

Ministerial Order for the Technical Standards for Port and Harbour Facilities

(Order of the Ministry of Land, Infrastructure, Transport and Tourism No. 15 of
March 26, 2007)

Based on the provisions of Article 56-2-2, paragraph (1) of the Port and Harbour Act (Act No. 218 of 1950), this Order amends all provisions of the Order for the Technical Standards for Port and Harbour Facilities (Ministry of Transport Order No. 30 of 1974) as follows.

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Chapter I General Provisions

(Definitions of Terms)

Article 1 The terms used in this Order are to follow the definitions in the Port and Harbour Act (Act No. 218 of 1950) and the terms listed in the following items are to have the meanings defined in the respective items:

- (i) "performance requirements" mean the performance required for facilities subject to the technical standards;
- (ii) "variable waves" mean the waves having a high possibility of occurrence among those expected to occur at places where facilities subject to the technical standards are installed during the design working life (the period during which the facilities continue to satisfy its performance requirements; the same applies hereinafter) of the facilities;
- (iii) "accidental waves" mean the waves having a very low possibility of occurrence among those expected to occur at places where facilities subject to technical standards are installed during the design working life of the

- facilities, but having a large influence on the facilities when they occur;
- (iv) "level 1 earthquake ground motions" mean the earthquake ground motions having a high possibility of occurrence, among those expected to occur at places where facilities subject to the technical standards are installed, judging from the relationship between the recurrence intervals of earthquake ground motions and the design working life of the facilities;
 - (v) "level 2 earthquake ground motions" mean the earthquake ground motions having an intensity of the maximum scale among those expected to occur at places where the facilities subject to the technical standards are installed; and
 - (vi) "high earthquake-resistance facilities" mean the facilities subject to the technical standards designated as the countermeasure facilities against large-scale earthquakes as specified in Article 16 of the Ministerial Order for Setting Fundamental Matters on Port and Harbour Planning (Order of the Ministry of Transport No. 35 of 1974), or the facilities subject to the technical standards required to have an equivalent function when large-scale earthquakes occur.

(Design of Facilities Subject to the Technical Standards)

- Article 2 (1) The facilities subject to the technical standards are to be properly designed to satisfy their performance requirements and to avoid adverse effects on their structural stability during construction while taking into account environmental conditions, usage conditions, and other conditions which the facilities are subject to.
- (2) The design of facilities subject to the technical standards is to be made by properly setting their design working life.
 - (3) Beyond what is prescribed in the preceding two paragraphs, the necessary matters for designing the facilities subject to the technical standards are provided by public notice.

(Construction of Facilities Subject to the Technical Standards)

- Article 3 The facilities subject to the technical standards are to be properly constructed based on the construction standards provided by public notice to satisfy their performance requirements, while taking into account environmental conditions, usage conditions, and other conditions which the facilities are subject to.

(Maintenance of Facilities Subject to the Technical Standards)

- Article 4 (1) The facilities subject to the technical standards are to be properly maintained based on the maintenance and management plan so that the facilities satisfy their performance requirements throughout their working life.

- (2) In maintaining the facilities subject to the technical standards, environmental conditions, usage conditions, and other conditions which the facilities are subject to, and structural characteristics, and material characteristics, etc. are to be taken into account.
- (3) In maintaining the facilities subject to the technical standards, necessary maintenance work is to be appropriately carried out upon appropriately conducting inspection and diagnosis of the damage, degradation, and other changes in the state of the facilities and a comprehensive evaluation based on their results pertaining to the maintenance of the whole facilities.
- (4) In maintaining the facilities subject to the technical standards, well-defined operational manuals are to be established and other measures for hazard prevention are to be appropriately taken so that the facilities and other facilities surrounding them may be safely used.
- (5) Beyond what is prescribed in the preceding paragraphs, necessary matters for the maintenance of facilities subject to the technical standards are provided by public notice.

