
Safety Management Manual for Construction Projects of KOICA

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Country
Program
Planning Team

[Introductory Remarks]

- KOICA publishes these guidelines to provide systematic procedures and standards for the safety management of construction projects carried out by our agency.
 - KOICA designed this document to reflect the distinctive features of overseas construction projects based on the safety management standards of Korea, which may be applied differently depending on local laws and regulations for each program and put into practice flexibly in consideration of field conditions and other distinctive features.
 - The standards of this document are described below. Matters not referred to in this manual shall be handled according to pertinent laws, regulations, and guidelines. If there is any inconsistency or conflict between this manual and the local safety standards, that inconsistency may be addressed through a separate agreement by and between KOICA and construction managers.
- Construction Technology Promotion Act and Enforcement Rule of the same Act (Ministry of Land, Infrastructure and Transport)
 - Guidelines for Safety Management of Construction Projects (announced by the Ministry of Land, Infrastructure and Transport)
 - Occupational Safety and Health Act (Ministry of Employment and Labor)
 - Procurement and Contract Provisions on External Grant and Cooperation Programs (Korea International Cooperation Agency Act)

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CHAPTER 1

General Conditions

CHAPTER 1

General Conditions

1. Purpose

The purpose of these guidelines is to systematically set out the roles and scope of work for the KOICA, architects, construction managers, contractors, etc. through all stages from the planning stage for the construction project by KOICA to construction completion and to publish and disseminate a manual regarding the safety management work throughout the construction.

2. Scope of Application

- A. This manual shall be applied to construction projects corresponding to one or more of the following criteria which are required to devise safety management plans such as safety inspections and safety management organizations to secure safety under Article 62 of the Construction Technology Promotion Act.
 - 1) Projects containing constructions with a budget of USD 1 million or more or with a gross floor area of 1,000 m² or more
 - 2) Construction projects other than those in Paragraph 1 above, which are recognized explicitly by KOICA as requiring safety management
- B. KOICA may separately determine matters other than those prescribed in this manual in connection with the safety management work of those participating in the safety management of a construction project for their application according to the characteristics of the construction, but those matters, not determined under this manual, shall be subject to pertinent statutes, regulations, and guidelines of a local government.

3. Terminology

- A. Construction project: Refers to every project for essential infrastructure including hospitals, schools, homes, roads, airports, railroads, irrigation facilities, water and sewage facilities, and water storage facilities as well as utilities like electric plants and water treatment facilities prescribed in Article 3(4) of the Procurement and

Contract Provisions on External Grant and Cooperation Programs under the Korea International Cooperation Agency Act.

- B. Safety management participants: Refers to project owners, architects, contractors, and construction managers who must perform safety management work throughout the project, from planning to completion.
- C. Safety management plan: Refers to the safety management plan for construction projects established according to Article 62 of the Construction Technology Promotion Act.
- D. Safety management costs: Expenses incurred in formulating and reviewing a safety management plan; safety inspections; taking measures to prevent damage to neighboring buildings, etc., caused by construction work, such as blasting or excavating; taking measures for safety management of passages around the project site; and expenses used by contractors to prevent industrial accidents and health problems during construction project according to Article 60 of the Enforcement Rule of the Construction Technology Promotion Act, Article 30 of the Occupational Safety and Health Act, and Article 14 of the General Terms and Conditions for International Construction Agreements of the Korea International Cooperation Agency.
- E. Repair: Refers to the mending of functional defects other than bearing capability such as durability and water resistance caused by hazards to a structure.
- F. Reinforcement: Refers to the enhancement of the bearing capability of a structure damaged by hazards such as loads exceeding the design load.
- G. Construction cost: Refers to the total construction cost, minus the land acquisition cost, compensation, legal fees, and value-added tax.
- H. Safety education: Refers to the training delivered to improve understanding of construction methods, promote order in construction, safe construction procedures, etc., for the safety of both the structure and the workers.
- I. Hazards: Refers to risks that negatively impact the safety of the construction or the construction site, nearby structures, etc., and factors denoting the possibility of harm. The hazards of a construction project arise not only during the construction stage but also during the planning and design stages.
- J. Safety management documents: Refer to the documents created by the project owner, architect, contractor, and construction manager to secure construction safety from the planning stage to the completion of a construction project.

4. Composition and Characteristics of this Manual

This manual is composed of 5 different chapters, and each chapter provides statutes and standards necessary for safety management participants for construction projects to perform safety management work to prevent safety-related accidents.

Chapter 1 illustrates the objective and applicable scope of this manual, contains the glossary, composition and characteristics of the manual, pertinent statutes, and guidelines and standards.

Chapter 2 describes the safety management work required for KOICA to perform as the final decision maker for construction projects.

Chapter 3 gives a detailed account of the safety management work that architects are required to perform so as to prevent safety-related accidents.

