3, Q 14A, T75 (Trend p.218), B1, p 250, B2, p259

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow

Rental/Lease in Multiple Categories

Among the total sample, 40% of electrical contractors rented/leased in two or more categories, statistically unchanged from the 46% observed two years ago.

RENTAL/LEASE IN MULTIPLE CATEGORIES									
	2021		**2019**		**2017**		**2015**		**2013**
	(106)		(236)		(234)		(376)		(374)
	%		%		%		%		%
Any Lease/Rental	61	=	60	=	**57**	>	37		40
Only 1 Category	22	>	14	=	16	=	18	=	21
Lease/Rent in **Multiple/2+** Categories	40	=	46	=	**41**	>	19	=	19
In 2 Categories	8	=	13	=	**14**	>	8	=	10
In 3+ Categories	32	=	**33**	=	**27**	>	11	=	9

V3, Q 14A, T75 (Trend p.223)

- As was the case two years ago, larger electrical contracting companies are more likely than smaller electrical contractors to have leased/rented tools and equipment at all ("any") and also in the multiple categories of 2+ and 3+ types of tools and equipment.

- As was also the case two years ago, a higher percentage of firms that work primarily on CII projects have rented/leased at all ("any") and in the multiple categories of 2+ and 3+ types of tools and equipment compared with firms working primarily on residential projects.

    - As noted in the past, we believe that this is due to the larger companies being involved in larger, more complex and sophisticated projects that require *more different types* of tools and equipment.

	In 2021					
		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	(58)	(48)		(36)*	(50)
	%	%	%		%	%
Any Lease/Rental	61	45	**<81**		47	**<72**
Only 1 Category	22	26	17		25 =	18
Lease/Rent in **Multiple /2+** Categories	40	19	**<64**		22	**<54**
In 2 Categories	8	5	10		8	8
In 3+ Categories	32	14	**<54**		14	**<46**

V3, Q 14A, T75 (Trend p.223), B1, p 254, B2, p266

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow

* Caution: small base

Lease/Rental in Multiple Categories, continued

Trended: In 2021, across the total sample and among firms with 1-9 employees, electrical contractors are more likely to have rented/leased in only a single category than was the case two years ago and, among firms with 1-9 employees, correspondingly less likely to have rented or leased in 3+ categories.

In contrast, there are no statistically significant differences compared with two years earlier among firms with 10+ employees in the number of categories in which they rent or lease.

RENTAL/LEASE in MULTIPLE CATEGORIES (By Firm Size)

	Total Sample					**1-9 Employees**					**10+ Employees**			
	2021	**2019**	**2017**	**2015**		**2021**	**2019**	**2017**	**2015**		**2021**	**2019**	**2017**	**2015**
	(106)	**(236)**	**(234)**	**(376)**		(58)	(150)	(162)	(276)		(50)	(85)	(71)	(98)
	%	**%**	**%**	**%**		**%**	**%**	%	**%**		**5**	**%**	**%**	**%**
"Any" Lease/Rental	61	60	**57** >	37		45	51	**47** >	33		81=	75	**81** >	**48**
Only 1 Category	**22**>	14	16	18		**26**>	15	17	19		17=	12	13	13
Lease/Rent in Multiple/2+ Categories	40	46=	**41** >	19		19	**<37**	**30** >	14		64	64	**68** >	**35**▲
In 2 Categories	8	13	**14** >	8		5	**<12**	12 =	8		10	14	**19** >	10
In 3+ Categories	32	33 =	**27** >	11		14	**<25**	**18** >	6		54	49	**49** >	**25**▲

V3, Q 14A, T75 (Trend p.223)

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow.

▲ **Not significant on this base size**

Before we delve into the individual types of tools and equipment, here is an overview of use of the tools and equipment measured in this survey along with the method of obtaining each in 2021. As shown below there are a small number of areas, including – Aerial lifts, Cranes and Mobile office space -- where a higher percentage said that they made a 2021 *purchase* and/or *rental/lease* than say that their firm *used* this type of equipment in 2021. This could be an error in reporting on the part of participants or it could be that these items were acquired in anticipation of their later use or some combination of the two.

The differences in the case of Digging/HDD, 3D Printers and 3D Scanners amounts to only 1% or 2% and are being disregarded because they are so close.

. Highlighting .	**Use in 2021**	**Purchase in 2021**	**Lease/ Rent in 2021**	**Purchase or Lease/Rent in 2021**	**Use Vs. Obtained (A minus D)**
	A	**B**	**C**	**D**	**E**
	Total	**Total**	**Total**	**Total**	**Total**
	(106)	**(106)**	**(106)**	**(106)**	**(106)**
	%	**%**	**%**	**%**	**%**
“Any” …	91	87	61	89	2
Hand tools	82	74	8	74	8
Electrical testers, multimeters, etc.	78	53	9	55	23
Power tools	77	75	9	75	2
Fishing tools	75	47	0	47	28
Phones: smart/mobile/cell or two-way radio/push-to-talk	74	47	3	47	27
Measuring tools (including digital)	72	52	6	54	18
Pipe threaders, benders, cutters	69	36	4	39	30
Personal protective equipment, including apparel and accessories	59	44	2	46	13
Labeling/identification (cable/panel)	56	40	0	40	16
Cable pullers	54	24	7	30	24
Portable generators	51	16	15	26	25
Tablets or portable reading devices	50	27	2	28	22
Temporary job-site lighting	49	23	10	28	21
Aerial lifts/scaffolding	46	10	48	55	-9
Temporary power	46	26	8	30	16
Job-site safety equipment	44	35	4	36	8
Trailers (to haul equipment/materials)	43	18	12	26	17
Thermal imaging	42	19	7	26	16
LAN, datacom, other low-voltage	40	25	3	26	14
Digging/HDD/boring equipment	31	5	30	32	-1
Surveying tools and equipment	26	14	7	18	8
Wearable technology (such as smart watches or heater outerwear)	20	14	2	16	4
Cranes	18	2	23	24	-6
Mobile office space (trailers)	17	3	20	21	-4
Drones	12	7	2	9	3
3D scanner	9	7	6	11	-2
3D printer	9	8	4	10	-1
Robots	6	3	2	5	1

Communications and Meters

Electrical Testers and Multimeters Purchase Behavior

In 2021, 53% of respondent firms *purchased* Electrical testers and multimeters (etc.), statistically unchanged compared with two years earlier.

