2017
UNION CRAFT LABOR SUPPLY SURVEY

Measuring Today for a Successful Tomorrow

TAUC
The Association of Union Constructors

The Voice For Union Construction and Maintenance

INTRODUCTION

The **2017 TAUC Union Labor Supply Survey** marks the third year that The Association of Union Constructors (TAUC) has commissioned the Construction Labor Research Council (CLRC) to conduct a comprehensive analysis of the current state of the union construction and maintenance industry. The first study was completed in 2015. Copies of reports from previous years can be obtained by contacting TAUC.

THE ASSOCIATION OF UNION CONSTRUCTORS (TAUC)

The Association of Union Constructors (TAUC) is the premier national trade association for the union construction and maintenance industry. Membership is comprised of more than 2,000 contractors who utilize union labor for their projects, as well as local contractor associations and vendors in the industrial maintenance and construction industries. TAUC's mission is to act as an advocate for union contractors and to enhance cooperation between the three entities involved in the successful completion of construction and maintenance projects: the union, the contractor, and the owner/client (the company for which the work is being completed). **TAUC's ultimate goal: to demonstrate that union construction and maintenance is the best option because it's safer, more productive and provides a higher quality, cost-competitive product.**

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CONSTRUCTION LABOR RESEARCH COUNCIL (CLRC)

The Construction Labor Research Council (CLRC) is the nation's foremost source of labor cost and related information for the unionized sector of the construction industry. It serves as a key resource for data on labor costs, workforce issues, market share, labor contract terms, safety, and associated topics. The CLRC database contains wages, fringe benefits and contract language information on nearly 3,000 contracts in 285 cities for 17 crafts. CLRC is supported by management associations whose member firms employ union construction craft workers.

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EXECUTIVE SUMMARY & KEY FINDINGS

The *2017 Union Craft Labor Supply Study* was conducted by **The Association of Union Constructors (TAUC)** in conjunction with the **Construction Labor Research Council (CLRC)**. This is the only national, union-specific labor supply study focusing on construction and maintenance. The findings will help create a detailed, data-driven picture of the current state of the labor supply throughout the United States.

TAUC launched the study in 2015 and received a tremendous response from a wide cross-section of the entire industry—contractors, labor representatives, owner-clients and construction association representatives completed the survey. This year's survey and associated report have been enhanced based on feedback from previous years' respondents.

The *2017 Union Craft Labor Supply Study* drills down even further into the specifics of both regional and national labor supply trends. New to this year's survey is identification of specific skill sets, i.e., job skills that were the most sought after in 2016 for our industry.

Our goal is to provide the industry with an even more robust set of metrics. TAUC and its partners in labor believe that a data-driven approach is the only way to achieve our shared goals of planning for the future and increasing union market share.

STUDY FOCUS

This study covers the following topics:

- **Overall growth** in the construction and maintenance industry (union and nonunion)
- **Labor supply shortage/surplus** for union craft workers overall and for 14 specific unions, covering:
  - Recent history
  - Projections for 2017
  - Apprentice levels
- **Time needed** to fill union craft labor needs
- **Optimizing craft labor supply** through:
  - Project length
  - Hours in the work week
- **Skills in high demand**

KEY FEATURES OF THE STUDY

A number of features make this study a timely and useful resource for those interested in the construction and maintenance industry.

- The population from which the large sample (N=791) was drawn is knowledgeable and engaged regarding the topic of craft labor supply.
- Respondents were instructed to describe their *own experiences*, not their perceptions of others' experiences or what they may have read or heard elsewhere, which should enhance the validity of the results.
- Thorough and detailed analyses of the data were conducted.
- A large amount of craft-by-craft specific results are presented in the report.
- Detailed analyses, including data cuts by the four demographic variables (i.e., role, industry, region, organization size), are presented throughout the report.
- Many charts and graphs are included to make interpretation of the findings easy and accurate.

DEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

The demographic characteristics of the sample are shown in the ensuing tables for the following categories:

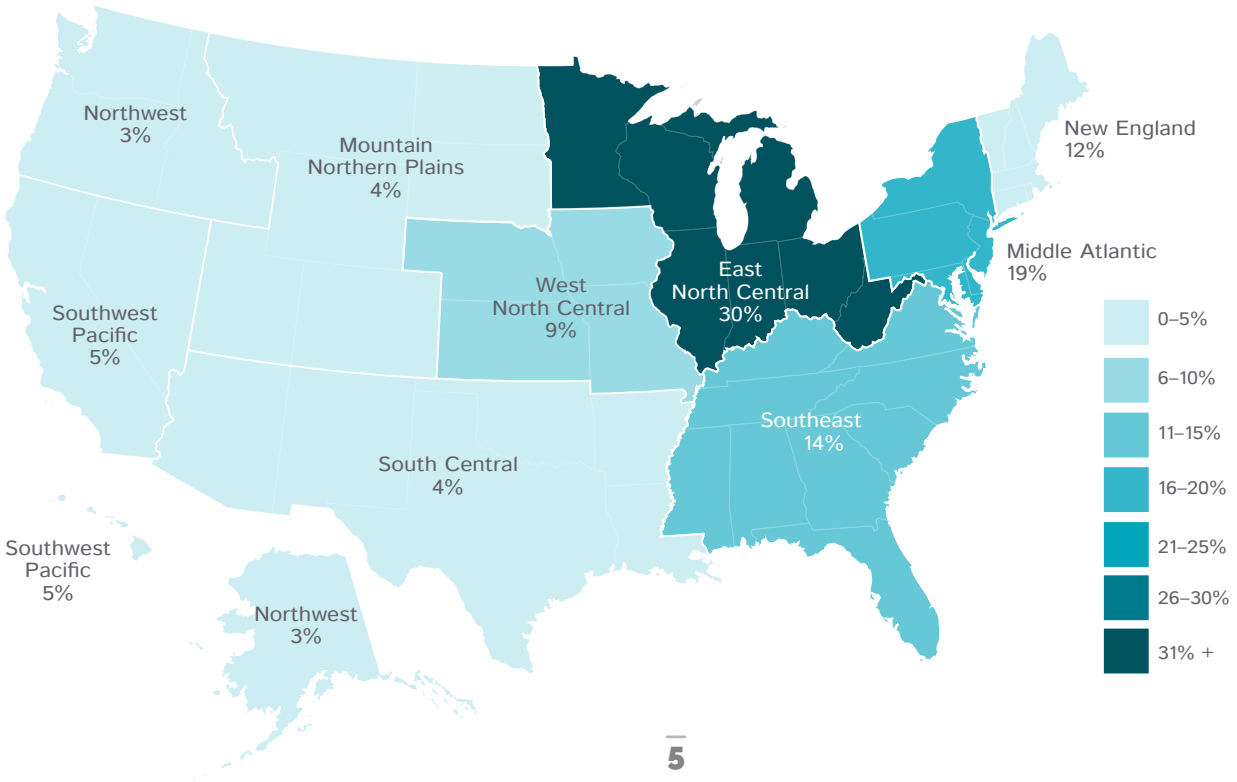
- Respondent Role
- Industry
- Geographic Region
- Organization Size

	2016		2017	
Role	**Number**	**Percent**	**Number**	**Percent**
Association Employee	15	2%	18	2%
Construction Manager	19	2%	15	2%
Contractor/Subcontractor	356	45%	353	45%
Owner/Client	34	4%	39	5%
Union/Labor Representative	362	46%	355	45%
Other	6	1%	11	1%
Total	792	100%	791	100%

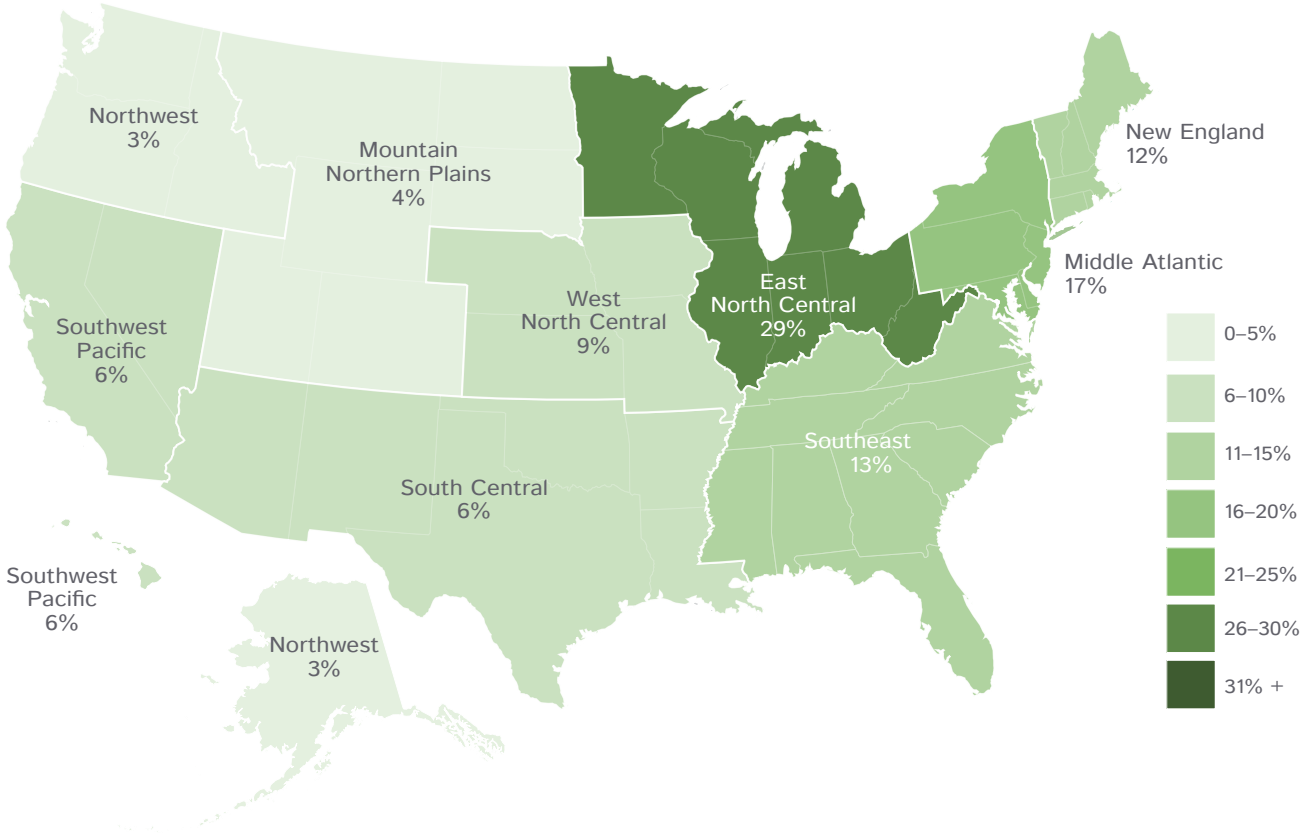
	Percent	
Industry	**2016**	**2017**
Civil	3%	6%
Commercial/Institutional	43%	40%
Manufacturing	16%	16%
Petroleum/Natural Gas/Chemical	13%	13%
Utility	20%	18%
Other	5%	7%

	Percent	
Organization Size	**2016**	**2017**
1-25	10%	12%
26-100	12%	14%
101-500	30%	26%
501-1,000	14%	12%
1,001-5,000	15%	16%
5,001-10,000	4%	3%
More than 10,000	15%	17%

Geographic Region – 2016



Geographic Region – 2017



KEY FINDINGS

1. Strong and Increasing Growth Projections

Regarding overall growth for the construction and maintenance industry, over three-fourths (78%) of respondents project growth for 2017. This is up significantly from last year (58%). This growth was projected to be the strongest in the:

- commercial/institutional industry, in the
- Middle Atlantic and Southeast regions.

The weakest growth was projected for the:

- utility industry, in the
- West North Central region.

2. A Growing Shortage of Union Craft Workers

Respondents in the study reported that their union craft worker shortages were greater this year than last year. This was evident in two ways.

1. **Pervasiveness:** refers to how many people believe there is a shortage. A larger percent of the study sample this year said they experienced a shortage in 2016.

2. **Degree:** refers to the size of the shortage. The degree of the shortage, measured as the gap between current state and needed union craft workforce, was greater in 2016 than in 2015.

3. Management vs. Labor: A Tale of Two Different Perspectives

Very different perspectives on various topics covered in the study were provided by management vs. union/labor representatives (management is represented by the role "contractors."). Union employees usually gave more "optimistic" responses to questionnaire items.

Percent Projecting Growth in 2017

Contractors: 70% Union: 86%

Percent Reporting a Labor Shortage in 2016

Contractors: 70% Union: 48%

Days Needed to Fill Requests for Union Craft Workers

Contractors: 2.62 Union: 1.70

For each of these three comparisons, union/labor representatives rated the items as being less of a problem than any other type of respondent category. At the other end of the scale, more than any other respondent role category, contractors (and construction managers) provided ratings indicating that these items were much more of a problem than union/labor representatives.

4. Two Ways to Attract Craft Workers

The study uncovered two ways to help attract union craft workers.

1. **Project Length:** Hire them for longer rather than shorter-term projects. The longer the project, the more likely organizations were able to meet their workforce needs.

2. **Work Week:** Establish a work week with 50-69 hours. Results show that 50-69 hours is optimal for organizations to achieve their craft labor staffing goals. Work weeks less than 40 hours or longer than 80 hours were the least desirable.

5. The Largest and Smallest Shortages

The largest shortages of union craft workers were in the:

- **Industry:** manufacturing
- **Regions:** West North Central, South Central, Mountain Northern Plains and Northwest
- **Organization Size:** organizations with more than 1,000 employees
- **Crafts:** Carpenters & Millwrights, Roofers & Waterproofers, Iron Workers, Boilermakers and Electricians.

Conversely, the least severe shortages, although still shortages, were found in the:

- **Industry:** commercial/institutional and petroleum/natural gas/chemical
- **Region:** Middle Atlantic
- **Organization Size:** organizations with 1-25 employees
- **Craft:** Teamsters.

STUDY RESULTS

A questionnaire focusing on the union craft labor supply in the construction and maintenance industry was circulated to individuals directly engaged in that industry on January 16, 2017. A total of 791 people responded, representing a variety of roles in their organizations, industries, geographic regions and organization sizes.

I. STUDY DEMOGRAPHICS

A. Role

As shown in **Exhibits 1.1 and 1.2**, in 2017 the largest proportion of respondents was from the contractor/subcontractor and union/labor representative roles (45% each) in their organization. These were also the most populous categories in 2016. The percent of respondents who were in the remaining categories increased from 9% in 2016 to 10% in 2017.

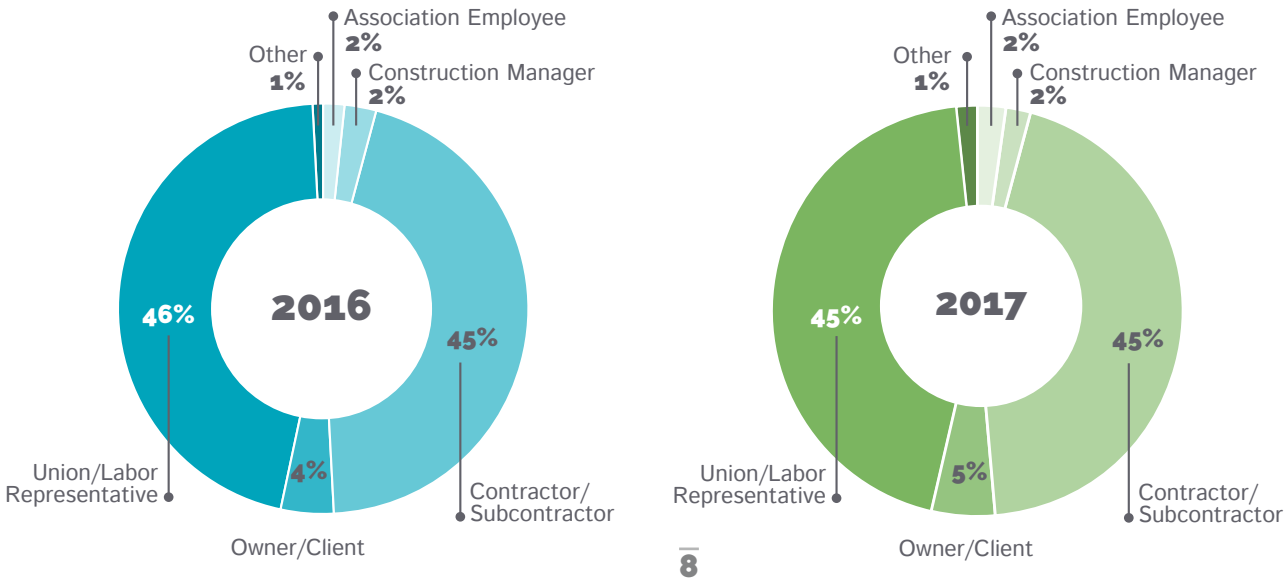
Exhibit 1.1

RESPONDENT ROLE TABLE

	2016		2017	
Role	**Number**	**Percent**	**Number**	**Percent**
Association Employee	15	2%	18	2%
Construction Manager	19	2%	15	2%
Contractor/Subcontractor	356	45%	353	45%
Owner/Client	34	4%	39	5%
Union/Labor Representative	362	46%	355	45%
Other	6	1%	11	1%
Total	792	100%	791	100%

Exhibit 1.2

RESPONDENT ROLE CHARTS



B. Industry

Respondents were asked to indicate the industry in which their organization performed the most union construction and maintenance work. The commercial/institutional industry sector was again the most common one in 2017, representing 40% of the sample (43% in 2016), as displayed in **Exhibits 1.3 and 1.4**. Manufacturing, petroleum/natural gas/chemical and utility were represented by 13% to 20% of the respondents in both 2016 and 2017. The final industry sector, civil, represented 6% and 3% of the data in 2017 and 2016, respectively.

The values for Total are less than the number of participants in the survey because some did not respond to this question.

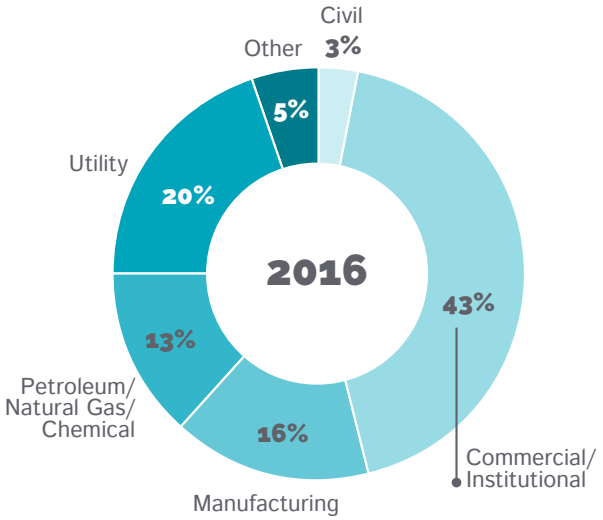
Exhibit 1.3

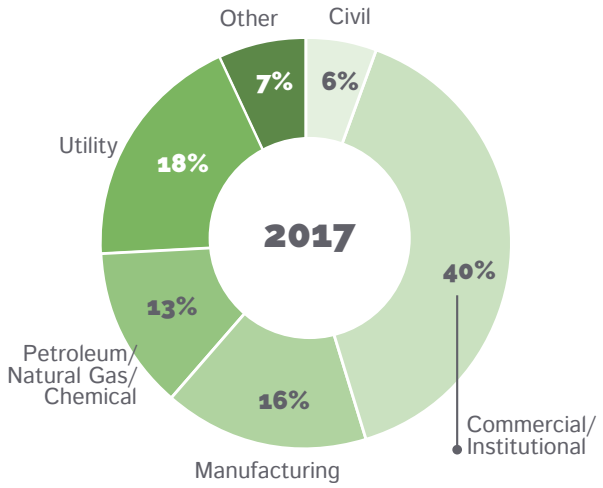
INDUSTRY TABLE

	2016		2017	
Industry	**Number**	**Percent**	**Number**	**Percent**
Civil	22	3%	40	6%
Commercial/Institutional	306	43%	275	40%
Manufacturing	112	16%	112	16%
Petroleum/Natural Gas/Chemical	94	13%	89	13%
Utility	140	20%	131	18%
Other	37	5%	48	7%
Total	711	100%	695	100%

Exhibit 1.4

INDUSTRY CHARTS





C. Region

Respondents were instructed to indicate the region(s) for which they were most familiar with their organization's union construction and maintenance work activity. In order to ensure reliable data from knowledgeable participants, they provided answers to most questions for only those regions.

The East North Central region had the plurality of responses, both in 2016 (30%) and in 2017 (29%), as illustrated in **Exhibits 1.5 and 1.6**. Other regions with a double digit percent of the responses in 2017 are Middle Atlantic (17%), Southeast (13%), and New England (12%).

Note: The questionnaire was organized into nine sections, one for each region. Since respondents could provide responses to many of the questions in the survey for more than one region, the total numbers shown at the bottom of **Exhibit 1.5** sum to values greater than the number of respondents. **Exhibit 1.5** shows how many times a region was selected; respondents often provided data for more than one region.

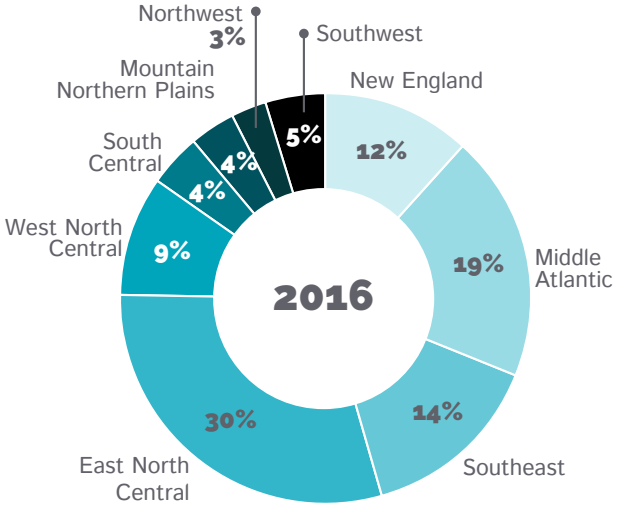
Exhibit 1.5

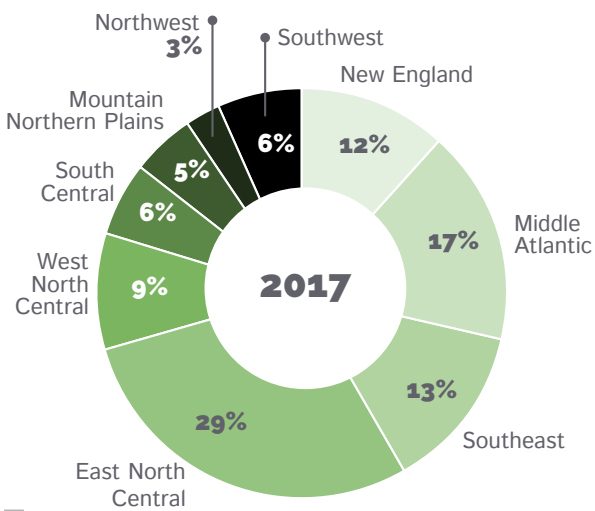
REGION TABLE

	2016		2017	
Region	**Number**	**Percent**	**Number**	**Percent**
New England	130	12%	146	12%
Middle Atlantic	213	19%	210	17%
Southeast	157	14%	165	13%
East North Central	329	30%	359	29%
West North Central	103	9%	114	9%
South Central	57	4%	72	6%
Mountain Northern Plains	41	4%	50	5%
Northwest	30	3%	36	3%
Southwest	50	5%	80	6%
Total	1,110	100%	1,232	100%

Exhibit 1.6

REGION CHARTS





D. Organization Size

Exhibits 1.7 and 1.8 show that the respondents in the study were fairly evenly distributed across various sizes of organizations. The most common size was 101-500 employees (26%) and the smallest percent of respondents (3%) represented organizations with 5,001-10,000 employees. All other organization sizes had between 12% and 17% of the sample.

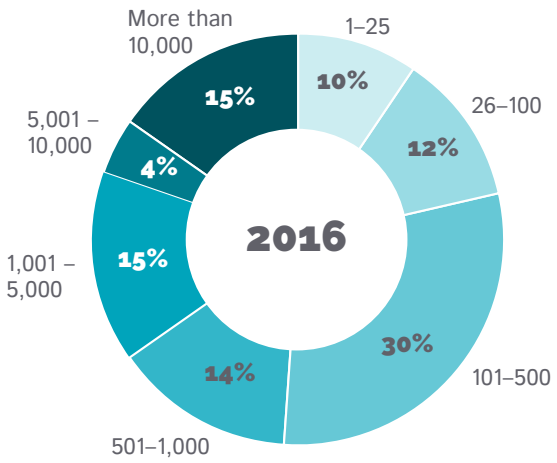
Exhibit 1.7

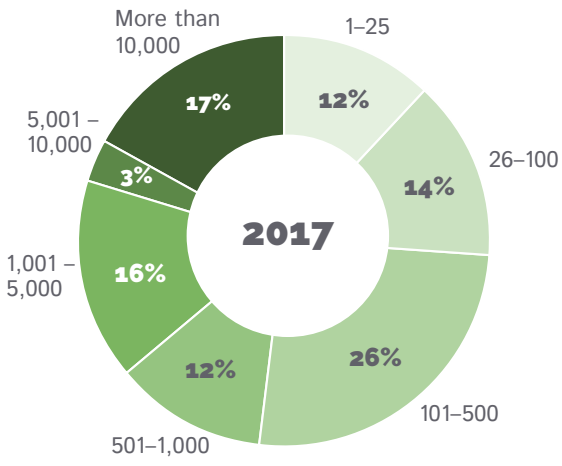
ORGANIZATION SIZE TABLE

	2016		2017	
Organization Size	**Number**	**Percent**	**Number**	**Percent**
1-25	77	10%	95	12%
26-100	94	12%	115	14%
101-500	236	30%	203	26%
501-1,000	112	14%	96	12%
1,001-5,000	118	15%	124	16%
5,001-10,000	35	4%	26	3%
More than 10,000	120	15%	132	17%
Total	792	100%	791	100%

Exhibit 1.8

ORGANIZATION SIZE CHARTS





II. GROWTH AND CONTRACTION IN THE CONSTRUCTION AND MAINTENANCE INDUSTRY

Section II refers to *all* construction and maintenance work, including both union and nonunion (the remainder of the report after **Section II** focuses specifically on union only). It documents the degree of growth or contraction projected by the study sample for 2017, and how long they believe the growth or contraction will last.

Section II is organized into two parts:

- **Part 1. Overall Growth/Contraction**
- **Part 2. Growth/Contraction by Demographic Data Cut**
  - Role
  - Industry
  - Region
  - Organization Size

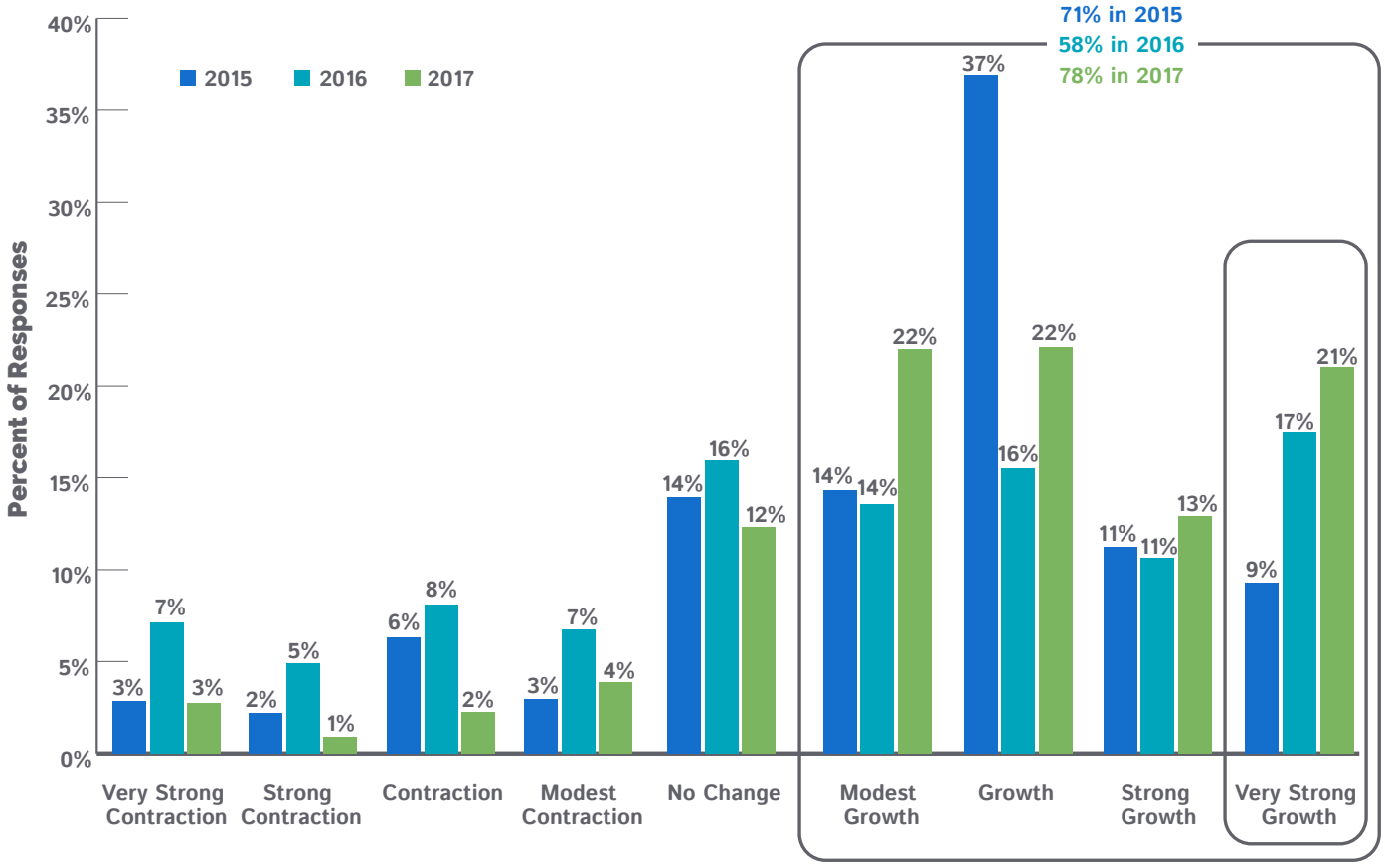
Part 1. Overall Growth/Contraction

Exhibit 2.1 illustrates how the study sample fell into each of the rating options for growth (i.e., modest growth, growth, strong growth, very strong growth) and contraction (i.e., modest contraction, contraction, strong contraction, very strong contraction) for 2015–2017.

Interestingly, the overall growth projections declined from 71% in 2015 to 58% in 2016, and then increased to 78% in 2017. Additionally, the percent of those expecting "very strong growth" grew from 9% in 2015 to 17% in 2016 to 21% in 2017. *Thus, there appears to be strong and growing optimism for growth prospects in the overall (union and nonunion) construction and maintenance industry.* Furthermore, only 10% reported that they foresaw contraction in 2017.

Exhibit 2.1

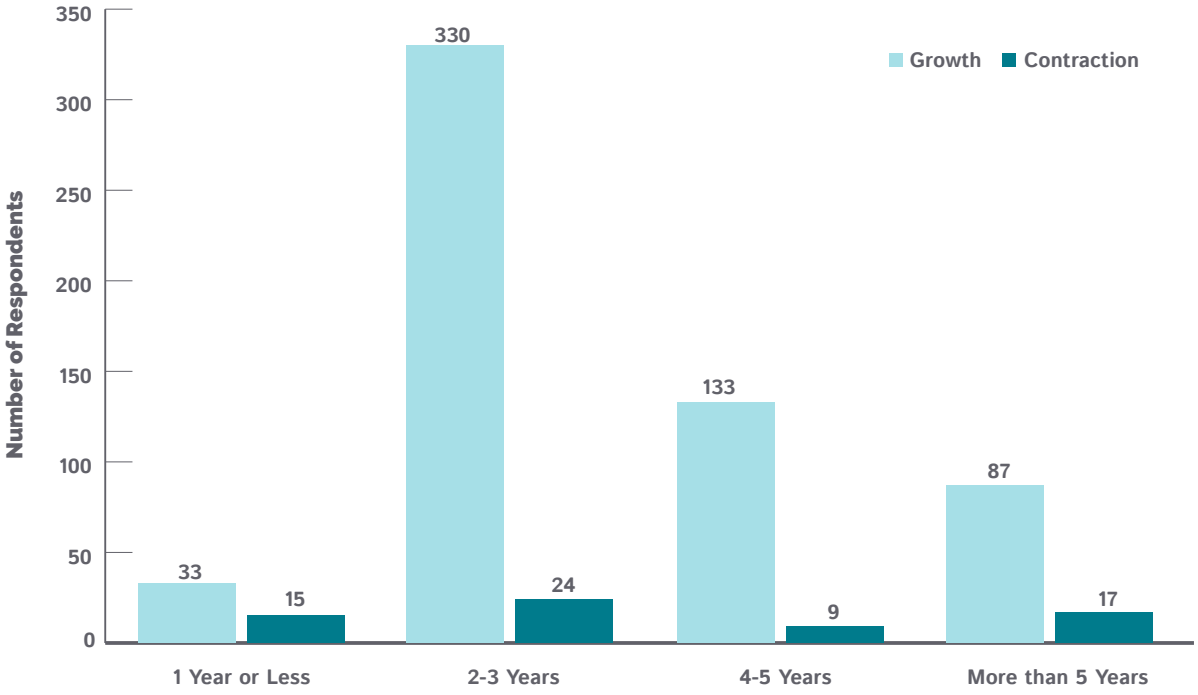
GROWTH/CONTRACTION PROJECTIONS FOR THE CONSTRUCTION AND MAINTENANCE INDUSTRY: 2015-2017



The vast majority of people expecting growth in construction and maintenance opportunities said it would last 2-3 years, as shown in **Exhibit 2.2**. Most of the remainder thought it would last longer, 4-5 years or even more than 5 years. A few believed that the growth would last for a year or less. As **Exhibit 2.2** also shows, many fewer respondents indicated that there would be contraction in 2017. For those that listed contraction, the timespan ratings were spread across the range from 1 to more than 5 years.

