2021
UNION CRAFT LABOR SUPPLY STUDY

The Association of Union Constructors

Measuring Today for
a Successful Tomorrow

INTRODUCTION

The **2021 TAUC Union Craft Labor Supply Study** marks the seventh 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 the previous year's report can be obtained by visiting the TAUC website: **www.tauc.org/laborsupply**

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 contractors who utilize union labor for their projects, as well as local contractor associations and vendors in the construction and maintenance industry. 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.

The Association of Union Constructors

1501 Lee Highway, Suite 202

Arlington, VA 22209

Phone: 703.524.3336

Fax: 703.524.3364

www.tauc.org

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.

Construction Labor Research Council

1250 Connecticut Avenue, Suite 700

Washington, D.C. 20036

Phone: 202.347.8440

www.clrcconsulting.org

TABLE OF CONTENTS

EXECUTIVE SUMMARY & KEY FINDINGS

The *2021 Union Craft Labor Supply Study* was conducted by the **Construction Labor Research Council (CLRC)** and sponsored by **The Association of Union Constructors (TAUC)**. This important, annual research project provides a useful, detailed and data-driven picture of the state of the union craft workforce in construction and maintenance activity throughout the United States. Analyses focus on current status, growth projections, labor shortages and surpluses, craft-specific results, and new information on timely topics each year.

TAUC, CLRC and their partners know that a data-based approach is the best way to achieve shared goals of improving business performance and increasing union market share.

Coronavirus Notice

Last year, this study occurred just prior to the advent of the Coronavirus pandemic. This year, the data reflect nearly a year of living with the pandemic. Thus, the results from last year's study compared to this year provide a clean "before after" look at the data.

STUDY FOCUS

This study covers the following topics:

- Growth in the construction and maintenance industry (union and nonunion)
- Labor supply for union craft workers covering:
  - Recent history
  - Projections for 2021 and beyond
  - Apprentice levels
- Detailed findings for 14 different union crafts
- Skills shortage
- **New for 2021—funding status of union pension funds, union craft labor portability, and the impact of the Coronavirus pandemic on construction and maintenance**

KEY FEATURES OF THE STUDY

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

- Respondents were instructed to report information based on their own organization, not their perceptions of an overall generic labor market, hearsay or what they may have read in some publication. This type of data collection enhances the validity of the results and minimizes erroneous data which can distort the results.
- The population from which the large sample (N=1,129) was drawn is knowledgeable and engaged regarding the topic of craft labor supply.
- A large amount of craft-specific results is included in the report.
- Detailed analyses, including data cuts by the four demographic variables (i.e., role, industry, region, organization size) and interactions among those variables, are presented throughout the report.
- Many charts and tables, along with helpful explanatory text, are included to ensure that the study results can be efficiently and accurately understood by the reader.
- Each year, a new set of custom questions is included as a one-time event (previous questions are rotated off). These questions focus on emerging issues or topics critical to the construction and maintenance industries.

DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

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

- Organization Role
- Industry
- Geographic Region
- Organization Size (Number of Employees)

KEY FINDINGS

1. The Size of Growth Projections has Decreased

The percent or respondents projecting growth in the construction and maintenance industry for 2021 fell by 13% from 2020. For 2020 (data from the 2020 survey, administered January/February 2020), 78% of the sample projected growth in their organization (union and nonunion). This year (questionnaire administered January/February 2021), that number fell to 65%. Relatedly, there was a reduction in the percent of participants endorsing growth using the high end of the growth spectrum, the "Very Strong Growth" response option in the survey. For 2020, 24% of the respondents were this optimistic. For 2021, this statistic fell to 19%.

In summary, although there is reduced optimism regarding growth, even in the midst of a pandemic, about two thirds of the study participants projected growth. Thus, what makes the findings about growth projections stand out is that they are not lower than they are, given the challenges the construction and maintenance industry faces: a pandemic, union craft labor shortage, increasing cost of materials, logistics challenges, etc.

The growth projections were also examined according to four data cuts:

- **Role:** Consistent with previous years, Union/Labor representatives were generally more optimistic than those in the other roles. However, the Union/Labor results were consistent with the other roles in that their growth projections dropped from 2020 to 2021.
- **Industry:** The Civil industry had the most favorable growth prospects for 2021. The Petroleum/Natural Gas/Chemical industry had the lowest projections regarding growth.
- **Region:** The growth ratings were lower in 2021 than 2020 for every region, a solid indicator that no area of the country escaped the negative impacts of the pandemic.
- **Organization Size:** Like the geographic data cuts, growth ratings fell in every organization size grouping.

2. The Union Craft Labor Shortage Lessened

Although the shortage of union craft workers continues, it improved somewhat in 2019, and then more in 2020. That is, the percent of respondents reporting a small shortage fell by 6% in 2019 (from 54% to 48%) and another 6% in 2020 (from 48% to 42%). Also, the percent reporting a large shortage fell by 8% in 2020 (from 18% to 10%). In line with this, the percentage reporting the appropriate number of craft workers increased by 9% in 2020 (from 27% to 36%) while those reporting a surplus increased by 5% (from 7% to 12%). Thus, the union craft labor shortage is a major concern—those with a large shortage—in just 10% of the organizations while almost half have enough (36%) or too many (12%) workers.

Results by data cut:

- **Role:** For every role, fewer reported a shortage in 2020 than in 2019. The data from the Union/Labor participants was again more positive (i.e., less reporting a shortage) than the other roles, similar to trends from previous years.
- **Industry:** The lowest (most favorable) worker shortage data were for the Civil industry. This jibes favorably with the growth data in this report where the strongest sector was Civil. Manufacturing and Petroleum/Natural Gas/Chemical experienced significant declines in the percent of people saying there was a shortage of workers in those industries.
- **Region:** There was strong consistency across all nine regions with fewer people indicating a shortage of union craft workers in 2020 than in 2019 for every region. The largest gains (i.e., fewer reporting a shortage) were in the South Central and Northwest Regions.
- **Organization Size:** The improvement in the shortage numbers was evident in all organization sizes. For every organization size range, there were less respondents saying there was a shortage in their organization in 2020 compared to 2019.

3. Differing Perspectives: Management vs Labor

Each year, the results for some items in the questionnaire highlight the differing perspectives of management and labor. Once again this year, labor had more optimistic perspectives than management

(Contractor/Subcontractor, Construction Manager and Owner/Clients). That is, compared to management, Union/Labor had noticeably stronger projections about growth and many Union/Labor representatives reported less of a union craft worker shortage. However, the Union/Labor and management roles were in sync regarding their change in ratings from 2020 to 2021—both groups had lowered growth and shortage ratings in 2021.

A new topic for 2021 was the funding status of union craft pension funds. As expected, Union/Labor reported that these funds were "adequately funded" at a much higher rate than those in the management roles. Additionally, more so than those in management roles, Union/Labor participants in the study felt that pension fund funding status had little impact on recruiting workers.

New for 2021

4. Funding Status of Union Pension Funds

Respondents were asked about the financial status of union craft pension fund(s) in their organization and the impact the funding status had on recruiting employees. A plurality (41.1%) said the funds in their organization were adequately funded and a majority (59.0%) said the financial status of the funds had little impact on recruiting employees. At the other end of the spectrum, 10.2% said the pension funds in their organization were a concern and 4.9% said the funding status made it much more difficult to attract workers.

5. Union Craft Labor Portability

A question which focused on the impact of portability on meeting union craft staffing needs was included in the survey. A plurality (43.9%) said the organization where they were employed already had portability. Another 20.9% said having portability would help significantly. Most of the others said it would help slightly or somewhat (18.4%). Those representing labor were much more likely to say portability was already in effect in their place of employment. Results suggest that increased portability would help the Manufacturing, Petroleum/Natural Gas/Chemical, and Utility industries the most.

6. Impact of the Coronavirus Pandemic on Construction and Maintenance

The survey contained a question asking what impact the Coronavirus pandemic had on union craft labor staffing in their organization. A plurality (42.3%) said there was no shortage prior to the pandemic. This lines up well with the findings in this study—there is a union craft labor worker shortage, but it generally is not quite as severe as some sources suggest.

About a fourth (24.0%) said they had a shortage of union craft labor prior to the pandemic, but now they have either a surplus or the correct number of workers. Just 12.7% indicated a shortage prior to the pandemic and a current shortage.

DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

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

- Organization Role
- Industry
- Geographic Region
- Organization Size (Number of Employees)

	2020		2021	
Organization Role	**Number**	**Percent**	**Number**	**Percent**
Association Employee	25	3%	54	5%
Construction Manager	37	5%	56	5%
Contractor/Subcontractor	266	33%	519	46%
Owner/Client	19	2%	43	4%
Union/Labor Representative	427	53%	412	36%
Other	30	4%	45	4%
Total	804	100%	1129	100%

	2020		2021	
Industry	**Number**	**Percent**	**Number**	**Percent**
Civil	35	5%	59	6%
Commercial/Institutional	338	47%	579	57%
Manufacturing	117	16%	142	14%
Petroleum/Natural Gas/Chemical	93	13%	89	9%
Utility	96	13%	94	9%
Other	41	6%	46	5%
Total	720	100%	1009	100%

*Total sums to fewer respondents than the sample size because some did not indicate industry.

	2020		2021	
Geographic Region	**Number**	**Percent**	**Number**	**Percent**
New England	142	11%	171	10%
Middle Atlantic	204	16%	259	16%
Southeast	185	15%	236	14%
East North Central	347	27%	406	25%
West North Central	105	8%	141	9%
South Central	94	7%	124	7%
Mountain Northern Plains	57	5%	86	5%
Northwest	62	5%	88	5%
Southwest	69	5%	144	9%
Total	1265	100%	1655	100%

*Total sums to more than the sample size because respondents could provide data for more than one region.

	2020		2021	
Number of Employees	**Number**	**Percent**	**Number**	**Percent**
1-25	67	8%	164	15%
26-100	85	11%	195	17%
101-500	216	27%	286	25%
501-1,000	125	16%	141	12%
1,001-5,000	135	17%	181	16%
5,001-10,000	37	5%	30	3%
More than 10,000	139	17%	132	12%
Total	804	100%	1129	100%

STUDY RESULTS

On January 11, 2021, a questionnaire focusing on union craft labor in the construction and maintenance industry was circulated to individuals directly engaged in that industry. **A total of 1,129 people responded (an impressive 40.4% increase from last year)**, 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 2021 most respondents were either a Union/Labor Representative (36%) or a Contractor/Subcontractor (46%). The remaining roles represented 18% of the study sample. The proportion of the sample representing labor was noticeably less in 2021 than in 2020 (i.e., 2020: 53%. 2021: 36%). However, this comes after a significant jump in the number of Union/Labor respondents last year. The size of the total management cohort (Association Employee, Construction Manager, Contractor/Subcontractor and Owner/Client) of the sample grew from 43% in 2020 to 60% in 2021.

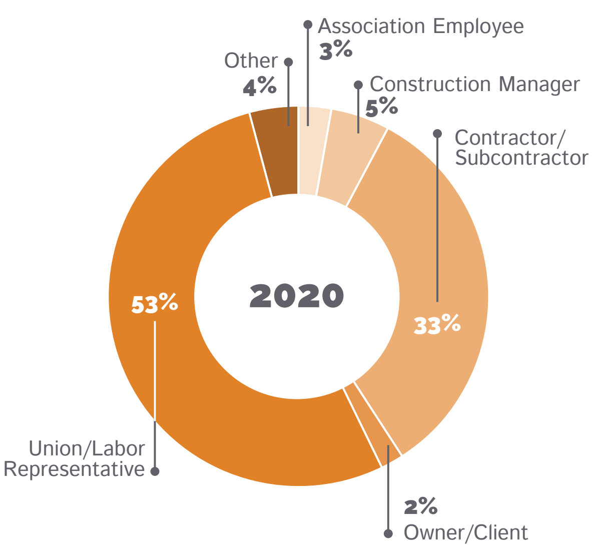
Exhibit 1.1

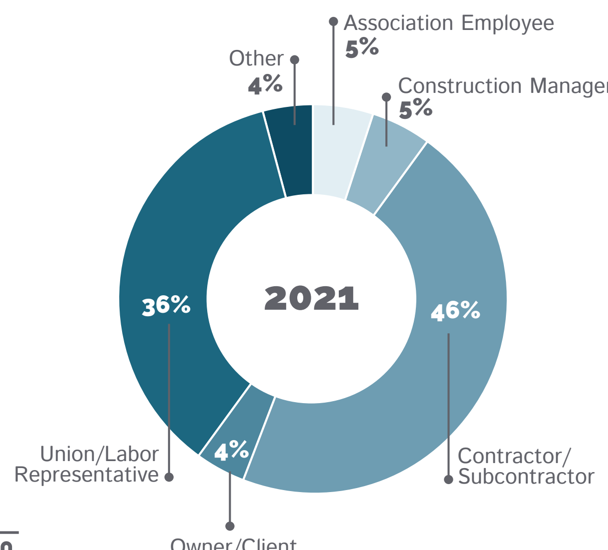
RESPONDENT ROLE TABLE

	2020		2021	
Organization Role	**Number**	**Percent**	**Number**	**Percent**
Association Employee	25	3%	54	5%
Construction Manager	37	5%	56	5%
Contractor/Subcontractor	266	33%	519	46%
Owner/Client	19	2%	43	4%
Union/Labor Representative	427	53%	412	36%
Other	30	4%	45	4%
Total	**804**	**100%**	**1129**	**100%**

Exhibit 1.2

RESPONDENT ROLE CHARTS





B. Industry

Study participants 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 2021, representing 57% of the sample (47% in 2020 and 43% in 2019), as displayed in **Exhibits 1.3 and 1.4**, Manufacturing represented 14% of the study participants and the remainder were in the single digits.

Exhibit 1.3

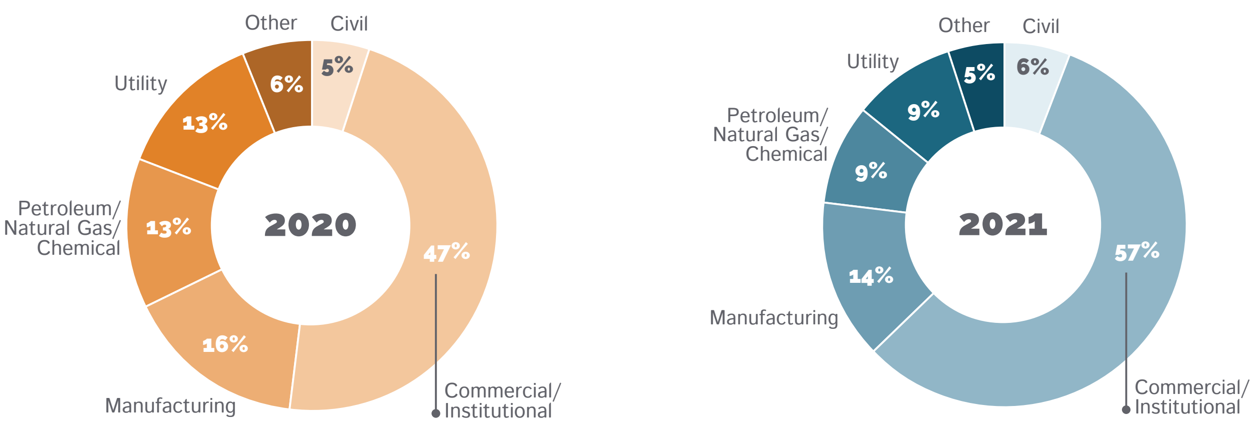
INDUSTRY TABLE

Industry	2020 Number	2020 Percent	2021 Number	2021 Percent
Civil	35	5%	59	6%
Commercial/Institutional	338	47%	579	57%
Manufacturing	117	16%	142	14%
Petroleum/Natural Gas/Chemical	93	13%	89	9%
Utility	96	13%	94	9%
Other	41	6%	46	5%
Total	**720**	**100%**	**1009**	**100%**

*Total sums to fewer respondents than the sample size because some did not indicate industry.

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, respondents were instructed to provide data only for those regions they were familiar with and where their organization had performed work.

As expected, the East North Central region had the plurality of responses both in 2020 and 2021 at 28% and 25%, respectively, as illustrated in **Exhibits 1.5 and 1.6**. Other regions with a double-digit percent of the responses in 2021 were the New England (10%), Middle Atlantic (16%), and Southeast (14%) regions.

Exhibit 1.5

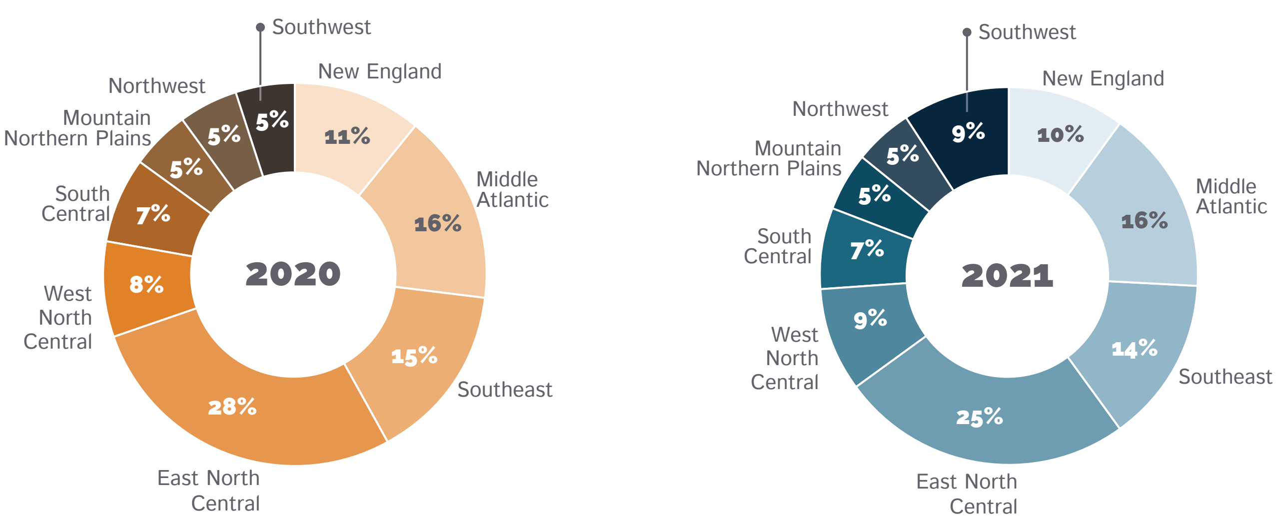
REGION TABLE

	2020		2021	
Geographic Region	**Number**	**Percent**	**Number**	**Percent**
New England	142	11%	171	10%
Middle Atlantic	204	16%	259	16%
Southeast	185	15%	236	14%
East North Central	347	28%	406	25%
West North Central	105	8%	141	9%
South Central	94	7%	124	7%
Mountain Northern Plains	57	5%	86	5%
Northwest	62	5%	88	5%
Southwest	69	5%	144	9%
Total	**1265**	**100%**	**1655**	**100%**

*Total sums to more than the sample size because respondents could provide data for more than one region.

Exhibit 1.6

REGION CHARTS



D. Organization Size

Exhibits 1.7 and 1.8 show that the participants in the study were fairly evenly distributed across various sizes of organizations. The most common size was 101-500 employees (25%) and the smallest percent of respondents (3%) represented organizations with 5,001-10,000 employees. All other organization sizes accounted for 12–17% of the sample.

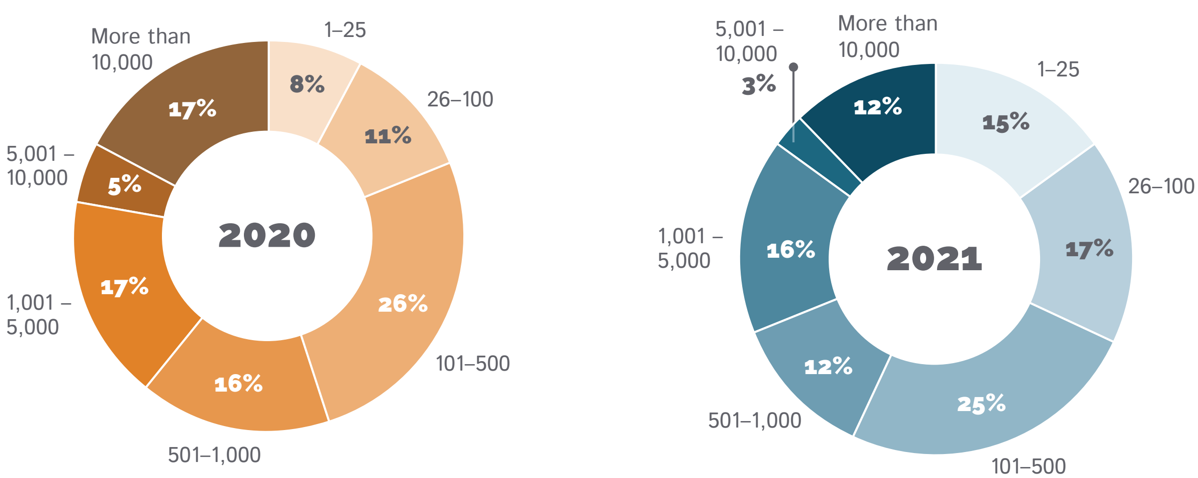
Exhibit 1.7

ORGANIZATION SIZE TABLE

Number of Employees	2020 Number	2020 Percent	2021 Number	2021 Percent
1-25	67	8%	164	15%
26-100	85	11%	195	17%
101-500	216	26%	286	25%
501-1,000	125	16%	141	12%
1,001-5,000	135	17%	181	16%
5,001-10,000	37	5%	30	3%
More than 10,000	139	17%	132	12%
Total	**804**	**100%**	**1129**	**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*). This section documents the degree of growth or contraction projected by those in the study sample for 2021 (and also projections for previous years as useful points of comparison).

Section II is divided into two parts:

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

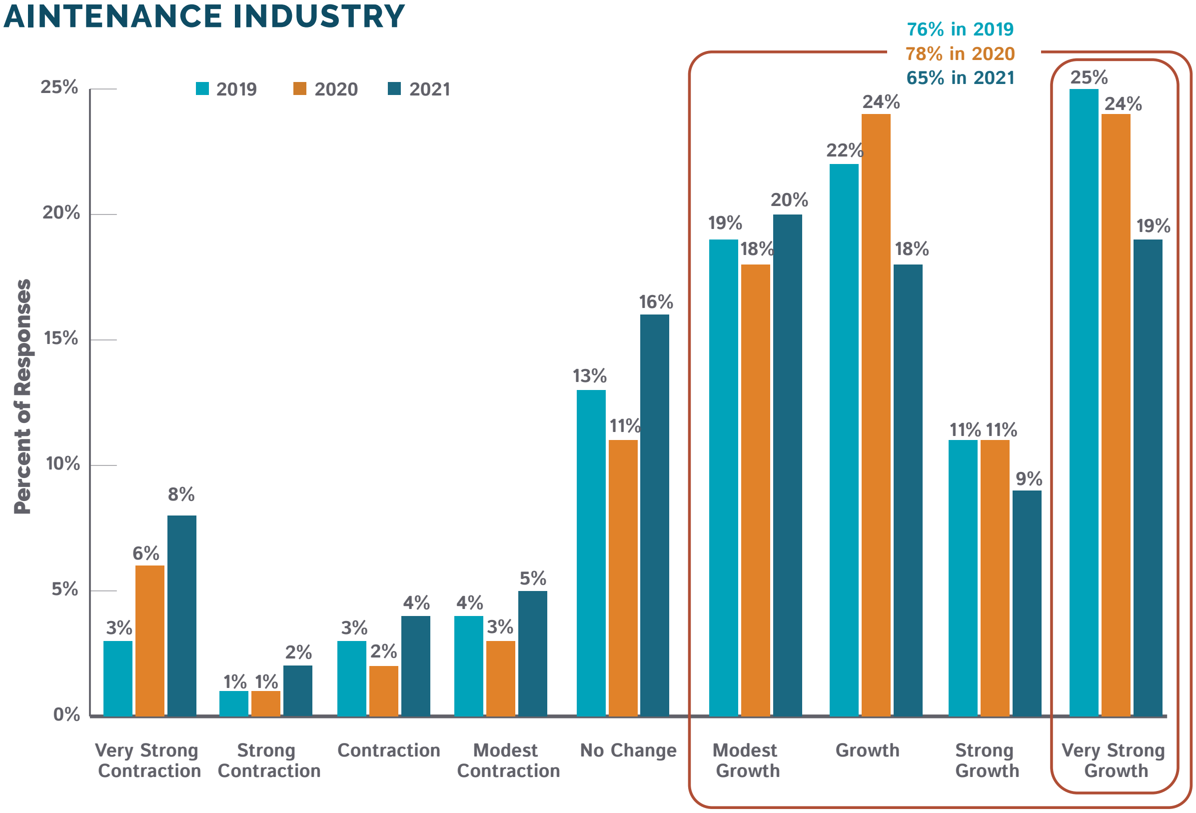
Part 1. Overall Growth/Contraction in the Construction and Maintenance Industry

Exhibit 2.1 illustrates how the data for 2019–2021 fell into each of the rating options for growth (i.e., modest growth, growth, strong growth, and very strong growth), contraction (i.e., modest contraction, contraction, strong contraction, very strong contraction) and no change.

From 2017–2020, projected growth was stable and strong, falling in a narrow band of 76%–78% of the respondents projecting growth for the ensuing year. *However, as anticipated due to the Coronavirus, this consistency ended in this year's survey, with 65% projecting growth for 2021 (down 13% from last year). Similarly, the percent of respondents thinking there will be "Very Strong Growth" fell to 19% in 2021 from 24% in 2020.* The percent projecting "Very Strong Contraction" has increased the past two years, from 3% in 2019 to 6% in 2020 to 8% in 2021. *Although these recent results are less positive for the construction and maintenance industry, it is actually surprising that the results are not more pessimistic given the severe impacts the pandemic has had on all aspects of life in America.*

Exhibit 2.1

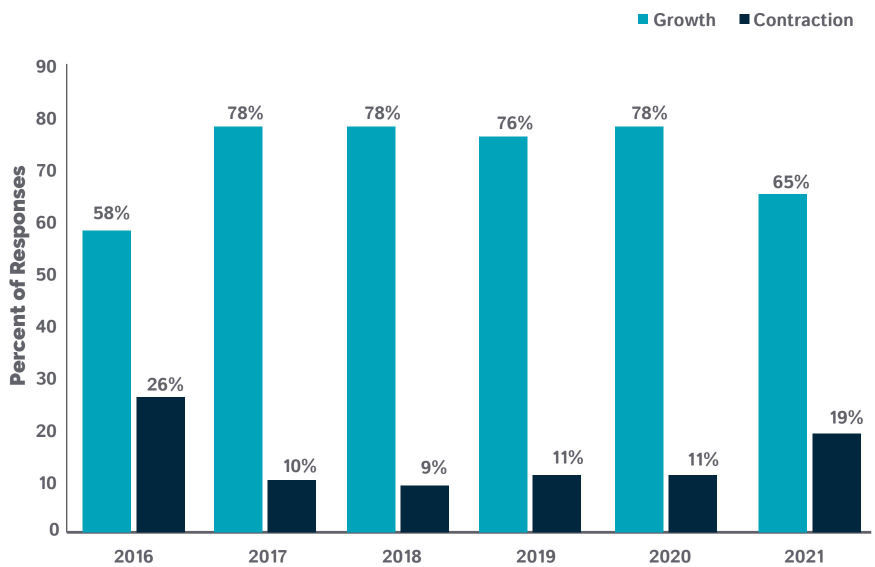
GROWTH/CONTRACTION PROJECTIONS FOR THE CONSTRUCTION AND MAINTENANCE INDUSTRY



The chart in **Exhibit 2.2** illustrates how growth and contraction ratings have trended from 2016–2021. As already noted, for 2021 expectations for growth decreased and expectations for contraction increased, but perhaps not as extensively as could be expected given the severity of the Coronavirus pandemic.

Exhibit 2.2

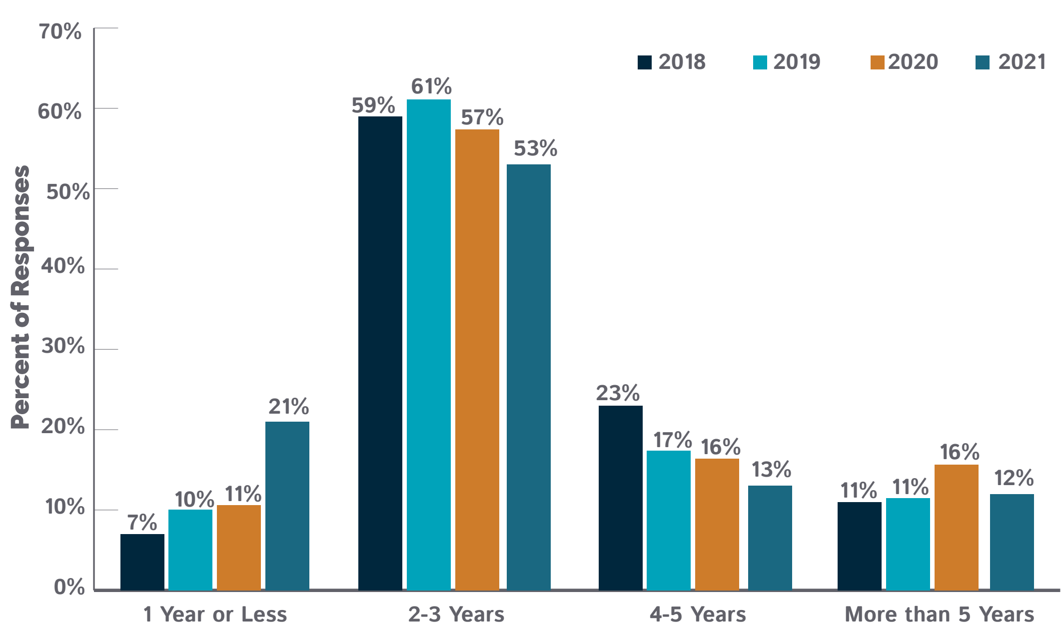
GROWTH AND CONTRACTION TREND



As **Exhibit 2.3** illustrates, expectations concerning the number of years the growth/contraction pattern will last have trended toward a shorter time span, with a jump in the number believing the growth/contraction will last "1 Year or Less" in this year's data. The percent forecasting "2-3 Years" has fallen from a high of 61% two years ago to 53% this year, again suggesting respondents' hesitation to make long-term forecasts.

Exhibit 2.3

TIMESPAN FOR GROWTH AND CONTRACTION PROJECTIONS



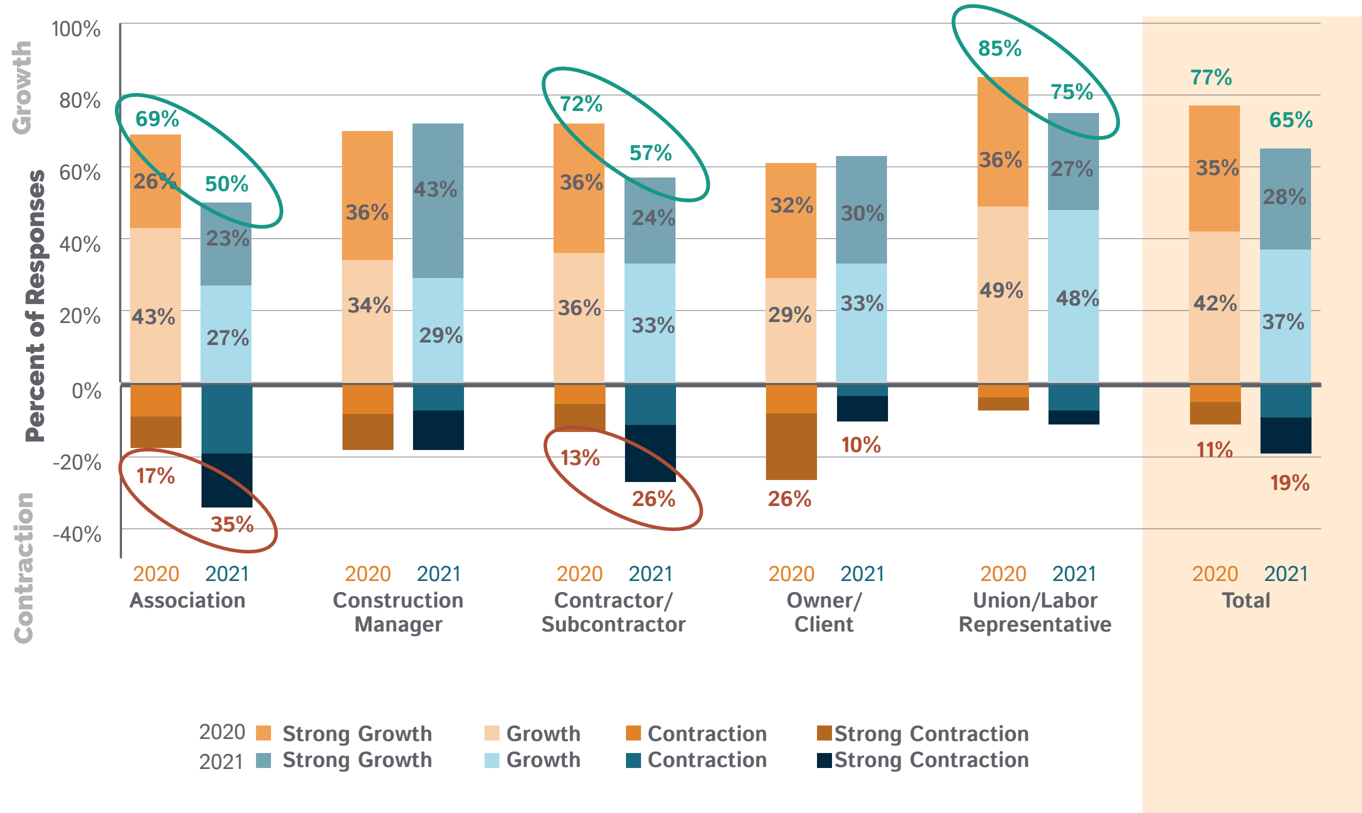
Part 2. Growth/Contraction by Demographic Data Cut

Exhibits 2.4–2.11 show results for growth/contraction by four data cuts: role, industry, region and organization size. The bars in the even numbered bar charts (i.e., **Exhibits 2.4, 2.6, 2.8, 2.10**) 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 bars in the odd number charts (i.e., **Exhibits 2.5, 2.7, 2.9, 2.11**) show the *average* growth/contraction projections. It should be noted that the even numbered exhibits show the percent of responses for various response options (i.e., growth, strong growth, contraction, strong contraction) and do not show those who said there would be no growth, whereas the odd numbered exhibits take into account all ratings and calculate the average degree of growth expected.

In **Exhibit 2.4**, the results regarding growth/contraction projections for 2021 are shown by respondent role. For comparison, also included are growth projections for 2020 from last year's study. *For most roles, there was a downward trend in that fewer people projected growth and more projected contraction. Interestingly, there was a reduction in the percent projecting contraction for the Owner/Client community, which is inconsistent with the other roles. As has been the case in this study for a number of years, the Union/Labor role was more optimistic than the other roles, but their downward trend in 2021 is consistent with the other roles.*

Exhibit 2.4

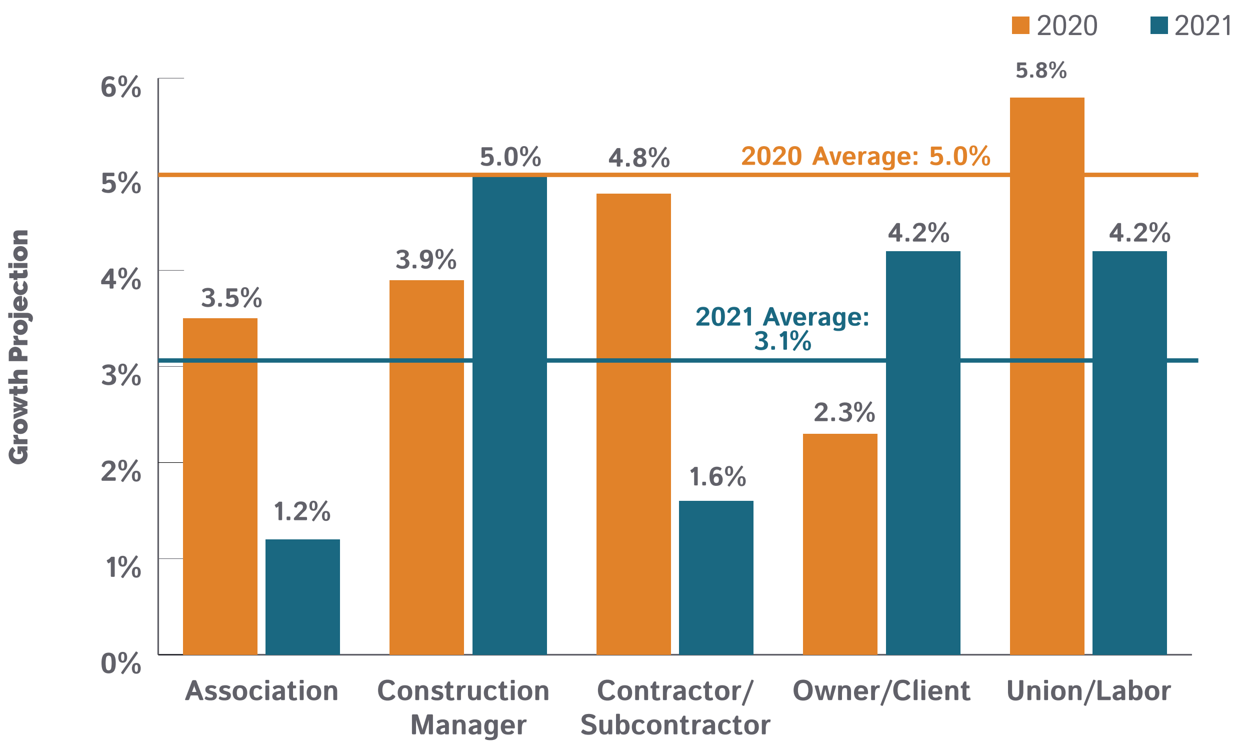
PERCENT PROJECTING GROWTH/CONTRACTION BY ROLE



As illustrated in **Exhibit 2.5**, the average ratings dropped significantly in 2021, to 3.1% from 5.0% the previous year. The two largest groups of study participants, Contractors/Subcontractors and Union/Labor Representatives, drove these results while the growth projection averages actually increased year over year for Construction Managers and Owner/Clients.

Exhibit 2.5

AVERAGE GROWTH/CONTRACTION PROJECTIONS BY ROLE



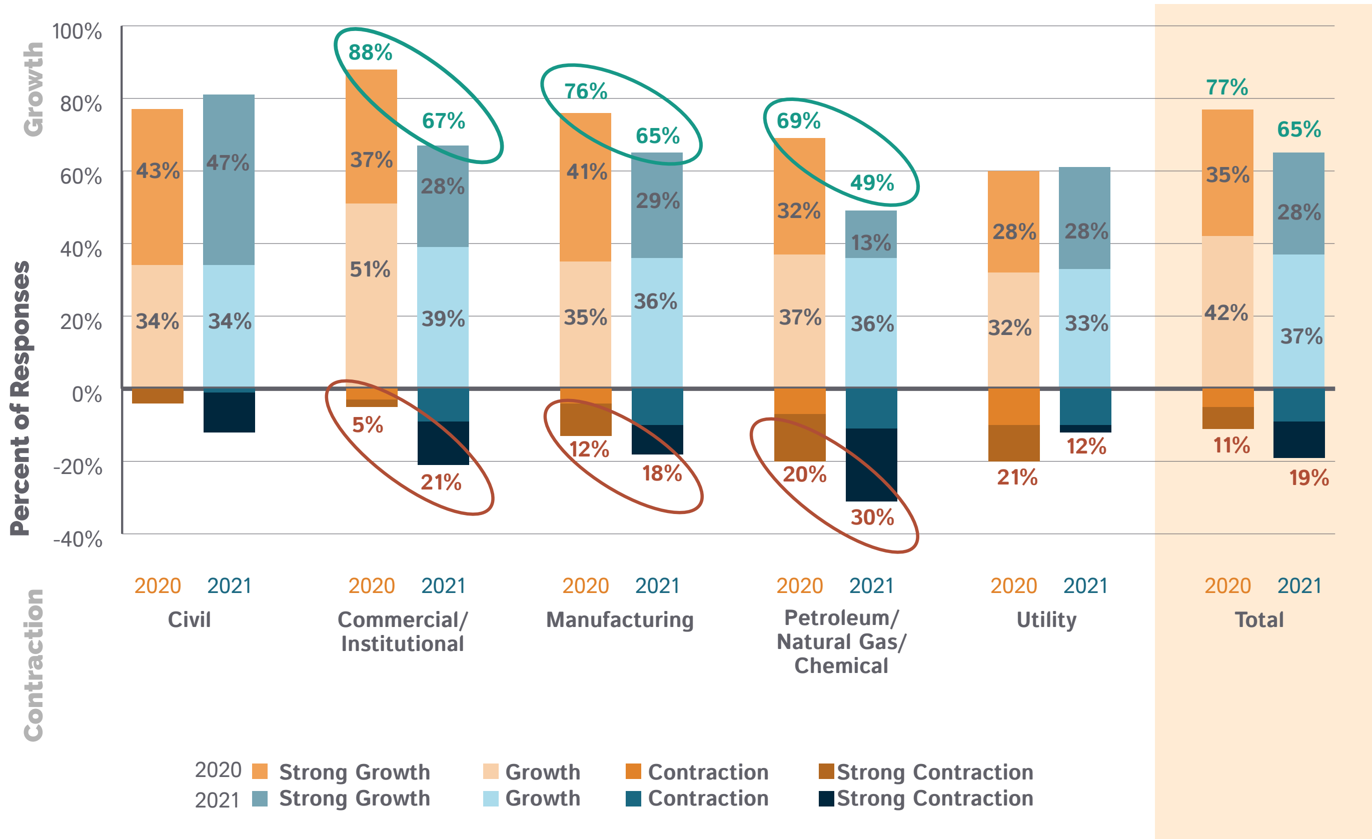
It is useful to note that the values shown for **Exhibits 2.5, 2.7, 2.9 and 2.11** are the average of all ratings—those reporting growth, those reporting contraction and those reporting no change. Although the charts are valuable because they concisely and accurately summarize all ratings, the contraction 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 these charts are somewhat "muted." In other words, if the average were calculated separately for those reporting growth and those reporting contraction the results would be more pronounced.

Similar to the previous two exhibits, **Exhibit 2.6** clearly shows the reduced optimism in 2021, in this case by industry. The largest changes were in Commercial/Institutional, Manufacturing, and Petroleum/Natural Gas/Chemical industries. More specifically, for Commercial/Institutional, growth ratings dropped from 88% to 67% and contraction ratings increased from 5% to 21%, for Manufacturing growth ratings dropped to 76% from 65% and contraction ratings went from 12% to 18%, and for Petroleum/Natural Gas/Chemical growth ratings went from 69% to 49% and contraction ratings from 20% to 30%. For 2021, the Civil industry garnered the "best" ratings, with growth increasing to 81% from 77%, which were the most optimistic ratings for 2021. However, as a slight confound, the contraction ratings also grew, growing from 4% in 2020 to 10% in 2021.

Exhibit 2.6

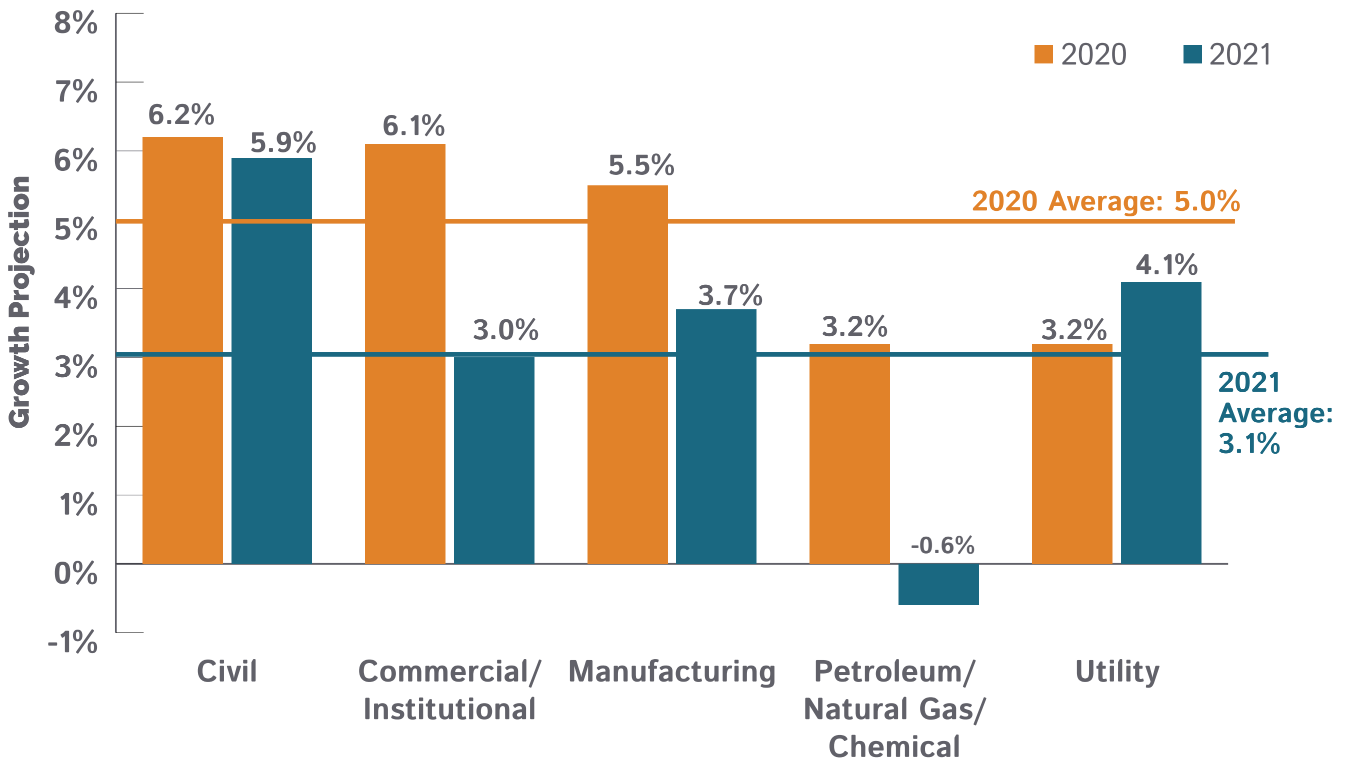
PERCENT PROJECTING GROWTH/CONTRACTION BY INDUSTRY



Consistent with **Exhibit 2.6**, **Exhibit 2.7** illustrates the decline in the expected growth question in the survey, but as averages. Here the average for projected growth fell from 6.1% to 3.0% for Commercial/Institutional, from 5.5% to 3.7% for Manufacturing, and from 3.2% to -0.6% for Petroleum/Natural Gas/Chemical. Based on **Exhibit 2.6**, it is clear that the average growth for the Utility industry is due to a reduction in the number of respondents reporting contraction, not an increase in actual growth projections.

