Ⅰ. Construction Safety Manual

■ Obligatory wearing of safety equipment

◗To prevent injury and loss of human life from falling structures, hazardous materials and unexpected accidents, it is necessary to wearing safety equipment in accordance with subdivision 1 of Section ① of Article 32 of the Industrial Health and Safety Regulations.

1. Use safety equipment certified by the Occupation Safety and Health Acts.

2. Subject to wear safety helmet and shoes

① Safety helmet: all persons concerned

② Safety shoes: working with heavy loads

3. Required to use a safety belt

① Passengers on aerial work platforms or rolling towers higher than 2m

② All construction employees working in elevated areas or near openings

③ Installation of equipment used for hanging safety belt

■ Duty scope of field representative

◗A safety supervisor must be present during the construction period in order to respond to unexpected accidents immediately and undertake facility safety inspections during events.

1. Subject presence of a field representative

① Duty scope: exhibition stand, electricity, riggings, stage, stage truss (big truss), seat construction

② Request the presence of a field representative for other fields if needed

2. Necessary documents related to the field representative: attach submission construction notification

3. On-site presence requirement period and standard by type of action and size

① Period: start date of equipment construction to date of removal

② Residing standard by type of action and size

	Exhibition equipment	Electric work	Rigging	Seats	Stage	Stage truss
Subject of application	Independent stand	Indirect, independent stand	Unrelated to size			
Size	Single: over 300㎡ Total: over 500㎡	Indirect: unrelated to size Independent: follow size of exhibition equipment				
Field representative	At least 1 person	1 person	1 person			
Qualifying conditions of field representative	1. more than 1 year of experience in construction 2. certification in electric work 3. Conditions and standards can vary according to site condition					

■ Safety guide for elevated work areas

◗ To prevent injury and loss of life from negligent accidents due to falls caused by carelessness and use of ladders, aerial work platforms and rolling towers while doing work at a height greater than 2 meters.

1. Prohibition on ladder use

① Construction equipment higher than 2m (including additional construction such as carpentry, wallpaper, signboards, lights)

② Big truss construction, state truss construction, system scaffolding construction

◗When use of such equipment isn't possible due to congestion, floor damage, or lack of space, ladder use must be approved after site inspection.

2. Safety guide for equipment use

① Use aerial equipment in accordance with Safety and Health Workshop Practices

② Regulations for use of aerial work platforms

1) All passengers must wear safety helmet and safety belt

2) Platforms suitable for use according to Article 28 (safety certification equipment, etc.) for the Enforcement Decree of Occupation Safety and Health Acts

3) Obey all regulations (work supervisor, signals, safety belt use, etc.) defined by the Minister of Labor when constructed

③ Regulations for rolling towers

1) Employ rolling tower in accordance with Article 68 (rolling tower) of Rules of Industrial Safety and Health

2) Use the brakes on the wheels, install scaffolding and the safety rail on the uppermost area, not to exceed maximal load of 250kg

3) Obey regulations prohibiting use of a ladder on the top level install a rolling tower brace when height is over 3.5m

■ Design and construction of multi-level

◗ When constructing a multi-level, it needs to accommodate the maximum total load of seating and dead load of a multi-level floor. Document evidence regarding the structural safety must be submitted following temporary installation of outdoor cooling and heating units as well as appropriate fire prevention systems (fire extinguisher, etc.) in accordance with the Fire Services Act on a distributing board in a sealed room.

1. Design and construction of multi-level

① Subframe and floor

1) Subframe should be designed to hold at least 450kg/㎡

2) Main materials (vertical and horizontal frame): SS400, wide flange shapes over 200x200x8x12t

3) Subsidiary materials (plate angular pipe): SS400, over 100x50x2.1t

4) Below 5m, frame connections should be welded or fastened with bolts

5) Pillars should be fixed by iron plate over ø500x10t to prevent flexing

6) Multi-level flooring should be designed and constructed with plywood over 15t or a stronger alternative material

7) Connect plywood and plate with an angular pipe to prevent flexing or breakage

2. Stairs (width), standard and structure of door, etc.

① Width of stairs and height of safety fence should be more than 1.2m and directional sign should be attached on the safety fence, two-way stairs should be installed when area of multi-level is more than 100㎡