Exhibit 2.2

TIMESPAN FOR GROWTH AND CONTRACTION PROJECTIONS



Part 2. Growth/Contraction by Demographic Data Cut

Exhibits 2.3 – 2.10 show results for growth/contraction by four data cuts: role, industry, region and organization size. *The shaded color segments in the bar charts represent the percent of the sample providing each rating (i.e., growth, strong growth, contraction, strong contraction), not the actual percent of growth or contraction projected for the construction and maintenance industry.*

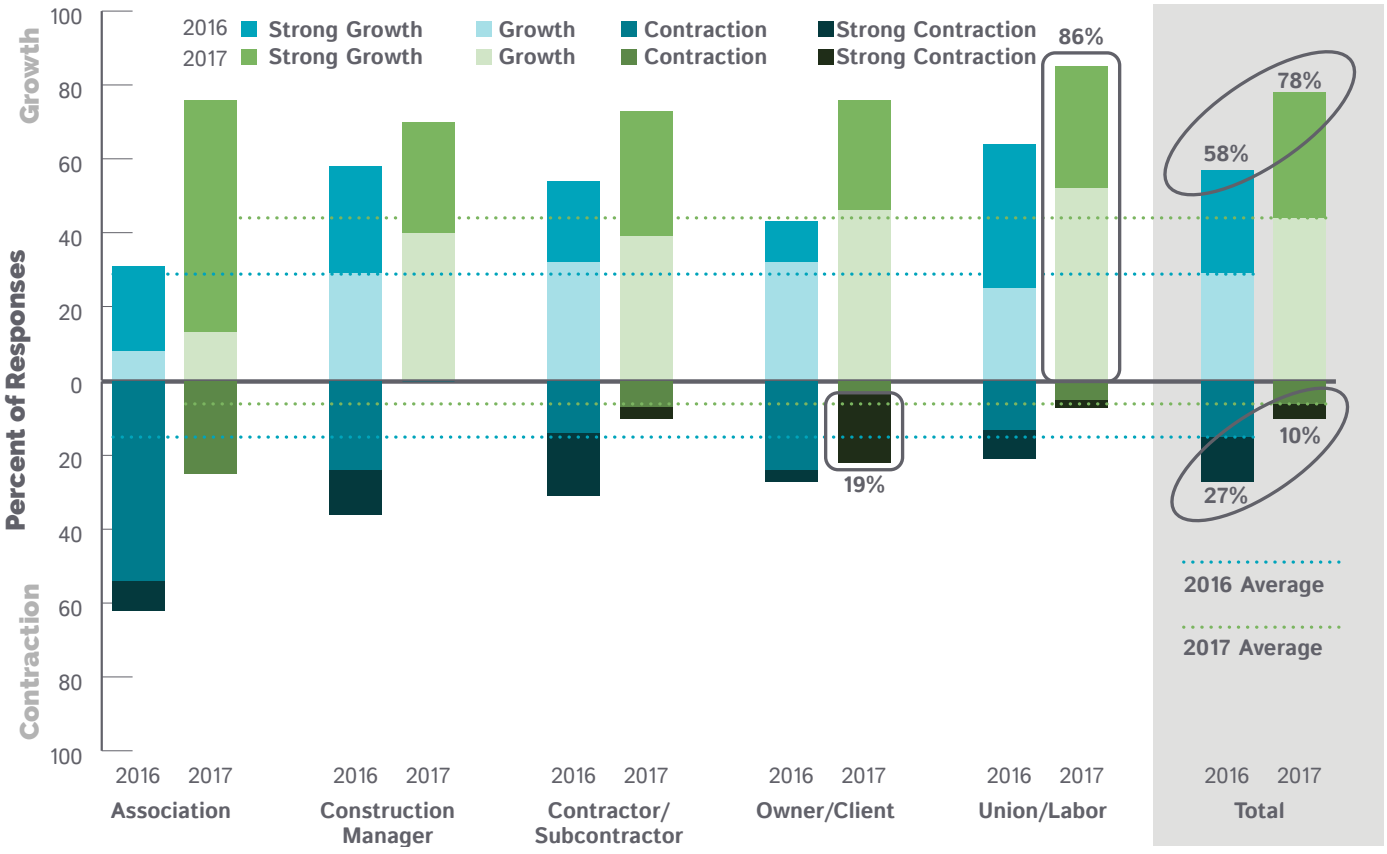
The percent of the sample projecting growth goes up from "0" and the percent projecting contraction goes down from "0".

In **Exhibit 2.3**, the results regarding growth/contraction projections for 2017 are shown by the data cut respondent role. For comparison, also included are growth projections for 2016 from last year's study, conducted at the beginning of 2016. *The most significant feature of the results is the much more growth oriented ratings in 2017 than in 2016.* For example, for the "Total" category in 2016, 58% of the respondents noted growth; in 2017 this was 20% higher at 78%. Conversely, the percent rating for contraction was 27% in 2016; in 2017 it fell to just 10%. This theme will be repeated in the ensuing three data cuts—industry, region and organization size.

A second finding is that *the union/labor category had the highest proportion of its members project growth in 2017—86% projected growth.* This is similar to the findings last year. Owners/clients are noteworthy for their contraction ratings in 2017; 19% projected strong contraction, much more than any other role.

Exhibit 2.3

PERCENT PROJECTING GROWTH/CONTRACTION BY ROLE: 2016 & 2017



Throughout this report, the green and blue dotted lines provide an easy comparison of the results for each data cut (e.g., association, construction manager) to the results for Total (i.e., the average). In other words, the dotted lines are an extension of the rating categories (i.e., contraction, strong contraction, growth, strong growth) for the Total bars on the right for 2017 (green) and 2016 (blue), respectively.

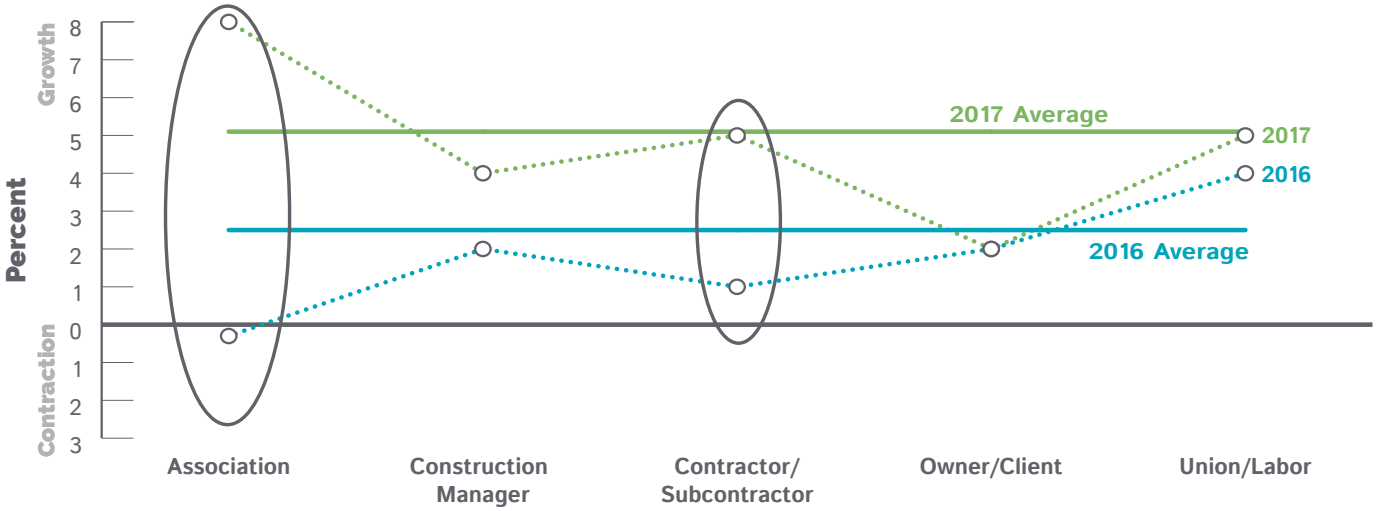
In **Exhibit 2.4**, the average growth/contraction projections by role are shown. Whereas **Exhibit 2.3** shows the percent of responses for various response options (i.e., growth, strong growth, contraction, strong contraction) and does not show those who said there would be no growth or contraction, this exhibit averages all ratings.

As was the case in **Exhibit 2.3**, the average ratings in **Exhibit 2.4** for 2017 are clearly higher than the ratings for 2016. *In other words, there is much more optimism this year than last year regarding the prospects in construction and maintenance work.*

Another finding is that ratings from association representatives and contractors/subcontractors increased substantially from 2016 to 2017. In fact, last year these two groups provided the lowest average ratings; this year they provided the highest, other than the union/labor category.

Exhibit 2.4

AVERAGE GROWTH/CONTRACTION PROJECTIONS BY ROLE: 2016 & 2017



It is useful to note that the values shown for **Exhibits 2.4, 2.6, 2.8 and 2.10** are the average of all ratings—those reporting growth, those reporting contraction and those reporting neither. Although the line graphs are valuable because they concisely and accurately summarize all ratings, the contraction ratings (negative values in the analysis) and growth ratings (positive values) tend to cancel each other out somewhat when calculating the average.

As a result, the averages contained in the line graphs look somewhat "muted." In other words, if the average were calculated separately for only those reporting contraction (or shortage) the values would be much larger or more pronounced.

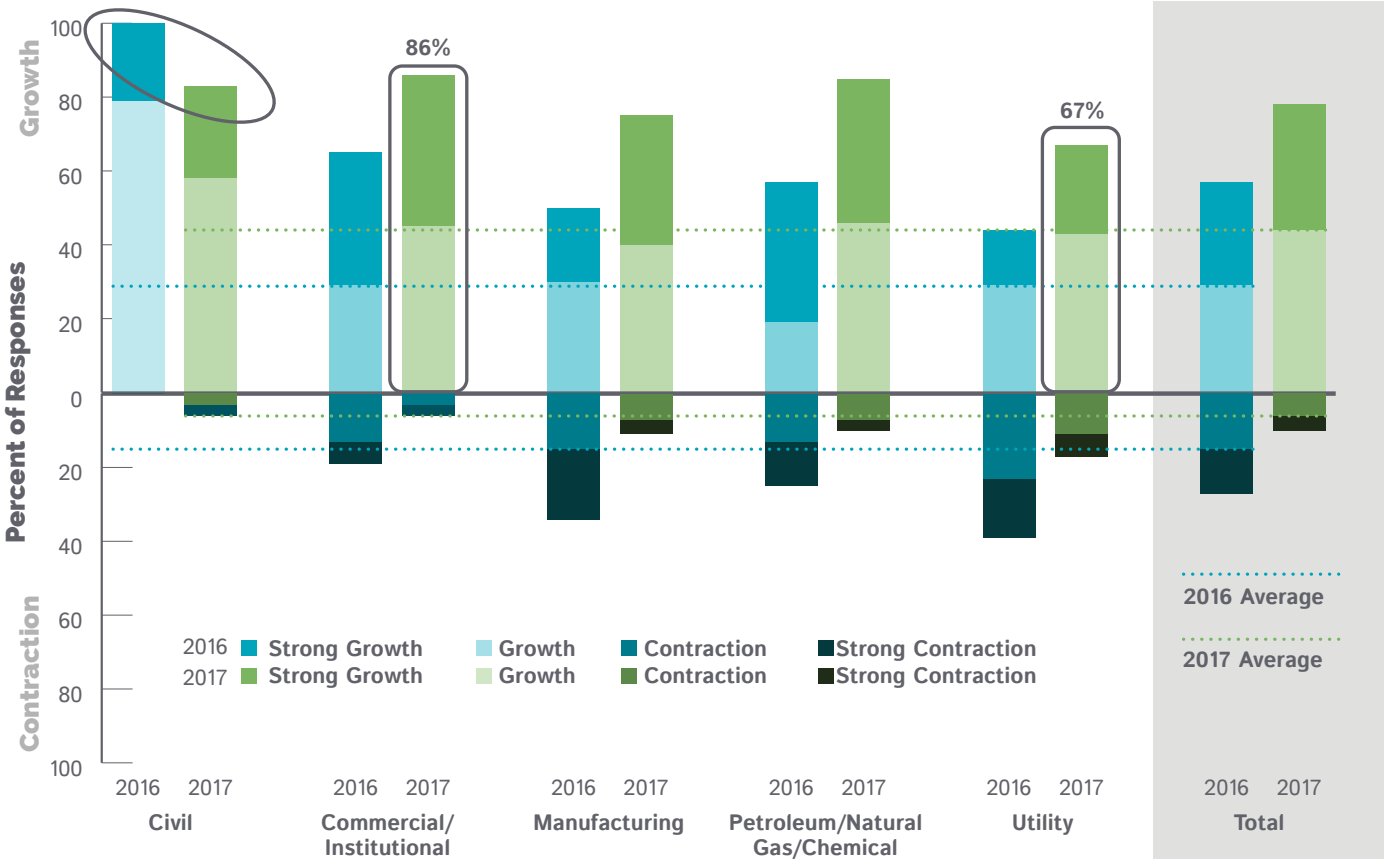
The values in **Exhibits 2.4, 2.6, 2.8 and 2.10** show the percent growth (or contraction) projected by the respondents for the construction and maintenance industry for 2017.

Similar to **Exhibit 2.3**, **Exhibit 2.5** below shows that ratings in 2017 were significantly higher than in 2016. *The industry with the largest percent growth ratings for 2017 was commercial/institutional* with 86% projected growth.* The lowest prospects were for the utility industry at 67%. However, this was still higher than all results for 2016 other than civil. Interestingly, the civil industry was the only industry that saw a decrease from 2016 to 2017.

* Includes commercial & government buildings, dwellings, educational buildings, institutions, hospitals, etc.

Exhibit 2.5

PERCENT PROJECTING GROWTH/CONTRACTION BY INDUSTRY: 2016 & 2017



As was the case in **Exhibit 2.4** for the data cut for the respondent's role in their organization, **Exhibit 2.6** illustrates the higher average ratings in 2017 compared to 2016. The highest average rating was for commercial/institutional, followed very closely by petroleum/natural gas/chemical. The utility industry represented the lowest average rating, although still positive, indicating that overall the respondents to the questionnaire think the industry will grow.

Exhibit 2.6

AVERAGE GROWTH/CONTRACTION PROJECTIONS BY INDUSTRY: 2016 & 2017

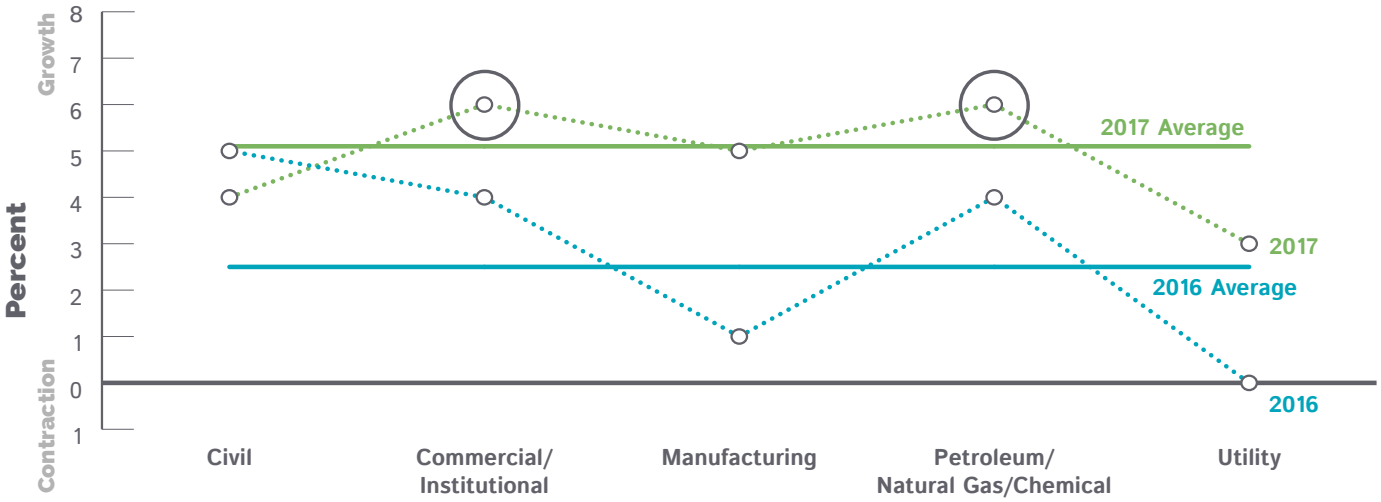
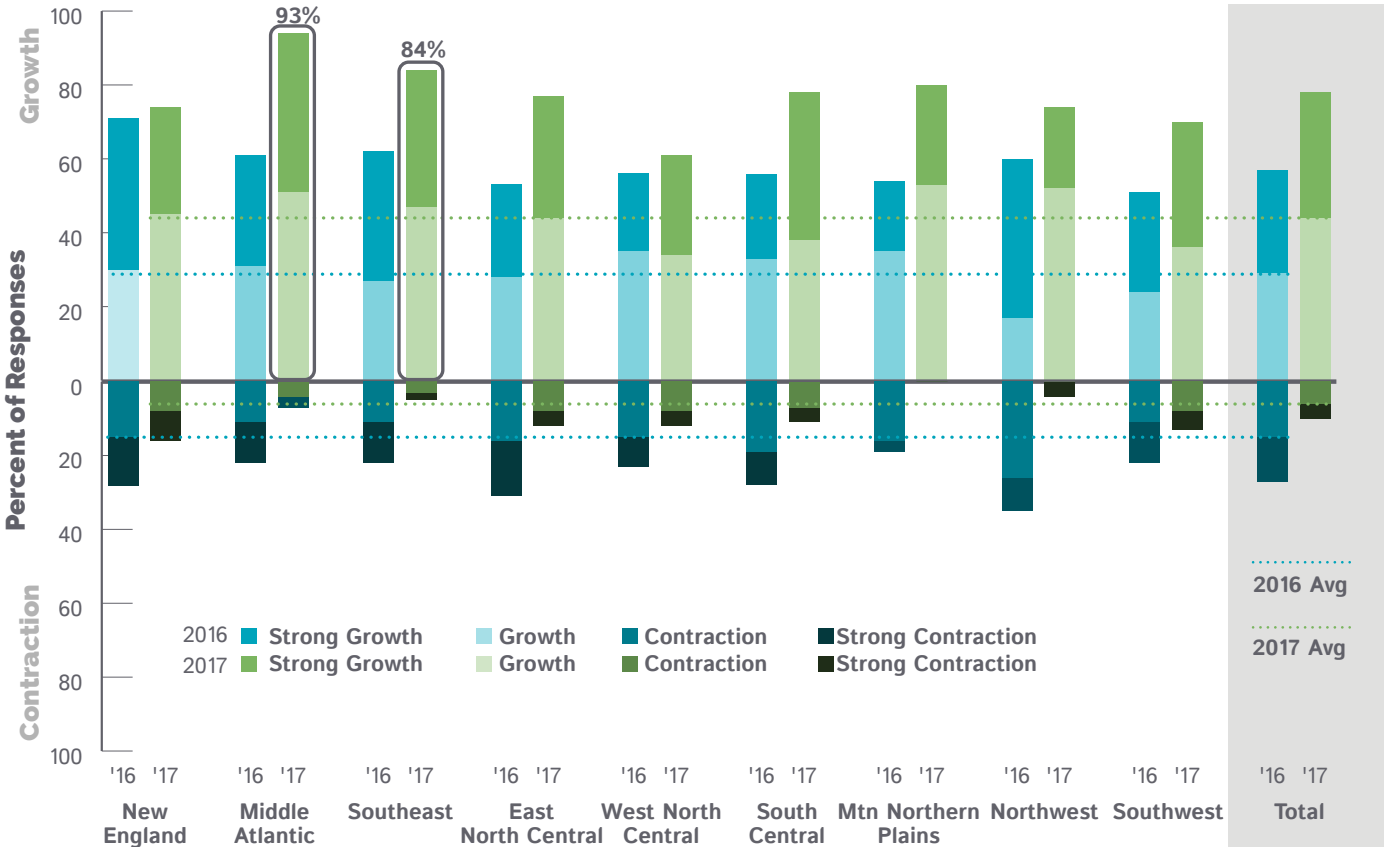


Exhibit 2.7 shows that the *most prevalent growth projections for 2017 are for the Middle Atlantic region, where 93% of the sample said there would be either growth or strong growth.* While growth was predicted much more so than contraction for all regions, *the other region with especially high growth results was the Southeast region.* Further supporting the general overall optimism in the study sample, no region had more than 15% contraction ratings.

Exhibit 2.7

PERCENT PROJECTING GROWTH/CONTRACTION BY REGION: 2016 & 2017

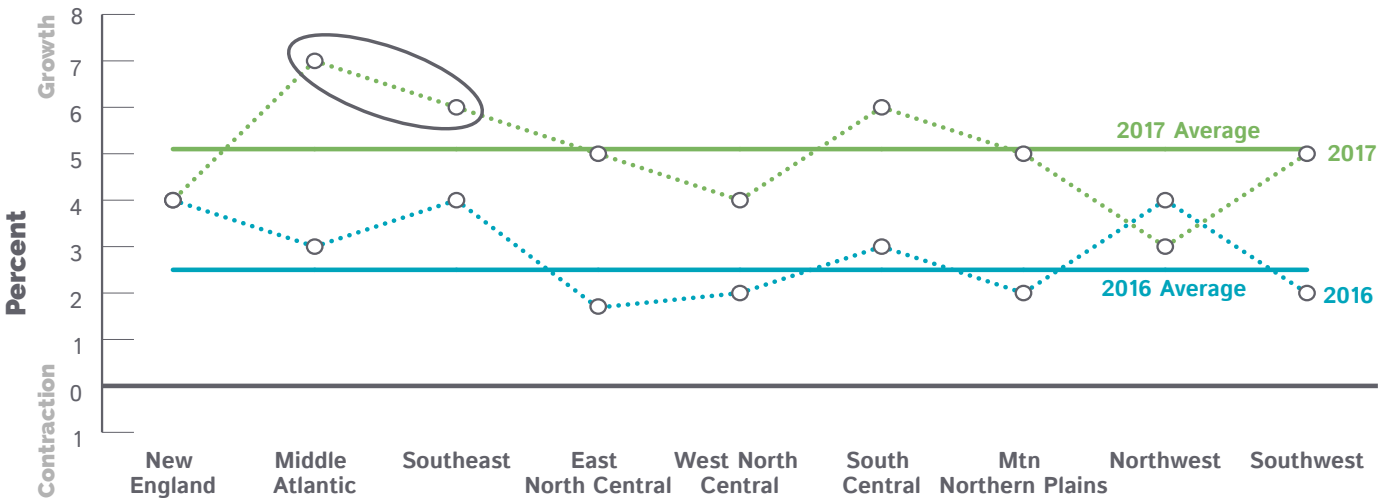


Region	States
Northeast	Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont
Middle Atlantic	District of Columbia, Delaware, Maryland, New Jersey, New York, Pennsylvania
Southeast	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia
East North Central	Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin, West Virginia
West North Central	Iowa, Kansas, Missouri, Nebraska
South Central	Arkansas, Louisiana, New Mexico, Oklahoma, Texas
Mountain Northern Plains	Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming
Northwest	Alaska, Idaho, Oregon, Washington
Southwest	Arizona, California, Hawaii, Nevada

Similar to **Exhibit 2.7**, **Exhibit 2.8** shows that the Middle Atlantic and Southeast regions had the highest average ratings. The only other region above the average for 2017 was the South Central region. Two regions with noticeably low ratings in 2017, but still with averages high enough to indicate growth rather than contraction, are the West North Central and the Northwest regions.

Exhibit 2.8

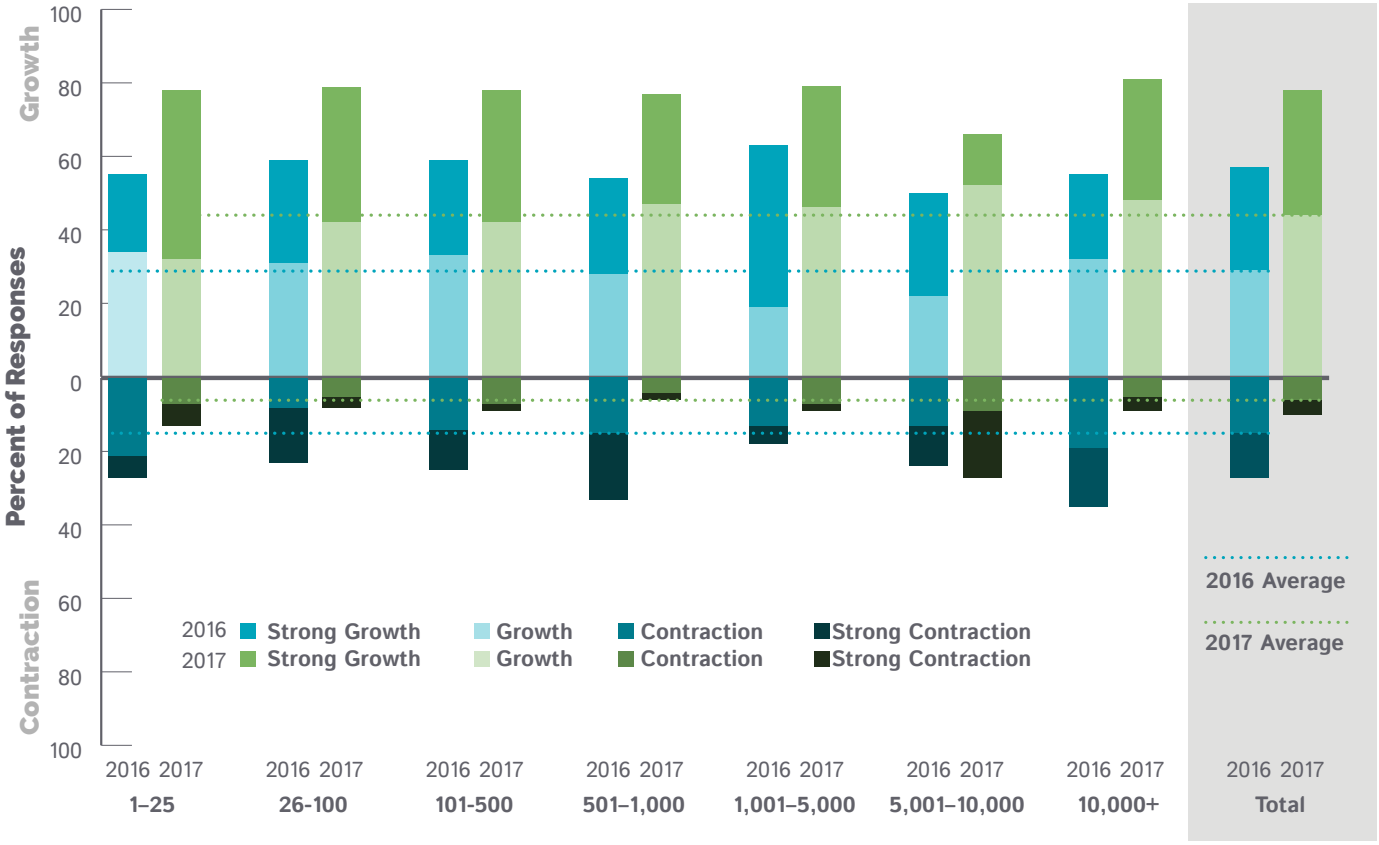
AVERAGE GROWTH/CONTRACTION PROJECTIONS BY REGION: 2016 & 2017



As is the case throughout this section for the three other data cuts—role, industry and region—the data in **Exhibit 2.9** shows that the ratings for 2017 are significantly higher than the ratings from 2016. What is remarkable about this data cut is the similarity in responses across the different organization sizes *for 2017* (i.e., the green bars). That is, the findings for growth fell within a narrow range of 77–81%, with the exception of organizations with 5,001-10,000 employees, which was 66%. Thus, the number of employees in the organization where the respondent works does not appear to be a factor in that individual's growth ratings.

Exhibit 2.9

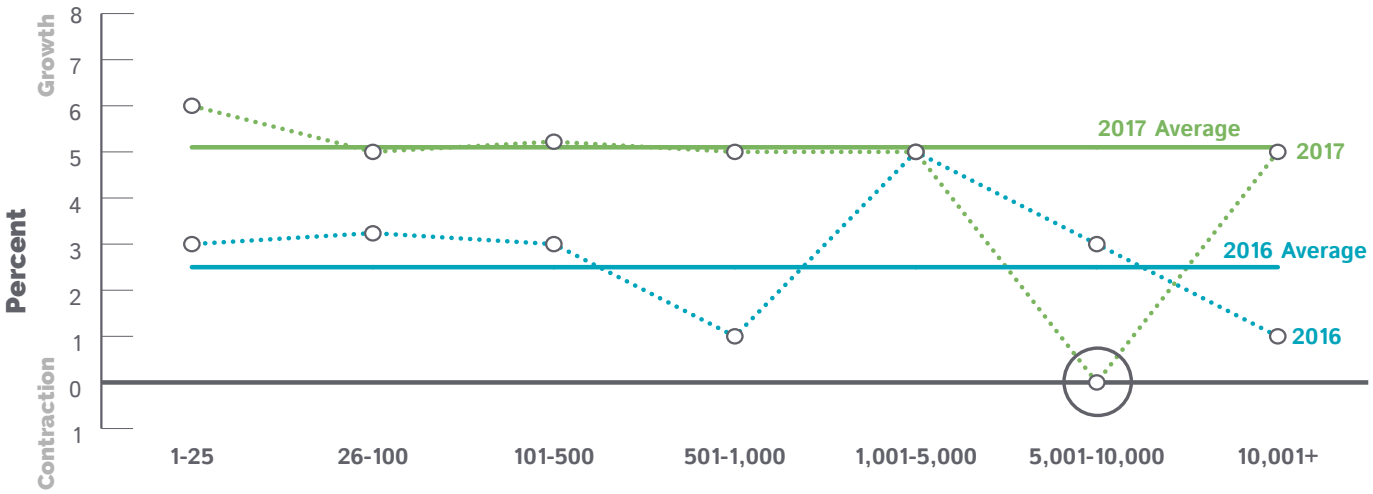
PERCENT PROJECTING GROWTH/CONTRACTION BY ORGANIZATION SIZE: 2016 & 2017



The consistency of the ratings for all organization sizes except the 5,001-10,000 employee category is again illustrated in **Exhibit 2.10**. The average ratings ranged from 5.2% to 5.7% for all categories except organizations with 5,001-10,000 employees, which was much lower at 0.1%.

Exhibit 2.10

AVERAGE GROWTH/CONTRACTION PROJECTIONS BY ORGANIZATION SIZE: 2016 & 2017



III. UNION CRAFT LABOR SHORTAGE AND SURPLUS

Section III refers specifically to *union craft workers*. This section describes how respondents reported the union craft labor shortage or surplus in their organization in 2016. These can be considered as "actual" results since respondents reported their company's experience from the previous year (not subjective projections for upcoming years).

Similar to the layout of **Section II**, **Section III** provides results in two parts:

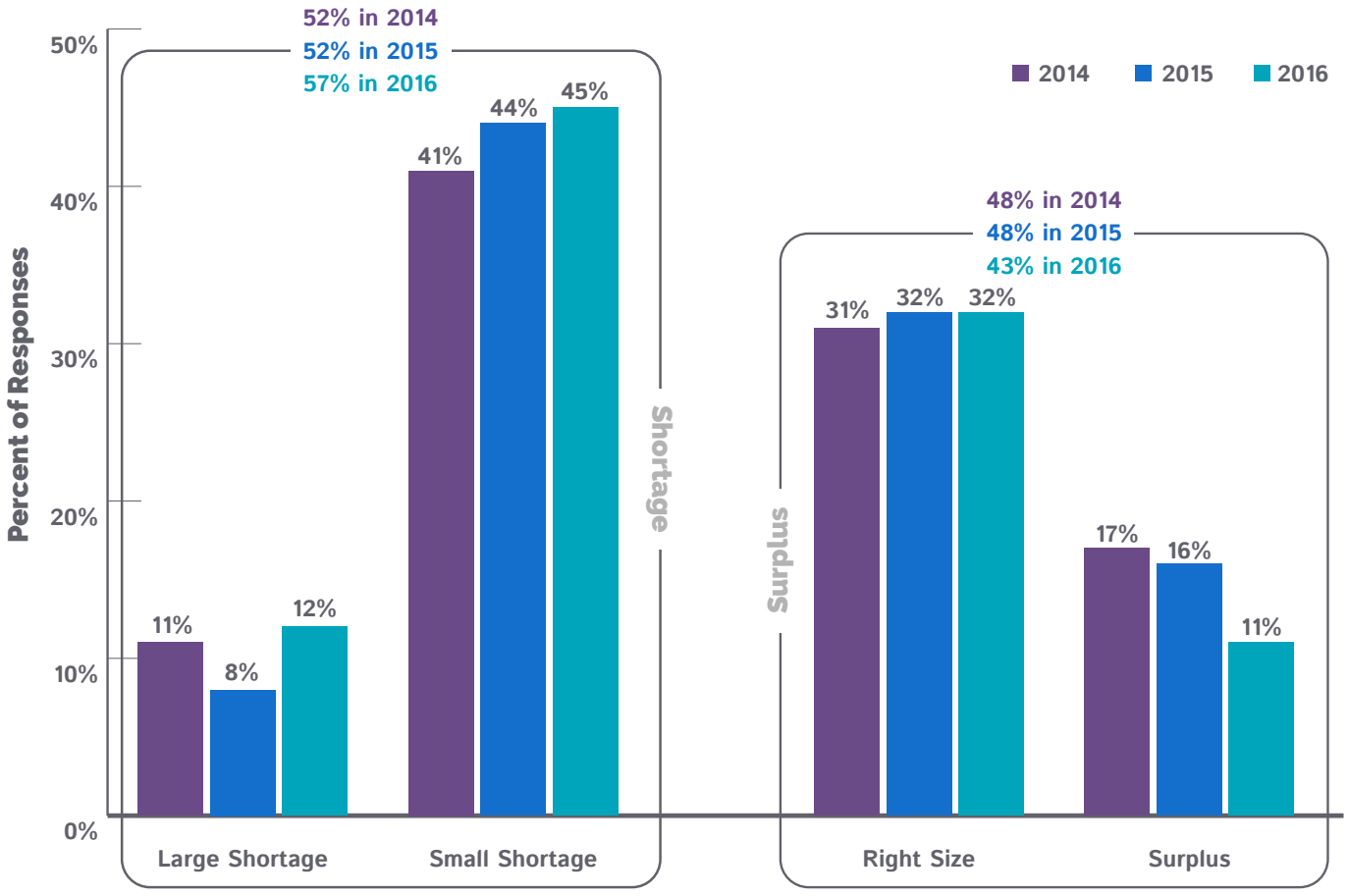
- **Part 1. Overall Union Craft Labor Shortage/ Surplus**
- **Part 2. Union Craft Labor Shortage/Surplus by Demographic Data Cut**
  - Role
  - Industry
  - Region
  - Organization Size

Part 1. Overall Union Craft Labor Shortage/Surplus

Exhibit 3.1 shows that in 2017 *a little over half (57%) of the sample in this study thought there was a shortage of union craft workers in their organization and a little less than half (43%) thought the union craft labor supply was about right or they had a surplus. The percent noting a shortage increased by 5% since 2014. Most of those reporting a shortage said they had a small shortage, which they typically reported to be in the 5–15% range.* About one in 10 said they had a large shortage of union craft workers in their organization.