Exhibit 2.7

AVERAGE GROWTH/CONTRACTION PROJECTIONS BY INDUSTRY

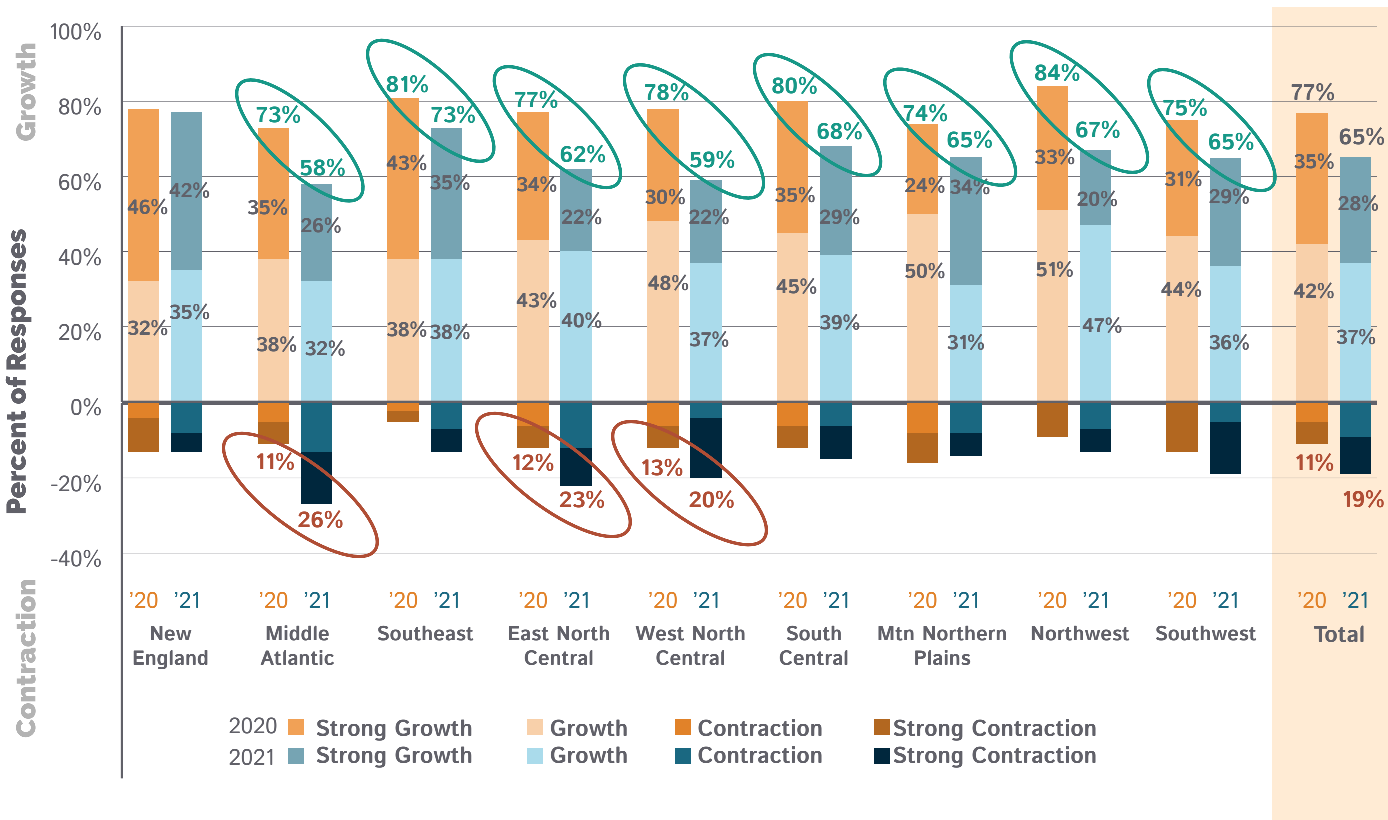


Differences in growth/contraction projections among the nine geographic regions are displayed in **Exhibit 2.8**. Meaningful differences in year-over-year change in a region are noted with ovals. No region experienced an increase in growth ratings from 2020 to 2021, and nearly every region saw an increase in contraction ratings.

The average *reduction* in growth ratings was 12% while the average increase in contraction ratings was 8% (projected growth/contraction ratings in 2021 compared to 2020).

Exhibit 2.8

PERCENT PROJECTING GROWTH/CONTRACTION BY REGION

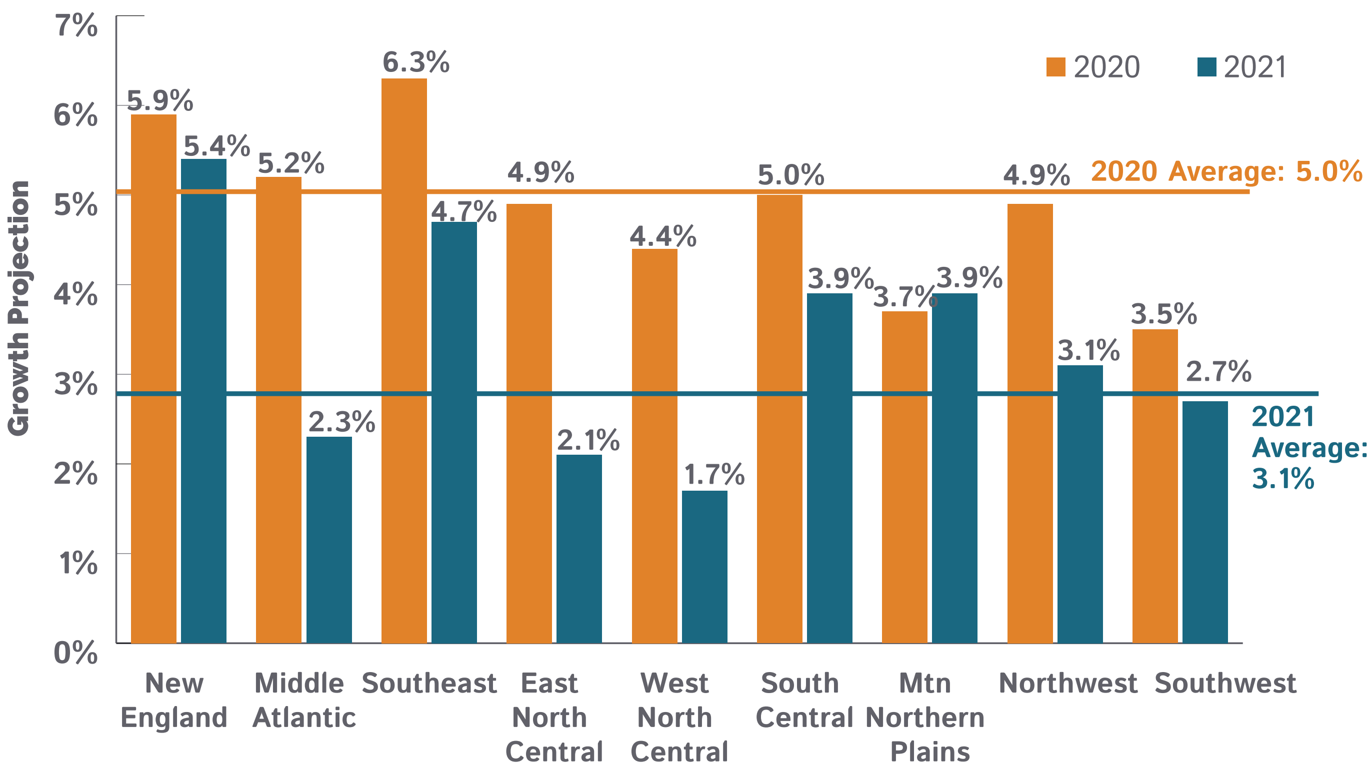


Region	States
New England	Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont
Middle Atlantic	District of Columbia, Delaware, Maryland, New Jersey, New York, Pennsylvania
Southeast	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia
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 illustrated in **Exhibit 2.9**, analyses to determine the average growth/contraction ratings show that the most significant drops from 2020 to 2021 were located in the Middle Atlantic (2.9%), East North Central (2.8%) and West North Central (2.7%) regions. The smallest change was in the Mountain Northern Plains (0.2%) region and this was the only region with higher average growth ratings in 2021 than in 2020. From **Exhibits 2.8 and 2.9** it is easy to see that the softening of growth projections (and the correlated increase in ratings reporting contraction) covers the entire United States; no region has gone unscathed by the pandemic.

Exhibit 2.9

AVERAGE GROWTH/CONTRACTION PROJECTIONS BY REGION



As a reminder, the analyses for these averages include all ratings—growth, shortage and no change—whereas the statistics in the colored bar charts in this section look at just the growth and shortage data (no change is excluded) and show what percent of the responses fell into each rating category.

Once again, the results show significant loss of growth ratings, and significant gain in contraction ratings across all organization sizes. See **Exhibit 2.10**. These findings were mostly consistent through all seven company size categories; all of them had a drop in growth ratings. However, the smaller organizations were hit the hardest. *The smaller the organization, the less optimistic (growth ratings) and more pessimistic (contraction ratings) the year-over-year changes from 2020 to 2021. For example, organizations with 1-25 employees declined by 29% in the percent of respondents projecting growth, while the largest organizations had just an 8% reduction.*

Exhibit 2.10

PERCENT PROJECTING GROWTH/CONTRACTION BY ORGANIZATION SIZE

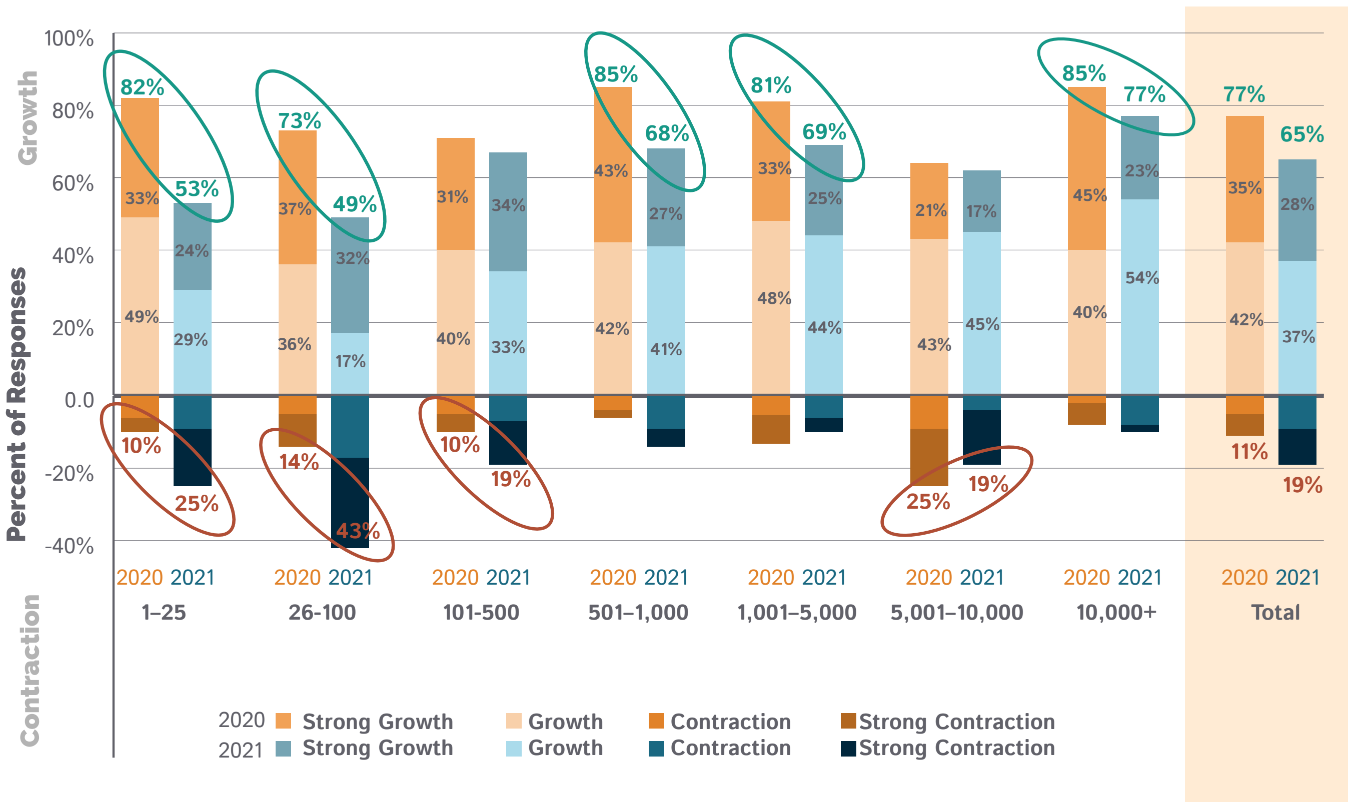
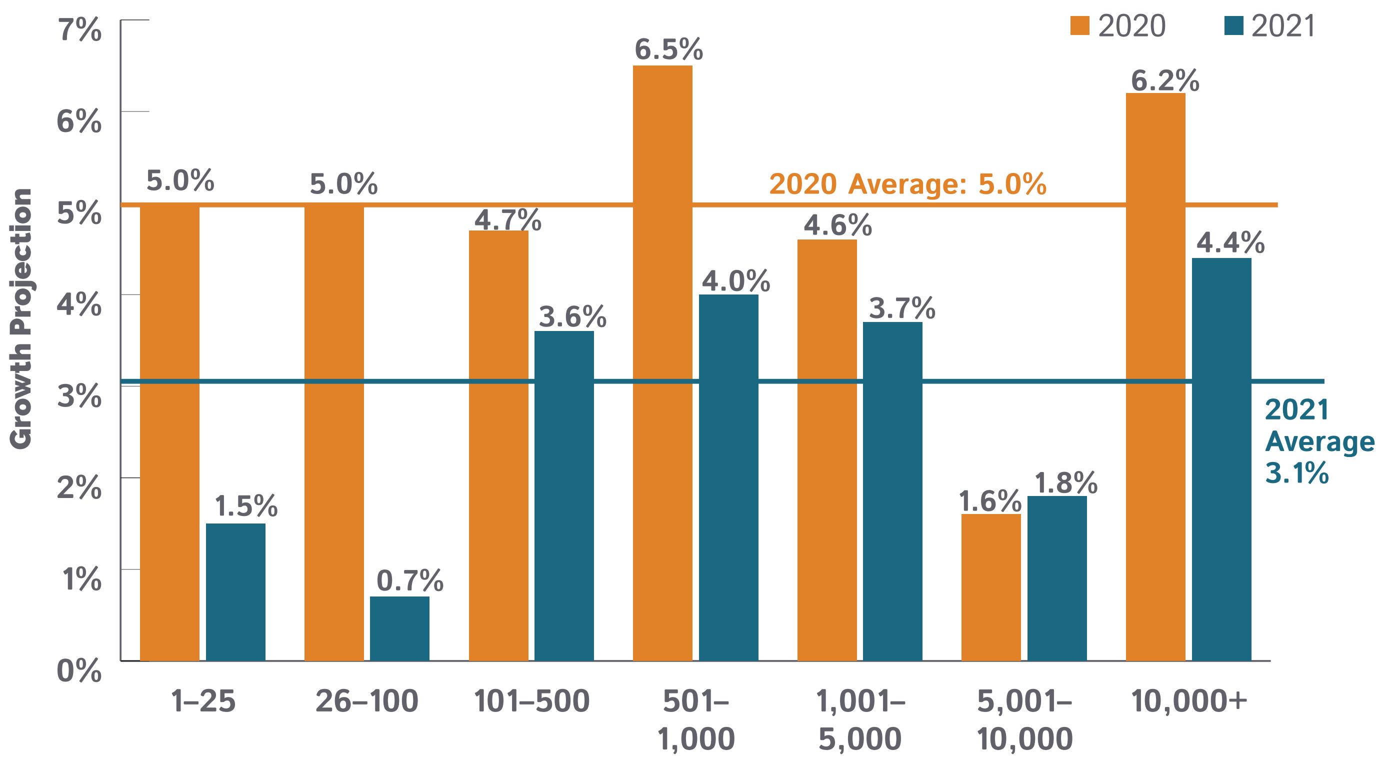


Exhibit 2.11 reflects findings highly consistent with **Exhibit 2.10**. All but the companies sized 5,001—10,000 had lower average growth results in 2021 than in 2020, and growth for that organization size was trivial (0.2%). Based on the averages used in **Exhibit 2.11**, organizations hit the hardest are those in the 1-25 and 26-100 employee ranges, with lowered ratings in 2021 of 3.5% and 4.3%, respectively.

Exhibit 2.11

AVERAGE GROWTH/CONTRACTION PROJECTIONS BY ORGANIZATION SIZE



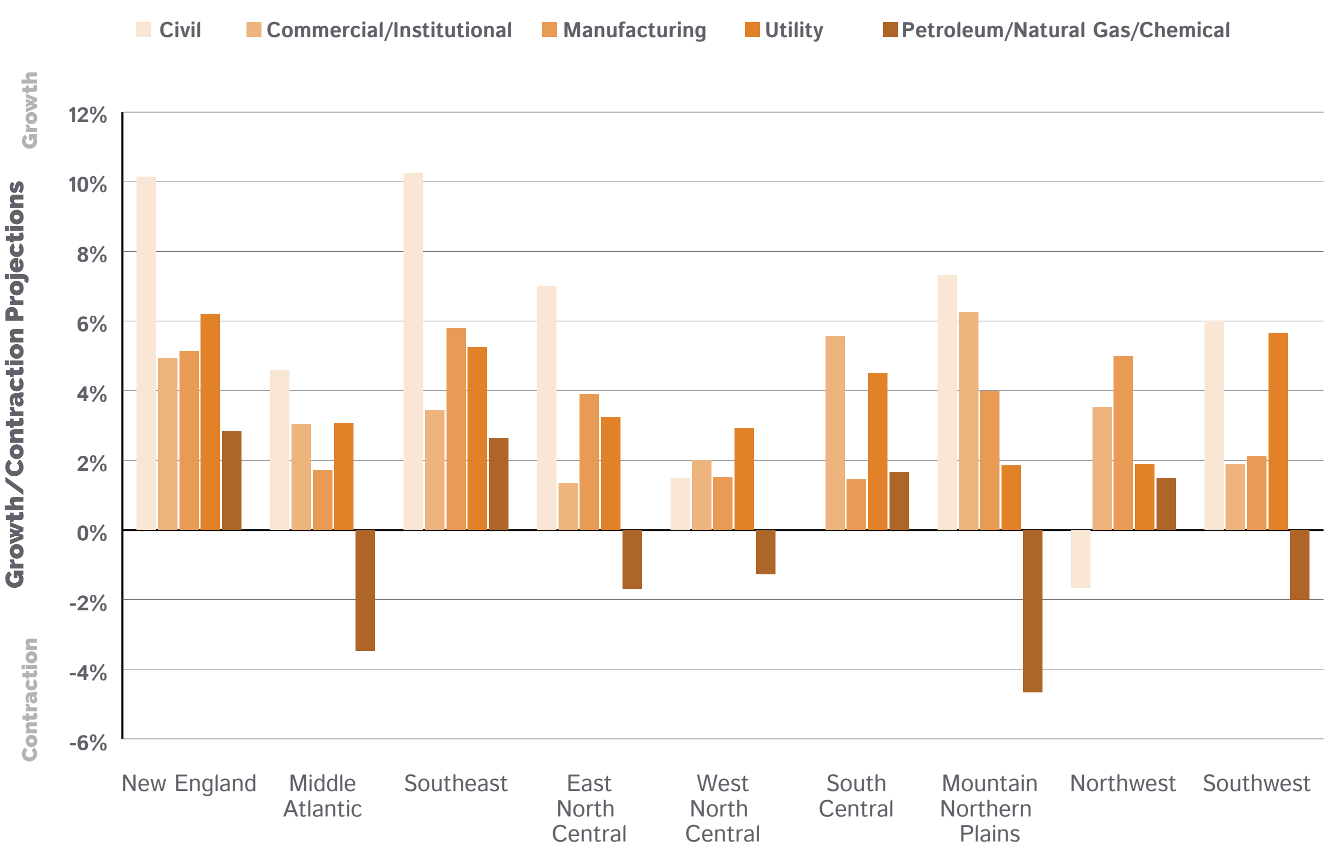
The average growth/contraction projections were further analyzed by looking at the data in an even more detailed manner: industry by region. In other words, the growth/contraction ratings were examined for each industry in each region. **Exhibit 2.12** illustrates the results.

Highlights of **Exhibit 2.12** include the following:

- **Civil:** *Compared to the other industries, the civil industry had the most growth oriented findings in six of the nine regions. Two regions, New England and Southeast, easily had the highest ratings for Civil in* ***Exhibit 2.12****, at slightly over 10.0% each.* Interestingly, data on the Civil industry actually fell to a small negative value (-1.7%) in the Northwest region in 2021. (Note, interpret this decline with caution due to limited data for this industry by region data cut).
- **Commercial/Institutional:** For the popular Commercial/Institutional industry, ratings were fairly consistent across regions, having the smallest standard deviation statistic results. *Two regions (East North Central and Southwest) were below 2.0%, and at the high side three regions were near 5.0% or more (New England, South Central and Mountain Northern Plains).*
- **Manufacturing:** The Manufacturing industry had its highest growth average in the Southeast (5.8%) region and its lowest in the Middle Atlantic (1.7%), West North Central (1.5%), and South Central (1.5%).
- **Utility:** For the Utility industry, six regions fell in a range from 1.9% to 3.8%. The outlier on the high side was the New England region and on the low end it was the Mountain Northern Plains and Northwest regions.
- **Petroleum/Natural Gas/Chemical:** This industry had the least favorable ratings by a wide margin. In fact, five regions had negative values for their growth projections. Four regions had positive values, yet all of those were relatively small, below 3.0%.

Exhibit 2.12

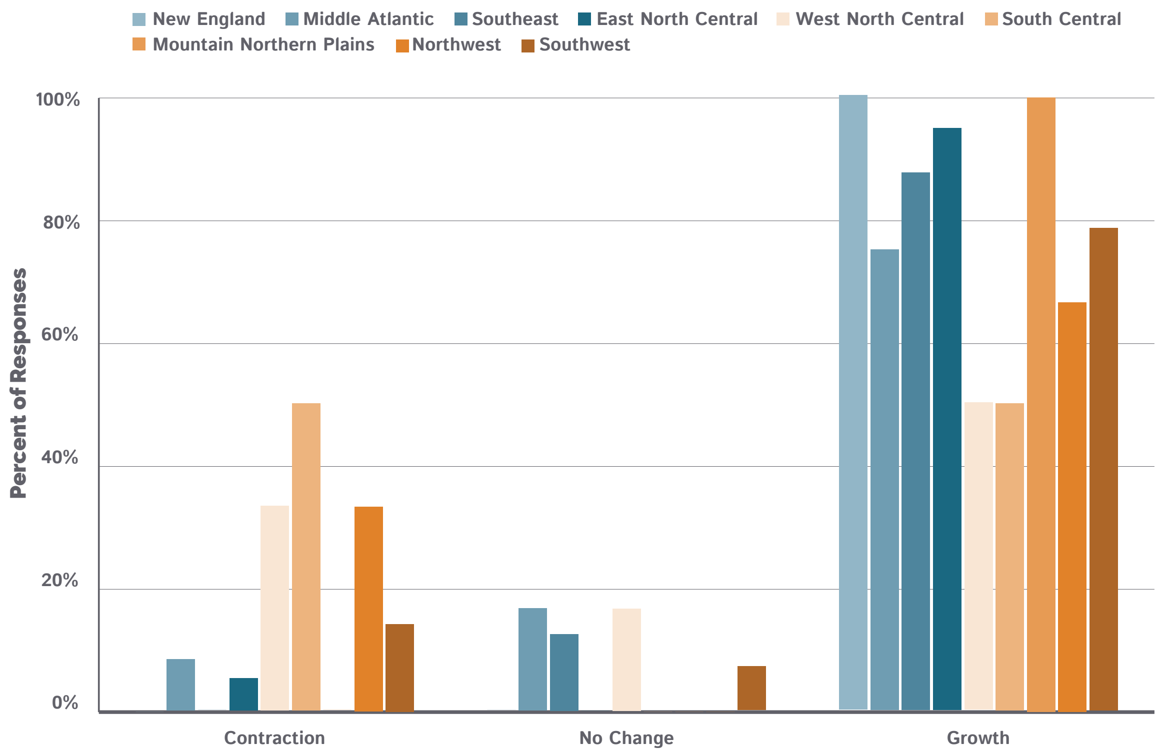
GROWTH/CONTRACTION PROJECTIONS: INDUSTRY BY REGION



Exhibits 2.13 – 2.16 aggregate the more detailed response options in the survey (e.g., very strong growth, strong growth, very strong contraction, strong contraction, etc.) into three categories: contraction, no change and growth. Results are displayed using a separate chart for each industry. Somewhat similar to last year, the growth category dominates. However, it was not as dominate as last year and the contraction ratings grew noticeably in 2021.

Exhibit 2.13

PERCENT OF RESPONSES PROJECTING GROWTH/CONTRACTION: CIVIL



Region	States
New England	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

Exhibit 2.14

PERCENT OF RESPONSES PROJECTING GROWTH/CONTRACTION: COMMERCIAL/INSTITUTIONAL

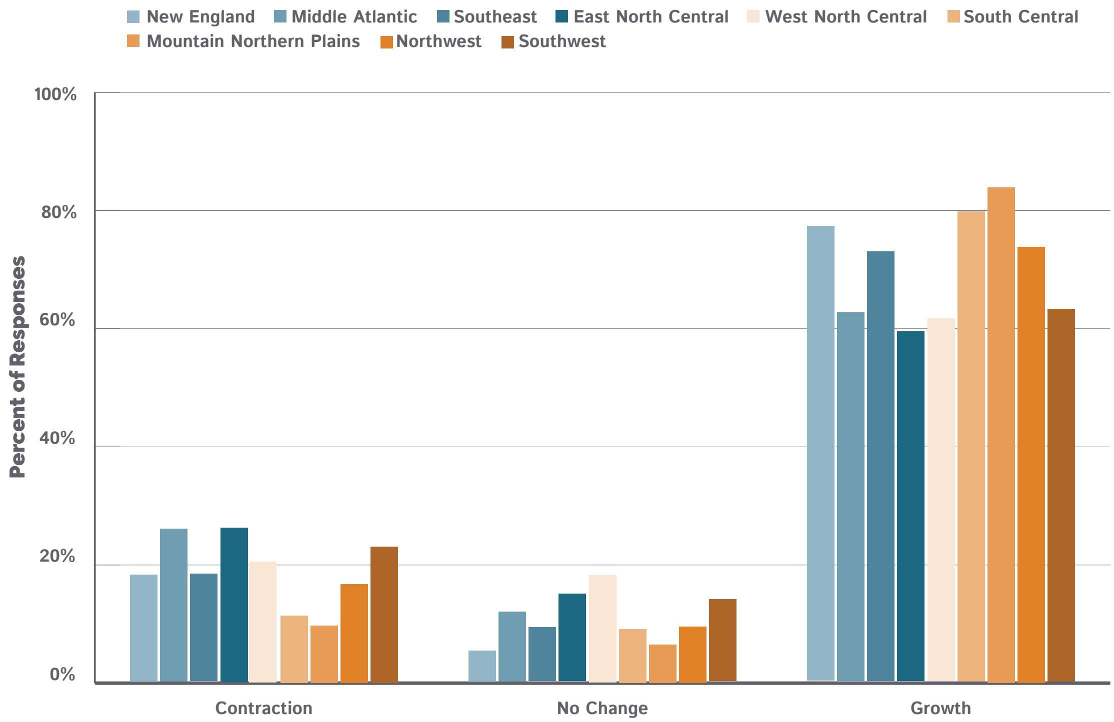


Exhibit 2.15

PERCENT OF RESPONSES PROJECTING GROWTH/CONTRACTION: MANUFACTURING

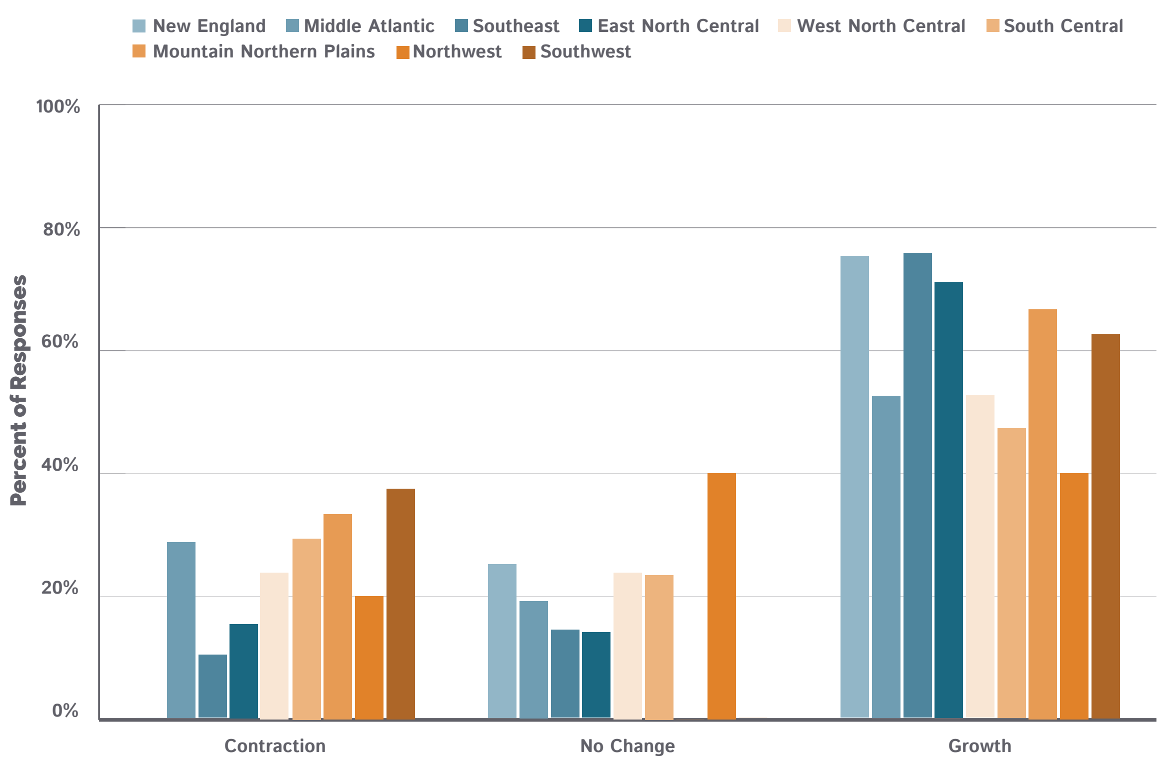


Exhibit 2.16

PERCENT OF RESPONSES PROJECTING GROWTH/CONTRACTION: UTILITY

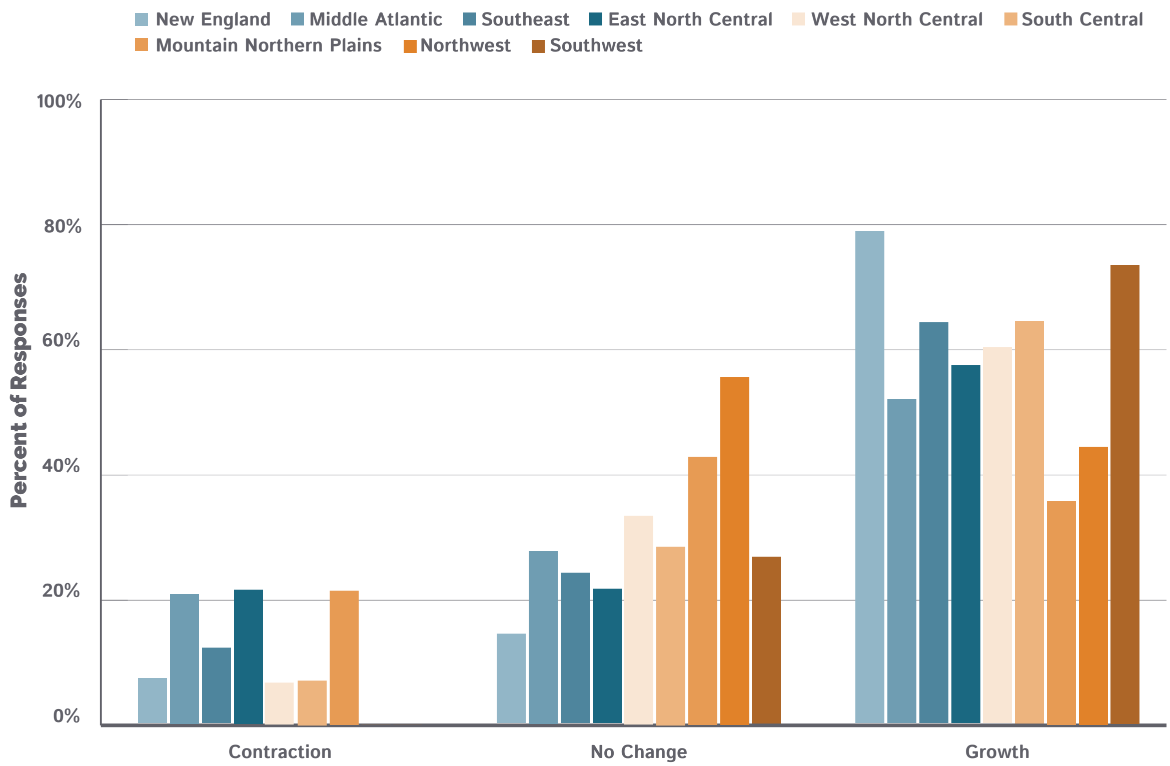
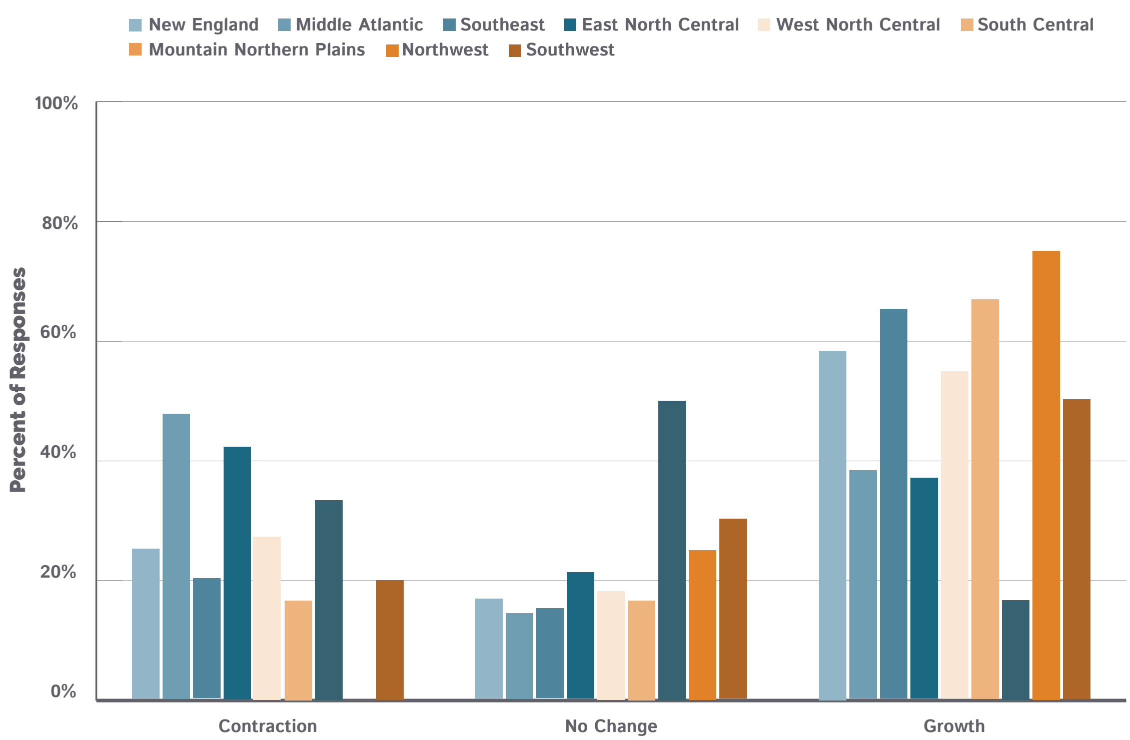


Exhibit 2.17

PERCENT OF RESPONSES PROJECTING GROWTH/CONTRACTION: PETROLEUM/NATURAL GAS/CHEMICAL



III. UNION CRAFT LABOR SHORTAGE AND SURPLUS

Section III refers specifically to *union craft labor*. This section describes how respondents reported the union craft labor shortage or surplus in *their* organization in 2020 (versus what they assume was happening in other organizations where they do not have first-hand knowledge). These are termed "actual" results since respondents reported their company's experience from the previous year (not more 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

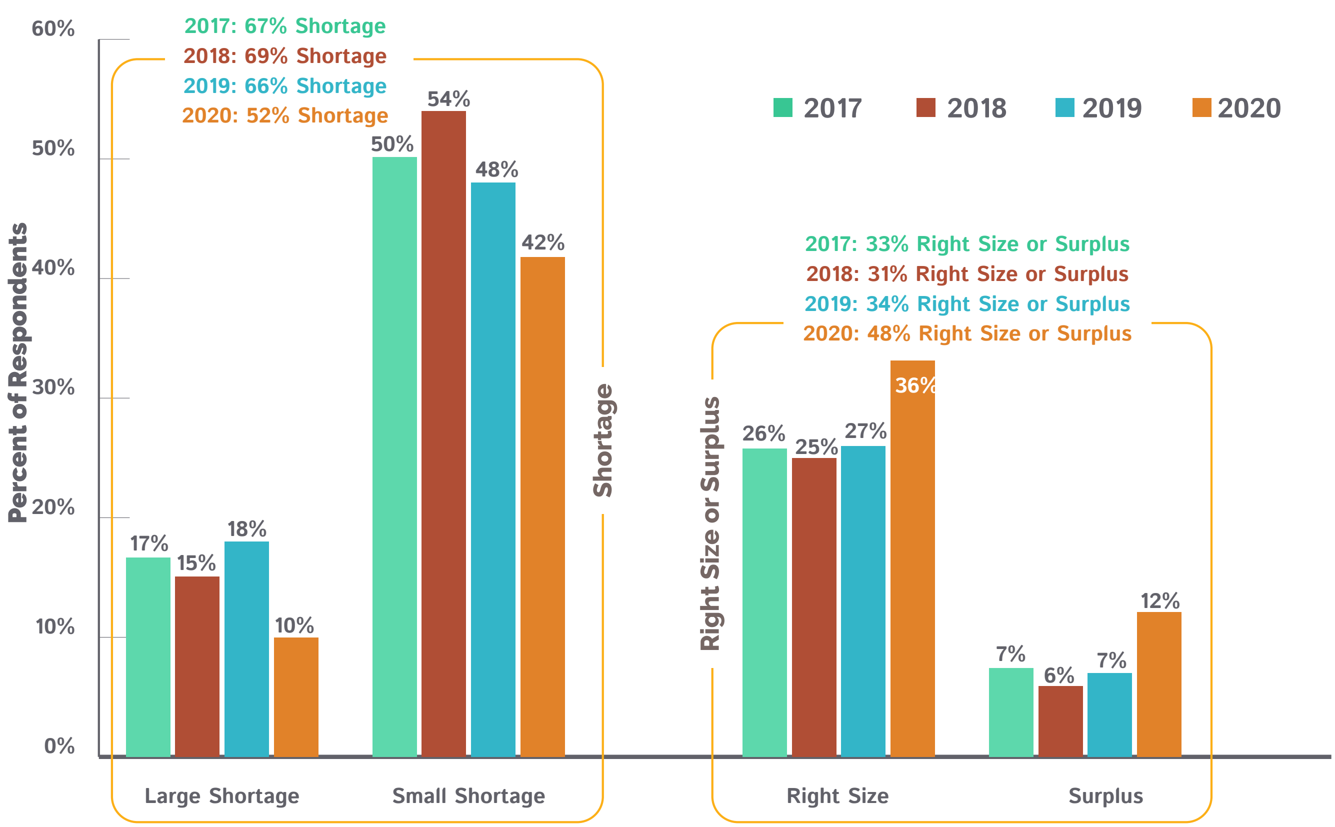
Part 1. Overall Union Craft Labor Shortage/Surplus

Last year, just prior to the advent of the Coronavirus pandemic, the union craft labor shortage had plateaued. This year, the shortage reversed direction and lessened. The "Small Shortage" category continued to be the most common rating by study participants. However, it has steadily declined from 54% in 2018 to 48% in 2019 to 42% in 2020. The other option for reporting a shortage, "Large Shortage," fell to an all-time low in 2020 at 10%, from a high of 18% in 2019. Conversely, there was significant growth in the "Right Size" category, accounting for 36% of the respondents (27% in 2019). Finally, the "Surplus" category also grew, to 12% in 2020.

For a number of years this study has signaled that the union craft labor shortage was not quite as severe as some sources seemed to indicate. This year, almost certainly due to the Coronavirus pandemic, the shortage is even less pronounced. However, that is not to suggest that there is no shortage, or to downplay its importance. Rather, the TAUC Union Craft Labor Supply Study shows the shortage as fairly modest, except for 10–18% percent of the construction and maintenance industry where there has been a large shortage through recent history.

Exhibit 3.1

UNION CRAFT LABOR SHORTAGE



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 2020 (and 2019 for comparison) by four data cuts: role, industry, region and organization size. The different colored segments in the bars (excluding **Exhibit 3.3**) represent the percent of the sample providing each rating (i.e., large shortage, small shortage, right size, surplus), not the actual percent size of the shortage (or surplus) in the union craft workforce. In **Exhibit 3.2**, the results for 2019 and 2020 from **Exhibit 3.1** are broken out by respondent role.

In **Exhibit 3.2**, the reduction in the prevalence of the labor shortage is highlighted by the downward pointing arrows. These show the smaller percent of respondents reporting a shortage in 2020 than in 2019. The overall average in 2019 was 66% of the respondents indicating a shortage of union craft workers in their organization. In 2020 this fell by 14% to 52%.

For every role there were fewer reporting a shortage in 2020 in their organization than in 2019. The Union/ Labor constituent category again had the most optimistic ratings, but their change score from 2019 to 2020 was very much in line with the other roles. Across all roles, along with fewer people reporting a shortage, there was an increase in those reporting a surplus.

Exhibit 3.2

UNION CRAFT LABOR SHORTAGE/SURPLUS BY ROLE

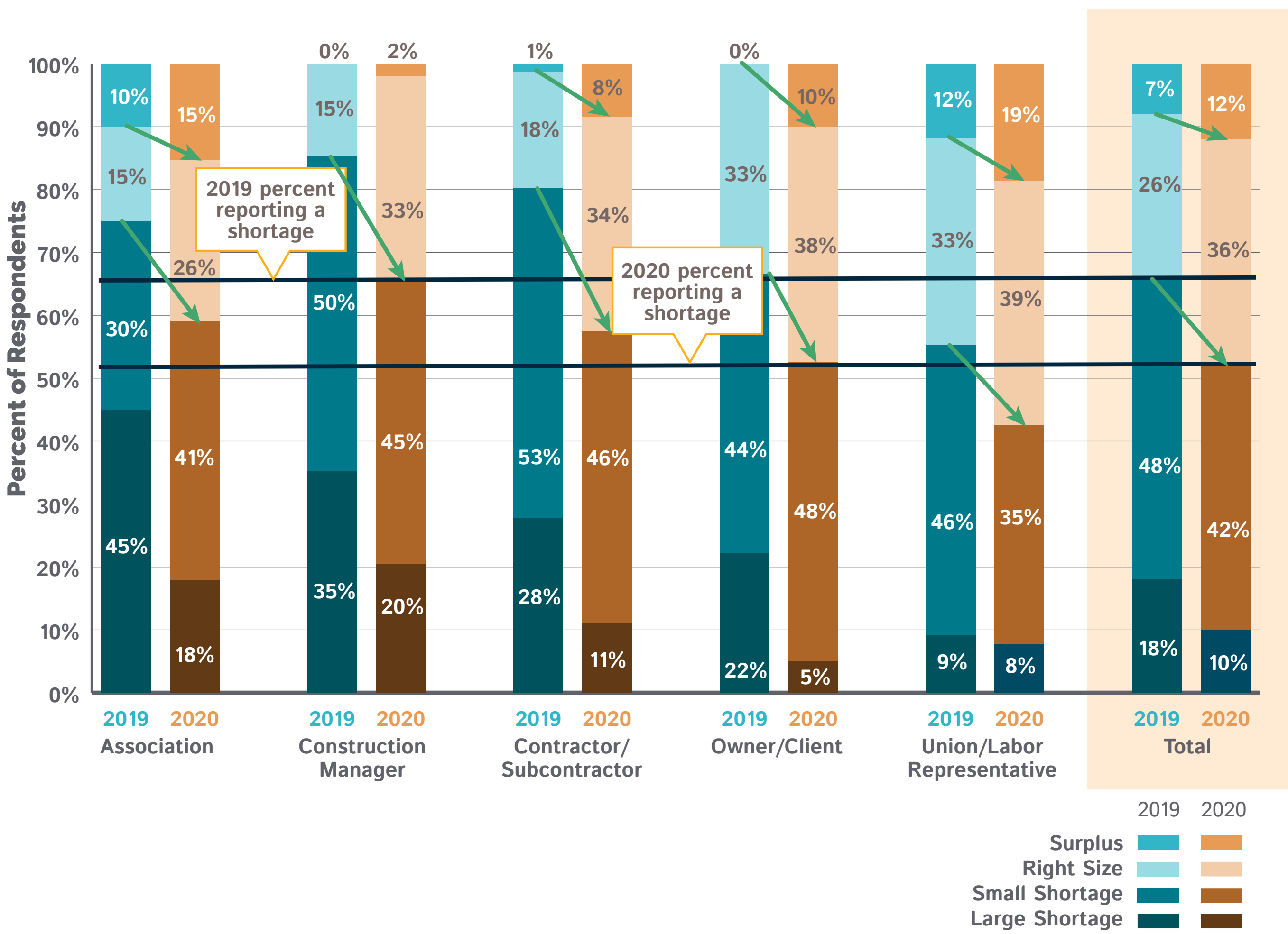
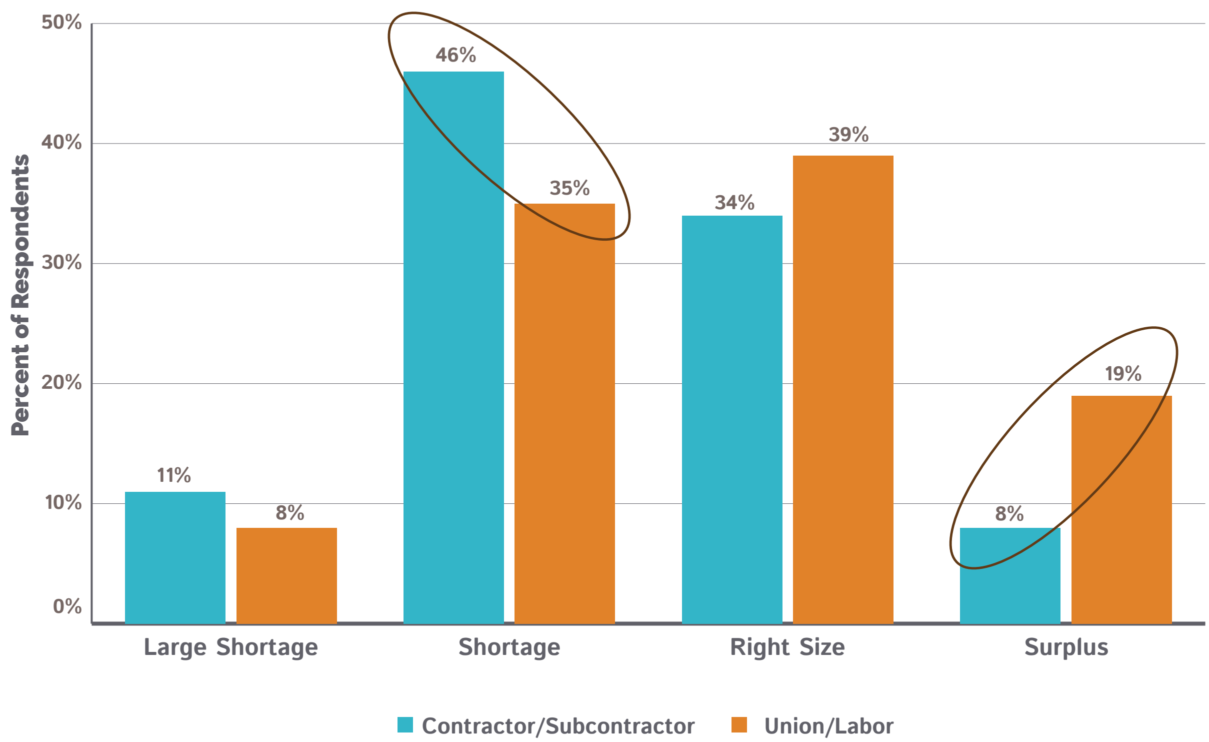


Exhibit 3.3 represents a subset of **Exhibit 3.2**; it portrays the unique perspectives between the two largest roles providing data for the study: Contractors/Subcontractors and Union/Labor Representatives. As the exhibit displays, compared to Union/Labor, more Contractors/Subcontractors said there was a shortage and fewer said there was a surplus. The two groups were fairly similar in saying their organization had the right sized union craft labor force, or a surplus.

