European Contractor Monitor H2-2018 - GERMANY

Prefab Building

USP Marketing Consultancy

European Contractor Monitor H2-2018

Preface

In a growing – or even booming – construction sector, the contractors are facing many challenges to meet their clients requirements and demands. Labour shortage, building faster, building smarter, delivering a digital model are only a few of these challenges. Using prefab elements and BIM could enable contractors in their search for internal optimization and external customer focus. This report focuses on the usage of prefab elements in 8 European countries, whereas the next report will focus on the usage of Building Information Modeling.

As mentioned, the theme chapter of this report is focusing on “Prefab usage” which provides insight on:

- The usage of prefab per country, what is the share of prefab elements among contractors and what type of prefab elements are used within projects?
- Segments (residential and/or non-residentials) and applications (façade, roofs, internal walls, etc.) in which prefab is most used.
- Attitude towards prefab elements, how is prefab perceived and can it help contractors with the challenges they are facing?
- Make or buy decision, are contractors more likely to buy prefab elements from the industry or will they produce the elements themselves?

The **topics** that are (2018) and will be (2019) covered are:

H1 2018 Focus: **Purchase channels**.
H2 2018 Focus: **Prefab Building**
H1 2019 Focus: **Building Information Modeling (BIM)**
H2 2019 Focus: **Media orientation**

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If there are any suggestions or remarks on our reports, please let us know. We’re always looking for ways to improve, so your feedback is more than welcome.

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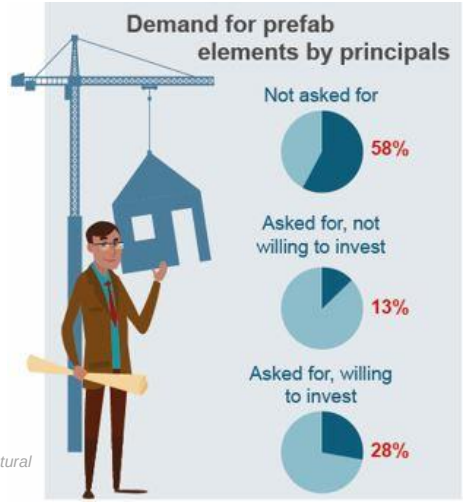
Introduction

In this report you will find the results of the second European Contractor Monitor. A study which focusses solely on the mid-sized (5 – 15 fte) and the large (16+ fte) building contractors in 8 important European countries.

It does not only contain data on the segments contractors are active in, it also gives you a clear view on their attitude towards and usage of prefabricated building elements. Prefab is considered to be one of the most important construction trends for the upcoming years. This is being acknowledged by both architects (ArchVision) and contractors (European Contractor Monitor). The big question is who will be the driving force behind the realisation and growth of prefab. From the European Architectural Barometer (ArchVision) we know that prefab elements are not widely asked by principals. Only 1 in every 4 European architects sees principals who are asking for prefab and are willing to invest in it. That leaves three other major stakeholders in the construction value chain to take the initiative: architects, contractors and manufacturers. This report focuses mainly on the last two from the contractors' perspective.



