Technical Specifications

Production and Installation of modular buildings

in Türkiye & Northwest Syria

0. GENERAL PRINCIPLES FOR SCOPE

0.1. Scope

This Technical Specification covers the technical conditions regarding the material and workmanship features used in certain structural, architectural, mechanical and electrical works that must be provided in Establishment of prefabricated building manufacturing projects carried out by the Contractors choosen by UNICEF.

0.2. Compliance with Standards

Some materials or their properties are described with reference to different national or international standards. These are first Turkish Standards, then EN, HD, IEC standards.
Even if not specified in this *specification* and unit price descriptions, materials, trials, manufacturing methods and similar issues for which the Turkish Standard has entered into force will comply with the relevant standards.
When deemed necessary, the Consultant may ask the manufacturer to verify that the required conditions are met with a document obtained from a relevant institution laboratory.

0.3. Compliance with Laws, Statutes and Regulations

The Contractor shall carry out work in accordance with all laws, statutes and Regulations regarding the construction, testing and operation of the facility, especially those related to the prevention of environmental pollution and the protection of general health and safety.
In matters that are not regulated in any way, the contractor will perform work or act in accordance with the applicable procedures and rules.
The contractor examines the projects
• in terms of laws, statutes and regulations and local procedures and rules,
• in terms of mandatory or optional applied standards,
• In terms of manufacturing and assembly technique,
• and in terms of facility or operating economy,
If the LTA holder finds it necessary or useful, the LTA holder will notify the Consultant in writing with a recommendation report in outline, and the Consultant may request changes in this report, in whole or in part, or by changing it, if the LTA holder deems it appropriate. Responsibility arising from the inadequacy of the inspection will belong to the contractor and any damage that may occur will be covered by the contractor. Any
Materials to be Used in Replacement of the Material All materials will comply with the issues specified in the specifications and project.
If sufficient quantities of the materials specified in the specifications are not available in the market, the Contractor will install a material with better properties and capacity that can be used instead, by obtaining the written permission of the Consultant, and will not request an additional fee from the Consultant for this. It is stated in the unit price descriptions that some materials and products can be used in the facility, provided that they have a quality certificate or carry the TSE warranty stamp, and their list will be added to the specification with explanatory information on this matter.
The Contractor shall verify that the matters specified in the projects, specifications and unit price descriptions comply with the laws, statutes, regulations, mandatory standards or local conditions, procedures and rules. If there is anything inappropriate, the Consultant will be warned in writing.

0.4. Materials To Be Used

The Contractor shall submit all materials to the Consultant for approval. Storage of material delivered to the site shall be organized that would not create any negative situation safety, security wise and to avoid harm to the materails and others.

0.5. Quantities

Where any mentioned within the tender documents, quantities given are for reference only and the Bidder shall have their own calculations and/or considerations regarding all work items. Any change between the actual work quantities and the ones in the aggrement is solely the responsibility of the the Contractor.

0.6. Containers

The Containers shall be manufactured taking into consideration below given general technical details.

- All materials used in containers will be TSE or CE certified.
- A contractor warranty of at least 1 year will be given against workmanship and material defects (water leakage, roof leakage, etc.) and 2 years for paint defects (rusting, rotting). Damage caused by contractor-related errors occurring within the specified periods will be repaired on-site by the contractor. Damages caused by user error are not covered by the warranty.
- The container will be transportable by road.
- When the modular building consists of two-storey, the corner connections and carrier system of the containers will be of strength and design suitable for two-storey use.
- The connection materials of the panels will be selected and mounted in a way that will not create a thermal bridge. There will be no gaps or leaks between the panels.
- The container can be loaded/unloaded by using rope/locking devices at four points using eyebolts.
- All steel materials to be used in the production of container long side carrier profiles, short side carrier profiles, corner posts and carrier reinforcement profiles will be of St-37 quality and at least 3 mm wall thickness.
- All types of welding to be performed during the manufacturing phase will be made in accordance with scientific rules and without interruption from end to end. Screw and bolt connections will be made in accordance with scientific rules and all necessary intermediate fasteners will be used. The screws and bolts to be selected will have the required strength values and be galvanized. Bolts used in the carrier system must meet at least grade 8.8 standard.
- The area where all door and window frames meet the wall will be insulated with suitable insulation material to prevent heat and air transfer.
- Following criteria should be adhered for the design of containers:
  - Snow Load: 150 kg/m²
  - Wind Load: 50 kg/m² (100 km/h)
  - Chassis Load: 3.5 kN/m²
  - Internal Clear Height: 2.50 m

0.7. Other Matters

- Any materials and manufacturing that are not approved by the Consultant will be immediately removed from the construction site or dismantled and new manufacturing will be carried out in accordance with the project and specifications. The Contractor will not be able to claim any rights due to this transaction.
- If there is a lack of detail in the file, the Consultant will be consulted. Scientific and technical publications and references will be taken as basis to eliminate the problems.

- Warranty documents for all types of materials used will be delivered to the Consultant by the contractor.
- It is the Contractor's responsibility to take all necessary occupational safety measures during the manufacturing and transportation phase.
- The Contractor will manufacture the containers as defined in this technical specification.

Bidders will respond to each item of this technical specification in return.

1. Preliminary Works

1.1. Demolition, Excavation and Granular Filling Works

Before starting the excavation works, the Contractor will examine the site plans and topographic conditions of the area and complete all checks. The Contractor will carry out dismantling, demolition, site cleaning and tree or root removal works.
Cleaning includes the removal of dismantled material, debris from demolition, and all organic and other debris and waste on the site.

- Demolition of existing structures (buildings, walls etc), if any, shall be executed with care without damaging any other structure/infrastructure etc.
- Dismantling of existing materials that were requested by UNICEF shall be removed before demolition without any damage, following classification shall be transported to the location designated by UNICEF.
- Removal and transportation of the debris of demolished structures shall be executed according to state and local code to allowed sites.
- Excavation related to new buildings and removal of excavated material shall be executed according to standards and local code with an emphasize on OHSE. Prior to start excavation any existing infrastructure underground or aerial within the site should be located and protected against damage.
- After dismantling and excavation related to new buildings, granular fill (hereinafter referred to as Fill) and compaction of the fill shall take place by adhering to the drawings and taking the necessary safety measures within the framework of the international OHSE directives.
- All excavation and filling works will be carried out in accordance with the directions, slopes and elevations shown in the drawings and/or in accordance with the written instructions of the Consultant.
- In case of excavation exceeding the dimensions specified in the design, the difference will be within the scope of the Contractor's financial responsibility. In addition, the Contractor will be obliged to fill the excess excavation with crushed stone or concrete as required, in accordance with the instructions of the Consultant, without claiming for any financial compensation.
- Warning tapes shall be placed around the excavated area.
- The Contractor will make the application of the structures and check their accuracy according to the Design and Specifications approved by the Consultant. Following the approval of the excavation plan by the Consultant, depending on the excavation plan, the topsoil remaining on the surface of the ground will be removed and stored somewhere on the site. This stored material may later be used by the Contractor for landscaping purposes. Foundation excavation will be carried out up to the excavation base elevation in line with the directives of the Consultant and as specified in the drawings and Specifications related to the excavation works.
- Pit and trench excavations must be adequately supported at all times. Unless otherwise specified in the contract, excavation must be made with a slope. Ditches and pits shall be protected from water.
- Excavation work shall be carried out in accordance with the dimensions and elevations determined in the drawings for the structures. The excavation area will include sufficient distance from walls and foundation piers to allow placement and pulling of formworks, establishment of services and control without incurring any additional cost to UNICEF.
- No excavation will be allowed below the specified levels. If excavated more than required, the area shall be filled with lean concrete or compacted fill material whichever instructed by the Consultant, up to the approved design level and the foundation manufacturing of new buildings will commence. In that case ground to be filled on shall be compacted before the fill.

For the bundling waterproofing to be done at the foundation base, the ground will be leveled at the foundation base level in continuous foundations and in the parts where foundation construction will not be carried out.

1.2. Concrete Works

Ready-mixed concrete with required technical applications should be used in the project. Any plant and materials to be used in the preparation and placing of the concrete shall be in line with the local, national and international legislations.

Plywood formwork will be used in the entire construction. The formwork material to be used in concrete will be in accordance with the dimensions specified in the design and the issues in the relevant standards, and all necessary additional measures will be taken for formwork supports and impermeability, taking into account the fluidity properties of the concrete and the project requirements.

Placed concrete should be cured as deemed necessary. Necessary precautions should be taken against extra low or high temperatures in it and formwork should be planned taking these problems into consideration.

2. Technical Specifications

A. Structural & Architectural Works

A1. Site Preparation and leveling:

Scope: Cutting and/or filling, compaction level up to 90%.

Once the excavation is completed to the final elevations, it must be checked and approved before any foundation laying work begins.
The areas outside the buildings to be built will be leveled in accordance with the project elevations, will be arranged with a smooth slope from the buildings to provide drainage, and will be kept clean until the final inspection is completed and the work is handed over.
In addition to these, site ground which affected by chemicals such as cement, lime, etc. which are stocked at site or due to the operation of construction machines should be treated. The upper layer of ground contaminated with substances shall be ventilated, cleaned and re-levelled.
Previously stored topsoil will be laid on landscape surfaces that have been ventilated, cleaned and leveled.
The leveling work will be carried out by the Contractor without any financial claim to UNICEF.

A2-1 Foundation (Lean concrete):

Scope: Leveling Concrete C16/20 Formwork Included

Before pouring the leveling and slope concrete, the surface on which it will be applied shall be completely free of organic, mud, dust and loose materials.

The areas where concrete will be poured will be wetted and the delivered mix will be spread evenly, placed without cavities.

Where applicable, concrete layer will be applied on top of the waterproofing in areas according to the design.

Leveling and slope concrete will be made as shown in the design in order to be covered with finishing material (artificial stone, natural stone, ceramics etc.).

Price for 1 m^3 of C 16/20 class ready-mixed concrete produced in a periodically calibrated concrete production facility (concrete batching plant) suitable for concrete production (having a laboratory, aggregate bunkers, control cabinets with computer control, conveyor belt system, cement silos, generator, concrete transmixer trucks and mobile/stationary concrete pump, additive tank and additive weighing hopper, moisture meter and all kinds of equipment), in compliance with the standards and the drawings with washed, sieved granulomere sand gravel and/or crushed stone, cement, water and additives if necessary, possessing the required qualities including all kinds of labour, materials and losses, expenses for machines, tools, equipment and testing, all kinds of horizontal and vertical transportation to the workplace, loading and unloading including loading and unloading of granulomere sand gravel or crumbs and cement entering the concrete area, and all other equipment and all other expenses, placement, curing (watering, protecting from excesiive cold, heat and other external impacts, maintaining, taking samples in adequate amount for testing and conducting necessary testing for the concrete.

A2-2 Foundation (concrete + BRC)

Scope: Including C30/37 Formwork and Double Layer Steel Reinforcing Mesh

Before placing the concrete, the surface on which it will be applied shall be completely free of organic matters, mud, dust, grease and loose materials.

Concrete should be transported from the place where it is prepared to the final place, uninterruptedly and as quickly as possible, and there should be no segregation or loss of material until the concreting work is completed.

The areas where concrete shall be poured will be wetted and the delivered mix will be spread evenly, placed without cavities compacted using vibrators avoiding segregation or other defects.

The concrete will be finished with an even surface and where required with a specific texture as shown in the design or according to covering finishing material (hardener, artificial stone, natural stone, ceramics etc.).

Price for 1 m^3 of C 30/37 class ready-mixed concrete produced in a periodically calibrated concrete production facility (concrete batching plant) suitable for concrete production (having a laboratory, aggregate bunkers, control cabinets with computer control, conveyor belt system, cement silos, generator, concrete transmixer trucks and mobile/stationary concrete pump, additive tank and additive weighing hopper, moisture meter and all kinds of equipment), in compliance with the standards and the drawings with washed, sieved granulomere sand gravel and/or crushed stone, cement, water and additives if necessary, possessing the required qualities including all kinds of labour, materials and losses, expenses for machines, tools, equipment and testing, all kinds of horizontal and vertical transportation to the workplace, loading and unloading including loading and unloading of granulomere sand gravel or crumbs and cement entering the concrete area, and all other equipment and all other expenses, placement, curing (watering, protecting from excesiive cold, heat and other external impacts, maintaining, taking samples in adequate amount for testing and conducting necessary testing for the concrete.
Two layers of welded steel reinforcing mesh according to the structural design and standards such as TS 4559/T3 “Steel Mesh for Concrete” shall be placed inside the concrete mass.
Type of the steel mesh should be according to the design but minimum rebar diameter shall be 5mm spaced 150mm each way.

A2-3 Reinforced Concrete Works

Scope: Including C30/37 Formwork and Steel Rebar (~100kg/m3)

Before placing the concrete, the surface on which it will be applied shall be completely free of organic matters, mud, dust, grease and loose materials.

Concrete should be transported from the place where it is prepared to the final place, uninterruptedly and as quickly as possible, and there should be no segregation or loss of material until the concreting work is completed.

The areas where concrete shall be poured will be wetted and the delivered mix will be spread evenly, placed without cavities compacted using vibrators avoiding segregation or other defects.

The concrete will be finished with an even surface and where required with a specific tecture as shown in the design or according to covering finishing material (hardener, artificial stone, natural stone, ceramics etc.).

Price for 1 m^3 of C 30/37 class ready-mixed concrete produced in a periodically calibrated concrete production facility (concrete batching plant) suitable for concrete production (having a laboratory, aggregate bunkers, control cabinets with computer control, conveyor belt system, cement silos, generator, concrete transmixer trucks and mobile/stationary concrete pump, additive tank and additive weighing hopper, moisture meter and all kinds of equipment), in compliance with the standards and the drawings with washed, sieved granulomere sand gravel and/or crushed stone, cement, water and additives if necessary, possessing the required qualities including all kinds of labour, materials and losses, expenses for machines, tools, equipment and testing, all kinds of horizontal and vertical transportation to the workplace, loading and unloading including loading and unloading of granulomere sand gravel or crumbs and cement entering the concrete area, and all other equipment and all other expenses, placement, curing (watering, protecting from excesiive cold, heat and other external impacts, maintaining, taking samples in adequate amount for testing and conducting necessary testing for the concrete.

Reinforcement with steel bars according to the structural design and standards such as TS 708 “Steel for the reinforcement of concrete - Reinforcing steel” shall be placed inside the concrete mass. Quantity of reinforcement in the concrete is estimated as 100kg for every cubic meter of concrete. Any material used more than that amount is considered to be included in the price of this item.

A3-1 Masonry (bricks)

Scope: Partitions with Hollow clay bricks

The application area shall be cleaned of any obstacle and free of organic matters, mud, dust, grease and loose materials. Before laying the first layer of mortar on the floor, make sure that the floor is clean and moist. Mortar is prepared in batches in accordance with the mixing ratios. The water used must be clean and the ingredients must be added later.

Care must be taken to ensure that the bricks are solid, properly shaped and the surfaces are clean. The surfaces of the bricks that will come into contact with the mortar should be wetted and placed by pressing on the mortar.

Care should be taken to ensure that the vertical joints of the walls do not line up in the same direction. The wall should be level and plumb. The necessary evenness in all directions should be checked.

Hollow clay bricks, that comply with TS EN 771-1+A1 “Specification for masonry units - Part 1: Clay masonry units” Standard with widths according to the design should be used.

To bind the bricks an appropriate cement mortar shall be used.

While forming the partition no section of brick wall should be higher than 3m or longer than 4.5m. When related section reaches these limits a reinforced concrete lintel shall be constructed horizontally or vertically. The masonry may continue after the lintel as necessary.

The price of 1 m^2 partition/parapet, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of walls using hollow clay bricks, cement mortar, reinforced concrete lintels and required fixtures according to the design.

A3-2 Masonry (CMU Blocks):

Scope: Partition with cement masonry unit (Regular or Bims)

The application area shall be cleaned of any obstacle and free of organic matters, mud, dust, grease and loose materials. Before laying the first layer of mortar on the floor, make sure that the floor is clean and moist. Mortar is prepared in batches in accordance with the mixing ratios. The water used must be clean and the ingredients must be added later.

Care must be taken to ensure that the CMUs are solid, properly shaped and with clean surfaces. The surfaces of the CMUs that will come into contact with the mortar should be wetted and placed by pressing on the mortar.

Care should be taken to ensure that the vertical joints of the walls do not line up in the same direction. The wall should be level and plumb. The necessary evenness in all directions should be checked.

Cement-based Masonry blocks, that comply with TS EN 771-3 Standard " Specification for masonry units - Part 3: Aggregate concrete masonry units (Dense and lightweight aggregates)" with widths starting from 100mm to 400mm according to the design should be used. There are two main types of CMU. One is regular aggregate concrete blocks and the other lightweight type as a better insulating one as well as easier to handle.

While forming the partition no section of CMU wall should be higher than 3m or longer than 4.5m. When related section reaches these limits a reinforced concrete lintel shall be constructed horizontally or vertically. The masonry may continue after the lintel as necessary.

The price of 1 m^2 partition/parapet, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of walls using CMU blocks, cement mortar, reinforced concrete lintels and required fixtures according to the design.

A3-3 Masonry (AAC Blocks):

Scope: Partition with autoclaved aerated concrete unit

The application area shall be cleaned of any obstacle and free of organic matters, mud, dust, grease and loose materials. Before laying the first layer of mortar on the floor, make sure that the floor is clean and moist. Mortar is prepared in batches in accordance with the mixing ratios. The water used must be clean and the ingredients must be added later.

Care must be taken to ensure that the blocks are solid, intact and the surfaces are clean. The surfaces of the blocks that will come into contact with the mortar should be wetted and placed by pressing on the mortar.

Care should be taken to ensure that the vertical joints of the walls do not line up in the same direction. The wall should be level and plumb. The necessary evenness in all directions should be checked.

Blocks that comply with standard TS EN 771-4+A1 “Specification for masonry units - Part 4: Autoclaved aerated concrete masonry units” with widths according to the design should be used.

To bind the blocks an appropriate aerated concrete glue shall be used.

While forming the partition no section of the wall should be higher than 3m or longer than 4.5m. When related section reaches these limits a reinforced concrete lintel shall be constructed horizontally or vertically. The masonry may continue after the lintel as necessary.

The price of 1 m^2 partition/parapet, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of walls using unequipped aerated concrete wall blocks, aerated concrete glue , reinforced concrete lintels and required fixtures according to the design.

A4-1 Exterior Wall Panel for Prefabricated building (thickness = 10cm)

Scope: Prefabricated Building Exterior Wall Panel (thickness: 10cm) including connection and transition elements

Panels constructed with powdercoated 0.80mm thick galvanized steel profile frame welded and/or screwed/riveted together; filled with minimum 80 mm thick mineral wool for insulation and covered by painted 0.70 mm corrugated steel sheet if facing the exterior and finished (painted/cladded) , minimum 8 mm thick moisture-resistant drywall board such as fibercement board (1350 kg/m^3) where facing interior.

Where applicable PVC or wooden skirting should be installed on joints between wall and floor.

It must have load carrying capacity when deemed necessary by the requirements.

The work item comprises manufacturing as a whole building plan and calculated by measuring total area of the panels forming the building.

The price of 1 m^2 wall partition, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of exterior-facing walls using steel profile frame with sheets/boards cladded on both sides, necessary fixtures and accessories according to the design.

A4-2 Interior Wall Partition Panel for Prefabricated building (thickness = 10cm)

Scope: Prefabricated Building Interior Partition Wall Panel (thickness: 10cm) including connection and transition elements

Panels constructed with powdercoated 0.80mm thick galvanized steel profile frame welded and/or screwed/riveted together; filled with minimum 50 mm thick mineral wool for insulation and covered on both sides by finished (painted/cladded) , minimum 8 mm thick moisture-resistant drywall board such as fibercement board (1350 kg/m^3). All frame should be rustproofed.

Where applicable PVC or wooden skirting should be installed on joints between wall and floor.

It must have load carrying capacity when deemed necessary by the requirements.

The work item comprises manufacturing as a whole building plan and calculated by measuring total area of the panels forming the building.

The price of 1 m^2 wall partition, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of interior walls using steel profile frame with sheets/boards cladded on both sides, necessary fixtures and accessories according to the design.

A4-3 Top/Roof Panel for prefabricated building

Scope: Prefabricated Building Top Panel (thickness: 10cm) including connection and transition elements

Panels constructed with powdercoated 0.80mm thick galvanized steel profile frame welded and/or screwed/riveted together; filled with minimum 80 mm thick mineral wool for insulation and covered by painted 0.50 mm corrugated galvanized steel sheet on the exterior and finished (painted/cladded) , minimum 8 mm thick moisture-resistant drywall board such as fibercement board (1350 kg/m³) where facing interior. All frame should be rustproofed.
It must have load carrying capacity.
Visible side of the panel should be finished in line with the approval of the Consultant.
The work item comprises manufacturing as a whole building plan and calculated by measuring total area of the panels forming the building.
The price of 1 m² roof panel, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of exterior-facing ceiling panels using steel profile frame with sheets/boards cladded on both sides, necessary fixtures and accessories according to the design.

A4-4 Roof for Prefabricated building

Scope: Prefabricated Building secondary roof including frames, gutters, downpipes, fastening and transition elements

Frame of the roof system will be according to the structural design by using vertical, horizontal and cross profiles as roof trusses, roof purlins and roof crosses whichever are necessary. Light steel galvanized profiles will be used of size and thickness appropriate to the structural calculation. Frame elements shall be joined together and fixed to the building by welding and/or bolted/screwed/riveted joints. Precautions will be taken to prevent the nuts from being loosened in non-prestressed bolt connections. All frame should be rustproofed.

Roof system shall be covered by painted 0.50 mm corrugated galvanized steel sheet fixed on the roof steel structure by screwing. Eave soffits also should be covered by same material as the roof. Joints of different elements of the roof would be finished with painted steel accessories. All roof parts should be watertight and UV-resilient. Colours shall be as per the design.

For proper water discharge, rain gutters and downspouts shall be installed. Unless mentioned otherwise in the tender documents, PVC or galvanized steel rain gutter and downspouts with special accessories would be used. Colours shall be as per the design. All should be fixed to the building at max. 50 cm intervals with special clamps after adjusting the slope of the gutters and making the downspouts plumb.

The price of 1 m^2 standing roof, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of standing roof using steel profile frame with sheets cladded on the exterior surfaces, rainwater system, necessary fixtures and accessories according to the design. Measurement shall be calculated by horizontal footprint of the roof.

A5-1 Light Gauge Steel Frame Building (3m X 7m)

Scope: Prefabricated Light Steel Building with 3m x 7m footprint

Prefabricated Building constructed with light steel framing covered with sheets/boards.
The work item comprises manufacturing whole building with all necessary elements as detailed in thetechnical specifications

A5-2 Light Gauge Steel Frame Building (6m X 7m)

Scope: Prefabricated Light Steel Building with 6m x 7m footprint

Prefabricated Building constructed with light steel framing covered with sheets/boards.
The work item comprises manufacturing whole building with all necessary elements as detailed in the thetechnical specifications.