Exhibit 3.1

UNION CRAFT LABOR SHORTAGE: 2014-2016



Part 2. Union Craft Labor Shortage/ Surplus by Demographic Data Cut

Exhibits 3.2 – 3.6 show results for the union craft labor supply in 2016 by four data cuts: role, industry, region and organization size. *The shaded segments in the bars represent the percent of the sample providing each rating (i.e., large shortage, small shortage, right size, surplus), not the actual percent of shortage or surplus in the union craft workforce.*

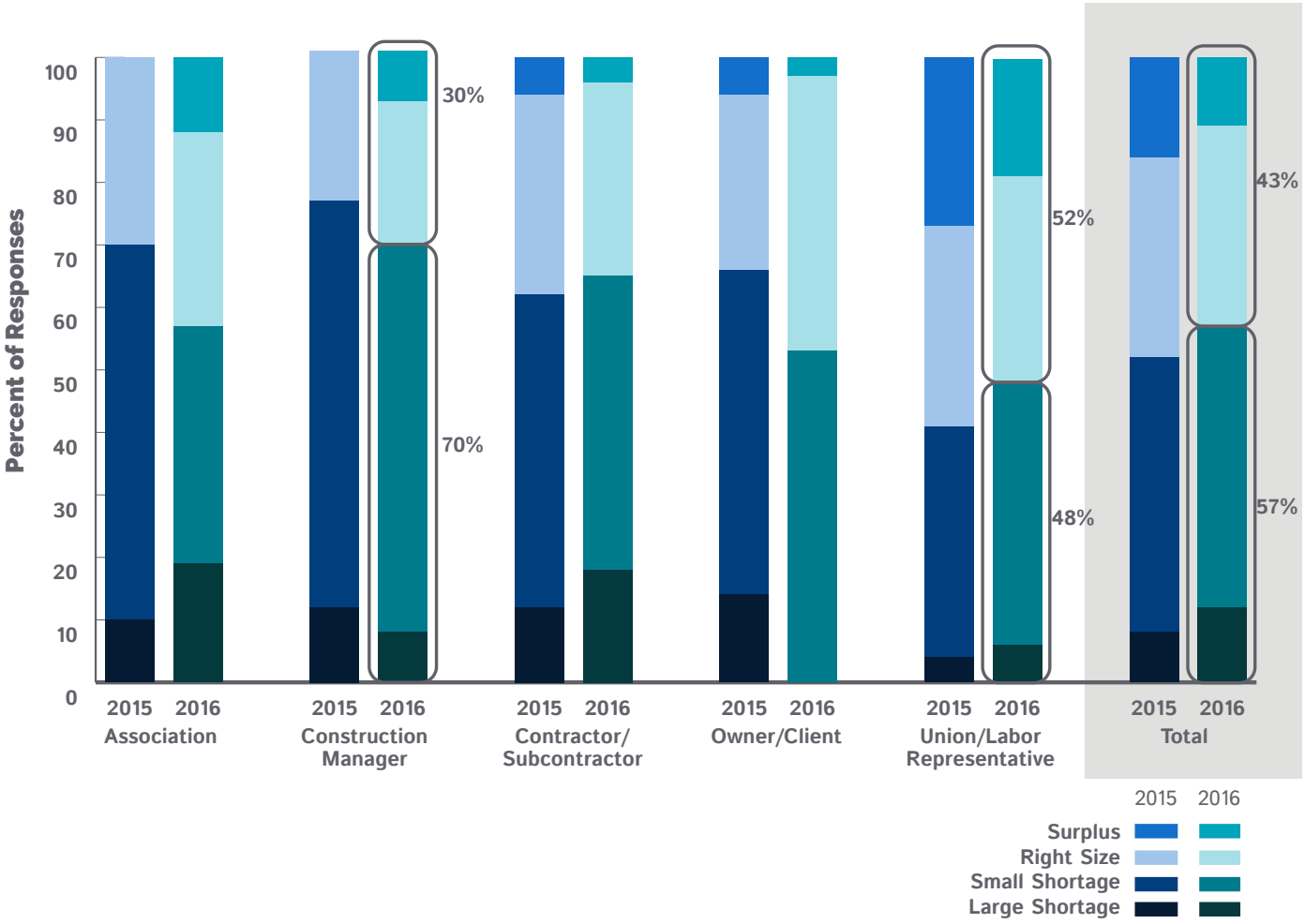
In **Exhibit 3.2**, the results for 2016 from **Exhibit 3.1** are broken out by respondent role. Although less optimistic about 2016 than 2015 (last year) regarding an adequate supply of union craft workers, *for 2016 the union/labor category again had the smallest percent reporting shortages (48%) and the largest percent reporting the right number or a surplus (52%) of union craft workers in their organization.*

At the other end of the spectrum, construction managers expressed the greatest concern over union craft labor shortages, with 70% reporting a shortage and 30% reporting having the right number or a surplus in 2016.

Overall, as shown in the Total bars, 57% of the data sample said there was a shortage of union craft workers in their organization in 2016 and 43% said their organization had the appropriate number or a surplus of these workers.

Exhibit 3.2

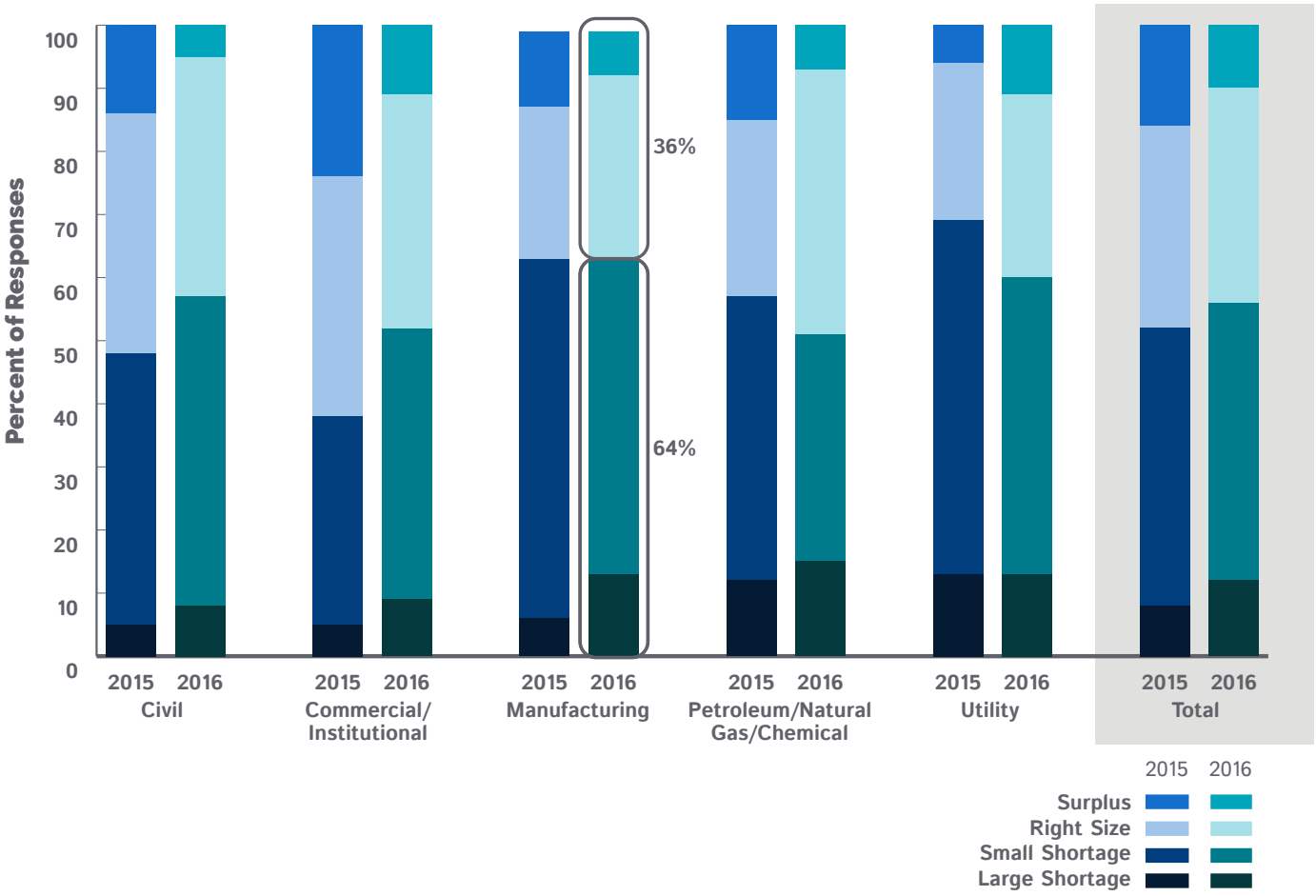
UNION CRAFT LABOR SHORTAGE/SURPLUS BY ROLE: 2015 & 2016



As shown in **Exhibit 3.3**, *the industry with the greatest proportion of the sample reporting a union craft labor shortage in 2016 was manufacturing, where 64% reported a shortage of some type* and 36% said there was no shortage in their organization. The commercial/institutional and petroleum/natural gas/chemical industries had the "best" labor supply situations compared to the other industries in the study, yet around 50% of the sample still reported a union craft shortage in these industries.

Exhibit 3.3

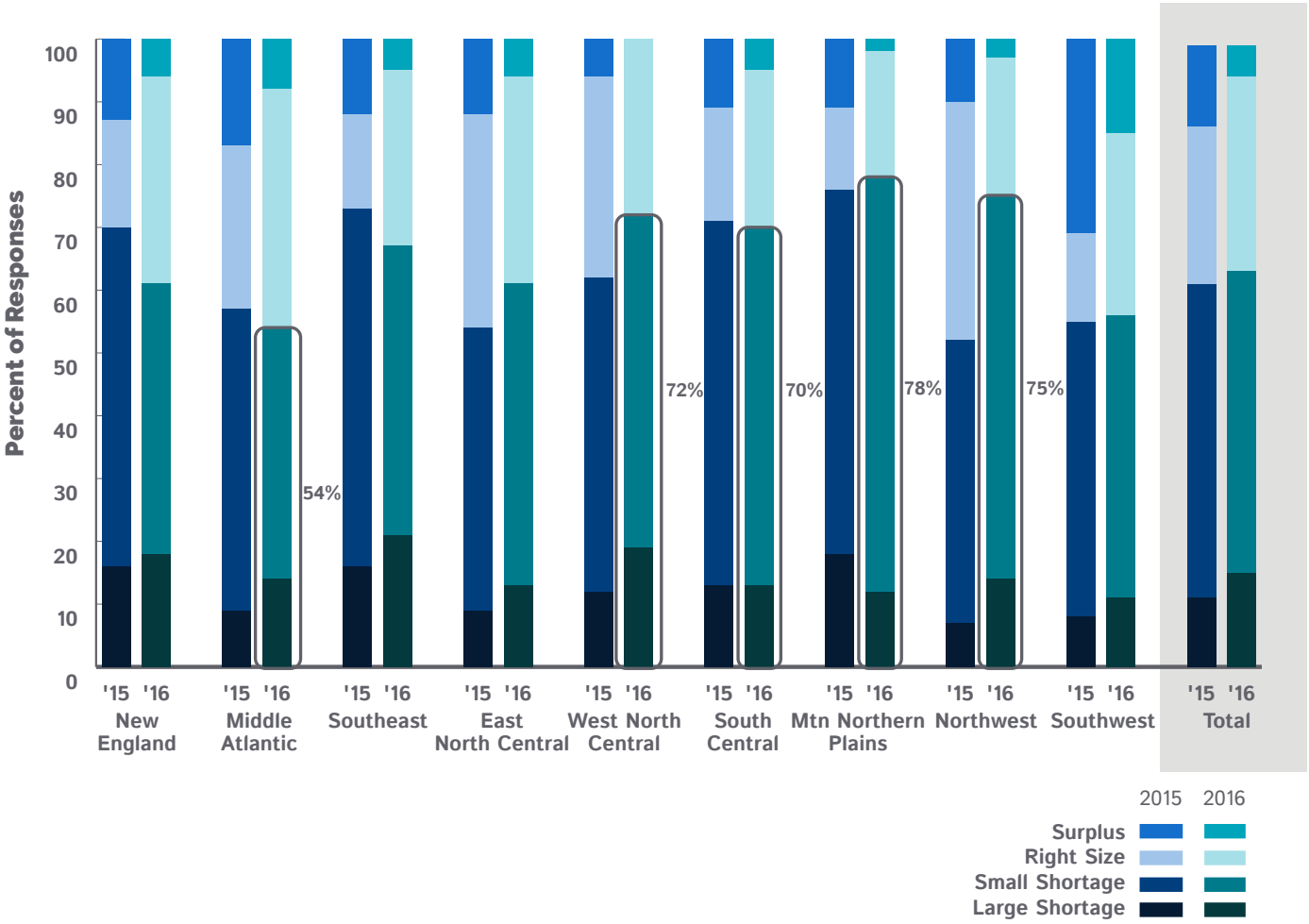
UNION CRAFT LABOR SHORTAGE/SURPLUS BY INDUSTRY: 2015 & 2016



In 2016, the West North Central, South Central, Mountain Northern Plains and Northwest regions all had the greatest percent of respondents stating that they had a union craft worker shortage in their organization. From 70% to 78% of the sample reported some sort of shortage in these four regions. The Middle Atlantic region seemed to have the least problematic labor situation, relative to the other regions, with 54% reporting a labor shortage. Results are displayed below in **Exhibit 3.4**.

Exhibit 3.4

UNION CRAFT LABOR SHORTAGE/SURPLUS BY REGION: 2015 & 2016

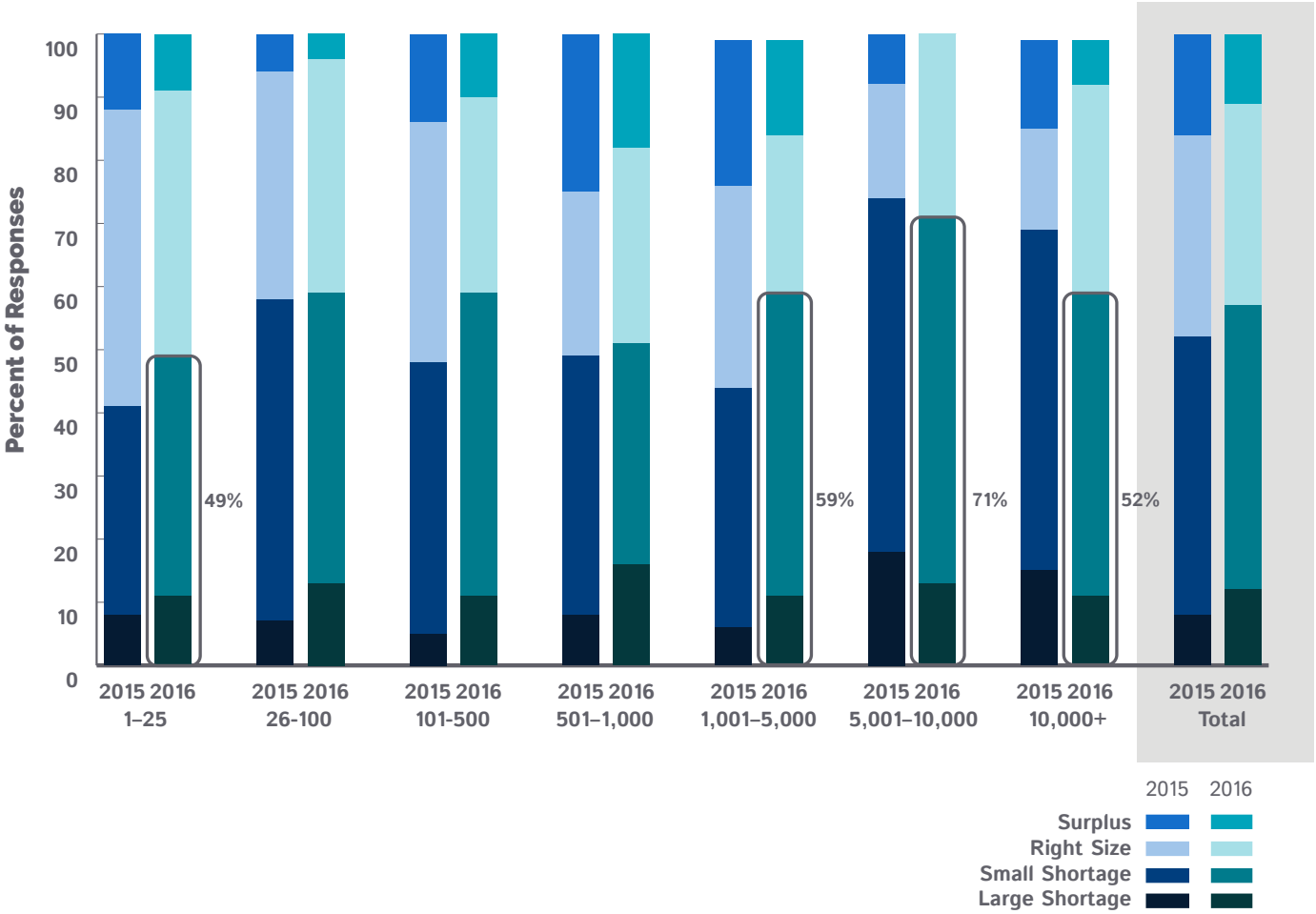


Region	States
Northeast	Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont
Middle Atlantic	District of Columbia, Delaware, Maryland, New Jersey, New York, Pennsylvania
Southeast	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia
East North Central	Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin, West Virginia
West North Central	Iowa, Kansas, Missouri, Nebraska
South Central	Arkansas, Louisiana, New Mexico, Oklahoma, Texas
Mountain Northern Plains	Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming
Northwest	Alaska, Idaho, Oregon, Washington
Southwest	Arizona, California, Hawaii, Nevada

As **Exhibit 3.5** shows, there was noticeable variance among the different organization sizes with regard to their union craft labor supply in 2016. *Generally speaking (there were some exceptions), the larger the organization, the more likely those respondents were to report a labor shortage.* For example, the three highest ratings for labor shortage came from the three largest organization size categories. And the category with the fewest employees was also the category with the smallest percent of labor shortage ratings.

Exhibit 3.5

UNION CRAFT LABOR SHORTAGE/SURPLUS BY ORGANIZATION SIZE: 2015 & 2016



IV. UNION CRAFT LABOR SHORTAGE AND SURPLUS—CRAFT COMPARISON

The findings in **Section IV** are organized into three parts, each comparing the 14 crafts covered in this study on one of three topics.

- **Part 1. Actual Shortage/Surplus in 2016**
- **Part 2. Projected Shortage/Surplus in 2017**
- **Part 3. Actual Shortage/Surplus in 2016 for Apprentices**

Within each part listed above, results will be shown in two ways. *First*, by listing the percent of the study participants for each craft whose ratings fell into four categories:

- Shortage (1 – 6%)
- Large Shortage (7% and greater)
- Surplus (1 – 6%)
- Large Surplus (7% and greater)

These results are shown in both alphabetical and descending order by shortage.

Second, the results will be displayed by showing the average shortage/surplus rating for each craft. Whereas the shortage/surplus colored bar charts described above show the percent of responses in each category (and do not include those who said their organization had neither a shortage nor a surplus), the line charts convey the average rating and take all ratings into consideration in calculating the overall average, including those who said 0% (i.e., no shortage or surplus).

It is useful to note that the values shown for **Exhibits 4.3, 4.6 and 4.9** are the average of all ratings—those reporting a shortage, those reporting a surplus and those reporting neither. Although the line graphs are valuable because they concisely and accurately summarize all ratings, the shortage ratings (negative values in the analysis) and surplus ratings (positive values) tend to cancel each other out somewhat when calculating the average.

As a result, the averages contained in the line graphs look somewhat "muted." In other words, if the average were calculated separately for only those reporting a shortage the values would be much larger or more pronounced. Similarly, an average calculated only on a subset of the study sample containing just those reporting a surplus would be more pronounced as well.

The percentages shown in the exhibits in this section that have colored bars may not sum to 100% within each bar. This is because those who reported that there was neither a shortage nor a surplus in their organization are not shown.

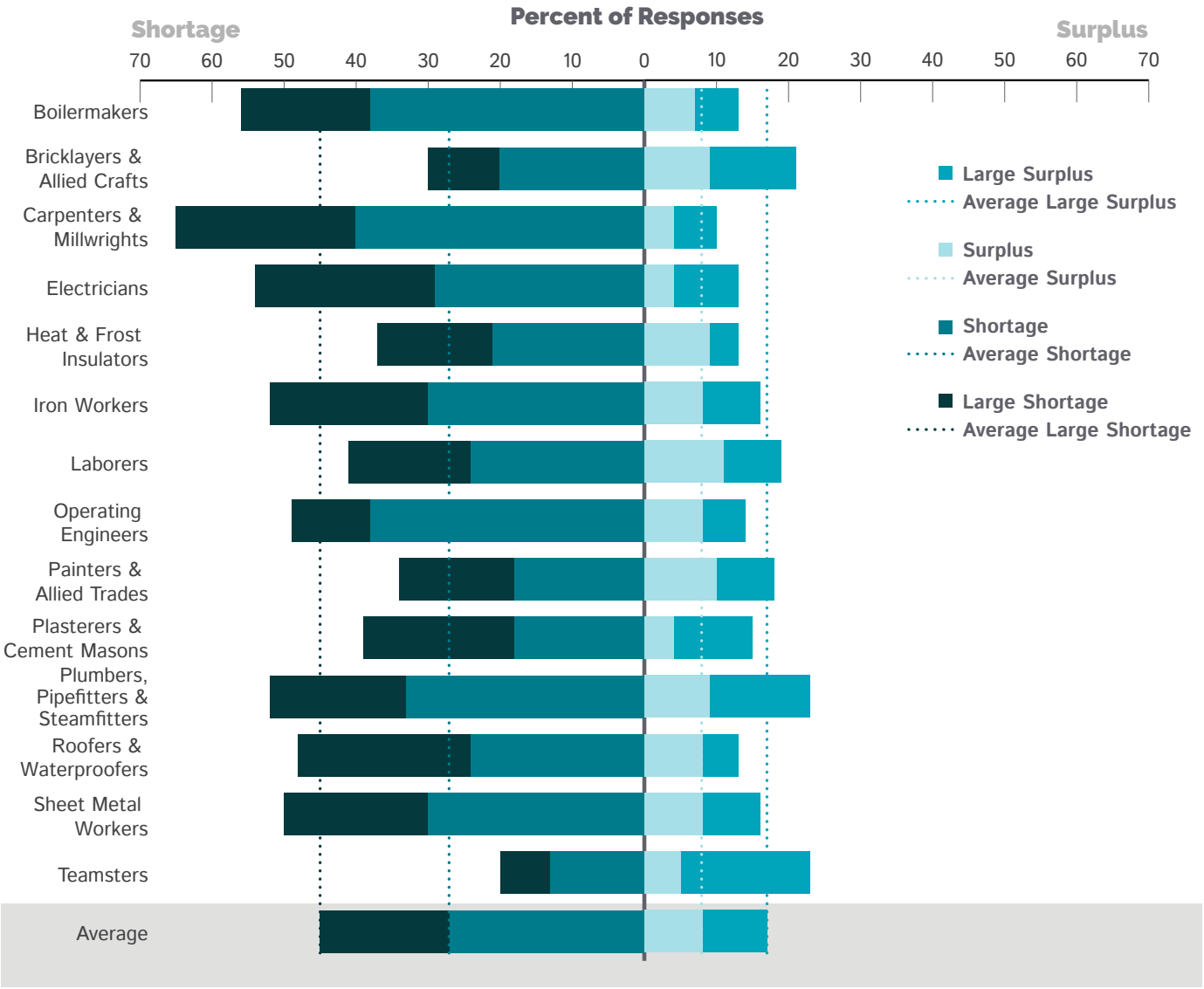
Part 1. Actual Shortage/ Surplus in 2016

Exhibits 4.1 – 4.3 focus on the union craft labor supply last year, in 2016.

Exhibit 4.1 illustrates, by craft, what percent of the ratings received in this study fell into the four categories of shortage, large shortage, surplus and large surplus. These results are based on respondents' replies to questions regarding the shortage/surplus of union craft workers in 2016 in their organization. The crafts are listed in alphabetical order.

Exhibit 4.1

PERCENT OF RESPONSES INDICATING A SHORTAGE OR SURPLUS IN 2016 BY CRAFT—ALPHABETICAL ORDER

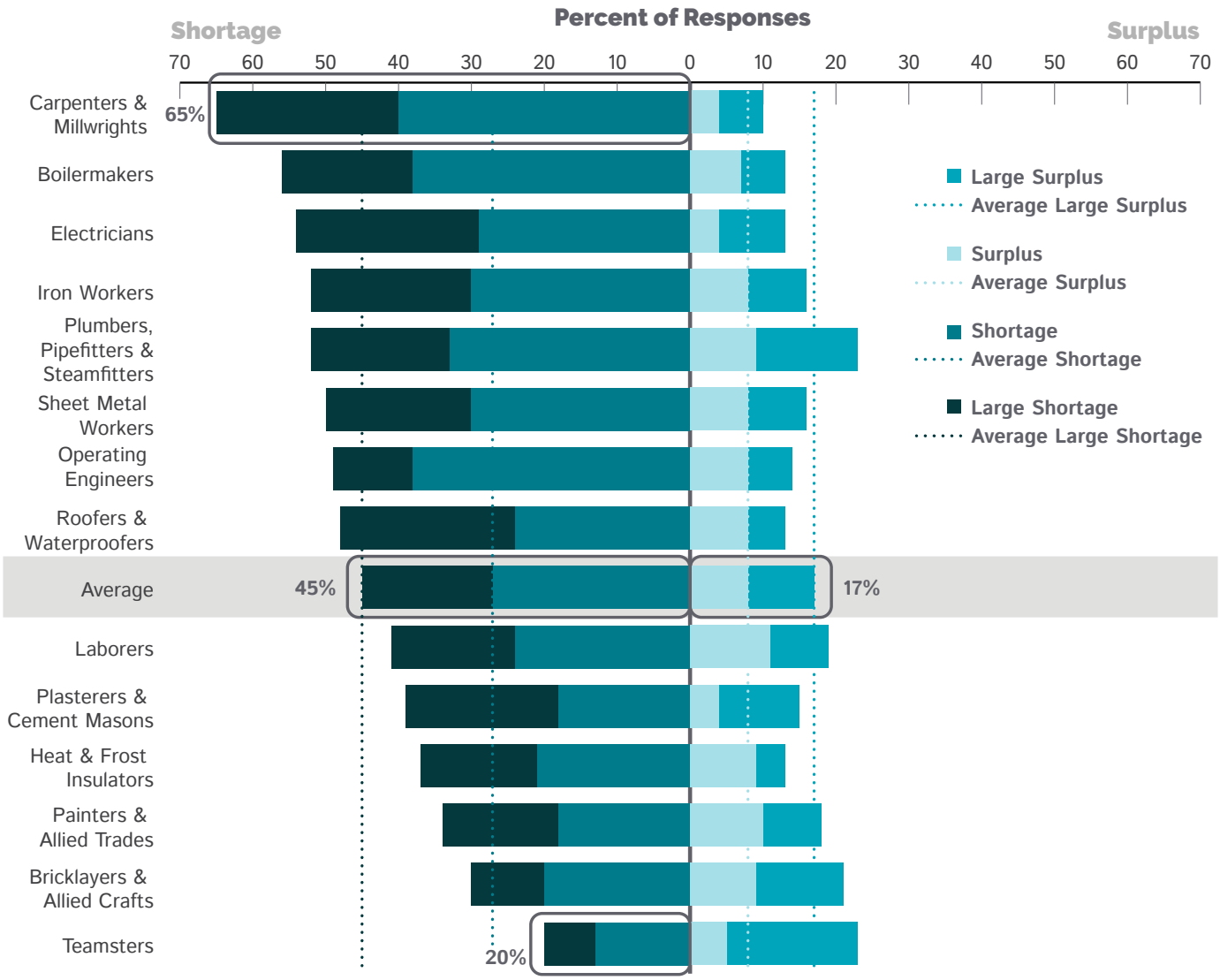


The dotted lines are linked to the Average bar at the bottom. They help identify how each craft fell in relation to the all craft average for each of the four rating categories.

Exhibit 4.2 contains the same data as **Exhibit 4.1**, but in descending order based on the percent reporting a union craft labor shortage in their organization. *The largest percent of people reporting a union craft labor shortage in 2016 fell to the Carpenters & Millwrights craft (65%).* The fewest percent (20%) of respondents said there was a shortage of Teamsters. On average, 45% of the sample said there had been a union craft worker shortage in their organization in 2016 and 17% said there had been a surplus.

Exhibit 4.2

PERCENT OF RESPONSES INDICATING A SHORTAGE OR SURPLUS IN 2016 BY CRAFT—DESCENDING ORDER

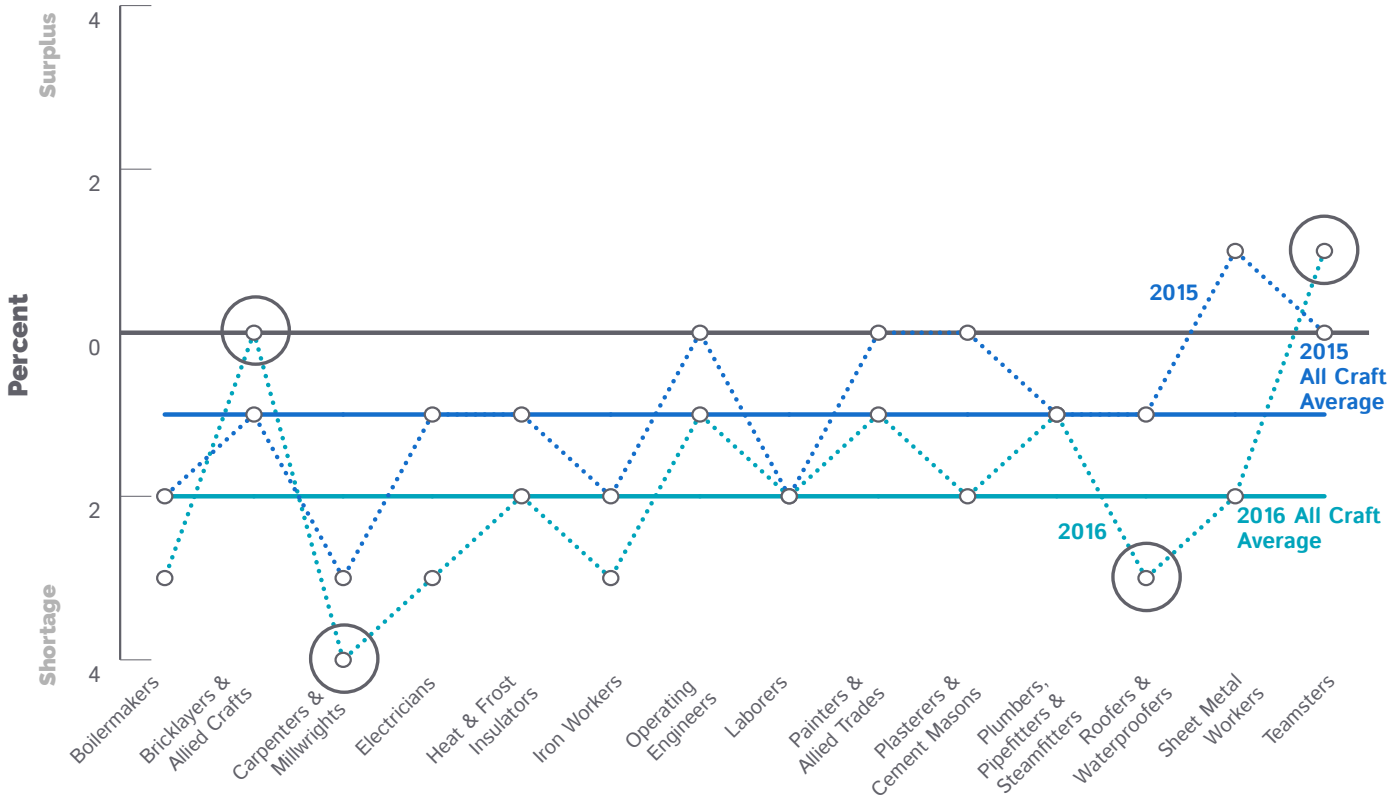


Note, the values used for "Average" shown in **Section IV** are different than the values in **Exhibit 3.1** because the results come from different questions with different rating scales.

The most noticeable feature of **Exhibit 4.3** is that the ratings for 2016 are lower on the graph than those for 2015. *This means that there was a larger shortage of union craft workers in 2016 than in 2015.* In 2016 only two crafts had an average that indicated a surplus of workers, Bricklayers & Allied Crafts (very small surplus) and Teamsters; a shortage was reported for all other crafts. The largest shortages were with Carpenters & Millwrights and Roofers & Waterproofers.

Exhibit 4.3

AVERAGE SHORTAGE/SURPLUS RATING BY CRAFT: 2015 & 2016



Part 2. Projected Shortage/Surplus in 2017

Exhibits 4.4 – 4.6 focus on the projected union craft labor supply for the upcoming year, 2017.

Exhibits 4.1 – 4.3 in **Part 1** looked back in time at union craft staffing levels in 2016. **Exhibits 4.4 – 4.6** provide a look ahead to respondent projections for 2017. These results are based on respondents' replies to questions asking them to project the shortage/surplus of union craft workers in 2017 in their organization. The crafts are listed in alphabetical order.