(Environmental Consideration)

- Article 5 (1) In designing, constructing, or maintaining facilities subject to the technical standards, consideration is to be made to preserve the natural environments around the port and harbour, to create a good landscape of the port and harbour, and to ensure the safety of the port area by taking into account the environmental conditions, usage conditions, and other conditions which the facilities are subject to.
- (2) In installing facilities subject to the technical standards which will be used by an unspecified large number of people, consideration is to be made on the safe and smooth usage of the facilities by elderly persons, disabled persons, and other persons whose daily life or life in society is restricted due to physical disabilities by taking into account environmental conditions, usage conditions, and other conditions which the facilities are subject to.

(Necessary Matters for Setting Up Environmental and Other Conditions)

- Article 6 The necessary matters for setting up the environmental conditions, usage conditions, and other conditions for the facilities in designing, constructing, and maintaining the facilities subject to the technical standards are provided by public notice.

(Performance Requirements for Structural Members Comprising the Facilities Subject to the Technical Standards)

- Article 7 (1) The performance requirements for structural members comprising the facilities subject to the technical standards are to be that the functions of

the facilities are not impaired and their continued use is not affected by damage due to the actions of self-weight, earth pressure, water pressure, variable waves, water currents, level 1 earthquake ground motions, collision with floating objects, or other actions in light of the conditions of the facilities during construction and when in service.

- (2) Beyond what is prescribed in the preceding paragraph, the performance requirements for the structural members comprising the facilities for which there is a risk of serious impact on human lives, property, or socioeconomic activities due to damage to the facilities are prescribed in the following items:
- (i) in the cases the function of the facilities are impaired by damage due to tsunamis, accidental waves, level 2 earthquake ground motions, and other actions, the structural stability of the facilities is not to be seriously affected; provided, however, that the performance requirements for the structural members comprising the facilities in which further improvement of performance is necessary due to environmental conditions, social circumstances and other reasons which the facilities are subject to, the damage due to those actions does not affect the functional recovery of the facilities through minor repair work; and
 - (ii) for the performance requirements for structural members comprising facilities which are required to protect the landward side of the facilities from tsunamis, the damage due to tsunamis, level 2 earthquake ground motions, or other actions does not affect the functional recovery of the facilities through minor repair work.
- (3) Beyond what is prescribed in paragraph (1), the performance requirements for the structural members comprising high earthquake-resistance facilities are to be that the damage due to level 2 earthquake ground motions or other actions do not affect the functional recovery through minor repair work required for the facilities in the aftermath of the occurrence of level 2 earthquake ground motions; provided, however, that the performance requirements for the structural members comprising the facilities for which further earthquake-resistant performance is required due to environmental conditions and social circumstances surrounding the facilities are to be that the damage does not impair the functions required for the facilities in the aftermath of the occurrence of level 2 earthquake ground motions and does not affect their continued use.
- (4) Beyond what is prescribed in the preceding three paragraphs, necessary matters concerning the performance requirements for the structural members comprising facilities subject to the technical standards are provided by public notice.

Chapter II Harbour Facilities

(General Provisions)

Article 8 (1) Harbour Facilities are to be installed in appropriate locations in light of geotechnical characteristics, meteorological characteristics, sea states, and other environmental conditions, as well as navigation of ships and other usage conditions of the water area around the facilities.

(2) In the Harbour Facilities where it is necessary to maintain the calmness of the water area, measures to prevent the impact of waves, water currents, winds, etc. are to be taken.

(3) In Harbour Facilities where there is risk of burial by sediments, measures to prevent the occurrence is to be taken.

(Performance Requirements for Waterways)

Article 9 The performance requirements for waterways are to satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism in light of geotechnical characteristics, waves, water currents, and wind conditions and the usage conditions of the surrounding water areas, for securing the safe and smooth navigation of ships.

(Performance Requirements for Anchorages)

Article 10 The performance requirements for anchorages are to satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism in light of geotechnical characteristics, waves, water currents, and wind conditions and the usage conditions of the surrounding water areas, for the purpose of securing safe and smooth use by ships.

(Performance Requirements for Berthages for Small Boats)

Article 11 The performance requirements for berthages for small boats are to satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism in light of geotechnical characteristics, waves, water currents, and wind conditions and the usage conditions of the surrounding water areas, for the purpose of securing safe and smooth use by ships.

