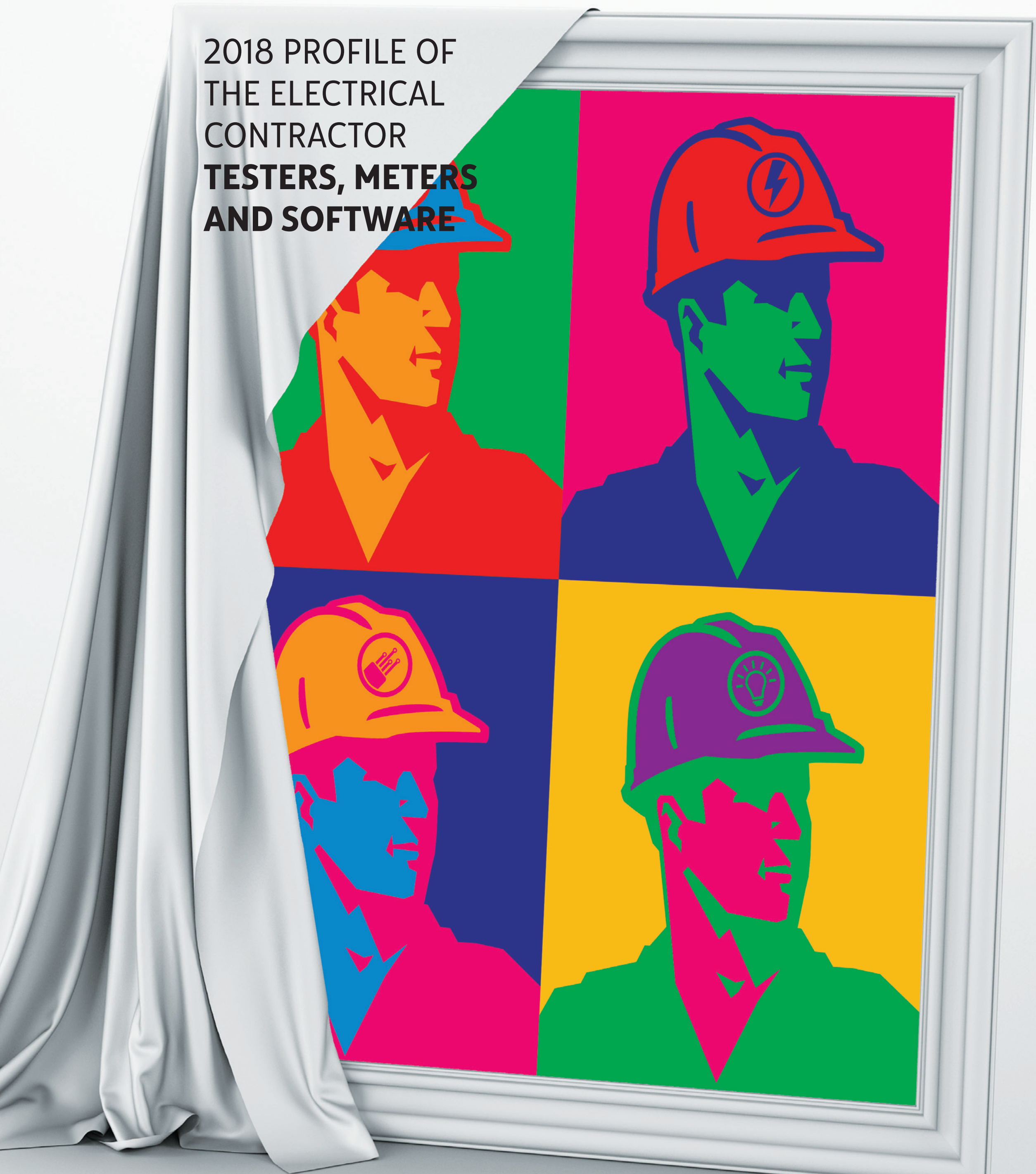
# ELECTRICAL CONTRACTOR

POWER & INTEGRATED BUILDING SYSTEMS

2018 PROFILE OF THE ELECTRICAL CONTRACTOR

**TESTERS, METERS AND SOFTWARE**



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**2018 "ELECTRICAL CONTRACTOR MAGAZINE PROFILE"**
**DATABASE REPORT**

# ELECTRICAL CONTRACTORS:

## THEIR USE, PURCHASE AND RENTAL/LEASE OF: COMMUNICATIONS AND TESTING/METERING TOOLS AND EQUIPMENT

### ELECTRICAL TESTERS/MULTIMETERS
### LAN/DATACOM/OTHER LOW VOLTAGE
### THERMAL IMAGING
### LABELING AND DOCUMENTATION
### SOFTWARE
### SMART/MOBILE/CELL PHONES/TWO-WAY RADIOS
### TABLETS/PORTABLE READING DEVICES
### DRONES
### 3-D PRINTERS

## THEIR OWNERSHIP OF COMPUTERS AND ELECTRONIC DEVICES SOFTWARE USAGE

INCLUDING ESTIMATES BASED ON THE 2016 COUNTY BUSINESS PATTERNS

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

**FOR:**


**BETHESDA, MD 20814**
**SEPTEMBER 2018**

# Table of Contents

# KEY FINDINGS

This report is volume one 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 – 21 are common to both reports.

**PURCHASE AND LEASE BEHAVIOR OVERVIEW**:

## Tools and Equipment **Used** in 2017

In the 2018 Profile Study, for the first time, electrical contractors were asked to indicate which of 22 types of tools and equipment they or their firm **used** in the previous year.

Not surprisingly, many of the top categories mentioned were those that received high levels of purchase and/or rental/lease in previous Profile Studies, with at least 7 in 10 mentioning: Hand Tools, Power Tools, Electrical Testers and Multimeters, Pipe Threaders/Benders/Cutters and Smartphones or Two-Way Radios.

Not surprisingly, upwards of 88% say that they made use of multiple types of tools and equipment in 2017.

## Tools and Equipment **Purchased** in 2017

Eight in ten electrical contractors (81%) reported purchasing Tools and Equipment in 2017, statistically unchanged from two years earlier.

Hand Tools and Power Tools continue to top the list.

- In sharp comparison to the 2015 findings, where there were widespread declines compared with two years earlier, in the 2017 purchase results, 7 of the types of tools and equipment that can be trended rose, one type declined (Aerial Lifts & Scaffolding) and the remainder were statistically unchanged or could not be trended because they were just added in the most recent study.

The 7 categories that posted increases are: Personal Protective Equipment or Apparel, Labeling & documentation, Pipe Threaders, Benders, Cutters, Tablets or Portable Reading Devices, Temporary Jobsite Lighting, Cable Pullers, LAN Teledata and Low Voltage.

Multiple: As has been the case in earlier Profile studies, in 2017, the bulk of electrical contractors made purchases in *multiple* categories (75% in 2015), statistically unchanged from two years earlier. Multiple purchases in 2+, 4+ and 6+ categories are also statistically unchanged compared to two years earlier.

## Tools and Equipment **Rented/Leased** in 2017

Almost 6 in 10 electrical contracting firms rented/leased equipment in 2017. This is a huge and statistically significant jump from the 37% level observed in 2015. In fact, even going back to 2011, rental/lease was never higher than 43%. Nevertheless, electrical contractors remain more likely to obtain tools and equipment through outright purchase (81%) than through rental/lease (57%).

Aerial Lifts/Scaffolding and Digging/HDD/Boring Equipment continue to be the two categories that are obtained through rental/lease most often.

**Tools and Equipment** Rented/Leased **in 2017, continued**

In addition to Aerial Lifts/Scaffolding and Digging/HDD/Boring Equipment, Cranes and Mobile Office Space are the only four categories that are more likely to be obtained through rental/lease than through purchase.

Compared to two years ago, the rental/lease of Aerial Lifts/Scaffolding and Digging/HDD/Boring Equipment each posted statistically significant increases.

- In addition, rental/lease has also increased compared to two years earlier in the following categories: Cranes, Mobile Office Space, Portable Generators and Trailers (to Haul Equipment); and to a lesser extent in these categories: Power Tools, Cable Pullers, Jobsite Safety Equipment and Pipe Threaders, Benders, Cutters.

Among the total sample, fully 41% of electrical contractors rented/leased in two or more categories. This is a huge jump from the 19% observed two years ago and is a statistically significant increase. Rental/lease in 3+ categories also jumped significantly compared with two years earlier.

- Rental/lease "Any", and in multiple categories is higher among larger firms rather than smaller firms and/or among firms that work primarily on CII rather than Residential projects.

## KEY FINDINGS: TOOLS

### Electrical Testers and Multimeters

45% of respondent firms purchased Electrical Testers and Multimeters. This is statistically unchanged from 2015.

In 2017, purchase levels were higher among larger vs. smaller companies but there was no difference by the primary source of revenue (Residential vs. CII)

### LAN, Datacom, Other Low Voltage Testing Equipment

LAN, Datacom, Other Low Voltage Testing Equipment *w*as purchased by 14% of contractors surveyed, which is significantly higher than the 9% observed in 2015

- In 2017, purchase was significantly higher among large companies (10+ employees) vs. small companies (1-9 employees) and/or among firms working primarily on CII projects rather than firms working primarily Residential firms.

The increase among the total sample vs. two years ago was driven by increases among larger firms and/or among firms working primarily on CII projects.

## Thermal Imaging

In 2017, 10% of firms surveyed purchased thermal imaging equipment. This is statistically unchanged from two years ago. The level of rental/lease rose significantly, but the 2017 level is still only 4%.

- Large firms and/or those that work primarily on CII projects are significantly more likely to have made a purchase in this category compared with smaller firms and/or those that work primarily on Residential projects. There are no significant rental subgroup differences.

Compared with two years ago, purchase levels are unchanged by number of employees (small firms vs. large). However, there is a significant uptick vs. 2015 in Thermal Imaging purchases by firms that do Primarily CII work.

## Communications and Logistics

## Labeling/Identification (Cable/Panel) Purchase Behavior

34% of electrical contracting firms purchased Labeling/Identification (Cable/Panel) equipment in 2017; this is a large and statistically significant increase from the 22% recorded in 2015.