② Width of door should be over 0.9m and be designed (constructed) to be opened in the direction of escape

3. Installation of fire protection system

① Related statute: In accordance with Section 1 of Article 19 of the Fire Extinguishing Facilities Installation and Maintenance Safety Act and subdivision 1 of Application Criteria on the Fire-fighting System of Fire Extinguishing System of an Appendix No. 4 of enforcement ordinance of the above Act

② Installation object and location of self-sprinklers

1) Above temporarily installed cooling and heating units (furnish fire extinguisher nearby when checkable with the unaided eye)

2) Above fuse box (install one per fuse box) in panel room in cargo which is difficult to access.

3) In case of finished ceiling, one self-sprinkler per 10㎡ of ceiling area

③ Installation of manual fire extinguisher

1) Panel rooms in which inspector access is difficult (manual fire extinguisher must be more than 1 rating-class per 25㎡ of floor area)

2) Multi-level floor (furnishing an ABC class 3.3kg powder extinguisher per 10m of walking distance)

4. Installation of safety railing

① Construct after installation of safety railing to prevent falls during construction on multi-level floors

② Field representative should act as safety supervisor when installation of safety railing isn't possible

5. Follow Construction Safety Manual and the Fire Services Act when testing structural safety test for flame-resistance of combustible materials

■ Design and construction of stage and facility surrounding stage

◗ Design and construction must be safe due to the need to accommodate the weight of many people. In addition, documentary evidence about structure safety should be submitted, and combustible materials such as plywood for the stage and floorboards should be made of flame-resistant materials in accordance with the Fire Services Act.

1. Design and construction of stage lower frame

① A pre-fabricated stage should be able to withstand a load of at least 300kg/㎡ (submission of documentary evidence regarding load capacity)

② The lower frame of the stage must be designed to withstand 400kg/㎡ in the case of an iron frame.

③ The lower frame (BT, etc.) should be constructed in a crisscross pattern with all vertical members connected by a cross brace

④ U-bolt or wire should be used to brace BT (use of cable-ties is prohibited)

⑤ Details such as the connectors of BT should be constructed in accordance with the Rules of Industrial Safety and Health Act

2. Design and construction of stage floor

① Plywood over 15t or has an equal or greater level of strength than that used as stage floor materials (use of MDF is prohibited)

② Floor materials should be constructed in a way that prevents flexing or breakage.

3. Installation of fall prevention equipment

① At a height greater than 1.2m, a safety railing should be installed on the left, right and rear of the stage, as well as on the stairs

② When the safety railing on the sides of the stage causes inconvenience to the event, an alternative plan can be discussed with BEXCO

4. Design and construction of structure surrounding stage

① Back-wall

1) The back-wall should be designed as a self-standing structure

2) In the event that a self-standing structure is impossible, it should be designed and constructed to endure physical impact or wind pressure using layering, build-up-type-scaffolding, etc.

3) Use of MDF is forbidden when the height of the back-wall is above 3.5m

4) Materials used for the back-wall should be flame-resistant

② System scaffolding (layer) structure and execution (removal) standard

1) System scaffolding should be designed and constructed in accordance with Articles 69 and 70 of the Rule of Industrial Safety and Health Act

2) System scaffolding should be classified as vertical or horizontal

3) Procurement of a sufficiently safe width according to the height of system scaffolding

Height of scaffold	Width	Installation of stabilizing equipment to prevent falls
Less than 5m	1.8m	Unnecessary
5m ~ 8m	2.4m	Install stabilizing equipment to prevent shaking when the height is over 8m, 1 unit per 20m/from uppermost to lower part
Over 8m	3.6m	

4) Fixing pins on vertical (horizontal, bracing) materials should be installed to prevent breakage

5) Materials should be free of flection, distortion, cracks, corrosion

6) Safety scaffolding (width over 0.4m) should be installed per column; space between scaffolds should be less than 3cm

7) A safety handrail should be installed on the left and right side of stairs in case of installation of stairs for work

