

Revision of the construction business framework

[Level of progress]

Under examination: Details of specific measures are under examination

In progress: Specific measures have been implemented

Completed: Specific measures are completely implemented

The Company will continue to carry out the action once the implementation is completed.

No.	Section	Category	Article	Class	Paragraph	Specific implementation method (as of May 31, 2022)	Time of implementation	Progress		
3	Revision of the construction business framework	A	Improve processes for developing new products, and others.	(1)	Reconstruct legal compliance of examination at the stage of product planning	·The Compliance Promotion Division was added in the approval route and the approval authority rules were updated in Aug 2019. There have been no new products for which the new rules and route have applied.	Completed in Aug 2019	Completed		
				(2)	Realize proper execution management	·As an appropriate checkpoint to enable effective execution management, the Company started to allow to have self-inspection items if needed. From Sep 2019, information on any special requirements for each site have been shared between the Company's internal functions of design and construction supervision, and the external construction contractors. ·The Company made quality standard guidelines (previous construction manual) searchable by the change and to know the change history. The search system operation was prepared from Nov 10, 2020 and was up and running since Nov 20 after organized briefing to the users on Nov 19.	Completed in Nov 2020	Completed		
				(3)	Re-examine compliance during detailed design and preparation of general diagram	(a)	Re-examine compliance during detailed design	·The Company decided that the development process for new products should require approval by the Compliance Promotion Division and the approval authority rules were updated accordingly in Aug 2019. There have been no new products for which the new rules and route have been applied.	Completed in Aug 2019	Completed
						(b)	Prevent inconsistency in the preparation of general diagram	·In order to utilize BIM for detailed design and construction verification in the new product development, the Company began to consider a framework for examination and operation for introducing BIM. BIM introduction is however suspended as it is not fit for low-rise apartment buildings, costly, and it requires trained engineers to handle it. ·At present, the Company got assistance of an external specialist to reestablish the quality standard guidelines (previous construction manual) as an alternative to avoid inconsistency in the general diagram. ·As of Nov 30, 2020 there have been no new products which should be handled with the quality standard document but the rules remain unchanged for the Construction Legal Department to check the compliance.	Completed in Nov 2020	Completed
						(c)	Record preparers of important documents, such as drawings and clarify approval procedures	·In Sep 2019 the Company changed the management methods and rules for changing and updating the general diagrams. It has also established rules to describe the entire history of the document not only mentioning the final preparer but including the approvers. The new rules were put in place and the employees were made aware of the changes.	Completed in Sep 2019	Completed
				(4)	Construction verification/performance verification stages	·The Company decided that the development process for new products should be divided into five major steps in Aug 2019 and established a rule so that each step requires approval by the Compliance Promotion Division, an independent organization. ·The Compliance Promotion Division was added in the approval route and the approval authority rules were updated. The new rules and route have been applied to changes in the existing products but no new products so far.	Completed in Aug 2019	Completed		
				(5)	Construction manual preparation Stage, for prevention of inconsistency between the general diagram and the construction manual	· The Company suspended the preparation to utilize BIM for detailed design and construction verification of new product development and instead asked an external expert to reestablish the quality standard documents (previous construction manual) and involve managers to strengthen the confirmation mechanism. ·The Company made quality standard guidelines (previous construction manual) searchable by the change and to know the change history. The search system operation was prepared from Nov 10, 2020 and was up and running since Nov 20 after organized briefing to the users on Nov 19.	Completed in Nov 2020	Completed		
				(6)	Build a system for the departments in charge of product development to confirm and verify against the Minister's certification and to ensure the construction companies' comprehension of the specifications.	·The construction manuals were revised so that sub-contractors can fully and easily understand the content. Since Aug 2019, Construction Legal Department started training at the Leopalace21 and its sub-contractors partnership meetings for specifications such as fireproof and quasi-fireproof structures for the Minister's certification. The training materials are uploaded on the Company intranet and further training shall be organized. ·The quality standard guidelines are prepared so that the numbers in the guidelines are linked to reference standard so that the construction sub-contractors can understand the specifications. The Company made quality standard guidelines (previous construction manual) searchable by the change and to know the change history. The search system operation was prepared from Nov 10, 2020 and was up and running since Nov 20 after organized briefing to the users on Nov 19.	Completed in Nov 2020	Completed		
				(7)	Product release	·The improved processes are put in place since Aug 2019. There have been no product release or changes in the construction manual. The processes should be applicable to all new product development.	Completed in Aug 2019	Completed		
				B	Review check mechanism at the preparation stage of drawings for confirmation application	·The Company reviewed and started operation of the standard design process in Oct 2019 so that we can secure sufficient time for verifying consistency between the drawings and their compliance to the related laws and regulations. The Company added a reviewed checklist for design drawings in Jan 2020 and started operation in line with reestablishing the confirmation mechanism.	Completed in Oct 2019	Completed		

