

# Analysis on the Quality Problems and Preventive Measures of Prefabricated Building Construction

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**Abstract:** Prefabricated building construction has strong environmental protection characteristics and also shows high application advantages in terms of construction cost and construction efficiency. It plays a good role in promoting the construction technology level. However, in the process of prefabricated building construction, there still exists some inevitable quality defects, which have a large impact on the overall quality of the construction project. It is not conducive to the scientific development of the construction industry. Therefore, effective measures must be taken for the prefabricated assembly. The quality problems in building construction are prevented, so that the quality of building construction is effectively guaranteed. This paper analyzes the common quality problems in prefabricated building construction and puts forward some specific measures according to the actual situation, hoping to provide an effective reference for the prevention of common quality problems in prefabricated building construction.

## 1. Common quality problems in prefabricated building construction

In the construction process of construction engineering, the prefabricated construction mode has been widely used and its application value is also prominent. The rational use of prefabricated building construction can effectively reduce the input cost of construction projects. The construction efficiency of construction projects has been effectively improved and to a certain extent, the limitations of traditional construction techniques can be broken and the construction difficulty of construction projects is effectively reduced. However, as far as the actual construction situation is concerned, although the prefabricated building construction mode reflects better application advantages, as a new type of construction technology, there are still some limitations in some aspects and its overall construction process Not mature enough, resulting in more quality defects in the construction of the building, it is difficult to ensure the performance and service life of the construction project, which requires effective optimization, through effective measures to improve the quality of prefabricated construction<sup>[1]</sup>.

### 1.1. Quality problems in flat panel production and installation

When the flat plate is installed and installed, it is easy to cause the broken corner plate, the broken plate and the insulation of the outer wall plate to cause adverse effects on the construction quality. As far as the corner plate breakage problem is concerned, the main reason is that when the hoisting work is carried out, the inner fold of the corner plate is broken, or the angle of the corner is changed due to improper maintenance and various irregular construction operations are easy. Affect the performance of the corner board. In terms of the problem of the fracture of the laminated plates, the main reason is that some of the stacked plates have a large span and there is a large deflection during the lifting work, which causes cracks in the laminated plates and the cracks spread to the entire plate, eventually causing damage to the components. Its own quality problems are also an important factor affecting the performance of the laminate. In terms of the problem of the insulation of the outer wall insulation layer, the main reason is that the insulation material is not uniform and its own quality has problems, resulting in a large hidden danger of the insulation layer, which seriously affects the performance and service life of the insulation layer<sup>[2]</sup>. The growth rate of prefabricated building construction materials in China is shown in Figure 1.

