



News Release (Translation only)

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External Investigative Committee Delivers Final Report on Off-Specification Components Incidents

On 26 April 2019 Daiwa House Industry Co., Ltd. empaneled an external investigating committee to look into the details of “Off-Specification Components in and Remedial Work on Daiwa House Single-Family Houses and Rental Housing” as announced on 12 April. The committee has been looking into pertinent documents and interviewing relevant persons to elucidate the causes from an objective standpoint. On 31 May we published an interim report on the investigation’s status and the causes of and developments that led to the off-specification incidents.

On 17 June, the External Investigative Committee delivered its “Investigation Report (Final Report), which we conveyed to the Ministry of Land, Infrastructure and Tourism (MLIT) today, 18 June. The Final Report is attached for stakeholders who wish to review the details.

For details on how Daiwa House intends to proceed from here, see our “Identification of Causes of Off-Specification Components in Daiwa House Single-Family Houses and Rental Housing, and Measures to Prevent Recurrence,” also published today.

Daiwa House would like to take this opportunity to offer our sincere apologies for the significant trouble and concern we have caused our customers and other stakeholders due to these off-specification components incidents.

**■Daiwa House Update on Investigation Report by External Investigative Committee:
Summary**

I. Overview of investigation

1. Period

26 April – 17 June, 2019

2. Subject period

1 January 2001 – 15 March 2019

3. Purpose

The committee is investigating the chains of events, identifying the causes behind the incidents, and proposing measures to prevent recurrence where components deviated from specifications for type-approved components: off-specification pad footings, off-specification inverted-L columns, and failure to meet fire safety codes.

4. Methodology

The investigating committee (“we”) performed a thorough review of all documents to the incidents, including internal rules (procedural guidelines), internal notifications, and protocols; check lists for validating type-approval and conformity-certification documentation; and the building design stipulations, drawings, and permit application documents for the respective buildings subject to investigation.

The committee had sent questionnaires to 144 persons, primarily executives and employees of the Technology Division (including retirees) who were involved with type-approved specifications and persons in charge of and managers responsible for design (including retirees) at the time of the incidents. The aim was to ascertain design processes at the time and investigate how the use of off-specification components arose.

Furthermore, the committee members interviewed 28 individuals in person submitted the above questionnaires, and executives and employees of the Technology Division (including retirees).

Additionally, members of the committee visited Daiwa House production-related operations centers and also observed current and previous design processes to investigate workflows and other matters on-site.

II. Facts established by the investigation committee

Japan's Type-Approved and Type-Certified Component Manufacturer System ("type-approval and conformity-certification scheme"), a framework permitting the skipping of certain review steps in the building permitting process for building components that have been type-approved and certified for conformity with regulatory standards and criteria, was inaugurated when the revised Building Standards Act (Act No. 201 of 1950) took effect on 1 June 2000. When a builder applies for permits under the scheme, only components conforming to the specifications for which type approval has been granted may be used in the building's design; thus, it is necessary for the builder to apply for permits for such buildings through the usual procedures.

Daiwa House Industry began implementing the type-approval and conformity-certification scheme in its business in December 2000. We have established that the company has worked to comply faithfully with the legal and regulatory framework in applying the scheme from the outset. Measures included informing all business offices of the approvals and their content via internal notifications each time a product was type-approved and the company was approved to certify code conformity, distributing checklists for verifying the scope of approval and certification for individual buildings, as well as providing design managers at its business offices with training to familiarize them with how the type-approval and conformity-certification scheme worked.

1. Off-specification footings

a. Use of pad footings by persons in charge for design at business offices

We found that some design managers at business offices filed building-permit applications on the mistaken assumption that pad footings with heights other than 620 mm were type-approved as, prior to implementation of the type-approval and conformity-certification scheme, they had been accustomed to using such footings in their designs as required by the situation at specific building sites.

We found the reasons for their mistaken assumption to be: 1) since footings of heights other than 620 mm were customarily adopted and worked into designs as required by building site conditions before implementation of the type-approval and conformity-certification scheme, they did not think of the possibility that Product Development Division would adopt an approval and certification process that would preclude their use; 2) checklists provided by the Technology Division to verify code conformity only required confirming the footings' base width, so it never dawned on them that restrictions applied to footings' heights; and 3) they believed that type approval had been applied for in a manner congruent with basic design methods (design logic) requiring that the tops of pad and

continuous footings be level with each other.

b. End of the practice and number of properties affected

The practice of using off-specification pad footings ended on 27 December 2013 for single-family houses and 30 September 2015 for rental housing.