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

The purchase increase among the total sample is the result of significant increases among firms with 1-9 *and* among firms with 10+ employees. Purchase levels increased among firms that work primarily on CII projects but declined among those who do primarily Residential work.

## Phones: Smart/Mobile/Cell or Two-Way Radios Purchase Behavior

37% of electrical contracting firms purchased Phones: Smart/Mobile/Cell or Two-Way Radios in 2017. There is no statistically significant difference between 2017 and 2015.

- Larger firms and/or those that work primarily on CII projects are more likely to have made a past year purchase in this category during 2017.

Although there is no statistically significant difference among the total sample between 2017 and 2015, purchase levels increased among larger firms but decreased among smaller firms and/or among firms that work primarily on Residential projects.

## Tablets or Portable Reading Devices

24% of electrical contracting firms reported a 2017 purchase of Tablets or Portable Reading Devices. This represents a large and statistically significant increase compared with the 2015 level of 16% and notably, brings the purchase level back to the level observed in 2013.

- Larger firms and/or firms working primarily on CII projects are more likely to have made a past year purchase in this category in 2017.

The increase in past 12 month purchase of Tablets or Portable Reading Devices among the total sample is driven by an increase among larger firms and those firms that primarily work in CII.

## New Technology: Drones and 3-D Scanners

In the 2018 Profile Study, respondents were asked about their purchasing behavior for two new categories: Drones and 3-D Scanners.  Each was purchased 2% of the electrical contractors surveyed.

**Continues on the Next Page**

**KEY FINDINGS: Ownership and Use of Computers and Electronic Devices**

Certain questions in the 2018 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.

94% of electrical contractors said that they or their firm uses/owns the computers and electronic devices included in this survey. This is statistically unchanged from what was observed in 2015.

- About 9 in 10 firms report using phones and/or Desktop/Laptops/Tablets. These are mature categories.
    - Of these broad categories, computer usage declined slightly, but significantly compared with two years ago. **We think that this decline is the result of Smartphones replacing many of the functions formerly performed using a computer.**

In general, use of the specific types of computer and electronic equipment is significantly higher among larger electrical contracting firms, compared to their smaller counterparts. The only exceptions are Mobile Phones/Cell Phones (not Smart or Multifunctional), which are more likely to be owned in smaller firms and Push-to-Talk Telephones, where there is no difference by company size.

In addition, usage and ownership 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 Mobile Phones (not Smart or multifunctional), GPS systems and Time Clocks or Personnel Tracking Devices, Tablets and Push-to-Talk Telephones, where there is no difference by primary type of construction.

In 2018, we added a category called “New Technology”; it includes Thermal Imaging Cameras, VR/AR Headsets, 3-D Scanners, Wearable Technology and Drones. 35% of the electrical contractors surveyed already own one or more devices in this category.

- Not surprisingly, ownership in this category is higher among larger firms (10+ employees) and/or those that work primarily on CII projects.

Of these devices, ownership of Thermal Imaging Cameras, at 30%, is highest. An additional 9% say that they are considering a category purchase.

Overall, 16% of the electrical contractors surveyed said that they are considering a purchase of one or more of these “New Technology” devices. In addition to Thermal Imaging Cameras (9%, as noted above), 6% each are considering the purchase of Drones and/or Wearable Technology; 4% are considering the purchase of a 3-D Scanner and 3% of VR/AR Headsets or Hardhats.

While these numbers are still small, we will be watching their progress and expect them to increase dramatically over time.

In the more mature categories of Computers and Phones, 24% of those surveyed are considering the purchase of a Desktop, Laptop and/or Tablet; 16% are considering the purchase of one or more type of Phone or Two-way Radio.

As we noted two 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.

**Use of Software**

The same group of respondents were shown a list of 13 types of computer software and asked a series of questions about their firm's current use and planned acquisition of each type of software.

In the 2018 Profile Study, we asked about 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 13 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, four 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 three-quarters of the electrical contracting firms we surveyed make use of one or more of the types of software included in the 2018 Profile Study. Use of any of these types of software is almost twice as high among larger firms than among their smaller counterparts (92% vs. 69%).

- 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 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 projects that are "handled internally, using a computer are": Accounting/Payroll (61%), Estimating (56%), Productivity (47%), Job Cost Control/Analysis (46%), Project Management (44%) and Scheduling ServiceWork/Logistics (40%).

## METHODOLOGY

This report focuses on electrical contractors' use, purchase, rental/lease of communications and testing/metering and tools and equipment and their ownership of computers and electronic devices and software usage. In 2018, two new categories were included: Drones and 3-D Printers. Please note that the Profile study is conducted in even years (2018 or 2016) and asks about the previous year (2017 or 2015).

The survey was conducted by postal mail and via the Internet among a random sample of ELECTRICAL CONTRACTOR subscribers. The field period for the survey began on March 7, 2018 (for both the Internet and postal mail versions), and ended on April 3, which was the deadline for the July 2018 article. A total of 1597 interviews were completed – 901 via the Internet and 696 via postal mail. The data were weighted to equalize the influence of the two modes so that it was in line with the 50/50 split which was the case in the most recent Profile studies.

Each respondent who received the survey via the Internet was sent two follow-up e-mails. However, follow-up mailings were not made to non-responders in the postal mail sample. An incentive was offered for participation in the survey: For each completed survey, ELECTRICAL CONTRACTOR magazine would contribute $5 to charity, up to a total of $10,000. For the first time, the magazine also offered a sweepstakes drawing for one of five $150 Amazon e-gift cards

The Internet option was first introduced in 2004. In 2004 and 2006, the proportion of surveys completed via the Internet versus postal mail is approximately 60/40. Since 2008, the proportion has been closer to 50/50. As noted above, in 2014, the data were weighted to equalize the proportion that participated via postal mail and via the Internet.

In 2014, in 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. These changes provided the opportunity to increase the sample size in certain of the versions in order to provide increased statistical reliability. In 2018 as in 2016, a total of 7 versions of the survey were produced. For this version of the survey, the sample was 234.

Another series of questions -- covering usage of electronic devices and software by asking whether certain tasks were performed internally by the firm, using a computer– had a sample size of 229.

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

For this report, the estimates of market size are based on the 2016 County Business Patterns (CBP).

**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 2017

In the 2018 Profile Study, for the first time, electrical contractors were asked to indicate which of 22 types of tools and equipment they or their firm **used** in the previous year.

Not surprisingly, many of the top categories mentioned were those that received high levels of purchase and/or rental/lease in previous Profile Studies, with at least 8 in 10 mentioning: Hand Tools, Power Tools, Electrical Testers and Multimeters. Seven in 10 mentioned Pipe Threaders/Benders/Cutters and Smartphones or Two-Way Radios.

Between 52% and 59% of the firms surveyed said that they or their firm used the following in 2017: Personal Protective Equipment or Apparel, Labeling & Documentation, Trailers to Haul Equipment **C**able Pullers, Aerial Lifts/Scaffolding

More than 4 in 10 firms surveyed mentioned: Temporary Jobsite Lighting, Portable Generators, Jobsite Safety Equipment, Software*, Tablets or Portable Reading Devices,

About one-third mentioned LAN, Teledata, or Other Low Voltage Testing Equipment

About one-quarter of firms surveyed mentioned: Digging/HDD/Boring Equipment ** and/or Thermal Imaging.

About 10% mentioned using Mobile Office Space and/or Cranes **.

5% mentioned 3-D Scanners and/or Drones.

*Based on a different series of questions (detailed later in this summary), we believe that software usage by electrical contractors is actually in the 75% range.

**Note: In the cases of Digging/HDD/Boring Equipment and Cranes, a somewhat higher percentage of firms said that they had purchased and/or rented these types of equipment than had reported *using* them. 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.

| Tools and Equipment Used in 2017 | Total |
|---|---|
| | (234) |
| | % |
| “Any” | 91 |
| Hand Tools | 82 |
| Power Tools | 82 |
| Electrical Testers, Multimeters | 80 |
| Pipe Threaders, Benders, Cutters | 71 |
| Phones: Smart/Mobile/Cell or Two-Way Radios | 71 |
| Personal Protective Equipment or Apparel | 59 |
| Labeling & Documentation | 55 |
| Trailers (To Haul Equipment) | 53 |
| Cable Pullers | 53 |
| Aerial Lifts/Scaffolding | 52 |
| Temporary Jobsite Lighting | 48 |
| Portable Generators | 46 |
| Jobsite Safety Equipment | 45 |
| Software (e.g. CAD, Estimating, Procurement, etc.) | 45 |
| Tablets or Portable Reading Devices | 42 |
| LAN, Teledata, Low Voltage Testing Equipment | 34 |
| Digging/HDD/Boring Equipment | 26 |
| Thermal Imaging | 26 |
| Mobile Office Space | 13 |
| Cranes | 11 |
| 3-D Scanner | 5 |
| Drones | 5 |

Note that the vast majority of electrical contracting firms make **use** of **multiple** types of tools and equipment.

- Not surprisingly, use of multiple types of tools and equipment is even higher among larger firms (10+ employees) and/or those where CII work is their primary source of revenue.

| | Use in Multiple Categories in 2017 | | | | | |
|---|---|---|---|---|---|---|
| | | Number of Employees | | | Work Primarily In | |
| | **Total** | **1-9** | **10+** | | **Residential** | **CII** |
| | (234) | (162) | (71) | | **(81)** | **(107)** |
| | % | % | % | | % | % |
| **Any Use** | 91 | 90 | 93 | | 91 | 93 |
| Use Only 1 Category | 1 | **2>** | 0 | | 1 | 2 |
| Use in **Multiple** Categories | 90 | 88 | 93 | | **90** | 90 |
| Use in 2 – 3 Categories | 5 | 5 | 5 | | 6 | 5 |
| Use in **4+** Categories | 84 | 83 | 88 | | 84 | 85 |
| Use in 4 – 5 Categories | 7 | **10>** | 1 | | **13>** | 3 |
| Use in 6+ Categories | 78 | 73 | **<86** | | 71 | **<82** |

## Percent Who Purchase Different Types of Tools and Equipment

About eight in ten electrical contractors (81%) reported purchasing Tools and Equipment in 2017, statistically unchanged from two years earlier.