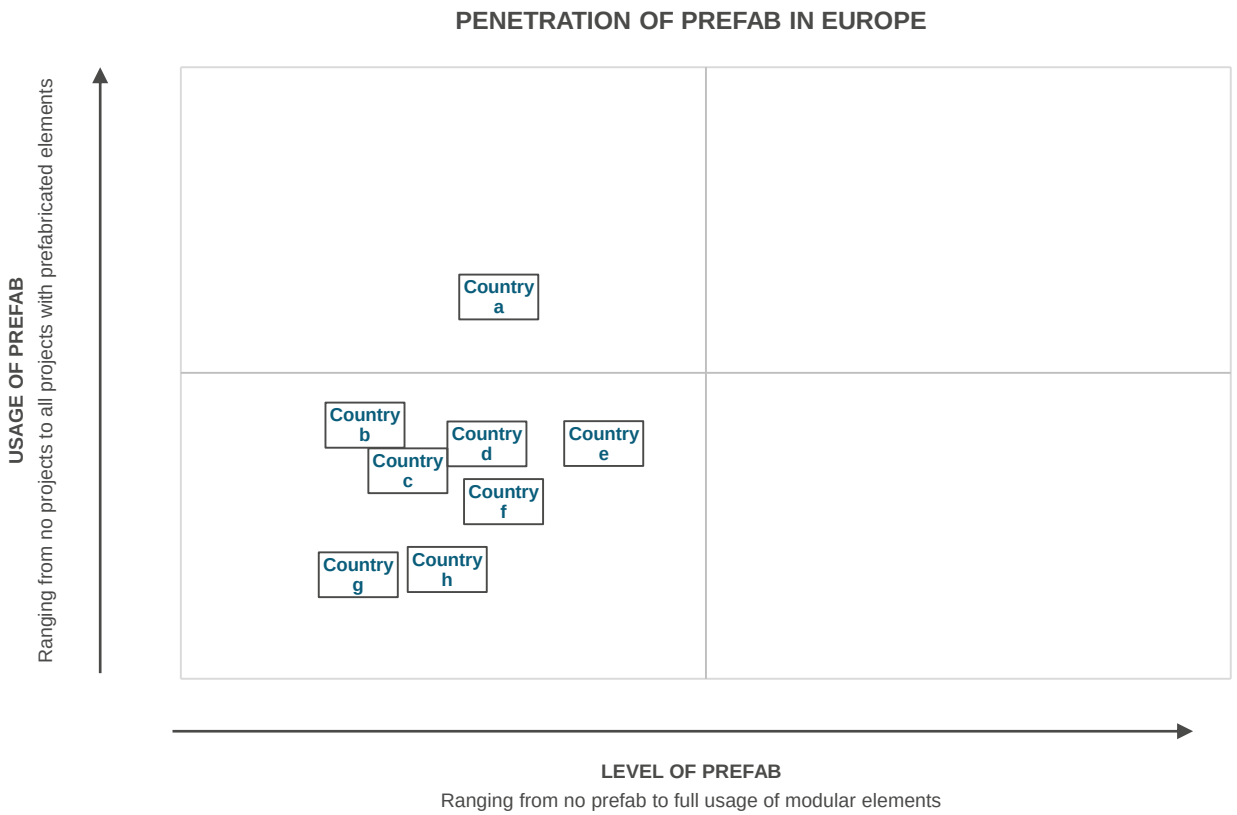
Source: ArchVision, European Architectural Barometer Q3 2018 – Future of Prefab

Turnover, backlog and labour shortage

There are positive outlooks in all European countries, even countries that were hit hard during the crisis of the past decade (Spain and Italy), show positive outlooks. However, having a construction boom after a long and deep crisis, also has its drawbacks. Many (skilled) people left the construction sector and didn't return, so contractors have difficulty getting enough labour force for their projects. One solution for this labour shortage is making (more) use of prefabricated building elements. Although, labour shortage is not a wide-spread problem, we do see that an expected labour shortage will lead to an increase of prefab usage.

Prefab construction is slowly gaining market share

In all countries we see a **widespread use of some form of prefabricated building elements** by contractors. At least [redacted]% of the contractors already has experience with applying prefabricated building elements, only exception to this is [redacted] with [redacted]%. The total European **share of projects where prefab elements are being applied is just over [redacted]%.** The contractors in the [redacted] are the front runners ([redacted]%), while contractors in [redacted] ([redacted]%) and [redacted] ([redacted]%) are lagging behind. This doesn't necessarily mean that the complete project consisted of prefab elements, it could also mean that one or two elements of the project are prefabricated. So the actual share of prefab is even lower than 32%. All contractors expect a gradual growth of prefab usage within their projects. According to the contractors the **growth** of prefab-included projects will be **between [redacted]% and [redacted]% per year.** This means in the short run we cannot expect an exponential growth.



Prefab is still in its [redacted] stages

When looking at the types of prefab that are being used and the segments where prefab is being used, we see that in most countries **prefab is still in its [redacted] stages**. Thus far either [redacted] buildings and/or [redacted] buildings are the type of projects in which prefab is used the most. Within the 'prefab projects', we see that mainly the [redacted] and the [redacted] are being used. The modular prefab solutions are not used that often, and when used mostly in the [redacted]

Prefab will become inevitable

There are a couple of reasons why prefab will become inevitable. There is a **need for a faster, smarter and more efficient building process**. Investors and owners want to occupy their house or building as fast as possible. A faster process cannot be achieved by hiring more people, since in most countries there will be a **shortage of labour**. If not at a contractors' level, then at the subcontractors' level, such as installers, painters, roofers, et cetera.