A5-3 Light Gauge Steel Frame Building (9m X 7m)
Scope: Prefabricated Light Steel Building with 9m x 7m footprint

Prefabricated Building constructed with light steel framing covered with sheets/boards.
The work item comprises manufacturing whole building with all necessary elements as detailed in the thetechnical specifications.

A6 Insulated window units:

Scope: Window joinery units manufactured from PVC or aluminum frames reinforced by steel profile and double glazing including fixtures, accessories and shades/rollerblinds/curtains according to the design.

Window units shall be manufactured with TSE certified frames. Frame section should be minimum 70 mm wide.

Glazing panes shall be insulated and packaged as 4 mm (clear glass) + 16 mm (air gap) + 4 mm (clear glass).

Opening wings of window units shall work with 2-way availability where units smaller than 50 x 50cm such as in the wet premises may be opened one-way.

According to the design, shades or rollerblinds or curtains should be installed on the windows.

According to the design, openable fly screens with aluminum frame.

All windows should have steel security bar cages installed over them.

Accessories such as hinges, handles, locking mechanisms and gaskets etc. should be included.

The price of 1 m² façade window, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of window using PVC profile frame with double glazing, including necessary fixtures and accessories.

A7-1 Exterior Door Units:

Scope: Insulated, Entrance Door with metal frame and metal doorleaf including fixtures, accessories etc. according to the design.

Door leaf shall be metal structured, cladded with painted minimum 0.70 mm thick galvanized steel sheet and insulated core.

The door leaf should have at least 3 (three) hinges.

Handles shall be metal and durable.

Door shall be installed with cylindrical lock, lockable from outside and inside along with a door stopper.

Door Unit shall be sealed against wind, dust and sound.

Door frame should be painted steel frame made out of minimum 1.20 mm galvanized sheet. There should be gasket around door frame. Installation of the frame to the building shall be cording to the design.The screws to be used shall be stainless steel.

Dimensions should be as per the design.

The price of 1 m^2 Exterior Door, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of exterior door using Steel frame and steel covering, including necessary fixtures and accessories.

A7-2 Interior Door Units

Scope: Interior Door with metal or wooden frame and metal or wooden doorleaf including fixtures, accessories etc. according to the design.

Door leaf shall be metal or wooden structured, cladded with painted minimum 0.70 mm thick galvanized steel sheet or finished (painted/covered) wooden sheet.

Handles shall be plastic or metal and durable.

Door shall be lockable.

Door frame should be painted steel frame made out of minimum 1.20 mm galvanized sheet. Installation of the frame to the building shall be according to the design.The screws to be used shall be stainless steel.

Dimensions should be as per the design.

The price of 1 m^2 Interior Door, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of Interior door using Steel frame and wooden/steel leaf, including necessary fixtures and accessories.

A8 Tiling Works (Wall/ Floor)

Scope: Ceramic/porcelain Tile Covering on walls or floors

Surface should be clean and free of dirt, dust, grease and loose particles or residues that damage good adhesion. Surface irregularities should be fixed and if necessary a self-levelling or screed shall be applied on the floor and where necessary, plaster shall be applied on the walls beforehand. Cement-based, tile adhesive shall be used on the surface. Following laying the approved ceramic/porcelain tile with uniform 3 mm joint gaps, the joints shall be filled in with cement-based joint filler compound in the approved color in accordance with the approved detail project.

After required hardening reached, the coated surface shall be cleaned, eliminating all kinds of excess material and waste.

Slip resistance tiles should be used for wet area floors.

Where applicable PVC or wooden skirting should be installed on joints between wall and floor as well as PVC or metal corner beads, transition profiles including surface durability etc.

The price of 1 m^2 ceramic/porcelain tiling, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of ceramic/porcelain tiling, including necessary fixtures and accessories.
Item should be measured as per the covered surface area.

A9-1 Floor Covering Lining Works /

Scope: PVC/Vinyl floor covering in rolled sheets or tile form

Surface should be clean and free of dirt, dust, grease and loose particles or residues that damage good adhesion. If necessary a self-levelling or screed shall be applied beforehand. Special adhesive shall be used on the surface. Following laying the approved PVC/Vinyl sheets or tiles with uniform joint gaps, the joints shall be filled in with suitable colour joint seal or piping in accordance with the approved detail project.

The premise should be closed to any foot traffic until required hardening of the adhesive has been reached. Afterwards the surface may be cleaned, eli**m**inating all kinds of excess material and waste.

Where applicable PVC or wooden skirting should be installed on joints between wall and floor as well as metal transition profiles etc.

The price of 1 m² PVC/Vinyl flooring, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, for the construction of PVC/Vinyl flooring, including necessary fixtures and accessories.
Item should be measured as per the horizontal surface area treated.

A9-2 Floor covering Planking Works

Scope: Parquet Laminate/Vinyl flooring in plank form

Surface should be clean and free of dirt, dust, grease and loose particles or residues that damage good adhesion. If necessary a self-levelling or screed shall be applied on the floor beforehand. On the prepared substrate, underlayment or adhesive shall be used. Following that, the approved minimum 2 mm thick Vinyl Parquet should be placed and locked together without gaps in accordance with the approved detail.

The premise should be closed to any foot traffic until complete laying process in that particular premise has been achieved. Afterwards the surface may be cleaned, eli**m**inating any kind of excess material and waste.

Where applicable PVC or wooden skirting should be installed on intersections of wall and floor as well as metal transition profiles etc.

The price of 1 m² Parquet Laminate/Vinyl flooring, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, including necessary fixtures and accessories.
Item should be measured as per the horizontal surface area treated.

A10 Wall Covering Painting Works

Scope: Wall Painting (Water based, Oil based)

Surface should be clean and free of dirt, dust, grease and loose particles or residues that damage good adhesion. Where necessary, surface irregularities should be fixed with repair mortar and/or putty and fine-finished plaster and a surface treatment applicable to the substrate shall be applied beforehand. Surface should be processed (sanding etc.) to smooth out any undesired condition. Following that a suitable primer layer should be coated on the surface. When all sublayers are plain and dry, thus ready to be processed on, the surface should be painted with the approved type and color in accordance with the approved detail in minimum two layers. Sufficient time must be allowed between successive layers to ensure adequate drying in line with the durations suggested by the manufacturer.

Sufficient time must be left between successive layers to ensure adequate drying.
Coverage shall be complete and each layer shall be applied carefully to form a smooth finished surface.

There should be no signs of bleeding, drops, protrusions, brush marks, color or pattern changes on painted surfaces.

The surface to be painted and the ambient air temperature must be 5 °C and above or as per suggested by the manufacturer.

Attention must be taken when painting at humidity levels exceeding 80%.

After required dryness reached, the coated surface may be cleaned, eliminating all kinds of excess material and waste.

Where applicable PVC or wooden skirting should be installed on joints between wall and floor as well as PVC or metal corner beads, transition profiles etc.

Paints that are air-permeable and does not contain environmentally harmful solvents, and prevents mold, fungi, etc. on the surfaces it is applied to should be preferred such as acrylic-based flexible interior paint.

The price of 1 m^2 Wall Painting, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, including necessary fixtures and accessories.
Item should be measured as per the horizontal/vertical surface area.

B. Exterior Works

A19-1 Fence (steel mesh)

Scope: Steel Mesh Fence

Course of the fence should be as per design approved buy the Consultant. Surface along the course should be clean and free of obstacles.

Posts should be of metal or pre-cast reinforced concrete material and be treated to be resilient to the atmospheric conditions. These should be spaced as given in the design and holes for placing the posts should be excavated carefully. Following it is made sure that there is no contamination and loose particles inside the holes, posts shall be placed and fixed in place in the form of bolting, concreting or other way approved by the Consultant. Posts being plumb and steady should be assured. Cross members should be used in directions, intervals and locations as per the approved plans and the prevailing wind direction.

After posts are ready for subsequent works, the laying process of the fence mesh made out of approved color PVC coated 3.5 mm thick galvanized wires welded/woven with 5cm x 5cm spacing on the existing steel or pre-cast reinforced concrete posts. Galvanized wire should be drawn along the line in three pararlel lines on top, middle and bottom of the required height of the mesh and tensioned in order to avoid any dangling under load. Mesh should be fixed to the posts and horizontal wires. In case prefabricated panels of mesh would be used, those should be fixed to the posts plumb and level with suitable fixtures as detailed in the design. Height of the fence shall be minimum 2m.

After whole length completed, the work area shall be cleaned, eliminating all kinds of excess material and waste.

Where shown in the design, barbed wire or razor wire parts should be installed on the fence, if any.

Any additional structure and/or elements (doors, openings, accessories etc.) for a part of the fence is included in the item.

Joints should be executed without risking the integrity of the fence.

The price of 1 lm Fence, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, including necessary fixtures and accessories.
Item should be measured as per the sloped length.

A19-2 Fence (steel sheet)

Scope: Steel Sheet Fence

Course of the fence should be as per design approved buy the Consultant. Surface along the course should be clean and free of obstacles.

Posts should be of metal or pre-cast reinforced concrete material and be treated to be resilient to the atmospheric conditions. These should be spaced as given in the design and holes for placing the posts should be excavated carefully. Following it is made sure that there is no contamination and loose particles inside the holes, posts shall be placed and fixed in place in the form of bolting, concreting or other way approved by the Consultant. Posts being plumb and steady should be assured. Cross members should be used in directions, intervals and locations as per the approved plans and the prevailing wind direction. Secondly, horizontal beams of metal profiles (such as box-profile or L-profile) should be installed between posts in minimum two rows.

After posts and beams are ready for subsequent works, the laying process of 0.50 mm thick hot-dip galvanized corrugated/trapezoidal metal sheets with overlapping each other at least 10 cm in width and 15 cm in length, on the existing structure. Sheets should be fixed on the posts using screws with rubber gaskets. In case prefabricated panels of sheets would be used, those should be fixed to the posts plumb and level with suitable fixtures as detailed in the design. Height of the fence shall be minimum 2m.

After whole length completed, the work area shall be cleaned, eliminating all kinds of excess material and waste.

Where shown in the design, barbed wire or razor wire parts should be installed on the fence, if any.

Any additional structure and/or elements (doors, openings, accessories etc.) for a part of the fence is included in the item.

Joints and corners should be executed without risking the integrity of the fence.

The price of 1 lm Fence, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, including necessary fixtures and accessories.
Item should be measured as per the sloped length.

A20 Shade (steel structure)

Scope: Outdoor Shade/Veranda with Steel structure and painted steel sheet

Frame of the Shade system will be by using vertical, horizontal and cross profiles whichever are necessary according to the design. Steel galvanized or painted profiles will be used of size and thickness appropriate to the design. Frame elements shall be joined together and fixed to the building or ground by welding and/or bolted/screwed/riveted connections. Precautions will be taken to prevent the nuts from being loosened in non-prestressed bolt connections.

Whole system should be rustproof and windproof.

Shade shall be covered by painted 0.50 mm corrugated galvanized steel sheet fixed on the roof steel structure by screwing. Joints of different elements of the roof would be finished with painted steel accessories. All roof parts should be watertight and UV-resilient. Colours shall be as per the design.

For proper water discharge, PVC or galvanized steel rain gutter and downspouts with special accessories shall be installed if given in the design. All should be fixed to the building at max. 50 cm intervals with special clamps after adjusting the slope of the gutters and making the downspouts plumb.

The price of 1 m^2 Shade, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, with necessary fixtures and accessories according to the design. Measurement shall be calculated by horizontal footprint of the roof.

A21 Handrail (Galvanized steel)

Scope: Galvanized Steel Profile Handrails

Frame of the Handrails will be by using vertical, horizontal and where necessary cross profiles, with tubular, box or L-shaped sections according to the design. Painted steel galvanized profiles will be used of size and thickness appropriate to the design. Frame elements shall be joined together and fixed to the building or ground by welding and/or bolted/screwed/riveted connections.

Whole system should be rustproof and prone to abuse.

Colour shall be as per the design.

All should be fixed to the ground or building at max. 50 cm intervals with special anchors according to the specific parts (e.g. chemical or mechanical anchors for concrete etc.) after adjusting the handrails to be linear and plumb.

The price of 1 lm handrails, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, with necessary fixtures and accessories according to the design. Measurement shall be calculated by sloped length of the handrails.

A22 Landscaping (around the building within the allocated lot)

Soft Landscaping

Scope: Vegetation works

Vegetation part shall be constructed according to the landscape design. All necessary resources for the healthy growth of the vegetation should be provided such as vegetable soil adequate for the vegetation to set roots, fertilizer, any stands etc.

Planting should be executed according to the design with grass areas, flower areas, fence bushes, trees etc. whichever applicable

In case any irrigation system is shown in the design, relevant system shall be installed.

Hard Landscaping

Scope: Natural Stone Floor Covering

Surface should be clean and free of dirt, dust, grease and loose particles or residues that damage good adhesion. Surface irregularities should be fixed and if necessary a compacted backfill or lean concrete shall be applied on the ground beforehand. Cement mortar shall be used on the surface. Following laying the approved Natural Stone tile, any joint gaps shall be filled in with cement grout.

After required hardening reached, the coated surface shall be cleaned, eliminating all kinds of excess material and waste.

Where applicable skirting should be installed on joints between wall and floor as well as transition profiles etc.

Scope: Walking Road With Stream Gravel

It is necessary to level the area where the walking path will be built, to lay specially selected stream pebbles at the desired slope and size, to compact them with a compactor or tamper, to fill the joints with slaked lime added mortar so that there are no gaps, to obtain a smooth surface that will not hinder walking and will not be at a height that can be tripped over.

The price of 1 m^2 landscaping area, including horizontal and vertical transportation, loading/unloading at the construction site, all kinds of materials with losses, labor, tool and equipment expenses, contractor general expenses and profit, including training beneficiary's personnel (1 session) excluding any street furniture, accessories etc..
Item should be measured as per the horizontal footprint area.

C. Mechanical Works

General Principles:

Scope

This General Technical Specification covers the technical conditions regarding the properties, supply, installation and general principles of the materials and products used in the mechanical installations that must be present in all existing and new buildings belonging to private and legal entities and public institutions.

Compliance with Standards

The detailed design and construction of the production will be as shown and defined in the relevant part and article of the Specification.

Will comply with the criteria given in the relevant Turkish standards and/or implemented European Union standards .

All materials will be produced in accordance with the specifications specified in the specifications and Turkish Standards. Materials and products that do not have a Turkish standard will comply with an international standard.

Two copies of all standards, practical provisions and the like referred to in the Contract Documents shall, if requested, be provided by the Contractor for the use of the Project Manager prior to the fabrication, installation and production of the relevant work. The Contractor shall provide a detailed translation of such documents in the said language. Abbreviations of these standards, practical provisions and the like are given below.

ASHRAE: American Society of Heating, Cooling and Air Conditioning Project Managers.

DIN : German Industrial Norms

EN : European Norms

IBC : International Building Code

ISO : International Standards Organization

NFPA : National Fire Protection Association Codes and Standards (American)

TBDY : Turkey Building Earthquake Regulation

T SE : Turkish Standards Institute

Compliance with Laws, Statutes and Regulations

The Contractor will work in accordance with all laws, statutes and regulations regarding the construction, testing and operation of the facility, especially those related to the prevention of environmental pollution and the protection of general health. In matters that are not regulated in any way, the Contractor will work or act in accordance with the valid procedures and rules.

The contractor; In projects, it will verify that the issues specified in the technical specifications comply with the laws, statutes, regulations, mandatory standards in force or local conditions, procedures and rules. If any discrepancy occurs at the end of the work that the Contractor did not warn about, no payment will be made for the expenses incurred by the Contractor to correct this issue.

of the materials specified in the specifications cannot be found in the market, the Contractor will assemble a material that has better properties and capacity and can be used instead, by obtaining the written permission of the Consultant and will ask the UNICEFfor this. will not charge any additional fee. Some materials and products must have a quality certificate or TSE warranty stamp. It is stated in the unit price tariffs that it can be used in the facility, provided that it carries list will be added to the specification together with explanatory information on this matter.

Laws, Statutes and Regulations

The Contractor shall verify that the matters specified in the projects, specifications and unit price descriptions comply with the laws, statutes, regulations, mandatory standards or local conditions, procedures and rules. If there is anything inappropriate, the UNICEF will be warned in writing.

Material Approvals

Before all materials are procured or manufactured and brought to the construction site, “necessary shop drawings”, “manufacturer data” and “documents related to equipment, materials and paint”, “details” regarding each system specified in each separate section will be submitted to the Project Manager and approval will be obtained. Documents submitted for partial approval will not be accepted and will be returned

without review. The documents to be submitted for approval include the manufacturer's name, trade name, address, telephone numbers, catalog model or number of the material, label data, dimensions, layout dimensions, capacity, project features and reference paragraphs, relevant publication references and the necessary information to ensure that each part the Contractor wishes to procure complies with the specifications. It will include all other information.
The Contractor must obtain approval from the UNICEF before starting production for all materials to be used within the scope of work. In the materials to be used, priority will be given to the use of materials and products that are produced in Turkey and contain the "Domestic Production" logo and sign in accordance with the criteria determined by the Ministry of Commerce.
While obtaining approvals for the materials to be used;
A Material Approval Form in accordance with the type form will be prepared and signed by the authorized person and submitted for approval.
Current material approval documents (National and/or International standard documents, primarily TSE, TSEK documents and/or EOTA EAD European evaluation documents, CE, Manufacturing Qualification Certificate, Chamber of Industry Registration Certificate, Technical Catalogs, References, etc.) documents of the preferred manufacturers. It will be included in the attachment of the form.
The materials to be used will be in accordance with the conditions and provisions specified in the project and location list of the work, and the Ministry of Environment and Urbanization; It will also comply with the issues specified in the communiqués on the general technical specifications of building works, construction, machinery and electrical installations, the building materials regulation and the publication of the technical specifications to be applied within the scope of this regulation.
For the works to be carried out within the scope of the contract, the documents showing conformity to the standards (the document showing compliance with the Turkish Standards (TS) issued by the Certification bodies accredited by TÜRKAK, provided that it is accepted by TSE and / or our Administration, having international CE standards deemed appropriate for use for technical reasons) and having technical qualifications and materials, devices, etc. will be used. The has the right to request tests and reports from Universities and/or Laboratories to check the suitability of any certified product for manufacturing.
At least 3 (three) first quality alternatives will be submitted to the Supervision and UNICEF for approval along with the promotional files, and samples will be given to the UNICEF for what is required. In cases where the material manufacturer does not have an alternative, approval with one and/or two alternatives may be submitted. In order to determine the technical properties of the materials in question, the UNICEF may request test reports from organizations it deems appropriate, with all expenses borne by the Contractor. Written permission of the UNICEF will be obtained for the selection of materials for all work items (construction-mechanical-electrical-landscape).
Problems in supplying the product for which material approval has been given by the Administration, decrease in product supply due to problems originating from the manufacturer, deterioration of production quality, inability to be shipped to the workplace on time, problems that may be seen about the material during the application phase, use of a product of different quality than the sample submitted to the Administration, failure to obtain appropriate results in the tests to be carried out, etc. In such cases, the Administration; The Contractor is free to cancel the material approval given, and the Contractor may be given additional material approval in addition to the approved brand and product and/or other materials presented as alternatives in the initial material approval may be used, provided that they are approved by the Administration.
Any liability arising from the use of material that does not comply with the above-mentioned conditions belongs to the Contractor.
The Contractor will remove the materials requested to be removed from the site by the Control, at his own expense. If not, it will be removed from the site by Control and the expenses incurred will be compensated by the Contractor.
Failure to give a written warning to the Contractor by the UNICEF as a result of not realizing that unapproved materials were used ; This does not mean that the material has the technical qualities and conditions and complies with Turkish standards, and this does not eliminate the Contractor's responsibility.
All responsibilities, including any hidden defects that may arise from the use of materials that do not comply with the above-mentioned conditions, or any claims from home buyers, other third parties and institutions for this reason, belong to the Contractor.

PLUMBING STANDARDS TO BE COMPLIED WITH

The standards to be used in the manufacturing and installation of plumbing materials are listed below. All manufacturing will comply with Turkish Standards, Iller Bank General Directorate Drinking Water Department, DSI General Directorate Drinking Water and Sewage Department General Technical Specification or equivalent internationally valid standards.

* Taps (for Plumbing) TS EN 200 and TS EN 817
* Photocell Batteries / Luminaires TS EN 15091
* Pipes and Connection (Cast Iron for Waste Water) TS EN 877
* Pipe Fittings – Tempered Cast Iron TS 11 EN 10242
* Valves (for Plumbing) TS 15
* Rigid PVC Drinking Water Pipes and Pipe Fittings TS 274-1 EN 1452-1
* Hard PVC Waste Water Pipes and Fittings TS 275 EN 1329
* Pipes - Welded and Seamless, Screwed, Steel (Black or Galvanized) TS EN 10255
* Copper Pipes TS EN 12449
* Steel Natural Gas Pipes TS 6047 EN 10208
*Pre-InsulatedPipeTSEN253
* Pre-Insulated Pipe Joint Insulation TS EN 489
* Batteries – TS EN 200 for Pressurized Water Installation
* Siphons – For Waste and Dirty Water Installations (Materials Other than Iron) TS EN 274
* Pipes - Welded, Steel, TS EN 10217 for General Purposes
* Check Valves (Return Valves) TS EN 1074
* Sinks (Ceramic) TS EN 14688
* Sinks (Stainless Steel) TS EN 13310
* Alaturka Latrine Stones (Rear Entry and Internal Washing) TS 799
* Alafranga Hola (Ceramic and with self- reservoir) TS EN 997
* Water Meters (For Cold Water) TS 824 ISO 4064
* Fittings (For Galvanized Steel Pipes) TS 2218
* Urinals TS EN 1347
* Water Heaters TS 736

Connection Parts (Fittings)

* Cast Iron Fittings TS EN 877
* PVC Fittings TS 275-1 EN 1329-1
* Polypropylene Waste Water Pipes TS EN 1451-1
* Tempered Iron Fittings TS 11 EN 10242
* Galvanized Steel Pipe Fittings TS 931 EN 10241
* Waste Water Pipe Siphons TS EN 274
* Unions (For Copper Pipes) TS 2296
* Polypropylene Pipe Fittings (PPRC) TS EN 15874
* Polyethylene Pipe Fittings TS 418-1 EN 12201-1
* Pre-Insulated Pipe Fittings TS EN 448
* Natural Gas Pipe TS 6047 EN 10208
* Copper Pipes (Used in Gas Installation) TS EN 1057
* Toilet Washer Valves TS 366
  * Cast Iron Floor Drains TS 327
  * Ball Valves for Plumbing TS 3148
  * Lever Operated Butterfly Valve TS EN 593
  * Recessed Key Type Purger TS 579/4

Pipes, Pipe Fittings and Connections

All pipe fittings will be of their own type. PE and PPRC pipe splicing processes It will be made by butt welding and/or fusion welding system according to the joining method required by the relevant standards. Joining with the butt welding method will be applied to pipes with a wall thickness of 5 mm and above. Polypropylene pipe (PPRC) fittings 3 'will comply with TS EN ISO 15874.
Fittings of galvanized steel pipes 10242'are at least in accordance with TS 11 EN 2,65 mm. It will be made of wall-thickness, dip galvanized steel material.
All outdoor installation pipelines will be laid below the frost level. Pipes will be distributed after the ball valve to all fixtures and equipment. The hot water and cold water pipe system will be installed in a way that allows discharge. Pipes within the channel will be isolated and protected against water.
The pipes will be cut by the Contractor precisely in accordance with the dimensions in the building and the pipes will be installed without difficulty or springing. Care will be taken not to weaken the structural elements of the building. Unless otherwise specified, pipes above ground will be laid parallel to the building line. Branches to be taken from the main service lines can be connected from the top or side of the main line using jumpers, depending on the construction or installation requirements.
All plumbing carrier consoles, threaded rods and angle irons will be galvanized, and dowels and rubber clamps will be used.
Changes in pipe diameters will be made using reducing parts, the use of sleeves will not be allowed. Direction changes will be made using inserts.