- 8.5% *rented/leased* in this category, a statistically significant rise that more than tripled its 2019 level of 2.5%.

ELECTRICAL TESTERS and MULTIMETERS (2021 vs. 2019 and Earlier)									
	In 2021		**In 2019**		**In 2017**		**In 2015**		**In 2013**
	(106)		**(236)**		**(234)**		**(376)**		**(374)**
	%		%		%		%		%
Purchase Level	53	=	**55**	>	45	=	46	<	**60**
Rental/Lease	**8.5**	>	**2.5**		3.7		**--**		**--**

- There is no difference in *purchase* likelihood by either number of employees or by primary type of work performed.

- Larger firms are more likely than smaller firms to have *rented or leased* in this category. However, there is no difference by primary type of construction work performed.

ELECTRICAL TESTERS and MULTIMETERS (2021)						
		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	**(58)**	**(48)**		**(36)***	**(50)**
Purchase Level	53%	48%	58%		47%	48%
Rental/Lease	8.5%	3.4%	**< 14.6%**		2.8%	10%

Bolded numbers denote significant differences at the 90% level of confidence
* Caution – small base

Trended Results

Compared with two year ago, *purchase* of Electrical testers, multimeters, (etc.) is statistically unchanged among the total sample and among both firms with 1-9 and 10+ employees. While there was no difference among firms working primarily on residential construction, purchase among firms working primarily on CII projects posted a significant decline from its 2019 level and appeared to return to its 2017 level.

While rental/lease rose substantially and significantly among the total sample compared with two years earlier, the differences by subgroups are either not statistically significant or are just short of statistical significance.

Electrical Testers/Multimeters												
	Number of Employees						**Work Primarily In**					
	1-9			**10+**			**Residential**			**CII**		
	2021	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**
	(58)	**(150)**	**(162)**	**(48)**	**(85)**	**(71)**	**(36)***	**(84)**	**(81)**	**(50)**	**(116)**	**(107)**
Purchase Level	48 =	48 =	40	58 =	68 =	59	47 =	42 =	42	48	**<66 >**	52
Rental/Lease	3.4 =	0.7 =	1.2	14.6 (>)	5.9 =	9.7	2.8 =	1.2 =	0	10(>)	3.4 =	6.4

Bolded numbers denote significant differences at the 90% level of confidence
* Caution – small base
(>) Just short of statistical significance

Estimates and Projections: Electrical Testers and Multimeters

ALL INDUSTRY ESTIMATE OF 2021 FIRMS PURCHASING AND RENTING/LEASING: ELECTRICAL TESTERS AND MULTIMETERS

	Percent of Respondent Firms Buying or Renting	Number of EC Firms (Source: 2020 CBP)	Projected Number Firms Buying or Renting
	%	#	#
Purchase	53	77,079	**40,852**
Rental/Lease	8.5	77,079	**6,552**

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LAN, Datacom, Other Low Voltage Testing Equipment Purchase Behavior

25% of respondent firms surveyed *purchased* LAN, datacom, other low-voltage testing equipment in 2021, statistically unchanged compared with two years earlier.

- 2.8% *rented/leased* in this category, also statistically unchanged from two years earlier.

LAN, DATACOM and OTHER LOW VOLTAGE EQUIPMENT (2021 Vs. 2019 and Earlier)									
	In 2021		**In 2019**		**In 2017**		**In 2015**		**In 2013**
	(106)		**(236)**		**(234)**		**(376)**		**(374)**
	%		%		%		%		%
Purchase Level	25	**=**	**22**	>	**14**	>	9	<	**16**
Rental/Lease	2.8	=	1.7	=	2.8		--		**--**

- In 2021, *purchase* was significantly higher among larger companies (10+ employees) vs. smaller companies (1-9 employees) and/or among firms working primarily on CII projects rather than firms working on primarily residential projects.

- In 2021, there is no difference in *rental/lease* by subgroup.

LAN, DATACOM and OTHER LOW VOLTAGE TESTING EQUIPMENT (2021) (By Firm Size and Primary Work Type)						
		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	**(58)**	**(48)**		**(36)***	**(50)**
Purchase Level	25%	10%	< **42%**		8%	**< 30%**
Rental/Lease	2.8%	1.7%	4.2%		0%	4%

Bolded numbers denote significant differences at the 90% level of confidence
* Caution – small base

Trended Results

Compared to two years earlier, *purchase* of LAN, datacom, other low-voltage testers is statistically unchanged among the total sample and by the subgroups shown below.

The same holds true for *rental/lease*, which is also statistically unchanged compared to two years earlier among the total sample and by the subgroups shown below.

LAN, Datacom, Other Low Voltage Testing Equipment												
	Number of Employees						**Work Primarily In**					
	1-9			**10+**			**Residential**			**CII**		
	2021	2019	2017	2021	2019	2017	2021	2019	2017	2021	2019	2017
	(58)	**(150)**	**(162)**	**(48)**	**(85)**	**(71)**	**(36)***	**(84)**	**(81)**	**(50)**	**(116)**	**(107)**
Purchase Level	10% =	**15%** >	7%	42% =	34% =	29%	8% =	10% =	4%	30% =	31% =	22%
Rental/Lease	1.7% =	0.7%	--	4.2% =	3.5%	--	0%	0%	--	4%	2.6%	--

Bolded numbers denote significant differences at the 90% level of confidence
* Caution – small base

Estimates and Projections: LAN, Datacom, And Other Low Voltage Testing Equipment

ALL INDUSTRY ESTIMATE OF NUMBER OF 2021 FIRMS PURCHASING AND RENTING/LEASING: LAN, DATACOM, OTHER LOW VOLTAGE TESTING EQUIPMENT

	Percent of Respondent Firms Buying	Number of EC Firms (Source: 2020 CBP)	Projected Number Firms Buying or Renting
	%	#	#
Purchase	25	77,079	**19,270**
Rental/Lease	2.8	77,079	**2,158**

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Thermal Imaging Purchase and Rental/Lease Behavior

19% of electrical contracting firms surveyed *purchased* Thermal imaging in 2021, statistically unchanged compared to two years ago. The level of *rental/lease*, at 6.6%, is also statistically unchanged compared with 2019.