Another way to achieve a faster and more efficient building process, will involve more use of prefabricated elements. We have already seen that **BIM is enabling** this process. Therefore, we will investigate BIM more detailed in our next report.

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INTRODUCTION

Before going into detail about the usage of and attitude towards prefab, we will give you some background information on the contractors. In some cases, knowing the company characteristics (such as amount of employees and turnover development) or the segments they are active in (residential vs. non-residential and new-build vs. renovation vs. maintenance), can help explain the results we will see in the following chapters on prefab.

Next to the more general background information, we described above, we also included some questions that might influence the outcomes in the prefab chapter. This includes:

- ***Labour shortage***, we expect that a (future) labour shortage will lead to a higher share of prefab;
- ***Building Information Modeling (BIM)***, our assumption is that there will be a strong positive connection between the usage of BIM and prefab;
- ***Own production location***, contractors who are already 'producing' their own building elements are more likely to favour prefab solutions is another assumption we made beforehand.

We will start with a European overview, before all the information for Germany is shown.

Labour shortage

Building Information Modeling

Own production location

Profiling the building contractors

Population

The **target population** was **equally distributed** (respectively, 50% and 50%) **mid-sized** (5-15 fte) to **large** (16 + fte) contractors from **8 European** countries. The equal distribution was apparent in the majority of the countries except in [redacted] where 69% involved mid-sized companies – and the[redacted] where 70% were large companies.

Labour Force

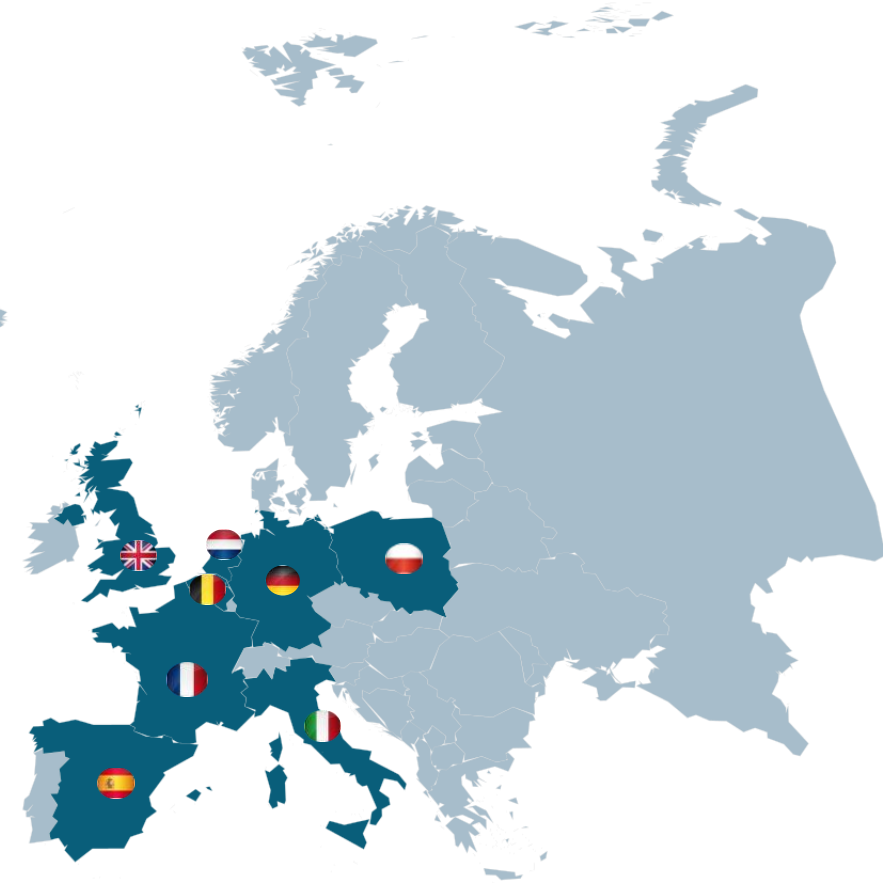
Although, on average, more than half of the European contractors do not experience a labour shortage yet, **The** [redacted] and [redacted] **suffer from labour shortage the most** compared to other European countries.