Exhibit 3.3

RATINGS COMPARISON: CONTRACTORS/SUBCONTRACTORS VS UNION/LABOR REPRESENTATIVES



As shown in **Exhibit 3.4**, there was less of a shortage in 2020 than in 2019 for every industry. The change was trivial for the Civil industry, but for other industries the drop was significant. The largest improvements regarding the shortage were in the Manufacturing and Petroleum/Natural Gas/Chemical industries. For both, shortage statistics reduced and the surplus statistics increased.

Earlier, in **Section II**, **Exhibit 2.6** shows that the highest growth ratings were for Civil. Combining that finding with **Exhibit 3.4** where Civil has some of the highest shortage numbers suggests that this industry may have some significant challenges in trying to provide manpower for growth.

Exhibit 3.4

UNION CRAFT LABOR SHORTAGE/SURPLUS BY INDUSTRY

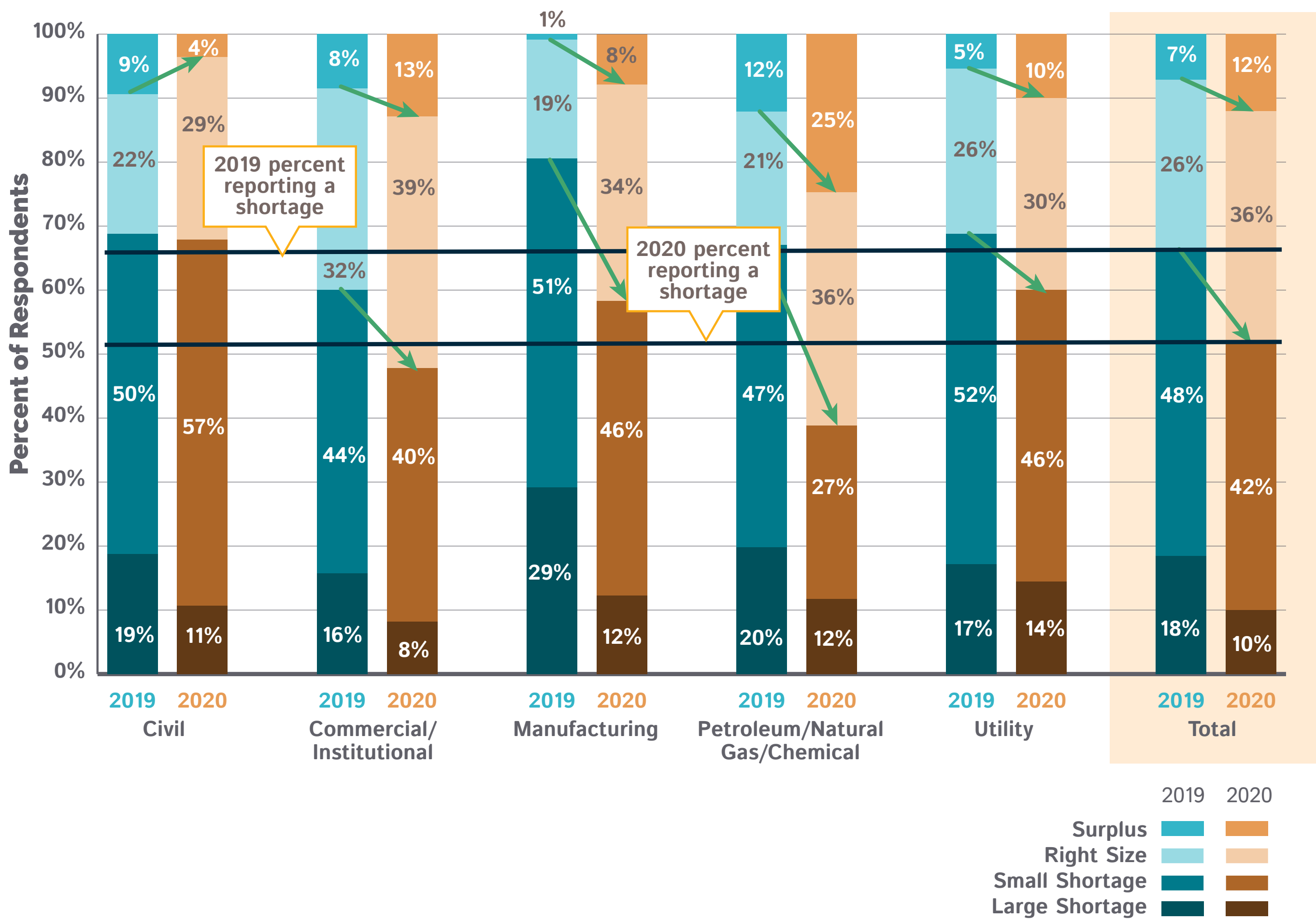
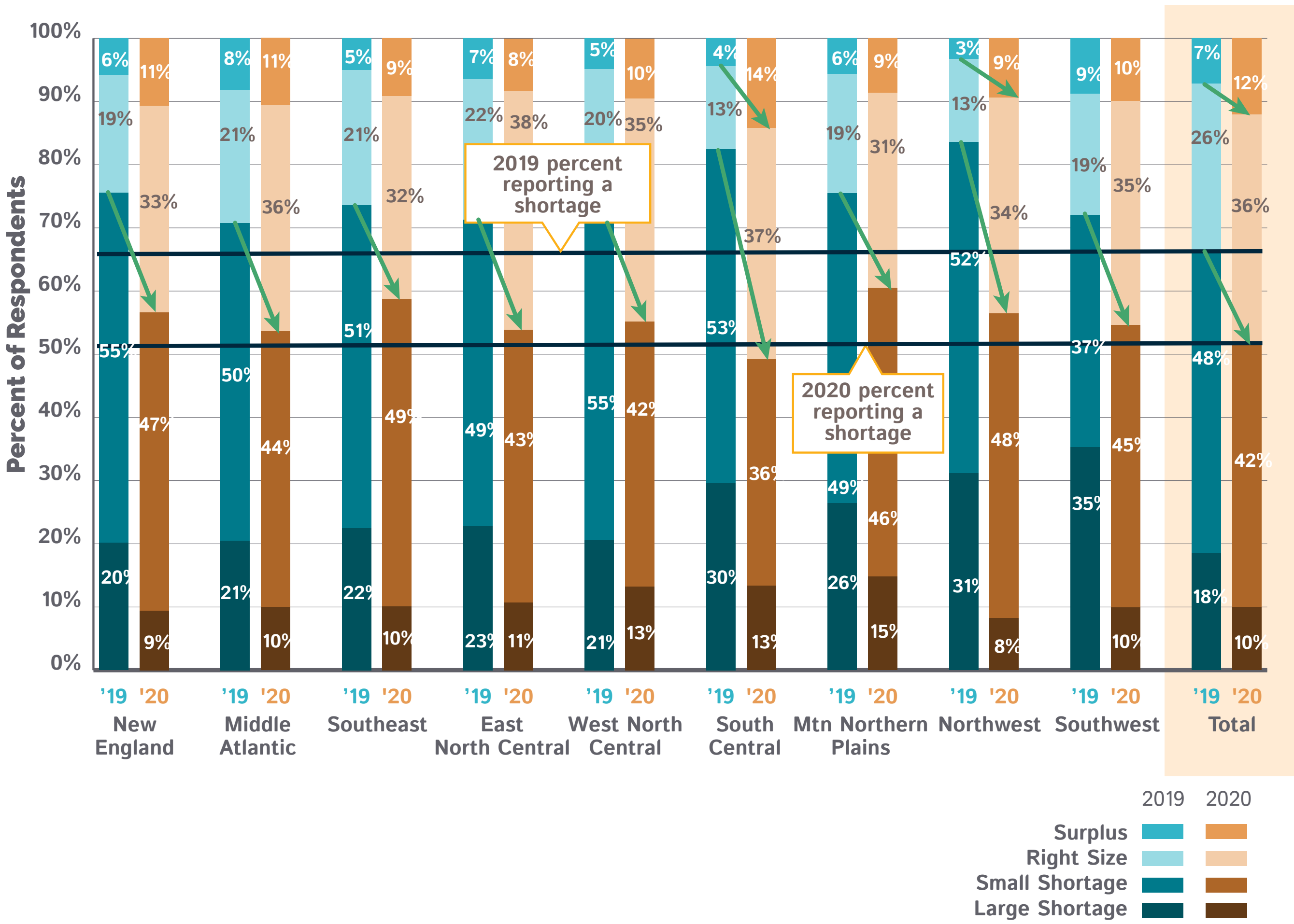


Exhibit 3.5 presents a very clear, consistent story where each of the nine regions reported a smaller shortage in 2020 than in 2019. Two regions felt the biggest relief concerning the labor shortage. In the South Central region shortage numbers fell from the second highest (82%) in 2019 to the smallest shortage in 2020 at 49%. The Northwest region had similar results. In 2019 it had the most respondents reporting a shortage (84%) and this fell by 27% in 2020 to 56%.

Exhibit 3.5

UNION CRAFT LABOR SHORTAGE/SURPLUS BY REGION

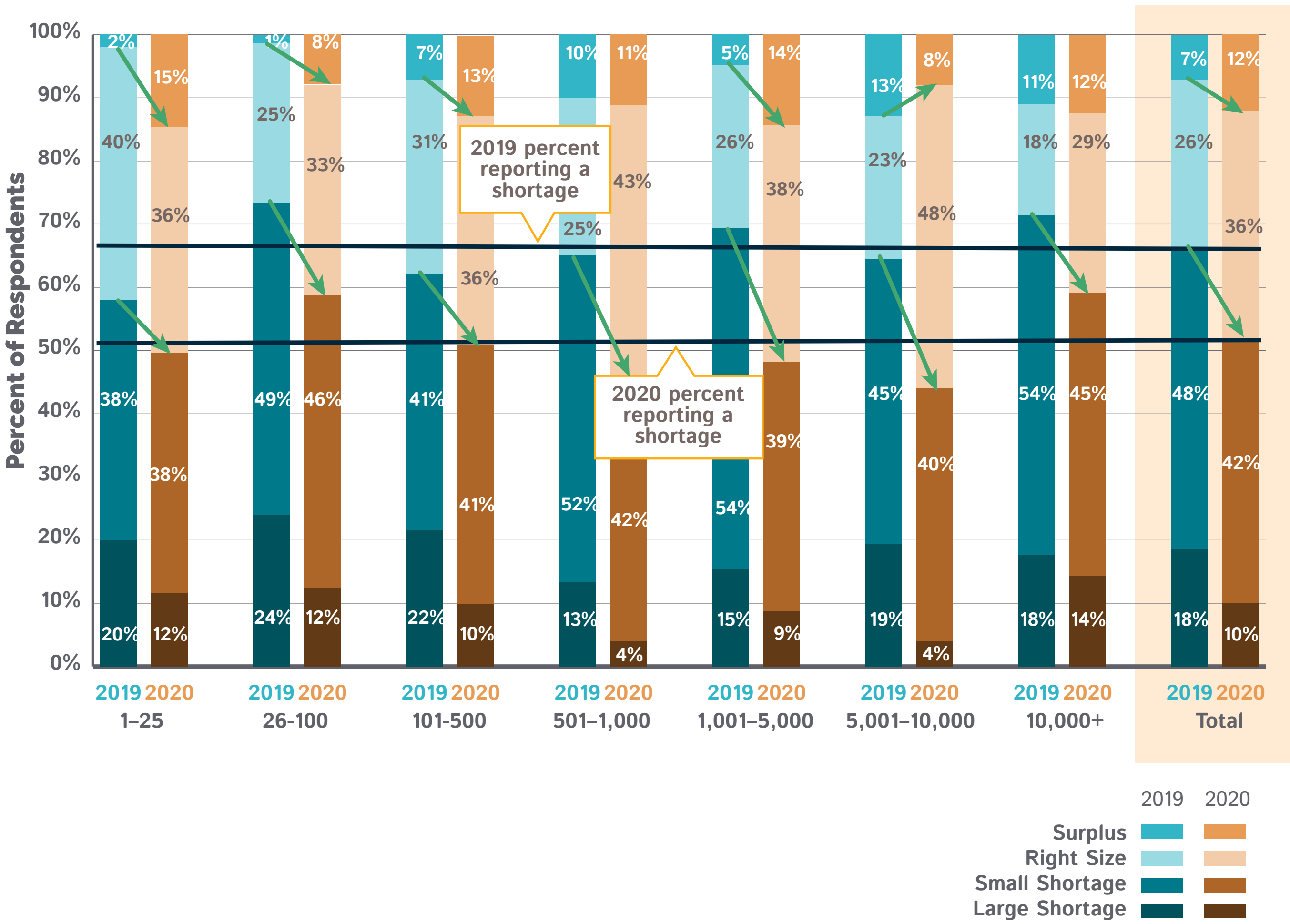


Region	States
New England	Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont
Middle Atlantic	District of Columbia, Delaware, Maryland, New Jersey, New York, Pennsylvania
Southeast	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia
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

Following the pattern established in the other data cuts in this section, the labor shortage became less prominent in 2020 compared to 2019 for every organization size category, as displayed in **Exhibit 3.6**. There was a correlation between organization size and the size of the improvement in the shortage numbers from 2019 to 2020. In other words, the average *improvement (reduction)* in the shortage numbers for organizations with 500 or fewer employees was 11%, whereas for organizations with at least 1,001 employees there was a lot larger improvement in the percent reporting a shortage at 18%. Thus, the union craft labor shortage improved more in the larger organizations.

Exhibit 3.6

UNION CRAFT LABOR SHORTAGE/SURPLUS BY ORGANIZATION SIZE



In order to gain an even better understanding of the worker shortage/surplus data, the interaction between industry and geographic region was studied. That is, in **Exhibits 3.7–3.15** each of the nine charts represents a different geographic region. Within each chart, the percent of ratings that fall in each rating option (large shortage, small shortage, right size, surplus) is shown for each of the five industries. These charts are valuable in order to pinpoint more precisely where the union craft labor shortages (and surpluses) exist relative to two key parameters simultaneously: industry and region.

Exhibit 3.7

SHORTAGE/SURPLUS: NEW ENGLAND

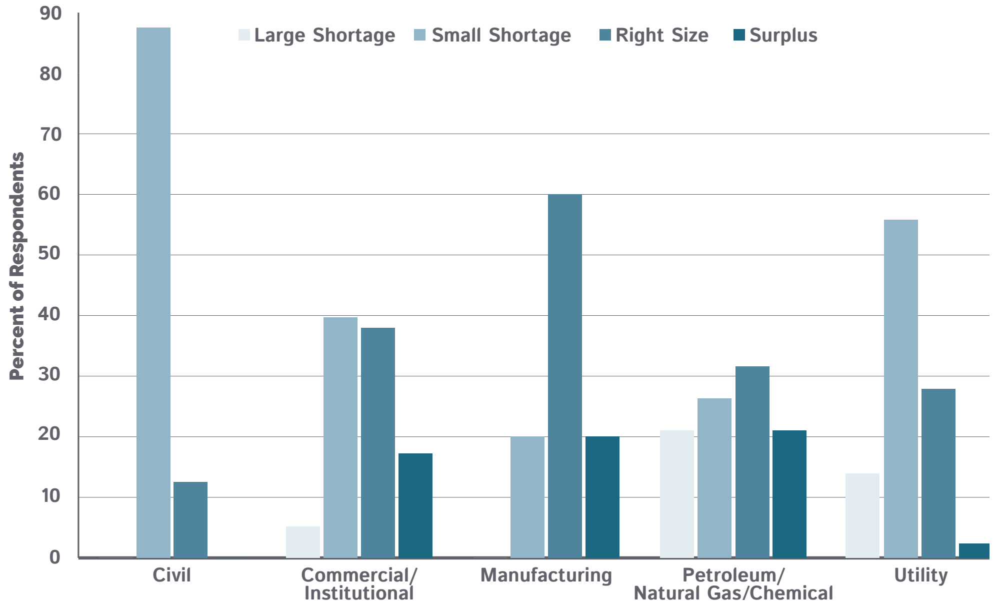


Exhibit 3.8

SHORTAGE/SURPLUS: MIDDLE ATLANTIC

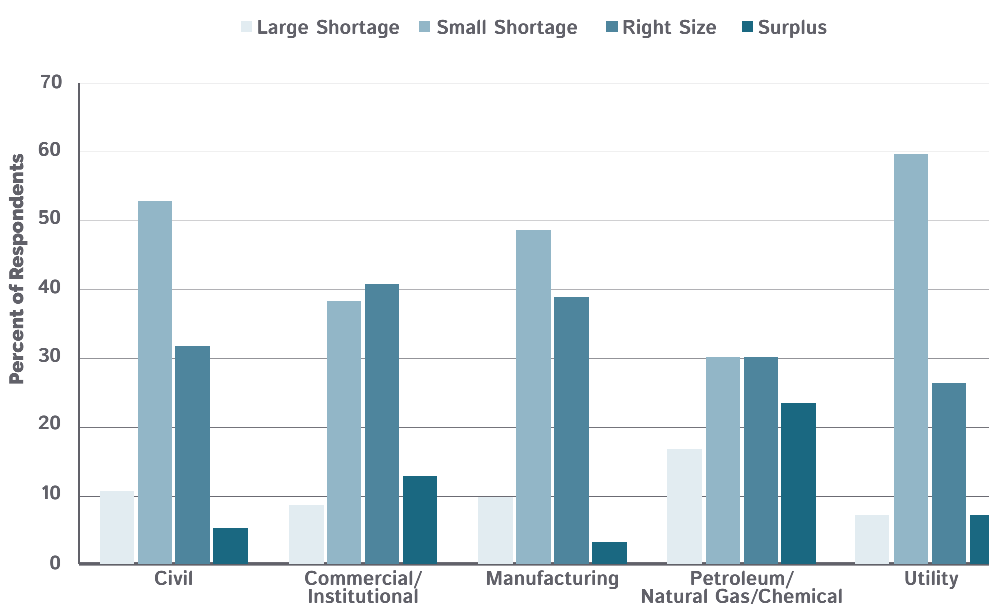


Exhibit 3.9

SHORTAGE/SURPLUS: SOUTHEAST

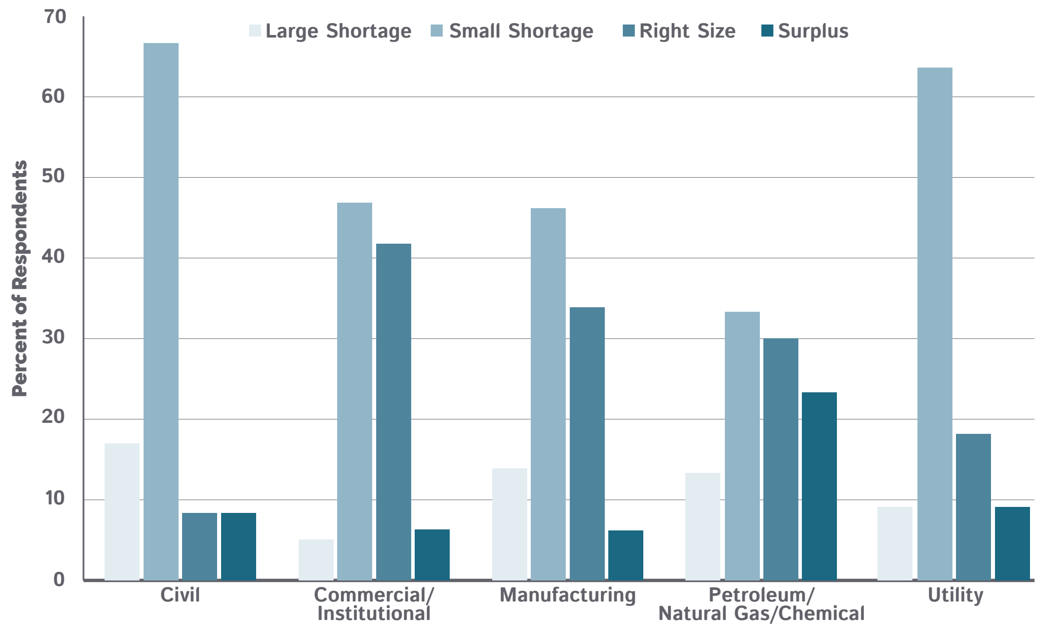


Exhibit 3.10

SHORTAGE/SURPLUS: EAST NORTH CENTRAL

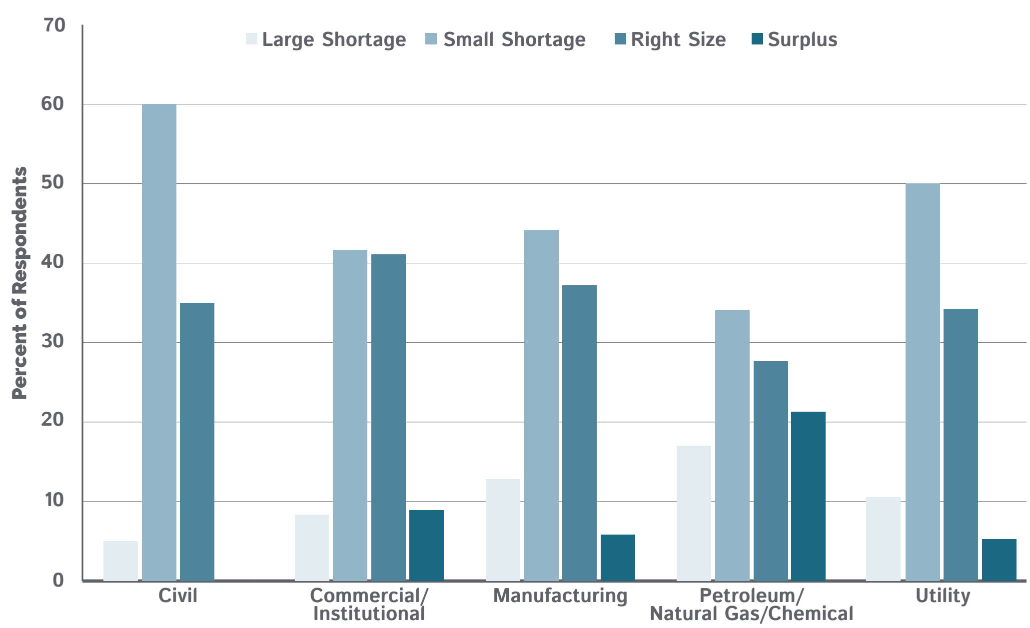


Exhibit 3.11

SHORTAGE/SURPLUS: WEST NORTH CENTRAL

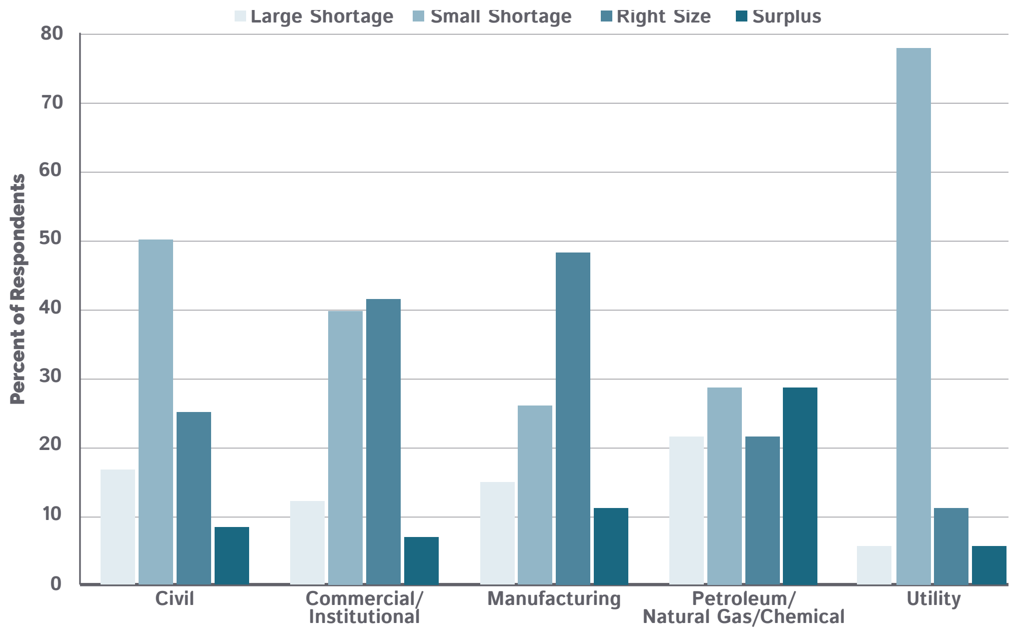


Exhibit 3.12

SHORTAGE/SURPLUS: SOUTH CENTRAL

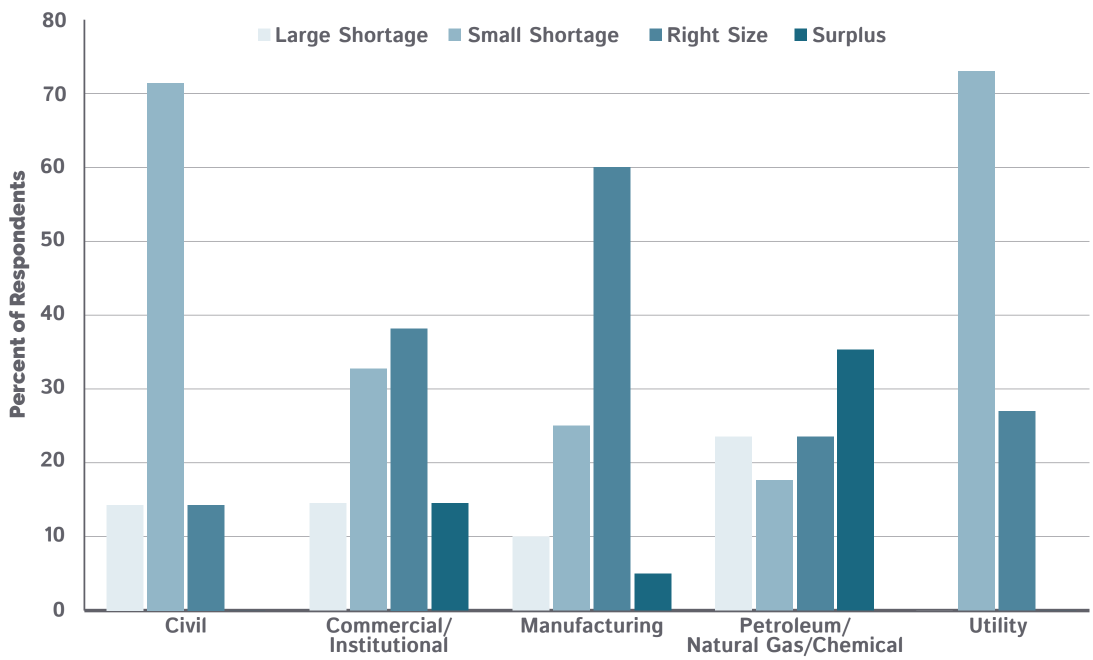


Exhibit 3.13

SHORTAGE/SURPLUS: MOUNTAIN NORTHERN PLAINS

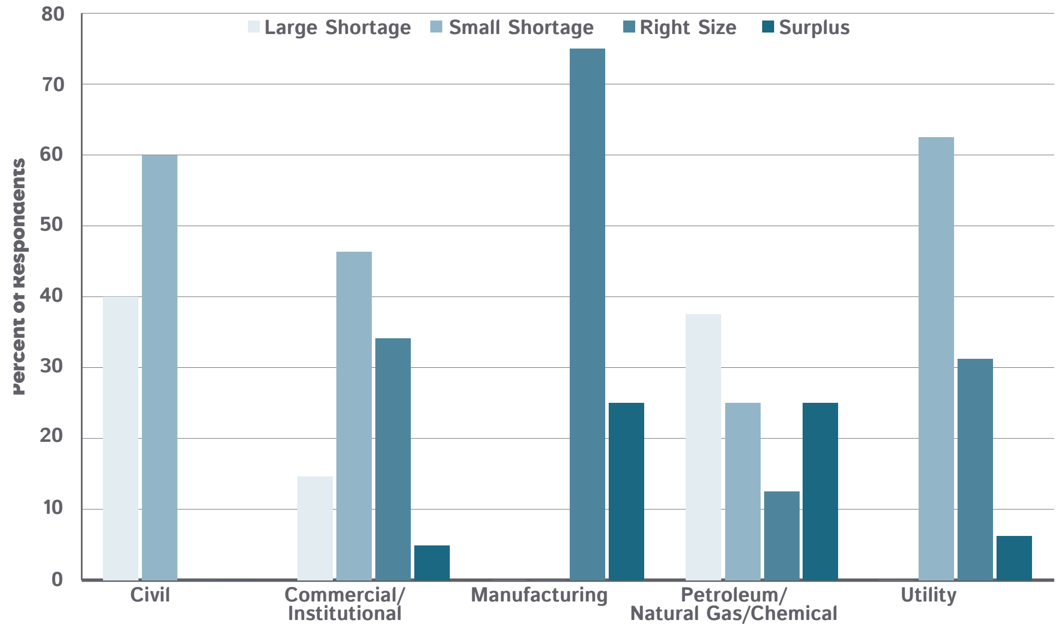


Exhibit 3.14

SHORTAGE/SURPLUS: NORTHWEST

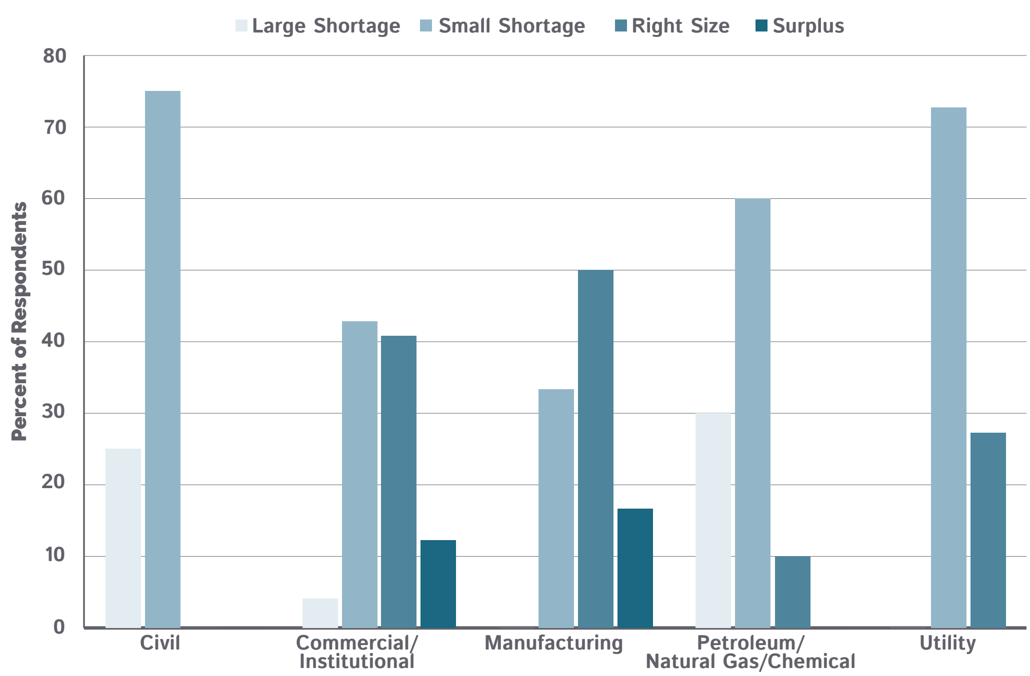
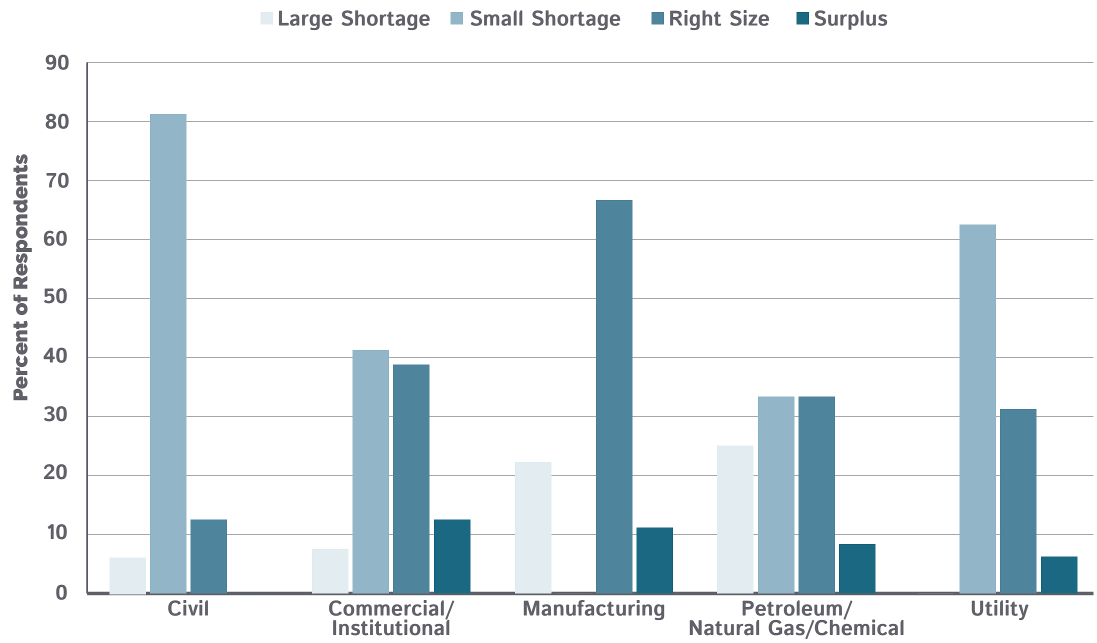


Exhibit 3.15

SHORTAGE/SURPLUS: SOUTHWEST



IV. UNION CRAFT LABOR SHORTAGE AND SURPLUS—CRAFT COMPARISON

The findings in **Section IV** are organized into five parts. Comparisons among the 14 crafts covered in this study will be shown for the first three parts.

- **Part 1.** Actual Shortage/Surplus in 2020
- **Part 2.** Projected Shortage/Surplus for 2021
- **Part 3.** Actual Shortage/Surplus in 2020 for Apprentices
- **Part 4.** Longitudinal Labor Supply Analyses: Juxtaposed Projections from Earlier Years vs Actual from Ensuing Years
- **Part 5.** Difficult to Find, High Demand Skills

Within **Parts 1-3** listed above, results will be shown in two ways. First, by *prevalence* 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)

Second, by *intensity* by showing the average shortage/surplus rating for each craft. Whereas the horizontally oriented shortage/surplus segmented 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 vertically oriented bar 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).

Exhibits 4.1a, 4.3 and 4.5 show the percent (prevalence) of responses falling into each surplus/shortage category. **Exhibits 4.2, 4.4 and 4.6** show the size of the shortage/surplus. This can be called the intensity of the shortage/surplus.

It is useful to note that the intensity values shown for **Exhibits 4.2, 4.4 and 4.6** are the average of all ratings—those reporting a shortage, those reporting a surplus and those reporting neither. Although these 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 mathematically 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 4.1, 4.3 and 4.5** in the segmented 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 2020

Exhibits 4.1a, 4.1b and 4.2 focus on the union craft labor supply last year, in 2020, with comparison data for 2019.

Exhibit 4.1a illustrates, by craft, what percent of the ratings in this study fell into four rating categories:

- shortage
- large shortage
- surplus
- large surplus

This reflects the *prevalence* of the shortage/surplus. Data are sorted in descending order based on the percent reporting a union craft labor shortage in their organization in 2020. Results for 2019 are paired with the 2020 data for each craft as a useful point of comparison.

Results show that the most frequently reported shortages for 2020 were with Carpenters & Millwrights and Electricians, which was the case last year as well. However, the percent of respondents reporting a shortage declined significantly for both crafts. Both of these crafts had approximately half (52.0%) of their responses reporting a shortage of union craft workers in 2020 (this year's survey). Last year closer to two thirds reported a shortage for these two crafts.

Interestingly, 10 of the 14 crafts saw a decrease in the percent of respondents reporting a shortage of that craft in their organization. In other words, for the second year in a row, the union craft labor shortage lessened for most crafts. The biggest changes from 2019 to 2020 were for Roofers & Waterproofers and Boilermakers, where the shortages decreased from 50% to 31% and 40% to 22%, respectively.

Four crafts had an increase in their reported shortage from 2019 to 2020: Bricklayers, Painters & Allied Trades, Plasterers & Cement Masons and Sheet Metal Workers.

On average, 38% (down from 43% last year) of the sample for these craft specific items in **Section IV** said there had been a union craft worker shortage in their organization in 2020 and 13% said there was a surplus (up from 10% last year). An interesting point of comparison are the results in **Section III** for the more general question, "Did your organization experience a union craft labor shortage in 2019?"

For those results in **Section III**, 52% said there was a shortage in their organization (see **Exhibit 3.1**).

Thus, tallying data for each specific craft (**Section IV**) resulted in a lower percent (38%) reporting a shortage than when a general question about union craft labor shortage was asked (52% in **Section III**). The reason for this difference is that the data come from different questions with different rating scales. Additionally, respondents provided answers when thinking about each craft individually in **Section IV** rather than all crafts combined as in **Section III.**

Exhibit 4.1a (prevalence)

PERCENT OF RESPONSES REPORTING A SHORTAGE/SURPLUS BY CRAFT IN DESCENDING ORDER BASED ON 2020 DATA

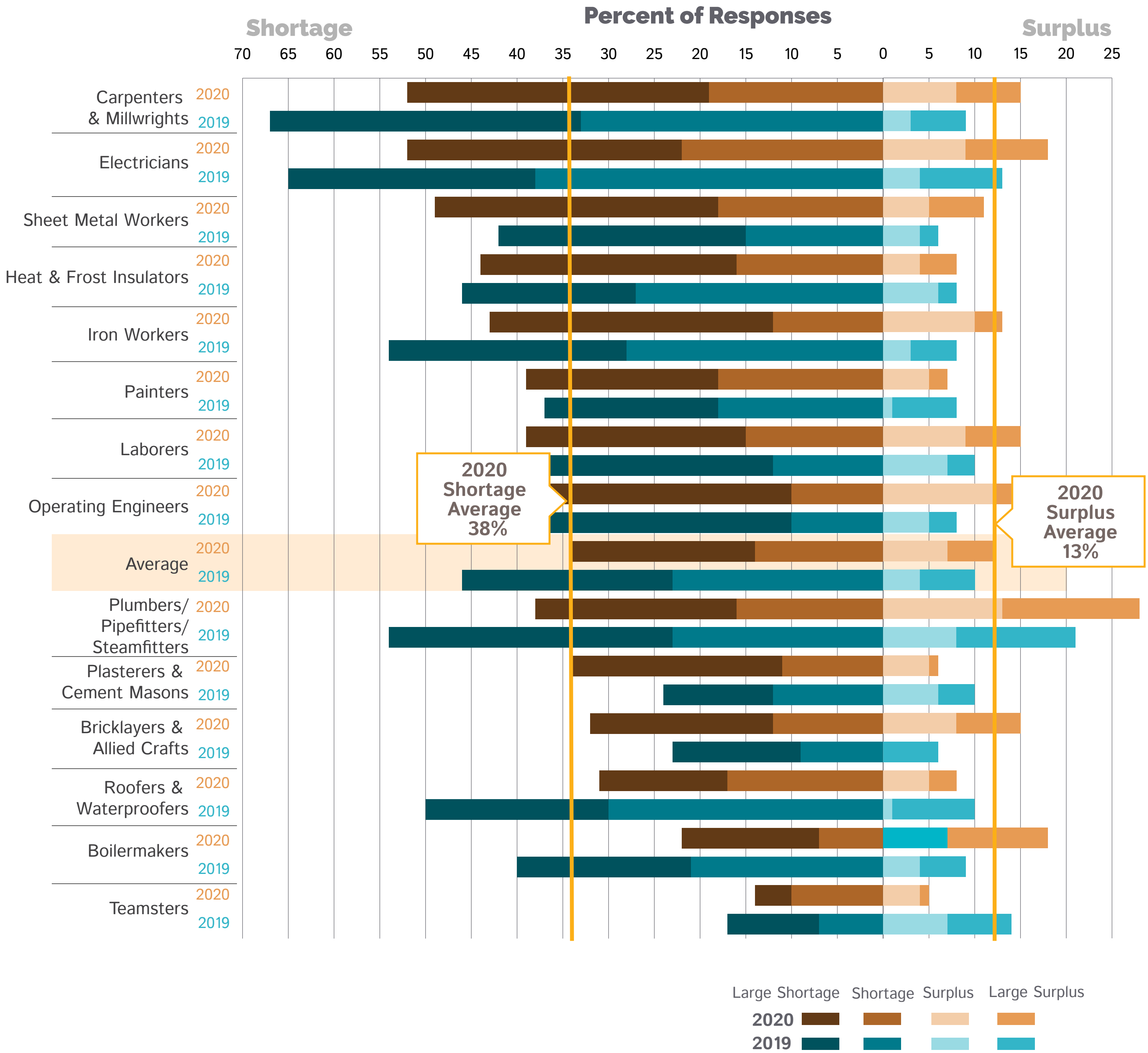


Exhibit 4.1a contains results concerning prevalence, the percent of the responses that fall into each of the four different shortage and surplus rating options.

Exhibit 4.1b (prevalence)

PERCENT REPORTING A SHORTAGE

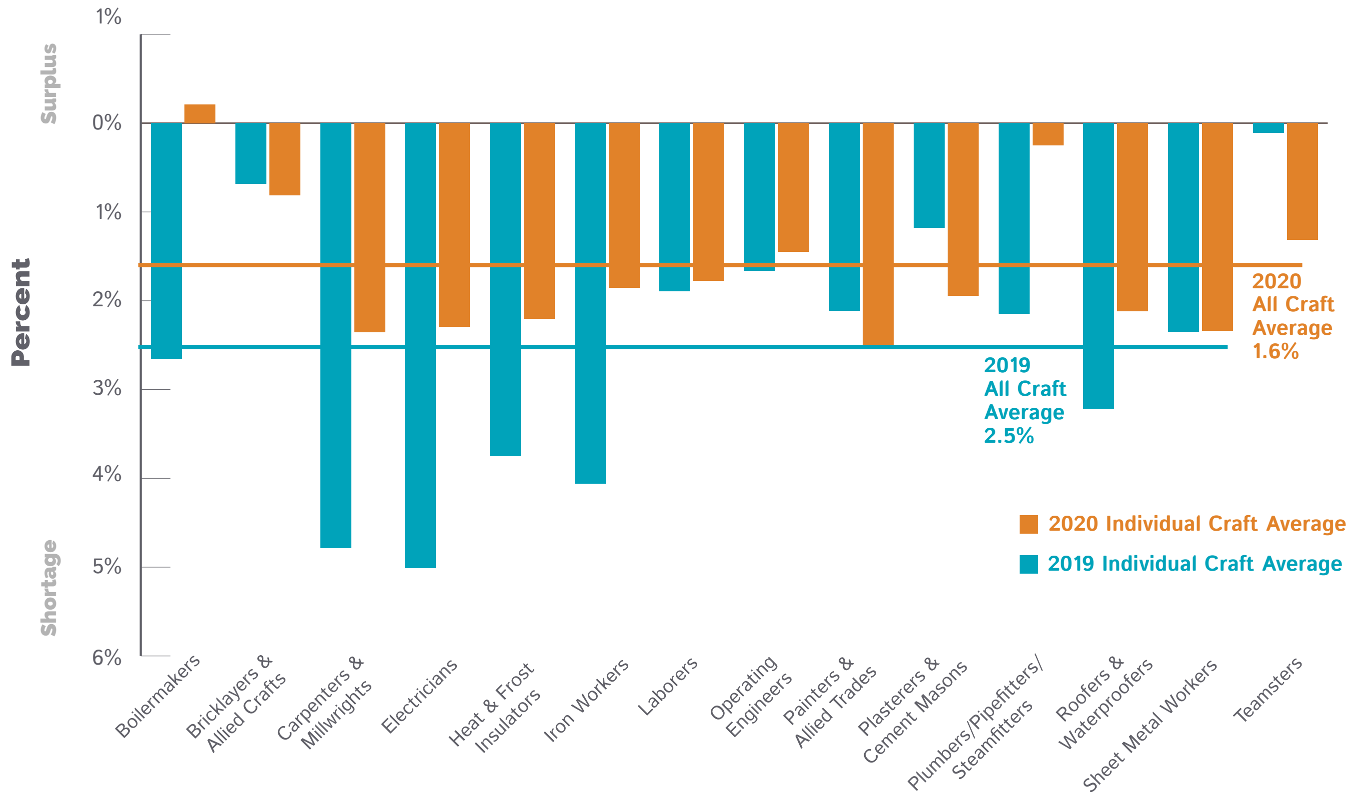
Craft	2019	2020
Boilermakers	40%	22%
Bricklayers & Allied Crafts	23%	32%
Carpenters & Millwrights	67%	52%
Electricians	65%	52%
Heat & Frost Insulators	46%	44%
Iron Workers	54%	43%
Laborers	41%	39%
Operating Engineers	40%	39%
Painters & Allied Trades	37%	39%
Plasterers & Cement Masons	24%	34%
Plumbers/Pipefitters/Steamfitters	54%	38%
Roofers & Waterproofers	50%	31%
Sheet Metal Workers	43%	49%
Teamsters	16%	14%
Average	43%	38%

The table (**Exhibit 4.1b**) displays the data in **Exhibit 4.1a** in tabular form, in alphabetical order. This provides a simple, easy-to-read format for reviewing the union craft labor shortage data.