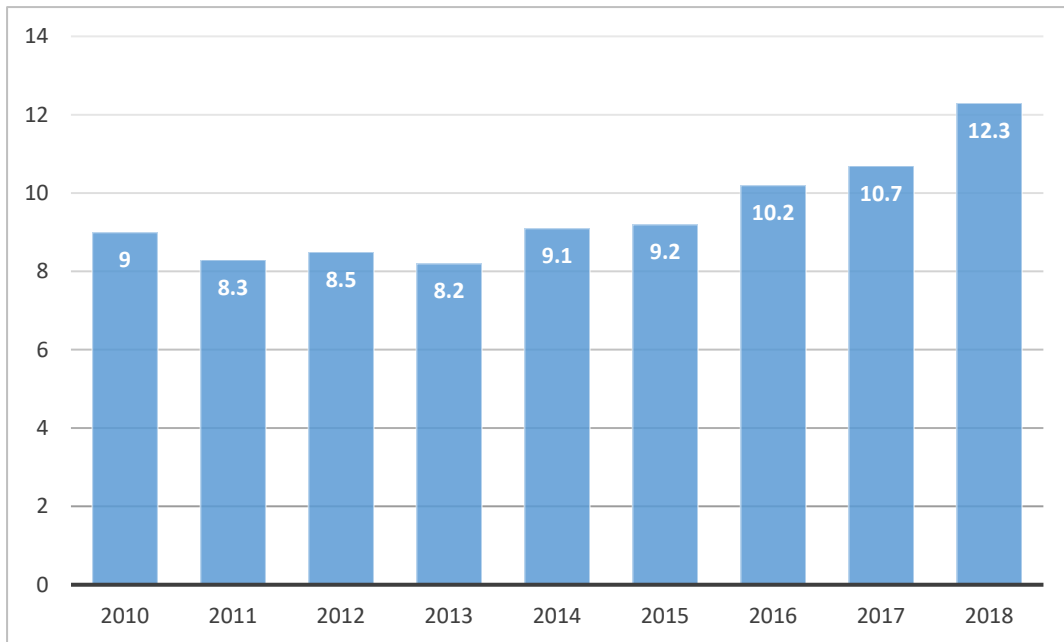


Figure 1: Growth rate of prefabricated building construction materials

## 1.2. Quality problems in the connection of prefabricated components

In the construction of prefabricated joints, quality problems such as insufficient grouting and misalignment of the sleeves often occur, which has a great impact on the construction quality of the prefabricated joints. As far as the grouting is not full, when the longitudinal connection of the prefabricated wallboard is carried out, if the filling degree is not sufficient, the grouting hole blockage is likely to occur. The main reason for this phenomenon is that it is impossible to grasp the internal condition of the grouting pipe, it is difficult to grasp the fullness of the grouting and the production operation of the component is not careful enough. The cleaning of the grouting hole has a perfunctory mentality, which causes the problem of blockage of the grouting hole to occur frequently. In the case of a casing connection error, the position of the reinforcing bar and the prefabricated sleeve is misaligned when the component sleeve is connected and the offset can be divided into a complete offset and a partial offset. The perfect offset is to rework the component and the partial offset can barely insert the reinforcement into the hole. The main reason for this phenomenon is that the sleeve diameter is too small, the size of the components is not precise and the steel bars with deviations are mainly cut off, or the holes are drilled at the steel bar position and then the steel bars are inserted. Holes are difficult to adapt to engineering design requirements, bringing more quality hazards to prefabricated building construction.

## 2. Precautions in prefabricated building construction

The precautions in prefabricated building construction mainly have the following four points, as shown in Figure 2.

### 2.1. Reasonable use of auxiliary tools

In order to ensure the smooth construction of the prefabricated building, the prefabricated building construction tasks can be carried out smoothly and some auxiliary tools can be used reasonably. For example, the "L" type spreader can be used in the corner plate installation process and the corner can be turned. The tension generated during the lifting process of the board is transferred and transferred to the "L-shaped" spreader, so that the problem of the breakage of the corner plate is effectively reduced and the installation quality of the corner plate is effectively improved<sup>[3]</sup>. At the same time, when making flat plates and installations, you can also use the "corner" for processing, which not only ensures the smooth development of the flat plate production and installation, but also effectively guarantees the construction quality, making the plate

production and installation work. Quality defects are effectively controlled. In addition, for the construction of other prefabricated components, some matching auxiliary tools can also be selected for construction, so that the overall efficiency and quality of prefabricated building construction can be effectively improved, which provides a favorable foundation for the long-term use of construction projects.