BIM

BIM is **known** by half of the contractors, but the **usage is not yet common** [redacted] is by far the most familiar with BIM and **makes the most use** of it.

Turnover development & backlog

The majority indicated an **increase in** their **turnover** development in H2 '18 compared to H2 '17. [redacted] **contractors has the most positive outlook** for 2019 which is a natural outcome of the recent boom in the [redacted] construction sector. Average **backlog of orders** in Europe is **8 months.** [redacted] **the highest backlog of orders**, which can be explained by the slightly larger share of non-residential (larger scale) projects.



Profiling the building contractors

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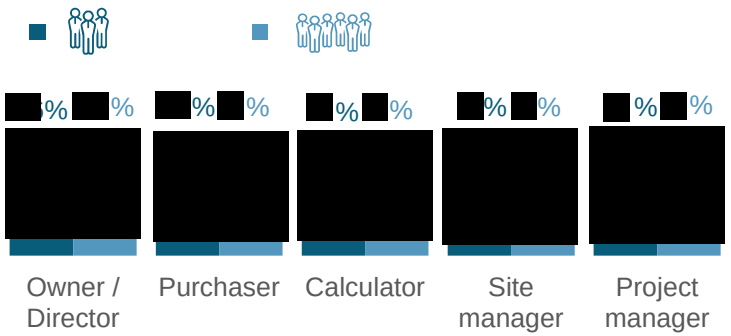
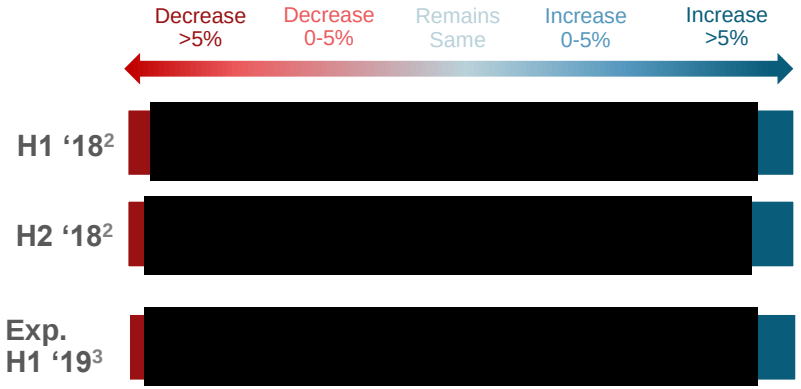
Number of employees

<5 fte[1]	5-15 fte	≥16 fte
0%	**50%**	**50%**

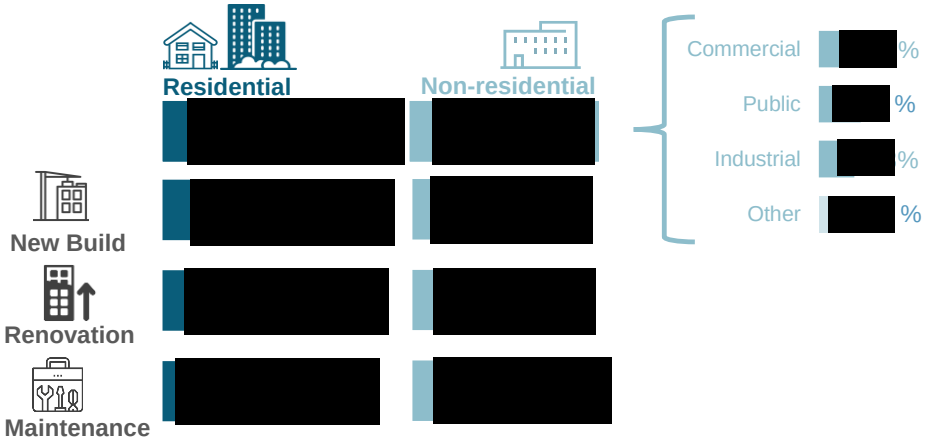
Top Functions



Positive outlook on turnover development



More than half of the turnover is obtained from residential projects



[1]The companies below 5 fte (stands Full-time Equivalent) are not in the target group of this research

[2]Question(H1&H2'18): Compared to your turnover of the first/second half of 2018 how did your turnover develop in first/second half of 2017?