Chapter 4 depicts the safety management work of contractors that assume the largest responsibility in the safety management tasks of a construction project.

Chapter 5 clarifies the safety management work of construction managers who take up the role as the representatives of the project owner at a construction site.

5. Safety Management Activity and Procedures by Work phase and Participants

- The safety management roles that the project owner (KOICA), architect, contractor, and construction manager are required to perform in each stage from the planning and design to completion of a construction project are illustrated in the following flowchart.

CHAPTER 2

Safety Management Work

CHAPTER 2 Safety Management Work

KOICA shall make decisions regarding various issues arising of a construction project taking into account the safety of the construction site. KOICA shall strive to perform safety management throughout construction projects by observing requirements determined by statutes on construction safety and maintaining an appropriate work environment.

KOICA shall perform the safety management work presented in this manual. However, this work may be carried out with the help of external experts in the field of construction safety, if necessary.

1. Project Planning

1.1 General Safety Management Work

- 1.1.1 KOICA shall be in charge of verifying the proper performance of the work of safety management participants at a construction project site in line with this manual.
- 1.1.2 The work and responsibilities of architects, contractors, construction managers, etc., shall be set and documented starting from the project planning stage based on this manual.

1.2 Hazard Identification

- 1.2.1 KOICA shall identify hazards, hazard sources, and mitigation measures requiring intensive management in the construction project via expert consultation and review of safety management documents contained in the design drawing of similar construction projects.

2. Design Procurement

2.1 Prepare Terms of Reference considering Construction Safety

- 2.1.1 KOICA shall create design requirements for the design specifications (terms of

reference) based on the hazards, hazard sources, and reduction measures for the construction project identified during project planning.

2.1.2 In addition, KOICA shall include the design requirements under each of the following sub-paragraphs in the design specification (terms of reference) to ensure that the design takes into account construction safety. Furthermore, if necessary, KOICA may create design requirements capable of ensuring safety with the help of external experts.

- (1) Hazards arising from the construction methods and procedures utilized in the design must be avoided, removed, or mitigated.
- (2) Safe installation and disassembly of temporary structures installed during the construction stage shall be considered.
- (3) Work shall be safely carried out without any construction procedures conflicting with other procedures at the same workplace.
- (4) Exclusive accesses for repair and cleaning and hatches with easily installable and removable equipment shall be considered to ensure easy facility maintenance.
- (5) Easily-breakable materials shall be minimally used and asbestos and materials containing asbestos shall not be used.
- (6) Existing structures shall remain undamaged during disassembly and repair work.

2.2 Provision of Site Information

2.2.1 When architects are required to identify hazards based on the distinctive features of the site's conditions or which arise from previously performed work according to the Construction Planning Guidelines, KOICA shall provide related data and information.

2.2.2 KOICA shall offer the following site information to architects with the cooperation of the recipient country or organization:

- (1) Matters regarding the existence of asbestos or harmful substances such as chemical waste within the site;
- (2) Matters regarding access to the worksite such as railroads and busy roads adjacent to the site;
- (3) Matters regarding underground facilities and groundwater flows
- (4) Matters regarding adjacent buildings, structures, and trees that may cause a collapse;
- (5) Matters regarding land subsidence that may negatively affect structure;

- (6) Matters regarding obstacles or advantages for the installation of facilities or equipment within the site.

3. Design

3.1 Design Review

3.1.1 KOICA shall review the design specifications for each stage of design to check and verify the observance of each of the following requirements:

- (1) Whether the hazards in the corresponding construction project are continuously identified according to the design requirements of design specifications (terms of reference) and any mitigatory measures are being sought;
- (2) Whether the construction methods and procedures arranged in the design, types of hazards contained in the design, and means to control such risks are all being documented;
- (3) Where the engineers participating in the design stage have sufficient expertise in construction safety, whether any experts in construction safety are participating.

3.1.2 Where any design modification is considered at the request of architects or KOICA, KOICA shall demand that the architects to make sure that the design requirements in the design specifications (terms of reference) are satisfied.

4. Design Completion

4.1 Review of the Final Design Outcomes

4.1.1 KOICA shall identify whether documents containing details described by each of the following sub-paragraphs are available for the final design outcomes and organize them to convey them to the contractor.

- (1) Hazards and risks to construction safety derived during the design stage;
- (2) Matters related to various construction methods and procedures assumed in the design;
- (3) Geotechnical investigation report (if conducted by both the recipient country and KOICA, both shall be included)

4.1.2 Where the final design outcomes do not satisfy the design requirements of the design specifications (terms of reference), KOICA shall request that the architects modify and supplement said outcomes.

- 4.1.3 KOICA should check that the bill of quantity (BoQ) consists of safety management costs (0.5% or more of the total construction costs, excluding non-contingency) as separate items.