Exhibit 4.4

PERCENT OF RESPONSES PROJECTING A SHORTAGE OR SURPLUS IN 2017 BY CRAFT—ALPHABETICAL ORDER

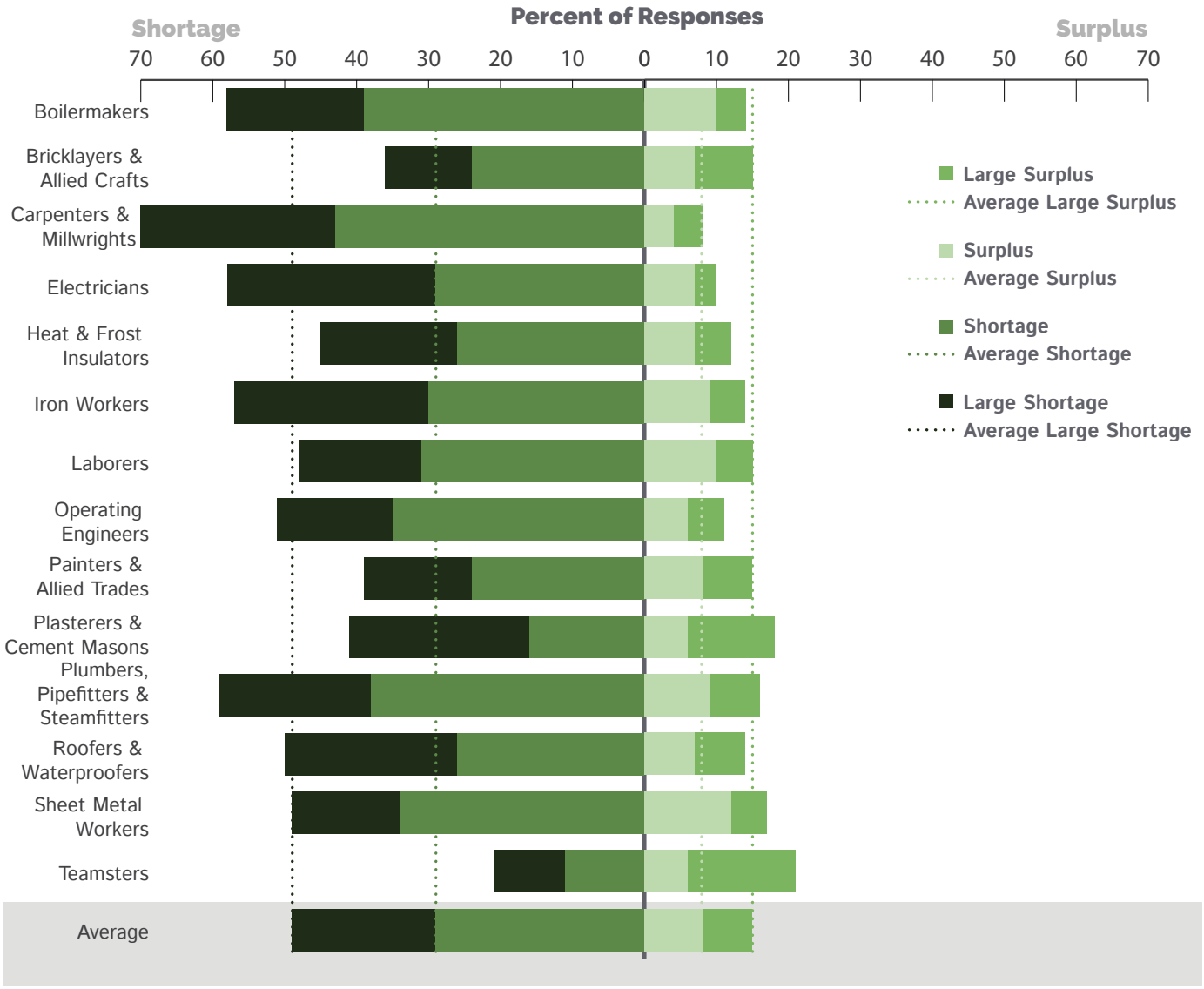
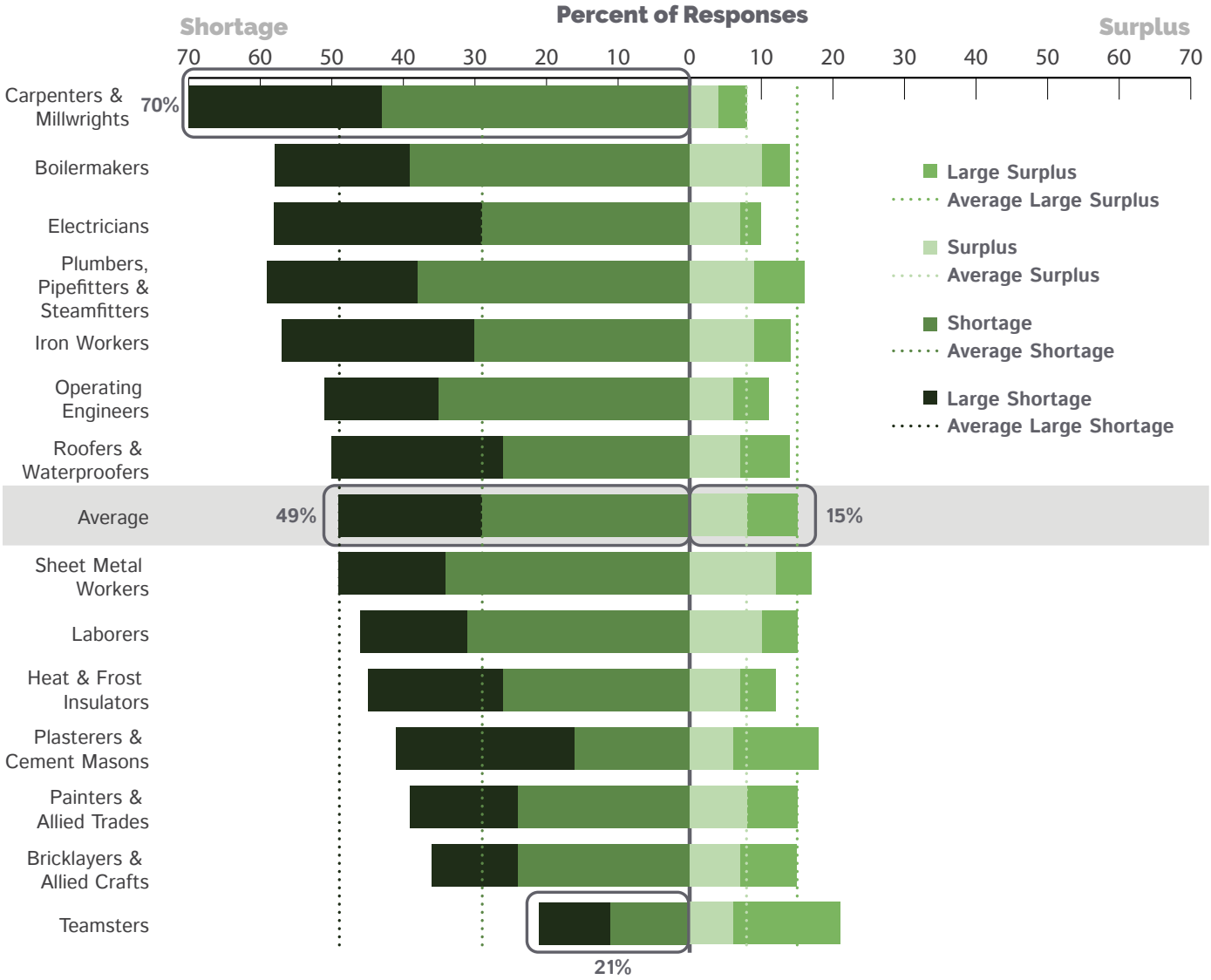


Exhibit 4.5 contains the same data as **Exhibit 4.4**, but in descending order based on the percent of responses reporting a union craft labor shortage in their organization. As was the case regarding 2016, for 2017 the greatest union labor concern centers on Carpenters & Millwrights. *Seventy percent of the responses to the questionnaire said there would be a shortage of Carpenters & Millwrights in their organization in 2017.* The average is 49%. Just 8% of the data indicated a surplus of Carpenters & Millwrights in 2017. Teamsters had the fewest concerns with 21% projecting a shortage for them in 2017.

Exhibit 4.5

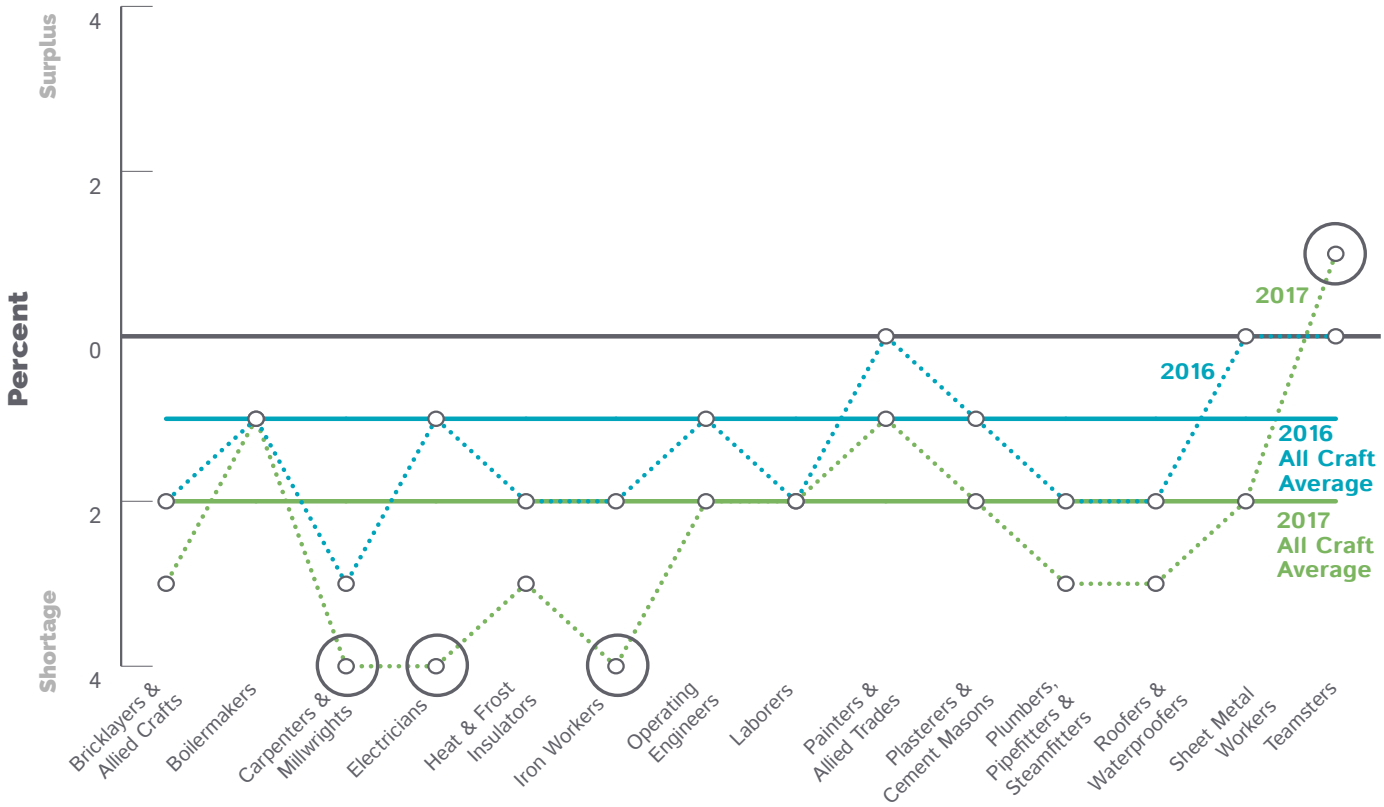
PERCENT OF RESPONSES PROJECTING A SHORTAGE OR SURPLUS IN 2017 BY CRAFT—DESCENDING ORDER



Like **Exhibit 4.3** (which addressed 2016), the most noticeable feature of **Exhibit 4.6** (which looks ahead to 2017) is that the ratings for 2017 are "lower" than those for 2016. In other words, *there is a larger projected shortage of union craft workers this year than last year.* For 2017 only one craft—Teamsters—had an average that indicated a surplus of workers for 2017. The largest shortages are anticipated to be with Carpenters & Millwrights, Electricians, and Iron Workers. When considering **Exhibit 4.3** along with **Exhibit 4.6**, Carpenters & Millwrights had both the largest shortage in 2016 and largest projected shortage in 2017 and Teamsters had the largest surplus those years.

Exhibit 4.6

AVERAGE PROJECTED SHORTAGE/SURPLUS RATING BY CRAFT: 2016 & 2017



Part 3. Actual Shortage/Surplus in 2016 for Apprentices

Exhibits 4.7 – 4.9 focus on the union craft labor supply *of apprentices* last year, in 2016. These results are based on respondents' replies to questions asking them about union craft apprentice levels in their organization in 2016. The crafts are listed in alphabetical order.

Exhibit 4.7

PERCENT OF RESPONSES INDICATING A SHORTAGE OR SURPLUS OF APPRENTICES IN 2016 BY CRAFT—ALPHABETICAL ORDER

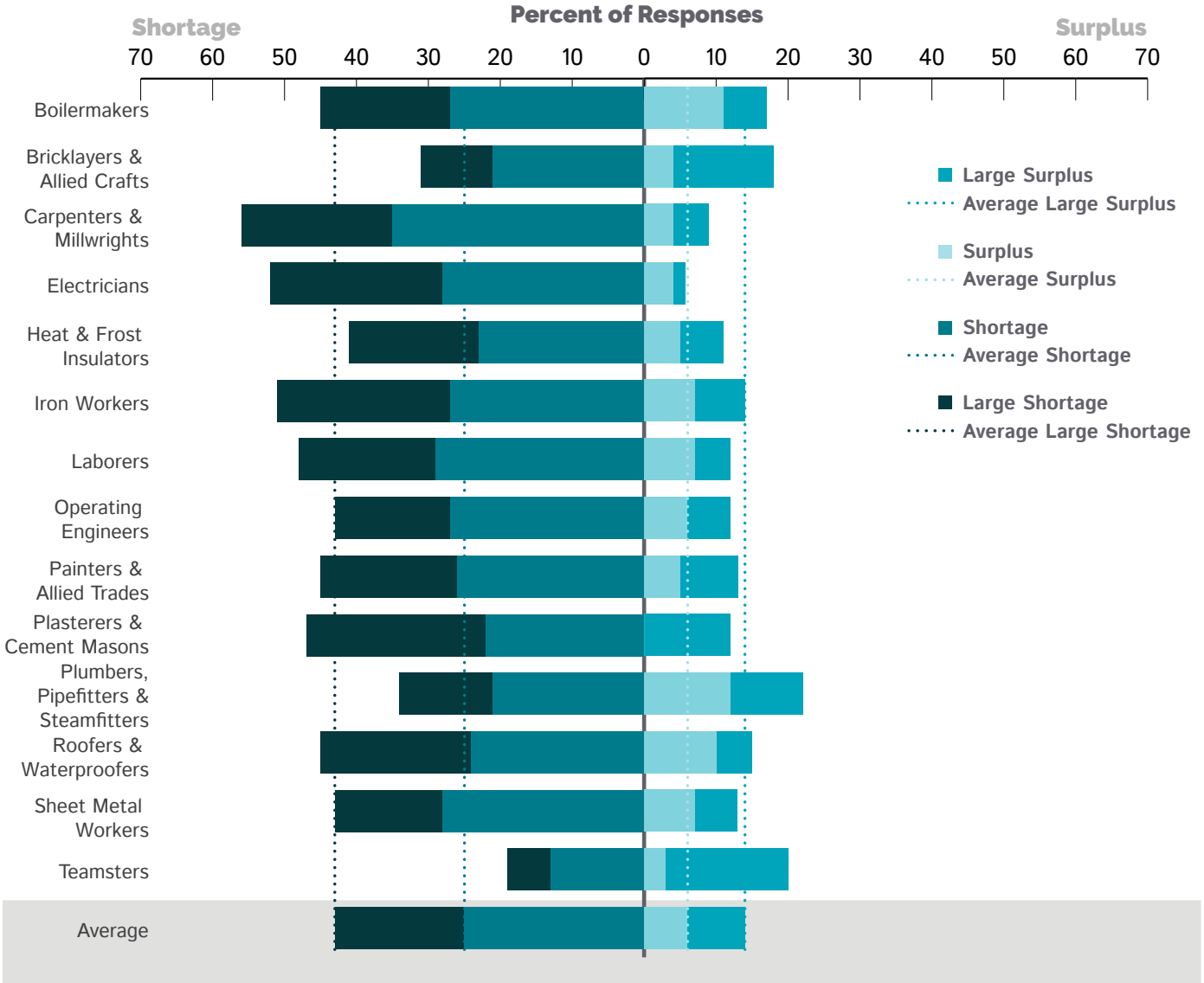


Exhibit 4.8 contains the same data as **Exhibit 4.7**, but in descending order. It focuses on apprentice staffing levels in 2016. As shown in **Exhibit 4.8**, *the craft with the most pervasive percent of respondents who said there was a shortage was Carpenters & Millwrights* (56% said they had a shortage in their organization). The least concern was for Teamsters. These findings, Carpenters & Millwrights with the greatest need and Teamsters with the smallest, are consistent themes throughout **Section IV.**

Exhibit 4.8

PERCENT OF RESPONSES INDICATING A SHORTAGE OR SURPLUS OF APPRENTICES IN 2016 BY CRAFT—DESCENDING ORDER

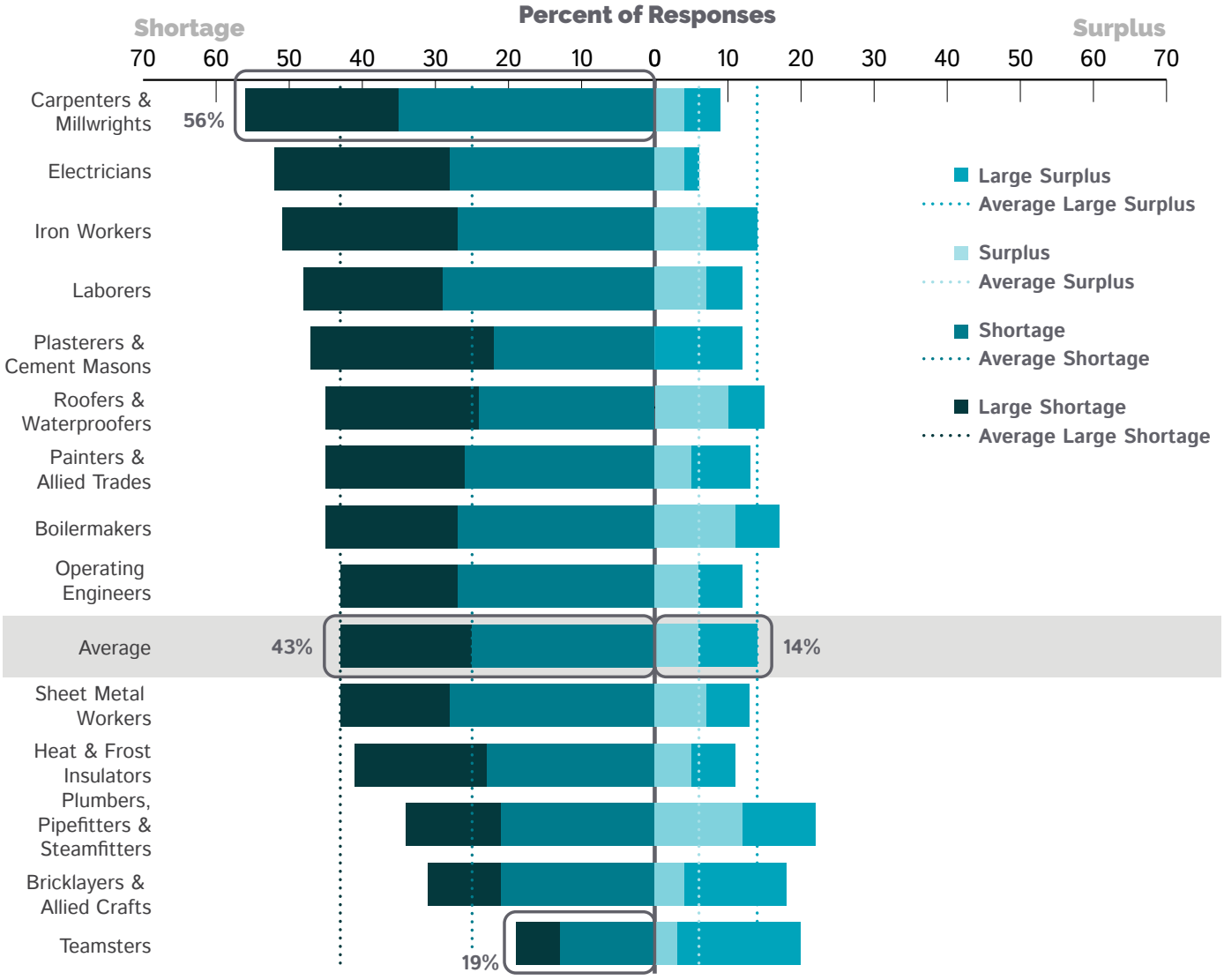
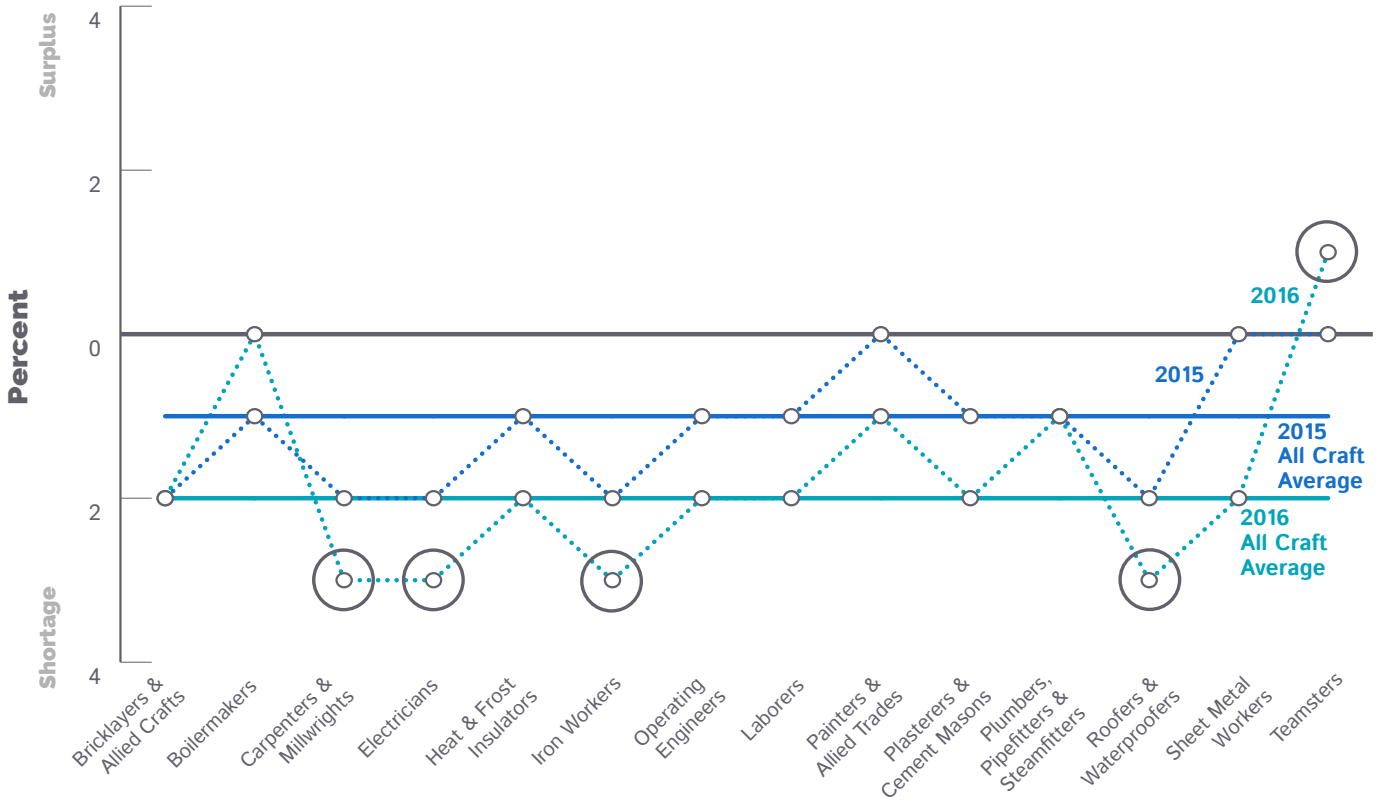


Exhibit 4.9 shows average apprentice shortage ratings in 2016. The most significant shortages were for Carpenters & Millwrights, Electricians, Iron Workers, and Roofers & Waterproofers. However, to some extent there was an apprentice need in 2016 for nearly all crafts since all averages showed a shortage, with the exception of Teamsters.

Exhibit 4.9

AVERAGE SHORTAGE/SURPLUS RATING FOR APPRENTICES BY CRAFT: 2015 & 2016



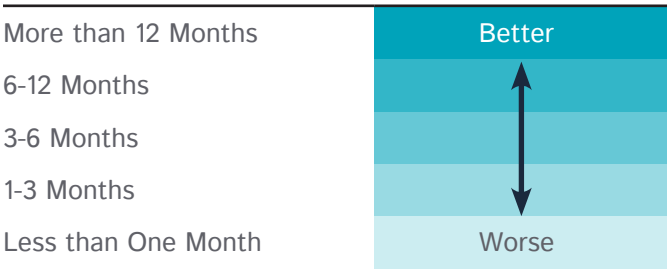
V. OTHER

A. Optimal Project Duration

Participants in the study were asked what project duration timespan provided better sourcing for labor. *Results clearly show that the longer the project, the more likely organizations were able to meet their union craft labor needs*, as shown in **Exhibit 5.1**.

Exhibit 5.1

PROJECT DURATION AND UNION CRAFT LABOR SUPPLY

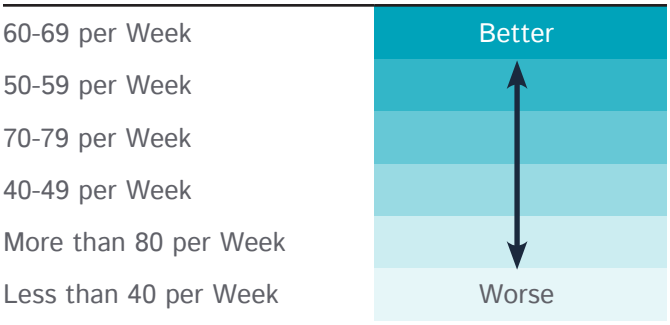


B. Optimal Work Week

As conveyed in **Exhibit 5.2**, participants in the study were asked what type of work week led to better sourcing for labor. The "best" work week when it comes to achieving union craft labor staffing goals is the 60-69 hour work week, followed by the 50-59 hour work week. The two extremes—More than 80 hours per week and less than 40 hours per week—were the least favorable in acquiring union craft labor. *Thus, it is clear that a very full, but not too full, work week (50-69 hours) works the best for attracting union craft workers.*

Exhibit 5.2

WORK WEEK AND UNION CRAFT LABOR SUPPLY



C. Time Needed to Fill Request for Union Craft Workers

Participants in the study were asked how many days it typically took to have requests filled for union craft people from the local union. As **Exhibit 5.3** conveys, and consistent with a theme in this study that union/labor representatives provide more "optimistic" ratings, union/labor averaged the shortest timeframe, 1.70 days. Also, consistent with a theme that contractors/subcontractors provide "less optimistic" data, contractors/subcontractors averaged reporting the longest timeframe, 2.62 days. The overall average is 2.15 days.

Exhibit 5.3

AVERAGE NUMBER OF DAYS TAKEN TO FILL A REQUEST FOR UNION CRAFT PEOPLE BY ROLE

Role	Average # of Days
Union/Labor Representative	1.70
Owner/Client	1.90
Association Employee	2.25
Construction Manager	2.40
Contractor/Subcontractor	2.62
Average	2.15

As **Exhibit 5.4** shows, requests for union craft people were filled in the shortest amount of time in the commercial/institutional industry and it took the longest amount of time in the utility industry.

Exhibit 5.4

AVERAGE NUMBER OF DAYS TAKEN TO FILL A REQUEST FOR UNION CRAFT PEOPLE BY INDUSTRY

Industry	Average # of Days
Commercial/Institutional	2.00
Civil	2.16
Manufacturing	2.27
Petroleum/Natural Gas/ Chemical	2.29
Utility	2.41
Average	2.15

Exhibit 5.5 displays the average number of days it took to fill requests for union craft people for each region. It took the longest in the South Central region and the shortest amount of time in the Southwest region.

Exhibit 5.5

AVERAGE NUMBER OF DAYS TAKEN TO FILL A REQUEST FOR UNION CRAFT PEOPLE BY REGION

Region	Average # of Days
Southwest	2.13
Middle Atlantic	2.17
Northwest	2.19
New England	2.24
East North Central	2.28
Mountain Northern Plains	2.46
Southeast	2.49
West North Central	2.56
South Central	2.58
Average	2.15

Interestingly, there is no relationship between organization size and the number of days it takes to fulfill requests for union craft workers. Results are contained in **Exhibit 5.6**.

Exhibit 5.6

AVERAGE NUMBER OF DAYS TAKEN TO FILL A REQUEST FOR UNION CRAFT PEOPLE BY ORGANIZATION SIZE

Organization Size	Average # of Days
More than 10,000	1.92
1-25	1.96
501-1,000	2.02
101-500	2.10
1,001-5,000	2.17
26-100	2.55
5,001-10,000	2.83
Average	2.15

D. Skills in High Demand

Participants in the study had the opportunity to list, in an open-ended manner, the skills/tasks that were most difficult to fill in their organization and thereby in high demand. **Exhibit 5.7** lists those in descending order based on the number of times that needed skill was identified by the respondents. *The most highly demanded skill, by far, was welding, which was identified four times more often than the next highest skill.* Welding includes all types of welding (e.g., Mig, Tig, alloy, certified pipe).

Exhibit 5.7

DIFFICULT-TO-FIND, HIGH-DEMAND SKILLS—DESCENDING ORDER

High Demand Skills	Identified
Welder	36%
Equipment Operator	9%
Pipefitter	7%
Roofer	6%
Plumber	6%
Electrician	4%
Rigger	4%
Carpenter	4%
HVAC Technician	3%
Ironworker	3%
Millwright	3%
Sheet Metal Worker	3%
Insulator	2%
Other	11%

DETAILED INDIVIDUAL CRAFT RESULTS

Detailed results for each of the 14 crafts covered in this study are shown alphabetically in this section of the report. For each craft there are three areas of focus:

A. Historical Results: 2015 & 2016

B. Projections for 2017

C. Historical Results for Apprentices: 2015 & 2016

In each area of focus, two charts and a table are used to present the findings. Thus, for each craft there are nine presentations of the data, three (two bar charts and a table) for each area of focus listed above.

Additionally, results for all crafts combined are included in the charts and tables so that each craft can be compared to the overall average of all crafts included in this study.

The bar charts with colored segments and the tables in this section show the percent of the sample reporting a shortage, large shortage, surplus and large surplus. The legend below shows the definitions of these four categories.

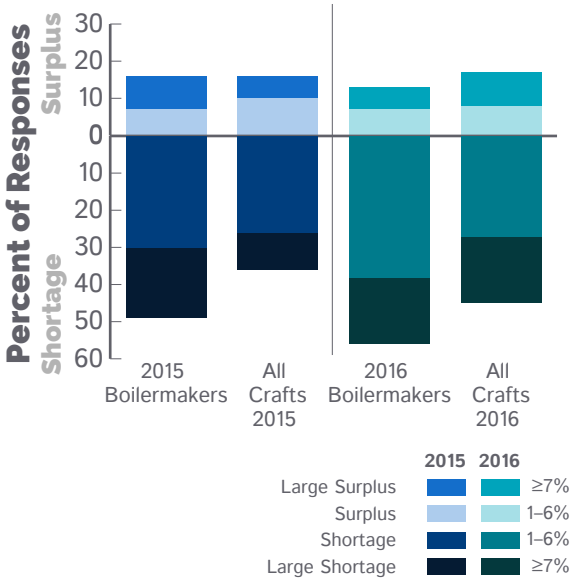
Category	% of Workforce
Large Surplus	≥7% of workforce
Surplus	1–6% of workforce
Shortage	1–6% of workforce
Large Shortage	≥7% of workforce

1. BOILERMAKERS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - BOILERMAKERS

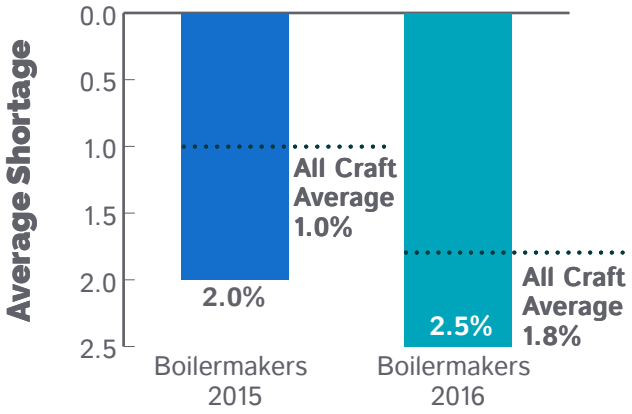


The concern over a shortage of Boilermakers is growing modestly. The percent of the study sample reporting a shortage of Boilermakers increased from 49% in 2015 to 56% in 2016. The percent reporting a surplus decreased during this time from 16% to 13%.

The shortage of Boilermakers was greater than the all-craft average. For 2015, more respondents reported a shortage of Boilermakers (49%) than the average for all crafts combined (36%).

For 2016, more respondents reported a shortage of Boilermakers (56%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - BOILERMAKERS



The degree of the shortage of Boilermakers is increasing. The average shortage was 2.0% in 2015. In 2016 it was 2.5%.

The average of the shortage/surplus ratings for Boilermakers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average shortage for all crafts combined. In 2015 the average shortages were 2.0% Boilermakers vs. 1.0% all crafts. In 2016 the averages were 2.5% Boilermakers vs. 1.8% all crafts.

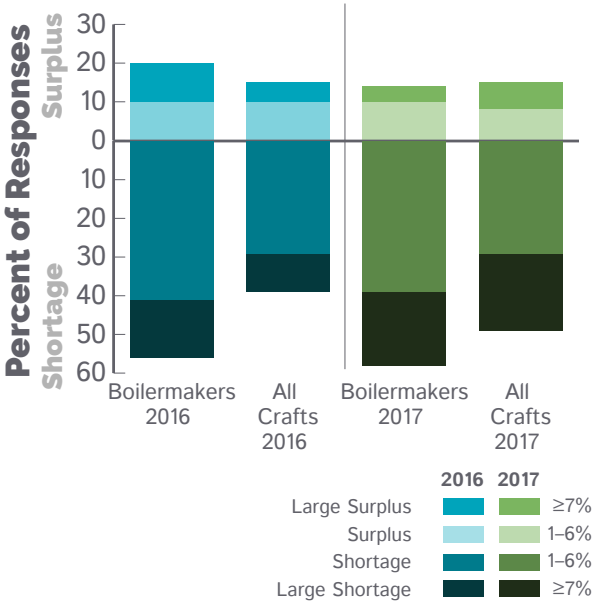
	2015		2016	
	Boilermakers	**All Crafts**	**Boilermakers**	**All Crafts**
Average Shortage	2.0%	1.0%	2.5%	1.8%
Surplus	7%	10%	7%	8%
Large Surplus	9%	6%	6%	9%
Shortage	30%	26%	38%	27%
Large Shortage	19%	10%	18%	18%

1. BOILERMAKERS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - BOILERMAKERS

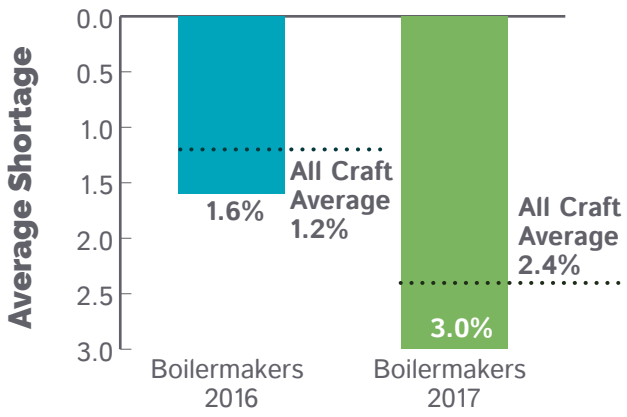


The projections for a shortage of Boilermakers is growing slightly. The percent of the study sample projecting a shortage of Boilermakers increased from 56% for the 2016 study to 58% for 2017. Furthermore, the percent reporting a surplus decreased during this time from 20% to 14%.