[3]Question(H1'19: What are your expectations for your turnover development in the first half of 2019 in comparison to the first half of 2018?

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[redacted] is already experiencing labour shortage to a great extent

Labour shortage

shortage | **expect in 2 years / in the long run** | no shortage | no opinion

[redacted] is by far the most familiar with BIM

BIM familiarity and usage

Knows and uses | **knows** | does not know

Profiling the building contractors

- **Turnover development and backlog of orders**
- **Project segmentation**
- **Project development and own production location**
- **Labour shortage and BIM usage**

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Prefab on a European level

This chapter will focus on the results on a European level, including a country comparison on the most important topics within this theme. We will also show the impact of i) labour shortage, ii) usage of BIM and iii) having a production location on the usage of prefab. For the usage / penetration of prefab we use two indicators:

1. **The share of contractors applying prefab elements**. This could be once in every tenth project or in every project they're involved in, it gives good insights in the adoption / familiarity of prefab by building contractors.
2. **The share of projects in which prefab elements are applied**. This gives a much better view on the actual penetration of prefab within the construction sector.

Prefab was introduced to the contractors as 'off-site construction or modern methods of construction'. Once we got past the general topics about prefab, we went into detail about the different types of prefab. To show how advanced a country is in using prefab construction elements we defined the following levels of prefab:

- **prefabricated plain unfinished elements**; elements without insulation, windows or installation (e.g. precast floors, facade or roof element without windows)

- **prefabricated panelised systems or elements**; examples are wall, floor, ceiling, roof and facade panels including insulation, windows or installation

- **prefabricated modular buildings or volumetric elements**; examples are dormers, bathroom pods or kitchen pods which are preassembled units before arriving on the construction site (3D prefab)

This chapter ends with some detailed results on (prefabricated) pitched roofs and roof windows.

Developments in Prefab

Present and future usage

Prefab is **most applied** in the [redacted] and [redacted] by contractors, but the **share** of prefab elements in projects is **highest in** [redacted]. **BIM users** have a more positive attitude towards prefab solutions and are applying significantly more prefab solutions than non-users. **Labour shortage expectancy** is influencing the demand for prefab usage Contractors with labour shortage expectancy are also using and expect to use more prefab elements in their projects. There is an **up rise of prefab** in all 8 countries in the coming 7 years.

Prefab types and application areas

[redacted] **elements** are still the mostly applied prefab type. In countries that **most familiar with BIM** like the [redacted] and [redacted], **advanced solutions** such as panelized systems and modular elements are also more commonly used than other countries. Prefab solutions are most commonly applied **in** [redacted] **projects** [redacted] **and** [redacted] are the most common application areas where prefab is applied. [redacted] is the dominant materials in [redacted] and [redacted] applications whereas [redacted] is the dominant material in prefab [redacted] applications

Make or buy

Contractors are **less interested** in setting up their **own production location** and more interested in buying from the industry. This may be an opportunity for the suppliers to meet the increasing demand in prefab solutions. [redacted] is the most expected service from the suppliers. **Large-sized companies and BIM users** are more interested in setting up their own production location in the future.

Prefab: Make or buy

USP

Majority of European contractors do not consider [redacted]
Larger companies are slightly more [redacted]
BIM users are more [redacted]

[redacted] is the most expected service from the industry during supply process.

Production of prefab elements in the future

EXPECTATIONS FROM INDUSTRY

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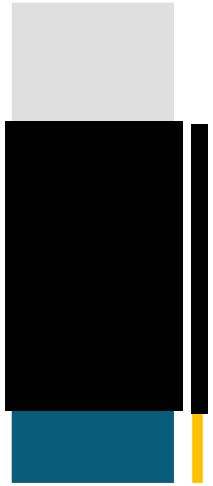
Current Prefab usage

[redacted]% **of German contractors** have used some form of prefab elements in their projects, which is **above** the **European average of** [redacted]**%.** Germany has the [redacted] share of contractors following the [redacted].