5. Construction Procurement and Contracting

5.1 Provision of Information on Preparing Safety Management Plans

5.1.1 KOICA shall provide the following information for the contractor to formulate a safety management plan that reflects the distinctive features of the site conditions and the final design outcome:

- (1) Matters regarding the existence of asbestos or harmful substances such as chemical waste within the site;
- (2) Matters regarding access to the worksite such as railroads and busy roads adjacent to the site;
- (3) Matters regarding underground facilities and groundwater flows
- (4) Matters regarding adjacent buildings, structures, and trees that may cause a collapse;
- (5) Matters regarding land subsidence that may negatively affect structure;
- (6) Matters regarding obstacles or advantages for the installation of facilities or equipment within the site.

5.2 Review of Safety Management Plans

5.2.1 Review of Safety Management Plans

- (1) As for the safety management plan formulated by the contractor, KOICA shall request that the contractor submit a confirmation from the construction manager (CM) including review opinions on the safety management plan prior to the commencement of the construction project (pre-work for construction such as site development and installation of temporary offices shall not be deemed as marking the commencement). The same shall apply to the modification to the safety management plan.
- (2) KOICA shall review the safety management plan submitted by the contractor according to Article 98 (3) of the Enforcement Decree of the Construction Technology Promotion Act under the established standards set out in Article 58 of the Enforcement Rule of the Construction Technology Promotion Act, and

notify the contractor of the results within 20 days.

(3) KOICA shall classify and determine the review results for the safety management plan in the following manner according to Article 98 (5) of the Enforcement Decree of the Construction Technology Promotion Act:

- ① Adequate: When safety measures are accurately and systematically formulated, and safety in executing the construction works is deemed sufficiently ensured;
- ② Conditionally adequate: When the plan does not critically affect the safety but is deemed to require partial supplementation;
- ③ Inadequate: When the plan is likely to cause an accident during construction or when the plan is deemed to have a fundamental defect.

(4) Where the safety management plan has been determined as inadequate pursuant to (3) ③ above, KOICA shall enforce necessary measures such as requiring modification to the safety management plan.

5.2.2 Standards for Safety Management Plans

(1) Safety management plan

- A. Overview of construction projects: A location map, an overview of construction work, and overall work process chart for ascertaining the overview of construction work in a summary
- B. Safety management organization: A management organization chart regarding the construction management organizational structure and its tasks for inspecting and monitoring safety in the construction of facilities and safety of the surroundings of the construction site.
- C. Safety inspection plan for each work process: Matters regarding implementation plans, etc., including the timing for and details of internal and periodic safety inspections, and the safety inspection process chart (including a plan for installing and operating measuring equipment and safety monitoring equipment, such as closed-circuit television systems).
- D. Measures for safety management for the surroundings of a construction site: Matters regarding safety management for the construction site and its surroundings, including the protection of facilities buried underground and neighboring facilities and protection of the ground while performing construction work.
- E. Plan for installing traffic safety facilities and traffic control: Matters regarding traffic safety management, including measures for traffic

controls around the construction site, traffic safety facilities, and measures for preventing traffic accidents.

- F. Plan for disbursing safety management expenses: Matters regarding the amount appropriated for safety management expenses, the details of the calculation, an expenditure plan, etc.
- G. Safety training plan: Matters regarding a safety training plan, training programs, and management of safety training.
- H. Emergency measures plan: Matters regarding an emergency communication network, an emergency mobilization organization, a warning system, first aid measures, restoration, etc., in preparation for an emergency at the construction site.

(2) Detailed Safety Management Plan for works

A. Temporary works:

- An overview of the installation of temporary structures and detailed shop drawings;
- The procedures and precautions for safe construction;
- A safety inspection plan and a safety inspection checklist;
- A calculation sheet for the safety of temporary structures.

B. Excavation and blasting works:

- An overview of excavation, soil sheathing, blasting, and pile driving works; and detailed shop drawings;
- The procedures and precautions for safe construction;
- A safety inspection plan and a safety inspection checklist;
- A calculation sheet for the safety of excavated slopes, backfilling, etc.

C. Concrete works:

- An overview of construction works, including concrete forms, small posts, steel bars, and concrete; and detailed shop drawings;
- The procedures and precautions for safe construction;
- A safety inspection plan and a safety inspection checklist;
- A calculation sheet for the safety of small posts, etc.

D. Steel structure works:

- An overview of materials, equipment, etc.; and detailed shop drawings;
- The procedures and precautions for safe construction;
- A safety inspection plan and a safety inspection checklist;
- A calculation sheet for the safety of temporary structures.