Hand Tools and Power Tools continue to top the list.

- In sharp comparison to the 2015 findings, where there were widespread declines compared with two years earlier, in the 2017 purchase results, 7 of the types of tools and equipment that can be trended rose, one type declined (Aerial Lifts & Scaffolding) and the remainder were statistically unchanged or could not be trended because they were just added in the most recent study.
    - The 7 categories that posted increases are: Personal Protective Equipment or Apparel, Labeling & documentation, Pipe Threaders, Benders, Cutters, Tablets or Portable Reading Devices, Temporary Jobsite Lighting, Cable Pullers, LAN Teledata and Low Voltage.
- In the 2016 Profile Study report we said, "although the economy continues to improve, it is curious that of the 15 types of tools and equipment that can be trended, 12 posted significant declines; none increased compared to two years ago. Looking at results since 2009, there appears to be a two-year cycle in the case of Hand Tools, Pipe Threaders/ Benders/ Cutters, Electrical Testers/Multimeters and various other types of testing and communications tools and equipment, Jobsite Safety Equipment and Aerial Lifts.

- The areas that remained statistically unchanged in 2017 are: Hand Tools, Power Tools, Electrical Testers and Multimeters, Phones, Jobsite Safety Equipment, Software, Portable Generators, Trailers (to Haul Equipment), Thermal Imaging, HDD/Boring Equipment, Mobile Office Space and Cranes.

In addition, two types of construction site equipment were added in the 2018 Profile Study and thus cannot be trended: 3-D Scanners and Drones.

| PURCHASE OF TOOLS AND EQUIPMENT | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **In 2017** | | **In 2015** | | **In 2013** | | **In 2011** |
| | **Total** | | **Total** | | **Total** | | **Total** |
| | **(234)** | | **(376)** | | **(374)** | | **(234)** |
| | **%** | | **%** | | **%** | | **%** |
| **“Any”** Purchase … | 81 | | 79 | < | **84** | > | 77 |
| Hand Tools | 70 | = | 70 | < | **77** | > | 69 |
| Power Tools | 66 | = | 70 | = | **72** | > | 64 |
| Electrical Testers, Multimeters | 45 | = | 46 | < | **60** | > | 47 |
| Personal Protective Equipment/Apparel (Clothing, Boots, etc.) | **42** | > | 31 | < | 44 | = | 41 |
| Phones: Smart/Mobile/Cell or Two-Way Radios | 37 | = | 37 | < | 47 | = | 42 |
| Labeling & Documentation | **34** | > | 22 | < | 33 | = | 27 |
| Jobsite Safety Equipment | 28 | = | 26 | < | 32 | = | 28 |
| Pipe Threaders, Benders, Cutters | **28** | > | 22 | < | 28 | = | 25 |
| Tablets or Portable Reading Devices | **24** | > | 16 | < | **22** | > | 10 |
| Temporary Jobsite Lighting (first asked in 2016) | **23** | > | 15 | | N/A | | N/A |
| Cable Pullers (first asked in 2014 Profile Study) | **19** | > | 10 | < | 14 | | N/A |
| Software (e.g. CAD, Estimating, Procurement, etc.) | 15 | = | 16 | < | 21 | = | 16 |
| Portable Generators (first asked in 2016 Profile Study) | 16 | = | 19 | | N/A | | N/A |
| LAN, Teledata, Low Voltage | **14** | > | 9 | < | 16 | = | 12 |
| Trailers (To Haul Equipment) (first asked in 2016) | **12** | = | 9 | | N/A | | N/A |
| Thermal Imaging (first asked in 2014 Profile Study) | 10 | = | 8 | = | 10 | | |
| Aerial Lifts/Scaffolding | 6 | < | 10 | < | 16 | = | 13 |
| Digging/HDD/Boring Equipment | 4 | = | 7 | = | 9 | = | 9 |
| Mobile Office Space (first asked in 2016 Profile Study) | 3 | = | 4 | | N/A | | N/A |
| 3-D Scanner (first asked in 2018 Profile Study) | 2 | | N/A | | N/A | | N/A |
| Drones (first asked in 2018 Profile Study) | 2 | | N/A | | N/A | | N/A |
| Cranes (first asked in 2016 Profile Study) | 1 | | 2 | | N/A | | 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 2017, the bulk of electrical contractors made purchases in *multiple* categories (75% in 2017), statistically unchanged compared to two years ago.

- Purchase in 'only 1', 2-3 or 4-5 categories is also statistically unchanged compared to two years ago.

**PURCHASE IN MULTIPLE CATEGORIES**

| | **In 2017** | | **In 2015** | | **In 2013** | | **In 2011** |
|---|---|---|---|---|---|---|---|
| | **Total** | | **Total** | | **Total** | | **Total** |
| | (234) | | **(376)** | | **(374)** | | **(234)** |
| | % | | **%** | | **%** | | **%** |
| **Any** Purchase | 81 | = | 79 | < | **84** | > | 77 |
| Purchased Only 1 Category | 6 | = | 5 | = | 3 | | 5 |
| Purchase in **Multiple** (2+) Categories | **75** | = | **74** | < | **81** | > | 72 |
| Purchased in 2 – 3 Categories | 22 | = | 21 | = | 20 | | 17 |
| Purchase in **4+** Categories | 53 | = | 53 | ≤ | 61 | | 55 |
| Purchased in 4 – 5 Categories | 16 | = | 18 | = | 19 | | 24 |
| Purchased in 6+ Categories | 37 | = | **35** | < | **42** | > | 31 |

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

## Purchase in Multiple Categories, continued

There are relatively few statistically significant differences in the table shown below.

- By number of employees: Larger firms are significantly more likely than smaller firms to have made 2017 purchases at all ("Any") and to have made purchases in multiple categories (4+ and 6+ types).

- By primary type of work: Firms that work primarily in CII construction are significantly more likely than those that work primarily on Residential projects to have made multiple category purchases, particularly in 4+ and 6+ categories.

| | **PURCHASE IN MULTIPLE CATEGORIES (2017)** | | | | | |
|---|---|---|---|---|---|---|
| | | **Number of Employees** | | | **Work Primarily In** | |
| | **Total** | **1-9** | **10+** | | **Residential** | **CII** |
| | (234) | (162) | (71) | | **(81)** | **(107)** |
| | % | % | % | | % | % |
| **"Any"** Purchase | 81 | 78 | **<87** | | 80 = | 87 |
| Purchased Only 1 Category | 6 | 9 | 0 | | 7 = | 3 |
| | | | | | | |
| Purchase in **Multiple** (2+) Categories | **75** | 69 | **<87** | | 72 | **<84** |
| Purchased in 2 – 3 Categories | 22 | **27>** | 10 | | **31>** | 19 |
| | | | | | | |
| Purchase in **4+** Categories | 53 | 42 | **<77** | | 41 | **<65** |
| Purchased in 4 – 5 Categories | 16 | 18 | 11 | | 21= | 15 |
| Purchased in 6+ Categories | **37** | 24 | **<66** | | 20 | **<50** |

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

## Trended Results

There are relatively few statistically significant differences between 2017 and 2015 in the table shown below

- There are no statistically significant differences among the total sample.
- There is only one difference in that time period among firms with 1-9 employees: Between 2017 and 2015, there was a statistically significant drop in the percentage of small firms that are making purchases in 4+ categories.
- However, there were more significant differences among firms with 10+ employees: Between 2017 and 2015, there was a statistically significant increase in the percentage of large firms that made "Any" purchases as well as purchases in multiple categories: 2+, 4+ and 6+.

| PURCHASE in MULTIPLE CATEGORIES (By Firm Size) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Total Sample** | | | | **1-9 Employees** | | | | **10+ Employees** | | | |
| | **2017** | **2015** | **2013** | **2011** | **2017** | **2015** | **2013** | **2011** | **2017** | **2015** | **2013** | **2011** |
| | (234) | (376) | (374) | (234) | (162) | (278) | (282) | (182) | (71) | (98) | (91) | (52) |
| | % | % | % | | % | % | % | **%** | % | % | % | **%** |
| **Any** Purchase | 81 | 79 | **<84>** | 77 | 78 = | 81 | **<87>** | 78 | **87** > | 74 | 78 | 75 |
| Only 1 Category | 6 | 5 | 3 | 5 | 9 = | 5 | 4 | 6 | 0 = | **3>** | 0 | 0 |
| | | | | | | | | | | | | |
| In **Multiple Categories** | **75** | **74** | **<81>** | 72 | 69 = | 75 | **<83>** | 72 | **87>** | 71= | 78 | 75 |
| In 2 – 3 Categories | 22 | 21 | 20 | 17 | **27=** | 25 | 25 | 20 | 10 | 10 | 8 | 10 |
| | | | | | | | | | | | | |
| In **4+** Categories | 53 | 53 | <61 | 55 | 42 | **<51** | 58 | 52 | **77** > | 61= | 70 | 65(▲) |
| In 4 – 5 Categories | 16 | 18 | 19 | 24 | 18 = | 21 | 24 | 24 | 11 | 10 = | 5 | **<21** |
| In 6+ Categories | **37** | **35** | **<42>** | 31 | 24= | 30 | 34 | 28 | **66** > | 51 | **<65>** | 44 |

**Bolded** numbers denote significant differences at the 90% level of confidence in the direction of the arrow.
▲ Not significant on this base size

## Percent Who Rent/Lease Different Types of Tools and Equipment

Almost six in ten electrical contractors (57%) *rented/leased* equipment in 2017. This is a huge jump from the 37% observed in 2015 and is a statistically significant increase.

However, as has been the case in recent Profile studies, fewer electrical contractors continue to obtain tools and equipment through rental/lease (57%)[1] than through outright purchase (81%).

Aerial Lifts/Scaffolding and Digging/HDD/Boring Equipment continue to be the two categories that are obtained through rental/lease most often.

- Compared to two years ago, the rental/lease of Aerial Lifts/Scaffolding and Digging/HDD/Boring Equipment each posted statistically significant increases.