EQUIPMENT (LUMINAIRES)

Armatures, valves, fittings, check valves, strainers (filters), shock absorbers, hose taps, vacuum breakers, etc. in drinking water installations. Accessory is defined as the equipment of the installation.
Valves: A shut-off valve shall be installed on the supply pipes to each equipment or fixture. The valves specified in the project regarding pipelines, columns, secondary and main pipes will comply with this specification. Unless otherwise stated, all valves will be full bore ball type valves.
Fittings: 2"and smaller diameter galvanized steel pipe couplings will comply with TS 2218 specification. Fittings shall not be embedded in walls, ceilings or floors. Both ends of the unions will be screw type and conical.
Non-Return (Check) Valves: Non -return valves shall be "PN 16"class bronze body, swivel type, with wafer or replaceable disc, screwed to the bronze head. 2"or for smaller diameters, it will be the screw connection type. For diameters of 2 1/2" and larger, iron body, replaceable disc, flanged mouth type valves will be used.
Strainers (Filter): Subject to the pressure and temperature of the fluid, having the TSE quality certificate, the body is made of brass, bronze, cast, iron or steel, the internal strainer is made of brass or stainless steel, the strainer is easily disassembled and cleaned, the strainer is flanged or screwed, and its catalog will be selected to be approved by the Consultant.

STANDARDS TO BE COMPLIED WITH IN HEATING - COOLING INSTALLATIONS

The standards to be used in the manufacturing and installation of Heating - Cooling Installation materials are listed below. All manufacturing will comply with Turkish Standards, relevant laws and technical regulations, the Ministry of Science, Industry and Technology Regulations or equivalent internationally valid standards.
* Law on the Preparation and Implementation of Technical Legislation regarding products numbered 4703
* Market Surveillance and Inspection Regulation of the Ministry of Science, Industry and Technology
Directive on electrical equipment designed to be used within certain voltage limits (2006/95/EC (LVD))
* Electromagnetic compatibility directive (2004/108/EC (EMC))
* TS EN 60335-2-30: Safety rules - section for electrical devices used in homes and similar places - 2-30: Special rules for room heaters
* TS EN 60335-1: Safety rules - Part 1 for electrical devices used in homes and similar places: Prepared within the scope of the general rules standard.
* TS EN 60335-2-40: Safety rules - section for electrical devices used in homes and similar places - 2-40: Special rules standard for electric heat pumps, air conditioners and dehumidifiers.

EQUIPMENT

Split Air conditioning: Air conditioners will have 24-hour real-time “On/Off Timing” feature. Air conditioners will have heat pumps. The air conditioners to be offered must work with R32 gas. Air conditioners must have wireless remote control. The sound pressure level of the indoor and outdoor units of wall, floor-ceiling, cassette type split air conditioners, measured at the highest speed and at a distance of 1.5 m from the device, shall not exceed the values shown in the table. The COP value will not be below the values shown in the table. The total copper piping distance between indoor and outdoor units (including horizontal and vertical) will be specified. All air conditioning devices will have an Automatic Fault Notification System.
All air conditioners offered must be able to operate smoothly up to -10 °C outdoor conditions in Cooling Operation, and up to -15 °C outdoor conditions in Heating Operation.
All air conditioners offered are 220 (± 9-10%) V AC voltage and 50 Hz. It can operate with (± 5%) frequency supply energy. All air conditioners will be DC Inverter type and will meet the required capacity by automatically changing the Compressor speed according to the required capacity. Air conditioning devices will be air cooled. The devices will have Automatic Defrost Operation separately for the Outdoor Unit and the Indoor Unit. The air filter will be washable type. It will be ensured that the filter is easy to install and remove from the cabin. Compressor type and model will be specified. Compressors of wall mounted air conditioners DC Inverter Compressors of rotary type, cassette type air conditioners DC Inverter Scroll or DC Twin It will be rotary type. Compressors will be fed by thermal magnetic delay fuses. Fans will be statically and dynamically balanced. The fins on the blowing nozzles of all air conditioners will be directed left and right manually or automatically, and directed up and down will be automatic.
All air conditioners will be in the form of an indoor unit and an outdoor unit. There will be a grounding device in both units to prevent short circuits in air conditioners. The devices will have a dehumidification function. Evaporation and condensation in the devices will be controlled by temperature measuring sensors. Temperatures will be controlled by fan and compressor speeds. The devices must have an oil collection Mode (Operation) to prevent the compressor from running out of oil. This work should be done automatically by the device. The air conditioners offered will be equipped with Electronic Expansion valves. In order for the air conditioners to be activated again without the need for any intervention in case the electricity is restored after a power outage, R Start (Devices automatically start working again according to the values they were set before the power outage) must be present. All air conditioning devices will be able to automatically switch from heating to cooling and from cooling to heating. The device will ensure that the set temperature value operates within ± 0.5 °C limits. Outdoor unit coils of all air conditioners will be protected against acids and corrosion that will occur in the outside air. Gas and liquid line connections on the devices will have valves.
Catalogs to be obtained from three different companies together with their relevant documents (TSE/ISO/CE) will be submitted to the consultant for approval and documents related to the selected device will be delivered together with the device.
Electric Panel Convector: The device is a panel type electric, wall or floor type convector heater depending on the project. It must have IPX4 splash water safety norm. The device operates with 220-240 volt single phase 50 Hz energy. It has a 1.5 meter cable and plug so that it can be plugged into an existing electrical outlet. The standard deviation of the electronic thermostat at 20 degrees room temperature should be 0.2 degrees. The heater will have a thermostat. The frost protection function, symbolized by the snow crystal on the thermostat, should prevent the ambient temperature from falling below 5 degrees, should have a dial with divisions ranging from 1 to 5, and should provide a maximum room temperature of 30°C at the highest level. The thermostat must be able to keep the room temperature constant at the desired level. When the device is covered with any object, the device should be automatically deactivated. The heating elements and wings inside the device should be made of extruded aluminum and placed on brackets supported by special glass fiber. At a room temperature of 20 degrees, the device front panel temperature should be a maximum of 60 degrees. The heater must be equipped with a thermal cut-out element for safety. In case of overheating, the breaker should cut off the electricity and automatically restart the heater when it cools down. Heating elements will be made of thin and large surface aluminum plates pressed onto rod resistance for efficient heating. Heater width min. depending on capacity. It will be 35cm to 105cm. Heater width (thickness) will be 8 cm to 15 cm depending on capacity. The heater height will be maximum 45 cm. The control cover on the heater must have a latch that can be locked and closed with a small-tipped screwdriver when desired. The warning light should come on while the device is heating. 230 V AC powered extension cable with plug will be mounted on the panel. The product must have a CE certificate and a 2-year warranty against material and manufacturing defects.

Kitchen / WC Aspirator: The device will be used as a child-friendly fan with shutters and covers, at the capacities specified in the project. It must have a single-stage, one-way, silencer, control panel, static and dynamic stabilized bearing or sliding bearing rotor, three-flow, CE conformity mark, produced in accordance with the 305/2011/EU Construction Materials Directive and driven by direct connection to the electric motor. All sheet metal parts are made of DKP sheet metal, and the inside is painted twice with anti-corrosion paint, and the parts are painted twice with heat-resistant gun paint. (Anti-vibration wedges and similar products are included in the unit prices.)

Fire Extinguishing Cylinder (6 kg): Compliant with TS 862-7 EN 3-7+A1 standards and marketed with the CE conformity mark in accordance with the Pressure Equipment directive , suitable for extinguishing Class ABC fires, dry chemical powder, continuous pressure or internal cartridge, alloy Provision of a portable fire extinguisher in the workplace, with a plastered body, phosphorylated and protective paint against external corrosion, body and label in accordance with EN standards, safety valve brass valve , in accordance with the project and technical specifications.

A11-1 Single toilet, squat toilet along with handwash basin sink and accessories

Faucet / Armature (Single or Double water inlet, Photocell or Mechanical) - Brass parts, including the body , are produced from raw materials in accordance with TS EN 1980, TS EN 12164, TS EN 12165 standards, in accordance with the requirements of TS EN 248 surface standard, functionally and in size according to TS EN 200. Manufactured in accordance with. Dual control batteries produced in accordance with TS EN 274, TS EN 817, TS 3143 product standards TS ISO 7005, TS 200, standard seal group with rubber clips used in dual control products, parts are processed by removing sawdust from the raw material. Gaskets, o-rings etc. used in all products. It complies with TS EN 12164 standard. EPDM, NBR material parts, oil, gaskets, o-rings etc. used in the products. components KTW (Kalt Trinken Wasser, drinking water standard), WRC (Water bye laws Scheme), DVGW (Deutsche Vereiningung des Gas-und Wasserfaches), aerators EN 246 Flexible DVGW, KIWA, stainless steel braided, internal EPDM hose, outer surfaces with plastic cap, plastic hinges, KIWA (mechanical tests, acoustic tests), SWGW (mechanical tests, acoustic tests, color and color in water marked on this document with one of the tests (measurement of taste changes). The flexible handles and flywheels used in all products are metallic, and the NSF (The NSF) used in single-control batteries is not acrylic or plastic. public health and Safety Company) or WRAS (Water Regulatory advisory Scheme) document list, photocell products must be CE certified. The manufacturer's manufacturing qualification certificates, service qualification certificate, after-sales service qualification certificate, ISO 9000, ISO 14000 certificate and TSE conformity certificates must be up to date. 90 degree ceramic gasket or rubber flap gasket, anti-limescale aerator.

Photocell Sink Mixer and Installation - Compliant with TS EN 15091, with single or double water inlet, able to adjust the flow rate from the filtered intermediate tap, providing the necessary energy from the battery box or adapter, allowing water flow for 60-120 seconds, intermediate taps, with U pipe Supply, installation and delivery of the photocell sink faucet and installation along with the sink siphon at the workplace.

Hand Washing Sink (Approximately 37x45 cm, Half Pedestal with Console, Glazed Ceramic, Extra Class) - Supply and on-site installation of an oval sink with fixed soap dispenser , stepped, white color, with sink fixtures and screws , as specified in the project.
The sinks are CE marked and comply with the Construction Materials Directive No. 305/2011/EU.
Hand Washing Sink (Approximately 37x45 cm, Full Pedestal with Console, Glazed Ceramic, Extra Class) – Supply and on-site installation of an oval sink with fixed soap dispenser , stepped, white color, with sink fixtures and screws, as specified in the project.
The sinks are CE marked and comply with the Construction Materials Directive No. 305/2011/EU.

Mirror (Approx. 40x60 cm) - When the glass thickness is 5 mm, the mirror edge is threaded, when there are strips on the mirror, the strips will be asbestos. Wall brackets will be made of brass material and minimum 5 micron nickel plated or stainless steel. Mounting the mirror to the wall using wall mounting screws and dowels. The mirrors will be placed on the market with the CE conformity mark and in accordance with the Construction Materials Directive 305/2011/EU.

Shelf (Ceramic / Glazed Ceramic Approx. 50x10 cm Extra Class) - Self-consoleted, white colored shelving unit suitable for designs, mounted in place with suitable wedges or mounting elements.

Plastic Sink and Drain Trap - Installation and delivery of fittings in accordance with TS EN 200 and TS EN 817, detachable and cleanable type, resistant to at least 80°C temperature, in the workplace (including the drain pipe for discharge)

Stainless Steel Paper Holder - Installation of the stainless steel paper holder on the construction site with chrome anchor screws and special wedges or dowels.

Polypropylene (PPR-C) Clean Water Pipes - Polypropylene (PPR-C) type: 3 pipes; In accordance with TS EN ISO 15874-2; It is certified by the Ministry of Health that it is used as a drinking water pipe; The pipes are cut according to the drawings in the workplace and the pipe elements are welded with the fittings using a physiothermal welding machine at a temperature of 260°C. (Including all materials and labor for welding).

PVC Plastic Waste Water Pipes - Installation of hard PVC plastic sewer pipes in accordance with TS EN 1329-1 in workplaces via sleeves.

Liquid Soap Machine - The liquid soap placed in the machine is sprayed in an amount sufficient for hand washing by pressing the existing lever once, starting from the point where the discharging arm is connected to the body, 27.8x11.7x10.9 cm. Stainless steel and ABS plastic coated body, plastic liquid soap working with suction discharge system is inflated with liquid soap, can be mounted on the wall and with screws.

Turkish Toilet Stone - White, 4-cornered latrine stone; Made from one piece of ø 100 mm PVC in accordance with TS-EN 274-1-2-3, resistant to 80°C temperature and acids, 6 cm. Supply and installation in the workplace together with the Turkish latrine siphon with odor trap: (TS 799a) shall be in accordance with and quality certified.

with self- reservoir - In accordance with TS EN 997 + A1, made of white (glazed ceramic) tiles with intervals on which a cistern can be placed, quality certified; At least 13 lt. tiled cistern, hard plastic seat and cover; Supply of 15 liter brass chrome plated quality certified cistern and bidet faucets together with copper pipe, rosettes and chrome plated fixing screws and wedges at the workplace, installation on site and delivery in working order.

with Reservoir Suitable for Child Use - Approximately 30*55*30 cm in size; It can perform full washing with at least 4 liters and a glazed ceramic reservoir can be connected to it; WC pan made of white or colored glazed ceramics in accordance with TS EN 997+A1 standard and with quality certificate; seat cover made of hard plastic; chrome-plated brass reservoir and bidet taps; Reservoir inner kit with gradual pressure discharge group and filling group with water inlet mounted from the bottom; supplied with plastic bidet pipe and rosettes and toilet installation set; Installation and delivery in working order. (Toilets will be placed on the market in accordance with the 305/2011/EU Construction Materials Directive and with the CE conformity mark)

Floor Drain (Approx. 15x15 cm Plastic) – Installation of a floor drain made of hard plastic, with a built-in odor barrier, a grill and a cleaning plug, in the workplace. h = 13.5 cm. Ø 50mm.

A11-2 Single WC, sitting toilet along with handwash basin and accessories

Faucet / Armature (Single or Double water inlet, Photocell or Mechanical) - Brass parts, including the body , are produced from raw materials in accordance with TS EN 1980, TS EN 12164, TS EN 12165 standards, in accordance with the requirements of TS EN 248 surface standard, functionally and in size according to TS EN 200. Manufactured in accordance with. Dual control batteries produced in accordance with TS EN 274, TS EN 817, TS 3143 product standards TS ISO 7005, TS 200, standard seal group with rubber clips used in dual control products, parts are processed by removing sawdust from the raw material. Gaskets, o-rings etc. used in all

products. It complies with TS EN 12164 standard. EPDM, NBR material parts, oil, gaskets, o-rings etc. used in the products. components KTW (Kalt Trinken Wasser, drinking water standard), WRC (Water bye laws Scheme), DVGW (Deutsche Vereiningung des Gas-und Wasserfaches), aerators EN 246 Flexible DVGW, KIWA, stainless steel braided, internal EPDM hose, outer surfaces with plastic cap, plastic hinges, KIWA (mechanical tests, acoustic tests), SWGW (mechanical tests, acoustic tests, color and color in water marked on this document with one of the tests (measurement of taste changes). The flexible handles and flywheels used in all products are metallic, and the NSF (The NSF) used in single-control batteries is not acrylic or plastic. Public health and Safety Company) or WRAS (Water Regulatory advisory Scheme) document list, photocell products must be CE certified. The manufacturer's manufacturing qualification certificates, service qualification certificate, after-sales service qualification certificate, ISO 9000, ISO 14000 certificate and TSE conformity certificates must be up to date. 90 degree ceramic gasket or rubber flap gasket, anti-limescale aerator.

Photocell Sink Mixer and Installation - Compliant with TS EN 15091, with single or double water inlet, able to adjust the flow rate from the filtered intermediate tap, providing the necessary energy from the battery box or adapter, allowing water flow for 60-120 seconds, intermediate taps, with U pipe Supply, installation and delivery of the photocell sink faucet and installation along with the sink siphon at the workplace.

Hand Washing Sink (Approximately 37x45 cm, Half Pedestal with Console, Glazed Ceramic, Extra Class) - Supply and on-site installation of an oval sink with fixed soap dispenser , stepped, white color, with sink fixtures and screws , as specified in the project.
The sinks are CE marked and comply with the Construction Materials Directive No. 305/2011/EU.

Hand Washing Sink (Approximately 37x45 cm, Full Pedestal with Console, Glazed Ceramic, Extra Class) – Supply and on-site installation of an oval sink with fixed soap dispenser , stepped, white color, with sink fixtures and screws, as specified in the project.
The sinks are CE marked and comply with the Construction Materials Directive No. 305/2011/EU.

Mirror (Approx. 40x60 cm) - When the glass thickness is 5 mm, the mirror edge is threaded, when there are strips on the mirror, the strips will be asbestos. Wall brackets will be made of brass material and minimum 5 micron nickel plated or stainless steel. Mounting the mirror to the wall using wall mounting screws and dowels. The mirrors will be placed on the market with the CE conformity mark and in accordance with the Construction Materials Directive 305/2011/EU.

Shelf (Ceramic / Glazed Ceramic Approx. 50x10 cm Extra Class) - Self-consoleted, white colored shelving unit suitable for designs, mounted in place with suitable wedges or mounting elements.

Stainless Steel Paper Holder - Installation of the stainless steel paper holder on the construction site with chrome anchor screws and special wedges or dowels.

Polypropylene (PPR-C) Clean Water Pipes - Polypropylene (PPR-C) type: 3 pipes; In accordance with TS EN ISO 15874-2; It is certified by the Ministry of Health that it is used as a drinking water pipe; The pipes are cut according to the drawings in the workplace and the pipe elements are welded with the fittings using a physiothermal welding machine at a temperature of 260°C. (Including all materials and labor for welding).

PVC Plastic Waste Water Pipes - Installation of hard PVC plastic sewer pipes in accordance with TS EN 1329-1 in workplaces via sleeves.

Plastic Sink and Drain Trap - Installation and delivery of fittings in accordance with TS EN 200 and TS EN 817, detachable and cleanable type, resistant to at least 80°C temperature, in the workplace (including the drain pipe for discharge)

Liquid Soap Machine - The liquid soap placed in the machine is sprayed in an amount sufficient for hand washing by pressing the existing lever once, starting from the point where the discharging arm is connected to

the body, 27.8x11.7x10.9 cm. Stainless steel and ABS plastic coated body, plastic liquid soap working with suction discharge system is inflated with liquid soap, can be mounted on the wall and with screws.

Turkish Toilet Stone - White, 4-cornered latrine stone; Made from one piece of ø 100 mm PVC in accordance with TS-EN 274-1-2-3, resistant to 80°C temperature and acids, 6 cm. Supply and installation in the workplace together with the Turkish latrine siphon with odor trap: (TS 799a) shall be in accordance with and quality certified.

with self- reservoir - In accordance with TS EN 997 + A1, made of white (glazed ceramic) tiles with intervals on which a cistern can be placed, quality certified; At least 13 lt. tiled cistern, hard plastic seat and cover; Supply of 15 liter brass chrome plated quality certified cistern and bidet faucets together with copper pipe, rosettes and chrome plated fixing screws and wedges at the workplace, installation on site and delivery in working order.

with Reservoir Suitable for Child Use - Approximately 30*55*30 cm in size; It can perform full washing with at least 4 liters and a glazed ceramic reservoir can be connected to it; WC pan made of white or colored glazed ceramics in accordance with TS EN 997+A1 standard and with quality certificate; seat cover made of hard plastic; chrome-plated brass reservoir and bidet taps; Reservoir inner kit with gradual pressure discharge group and filling group with water inlet mounted from the bottom; supplied with plastic bidet pipe and rosettes and toilet installation set; Installation and delivery in working order. (Toilets will be placed on the market in accordance with the 305/2011/EU Construction Materials Directive and with the CE conformity mark)

Floor Drain (Approx. 15x15 cm Plastic) – Installation of a floor drain made of hard plastic, with a built-in odor barrier, a grill and a cleaning plug, in the workplace. h = 13.5 cm. Ø 50mm.

A11-3 Single WC for disabled children along with handwash basin and accessories

Faucet / Armature (Single or Double water inlet, Photocell or Mechanical) - Brass parts, including the body , are produced from raw materials in accordance with TS EN 1980, TS EN 12164, TS EN 12165 standards, in accordance with the requirements of TS EN 248 surface standard, functionally and in size according to TS EN 200. Manufactured in accordance with. Dual control batteries produced in accordance with TS EN 274, TS EN 817, TS 3143 product standards TS ISO 7005, TS 200, standard seal group with rubber clips used in dual control products, parts are processed by removing sawdust from the raw material. Gaskets, o-rings etc. used in all products. It complies with TS EN 12164 standard. EPDM, NBR material parts, oil, gaskets, o-rings etc. used in the products. components KTW (Kalt Trinken Wasser , drinking water standard), WRC (Water bye laws Scheme), DVGW (Deutsche Vereiningung des Gas-und Wasserfaches), aerators EN 246 Flexible DVGW, KIWA, stainless steel braided, internal EPDM hose, outer surfaces with plastic cap, plastic hinges, KIWA (mechanical tests, acoustic tests), SWGW (mechanical tests, acoustic tests, color and color in water marked on this document with one of the tests (measurement of taste changes). The flexible handles and flywheels used in all products are metallic, and the NSF (The NSF) used in single-control batteries is not acrylic or plastic. public health oath Safety Company) or WRAS (Water Regulatory advisory Scheme) document list, photocell products must be CE certified. The manufacturer's manufacturing qualification certificates, service qualification certificate, after-sales service qualification certificate, ISO 9000, ISO 14000 certificate and TSE conformity certificates must be up to date. 90 degree ceramic gasket or rubber flap gasket, anti-limescale aerator.