(Necessary Matters concerning Harbour facilities)

Article 12 The necessary matters on the requirements for harbour facilities prescribed in this Chapter as specified by the Minister of Land, Infrastructure, Transport and Tourism and other performance requirements are provided by public notice.

Chapter III Protective Facilities for Harbours

(General Provisions)

Article 13 Protective facilities for harbours are to be installed in appropriate locations in light of geotechnical characteristics, meteorological characteristics, sea states, and other environmental conditions, navigation of ships, and other usage conditions of the water areas around the facilities.

(Performance Requirements for Breakwaters)

Article 14 (1) The performance requirements for breakwaters are specified in the following items in accordance with their structure type for the purpose of securing safe navigation, anchorage and mooring of ships, ensuring smooth cargo handling, and preserving the buildings, structures, and other facilities by maintaining the calmness in the water area of the port and harbour:

- (i) breakwaters satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable reduction of the height of waves that break into the port and harbour; and
- (ii) damage to a breakwater due to self-weight, variable waves, level 1 earthquake ground motions, or other actions does not impair the functions of the breakwater and does not affect its continued use.

(2) Beyond what is prescribed in the preceding paragraph, the performance requirements for breakwaters prescribed in the following items are specified in the respective items:

- (i) the performance requirements for a breakwater which is required to protect the hinterland of the breakwater from storm surges or tsunamis: the breakwater satisfies the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable appropriate reduction of the rise in water level and flow velocity due to storm surges or tsunamis in the port and harbour;
- (ii) the performance requirements for a breakwater which is provided for use by an unspecified large number of people: the breakwater satisfies the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to ensure the safety of the users of the breakwater; and
- (iii) the performance requirements for a breakwater where there is a risk of serious impact on human lives, property, or socioeconomic activities due to damage to the breakwater: the damage from tsunamis, accidental waves, level 2 earthquake ground motions or other actions do not have a serious impact on the structural stability of the breakwater in accordance with the structural type of the breakwater even when the functions of the breakwater have been impaired; provided, however, that for the performance requirements for the breakwater which is required to protect the hinterland of the breakwater from tsunamis, the damage due to tsunamis, level 2 earthquake ground motions or other actions does not affect the functional

recovery of the breakwater through minor repair work.

(Performance Requirements for Sediment Control Groins)

Article 15 (1) The performance requirements for sediment control groins are to satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism to enable control of drift sand for the purpose of preventing the harbour facilities from becoming buried by drift sand.

(2) The provisions of paragraph (1), item (ii) of the preceding Article apply *mutatis mutandis* to the performance requirements for sediment control groins.

(Performance Requirements for Seawalls)

Article 16 (1) The performance requirements for seawalls are specified in the following items for the purpose of protecting their hinterland in accordance with their structure types:

- (i) seawalls satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable protection of the hinterland of the seawall from waves and storm surges; and
- (ii) damage due to self-weight, earth pressure, variable waves, and level 1 earthquake ground motions, or other actions does not impair the functions of the seawall and does not affect its continued use.

(2) Beyond what is prescribed in the provisions of the preceding paragraph, the performance requirements for seawalls where there is a risk of serious impact on human lives, property, or socioeconomic activities due to damage to the seawall are prescribed in the following items in accordance with its structure type:

- (i) the performance requirements for a seawall which is required to protect the hinterland of the seawall from tsunamis or accidental waves are to satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable protection of the hinterland of the seawall from tsunamis or accidental waves;
- (ii) damage due to tsunamis, accidental waves, level 2 earthquake ground motions, or other actions does not have a serious impact on the structural stability of the seawall, even when the functions of the seawall are impaired; provided, however, that for the performance requirements for a seawall which requires further improvement of its performance due to environmental conditions, social circumstances, or other conditions which the seawall is subject to, the damage due to those actions does not affect the functional recovery of the seawall through minor repair work.

(Performance Requirements for Training Jetties)

Article 17 (1) The performance requirements for training jetties are to satisfy

the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism to enable the control of drift sand for the purpose of preventing the harbour facilities from becoming buried and preventing closure of the river mouth by drift sand .