THERMAL IMAGING					
	In 2021		**In 2019**		**In 2017**
	Total		**Total**		**Total**
	(106)		**(236)**		**(234)**
Purchase	19%	=	12%	=	10%
Rented/Leased	6.6%	=	4.7%	=	4.1%

Larger firms are significantly more likely to have made a *purchase* of Thermal imaging compared with smaller firms. There is no difference in purchase likelihood of Thermal imaging devices by primary type of work performed.

Rental/lease is more prevalent among firms that work primarily on CII projects compared with firms that work primarily on residential projects. There is no statistically significant difference in renting/lease in this category by number of employees.

THERMAL IMAGING (2021)						
		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	**(58)**	**(48)**		**(36)***	**(50)**
Purchase	19%	9%	**< 31%**		14% =	22%
Rented/Leased	6.6%	3.4% =	10%		0%	**< 10%**

Bolded numbers denote significant differences at the 90% level of confidence
* Caution – small base

Trended Results

Compared with two years ago, there is only one statistically significant difference by subgroup: past year *purchase* of Thermal imaging among firms working primarily on residential projects posted a large and significant *increase* compared to two years earlier, returning to its 2017 level in 2021. There are no other statistically significant differences in *purchase* or in *rental/lease* of Thermal imaging by either company size or by the primary type of work performed.

THERMAL IMAGING												
	Number of Employees						**Work Primarily In**					
	1-9			**10+**			**Residential**			**CII**		
	2021	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**
	(58)	**(150)**	**(162)**	**(48)**	**(85)**	**(71)**	**(36)***	**(84)**	**(81)**	**(50)**	**(116)**	**(107)**
Purchase	9% =	7% =	9%	31% =	20% =	15%	**14%** >	2.4%	**< 12%**	22% =	16% =	10%
Rental/Lease	3.4% =	3.3% =	3.6%	10% =	7.1% =	5.5%	0% =	1.2% =	2.2%	10% =	6.9% **=**	3.4%

Bolded numbers denote significant differences at the 90% level of confidence
* Caution – small base

Estimates and Projections: Thermal Imaging

ALL INDUSTRY ESTIMATE OF NUMBER OF 2021 FIRMS PURCHASING AND RENTING/LEASING OF THERMAL IMAGING

	Percent of Respondent Firms Buying or Renting	Number of EC Firms (Source: 2020 CBP)	Projected Number Firms Buying or Renting
	%	#	#
Purchase	19	77,079	**14,645**
Rental/Lease	6.6	77,079	**5,087**

Logistics and Communications

Labeling/Identification (Cable/Panel) Purchase Behavior

40% of electrical contracting firms surveyed purchased Labeling/identification (cable/panel) equipment in 2021; this is statistically unchanged from the 36% reported two years earlier.

- 0% rented/leased in this category in 2021 (it was only 1% two years earlier); as a result we are not including it in the analysis.

LABELING/IDENTIFICATION (CABLE/PANEL) PURCHASE (Trended)									
	In 2021		**In 2019**		**In 2017**		**In 2015**		**In 2013**
	(106)		**(236)**		**(234)**		**(376)**		**(374)**
Purchase Level	40%	=	36%	=	**34%**	>	22%	<	**33%**$^{+}$

- Larger firms and firms working primarily on CII projects are more likely to have made a past year purchase in this category.

LABELING/IDENTIFICATION (CABLE/PANEL) IN 2021 (By Firm Size and Primary Work Type)						
		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	**(58)**	**(48)**		**(36)***	**(50)**
Purchase Level	40%	26%	< **56%**		25%	< **48%**

Bolded numbers denote significant differences at the 90% level of confidence
* Caution – small base

Trended Results

As noted above, there are no statistically significant differences in purchase among the total sample compared with two years earlier. Nor are there any statistically significant differences in purchase by number of employees or by primary type of work performed compared with two years earlier.

LABELING/IDENTIFICATION (Cable/Panel) EQUIPMENT PURCHASES												
	Number of Employees						**Work Primarily In**					
	1-9			**10+**			**Residential**			**CII**		
	2021	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**
	(58)	**(150)**	**(162)**	**(48)**	**(85)**	**(71)**	**(36)***	**(84)**	**(81)**	**(50)**	**(116)**	**(107)**
Purchase Level	26% =	23% =	22%	56% =	59% =	63%	25% =	18% =	17%	48% =	49% =	49%

Bolded numbers denote significant differences at the 90% level of confidence.
* Caution – small base

Estimates and Projections: Labeling/Identification (Cable/Panel)

ALL INDUSTRY ESTIMATE OF NUMBER OF 2021 FIRMS PURCHASING: LABELING/IDENTIFICATION (CABLE/PANEL)

	Percent of Respondent Firms Buying	Number of EC Firms (Source: 2020 BP)	Projected Number Firms Buying
	%	#	#
Purchase	40	77,079	**30,832**

Continues on the next page…

Phones: Smart/Mobile/Cell orTwo-Way Radios/Push-to-Talk Phones: Purchase and Rental/Lease Behavior

47% of electrical contracting firms surveyed *purchased* Phones: Smart/Mobile/Cell or Two-Way Radios/Push-to-Talk Phones in 2021. There is no statistically significant difference between 2021 and 2019.

- The percentage that *rent/lease* in this category is 2.8%, statistically unchanged from the 3.0% recorded in 2019.

PHONES: MOBILE/CELL or TWO-WAY RADIOS/PUSH-TO-TALK PHONES PURCHASE AND RENTAL/LEASE (Trended)

	In 2021		**In 2019**		**In 2017**		**In 2015**		**In 2013**
	(106)		**(236)**		**(234)**		**(376)**		**(374)**
Purchase Level	47%	=	43%	=	37%	=	37%	<	**47%**
Rental/Lease	2.8%	=	3.0%	=	3.4%		--		**--**

- Larger firms and/or those that work primarily on CII projects are significantly more likely to have made a past year purchase compared with smaller firms and/or those that work primarily on residential projects.

- However, there is no difference in rental/lease by subgroups.