Photocell Sink Mixer and Installation - Compliant with TS EN 15091, with single or double water inlet, able to adjust the flow rate from the filtered intermediate tap, providing the necessary energy from the battery box or adapter, allowing water flow for 60-120 seconds, intermediate taps, with U pipe Supply, installation and delivery of the photocell sink faucet and installation along with the sink siphon at the workplace.

Physically Disabled Sink (Approx. 50x60 cm, Glazed Ceramic, Extra Quality) - Supply and on-site installation of oval sink with fixed soap dispenser , stepped, white color, with sink fixtures and screws.
The sinks are CE marked and comply with the Construction Materials Regulation No. 305/2011/EU.
DISABLED

Mirror for the Physically Disabled (50x70 cm) - 304 quality stainless steel frame with adjustable angle, glass thickness 5 mm, mirror edge grinding , if there are stripes on the mirror , the strips will be bisote . Wall connection screws will be made of brass material and minimum 5 micron nickel plated or stainless steel. Mounting the mirror wall hanger on the wall with screws and dowels. The mirrors will be placed on the market with the CE conformity mark in accordance with the 305/2011/EU Construction Materials Directive .

with Reservoir Suitable for Child Use - Approximately 30*55*30 cm in size; It can perform full washing with at least 4 liters and a glazed ceramic reservoir can be connected to it; WC pan made of white or colored glazed ceramics in accordance with TS EN 997+A1 standard and with quality certificate; seat cover made of hard plastic; chrome-plated brass reservoir and bidet taps; Reservoir inner kit with gradual pressure discharge group and filling group with water inlet mounted from the bottom; supplied with plastic bidet pipe and rosettes and toilet installation set; Installation and delivery in working order. (Toilets will be placed on the market in accordance with the 305/2011/EU Construction Materials Directive and with the CE conformity mark)

Shelf (Ceramic / Glazed Ceramic Approx. 50x10 cm Extra Class) - Self-consoleted, white colored shelving unit suitable for designs, mounted in place with suitable wedges or mounting elements.

Foldable Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 800 mm, min Ø 30 mm.

Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 600 mm, min Ø 30 mm.

Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 375x 375 mm, at least Ø 30 mm.

Toilet Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 700x740 mm, at least Ø 30 mm.

Stainless Steel Paper Holder - Installation of the stainless steel paper holder on the construction site with chrome anchor screws and special wedges or dowels.

Polypropylene (PPR-C) Clean Water Pipes - Polypropylene (PPR-C) type: 3 pipes; In accordance with TS EN ISO 15874-2; It is certified by the Ministry of Health that it is used as a drinking water pipe; The pipes are cut according to the drawings in the workplace and the pipe elements are welded with the fittings using a physiothermal welding machine at a temperature of 260°C. (Including all materials and labor for welding).

PVC Plastic Waste Water Pipes - Installation of hard PVC plastic sewer pipes in accordance with TS EN 1329-1 in workplaces via sleeves.

Plastic Sink and Drain Trap - Installation and delivery of fittings in accordance with TS EN 200 and TS EN 817, detachable and cleanable type, resistant to at least 80°C temperature, in the workplace (including the drain pipe for discharge)

Floor Drain (Approx. 15x15 cm Plastic) – Installation of a floor drain made of hard plastic, with a built-in odor barrier , a grill and a cleaning plug, in the workplace. h = 13.5 cm. Ø 50mm.

A11-4 Single WC for disabled adults along with handwash basin and accessories

Faucet / Armature (Single or Double water inlet, Photocell or Mechanical) - Brass parts, including the body , are produced from raw materials in accordance with TS EN 1980, TS EN 12164, TS EN 12165 standards, in accordance with the requirements of TS EN 248 surface standard, functionally and in size according to TS EN 200. Manufactured in accordance with. Dual control batteries produced in accordance with TS EN 274, TS EN 817, TS 3143 product standards TS ISO 7005, TS 200, standard seal group with rubber clips used in dual control

products, parts are processed by removing sawdust from the raw material. Gaskets, o-rings etc. used in all products. It complies with TS EN 12164 standard. EPDM, NBR material parts, oil, gaskets, o-rings etc. used in the products. components KTW (Kalt Trinken Wasser , drinking water standard), WRC (Water bye laws Scheme), DVGW (Deutsche Vereiningung des Gas-und Wasserfaches), aerators EN 246 Flexible DVGW, KIWA, stainless steel braided, internal EPDM hose, outer surfaces with plastic cap, plastic hinges, KIWA (mechanical tests, acoustic tests), SWGW (mechanical tests, acoustic tests, color and color in water marked on this document with one of the tests (measurement of taste changes). The flexible handles and flywheels used in all products are metallic, and the NSF (The NSF) used in single-control batteries is not acrylic or plastic. public health oath Safety Company) or WRAS (Water Regulatory advisory Scheme) document list, photocell products must be CE certified. The manufacturer's manufacturing qualification certificates, service qualification certificate, after-sales service qualification certificate, ISO 9000, ISO 14000 certificate and TSE conformity certificates must be up to date. 90 degree ceramic gasket or rubber flap gasket, anti-limescale aerator.

Photocell Sink Mixer and Installation - Compliant with TS EN 15091, with single or double water inlet, able to adjust the flow rate from the filtered intermediate tap, providing the necessary energy from the battery box or adapter, allowing water flow for 60-120 seconds, intermediate taps, with U pipe Supply, installation and delivery of the photocell sink faucet and installation along with the sink siphon at the workplace.

Approximately 35x70 cm Self-Priming Toilet and Armature for the Physically Disabled - Intermittent white color (made of glazed ceramic), quality certified, can be placed on a stone cistern; at least 13 liters . sturdy cistern, hard plastic seat and lid; 15 liters . Brass chrome plated cistern interiors and mounting taps with copper pipes, escutcheon and chrome fixing screws and wedges in the workplace, on-site assembly and on-the-job delivery

Physically Disabled Sink (Approx. 50x60 cm, Glazed Ceramic, Extra Quality) - Supply and on-site installation of oval sink with fixed soap dispenser , stepped, white color, with sink fixtures and screws.
The sinks are CE marked and comply with the Construction Materials Regulation No. 305/2011/EU.
DISABLED

Mirror for the Physically Disabled (50x70 cm) - 304 quality stainless steel frame with adjustable angle, glass thickness 5 mm, mirror edge grinding , if there are stripes on the mirror , the strips will be bisote . Wall connection screws will be made of brass material and minimum 5 micron nickel plated or stainless steel. Mounting the mirror wall hanger on the wall with screws and dowels. The mirrors will be placed on the market with the CE conformity mark in accordance with the 305/2011/EU Construction Materials Directive .
Shelf (Ceramic / Glazed Ceramic Approx. 50x10 cm Extra Class) - Self-consoleted, white colored shelving unit suitable for designs, mounted in place with suitable wedges or mounting elements.

Foldable Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 800 mm, min Ø 30 mm.

Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 600 mm, min Ø 30 mm.

Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 375x 375 mm, at least Ø 30 mm.

Toilet Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 700x740 mm, at least Ø 30 mm.

Plastic Sink and Drain Trap - Installation and delivery of fittings in accordance with TS EN 200 and TS EN 817, detachable and cleanable type, resistant to at least 80°C temperature, in the workplace (including the drain pipe for discharge)

Stainless Steel Paper Holder - Installation of the stainless steel paper holder on the construction site with chrome anchor screws and special wedges or dowels.

Paper Holder for the Disabled - Stainless steel bracket with chromed fixing screws and special wedges or dowels for installation and replacement in the workplace.

Floor Drain (Approx. 15x15 cm Plastic) – Installation of a floor drain made of hard plastic, with a built-in odor barrier, a grill and a cleaning plug, in the workplace. h = 13.5 cm. Ø 50mm.

Polypropylene (PPR-C) Clean Water Pipes - Polypropylene (PPR-C) type: 3 pipes; In accordance with TS EN ISO 15874-2; It is certified by the Ministry of Health that it is used as a drinking water pipe; The pipes are cut according to the drawings in the workplace and the pipe elements are welded with the fittings using a physiothermal welding machine at a temperature of 260°C . (Including all materials and labor for welding).

PVC Plastic Waste Water Pipes - Installation of hard PVC plastic sewer pipes in accordance with TS EN 1329-1 in workplaces via sleeves.

A12-1 Single shower room (Solar water heating system) along with handwash basin

Faucet / Armature (Single or Double water inlet, Photocell or Mechanical) - Brass parts, including the body , are produced from raw materials in accordance with TS EN 1980, TS EN 12164, TS EN 12165 standards, in accordance with the requirements of TS EN 248 surface standard, functionally and in size according to TS EN 200. Manufactured in accordance with. Dual control batteries produced in accordance with TS EN 274, TS EN 817, TS 3143 product standards TS ISO 7005, TS 200, standard seal group with rubber clips used in dual control products, parts are processed by removing sawdust from the raw material. Gaskets, o-rings etc. used in all products. It complies with TS EN 12164 standard. EPDM, NBR material parts, oil, gaskets, o-rings etc. used in the products. components KTW (Kalt Trinken Wasser , drinking water standard), WRC (Water bye laws Scheme), DVGW (Deutsche Vereiningung des Gas-und Wasserfaches), aerators EN 246 Flexible DVGW, KIWA, stainless steel braided, internal EPDM hose, outer surfaces with plastic cap, plastic hinges, KIWA (mechanical tests, acoustic tests), SWGW (mechanical tests, acoustic tests, color and color in water marked on this document with one of the tests (measurement of taste changes). The flexible handles and flywheels used in all products are metallic, and the NSF (The NSF) used in single-control batteries is not acrylic or plastic. public health oath Safety Company) or WRAS (Water Regulatory advisory Scheme) document list, photocell products must be CE certified. The manufacturer's manufacturing qualification certificates, service qualification certificate, after-sales service qualification certificate, ISO 9000, ISO 14000 certificate and TSE conformity certificates must be up to date. 90 degree ceramic gasket or rubber flap gasket, anti-limescale aerator.

Tile Soap Dish (Approx. 16x16 cm) - Extra quality white, arm top, half blanket , supplied at the workplace as a semi-finished product and assembled in place.

Polypropylene (PPR-C) Clean Water Pipes - Polypropylene (PPR-C) type: 3 pipes; In accordance with TS EN ISO 15874-2; It is certified by the Ministry of Health that it is used as a drinking water pipe; The pipes are cut according to the drawings in the workplace and the pipe elements are welded with the fittings using a physiothermal welding machine at a temperature of 260°C. (Including all materials and labor for welding).

PVC Plastic Waste Water Pipes - Installation of hard PVC plastic sewer pipes in accordance with TS EN 1329-1 in workplaces via sleeves.

Acrylic Shower Tray - Produced from cast acrylic sheets in accordance with TS EN 263, connection dimensions in accordance with TS EN 251, embedded in the floor, quality certified, white colored tray, strainer, 32 mm chrome plated brass, discharge nozzle, supplied in the workplace with a special siphon. Installation in place.

Foot Set for Acrylic Shower Trays - Set required for 1 bathtub, consisting of galvanized pipe feet in accordance with TS EN 10255+A1, plastic shoes, hanger set for wall connection, connection screws and dowels.

Tempered Glass Shower Cabin - Profiles to be used, manufactured from 6 mm tempered glass in accordance with TS EN 12150-2, in accordance with the approved project Anodized aluminum and screws will be at least 304 quality stainless steel. For preventing leaks in cabinets and fixing windows to the panel
Suppositories will be used. The silicones used in its assembly will be antibacterial, colorless and heat resistant. Tempered glass will be sandblasted according to the details in the project. Pedestal wheels or hinge materials to be used in the cabin; fixed materials will be made of ABS plastic, and frictional materials will be made of POM-derived materials. The metal accessories used here will also be 304 quality stainless steel.

A12-2 Solar water heating system

Solar hot water heaters will comply with the relevant Turkish Standards. Natural circulation system is generally used in residences. A circulation pump must be used for more than 6 collectors. There must be a difference thermostat in the forced circulation (pump) system. In this system, it is recommended to make a group of maximum 50 collectors and is considered economical. The heat storage tank must be at least 40 liters per square meter of the solar water heater surface net area. Pumps should be placed on the flow line and at the lowest point of the circuit, and dirt accumulation should be prevented. In order to prevent reverse circulation in natural circulation systems, the tank should be located at least 30 cm above the upper point of the collector surface. Elbows and downward slopes should be avoided as much as possible in the solar hot water heater - tank connection pipes, the pipes should be drawn with an increasing slope from the direction of water flow, and the radius of the curvature to change direction should be at least 1.5 times the pipe diameter. The hot water inlet to the tank should be made from the lowest point of the tank, and a hat should be placed opposite the cold water inlet inside the tank to prevent the cold water from rising suddenly and disrupting the stratification. If all solar hot water heaters or only the collector surface are placed on the roof, measures must be taken to ensure roof sealing. Since the working pressure of solar hot water heaters is not compatible with the mains pressure, a reservoir should be added to the system and cold water inlet to the heat storage tank should be made from here. The warehouse should be insulated in accordance with the technique with a thickness of 5-10 cm to reduce heat losses, and should be covered with galvanized sheet metal to protect it from external factors. In closed-circuit solar water heater systems, the code difference between the air tube and the expansion tank must be equal to the pump head. Solar hot water heaters should not be left in the sun whenever possible when there is no water in the system. In solar energy systems, a suitable solar liquid must be added to prevent the water in the collector from freezing during winter operation.

Optional Aluminum Surface Collector (Solar Collector) - Min. in natural circulation. 11 mm inner diameter; Min. air circulation. 7 mm inner diameter. Made of copper or aluminum with internal glass, selective surface coating, in accordance with TS EN 12975-1 and TS EN 12975-2, over 95% of the absorbency value; Compliant with TS EN 12975-1 + A1 with minimum 70% efficiency; 3 mm thick tempered glass, min. 30 mm thick glass wool or rock wool insulated collector .
collectors manufactured in accordance with TS EN 12975-1+A1 will be submitted to the relevant institution; In order to save energy and reduce pollution, non-recyclable materials should be avoided or used at a minimum level, and aluminum materials such as AL-6063 Etial-60 alloy, fireproof, aluminum-free, fireproof materials should be used. The collector box will be waterproof and will not accumulate condensed water inside the collector. Collectors must ensure that undesirable stresses do not occur in the coating even at the highest stagnation temperature. Collectors are made of materials that can withstand the thermal shocks that may be exposed to during the summer months and the highest temperatures that may occur in stagnant conditions, and the parts and materials of the collectors should not be affected by factors such as rain, snow, hail, wind. The collector must be resistant to mechanical loads resulting from heating and cooling, resistant to high humidity and air pollutants, and also resistant to environmental effects. It should be painted with oven paint or spraying method or with selective surface coating for mechanical, thermal and chemical properties. The effect of manufacturing processes such as cutting, welding, and soldering on the absorbent properties should be taken into account. The absorber must be corrosion resistant. The transparency of the cover should not lose its properties throughout its life. Covers must be resistant to ultraviolet rays, air pollution, and high humidity resistance and, depending on the collector design, condensation at high temperatures. The glass material or rock wool-based insulation material used on the side surfaces of the walls and behind the absorber must be at least 3 cm thick, 0.040 W/ mK glass fiber or rock wool collector sheet. Insulation materials; The collector must be resistant to local temperature build-up during stagnation temperature conditions where final condensation on the collector cover , deterioration of panel performance, or corrosion of metal surfaces as well as corrosion of insulation accompanied by gas leakage occurs and must not be so significant that it degrades collector performance.
All collector glasses will be tempered glass.

Solar Energy Control Panel - One of the sensors used in solar energy systems and hot water production systems is a digital display that detects the temperature in the collector and the other is a digital display that detects

the temperature in the boiler and controls the system according to these values. If the temperature difference between the solar collector temperature and the boiler is higher than the set value, the pump is started and stopped. Differential temperature setting can be made between +2°C and 20°C.
version 92/31 /EEC version 93/68/EEC, are CE marked.

Polypropylene (PPR-C) Clean Water Pipes - Polypropylene (PPR-C) type: 3 pipes; In accordance with TS EN ISO 15874-2; It is certified by the Ministry of Health that it is used as a drinking water pipe; The pipes are cut according to the drawings in the workplace and the pipe elements are welded with the fittings using a physiothermal welding machine at a temperature of 260°C . (Including all materials and labor for welding).

PVC Plastic Waste Water Pipes - Installation of hard PVC plastic sewer pipes in accordance with TS EN 1329-1 in workplaces via sleeves.

A13-1 Communal toilets for children (4-6 toilets, squatting and sitting including 1 WC for disabled children)

Turkish Toilet Stone - White, 4-cornered latrine stone; Made from one piece of ø 100 mm PVC in accordance with TS-EN 274-1-2-3, resistant to 80°C temperature and acids, 6 cm. Supply and installation in the workplace together with the Turkish latrine siphon with odor trap: (TS 799a) shall be in accordance with and quality certified.

with Reservoir Suitable for Child Use - Approximately 30*55*30 cm in size; It can perform full washing with at least 4 liters and a glazed ceramic reservoir can be connected to it; WC pan made of white or colored glazed ceramics in accordance with TS EN 997+A1 standard and with quality certificate; seat cover made of hard plastic; chrome-plated brass reservoir and bidet taps; Reservoir inner kit with gradual pressure discharge group and filling group with water inlet mounted from the bottom; supplied with plastic bidet pipe and rosettes and toilet installation set; Installation and delivery in working order. (Toilets will be placed on the market in accordance with the 305/2011/EU Construction Materials Directive and with the CE conformity mark)

Taps - In accordance with TSE EN 200, with their sockets, installed in place.
Stainless Steel Paper Holder - Installation of the stainless steel paper holder on the construction site with chrome anchor screws and special wedges or dowels.

Polypropylene (PPR-C) Clean Water Pipes - Polypropylene (PPR-C) type: 3 pipes; In accordance with TS EN ISO 15874-2; It is certified by the Ministry of Health that it is used as a drinking water pipe; The pipes are cut according to the drawings in the workplace and the pipe elements are welded with the fittings using a physiothermal welding machine at a temperature of 260°C . (Including all materials and labor for welding).

PVC Plastic Waste Water Pipes - Installation of hard PVC plastic sewer pipes in accordance with TS EN 1329-1 in workplaces via sleeves.

A13-2 Communal toilets for adults (4-6 toilets, squatting and sitting, including 1 WC for disabled adults)

Turkish Toilet Stone - White, 4-cornered latrine stone; Made from one piece of ø 100 mm PVC in accordance with TS-EN 274-1-2-3, resistant to 80°C temperature and acids, 6 cm. Supply and installation in the workplace together with the Turkish latrine siphon with odor trap : (TS 799a) shall be in accordance with and quality certified.

Approximately 35x70 cm Self-Priming Toilet and Armature for the Physically Disabled - Intermittent white color (made of glazed ceramic), quality certified, can be placed on a stone cistern; at least 13 liters . sturdy cistern, hard plastic seat and lid; 15 liters . Brass chrome plated cistern interiors and mounting taps with copper pipes, escutcheon and chrome fixing screws and wedges in the workplace, on-site assembly and on-the-job delivery Foldable Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 800 mm, min Ø 30 mm.

Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 600 mm, min Ø 30 mm.

Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 375x 375 mm, at least Ø 30 mm.

Toilet Grab Bar for the Disabled - Chrome plated on stainless steel, approximately 700x740 mm, at least Ø 30 mm.

Stainless Steel Paper Holder - Installation of the stainless steel paper holder on the construction site with chrome anchor screws and special wedges or dowels.

Paper Holder for the Disabled - Stainless steel bracket with chromed fixing screws and special wedges or dowels for installation and replacement in the workplace.

Wall-Based Type, Approx. 65x35 cm Self-Priming Toilet and Plumbing - Intermittent white color (made of glazed ceramic), quality certified, can be placed on a stone cistern; at least 13 liters . solid cistern hard plastic seat and lid; 15 liters . Brass chrome plated cistern interiors and mounting taps with copper pipes, escutcheon and chrome fixing screws and wedges on site, on-site assembly and on-site delivery.

Toilet Set with Trunk Tank and Accessories - White, four-cornered hexagonal stone; 6 cm according to TS-EN 274-1-2-3. Fragrance fermented ø 100 mm cast iron siphon and cast iron cluster or 6 cm made of 100 mm PVC, acid resistant up to 80°C. Fragrance fermented siphon is made of raw materials complying with EN 12164, EN 12164, TS 228 surface standard conditions, and TS 200 tap; Wall-mounted plastic and stainless steel accessory container in accordance with TS EN 14055+A1, TS EN 10088- 1/2/3 ; assembly and installation of the workplace. The products will be placed on the market with the CE conformity mark in accordance with the Construction Products Regulation 305/2011.

Stainless Steel Paper Holder - Installation of the stainless steel paper holder on the construction site with chrome anchor screws and special wedges or dowels.

Polypropylene (PPR-C) Clean Water Pipes - Polypropylene (PPR-C) type: 3 pipes; In accordance with TS EN ISO 15874-2; It is certified by the Ministry of Health that it is used as a drinking water pipe; The pipes are cut according to the drawings in the workplace and the pipe elements are welded with the fittings using a physiothermal welding machine at a temperature of 260°C . (Including all materials and labor for welding).

PVC Plastic Waste Water Pipes - Installation of hard PVC plastic sewer pipes in accordance with TS EN 1329-1 in workplaces via sleeves.

A14 Communal showers for adults (4-6 showers) along with Solar water heating system

Faucet / Armature (Single or Double water inlet, Photocell or Mechanical) - Brass parts, including the body , are produced from raw materials in accordance with TS EN 1980, TS EN 12164, TS EN 12165 standards, in accordance with the requirements of TS EN 248 surface standard, functionally and in size according to TS EN 200. Manufactured in accordance with. Dual control batteries produced in accordance with TS EN 274, TS EN 817, TS 3143 product standards TS ISO 7005, TS 200, standard seal group with rubber clips used in dual control products, parts are processed by removing sawdust from the raw material. Gaskets, o-rings etc. used in all products. It complies with TS EN 12164 standard. EPDM, NBR material parts, oil, gaskets, o-rings etc. used in the products. components KTW (Kalt Trinken Wasser , drinking water standard), WRC (Water bye laws Scheme), DVGW (Deutsche Vereiningung des Gas-und Wasserfaches), aerators EN 246 Flexible DVGW, KIWA, stainless steel braided, internal EPDM hose, outer surfaces with plastic cap, plastic hinges, KIWA (mechanical tests, acoustic tests), SWGW (mechanical tests, acoustic tests, color and color in water marked on this document with one of the tests (measurement of taste changes). The flexible handles and flywheels used in all products are metallic, and the NSF (The NSF) used in single-control batteries is not acrylic or plastic. public health oath Safety Company) or WRAS (Water Regulatory advisory Scheme) document list, photocell products must be CE certified. The manufacturer's manufacturing qualification certificates, service qualification certificate, after-sales service qualification certificate, ISO 9000, ISO 14000 certificate and TSE conformity certificates must be up to date. 90 degree ceramic gasket or rubber flap gasket, anti-limescale aerator.