- (2) The provisions of Article 14, paragraph (1), item (ii) apply *mutatis mutandis* to the performance requirements for training jetties.

(Performance Requirements for Sluices)

Article 18 (1) The performance requirements for sluices are specified in the following items for the purpose of protecting the hinterland of the sluice from inundation and draining unnecessary inland water:

- (i) Sluices satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable prevention of overflow due to storm surges;
- (ii) Sluices satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable protection of the hinterland from inundation and draining unnecessary inland water; and
- (iii) damage due to self-weight, water pressure, variable waves, level 1 earthquake ground motions, or other actions does not impair the functions of the sluice and does not affect its continued use.

- (2) Beyond what is prescribed in the preceding paragraph, the performance requirements for sluices where there is a risk of serious impact on human lives, property, or socioeconomic activities due to damage to the sluices are to be prescribed in the following items in accordance with their structure types:

- (i) the performance requirements for sluices which are required to protect the hinterland of the sluices from tsunamis or accidental waves satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable protection of the hinterland of the sluices from overflows by tsunamis or accidental waves;
- (ii) damage due to tsunamis, accidental waves, level 2 earthquake ground motions, or other actions does not have a serious impact on the structural stability of the sluices, even when the functions of the sluices are impaired; provided, however, that for the performance requirements for sluices which require further improvement in the performance due to environmental conditions, social circumstances, or other conditions which the sluices are subject to, the damage due to those actions does not affect the functional recovery of the sluices through minor repair work.

(Performance Requirements for Locks)

Article 19 (1) The performance requirements for locks are to satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and

Tourism for the purpose of enabling the safe and smooth navigation of ships between the water areas having different water levels.

- (2) The provisions of paragraph (1), items (i) and (iii), and paragraph (2) of the preceding Article apply mutatis mutandis to the performance requirements for locks.

(Performance Requirements for Revetments)

Article 20 (1) The provisions of Article 16 apply mutatis mutandis to the performance requirements for revetments.

- (2) Beyond what is prescribed in the preceding paragraph, the performance requirements for revetments to be used by an unspecified large number of people are to satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to secure the safety of the users of the revetment.

(Performance Requirements for Dikes)

Article 21 The provisions of Article 16 apply mutatis mutandis to the performance requirements for dikes.

(Performance Requirements for Groins)

Article 22 (1) The performance requirements for groins are to satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism to enable control of drift sand for the purpose of preventing the impact of drift sand.

- (2) The provisions of Article 14, paragraph (1), item (ii) apply mutatis mutandis to the performance requirements for groins.

(Performance Requirements for Parapets)

Article 23 The provisions of Article 16 apply mutatis mutandis to the performance requirements for parapets.

(Necessary Matters concerning Protective Facilities for Harbour)

Article 24 The necessary matters for the requirements of protective facilities for harbour prescribed in this Chapter as specified by the Minister of Land, Infrastructure, Transport and Tourism and other performance requirements are provided by public notice.

Chapter IV Mooring Facilities

(General Provisions)

Article 25 Mooring facilities are to be installed in appropriate locations in light

of geotechnical characteristics, meteorological characteristics, sea states, and other environmental conditions, as well as navigation of ships and other usage conditions of the water area around the facilities for the purpose of securing safe and smooth usage by ships.

(Performance Requirements for Quay Walls)

Article 26 (1) The performance requirements for quay walls are specified in the following items in accordance with their structure types:

- (i) the performance requirements satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable safe and smooth mooring of ships, boarding and alighting of people, and handling of cargos; and
 - (ii) damage to the quay wall due to self-weight, earth pressure, level 1 earthquake ground motions, berthing and traction by ships, imposed loads, or other actions does not impair the functions of the quay wall and does not affect its continued use;
- (2) Beyond what is prescribed in the preceding paragraph, the performance requirements for quay walls which are high earthquake-resistance facilities are to be that the damage due to level 2 earthquake ground motions or other actions does not affect the functional recovery through minor repair work required for the quay wall in the aftermath of the occurrence of level 2 earthquake ground motions; provided, however, that for the performance requirements for the quay wall which requires further improvement of earthquake-resistant performance due to environmental conditions, social circumstances, or other conditions which the quay wall is subject to, that the damage due to those actions does not impair the function required for the quay wall in the aftermath of the occurrence of level 2 earthquake ground motions and does not affect its continued use.