PHONES: SMART/MOBILE/CELL/TWO-WAY RADIOS or PUSH-TO-TALK PHONES PURCHASE AND RENTAL/LEASE (By Firm Size and Primary Work Type)

	In 2021					
		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	**(58)**	**(48)**		**(36)***	**(50)**
Purchase Level	47%	35%	**< 63%**		40%	**< 49%**
Rental/Lease	2.8%	3.4%	2.1%		2.8%	2%

Bolded numbers denote significant differences at the 90% level of confidence.
* Caution – small base

Trended Results

There are no statistically significant differences by subgroup compared with two years earlier in either *purchase* or *rental/lease*.

PHONES: SMART/MOBILE/CELL or TWO-WAY RADIOS/PUSH-TO-TALK PHONES PURCHASE AND RENTAL/LEASE												
	Number of Employees						**Work Primarily In**					
	1-9			**10+**			**Residential**			**CII**		
	2021	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**
	(58)	**(150)**	**(162)**	**(48)**	**(85)**	**(71)**	**(36)***	**(84)**	**(81)**	**(50)**	**(116)**	**(107)**
Purchase Level	35% =	35% =	26%	63% =	58% =	63%	42% =	30% =	28%	54% =	**51%** >	43%
Rental/Lease	3.4% =	0.7% =	3.2%	2.1% =	7.1% =	3.9%	2.8% =	1.2% =	1.4%	2% =	5.2% =	4.5%

Bolded numbers denote significant differences at the 90% level of confidence.
* Caution – small base

Estimates and Projections: Phones

ALL INDUSTRY ESTIMATE OF NUMBER OF 2021 FIRMS PURCHASING AND RENTAL/LEASING: PHONES

	Percent of Respondent Firms Buying or Renting	Number of EC Firms (Source: 2020 CBP)	Projected Number Firms Buying or Renting
	%	#	#
Purchase	47	77,079	**36,227**
Rental/Lease	2.8	77,079	**2,158**

Tablets or Portable Reading Devices Purchase Behavior

27% of electrical contracting firms surveyed reported a 2021 purchase of Tablets or portable reading devices, statistically unchanged from 2019.

- The percentage that rent/lease in this category is 1.9%

TABLETS or PORTABLE READING DEVICES (Trended)							
	In 2021		**In 2019**		**In 2017**		**In 2015**
	(106)		**Total**		**Total**		**Total**
			(236)		**(234)**		**(376)**
Purchase Level	27%	=	31%	=	**24%**	>	16%
Rental/Lease	1.9%	=	1.7%		**--**		**--**

- Firms with 10+ employees and/or firms that work primarily on CII projects are far more likely than firms with 1-9 employees and/or those that work primarily on residential projects to have made a 2021 Tablets or portable reading device purchase.

- There is no statistically significant difference by subgroup among the small number of electrical contractors that rent or lease Tablets or portable reading devices.

TABLETS or PORTABLE READING DEVICE (2021) (By Firm Size and Primary Work Type)						
	In 2021					
		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	**(58)**	**(48)**		**(36)***	**(50)**
Purchase Level	27%	14%	**< 44%**		14%	**<36**
Rental/Lease	1.9%	1.7%	2.1%		0%=	2%

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow.
* Caution – small base

Trended Results

As noted, purchase levels are statistically unchanged among the total sample compared to two years ago. Consistent with this, there are no statistically significant differences by these subgroups in the table shown below.

Similarly, there no statistically significant differences among the total sample that rent or lease Tablet or portable reading devices compared to two years ago. Consistent with this, there are no statistically significant differences by these subgroups in the table shown below.

TABLETS or PORTABLE READING DEVICES												
	Number of Employees						**Work Primarily In**					
	1-9			**10+**			**Residential**			**CII**		
	2021	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**
	(58)	**(150)**	**(162)**	**(48)**	**(85)**	**(71)**	**(36)***	**(84)**	**(81)**	**(50)**	**(116)**	**(107)**
Purchase Level	14% =	17% =	13%	44% =	54% =	52%	14% =	18% =	13%	36% =	40% =	32%
Rental/Lease	1.7% =	0.7%	--	2.1% =	3.5%	--	0%	0%	--	2 %	2.6%	--

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow.
* Caution – small base

Estimates and Projections: Tablets and Portable Reading Devices

ALL INDUSTRY ESTIMATE OF NUMBER OF 2021 FIRMS PURCHASING AND RENTING/LEASING TABLETS AND PORTABLE READING DEVICES

	Percent of Respondent Firms Buying	Number of EC Firms (Source: 2020 CBP)	Projected Number Firms Buying or Renting
	%	#	#
Purchase	27	77,079	**20,811**
Rental/Lease	1.9	77,079	**1,465**

New Technology

We've categorized four products as New Technology: Drones and 3D scanners, which were first asked in the 2018 Profile Study, 3D printers which were first asked in 2020 and Robots which were first asked in 2022.

As of 2021, usage of Drones is 12%, 3D scanners and 3D printers are 9% each and usage of Robots is 6%. Purchase of Drones, 3D scanners and 3D printers is in the 7% to 8% range; 3% for Robots. Rental/lease in these categories is 6% for 3D scanners, 4% for 3D printers and 2% for Drones and Robots.

There are no statistically significant differences from 2019 shown below.

	Use in 2021	**Use in 2019**		**Purchase in 2021**	**Purchase in 2019**		**Rent/Lease in 2021**	**Rent/Lease in 2019**
	%	%		%	%		%	%
Drones	12	8		7	5		2	2
3D scanner	9	8		7	5		6	2
3D printer	9	8		8	4		4	2
Robots	6	NA		3	NA		2	NA

Drones

6.6% of electrical contracting firms reported purchasing a drone in 2021, statistically unchanged compared with two years earlier. About 2% reported renting/leasing a Drone, also statisitically unchanged compared with two years earlier.

Drones (Trended)					
	In 2021		**In 2019**		**In 2017**
	Total		**Total**		**Total**
	(106)		**(236)**		**(234)**
Purchase Level	6.6%	=	**5.1%**	>	1.9%
Rental/Lease	1.9%	=	1.7%	=	0.4%

In 2021, there was no difference by number of employees or primary type of work performed in the likelihood of *purchasing* or *renting/leasing* a Drone.