Tile Soap Dish (Approx. 16x16 cm) - Extra quality white, arm top, half blanket , supplied at the workplace as a semi-finished product and assembled in place.

Polypropylene (PPR-C) Clean Water Pipes - Polypropylene (PPR-C) type: 3 pipes; In accordance with TS EN ISO 15874-2; It is certified by the Ministry of Health that it is used as a drinking water pipe; The pipes are cut according to the drawings in the workplace and the pipe elements are welded with the fittings using a physiothermal welding machine at a temperature of 260°C . (Including all materials and labor for welding).

PVC Plastic Waste Water Pipes - Installation of hard PVC plastic sewer pipes in accordance with TS EN 1329-1 in workplaces via sleeves.

Acrylic Shower Tray - Produced from cast acrylic sheets in accordance with TS EN 263, connection dimensions in accordance with TS EN 251, embedded in the floor, quality certified, white colored tray, strainer, 32 mm chrome plated brass , discharge nozzle, supplied in the workplace with a special siphon. installation in place.

Foot Set for Acrylic Shower Trays - Set required for 1 bathtub, consisting of galvanized pipe feet in accordance with TS EN 10255+A1, plastic shoes, hanger set for wall connection, connection screws and dowels .

Tempered Glass Shower Cabin - Profiles to be used, manufactured from 6 mm tempered glass in accordance with TS EN 12150-2, in accordance with the approved project Anodized aluminum and screws will be at least 304 quality stainless steel. For preventing leaks in cabinets and fixing windows to the panel
Suppositories will be used. The silicones used in its assembly will be antibacterial , colorless and heat resistant. Tempered glass will be sandblasted according to the details in the project. Pedestal wheels or hinge materials to be used in the cabin; Fixed materials will be made of ABS plastic, and frictional materials will be made of POM-derived materials. The metal accessories used here will also be 304 quality stainless steel.

A15 Septic tank

It will be manufactured as designed in accordance with the relevant local and national standards and legislation, based on the values included in the relevant manufacturing project and calculation report. Septic tanks must be buried underground and sealed.

Closed Type Sewer Clamp - Supply and installation in the workplace of a self-closing gray water check valve with a stainless steel valve and ABS body, which is connected to the manhole/ septic tank at the entrance of the pipes, prevents mice, insects and bad odors from entering the building installation. Gray water lines that are feces-free, mouse gnaw-proof, have a hand-operated locking system, and have a wing-screw cleaning cap that opens easily without the need for tools.

Horizontal Type Non-Return Valve (Check Valve) - Installation and replacement of the sewer return grille with cleaning eye, polypropylene body, for use in applications suitable for feces -free sewer lines , preventing water from being drawn horizontally or vertically from the sink , shower or bathtub, in the workplace.

In the installation of septic tanks, ventilation pipes should be left to the danger of methane gas accumulation in accordance with their capacity, ventilation pipes should generally be used as metal pipes that do not break quickly and are resistant to sunlight, elbows should face the ground at the top point to prevent animals such as birds and rainwater from entering the ventilation pipes.

A16 Cesspool

In places where there is no city wastewater network and it is not possible to build it in a short time, the discharge standards of domestic wastewater should be carried out in accordance with the principles of the "Water Pollution Control Regulation". Domestic wastewater should be collected in leak-proof septic tanks and transferred to wastewater infrastructure treatment facilities by means of a sewer truck. In the construction of the septic tank, a place that can be easily accessed by the sewage tank should be preferred, the ventilation pipe on the sealed septic tank should be raised up to the roof level of the existing structure, and ground and rain water should be prevented from entering the septic tank. The septic tank volume should be calculated based on the independent section in the structure and designed according to the found capacity. When determining the septic tank depth, the suction height of the sewage pump should be taken into account. Calculation criteria and type projects of the Bank of Provinces and Local Governments Sewage Administrations should be used in the construction of septic tanks .

Sewage Pits and Septic Tanks - Septic tanks will be arranged and constructed in accordance with the principles of Article 245 of the General Hygiene Law. Since there is a great relationship between the elevations of the plumbing and the septic tank on the lower floors of the buildings, it is necessary to consider the lowest floor with the plumbing and the septic tank together and determine the elevations that will be suitable for the natural disposal of waste water. This issue will be examined by the designer who will examine the land of the building and make the project, and the waste water projects will be approved by the UNICEF along with the exercise project. Septic tanks will essentially be constructed with two compartments, one large and the other small. Waste water will first be given to the large compartment, then passed to the small compartment through the holes in the underwater part of the compartment, and from there it will be thrown out through a T. First of all, the floating substances in the waste water coming to the large compartment rise to the surface of the water and gradually decompose and decay, most of the sediment is collected at the bottom of the pit and the oily substances remain on the surface of the water. Among the few impurities in the waste water that passes into the second small compartment, the oily ones rise to the top of the water, as in the larger compartment, and after the others collapse here, only the water part goes out. Since some time is needed for the foreign substances in the waste water going to the septic tanks to decompose and settle, the passages from the second compartment to the second compartment are neither from the top nor from the bottom, but 3/4 of the height of the water section from the bottom, in order to prevent the waste water coming through the pipes from being dragged and going out through the external pipes. There will be holes left at a height of 3. However, it is also necessary to rest the waste water in septic tanks for a certain period of time, which is related to the volume of the septic tanks. In large septic tanks, the waste water must be left to rest for at least 24 hours, that is, it must be large enough to store the building's waste water for a day. In small septic tanks, choosing a volume of 2-3 days is sufficient . According to many experiences, the depth of the most successful sedimentation pits is 1.5 meters, so if they are built deeper, the construction cost will be relatively higher, but the capacity will not be increased. In order to discharge the waste water of deep basements into septic tanks, they must be made deep. However, for whatever reason, the height between the soil level above the septic tank and the bottom of the septic tank should never exceed 6 meters. Because normal waste water pumps have a maximum height of 6 m. If they are not made deeper, it will not be possible to clean them with normal tools . If it is built deeper than 6 meters for an unavoidable reason, it is necessary to install a special sewage pump installation in order to empty the septic tank at a certain time. When septic tank projects are being carried out, their depth, that is, the gap height, should be calculated considering that there will be a gap of approximately 50 centimeters above the water level, and the entire depth should be given accordingly. Since creating a larger space above the water level will unnecessarily increase the construction cost, if any costs are caused in this way, the contractor will be responsible and the unnecessary cost will not be given to the contractor. Chimneys will be built over the inspection and discharge holes of the septic tanks, down to the ground level, and covers will be placed on them. Chimneys must be at least 60x60 cm, allowing people to enter them. It will be of the same size and iron steps will be built so that people can enter it. In order for the floating substances in the wastewater discharged into the septic tank to sink, the speed per second must not exceed 0.50 meters. In order to maintain the desired speed, the septic tank must be calculated to have 2/3 square meters of water surface for each cubic meter of waste water to be pumped into the septic tank within an hour. Although the waste water passed through simple septic tanks is partially eliminated from both foreign substances and harmful microbes, the waste water passing through such septic tanks can never be considered clean and

harmless. Three-cavity septic tanks, which are built to provide better purification compared to twin-cavity septic tanks, also operate and are constructed according to the same principles as the previous ones. However, since the waste water resting in the 3rd compartment will be eliminated better, the damage of the waste water passing through here will be further reduced. For sewage containing infectious patient droppings, such as hospitals and sanatoriums, it is necessary to add a disinfection chamber to the three-chamber septic tanks. In this way, the waste water passing through three sections can be discharged into open streams or ditches in a harmless state by passing through the materials placed in the disinfection chamber. First of all, the land situation of the building must be suitable for the filtering to be done in order to purify the waste water coming out of the septic tank in a good and natural way by passing it through a chemical substance, to render the microbes harmless and to remove bad odors. In order to apply these filters, the water level distance (level difference) of the building's basement floor and the ditch, stream or sea to which the water from the filters will be discharged must be at least 3.5 meters. Trenches etc. with filter. The elevation difference that will occur due to at least 1% slope of the pipes to be laid between the pipes must be added to the previous one. In places where the ground water level is high or rises from time to time, precautions will be taken to prevent ground water from entering the septic tank construction.
Manholes - Manholes are minimum 100x100 cm. should be internal. Preferably the walls are at least 15 cm. It should be thick concrete. Manhole walls should preferably be made of reinforced concrete, and the upper part should be tapered inwards to fit the man hole chassis and cover. The ground part of the manholes should be made of concrete, and the upper surface should be made in the form of a channel that is suitable for the flow to meet the pipe holes and the slope and does not allow water to collect. (Typical details will be followed in this regard.) The inclination and width of these grooves, which will be made in accordance with the cross-sections of the pipes, will be arranged to match the diameter and level changes of the pipes to which they will be connected, with a regular transition. The principles to be seen in detail will be followed in the construction of the concrete foundation. During the construction of the manholes , 40 cm from the ground. starting from the top and 35 cm. A landing staircase will be built on the inner wall at intervals to continue up to the cover. These steps, made of Ø 15 mm iron, will be firmly anchored to the wall . - 75 - Chassis and covers or grates in accordance with the relevant Turkish standard will be provided in the manholes of manholes or rain grates and similar places, and they will be mounted at the appropriate level. Manhole workmanship will be such as to ensure water tightness, and if the leakage does not stop, it will be dismantled and rebuilt. Particularly in sewers, care will be taken to keep the water level as low as possible until the wall and foundation concretes have fully set, or to use quick-setting concrete. HDPE manholes; For sewage and rainwater where full sealing is required, HDPE / PP will be used together with sewer, rainwater and drainage pipes and attachment parts. Manholes and HDPE / PP pipes will be welded or gasketed and connected in a leak-tight manner. Manhole dimensions will be determined according to the soil type, traffic load on it, soil load on the cover, groundwater status, soil temperature, and the distance between the manhole axis and traffic load.
Closed Type Sewer Clamp - Supply and installation in the workplace of a self-closing gray water check valve with a stainless steel valve and ABS body, which is connected to the manhole/septic tank at the entrance of the pipes, prevents mice, insects and bad odors from entering the building installation. Gray water lines that are feces-free, mouse gnaw-proof, have a hand-operated locking system, and have a wing-screw cleaning cap that opens easily without the need for tools.

Horizontal Type Non-Return Valve (Check Valve) - Installation and replacement of the polypropylene body, cleaning eye sewer return grille in the workplace , which prevents water from being drawn horizontally or vertically from the sink, shower or bathtub, and is intended for use in applications suitable for feces-free sewer lines.

A17 Connecting the facility to the water supply network

Manufacturing and assembly in accordance with local and legal regulations, as specified in the approved infrastructure project.

Water Meter - Water meters; It will be CE certified and installed in a place that complies with the regulations or known procedures and rules of the local municipality or the UNICEF from which the water is purchased. The location where the meter will be mounted; It will be ensured that it is chosen to be placed on the walls near the entrance of the building in a way that will not allow harmful effects such as freezing, impact, vibration, intervention by unrelated persons or being submerged under water, and that it will be easy to read, or appropriate measures will be taken in these matters. Meters are connected to the installation in such a way that they can be removed for repair when they break down. Before the meter, a valve (in addition to the one to be placed by the municipality or UNICEF for compulsory shut-off) and preferably a dirt separator, a non-return valve and a valve with a discharge device will be placed after the meter. In case of discharge or malfunction, good drainage of the water that will flow into the clock area will be ensured. Unless otherwise specified in the project, the clock will have a diameter appropriate to the pipe diameter. Pressure loss in the water meter should not exceed 0.5 bar (=5 mss).

A18 Connecting the facility to the black water system

To determine the amount of gray water that can be recycled, flush water, green area irrigation and cleaning water needs should be calculated by looking at the amount of water needed for the structure. The number of flushes used varies depending on the purposes and usage habits of the people using the building. The number of flush water usage by people/guests in different building typologies should be evaluated on a building-specific basis.

sink and shower etc. Gray water collected from uses with PVC pipes will be taken to the collection tank. There is an automatic chlorine dosing unit in the warehouse and the collected gray water will be chlorinated. Chlorinated gray water will be passed through the stainless steel body bag filter tank with the system feed booster to filter out pollutants such as large particles and hair. Then, the gray water passing through the multi-layer sand filter, 1st stage active carbon filter and 2nd stage active carbon filter will be chlorinated again by the automatic chlorine dosing unit and will be delivered to the filtered water tank. Filtered water in the filtered water tank is membrane-coated through the ultrafiltration feeding pump. will be passed through the ultrafiltration system. The water passed through the ultrafiltration system will be stored purified in the product water tank after the final stage chlorination.

Closed Type Sewer Clamp - Supply and installation in the workplace of a self-closing gray water check valve with a stainless steel valve and ABS body, which is connected to the manhole/ septic tank at the entrance of the pipes, prevents mice, insects and bad odors from entering the building installation. Gray water lines that are feces-free, mouse gnaw-proof, have a hand-operated locking system, and have a wing-screw cleaning cap that opens easily without the need for tools.

Closed Type Sewer Clamp - Supply and installation in the workplace of a self-closing gray water check valve with a stainless steel valve and ABS body, which is connected to the manhole/ septic tank at the entrance of the pipes, prevents mice, insects and bad odors from entering the building installation. Gray water lines that are feces-free, mouse gnaw-proof, have a hand-operated locking system, and have a wing-screw cleaning cap that opens easily without the need for tools.

B1-1 Air Conditioner (cold and hot AC split unit, converter type), 12,000 BTU

Wall Type Split Air Conditioner (12,000 BTU) - Supply and installation of the device , which can be automatically programmed in accordance with (TS 7936 EN 60335-2-40, TS EN 14511-4) standards, has a hermetic heat pump, and can direct the air with air wings, and delivery in working condition is to the left, right and up-down, with memory protection against power outages, compressor protection between switching and cooling-cooling transitions from the first start-up, defrost warning, cleanable air filter, mechanism preventing cold air blowing during heating, air circulation without cooling, without heating, automatic function selection, movable bulb, wall type, 5 m copper pipes for the operation of the split air conditioning system , electrical installation and necessary apparatus.

B1-2 Air Conditioner (cold and hot AC split unit, converter type), 24,000 BTU

Wall Type Split Air Conditioner (24,000 BTU) - Supply and installation of the device , which can be automatically programmed in accordance with (TS 7936 EN 60335-2-40, TS EN 14511-4) standards, has a hermetic heat pump, and can direct the air with air wings, and delivery in working condition is to the left, right and up-down, with memory protection against power outages, compressor protection between switching and cooling-cooling transitions from the first start-up, defrost warning, cleanable air filter, mechanism preventing cold air blowing during heating, air circulation without cooling, without heating, automatic function selection, movable bulb, wall type, 5 m copper pipes for the operation of the split air conditioning system , electrical installation and necessary apparatus.

B1-3 VRF Air Conditioning System, Cooling capacity (nom): 2-2.5 KW., Heating capacity (nom):2.5-3 KW. cassette type indoor unit

Frequency Controlled All Outdoor Units or Outdoor Unit Group – The air conditioning system will have a variable refrigerant flow rate (VRF) design where each indoor unit can cool or heat and can meet the different demands of the users. The system is capacity controlled and will consist of air-cooled modular outdoor units and multiple indoor units. The device will operate with R410a refrigerant, which does not contain chlorofluorocarbons (CFCs) harmful to the ozone layer. The system must be able to cool at dry bulb outdoor temperatures between -5 ºC and +43 ºC. The system must be able to heat between -15ºC and +15ºC oil thermometer outdoor air temperature. The height difference between the highest outdoor unit and the lowest indoor unit should be up to 50m downwards. The system will be suitable for mixed use of one-way blow cassette type, two-way blow cassette type, four-way blow cassette type, duct type, high pressure duct type, ceiling type, wall type, floor type, cabinetless chassis type indoor units. The above-mentioned indoor units can be connected to the existing installed system in the future, if necessary, within the system and capacity limits .

Individual outdoor units' electronic and refrigerant circuits should be connected to each other to form high-capacity modular outdoor units, thus simplifying the refrigerant lines. Each of the individual outdoor units that make up the modular outdoor unit should have at least two compressors with identical features, so that the outdoor unit operates more efficiently at partial loads and when one of the compressors fails, the other compressor continues to operate and responds to variable load needs up to its capacity. When one of the individual outdoor units forming the modular outdoor unit fails, the other individual outdoor units connected to the modular outdoor unit must be able to continue operating the system, so that the system can operate uninterruptedly. When the indoor unit / outdoor unit nominal cooling capacity connection ratio (diversity) connected to the same refrigerant line increases to 130%, the outdoor unit cooling capacity must be at least 10% above the nominal cooling capacity. There must be snow protection to prevent snowfall from blocking the outdoor unit fan in winter. Possible environmental sound problems should be avoided by switching the outdoor unit to silent mode when necessary. In this operation, outdoor unit fan and compressor speeds should be reduced.

condenser and DC inverter compressor, to which indoor units of different capacities and types can be connected via manifold ends, on a single line on the outdoor unit, or if one of the outdoor units has a liquid or gas line. EER (Energy Efficiency Ratio) is minimum 3.2 and COP Value is minimum. 3.4 is delivered in working condition by making all kinds of piping and electrical connections, pressurizing it with nitrogen and filling the entire system with cooling gases. -Nominal capacity and efficiency values in cooling ; Indoor: 27 C KT / 19 CW Outdoor: 35 CKT / 24 CWT; In heating; Indoor: 20 C KT / 15 CW Outdoor: 7 CKT / 6 CYT temperature with 7.5 m pipe lengths and 0 m elevation difference. - After the installation of the outdoor units, the installation pressure will be gradually increased to 25 bar with N2 (Nitrogen) gas and will be tested under this pressure for at least 24 hours.

air-cooled condenser compressors will be frequency-controlled DC inverter compressors, outdoor units or outdoor unit groups.

Cooling Capacity (Nom): 2-2.5 KW ., Heating Capacity (Nom): 2.5-3 KW. Cassette Type Indoor Unit - Working installation and delivery of cassette type indoor units with 2 or 4-way blowing function, which can be used by hanging in places where there are suspended ceiling spaces, directing the air up and down or left and right thanks to the air direction wings .

- The units will have a drainage pump that can pump water up to a head of 50 cm (from the lower level of the unit).

Wired Remote Control Device - Installation and operation of the control unit that can control all functions of the indoor unit through cable connection between the indoor unit and the outdoor unit.

Central Control Unit (Up to 50 Indoor Units) - The central control system that can control all indoor units of internal quality systems, can be connected to the system communication signal line with a cable, will control all indoor units of the central control unit with all their functions, and will have a timed liquid crystal display.

The scheduler restricts the use of internal units in the system and provides information about possible events in the system. It is delivered in working condition by connecting the central control device.

Copper Pipe Group (Copper Piping System) - Copper pipes produced according to TS EN 12449 will be checked against moisture and tobacco, and the welding process will be carried out with silver-copper alloy and under N2 (Nitrogen) to prevent oxidation . In copper pipe installation, 1 carrier clamp, each of at least 1 meter, will be used. Before the copper pipe installation is completed and the system is put into operation, the pipes will be purged with N2 (Nitrogen) gas. After the copper piping work is completed, the copper pipes will be tested with N2 (Nitrogen) gas at 41.5 bar pressure and will be tested under this pressure for at least 24 hours. Variable Cooling Inside the Chimney Very Good Air Conditioning System, together with the installation elements to be used in the installation, is insulated with rubber or elastomeric rubber foam in the minimum thicknesses specified below, and has been assembled and tested for installation.

Copper Pipe Fittings – Installation of fittings (twin) for use in liquid and gas lines according to line load.

B1-4 VRF Air Conditioning System, Cooling capacity (nom): 5.5-7 KW ., Heating capacity (nom):6-8.5 KW. cassette type indoor unit

Frequency Controlled All Outdoor Units or Outdoor Unit Group – The air conditioning system will have a variable refrigerant flow rate (VRF) design where each indoor unit can cool or heat and can meet the different demands of the users. The system is capacity controlled and will consist of air-cooled modular outdoor units and multiple indoor units. The device will operate with R410a refrigerant, which does not contain chlorofluorocarbons (CFCs) harmful to the ozone layer. The system must be able to cool at dry bulb outdoor temperatures between -5 ºC and +43 ºC. The system must be able to heat between -15ºC and +15ºC oil thermometer outdoor air temperature. The height difference between the highest outdoor unit and the lowest indoor unit should be up to 50m downwards. The system will be suitable for mixed use of one-way blow cassette type, two-way blow cassette type, four-way blow cassette type, duct type, high pressure duct type, ceiling type, wall type, floor type, cabinetless chassis type indoor units. The above-mentioned indoor units can be connected to the existing installed system in the future, if necessary, within the system and capacity limits .

Individual outdoor units' electronic and refrigerant circuits should be connected to each other to form high-capacity modular outdoor units, thus simplifying the refrigerant lines. Each of the individual outdoor units that make up the modular outdoor unit should have at least two compressors with identical features, so that the outdoor unit operates more efficiently at partial loads and when one of the compressors fails, the other compressor continues to operate and responds to variable load needs up to its capacity. When one of the individual outdoor units forming the modular outdoor unit fails, the other individual outdoor units connected to the modular outdoor unit must be able to continue operating the system, so that the system can operate uninterruptedly. When the indoor unit / outdoor unit nominal cooling capacity connection ratio (diversity) connected to the same refrigerant line increases to 130%, the outdoor unit cooling capacity must be at least 10% above the nominal cooling capacity. There must be snow protection to prevent snowfall from blocking the outdoor unit fan in winter. Possible environmental sound problems should be avoided by switching the outdoor unit to silent mode when necessary. In this operation, outdoor unit fan and compressor speeds should be reduced.

condenser and DC inverter compressor, to which indoor units of different capacities and types can be connected via manifold ends, on a single line on the outdoor unit, or if one of the outdoor units has a liquid or gas line. EER (Energy Efficiency Ratio) is minimum 3.2 and COP Value is minimum. 3.4 is delivered in working condition by making all kinds of piping and electrical connections, pressurizing it with nitrogen and filling the entire system with cooling gases. -Nominal capacity and efficiency values in cooling ; Indoor: 27 C KT / 19 CW Outdoor: 35 CKT / 24 CWT; In heating; Indoor: 20 C KT / 15 CW Outdoor: 7 CKT / 6 CYT temperature with 7.5 m pipe lengths and 0 m elevation difference. - After the installation of the outdoor units, the installation pressure will be gradually increased to 25 bar with N2 (Nitrogen) gas and will be tested under this pressure for at least 24 hours.

air-cooled condenser compressors will be frequency-controlled DC inverter compressors, outdoor units or outdoor unit groups.

Cooling Capacity (Nom): 5.5-7 KW ., Heating Capacity (Nom): 6-8.5 KW. Cassette Type Indoor Unit - Working installation and delivery of cassette type indoor units with 2 or 4-way blowing function, which can be used by hanging in places where there are suspended ceiling spaces, directing the air up and down or left and right thanks to the air direction wings .

- The units will have a drainage pump that can pump water up to a head of 50 cm (from the lower level of the unit).