(Performance Requirements for Mooring Buoys)

Article 27 (1) The performance requirements for mooring buoys are specified in the following items:

- (i) the mooring buoy satisfies the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism to enable safe mooring of ships; and
 - (ii) damage due to variable waves, water flows, traction by ships, or other actions does not impair the function of mooring buoys and does not affect their continued use.
- (2) Beyond what is prescribed in the preceding paragraph, the performance requirement of mooring buoys where there is a risk of serious impact on human lives, property, or socioeconomic activities by the damage to the mooring buoys

are that the structural stability of the mooring buoy is not seriously affected even when the function of the mooring buoy is impaired by tsunamis, accidental waves, or other actions.

(Performance Requirements for Mooring Piles)

Article 28 The performance requirements for mooring piles are specified in the following items:

- (i) the mooring piles satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable safe mooring of ships;
- (ii) damage due to berthing, traction by ships, or other actions does not impair the function of the mooring piles and does not affect their continued use.

(Performance Requirements for Landing Piers)

Article 29 (1) The performance requirements for landing piers are specified in the following items in accordance with their structure types:

- (i) the landing pier satisfies the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable safe and smooth berthing of ships, boarding and alighting of people, and handling of cargos; and
- (ii) damage to the landing pier due to self-weight, earth pressure, level 1 earthquake ground motions, berthing and traction by ships, imposed loads or other actions does not impair the functions of the landing pier and does not affect its continued use.

(2) Beyond what is prescribed in the preceding paragraph, the performance requirements for landing piers which are high earthquake-resistance facilities are to be that the damage due to level 2 earthquake ground motions or other actions does not affect the functional recovery through minor repair work required for the landing pier in the aftermath of the occurrence of level 2 earthquake ground motions; provided, however, that for the performance requirements for the landing pier which requires further improvement of earthquake-resistant performance due to environmental conditions, social circumstances or other conditions which the landing pier is subject to, the damage due to those actions does not impair the function required for the landing pier in the aftermath of the occurrence of level 2 earthquake ground motions and does not affect its continued use.

(Performance Requirements for Floating Piers)

Article 30 (1) The performance requirements for floating piers are specified in the following items in accordance with their structure types:

- (i) the floating pier satisfies the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable safe and smooth

mooring of ships, boarding and alighting of people, and handling of cargos;
and

- (ii) damage due to self-weight, variable waves, level 1 earthquake ground motions, berthing and traction by ships, imposed loads, or other actions does not impair the function of the floating pier and does not affect its continued use.

- (2) Beyond what is prescribed in the preceding paragraph, the performance requirements of the floating piers where there is a risk of serious impact on human lives, property, or socioeconomic activities by the damage to the floating pier are to be that the structural stability of the floating pier is not seriously affected even when the function of the floating pier is impaired by tsunamis, accidental waves, or other actions.

(Performance Requirements for Shallow Draft Wharves)

Article 31 The provisions of Article 26 or Article 29 apply *mutatis mutandis* to the performance requirements for shallow draft wharves.

(Performance Requirements for Dry Docking Yards)

Article 32 The performance requirements for dry docking yards are specified in the following items in accordance with their structure types:

- (i) the dry docking yard satisfies the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable safe and smooth lifting and launching of ships; and
- (ii) damage due to self-weight, earth pressure, water pressure, variable waves, berthing and traction of ships, level 1 earthquake ground motions, imposed loads, or other actions does not impair the function of the dry docking yard and does not affect its continued use.

(Performance Requirements for Ancillary Equipment of Mooring Facilities)

Article 33 (1) The performance requirements for ancillary equipment of mooring facilities are specified in the following items in accordance with the type of equipment:

- (i) the ancillary equipment satisfies the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to facilitate the safe and smooth use of mooring facilities; and
- (ii) damage due to self-weight, earth pressure, level 1 earthquake ground motions, berthing and traction of ships, imposed loads, collision with vehicles, or other actions does not impair the function of the ancillary equipment and does not affect its continued use.