Share of projects containing some form of prefab elements



2018

Share of prefab types used in the projects

Other

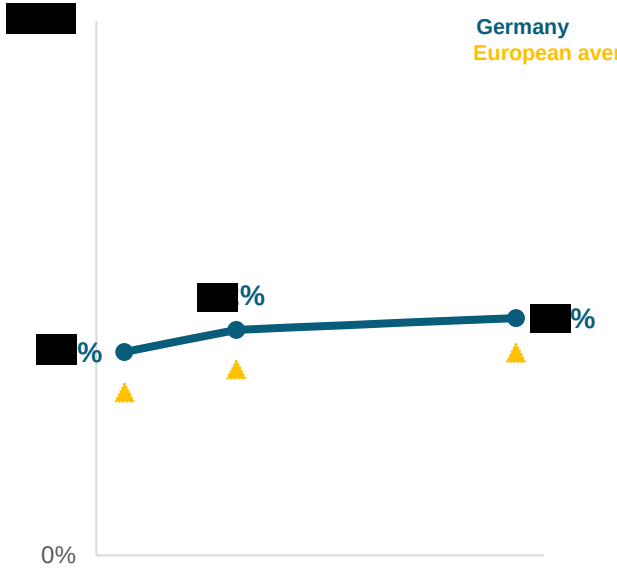
[redacted]% [redacted]% [redacted]% [redacted]% [redacted]%

[redacted]% [redacted]% [redacted]% [redacted]% [redacted]%

Future expectations

As [redacted] share of German contractors are [redacted] and [redacted] prefab solutions, **no [redacted] in the share of the contractors**.

Share of projects containing some form of prefab elements

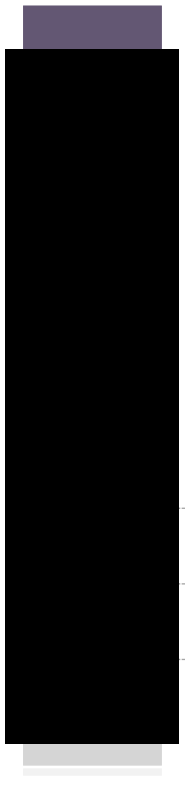


[redacted] ([redacted]%) expects that the [redacted] will **grow** even more.

Prefab: present and future of projects segmentation

[redacted] is the most dominant size where [redacted] solutions are [redacted] and [redacted] even more

Dominant size of projects



Contractors expecting growth

- Low Rise [redacted]
- Mid Rise [redacted]
- High Rise [redacted]
- Not specified
- No opinion

Prefab [redacted] are [redacted] applied to [redacted]