- An overview of materials, equipment, etc.; and detailed shop drawings;
- E. Earth filling and cutting works: (including earth dam works)
 - An overview of materials, equipment, etc.; and detailed shop drawings;
 - The procedures and precautions for safe construction;
 - A safety inspection plan and a safety inspection checklist;
 - A calculation sheet for safety.
- F. Demolition works:
 - An overview of structures to be demolished, demolition methods, etc.; and detailed shop drawings;
 - A plan on the order of demolition, and on facilities and measures for safety, etc.
- G. Mechanical and electrical works:
 - An overview of materials, equipment, etc.; and detailed shop drawings;
 - The procedures and precautions for safe construction;
 - A safety inspection plan and a safety inspection checklist;
 - A calculation sheet for safety.

5.2.3 When the contractor creates or modifies a safety management plan, KOICA shall require the construction manager to review the adequacy of the safety management plan and file a written report to KOICA. In addition, KOICA shall verify the matters pointed out in the safety management plan reported by the construction manager in writing and request the contractor to correct or supplement the plan, if necessary.

5.3 Calculation of Safety Management Expenses

5.3.1 KOICA shall add expenses incurred in formulating and reviewing a safety management plans, in safety inspections, in taking measures to prevent damage to neighboring buildings, etc., caused by construction work such as blasting and excavation, in taking measures for safety management of passages around the project site, and expenses used by contractors to prevent industrial accidents and health problems during construction by contractor for the purposes mentioned above only to the construction expenses according to Article 63 of the Construction Technology Promotion Act, and Article 60 of the Enforcement Rule of the same Act, and Article 30 of the Occupational Safety and Health Act.

5.3.2 Where the safety management expenses are added to the construction expenses, KOICA shall comply with the following standards:

- (1) Amount subject to safety management expenses: Amount excluding reserve funding from the total construction expenses
- (2) Calculation method: **Amount subject to safety management expenses x 0.5% or more**
- (2) Payment of safety management expenses: The contractor shall file a claim for payment of safety management expenses to KOICA along with a confirmation as to the proper disbursement of the safety management expenses to match the purpose prescribed under the safety management plan made by the construction manager.

6. Construction

6.1 Verifying Observance of Safety Management Plans

- 6.1.1 KOICA shall verify the contractor's proper performance of the safety management plan. However, if construction project management, similar to consigned supervision, is being implemented, KOICA may allow the construction manager to verify the performance of the safety management plan and file a report on their own.
- 6.1.2 If there are any issues pointed out by the review of the safety management plan under the immediately preceding paragraph, KOICA shall review said issues and request the contractor make corrections, if necessary.

6.2 Verifying Disbursement of Safety Management Expenses

- 6.2.1 KOICA shall verify whether the safety management expenses are spent to meet the disbursement standards. However, if construction project management such as the consigned supervision for the corresponding construction project is being implemented, KOICA shall direct the construction manager to review the adequacy of the settlement data according to the safety management activities and file a report.

6.3 Verifying Safety Inspections

- 6.3.1 KOICA shall direct the construction manager and contractor to conduct safety inspections according to each of the following retirements:
 - (1) Conduct self-imposed safety inspections each day during the construction

period;

- (2) Conduct regular safety inspections according to the timing and frequency prescribed under the safety management plan;
- (3) Conduct thorough safety inspections if physical and functional defects are found in the construction project as a result of the regular safety inspection, and thus measures such as repairs and reinforcement are required.

6.4 Verifying Investigation Results for Safety-related Accidents on Construction Sites and the Results of Enforced Measures

- 6.4.1 In the event of a safety-related accident on the worksite of the corresponding construction project, KOICA shall require the contractor to enforce necessary emergency measures.
- 6.4.2 In the event of a safety related accident, KOICA shall direct the construction manager to conduct an investigation into the cause to determine the principal wrongdoer, and report the results and measures enforced to KOICA in writing.

CHAPTER 3

Safety Management Work in the Design Phase

CHAPTER 3 Safety Management Work in the Design Phase

Decisions made by architects significantly impact the construction project as well as construction safety. However, it is well known that architects have traditionally focused on the safety of end-users during the process of creating design alternatives, overlooking safety during construction of the project.

Nevertheless, the safety of a construction project may be improved if the architect considers the safety of workers and constructions to the extent that other design elements such as functionality and aesthetics are not affected, or if the hazards not reflected in the design are communicated to the contractor.

Therefore, architects shall be the first to identify the hazards for construction safety, and shall actively strive to create designs that ensure that constructions and workers are not exposed to unnecessary hazards.

1. Design Procurement

1.1 Reviewing and Verifying Design Conditions

1.1.1 An architect shall identify and review the characteristics of the corresponding site with a focus on the following details before the design commencement:

- (1) Matters regarding access to the worksite such as railroads and busy roads adjacent to the site;
- (2) Matters regarding underground facilities and groundwater flows
- (3) Matters regarding adjacent buildings, structures, and trees that may cause a collapse;
- (4) Matters regarding land subsidence that may negatively affect structure;

1.1.2 An architect shall identify and review the requirements for safety management specified in the design requirements of the design specifications (terms of reference) of KOICA.