The projected shortage of Boilermakers was greater than the all craft average. For 2016, more respondents projected a shortage of Boilermakers (56%) than the average for all crafts combined (39%).

For 2017, more respondents projected a shortage of Boilermakers (58%) than the average for all crafts combined (49%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - BOILERMAKERS



The degree of the projected shortage of Boilermakers is increasing. The average shortage was 1.6% in 2016. In 2017 it was 3.0%.

The average of the shortage/surplus projections for Boilermakers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average shortage for all crafts combined. In 2016 the average shortages were 1.6% Boilermakers vs. 1.2% all crafts. In 2017 the averages were 3.0% Boilermakers vs. 2.4% all crafts.

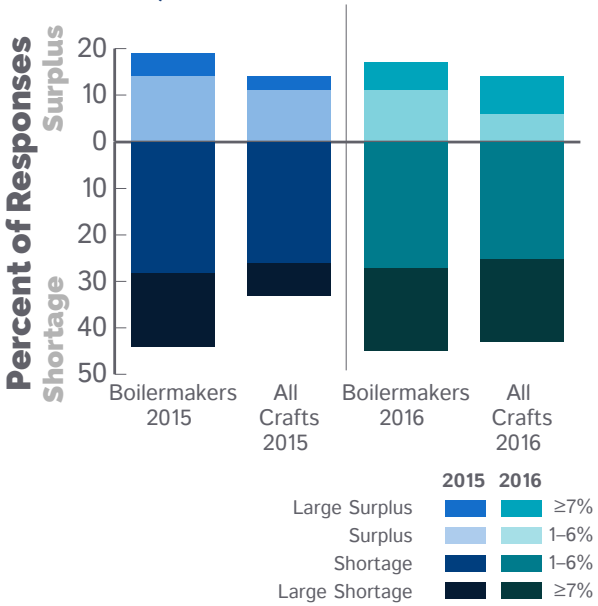
	2016		2017	
	Boilermakers	All Crafts	Boilermakers	All Crafts
Average Shortage	1.6%	1.2%	3.0%	2.4%
Surplus	10%	10%	10%	8%
Large Surplus	10%	5%	4%	7%
Shortage	41%	29%	39%	29%
Large Shortage	15%	10%	19%	20%

1. BOILERMAKERS (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - BOILERMAKERS

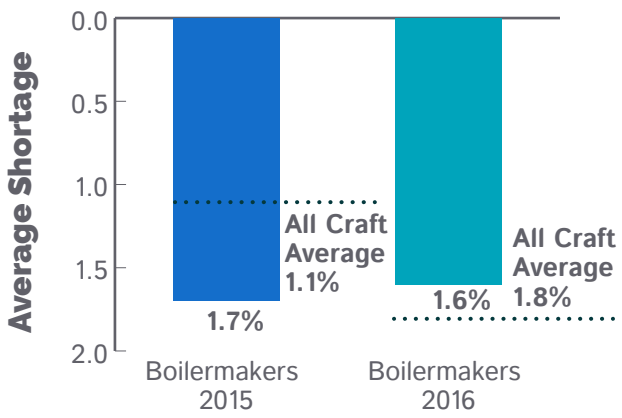


The concern over a shortage of Boilermaker apprentices is growing slightly. The percent of the study sample reporting a shortage of apprentices increased from 44% in 2015 to 45% in 2016. The percent reporting a surplus decreased during this time from 19% to 17%.

The shortage of apprentices was greater than the all craft average. For 2015, more respondents reported a shortage of apprentices (44%) than the average for all crafts combined (33%).

For 2016, more respondents reported a shortage of apprentices (45%) than the average for all crafts combined (43%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - BOILERMAKERS



The degree of the shortage of Boilermaker apprentices is essentially unchanged. The average shortage was 1.7% in 2015. In 2016 it was 1.6%.

The average shortage of Boilermaker apprentices was smaller than the average for all craft apprentices combined in 2016 and larger in 2015. In 2015 the average apprentice shortages were 1.7% Boilermakers vs. 1.1% all crafts. In 2016 the apprentice averages were 1.6% Boilermakers vs. 1.8% all crafts.

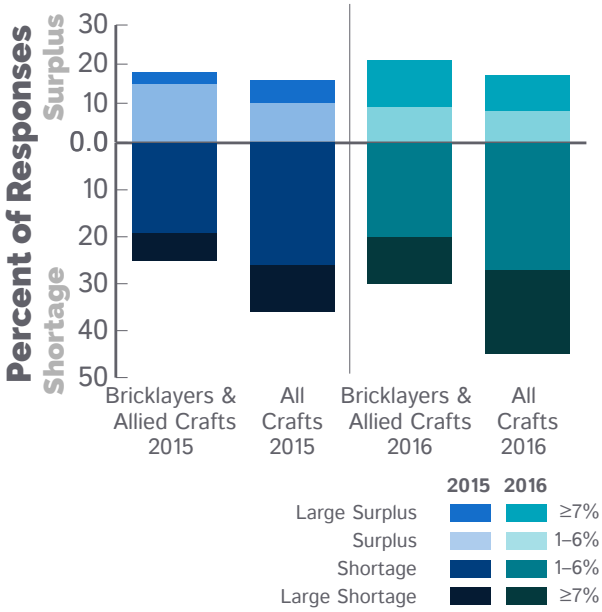
	2015		2016	
	Boilermakers	All Crafts	Boilermakers	All Crafts
Average Shortage	1.7%	1.1%	1.6%	1.8%
Surplus	14%	11%	11%	6%
Large Surplus	5%	3%	6%	8%
Shortage	28%	26%	27%	25%
Large Shortage	16%	7%	18%	18%

2. BRICKLAYERS & ALLIED CRAFTS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - BRICKLAYERS & ALLIED CRAFTS

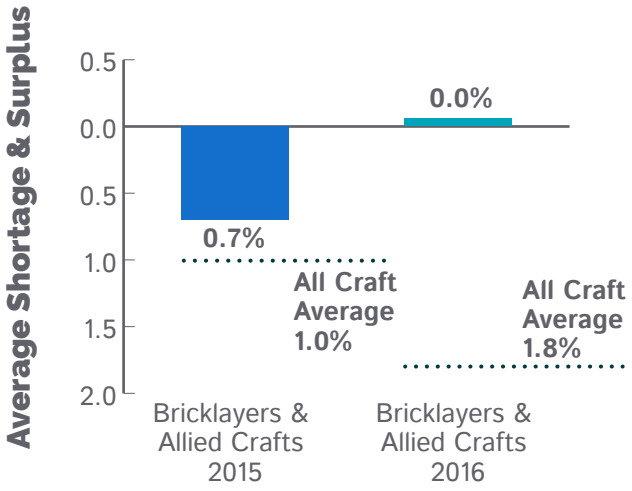


The concern over a shortage of Bricklayers & Allied Crafts is growing modestly. The percent of the study sample reporting a shortage of Bricklayers & Allied Crafts increased from 25% in 2015 to 30% in 2016. However, the percent reporting a surplus also increased during this time from 18% to 21%.

The shortage of Bricklayers & Allied Crafts was smaller than the all craft average. For 2015, fewer respondents reported a shortage of Bricklayers & Allied Crafts (25%) than the average for all crafts combined (36%).

For 2016, fewer respondents reported a shortage of Bricklayers & Allied Crafts (30%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - BRICKLAYERS & ALLIED CRAFTS



The degree of the shortage of Bricklayers & Allied Crafts is declining. The average shortage was 0.7% in 2015. In 2016 it was 0.0%.

The average of the shortage/surplus ratings for Bricklayers & Allied Crafts resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was less than the average shortage for all crafts combined for 2015 and an average appropriate sized workforce in 2016. In 2015 the average shortages were 0.7% Bricklayers & Allied Crafts vs. 1.0% all crafts. In 2016 the averages were 0.0% Bricklayers & Allied Crafts vs. 1.8% all crafts.

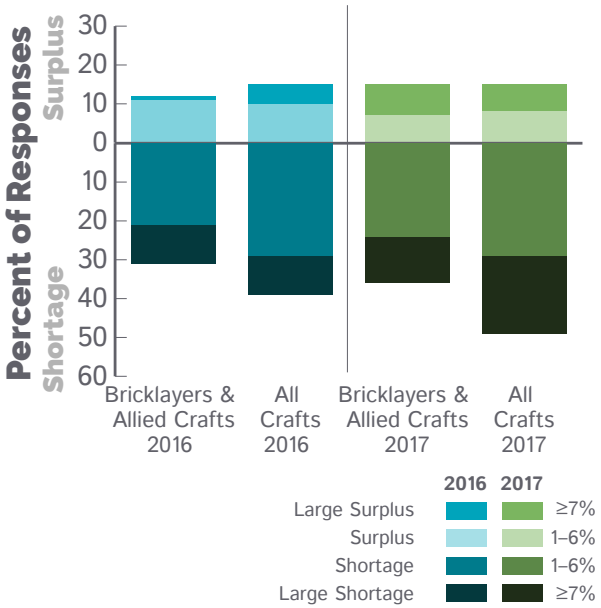
	2015		2016	
	Bricklayers & Allied Crafts	All Crafts	Bricklayers & Allied Crafts	All Crafts
Average Shortage	0.7%	1.0%	0.0%	1.8%
Surplus	15%	10%	9%	8%
Large Surplus	3%	6%	12%	9%
Shortage	19%	26%	20%	27%
Large Shortage	6%	10%	10%	18%

2. BRICKLAYERS & ALLIED CRAFTS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - BRICKLAYERS & ALLIED CRAFTS

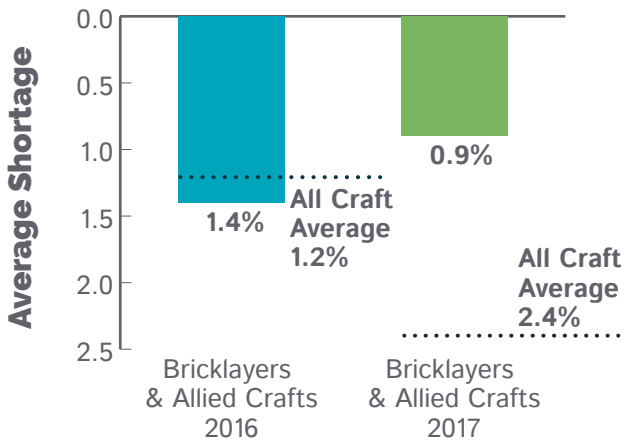


The projections for a shortage of Bricklayers & Allied Crafts is growing. The percent of the study sample projecting a shortage of Bricklayers & Allied Crafts increased from 31% for the 2016 study to 36% for 2017. However, the percent projecting a surplus also increased during this time from 12% to 15%.

The projected shortage of Bricklayers & Allied Crafts was slightly less than the all craft average. For 2016, fewer respondents projected a shortage of Bricklayers & Allied Crafts (31%) than the average for all crafts combined (39%).

For 2017, fewer respondents projected a shortage of Bricklayers & Allied Crafts (36%) than the average for all crafts combined (49%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - BRICKLAYERS & ALLIED CRAFTS



The degree of the projected shortage of Bricklayers & Allied Crafts is declining. The average shortage was 1.4% in 2016. In 2017 it was 0.9%.

The average of the shortage/surplus ratings for Bricklayers & Allied Crafts resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was less than the average shortage for all crafts combined in 2017 and slightly greater in 2016. In 2016 the average shortages were 1.4% Bricklayers & Allied Crafts vs. 1.2% all crafts. In 2017 the averages were 0.9% Bricklayers & Allied Crafts vs. 2.4% all crafts.

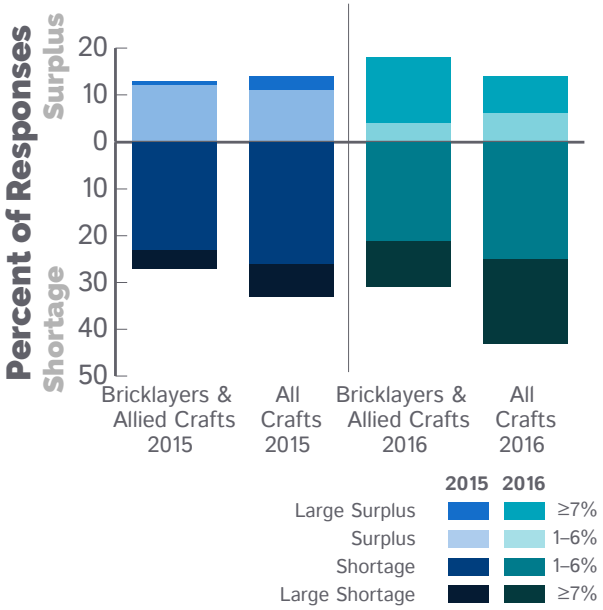
	2016		2017	
	Bricklayers & Allied Crafts	All Crafts	Bricklayers & Allied Crafts	All Crafts
Average Shortage	1.4%	1.2%	0.9%	2.4%
Surplus	11%	10%	7%	8%
Large Surplus	1%	5%	8%	7%
Shortage	21%	29%	24%	29%
Large Shortage	10%	10%	12%	20%

2. BRICKLAYERS & ALLIED CRAFTS (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - BRICKLAYERS & ALLIED CRAFTS

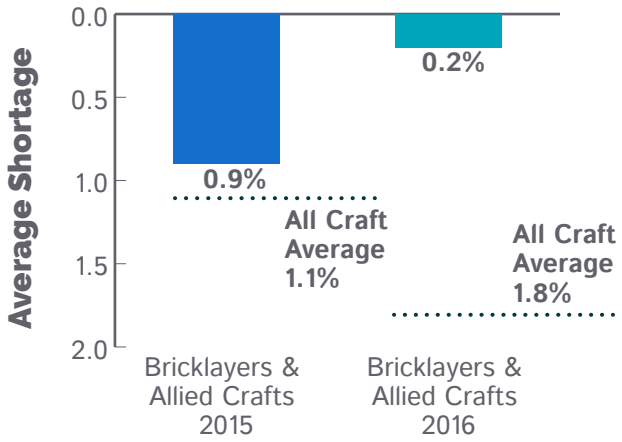


The concern over a shortage of Bricklayer & Allied Craft apprentices is growing slightly. The percent of the study sample reporting a shortage of apprentices increased from 27% in 2015 to 31% in 2016. However, the percent reporting a surplus also increased during this time from 13% to 18%.

The shortage of apprentices was smaller than the all craft average. For 2015, fewer respondents reported a shortage of apprentices (27%) than the average for all crafts combined (33%).

For 2016, fewer respondents reported a shortage of apprentices (31%) than the average for all crafts combined (43%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - BRICKLAYERS & ALLIED CRAFTS



The degree of the shortage of Bricklayer & Allied Craft apprentices is declining. The average shortage was 0.9% in 2015. In 2016 it was 0.2%.

The average of the shortage/surplus ratings for Bricklayer & Allied Craft apprentices resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was less than the average apprentice shortage for all crafts combined. In 2015 the average apprentice shortages were 0.9% Bricklayers & Allied Crafts vs. 1.1% all crafts. In 2016 the apprentice averages were 0.2% Bricklayers & Allied Crafts vs. 1.8% all crafts.

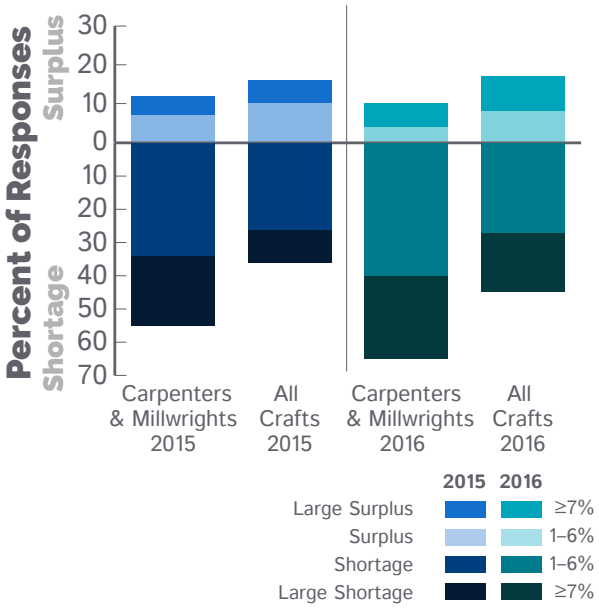
	2015		2016	
	Bricklayers & Allied Crafts	All Crafts	Bricklayers & Allied Crafts	All Crafts
Average Shortage	0.9%	1.1%	0.2%	1.8%
Surplus	12%	11%	4%	6%
Large Surplus	1%	3%	14%	8%
Shortage	23%	26%	21%	25%
Large Shortage	4%	7%	10%	18%

3. CARPENTERS & MILLWRIGHTS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - CARPENTERS & MILLWRIGHTS

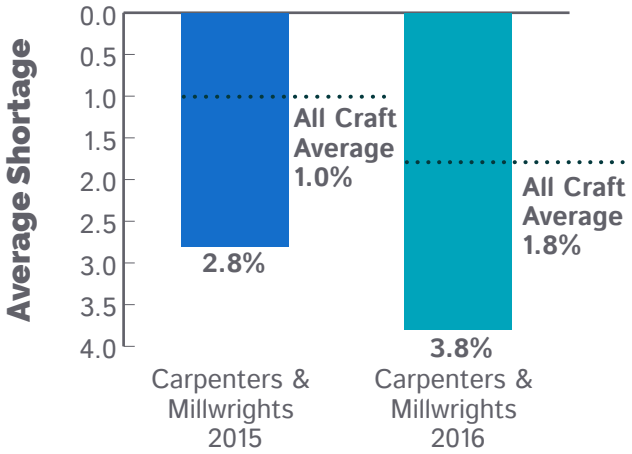


The concern over a shortage of Carpenters & Millwrights is growing. The percent of the study sample reporting a shortage of Carpenters & Millwrights increased from 55% in 2015 to 65% in 2016. The percent reporting a surplus declined during this time from 12% to 10%.

The shortage of Carpenters & Millwrights was much larger than the all craft average. For 2015, more respondents reported a shortage of Carpenters & Millwrights (55%) than the average for all crafts combined (36%).

For 2016, more respondents reported a shortage of Carpenters & Millwrights (65%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - CARPENTERS & MILLWRIGHTS



The degree of the shortage of Carpenters & Millwrights is increasing. The average shortage was 2.8% in 2015. In 2016 it was 3.8%.

The average of the shortage/surplus ratings for Carpenters & Millwrights resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was more than the average shortage for all crafts combined. In 2015 the average shortages were 2.8% Carpenters & Millwrights vs. 1.0% all crafts. In 2016 the averages were 3.8% Carpenters & Millwrights vs. 1.8% all crafts.

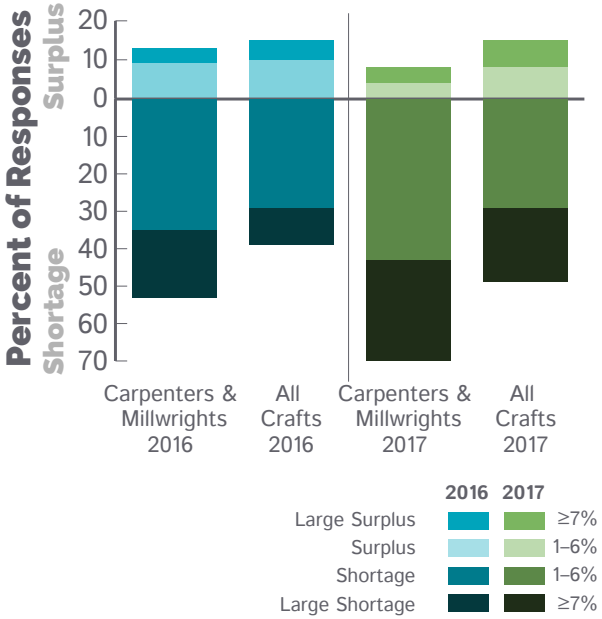
	2015		2016	
	Carpenters & Millwrights	All Crafts	Carpenters & Millwrights	All Crafts
Average Shortage	2.8%	1.0%	3.8%	1.8%
Surplus	7%	10%	4%	8%
Large Surplus	5%	6%	6%	9%
Shortage	34%	26%	40%	27%
Large Shortage	21%	10%	25%	18%

3. CARPENTERS & MILLWRIGHTS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - CARPENTERS & MILLWRIGHTS

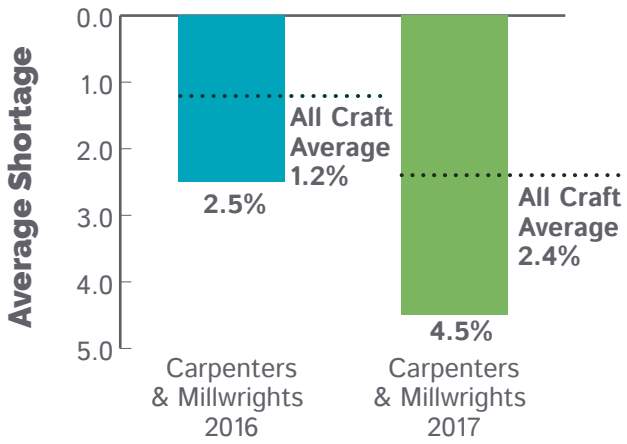


The projections for a shortage of Carpenters & Millwrights is growing. The percent of the study sample projecting a shortage of Carpenters & Millwrights increased from 53% for the 2016 study to 70% for 2017. The percent projecting a surplus declined during this time from 13% to 8%.

The projected shortage of Carpenters & Millwrights was much greater than the all craft average. For 2016, more respondents projected a shortage of Carpenters & Millwrights (53%) than the average for all crafts combined (39%).

For 2017, more respondents projected a shortage of Carpenters & Millwrights (70%) than the average for all crafts combined (49%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - CARPENTERS & MILLWRIGHTS



The degree of the projected shortage of Carpenters & Millwrights is increasing. The average shortage was 2.5% in 2016. In 2017 it was 4.5%.

The average of the shortage/surplus ratings for Carpenters & Millwrights resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was greater than the average shortage for all crafts combined. In 2016 the average shortages were 2.5% Carpenters & Millwrights vs. 1.2% all crafts. In 2017 the averages were 4.5% Carpenters & Millwrights vs. 2.4% all crafts.

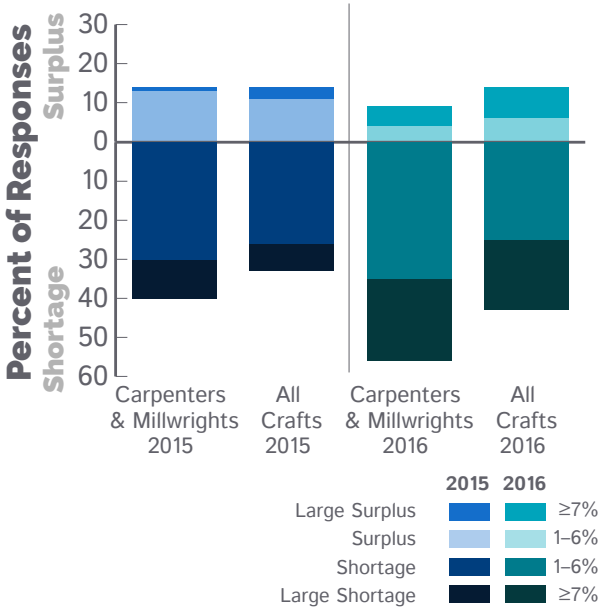
	2016		2017	
	Carpenters & Millwrights	All Crafts	Carpenters & Millwrights	All Crafts
Average Shortage	2.5%	1.2%	4.5%	2.4%
Surplus	9%	10%	4%	8%
Large Surplus	4%	5%	4%	7%
Shortage	35%	29%	43%	29%
Large Shortage	18%	10%	27%	20%

3. CARPENTERS & MILLWRIGHTS (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - CARPENTERS & MILLWRIGHTS

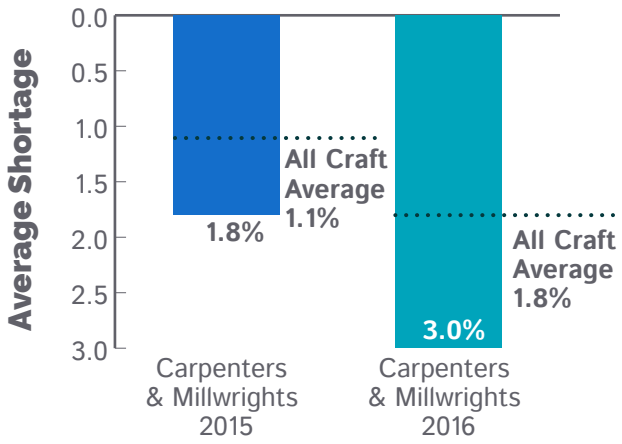


The concern over a shortage of Carpenter & Millwright apprentices is growing. The percent of the study sample reporting a shortage of apprentices increased from 40% in 2015 to 56% in 2016. The percent reporting a surplus declined during this time from 14% to 9%.

The shortage of apprentices was larger than the all craft average. For 2015, more respondents reported a shortage of apprentices (40%) than the average for all crafts combined (33%).

For 2016, more respondents reported a shortage of apprentices (56%) than the average for all crafts combined (43%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - CARPENTERS & MILLWRIGHTS



The degree of the shortage of Carpenter & Millwright apprentices is increasing. The average shortage was 1.8% in 2015. In 2016 it was 3.0%.

The average of the shortage/surplus ratings for Carpenter & Millwright apprentices resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average apprentice shortage for all crafts combined. In 2015 the average apprentice shortages were 1.8% Carpenters & Millwrights vs. 1.1% all crafts. In 2016 the apprentice averages were 3.0% Carpenters & Millwrights vs. 1.8% all crafts.

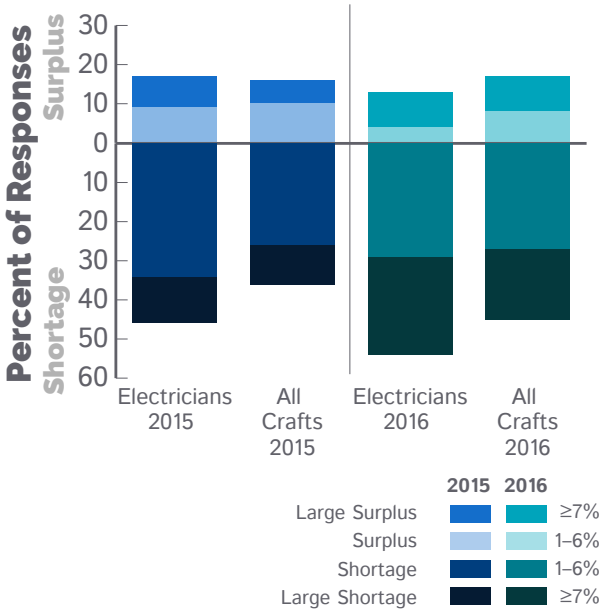
	2015		2016	
	Carpenters & Millwrights	All Crafts	Carpenters & Millwrights	All Crafts
Average Shortage	1.8%	1.1%	3.0%	1.8%
Surplus	13%	11%	4%	6%
Large Surplus	1%	3%	5%	8%
Shortage	30%	26%	35%	25%
Large Shortage	10%	7%	21%	18%

4. ELECTRICIANS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - ELECTRICIANS

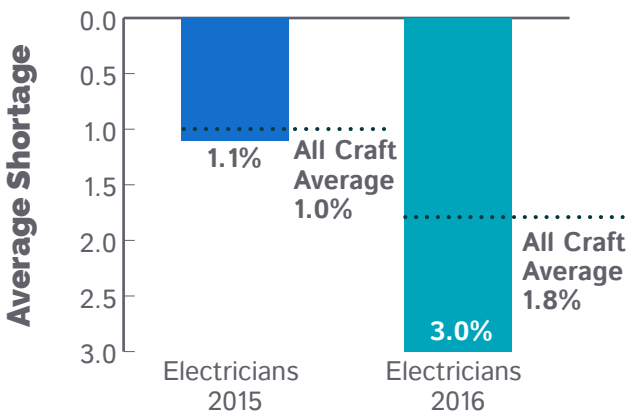


The concern over a shortage of Electricians is growing. The percent of the study sample reporting a shortage of Electricians increased from 46% in 2015 to 54% in 2016. The percent reporting a surplus decreased during this time from 17% to 13%.

The shortage of Electricians was greater than the all craft average. For 2015, more respondents reported a shortage of Electricians (46%) than the average for all crafts combined (36%).

For 2016, more respondents reported a shortage of Electricians (54%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - ELECTRICIANS



The degree of the shortage of Electricians is increasing. The average shortage was 1.1% in 2015. In 2016 it was 3.0%.

The average of the shortage/surplus ratings for Electricians resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average shortage for all crafts combined. In 2015 the average shortages were 1.1% Electricians vs. 1.0% all crafts. In 2016 the averages were 3.0% Electricians vs. 1.8% all crafts.

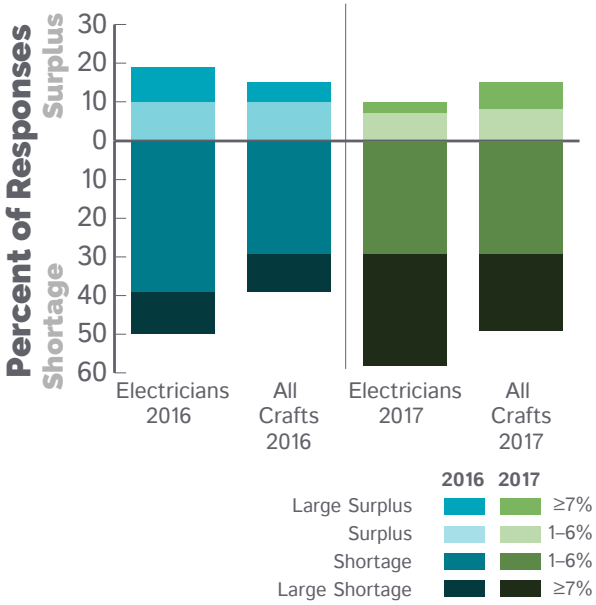
	2015		2016	
	Electricians	All Crafts	Electricians	All Crafts
Average Shortage	1.1%	1.0%	3.0%	1.8%
Surplus	9%	10%	4%	8%
Large Surplus	8%	6%	9%	9%
Shortage	34%	26%	29%	27%
Large Shortage	12%	10%	25%	18%

4. ELECTRICIANS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - ELECTRICIANS



The projections for a shortage of Electricians is growing. The percent of the study sample projecting a shortage of Electricians increased from 50% for the 2016 study to 58% for 2017. Furthermore, the percent reporting a surplus decreased during this time from 19% to 10%.

The projected shortage of Electricians was greater than the all craft average. For 2016, more respondents projected a shortage of Electricians (50%) than the average for all crafts combined (39%).

For 2017, more respondents projected a shortage of Electricians (58%) than the average for all crafts combined (49%).

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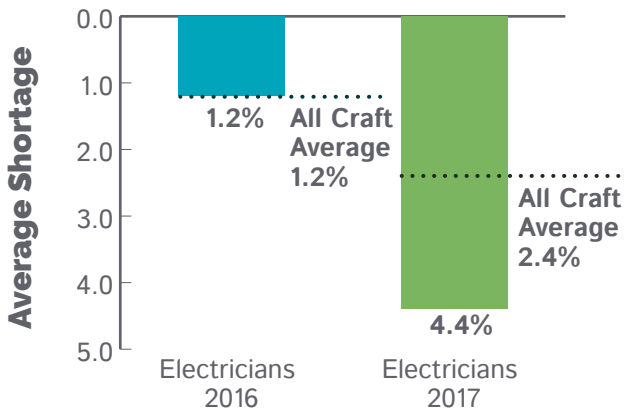
AVERAGE SHORTAGE/SURPLUS PROJECTIONS - ELECTRICIANS



The degree of the projected shortage of Electricians is increasing. The average shortage was 1.2% in 2016. In 2017 it was 4.4%.

The average of the shortage/surplus ratings for Electricians resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average shortage for all crafts combined. In 2016 the average shortages were 1.2% Electricians vs. 1.2% all crafts. In 2017 the averages were 4.4% Electricians vs. 2.4% all crafts.

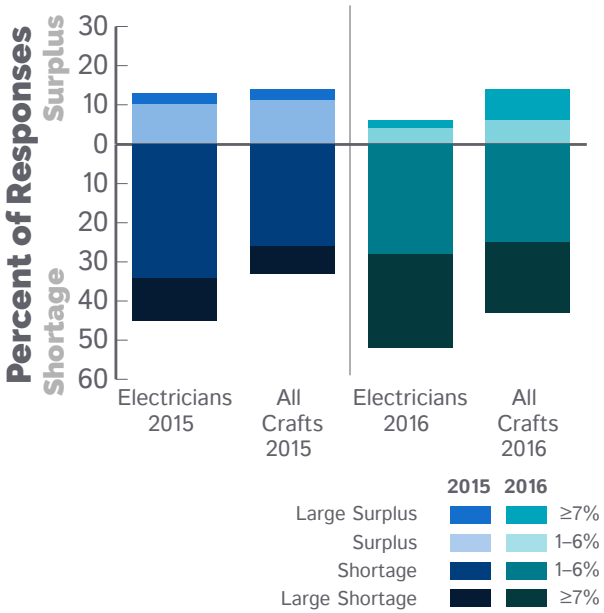
	2016		2017	
	Electricians	All Crafts	Electricians	All Crafts
Average Shortage	1.2%	1.2%	4.4%	2.4%
Surplus	10%	10%	7%	8%
Large Surplus	9%	5%	3%	7%
Shortage	39%	29%	29%	29%
Large Shortage	11%	10%	29%	20%

4. ELECTRICIANS (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - ELECTRICIANS

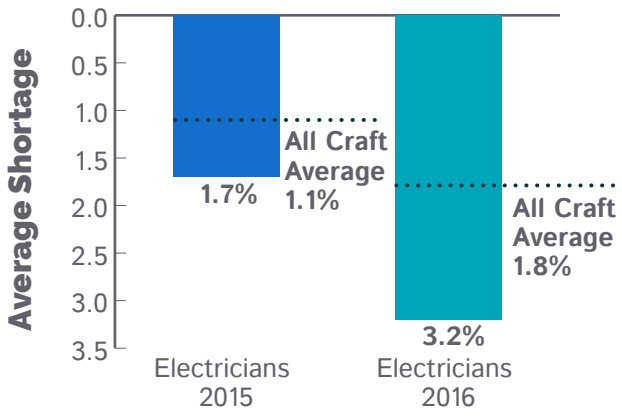


The concern over a shortage of Electrician apprentices is growing. The percent of the study sample reporting a shortage of apprentices increased from 45% in 2015 to 52% in 2016. The percent reporting a surplus decreased during this time from 13% to 6%.

The shortage of apprentices was greater than the all craft average. For 2015, more respondents reported a shortage of apprentices (45%) than the average for all crafts combined (33%).