8) Install a safety railing to prevent falls and install the safety scaffolding in between each column

9) Fasten the connection between blocks of system scaffolding using U-bolts or wire

10) Construct system scaffolding higher than 5m under the command of a management supervisor (field representative)

11) Simultaneous upward and downward scaffolding work on the same perpendicular plane is prohibited

③ Installation of main speaker

1) Make speaker a rule to install on the stage floor

2) Install the structure such as truss or build-up-type scaffolding and use after moving the speaker to the required location using equipment such as chain motor when the speaker must be raised because of sound balance

※ Permissible weight for hanging speakers

Weight of speaker	Allowed materials	Note
Less than 250kg	Build-up-type scaffold, truss (300mm)	Build-up-type scaffold: install an outrigger (more than 2 layers) Truss: install basement Hoist ability: more than 1.5 times of gross weight
250kg ~ 500kg	Truss (450mm)	
More than 500kg	Truss (760mm)	

5. Review the structure safety and conduct flame-retardant of combustible materials

■ Design and construction of rigging

◗The base of the roof can be affected critically due to changes in hanging load when point connection pieces break. Therefore, it is advisable that loads below those allowed by BEXCO and as well as proper materials be used after damage testing. In addition, construction should be done in alignment with the structural examination approval blueprint and drawing documents submission date, while flame-retardant materials should be used.

1. Rigging design

① Rigging truss should be designed as an independent structure (it must not be connected with the lower part of the structure)

② Gross weight and weight per point should be designed at weight lower than that allowed by BEXCO

③ Equipment such as chain blocks and sling belts should be able to endure more than 1.5 times the point weight

④ Spots for fixing the rigging truss should be designed with the same size and quality

◗ In the event that the rigging truss is designed with a different quality for any reason, it must be designed as follows.

Standard(mm)	Less than 200	200 ~ 300	300 ~ 500	Over 500
Post space(m)	3m	6m	9m	15m

1) Designed with over ***Φ***-200mm, over t-5mm steel pipe without joint

2) Lower plate should be designed as being over 0.6㎡, over t-10mm (round or square) steel plate

3) Upper plate should be designed with an over truss width, over t-10mm steel plate

4) Bumper to prevent truss breakaway should be installed on the fore-end of the upper plate

5) The connection between the upper and lower plate should be welded (bolt fastened)

⑤ Trussed column connected with rigging truss should be designed (constructed) by actuated auto-manual

⑥ Combustible materials installed on the rigging truss should be flame-resistant

2. Construction

① Materials should be inspected for defects by hall managers on installation day (use of defective materials is prohibited)

② Fasten double detaching hook with sling belt at the point between roof floors MT and rigging truss (unrelated to weight)

③ All equipment installed on the rigging truss needs to be fixed additionally with a double hook

④ Connection of truss must be fastened by bolt

⑤ Use of materials whose expiration date has passed is prohibited, as is the use of materials are damaged or altered in any way.

3. Details regarding structural safety tests and construction must be done in accordance with the business manual from appointed companies

■ Design and construction of truss (independent pole)

◗ Spot spaces and corner spots should be designed in a safe way, as any damaged can negatively affect overall safety. In addition, stage trusses should be examined to ensure structural safety.

1. Design and construction of exhibition stand truss

① Allowed space of spot to truss standard

② Design and construction of spot (column)

1) Corner spot should be designed in a square configuration to ensure structural safety

※ In case that the truss standard is less than 200mm or stand is more than 3m only

2) Bolt and lock should be fastened when connecting trusses

3) Only lightweight materials such as lighting fixtures and banners can be installed to trusses less than 200mm

③ Design and construction of independent poles (lighting tower, etc.)

1) The plate area for fixing independent pole to prevent collapse by physical impact should be as follows ※ Less than H3m:0.6㎡, Less than H3~4.5m: Over 1㎡, H4.5~5m; Over1.5㎡

※ Maximum height of independent poles restricted to 5m

2) Complementary measures should be taken immediately in case of shaking or leaning

2. Design and construction of stage truss

① Stage truss should be designed and constructed with a large truss greater than 760mm ② Chain motor should be able to raise a load 1.5 times the gross weight of the truss and the equipment installed on the truss

③ The base and outrigger should be installed on the lower side of the spot to prevent slippage and falls.