The number of affected properties totaled 3,763: 2,153 of the 180,130 investigation-subject single-family houses and 1,610 of 79,732 subject rental housing properties.

c. Reinvestigation by Daiwa House

Daiwa House went public with the revelations of these issues on 12 April 2019 and, upon later discovering that the working data extracted from its internal backbone system omitted some affected properties, the company complemented the data by drawing on other sources and initiated a reinvestigation consisting of a renewed review of relevant documents and on-site verification. We consider these processes to be reasonable and appropriate.

d. Causes

The off-specification pad footing incidents can be attributed to shortcomings in legal compliance measures (the type-approval and conformity certification scheme was not implemented in a manner effectively ensuring that all the persons in charge for design in the company were all thoroughly familiar with it, and architects worked pad footings into their designs on an inaccurate understanding of the specifications for which Daiwa House had acquired approvals under the scheme); in communication between the head office (Product Development and Technology Divisions) and business offices; and in the plan drafting process (documents were drafted as if the buildings were, at least outwardly, to be built using the type-approval and conformity-certification scheme even when deviating from internally standardized design procedures [building stipulations]).

2. Off-specification inverted-L columns

a. Business office architects' approach to the inverted-L support columns

Before the launch of the pre-approval scheme, some rental housing customers in the Kanto region (Tokyo in particular) had asked Daiwa House to expand the living area of its products, even if just by a little. Wanting to satisfy these requests, the Company replaced free-standing columns (posts) with inverted-L columns to support external second-floor side-corridors.

The persons in charge for design at sites in the Kanto region (Tokyo in particular) mistakenly thought that the inverted-L columns that they had been using prior to scheme implementation

were pre-approved, and that the Company had applied for building permits on the same assumption.

We believe the reasons for these mistaken assumptions include: 1) because the inverted-L support columns were commonly used in the Kanto region before the implementation of the type-approval and conformity-certification scheme, it never dawned on persons in charge for design that Product Development Division would adopt an approval and certification process that precluded their use; and 2) persons in charge for design believed that the columns at issue were type-approved and merely not mentioned in the design rules (building stipulations) because their specifications were a Kanto-region peculiarity.

b. Product Development Division's approach to the inverted-L support columns

Although Product Development Division became aware of the need for inverted-L support columns in the Kanto area through participation in a project hosted by architects in the Kanto area, the Department lacked awareness that building permit applications for buildings including the columns on the premise were being filed under the type-approved framework.

c. Design document drafting process (verification procedures)

From the start inverted-L support columns were not listed in the design stipulations and not among the company's standard-specification components, so business offices drafted design drawings to include inverted-L column data that would make their manufacture at the factory possible, and instructions were issued to the production-related operations centers to specify inverted-L support columns for the external second-floor side corridor supports. From then onward, the production-related operations centers began marking inverted-L support columns with a symbol (the sharp sign: #) to identify them as components not listed in the company's design stipulations, in addition to an asterisk [*] indicating that they were not standard-specification components, and entered into the [CAD] system the data necessary for manufacturing the components at the factory.

The production-related operations centers did not inform or advise business offices of the need to follow normal building permitting procedure for buildings incorporating the inverted-L supports because Center personnel did not realize that the pertinent buildings should have been permitted according to the normal procedure (i.e., not the procedure premised on use of type-approved components) since, from their perspective, it was the design managers' responsibility to apply for building permits. In this respect, the verification procedures for ensuring code compliance did not function as they were supposed to.

d. End of the practice and number of properties affected

The practices resulting in use off-specification inverted-L support columns came to an end by March 2008 as design managers at business offices in the Kanto area realized that the support columns were not type-approved. This realization came about around 2007 as design managers in the Kanto region, reacting to suspicions raised by designated inspection organs, discovered, upon enquiring with Product Development Division, that the support columns were not type-approved.

The number of affected properties came to 192 of 259,862 properties that were subject to investigation.

e. Reinvestigation process

Daiwa House went public with the revelations of these issues on 12 April 2019 and, upon later discovering that the working data extracted from its internal backbone system omitted some affected properties, the company complemented the original data by drawing on sources and initiated a reinvestigation consisting of a renewed review of relevant documents and on-site verification. We consider these processes to be reasonable and appropriate.

f. Causes

The off-specification inverted-L support columns can be attributed to shortcomings in legal compliance measures (the type-approval and conformity-certification scheme was not implemented in a manner effectively ensuring that all the company's architects/designers were thoroughly familiar with it, and architects worked inverted-L support columns into their designs on an inaccurate understanding of the specifications for which Daiwa House had acquired approvals under the scheme); in communication between the head office (the Product Development Division and Technology Department) and business offices; and in the design-document drafting process (insufficient understanding of the significance and gravity of specification restrictions programmed into the CAD system).

g. Some design managers were aware of the off-specification inverted-L support columns

Some design managers became aware that the inverted-L support columns were not type-approved starting around 2007, but given the developments at the time, internal control systems, and the self-incriminatory aspects, the ethics aside we believe it would be infeasible to pursue legal action against them. Further, we are unable to establish that compliance awareness was usually low among the design managers, as they seem to have immediately switched to legally compliant building permitting procedures as soon as they were aware of the issue. Also, to the degree that they did so, self-correcting mechanisms kicked in effectively.