- In addition, rental/lease has also increased compared to two years earlier in the following categories: Cranes, Mobile Office Space, Portable Generators and Trailers (to Haul Equipment); and to a lesser extent in these categories: Power Tools, Cable Pullers, Jobsite Safety Equipment and Pipe Threaders, Benders, Cutters.

[1] The 2018 list included two new categories – 3-D Printers and Drones – but the level of rental/ lease was very low, so these didn't add substantially to the total.

| RENTAL/LEASE OF TOOLS AND EQUIPMENT | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **In 2017** | | **In 2015** | | **In 2013** | | **In 2011** |
| | **Total** | | **Total** | | **Total** | | **Total** |
| | **(234)** | | **(376)** | | **(374)** | | **(234)** |
| | **%** | | **%** | | **%** | | **%** |
| **"Any"** Lease/Rental… | **57** | > | 37 | | 40 | | 43 |
| | | | | | | | |
| Aerial Lifts/Scaffolding | **46** | > | 28 | | 29 | | 29 |
| Digging/HDD/Boring Equipment | **28** | **>** | 12 | **=** | 16 | < | **27** |
| Cranes | **17** | > | 6 | | N/A | | N/A |
| Mobile Office Space | **12** | > | 6 | | N/A | | N/A |
| Portable Generators | **11** | > | 4 | | N/A | | N/A |
| Trailers (To Haul Equipment) | 8 | > | 3 | | N/A | | N/A |
| Power Tools | **8** | > | 4 | < | **7** | < | **10** |
| Cable Pullers | **8** | > | 3 | | 4 | | N/A |
| Jobsite Safety Equipment | **6** | > | 1 | | 4 | = | 3 |
| Pipe Threaders, Benders, Cutters | **5** | > | 2 | | 5 | = | 3 |
| Hand Tools | 4 | = | 2 | < | **5** | | 5 |
| Electrical Testers, Multimeters | 4 | = | 2 | | 3 | = | 2 |
| Thermal Imaging | **4** | > | 1 | < | **3** | | N/A |
| Temporary Jobsite Lighting | 4 | = | 2 | | N/A | | N/A |
| Phones: Smart/Mobile/Cell or Two-Way Radios | **3** | > | 0.8 | < | **3** | | 3 |
| LAN, Datacom, Low Voltage | **2.8** | > | 0.6 | | 1 | | 0.9 |
| Software | **2.6** | > | 0.9 | | 1 | | 0.4 |
| Personal Protective Equipment/ Apparel (Clothing, Boots, Equip.) | 2 | = | 0.6 | | 1 | | 0.9 |
| 3-D Scanner | 1.6 | | N/A | | | | |
| Tablets | 0.4 | = | 1 | | 1 | | 0 |
| Labeling & Documentation | 0.4 | = | 0.6 | | 1 | | 0.9 |
| Drones | 0.4 | | N/A | | | | |

**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, fully 41% of electrical contractors rented/leased in two or more categories. This is a huge jump from the 19% observed two years ago and is a statistically significant increase. Rental/lease in 3+ categories also jumped significantly compared with two years earlier.

| RENTAL/LEASE IN MULTIPLE CATEGORIES | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **2017** | | **2015** | | **2013** | | **2011** |
| | **(234)** | | **(376)** | | **(374)** | | **(234)** |
| | **%** | | **%** | | **%** | | **%** |
| **Any** Lease/Rental | **57** | > | 37 | | 40 | | 43 |
| Only 1 Category | 16 | = | 18 | = | 21 | | 18 |
| | | | | | | | |
| Lease/Rent in **Multiple/2+** Categories | **41** | > | 19 | = | 19 | | **<25** |
| In 2 Categories | **14** | > | 8 | = | 10 | | 14 |
| In 3+ Categories | **27** | > | 11 | = | 9 | | 11 |

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 multiple categories.

- As was also the case two years ago, this difference is driven by the much higher percent of larger companies that rent/lease in 3+ categories. As noted in the past, we believe that this is due to the larger companies being more involved in larger, more complex and sophisticated projects that require *more different types* of tools and equipment.
- 18% of the smaller companies (those with 1-9 employees) rented/leased in 3+ categories compared to 49% of firms with 10+ employees.
- By type of construction: A higher percentage of firms that work primarily on CII projects have rented/leased at all ("any") and in multiple categories. compared with firms working primarily on Residential projects.

| | **In 2017** | | | | | |
|---|---|---|---|---|---|---|
| | | **Number of Employees** | | | **Work Primarily In** | |
| | **Total** | **1-9** | **10+** | | **Residential** | **CII** |
| | **(234)** | (162) | (71) | | (81) | (107) |
| | **%** | **%** | **%** | | **%** | **%** |
| **Any** Lease/Rental | 57 | 47 | **<81** | | 40 | **<68** |
| Only 1 Category | 16 | 17 | 13 | | 18 | 13 |
| | | | | | | |
| Lease/Rent in **Multiple /2+** Categories | 41 | 30 | **<68** | | 22 | **< 55** |
| In 2 Categories | 14 | 12 | 19 | | 10 = | 18 |
| In 3+ Categories | 27 | 18 | **<49** | | 12 | **< 37** |

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

## Lease/Rental in Multiple Categories, continued

Trended: Rental/lease jumped dramatically and significantly among the total sample and in *multiple* categories among the total sample and among firms with 1-9 and 10+ employees.

| RENTAL/LEASE in MULTIPLE CATEGORIES (By Firm Size) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Total Sample** | | | | **1-9 Employees** | | | | **10+ Employees** | | | |
| | **2017** | **2015** | **2013** | **2011** | **2017** | **2015** | **2013** | **2011** | **2017** | **2015** | **2013** | **2011** |
| | **(234)** | **(376)** | **(374)** | (234) | (162) | (276) | (282) | (182) | (71) | (98) | (91) | (52) |
| | **%** | **%** | **%** | **%** | % | **%** | **%** | **%** | **%** | **%** | **%** | **%** |
| **"Any"** Lease/Rental | **57>** | 37 | 40 | 43 | **47>** | 33 | 36 | 40 | **81>** | **48** | 51 | 54 |
| Only 1 Category | 16 | 18 | 21 | 18 | 17 | 19 | 20 | 20 | 13 | 13 | <**23**▲ | 14 |
| | | | | | | | | | | | | |
| Lease/Rent in **Multiple/2+** Categories | **41>** | 19 | 19 | <**25** | **30>** | 14 | 16 | 20 | **68>** | **35**▲ | 28▲ | 40 |
| In 2 Categories | **14>** | 8 | 10 | 14 | 12= | 8 | 10 | 12 | **19>** | 10 | 12▲ | 21 |
| In 3+ Categories | **27>** | 11 | 9 | 11 | **18>** | 6 | 6 | 8 | **49>** | **25**▲ | 16▲ | 19 |

**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 and the method of obtaining it in 2017. As noted a few pages earlier, there are two areas – Digging/HDD/Boring Equipment and Cranes -- where a higher percentage said that they made a 2017 purchase and/or rental/lease than say that their firm uses this type of equipment. 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.

| | Use in 2017 | | Purchase in 2017 | | Lease/ Rent in 2017 | | Purchase or Lease/ Rent | U O (A |
|---|---|---|---|---|---|---|---|---|
| | **A** | | **B** | | **C** | | **D** | |
| | **Total** | | **Total** | | **Total** | | **Total** | |
| | **(234)** | | **(234)** | | **(234)** | | **(234)** | |
| | **%** | | **%** | | **%** | | **%** | |
| **“Any” …** | 91 | | 81 | | 57 | | | |
| Hand Tools | 82 | | 70 | | 4 | | 70 | |
| Power Tools | 82 | | 66 | | 8 | | 68 | |
| Electrical Testers, Multimeters | 80 | | 45 | | 4 | | 46 | |
| Phones: Smart/Mobile/Cell or Two- | 71 | | 37 | | 3 | | 38 | |
| Personal Protective Equipment/ Apparel (Clothing, Boots, etc.) | 59 | | 42 | | 2 | | 43 | |
| Jobsite Safety Equipment | 45 | | 28 | | 6 | | 31 | |
| Labeling & Documentation | 55 | | 34 | | 0.4 | | 34 | |
| Pipe Threaders, Benders, Cutters | 71 | | 28 | | 5 | | 30 | |
| Software (e.g. CAD, Estimating, Procurement, etc.) | 45 | | 15 | | 3 | | 16 | |
| Tablets or Portable Reading Devices | 42 | | 24 | | .4 | | 24 | |
| Portable Generators | 46 | | 16 | | 11 | | 25 | |
| Temporary Jobsite Lighting | 48 | | 23 | | 4 | | 27 | |
| Trailers (To Haul Equipment) | 53 | | 12 | | 8 | | 19 | |
| Cable Pullers | 53 | | 19 | | 8 | | 24 | |
| LAN, Teledata, Low Voltage | 34 | | 14 | | 3 | | 15 | |
| Aerial Lifts/Scaffolding | 52 | | 6 | | 46 | | 48 | |
| Digging/HDD/Boring Equipment | 26 | | 4 | | 28 | | 30 | |
| Thermal Imaging | 26 | | 10 | | 4 | | 14 | |
| Mobile Office Space | 13 | | 3 | | 12 | | 12 | |
| Cranes | 11 | | 1 | | 17 | | 18 | |
| 3-D Scanner | 5 | | 2 | | 2 | | 4 | |
| Drones | 5 | | 2 | | 0.4 | | 2 | |

| . . | For emphasis |
|---|---|

## Communications and Meters

## Electrical Testers and Multimeters Purchase Behavior

In 2017, 45% of respondent firms purchased Electrical Testers and Multimeters.