Wired Remote Control Device - Installation and operation of the control unit that can control all functions of the indoor unit through cable connection between the indoor unit and the outdoor unit.

Central Control Unit (Up to 50 Indoor Units) - The central control system that can control all indoor units of internal quality systems, can be connected to the system communication signal line with a cable, will control all indoor units of the central control unit with all their functions, and will have a timed liquid crystal display.

The scheduler restricts the use of internal units in the system and provides information about possible events in the system. It is delivered in working condition by connecting the central control device.

Copper Pipe Group (Copper Piping System) - Copper pipes produced according to TS EN 12449 will be checked against moisture and tobacco, and the welding process will be carried out with silver-copper alloy and under N2 (Nitrogen) to prevent oxidation . In copper pipe installation, 1 carrier clamp, each of at least 1 meter, will be used. Before the copper pipe installation is completed and the system is put into operation, the pipes will be purged with N2 (Nitrogen) gas. After the copper piping work is completed, the copper pipes will be tested with N2 (Nitrogen) gas at 41.5 bar pressure and will be tested under this pressure for at least 24 hours. Variable Cooling Inside the Chimney Very Good Air Conditioning System, together with the installation elements to be used in the installation, is insulated with rubber or elastomeric rubber foam in the minimum thicknesses specified below, and has been assembled and tested for installation.

Copper Pipe Fittings – Installation of fittings (twin) for use in liquid and gas lines according to line load.

B1-5 Radiant Floor Heating System

Panel Radiator (Type 22 PKKP 500) - Its structural structure complies with TS EN 442-1 standard and its thermal power has been proven by the laboratory. It has Fe P01 quality according to TS EN 10130 standard and is produced from minimum 1.11 mm material. thick cold drawn steel; Tested according to TS EN 442/1 at a pressure of 1.3 times the maximum working pressure (at least 520 kPa), tested according to TS EN 442/2 for heat resistance; Primer painted on the top, electrostatic powder coated on the top, zinc or iron phosphate painted, packaged, assembly and installation at the workplace, including radiator fittings and vent valve . (XY type, X number of panels, Y convector.)

Panel Radiator (Type 22 PKKP 600) - Its structural structure complies with TS EN 442-1 standard and its thermal power has been proven by the laboratory. It has Fe P01 quality according to TS EN 10130 standard and is produced from minimum 1.11 mm material. thick cold drawn steel; Tested according to TS EN 442/1 at a pressure of 1.3 times the maximum working pressure (at least 520 kPa), tested according to TS EN 442/2 for heat resistance; Primer painted on the top, electrostatic powder coated on the top, zinc or iron phosphate painted, packaged, assembly and installation at the workplace, including radiator fittings and air vent . (XY type, X number of panels, Y convector.)

Panel Radiator (Type 22 PKKP 900) - Its structural structure complies with TS EN 442-1 standard and its thermal power has been proven by the laboratory. It has Fe P01 quality according to TS EN 10130 standard and is produced from minimum 1.11 mm material. thick cold drawn steel; Tested according to TS EN 442/1 at a pressure of 1.3 times the maximum working pressure (at least 520 kPa), tested according to TS EN 442/2 for heat resistance; Primer painted on the top, electrostatic powder coated on the top, zinc or iron phosphate painted, packaged, assembly and installation at the workplace, including radiator fittings and vent valve . (XY type, X number of panels, Y convector.)

Corner Type Radiator Tap (Ø15 mm – ½") - Radiator tap and connection fitting compatible with TS EN 215 or TS 579 in workplaces (with thermostat, thermostat head and adapter connection fitting).

Thermostat Corner Type Radiator Tap (Ø15 mm – ½") - TS EN 215 or TS 579 compliant radiator tap and connection fitting for workplaces (with thermostat, thermostat head and adapter connection fitting).

Heating Pipe Oxygen Barrier (DIN 4726 EVOH) Pipe (16X2.0 mm Min. Peroxide Added Polyethylene (PE- Xa / PE- Xb) Pipes with 70% Cross-Linking Ratio) - ISO A Series 5; for application classes 4 and 5; Working at a maximum temperature of 95°C, working pressure of 6 bar, peroxide added, with a minimum 70% cross-linking rate; Construction and workplace installation of oxygen barrier (EVOH) polyethylene (PE- Xa) pipes according to DIN 4726, required tests in accordance with the drawings.

1" Collector (…. Outlet Ball Valve) – Self- valved , made of brass material, used for distribution or collection of fluid in heating systems, in accordance with the project The collector (1 piece) is mounted at the workplace.
Note: The collector will be supplied with Ø16x2mm output and connection.

Electric Convector Heater (2000 W) - Convector heaters that provide indoor heating are electric heating devices that heat the ambient air by utilizing the natural convection principle. The air circulating in this way quickly heats the environment by creating a natural heat circulation .

B2 Plumbing services for B2 PVC pipes (0.5" to 1.5")
PVC Plastic Waste Water Pipes - Installation of hard PVC plastic sewer pipes in accordance with TS EN 1329-1 in workplaces via sleeves.

B3 Shutter Exhaust Fan 6" for toilets and kitchens
Kitchen / WC Aspirator: The device will be used as a child-friendly fan with shutters and covers, at the capacities specified in the project. It must have a single-stage, one-way, silencer, control panel, static and dynamic stabilized bearing or sliding bearing rotor, three-flow, CE conformity mark, produced in accordance with the 305/2011/EU Construction Materials Directive and driven by direct connection to the electric motor. All sheet metal parts are made of DKP sheet metal, and the inside is painted twice with anti-corrosion paint, and the parts are painted twice with heat-resistant gun paint. (Anti-vibration wedges and similar products are included in the unit prices .)

B4-1 Kitchen Counter

a.3cm Thick Colorfull Marble Counter Top

Covering of counter tops in locations such as kitchen etc. using 3 mm marble plates(Afyon Menekşe (Afyon) or equivalent approved by the Engineer), placing skirting board on the corners with the walls made of the same marble, fabrication of drip board, bevelling of the plates; 1 m2 price including materials and wastes, loading on site, horizontal and vertical transportation, unloading, labour, tools and equipment expenses, contractor general expenses and profit:

MEASUREMENT: Area of the benchtop covered with marble is calculated over the project. Skirting boards are not calculated but included in unit price.

b.3cm Thick Colorfull Marble Counter Top (Oval Hilton Type)

It is the 1 m2 price of the benchtop for cutting of the marble(Milas White, Muğla White (Muğla) or equivalent approved by the Engineer) supplied in dimension in the drawings, opening of the oval shaped gap for sink, depending on the tap connection intervals in a size suitable for the top opening of the built-in type wash basin after the bevelling of the edges, bevelling of the edges, rounding of the edges, and affixing of the existing wash basin under the marble benchtop and transfer of the benchtop to the site in a package, including installation in-situ, including all types of materials, workmanship, contractor profit and general expenses.

MEASUREMENT: Area of the benchtop covered with marble is calculated over the project. Skirting boards are not calculated but included in unit price. Openings for the sink etc. are not deducted.

B4-2 Kitchen Cabinets

Melamine coated chipboard cover and cabinet doors, marbelite countertop,
lower kitchen cabinet with sink

a. Wooden Kitchen Bottom Cabinet

Fabrication of wooden kitchen under-counter cupboard out of 19 mm chipboard laminated with 0,65 mm laminar board in compliance with the drawings and details, transportation to the work place, installation in place, preparation and installation of the metal parts and accessories, 1 m2 price including all kinds of materials, workmanship, loading and unloading, horizontal and vertical transportation and contractor general expenses and profits:

MEASUREMENT: Front face of the cupboard is calculated over the drawings.

b. Wooden Kitchen Upper Cabinet

Fabrication of wooden kitchen upper-counter cupboard out of 19 mm chipboard laminated with 0,65 mm laminar board in compliance with the drawings and details, transportation to the work place, installation in place, preparation and installation of the metal parts and accessories, 1 m2 price including all kinds of materials, workmanship, loading and unloading, horizontal and vertical transportation and contractor general expenses and profits:

MEASUREMENT: Front face of the cupboard is calculated over the drawings.

D. ELECTRICAL INSTALLATION WORKS TECHNICAL SPECIFICATION

General Principles:

Scope

This General Technical Specification covers the technical conditions regarding the properties, supply, installation and general principles of the materials and products used in the electrical installation that should be in all existing and new buildings belonging to private and legal entities and public institutions.

Compliance with Standards

Some materials or their properties are described with reference to different national or international standards. These are first Turkish Standards, then EN, HD, IEC standards.

Even if not specified in this specification and unit price descriptions, materials, trials, manufacturing methods and similar issues for which the Turkish Standard has entered into force will comply with the relevant standards.

When necessary, the UNICEF may request the manufacturer to verify that the desired light efficiency from the lighting fixtures is provided with a document obtained from a relevant institution's laboratory.

Compliance with Laws, Statutes and Regulations

The Contractor will work in accordance with all laws, statutes and Regulations regarding the construction, testing and operation of the facility, especially those related to the prevention of environmental pollution and the protection of general health. In matters that are not regulated in any way, the contractor will perform work or act in accordance with the valid procedures and rules. The Contractor will examine the projects and make a proposal outlining all the modifications that he will find necessary or useful in terms of laws, statutes and regulations, local procedures and rules, mandatory or optional applied standards, manufacturing and assembly techniques, and facility or business economics. The Consultant may request change projects, if deemed appropriate, by changing or modifying this report in whole or in part. Responsibility arising from the inadequacy of the inspection will belong to the contractor and any damage that may occur will be covered by the contractor. Materials to be Used Instead of Any Materials All materials will comply with the issues specified in the specifications and project.

of the materials specified in the specifications are not available in the market, the contractor will assemble a material with better properties and capacity and that can be used instead, by obtaining the written permission of the Consultant and for this purpose, will ask the UNICEF will not charge any additional fee. Some materials and products must have a quality certificate or TSE warranty stamp. It is stated in the unit price tariffs that it can be used in the facility, provided that it carries list will be added to the specification together with explanatory information on this matter.

Laws, Statutes and Regulations

The Contractor shall verify that the matters specified in the projects, specifications and unit price descriptions comply with the laws, statutes, regulations, mandatory standards or local conditions, procedures and rules. If there is anything inappropriate, the UNICEF will be warned in writing.

1. Cable Transport Systems

1.1. Parapet Channels

This section covers parapet channels suitable for surface mounting, made of PVC, used for cable distribution on walls or ceilings on surface in the building.

1. All parapet channels will be manufactured from materials complying with TSE standards. Parapet channels will be made of PVC. Channels will be white unless otherwise stated. Channels will be manufactured from rigid material with sufficient thickness, and there will be no deformation in the channels and covers over time.

4. Channel dimensions will be determined with the approval of the Control Engineer, according to the minimum area to be used and the number of cables.

a separator inside the ducts , it will be possible to pass high current and low current cables through separate compartments.

6. Channels will be manufactured modularly and will have modules of length and width to meet various applications.

7. Channels will have ready-made modules for addition, termination and various turns.

8. Sockets etc. on ducts larger than 50 x 100 mm. Electrical equipment can be mounted directly. Channel covers will be resistant to plug pulling force.

9. Channels will be suitable for changes (cable pulling, addition and cancellation of equipment) when necessary.
10. In accordance with TS EN 50085-1, TS EN 50085-2-1 standards, flame retardant, resistant to mechanical impacts, self-extinguishing PVC in accordance with TS EN 60695-211 standard, resistant to atmospheric and UV rays, IP 40 protection class, CE Compliant with the Control of Waste Electrical and Electronic Equipment (RoHS) regulation, placed on the market with the conformity mark , able to operate at ambient temperatures between -25°C and +60°C, resistant to dielectric current 260 kW/cm, RAL 9010 white color, (100 mm and Channels of the above dimensions will be made of internally interlocking and foil-coated material.

2. General considerations

1. Fuse boxes will be recessed type high current and low current sections installed separately and painted with electrostatic powder paint and baked on.
2. All sockets are sockets with safety lines, and the sockets used in wet areas will be of the type with cover.
3. Watertight installation is required, lighting and socket lines will be made with NHXMH type cables, power installation feeding and control lines will be made with N2XH type cables. Cables will be pulled through HF (halogen-free) spiral pipe.
4. All fixtures will be LED.
5. Lighting lines and sorties in wet areas will be installed with security lines.
6. In wet areas, fixtures will have IP 44 protection class.
7. Cases and junction boxes will comply with TS EN 60670-22 norm (fireproof).
8. Recessed switch and socket cases will be of assembleable combination type. Socket cases must be able to be fixed from the metal body chassis of the sockets with sheet metal screws of appropriate size. Key safes will be deep type safes, and lighting sortie outlets will be from the switch safe. Switches and sockets will have a metal chassis, a body made of fireproof material, and will consist of a cover and frame that connects to the body with tabs.
9. All sockets will be child protected.
10. The grounding element will be a 1.75 m copper rod (pile) and the grounding resistance will be at most 4 ohms. It will happen. Their size or number depends on the required propagation resistance. The upper edge of the rod should be at least 1 m from the soil surface should not be below. Grounding manufacturing will be in accordance with the Grounding Facility Regulation, published and entered into force in the Official Gazette dated 21.08.2001 and numbered 24500.
11. The container body will be grounded with a sufficient number of 1.75 m copper rods.
12. Neutral and grounding lines will be kept separate in the panel and will not be combined in any way.
13. Container body and panel groundings will be separate.
14. From the panel grounding busbar with a yellow-green insulating colored copper cable of appropriate cross-section; It will be grounded with a sufficient number of 1.75 m copper rods.
15. No metal clips will be used.
16. Manufacturing drawings and single line diagrams of the panels used in the application will be prepared before manufacturing and approval will be obtained from the ADMINISTRATION.
17. All materials to be used in the installation will be TSE certified and each production will be made in accordance with the unit price descriptions of the specified item number.
18. In buildings, line and socket lines will be made with 2.5 mm2, lighting sortie circuits will be made with 1.5 mm2 HO7Z or NHXMH cable.
19. All fuses will be Switched Automatic Fuse. Input fuses are category C, lighting In the power installation tables, input and output fuses will be in category C with the appropriate amperage.
20. Switchgear materials to be used in all force tables will be of rail-mountable type.
21. The short circuit capacity of automatic fuses with switches used in fuse boxes must be at least 6 kA.
22. The following color codes will be used for conductors in Electrical Internal Installations :

- For protection conductors: Green–yellow
- For neutral conductors: Light blue
- For phase conductors: Different colors for each phase (primarily black or brown) in accordance with the applicable cable standards

23. In the lighting installation, it is recommended that the conductor passing through the switch be red, and the conductors between the legs of the switch should be white.
24. Electrical lines can be installed in walls, ceilings or floors, buried or flush-mounted, depending on location. If the lines installed on the walls are installed under plaster, they should be installed horizontally and vertically in the alignment of switches, sockets, lighting sorties , junction boxes, tables and so on, in a way that allows the transition places to be predicted.
25. Junction boxes will be located in corridors or behind doors in rooms as much as possible. The joints in the junction box will definitely be made with terminal blocks.
26. Switch – socket connection terminals should not be used for additional purposes. Core terminals will be used as terminals and will match the insulation color of the conductor.
27. There will be no jumping from socket to socket.
28. Mass production will not start without manufacturing approval.
29. All Manufacturing to Be Done is in Effect; MINISTRY OF ENERGY AND NATURAL RESOURCES - Electrical Internal Installation Regulation - TEDAŞ Regulation, Specification and Unit Price Tariffs, MINISTRY OF Environment and Urbanization - Unit Price Tariffs and Specifications, MINISTRY OF Environment and Urbanization - Published in the Official Gazette No. 24500 dated 21.08.2001 and entered into force. According to the Grounding Facility Regulation, MINISTRY OF TRANSPORT, MARITIME AND COMMUNICATIONS
30. All materials required for the business will be labeled. Grounding results (protection, operation, transformer, environmental lighting, lighting rod) will be delivered to the UNICEF as approved by the Chamber of Electrical Engineers or TEDAŞ.

Project Special Pens

C1: Electronic fire alarm siren with built -in flasher oath Exit light

- Fire Alarm Siren: 9-Volt battery smoke detector is used for each room. (except toilet oath bathrooms) will have TSE/CE Certificate
- Exit Fixture:
- It can be easily mounted directly on the ceiling , on the wall from behind , on a suspended or suspended ceiling
- Protection Class: IP40
- Must e LED
- It must be in accordance with with the TS EN 60598-2-22 standard oath must be placed on the market with the CE conformity mark.
- It will have TSE/CE certificate
- It will be locked for 3 hours

C2: LED lighting units 60x60 36W

- It will have TSE/CE Certificate
- It will be surface mounted
- Will be used in wet areas
- It will have IP 40 protection class.
- It will comply with TS EN 60598-2-2 or TS EN IEC 60598-1 standards.
- LED and will be 36 W.
- , 60x60, 1 meter above the floor , 100 lux This LED fixture will be placed
- Armature The driver will be electronically balanced and meet TS EN 61347-2-7 standards.

C3: LED lighting units globe 12W

- It will have TSE/CE Certificate
- It will be surface mounted
- Will be used in wet areas
- It will have IP 65 protection class.
- It will comply with TS EN 60598-2-2 or TS EN IEC 60598-1 standards.

- LED and will be 12 W.

C4: LED lighting units single

- It will have TSE/CE Certificate
- It will be surface mounted
- Will be used in wet areas
- It will have IP 65 protection class.
- It will comply with TS EN 60598-2-2 or TS EN IEC 60598-1 standards.
- It will be LED and will be 12 W.
- , 60x60, 1 meter above the floor , 50 lux This LED fixture will be placed
- Armature The driver will be electronically balanced and meet TS EN 61347-2-7 standards.

C5: Switchboard

Electrical Installation Tables

General

For matters not mentioned here, TSE, EN, HD, IEC standards, respectively. The provisions will be accepted as basis. All installations under plaster will be made with halogen-free PVC pipes in accordance with TS or international standards. Downpipes under plaster will be laid vertically or horizontally. Care should be taken to ensure that the junction boxes are located at the level of the socket or switch. The center of the distribution tables will be at a height of 170 cm from the floor. This distance can be changed with the permission of the control engineer. In a container, phase conductors will be L1-gray, L2- black, L3- brown, N- neutral conductor will be light blue, PE-protection conductor (ground) will be yellow with green band. A light is placed at the exit points of all lighting sorties to ensure their connection with the luminaires. Terminal will be placed.

Junction boxes will be at least 220 cm above the floor and care will be taken to ensure that the junction boxes in the same room or corridor are at the same level. PVC pipes can be laid side by side up to three pipes under plaster. In laying more than three pipes, the pipes will be divided into three groups and there will be a distance of at least 4 cm between each group. Three-phase sorties can be used in very special lighting systems (chandeliers, etc.) where it is not possible to feed one phase in terms of current capacity. Cable insulated conductors of a type suitable for the project will be used with a cross section of at least 1.5 mm2 for lamp lines and at least 2.5 mm2 for socket lines, socket lines and lamp lines. In supply lines“, the neutral conductor cross-section will be equal to the phase conductor cross-section. Socket circuits will be separate from light circuits. Sorti switches will be placed at a height of 110 cm from the floor, wall lamps will be placed at a height of 190 cm from the floor, and if there are several switches and extinguishing buttons in the same room, all of them will be mounted at the same level. Sockets are normally 40 cm from the floor will be placed in height. Telephone, TV and call buttons will be mounted side by side at the same level if they come together with sockets. Both switch and socket heights can be changed with the permission of the control engineer. Switch, extinguishing button, socket, telephone socket, call button, etc. located side by side. It can be done within combined cases. If a junction box is used, PVC junction boxes complying with TSE standards can be used, and a maximum of four pipes can be connected to a junction box. When this number is exceeded, a square junction box or additional box will be installed. Insulated terminal blocks will be used for cable connections inside the junction boxes. Security lines will continue to the distribution tables they belong to and will be connected to the grounding bar of the table. Where the phase line cross-section is up to 16 mm2, the protection line cross-section will be equal to the phase conductor cross-section. In other cases, line sections will comply with the Grounding Regulation in Electrical Installations. It is recommended to select the cross-section according to the heating calculation for the protection lines of phase lines protected by fuses of 63 A and larger. It is mandatory to use a Residual Current Switch against ground fault currents in buildings that receive low voltage energy from the energy provider. Taking into account the normal, insulation and ground capacity currents (leakage currents) of the installation, the Residual Current switch closest to the consumer should have a threshold value of 30 mA. In damp, open air or places that cause corrosion, the installation will be made with materials such as watertight and underground cable. The distance between the hooks will not exceed 30 cm. The clamps of many types of waterproof cables lined up side by side will be fixed on a common stainless metal console. All columns, main lines and feed lines to be used in the installation will be in one piece, suitable for the manufacturing length, and will not be used by adding piecemeal parts under any circumstances. Watertight

Switches, armatures, sockets and all materials to be used in such installations to be placed on the sorties will be of a waterproof type manufactured for damp places. Sockets will be of the type with watertight covers. The features of watertight armatures are given below under the title of armatures. Changes will be determined with the permission of the control engineer. There will be galvanized or stainless metal screws on the bases for fixing the security lines. The installation to be made in bathrooms and similar wet areas will comply with the provisions of TS EN 60364-7-701 standard. In places where the line system passes under installations where condensation may occur (installations such as water, steam or gas, etc.), precautions will be taken to protect the line system from harmful effects. Installation Type Surge Arresters to be used in the Panels Electrical installation type Surge Arresters will be used in the Panels. It is used in system voltage 220 V single-phase and 380 V three-phase low voltage networks, to prevent the harmful effects of lightning and network overvoltages. It includes the technical specifications and usage areas of Installation Type Surge Arresters.

General features:

Arresters suitable for use in low voltage systems must have the following general features:

- It should have a modular structure. In case of malfunction, phases or neutral must be replaced independently.
- Metal-oxide resistor or jump gap technology should be used. In order to fulfill electromagnetic compatibility (EMC) conditions, surge arresters with surge gaps The design should be made to keep electromagnetic interference at a minimum level. There is no electromagnetic interference in surge arresters with metal-oxide technology.
- Surge arresters must be suitable for mounting on DIN 35 mm rail according to IEC EN 50022.
- In modular surge arresters, each module must have an independent fault indicator.
- Surge arrester carrier body and modules must be made of flame-resistant reinforced thermoplastic material.
- Relevant Standards:
- The Turkish Standards Institute does not have a published Turkish standard for the product.
- IEC 61643–11 Surge protective devices Connected to Low Voltage Power Distribution Systems - Part 11: Performance Requirements oath testing methods

Working conditions:

- internal type operation.
- It operates in -40 ±85o C ambient conditions.

LV Circuit Breakers

a. General

A. Circuit breaker types in this section include:

1. Air circuit breakers (PACB)
2. Closed type circuit breakers (MCCB)
3. Switched MCBs (MCB)
4. Switch disconnectors (MCS)

Results:

Certificate of Approval:

B. Approved model test and ordinary factory test data showing the current interruption value for each circuit breaker will be submitted to the Administration.