No.	Section	Category	Article	Class	Paragraph	Specific implementation method (as of May 31, 2022)	Time of implementation	Progress
Revision of the construction business framework		C	Implement proper construction supervision by reviewing the construction supervision system	(1)	Implement field construction supervision for important processes	·In Oct 2019 the Company added an on-site inspection in the construction supervision processes and began operating the on-site inspections for eight important processes. The Company revised the guideline checklist for construction supervision and organized an intensive training by an external consultant since Feb 2020. Through such training sessions across the country and OJT in the field the Company improved the skills of construction supervisors.	Completed in October 2019	Completed
				(2)	Incorporate construction supervision implementation days into the construction management process	·The Company reviewed the standard construction supervising process and started the operation in Oct 2019.	Completed in Oct 2019	Completed
		D	Assure construction quality by implementing proper construction management	(1)	Ensure function of the construction management system by adequately assigning qualified engineers with license	·The Company started the operation in Oct 2019.	Completed in Oct 2019	Completed
				(2)	Implement a third-party process inspection	·In Aug 2019 the Company introduced fire resistance coating inspection as a new third-party inspection item in addition to foundation work, framework assembly, waterproofing work, and parting walls work.	Completed in Aug 2019	Completed
				(3)	Assure and improve construction quality by construction contractors	·In Oct 2019 the Company implemented a step-by-step modification to the process that enables proper implementation of the constructor inspection, field engineer inspection, and inspection by the Construction Legal Department.	Completed in Oct 2019	Completed
				(4)	Provide information to construction contractors	·In Oct 2019 departmental managers participated in the contractors' meeting to introduce the construction quality control system and the new standard construction process so that the Company should be able to establish a framework to avoid construction defects.	Completed in Oct 2019	Completed
				(5)	Incorporate voluntary inspection days into the construction management process	·In Sep 2019 the Company implemented a step-by-step modification to the process that enables proper implementation of the constructor inspection, field engineer inspection, and inspection by the Construction Legal Department.	Completed in Sep 2019	Completed
				(6)	Implement measures to realize proper construction management	·In Sep 2019 the Company employed an external auditing firm to create an environment and a framework that enables proper construction, provide training, and began to improve the construction management system as a whole. ·Since Feb 2020 the Company provided training sessions for construction supervision and finished the systematic approach by completing the revision of the quality standard guidelines. The Company made quality standard guidelines (previous construction manual) searchable by the change and to know the change history. The search system operation was prepared from Nov 10, 2020 and was up and running since Nov 20 after organized briefing to the users on Nov 19.	Completed in Nov 2020	Completed
		E	Implement inspections by Construction Legal Department in Compliance Promotion Division	(1)	Implement inspections concerning construction supervision	·In Oct 2019 the Construction Legal Department finalized inspection items and operation rules. ·The Construction Legal Department conducted inspections in eight construction offices and the headquarters to check the state of construction supervision. After established the internal operation rules, we started to organize the construction supervision training since Oct 2020.	Completed in Oct 2020	Completed
				(2)	Thorough inspections through the triple-check system	·Responsible designated staff of the Construction Legal Department check if the actual construction is in line with the construction manual and design drawings and documents in addition to the voluntary inspections by construction contractors and by field engineers. ·Since Aug 2019 the Company made photographic records to supplement document records based on voluntary inspection results. The Company is currently in the process of verifying the inspection method and its effectiveness. ·As of end of Nov 2020, the Company checked the state of operation and confirmed the completion.	Completed in Nov 2020	Completed
				(3)	Secure proper process management for quality assurance	·In Sep 2019 the Company invited an external consulting firm to discuss with relevant departments with a view to examining effective methods of exercising the authority of the Inspection Section of the Construction Legal Department in relation to the re-execution of inspections and instructions for reviewing the construction schedule. ·As of end of Nov 2020, the Company updated the inspection items in line with the completed quality standard guidelines.	Completed in Nov 2020	Completed
		F	Implement training by Construction Legal Department in Compliance Promotion Division			·The Company decided to hold briefings and training sessions at periodic partnership meetings in 11 regions nationwide on the important themes such as design aims, construction quality, and construction supervision. Since Aug 2019 the Company began training in the respective regions for specifications such as fireproof and quasi-fireproof structures verification for the Minister's certification. The training materials are available on the Company website.	Completed in Aug 2019	Completed