- The percentage of electrical contractors making a past year purchase is roughly the same in 2017 as it was in 2015. As a result, Multimeter purchases are still significantly down from 2013 (60%).
    - Only 3.7% rented/leased in this category; as a result we are not including it in the analysis.

| **ELECTRICAL TESTERS and MULTIMETERS (2017 Vs. 2015 and Earlier)** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **In 2017** | | **In 2015** | | **In 2013** | | **In 2011** |
| | **(234)** | | **(376)** | | **(374)** | | **(234)** |
| | % | | % | | % | | % |
| Purchase Level | 45% | = | 46% | < | **60%** | > | 47% |

- There is no significant difference in purchase level by primary type of work (Residential vs. CII), however, in 2017, larger firms are purchasing significantly more Electrical Testers and Multimeters than smaller firms.

| **ELECTRICAL TESTERS and MULTIMETERS (2017)** | | | | | | |
|---|---|---|---|---|---|---|
| | | **Number of Employees** | | | **Work Primarily In** | |
| | **Total** | **1-9** | **10+** | | **Residential** | **CII** |
| | **(234)** | **(162)** | **(71)** | | **(81)** | **(107)** |
| Purchase Level | 45% | 40% | **<59%** | | 42% = | 52% |

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

### Trended Results

Purchases of Electrical Testers/Multimeters in 2017 are roughly the same as they were in 2015 across both the total sample and subgroups.

| **Electrical Testers/Multimeters** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Number of Employees** | | | | **Work Primarily In** | | | |
| | **1-9** | | **10+** | | **Residential** | | **CII** | |
| | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** |
| | (162) | (278) | (71) | (98) | (81) | (146) | (107) | (172) |
| Purchase Level | 40% | =45% | 59% | =47% | 42% | =50% | 52% | =46% |

### Estimates and Projections: Electrical Testers and Multimeters

**ALL INDUSTRY ESTIMATE OF NUMBER OF 2017 FIRMS PURCHASING ELECTRICAL TESTERS AND MULTIMETERS**

| | Percent of Respondent Firms Buying | Number of EC Firms (Source: 2016 CBP) | Projected Number Firms Buying |
|---|---|---|---|
| | % | | |
| Purchase | **45** | **72,784** | **32,750** |

## LAN, Datacom, Other Low Voltage Testing Equipment Purchase Behavior

14% of respondent firms purchased LAN, Datacom, Other Low Voltage Testing Equipment in 2017. Purchase levels posted a significant increase versus two years earlier.

- The increase back to 14% puts 2017 in the same purchase level as the early 2010s, with no statistically significant differences between 2017, 2013, and 2011.

  - Only 2.8% rented/leased in this category; as a result we are not including it in the analysis.

| LAN, DATACOM and OTHER LOW VOLTAGE EQUIPMENT PURCHASE (2017 Vs. 2015 and Earlier) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **In 2017** | | **In 2015** | | **In 2013** | | **In 2011** |
| | **(234)** | | **(376)** | | **(374)** | | **(234)** |
| | % | | % | | % | | % |
| Purchase Level | **14%** | > | 9% | < | **16%** | = | 12% |

- In 2017, purchase was significantly higher among large companies (10+ employees) vs. small companies (1-9 employees) and/or among firms working primarily on CII projects rather than firms working primarily Residential firms.

| LAN, DATACOM and OTHER LOW VOLTAGE TESTING EQUIPMENT PURCHASE IN 2017 (By Firm Size and Primary Work Type) | | | | | | |
|---|---|---|---|---|---|---|
| | | **Number of Employees** | | | **Work Primarily In** | |
| | **Total** | **1-9** | **10+** | | **Residential** | **CII** |
| | **(234)** | **(162)** | **(71)** | | **(81)** | **(107)** |
| Purchase Level | 14% | 7% | **<29%** | | 4% | **<22%** |

### Trended Results

The return to early 2010s levels of purchasing of LAN, Datacom, Other Low Voltage Testing Equipment in 2017 appear to be driven by large firms (10+ employees) and firms and/or those that primarily work in CII. Please note, the apparent differences in purchasing level among small companies (1-9 employees) and/or those that do primarily Residential work are not significant.

| LAN, Datacom, Other Low Voltage Testing Equipment | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Number of Employees** | | | | **Work Primarily In** | | | |
| | **1-9** | | **10+** | | **Residential** | | **CII** | |
| | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** |
| | **(162)** | (278) | **(71)** | (98) | **(81)** | (146) | **(107)** | (172) |
| Purchase Level | 7% | 9% | **29%>** | 7% | 4% | 8% | **22%>** | 10% |

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

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

**ALL INDUSTRY ESTIMATE OF NUMBER OF 2017 FIRMS PURCHASING LAN, DATACOM, OTHER LOW VOLTAGE TESTING EQUIPMENT**

| | Percent of Respondent Firms Buying % | Number of EC Firms (Source: 2016 CBP) | Projected Number Firms Buying |
|---|---|---|---|
| Purchase | **14** | **72,784** | **10,200** |

## Thermal Imaging Purchase and Rental/Lease Behavior

10% of electrical contracting firms purchased thermal Imaging in 2017. Purchase levels are statistically unchanged compared with two years ago. The level of rental/lease rose significantly, but the 2017 level is still only 4%.

| THERMAL IMAGING | | | |
|---|---|---|---|
| | **In 2017** | | **In 2015** |
| | **Total** | | **Total** |
| | **(234)** | | (376) |
| Purchase | 10% | = | 8% |
| Rented/Leased | 4.1% | > | 1 |

Large firms and/or those that work primarily on CII projects are significantly more likely to have made a purchase in this category compared with smaller firms and/or those that work primarily on Residential projects. There are no significant rental subgroup differences.

| THERMAL IMAGING (2017) | | | | | | |
|---|---|---|---|---|---|---|
| | | **Number of Employees** | | | **Work Primarily In** | |
| | **Total** | **1-9** | **10+** | | **Residential** | **CII** |
| | **(234)** | **(162)** | **(71)** | | **(81)** | **(107)** |
| Purchase | 10% | 9% | **<15%** | | 4% | **<22%** |
| Rented/Leased | 4.1% | 3.6% | 5.5% | | 2%= | 3% |

**Trended Results**

Compared with two years ago, purchase levels are unchanged by number of employees (small firms vs. large). However, there is a significant uptick in Thermal Imaging purchases by firms who do Primarily CII work vs. 2015.

Rental/purchase levels rose among firms with 1-9 employees and those with 10+ employees but did not change over the two-year period by primary type of work.

| THERMAL IMAGING | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Number of Employees** | | | | **Work Primarily In** | | | |
| | **1-9** | | **10+** | | **Residential** | | **CII** | |
| | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** |
| | **(162)** | (278) | **(71)** | (98) | **(81)** | (146) | **(107)** | (172) |
| Purchase | 9%= | 6% | 15%= | 13% | 4%= | 4% | **22%>** | 13% |
| Rental/Lease | 3.6%> | 1.1% | 5.5.> | 0.8% | 2 % = | 0.6% | **3%=** | 1.2% |

**Estimates and Projections: Thermal Imaging**

**ALL INDUSTRY ESTIMATE OF NUMBER OF 2017 FIRMS PURCHASING AND RENTING/LEASING OF THERMAL IMAGING**

| | Percent of Respondent Firms Buying | Number of EC Firms (Source: 2016 CBP) | Projected Number Firms Buying |
|---|---|---|---|
| | % | | |
| Purchase | **10** | **72,784** | **7,280** |
| Rental/Lease | **4.1** | **72.784** | **2,985** |

## Logistics and Communications

### Labeling/Identification (Cable/Panel) Purchase Behavior

34% of electrical contracting firms purchased Labeling/Identification (Cable/Panel) equipment in 2017; this is a large and statistically significant increase from the 22% recorded in 2015.

- Less than 1% rented/leased in this category in 2017, as a result we are not including it in the analysis.

| LABELING/IDENTIFICATION (CABLE/PANEL) PURCHASE (Trended) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **In 2017** | | **In 2015** | | **In 2013** | | **In 2011** |
| | **(234)** | | **(376)** | | **(374)** | | **(234)** |
| | | | | | | | |
| Purchase Level | **34%** | > | 22% | < | **33%**$^{+}$ | = | 27% |

- 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) PURCHASE IN 2017 (By Firm Size and Primary Work Type) | | | | | | |
|---|---|---|---|---|---|---|
| | | **Number of Employees** | | | **Work Primarily In** | |
| | **Total** | **1-9** | **10+** | | **Residential** | **CII** |
| | (234) | **(162)** | **(71)** | | **(81)** | **(107)** |
| | | | | | | |
| Purchase Level | 34% | 22% | **<63%** | | 17% | **<49%** |

### Trended Results

- The purchase increase among the total sample is the result of significant increases among firms with 1-9 *and* among firms with 10+ employees. Purchase levels increased among firms that work primarily on CII projects but declined among those who do primarily Residential work.

| LABELING/IDENTIFICATION (Cable/Panel) EQUIPMENT PURCHASES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Number of Employees** | | | | **Work Primarily In** | | | |
| | **1-9** | | **10+** | | **Residential** | | **CII** | |
| | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** |
| | **(162)** | (278) | **(71)** | (98) | **(81)** | (146) | **(107)** | (172) |
| Purchase Level | **22%>** | 19% | **63%>** | 29% | 17% | **<23%** | **49%>** | 24% |

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

**Estimates and Projections: Labeling/Identification**

**ALL INDUSTRY ESTIMATE OF NUMBER OF 2017 FIRMS PURCHASING: LABELING/IDENTIFICATION**

| | Percent of Respondent Firms Buying | Number of EC Firms (Source: 2016 CBP) | Projected Number Firms Buying |
|---|---|---|---|
| | % | | |
| Purchase | **34** | **72,784** | **24,750** |

## Phones: Smart/Mobile/Cell or Two-Way Radios Purchase Behavior

37% of electrical contracting firms purchased Phones: Smart/Mobile/Cell or Two-Way Radios in 2017. There is no statistically significant difference between 2017 and 2015.

- The percentage that rent/lease in this category is only 3.4%; as a result, we are not including it in the analysis.

**PHONES: MOBILE/CELL or TWO-WAY RADIOS PURCHASE (Trended)**

| | In 2017 | | In 2015 | | In 2013 | | In 2011 |
|---|---|---|---|---|---|---|---|
| | (234) | | (376) | | (374) | | (234) |
| Purchase Level | 37% | = | 37% | < | **47%** | = | 42% |

- 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.