④ The truss should be connected with bolts. If use of bolts is not possible due to a difference in standard (level), a sling belt having at least 1 ton in internal force may be used to connect the parts.

⑤ Weight disposition should be equal when equipment is arranged to truss

⑥ The dynamic load of moving equipment (including speakers) should be considered when calculating (design) the weight.

⑦ Equipment weighing over 200kg should be installed on an independent truss.

⑧ Spot for fixing truss should be designed according to the same standards and level of quality

◗ If designed with a different level quality for any reason, the truss must be designed as follows:

1) Designed with over ***Φ***-200mm, over t-5mm steel pipe without joint

2) Lower plate should be designed at least 0.6㎡, over t-10mm (round or square) steel plate

3) Upper plate should be designed with a width over the truss, over t-10mm steel plate

4) A bumper to prevent the truss breakaway should be installed on the fore-end of the upper plate

5) The connection between the spot and upper and lower plate should welded (bolt fastened)

■ Other

◗ Other information

1. Follow the related regulations for issues not mentioned in the construction safety manual

2. Follow the appointed company operational manuals for details

3. Installation and removal of system scaffolding (layer) must adhere to the Regulations for Industrial Safety and Health Acts

4. Refer to the Occupation Safety and Health Acts (regulations) for details on construction safety.

Ⅱ. Documents for submission by appointed companies and contact of hall manager

■ Documents for submission

	List of documents for submission	Other
Common documents for submission	① (Appendix form 5) Construction notification, (appendix form 6) Field representative application ◗ Due date (construction start date): 20 days in advance (rigging), 15 days in advance (multi-level · stage · stage truss · bleacher · wood over 4.8m and pre-fabricated facilities) ② List of workers and copy of basic construction safety certificate · health education ③ Major 4 insurances certificate	① Notification for construction should be submitted via email to the hall manager 7 days prior to the start of construction. ②Construction requiring structural safety tests such as rigging, stage, stage truss, bleachers, weight, materials' height over 4.8m should be conducted after submitting the construction report and design book to the Event Safety Management officer by email and receiving subsequent approval for construction, the structural safety check will be implemented. (Submit by email to: jsjw1218@bexco.co.kr) ③ For design, construction method and safety, please refer to the safety manual for the exhibition and conference hall, the safety manual for the construction site, and the manual for performance of designated companies.
Exhibition stand	① floor plan (image view (four-side image view, A4 color, jpg file), elevation · ground plan) ② documents for flame-resistance ③ Detailed blueprint of multi-level facilities and facilities over 4.8m	
Electrical work	① Trunk line blueprint (location of distribution box, working voltage and quantity, mark for 24 hours) ② Layout of light equipment for independent stand (mark types of lights and quantity)	
Rigging (large truss)	①Rigging truss floor plan placed on MT floor plan (Indication of load by point) ② Equipment layout (marking installation location of lighting equipment installed on truss) ③ Load sum table (Moving lights and speakers that generate dynamic loads are calculated by surcharge) ④ Equipment specifications (truss, chain motor, sling belt) ⑤ Detailed drawings and samples of wooden structures (w-1M) ⑥ Documents showing existence of flame-resistant materials are installed on the truss	
Delivery and customs	① (Attachment form No. 3) Application for entry of heavy items (Single items weighing over 5 tons are only permitted in Halls 1 to 4, while single items weighing no more than 3 tons can be brought into Hall 5. Base area of equipment (machine) ② Specifications of heavy objects, plans for loading and unloading, load distribution plan	
Demolition	Demolition booth location drawings and access vehicle list	
Guard	Business performance plan, Personnel placement status table	