For 2016, more respondents reported a shortage of apprentices (52%) than the average for all crafts combined (43%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - ELECTRICIANS



The degree of the shortage of Electrician apprentices is increasing. The average shortage was 1.7% in 2015. In 2016 it was 3.2%.

The average of the shortage/surplus apprentice ratings for Electricians resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average apprentice shortage for all crafts combined. In 2015 the average apprentice shortages were 1.7% Electricians vs. 1.1% all crafts. In 2016 the apprentice averages were 3.2% Electricians vs. 1.8% all crafts.

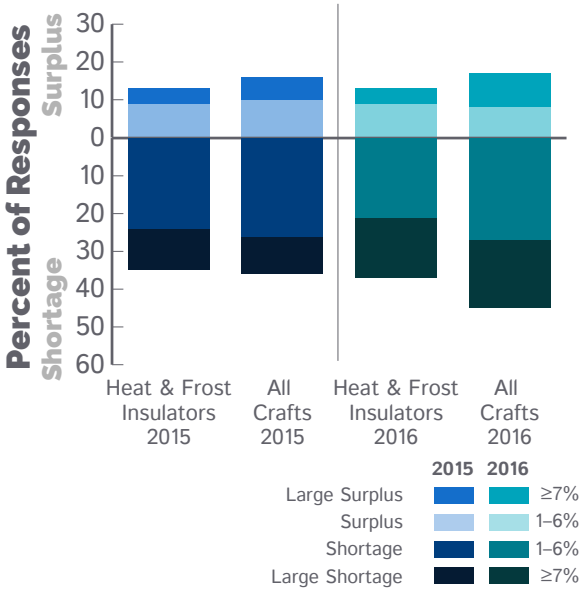
	2015		2016	
	Electricians	All Crafts	Electricians	All Crafts
Average Shortage	1.7%	1.1%	3.2%	1.8%
Surplus	10%	11%	4%	6%
Large Surplus	3%	3%	2%	8%
Shortage	34%	26%	28%	25%
Large Shortage	11%	7%	24%	18%

5. HEAT & FROST INSULATORS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - HEAT & FROST INSULATORS

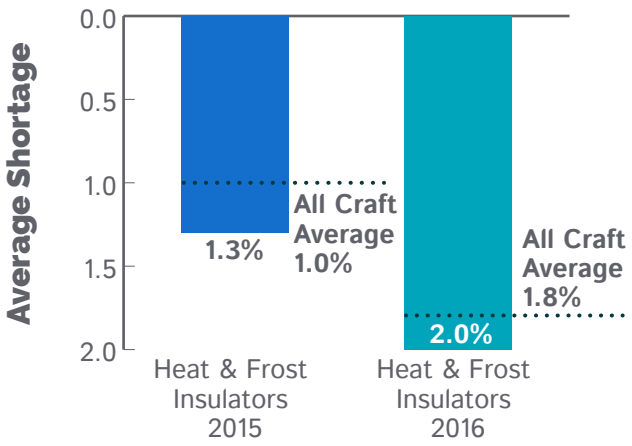


The concern over a shortage of Heat & Frost Insulators is growing slightly. The percent of the study sample reporting a shortage of Heat & Frost Insulators increased from 35% in 2015 to 37% in 2016. The percent reporting a surplus stayed the same during this time at 13%.

The shortage of Heat & Frost Insulators was smaller than the all craft average. For 2015, fewer respondents reported a shortage of Heat & Frost Insulators (35%) than the average for all crafts combined (36%).

For 2016, fewer respondents reported a shortage of Heat & Frost Insulators (37%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - HEAT & FROST INSULATORS



The degree of the shortage of Heat & Frost Insulators is increasing. The average shortage was 1.3% in 2015. In 2016 it was 2.0%.

The average of the shortage/surplus ratings for Heat & Frost Insulators resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average shortage for all crafts combined. In 2015 the average shortages were 1.3% Heat & Frost Insulators vs. 1.0% all crafts. In 2016 the averages were 2.0% Heat & Frost Insulators vs. 1.8% all crafts.

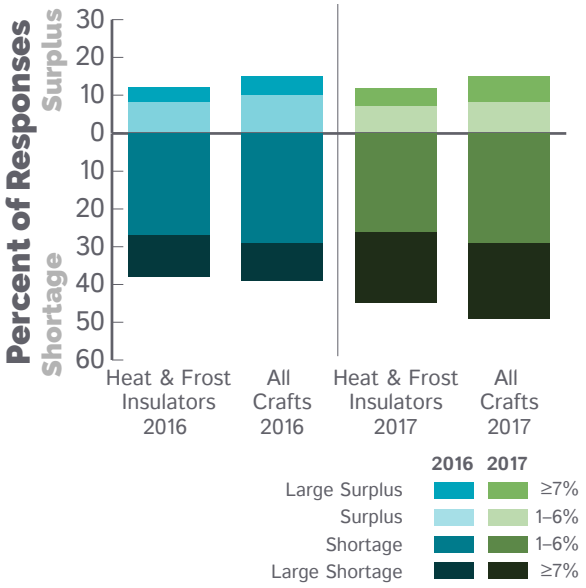
	2015		2016	
	Heat & Frost Insulators	All Crafts	Heat & Frost Insulators	All Crafts
Average Shortage	1.3%	1.0%	2.0%	1.8%
Surplus	9%	10%	9%	8%
Large Surplus	4%	6%	4%	9%
Shortage	24%	26%	21%	27%
Large Shortage	11%	10%	16%	18%

5. HEAT & FROST INSULATORS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - HEAT & FROST INSULATORS

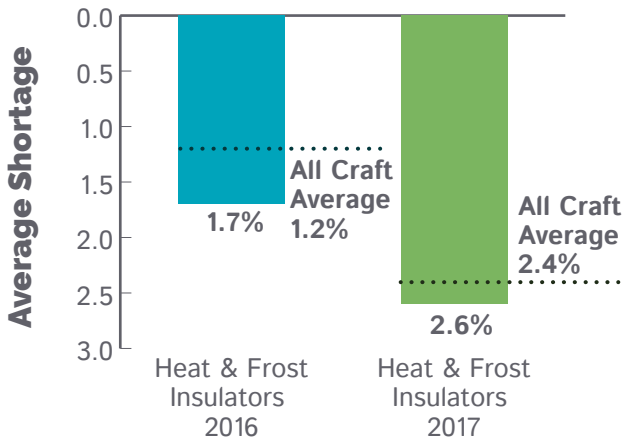


The projections for a shortage of Heat & Frost Insulators is growing modestly. The percent of the study sample projecting a shortage of Heat & Frost Insulators increased from 38% for the 2016 study to 45% for 2017. The percent projecting a surplus remained the same during this time at 12%.

The projected shortage of Heat & Frost Insulators was slightly less than the all craft average. For 2016, fewer respondents projected a shortage of Heat & Frost Insulators (38%) than the average for all crafts combined (39%).

For 2017, fewer respondents projected a shortage of Heat & Frost Insulators (45%) than the average for all crafts combined (49%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - HEAT & FROST INSULATORS



The degree of the projected shortage of Heat & Frost Insulators is increasing. The average shortage was 1.7% in 2016. In 2017 it was 2.6%.

The average of the shortage/surplus ratings for Heat & Frost Insulators resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average shortage for all crafts combined. In 2016 the average shortages were 1.7% Heat & Frost Insulators vs. 1.2% all crafts. In 2017 the averages were 2.6% Heat & Frost Insulators vs. 2.4% all crafts.

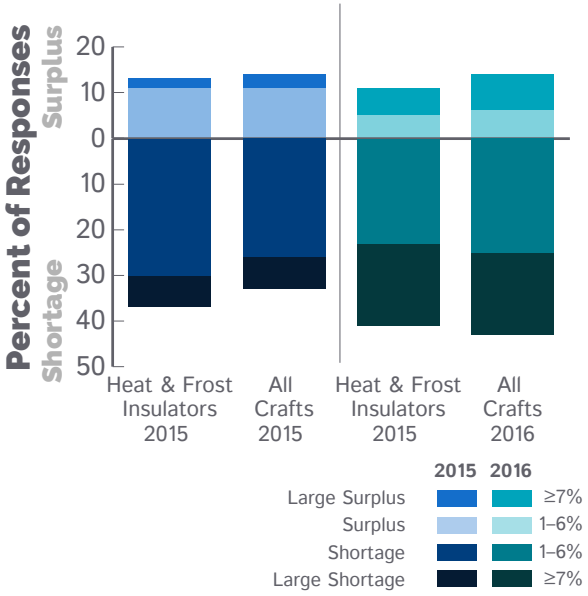
	2016		2017	
	Heat & Frost Insulators	All Crafts	Heat & Frost Insulators	All Crafts
Average Shortage	1.7%	1.2%	2.6%	2.4%
Surplus	8%	10%	7%	8%
Large Surplus	4%	5%	5%	7%
Shortage	27%	29%	26%	29%
Large Shortage	11%	10%	19%	20%

5. HEAT & FROST INSULATORS (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - HEAT & FROST INSULATORS

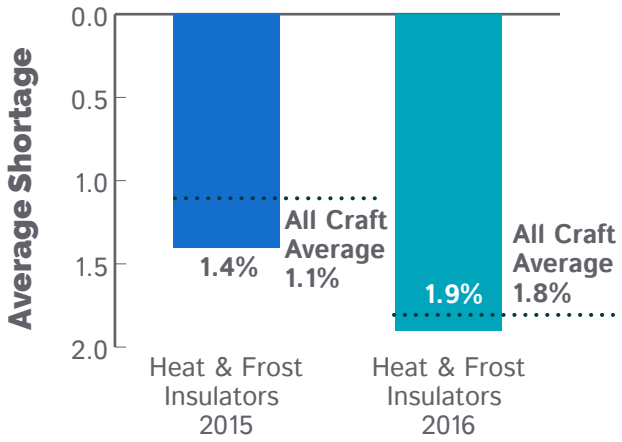


The concern over a shortage of Heat & Frost Insulator apprentices is growing slightly. The percent of the study sample reporting a shortage of apprentices increased from 37% in 2015 to 41% in 2016. The percent reporting a surplus decreased during this time from 13% to 11%.

The shortage of apprentices was greater than the all craft average in 2015 and less in 2016.

For 2016, slightly fewer respondents reported a shortage of apprentices (41%) than the average for all crafts combined (43%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - HEAT & FROST INSULATORS



The degree of the shortage of Heat & Frost Insulator apprentices is increasing. The average shortage was 1.4% in 2015. In 2016 it was 1.9%.

The average of the shortage/surplus apprentice ratings for Heat & Frost Insulators resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average apprentice shortage for all crafts combined. In 2015 the average apprentice shortages were 1.4% Heat & Frost Insulators vs. 1.1% all crafts. In 2016 the apprentice averages were 1.9% Heat & Frost Insulators vs. 1.8% all crafts.

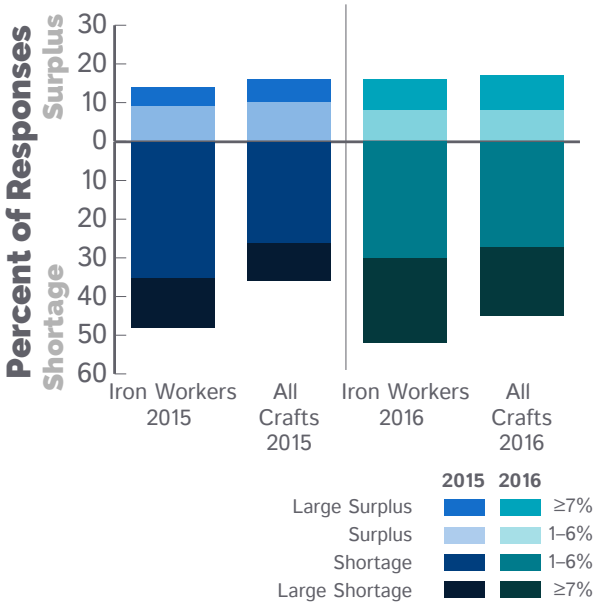
	2015		2016	
	Heat & Frost Insulators	All Crafts	Heat & Frost Insulators	All Crafts
Average Shortage	1.4%	1.1%	1.9%	1.8%
Surplus	11%	11%	5%	6%
Large Surplus	2%	3%	6%	8%
Shortage	30%	26%	23%	25%
Large Shortage	7%	7%	18%	18%

6. IRON WORKERS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - IRON WORKERS

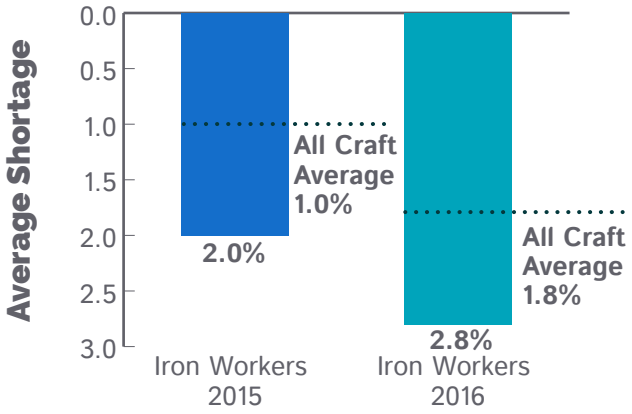


The concern over a shortage of Iron Workers is growing slightly. The percent of the study sample reporting a shortage of Iron Workers increased from 48% in 2015 to 52% in 2016. However, the percent reporting a surplus also increased during this time from 14% to 16%.

The shortage of Iron Workers was greater than the all craft average. For 2015, more respondents reported a shortage of Iron Workers (48%) than the average for all crafts combined (36%).

For 2016, more respondents reported a shortage of Iron Workers (52%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - IRON WORKERS



The degree of the shortage of Iron Workers is increasing. The average shortage was 2.0% in 2015. In 2016 it was 2.8%.

The average of the shortage/surplus ratings for Iron Workers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average shortage for all crafts combined. In 2015 the average shortages were 2.0% Iron Workers vs. 1.0% all crafts. In 2016 the averages were 2.8% Iron Workers vs. 1.8% all crafts.

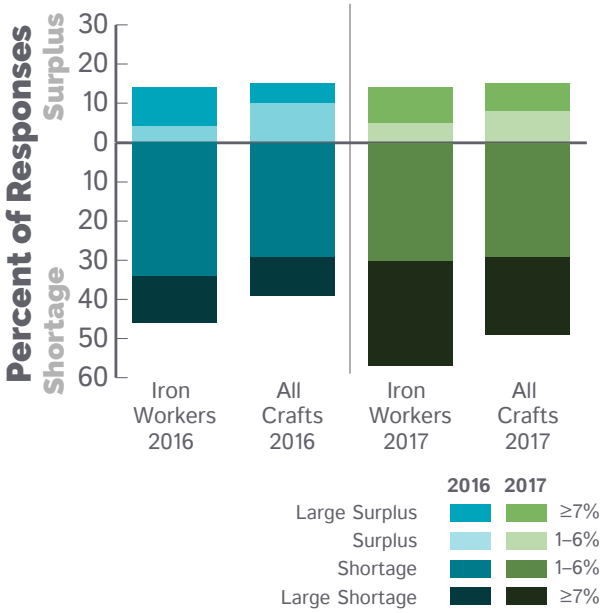
	2015		2016	
	Iron Workers	All Crafts	Iron Workers	All Crafts
Average Shortage	2.0%	1.0%	2.8%	1.8%
Surplus	9%	10%	8%	8%
Large Surplus	5%	6%	8%	9%
Shortage	35%	26%	30%	27%
Large Shortage	13%	10%	22%	18%

6. IRON WORKERS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - IRON WORKERS

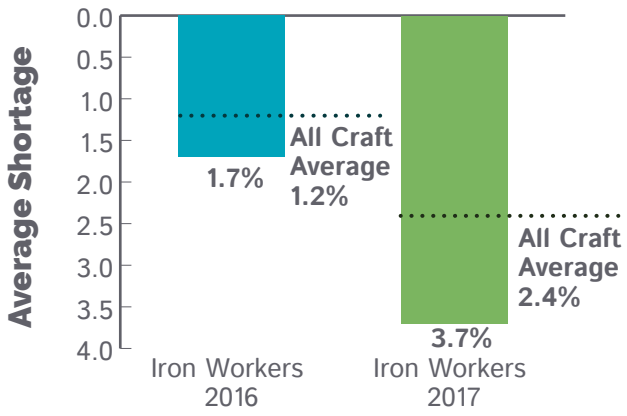


The projections for a shortage of Iron Workers is growing modestly. The percent of the study sample projecting a shortage of Iron Workers increased from 46% for the 2016 study to 57% for 2017. The percent projecting a surplus remained the same during this time at 14%.

The projected shortage of Iron Workers was modestly greater than the all craft average. For 2016, more respondents projected a shortage of Iron Workers (46%) than the average for all crafts combined (39%).

For 2017, more respondents projected a shortage of Iron Workers (57%) than the average for all crafts combined (49%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - IRON WORKERS



The degree of the projected shortage of Iron Workers is increasing. The average shortage was 1.7% in 2016. In 2017 it was 3.7%.

The average of the shortage/surplus ratings for Iron Workers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average shortage for all crafts combined. In 2016 the average shortages were 1.7% Iron Workers vs. 1.2% all crafts. In 2017 the averages were 3.7% Iron Workers vs. 2.4% all crafts.

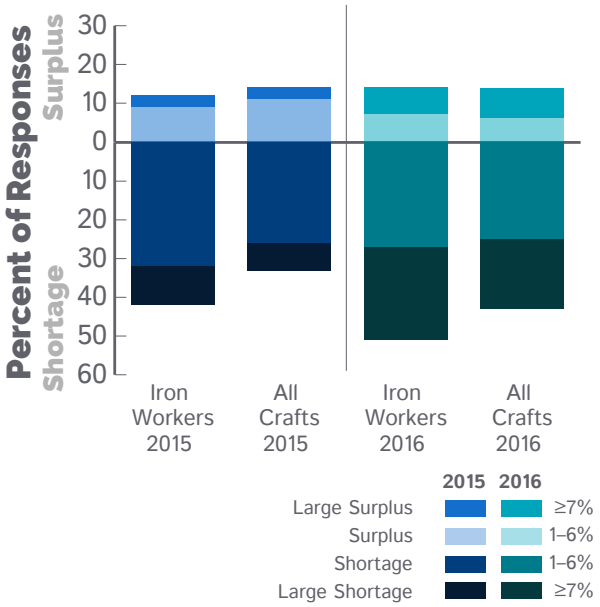
	2016		2017	
	Iron Workers	All Crafts	Iron Workers	All Crafts
Average Shortage	1.7%	1.2%	3.7%	2.4%
Surplus	10%	10%	9%	8%
Large Surplus	4%	5%	5%	7%
Shortage	34%	29%	30%	29%
Large Shortage	12%	10%	27%	20%

6. IRON WORKERS (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - IRON WORKERS

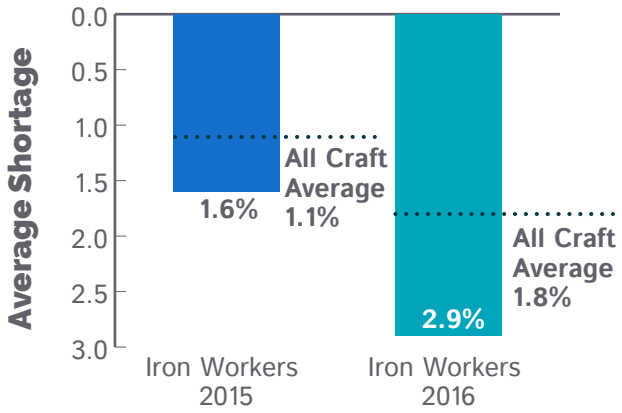


The concern over a shortage of Iron Worker apprentices is growing. The percent of the study sample reporting a shortage of apprentices increased from 42% in 2015 to 51% in 2016. However, the percent reporting a surplus also increased slightly during this time from 12% to 14%.

The shortage of apprentices was greater than the all craft average. For 2015, more respondents reported a shortage of apprentices (42%) than the average for all crafts combined (33%).

For 2016, more respondents reported a shortage of apprentices (51%) than the average for all crafts combined (43%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - IRON WORKERS



The degree of the shortage of Iron Worker apprentices is increasing. The average shortage was 1.6% in 2015. In 2016 it was 2.9%.

The average of the shortage/surplus apprentice ratings for Iron Workers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average apprentice shortage for all crafts combined. In 2015 the average apprentice shortages were 1.6% Iron Workers vs. 1.1% all crafts. In 2016 the apprentice averages were 2.9% Iron Workers vs. 1.8% all crafts.

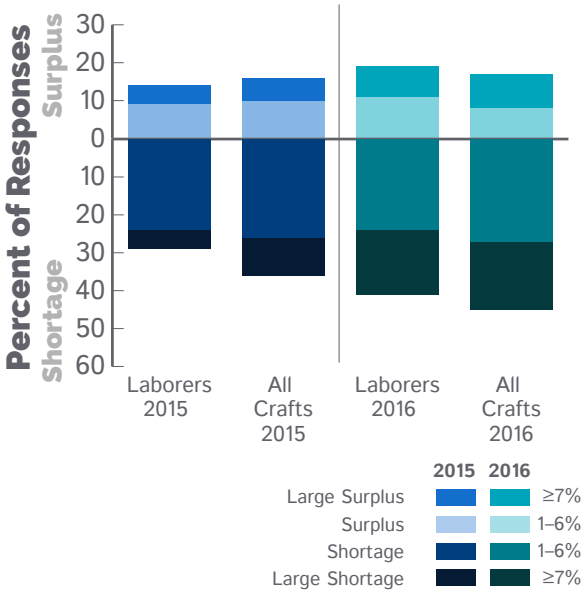
	2015		2016	
	Iron Workers	All Crafts	Iron Workers	All Crafts
Average Shortage	1.6%	1.1%	2.9%	1.8%
Surplus	9%	11%	7%	6%
Large Surplus	3%	3%	7%	8%
Shortage	32%	26%	27%	25%
Large Shortage	10%	7%	24%	18%

7. LABORERS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - LABORERS

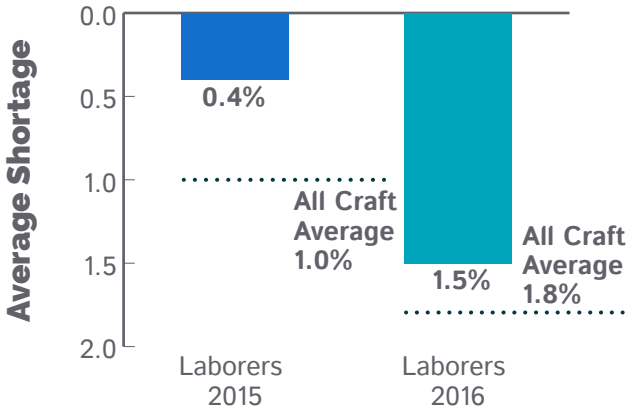


The concern over a shortage of Laborers is growing. The percent of the study sample reporting a shortage of Laborers increased from 29% in 2015 to 41% in 2016. However, the percent reporting a surplus also increased during this time from 14% to 19%.

The shortage of Laborers was smaller than the all craft average. For 2015, fewer respondents reported a shortage of Laborers (29%) than the average for all crafts combined (36%).

For 2016, fewer respondents reported a shortage of Laborers (41%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - LABORERS



The degree of the shortage of Laborers is increasing. The average shortage was 0.4% in 2015. In 2016 it was 1.5%.

The average of the shortage/surplus ratings for Laborers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was less than the average shortage for all crafts combined. In 2015 the average shortages were 0.4% Laborers vs. 1.0% all crafts. In 2016 the averages were 1.5% Laborers vs. 1.8% all crafts.

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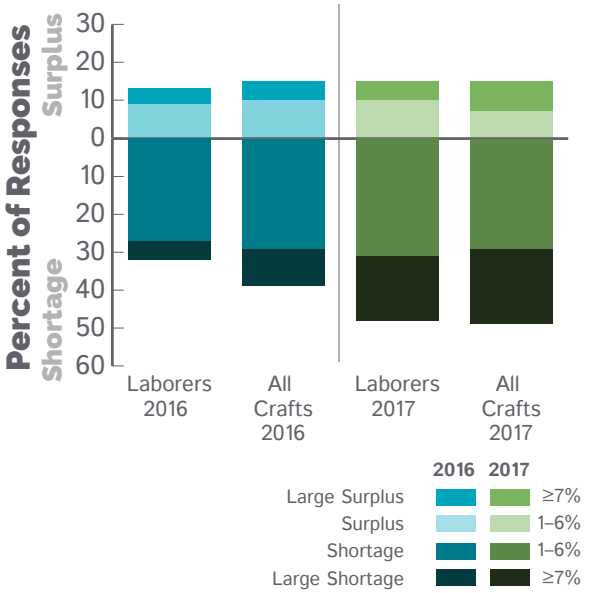
	2015		2016	
	Laborers	All Crafts	Laborers	All Crafts
Average Shortage	0.4%	1.0%	1.5%	1.8%
Surplus	9%	10%	11%	8%
Large Surplus	5%	6%	8%	9%
Shortage	24%	26%	24%	27%
Large Shortage	5%	10%	17%	18%

7. LABORERS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - LABORERS

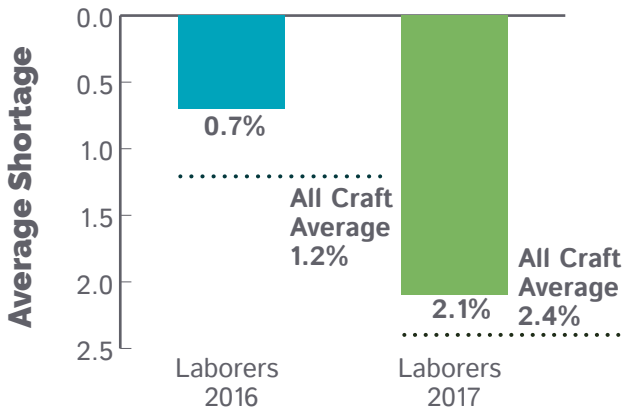


The projections for a shortage of Laborers is growing. The percent of the study sample projecting a shortage of Laborers increased from 32% for the 2016 study to 48% for 2017. However, the percent projecting a surplus also increased during this time from 13% to 15%.

The projected shortage of Laborers was slightly less than the all craft average. For 2016, fewer respondents projected a shortage of Laborers (32%) than the average for all crafts combined (39%).

For 2017, fewer respondents projected a shortage of Laborers (48%) than the average for all crafts combined (49%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - LABORERS



The degree of the projected shortage of Laborers is increasing. The average shortage was 0.7% in 2016. In 2017 it was 2.1%.

The average of the shortage/surplus ratings for Laborers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was less than the average shortage for all crafts combined. In 2016 the average shortages were 0.7% Laborers vs. 1.2% all crafts. In 2017 the averages were 2.1% Laborers vs. 2.4% all crafts.

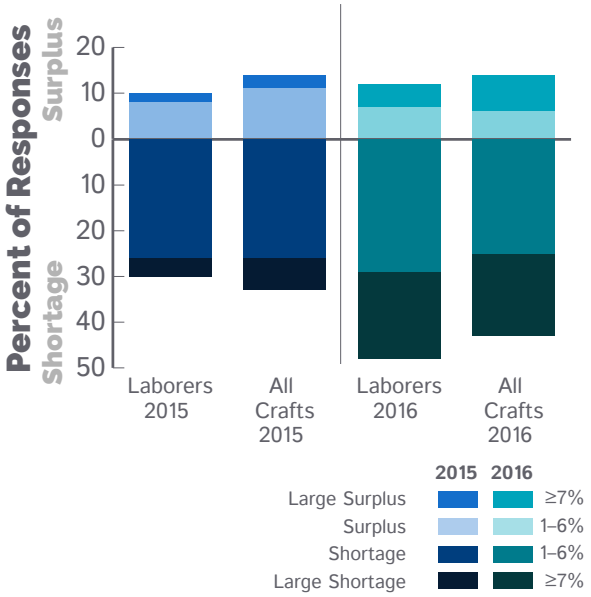
	2016		2017	
	Laborers	All Crafts	Laborers	All Crafts
Average Shortage	0.7%	1.2%	2.1%	2.4%
Surplus	9%	10%	10%	8%
Large Surplus	4%	5%	5%	7%
Shortage	27%	29%	31%	29%
Large Shortage	5%	10%	17%	20%

7. LABORERS (continued)

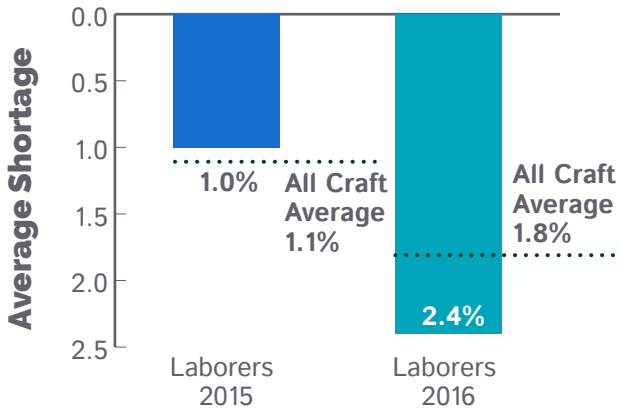
C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - LABORERS



AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - LABORERS



The concern over a shortage of Laborer apprentices is growing. The percent of the study sample reporting a shortage of apprentices increased from 30% in 2015 to 48% in 2016. However, the percent reporting a surplus also increased during this time from 10% to 12%.

The shortage of apprentices was smaller than the all craft average in 2015 and larger in 2016. For 2015, fewer respondents reported a shortage of apprentices (30%) than the average for all crafts combined (33%).

For 2016, more respondents reported a shortage of apprentices (48%) than the average for all crafts combined (43%).

The degree of the shortage of Laborer apprentices is increasing. The average shortage was 1.0% in 2015. In 2016 it was 2.4%.

The average of the shortage/surplus apprentice ratings for Laborers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average apprentice shortage for all crafts combined in 2016. In 2015 the average apprentice shortages were 1.0% Laborers vs. 1.1% all crafts. In 2016 the apprentice averages were 2.4% Laborers vs. 1.8% all crafts.

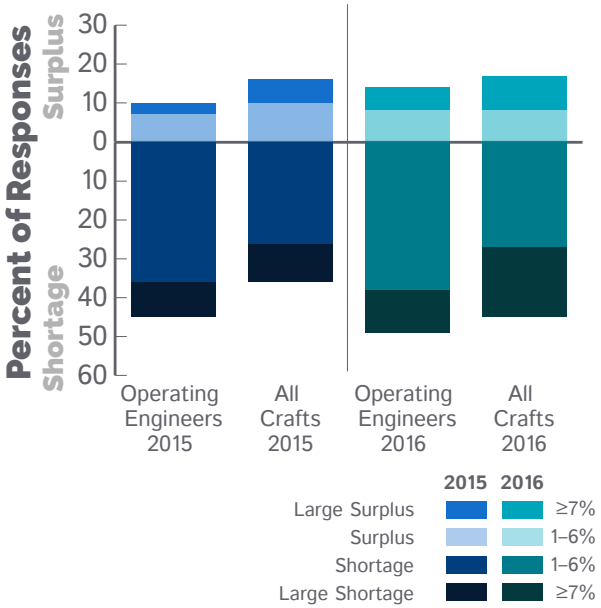
	2015		2016	
	Laborers	All Crafts	Laborers	All Crafts
Average Shortage	1.0%	1.1%	2.4%	1.8%
Surplus	8%	11%	7%	6%
Large Surplus	2%	3%	5%	8%
Shortage	26%	26%	29%	25%
Large Shortage	4%	7%	19%	18%

8. OPERATING ENGINEERS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - OPERATING ENGINEERS

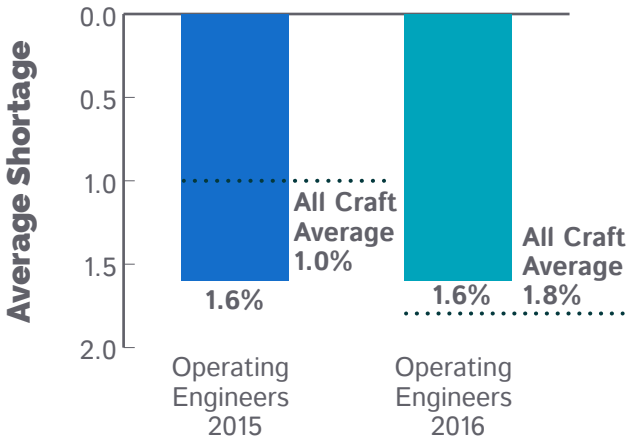


The concern over a shortage of Operating Engineers is growing slightly. The percent of the study sample reporting a shortage of Operating Engineers increased from 45% in 2015 to 49% in 2016. However, the percent reporting a surplus also increased during this time from 10% to 14%.

The shortage of Operating Engineers was larger than the all craft average. For 2015, more respondents reported a shortage of Operating Engineers (45%) than the average for all crafts combined (36%).

For 2016, more respondents reported a shortage of Operating Engineers (49%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - OPERATING ENGINEERS



The degree of the shortage of Operating Engineers is stable. The average shortage was 1.6% in both 2015 and 2016.

The average of the shortage/surplus ratings for Operating Engineers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was more than the average shortage for all crafts combined in 2015 and less in 2016. In 2015 the average shortages were 1.6% Operating Engineers vs. 1.0% all crafts. In 2016 the averages were 1.6% Operating Engineers vs. 1.8% all crafts.

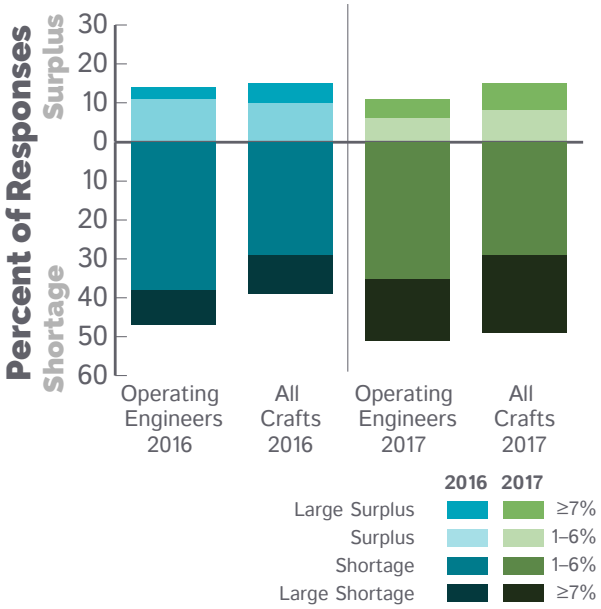
	2015		2016	
	Operating Engineers	All Crafts	Operating Engineers	All Crafts
Average Shortage	1.6%	1.0%	1.6%	1.8%
Surplus	7%	10%	8%	8%
Large Surplus	3%	6%	6%	9%
Shortage	36%	26%	38%	27%
Large Shortage	9%	10%	11%	18%

8. OPERATING ENGINEERS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - OPERATING ENGINEERS

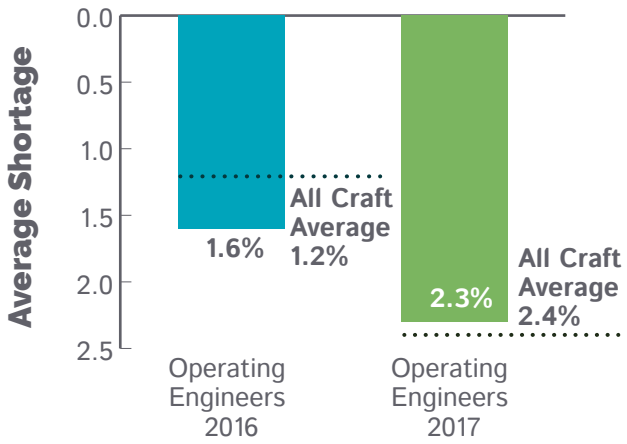


The projections for a shortage of Operating Engineers is growing slightly. The percent of the study sample projecting a shortage of Operating Engineers increased from 47% for the 2016 study to 51% for 2017. The percent projecting a surplus declined during this time from 14% to 11%.