As a complimentary analysis, **Exhibit 4.2** shows the average shortage or surplus rating for each craft, the intensity of the shortage. *The average shortage in 2020 was 1.6% (craft weighted)/1.5% (respondent weighted). These values are significantly lower than in 2019 where the averages were 2.5% (craft weighted) and 2.8% (respondent weighted).*

Exhibit 4.2 (intensity)

AVERAGE SHORTAGE/SURPLUS RATING BY CRAFT IN 2019 & 2020



Part 2. Projected Shortage/Surplus in 2021

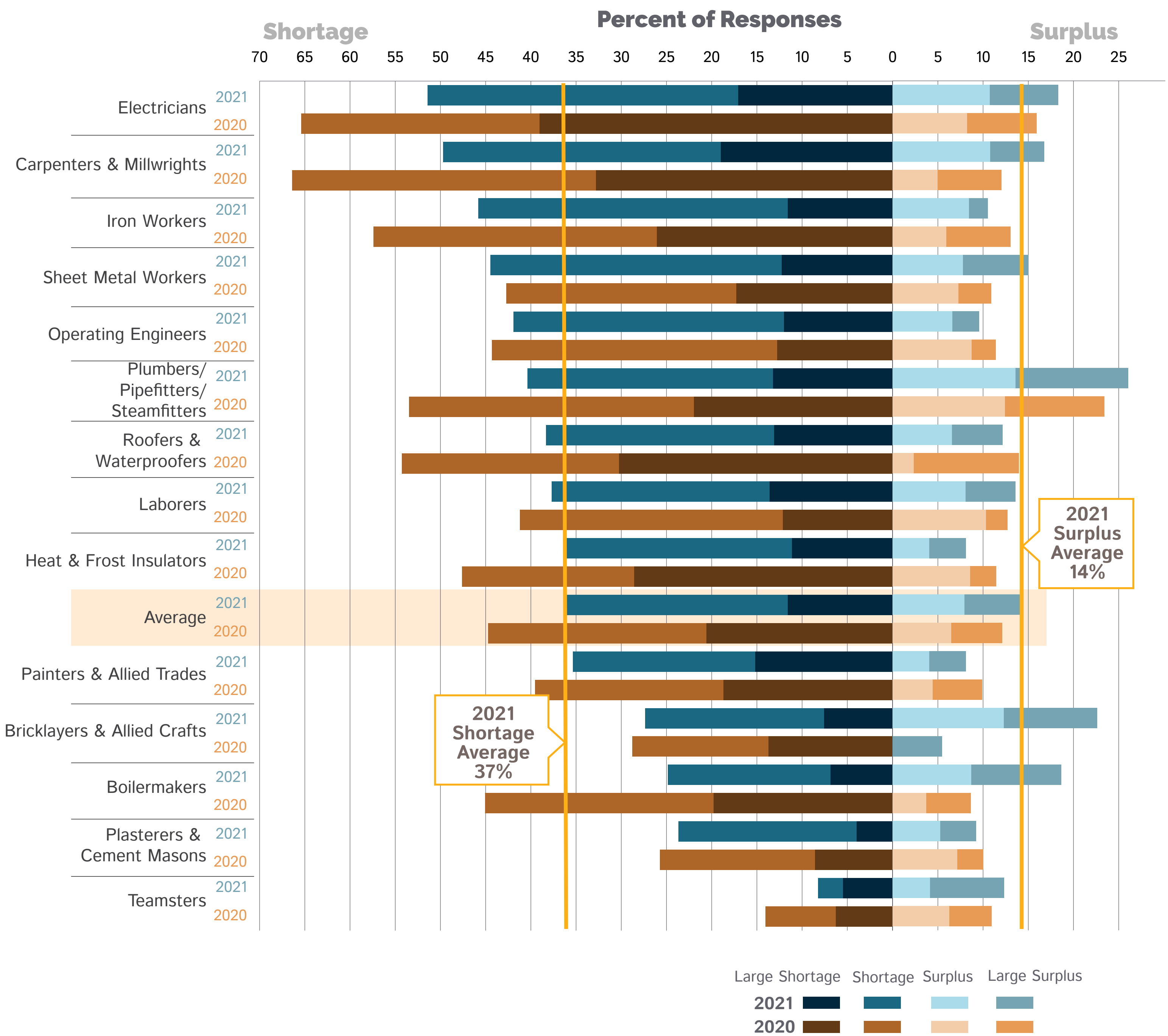
Exhibits 4.3 and 4.4 focus on the projected union craft labor supply for the upcoming year, 2021.

Exhibits 4.1 and 4.2 in Part 1 look back in time at union craft staffing levels in 2020. **Exhibits 4.3 and 4.4** provide a look ahead to respondent projections for 2021. These results are based on the study participants' replies to questions asking them to project the shortage/surplus of union craft labor in 2021 in their organization. The crafts are listed in descending order based on the 2021 data. Data from last year's report are included as points of comparison.

The crafts with the largest projected shortage in 2021 are Electricians, Carpenters & Millwrights, Iron Workers and Sheet Metal Workers. These four represent four of the top five last year with the greatest reported shortages (**Exhibits 4.1a and 4.1b**). *However, a comparison with data from the 2020 (last year's) survey again reveals that the deepness of the shortages have improved compared to last year.* For example, last year Electricians and Carpenters & Millwrights were the two highest rated crafts regarding projected shortages. In last year's study, 65% (Electricians) and 66% (Carpenters & Millwrights) projected a shortage. In this year's study, those two crafts were again in the top two concerning projected shortage, but their results were about 15% less at 51% for Electricians and 50% for Carpenters & Millwrights. There was a lightening of the projected shortage for every one of the crafts except one (Sheet Metal Workers saw a slight projected increase in their shortage.)

Exhibit 4.3 (prevalence)

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS FOR 2021 BY CRAFT IN DESCENDING ORDER BASED ON 2021 DATA

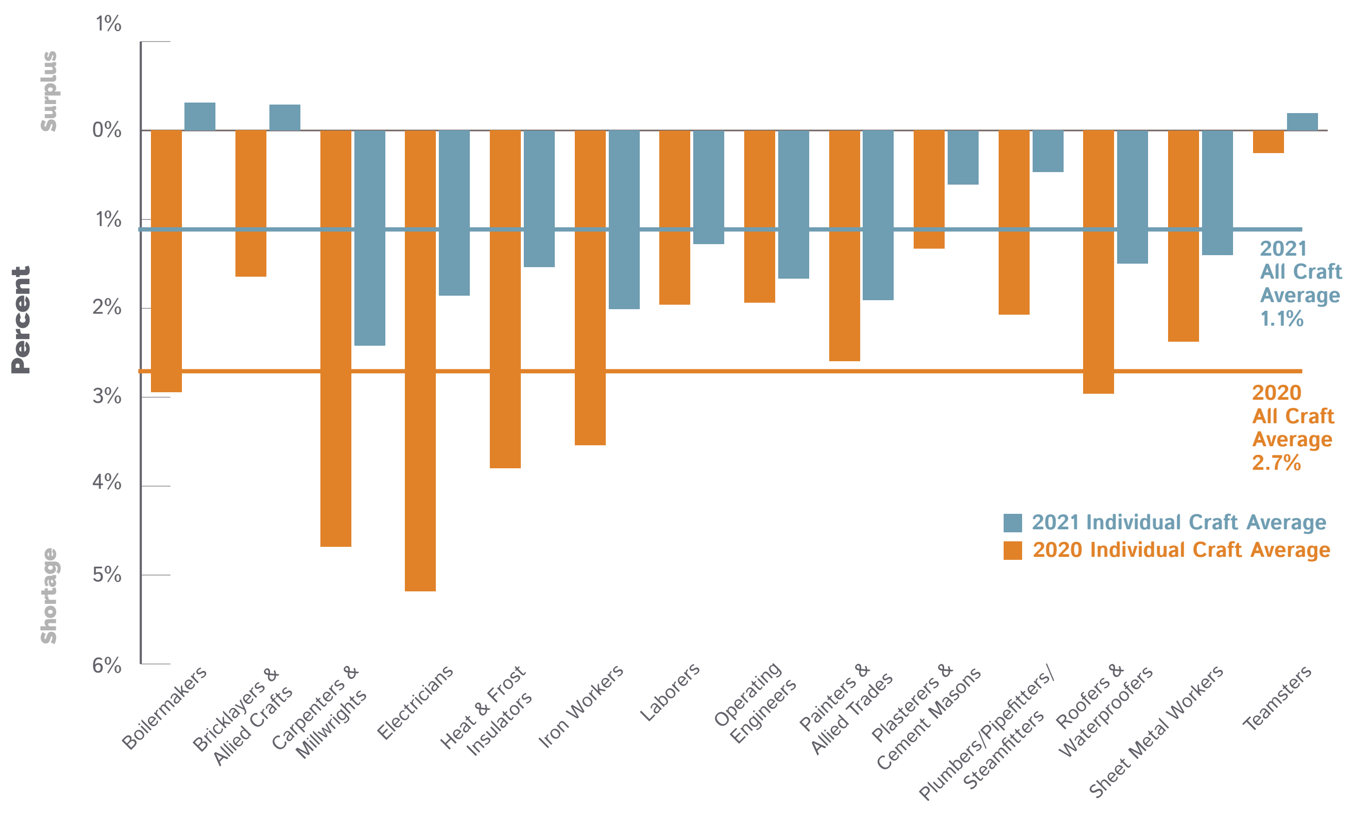


As shown in **Exhibit 4.4**, the average 2020 and 2021 ratings for projected union craft labor shortages/surpluses somewhat paralleled each other, with higher values (less of a shortage) for 2021. Although small, the data for three crafts actually broached positive territory, suggesting a surplus rather than the ubiquitous shortage found throughout this study.

Two crafts stood out with the greatest average shortages, Electricians (5.2%) and Carpenters & Millwrights (4.7%).

Exhibit 4.4 (intensity)

AVERAGE PROJECTED SHORTAGE/SURPLUS RATING BY CRAFT FOR 2021



Part 3. Actual Shortage/Surplus in 2020 for Apprentices

Exhibits 4.5 and 4.6 focus on the union craft labor supply of *apprentices* last year, in 2020. These results are based on respondents' replies to questions asking them about union craft apprentice levels in their organization in 2020. The crafts are listed in descending order based on 2020 data. Data from last year's report are included as points of comparison.

The results for apprentices followed the pattern for the actual results for 2020 and the projections for 2021, illustrated in **Exhibits 4.1-4.4**. *Electricians, Iron Workers, Carpenters & Millwrights and Sheet Metal Workers were the crafts with the most significant shortage of apprentices in 2020, as shown in* **Exhibit 4.5**. *There was a decrease in the pervasiveness of the shortage for seven of the 14 crafts. The biggest reduction in the shortage occurred with Roofers & Waterproofers and Carpenters & Millwrights.*

Exhibit 4.5 (prevalence)

PERCENT OF RESPONSES INDICATING A SHORTAGE/SURPLUS OF APPRENTICES BY CRAFT IN DESCENDING ORDER BASED ON 2020 DATA

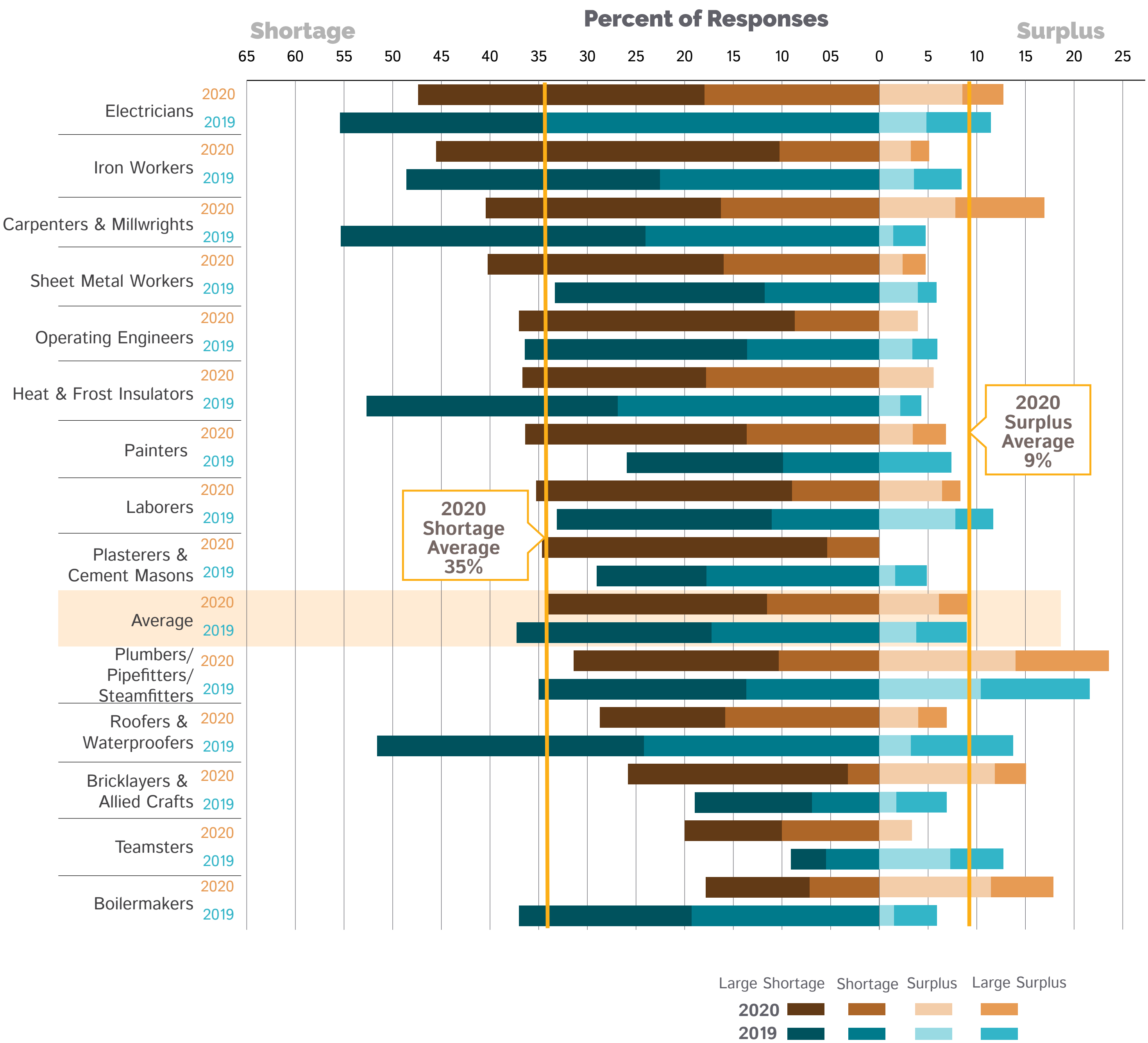
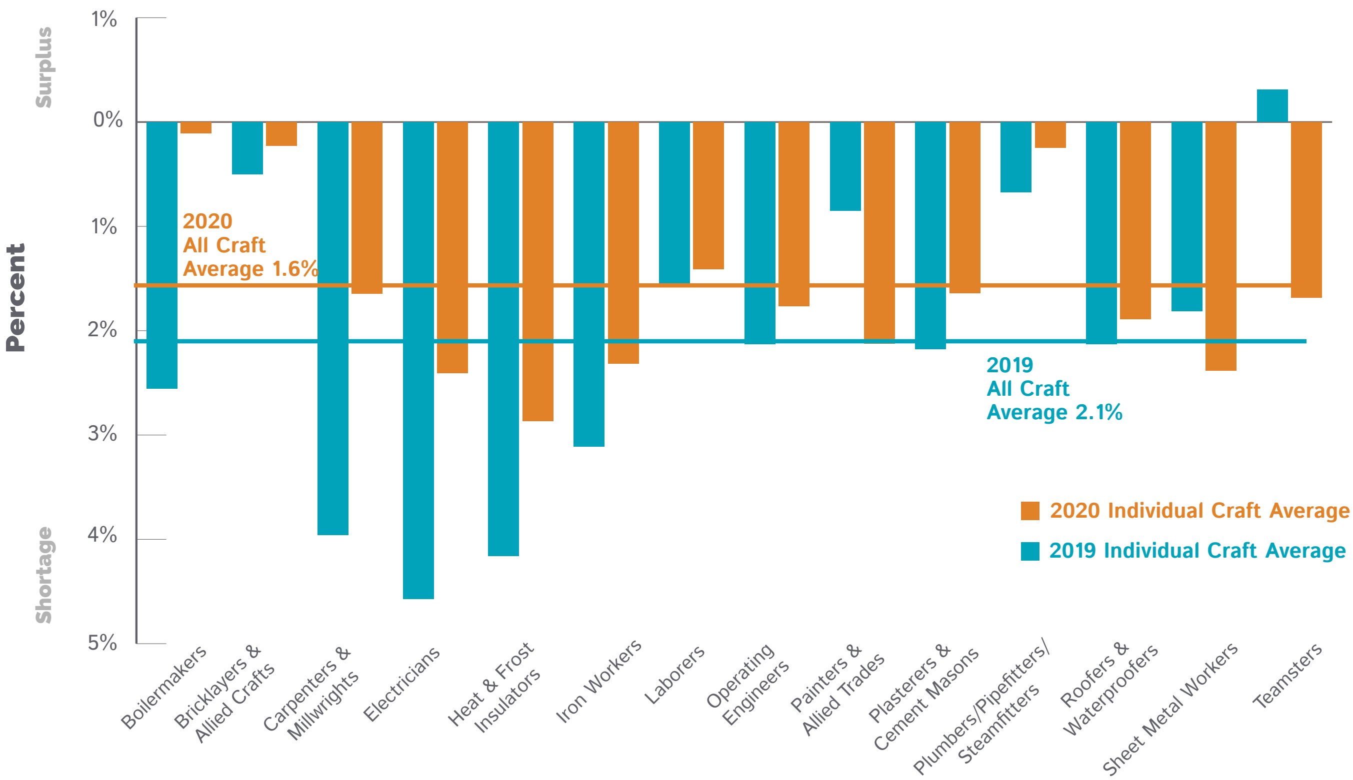


Exhibit 4.6 shows average apprentice shortage ratings. The average degree of shortage was 2.1% in 2019 and less, 1.6%, in 2020. *Three crafts had the most significant shortage of apprentices when looking at intensity (***Exhibit 4.6***): Carpenters & Millwrights, Electricians and Heat & Frost Insulators.*

Exhibit 4.6 (intensity)

AVERAGE SHORTAGE/SURPLUS RATING FOR APPRENTICES BY CRAFT FOR 2020



Part 4. Longitudinal Labor Supply Analyses: Juxtaposed Projections from Earlier Years vs Actual from Ensuing Years

The data in **Exhibits 4.7 – 4.9** juxtapose predictions of worker shortages/surpluses of union craft labor next to the "actual" shortage/surplus ratings from the following year. For example, in the 2020 survey (administered January 2020) respondents were asked to indicate the degree of union craft shortage/surplus they anticipated in their organization for that year. These data were compared to reports of actual shortages reported the following year (2021). Of course, many factors intervene (e.g., different sets of respondents from year to year, unforeseen economic changes, and of course a pandemic in 2020) to make spotless predictions impossible; yet, this new analytic exercise for 2021 does serve a useful purpose as one method of vetting respondent accuracy.

Findings ranged from 1) near total accuracy for Painters and Teamsters in 2020 where there was just a 0.3% difference between predicted and actual shortages to 2) Boilermakers in 2019 where there was a 33.5% variance between a projected and actual shortage (projected shortage was much greater than actual).

The data in each chart reflects the percent of respondents reporting a shortage (not the size of the shortage). The bars labeled "Projected" reflect ratings about the upcoming year while bars labeled "Actual" reflect data from the following year about what respondents reported actually happened in their organization. Thus, the charts contain longitudinal data—data covering administration of the survey spanning more than one year—which is a strong methodological design in research projects. The line in each chart plots the difference between projected and actual. The smaller the value, the more accurate the projections from one year to the next.

Exhibit 4.7

SURPLUS/SHORTAGE EMPLOYMENT PROJECTIONS VS ACTUAL FOR UNION WORKERS BY CRAFT: 2020

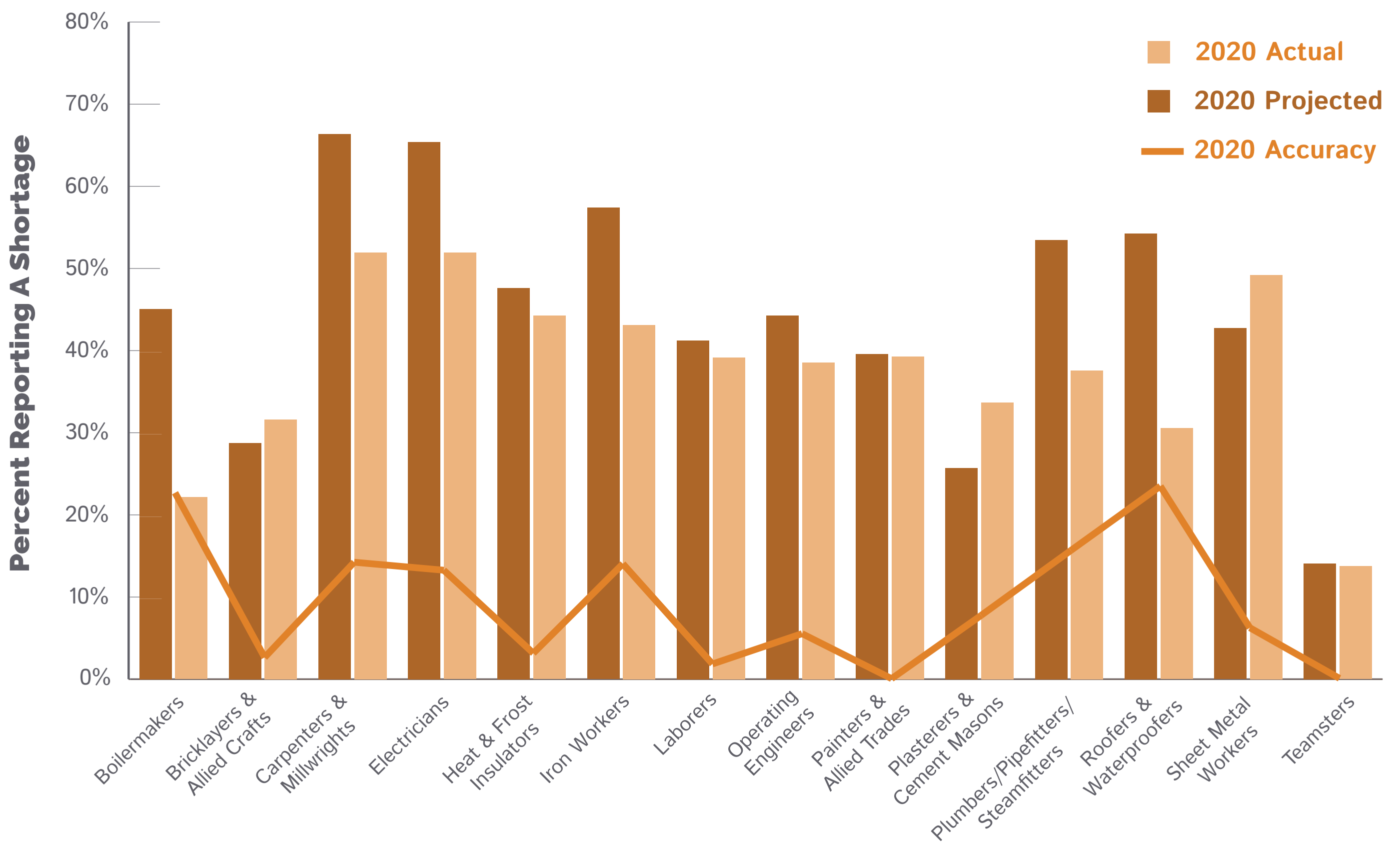


Exhibit 4.8

SURPLUS/SHORTAGE EMPLOYMENT PROJECTIONS VS ACTUAL FOR UNION WORKERS BY CRAFT: 2019

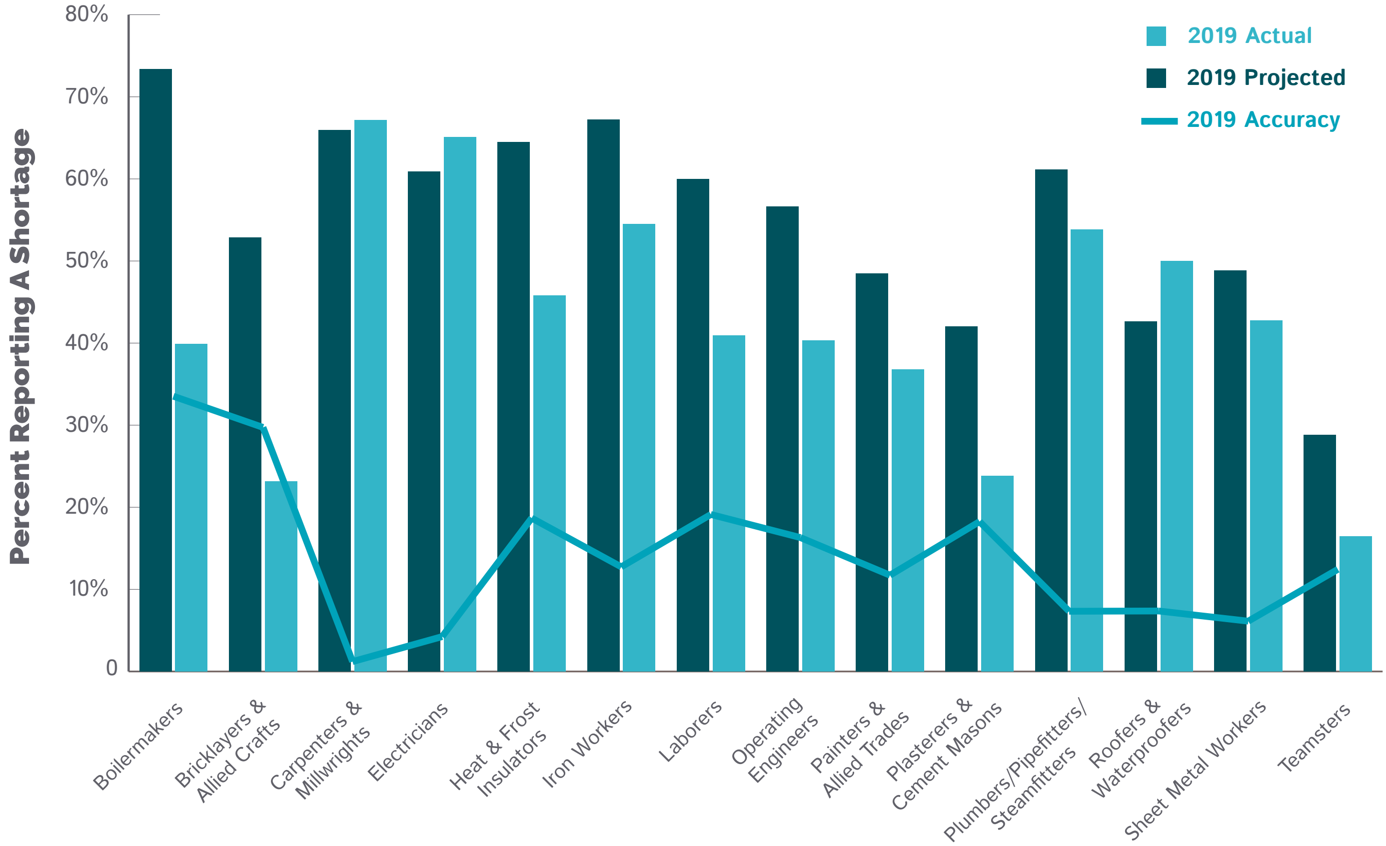


Exhibit 4.9

SURPLUS/SHORTAGE EMPLOYMENT PROJECTIONS VS ACTUAL FOR UNION WORKERS BY CRAFT: 2018

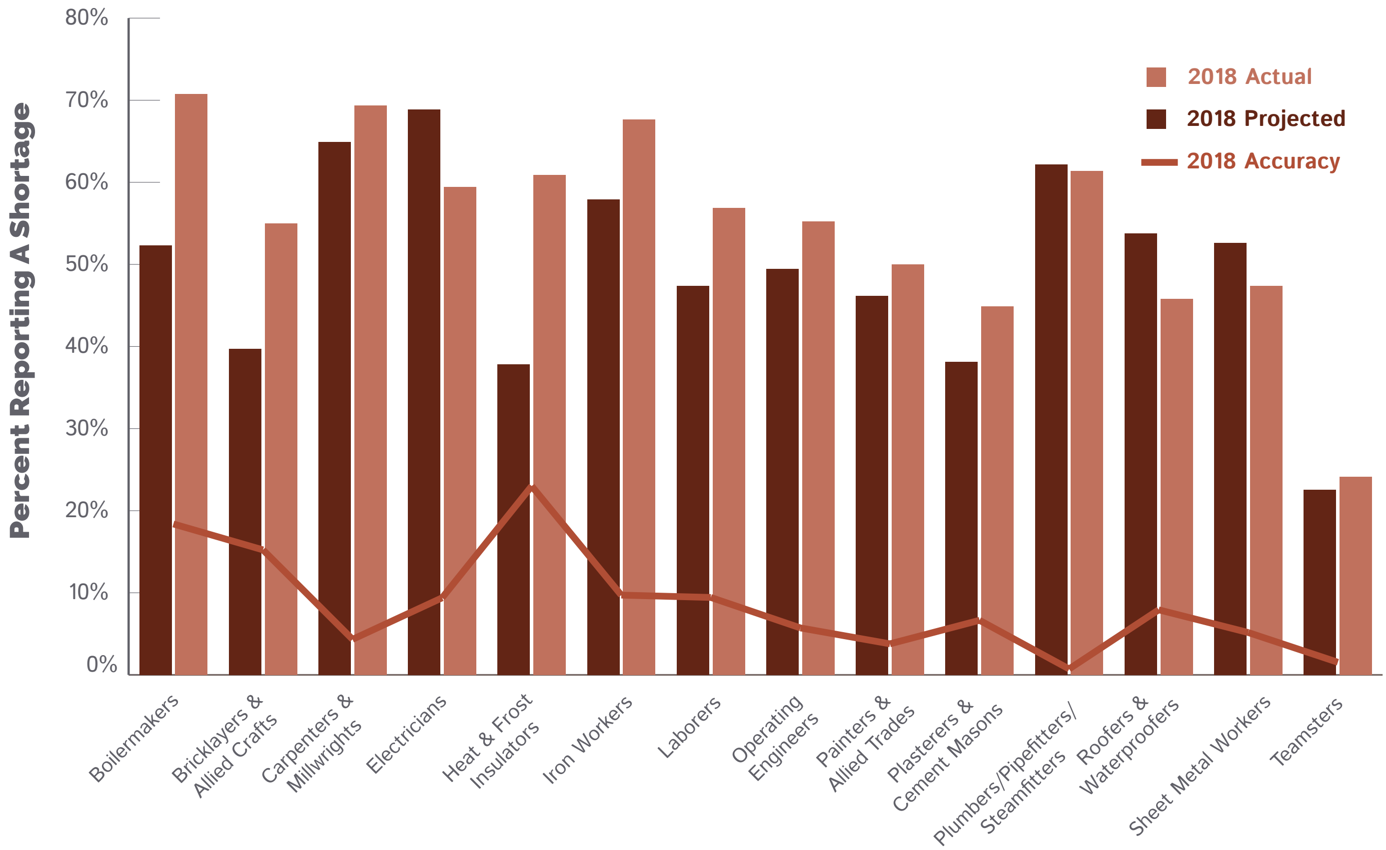
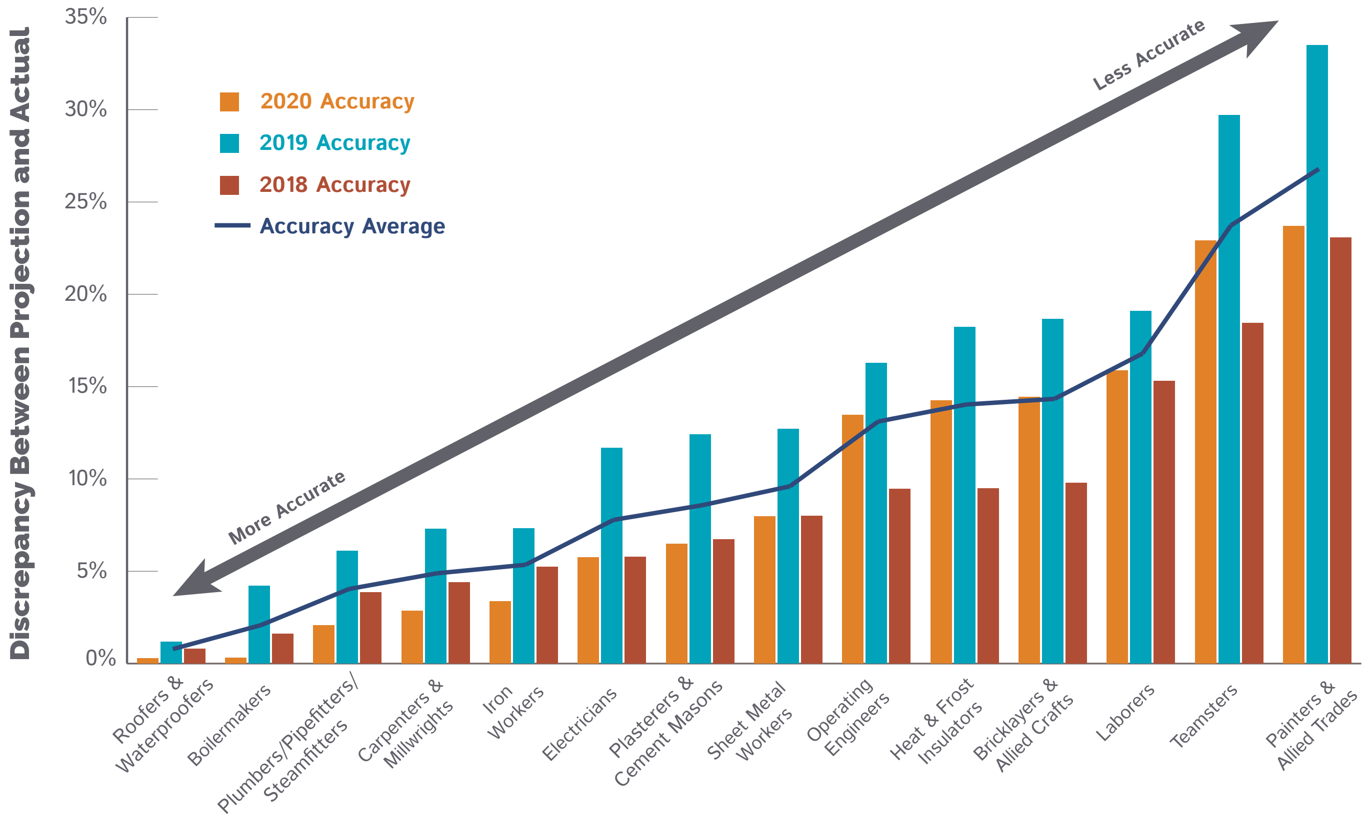


Exhibit 4.10 combines the accuracy scores for three years—2018, 2019 and 2020—into one comprehensive summary chart. Note, accuracy data for 2021 will be available next year when actual data for 2021 are available to compare to the projections for 2021 made in January of this year's (2021) survey.

The year 2019 stands out in that the actual reported shortages for 2019 were generally less than predicted at the beginning of 2019. For 11 of the 14 crafts covered, the union craft labor shortage existed, but was less than expected. On average (craft weighted), 55.2 percent of the respondents in January 2019 thought there would be a shortage of union craft labor in their organization that year. In reality, results from a year later (January 2020) show that many fewer (42.9 percent) reported an actual shortage. So, there definitely was a shortage, but it wasn't as deeply felt as expected. This same theme occurred in 2020, but for obvious reasons that year is an anomaly and it is too early to try and develop trend lines using 2020 data.

Exhibit 4.10



Part 5. Difficult to Find, High Demand Skills

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 4.11** lists those in descending order based on the number of times that needed skill was identified by the respondents in 2021. Results for 2020 are also shown for comparison. Although the percent of time it was mentioned fell in 2021, *the most highly demanded skill*, by far, *was welding*. Welding includes all types of welding (e.g., Mig, Tig, alloy, certified pipe).

Some items mentioned in 2020 were not mentioned in 2021 and some items mentioned in 2021 were not mentioned in 2020, as shown by the missing data dashes toward the bottom of the table.

Exhibit 4.11

DIFFICULT TO FIND, HIGH DEMAND SKILLS

Needed High Demand Skills	2019	2020
Welder	**26%**	**31%**
Plumber	5%	9%
Equipment Operator	4%	7%
HVAC Technician	3%	6%
Electrician	14%	6%
Pipefitter/Steamfitter	5%	6%
Roofer	2%	5%
Journeyman	7%	5%
Rigger	2%	3%
Ironworker	3%	3%
Service Technician	1%	3%
Medical Gas Fitter	2%	2%
Laborer	3%	2%
Millwright	3%	2%
Carpenter	2%	2%
Foreman/Supervisor	5%	2%
Insulator	2%	2%
Apprentice	2%	2%
Instrumentation	2%	1%
Boilermaker	1%	1%
Alignment	-	1%
Sheet Metal Worker	2%	-
Control Technician	2%	-
Bricklayer	1%	-
Painter	1%	-
Outside Lineman	1%	-

V. PENSIONS, PORTABILITY AND PANDEMIC

One intriguing aspect of the TAUC Union Craft Labor Supply Study entails assessing new, "hot ticket" topics each year. These topics are important to enhance understanding and guide decision making. For the 2021 study, three timely topics were covered:

- **Part 1.** Financial Status of Union Craft Pension Funds
- **Part 2.** Union Craft Worker Portability
- **Part 3.** Impact of the Coronavirus on Union Craft Labor Supply

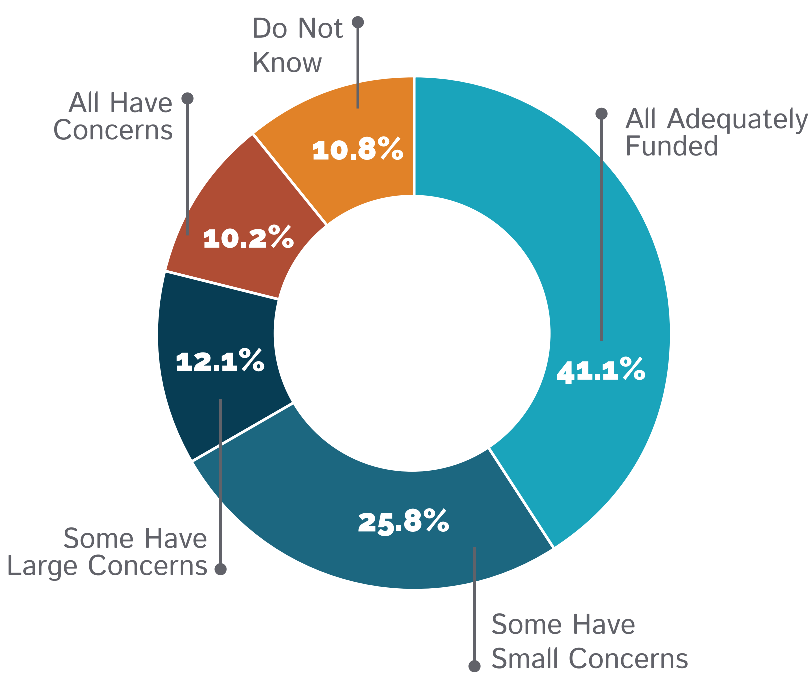
Part 1. Financial Status of Union Craft Pension Funds

Two questions focused on pensions. First, study participants were asked about the funding status of union pension plan(s) in their organization. (Again, to foster accuracy and limit hearsay, the focus was on the plan(s) in the organization where they were employed, not a feeling about other unnamed plans elsewhere).

Exhibit 5.1 shows that a solid plurality (41.1%) thought the union pension plan(s) in the organization where they worked were adequately funded. About 48% indicated some degree of concern over funding, ranging from small to large concerns. Given the technical nature of the question, a fairly high percent (10.8%) said they did not know, which is good to see since it is better to answer questions this way rather than making up an answer.

Exhibit 5.1

FINANCIAL STATUS OF UNION CRAFT PENSION FUNDS



Exhibits 5.2–5.5 show the data in **Exhibit 5.1** according to the four different data cuts used throughout the study: respondent role, industry, organization size and geographic region. Of note, and consistent with other findings in the study, Union/Labor Representatives stand out as having the most optimistic perspectives. In **Exhibit 5.2**, for example, the largest group professing that pension funds were adequately funded was clearly Union/Labor.

Exhibit 5.2

FINANCIAL STATUS OF UNION CRAFT PENSION FUNDS BY ROLE

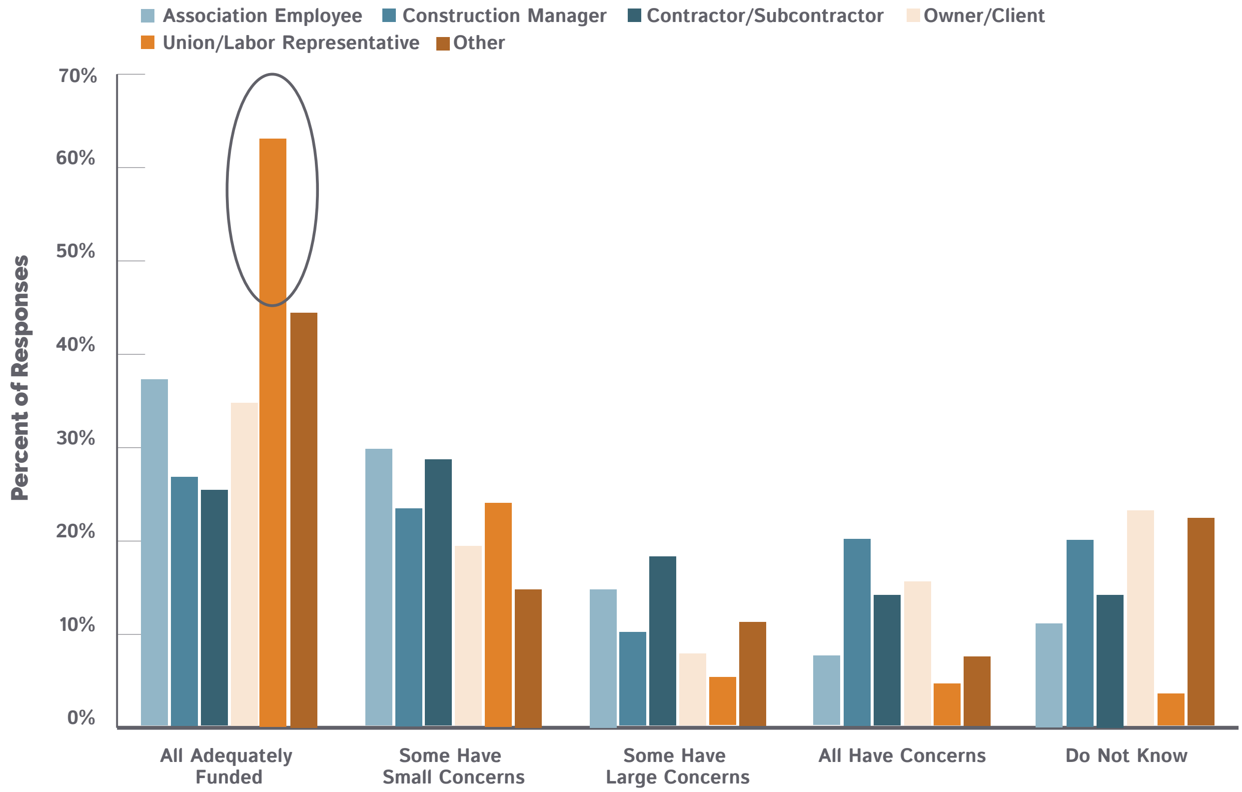


Exhibit 5.3

FINANCIAL STATUS OF UNION CRAFT PENSION FUNDS BY INDUSTRY

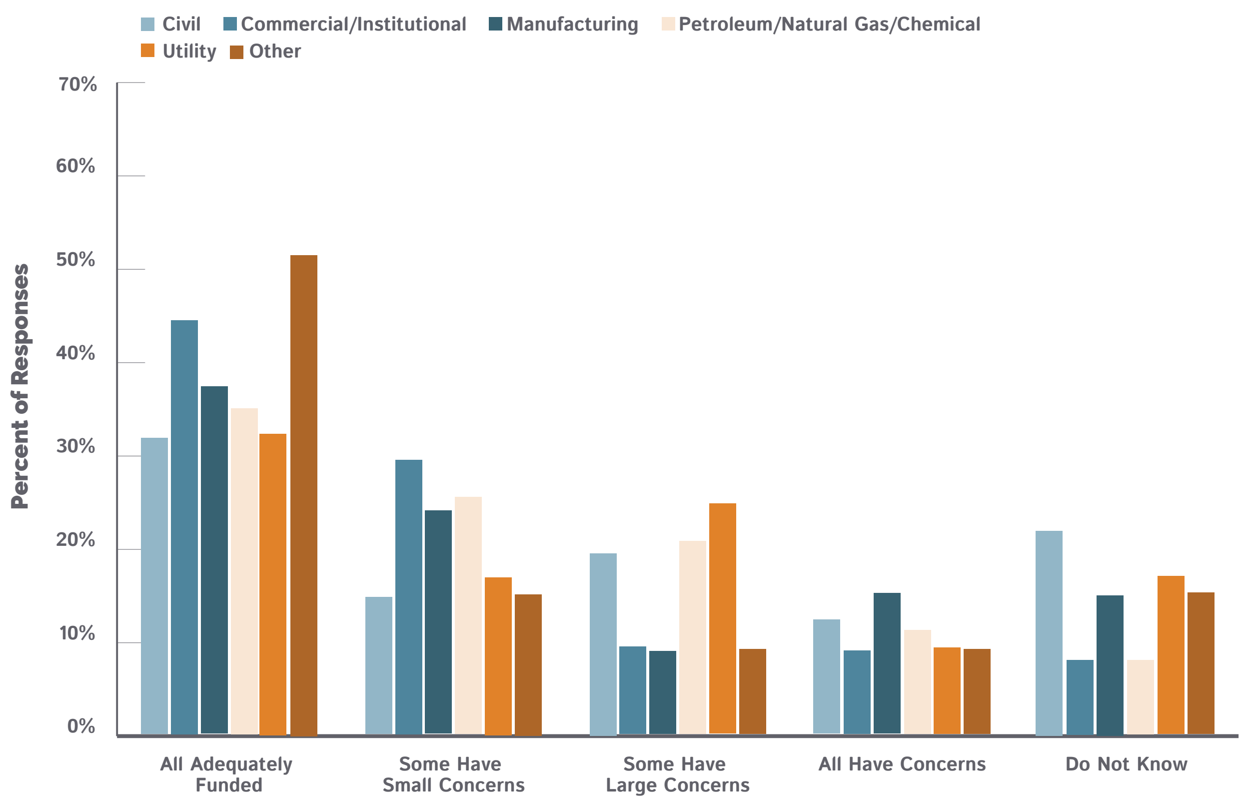


Exhibit 5.4

FINANCIAL STATUS OF UNION CRAFT PENSION FUNDS BY ORGANIZATION SIZE

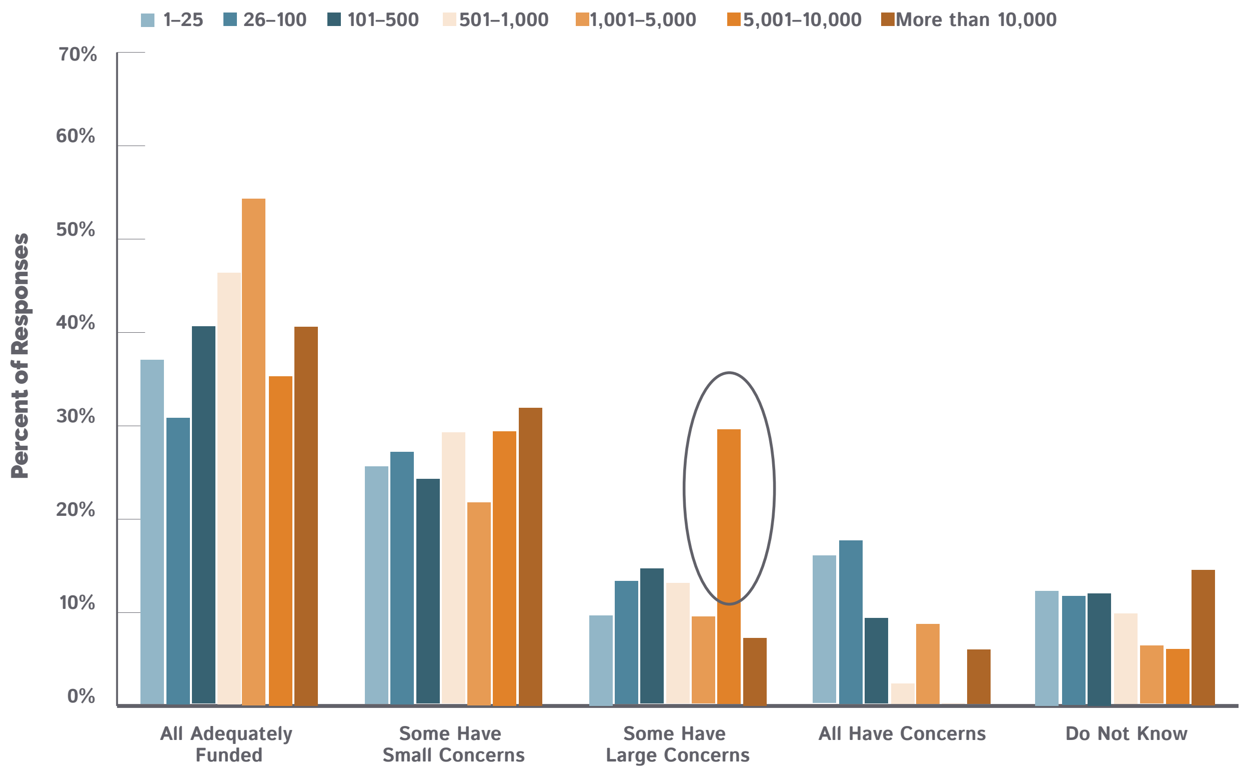
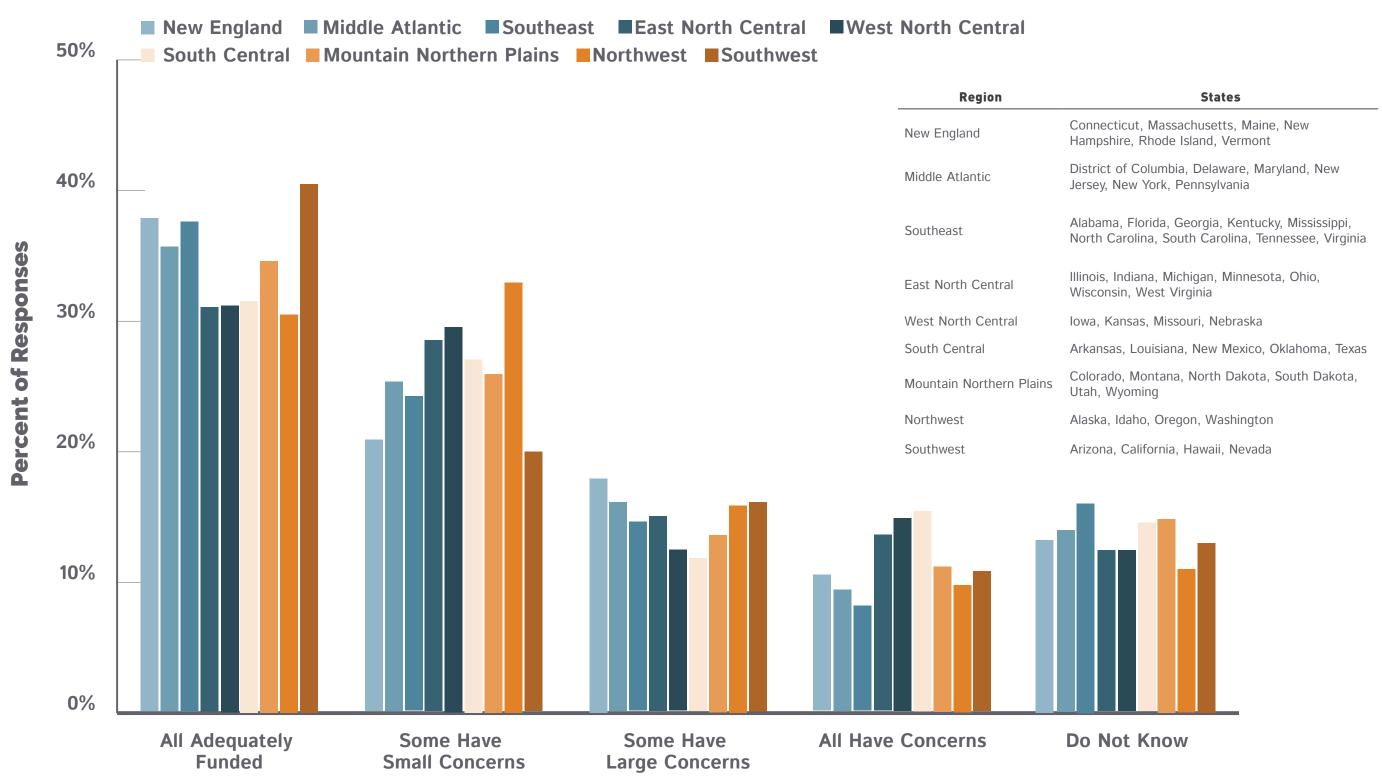