Building segments where prefab is applied

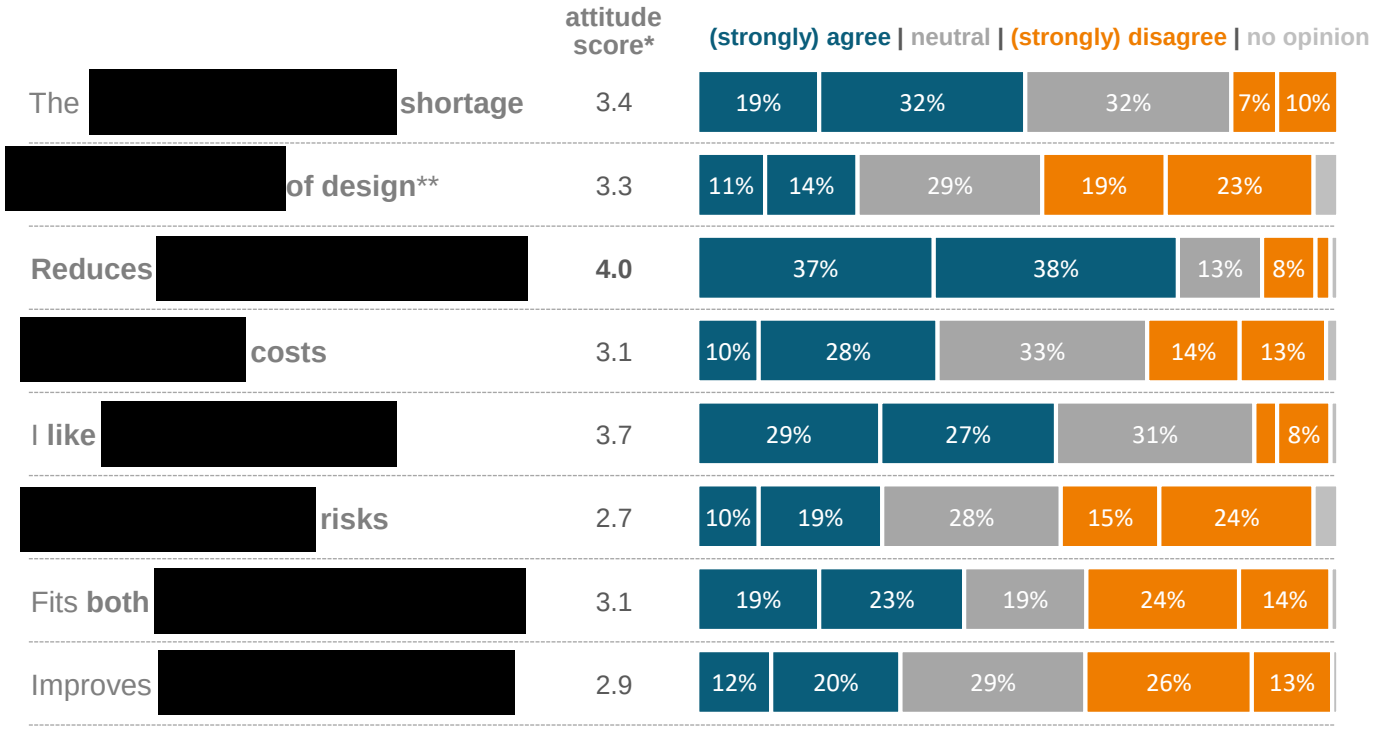
Contractors expecting growth

- Detached [redacted]
- Semi-detached [redacted]
- Terrace [redacted]
- Multi family [redacted]
- Hotels [redacted]
- Offices [redacted]
- Student houses [redacted]
- Hospitals [redacted]
- Schools [redacted]
- Retail [redacted]
- Warehousing [redacted]

Represents 10% of the contractors stating that answer

Prefab: General attitude

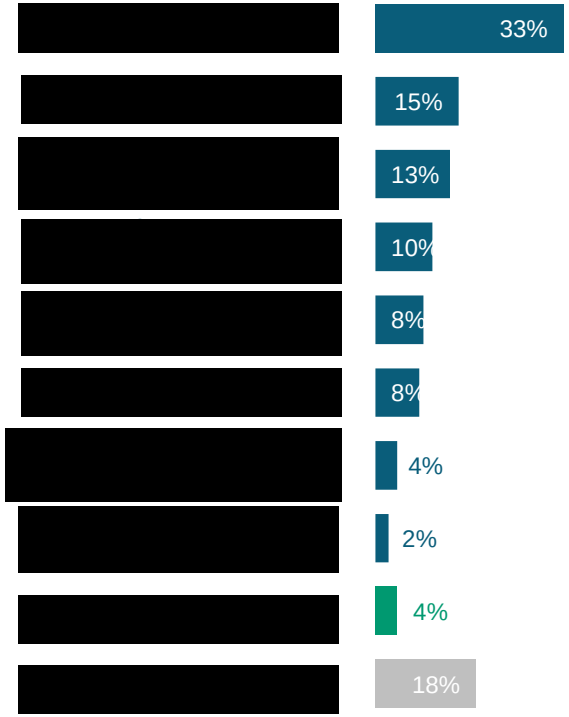
[redacted] contractors believe that the prefab [redacted] of a project substantially.



Q: To what degree do you disagree or agree with the following statements about prefab?

* Attitude score is calculated by taking the average score of each statement. The higher the score is the more positive the attitude towards prefab.
** The second statement has been reverse coded for the positive attitude calculations.

[redacted] and [redacted] are the most common problems encountered



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