pytex, Water supply /Air, Advertising guidance, Special vehicles	①Advertising guidance facility division: draft (jpg file), standard, installation ② Carpet / Pytex division: Flame proof documentation ③ Water supply / Air division: Technical support service floor plan ④ Special vehicle: Vehicle registration certificate	④ Any changes made after submitting the design book must be submitted for approval. ⑤ Please comply with all construction safety regulations listed at the rear entrance of the exhibition hall.
Structural review	① Structural review approval document, structural review statement	
Stage, Stage truss, Lighting, Sound, Layer	①Stage: Stage elevation, Floor plan, Detailed infrastructure drawing, Material specifications table, Allowable load Simultaneous maximum capacity, Flame proof documentation for flammable materials ② Stage truss: elevation, floor plan, equipment layout, truss and chain motor and sling belt Specification table, Load sum table (lighting, acoustical equipment specification table) ③ Lighting, Sound: List (type, quantity, weight) ④ Scaffolding (layers): Elevation, Floor plans, safety scaffolding, and safety fan installation drawings	

■ E-mail and contact of hall manager for submission of construction report.

Division	Manager	Tel	fax	e-mail
1st Exhibition Hall, Outdoor Exhibition Hall, Temporary Parking lot	Manager. Kim Doyeong	051-740-7451	051-740-7680	kdy@bexco.co.kr
	Manager. Kim Jangsu (Event safety management officer)	051-740-7452		jsjw1218@bexco.co.kr
		Manager in charge of the reception, review, approval of the design book of the structural safety diagnosis subject such as Exhibition facilities that exceed 4.8m, rigging, duplex, heavy weight, grandstand, stage, stage truss .		
2nd Exhibition Hall	Manager. Seok Gwanghui	051-740-4001	051-740-4004	macao13@bexco.co.kr
	Manager. Shin Jongcheol	051-740-4002		jongcheol@bexco.co.kr

Ⅲ. Submission Document of Designated Registration Company

Manager	Team Leader

Construction Declaration Form

Event name		Exhibition Hall	
Construction Name		Field Staff	/HP:
Construction Period		Period of Removal	

(Exhibit Construction sector : BEXCO Partner companies reports section)

Electricity		Carpet(pytex)		Demolition		Flame retardant			
Company Name		Company Name		Company Name		Company Name		Company Name	
Manager		Manager		Manager		Manager		Manager	
HP		HP		HP		HP		HP	

Attachments

① Exhibition equipment : Aerial view of the facilities(Booth, etc.) of event hall (color, jpg, A4 standard, front and rear side, right and left side), plane and elevation drawing, layout

② Electric work : Main layout(distribution box number , capacity, mark for 24 hours)

③ flame-retardant documents: Wooden motor, plywood for the stage, cover plate for the stage, stage curtain, blackout, carpet, pytex, landscape facilities, banner(rigging truss) and flammable materials.

④ Deadline (construction work starting date) : rigging(20 days ago), multiple layer·stage·stage truss·stands· carpentry and on-premises production structure that exceed h4.8m(15 days ago), the rest(7 days ago)

⑤ Any other details have to conform with the manual of exhibition, conference hall and construction safety manual.

We submit construction declaration form as stated above

Applicant	Address			
	Company Name		Representative	(sign)
	Manager	(sign)	Mobile	

20 year/ month/ date

Messers. BEXCO

Field Representative application

Manager	Team Leader

Event name			
Business Name		Booth Number	
Project Name			
Name of Field Representative		Mobile	
License Number			

1. Attachments
① A construction license issued by the relevant authority(License, registration)
② National technical qualifications of field agent (electricity sector)
③ Certificate of employment of field agent

We have appointed the above person as our field representative

Applicant	Company Name			
	Name		Mobile	
Confirmation of construction completion		Field representative	Name	(sign)

20 year/ month/ date

Messers. BEXCO

Truss load sum table

Manager	Team Leader

※ Please Accurately describe everything installed on the truss.

※ Submit the detailed drawing and sample(indicate the unit weight) in case of Structures to be installed on the truss by making iron products, wooden products, etc.

Product Name	Manufacturer	Standard	Unit weight(Kg)	Quantity	Gross weight(Kg)	Specifications
Truss						Attached separately
Chain motor						
Lighting						
Moving Equipment						
Wire						
Speaker						
Etc.						
					Kg	
We have submitted the load sum table as above, and We will take any action if the sum table and site construction state are different.						