DRONES PURCHASE IN 2021 (By Firm Size and Primary Work Type)						
	In 2021					
		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	**(150)**	**(48)**		**(36)***	**(50)**
Purchase Level	6.6%	3.4%	10%		2.8% =	**6%**
Rental/Lease	1.9%	1.7%	2.1%		0%	0%

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow.
* Caution – small base

Trended Results

The only statistically significant difference shown below is that fewer firms working primarily on CII projects rented or leased a Drone in 2021 compared with 2019.

Drones												
	Number of Employees						**Work Primarily In**					
	1-9			**10+**			**Residential**			**CII**		
	2021	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	**2019**	**2017**
	(58)	**(150)**	**(162)**	**(48)**	**(85)**	**(71)**	**(36)***	**(84)**	**(81)**	**(50)**	**(116)**	**(107)**
Purchase Level	3.4% =	2% =	1.1%	10.4% =	**10.6** >	4%	2.8% =	1.2% =	1.1%	6% =	5.2% =	1.7%
Rental/Lease	1.7% =	0.7%	--	2.1% =	3.5%	--	0%	0%	--	0%	<2.6%	--

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow.
* Caution – small base

Estimates and Projections: Drones

ALL INDUSTRY ESTIMATE OF NUMBER OF 2021 FIRMS PURCHASING AND RENTING/LEASING: DRONES

	Percent of Respondent Firms Buying	Number of EC Firms (Source: 2020 CBP)	Projected Number Firms Buying or Renting
	%	#	#
Purchase	6.6	77,079	**5,087**
Rental/Lease	1.9	77,079	**1,465**

Continues on the next page

3D Scanners

6.6% of electrical contracting firms surveyed reported purchasing a 3D scanner 2021, statistically unchanged compared with two years earlier.

5.7% reported renting/leasing a 3D scanner 2021, which is also statistically unchanged from the level reported for 2019.

3D Scanners (Trended)					
	In 2021		**In 2019**		**In 2017**
	Total		**Total**		**Total**
	(106)		**(236)**		**(234)**
Purchase	6.6%	=	5.1%	=	2.4%
Rental/Lease	5.7%	=	2.1%	=	1.6%

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow.
* Caution – small base

Although there is no difference by number of employees in terms of 3D scanner *purchase*, firms that work primarily on CII projects are far more likely than firms that work primarily on residential projects to have made a 2021 3D scanner *purchase*.

Larger firms and/or those that work primarily on CII projects are more likely to have made a 2021 3D scanner *rental/lease* compared with smaller firms and/or those that work primarily on residential projects.

3D SCANNER PURCHASE IN 2021 (By Firm Size and Primary Work Type)						
	In 2021					
		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	**(58)**	**(48)**		**(36)***	**(50)**
Purchase Level	6.6%	3.4%	10%		0%	**< 8%**
Rental/Lease	5.7%	1.7%	**< 10%**		0%	**< 8%**

Consistent with the fact that there were no statistically significant changes in purchase or rental/lease levels among the total sample compared with two years earlier, there are also no statistically significant differences by subgroup during the previous two years.

3D Scanners Trended												
	Number of Employees						**Work Primarily In**					
	1-9			**10+**			**Residential**			**CII**		
	2021	**2019**	**2017**	**2021**	**2019**	**2017**	**2021**	2019	**2017**	**2021**	2019	**2017**
	(58)	**(150)**	**(162)**	**(48)**	**(85)**	**(71)**	**(36)***	(84)	**(81)**	**(50)**	(116)	**(107)**
Purchase Level	3.4% =	0.7% =	1.8%	10% **=**	**13%** >	3.9%	0% =	1.2% =	2%	8% =	5.2% =	3.6%
Rental/Lease	1.7% =	0.7%	**--**	10% =	**4.7%**	**--**	0%	0%	**--**	8%	3.4%	**--**

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow.
* Caution – small base

Estimates and Projections: 3D Scanners

ALL INDUSTRY ESTIMATE OF 2021 FIRMS PURCHASING AND RENTING/LEASING 3D SCANNERS

	Percent of Respondent Firms Buying	Number of EC Firms (Source: 2020 CBP)	Projected Number Firms Buying or Renting
	%	#	#
Purchase	6.6	77,079	**5,087**
Rental/Lease	5.7	77,079	**4,394**

3D Printers

7.5% of electrical contracting firms surveyed purchased a 3D printer in 2021, statistically unchanged from its 2019 level.

3.8% of electrical contracting firms surveyed rented/leased a 3D printer in 2021, also statistically unchanged from its 2019 level.

3D Printers (Trended)			
	In 2021		**In 2019**
	Total		**Total**
	(106)		**(236)**
Purchase	7.5%	=	4.2%
Rental/Lease	3.8%	=	2.1%

There is no difference in purchase likelihood by number of employees or by primary type of work performed.

There is no difference in rental/lease likelihood by number of employees or by primary type of work performed.

3D PRINTER PURCHASE IN 2021 (By Firm Size and Primary Work Type)						
	In 2021					
		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	**(58)**	**(48)**		**(36)***	**(50)**
Purchase Level	7.5%	5.2%	10.4%		5.6%	6%
Rental/Lease	3.8%	1.7%	6.3%		0%	4%

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow.
* Caution – small base

Estimates and Projections: 3D Printers

ALL INDUSTRY ESTIMATE OF 2021 FIRMS PURCHASING AND RENTING/LEASING: 3D PRINTERS

	Percent of Respondent Firms Buying	Number of EC Firms (Source: 2020 CBP)	Projected Number Firms Buying or Renting
	%	#	#
Purchase	7.5	77,079	**5,781**
Rental/Lease	3.8	77,079	**2,929**

Robots (This section also appears in the first volume of this report)

Both 2021 *purchase* and *rental/lease* is low in this category:

- 2.8% reported purchasing a Robot in 2021.
- 1.9% reported rental/lease of a Robot in 2021.

Purchase levels are significantly higher among firms with 10+ employees and/or among firms that work primarily on CII projects compared with smaller firms and/or those that work primarily on residential projects.

Rental/lease levels: There are no statistically significant differences by any of the subgroups shown below.

This category cannot be trended since it was first asked about in the most recent Profile study.