3. Failure to meet fire safety codes

a. Developments up to discovery and facts underlying the cause

When Daiwa House was investigating the off-specification inverted-L columns issue, it learned that there were concerns that columns supporting external second-floor side-corridors did not meet fire safety codes in some buildings.

Building permit applications for properties incorporating the inverted-L support columns should have been filed using the normal procedure, ensuring that they would be rigorously screened and checked by the designated inspection organ to ensure that the fireproofing applied to the columns was up to code. However, because permit applications were filed using the procedure premised on type-approved components, the support columns' fireproofing was not screened or checked for code compliance, resulting in buildings that were potentially not up to code for fireproofing.

b. Number of affected properties

There were 73 properties that were not up to code for fireproofing. Four properties, despite having gone through normal building permitting procedures, were discovered to be at variance from standard specifications stipulated by Daiwa House.

c. Causes

The causes of this issues were the same as those for inverted-L support columns being off-specification.

III. Analysis of causes

1. Problems with implementation of the legal compliance system

One of the causes of the incidents under investigation was that, although Daiwa House instituted a framework to ensure legal and regulatory compliance, it was not effective enough to achieve the main goal—make sure all business-office design managers were familiar with how the type-approval and conformance-certification scheme worked, resulting in their designing buildings without an accurate understanding of the specifications for which Daiwa House had acquired approval under the scheme when they incorporated pad footings and inverted-L support columns into their designs.

2. Insufficient communication between business offices and the head office (Product Development Division and Technology Department)

Another cause of these incidents was insufficient communication between the head office (particularly the Product Development Division and Technology Department) and business offices.

Since business-office architects are licensed, specialist professionals, they were supposed to have an accurate understanding and appreciation of the specifications for which Daiwa House had acquired approval under the type-approval and conformity-certification scheme when designing buildings using pad footings and inverted-L support columns. However, it was the Technology Department, in its role of company-wide oversight for applying the type-approval and conformity-certification scheme, that failed to adequately communicate compliance issues (such as Building Standards Act-compliant permit application filing) to the business offices, resulting in proper application of the scheme falling on the shoulders individual designers. Thus the Technology Department's failure to fulfill its role was a major cause of the incidents, and its responsibility for their occurrence is large.

3. Problems with the process of drawing up plans

We suspect that the Technical Department did not sufficiently communicate to the business offices and the production-related operations centers the significance and gravity of the specification restrictions programmed into the CAD system.

In short: the Technical Department's failure to ensure complete familiarity with the compliance-verification (checks) built into the design document drafting process was a cause of the problems related to non-compliance with building standards.

IV. Suggestions for preventing recurrence

1. Rebuilding the legal compliance system related to companywide design operations

The number of laws (including rules and regulations as well), in addition to the Building Standards Act and its revisions, that Daiwa House must observe in the course of doing business is immense. We suggest that the company undertake a total overhaul of its human and procedural infrastructure to ensure that knowledge and awareness of the laws and their content with which compliance is essential, reach into every nook and cranny of the company.

In the incident under investigation, the company, through its Technology Department, did indeed takes steps, issuing internal notifications addressed to and training sessions for business office design

managers. But we discovered that at some business offices, the design managers neglected to pass on what they had learned about the type-approval and conformity-certification scheme to the other architects/designers at their offices, for instance by gathering them and holding meetings or study sessions. This resulted in inconsistent knowledge and awareness of the type-approval and conformity-certification scheme among those concerned and crucial information on its specifics not reaching all who needed to be familiar with them.

We therefore believe that Daiwa House needs to rebuild from the bottom up its organization and procedures for ensuring that everyone concerned, down to each individual architect/designer at its business offices, accurately understands and appreciates, not just the type-approval and conformity-certification scheme implicated in the subject incidents, but all laws and pertinent regulations (including internal rules and guidelines).