Exhibit 5.5

FINANCIAL STATUS OF UNION CRAFT PENSION FUNDS BY REGION

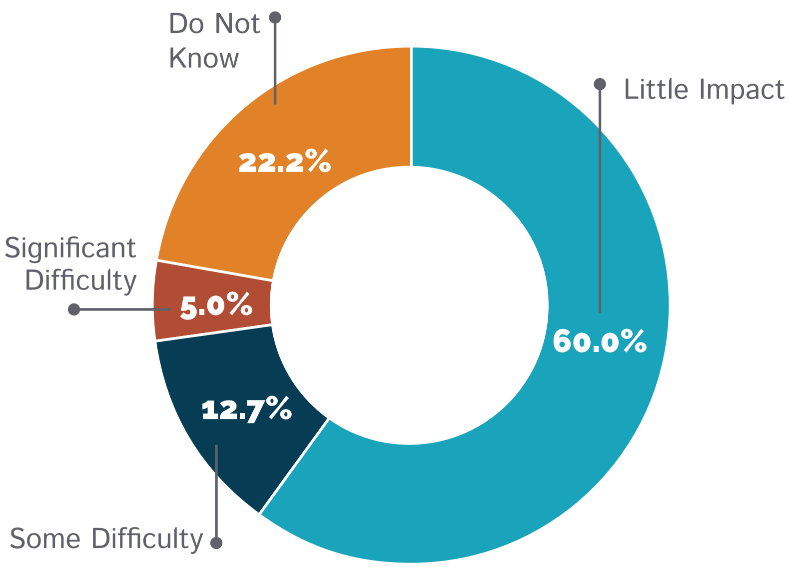


Region	States
New England	Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont
Middle Atlantic	District of Columbia, Delaware, Maryland, New Jersey, New York, Pennsylvania
Southeast	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia
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

The other question about pensions asked study participants about the impact the financial status of pension fund(s) in their organization had on their organization's ability to attract union craft workers. As displayed in **Exhibit 5.6**, most said it had little impact (60.1%); conversely, just 5.0% thought it had a significant impact. And not surprisingly, a large number (22.2%) said they did not know how the financial status of pension(s) in their organization affected recruiting of union craft workers.

Exhibit 5.6

IMPACT OF THE FINANCIAL STATUS OF UNION CRAFT PENSION FUNDS ON EMPLOYEE RECRUITMENT



Exhibits 5.7 to 5.10 break down the data in **Exhibit 5.6** into the demographic data cuts. **Exhibit 5.7** shows the characteristics of the Union/Labor role. This cohort very strongly said that pension funding had little impact on recruiting union employees. Moreover, they also had the fewest "Do Not Know" responses, suggesting an overall confidence in their reporting.

There was great homogeneity in responses across regions (**Exhibit 5.10**), suggesting that the relationship between pension funding and employee recruiting is not impacted by geography.

Exhibit 5.7

IMPACT OF THE FINANCIAL STATUS OF UNION CRAFT PENSION FUNDS ON EMPLOYEE RECRUITMENT BY ROLE

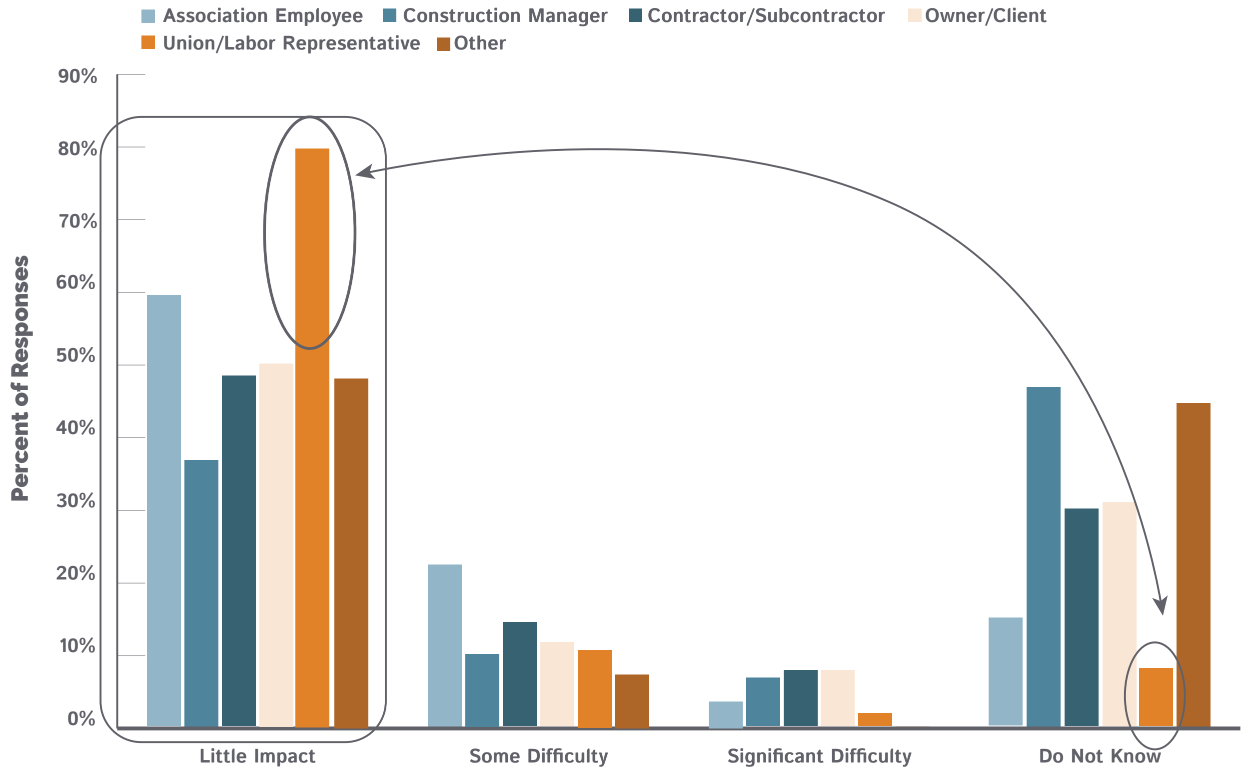


Exhibit 5.8

IMPACT OF THE FINANCIAL STATUS OF UNION CRAFT PENSION FUNDS ON EMPLOYEE RECRUITMENT BY INDUSTRY

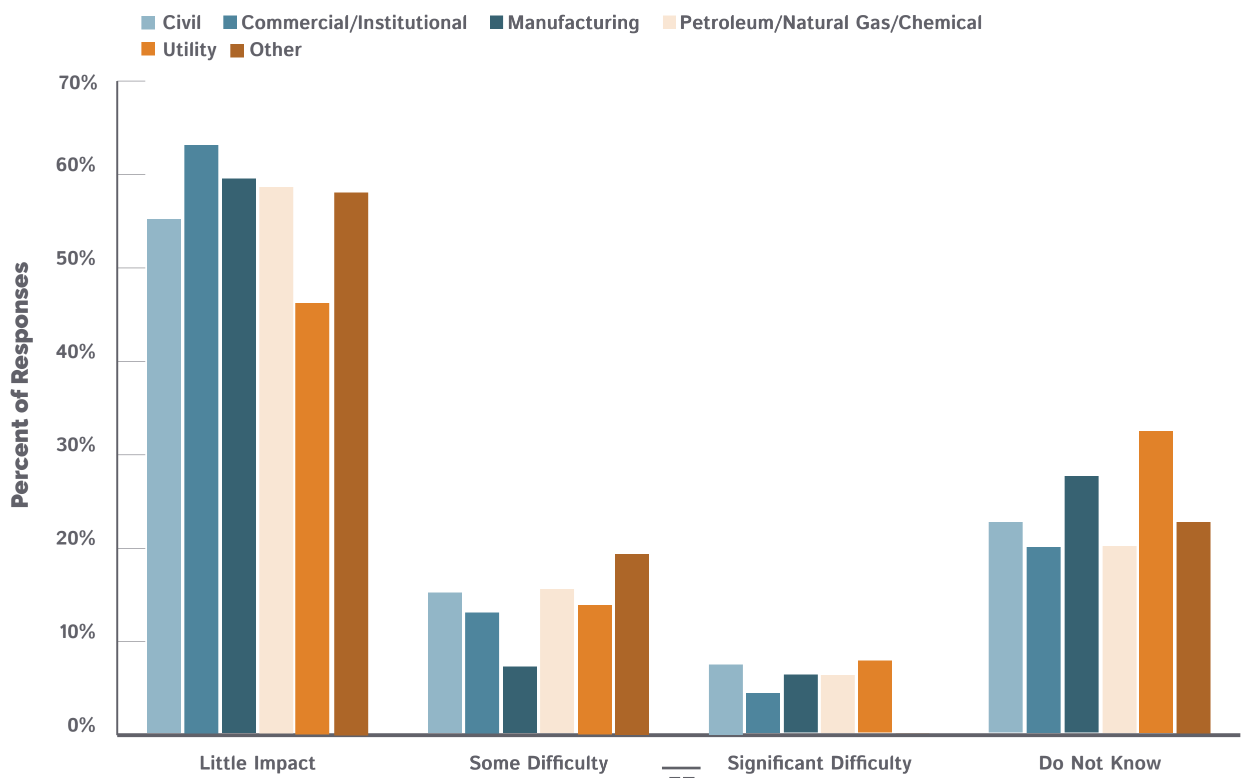


Exhibit 5.9

IMPACT OF THE FINANCIAL STATUS OF UNION CRAFT PENSION FUNDS ON EMPLOYEE RECRUITMENT BY ORGANIZATION SIZE

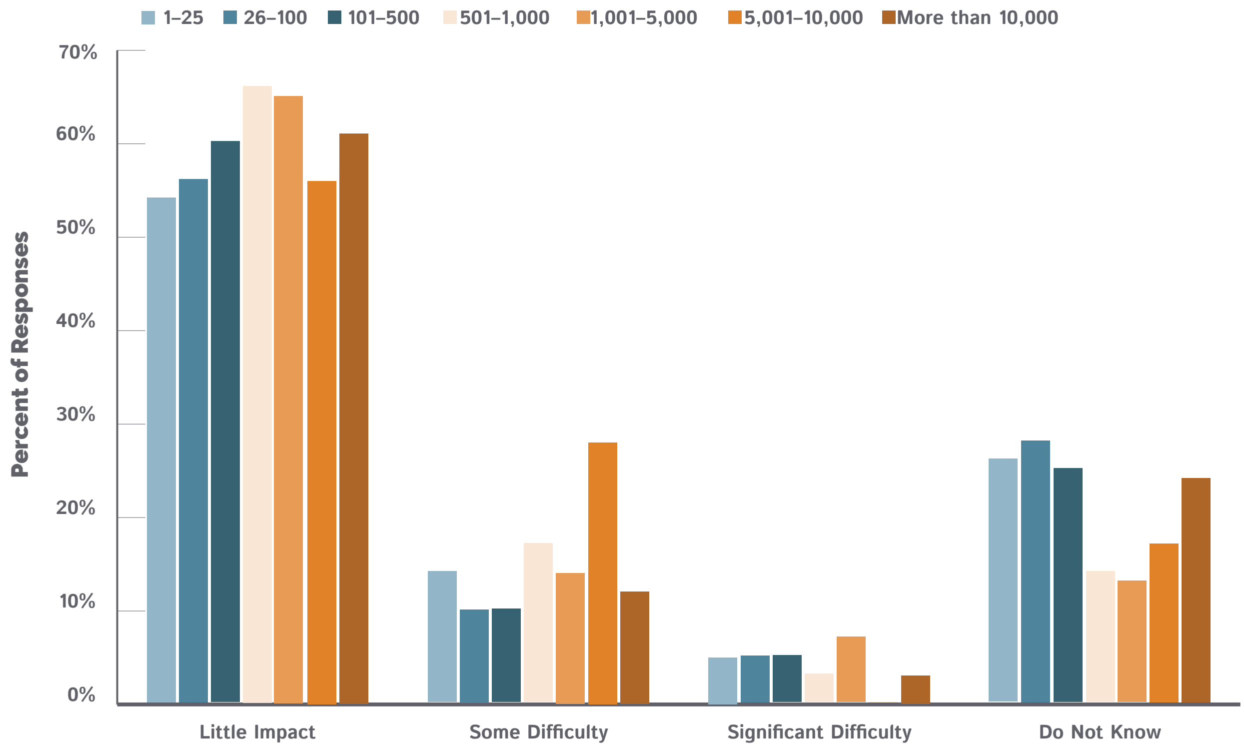
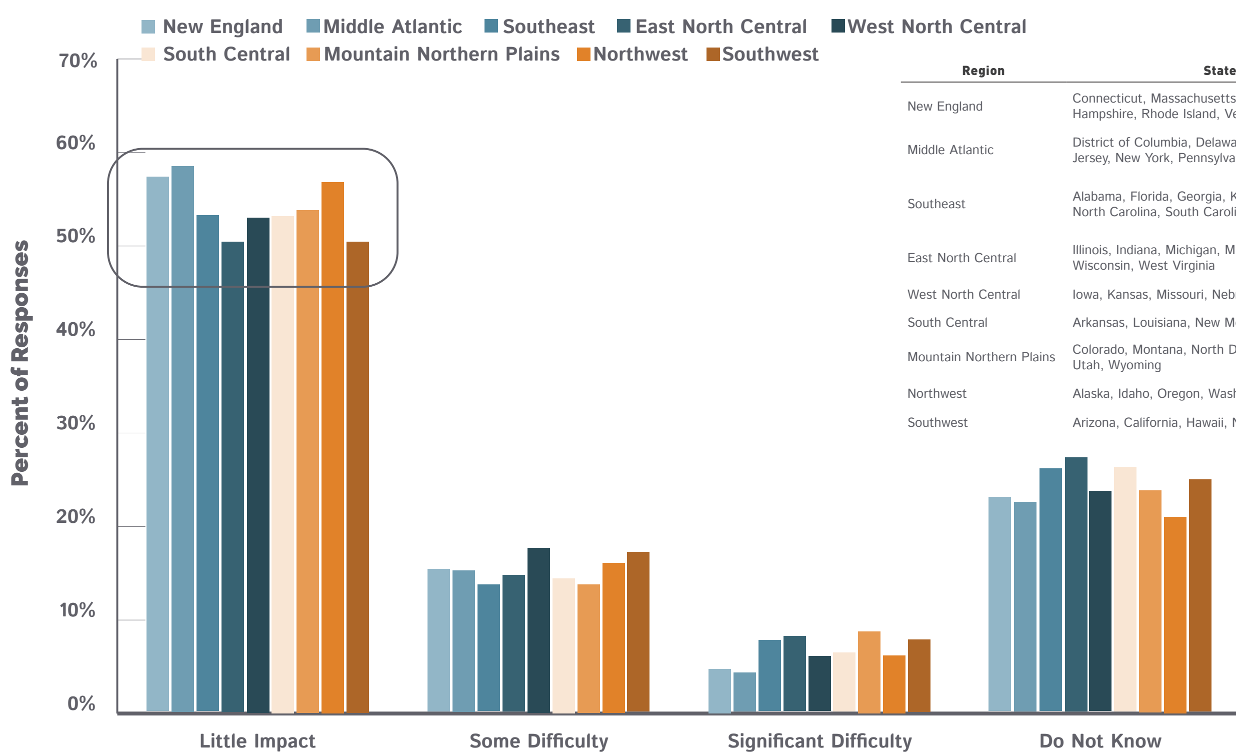


Exhibit 5.10

IMPACT OF THE FINANCIAL STATUS OF UNION CRAFT PENSION FUNDS ON EMPLOYEE RECRUITMENT BY REGION



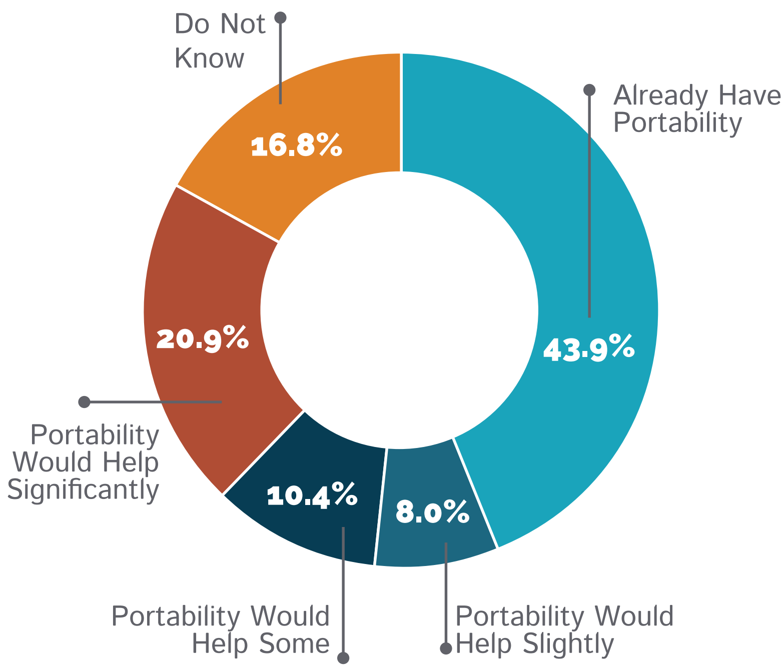
Region	States
New England	Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont
Middle Atlantic	District of Columbia, Delaware, Maryland, New Jersey, New York, Pennsylvania
Southeast	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia
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

Part 2. Union Craft Worker Portability

Findings for the second topic unique to this year's study, portability, are contained in **Exhibits 5.11 – 5.15**. As shown in **Exhibit 5.11**, many said they already had portability in their organization (43.9%) while another 20.9% said it would help significantly. Just under a fifth (18.4%) thought portability would help some or a little.

Exhibit 5.11

IMPACT OF PORTABILITY ON MEETING UNION CRAFT LABOR NEEDS



The Union/Labor theme was prominent again regarding portability, as shown in **Exhibit 5.12**. More specifically, 73.0% of those in the Union/Labor Representatives role reported that portability was already in place while the next closest role, Construction Manager, had 28% fewer (45%) reporting that portability was already In place. And just 10.0% of the Union/Labor role said they did not know, which was noticeably less than the other roles.

According to the findings, three industries would benefit the most from gaining portability: Manufacturing, Petroleum/Natural Gas/Chemical and Utility. There was a clear relationship between portability and organization size, the larger the organizations the more likely it had portability (**Exhibit 5.14**). Finally, depending on the region, from 42.0% to 50.0% of the respondents said portability would help at least a little in meeting union craft labor supply needs in their organization (**Exhibit 5.15**).

Exhibit 5.12

IMPACT OF PORTABILITY ON MEETING UNION CRAFT LABOR NEEDS BY ROLE

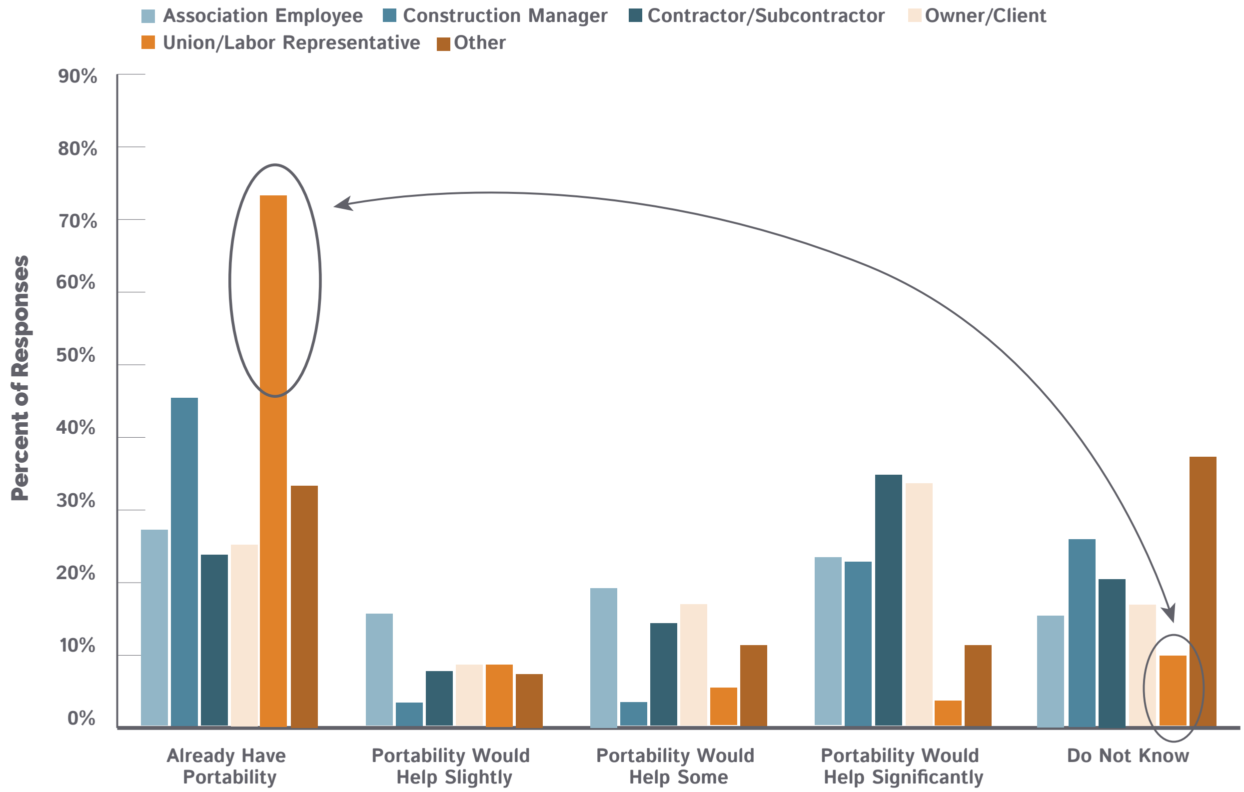


Exhibit 5.13

IMPACT OF PORTABILITY ON MEETING UNION CRAFT LABOR NEEDS BY INDUSTRY

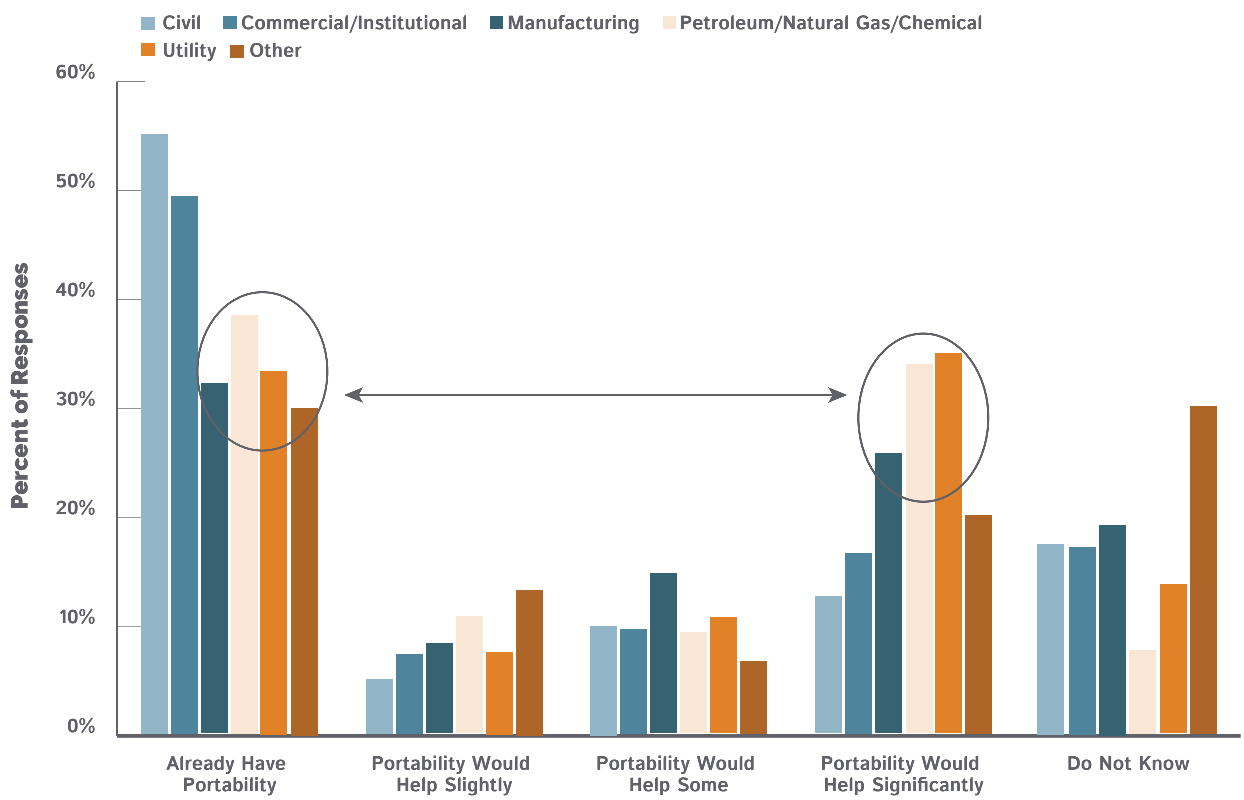


Exhibit 5.14

IMPACT OF PORTABILITY ON MEETING UNION CRAFT LABOR NEEDS BY ORGANIZATION SIZE

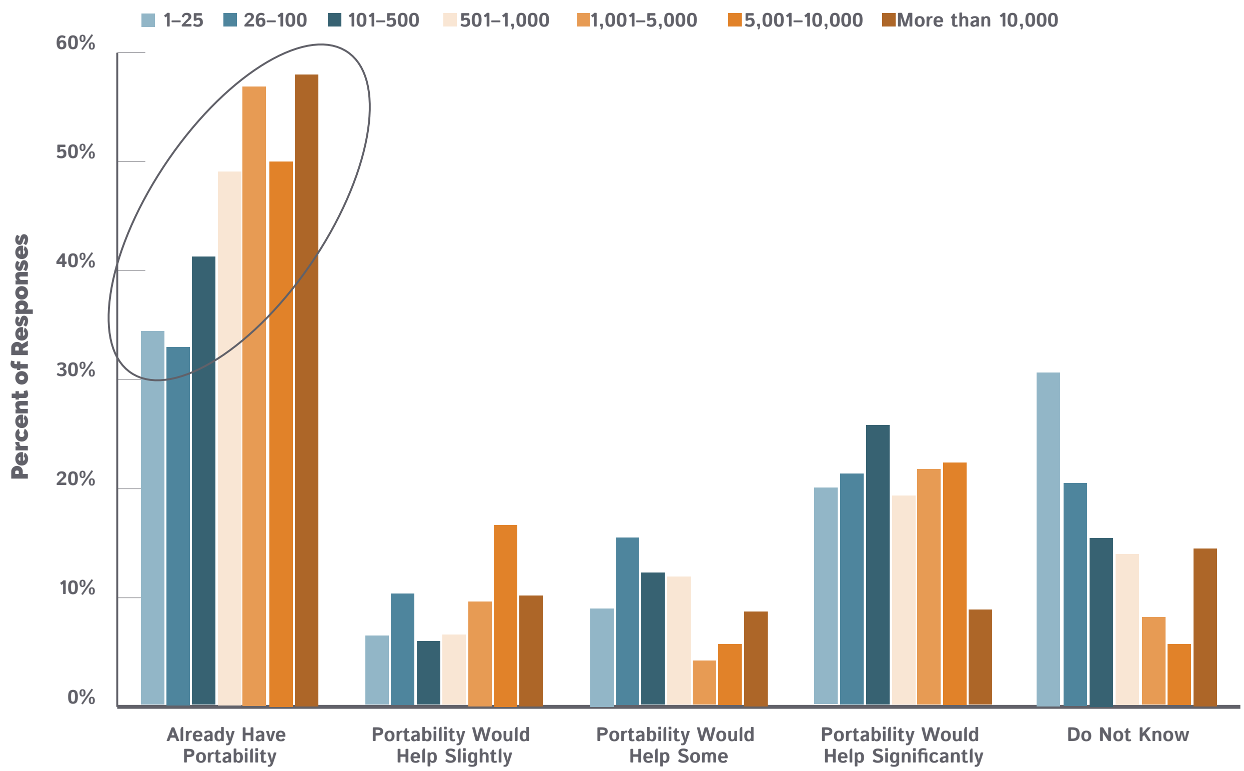
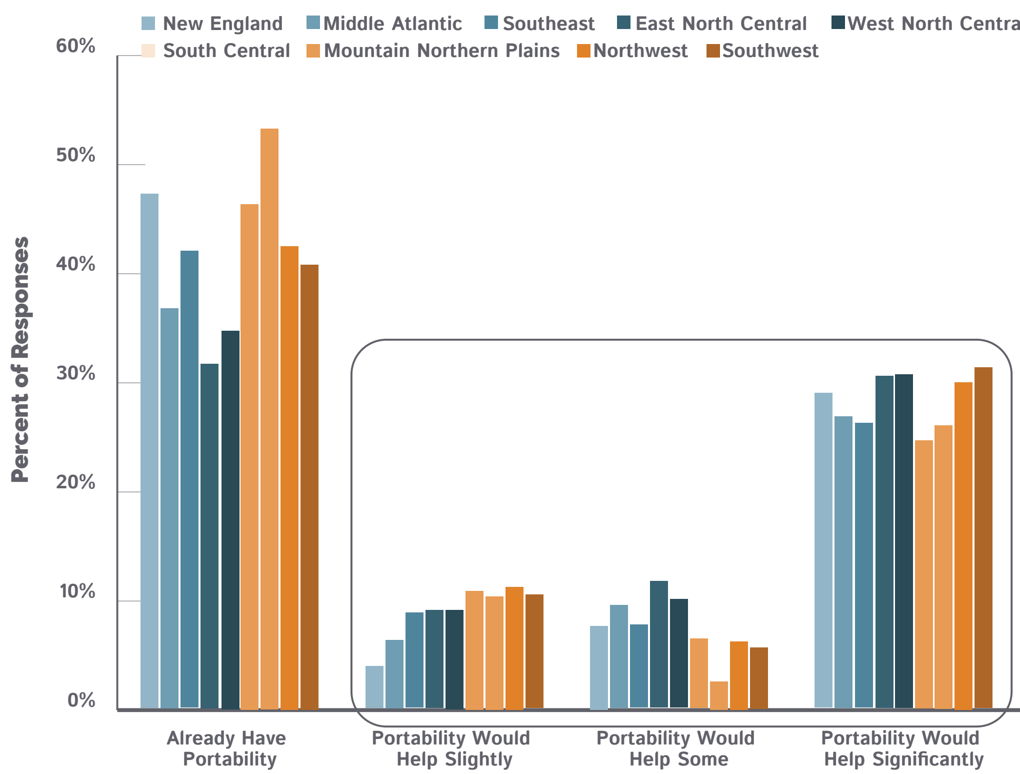


Exhibit 5.15

IMPACT OF PORTABILITY ON MEETING UNION CRAFT LABOR NEEDS BY REGION



Region	States
New England	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

Part 3. Impact of the Coronavirus on Union Craft Labor Supply

The third special topic for the 2021 Labor Study was about the Coronavirus, a key topic for nearly any issue in 2020. Interestingly, **Exhibit 5.16** illustrates that about a fourth (24.0%) of the respondents benefited from the pandemic (from a staffing perspective only) in that they no longer had a shortage of union craft workers because of the pandemic. Presumably, this was due to a reduction in work, not an increase in workers. Consistent with other sections of the report, many (42.3%) said they had no shortage of workers prior to COVID. Unlike many other questions, the Union/Labor respondents showed no unique or outlier properties on this topic.

Exhibit 5.16

IMPACT OF THE CORONAVIRUS ON UNION CRAFT LABOR STAFFING

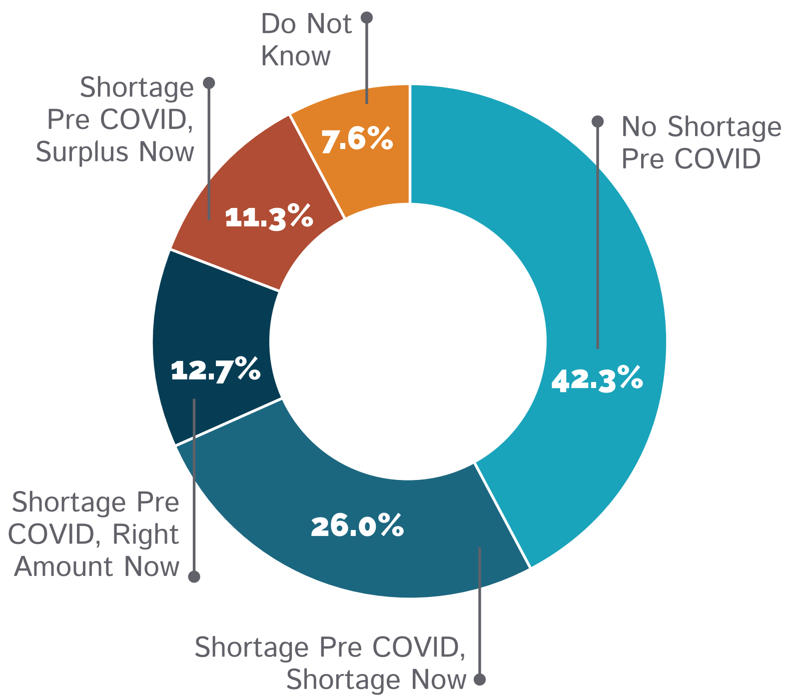


EXHIBIT 5.17

IMPACT OF THE CORONAVIRUS ON UNION CRAFT LABOR STAFFING BY ROLE

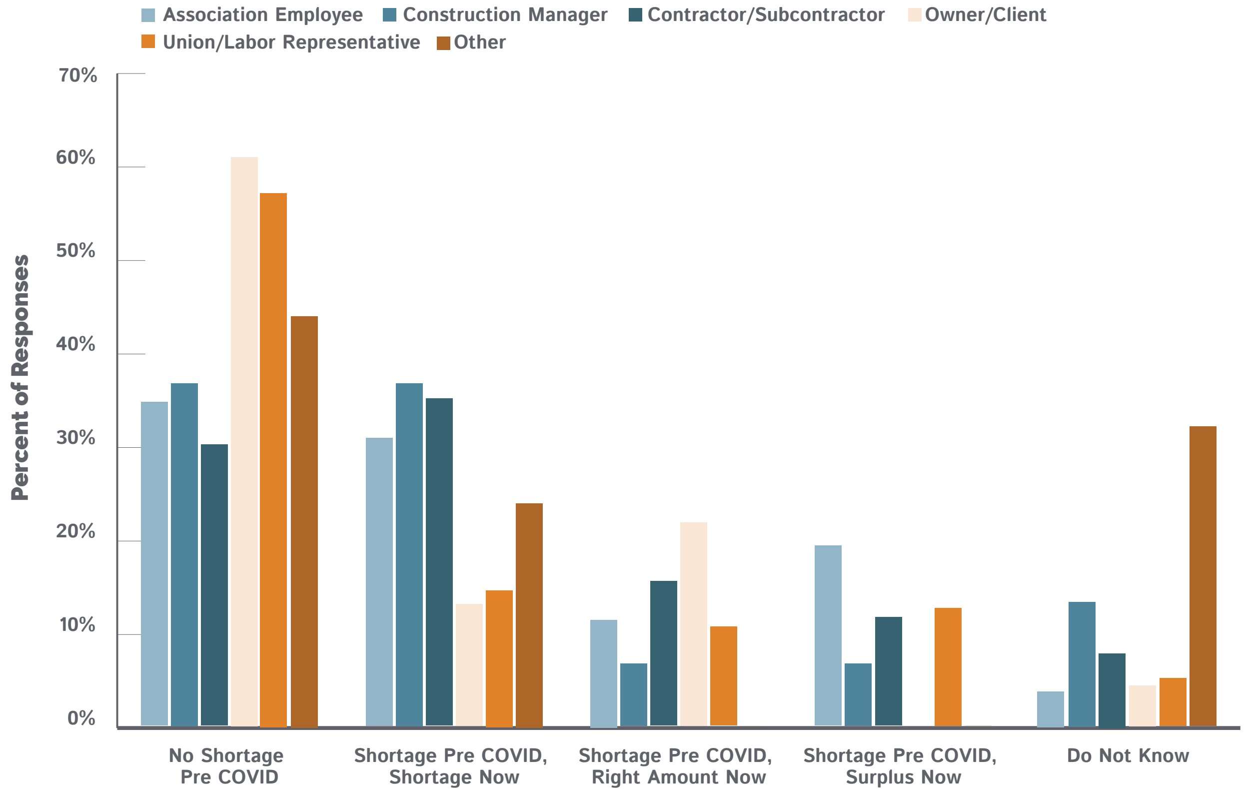


EXHIBIT 5.18

IMPACT OF THE CORONAVIRUS ON UNION CRAFT LABOR STAFFING BY INDUSTRY

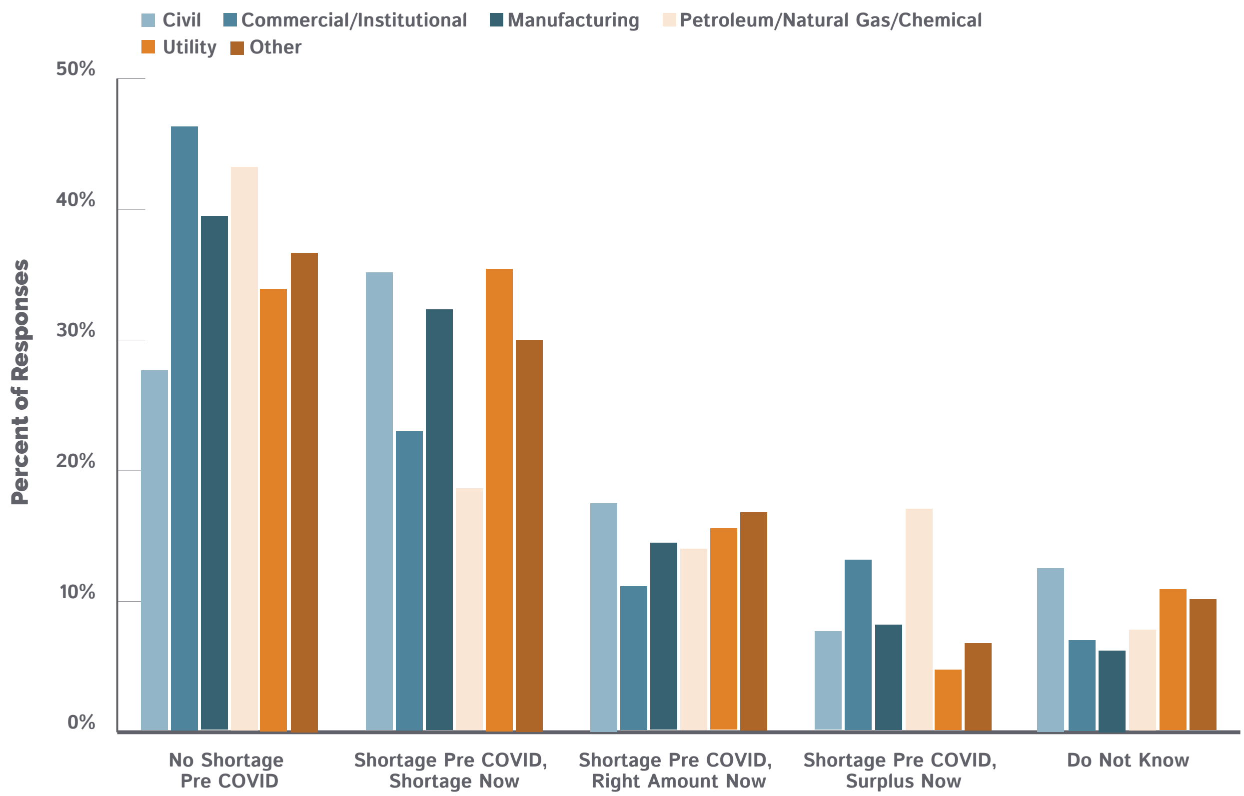


EXHIBIT 5.19

IMPACT OF THE CORONAVIRUS ON UNION CRAFT LABOR STAFFING BY ORGANIZATION SIZE

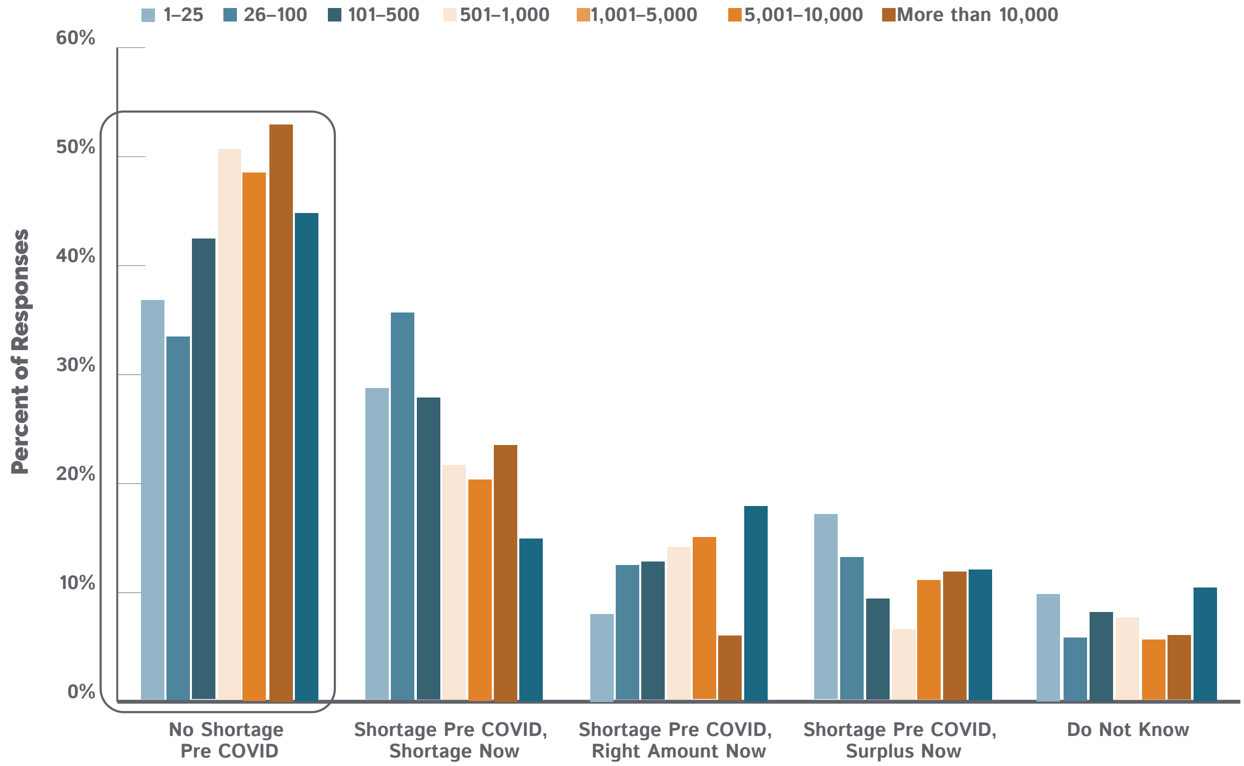
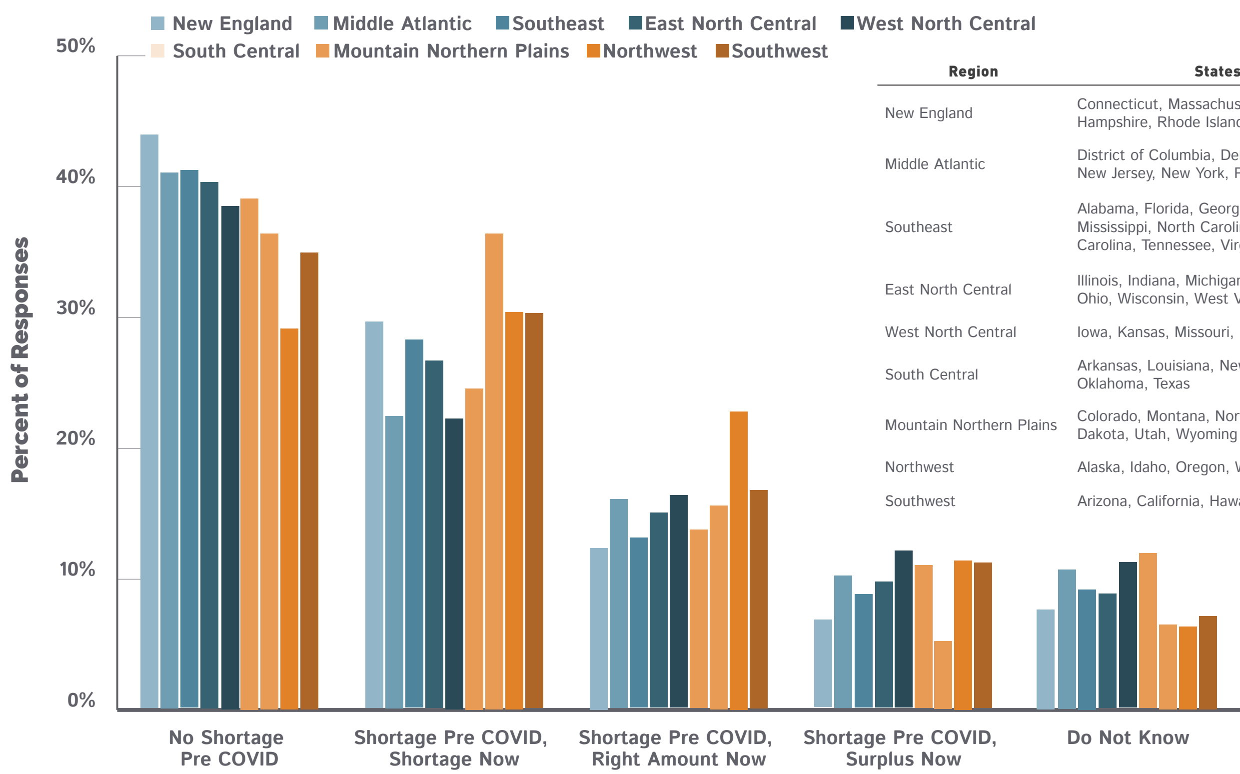


EXHIBIT 5.20

IMPACT OF THE CORONAVIRUS ON UNION CRAFT LABOR STAFFING BY REGION



Region	States
New England	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

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: 2019 & 2020
B. Projections for 2021
C. Historical Results for Apprentices: 2019 & 2020

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.