1.1.3 Even in the case where the terms of reference of KOICA specify no particular safety management requirements, an architect shall review and verify the

requirements under pertinent laws and regulations.

2. Design

2.1 Design Reflecting Construction Safety

2.1.1 Based on the design requirements under the design specifications (terms of reference), the architect shall determine hazards which could be potentially fatal during the design process and consider mitigatory measures to reduce such hazards according to the following order of priority:

- (1) Removal of hazards;
- (2) Creation of a design that reduces the prevalence of hazards to the extent that other design elements such as functionality and aesthetic are not infringed;

2.1.2 Efforts shall be made to ensure that the design for safety observes each of the following standards:

- (1) Hazards arising from the construction methods and procedures utilized in the design must be avoided, removed, or mitigated.
- (2) Safe installation and disassembly of temporary structures installed during the construction stage shall be considered.
- (3) Work shall be safely carried out without any construction procedures conflicting with other procedures at the same workplace.
- (4) Exclusive accesses for repair and cleaning and hatches with easily installable and removable equipment shall be considered to ensure easy facility maintenance.
- (5) Easily-breakable materials shall be minimally used and asbestos and materials containing asbestos shall not be used.
- (6) Existing structures shall remain undamaged during disassembly and repair work.

2.1.3 The architect shall have the construction methods and procedures determined in the design, the remaining hazards, and means for controlling such hazards well organized in the design document drawings or specifications.

2.1.4 The principal architect shall conduct meetings with architects from each work classification to consult the design for safety.

2.1.5 Architects with expertise in a corresponding field shall participate to ensure that he/she has a clear understanding of construction methods and procedures to provide a design that considers hazards and promotes safety.

2.1.6 In the event that the architect has an insufficient understanding of the construction methods and procedures or lacks expertise in safety, a construction safety expert may be allowed to participate in the design process.

2.2 Mutual Cooperation Architects by Work Classification

2.2.1 The original architect shall cooperate with architects from different work classifications according to each of the following methods:

- (1) Application of assessment methods for common hazards and risks to safety;
- (2) Holding regular meetings with architects from different work classifications;
- (3) Periodic cross-checking of designs.

2.3 Reporting Design Descriptions

2.3.1 The architect shall regularly report each of the following details to KOICA:

- (1) Continuous reduction of hazards and risks to safety in the corresponding construction according to the design requirements under the design specifications (terms of reference) and consideration of relevant reduction measures;
- (2) Documentation on the construction methods and procedures, types of hazards remaining in the design, and means for controlling such hazards while designing making assumptions as to the field conditions;
- (3) If different architects have participated from each work classification, there should be a uniform application of hazard designation and assessment standards;
- (4) Holding consultative meetings with architects from different work classifications so as to reflect matters taking into account the safety of construction in the design phase.
- (5) If the engineers participating in the design stage lack expertise in construction safety, an expert in construction safety shall be brought in to participate.

2.4 Bill of Quantity

2.4. The architect shall separate and reflect the items of safety management expenses when preparing the bill of quantity in the design document.

CHAPTER 4

Safety Management Work for Contractors

CHAPTER 4 Safety Management

Work for Contractors

The decisions made by the contractor regarding construction safety directly affects the construction project. If the contractor gives thorough consideration to the safety of workers and the construction object to the extent that other construction objectives such as construction schedule, construction cost, and quality are not infringed, safety-related accidents may be prevented or reduced. Therefore, KOICA and construction manager shall ensure that the contractor performs the safety management work presented in this manual to prevent any safety-related accidents.

1. Construction Procurement and Contracting

1.1 Work Allocation among Safety Management Personnel on Construction Sites

1.1.1 Since a contractor holds the primary responsibility regarding the safety management of the construction project worksite, the contractor shall take charge of verifying whether the construction project work of the safety management personnel in the following sub-paragraphs are properly carried out:

- (1) Safety supervisor who is in charge of the construction and safety work for the corresponding construction project;
- (2) Safety management personnel by field in charge of construction and safety management for each field of civil engineering, construction, electricity, machinery, facilities, etc.;
- (3) Members of a consultative body composed of subcontractors and sub-subcontractors.

1.2 Verifying Information on Creating Safety Management Plans

1.2.1 In order to create a safety management plan for the unique features of the site conditions and hazards remaining in the design, the contractor shall verify each of the following details:

- (1) Matters regarding access to the worksite such as railroads and busy roads adjacent to the site;

- (2) Matters regarding underground facilities and groundwater flows
- (3) Matters on the adjacent buildings, structures, and trees that may cause a collapse;
- (4) Matters regarding land subsidence that may negatively affect structure;
- (5) Matters regarding obstacles or advantages for the installation of facilities or equipment within the site.
- (6) Other requirements specified under pertinent laws and regulations.