**PHONES: SMART/MOBILE/CELL or /TWO-WAY RADIOS PURCHASE (By Firm Size and Primary Work Type)**

| | In 2017 | | | | | |
|---|---|---|---|---|---|---|
| | | Number of Employees | | | Work Primarily In | |
| | Total | 1-9 | 10+ | | Resi-dential | CII |
| | (234) | (162) | (71) | | (81) | (107) |
| Purchase Level | 37% | 26% | **<63%** | | 28% | **<43%** |

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

**Trended Results**

- Compared with 2015, purchase levels declined among firms with 1-9 employees but increased among those with 10+ employees. Purchase levels declined among firms working primarily on Residential projects but are unchanged for firms working primarily on CII projects.

| PHONES: SMART/MOBILE/CELL or TWO-WAY RADIOS PURCHASE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Number of Employees** | | | | **Work Primarily In** | | | |
| | **1-9** | | **10+** | | **Residential** | | **CII** | |
| | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** |
| | **(162)** | (278) | **(71)** | (98) | **(81)** | (146) | **(107)** | (172) |
| Purchase Level | 26% | **<34%** | **63%>** | 46% | 28% | **<41%** | 43% | 38% |

**Estimates and Projections: Phones**

**ALL INDUSTRY ESTIMATE OF NUMBER OF 2017 FIRMS PURCHASING: PHONES**

| | Percent of Respondent Firms Buying | Number of EC Firms (Source: 2016 CBP) | Projected Number Firms Buying |
|---|---|---|---|
| | % | | |
| Purchase | **37** | **72,784** | **26,930** |

## Tablets or Portable Reading Devices Purchase Behavior

24% of electrical contracting firms reported a 2017 purchase of Tablets or Portable Reading Devices. This represents a large and statistically significant increase compared with the 2015 level of 16% and notably, brings the purchase level back to that observed in 2013.

The percentage that rent/lease in this category is less than 1%; as a result we are not including it in the analysis.

| TABLETS or PORTABLE READING DEVICES (Trended) | | | | | |
|---|---|---|---|---|---|
| | **In 2017** | | **In 2015** | | **In 2013** |
| | **Total** | | **Total** | | **Total** |
| | **(234)** | | **(376)** | | (374) |
| Purchase Level | **24%** | > | 16% | < | **22%** |

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 2017 category purchase.

| **TABLETS or PORTABLE READING DEVICE PURCHASE IN 2017 (By Firm Size and Primary Work Type)** | | | | | | |
|---|---|---|---|---|---|---|
| | **In 2017** | | | | | |
| | | **Number of Employees** | | | **Work Primarily In** | |
| | **Total** | **1-9** | **10+** | | **Residential** | **CII** |
| | (234) | (162) | (71) | | (81) | (107) |
| Purchase Level | 24% | 13% | **<52%** | | 13% | **<32%** |

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

**Trended Results**:

The increase in past 12 month purchase of Tablets or Portable Reading Devices among the total sample is driven by an increase among larger firms and those firms that primarily work in CII.

| **TABLETS or PORTABLE READING DEVICES** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Number of Employees** | | | | **Work Primarily In** | | | |
| | **1-9** | | **10+** | | **Residential** | | **CII** | |
| | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** |
| | (162) | (278) | (71) | (98) | (81) | (146) | (107) | (172) |
| | | | | | | | | |
| Purchase Level | 13%= | 12% | **52%>** | 27% | 13%= | 14% | **32%>** | 18% |

### Estimates and Projections: Tablets and Portable Reading Devices

**ALL INDUSTRY ESTIMATE OF NUMBER OF 2017 FIRMS PURCHASING: TABLETS AND PORTABLE READING DEVICES**

| | Percent of Respondent Firms Buying | Number of EC Firms (Source: 2016 CBP) | Projected Number Firms Buying |
|---|---|---|---|
| | % | | |
| Purchase | **24** | **72,784** | **17,470** |

## New Technology

## Drones and 3-D Scanners

In the 2018 Profile Study, respondents were asked about their purchasing behavior for two new categories: Drones and 3-D Scanners. Each was purchased 2% of participants. This should be taken as a sign that neither category has really broken into the market yet.

Rental/lease levels are also low: 2% in the case of 3-D Scanners and less than 1% in the case of Drones.

| **DRONES PURCHASE IN 2017<br>(By Firm Size and Primary Work Type)** | | | | | | |
|---|---|---|---|---|---|---|
| | **In 2017** | | | | | |
| | | **Number of Employees** | | | **Work Primarily In** | |
| | **Total** | **1-9** | **10+** | | **Resi-<br>dential** | **CII** |
| | (234) | (162) | (71) | | (81) | (107) |
| | | | | | | |
| Purchase Level | 2% | 1% | 4% | | 1% | 2% |

| **3-D SCANNER PURCHASE IN 2017<br>(By Firm Size and Primary Work Type)** | | | | | | |
|---|---|---|---|---|---|---|
| | **In 2017** | | | | | |
| | | **Number of Employees** | | | **Work Primarily In** | |
| | **Total** | **1-9** | **10+** | | **Resi-<br>dential** | **CII** |
| | (234) | (162) | (71) | | (81) | (107) |
| | | | | | | |
| Purchase Level | 2% | 2% | 4% | | 2% | 4% |

Neither category can be trended since these categories were first included in the most recent Profile Study.

## Use/Ownership of Computers and Electronic Devices

## Use of Computers and Electronic Devices

Certain questions in the 2018 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.

94% of respondents reported they that they or their firm uses/owns one or more of the 17 types of computers and electronic devices measured in this survey. This is statistically unchanged from 2015.

Ownership of phones and computers are on a par, with about 9 in 10 survey participants reporting usage of each.

- **Use or ownership** of Mobile Phones/Cell Phones (not Smart or multifunctional) has increased over the past two years by a slight but statistically significant amount. One hypothesis to explain this is that ECs still have use for non-smart mobile phones "on-site" as they tend to be cheaper and more durable than smartphones.
    - Furthermore, use of Smartphones, while statistically unchanged from two years ago, is now owned by about two times more electrical contractors as mobile phones that are not Smart or multifunctional (73% vs. 34%). So while there is a resurgence in the use of non-smart phones, Smartphone use is still more widely used in the industry.
- Computers in total—Desktop/Laptop/Tablets—are on the decline, with statistically significant decreases across the board from two years ago. **We think that this decline is the result of Smartphones replacing many of the functions formerly performed using a computer.**
    - Six years ago, we hypothesized that Tablets appear to be replacing Laptops. However, given the stability in laptop usage since 2012 (roughly 60%-70% of respondents have been using laptops since 2012), it continues to appear that 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"; it includes Thermal Imaging Cameras, VR/AR Headsets, 3-D Scanners, Wearable Technology and Drones. 35% of the electrical contractors surveyed already own one or more devices in this category.

Of these devices, ownership of Thermal Imaging Cameras, at 30%, is highest. An additional 9% say that they are considering a category purchase.

Overall, 16% of the electrical contractors surveyed said that they are considering a purchase of one or more of these "New Technology" devices. In addition to Thermal Imaging Cameras (9%, as noted above), 6% each are considering the purchase of Drones and/or Wearable Technology; 4% are considering the purchase of a 3-D Scanner and 3% of VR/AR Headsets or Hardhats.

While these numbers are still small, we will be watching their progress and expect them to increase dramatically over time.

In the more mature categories of Computers and Phones, 24% of those surveyed are considering the purchase of a Desktop, Laptop and/or Tablet; 16% are considering the purchase of one or more type of Phone or Two-way Radio.

As we noted two 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.

Report continues on the next page

| USE/OWNERSHIP OF COMPUTERS and ELECTRONIC DEVICES | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **In 2017** | | **In 2015** | | **In 2013** | | **In 2011** | | **In 2009** |
| | **Total** | | **Total** | | **Total** | | **Total** | | **Total** |
| | (229) | | (304) | | (271) | | (253) | | (283) |
| | % | | % | | % | | % | | % |
| "ANY" Ownership | 94 | = | 95 | ≤ | **98** | ≥ | 88 | = | **92** |
| (Smart[*]) /Mobile/Cell Phones or Two-Way Radios (Net) | 89 | = | 89 | ≤ | **94** | ≥ | 84 | ≤ | **89** |
| Smartphones[*] [Δ] | 73 | = | 79 | = | 74 | > | **44>** | | 36 |
| Mobile Phones/Cell Phones (not Smart or multifunctional) | **34** | > | 27 | < | **55** | < | **<67** | < | **80** |
| Two-Way Radios | 26 | = | 25 | | 29 | | 26 | | 30 |
| Push-to-Talk Telephones | 8 | = | 5 | | -- | | -- | | -- |
| | | | | | | | | | |
| Desktop/Laptop/Tablet (Net) | 85 | ≤ | **91** | = | **90** | ≥ | 69 | | -- |
| Desktop Computer (office/trailer) [Δ] | 72 | < | **82** | | 81 | > | 61 | | 58 |
| Laptops [Δ] | 62 | < | **74** | > | **66** | > | 36 | < | **45** |
| Tablets (iPad©, etc.) [Δ] | 43 | < | **54** | > | **40** | > | 17 | | -- |
| | | | | | | | | | |
| Electrical Testing/ Diagnostic Meters[***] | -- | | -- | | 73 | | -- | | -- |
| | | | | | | | | | |
| GPS | 31 | < | **38** | = | 40 | = | 37 | = | =31 |
| Time Clocks or Personnel Tracking Devices[*] | 9 | = | 8 | = | 8 | = | 6 | = | 5 |
| Fleet Tracking[*] | 11 | = | 10 | = | 7 | = | 6 | = | 5 |
| | | | | | | | | | |
| [NEW] New Technology (Net) | 35 | | -- | | -- | | -- | | -- |
| Thermal Imaging Camera | 29 | | -- | | -- | | -- | | -- |
| VR/AR Headsets | 9 | | -- | | -- | | -- | | -- |
| 3-D Scanner | 6 | | -- | | -- | | -- | | -- |
| Wearable Technology | 6 | | -- | | -- | | -- | | -- |
| Drones | 3 | | -- | | -- | | -- | | -- |

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

[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 2010**
[***] **Added in 2014**

## Use/Ownership of Computers and Electronic Devices, continued

Ownership of the specific types of computer and electronic equipment is significantly higher among larger electrical contracting firms, compared to their smaller counterparts. The only exceptions are Mobile Phones/Cell Phones (not Smart or Multifunctional), which have higher ownership among smaller rather than larger firms and Push-to-Talk Telephones, where there is no difference by company size.