ROBOTS (2021)

		Number of Employees			**Work Primarily In**	
	Total	**1-9**	**10+**		**Residential**	**CII**
	(106)	(58)	(48)		(36)*	(50)
	%	**%**	**%**		**%**	**%**
Purchase	2.8	0	< **6**		0	**<6**
Rental/Lease	1.9	1.7	2.1		0	0

* Caution: small base

Bolded numbers denote significant differences at the 90% level of confidence in the direction of the arrow

ALL INDUSTRY ESTIMATE OF 2021 NUMBER OF FIRMS PURCHASING AND RENTING/LEASING: ROBOTS

	Percent of Respondent Firms Buying or Renting	Number of EC Firms (Source: 2020 CBP)	Projected Number Firms Buying or Renting
Robots	%	#	#
Purchase	2.8	77,079	**2,158**
Rental/Lease	1.9	77,079	**1,465**

Use/Ownership of Computers and Electronic Devices

Certain questions in the 2022 Profile Survey were given to only a part of the sample in order to keep the overall survey shorter and more manageable. The findings in this section are based on a different set of respondents (those in V8) rather than those who answered the preceding questions on Tools and Equipment purchase (those in V3).

99% of respondents reported they that they or their firm uses/owns one or more of the 16 types of computers and electronic devices measured in this survey, statistically unchanged from 2019.

Ownership of phones and computers are on a par, with 98% or 99% of survey participants reporting usage or ownership of *each*.

- **Use or ownership** of **phones** *overall* posted a statistically significant increase compared to two years ago. However, *none of the component* parts on their own, such as Smartphones or two way radios posted a statistically significant rise. As was the case two years ago, Smartphones are owned by about 5 times more electrical contractors than mobile phones that are not smart or multifunctional (94% vs. 18%).

- Computers in total—Desktop/laptop/tablets—posted an increase mostly due to a significant rise in use of desktops and laptops.

- At the same time, use of Tablets has been statistically stable, suggesting that rather than *replacing* computers (as we had hypothesized in the past), Tablets are being used ***in addition*** to other computing devices and not, at this point, instead of them.

In 2018, we added a category called "New Technology" to include Thermal imaging cameras, VR/AR headsets, 3D scanners, Wearable technology and Drones. No new electronic devices were added to this question in 2022.

USE/OWNERSHIP OF COMPUTERS and ELECTRONIC DEVICES											
(V8) Q15A	**In 2021**		**In 2019**		**In 2017**		**In 2015**		**In 2013**		**In 2011**
	Total		**Total**		**Total**		**Total**		**Total**		**Total**
	(172)		(232)		(229)		(304)		(271)		(253)
	%		%		%		%		%		%
"ANY" Ownership	99	=	**98**	>	94	=	95	<	**98**	>	88
(Smart*) /Mobile/Cell Phones or Two-Way Radios (Net)	**98**	>	**94**	>	89	=	89	<	**94**	>	84
Smartphones* Δ	94	=	**90**	>	73	=	79	=	74	>	**44**
Two-way radios	30	=	29	=	26	=	25		29		26
Mobile phones/cell phones (not smart or multifunctional)	18	=	19	<	**34**	>	27	<	**55**	<	**<67**
Push-to-talk phones	3.5	=	6	=	8	=	5		--		--
Desktop/Laptop/Tablet (Net)	**99**	>	**94**	>	85	<	**91**	=	**90**	>	69
Desktop Computer (office/trailer) Δ	**87**	>	76	=	72	<	**82**		81	>	61
Laptops Δ	**81**	>	**74**	>	62	<	**74**	>	**66**	>	36
Tablets (iPad©, etc.) Δ	56	=	50	=	43	<	**54**	>	**40**	>	17
GPS	35	=	31	=	31	<	**38**	=	40	=	37
Fleet tracking	**19**	>	10	=	11	=	10	=	7	=	6
Time clocks or personnel tracking devices	11	=	10	=	9	=	8	=	8	=	6
New Technology (Net)	41	=	33	=	35		--		--		--
Thermal imaging camera	33	=	25	=	29		--		--		--
Wearable technology	**11**	>	6	=	5.7		--		--		--
Drones	7.6	=	**8.2**	>	3.1		--		--		--
3D scanners	4.1	=	6.5	=	6.2		--		--		--
VR/AR headsets or hardhats	4.1	=	5.2	=	8.8		--		--		--
3D printers * Δ	1.7	=	2.6		--		--		--		--
Electrical testing/diagnostic meters***	NA		NA		NA		NA		73		NA

Bolded **numbers denote significant differences at the 90% level of confidence in the direction of the arrow.**

* Δ 3D printer was added in 2020
Δ Wording changed in 2014 from Workstations to Desktop Computer (Office/Trailer)
Δ Wording changed in 2014 from Field Laptop to Laptop
Δ Wording changed in 2014 from Smartphones or PDAs to Smartphones
Δ Wording changed in 2018 from Tablets (iPad©, etc.) to Tablets (iPad©, etc.) of any size
***Electrical testing/diagnostic meters was dropped from this question in 2016

*** **Added in 2014**

Use/Ownership of Computers and Electronic Devices, continued

Use/ownership of the specific types of computer and electronic equipment is typically statistically significantly higher among larger electrical contracting firms compared to their smaller counterparts. The only exceptions are Mobile phones/cell phones (not smart or multifunctional), Push-to-talk phones, and these types of New Technology: Wearable technology, Drones, and VR/AR headsets, and 3D scanners and 3D printers where there is no difference by company size.

- As was the case two years ago, note that there are no categories where use/ownership is statistically higher among firms with 1-9 employees compared with their larger counterparts.

In addition, usage and ownership of electronic devices tends to be higher among firms that work primarily on CII construction compared to those firms that work primarily on residential construction. The only exceptions are Smartphones and Mobile phones (not smart or multifunctional), Tablets, GPS systems, Time clocks (personnel tracking devices) and these types of New technology: Wearable technology, Drones, 3D scanners and 3D printers, where there is no difference by primary type of construction.