Quality assurance:

C. Codes and Standards:

1. Electrical Code Compliance: It must be applicable to the construction and installation of circuit breakers as well as the local electrical code requirements of the competent authority.
2. IEC Compliance: It shall be compliant with TS 1058 or IEC 60947-2 for open and closed circuit breakers and TS 5018 or IEC 60898 for switched automatic fuses and shall comply with CE norms.
3. It will have ISO-9001 Quality assurance.

b. Products

Circuit Breakers:

A. General: Unless otherwise specified, the manufacturer shall provide circuit breakers and required components with their measured values and electrical characteristics determined in accordance with the

manufacturer's standard design, materials, components and published product information and as required for the entire installation which may be subject to approval or rejection by the engineer.

B. Open Type Circuit Breakers (PACB), Insulated Case:

1. Type: In steel structure, air-cooled, at the highest temperature in the attached paper at the point of application , air-separated for normal operation, tested to approved standards, can be used manually or manually and electrically for normal functions, and automatically trips under overcurrent conditions. To safely trip the circuit breaker, motive power is supplied from the main power circuit with sufficient kinetic energy. The permanently installed circuit breaker must be connected from the rear.

2. Structure: Stored energy mechanism with two steps spring loading as seen in the drawings, which can be operated manually and electrically, quick-opening quick-closing model, which can be prevented from opening electrically and mechanically, to prevent it from closing in case of overcurrent for maintenance. Electrical circuit breakers must have a motor mechanism that automatically charges itself when closed. Circuit breakers, both manually operated or manually and electrically operated, must have a mechanical charging lever and must include directly operable on and off switches. The stored energy requirement is to allow the on/off/on sequence of operations without using any external energy. The safety feature is to allow discharging stored energy without turning off the circuit breaker. The circuit breaker must have an arc extinguishing device and replaceable arc contacts at each pole.

3. Rating: 3 or 4 poles, 1000 V insulation voltage rating, 690 V operating voltage rating, frame size as shown in drawings, ranging from 400 A to 4000 A (400, 800, 1200, 1600, 2000, 2500, 3000 and 4000 A) full rated for service in the worst ground conditions with continuous current rating. Breakers shall comply with the IEC 60947-2 standard at the specified voltage and frequency for symmetric RMS service short-circuit breaking capacity.

4. Breaking Unit: Fully enclosed, programmable, solid state device, interchangeable for appropriate frame sizes, mountable in front of the circuit breaker, clamped, shielded, and with a clear, sealable cover. The cutting unit must measure sinusoidal and non-sinusoidal current wave structures by continuously sampling each phase in each period. The cutting unit must be effective in tripping, operate with a current transformer, and operate with flux transfer that does not require external power. It must have adjustable current values (0.5 – 1.0 cut-off unit value) along with adjustable long-time delay, short-time hold and short-time delay, ground fault hold and time delay . Current setting values must have cutting-units changeable current setting values at maximum frame size values. Once removed, the circuit breaker should remain in the non-interrupting position. Ground fault tripping should be a maximum of 1200 A, adjustable from 10% to 60% of the normal current values of the circuit breaker and the time delay adjustable between 0.1 and 0.5 seconds. The short time delay should be adjustable in steps, re-adjustable or at 2-9 times current values, with a maximum delay adjustable from 0.3 to 0.5 seconds. Instantaneous cuts should be adjustable in steps 2-13 times greater than the unit cut-off values. Over-drive protection may be allowed up to the stopping capacity of the circuit breaker.

5. Breaking Unit Status Indicator: Should indicate normal breaker operation, long-term overcurrent condition, instantaneous overcurrent condition, short-term overcurrent condition, ground fault condition in words. The unit must have a composite counter to count long time, short time, instantaneous and ground fault condition.

6. Position Indicators: Must be directly connected with contacts. The indicator must be mechanical and able to operate even if control power is lost.

7. Circuit breaker equipment should include:

a. Locking hardware for each position (open, test, closed, locked, open)

b. overload , short-circuit, ground fault LEDs

c. Cut indicator and reset key

d. transaction counter

e. on /off guide lights

f. trip coil and shut-off solenoid for remote control

8. Auxiliary Contacts: As required, the switch must contain NO and NC contacts, in addition to 2 NO and 2 NC auxiliary contacts.

9. Cutting Unit: It must have inputs from voltage transformers accepted for each phase. There must be a current transformer for each phase. Current transformers should be coated with epoxy- filled plastic to protect against damage and moisture and should be assembled with circuit breakers.

10. Neutral Current Transformers: Ground fault protection must be provided through the neutral conductor of each input, output or coupling circuit. The ratings and characteristics of neutral current transformers must be suitable for each operation of the earth fault protection system.

11. Electrical Interlocking: If electrical interlocking is required between open type circuit breakers, the mechanical closing button of the circuit breaker should be disabled in the connected position and an additional push button should be provided to close the breaker via the shunt closing winding. Electrical interlocking must be provided by both tripping and closing blocking to ensure instantaneous activation and prevent the closing functions of the locked breaker.

C. Closed Type Circuit Breakers (MCCB):

1. Type: Fully enclosed, molded, made of high quality, high temperature resistant, resistant, air-conditioned, normally operating in accordance with approved standards, covered with insulating materials designed for a temperature of 70ºc, sudden closing, sudden cut-off switch mechanism. Operated by a front uniform clutch mechanism for manual operation of the main connections in addition to automatic operation in overcurrent conditions. Error trip indicator indicated by automatic engagement between manually controlled open and closed states. Multi-pole breakers must have a common action bar for instantaneous operation of all poles. The current value should be easily visible. All terminals must be screw-on and suitable for copper and aluminum conductor connections. Contacts shall be of arc-dampened, non-sticking silver alloy of approved construction.

2. Circuit Breaker Trip Unit: Unless otherwise stated or seen on the drawings, circuit breakers with a frame rating below 400 A must be of the thermal magnetic type with no current limit for each pole, bi -metal thermal relay with inverse time characteristic for overcurrent and instantaneous for short circuit. It will be a magnetic relay with opening. At values of 150A and above, the magnetic relay will be adjustable. Electronic type relay will be used for values greater than 400A.

3. Switch mechanism: quick-closing, instantaneous opening type, with positive action function so that the contacts cannot be closed against overcurrents in manual or automatic operation. Contacts shall be of non-adhesive silver alloy with mechanical grid type arc damping devices.

4. Thermal overcurrent units should be of the compensating type to allow the usual temperature at the breaker to be higher than that of the protected circuits and devices. Balancing should be applicable between 25 and 50ºc. For adjustable thermal relays, the adjustment range must not exceed the maximum value shown in the drawings and diagrams.

5. The overcurrent tripping value (Amps) must indicate the highest value at which the overload element is installed for tripping.

6. MCCBs for main distribution panel are model without current limit, with insulation voltage rating of 1000 V, operating voltage rating of 690 V AC, use of category B, full rated operation with continuous service in climatic conditions and frame size and breaking capacity, conforming to IEC 60947-2, standard must be compatible.

7. Fault Position: When automatically opening in case of overload, the operating mechanism of the circuit breaker should be in the middle position indicated by its engagement between the open and closed positions.

8. Replaceable Relays: Circuit breakers with 250 A frames and higher must have replaceable relays.

9. Sealing: Circuit breakers with non-switchable relays must be sealed. Switchable relay circuit breakers must have sealed covers to prevent misuse.

10. Electronic relays applicable to frame-rated circuit breakers of 400 A and higher, with long-term delay settings of 0.5 and 1 times the peak tripping value with a peak clearing time of 0.2 seconds and continuous protection in the range of 5 to 10 times the peak tripping value and short-term The delay range must be a multiple of 3 to 10 times the maximum movement value. Solid-state motion units must be insensitive to changes in ambient temperature between –20 and +55 degrees. Ground fault protection must be installed at the specified location inside the drive unit and the sum of the normal phase current with the entire current transformer with a maximum time delay of 0.2 seconds must be adjustable between 0.2 and 0.6. The test button must be provided over the cover to test the relay unit.

11. shall be designed to accompany standard fittings including trip coils, undervoltage relays, combined auxiliary and alarm switches and electric motors to any circuit breakers rated (frame size) 100 A and higher .

12. Residual current protection relays (RCD): Earth leakage protection must comply with standards and regulations such as overcurrent and short circuit protection. The setting value of the overcurrent relay used in

the lines will be 30mA (maximum), as specified in the drawings for other relays. Circuit breakers will have a trip coil and a current transformer, and there will be a mechanism to prevent the contacts from being closed in case of an error.

D. Switched Circuit Breakers (MCB):

1. Model: Thermal magnetic fixed (non-adjustable) type, tested in accordance with IEC60898.
2. Voltage Rating: 440 V insulation voltage rating and 230/400 V operating voltage rating.
3. Minimum Short Circuit Breaking Capacity should be: 6 – 100 A As required in the drawings of MCB panels.
4. Construction: MCBs will have high quality, high temperature resistant cast insulation capable of operating at temperatures up to 70 degrees and relative humidity up to 95%. Operating values will be specified for temperatures above 40 degrees. MCBs will be modular type, single view and DIN rail mountable.
5. Operation: Thermal tripping should provide cable protection under overcurrent. In case of short circuit, the magnetic tripping must operate at 5-10 times the normal current (type 3 characteristic), unless otherwise specified. Magnetic tripping must be within the current limiting zone and must not exceed 5 milliseconds.
6. Values: Preferred nominal currents should be 6,10,16,20,25,32,40,50,60,80 and 100A, suitable for operation at 40 degrees and 1-2-3-4 poles. In operation above 40 degrees, the current decrease should not exceed 1% for 1 degree and the loading should not exceed 70% of the nominal value.
7. Earth leakage equipment can be used additionally or integrated. Leakage sensitivity must be fixed 10, 30, 100 and 300 mA and 2 or 4 poles.
8. Accessories: Alarm contact, spare contact, trip coil, low voltage coil and similar modular attachments should be provided where required or shown in the drawing.

E. Switch Separators (MCS)

Load Breakers: The device, which is equivalent to a similar breaker whose on/off switching is not automatic, must have a structure that is resistant to the highest current and voltage, but does not have overcurrent or error protection elements.

C6/C7/C8: Sorties (Lighting/ Power/ Low Voltage)

Electrical Installation Piping and Cabling Systems:

Pipe systems will be installed with materials that comply with the latest valid TSE standards and the latest applicable specifications. Pipe systems to be installed within the building and

Its components (case, junction box, box, etc.) will be manufactured with PVC-based materials that do not emit flames and toxic gases (halogen-free). All pipe systems will be flush mounted unless otherwise stated. In electrical and machinery rooms, the installation will be done on surface. Weak current and strong current pipe colors will be manufactured in different colors (for example, red pipe for weak current, blue pipe for strong current). Conductors and cables in the installation will not be pulled before the piping system is completed. Conductors and cables installed in the installation will not exceed 40% of the internal cross-section of the installed pipes. The Contractor will verify that the pipe dimensions specified in the project are sufficient for the conductors and cables to be installed. The Contractor will construct the installation pipe systems in a way that enables the removal and reinstallation of conductors and cables within the facility at any time and/or for any reason during the construction and/or operation of the facility. For this reason, the turns will either be made with fabricated elbows produced for electrical installation pipe systems, or with special pipe bending devices approved by the workplace control. In bending made with approved mechanisms in the workplace, pipe bending radii will be at least 6 times the pipe diameters and there will be no deformation of more than 10% of the pipe inner diameters. The maximum bending angles to be made at a time will be 270°. A maximum of 3 90° turns (elbows, bends) can be used between two boxes (junction box, case, table, panel, etc.). Pull boxes will be used between the boxes when necessary. The use of turns and elbows produced for gas and water installations will not be allowed. In wet and humid regions, pipe fittings produced in the appropriate protection class will be used and it will be ensured that the installed pipe systems are not in a structure that can collect water. Cable pipe systems must be at least 15 cm away from the chimneys and steam and hot water pipes installed parallel to them. It will be laid at a distance. Cable pipes will be installed parallel or perpendicular to the walls and the lines where the wall and the ceiling intersect, diagonal pipe laying will not be allowed. In surface-mounted installations, pipes are maximum 100 cm. It will be supported at intervals. In parallel laid pipes, care should be taken to install pipes of the same diameter side by side and the spacing between supports will be equal. During construction, necessary precautions will be taken to prevent plaster particles, other crumbs and scraps from entering the pipes, junction boxes and cases, and pipe fittings and causing blockages. Before the cables and conductors are started to be pulled, necessary checks will be made and clogged parts of the system will be repaired with appropriate and approved methods. The installation pipes to be laid inside the construction elements will be selected and installed in accordance with the characteristics of the element in which they will be laid. Pipe systems to be installed in ceilings and floors,

It will be ensured that they are produced in accordance with heavy working conditions, resistant to mechanical impacts and strains that may be exposed to during construction. Cables comply with the "Electric High Current Facilities Regulation and Buildings' Protection from Fire"

on Protection " .

All high current and weak current cables will be drawn halogen-free.

Reference Standards:

- TS EN 50086 PIPE SYSTEMS FOR ELECTRICAL INSTALLATIONS
- TS EN 60423 PIPES, EXTERNAL DIAMETERS AND PIPES AND INTERCONNECTING PARTS FOR ELECTRICAL INSTALLATIONS

DIMENSIONS RELATED TO TEETH

- TS 3033 EN 60529 DEGREES OF PROTECTION OF ENCLOSURES (IP CODE) The cables to be used in the following parts of the emergency circuits will ensure circuit integrity in accordance with the " Regulation on Fire Protection of Buildings" and will have E90 feature. The circuit integrity in question will comply with DIN VDE 4102 standard.
- Flame-resistant and halogen -free cables will have IEC 60331, 6104, VDE 0276-604,0266 Standards.

3. Weak Current Installation

1. Cabling will be RG-6/U6 HF type coaxial cable.

2. UTP CAT 6 HF 4x2x23 AWG Cable will be installed in the container from the telephone socket to the regulated low current box. The sockets will be RJ45 and UTP CAT 6 HF 4x2x23 AWG Cable will be installed.
3. Halogen-free materials that do not emit flames and toxic gases .
4. RJ 45 Jack will be installed in the Telephone Socket.
5. 1 telephone and 1 TV socket in each room.

4. Lighting Installation

4.1. General

This section covers the lighting fixtures and auxiliary equipment to be used in the building. Electrical installations during the assembly of new productions or disassembly of existing materials In case of damage to materials and equipment, repair of these materials and equipment or if deemed necessary by the Consultant, the Contractor may replace it with a new one is your responsibility. The Contractor will not be charged an additional fee for these repairs or renewals will not be paid.

The definitions made in this section cover LED fixtures operating at 230 V 50 Hz or lower alternating or direct current to be used in the building.

1. All fixtures will comply with TSE standards. For imported fixtures, compliance with internationally recognized standards will be required.
2. Luminaires will comply with the details / features given on the project, in the luminaire detail form or in the unit price descriptions. The final decision in luminaire selection belongs to the Control Engineer and no luminaire purchase will be made without approval. Even if not specified in this specification and unit price descriptions, materials, trials, manufacturing methods and similar issues for which the Turkish Standard has entered into force will comply with the relevant standards. When necessary, the UNICEF may request the manufacturer to verify that the desired light efficiency from the lighting fixtures is provided with a document obtained from a relevant institution's laboratory.
3. Recommendations of the relevant Decoration Group will be taken into consideration for lighting fixtures to be used in decorative areas and facade / exterior lighting.
4. Luminaires will have the features and power specified in the project.
5. İncludes the bulb and all kinds of auxiliary equipment (driver, ballast, transformer, starter , etc.), if any, mounting equipment (suspended ceiling ring, pipe pole in external luminaires, inside pole fuse, etc.) in working condition .
6. Care will be taken in the sheet metal fabrication of the luminaires, and there will be no spot or welding marks on the luminaires brought for installation.
7. Necessary care will be taken in manufacturing and assembly for sealing against moisture and dust in waterproof and external type armatures.
8. Armature internal connection conductors will be routed away from overheating equipment such as bulbs, sockets and ballasts.
9. Whenever possible, emergency kits will be installed outside the luminaire, but if it is necessary to install them inside the luminaire, attention will be paid to the selection of the luminaire so that the temperature of the luminaire does not affect the kit performance.
10. In the luminaires that will be controlled within the scope of lighting automation, ballasts will be used in a type that supports DALI and/or DMX protocol, depending on the project.
11. In all places requiring the use of halogen-free cables with low smoke density in accordance with the regulation, the cables between the armature and the electronic ignition device will be of halogen-free type.
12. All fixtures will have a grounding connection.

4.2. Standards for LED Luminaires:

The luminaires comply with the following standards; VDE or KEMA or DEKRA etc. It will be documented with manufacturing and laboratory certificates from international organizations and laboratory test reports from TÜRKAK, and these documents will be presented to the Consultant.

Standards

- TS 8700 EN 60598-1 Lighting Fixtures-Part 1: General Rules and Tests
- TS 8700 EN 60598-2-3 Special requirements standard flush-mounted fixtures
- TS EN 62031 General lighting led module standard, security features

- TS EN 61347-1 Lamp Control scheme - Part 1: General and Safety features
- TS EN 61347-2-13 Lamp control scheme - Part 2-13: Specifications regarding direct current (da .) or alternating current (aa .) fed electronic control scheme for LED modules
- ac powered electronic control scheme performance specifications for LED light sources
- Photobiological safety standard for bulbs and bulb systems
- Photobiological safety standard for bulbs and bulb systems (part-2)
- TS EN 61000-3-2 Electromagnetic compatibility (EMC) - Part 3-2: Limit values - Limit values for harmonic current emissions (input current of the device per phase ≤16A)
- TS EN 61547 Devices used for general lighting purposes - EMC immunity rules
- TS EN 61000-4-2 Electromagnetic compatibility (EMC) - Part 4-2: Test and Measurement techniques - Electrostatic discharge immunity test
- IES LM 80-08 Measuring Lumen Measurements of Solid- State lighting Products
- IES LM 79-08 Electrical oath Photometric Measurements of Solid- State lighting Products
- IES TM-21-11 Projecting long Term Lumen Maintenance of LED Light sources
- The project of the device, which will comply with TSE IEC 60364-7-710, 61558-2-215 standards, and the alarm panel that can communicate with the insulation monitoring device, and the grounding installation of the operating room will be taken into consideration.
- TS HD 60364-4-41 Electrical Installation in Buildings Part 4: Safety Protection Group4: Protection against shock.
- TS IEC 60364-7-710 Electrical Installations in Buildings Part 7-710. Special plumbing and medical spaces.
- TS IEC 60364-7-701 Electrical Installations in Buildings Section
- TS EN 61558-2-1- Safety of power transformers, power supply units and similar - Part 2 - 1: Special rules for isolating transformers for general use
- TS EN 50091-2 Uninterruptible power systems.
- IEC 384-7-1 Capacitors Used in Electronic Devices, Fixed Section 7-1: Empty Detail Specifications: Fixed, Metal Leaf Direct Current with Polystyrene Film Dielectric
- Capacitors. Evaluation Level E IEC 384-8. Capacitors Used in Electronic Devices, Fixed Section 8: Section Features: Fixed Capacitors with Ceramic Dielectric , Class 1 TS 3769 EN 130200 Section Features - Fixed Tantalum Capacitors with Solid and Non- Solid Electrolyte
- TS 3542 High Voltage Fuses with Melting Wire for External Protection of Shunt Power Capacitors
- TS EN 60931-1 Capacitors - Non-self-healing type shunt power capacitors used in alternating current systems with declared voltage up to and including 1 kV Part 1: General - Performance, tests and Declared values - Safety rules - Installation and operating manual
- TS EN 60931-2 Capacitors - Non-Self-Repairing Type Shunt Power Capacitors Used in Alternating Current Systems with Declared Voltage Up to (Included) 1 kV Part 2 : Aging and Damage Test
- TS EN 60931-3 Capacitors - Non-Self-Healing Type Shunt Power Capacitors Used in Alternating Current Systems with Declared Voltage Up to (Included) 1 kV - Part 3: Internal Fuses
- TS EN 60831-1 Declared Voltage Up to 1000 V (Included) aa. Self-Healing Type Shunt Power Capacitors for Systems - Part 1: General Considerations, Operational Characteristics, Tests and Limit Values, Safety Rules, Guide for Facility and Operation
- TS EN 60831-2 Declared Voltage Up to 1 kV (Included) aa. Self-Healing Type Quenting Power Capacitors for Systems Part 2: Aging Test, Self-Healing Test and Destruction Test
- TS 86 EN 60269-1 Fuses - Used in low voltage installations - Part 1: General rules
- TS EN 60269-2 Fuses - Low Voltage - Part 2: Additional Rules for Fuses Used by Authorized Personnel (Fuses for Major Industrial Applications)
- TS EN 60269-3 Fuses - Low Voltage Part 3: Additional Rules for Fuses Used by Untrained Persons (Fuses Mainly for Applications in Homes and Similar Places)
- TS EN 60269-4 Fuses - Used in Low Voltage Installations - Part 4: Additional Rules for Replacement Elements Used for the Protection of Semiconductor Devices

- TS 5630 Automatic Fuses - Screwable Type, Used for Protection Against Overcurrent in Installations at Home and Similar Places
- TS 5018 EN 60898 Circuit Breakers - Used for Protection Against Overcurrent in Domestic and Similar Installations
- TS EN 60282-1 Fuses - High voltage - Part 1: Current limiting fuses TS 86 EN 60269-1 Fuses - Used in low voltage installations –
- Part 1: General rules
- TS 4016 EN 60470 Contactors and contactor- based motor starters – High voltage, alternating current
- TS 4016 EN 60470 Contactors and contactor- based motor starters – High voltage, alternating current
- TS EN 60947-4-1 Low Voltage Switching Scheme and Control Scheme - Part 4: Contactors and Motor Starters - Part 1: Electromechanical Contactors and Motor Starters
- TS EN 60947-4-2 Low voltage switching and control devices - Part 4-2: Contactors and motor starters - aa. semiconductor motor controllers and starters
- TS EN 60947-4-3 Low voltage switching and control devices - Part 4-3: Contactors and motor starters - aa for non-motorized loads. semiconductor controllers and contactors
- TS EN 60931-2 Capacitors - Non-Self-Healing Type Shunt Power Capacitors Used in Alternating Current Systems with Declared Voltage Up to (Included) 1 kV
- Part 2: Aging and Damage Test
- TS EN 61095/A1 Electromechanical Contactors - Used in Homes and Similar Places

- 4.3. Features of LED Luminaires:
- LED luminaires will be made of stainless material and will be resistant to corrosion.
- LED luminaires with all their elements (LED Module, driver, cable, gasket, body, etc.) will operate for a minimum of 50,000 hours under operating conditions.
- Unless stated otherwise, the LED fixtures used will have a minimum luminous flux of 100 lumens per watt .
- the LED luminaire design will have a lifespan of at least 8000 hours at the declared driving current or the upper value close to it, at a package temperature of 85°C, and according to these measurement results, TM-21-11' As a result of the estimates made in accordance with , their economic life will be at least 50,000 hours.
- LED fixtures will have reverse polarity protection. LED modules to be used in LED luminaires can never be reverse polarized.
- If any LED in the LED modules used in the LED luminaire fails , the others will continue to work.
- LED luminaires will be made with drivers with isolation transformers so that the LED packages will not be exposed to mains voltage in any way .
- Constant current drivers will be used to operate LED modules in LED luminaires. The declared current passing through LED chips shall not exceed 70% of the maximum driving current and shall not be greater than 700 mA . The drivers inside the LED fixtures must be at least 2 kV against overvoltage. The surge arrester will be protected, there will be short circuit and thermal protection .
- the LED fixtures is between –20 °C and +50 °C and at the temperature measurement point specified on the driver case, at 75 °C for metal cases (Tc) and at 65 °C for plastic cases (Tc), minimum 50,000. should last for hours
- harmonic distortion value (THD) created by the drivers in the LED luminaires in the network must be less than 15%.
- ripple value of the drivers in LED fixtures, which excessively affects the illumination quality in the illuminated environment and reduces the camera shooting quality , must be less than 5%.
- There should be no deviation greater than ± 5% in the output current given by the constant current drivers in LED fixtures.
- These required protections for drivers will be documented. The power factor of the drives will be at least 0.95.
- LED luminaires will be 90% at the designed power.