- Interestingly, Cell Phones that are not Smart or Multifunctional are more likely to be owned by those in firms with 1-9 employees compared with their larger counterparts.

In addition, usage and ownership 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 Mobile Phones (not Smart or multifunctional), GPS systems and Time Clocks or Personnel Tracking Devices, Tablets and Push-to-Talk Telephones, where there is no difference by primary type of construction.

As noted above, in 2018 we added a category called "New Technology"; it includes Thermal Imaging Cameras, VR/AR Headsets, 3-D Scanners, Wearable Technology and Drones. 35% of the electrical contractors surveyed already own one or more devices in this category.

- Not surprisingly, ownership in this category is higher among larger firms (10+ employees) and/or those that work primarily on CII projects.

**USE/OWNERSHIP OF COMPUTERS and ELECTRONIC DEVICES (In 2017)**

| | | **Number of Employees** | | **Work Primarily In** | |
|---|---|---|---|---|---|
| | **Total** | **1-9** | **10+** | **Residential** | **CII** |
| | (229) | (161) | (66) | (88) | (105) |
| | % | % | % | % | % |
| "ANY" Ownership | 94 | 93 | 96 | 93 | 98 |
| (Smart*) /Mobile/Cell Phones or Two-Way Radios (Net) | 89 | 87 | 93 | 88 | 92 |
| Smartphones | 73 | 65 | **<91** | 68 | **<81** |
| Mobile Phones/Cell Phones (not Smart or Multifunctional) | 34 | **36>** | 27 | 29 | 35 |
| Two- Way Radios | 26 | 18 | **<45** | 15 | **<35** |
| Push-to-Talk Telephones | 8 | 8 | 7 | 6 | 11 |
| Desktop/Laptop/Tablet | 85 | 80 | **<95** | 79 | **<95** |
| Desktop Computer (office/trailer) | 72 | 64 | **<91** | 62 | **<83** |
| Laptops | 62 | 52 | **<89** | 51 | **<78** |
| Tablets (iPad©, etc.) | 43 | 32 | **<69** | 39 | 48 |
| GPS | 31 | 25 | **<46** | 28 | 30 |
| Time Clocks or Personnel Tracking Devices | 9 | 6 | **<16** | 5 | 8 |
| Fleet Tracking | 11 | 4 | **<26** | 5 | **<15** |
| [NEW] New Technology (Net) | 35 | 21 | **<69** | 19 | **<51** |
| Thermal Imaging Camera | 29 | 17 | **<58** | 14 | **<43** |
| VR/AR Headsets | 9 | 6 | **<17** | 5 | **<11** |
| 3-D Scanner | 6 | 2 | **<14** | 2 | **<10** |
| Wearable Technology | 6 | 5 | **<21** | 1 | **<10** |
| Drones | 3 | 5 | **<17** | 1 | **<5** |

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

## Use/Ownership of Computers and Electronic Devices, continued

### Trended Results

Compared with 2015, use/ownership of "ANY" type of electronic device has remained largely unchanged. In total, there was only 1 significant decrease, Mobile Phones/Cell Phones (not Smart/or multifunctional).

On the other hand, use/ownership of computers (defined as Desktop/Laptop/Tablets) has *significantly* decreased since 2015. This was largely driven by decreases in use of computers by small companies (companies with 1-9 employees).

*Please note, that the New Technology devices have not been included in this trending analysis because they were added for the 2018 survey.*

| USE/OWNERSHIP OF COMPUTERS and ELECTRONIC DEVICES | | | | | | |
|---|---|---|---|---|---|---|
| | **Total** | | **1-9 Employees** | | **10+ Employees** | |
| | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** |
| | (229) | (304) | (161) | (195) | (66) | (106) |
| | % | % | % | % | % | % |
| "ANY" Ownership (Net) | 94 | 95 | 93 | 94 | 96 | 97 |
| _Smart /Mobile/Cell Phones or Two-Way Radios (Net) | 88 | 89 | 87 | 89 | 93 | 91 |
| Smartphones | 73 | 79 | 65 | **<74** | 91 | 88 |
| Mobile Phones/Cell Phones (not Smart/or multifunctional) | **34>** | 27 | **36>** | 27 | 27 | 25 |
| Two- Way Radios | 26 | 25 | 18 | 21 | **45>** | 32 |
| Push-to-Talk Telephones | 8 | 5 | 8 | 6 | 7 | 5 |
| Desktop/Laptop/Tablet (Net) | 85 | **<91** | 80 | **<88** | 95 | 96 |
| Desktop Computer (office/trailer) | 72 | **<82** | 64 | **<76** | 91 | 92 |
| Laptops | 62 | **<74** | 52 | **<68** | 89 | 87 |
| Tablets (iPad©, etc.) | 43 | **<54** | 32 | **<43** | 69 | 73 |
| GPS | 31 | **<38** | 25 | **<36** | 46 | 40 |
| Time Clocks or Personnel Tracking Devices | 9 | 8 | 6 | 4 | 16 | 15 |
| Fleet Tracking | 11 | 10 | 4 | 2 | 26 | 24 |
| [NEW] New Technology (Net) | 35 | -- | 26 | -- | **70** | -- |
| Thermal Imaging Camera | 29 | -- | 17 | -- | **58** | -- |
| VR/AR Headsets | 9 | -- | 6 | -- | **17** | -- |
| 3-D Scanner | 6 | -- | 2 | -- | **14** | -- |
| Wearable Technology | 6 | -- | 5 | -- | **21** | -- |
| Drones | 3 | -- | 5 | -- | **17** | -- |

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

## Ownership of Computers and Electronic Devices, continued
### Trended Results, continued

The table below is more evidence that the decrease in use of Desktop/Laptop/Tablets in the total sample was largely driven by company size (specifically the decrease in use by smaller companies.)

| USE/OWNERSHIP OF COMPUTERS and ELECTRONIC DEVICES | | | | | | |
|---|---|---|---|---|---|---|
| | | | **Work Primarily In** | | | |
| | **Total** | | **Residential** | | **CII** | |
| | **2017** | **2015** | **2017** | **2015** | **2017** | **2015** |
| | (229) | (304) | (88) | (99) | (105) | (156) |
| | % | % | % | % | % | % |
| "ANY" | 94 | 95 | 93 | 93 | 98 | 97 |
| (Smart) Phones/Mobile Phones/Two-Way Radios (Net) | 89 | 89 | 87 | 85 | 92 | *94* |
| Smartphones or PDAs | 73 | 79 | 68 | 72 | 81 | 87 |
| Mobile Phones/Cell Phones (not Smart/Multifunctional) | **34>** | 27 | 29 | 24 | 35 | 26 |
| Two- Way Radios | 26 | 25 | 15 | 15 | 35 | 30 |
| Push-to-Talk Telephones | 8 | 5 | 6 | 7 | **11>** | 4 |
| Desktop/Laptop/Tablet (Net) | 85 | **<91** | 79 | **<87** | 95 | 95 |
| Desktop Computer (Office/Trailer) | 72 | **<82** | 62 | 74 | 83 | 87 |
| Laptops | 62 | **<74** | 51 | **<61** | 78 | 83 |
| Tablets (iPad©, etc.) | 43 | **<54** | 39 | 43 | 48 | **<63** |
| GPS | 31 | **<38** | 28 | 34 | 30 | 38 |
| Time Clocks or Personnel Tracking Devices | 9 | 8 | 5 | 6 | 8 | 9 |
| Fleet Tracking | 11 | 10 | 5 | 2 | 15 | 13 |
| [NEW] New Technology (Net) | 35 | -- | 22 | -- | **56** | -- |
| Thermal Imaging Camera | 29 | -- | 14 | -- | **43** | -- |
| VR/AR Headsets | 9 | -- | 5 | -- | **11** | -- |
| 3-D Scanner | 6 | -- | 2 | -- | **10** | -- |
| Wearable Technology | 6 | -- | 1 | -- | **10** | -- |
| Drones | 3 | -- | 1 | -- | **5** | -- |

[+] This difference is just short of statistical significance at the 90% level of confidence Bolded numbers denote significant differences at the 90% level of confidence.

## Electronic Devices Company is Considering Adding

39% of electrical contractors are considering adding computers and/or electronic devices in the next 12 months. This is a statistically unchanged from the levels observed two years ago.

Overall, 16% of the electrical contractors surveyed said that they are considering a purchase of one or more of these “New Technology” devices. In addition to Thermal Imaging Cameras (9%, as noted above), 6% each are considering the purchase of Drones and/or Wearable Technology; 4% are considering the purchase of a 3-D Scanner and 3% of VR/AR Headsets or Hardhats.

While these numbers are still small, we will be watching their progress and expect them to increase dramatically over time.

In the more mature categories of Computers and Phones, 24% of those surveyed are considering the purchase of a Desktop, Laptop and/or Tablet; 16% are considering the purchase of one or more type of Phone or Two-way Radio.