USE/OWNERSHIP OF COMPUTERS and ELECTRONIC DEVICES (In 2021)						
(V8) Q15A			Number of Employees		Work Primarily In	
	Total		**1-9**	**10+**	**Residential**	**CII**
	(172)		(99)	(73)	(53)	(95)
	%		%	%	%	%
"ANY" Ownership	99		100	99	98	100
(Smart*) /Mobile/Cell Phones or Two-Way Radios (Net)	98		97	99	96	99
Smartphones	94		91	< **97**	93	96
Two-way radios	30		22	< **40**	15	**< 38**
Mobile phones/cell phones (not smart or multifunctional)	18		19	16	19	19
Push-to-talk phones	4		3	4	0	< **6**
Desktop/Laptop/Tablet (Net)	99		100	99	98	100
Desktop computer (office/trailer)	87		81	< **96**	79	**< 95**
Laptops	81		76	**<89**	68	**< 88**
Tablets (iPad©, etc.)	56		42	< **74**	53	60
GPS	35		26	< **47**	30	37
Fleet tracking	19		3	< **40**	8	**< 25**
Time clocks or personnel tracking devices	11		6	< **16**	8	12
New Technology (Net)	41		26	**< 60**	40	44
Thermal imaging camera	33		19	< **51**	19	**< 42**
Wearable technology	11		9	14	15	10
Drones	8		5	11	4	8
3D scanner	4		2	7	1.9	5
VR/AR headsets or hardhats	4		4	4	0	< **6.3**
3D printer (First asked in 2020)	1.7		1	3	0	2.1

Bolded **numbers denote significant differences at the 90% level of confidence in the direction of the arrow.**

Electronic Devices Company is Considering Adding

67% of the electrical contractors surveyed are considering adding computers and/or electronic devices in the next 12 months.

Overall, 26% of the electrical contractors surveyed said that they are considering a purchase of one or more of these "New Technology" devices: Drones, 11%, (up sigificantly from 3% two years ago, not shown), Thermal imaging cameras (10%, unchanged from two years earlier) and about 5% each for Wearable technology, a 3D scanner or a 3D printer (all unchanged from two years earlier) 4% are considering the purchase of a VR/AR headset or hardhat.

While these numbers are still small, we will be watching their progress and expect them to increase, perhaps even dramatically over time as has already happened in the case of Drones.

In the more mature categories of Computers and Phones, 45% of those surveyed are considering the purchase of a Desktop, Laptop and/or Tablet, as a broad category. 28% are considering the purchase of one or more type of Phone or Two-way radio/ Push-to-talk phone.

As we noted two, four and six years ago, the wide array of computers and electronic devices that electrical contractors are considering for purchase might provide a fruitful environment to Big Box electronics vendors such as Best Buy or even Amazon or e-Bay. It may be particularly helpful to maintain a constant presence in front of electrical contractors as they are making their purchase decisions.

The following individual product types, mentioned most often as considered additions:

Highlighting indicates considered additions 10% and over	Total Considering Adding (2022 Profile Study)
	%
"ANY"	67
Phones	28
Smartphones	24
Computers/Laptops/Tablets	45
Tablets (iPad©, etc.)	29
Laptops	27
Desktop computer (office/trailer)	23
Fleet tracking devices	9
New Technology	26
Drones	11
Thermal imaging cameras	10
Wearable technology	5.2
3D printer	5.2
3D scanner	4.7
VR/AR headsets or hardhats	4.1

Electronic Devices Company is Considering Adding, continued

The considered additions (column E) can be further divided into two categories:

- Column C indicates the percent of the total sample that are considering purchase of a device that they or their firm do not currently own. Three categories stand out: Tablets, Drones and Thermal imaging cameras
- Column D indicates the percent of the total sample where the considered device would be an **upgrade, replacement or increasing the number of units** of a device that they or their firm already owns. Smartphones, Desktop Computers, Laptops, and Tablets are mentioned most often.
  - As was the case two years ago, purchases in the Tablets category are a mix of new category purchasers (11, column C) and firms that are upgrading/replacing the Tablets that they already own (18, column D). In contrast, for Thermal imaging cameras, almost the entire total is made up of purchasers that are new to the category (8 in column C). *Further examples of how to read this chart are shown on the next page.*

OWNERSHIP OF COMPUTERS and ELECTRONIC DEVICES (From 2022 Profile Study)

	A	B	C	D	E
=Largest increases	Total Own or Considering Category Purchase	Own	Don't Own But Are Considering Category Purchase [A minus B]	Upgraders/ Replacers [E minus C]	Total Considering Adding
	Total	Total	Total	Total	Total
	(172)	(172)	(172)	(172)	(172)
	%	%	%	%	%
Smartphones	94	94	0	24	24
Mobile phones/cell phones (not smart/ multifunctional)	19	18	1	3	4
Two-way radios	30	30	0	4	4
Push-to-talk telephones	5	4	1	1	2
Desktop computer (office/trailer)	88	87	1	22	23
Laptops	85	81	4	23	27
Tablets (iPad©, etc.)	67	56	11	18	29
GPS	37	35	2	3	5
Time clocks or personnel tracking devices	13	11	2	2	4
Fleet Tracking	24	19	5	4	9
Thermal imaging camera	41	33	8	2	10
Drones	17	8	9	2	11
Wearable technology	16	11	5	0	5
3D scanner	9	4	5	0	5
VR/AR headsets	7	4	3	1	4
3D printer	7	2	5	0	5

Electronic Devices Company is Considering Adding, continued

Here is a further example of how to read the table on the previous page:

In the case of Smartphones, 94% currently own (column B), and 94% either own or are considering purchasing (column A). The difference between the two numbers, +0% is the potential new category buyers (column C). However, a total of 24% said that they are considering a purchase in this category (column E). The difference between the total considering (24%) and those who are new to the category (0%) is 24%. This is the percent that are considering replacing or upgrading in a category where they already have this type of device. The high replacement rate marks this as a mature category

Similarly, 87% currently own a Desktop computer (column B) but 88% either own or are considering purchasing (column A). However, a total of 23% are considering a purchase in this category (column E). The difference between the total considering (23%) and those who are new to the category (1%) is 22%. This is the percent that would be replacing or upgrading in a category where they already have this type of device. Again, the high replacement rate marks this as a mature category

Tablets appear to be still evolving as the category is a mix of new category purchasers (11, column C) and firms that are upgrading/replacing the Tablets that they already own (+18, column D). In contrast, for Thermal imaging cameras, almost the entire total is made up of purchasers that are new to the category, and along with relatively low purchase levels, suggests that it is a still evolving category.