- (2) Beyond what is prescribed in the preceding paragraph, the performance requirements for the ancillary equipment for mooring facilities which are high

earthquake-resistance facilities are to be that the damage due to level 2 earthquake ground motions and other actions does not affect the functional recovery of the equipment through minor repair work required for the equipment in the aftermath of the occurrence of level 2 earthquake ground motions; provided, however, that for the performance requirements for the ancillary equipment of the mooring facilities which require further improvement of earthquake-resistant performance due to the environmental conditions, social circumstances, or other conditions which the equipment is subject to, the damage due to those actions does not impair the functions required for the equipment in the aftermath of the occurrence of level 2 earthquake ground motions and its continued use.

(Necessary Matters concerning Mooring Facilities)

Article 34 The necessary matters for the requirements of mooring facilities prescribed in this Chapter as specified by the Minister of Land, Infrastructure, Transport and Tourism and other performance requirements are provided by public notice.

Chapter V Port Transportation Facilities

(General Provisions)

Article 35 (1) The performance requirements for port transportation facilities are to be that the port transportation facilities satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism for the purpose of safe and smooth usage of vehicles and ships in accordance with type of facilities, in light of geotechnical characteristics, meteorological characteristics, sea states or other environmental conditions, and the traffic conditions in the port and harbour as well as its hinterland.

(2) the performance requirements for port transportation facilities are to be that port transportation facilities have structural stability against self-weight, earth pressure, water pressure, waves, water currents, earthquake ground motions, imposed loads, winds, flames and heat from fires, collision with ships or other actions.

(Performance Requirements for Roads)

Article 36 (1) The performance requirements for roads are specified in the following items:

(i) roads satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to ensure the safe and smooth flow of vehicular traffic within the port and harbour and between the port and harbour and the hinterland taking into consideration the traffic

- characteristics in the port and harbour; and
- (ii) damage due to imposed loads does not impair the function of the roads and does not affect their continued use.
- (2) Beyond what is prescribed in the preceding paragraph, the performance requirements for roads having tunnel sections are specified in the following items:
- (i) damage due to self-weight, earth pressure, water pressure, and level 1 earthquake ground motions, or other actions does not impair the functions of the road and does not affect its continued use.
 - (ii) damage due to level 2 earthquake ground motions, flames and heat from fires, or other actions does not affect the functional recovery of the road through minor repair work.

(Performance Requirements for Parking Lots)

Article 37 The performance requirements for parking lots are specified in the following items:

- (i) parking lots satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as not to hinder the use of port and harbour and the safe and smooth flow of vehicular traffic in the port and harbour, as well as enable users to safely park vehicles; and
- (ii) damage due to imposed loads does not impair the function of the parking lot and its continued use.

(Performance Requirements for Bridges)

Article 38 (1) The performance requirements for bridges are specified in the following items:

- (i) bridges satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to ensure the safe and smooth flow of vehicular traffic within the port and harbour, and between the port and harbour and the hinterland taking into consideration of the traffic characteristics in the port and harbour.
- (ii) damage due to self-weight, variable waves, level 1 earthquake ground motions, imposed loads, winds, and ship collisions, or other actions does not impair the function of the bridge and does not affect its continued use; and
- (iii) damage due to level 2 earthquake ground motions does not have a serious impact on the structural safety of the bridges even when the functions of bridges are impaired; provided, however, that for the performance requirements for bridges which requires further improvement of earthquake-resistant performance due to environmental conditions, social circumstances or other conditions which the bridge is subject to, the damage does not affect the functional recovery of the bridge through minor repair work.

(2) Beyond what is prescribed in item (i) and item (ii) of the preceding paragraph, the performance requirements for the bridge which is connected to high earthquake-resistance facilities are to be that the damage due to level 2 earthquake ground motions and other actions does not affect the functional recovery through minor repair work required for the bridge in the aftermath of the occurrence of level 2 earthquake ground motions; provided, however, that for the performance requirements for the bridge which requires further improvement of earthquake-resistant performance due to environmental conditions, social circumstances or other conditions which the bridge is subject to, damage due to those actions does not impair the functions of the bridge required in the aftermath of the occurrence of level 2 earthquake ground motions and does not affect its continued use.