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

| | Total Considering Adding (2018 Profile Study) |
|---|---|
| | |
| “ANY” | +39 |
| | |
| Smartphones | +11 |
| | |
| Tablets (iPad©, etc.) | +13 |
| Desktop Computer (office/trailer) | +12 |
| Laptops | +13 |
| | |
| Thermal Imaging Cameras | +9 |
| Drones | +6 |

## 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. Only one device stands out as a consideration for purchasing, 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. Note that as use/ownership approaches 80%, more of the additions are from upgraders/replacers than from those first entering the category
    - Purchases in the Tablets category are a mix of new category purchasers (+5, column C) and firms that are upgrading/replacing the Smartphones that they already own or use (+8, column D). *Further examples of how to read this chart are shown on the next page.*

**OWNERSHIP OF COMPUTERS and ELECTRONIC DEVICES (From 2018 Profile Study)**

| | A | B | C | D | E |
|---|---|---|---|---|---|
| =Largest increases | **Total Own or Considering Category Purchase** | **Own** | **Don't Own But Are Considering Category Purchase** | **Upgraders/ Replacers** | **Total Considering Adding** |
| | **Total** | **Total** | **Total** | **Total** | **Total** |
| | **(229)** | **(229)** | **(229)** | **(229)** | **(229)** |
| | % | % | % | % | % |
| Smartphones | 74 | 73 | +1 | +10 | +11 |
| Mobile Phones/Cell Phones (not Smart/ Multifunctional) | 36 | 34 | +2 | +1 | +3 |
| Two- Way Radios | 28 | 26 | +2 | +2 | +4 |
| Push-to-Talk Telephones | 10 | 8 | +2 | 0 | +2 |
| Desktop Computer (office/trailer) | 73 | 72 | +1 | +11 | +12 |
| Laptops | 67 | **62** | +5 | +8 | +13 |
| Tablets (iPad©, etc.) | 48 | **43** | +5 | +8 | +13 |
| GPS | 34 | 31 | +3 | +1 | +4 |
| Time Clocks or Personnel Tracking Devices | 14 | 9 | +5 | 0 | +5 |
| Fleet Tracking | 14 | 11 | +3 | +1 | +4 |
| Thermal Imaging Camera | 37 | 29 | +8 | +1 | +9 |
| VR/AR Headsets | 11 | 9 | +2 | +1 | +3 |
| 3-D Scanner | 10 | 6 | +4 | 0 | +4 |
| Wearable Technology | 10 | 6 | +4 | +1 | +5 |
| Drones | 9 | 3 | +6 | 0 | +6 |

## 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, 73% currently own (column B), but 74% either own or are considering purchasing (column A). The difference between the two numbers, +1% is the potential new category buyers (column C). However, a total of 11% said that they are considering a purchase in this category (column E). The difference between the total considering (+11%) and those who are new to the category (+1%) is +10%. This is the percent that are replacing or upgrading in a category where they already have this type of device.

Similarly, 72% currently own a Desktop computer (column B) but 73% either own or are considering purchasing (column A). However, a total of 12% are considering a purchase in this category (column E). The difference between the total considering (+12%) and those who are new to the category (+1%) is +11%. This is the percent that would be replacing or upgrading in a category where they already have this type of device.

As noted on the previous page, purchases in the Tablets category are a mix of new category purchasers (+5, column C) and firms that are upgrading/replacing the Smartphones that they already own or use (+8, column D).

**Extract from OWNERSHIP OF COMPUTERS and ELECTRONIC DEVICES (From 2018 Profile Study)**

| | A | B | C | D | E |
|---|---|---|---|---|---|
| | **Total Own or Considering Category Purchase** | **Own** | **Don't Own But Are Considering Category Purchase** | **Upgraders/ Replacers** | **Total Considering Adding** |
| | **Total** | **Total** | **Total** | **Total** | **Total** |
| | **(229)** | **(229)** | (229) | (229) | (229) |
| | % | % | % | % | % |
| "ANY" | | | | | **+39** |
| Smartphones | 74 | 73 | +1 | +10 | +11 |
| Desktop Computer (office/trailer) | 73 | 72 | +1 | +11 | +12 |
| Laptops | 67 | **62** | +5 | +8 | +13 |
| Tablets (iPad©, etc.) | 48 | **43** | +5 | +8 | +13 |

=Largest increases

## Use of Software

### ∆ Current Use of Software

The same group of respondents were shown a list of 13 types of computer software and asked a series of questions about their firm's current use and planned acquisition of each type of software.

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 13 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, four 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 three-quarters of the electrical contracting firms we surveyed make use of one or more of the types of software included in the 2018 Profile Study. Use of any of these types of software is almost twice as high among larger firms than among their smaller counterparts (92% vs. 69%).

- 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 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.

  - Not surprisingly, younger electrical contractors (aged 35-54) are more likely than older electrical contractors (especially those over 65) to report that their firm uses many of these types of software.

The most frequently cited types of projects that are "handled internally, using a computer are": Accounting/Payroll (61%), Estimating (56%), Productivity (47%), Job Cost Control/Analysis (46%), Project Management (44%) and Scheduling ServiceWork/Logistics (40%).

| Computer Software/Technologies Company Currently Uses (2018) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Handled Internally, Using a Computer | | | | | | | |
| | | | Number of Employees | | Firm Works Primarily In | | Respondent Age | | |
| | Total | Total | 1-9 | 10+ | Residential | CII | 35-54 | 55-64 | 65+ |
| | (229) | (229) | (161) | (66) | (88) | (105) | (59) | (79) | (85) |
| | % | % | % | % | % | % | % | % | % |
| ANY | 93 | 76 | *69* | **<92** | *67* | **<87** | **93** | **83>** | *58* |
| Accounting/Payroll | 87 | 61 | *51* | **<82** | *46* | **<76** | **70** | **74>** | *42* |
| Estimating | 86 | 56 | *45* | **<81** | *49* | 60 | **74** | **64>** | *36* |
| Job Cost Control/Analysis | 68 | 46 | *31* | **<83** | *31* | **<59** | **65** | **57>** | *23* |
| CAD | 38 | 23 | *13* | **<47** | *12* | **<32** | | **32>** | *16* |
| Take-Off | 66 | 39 | *23* | **<78** | *20* | **<54** | **55** | **49>** | *21* |
| Project Management | 73 | 44 | *28* | **<79** | *25* | **<60** | **59** | **55>** | *22* |
| Time and Attendance Software | 75 | 39 | *27* | **<66** | *30* | **<47** | | **49>** | *25* |
| Tool/Equipment Inventory Control | 72 | 34 | *21* | **<64** | *20* | **<43** | **45** | **44>** | *18* |
| Scheduling Service Work/Logistics | 75 | 40 | *30* | **<65** | *31* | **<44** | | 51 | *24* |
| Fleet Management/Vehicle Locator | 42 | 24 | *12* | **<51** | *13* | **<29** | | 34 | *13* |
| BIM (Building Information Modeling) | 32 | 18 | *8* | **<40** | *4* | **<26** | | | |
| Project Collaboration Software | 39 | 25 | *14* | **<52** | *13* | **<36** | **38>** | | *13* |
| Productivity Software | 58 | 47 | *35* | **<78** | *36* | **<58** | **65** | **61>** | *23* |
| Only 1 Type | 2 | 10 | **13** | *3* | 14 | 10 | *5* | *5* | **18** |
| 2-3 Types | 8 | 13 | **18** | *0* | 16 | 12 | | | *8* |
| 4 + Types | 84 | 53 | *38* | **<89** | 37 | **<61** | 69 | 64 | 32 |
| None/Don't Know/No Answer | 7 | 25 | **31** | *8* | **33** | *13* | *7* | *17* | 42 |

For age breaks:
Only significant differences shown;
Empty cell indicates no difference from average

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

| Computer Software/Technologies Company Uses (2018 vs. 2016) | | | | |
|---|---|---|---|---|
| | 2018 | | 2016 | |
| | **Total Firm Performs Activity** (A) | **Total Handled Internally Using a computer** (B) | **Use This Type of Software** (C) | **Difference: 2018 [column B] minus 2016 [column C]** (D) |
| | (229) | (229) | (304) | |
| | % | % | % | |
| ANY | 93 | 76 | 66 | +10 |
| Accounting/Payroll | 87 | 61 | 53 | +8 |
| Estimating | 86 | 56 | 38 | +18 |
| Job Cost Control/Analysis | 68 | 46 | 26 | +20 |
| CAD | 38 | 23 | 26 | -3 |
| Take-Off | 66 | 39 | 22 | +17 |
| Project Management | 73 | 44 | 18 | +26 |
| Time and Attendance Software | 75 | 39 | 18 | +21 |
| Tool/Equipment Inventory Control | 72 | 34 | 14 | +20 |
| Scheduling Service Work/Logistics | 75 | 40 | 14 | +26 |
| Fleet Management/Vehicle Locator | 42 | 24 | 12 | +12 |
| BIM (Building Information Modeling) | 32 | 18 | 9 | +9 |
| Project Collaboration Software | 39 | 25 | 8 | +17 |
| Productivity Software | 58 | 47 | 7 | +40 |
| Only 1 Type | 2 | 10 | 17 | |
| 2-3 Types | 8 | 13 | 22 | |
| 4 + Types | 84 | 53 | 27 | |
| None/Don't Know/No Answer | 7 | 25 | 34 | |

| | |
|---|---|
| . . | Highlighting |

# APPENDIX

## Construction-Related Software Purchase Behavior

These are the results when the question was asked directly, rather than as was done in the preceding section. As such, we believe the figures below are not representative of participants' actual usage of "Construction-related software" and that these figures should be viewed as moderately inconclusive.

15% of electrical contracting firms purchased construction-related software in 2017. There is no statistically significant difference between 2017 and 2015 purchase level.

**SOFTWARE PURCHASE (2017 Vs. 2015 and Earlier)**

| | **In 2017** | | **In 2015** | | **In 2013** | | **In 2011** |
|---|---|---|---|---|---|---|---|
| | **(234)** | | **(376)** | | **(374)** | | **(234)** |
| | % | | % | | % | | % |
| Purchase Level | 15% | = | 16% | < | **21%**[+] | = | 16% |

[+] Because of the smaller base size in 2011, the difference between 21% in 2013 and 16% in 2011 is just short of statistical significance

- In 2017, both larger firms (vs. smaller firms) and those that worked primarily in CII (vs. primarily Residential) were more likely to have made a purchase of construction-related software.

**CONSTRUCTION-RELATED SOFTWARE PURCHASE IN 2017**
**(By Firm Size and Primary Work Type)**

| | **In 2017** | | | | | |
|---|---|---|---|---|---|---|
| | | **Number of Employees** | | | **Work Primarily In** | |
| | **Total** | **1-9** | **10+** | | **Resi-dential** | **CII** |
| | (234) | (162) | (71) | | (81) | (107) |
| Purchase Level | 15% | 8% | **<32%** | | 7% | **<20%** |

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