2. Strengthening the sharing of information between the head office and business offices

An insufficient communication between the head office (the Technology Department and Product Development Division) and business offices was behind the incidents under investigation. It should go without saying that the success of Daiwa House's business is premised on the head office and business offices being of one mind—one the same page, as it were; in other words, sufficient communication between the head and business offices is essential.

But once an organization gets to the size of one like Daiwa House, communication by osmosis ceases to function and proactive efforts to share information become necessary to ensure that it is conveyed to all concerned. Thus the company needs to develop and implement effective measures to bolster two-way communication with the Technology Division playing central role, for instance by institutionalizing gatherings for the exchange of information and ideas and other regular opportunities for interaction.

3. Strengthening of internal check functions in the plans

With regard to the non-conformity to building standards in the incidents under investigation, the system for preparing the plans did not make the non-conformities obvious, and on top of that the persons using the system were unaware of the gravity of the non-conformities.

To get rid of these causes, the system for drafting the plans needs to be overhauled from the bottom up and more robust, effective compliance verification needs to be built into it.

We believe Daiwa House should define and implement transparent procedures designed to guarantee

optimization of design tasks by eliminating ambiguities in implementation of the type-approval and conformity-certification scheme and building redundancy into the measures for verifying against code violations and deviations from standards.

We further recommend that Daiwa House look into providing greater backup from a systems perspective rather than relying exclusively on the knowledge and skills of personnel involved in the pertinent processes, such as by implementing building information modeling (BIM) and other such information integration and management systems that are finding increasing adoption in the architecture, construction, and engineering sector.

Also, we suggest that rather than relying solely on pre-emptive checking and verification, the company explore undertaking post-completion verification of buildings' code conformity. This could be accomplished by emplacing an auditing department as part of the framework for ensuring appropriate design and execution at business offices.

Though stationed in the head office, this auditing department would be kept independent of the Product Development and Technology Divisions and serve to bolster the compliance-verification frameworks. We envision it specializing in not just the type-approval and conformity-certification scheme but all legal and regulatory issues pertinent to buildings and construction and reporting directly to the company president.

V. Confirmation of the integrity of buildings affected by the incidents

1. Confirmation of the safety of buildings with off-specification pad footings

Daiwa House has confirmed the safety of the pertinent buildings internally by 1) running structural calculations and 2) testing their foundations, and externally by having the third-party Building Center of Japan check them for safety.

2. Progress on confirmation of the safety of additional buildings uncovered by reinvestigation

With the discovery of further subject properties as announced on 13 May 2019, Daiwa House added 1,885 buildings to the list of properties to be inspected for off-specification footings. It is in the process of verifying the safety of these buildings in the same manner described above. When this work is complete, it will likewise have the Building Center of Japan check the additional 1,885 properties for safety.

3. Confirmation of the safety of buildings with inverted-L support columns

Daiwa House has confirmed the safety of the pertinent buildings internally by 1) running structural calculations and externally by having the third-party Building Center of Japan check them for safety.

4. Remedial work to address code non-conformity of fireproofing

Several remedial methods have been adopted to ensure sufficient fireproofing of properties that did not meet fire-safety standards. To meet fireproofing standards in buildings with standard-specification free-standing columns to support second floor outside corridors, as standard-specification remedy the inverted-L support columns were clad in fireproofing material (fiber-reinforced calcium silicate board) by fixing directly to the columns with adhesive and then applying a noncombustible finishing material to their exteriors.

Cross beams (the beam at the top of the inverted-L) directly supporting second floor outdoor corridors were protected by covering them, as standard-specification remedy, with the same non-combustible finishing material used for the eaves and ceilings of the first-floor corridors.

As of 10 June 2019, remedial work has been completed on all 77 properties with non-conforming fireproofing.

VI. Conclusion

What astonished us of the External Investigative Committee most during the course of our investigation was the sequence of events that led a home builder of Daiwa House Industry's stature as a leading company of housing industry in Japan to so carelessly taken subject false assumptions with regard to how it implemented the type-approved and conformity-certification scheme.

This report already describes the events leading to, the details of, and the causes behind the incidents, so there is no need to reiterate them here; let it suffice to say that we hope Daiwa House will take to heart and reflect with an open mind on how deeply these incidents have hurt the public's trust in it and apply the lessons learned to develop and implement reforms.

End

Disclaimer:

This English translation has been prepared for general reference purposes only. The Company shall not be responsible for any consequence resulting from the use of the English translation in place of the original Japanese text. In any legal matter, readers should refer to and rely upon the original Japanese text of the press release dated June 18, 2019.

Furthermore, the "Investigation Report (Final Report)" referenced in this release is available in Japanese only. For details, please refer to the Japanese original text dated June 18, 2019.