(Performance Requirements for Canals)

Article 39 The performance requirements for canals are to be that the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism are satisfied so as to enable the safe and smooth navigation of ships in the port and harbour by taking into consideration of the traffic characteristics in the port and harbour, such as navigating ships.

(Necessary Matters concerning Port Transportation Facilities)

Article 40 The necessary matters for the requirements of port transportation facilities prescribed in this Chapter as specified by the Minister of Land, Infrastructure, Transport and Tourism and other performance requirements are provided by public notice.

Chapter VI Cargo Handling Facilities

(General Provisions)

Article 41 (1) The performance requirement for cargo handling facilities are that the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism are satisfied in light of geotechnical characteristics, meteorological characteristics, sea states, or other environmental conditions, and the conditions of cargo handling.

(2) The performance requirement for cargo handling facilities are that the facilities have stability against self-weight, waves, earthquake ground motions, imposed loads, winds, or other actions.

(Performance Requirements for Cargo Handling Machinery)

Article 42 (1) The performance requirements for stationary cargo handling machinery and rail-mounted cargo handling equipment (hereinafter referred to

as "cargo handling machinery") are that the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism are satisfied so as to ensure the safe and smooth handling of cargos and to keep them from interfering with the mooring of ships or berthing and unberthing of ships.

(2) Beyond what is prescribed in the preceding paragraph, the performance requirements for cargo handling machinery prescribed in the following items are specified in the respective items:

- (i) the performance requirements for oil handling equipment are that the damage due to self-weight, level 1 earthquake ground motions, winds, oil weight and pressure, and other actions does not impair the functions of the oil handling equipment and does not affect its continued use; and
- (ii) the performance requirements for cargo handling equipment installed in high earthquake-resistance facilities: damage due to level 2 earthquake ground motions and other actions does not affect the functional recovery of the cargo handling equipment through minor repair work.

(Performance Requirements for Cargo Handling Areas)

Article 43 (1) The performance requirements for cargo handling areas are as specified in the following items for the purpose of ensuring safe and smooth handling of cargos:

- (i) cargo handling areas satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to ensure the safe and smooth handling of cargos; and
- (ii) damage due to imposed loads and other actions does not impair the functions of the cargo handling areas and does not affect their continued use.

(2) Beyond what is prescribed in the preceding paragraph, the performance requirements for cargo handling areas which require their functions to be fulfilled in an integrated manner with high earthquake-resistance facilities during disasters are to be that the damage due to level 2 earthquake ground motions and other actions does not affect the functional recovery through minor repair work required for the cargo handling areas in the aftermath of the occurrence of level 2 earthquake ground motions; provided, however, that for the performance requirements for cargo handling areas which require further improvement of earthquake-resistant performance due to environmental conditions, social circumstances, or other conditions which the cargo handling areas are subject to, the damage due to those actions does not impair the functions of the cargo handling areas required in the aftermath of the occurrence of level 2 earthquake ground motions and does not affect their continued use.

(Necessary Matters concerning Cargo Handling Facilities)

Article 44 The necessary matters for the requirements of cargo handling areas prescribed in this Chapter as specified by the Minister of Land, Infrastructure, Transport and Tourism and other performance requirements are provided by public notice.

Chapter VII Storage Facilities

(Performance Requirements for Storage Facilities)

Article 45 The performance requirements for storage facilities are to be that the storage facilities satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to enable the safe and appropriate storage of cargos in light of geotechnical characteristics, meteorological characteristics, sea states, or other environmental conditions, and the conditions of cargo handling.

(Necessary Matters concerning Storage Facilities)

Article 46 The necessary matters for the requirements of storage facilities prescribed in this Chapter as specified by the Minister of Land, Infrastructure, Transport and Tourism and other performance requirements are provided by public notice.