1.3 Creation and Submission of Safety Management Plans

- 1.3.1 The contractor shall create a safety management plan attached with a confirmation of the construction manager including his/her review opinion as to the safety management plan and submit the said documents to KOICA before the construction commencement. The same shall apply to the case where the safety management plan becomes modified (excluding minor matters not corresponding to the modification of construction methods, etc.).
- 1.3.2 The contractor shall create the safety management plan by classification according to the work classification, obtain approval of the construction manager before the commencement of the work under the corresponding classification, and furnish them at work sites.
- 1.3.3 The contractor shall submit a written report as to the implementation status of the safety management plan to the construction manager.
- 1.3.4 The safety management plan shall be formulated in the following manner:
 - (1) Safety management plan
 - A. Overview of construction projects: A location map, an overview of construction work, and overall work process chart for ascertaining the entire construction work in a summary
 - B. Safety management organization: A management organization chart regarding the construction management organizational structure and its tasks for inspecting and monitoring safety in the construction of facilities and safety of surroundings of the construction site.
 - C. Safety inspection plan for each work process: Matters regarding implementation plans, etc., including the timing for and details of internal safety inspections and periodic safety inspections, and a safety inspection process chart.
 - D. Measures for safety management for the surroundings of construction site: Matters regarding safety management for the construction site and its

surroundings, including the protection of facilities buried underground and neighboring facilities and the protection of the ground while performing construction work.

- E. Plan for installing traffic safety facilities and traffic control: Matters regarding traffic safety management, including measures for traffic control around the construction site, traffic safety facilities, and measures for preventing traffic accidents.
- F. Plan for disbursing safety management expenses: Matters regarding the amount appropriated for safety management expenses, the details of the calculation, an expenditure plan, etc.
- G. Safety training plan: Matters regarding a safety training plan, the kind and subjects of training programs, and managing training.
- H. Emergency measure plan: Matters regarding an emergency communication network, an emergency mobilization organization, a warning system, first aid measures, restoration, etc. in preparation for an emergency at the construction site.

(2) Detailed Safety Management Plan for Each Structure (it may be submitted before commencing the relevant construction works)

A. Temporary construction works

- An overview of the installation of temporary structures and detailed shop drawings;
- The procedures and precautions for safe construction;
- A safety inspection plan and a safety inspection checklist;
- A calculation sheet for the safety of temporary structures.

B. Excavation works and blasting works

- An overview of excavation, soil sheathing, blasting, and pile driving works; and detailed shop drawings;
- The procedures and precautions for safe construction;
- A safety inspection plan and a safety inspection checklist;
- A calculation sheet for the safety of excavated slopes, backfilling, etc.

C. Concrete works

- An overview of construction works, including concrete forms, small posts, steel bars and concrete; and detailed shop drawings;
- The procedures and precautions for safe construction;
- A safety inspection plan and a safety inspection checklist;
- A calculation sheet for the safety of small posts, etc.

D. Steel structure works

- An overview of materials, equipment, etc.; and detailed shop drawings;
- The procedures and precautions for safe construction;
- A safety inspection plan and a safety inspection checklist;
- A calculation sheet for the safety of steel structures.

E. Earth filling and cutting works (including earth dam works)

- An overview of materials, equipment, etc.; and detailed shop drawings;
- The procedures and precautions for safe construction;
- A safety inspection plan and a safety inspection checklist;
- A calculation sheet for safety.

F. Demolition works

- An overview of structures to be demolished, demolition methods, etc.; and detailed shop drawings;
- A plan on the order of demolition, and on facilities and measures for safety, etc.

G. Mechanical and electrical works:

- An overview of materials, equipment, etc.; and detailed shop drawings;
- The procedures and precautions for safe construction;
- A safety inspection plan and a safety inspection checklist;
- A calculation sheet for safety.

1.4 Creation of Safety Management Expense Spending Plans

1.4.1 The contractor shall make a spending plan for safety management expenses by adding expenses incurred in formulating and reviewing a safety management plans, in safety inspections, in taking measures to prevent damage to neighboring buildings, etc. caused by construction works, such as blasting and excavation, in taking measures for safety management of passages around the project site, and expenses used by contractors to prevent industrial accidents and health problems during construction by contractor for the aforementioned purposes only to the construction expenses pursuant to Article 63 of the “Construction Technology Promotion Act”, and Article 60 of the Enforcement Rule of the same Act, and Article 30 of the “Occupational Safety and Health Act”.

- (1) Amount subject to safety management expenses: Amount excluding reserve fund from the total construction expenses
- (2) Calculation method: **Amount subject to safety management expenses x 0.5% or more**

- (3) The calculated amount and disbursement plan for safety management expenses attached with a confirmation of the construction manager shall be submitted to KOICA before breaking of ground.