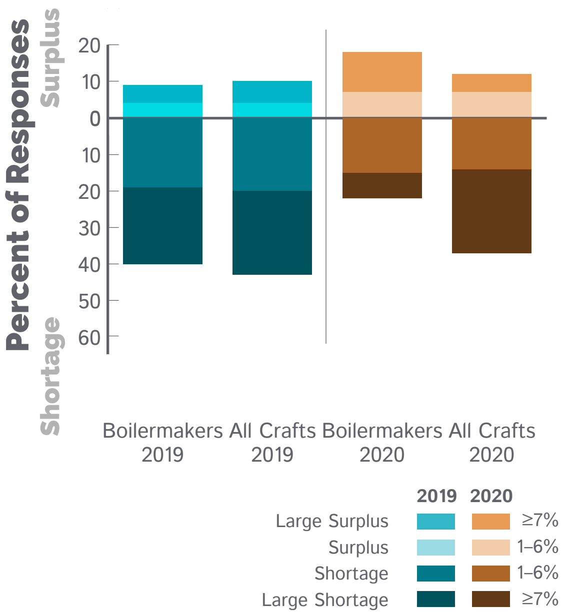
Additionally, results for all crafts combined are included in the charts and tables so that each craft can be compared to the overall average of all crafts included in this study.

I. BOILERMAKERS

A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/SURPLUS—BOILERMAKERS



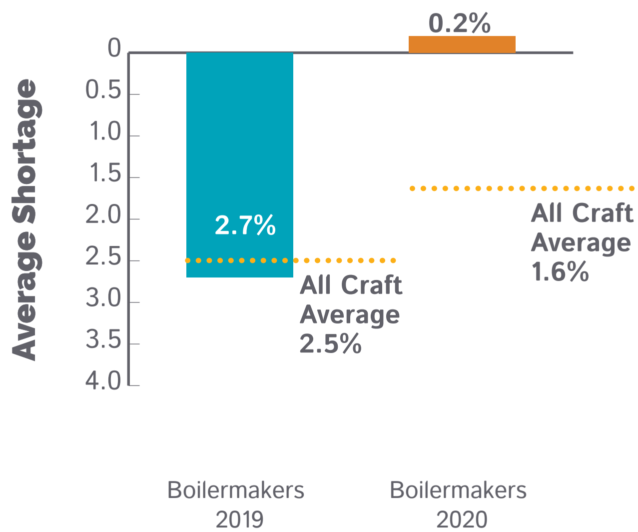
Compared to Boilermakers in 2019, the percent of respondents who reported a:

- *shortage* of Boilermakers in 2020 was smaller (2019: 40%, 2020: 22%).
- *surplus* of Boilermakers in 2020 was greater (2019: 9%, 2020: 18%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Boilermakers in 2020 was smaller (Boilermakers: 22%, All Crafts: 37%).
- *surplus of* Boilermakers in 2020 was greater (Boilermakers: 18%, All Crafts: 12%).

AVERAGE SHORTAGE/SURPLUS—BOILERMAKERS



Compared to Boilermakers in 2019,

- there was an average *surplus* of Boilermakers in 2020, rather than a shortage (2019: 2.7% shortage, 2020: 0.2% surplus).

Compared to all crafts combined in 2020,

- there was an average *surplus* of Boilermakers in 2020, rather than a shortage (Boilermakers: 0.2% surplus, All Crafts: 1.6% shortage).

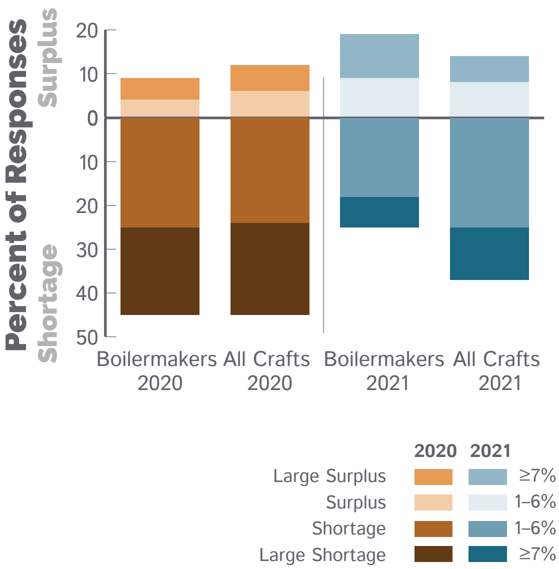
	2019		2020	
	Boilermakers	**All Crafts**	**Boilermakers**	**All Crafts**
Average	-2.7%	-2.5%	0.2%	-1.6%
Surplus	4%	4%	7%	7%
Large Surplus	5%	6%	11%	5%
Shortage	19%	23%	15%	23%
Large Shortage	21%	20%	7%	14%

I. BOILERMAKERS (continued)

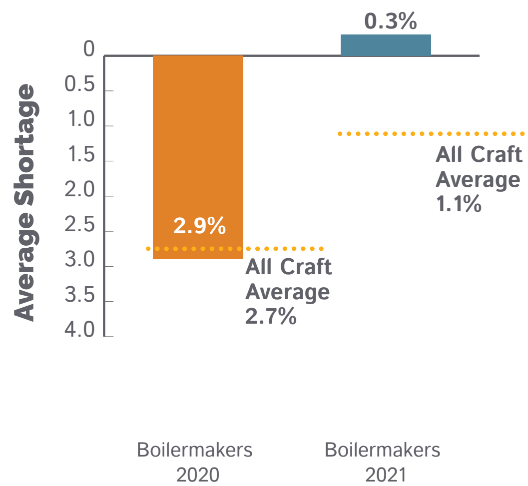
B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS—BOILERMAKERS



AVERAGE SHORTAGE/SURPLUS PROJECTIONS—BOILERMAKERS



Compared to Boilermakers in 2020, the percent of respondents who projected a:

- *shortage* of Boilermakers in 2021 was smaller (2020: 45%, 2021: 25%).
- *surplus* of Boilermakers in 2021 was greater (2020: 9%, 2021: 19%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Boilermakers in 2021 was smaller (Boilermakers: 25%, All Crafts: 37%).
- *surplus* of Boilermakers in 2021 was greater (Boilermakers: 19%, All Crafts: 14%).

Compared to Boilermakers in 2020,

- there was a projected average *surplus* of Boilermakers in 2021, rather than a *shortage* (2020: 2.9% shortage, 2021: 0.3% surplus).

Compared to all crafts combined in 2021,

- there was a projected average *surplus* of Boilermakers in 2021, rather than a *shortage* (Boilermakers: 0.3% surplus, All Crafts: 1.1% shortage).

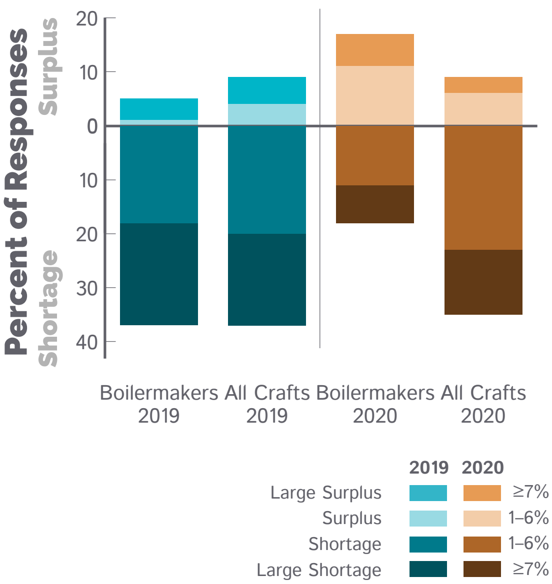
	2020		2021	
	Boilermakers	**All Crafts**	**Boilermakers**	**All Crafts**
Average	-2.9%	-2.7%	0.3%	-1.1%
Surplus	4%	6%	9%	8%
Large Surplus	5%	6%	10%	6%
Shortage	25%	24%	18%	25%
Large Shortage	20%	21%	7%	12%

I. BOILERMAKERS (continued)

C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/SURPLUS—BOILERMAKERS



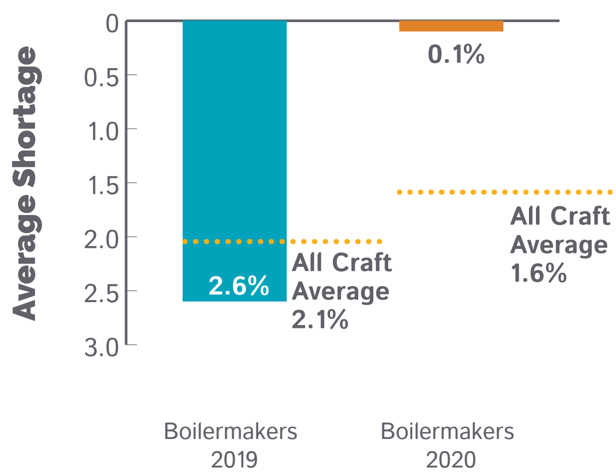
Compared to Boilermaker apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Boilermaker apprentices in 2020 was smaller (2019: 37%, 2020: 18%).
- *surplus* of Boilermaker apprentices in 2020 was greater (2019: 5%, 2020: 17%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Boilermaker apprentices in 2020 was smaller (Boilermaker apprentices: 18%, All Crafts: 35%).
- *surplus* of Boilermaker apprentices in 2020 was greater (Boilermaker apprentices: 17%, All Crafts: 9%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—BOILERMAKERS



Compared to Boilermaker apprentices in 2019,

- there was a smaller average *shortage* of Boilermaker apprentices in 2020 (2019: 2.6%, 2020: 0.1%).

Compared to all crafts combined in 2020,

- there was a smaller average *shortage* of Boilermaker apprentices in 2020 (Boilermaker apprentices: 0.1%, All Crafts: 1.6%).

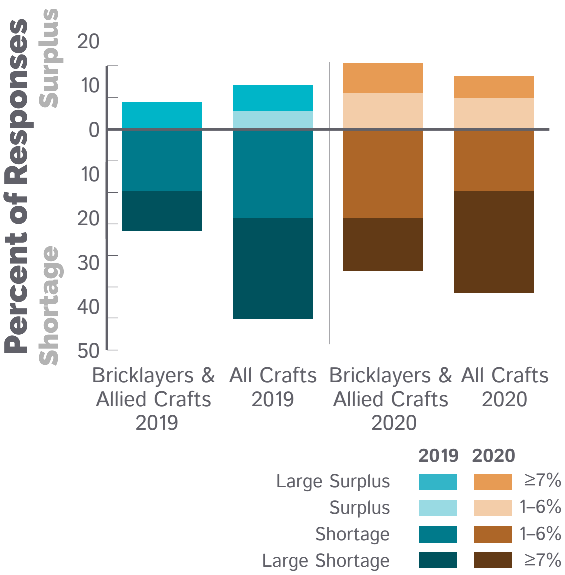
	2019		2020	
	Boilermakers	**All Crafts**	**Boilermakers**	**All Crafts**
Average	-2.6%	-2.1%	-0.1%	-1.6%
Surplus	1%	4%	11%	6%
Large Surplus	4%	5%	6%	3%
Shortage	18%	20%	11%	23%
Large Shortage	19%	17%	7%	12%

II. BRICKLAYERS & ALLIED CRAFTS

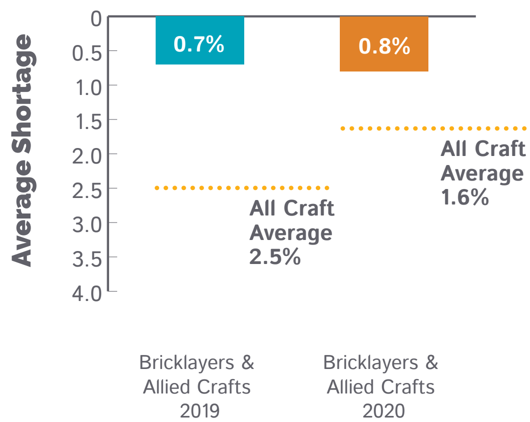
A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



AVERAGE SHORTAGE/SURPLUS—BRICKLAYERS & ALLIED CRAFTS



Compared to Bricklayers & Allied Crafts in 2019, the percent of respondents who reported a:

- *shortage* of Bricklayers & Allied Crafts in 2020 was greater (2019: 23%, 2020: 32%).
- *surplus* of Bricklayers & Allied Crafts in 2020 was slightly greater (2019: 6%, 2020: 15%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Bricklayers & Allied Crafts in 2020 was smaller (Bricklayers & Allied Crafts: 32%, All Crafts: 37%).
- *surplus* of Bricklayers & Allied Crafts in 2020 was slightly greater (Bricklayers & Allied Crafts: 15%, All Crafts: 12%).

Compared to Bricklayers & Allied Crafts in 2019,

- there was a slightly greater average *shortage* of Bricklayers & Allied Crafts in 2020 (2019: 0.7%, 2020: 0.8%).

Compared to all crafts combined in 2020,

- there was a smaller average *shortage* of Bricklayers & Allied Crafts in 2020 (Bricklayers & Allied Crafts: 0.8%, All Crafts: 1.6%).

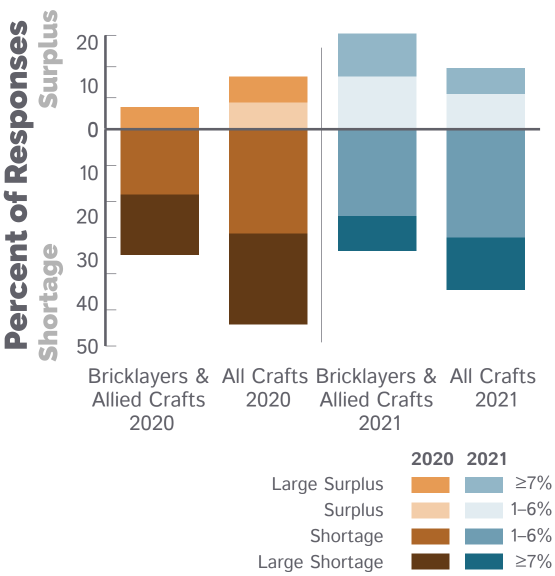
	2019		2020	
	Bricklayers & Allied Crafts	**All Crafts**	**Bricklayers & Allied Crafts**	**All Crafts**
Average	-0.7%	-2.5%	-0.8%	-1.6%
Surplus	0%	4%	8%	7%
Large Surplus	6%	6%	7%	5%
Shortage	14%	23%	20%	23%
Large Shortage	9%	20%	12%	14%

II. BRICKLAYERS & ALLIED CRAFTS (continued)

B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

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



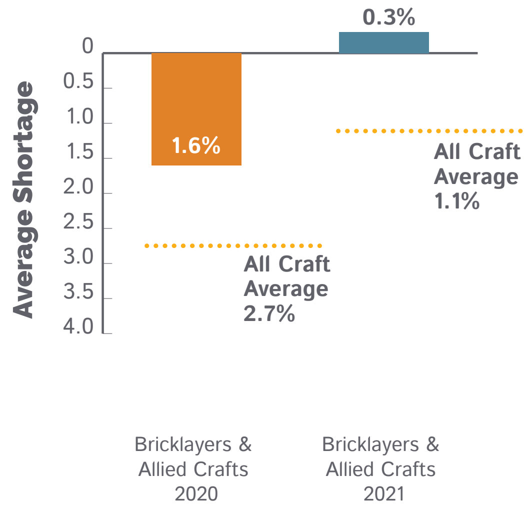
Compared to Bricklayers & Allied Crafts in 2020, the percent of respondents who projected a:

- *shortage* of Bricklayers & Allied Crafts in 2021 was slightly smaller (2020: 29%, 2021: 28%).
- *surplus* of Bricklayers & Allied Crafts in 2021 was greater (2020: 5%, 2021: 22%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Bricklayers & Allied Crafts in 2021 was smaller (Bricklayers & Allied Crafts: 28%, All Crafts: 37%).
- *surplus* of Bricklayers & Allied Crafts in 2021 was greater (Bricklayers & Allied Crafts: 22%, All Crafts: 14%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS—BRICKLAYERS & ALLIED CRAFTS



Compared to Bricklayers & Allied Crafts in 2020,

- there was a projected average *surplus* of Bricklayers & Allied Crafts in 2021, rather than a *shortage* (2020: 1.6% shortage, 2021: 0.3% surplus).

Compared to all crafts combined in 2021,

- there was a projected average *surplus* of Bricklayers & Allied Crafts in 2021, rather than a *shortage* (Bricklayers & Allied Crafts: 0.3% surplus, All Crafts: 1.1% shortage).

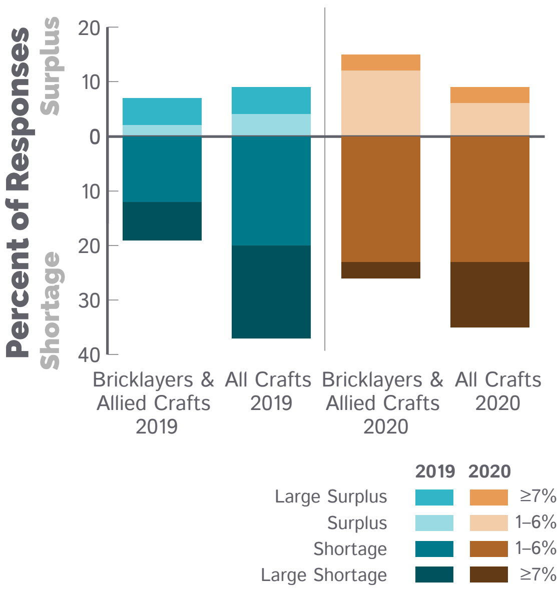
	2020		2021	
	Bricklayers & Allied Crafts	**All Crafts**	**Bricklayers & Allied Crafts**	**All Crafts**
Average	-1.6%	-2.7%	0.3%	-1.1%
Surplus	0%	6%	12%	8%
Large Surplus	5%	6%	10%	6%
Shortage	15%	24%	20%	25%
Large Shortage	14%	21%	8%	12%

II. BRICKLAYERS & ALLIED CRAFTS (continued)

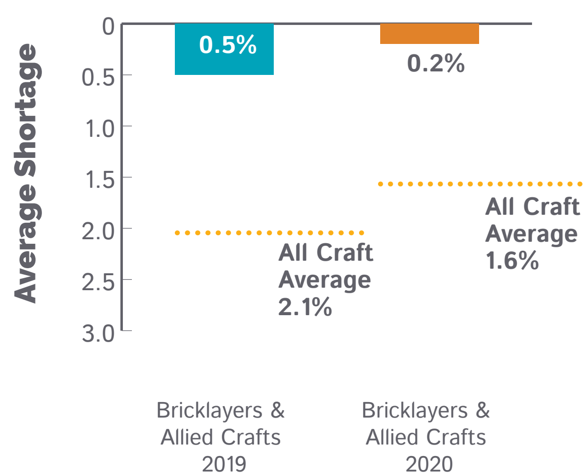
C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—BRICKLAYERS & ALLIED CRAFTS



Compared to Bricklayer & Allied Craft apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Bricklayer & Allied Craft apprentices in 2020 was greater (2019: 19%, 2020: 26%).
- *surplus* of Bricklayer & Allied Craft apprentices in 2020 was greater (2019: 7%, 2020: 15%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Bricklayer & Allied Craft apprentices in 2020 was smaller (Bricklayer & Allied Craft apprentices: 26%, All Crafts: 35%).
- *surplus* of Bricklayer & Allied Craft apprentices in 2020 was greater (Bricklayer & Allied Craft apprentices: 15%, All Crafts: 9%).

Compared to Bricklayer & Allied Craft apprentices in 2019,

- there was a smaller average *shortage* of Bricklayer & Allied Craft apprentices in 2020 (2019: 0.5%, 2020: 0.2%).

Compared to all crafts combined in 2020,

- there was a smaller average *shortage* of Bricklayer & Allied Craft apprentices in 2020 (Bricklayer & Allied Craft apprentices: 0.2%, All Crafts: 1.6%).

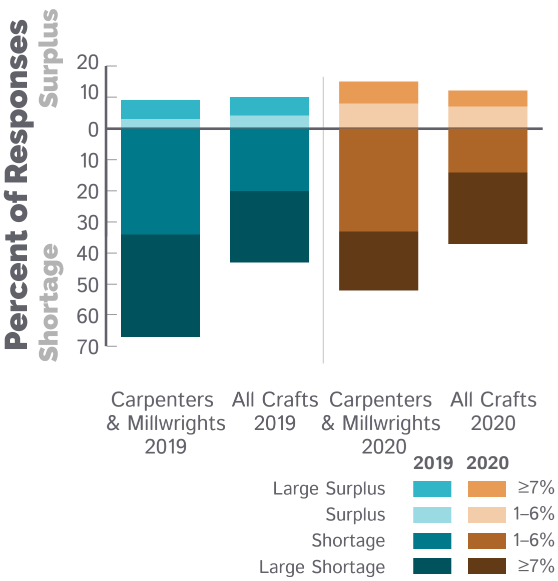
	2019		2020	
	Bricklayers & Allied Crafts	**All Crafts**	**Bricklayers & Allied Crafts**	**All Crafts**
Average	-0.5%	-2.1%	-0.2%	-1.6%
Surplus	2%	4%	12%	6%
Large Surplus	5%	5%	3%	3%
Shortage	12%	20%	23%	23%
Large Shortage	7%	17%	3%	12%

III. CARPENTERS & MILLWRIGHTS

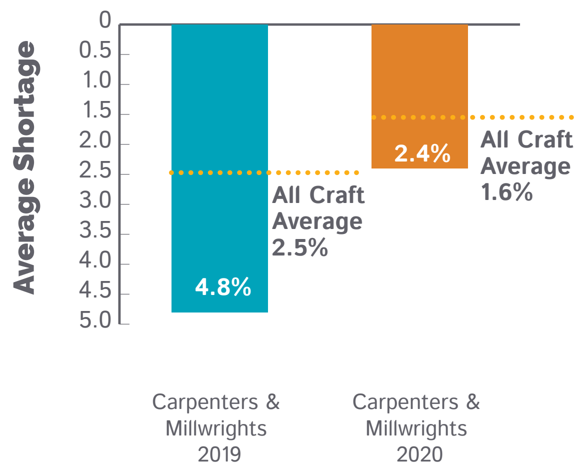
A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



AVERAGE SHORTAGE/SURPLUS—CARPENTERS & MILLWRIGHTS



Compared to Carpenters & Millwrights in 2019, the percent of respondents who reported a:

- *shortage* of Carpenters & Millwrights in 2020 was smaller (2019: 67%, 2020: 52%).
- *surplus* of Carpenters & Millwrights in 2020 was greater (2019: 9%, 2020: 15%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Carpenters & Millwrights in 2020 was greater (Carpenters & Millwrights: 52%, All Crafts: 37%).
- *surplus* of Carpenters & Millwrights in 2020 was greater (Carpenters & Millwrights: 15%, All Crafts: 12%).

Compared to Carpenters & Millwrights in 2019,

- there was a smaller average *shortage* of Carpenters & Millwrights in 2020 (2019: 4.8%, 2020: 2.4%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Carpenters & Millwrights in 2020 (Carpenters & Millwrights: 2.4%, All Crafts: 1.6%).

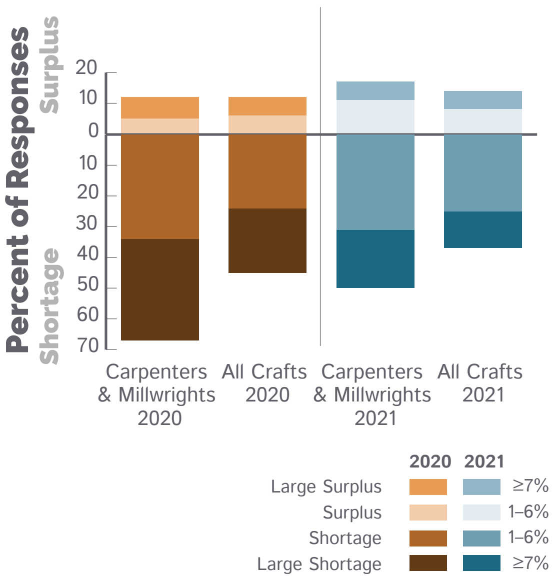
	2019		2020	
	Carpenters & Millwrights	All Crafts	Carpenters & Millwrights	All Crafts
Average	-4.8%	-2.5%	-2.4%	-1.6%
Surplus	3%	4%	8%	7%
Large Surplus	6%	6%	7%	5%
Shortage	34%	23%	33%	23%
Large Shortage	33%	20%	19%	14%

III. CARPENTERS & MILLWRIGHTS (continued)

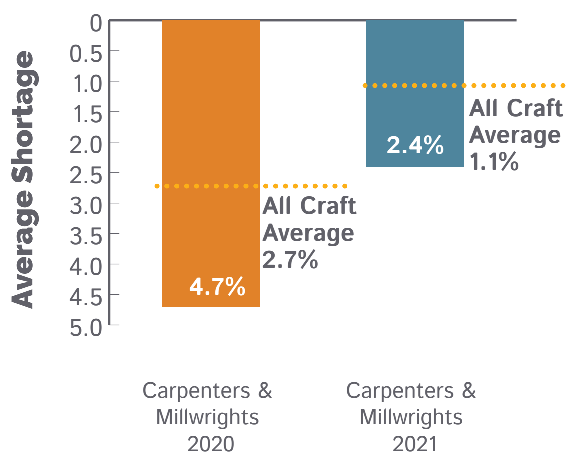
B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

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



AVERAGE SHORTAGE/SURPLUS PROJECTIONS—CARPENTERS & MILLWRIGHTS



Compared to Carpenters & Millwrights in 2020, the percent of respondents who projected a:

- *shortage* of Carpenters & Millwrights in 2021 was smaller (2020: 67%, 2021: 50%).
- *surplus* of Carpenters & Millwrights in 2021 was greater (2020: 12%, 2021: 17%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Carpenters & Millwrights in 2021 was greater (Carpenters & Millwrights: 50%, All Crafts: 37%).
- *surplus* of Carpenters & Millwrights in 2021 was greater (Carpenters & Millwrights: 17%, All Crafts: 14%).

Compared to Carpenters & Millwrights in 2020,

- there was a smaller projected average *shortage* of Carpenters & Millwrights in 2021 (2020: 4.7%, 2021: 2.4%).

Compared to all crafts combined in 2021,

- there was a greater projected average *shortage* of Carpenters & Millwrights in 2021 (Carpenters & Millwrights: 2.4%, All Crafts: 1.1%).

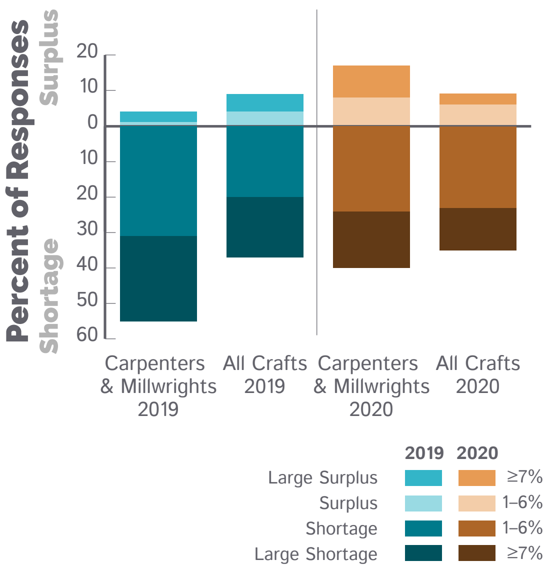
	2020		2021	
	Carpenters & Millwrights	All Crafts	Carpenters & Millwrights	All Crafts
Average	-4.7%	-2.7%	-2.4%	-1.1%
Surplus	5%	6%	11%	8%
Large Surplus	7%	6%	6%	6%
Shortage	34%	24%	31%	25%
Large Shortage	33%	21%	19%	12%

III. CARPENTERS & MILLWRIGHTS (continued)

C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



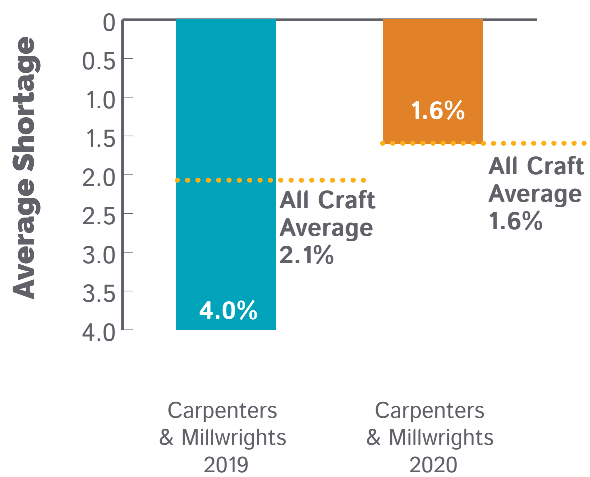
Compared to Carpenter & Millwright apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Carpenter & Millwright apprentices in 2020 was smaller (2019: 55%, 2020: 40%).
- *surplus* of Carpenter & Millwright apprentices in 2020 was greater (2019: 4%, 2020: 17%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Carpenter & Millwright apprentices in 2020 was greater (Carpenter & Millwright apprentices: 40%, All Crafts: 35%).
- *surplus* of Carpenter & Millwright apprentices in 2020 was greater (Carpenter & Millwright apprentices: 17%, All Crafts: 9%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—CARPENTERS & MILLWRIGHTS



Compared to Carpenter & Millwright apprentices in 2019,

- there was a smaller average *shortage* of Carpenter & Millwright apprentices in 2020 (2019: 4.0%, 2020: 1.6%).

Compared to all crafts combined in 2020,

- there was the same average *shortage* of Carpenter & Millwright apprentices in 2020 (Carpenter & Millwright apprentices: 1.6%, All Crafts: 1.6%).

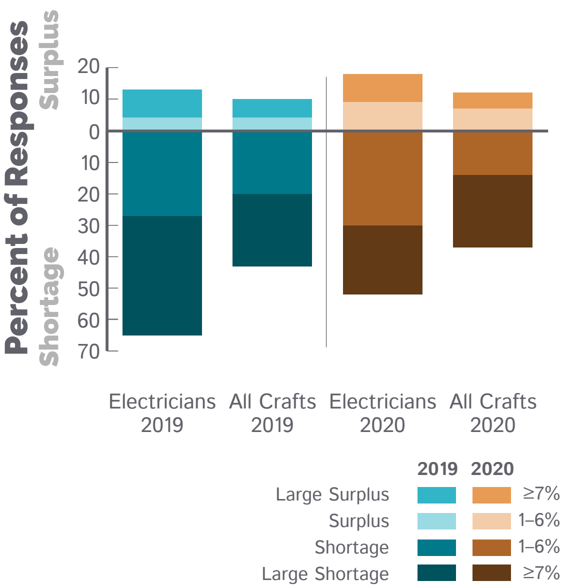
	2019		2020	
	Carpenters & Millwrights	All Crafts	Carpenters & Millwrights	All Crafts
Average	-4.0%	-2.1%	-1.6%	-1.6%
Surplus	1%	4%	8%	6%
Large Surplus	3%	5%	9%	3%
Shortage	31%	20%	24%	23%
Large Shortage	24%	17%	16%	12%

IV. ELECTRICIANS

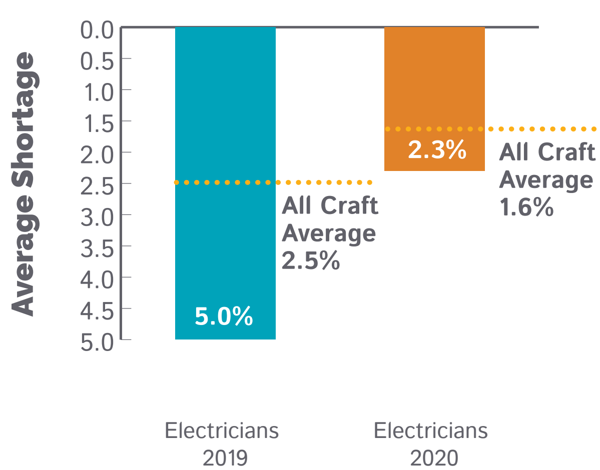
A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS—ELECTRICIANS



AVERAGE SHORTAGE/SURPLUS—ELECTRICIANS



Compared to Electricians in 2019, the percent of respondents who reported a:

- *shortage* of Electricians in 2020 was smaller (2019: 65%, 2020: 52%).
- *surplus* of Electricians in 2020 was greater (2019: 13%, 2020: 18%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Electricians in 2020 was greater (Electricians: 52%, All Crafts: 37%).
- *surplus* of Electricians in 2020 was greater (Electricians: 18%, All Crafts: 12%).

Compared to Electricians in 2019,

- there was a smaller average *shortage* of Electricians in 2020 (2019: 5.0%, 2020: 2.3%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Electricians in 2020 (Electricians: 2.3%, All Crafts: 1.6%).

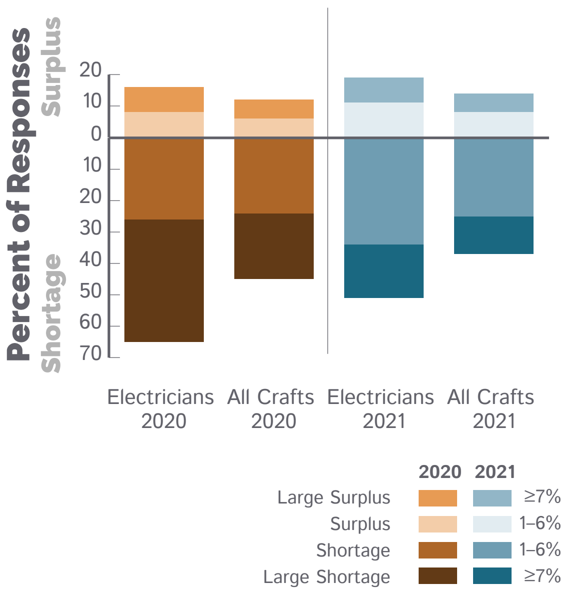
	2019		2020	
	Electricians	**All Crafts**	**Electricians**	**All Crafts**
Average	-5.0%	-2.5%	-2.3%	-1.6%
Surplus	4%	4%	9%	7%
Large Surplus	9%	6%	9%	5%
Shortage	27%	23%	30%	23%
Large Shortage	38%	20%	22%	14%

IV. ELECTRICIANS (continued)

B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS—ELECTRICIANS



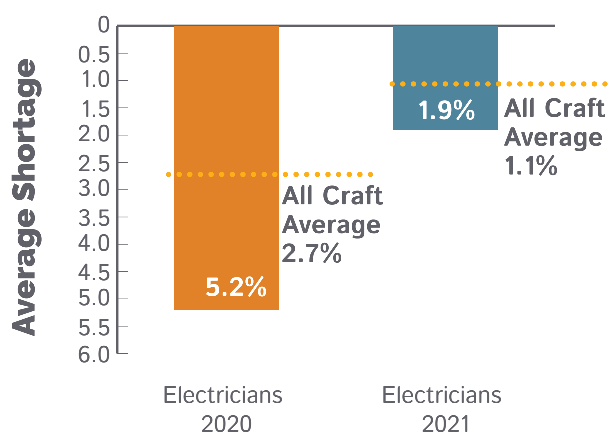
Compared to Electricians in 2020, the percent of respondents who projected a:

- *shortage* of Electricians in 2021 was smaller (2020: 65%, 2021: 51%).
- *surplus* of Electricians in 2021 was greater (2020: 16%, 2021: 19%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Electricians in 2021 was greater (Electricians: 51%, All Crafts: 37%).
- *surplus* of Electricians in 2021 was greater (Electricians: 19%, All Crafts: 14%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS—ELECTRICIANS



Compared to Electricians in 2020,

- there was a smaller projected average *shortage* of Electricians in 2021 (2020: 5.2%, 2021: 1.9%).

Compared to all crafts combined in 2021,

- there was a greater projected average *shortage* of Electricians in 2021 (Electricians: 1.9%, All Crafts: 1.1%).

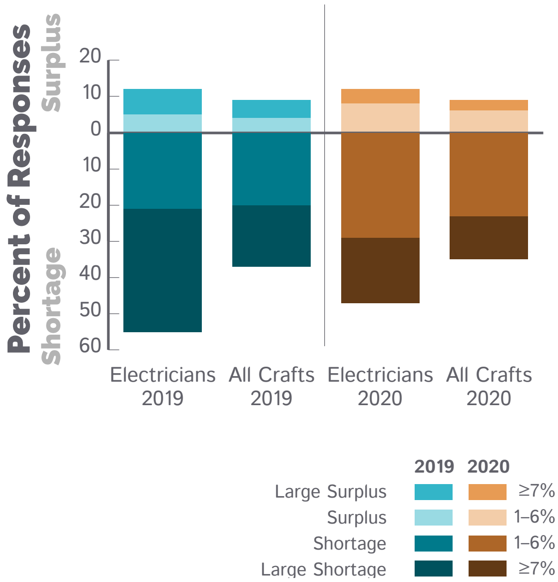
	2020		2021	
	Electricians	**All Crafts**	**Electricians**	**All Crafts**
Average	-5.2%	-2.7%	-1.9%	-1.1%
Surplus	8%	6%	11%	8%
Large Surplus	8%	6%	8%	6%
Shortage	26%	24%	34%	25%
Large Shortage	39%	21%	17%	12%

IV. ELECTRICIANS (continued)

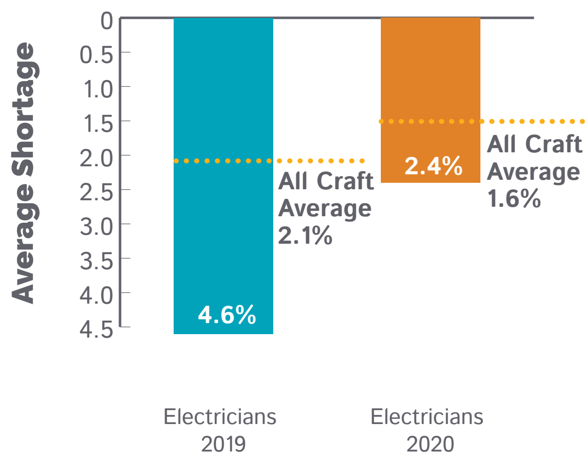
C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/SURPLUS—ELECTRICIANS



AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—ELECTRICIANS



Compared to Electrician apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Electrician apprentices in 2020 was smaller (2019: 55%, 2020: 47%).
- *surplus* of Electrician apprentices in 2020 was the same (2019: 12%, 2020: 12%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Electrician apprentices in 2020 was greater (Electrician apprentices: 47%, All Crafts: 35%).
- *surplus* of Electrician apprentices in 2020 was greater (Electrician apprentices: 12%, All Crafts: 9%).

Compared to Electrician apprentices in 2019,

- there was a smaller average *shortage* of Electrician apprentices in 2020 (2019: 4.6%, 2020: 2.4%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Electrician apprentices in 2020 (Electrician apprentices: 2.4%, All Crafts: 1.6%).

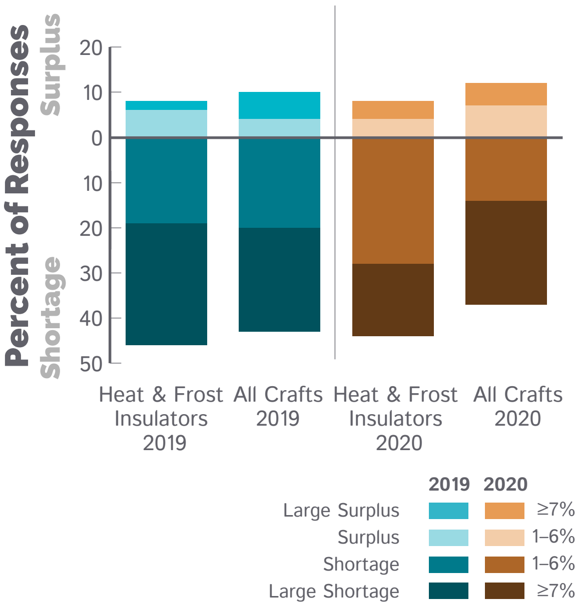
	2019		2020	
	Electricians	**All Crafts**	**Electricians**	**All Crafts**
Average	-4.6%	-2.1%	-2.4%	-1.6%
Surplus	5%	4%	8%	6%
Large Surplus	7%	5%	4%	3%
Shortage	21%	20%	29%	23%
Large Shortage	34%	17%	18%	12%

V. HEAT & FROST INSULATORS

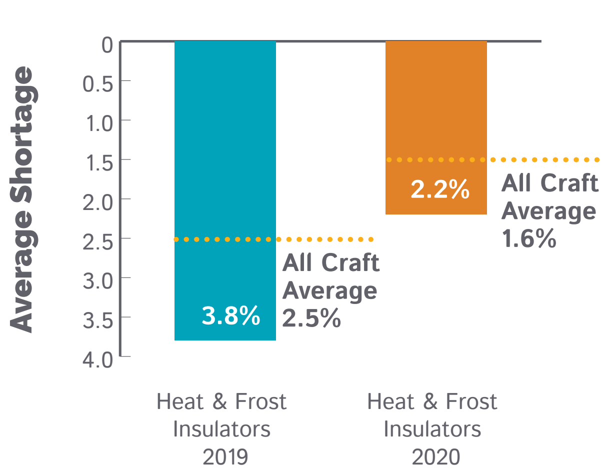
A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



AVERAGE SHORTAGE/SURPLUS— HEAT & FROST INSULATORS



Compared to Heat & Frost Insulators in 2019, the percent of respondents who reported a:

- *shortage* of Heat & Frost Insulators in 2020 was slightly smaller (2019: 46%, 2020: 44%).
- *surplus* of Heat & Frost Insulators in 2020 was the same (2019: 8%, 2020: 8%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Heat & Frost Insulators in 2020 was greater (Heat & Frost Insulators: 44%, All Crafts: 37%).
- *surplus* of Heat & Frost Insulators in 2020 was smaller (Heat & Frost Insulators: 8%, All Crafts: 12%).

Compared to Heat & Frost Insulators in 2019,

- there was a smaller average *shortage* of Heat & Frost Insulators in 2020 (2019: 3.8%, 2020: 2.2%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Heat & Frost Insulators in 2020 (Heat & Frost Insulators: 2.2%, All Crafts: 1.6%).