Applicant	Event name		Booth name	
	Company Name		Name	(sign)
	Mobile			

20 year month date

Messers. BEXCO

Manager	Team Leader

Heavy Goods Carry In Application Form

Event name	
Carry In place(Booth)	

◇ Carry In Item Details ◇

Product Name	Weight(kg)	Quantity	standard(base area/㎡)

* (Note) Use the additional sheet when the "input field" is insufficient.

* Attachments : Specimens of transferred goods, layout chart, top and bottom plan, load distribution plan

We submit the application for heavy goods as above

Applicant	Address			
	Company Name		Representative	(sign)
	Manager	(sign)	Mobile	

20 year month date

Messers. BEXCO

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Heavy Goods Carry In Approval Form

Applicant	Address			
	Company Name		Representative	(sign)
	Manager	(sign)	Mobile	

We approve entry of above heavy goods.

20 year month date

Exhibition Marketing Team: (sign)

Manager	Team Leader

Dangerous Goods Entry Application Form

Event Name		Carrier	
Date of Carry-in		Date of Carry-out	
Purpose of carry-in			
Manager		Contact Number	

◇ **Entry Item Details** ◇

Number	Item	Unit	Quantity	Container and packaging condition	How to keep after carry-in
1					
2					
3					

* (Note) Use the additional sheet when the "input field" is insufficient.

We submit application for dangerous goods entry as stated above

Applicant	Address			
	Business Name		Representative	(sign)
	Manager	(sign)	Mobile number	

year month date

Messers. BEXCO

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Dangerous Goods Entry Approval Form

Applicant	Address			
	Company Name		Representative	(sign)
	Manager	(sign)	Mobile number	

We approve the entry of above dangerous goods.

year month date

Exhibition Marketing Team : (sign)

< Appendix table 1 >

Advertising Facilities installation Guidelines

■ The following specifications, quantity and installation location must be strictly observed. In addition, commercial advertisement is not allowed.

Category	Type	Specification (w*h),m	Quantity	Location	Remark
Exhibition Center I	Entrance arch	Inside/ 18*3.5 Outside/ 18*4.5	1 per hall, 1 per event	Inside : exhibition hall entrance Outer : canopy bottom	✓ The advertising facilities installed on the outside of the building have to dismantle when weather changes are anticipated ✓Specifications, quantity and installation location must be observed ✓Organizers need to get approval from BEXCO regarding draft proposal first. ✓ Commercial ads are not allowed.
	Front banner	6*10	One per event (hall)	Wall of Exhibition Center I Meeting room	
	Rear Banner	15*3	One per event (hall)	Top wall of cargo gate	
	Bridge Banner	7*2.5	One per event (hall)	Glass Hall 2F Connection hall	
	Canopy banner	8*0.9	One~Two per event (hall)	Bottom of canopy	
	fanfare banner	1.2*4.7	Six per hall	Glass hall second floor pillar	
Exhibition Center II	Entrance arch	Inside 1/2hall 9*3.5 1hall 18*3.5 Outside 18*4.5	1 per hall, 1 per event	Inside : exhibition hall entrance Outer : canopy bottom	

	Front banner	6.02*9.8	One per event (hall)	Upper Front glass wall	
	Right side banner	25*12	One (When using the whole Exhibition Center II)	top wall of Right side	
	Canopy banner	No.1~6(h:0.9) w-8.9/8.3/7.7 7.7/8.3/7.2	One ~ Two per event(hall)	Bottom of canopy	
	fanfare banner	1.2*4.5	Three ~ Five per event	2nd floor hallway railing	
	Bridge Banner	6.5*1.7	One per event	Exhibition Center II front, A public walkway	
	Lobby banner (3F only)	2.8*3 / 5*3.3 (Left / Right)	One per event	2F Escalator side	
	Passage banner	6.5*0.9	One per event	Inside public walkway	
	3rd floor lobby banner	3*3	Two~Three per event	Upper side of 3rd floor lobby	
	First floor meeting room banner	5.6*4.2	One	1st, 3rd Floor Meeting Room Wall	Meeting Room Only
	3rd floor meeting room banner	4.2*4.2	One		