The projected shortage of Operating Engineers was greater than the all craft average. For 2016, more respondents projected a shortage of Operating Engineers (47%) than the average for all crafts combined (39%).

For 2017, more respondents projected a shortage of Operating Engineers (51%) than the average for all crafts combined (49%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - OPERATING ENGINEERS



The degree of the projected shortage of Operating Engineers is increasing. The average shortage was 1.6% in 2016. In 2017 it was 2.3%.

The average of the shortage/surplus ratings for Operating Engineers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was greater than the average shortage for all crafts combined in 2016 and less in 2017. In 2016 the average shortages were 1.6% Operating Engineers vs. 1.2% all crafts. In 2017 the averages were 2.3% Operating Engineers vs. 2.4% all crafts.

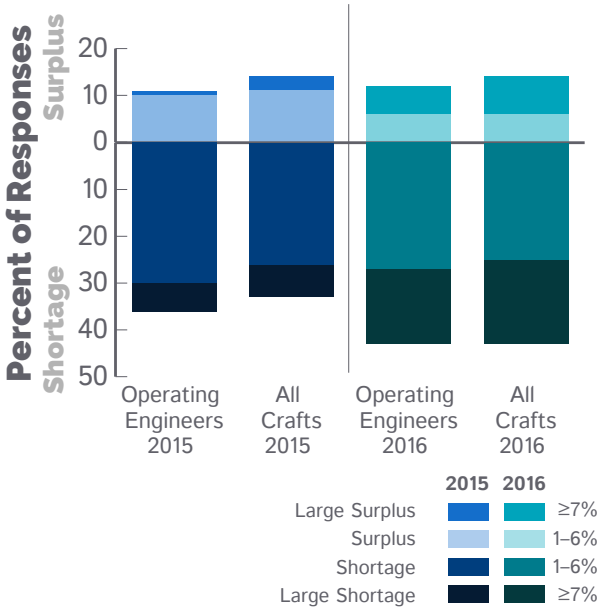
	2016		2017	
	Operating Engineers	All Crafts	Operating Engineers	All Crafts
Average Shortage	1.6%	1.2%	2.3%	2.4%
Surplus	11%	10%	6%	8%
Large Surplus	3%	5%	5%	7%
Shortage	38%	29%	35%	29%
Large Shortage	9%	10%	16%	20%

8. OPERATING ENGINEERS (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - OPERATING ENGINEERS

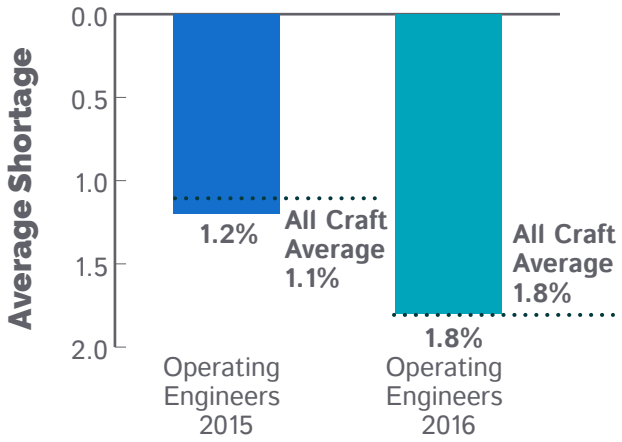


The concern over a shortage of Operating Engineer apprentices is growing. The percent of the study sample reporting a shortage of apprentices increased from 36% in 2015 to 43% in 2016. However, the percent reporting a surplus also increased slightly during this time from 11% to 12%.

The shortage of apprentices was close to the all craft average. For 2015, slightly more respondents reported a shortage of apprentices (36%) than the average for all crafts combined (33%).

For 2016, the same number of respondents reported a shortage of apprentices (43%) as the average for all crafts combined.

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - OPERATING ENGINEERS



The degree of the shortage of Operating Engineer apprentices is increasing. The average shortage was 1.2% in 2015. In 2016 it was 1.8%.

The average of the shortage/surplus apprentice ratings for Operating Engineers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was about the same as the average apprentice shortage for all crafts combined. In 2015 the average apprentice shortages were 1.2% Operating Engineers vs. 1.1% all crafts. In 2016 the apprentice averages were 1.8% Operating Engineers vs. 1.8% all crafts.

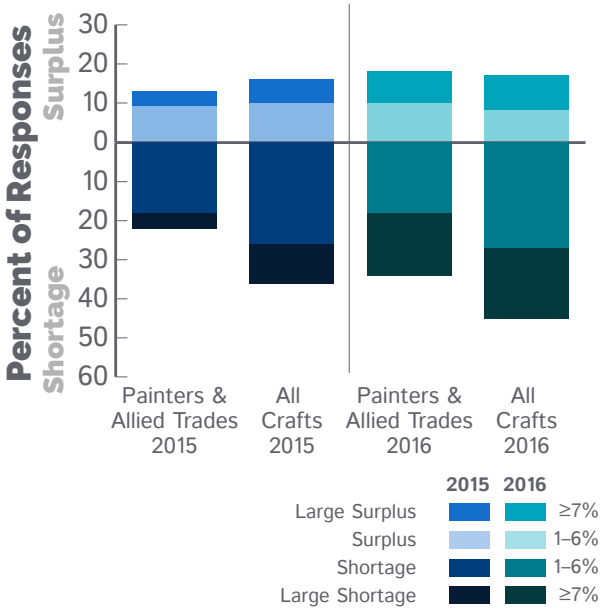
	2015		2016	
	Operating Engineers	All Crafts	Operating Engineers	All Crafts
Average Shortage	1.2%	1.1%	1.8%	1.8%
Surplus	10%	11%	6%	6%
Large Surplus	1%	3%	6%	8%
Shortage	30%	26%	27%	25%
Large Shortage	6%	7%	16%	18%

9. PAINTERS & ALLIED TRADES

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - PAINTERS & ALLIED TRADES

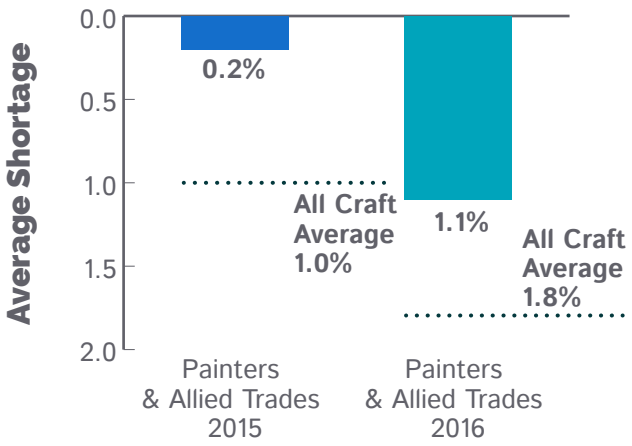


The concern over a shortage of Painters & Allied Trades is growing. The percent of the study sample reporting a shortage of Painters & Allied Trades increased from 22% in 2015 to 34% in 2016. However, the percent reporting a surplus also increased during this time from 13% to 18%.

The shortage of Painters & Allied Trades was smaller than the all craft average. For 2015, fewer respondents reported a shortage of Painters & Allied Trades (22%) than the average for all crafts combined (36%).

For 2016, fewer respondents reported a shortage of Painters & Allied Trades (34%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - PAINTERS & ALLIED TRADES



The degree of the shortage of Painters & Allied Trades is increasing. The average shortage was 0.2% in 2015. In 2016 it was 1.1%.

The average of the shortage/surplus ratings for Painters & Allied Trades resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was less than the average shortage for all crafts combined. In 2015 the average shortages were 0.2% Painters & Allied Trades vs. 1.0% all crafts. In 2016 the averages were 1.1% Painters & Allied Trades vs. 1.8% all crafts.

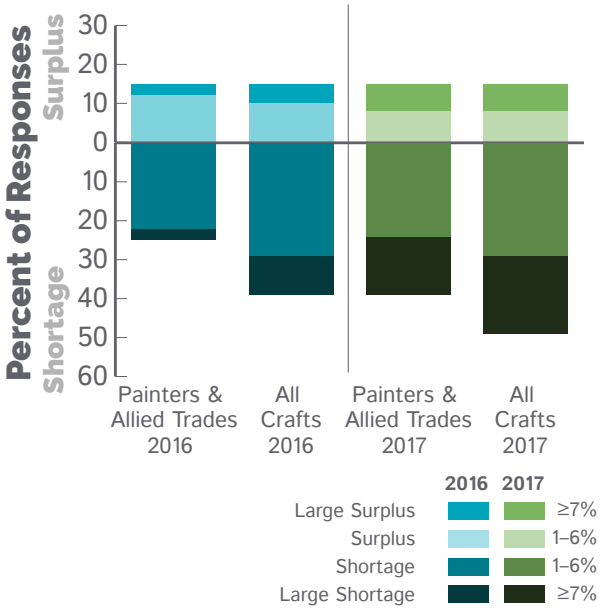
	2015		2016	
	Painters & Allied Trades	All Crafts	Painters & Allied Trades	All Crafts
Average Shortage	0.2%	1.0%	1.1%	1.8%
Surplus	9%	10%	10%	8%
Large Surplus	4%	6%	8%	9%
Shortage	18%	26%	18%	27%
Large Shortage	4%	10%	16%	18%

9. PAINTERS & ALLIED TRADES (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - PAINTERS & ALLIED TRADES

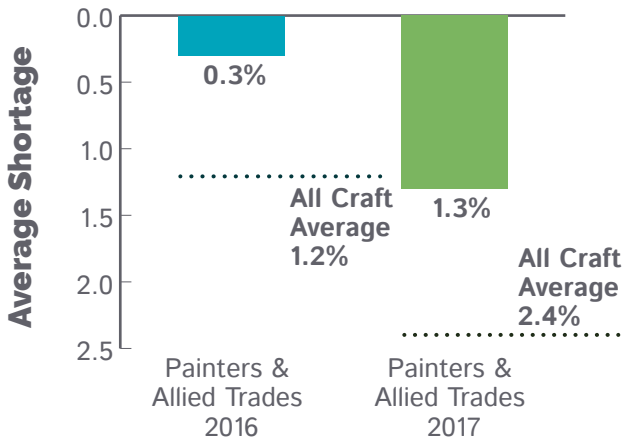


The projections for a shortage of Painters & Allied Trades is growing. The percent of the study sample projecting a shortage of Painters & Allied Trades increased from 25% for the 2016 study to 39% for 2017. The percent projecting a surplus was stable during this time at 15%.

The projected shortage of Painters & Allied Trades was less than the all craft average. For 2016, fewer respondents projected a shortage of Painters & Allied Trades (25%) than the average for all crafts combined (39%).

For 2017, fewer respondents projected a shortage of Painters & Allied Trades (39%) than the average for all crafts combined (49%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - PAINTERS & ALLIED TRADES



The degree of the projected shortage of Painters & Allied Trades is increasing. The average shortage was 0.3% in 2016. In 2017 it was 1.3%.

The average of the shortage/surplus ratings for Painters & Allied Trades resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was less than the average shortage for all crafts combined. In 2016 the average shortages were 0.3% Painters & Allied Trades vs. 1.2% all crafts. In 2017 the averages were 1.3% Painters & Allied Trades vs. 2.4% all crafts.

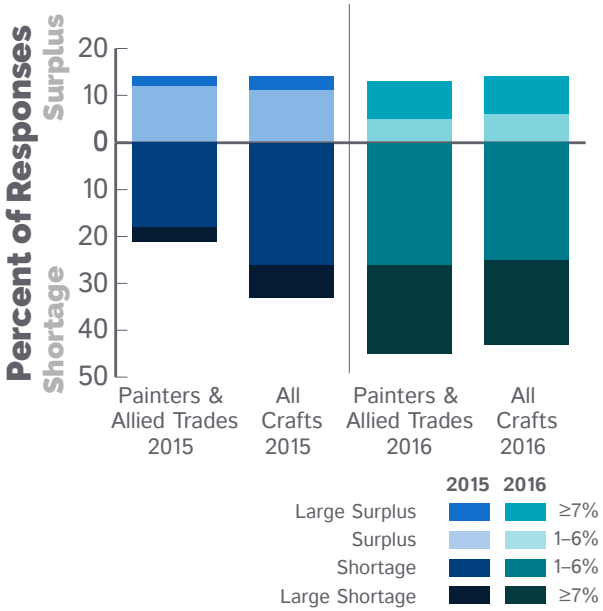
	2016		2017	
	Painters & Allied Trades	All Crafts	Painters & Allied Trades	All Crafts
Average Shortage	0.3%	1.2%	1.3%	2.4%
Surplus	12%	10%	8%	8%
Large Surplus	3%	5%	7%	7%
Shortage	22%	29%	24%	29%
Large Shortage	3%	10%	15%	20%

9. PAINTERS & ALLIED TRADES (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - PAINTERS & ALLIED TRADES

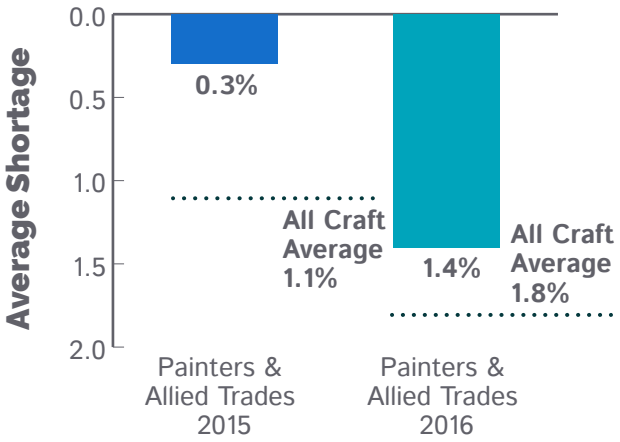


The concern over a shortage of Painters & Allied Trades apprentices is growing. The percent of the study sample reporting a shortage of apprentices increased from 21% in 2015 to 45% in 2016. The percent reporting a surplus declined slightly during this time from 14% to 13%.

The shortage of apprentices was larger than the all craft average in 2016 and less in 2015. For 2015, fewer respondents reported a shortage of apprentices (21%) than the average for all crafts combined (33%).

For 2016, more respondents reported a shortage of apprentices (45%) than the average for all crafts combined (43%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - PAINTERS & ALLIED TRADES



The degree of the shortage of Painters & Allied Trades apprentices is increasing. The average shortage was 0.3% in 2015. In 2016 it was 1.4%.

The average of the shortage/surplus apprentice ratings for Painters & Allied Trades resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was less than the average apprentice shortage for all crafts combined. In 2015 the average apprentice shortages were 0.3% Painters & Allied Trades vs. 1.1% all crafts. In 2016 the apprentice averages were 1.4% Painters & Allied Trades vs. 1.8% all crafts.

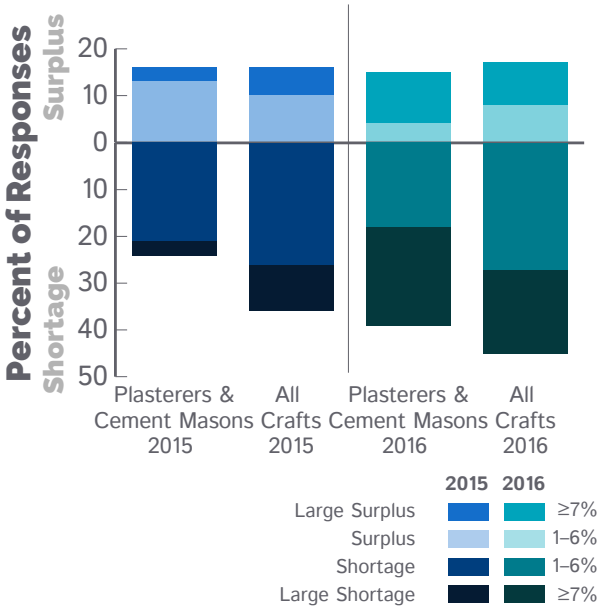
	2015		2016	
	Painters & Allied Trades	All Crafts	Painters & Allied Trades	All Crafts
Average Shortage	0.3%	1.1%	1.4%	1.8%
Surplus	12%	11%	5%	6%
Large Surplus	2%	3%	8%	8%
Shortage	18%	26%	26%	25%
Large Shortage	3%	7%	19%	18%

10. PLASTERERS & CEMENT MASONS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - PLASTERERS & CEMENT MASONS

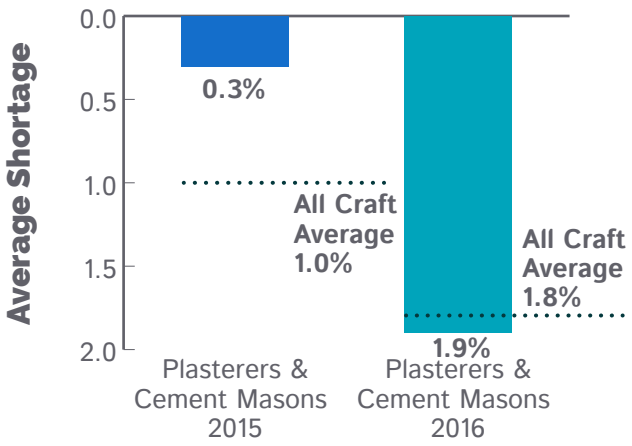


The concern over a shortage of Plasterers & Cement Masons is growing. The percent of the study sample reporting a shortage of Plasterers & Cement Masons increased from 24% in 2015 to 39% in 2016. The percent reporting a surplus declined slightly during this time from 16% to 15%.

The shortage of Plasterers & Cement Masons was smaller than the all craft average. For 2015, fewer respondents reported a shortage of Plasterers & Cement Masons (24%) than the average for all crafts combined (36%).

For 2016, fewer respondents reported a shortage of Plasterers & Cement Masons (39%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - PLASTERERS & CEMENT MASONS



The degree of the shortage of Plasterers & Cement Masons is increasing. The average shortage was 0.3% in 2015. In 2016 it was 1.9%.

The average of the shortage/surplus ratings for Plasterers & Cement Masons resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was slightly more than the average shortage for all crafts combined in 2016 and less in 2015. In 2015 the average shortages were 0.3% Plasterers & Cement Masons vs. 1.0% all crafts. In 2016 the averages were 1.9% Plasterers & Cement Masons vs. 1.8% all crafts.

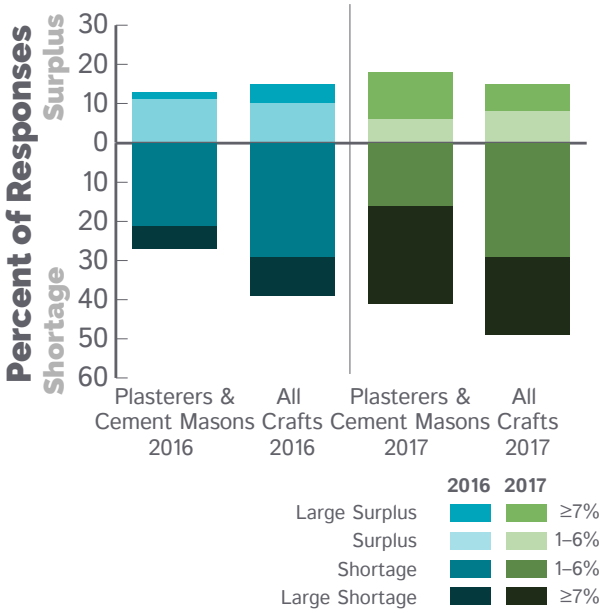
	2015		2016	
	Plasterers & Cement Masons	All Crafts	Plasterers & Cement Masons	All Crafts
Average Shortage	0.3%	1.0%	1.9%	1.8%
Surplus	13%	10%	4%	8%
Large Surplus	3%	6%	11%	9%
Shortage	21%	26%	18%	27%
Large Shortage	3%	10%	21%	18%

10. PLASTERERS & CEMENT MASONS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - PLASTERERS & CEMENT MASONS

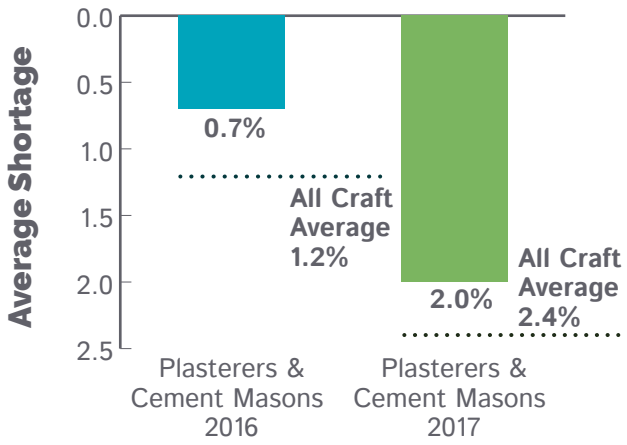


The projections for a shortage of Plasterers & Cement Masons is growing. The percent of the study sample projecting a shortage of Plasterers & Cement Masons increased from 27% for the 2016 study to 41% for 2017. However, the percent projecting a surplus also increased during this time from 13% to 18%.

The projected shortage of Plasterers & Cement Masons was smaller than the all craft average. For 2016, fewer respondents projected a shortage of Plasterers & Cement Masons (27%) than the average for all crafts combined (39%).

For 2017, fewer respondents projected a shortage of Plasterers & Cement Masons (41%) than the average for all crafts combined (49%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS PLASTERERS & CEMENT MASONS



The degree of the projected shortage of Plasterers & Cement Masons is increasing. The average shortage was 0.7% in 2016. In 2017 it was 2.0%.

The average of the shortage/surplus ratings for Plasterers & Cement Masons resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was less than the average shortage for all crafts combined. In 2016 the average shortages were 0.7% Plasterers & Cement Masons vs. 1.2% all crafts. In 2017 the averages were 2.0% Plasterers & Cement Masons vs. 2.4% all crafts.

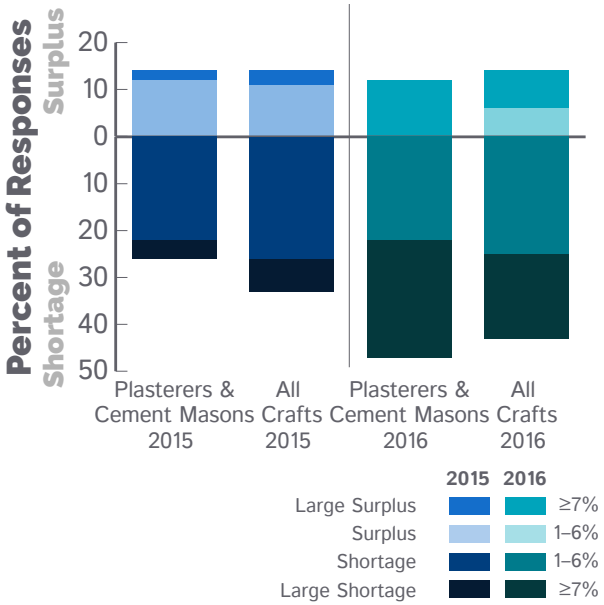
	2016		2017	
	Plasterers & Cement Masons	All Crafts	Plasterers & Cement Masons	All Crafts
Average Shortage	0.7%	1.2%	2.0%	2.4%
Surplus	11%	10%	6%	8%
Large Surplus	2%	5%	12%	7%
Shortage	21%	29%	16%	29%
Large Shortage	6%	10%	25%	20%

10. PLASTERERS & CEMENT MASONS (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - PLASTERERS & CEMENT MASONS

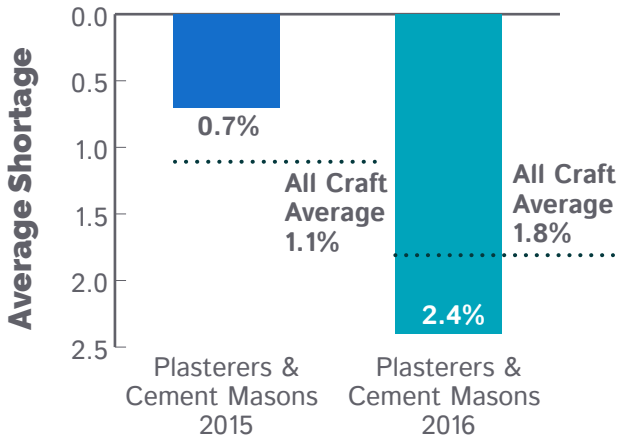


The concern over a shortage of Plasterer & Cement Mason apprentices is growing. The percent of the study sample reporting a shortage of apprentices increased from 26% in 2015 to 47% in 2016. The percent reporting a surplus declined during this time from 14% to 12%.

The shortage of apprentices was smaller than the all craft average in 2015 and greater in 2016. For 2015, fewer respondents reported a shortage of apprentices (26%) than the average for all crafts combined (33%).

For 2016, more respondents reported a shortage of apprentices (47%) than the average for all crafts combined (43%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - PLASTERERS & CEMENT MASONS



The degree of the shortage of Plasterer & Cement Mason apprentices is increasing. The average shortage was 0.7% in 2015. In 2016 it was 2.4%.

The average of the shortage/surplus apprentice ratings for Plasterers & Cement Masons resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average apprentice shortage for all crafts combined in 2016 and smaller in 2015. In 2015 the average apprentice shortages were 0.7% Plasterers & Cement Masons vs. 1.1% all crafts. In 2016 the apprentice averages were 2.4% Plasterers & Cement Masons vs. 1.8% all crafts.

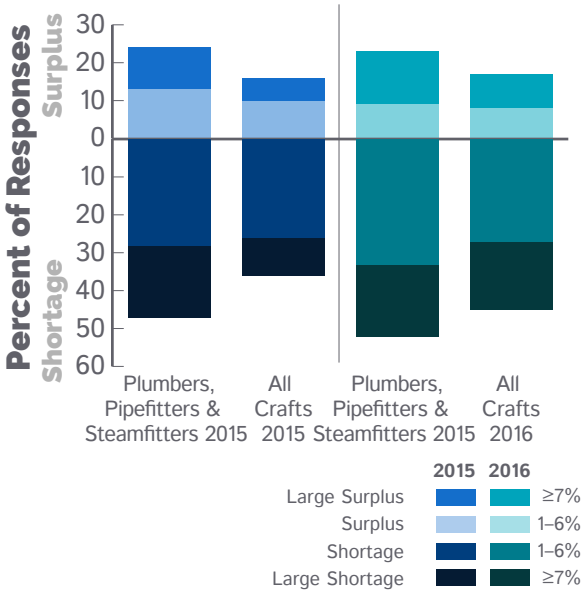
	2015		2016	
	Plasterers & Cement Masons	All Crafts	Plasterers & Cement Masons	All Crafts
Average Shortage	0.7%	1.1%	2.4%	1.8%
Surplus	12%	11%	0%	6%
Large Surplus	2%	3%	12%	8%
Shortage	22%	26%	22%	25%
Large Shortage	4%	7%	25%	18%

11. PLUMBERS, PIPEFITTERS & STEAMFITTERS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - PLUMBERS, PIPEFITTERS & STEAMFITTERS

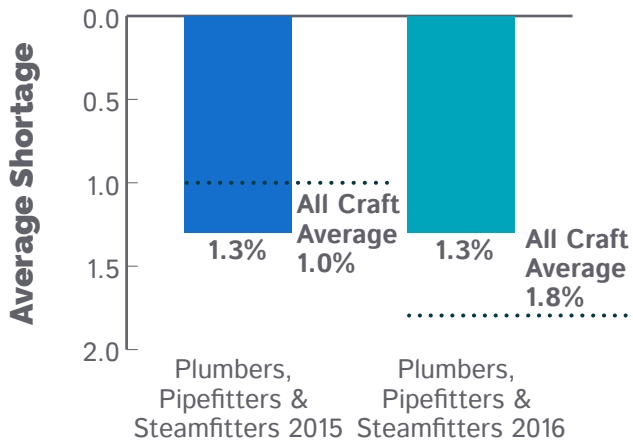


The concern over a shortage of Plumbers/Pipefitters/ Steamfitters is growing. The percent of the study sample reporting a shortage of Plumbers/Pipefitters/ Steamfitters increased from 47% in 2015 to 52% in 2016. The percent reporting a surplus declined slightly during this time from 24% to 23%.

The shortage of Plumbers/Pipefitters/Steamfitters was much larger than the all craft average. For 2015, more respondents reported a shortage of Plumbers/ Pipefitters/Steamfitters (47%) than the average for all crafts combined (36%).

For 2016, more respondents reported a shortage of Plumbers/Pipefitters/Steamfitters (52%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - PLUMBERS, PIPEFITTERS & STEAMFITTERS



The degree of the shortage of Plumbers/Pipefitters/ Steamfitters was stable. The average shortage was 1.3% in both 2015 and 2016.

The average of the shortage/surplus ratings for Plumbers/Pipefitters/Steamfitters resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was more than the average shortage for all crafts combined in 2015 and less in 2016. In 2015 the average shortages were 1.3% Plumbers/Pipefitters/ Steamfitters vs. 1.0% all crafts. In 2016 the averages were 1.3% Plumbers/Pipefitters/Steamfitters vs. 1.8% all crafts.

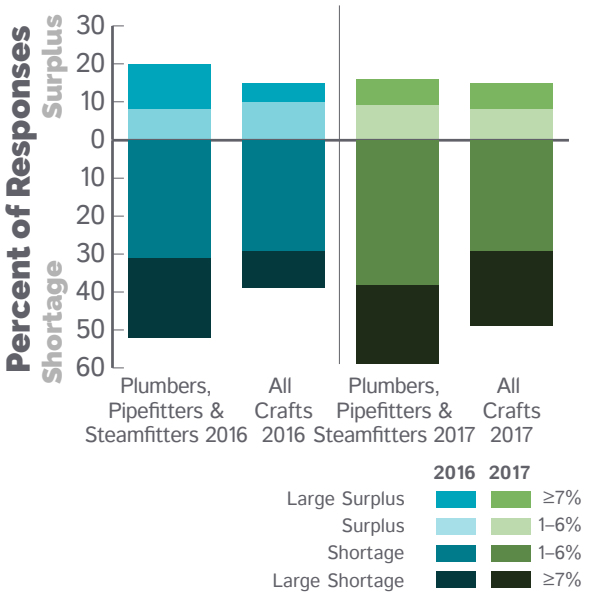
	2015		2016	
	Plumbers, Pipefitters & Steamfitters	All Crafts	Plumbers, Pipefitters & Steamfitters	All Crafts
Average Shortage	1.3%	1.0%	1.3%	1.8%
Surplus	13%	10%	9%	8%
Large Surplus	11%	6%	14%	9%
Shortage	28%	26%	33%	27%
Large Shortage	19%	10%	19%	18%

11. PLUMBERS, PIPEFITTERS & STEAMFITTERS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - PLUMBERS, PIPEFITTERS & STEAMFITTERS

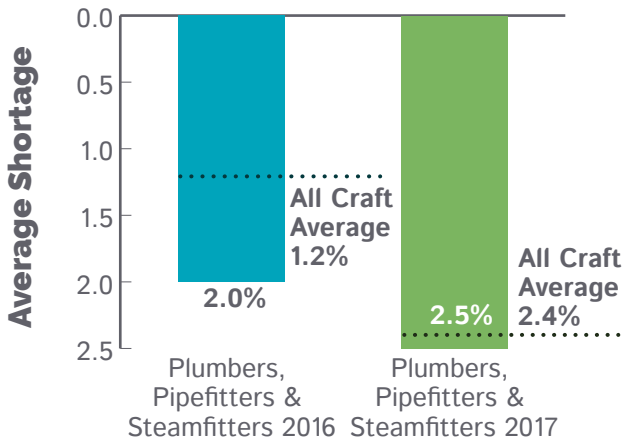


The projections for a shortage of Plumbers/Pipefitters/Steamfitters is growing. The percent of the study sample projecting a shortage of Plumbers/Pipefitters/Steamfitters increased from 52% for the 2016 study to 59% for 2017. The percent projecting a surplus declined during this time from 20% to 16%.

The projected shortage of Plumbers/Pipefitters/Steamfitters was greater than the all craft average. For 2016, more respondents projected a shortage of Plumbers/Pipefitters/Steamfitters (52%) than the average for all crafts combined (39%).

For 2017, more respondents projected a shortage of Plumbers/Pipefitters/Steamfitters (59%) than the average for all crafts combined (49%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - PLUMBERS, PIPEFITTERS & STEAMFITTERS



The degree of the projected shortage of Plumbers/Pipefitters/Steamfitters is increasing. The average shortage was 2.0% in 2016. In 2017 it was 2.5%.

The average of the shortage/surplus ratings for Plumbers/Pipefitters/Steamfitters resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was greater than the average shortage for all crafts combined. In 2016 the average shortages were 2.0% Plumbers/Pipefitters/Steamfitters vs. 1.2% all crafts. In 2017 the averages were 2.5% Plumbers/Pipefitters/Steamfitters vs. 2.4% all crafts.