2. Construction

2.1 Performance of Safety Management Plans

- 2.1.1 The contractor shall perform the safety management work at the construction site pursuant to the safety management plan.
- 2.1.2 The contractor shall submit a written report as to the implementation status of the safety management plan to the construction manager.

2.2 Disbursement of Safety Management Expenses

- 2.2.1 The contractor shall create the disbursement status of safety management expenses for each quarter according to the progress on the construction.
- 2.2.2 The contractor shall ensure that safety management expenses are spent for the set purpose only, and shall regularly report to the construction manager regarding the disbursement performance for safety management expenses according to the safety management activities.
- 2.2.3 The contractor shall request the safety management cost by attaching the confirmation from the construction management engineer.

2.3 Implementation of Safety Education

- 2.3.1 The contractor shall establish the safety education plan with focus placed on each of the following details pursuant to Article 65 of the “Construction Technology Promotion Act” and deliver safety education accordingly:
- (1) Discovery of the need for education;
 - (2) Decision as to the education target, details, and methods;
 - (3) Education preparation;
 - (4) Education delivery;
 - (5) Education assessment.
- 2.3.2 The contractor shall deliver safety education with focus placed on each of the following details according to the safety education plan:
- (1) Statistics and information on safety-related accidents;

- (2) Matters regarding the quality of workers;
- (3) Matters regarding safety management organizations;
- (4) Matters regarding safety systems, standards, and procedures;
- (5) Matters regarding production processes and techniques;
- (6) Detailed construction orders according to the detailed shop drawings and precautions to take for construction techniques;
- (7) Matters regarding pertinent statutes.

2.3.3 The contractor shall record and manage the safety education details and regularly report the safety education performance to the construction manager.

2.4 Implementation of Safety Inspections

2.4.1 The contractor shall conduct safety inspections according to each of the following classifications on its own or by requesting at construction safety inspection agencies:

- (1) Conduct self-safety inspections each day during the construction period;
- (2) Conduct regular safety inspections according to the timing and frequency prescribed under the safety management plan;
- (3) Conduct precise safety inspections if physical and functional defects are found in the construction project as a result of the regular safety inspection, and thus measures such as repairs and reinforcement are required.

2.4.2 The contractor shall use the self- and periodic safety inspection checklist during the construction period of a project and conduct self-safety inspections. The items to be inspected may be added according to the circumstances of the worksite.

2.4.3 The contractor shall promptly perform the measures according to the results of the self-safety inspection, and shall periodically file pertinent reports to the construction manager.

2.4.4 Where the structural stability as to the fatal physical and functional defects or causes of such defects in the facilities are found in the regular safety inspection for each process, the contractor shall conduct a precision investigation, measurement, and assessment to present means such as repair and reinforcement.

2.5 Emergency Mobilization for Safety-related Accidents and Emergency Measures

2.5.1 Where a safety related accident takes place in the worksite of the construction project, the contractor shall immediately enforce necessary emergency measures

and report the branch head of KOICA (or construction manager in the corresponding region) and the construction manager of such accident.

2.6 Attachment of Health and Safety Labels

2.6.1 Contractor shall strive to attach health and safety labels to the locations, facilities or objects that are easily noticeable by workers.

2.6.2 The labels shall be, in principle, written in both English and the local language for multinational workers, the displayed language shall be determined via mutual consultation of the local branch of KOICA and the construction manager.

2.6.3 The examples of health and safety labels are as follows:

1 Prohibition sign	No entry No pedestrians No vehicle allowed No use No Smoking No open fire No goods transport allowed
2 Warning sign	Warning: Flammable material Warning: Oxidizing Warning: Explosive Warning: Acute toxic Warning: Radioactive Warning: high-tension electricity Warning: Hanging objects Warning: Falling objects Warning: Low temperature Warning: Loss of body balance Warning: Laser rays Warning: Carcinogen, Mutagen, Reproductive toxic, Systemic toxic agent, Respiratory irritant
3 Instruction sign	Wear eye protection Gas mask Wear dustproof mask Wear face protection Wear ear protection Wear foot protection Wear hand protection Wear protective clothing
4	Green Cross sign Emergency relief sign Stretcher Eyewash

CHAPTER 5

Safety Management Works for the Construction Manager

CHAPTER 5 Safety Management Works for the Construction Manager

project management work as part of the construction project management subcontractor pursuant to Article 26 of the “Construction Technology Promotion Act”.

The construction manager shall be in charge of his/her role as a representative of KOICA at the worksite. The construction manager's main task is to review whether the decisions of the contractor has been correctly made for the construction safety to the extent other construction objectives such as construction schedule, construction cost, and quality are not infringed. As such, the task of the construction manager allows the prevention or reduction of safety-related accidents.