Chapter VIII Facilities Designed to Provide Services to Ships

(Performance Requirements for Facilities Designed to Provide Services to Ships)

Article 47 (1) The performance requirements for facilities designed to provide services to ships are to be that the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism are satisfied for the purpose of providing safe and smooth services to ships in light of geotechnical characteristics, meteorological characteristics, sea states, or other environmental conditions, and the conditions of ships' arrival in port.

(2) The performance requirements of water supply facilities for ships are to be that the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism are satisfied for supplying water to ships in a sanitary manner.

(3) The performance requirements for ship storage facilities are to be specified in the following items:

- (i) the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism are satisfied so as to enable users to safely bring in and bring out ships; and
- (ii) the requirements specified by the Minister of Land, Infrastructure,

Transport and Tourism are satisfied so as to enable the proper fixing of ships.

(Necessary Matters concerning Facilities Designed to Provide Services to Ships)

Article 48 The necessary matters for the requirements for facilities designed to provide services to ships prescribed in this Chapter as specified by the Minister of Land, Infrastructure, Transport and Tourism and other performance requirements are provided by public notice.

Chapter IX Other Port and Harbour Facilities

(Performance Requirements for Stationary and Movable Passenger Boarding Facilities)

Article 49 The performance requirement for the stationary and movable passenger boarding facilities are to be specified in the following items for the purpose of safe and smooth boarding and alighting of passengers in accordance with their structure types:

- (i) the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism are satisfied so as to enable safe and smooth boarding and alighting of passengers; and
- (ii) damage due to self-weight, level 1 earthquake ground motions, imposed loads, winds, or other actions does not impair the functions of the stationary and movable passenger boarding facilities and does not affect their continued use.

(Performance Requirements for Dikes Used for Waste Dumping)

Article 50 (1) The performance requirements for dikes used for waste dumping are to be that the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism are satisfied for the purpose of appropriately disposing wastes and protecting the disposal sites.

(2) The provisions of Article 16 apply mutatis mutandis to the performance requirements for dikes used for waste dumping.

(Performance Requirements for Beaches)

Article 51 (1) The performance requirements for beaches are to be specified in the following items for the purpose of facilitating the development of the port and harbour environment:

- (i) beaches satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so that they contribute to the development of a good port and harbour environment; and
- (ii) beaches are capable of maintaining a stable state over a long term against

variable waves and water flows.

- (2) Beyond what is prescribed in the preceding paragraph, the beaches which are used by an unspecified large number of people are to satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so as to ensure the safety of the users of the beaches.

(Performance Requirements for Green Areas and Open Spaces)

Article 52 The performance requirements for the green areas and open spaces are to be specified in the following items for the purpose of facilitating the development of port and harbour environment as well as the rehabilitation and reconstruction of the port and harbour and its surrounding areas:

- (i) the green areas and open spaces satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so that they contribute to the development of a good port and harbour environment and to ensure the safety of the users of the green areas and open spaces;
- (ii) the green areas and open spaces satisfy the requirements specified by the Minister of Land, Infrastructure, Transport and Tourism so that they can be used as a base for the rehabilitation and reconstruction of the port and harbour and its surrounding areas in the aftermath of the occurrence of level 2 earthquake ground motions; and
- (iii) damage due to level 2 earthquake ground motions and other actions does not affect the functional recovery of green areas and open spaces through minor repair work required for the green areas and open spaces in the aftermath of the occurrence of level 2 earthquake ground motions.

(Necessary Matters concerning Other Port Facilities)

Article 53 The necessary matters for the requirements for stationary and movable passenger boarding facilities, dykes used for waste dumping, beaches, and green areas and open spaces prescribed in this Chapter as specified by the Minister of Land, Infrastructure, Transport and Tourism and other performance requirements are provided by public notice.

Supplementary Provisions

(Effective Date)

- (1) This Order comes into effect as of April 1, 2007.

(Transitional Measures)

- (2) If, at the time of the effective date of this Ministerial Order, the installed facilities subject to the technical standards (including those under construction) are not in conformity with the provisions of this Order (excluding

Article 4), the provisions does not apply to those facilities, except where their improvement work is to commence after the enforcement date. In this case, if there are provisions prior to the amendment that correspond to the provisions, those provisions remain applicable.