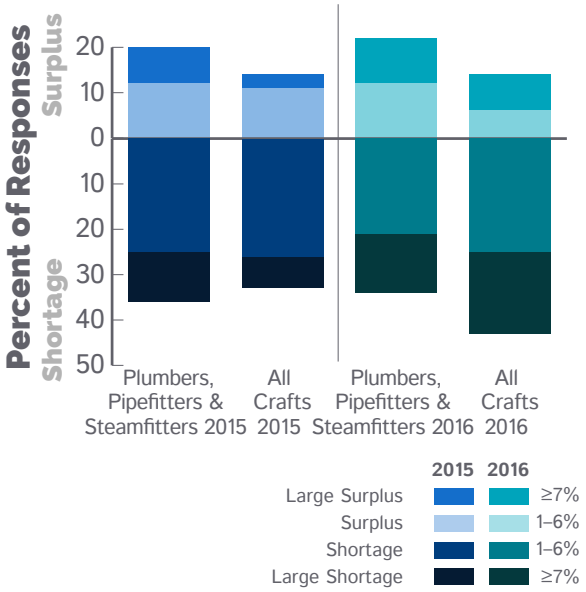
	2016		2017	
	Plumbers, Pipefitters & Steamfitters	All Crafts	Plumbers, Pipefitters & Steamfitters	All Crafts
Average Shortage	2.0%	1.2%	2.5%	2.4%
Surplus	12%	10%	9%	8%
Large Surplus	8%	5%	7%	7%
Shortage	31%	29%	38%	29%
Large Shortage	21%	10%	21%	20%

11. PLUMBERS, PIPEFITTERS & STEAMFITTERS (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - PLUMBERS, PIPEFITTERS & STEAMFITTERS

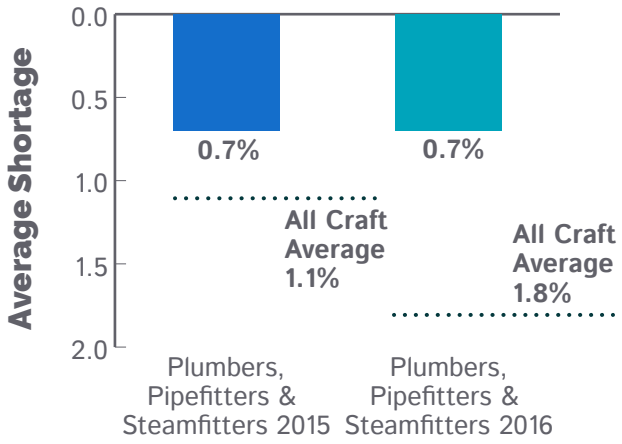


The concern over a shortage of Plumbers/Pipefitters/Steamfitters apprentices is declining slightly. The percent of the study sample reporting a shortage of apprentices fell from 36% in 2015 to 34% in 2016. Moreover, the percent reporting a surplus increased during this time from 20% to 22%.

The shortage of apprentices was larger than the all craft average in 2015 and less in 2016. For 2015, more respondents reported a shortage of apprentices (36%) than the average for all crafts combined (33%).

For 2016, fewer respondents reported a shortage of apprentices (34%) than the average for all crafts combined (43%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES-PLUMBERS, PIPEFITTERS & STEAMFITTERS



The degree of the shortage of Plumbers/Pipefitters/Steamfitters apprentices was stable. The average shortage was 0.7% in both 2015 and 2016.

The average of the shortage/surplus apprentice ratings for Plumbers/Pipefitters/Steamfitters resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was smaller than the average apprentice shortage for all crafts combined. In 2015 the average apprentice shortages were 0.7% Plumbers/Pipefitters/Steamfitters vs. 1.1% all crafts. In 2016 the apprentice averages were 0.7% Plumbers/Pipefitters/Steamfitters vs. 1.8% all crafts.

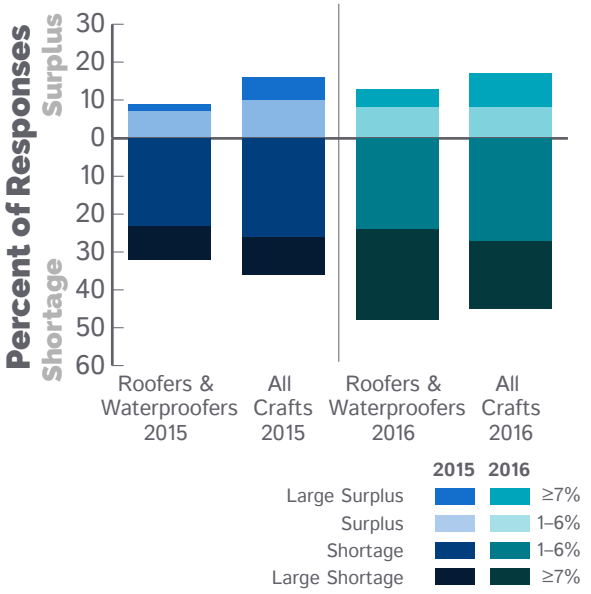
	2015		2016	
	Plumbers, Pipefitters & Steamfitters	All Crafts	Plumbers, Pipefitters & Steamfitters	All Crafts
Average Shortage	0.7%	1.1%	0.7%	1.8%
Surplus	12%	11%	12%	6%
Large Surplus	8%	3%	10%	8%
Shortage	25%	26%	21%	25%
Large Shortage	11%	7%	13%	18%

12. ROOFERS & WATERPROOFERS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - ROOFERS & WATERPROOFERS

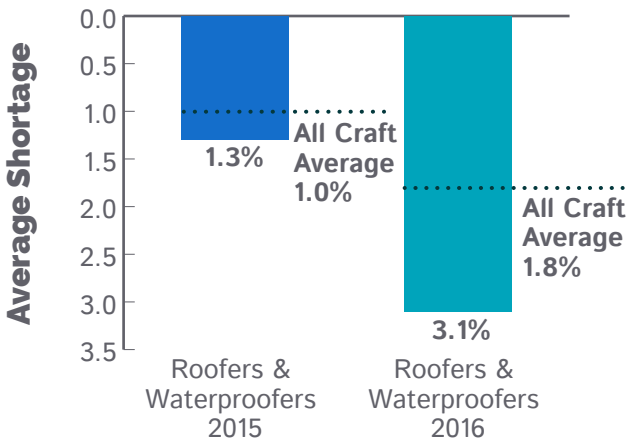


The concern over a shortage of Roofers & Waterproofers is growing. The percent of the study sample reporting a shortage of Roofers & Waterproofers increased from 32% in 2015 to 48% in 2016. However, the percent reporting a surplus also increased during this time from 9% to 13%.

The shortage of Roofers & Waterproofers was larger than the all craft average in 2016 and smaller in 2015. For 2015, fewer respondents reported a shortage of Roofers & Waterproofers (32%) than the average for all crafts combined (36%).

For 2016, more respondents reported a shortage of Roofers & Waterproofers (48%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - ROOFERS & WATERPROOFERS



The degree of the shortage of Roofers & Waterproofers is increasing. The average shortage was 1.3% in 2015. In 2016 it was 3.1%.

The average of the shortage/surplus ratings for Roofers & Waterproofers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was more than the average shortage for all crafts combined. In 2015 the average shortages were 1.3% Roofers & Waterproofers vs. 1.0% all crafts. In 2016 the averages were 3.1% Roofers & Waterproofers vs. 1.8% all crafts.

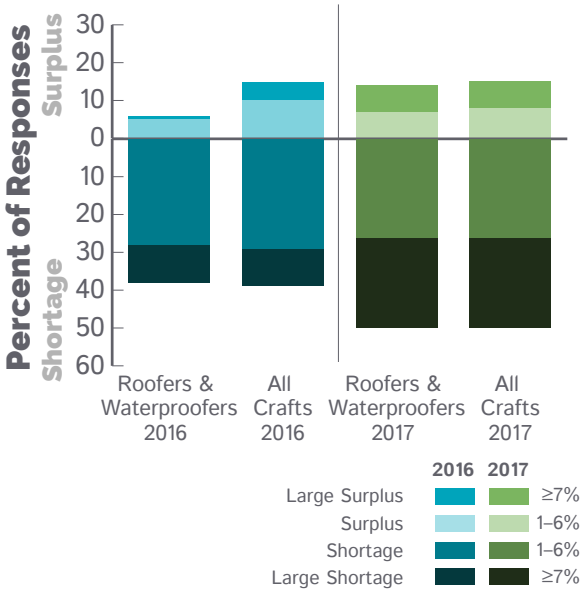
	2015		2016	
	Roofers & Waterproofers	All Crafts	Roofers & Waterproofers	All Crafts
Average Shortage	1.3%	1.0%	3.1%	1.8%
Surplus	7%	10%	8%	8%
Large Surplus	2%	6%	5%	9%
Shortage	23%	26%	24%	27%
Large Shortage	9%	10%	24%	18%

12. ROOFERS & WATERPROOFERS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - ROOFERS & WATERPROOFERS

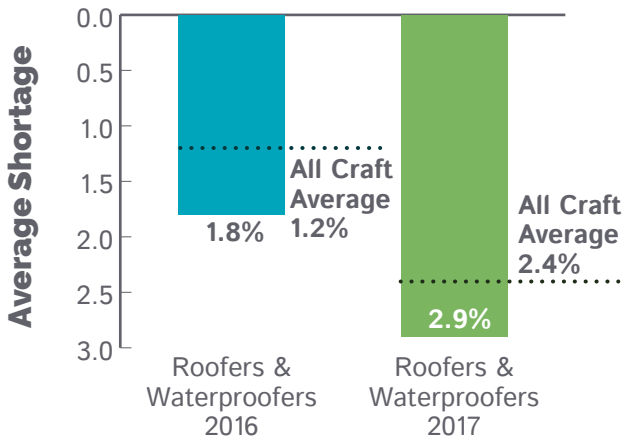


The projections for a shortage of Roofers & Waterproofers is growing. The percent of the study sample projecting a shortage of Roofers & Waterproofers increased from 38% for the 2016 study to 50% for 2017. However, the percent projecting a surplus also increased during this time from 6% to 14%.

The projected shortage of Roofers & Waterproofers was about the same as the all craft average. For 2016, respondents projected a shortage of 38% for Roofers & Waterproofers and 39% for all crafts combined.

For 2017, respondents projected a shortage of 50% for Roofers & Waterproofers and 49% for all crafts combined.

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - ROOFERS & WATERPROOFERS



The degree of the projected shortage of Roofers & Waterproofers is increasing. The average shortage was 1.8% in 2016. In 2017 it was 2.9%.

The average of the shortage/surplus ratings for Roofers & Waterproofers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was greater than the average shortage for all crafts combined. In 2016 the average shortages were 1.8% Roofers & Waterproofers vs. 1.2% all crafts. In 2017 the averages were 2.9% Roofers & Waterproofers vs. 2.4% all crafts.

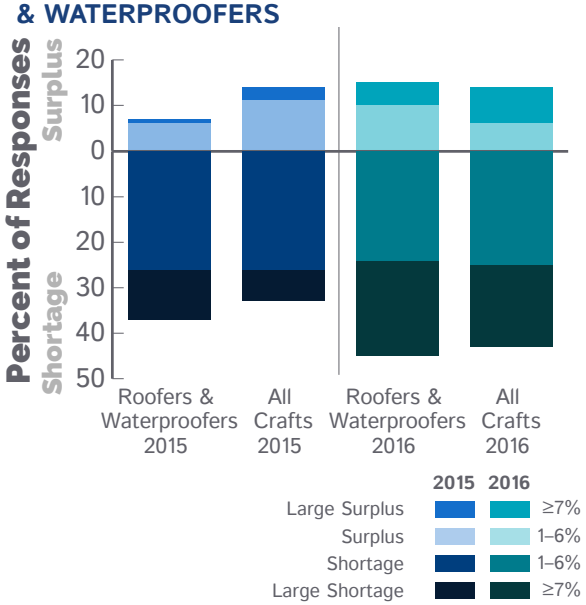
	2016		2017	
	Roofers & Waterproofers	All Crafts	Roofers & Waterproofers	All Crafts
Average Shortage	1.8%	1.2%	2.9%	2.4%
Surplus	5%	10%	7%	8%
Large Surplus	1%	5%	7%	7%
Shortage	28%	29%	26%	29%
Large Shortage	10%	10%	24%	20%

12. ROOFERS & WATERPROOFERS (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - ROOFERS & WATERPROOFERS

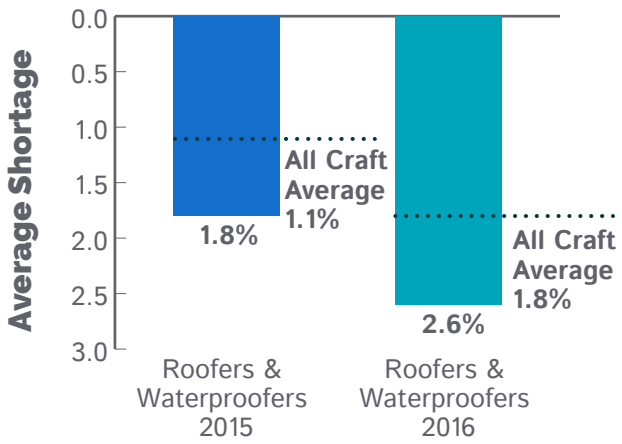


The concern over a shortage of Roofer & Waterproofer apprentices is growing. The percent of the study sample reporting a shortage of apprentices increased from 37% in 2015 to 45% in 2016. However, the percent reporting a surplus also increased during this time from 7% to 15%.

The shortage of apprentices was slightly larger than the all craft average. For 2015, more respondents reported a shortage of apprentices (37%) than the average for all crafts combined (33%).

For 2016, more respondents reported a shortage of apprentices (45%) than the average for all crafts combined (43%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES-ROOFERS & WATERPROOFERS



The degree of the shortage of Roofer & Waterproofer apprentices is increasing. The average shortage was 1.8% in 2015. In 2016 it was 2.6%.

The average of the shortage/surplus apprentice ratings for Roofers & Waterproofers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was larger than the average apprentice shortage for all crafts combined. In 2015 the average apprentice shortages were 1.8% Roofers & Waterproofers vs. 1.1% all crafts. In 2016 the apprentice averages were 2.6% Roofers & Waterproofers vs. 1.8% all crafts.

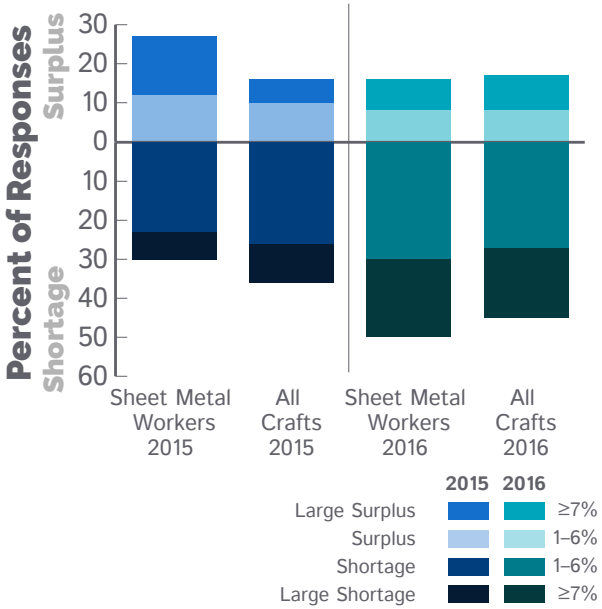
	2015		2016	
	Roofers & Waterproofers	All Crafts	Roofers & Waterproofers	All Crafts
Average Shortage	1.8%	1.1%	2.6%	1.8%
Surplus	6%	11%	10%	6%
Large Surplus	1%	3%	5%	8%
Shortage	26%	26%	24%	25%
Large Shortage	11%	7%	21%	18%

13. SHEET METAL WORKERS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - SHEET METAL WORKERS

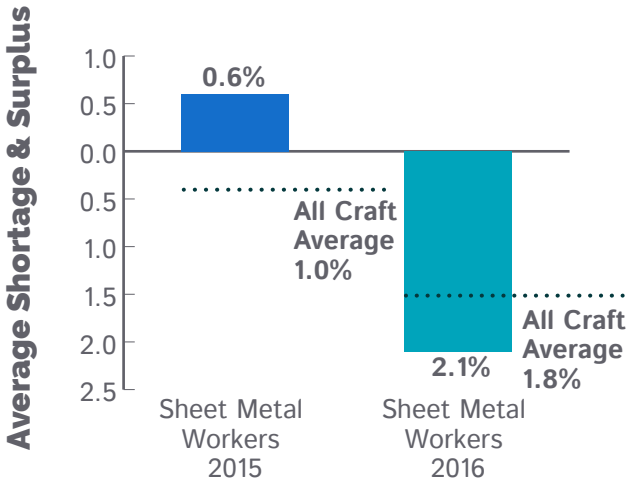


The concern over a shortage of Sheet Metal Workers is growing. The percent of the study sample reporting a shortage of Sheet Metal Workers increased from 30% in 2015 to 50% in 2016. The percent reporting a surplus declined during this time from 27% to 16%.

The shortage of Sheet Metal Workers was larger than the all craft average in 2016 and less in 2015. For 2015, fewer respondents reported a shortage of Sheet Metal Workers (30%) than the average for all crafts combined (36%).

For 2016, more respondents reported a shortage of Sheet Metal Workers (50%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - SHEET METAL WORKERS



The degree of the shortage of Sheet Metal Workers is increasing. The average *surplus* was 0.6% in 2015. In 2016 there was a *shortage* of 2.1%.

The average of the shortage/surplus ratings for Sheet Metal Workers resulted in a shortage in 2016 (i.e., stronger shortage ratings than surplus ratings), which was more than the average shortage for all crafts combined. In 2016 the averages were 2.1% Sheet Metal Workers vs. 1.8% all crafts. In 2015 there was a surplus, on average, of Sheet Metal Workers compared to a shortage for all crafts combined.

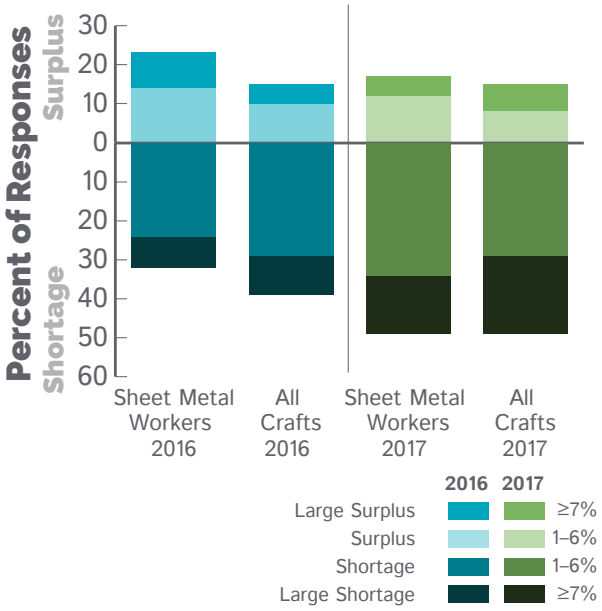
	2015		2016	
	Sheet Metal Workers	All Crafts	Sheet Metal Workers	All Crafts
Average Surplus/Shortage	0.6%	1.0%	2.1%	1.8%
Surplus	12%	10%	8%	8%
Large Surplus	15%	6%	8%	9%
Shortage	23%	26%	30%	27%
Large Shortage	7%	10%	20%	18%

13. SHEET METAL WORKERS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - SHEET METAL WORKERS

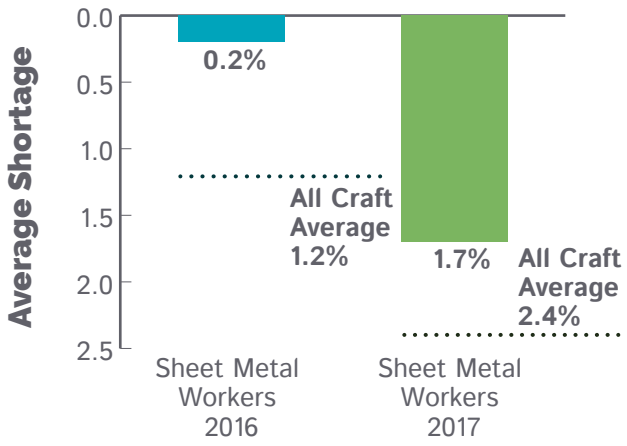


The projections for a shortage of Sheet Metal Workers is growing. The percent of the study sample projecting a shortage of Sheet Metal Workers increased from 32% for the 2016 study to 49% for 2017. The percent projecting a surplus declined during this time from 23% to 17%.

The projected shortage of Sheet Metal Workers was less than the all craft average in 2016 and the same in 2017. For 2016, fewer respondents projected a shortage of Sheet Metal Workers (32%) than the average for all crafts combined (39%).

For 2017, 49% of the respondents projected a shortage of Sheet Metal Workers, which was also the all craft average.

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - SHEET METAL WORKERS



The degree of the projected shortage of Sheet Metal Workers is increasing. The average shortage was 0.2% in 2016. In 2017 it was 1.7%.

The average of the shortage/surplus ratings for Sheet Metal Workers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was smaller than the average shortage for all crafts combined. In 2016 the average shortages were 0.2% Sheet Metal Workers vs. 1.2% all crafts. In 2017 the averages were 1.7% Sheet Metal Workers vs. 2.4% all crafts.

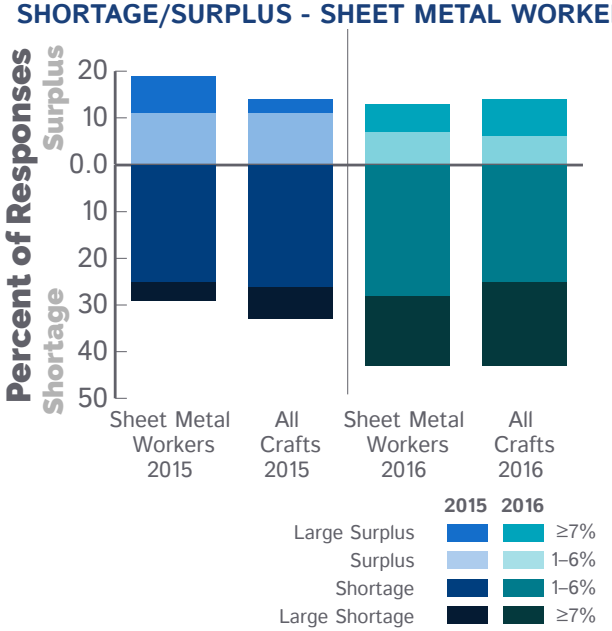
	2016		2017	
	Sheet Metal Workers	All Crafts	Sheet Metal Workers	All Crafts
Average Shortage	0.2%	1.2%	1.7%	2.4%
Surplus	14%	10%	12%	8%
Large Surplus	9%	5%	5%	7%
Shortage	24%	29%	34%	29%
Large Shortage	8%	10%	15%	20%

13. SHEET METAL WORKERS (continued)

C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - SHEET METAL WORKERS

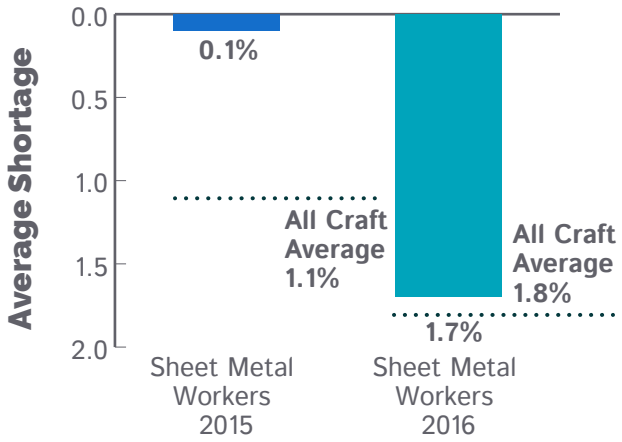


The concern over a shortage of Sheet Metal Worker apprentices is growing. The percent of the study sample reporting a shortage of apprentices increased from 29% in 2015 to 43% in 2016. The percent reporting a surplus declined during this time from 19% to 13%.

The shortage of apprentices was about the same as the all craft average. For 2015, 29% of respondents reported a shortage of apprentices for Sheet Metal Workers and 33% for all crafts combined.

For 2016, respondents reported a 43% shortage of apprentices for Sheet Metal Workers and a 43% shortage for all crafts combined.

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES-SHEET METAL WORKERS



The degree of the shortage of Sheet Metal Worker apprentices is increasing. The average shortage was 0.1% in 2015. In 2016 it was 1.7%.

The average of the shortage/surplus apprentice ratings for Sheet Metal Workers resulted in a shortage (i.e., stronger shortage ratings than surplus ratings), which was smaller than the average apprentice shortage for all crafts combined. In 2015 the average apprentice shortages were 0.1% Sheet Metal Workers vs. 1.1% all crafts. In 2016 the apprentice averages were 1.7% Sheet Metal Workers vs. 1.8% all crafts.

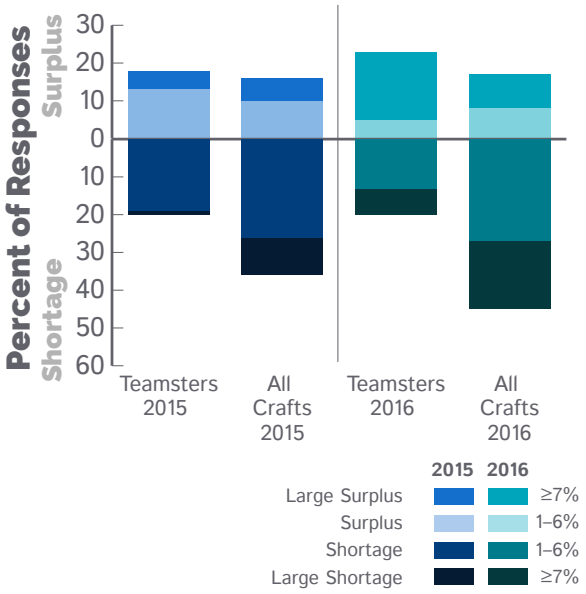
	2015		2016	
	Sheet Metal Workers	All Crafts	Sheet Metal Workers	All Crafts
Average Shortage	0.1%	1.1%	1.7%	1.8%
Surplus	11%	11%	7%	6%
Large Surplus	8%	3%	6%	8%
Shortage	25%	26%	28%	25%
Large Shortage	4%	7%	15%	18%

14. TEAMSTERS

A. Historical Results: 2015 & 2016

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS - TEAMSTERS

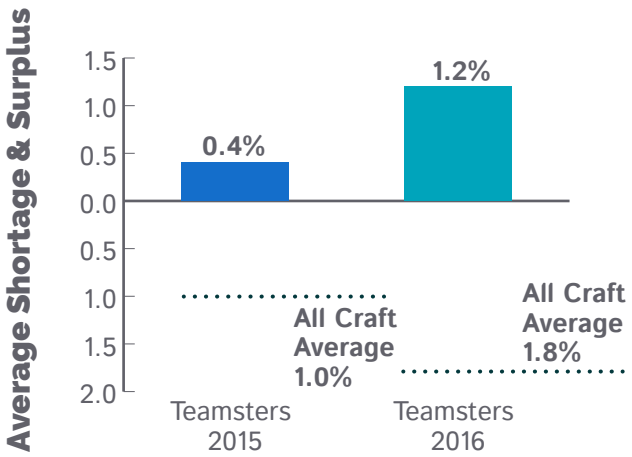


The concern over a shortage of Teamsters is stable. The percent of the study sample reporting a shortage of Teamsters was the same at 20% in 2015 and 2016. The percent reporting a surplus increased during this time from 18% to 23%.

The shortage of Teamsters was much smaller than the all craft average. For 2015, fewer respondents reported a shortage of Teamsters (20%) than the average for all crafts combined (36%).

For 2016, fewer respondents reported a shortage of Teamsters (20%) than the average for all crafts combined (45%).

AVERAGE SHORTAGE/SURPLUS - TEAMSTERS



The degree of the *surplus* of Teamsters is increasing. The average surplus was 0.4% in 2015. In 2016 it was 1.2%.

The average of the shortage/surplus ratings for Teamsters resulted in a surplus (i.e., stronger surplus ratings than shortage ratings). In 2015 the averages were a 0.4% surplus for Teamsters vs. a 1.0% shortage for all crafts. In 2016 the averages were a 1.2% surplus for Teamsters vs. a 1.8% shortage for all crafts.

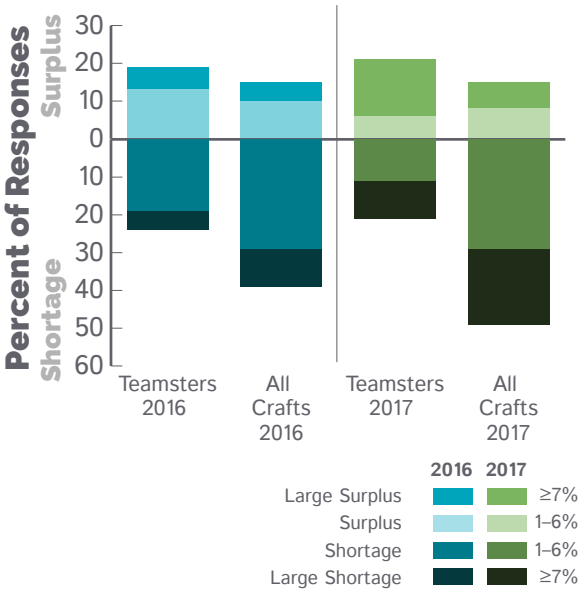
	2015		2016	
	Teamsters	All Crafts	Teamsters	All Crafts
Average Surplus	0.4%	1.0%	1.2%	1.8%
Surplus	13%	10%	5%	8%
Large Surplus	5%	6%	18%	9%
Shortage	19%	26%	13%	27%
Large Shortage	1%	10%	7%	18%

14. TEAMSTERS (continued)

B. Projections for the Next Year: 2016 & 2017

This section shows results for questions where study participants were asked to project the union craft labor shortage/surplus for the upcoming year. Projections for 2016 came from last year's study (conducted early in 2016); projections for 2017 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS - TEAMSTERS

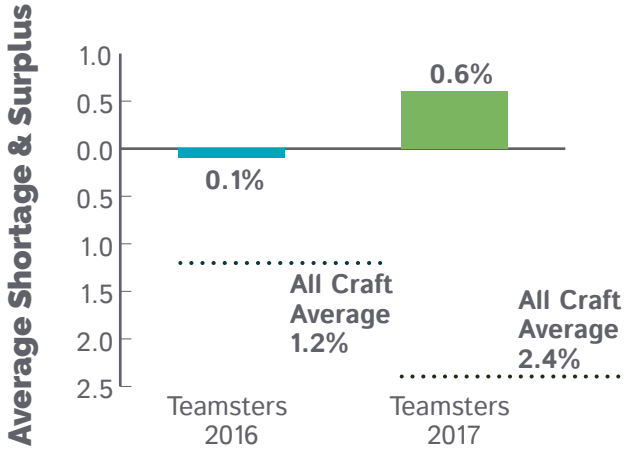


The projections for a shortage of Teamsters is stable. The percent of the study sample projecting a shortage of Teamsters was 24% in 2016 and 21% in 2017. The percent projecting a surplus increased during this time from 19% to 21%.

The projected surplus of Teamsters was much smaller than the all craft average. For 2016, fewer respondents projected a shortage of Teamsters (24%) than the average for all crafts combined (39%).

For 2017, fewer respondents projected a shortage of Teamsters (21%) than the average for all crafts combined (49%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS - TEAMSTERS



The degree of the projected *surplus* of Teamsters is increasing. The average was a 0.1% shortage in 2016. In 2017 it was a 0.6% surplus.

The average of the shortage/surplus ratings for Teamsters resulted in a surplus (i.e., stronger surplus ratings than shortage ratings) in 2017. In 2016 the average shortages were 0.1% Teamsters vs. 1.2% all crafts. In 2017 the averages were a 0.6% surplus for Teamsters vs. a 2.4% shortage all crafts.

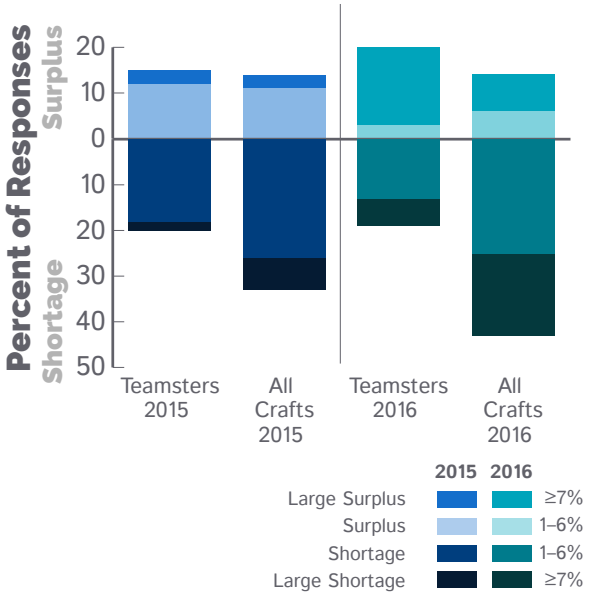
	2016		2017	
	Teamsters	All Crafts	Teamsters	All Crafts
Average Shortage/Surplus	0.1%	1.2%	0.6%	2.4%
Surplus	13%	10%	6%	8%
Large Surplus	6%	5%	15%	7%
Shortage	19%	29%	11%	29%
Large Shortage	5%	10%	10%	20%

14. TEAMSTERS (continued)

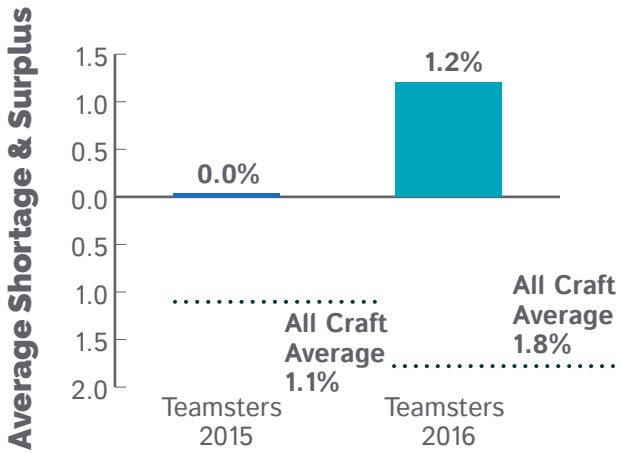
C. Apprentices: 2015 & 2016

This section shows results for questions where study participants were asked to report on the status of apprentices from the previous year. In other words, the data for 2015 comes from last year's study (conducted early in 2016) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2016 came from this year's study (conducted early in 2017).

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS - TEAMSTERS



AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES-TEAMSTERS



The concern over a shortage of Teamster apprentices is stable. The percent of the study sample reporting a shortage of apprentices was 20% in 2016 and 19% in 2017. The percent projecting a surplus increased during this time from 15% to 20%.

The shortage of apprentices was much smaller than the all craft average. For 2015, fewer respondents projected a shortage of apprentices (20%) than the average for all crafts combined (33%).

For 2016, fewer respondents reported a shortage of apprentices (19%) than the average for all crafts combined (43%).

The degree of the projected *surplus* of Teamster apprentices is increasing. The average was 0.0% in 2016. In 2017 it was a 1.2% surplus.

The average of the shortage/surplus apprentice ratings for Teamsters resulted in a surplus (i.e., stronger surplus ratings than shortage ratings). In 2015 the apprentice averages were 0.0% for Teamsters vs. a 1.1% shortage for all crafts. In 2016 the apprentice averages were a 1.2% surplus for Teamsters vs. a 1.8% shortage for all crafts.

	2015		2016	
	Teamsters	All Crafts	Teamsters	All Crafts
Average Surplus	0.0%	1.1%	1.2%	1.8%
Surplus	12%	11%	3%	6%
Large Surplus	3%	3%	17%	8%
Shortage	18%	26%	13%	25%
Large Shortage	2%	7%	6%	18%

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