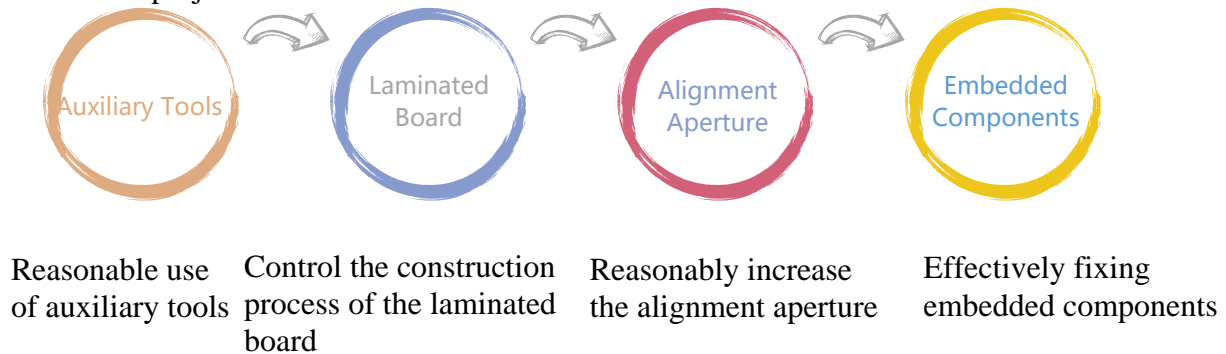


Figure 2: Precautions in prefabricated building construction

## 2.2. Control the construction process of the laminated board

In order to solve the problem of fracture of the composite plate in the prefabricated building construction, the performance of the laminated plate is effectively guaranteed and the span of the laminated plate should be controlled to ensure that it can effectively alleviate the possible stress damage during construction. When controlling the span of the laminated board, scientific analysis should be carried out on the deflection of the laminated board and then the arrangement of the laminated board can be completed under the condition that the requirement is met, the damage problem in the hoisting construction of the laminated board can be prevented and the hoisting of the laminated board can be stabilized. Sex and reliability are effectively guaranteed. At the same time, in order to further improve the application effect of the laminated plates, the quality control of the hoisting construction of the laminated plates should be actively carried out to avoid the problem of falling off during the hoisting of the laminated plates and the truss ribs are used for the treatment to make the construction quality of the laminated plates effective. Control, laying a good foundation for subsequent construction operations<sup>[4]</sup>.

## 2.3. Reasonably increase the alignment aperture

In the past prefabricated building construction, the alignment problem between prefabricated steel bars and steel hole holes often occurs. This is also the key difficulty in prefabricated building construction. It is necessary to increase the steel bar reasonably on the basis of meeting the requirements of engineering specifications. The alignment hole is used to increase the entrance ratio of the alignment bar, so that the longitudinal overall performance of the bar is effectively improved. At the same time, we should actively strengthen the communication between the construction site and the component processing plant and continuously improve the accuracy of component production, so that the components can meet the requirements of prefabricated building construction, ensure the standardization of steel bar binding and make the component connection wrong<sup>[5]</sup>. The probability of occurrence of the problem is effectively reduced. In addition, the inspection of the construction process should be strictly carried out so that the deviation of the prefabricated steel bars and the steel holes can be found in time and then the construction methods and construction methods can be reasonably adjusted to make the prefabricated building construction more standardized and effectively improved. The overall level of prefabricated building construction.

## 2.4. Effectively fixing embedded components

When the wall-slab concrete vibrating construction surface is used, the junction box misalignment problem often occurs. The treatment for this problem is to weld the junction box to

the corresponding position before the concrete vibrating construction, thereby ensuring the fixing of the junction box. effect. At the same time, according to the requirements of prefabricated building construction, a special junction box can be produced and the wire is added at the rear of the junction box. Before the concrete is vibrated, it is tied to the corresponding part, thereby effectively solving the misalignment of the junction box. The problem is to ensure the quality of prefabricated building construction. In addition, in order to solve the problem of the falling off of the buried hydropower pipeline, the inspection work before the concrete vibrating should be done, the monitoring in the concrete vibrating should be done well and the concrete vibration should be reviewed after the concrete vibrating, so as to realize the shedding of the hydropower pre-buried pipeline. The overall control and prevention of the problem will ensure the overall quality of the prefabricated building construction.

### 3. Conclusion

In conclusion, compared with the traditional construction method, the prefabricated building construction has more application advantages, which can not only improve the construction efficiency, but also effectively improve the economic benefits of the construction project. It also reduce the construction difficulty of the construction project. The development of the construction industry has played a good role in promoting. In order to solve the quality problems in prefabricated building construction, it is necessary to deeply understand the causes of the quality problems, through the rational use of auxiliary tools, control the construction process of the laminated plates, reasonably increase the alignment aperture and effectively fix the embedded components. The measures have effectively improved the quality of prefabricated building construction.

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