Extract from OWNERSHIP OF COMPUTERS and ELECTRONIC DEVICES (From 2022 Profile Study)

	A	**B**	**C**	**D**	**E**
V8 Q15a/b =Largest increase NB: all except Thermal imaging are also statistically significantly larger than two years earlier	**Total Own or Considering Category Purchase**	**Own**	**Don't Own But Are Considering Category Purchase [A minus B]**	**Upgraders/ Replacers [E minus C]**	**Total Considering Adding**
	Total	**Total**	**Total**	**Total**	**Total**
	(172)	**(172)**	**(172)**	**(172)**	**(172)**
	%	%	%	%	%
"ANY"					**67**
Smartphones	94	94	0	24	24
Desktop Computer (office/trailer)	88	87	1	22	23
Laptops	85	81	4	23	27
Tablets (iPad©, etc.)	67	56	11	18	29
Thermal imaging cameras	41	33	8	2	10

Use of Software

∆ Current Use of Software

The same group of respondents were shown a list of 17 types of business functions and asked how their firm handles these functions. In 2022, the following four types of software were added to the original 13 asked about in 2018 and 2020. The new business functions are: Procurement, Workforce Management, Pre-Fab Detailing and Geospatial Mapping

Starting in the 2018 Profile Study, we asked about respondent use of software in a different way than in previous Profile Studies. Instead of asking the participants about their use of "software", we asked if the respondents handled each of the (now 17) tasks "…internally, using a computer". This was done because we had concerns that the word "software" may be ambiguous to survey participants. Specifically, over the past few Profile Studies we came to believe that the use of software question did not accurately reflect the computer related activity of electrical contractors. For instance, eight years ago, only 73% of those who took the survey online (where the invitation was sent by e-mail) said that they or their firm uses computer software to access the Internet!

As shown below, 92% say that they handle one or more business functions in this way, which we see as another way of sayig that they use software for these functions.

Further, where they could be tracked, four of the software types posted a statistically significant increase; none declined.

Use of Software		
	Task Handled Internally, Using a Computer (V8)	
	2022	2020
	(172)	(232)
	%	%
ANY	**92**	> 86
Accounting/Payroll	**80**	> 64
Estimating	**78**	> 68
Productivity Software	**72**	> 58
Job Cost Control/Analysis	66	59
Procurement	63	NA
Time and Attendance Software	60	53
Project Management	59	53
Scheduling Service Work/Logistics	59	53
Take-Off	57	51
Workforce Management	51	NA
Tool/Equipment Inventory Control	**45**	> 33
Project Collaboration Software	40	35
CAD	37	33
Fleet Management/Vehicle Locator	34	28
BIM (Building Information Modeling)	26	22
Pre-Fab Detailing	26	NA
Geospatial Mapping	19	NA

As noted in the previous page, overall, about 9 in 10 (92%) of the electrical contracting firms we surveyed make use of one or more of the types of software included in the 2022 Profile Study. Use of Any of these types of software is substantially and significantly higher among larger firms than among their smaller counterparts (100% vs. 87%).

- Larger firms are more likely than their smaller counterparts to currently use each of the different types of software shown on the next page. As a consequence, they are also more likely to currently use 4 or more and 8 or more types of software compared with firms with 1-9 employees.

- Similarly, firms that derive more than one half of their revenue from CII projects are also more likely than firms that work primarily on residential projects to currently use each of the types of software included in the survey. Note that firms that work primarily on CII projects tend to be larger.

  - To the extent that there are differences by age, older respondents -- those aged 65 or older – are less likely than respondents aged 35-54 to make use of these types of software.

The most frequently cited types of business functions or activities that are "handled internally, using a computer are": Accounting/Payroll (80%), Estimating (78%), Productivity Software (72%) , Job Cost Control/Analysis (66%), Procurement (63%), Time and Attendance (60%), Project Management (59%), Scheduling Service Work/Logistics (59%), Take-Off (57%) and Workforce Management (51%).

Computer Software/Technologies Company Currently Uses (2022)								
	Based on "Handled Internally, Using a Computer" (V8), Q14A							
		Number of Employees		Firm Works Primarily In		Respondent Age		
	Total	**1-9**	**10+**	**Residential**	**CII**	**35-54**	**55-64**	**65+**
	(172)	(99)	(73)	(53)	(95)	(55)	(69)	(45)
	%	%	%	%	%	%	%	%
ANY	92	87	**<100**	81	**<98**	**98**	-	>80
Accounting/Payroll	80	69	**<95**	62	**<88**	-	-	>62
Estimating	78	67	**<93**	60	**<88**	**91**	-	>62
Productivity Software	72	58	**<92**	59	**<83**	-	-	-
Job Cost Control/Analysis	66	48	**<90**	47	**<78**	**80**	-	>49
Procurement	63	49	**<84**	43	**<75**	-	-	-
Time and Attendance Software	60	46	**<80**	43	**<71**	-	-	>49
Project Management	59	41	**<84**	38	**<74**	**73**	-	>40
Scheduling Service Work/Logistics	59	50	**<71**	47	**<66**	**69**	-	>40
Take-Off	57	40	**<80**	38	**<70**	-	-	>40
Workforce Management	51	33	**<75**	36	**<61**	-	-	>33
Tool/Equipment Inventory Control	45	30	**<66**	26	**<57**	**58**	-	>29
Project Collaboration Software	40	19	**<69**	25	**<50**	**55**	-	>20
CAD	37	17	**<63**	11	**<54**	-	**45**	>22
Fleet Management/Vehicle Locator	34	20	**<53**	15	**<45**	**46**	-	>24
BIM (Building Info Modeling)	26	12	**<44**	17	**<32**	**40**	-	>16
Prefab Detailing	26	15	**<41**	9	**<36**	-	-	-
Geospatial Mapping	19	11	**<30**	8	**<23**	**27>**	-	-
Only 1 Type	4	**6>**	0	**6>**	0	-	-	-
2-3 Types	14	**21>**	4	**23>**	10	-	-	-
4 + Types	75	59	**<96**	53	**<88**	**87**	-	>53
8+ Types	59	40	**<84**	38	**<73**	**71**	-	>44
None/Don't Know/No Answer	8	**13>**	0	**19>**	2	-	-	**<20**

For age breaks: Only significant differences are shown; Empty cells indicate no difference from total