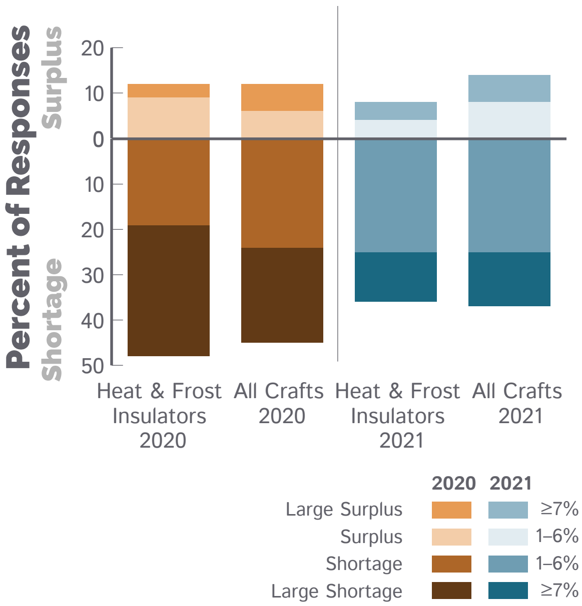
	2019		2020	
	Heat & Frost Insulators	**All Crafts**	**Heat & Frost Insulators**	**All Crafts**
Average	-3.8%	-2.5%	-2.2%	-1.6%
Surplus	6%	4%	4%	7%
Large Surplus	2%	6%	4%	5%
Shortage	19%	23%	28%	23%
Large Shortage	27%	20%	16%	14%

V. HEAT & FROST INSULATORS (continued)

B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

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



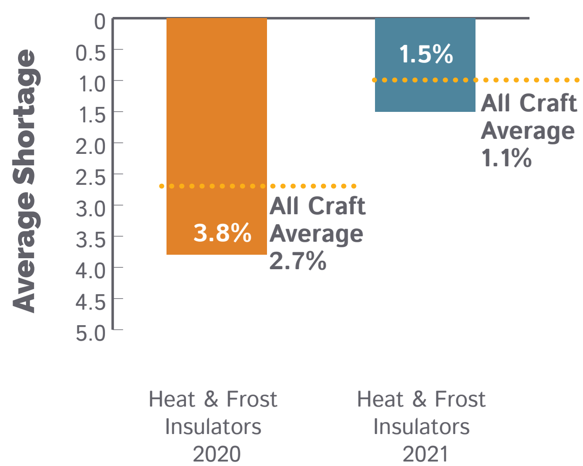
Compared to Heat & Frost Insulators in 2020, the percent of respondents who projected a:

- *shortage* of Heat & Frost Insulators in 2021 was smaller (2020: 48%, 2021: 36%).
- *surplus* of Heat & Frost Insulators in 2021 was smaller (2020: 12%, 2021: 8%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Heat & Frost Insulators in 2021 was slightly smaller (Heat & Frost Insulators: 36%, All Crafts: 37%).
- *surplus* of Heat & Frost Insulators in 2021 was smaller (Heat & Frost Insulators: 8%, All Crafts: 14%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS—HEAT & FROST INSULATORS



Compared to Heat & Frost Insulators in 2020,

- there was a smaller projected average *shortage* of Heat & Frost Insulators in 2021 (2020: 3.8%, 2021: 1.5%).

Compared to all crafts combined in 2021,

- there was a greater projected average *shortage* of Heat & Frost Insulators in 2021 (Heat & Frost Insulators: 1.5%, All Crafts: 1.1%).

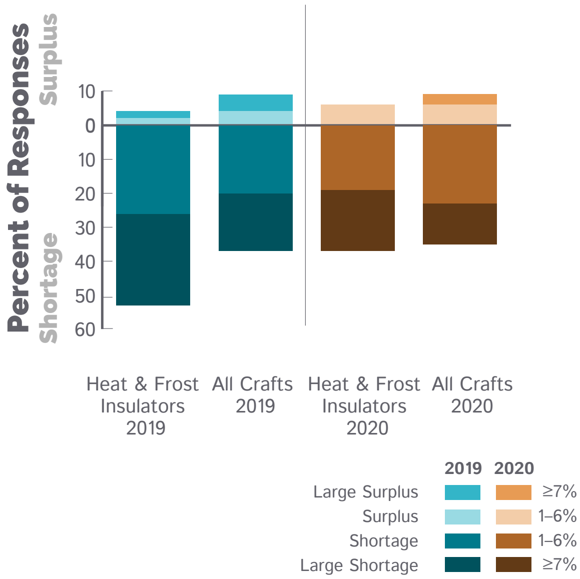
	2020		2021	
	Heat & Frost Insulators	**All Crafts**	**Heat & Frost Insulators**	**All Crafts**
Average	-3.8%	-2.7%	-1.5%	-1.1%
Surplus	9%	6%	4%	8%
Large Surplus	3%	6%	4%	6%
Shortage	19%	24%	25%	25%
Large Shortage	29%	21%	11%	12%

V. HEAT & FROST INSULATORS (continued)

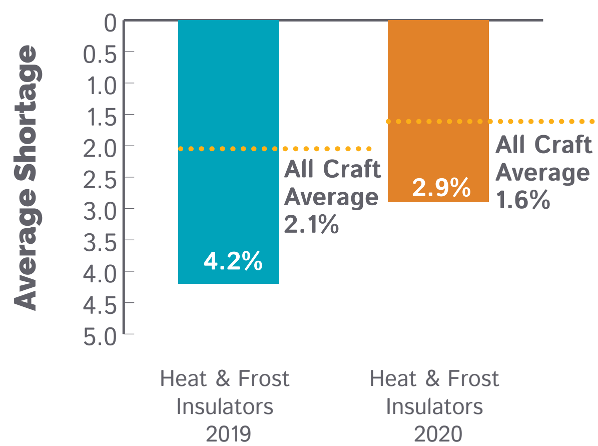
C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—HEAT & FROST INSULATORS



Compared to Heat & Frost Insulator apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Heat & Frost Insulator apprentices in 2020 was smaller (2019: 53%, 2020: 37%).
- *surplus* of Heat & Frost Insulator apprentices in 2020 was slightly greater (2019: 4%, 2020: 6%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Heat & Frost Insulator apprentices in 2020 was slightly greater (Heat & Frost Insulator apprentices: 37%, All Crafts: 35%).
- *surplus* of Heat & Frost Insulator apprentices in 2020 was smaller (Heat & Frost Insulator apprentices: 6%, All Crafts: 9%).

Compared to Heat & Frost Insulator apprentices in 2019,

- there was a smaller average *shortage* of Heat & Frost Insulator apprentices in 2020 (2019: 4.2%, 2020: 2.9%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Heat & Frost Insulator apprentices in 2020 (Heat & Frost Insulator apprentices: 2.9%, All Crafts: 1.6%).

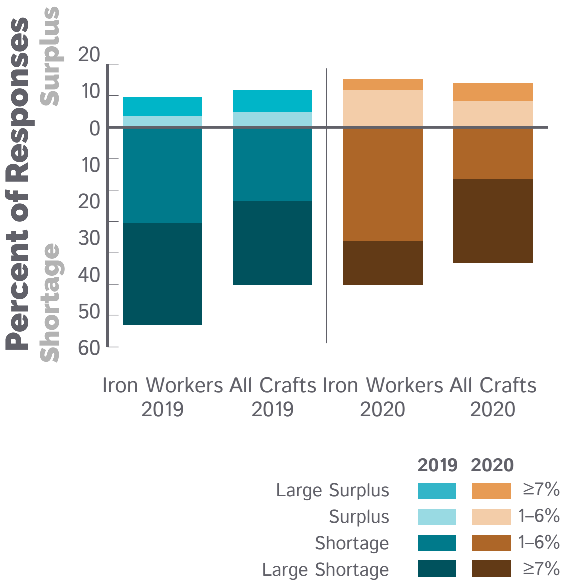
	2019		2020	
	Heat & Frost Insulators	**All Crafts**	**Heat & Frost Insulators**	**All Crafts**
Average	-4.2%	-2.1%	-2.9%	-1.6%
Surplus	2%	4%	6%	6%
Large Surplus	2%	5%	0%	3%
Shortage	26%	20%	19%	23%
Large Shortage	27%	17%	18%	12%

VI. IRON WORKERS

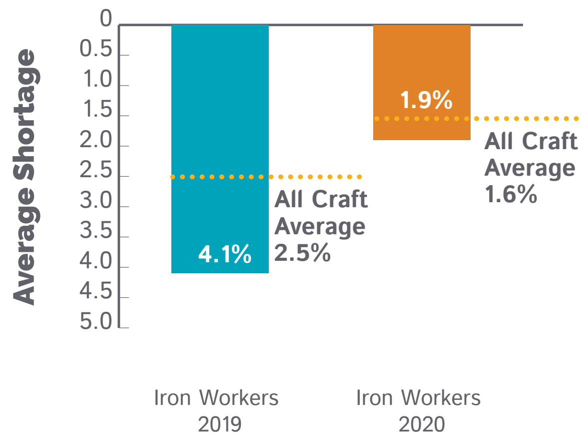
A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS—IRON WORKERS



AVERAGE SHORTAGE/SURPLUS—IRON WORKERS



Compared to Iron Workers in 2019, the percent of respondents who reported a:

- *shortage* of Iron Workers in 2020 was smaller (2019: 54%, 2020: 43%).
- *surplus* of Iron Workers in 2020 was greater (2019: 8%, 2020: 13%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Iron Workers in 2020 was greater (Iron Workers: 43%, All Crafts: 37%).
- *surplus* of Iron Workers in 2020 was slightly greater (Iron Workers: 13%, All Crafts: 12%).

Compared to Iron Workers in 2019,

- there was a smaller average *shortage* of Iron Workers in 2020 (2019: 4.1%, 2020: 1.9%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Iron Workers in 2020 (Iron Workers: 1.9%, All Crafts: 1.6%).

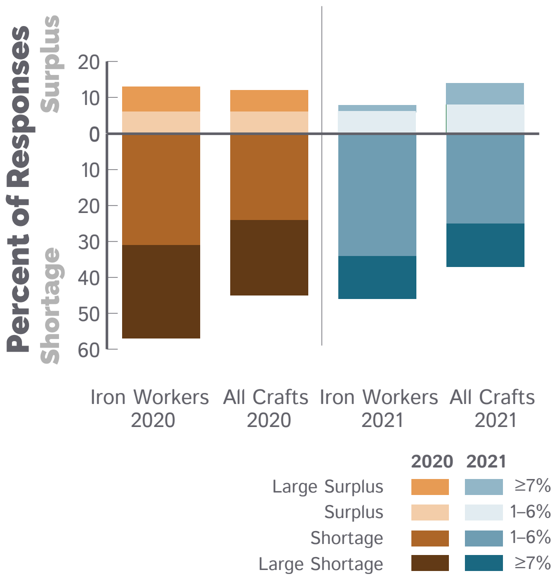
	2019		2020	
	Iron Workers	**All Crafts**	**Iron Workers**	**All Crafts**
Average	-4.1%	-2.5%	-1.9%	-1.6%
Surplus	3%	4%	10%	7%
Large Surplus	5%	6%	3%	5%
Shortage	26%	23%	31%	23%
Large Shortage	28%	20%	12%	14%

VI. IRON WORKERS (continued)

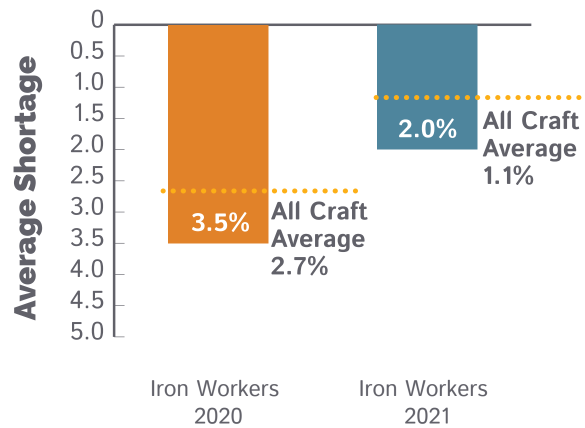
B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS—IRON WORKERS



AVERAGE SHORTAGE/SURPLUS PROJECTIONS—IRON WORKERS



Compared to Iron Workers in 2020, the percent of respondents who projected a:

- *shortage* of Iron Workers in 2021 was smaller (2020: 57%, 2021: 46%).
- *surplus* of Iron Workers in 2021 was smaller (2020: 13%, 2021: 10%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Iron Workers in 2021 was greater (Iron Workers: 46%, All Crafts: 37%).
- *surplus* of Iron Workers in 2021 was smaller (Iron Workers: 10%, All Crafts: 14%).

Compared to Iron Workers in 2020,

- there was a smaller projected average *shortage* of Iron Workers in 2021 (2020: 3.5%, 2021: 2.0%).

Compared to all crafts combined in 2021,

- there was a greater projected average shortage of Iron Workers in 2021 (Iron Workers: 2.0%, All Crafts: 1.1%).

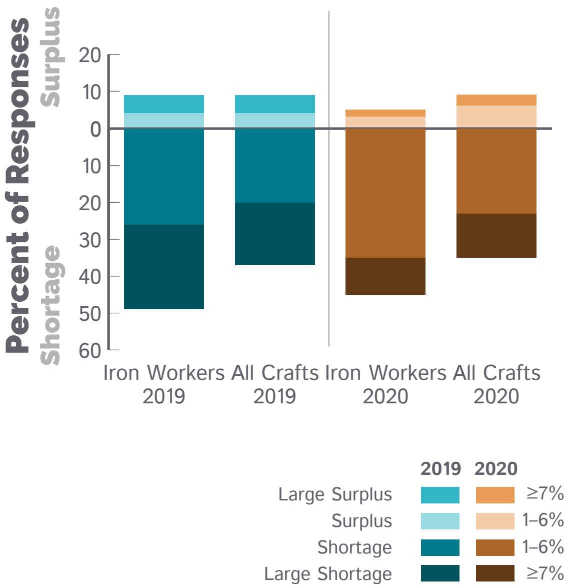
	2020		2021	
	Iron Workers	**All Crafts**	**Iron Workers**	**All Crafts**
Average	-3.5%	-2.7%	-2.0%	-1.1%
Surplus	6%	6%	8%	8%
Large Surplus	7%	6%	2%	6%
Shortage	31%	24%	34%	25%
Large Shortage	26%	21%	12%	12%

VI. IRON WORKERS (continued)

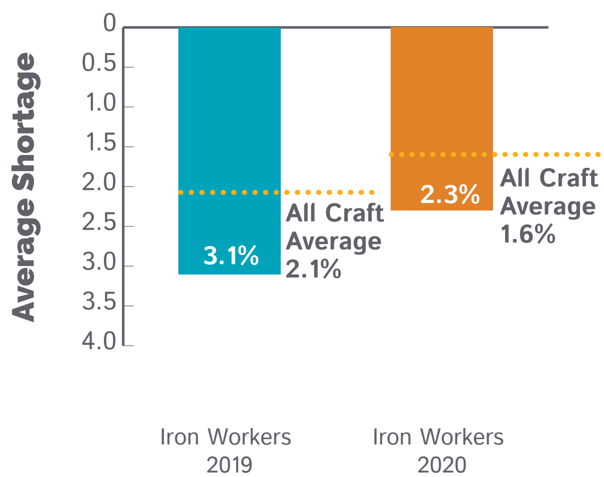
C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/SURPLUS—IRON WORKERS



AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—IRON WORKERS



Compared to Iron Worker apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Iron Worker apprentices in 2020 was smaller (2019: 49%, 2020: 45%).
- *surplus* of Iron Worker apprentices in 2020 was smaller (2019: 9%, 2020: 5%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Iron Worker apprentices in 2020 was greater (Iron Worker apprentices: 45%, All Crafts: 35%).
- *surplus* of Iron Worker apprentices in 2020 was smaller (Iron Worker apprentices: 5%, All Crafts: 9%).

Compared to Iron Worker apprentices in 2019,

- there was a smaller average *shortage* of Iron Worker apprentices in 2020 (2019: 3.1%, 2020: 2.3%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Iron Worker apprentices in 2020 (Iron Worker apprentices: 2.3%, All Crafts: 1.6%).

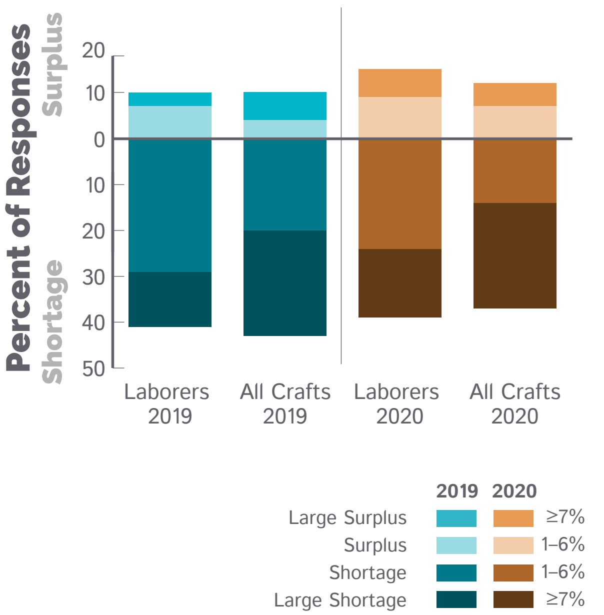
	2019		2020	
	Iron Workers	**All Crafts**	**Iron Workers**	**All Crafts**
Average	-3.1%	-2.1%	-2.3%	-1.6%
Surplus	4%	4%	3%	6%
Large Surplus	5%	5%	2%	3%
Shortage	26%	20%	35%	23%
Large Shortage	23%	17%	10%	12%

VII. LABORERS

A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS—LABORERS



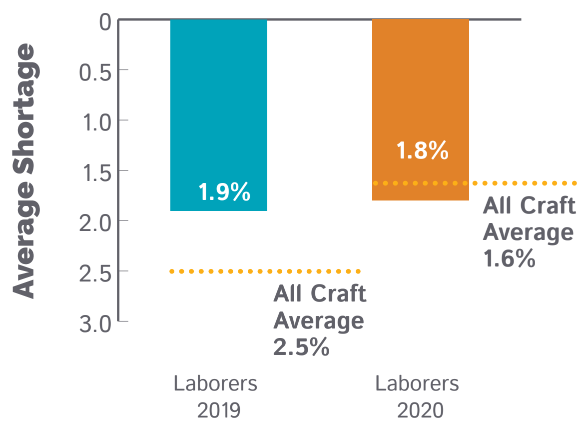
Compared to Laborers in 2019, the percent of respondents who reported a:

- *shortage* of Laborers in 2020 was slightly smaller (2019: 41%, 2020: 39%).
- *surplus* of Laborers in 2020 was greater (2019: 10%, 2020: 15%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Laborers in 2020 was slightly greater (Laborers: 39%, All Crafts: 37%).
- *surplus* of Laborers in 2020 was slightly greater (Laborers: 15%, All Crafts: 12%).

AVERAGE SHORTAGE/SURPLUS—LABORERS



Compared to Laborers in 2019,

- there was a slightly smaller average *shortage* of Laborers in 2020 (2019: 1.9%, 2020: 1.8%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Laborers in 2020 (Laborers: 1.8%, All Crafts: 1.6%).

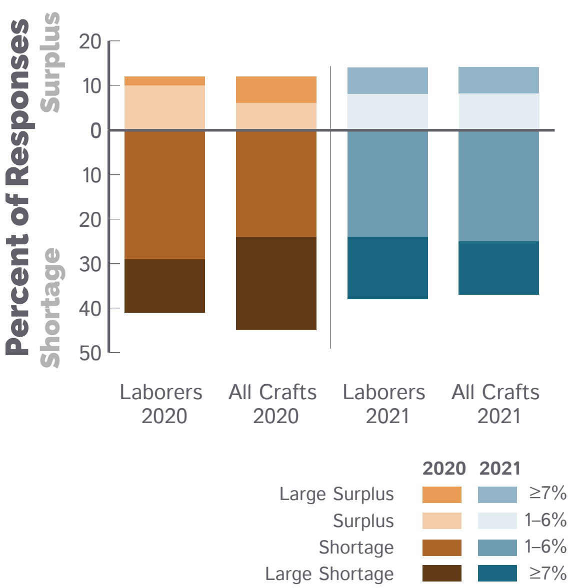
	2019		2020	
	Laborers	**All Crafts**	**Laborers**	**All Crafts**
Average	-1.9%	-2.5%	-1.8%	-1.6%
Surplus	7%	4%	9%	7%
Large Surplus	3%	6%	6%	5%
Shortage	29%	23%	24%	23%
Large Shortage	12%	20%	15%	14%

VII. LABORERS (continued)

B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS—LABORERS



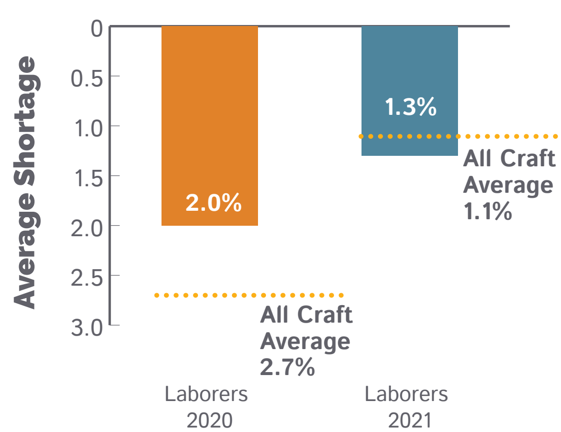
Compared to Laborers in 2020, the percent of respondents who projected a:

- *shortage* of Laborers in 2021 was smaller (2020: 41%, 2021: 38%).
- *surplus* of Laborers in 2021 was slightly greater (2020: 12%, 2021: 14%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Laborers in 2021 was slightly greater (Laborers: 38%, All Crafts: 37%).
- *surplus* of Laborers in 2021 was the same (Laborers: 14%, All Crafts: 14%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS—LABORERS



Compared to Laborers in 2020,

- there was a smaller projected average *shortage* of Laborers in 2021 (2020: 2.0%, 2021: 1.3%).

Compared to all crafts combined in 2021,

- there was a slightly greater projected average *shortage* of Laborers in 2021 (Laborers: 1.3%, All Crafts: 1.1%).

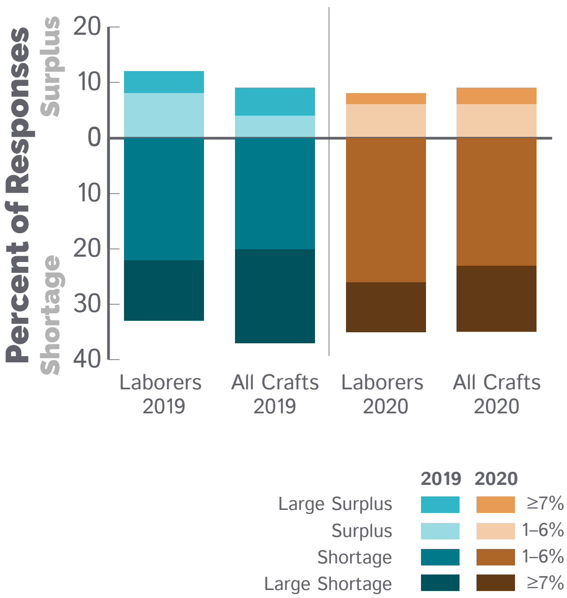
	2020		2021	
	Laborers	**All Crafts**	**Laborers**	**All Crafts**
Average	-2.0%	-2.7%	-1.3%	-1.1%
Surplus	10%	6%	8%	8%
Large Surplus	2%	6%	6%	6%
Shortage	29%	24%	24%	25%
Large Shortage	12%	21%	14%	12%

VII. LABORERS (continued)

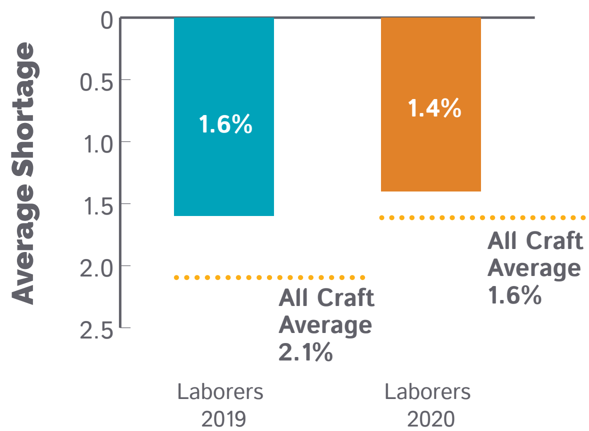
C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/SURPLUS—LABORERS



AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - LABORERS



Compared to Laborer apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Laborer apprentices in 2020 was greater (2019: 33%, 2020: 35%).
- *surplus* of Laborer apprentices in 2020 was smaller (2019: 12%, 2020: 8%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Laborer apprentices in 2020 was the same (Laborer apprentices: 35%, All Crafts: 35%).
- *surplus* of Laborer apprentices in 2020 was slightly smaller (Laborer apprentices: 8%, All Crafts: 9%).

Compared to Laborer apprentices in 2019,

- there was a slightly smaller average *shortage* of Laborer apprentices in 2020 (2019: 1.6%, 2020: 1.4%).

Compared to all crafts combined in 2020,

- there was a slightly smaller average *shortage* of Laborer apprentices in 2020 (Laborer apprentices: 1.4%, All Crafts: 1.6%).

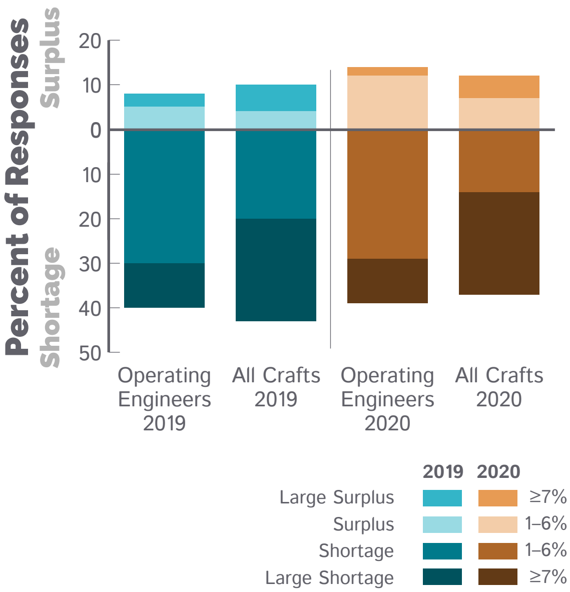
	2019		2020	
	Laborers	**All Crafts**	**Laborers**	**All Crafts**
Average	-1.6%	-2.1%	-1.4%	-1.6%
Surplus	8%	4%	6%	6%
Large Surplus	4%	5%	2%	3%
Shortage	22%	20%	26%	23%
Large Shortage	11%	17%	9%	12%

VIII. OPERATING ENGINEERS

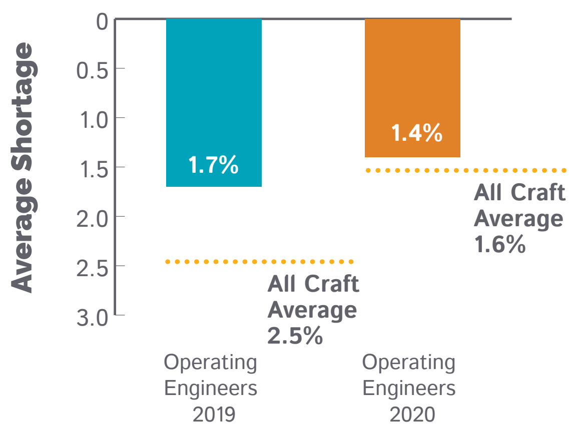
A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/SURPLUS—OPERATING ENGINEERS



AVERAGE SHORTAGE/SURPLUS—OPERATING ENGINEERS



Compared to Operating Engineers in 2019, the percent of respondents who reported a:

- *shortage* of Operating Engineers in 2020 was smaller (2019: 40%, 2020: 39%).
- *surplus* of Operating Engineers in 2020 was greater (2019: 8%, 2020: 14%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Operating Engineers in 2020 was slightly greater (Operating Engineers: 39%, All Crafts: 37%).
- *surplus* of Operating Engineers in 2020 was slightly greater (Operating Engineers: 14%, All Crafts: 12%).

Compared to Operating Engineers in 2019,

- there was a smaller average *shortage* of Operating Engineers in 2020 (2019: 1.7%, 2020: 1.4%).

Compared to all crafts combined in 2020,

- there was a smaller average *shortage* of Operating Engineers in 2020 (Operating Engineers: 1.4%, All Crafts: 1.6%).

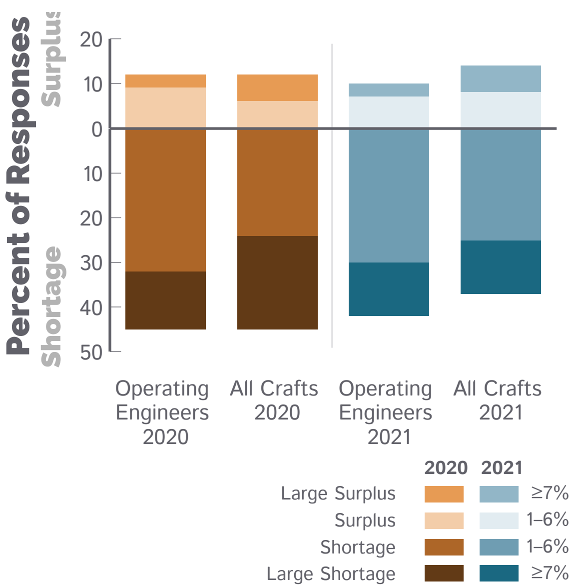
	2019		2020	
	Operating Engineers	**All Crafts**	**Operating Engineers**	**All Crafts**
Average	-1.7%	-2.5%	-1.4%	-1.6%
Surplus	5%	4%	12%	7%
Large Surplus	3%	6%	2%	5%
Shortage	30%	23%	29%	23%
Large Shortage	10%	20%	10%	14%

VIII. OPERATING ENGINEERS (continued)

B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS—OPERATING ENGINEERS



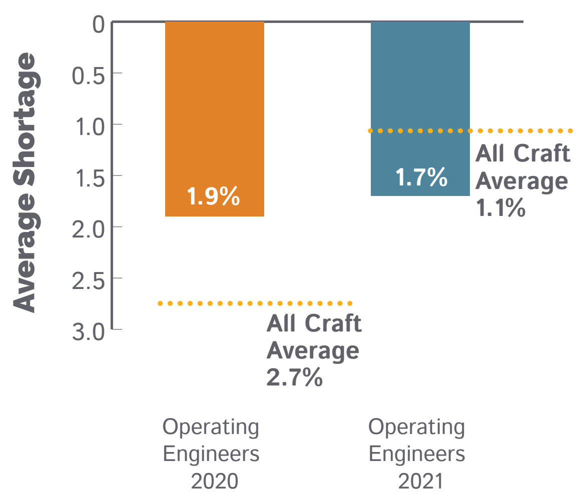
Compared to Operating Engineers in 2020, the percent of respondents who projected a:

- *shortage* of Operating Engineers in 2021 was smaller (2020: 45%, 2021: 42%).
- *surplus* of Operating Engineers in 2021 was smaller (2020: 12%, 2021: 10%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Operating Engineers in 2021 was greater (Operating Engineers: 42%, All Crafts: 37%).
- *surplus* of Operating Engineers in 2021 was smaller (Operating Engineers: 10%, All Crafts: 14%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS—OPERATING ENGINEERS



Compared to Operating Engineers in 2020,

- there was a slightly smaller projected average *shortage* of Operating Engineers in 2021 (2020: 1.9%, 2021: 1.7%).

Compared to all crafts combined in 2021,

- there was a greater projected average *shortage* of Operating Engineers in 2021 (Operating Engineers: 1.7%, All Crafts: 1.1%).

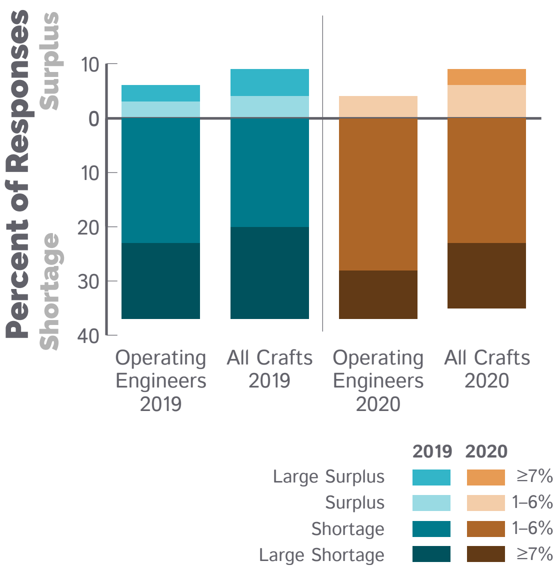
	2020		2021	
	Operating Engineers	**All Crafts**	**Operating Engineers**	**All Crafts**
Average	-1.9%	-2.7%	-1.7%	-1.1%
Surplus	9%	6%	7%	8%
Large Surplus	3%	6%	3%	6%
Shortage	32%	24%	30%	25%
Large Shortage	13%	21%	12%	12%

VIII. OPERATING ENGINEERS (continued)

C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/SURPLUS—OPERATING ENGINEERS



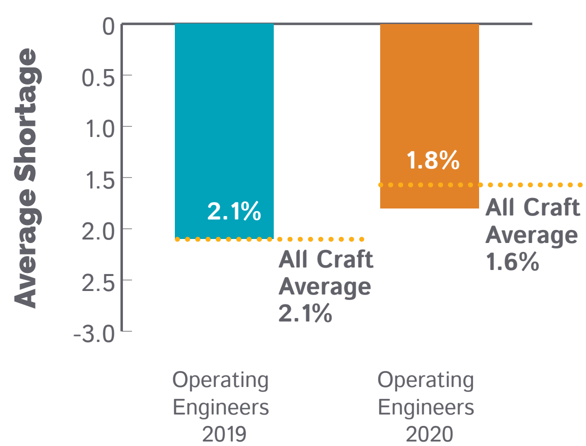
Compared to Operating Engineer apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Operating Engineer apprentices in 2020 was the same (2019: 37%, 2020: 37%).
- *surplus* of Operating Engineer apprentices in 2020 was the slightly smaller (2019: 6%, 2020: 4%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Operating Engineer apprentices in 2020 was slightly greater (Operating Engineer apprentices: 37%, All Crafts: 35%).
- *surplus* of Operating Engineer apprentices in 2020 was smaller (Operating Engineer apprentices: 4%, All Crafts: 9%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES - OPERATING ENGINEERS



Compared to Operating Engineer apprentices in 2019,

- there was a smaller average *shortage* of Operating Engineer apprentices in 2020 (2019: 2.1%, 2020: 1.8%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Operating Engineer apprentices in 2020 (Operating Engineer apprentices: 1.8%, All Crafts: 1.6%).

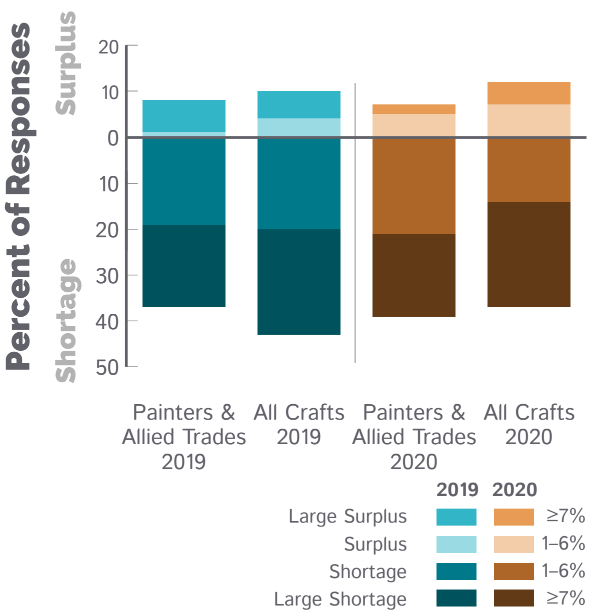
	2019		2020	
	Operating Engineers	All Crafts	Operating Engineers	All Crafts
Average	-2.1%	-2.1%	-1.8%	-1.6%
Surplus	3%	4%	4%	6%
Large Surplus	3%	5%	0%	3%
Shortage	23%	20%	28%	23%
Large Shortage	14%	17%	9%	12%

IX. PAINTERS & ALLIED TRADES

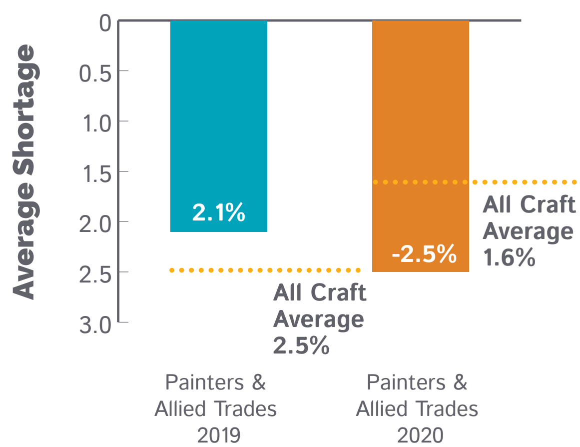
A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



AVERAGE SHORTAGE/SURPLUS— PAINTERS & ALLIED TRADES



Compared to Painters & Allied Trades in 2019, the percent of respondents who reported a:

- *shortage* of Painters & Allied Trades in 2020 was greater (2019: 37%, 2020: 39%).
- *surplus* of Painters & Allied Trades in 2020 was smaller (2019: 8%, 2020: 7%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Painters & Allied Trades in 2020 was slightly greater (Painters & Allied Trades: 39%, All Crafts: 37%).
- *surplus* of Painters & Allied Trades in 2020 was smaller (Painters & Allied Trades: 7%, All Crafts: 12%).

Compared to Painters & Allied Trades in 2019,

- there was a greater average *shortage* of Painters & Allied Trades in 2020 (2019: 2.1%, 2020: 2.5%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Painters & Allied Trades in 2020 (Painters & Allied Trades: 2.5%, All Crafts: 1.6%).

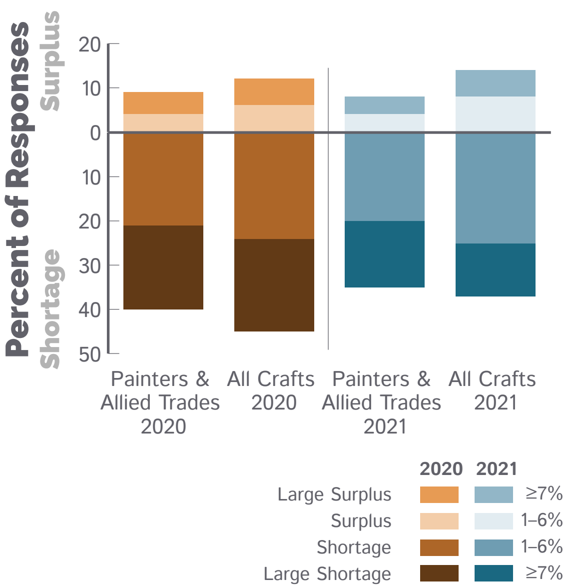
	2019		2020	
	Painters & Allied Trades	**All Crafts**	**Painters & Allied Trades**	**All Crafts**
Average	-2.1%	-2.5%	-2.5%	-1.6%
Surplus	1%	4%	5%	7%
Large Surplus	7%	6%	2%	5%
Shortage	19%	23%	21%	23%
Large Shortage	18%	20%	18%	14%

IX. PAINTERS & ALLIED TRADES (continued)

B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

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



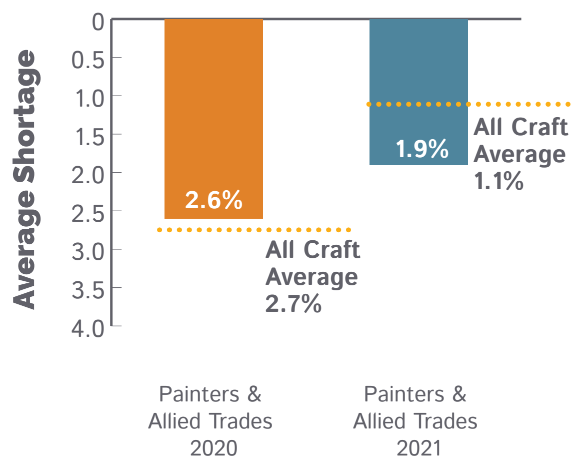
Compared to Painters & Allied Trades in 2020, the percent of respondents who projected a:

- *shortage* of Painters & Allied Trades in 2021 was smaller (2020: 40%, 2021: 35%).
- *surplus* of Painters & Allied Trades in 2021 was slightly smaller (2020: 9%, 2021: 8%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Painters & Allied Trades in 2021 was slightly smaller (Painters & Allied Trades: 35%, All Crafts: 37%).
- *surplus* of Painters & Allied Trades in 2021 was smaller (Painters & Allied Trades: 8%, All Crafts: 14%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS—PAINTERS & ALLIED TRADES



Compared to Painters & Allied Trades in 2020,

- there was a smaller projected average shortage of Painters & Allied Trades in 2021 (2020: 2.6%, 2021: 1.9%).

Compared to all crafts combined in 2021,

- there was a greater projected average *shortage* of Painters & Allied Trades in 2021 (Painters & Allied Trades: 1.9%, All Crafts: 1.1%).

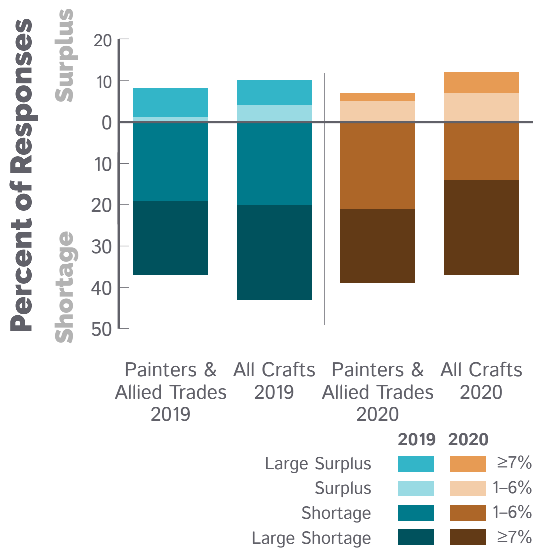
	2020		2021	
	Painters & Allied Trades	All Crafts	Painters & Allied Trades	All Crafts
Average	-2.6%	-2.7%	-1.9%	-1.1%
Surplus	4%	6%	4%	8%
Large Surplus	5%	6%	4%	6%
Shortage	21%	24%	20%	25%
Large Shortage	19%	21%	15%	12%

IX. PAINTERS & ALLIED TRADES (continued)

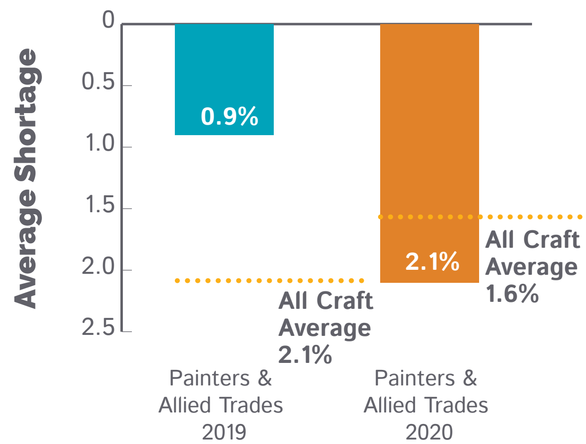
C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—PAINTERS & ALLIED TRADES



Compared to Painter & Allied Trade apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Painter & Allied Trade apprentices in 2020 was greater (2019: 26%, 2020: 37%).
- *surplus* of Painter & Allied Trade apprentices in 2020 was slightly smaller (2019: 7%, 2020: 6%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Painter & Allied Trade apprentices in 2020 was slightly greater (Painter & Allied Trade apprentices: 37%, All Crafts: 35%).
- *surplus* of Painter & Allied Trade apprentices in 2020 was smaller (Painter & Allied Trade apprentices: 6%, All Crafts: 9%).

Compared to Painter & Allied Trade apprentices in 2019,

- there was a greater average *shortage* of Painter & Allied Trade apprentices in 2020 (2019: 0.9%, 2020: 2.1%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Painter & Allied Trade apprentices in 2020 (Painter & Allied Trade apprentices: 2.1%, All Crafts: 1.6%).

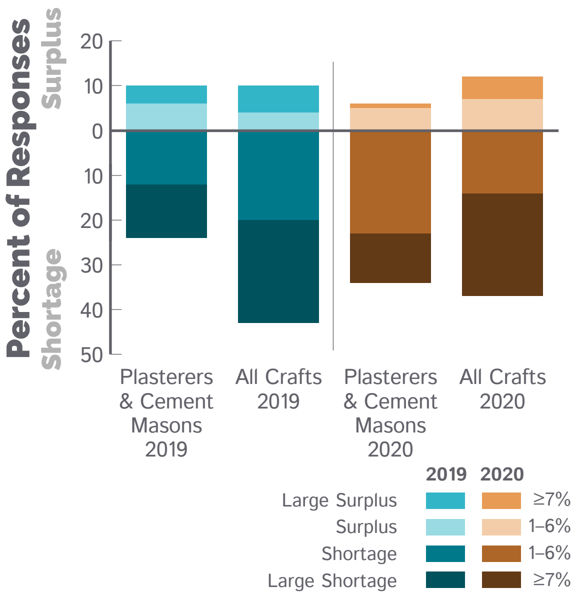
	2019		2020	
	Painters & Allied Trades	**All Crafts**	**Painters & Allied Trades**	**All Crafts**
Average	-0.9%	-2.1%	-2.1%	-1.6%
Surplus	0%	4%	3%	6%
Large Surplus	7%	5%	3%	3%
Shortage	16%	20%	23%	23%
Large Shortage	10%	17%	14%	12%

X. PLASTERERS & CEMENT MASONS

A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



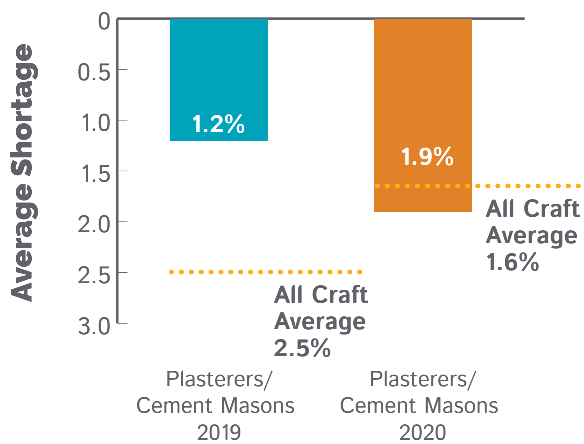
Compared to Plasterers & Cement Masons in 2019, the percent of respondents who reported a:

- *shortage* of Plasterers & Cement Masons in 2020 was greater (2019: 24%, 2020: 34%).
- *surplus* of Plasterers & Cement Masons in 2020 was smaller (2019: 10%, 2020: 6%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Plasterers & Cement Masons in 2020 was smaller (Plasterers & Cement Masons: 34%, All Crafts: 37%).
- *surplus* of Plasterers & Cement Masons in 2020 was smaller (Plasterers & Cement Masons: 6%, All Crafts: 12%).

AVERAGE SHORTAGE/SURPLUS—PLASTERERS & CEMENT MASONS



Compared to Plasterers & Cement Masons in 2019,

- there was a greater average *shortage* of Plasterers & Cement Masons in 2020 (2019: 1.2%, 2020: 1.9%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Plasterers & Cement Masons in 2020 (Plasterers & Cement Masons: 1.9%, All Crafts: 1.6%).