Therefore, KOICA and shall ensure that the construction manager performs the safety management work presented in this manual so as to prevent any safety-related accidents.

1. Before Construction Commencement

1.1 Reviewing Adequacy of Work Allocation among Safety Management Personnel on Construction Sites

1.1.1 The construction manager shall review whether the safety management organization created by contractor and safety management work assigned for each of the following safety management personnel at the construction site satisfy legal requirements:

- (1) Safety supervisor who takes charge of the construction and safety work for the corresponding construction project;
- (2) Safety management personnel by field in charge of construction and safety management for each field of civil engineering, construction, electricity, machinery, and facilities, etc.;
- (3) Members of a consultative body composed of subcontractors and sub-subcontractors.

1.2 Review and Verification of Safety Management Plans for Construction

Projects

- 1.2.1 The construction manager shall review and verify the adequacy of safety management plan created by the contractor pursuant to Article 98 and Article 99 of the “Enforcement Decree of the Construction Technology Promotion Act” and in the event any matters require supplementation, the construction manager shall ensure that the contractor to make such supplementation.

2. Construction

2.1 Verifying Performance of Safety Inspections

- 2.1.1 The construction manager shall verify whether the safety measures, inspections, etc. are carried out according to the safety management plan for the construction project, and ensure that contractors who have failed to perform such duties to implement safety measures, inspections, etc. prior to the construction commencement.
- 2.1.2 The construction manager shall verify whether the contractor has conducted a self-safety inspection.
- 2.1.3 The construction manager shall review the safety inspection results submitted by the contractor and report the corresponding details to KOICA, before requesting the contractor to implement measures under the direction of KOICA.

2.2 Verifying Disbursement of Safety Management Expenses

- 2.2.1 The construction manager shall verify whether the safety management expenses are used to serve the purpose prescribed under the safety management plan for the construction project.
- 2.2.2 The construction manager shall guide and verify the matters regarding the disbursement of safety management expenses for the construction project.
- 2.2.3 The construction manager shall confirm the safety management cost provided by contractor and it should be calculated in final payment.

2.3 Safety Management

- 2.3.1 The construction manager shall ensure that safety organizations are formed to promote safe construction of the project and structured suitable for the work site scale and work details, and shall report such information to KOICA.
- 2.3.2 The construction manager shall review and verify the adequacy of safety

management plan created by contractor pursuant to Article 98 and Article 99 of the “Enforcement Decree of the Construction Technology Promotion Act” and in the event any matters require supplementation, the construction manager shall ensure that the contractor to make such supplementation to the plan.

2.3.3 The construction manager shall remain fully committed to the guidance regarding all types of safety management to prevent industrial accidents, while at the same time, he/she shall perform each of the following tasks so as to comply with safety-related statutes applied to the recipient country.

- (1) Reviewing the legal satisfaction of the safety organization formation and assignments of the contractor and substantive activities;
- (2) Reviewing the assignment performance capability and granted authority of safety managers;
- (3) Establishment of a safety plan associated with the construction plan and reviewing its effectiveness;
- (4) Reviewing whether the safety inspection and safety education plans have been formulated and their adequacy;
- (5) Reviewing the adequacy of the safety management budget compilation and disbursement plan;
- (6) Reviewing the availability of safety management regulations at the worksite and the adequacy of their details;
- (7) The safety management expenses are available for use to serve any other purposes;
- (8) Implementation of the safety education plan (in-house safety education and occupational training);
- (9) Implementation of safety measures for dangerous locations and work.
(work at height, work with a danger of falls, work with a danger of dropping and flying objects, blasting work, work handling heavyweight objects, work handling electrical facilities, work with fire hazards, dangerous work handling construction machinery, etc.);
- (10) Attachment and maintenance of safety labels;
- (11) Securing safety passage, stacking and organization, and materials;
- (12) Accident investigation and causal analysis, and preservation of various statistical data;
- (13) Verifying monthly use of safety management expenses.

2.3.4 The construction manager shall ensure that contractor records and maintains each

of the following data so as to perform tasks related to safety:

- (1) Daily safety records (daily report);
- (2) Performance of safety inspections (may be included in the daily safety records);
- (3) Safety education (may be included in the daily safety records);
- (4) Reporting of various accidents;
- (5) Disbursement of safety management expenses (frequent inspection and verification).

2.3.5 The construction manager shall verify whether the safety measures, inspections, etc., are carried out according to the safety management plan for the construction project, and ensure that contractors who have failed to perform such duties to implement safety measures, inspections, etc. prior to the construction commencement.

2.4 Handling Accidents

2.4.1 In the event of an accident at work site, the construction manager shall ensure that the contractor immediately enforces necessary emergency measures and report such details to KOICA along with a detailed account and review opinion regarding the said accident.