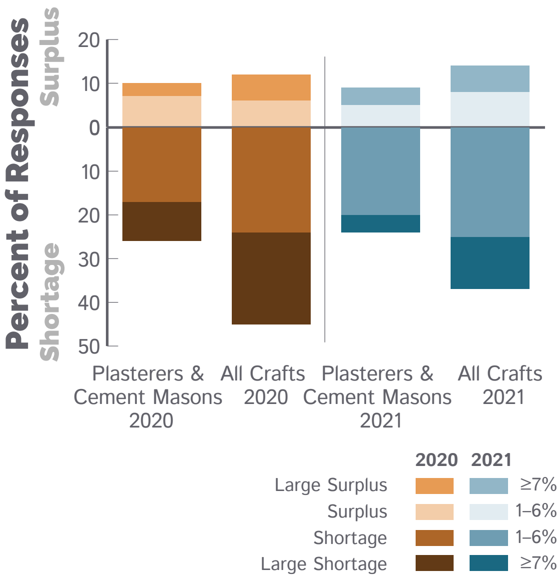
	2019		2020	
	Plasterers & Cement Masons	**All Crafts**	**Plasterers & Cement Masons**	**All Crafts**
Average	-1.2%	-2.5%	-1.9%	-1.6%
Surplus	6%	4%	5%	7%
Large Surplus	4%	6%	1%	5%
Shortage	12%	23%	23%	23%
Large Shortage	12%	20%	11%	14%

X. PLASTERERS & CEMENT MASONS (continued)

B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

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



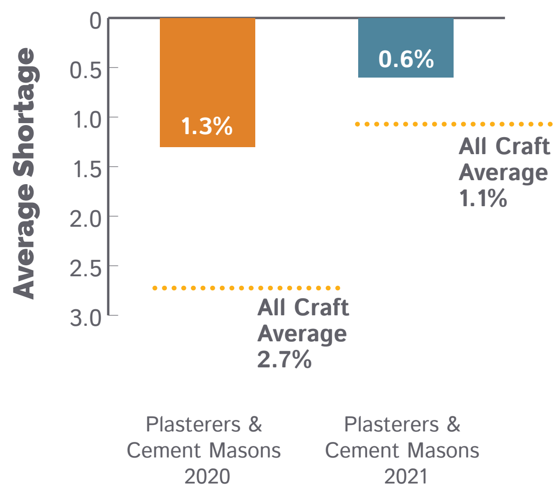
Compared to Plasterers & Cement Masons in 2020, the percent of respondents who projected a:

- *shortage* of Plasterers & Cement Masons in 2021 was slightly smaller (2020: 26%, 2021: 24%).
- *surplus* of Plasterers & Cement Masons in 2021 was slightly smaller (2020: 10%, 2021: 9%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Plasterers & Cement Masons in 2021 was smaller (Plasterers & Cement Masons: 24%, All Crafts: 37%).
- *surplus* of Plasterers & Cement Masons in 2021 was smaller (Plasterers & Cement Masons: 9%, All Crafts: 14%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS—PLASTERERS & CEMENT MASONS



Compared to Plasterers & Cement Masons in 2020,

- there was a smaller projected average *shortage* of Plasterers & Cement Masons in 2021 (2020: 1.3%, 2021: 0.6%).

Compared to all crafts combined in 2021,

- there was a smaller projected average *shortage* of Plasterers & Cement Masons in 2021 (Plasterers & Cement Masons: 0.6%, All Crafts: 1.1%).

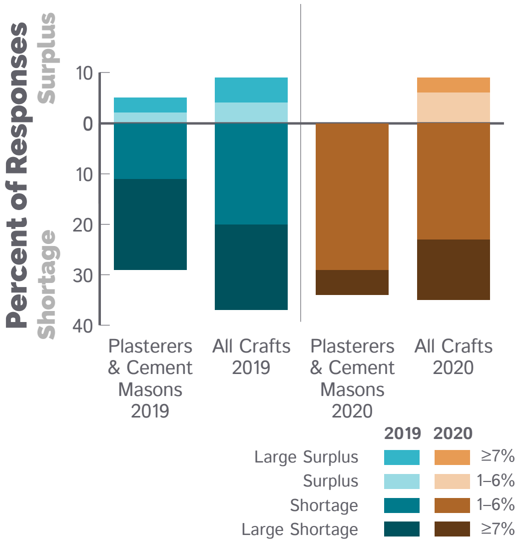
	2020		2021	
	Plasterers & Cement Masons	All Crafts	Plasterers & Cement Masons	All Crafts
Average	-1.3%	-2.7%	-0.6%	-1.1%
Surplus	7%	6%	5%	8%
Large Surplus	3%	6%	4%	6%
Shortage	17%	24%	20%	25%
Large Shortage	9%	21%	4%	12%

X. PLASTERERS & CEMENT MASONS (continued)

C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



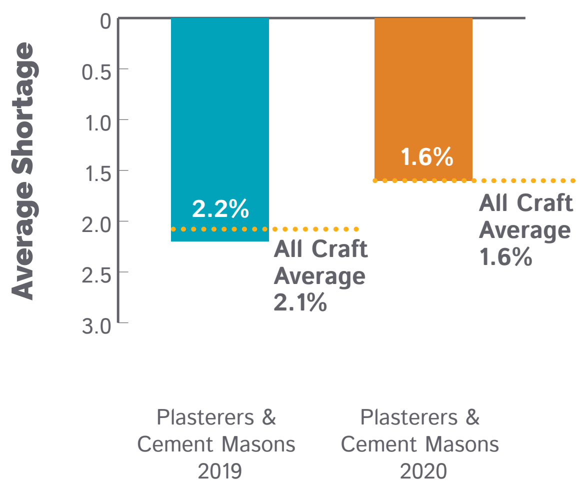
Compared to Plasterer & Cement Mason apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Plasterer & Cement Mason apprentices in 2020 was greater (2019: 29%, 2020: 34%).
- *surplus* of Plasterer & Cement Mason apprentices in 2020 was smaller (2019: 5%, 2020: 0%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Plasterer & Cement Mason apprentices in 2020 was slightly smaller (Plasterer & Cement Mason apprentices: 34%, All Crafts: 35%).
- *surplus* of Plasterer & Cement Mason apprentices in 2020 was smaller (Plasterer & Cement Mason apprentices: 0%, All Crafts: 9%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—PLASTERERS & CEMENT MASONS



Compared to Plasterer & Cement Mason apprentices in 2019,

- there was a smaller average *shortage* of Plasterer & Cement Mason apprentices in 2020 (2019: 2.2%, 2020: 1.6%).

Compared to all crafts combined in 2020,

- there was the same average *shortage* of Plasterer & Cement Mason apprentices in 2020 (Plasterer & Cement Mason apprentices: 1.6%, All Crafts: 1.6%).

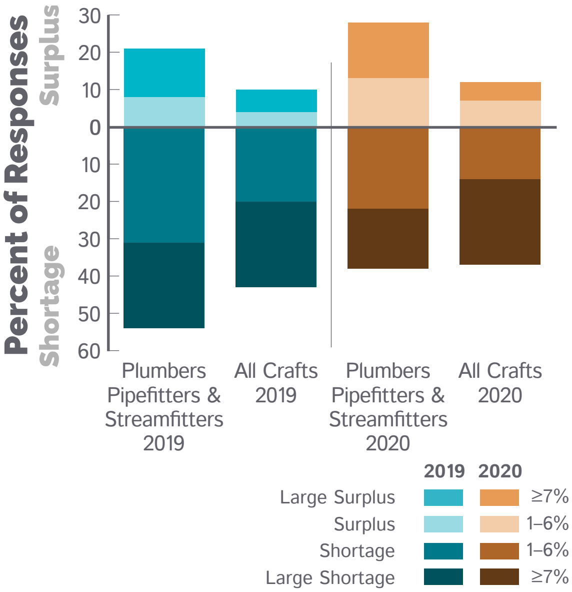
	2019		2020	
	Plasterers & Cement Masons	All Crafts	Plasterers & Cement Masons	All Crafts
Average	-2.2%	-2.1%	-1.6%	-1.6%
Surplus	2%	4%	0%	6%
Large Surplus	3%	5%	0%	3%
Shortage	11%	20%	29%	23%
Large Shortage	18%	17%	5%	12%

XI. PLUMBERS/PIPEFITTERS/STEAMFITTERS

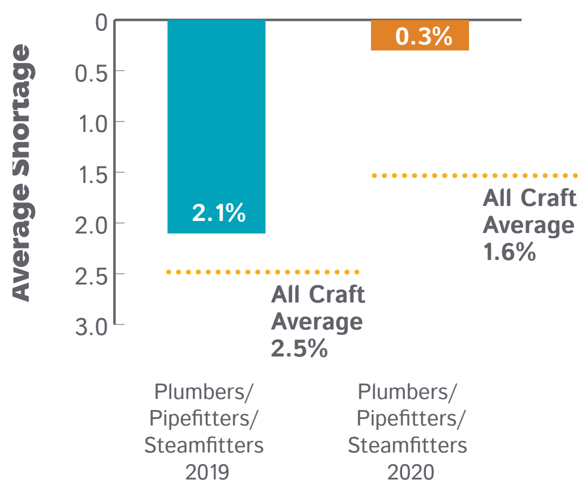
A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES REPORTING A SHORTAGE/ SURPLUS—PLUMBERS/PIPEFITTERS/STEAMFITTERS



AVERAGE SHORTAGE/SURPLUS— PLUMBERS/PIPEFITTERS/STEAMFITTERS



Compared to Plumbers/Pipefitters/Steamfitters in 2019, the percent of respondents who reported a:

- *shortage* of Plumbers/Pipefitters/Steamfitters in 2020 was smaller (2019: 54%, 2020: 38%).
- *surplus* of Plumbers/Pipefitters/Steamfitters in 2020 was greater (2019: 21%, 2020: 28%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Plumbers/Pipefitters/Steamfitters in 2020 was slightly greater (Plumbers/Pipefitters/Steamfitters: 38%, All Crafts: 37%).
- *surplus* of Plumbers/Pipefitters/Steamfitters in 2020 was greater (Plumbers/Pipefitters/Steamfitters: 28%, All Crafts: 12%).

Compared to Plumbers/Pipefitters/Steamfitters in 2019,

- there was a smaller average *shortage* of Plumbers/ Pipefitters/Steamfitters in 2020 (2019: 2.1%, 2020: 0.3%).

Compared to all crafts combined in 2020,

- there was a smaller average *shortage* of Plumbers/ Pipefitters/Steamfitters in 2020 (Plumbers/Pipefitters/ Steamfitters: 0.3%, All Crafts: 1.6%).

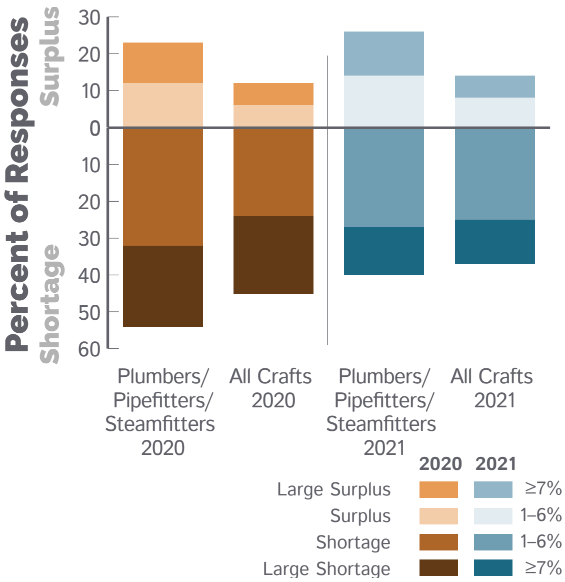
	2019		2020	
	Plumbers/ Pipefitters/ Steamfitters	**All Crafts**	**Plumbers/ Pipefitters/ Steamfitters**	**All Crafts**
Average	-2.1%	-2.5%	-0.3%	-1.6%
Surplus	8%	4%	13%	7%
Large Surplus	13%	6%	15%	5%
Shortage	31%	23%	22%	23%
Large Shortage	23%	20%	16%	14%

XI. PLUMBERS/PIPEFITTERS/STEAMFITTERS (continued)

B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS—PLUMBERS/PIPEFITTERS/STEAMFITTERS



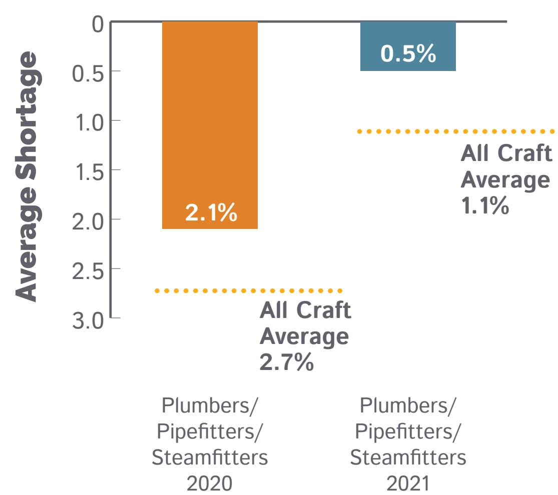
Compared to Plumbers/Pipefitters/Steamfitters in 2020, the percent of respondents who projected a:

- *shortage* of Plumbers/Pipefitters/Steamfitters in 2021 was smaller (2020: 54%, 2021: 40%).
- *surplus* of Plumbers/Pipefitters/Steamfitters in 2021 was greater (2020: 23%, 2021: 26%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Plumbers/Pipefitters/Steamfitters in 2021 was greater (Plumbers/Pipefitters/Steamfitters: 40%, All Crafts: 37%).
- *surplus* of Plumbers/Pipefitters/Steamfitters in 2021 was greater (Plumbers/Pipefitters/Steamfitters: 26%, All Crafts: 14%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS—PLUMBERS/PIPEFITTERS/STEAMFITTERS



Compared to Plumbers/Pipefitters/Steamfitters in 2020,

- there was a smaller projected average *shortage* of Plumbers/Pipefitters/Steamfitters in 2021 (2020: 2.1%, 2021: 0.5%).

Compared to all crafts combined in 2021,

- there was a smaller projected average *shortage* of Plumbers/Pipefitters/Steamfitters in 2021 (Plumbers/Pipefitters/Steamfitters: 0.5%, All Crafts: 1.1%).

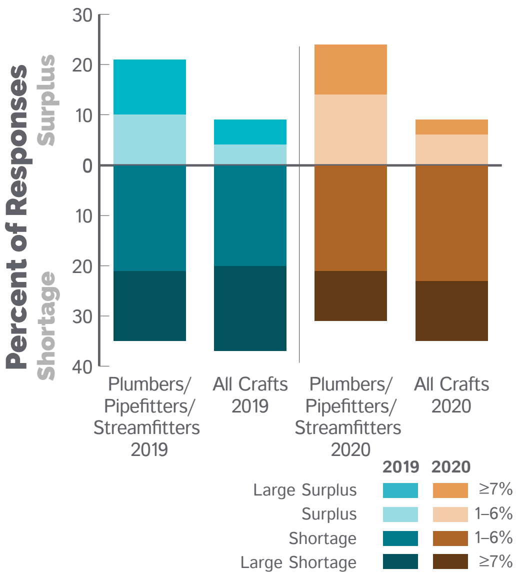
	2020		2021	
	Plumbers/ Pipefitters/ Steamfitters	**All Crafts**	**Plumbers/ Pipefitters/ Steamfitters**	**All Crafts**
Average	-2.1%	-2.7%	-0.5%	-1.1%
Surplus	12%	6%	14%	8%
Large Surplus	11%	6%	12%	6%
Shortage	32%	24%	27%	25%
Large Shortage	22%	21%	13%	12%

XI. PLUMBERS/PIPEFITTERS/STEAMFITTERS (continued)

C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/SURPLUS—PLUMBERS/PIPEFITTERS/STEAMFITTERS



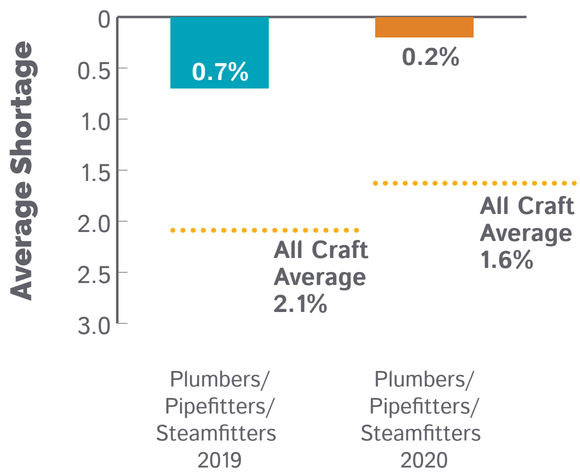
Compared to Plumber/Pipefitter/Steamfitter apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Plumber/Pipefitter/Steamfitter apprentices in 2020 was smaller (2019: 35%, 2020: 31%).
- *surplus* of Plumber/Pipefitter/Steamfitter apprentices in 2020 was greater (2019: 21%, 2020: 24%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Plumber/Pipefitter/Steamfitter apprentices in 2020 was smaller (Plumber/Pipefitter/Steamfitter apprentices: 31%, All Crafts: 35%).
- *surplus* of Plumber/Pipefitter/Steamfitter apprentices in 2020 was greater (Plumber/Pipefitter/Steamfitter apprentices: 24%, All Crafts: 9%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—PLUMBERS/PIPEFITTERS/STEAMFITTERS



Compared to Plumber/Pipefitter/Steamfitter apprentices in 2019,

- there was a smaller average *shortage* of Plumber/Pipefitter/Steamfitter apprentices in 2020 (2019: 0.7%, 2020: 0.2%).

Compared to all crafts combined in 2020,

- there was a smaller average *shortage* of Plumber/Pipefitter/Steamfitter apprentices in 2020 (Plumber/Pipefitter/Steamfitter apprentices: 0.2%, All Crafts: 1.6%).

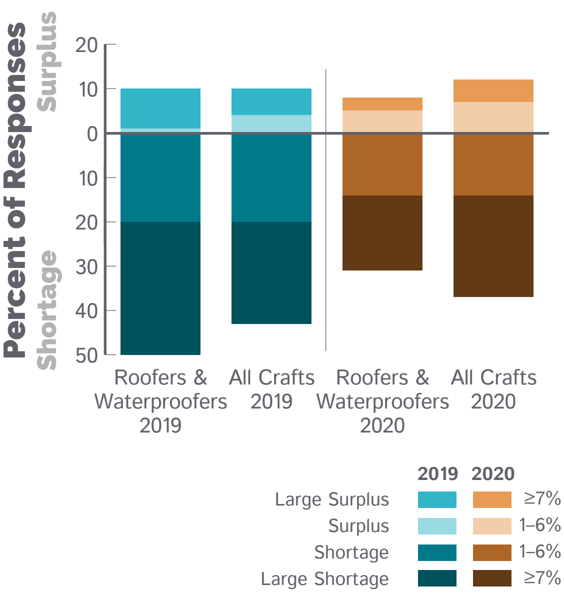
	2019		2020	
	Plumbers/ Pipefitters/ Steamfitters	All Crafts	Plumbers/ Pipefitters/ Steamfitters	All Crafts
Average	-0.7%	-2.1%	-0.2%	-1.6%
Surplus	10%	4%	14%	6%
Large Surplus	11%	5%	10%	3%
Shortage	21%	20%	21%	23%
Large Shortage	14%	17%	10%	12%

XII. ROOFERS & WATERPROOFERS

A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



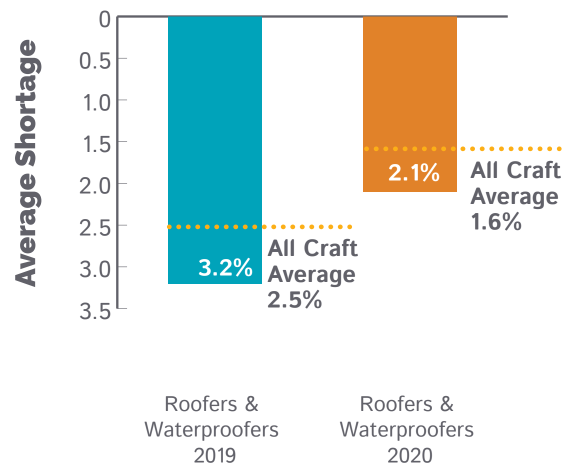
Compared to Roofers & Waterproofers in 2019, the percent of respondents who reported a:

- *shortage* of Roofers & Waterproofers in 2020 was smaller (2019: 50%, 2020: 31%).
- *surplus* of Roofers & Waterproofers in 2020 was smaller (2019: 10%, 2020: 8%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Roofers & Waterproofers in 2020 was smaller (Roofers & Waterproofers: 31%, All Crafts: 37%).
- *surplus* of Roofers & Waterproofers in 2020 was smaller (Roofers & Waterproofers: 8%, All Crafts: 12%).

AVERAGE SHORTAGE/SURPLUS—ROOFERS AND WATERPROOFERS



Compared to Roofers & Waterproofers in 2019,

- there was a smaller average *shortage* of Roofers & Waterproofers in 2020 (2019: 3.2%, 2020: 2.1%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Roofers & Waterproofers in 2020 (Roofers & Waterproofers: 2.1%, All Crafts: 1.6%).

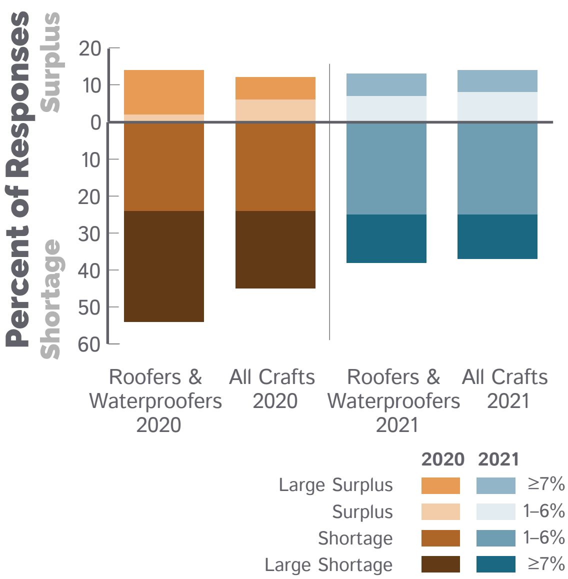
	2019		2020	
	Roofers & Waterproofers	**All Crafts**	**Roofers & Waterproofers**	**All Crafts**
Average	-3.2%	-2.5%	-2.1%	-1.6%
Surplus	1%	4%	5%	7%
Large Surplus	9%	6%	3%	5%
Shortage	20%	23%	14%	23%
Large Shortage	30%	20%	17%	14%

XII. ROOFERS & WATERPROOFERS (continued)

B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

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



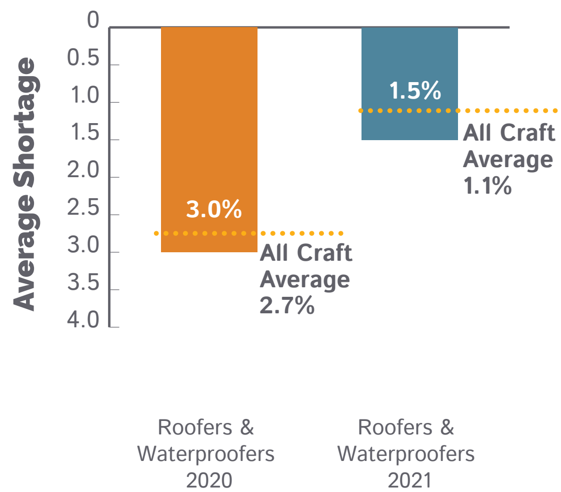
Compared to Roofers & Waterproofers in 2020, the percent of respondents who projected a:

- *shortage* of Roofers & Waterproofers in 2021 was smaller (2020: 54%, 2021: 38%).
- *surplus* of Roofers & Waterproofers in 2021 was slightly smaller (2020: 14%, 2021: 13%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Roofers & Waterproofers in 2021 was slightly greater (Roofers & Waterproofers: 38%, All Crafts: 37%).
- *surplus* of Roofers & Waterproofers in 2021 was slightly smaller (Roofers & Waterproofers: 13%, All Crafts: 14%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS—ROOFERS & WATERPROOFERS



Compared to Roofers & Waterproofers in 2020,

- there was a smaller projected average *shortage* of Roofers & Waterproofers in 2021 (2020: 3.0%, 2021: 1.5%).

Compared to all crafts combined in 2021,

- there was a greater projected average *shortage* of Roofers & Waterproofers in 2021 (Roofers & Waterproofers: 1.5%, All Crafts: 1.1%).

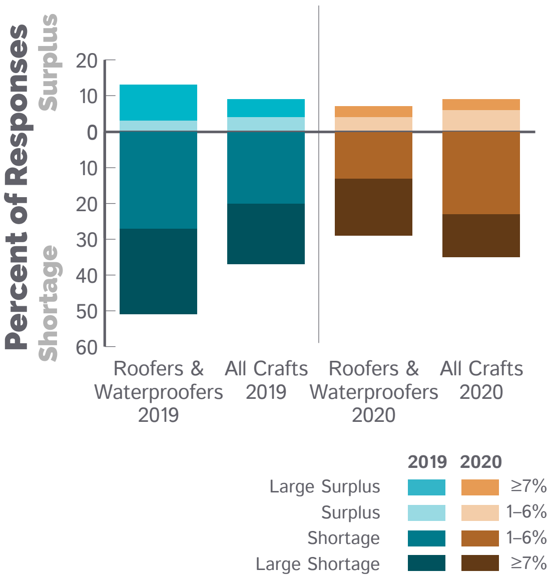
	2020		2021	
	Roofers & Waterproofers	All Crafts	Roofers & Waterproofers	All Crafts
Average	-3.0%	-2.7%	-1.5%	-1.1%
Surplus	2%	6%	7%	8%
Large Surplus	12%	6%	6%	6%
Shortage	24%	24%	25%	25%
Large Shortage	30%	21%	13%	12%

XII. ROOFERS & WATERPROOFERS (continued)

C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



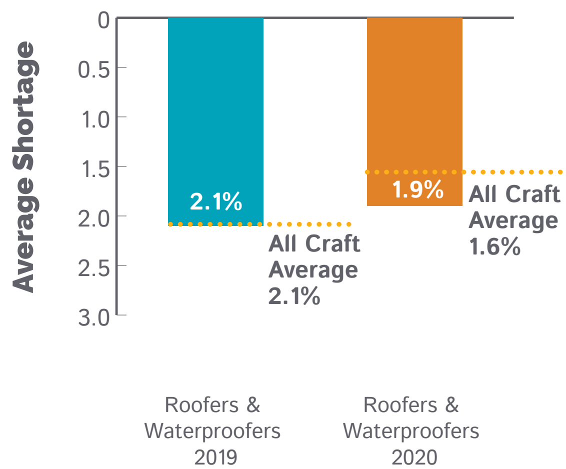
Compared to Roofer & Waterproofer apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Roofer & Waterproofer apprentices in 2020 was smaller (2019: 51%, 2020: 29%).
- *surplus* of Roofer & Waterproofer apprentices in 2020 was smaller (2019: 13%, 2020: 7%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Roofer & Waterproofer apprentices in 2020 was smaller (Roofer & Waterproofer apprentices: 29%, All Crafts: 35%).
- *surplus* of Roofer & Waterproofer apprentices in 2020 was slightly smaller (Roofer & Waterproofer apprentices: 7%, All Crafts: 9%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—ROOFERS & WATERPROOFERS



Compared to Roofer & Waterproofer apprentices in 2019,

- there was a slightly smaller average *shortage* of Roofer & Waterproofer apprentices in 2020 (2019: 2.1%, 2020: 1.9%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Roofer & Waterproofer apprentices in 2020 (Roofer & Waterproofer apprentices: 1.9%, All Crafts: 1.6%).

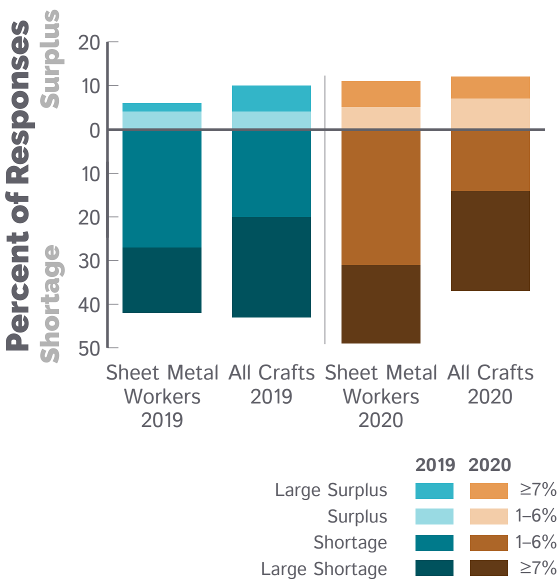
	2019		2020	
	Roofers & Waterproofers	**All Crafts**	**Roofers & Waterproofers**	**All Crafts**
Average	-2.1%	-2.1%	-1.9%	-1.6%
Surplus	3%	4%	4%	6%
Large Surplus	10%	5%	3%	3%
Shortage	27%	20%	13%	23%
Large Shortage	24%	17%	16%	12%

XIII. SHEET METAL WORKERS

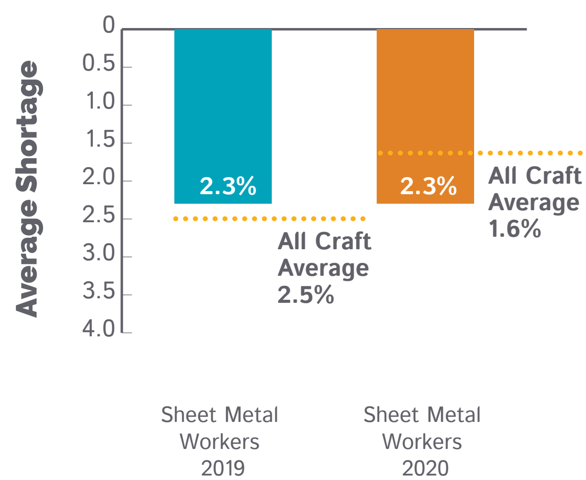
A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



AVERAGE SHORTAGE/SURPLUS—SHEET METAL WORKERS



Compared to Sheet Metal Workers in 2019, the percent of respondents who reported a:

- *shortage* of Sheet Metal Workers in 2020 was greater (2019: 42%, 2020: 49%).
- *surplus* of Sheet Metal Workers in 2020 was greater (2019: 6%, 2020: 11%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Sheet Metal Workers in 2020 was greater (Sheet Metal Workers: 49%, All Crafts: 37%).
- *surplus* of Sheet Metal Workers in 2020 was smaller (Sheet Metal Workers: 11%, All Crafts: 12%).

Compared to Sheet Metal Workers in 2019,

- there was a similar average *shortage* of Sheet Metal Workers in 2020 (2019: 2.3%, 2020: 2.3%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Sheet Metal Workers in 2020 (Sheet Metal Workers: 2.3%, All Crafts: 1.6%).

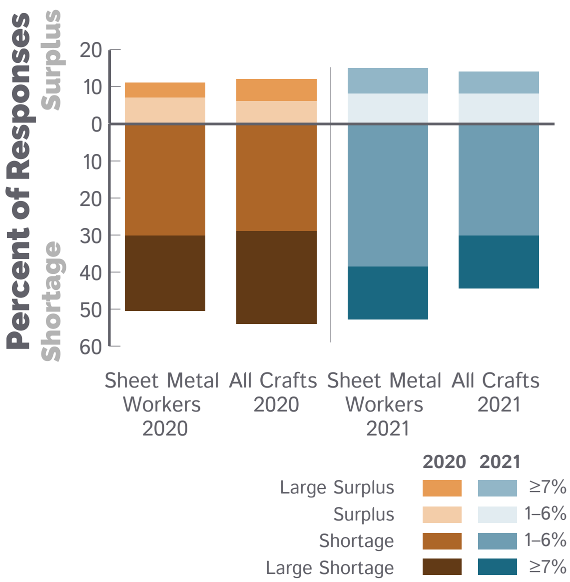
	2019		2020	
	Sheet Metal Workers	**All Crafts**	**Sheet Metal Workers**	**All Crafts**
Average	-2.3%	-2.5%	-2.3%	-1.6%
Surplus	4%	4%	5%	7%
Large Surplus	2%	6%	6%	5%
Shortage	27%	23%	31%	23%
Large Shortage	15%	20%	18%	14%

XIII. SHEET METAL WORKERS (continued)

B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

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



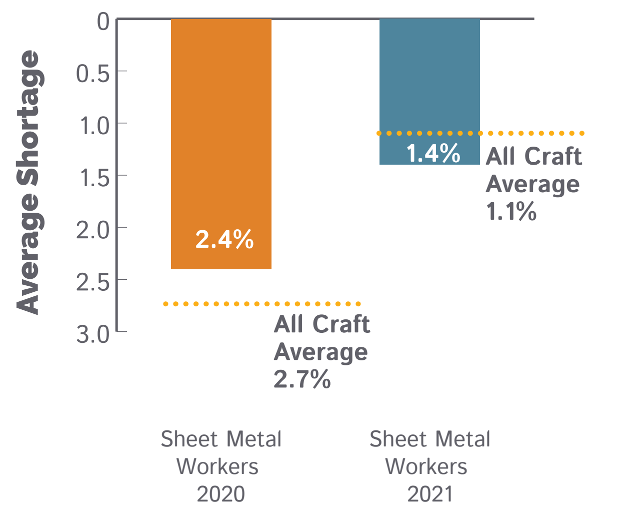
Compared to Sheet Metal Workers in 2020, the percent of respondents who projected a:

- *shortage* of Sheet Metal Workers in 2021 was slightly greater (2020: 42%, 2021: 44%).
- *surplus* of Sheet Metal Workers in 2021 was greater (2020: 11%, 2021: 15%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Sheet Metal Workers in 2021 was greater (Sheet Metal Workers: 44%, All Crafts: 37%).
- *surplus* of Sheet Metal Workers in 2021 was slightly greater (Sheet Metal Workers: 15%, All Crafts: 14%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS—SHEET METAL WORKERS



Compared to Sheet Metal Workers in 2020,

- there was a smaller projected average *shortage* of Sheet Metal Workers in 2021 (2020: 2.4%, 2021: 1.4%).

Compared to all crafts combined in 2021,

- there was a greater projected average *shortage* of Sheet Metal Workers in 2021 (Sheet Metal Workers: 1.4%, All Crafts: 1.1%).

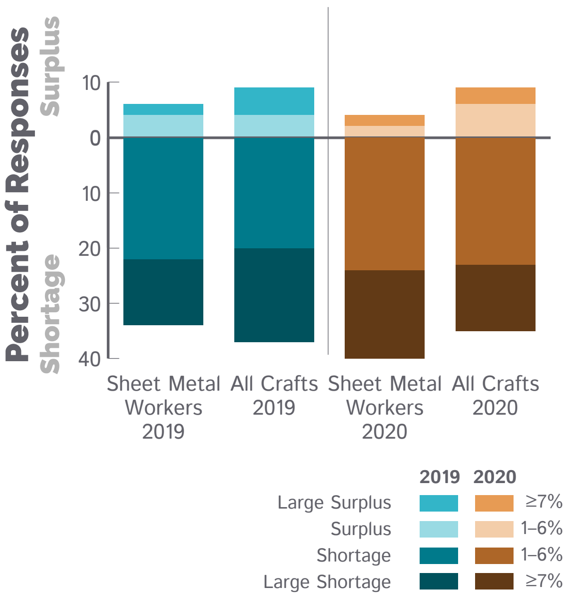
	2020		2021	
	Sheet Metal Workers	**All Crafts**	**Sheet Metal Workers**	**All Crafts**
Average	-2.4%	-2.7%	-1.4%	-1.1%
Surplus	7%	6%	8%	8%
Large Surplus	4%	6%	7%	6%
Shortage	25%	24%	32%	25%
Large Shortage	17%	21%	12%	12%

XIII. SHEET METAL WORKERS (continued)

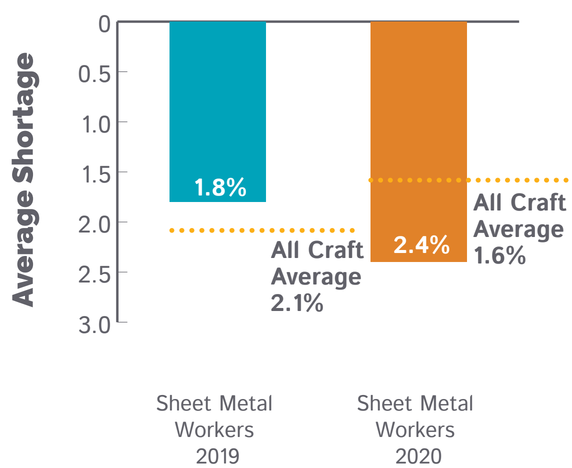
C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

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



AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—SHEET METAL WORKERS



Compared to Sheet Metal Worker apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Sheet Metal Worker apprentices in 2020 was greater (2019: 34%, 2020: 40%).
- *surplus* of Sheet Metal Worker apprentices in 2020 was slightly smaller (2019: 6%, 2020: 4%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Sheet Metal Worker apprentices in 2020 was greater (Sheet Metal Worker apprentices: 40%, All Crafts: 35%).
- *surplus* of Sheet Metal Worker apprentices in 2020 was smaller (Sheet Metal Worker apprentices: 4%, All Crafts: 9%).

Compared to Sheet Metal Worker apprentices in 2019,

- there was a greater average *shortage* of Sheet Metal Worker apprentices in 2020 (2019: 1.8%, 2020: 2.4%).

Compared to all crafts combined in 2020,

- there was a greater average *shortage* of Sheet Metal Worker apprentices in 2020 (Sheet Metal Worker apprentices: 2.4%, All Crafts: 1.6%).

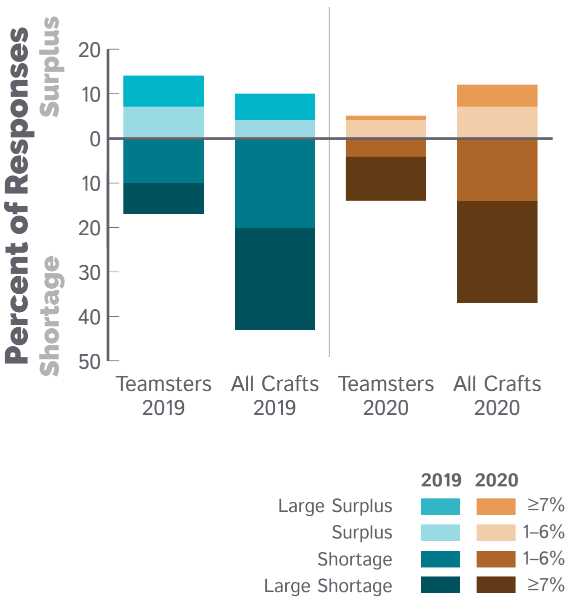
	2019		2020	
	Sheet Metal Workers	**All Crafts**	**Sheet Metal Workers**	**All Crafts**
Average	-1.8%	-2.1%	-2.4%	-1.6%
Surplus	4%	4%	2%	6%
Large Surplus	2%	5%	2%	3%
Shortage	22%	20%	24%	23%
Large Shortage	12%	17%	16%	12%

XIV. TEAMSTERS

A. Historical Results: 2019 & 2020

This section shows results for questions where study participants were asked to report on the previous year. That is, the data for 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS—TEAMSTERS



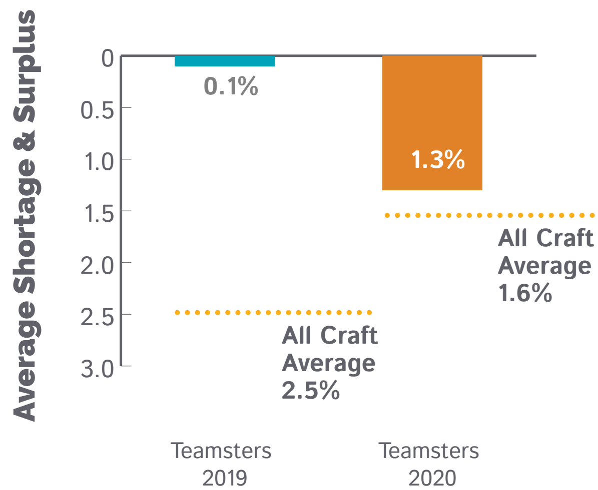
Compared to Teamsters in 2019, the percent of respondents who reported a:

- *shortage* of Teamsters in 2020 was smaller (2019: 17%, 2020: 14%).
- *surplus* of Teamsters in 2020 was smaller (2019: 14%, 2020: 5%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Teamsters in 2020 was smaller (Teamsters: 14%, All Crafts: 37%).
- *surplus* of Teamsters in 2020 was smaller (Teamsters: 5%, All Crafts: 12%).

AVERAGE SHORTAGE/SURPLUS—TEAMSTERS



Compared to Teamsters in 2019,

- there was a greater average *shortage* of Teamsters in 2020 (2019: 0.1%, 2020: 1.3%).

Compared to all crafts combined in 2020,

- there was a smaller average *shortage* of Teamsters in 2020 (Teamsters: 1.3%, All Crafts: 1.6%).

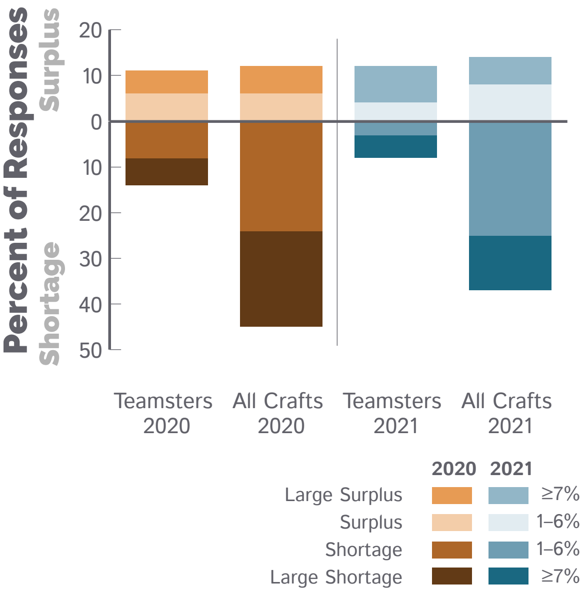
	2019		2020	
	Teamsters	**All Crafts**	**Teamsters**	**All Crafts**
Average	-0.1%	-2.5%	-1.3%	-1.6%
Surplus	7%	4%	4%	7%
Large Surplus	7%	6%	1%	5%
Shortage	10%	23%	4%	23%
Large Shortage	7%	20%	10%	14%

XIV. TEAMSTERS (continued)

B. Projections for the Next Year: 2020 & 2021

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 2020 came from last year's study (conducted early in 2020); projections for 2021 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES PROJECTING A SHORTAGE/SURPLUS—TEAMSTERS



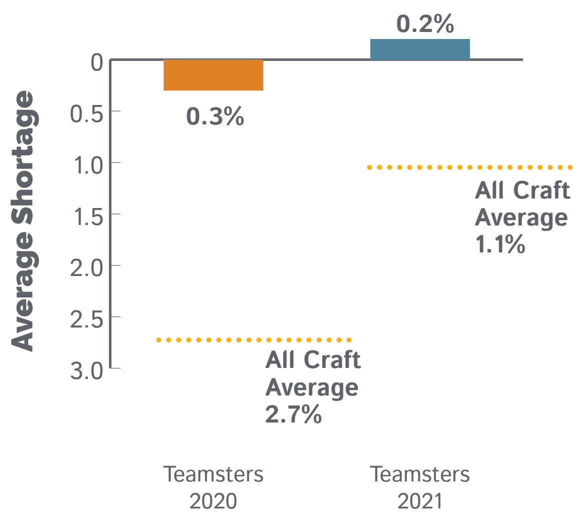
Compared to Teamsters in 2020, the percent of respondents who projected a:

- *shortage* of Teamsters in 2021 was smaller (2020: 14%, 2021: 8%).
- *surplus* of Teamsters in 2021 was slightly greater (2020: 11%, 2021: 12%).

Compared to all crafts combined in 2021, the percent of respondents who projected a:

- *shortage* of Teamsters in 2021 was smaller (Teamsters: 8%, All Crafts: 37%).
- *surplus* of Teamsters in 2021 was slightly smaller (Teamsters: 12%, All Crafts: 14%).

AVERAGE SHORTAGE/SURPLUS PROJECTIONS—TEAMSTERS



Compared to Teamsters in 2020,

- there was a projected average *surplus* of Teamsters in 2021, rather than a *shortage* (2020: 0.3% shortage, 2021: 0.2% surplus).

Compared to all crafts combined in 2021,

- there was a projected average *surplus* of Teamsters in 2021, rather than a *shortage* (Teamsters: 0.2% surplus, All Crafts: 1.1% shortage).

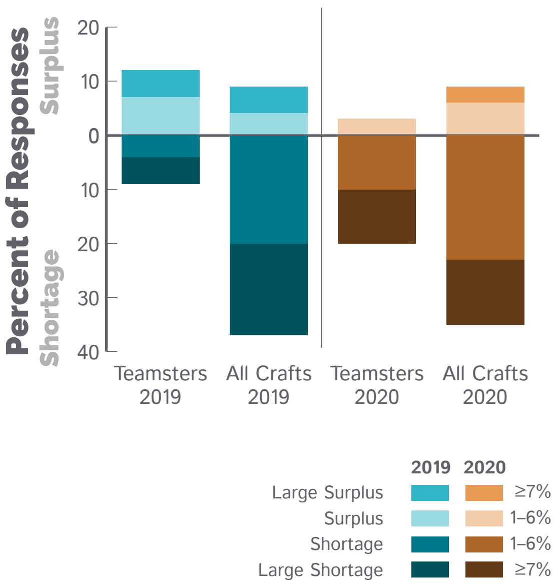
	2020		2021	
	Teamsters	**All Crafts**	**Teamsters**	**All Crafts**
Average	-0.3%	-2.7%	0.2%	-1.1%
Surplus	6%	6%	4%	8%
Large Surplus	5%	6%	8%	6%
Shortage	8%	24%	3%	25%
Large Shortage	6%	21%	5%	12%

XIV. TEAMSTERS (continued)

C. Apprentices: 2019 & 2020

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 2019 comes from last year's study (conducted early in 2020) where participants were asked to rate the actual/historical union craft labor shortage/surplus of apprentices for the previous year. Data for 2020 came from this year's study (conducted early in 2021).

PERCENT OF RESPONSES STATING A SHORTAGE/ SURPLUS—TEAMSTERS



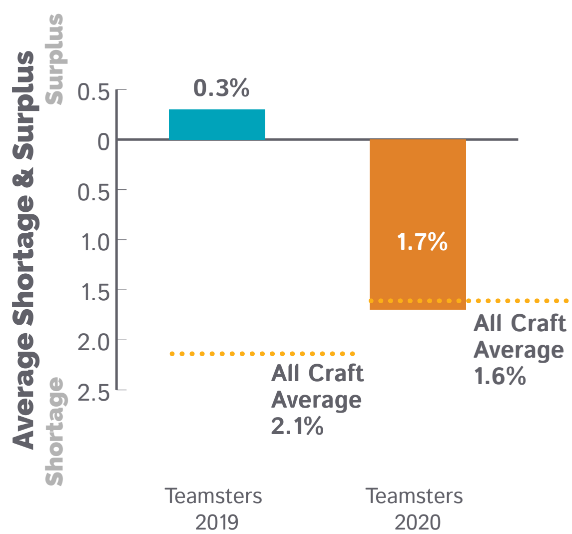
Compared to Teamster apprentices in 2019, the percent of respondents who reported a:

- *shortage* of Teamster apprentices in 2020 was greater (2019: 9%, 2020: 20%).
- *surplus* of Teamster apprentices in 2020 was smaller (2019: 12%, 2020: 3%).

Compared to all crafts combined in 2020, the percent of respondents who reported a:

- *shortage* of Teamster apprentices in 2020 was smaller (Teamster apprentices: 20%, All Crafts: 35%).
- *surplus* of Teamster apprentices in 2020 was smaller (Teamster apprentices: 3%, All Crafts: 9%).

AVERAGE SHORTAGE/SURPLUS FOR APPRENTICES—TEAMSTERS



Compared to Teamster apprentices in 2019,

- there was a shortage of Teamster apprentices in 2020, rather than a surplus (2019: 0.3% surplus, 2020: 1.7% shortage).

Compared to all crafts combined in 2020,

- there was a slightly greater surplus of Teamster apprentices in 2020 (Teamster apprentices: 1.7%, All Crafts: 1.6%).

	2019		2020	
	Teamsters	**All Crafts**	**Teamsters**	**All Crafts**
Average	0.3%	-2.1%	-1.7%	-1.6%
Surplus	7%	4%	3%	6%
Large Surplus	5%	5%	0%	3%
Shortage	4%	20%	10%	23%
Large Shortage	5%	17%	10%	12%

TAUC
The Association of
Union Constructors