- LED luminaires will be made of fireproof material (HAR Certified).
- LED luminaires will have glare-controlled and optical transmittance-optimized tempered transparent glass or opal diffusers .
- LED luminaires will be 4000 K ± 5%. If necessary, this value can be changed by the Consultant for different locations.
- color rendering index (CRI) of the LED packages used in the design of LED luminaires will be at least 80.
- LEDs or LED units to be used in luminaires can be used independently of each other when necessary; They will be designed to be interchangeable with equivalents with the same technical specifications produced by the same or different manufacturers.
- The following statements will be clearly and permanently displayed on the luminaires; o Sign of origin (It may be in the form of a trademark, the manufacturer's mark or the name of its authorized dealer.)
- rated power,
- Manufacturing date of the armature (month and year),
- TSE mark
- If the products are produced specifically within the scope of work, other phrases to be determined by the UNICEF (such as the Administration's name, logo, etc.)

4.4. Type Experiments

The type tests given below must be carried out in an accredited laboratory.
If the Project Manager does not find the test reports sufficient, the tests in question
It may be requested to do it again under the supervision of the consultant.

- LED luminaire, driver, LED module marking test (TS EN 60598-1)
- Mechanical strength test (TM 8697 EN 60598-1)
- Corrosion resistance test (TS EN 60598-1)
- Control of outer and inner conductors (TS EN 60598-1, TS 8700 EN 60598-2-3)
- LED luminaire grounding device (TS EN 60598-1)
- Inspection test of the protective grounding scheme of the driver
- LED luminaire and driver protection test against electric shock (TS EN 60598-1)
- Resistance test against dust, solid objects and moisture (TS 8700 EN 60598-2-3)
- Insulation resistance and electrical strength test (TS EN 60598-1)
- Test for measuring surface leakage lengths and insulation gaps (TS EN 60598-1)
- Durability test and thermal test (TS EN 60598-1, TS 8700 EN 60598-2-3)
- Control test of screws, current-carrying parts and connections
- Resistance test against heat, burning and superficial leaks (TS EN 60598-1)
- LED luminaires and LED modules (TS EN 60598-1, TS 8700 EN 60598-2-3)
- Static load test (TS 8700 EN 60598-2-3)
- Report on effectiveness factor measurement of LED luminaire, (LM79-08)
- Report on luminous intensity (I-γ) measurements of LED luminaire in Eulumdat (ldt) format

4.5. Routine Experiments

- Manual and visual examinations,
- Checking the continuity of the ground circuit,
- Checking the electrical circuit,
- Verification of driver electrical properties,
- Measuring circuit power factor,
- Measurement of touch current or protective conductor current.
- LED luminaires have clips, mechanical durability test of the clips.

4.6. Acceptance Tests

It will include acceptance tests, type tests and routine tests. Type tests must be carried out in an accredited laboratory under the supervision of the Consultant. It is the responsibility of the Contractor to organize the acceptance studies in question.

4.7. Sampling

Acceptance tests will be carried out on samples taken randomly from LED luminaires of the same type and power submitted for acceptance, according to the table below. Number of LED Luminaires (Piece) Number of Samples to be Taken (Piece)

<100 3

100-500 5

501-1000 10

15 for 1001 and above

It is essential that routine tests and, if carried out, type tests are completed successfully for all samples taken during acceptance tests. If negative results are encountered in one or more samples in any experiment, all experiments are repeated by taking new samples as many as the number of samples specified in the table above. If a test fails on any of the new samples, the batch is rejected.

4.8. Inspections and Tests Other than Acceptance Tests

- The fact that the materials have been examined, tested and accepted by the Consultant before being loaded does not restrict or eliminate the right of the Consultant to re-examine, test and, if necessary, reject the material at the final delivery location.
- The Project Manager may, at his sole discretion, decide to repeat all or part of the Type Tests or Routine Tests at the Manufacturer's facilities or in an accredited laboratory at home or abroad that he deems appropriate, with all expenses being borne by the Contractor.

4.9. Information and Documents to be Provided:

The following documents will be given:

a) Guaranteed Features List;

b) Type test reports and certificates;

c) The offered LED luminaires comply with the relevant standards and documents will be issued by an accredited organization. '1.2. If a standard or document equivalent to or higher than the standards or documents specified in the article titled 'Standards and Documents' has been applied, their Turkish or English (with Turkish translation) texts will be provided.

d) Account Summary Reports; Account Summary Reports will be provided according to the standard lux values required for interior lighting.

e) Report on the effectiveness factor measurement of the LED luminaire,

f) Reports on the luminous intensity (I-γ) measurements of the LED luminaire in Eulumdat (ldt) format,

g) the LED luminaires, together with all their elements (LED Module, Driver, Cable, Gasket, Body, etc.), will operate for a minimum of 50,000 hours under operating conditions,

h) Document regarding the LED package lifespans found as a result of the 8000 hour life measurements of LED packages made in accordance with LM 80-08 and the predictions made in accordance with TM-21-11 based on these measurement results,

i) ISO 9001 Quality Management System Certificate of the LED luminaire manufacturing company,

j) the LED luminaire manufacturing company,

k) Capacity Report of the LED luminaire manufacturing company,

l) Pictures showing the structure and dimensions of LED luminaires, and the documents required in items d, e , f to be submitted will be provided by an organization with photometric accreditation.

4.10. Guarantee

LED luminaires (including all elements such as LED Module, Driver, Cable, Gasket, Body, etc.) will have a 5-year one-to-one replacement warranty, meaning that in case of a malfunction in any module, the luminaire will be directly replaced with a new one under warranty. After the warranty period, consumables or spare material support will be provided for 10 years at a cost.

4.11. Led Luminaire Transformers

1. If necessary, a constant current transformer will be used for the spot lamps defined in the project.
2. The enclosure box should be plastic round or rectangular. It should have 230 V, 2 inputs and 2 constant current outputs. The inside of the body must be epoxy coated.
3. The types to be used for LED strips will be used indoors and must be ventilated with a metal casing.
4. Current and power will be determined according to the LED length to be used. Transformer switch It must have the mode feature.
5. It should block itself in case of incoming high voltage. Input AC and ground must be present.
6. It is recommended that LED transformers be self-fan type.
7. LED transformers will definitely be installed in places with appropriate ventilation. In case of installation inside the panel / box, appropriate ventilation holes must be opened.

4.12. Emergency Lighting Kit, For LED Luminaires, 3 Hour Duration

1. Kits will comply with EN50171 and EN50172 standards
2. Emergency kits will be installed in/next to existing fixtures and will be dry type battery operated. All kits will be DALI compatible and have remote testing capability.
3. Whenever possible, emergency kits will be installed outside the luminaire, but if it is necessary to install them inside the luminaire, attention will be paid to the selection of the luminaire so that the temperature of the luminaire does not affect the kit performance.
4. The kits will automatically activate in case of a power outage.
5. For luminaires with kits, an unswitched phase line must be installed.
6. The capacity of the kits will be 3 hours.
7. Ballast lumen factor will be at least 0.20.

4.13. Luminaire Selection

LED Luminaires works include all necessary materials and accessories (project and specification, in the specification , specified in the armature detail form

Provision of all services for the supply of fixtures and all necessary assembly materials) and their transportation to the site, horizontal and vertical transportation, loading, unloading, labor, installation in the place shown in the project, commissioning and delivery in working condition by performing tests in accordance with the project and technical specifications , all Includes overhead and profit. For products with a ÇŞİDB Unit Price Number, the relevant unit price description and additional features will be valid together.

C9: Earthing

Grounding Systems

a. General

Grounding works include the supply of all necessary materials and accessories (Environmental grounding conductor and all necessary assembly materials) and transportation to the site, horizontal and vertical transportation, at least 60 - 80 cm around the outside of the building. Providing all services for opening channels in all types of soil at depth, conductor ferrying and closing the channel, connecting to electrodes with rivets or welding, loading, unloading, workmanship, installation in the place shown in the project, commissioning and delivery in working condition by making tests in accordance with the project and technical specifications, all Includes overhead and profit.

Grounding Installation

Electrical, mechanical installation equipment and metal structural elements shown in the project will be grounded. Grounding systems will be made in accordance with TEDAŞ requirements and the Grounding Regulation in Electrical Installations. A general grounding bar will be installed in the main switchboard room for the general protection (potential equalization) grounding system planned for the connection of electrical equipment and other metal equipment. The main grounding busbar will be large enough to accommodate all connections. During assembly, short circuit magnetic effects will be taken into consideration and the bar will be fixed at least from three points. The connection of the grounding conductors to each other will be made securely with the appropriate terminal block, and uninterrupted conductivity will be ensured.

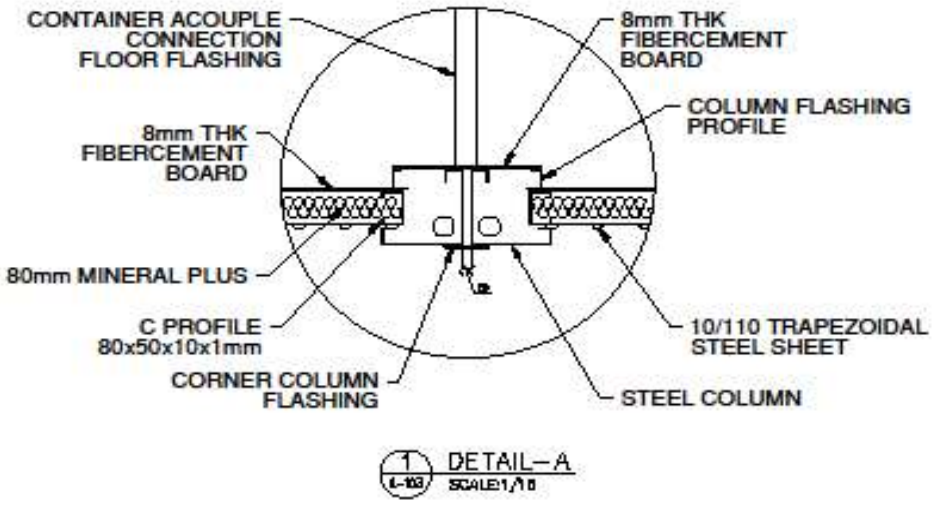
Conductors to be drawn from equipotential ground bars and operating ground bars shall be earthen embankments.
Due to the use of residual current protection switches/relays (differential type) in the structure, all neutral conductors will be installed as insulated type. The neutral conductor will never be used as a ground conductor and will not be connected to the grounding system in any way.

C10: Connecting the facility to the National Electrical Grid

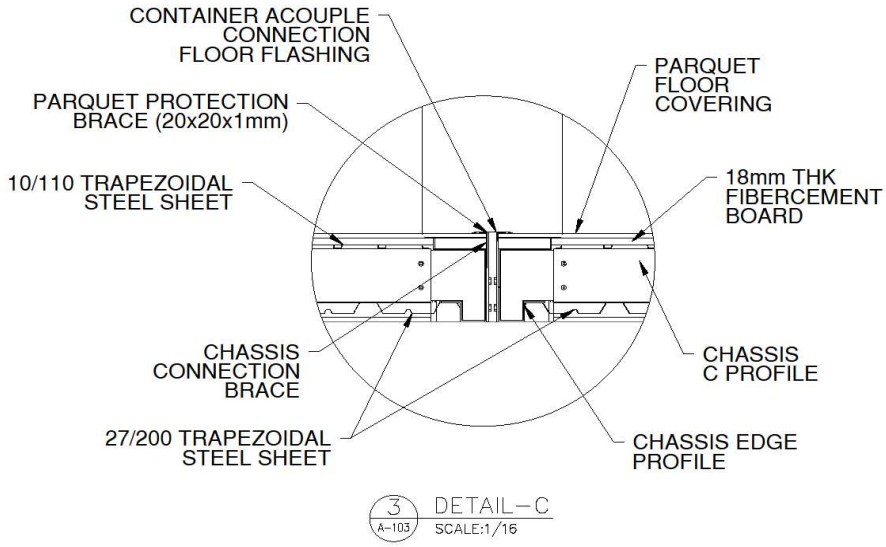
Power will be connected to the facility at the junction box outside the building(s). A powerline with 4x6 NYY cable should be connected between the junction box and the power outlet at the location indicated by the related authority. Cable type is givenas reference only, final choice of materials have to be regarded according to engineering study. As per the design, necessity to obtain additional equipment should be taken into account.

A. Structural & Architectural Works

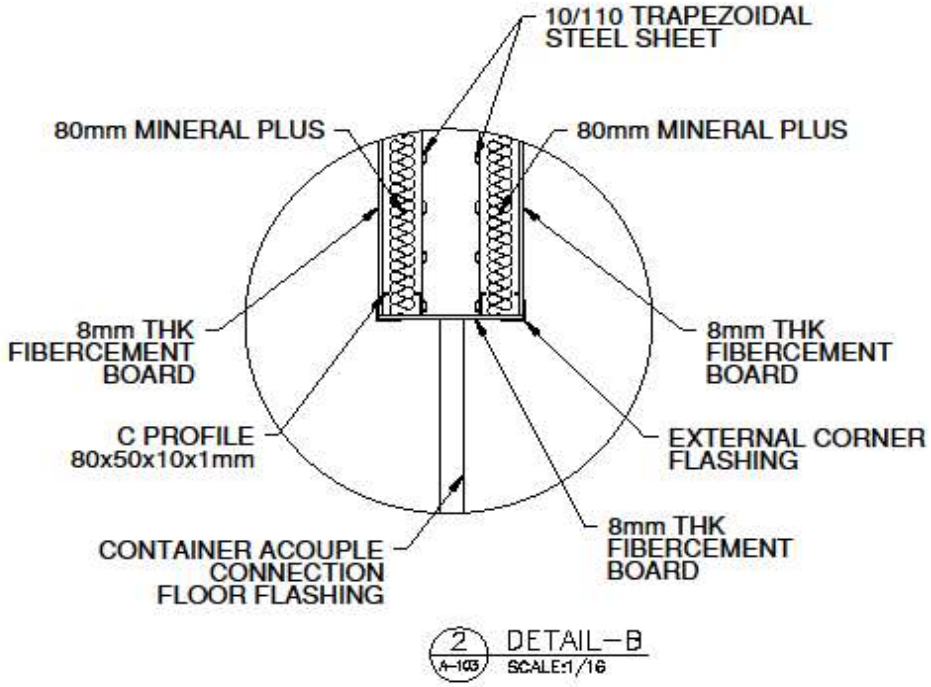
SECTION I



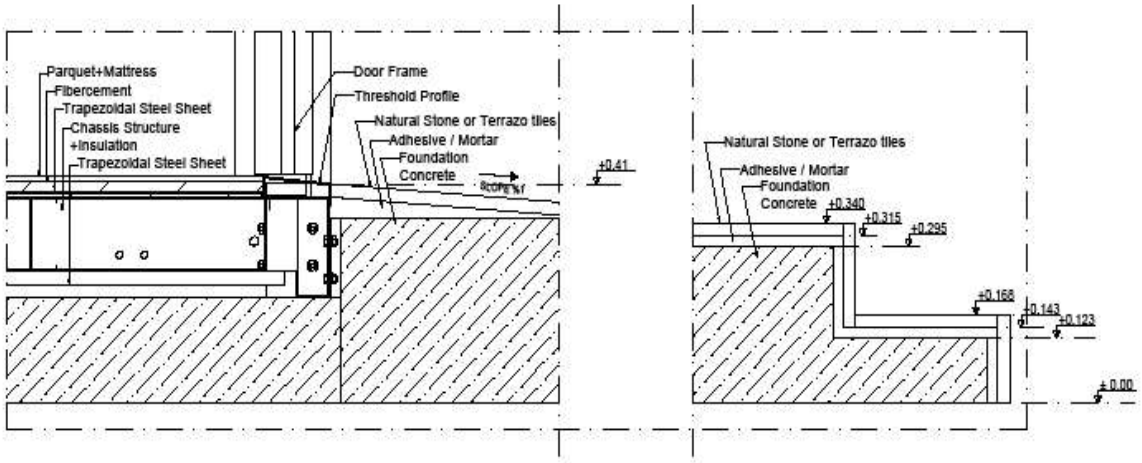
SECTION II



SECTION III

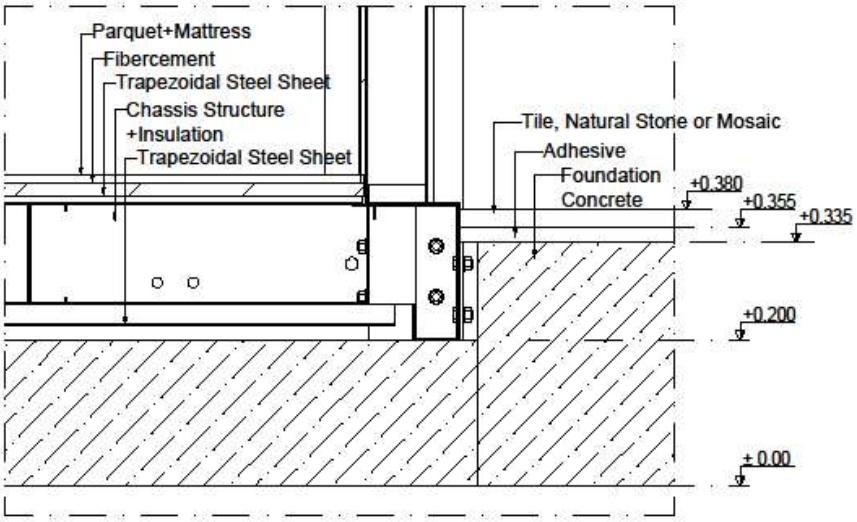

10/110 TRAPEZOIDAL
STEEL SHEET
80mm MINERAL PLUS
80mm MINERAL PLUS
8mm THK
FIBERCEMENT
BOARD
8mm THK
FIBERCEMENT
BOARD
C PROFILE
80x50x10x1mm
EXTERNAL CORNER
FLASHING
CONTAINER ACOUPLE
CONNECTION
FLOOR FLASHING
8mm THK
FIBERCEMENT
BOARD
2
A-103
DETAIL-B
SCALE:1/16

SECTION IV



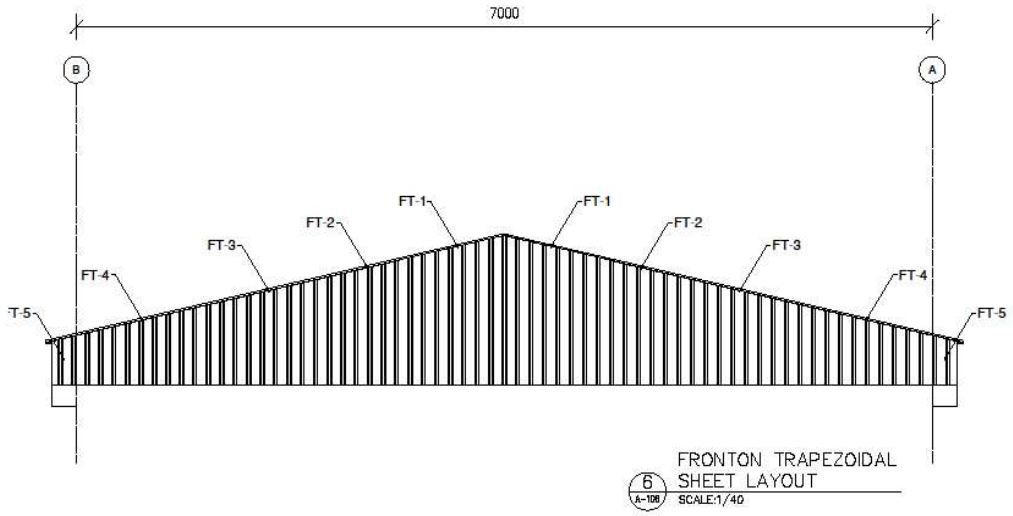
4 MODEL EXTERNAL AREA TILE, NATURAL STONE & MOSAIC DOOR THRESHOLD DETAIL
SCALE:1/16

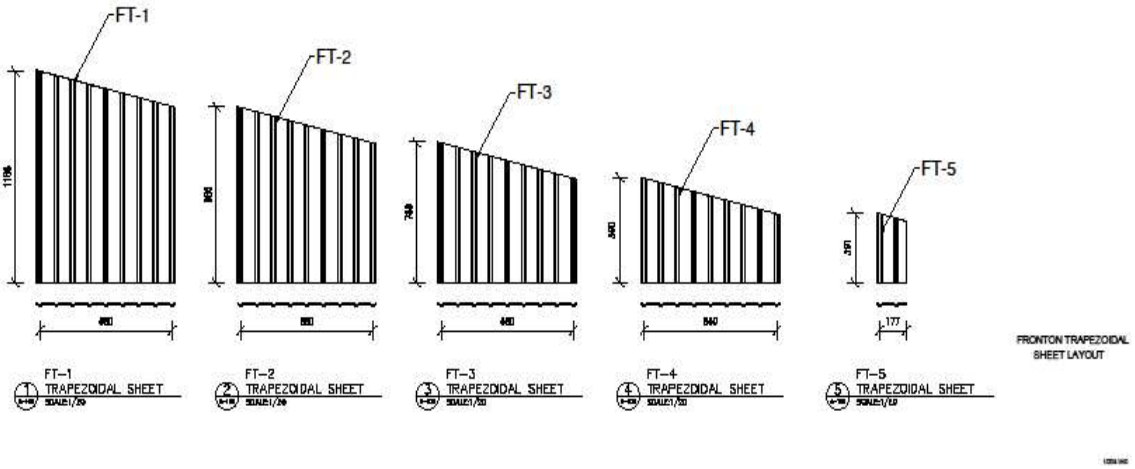
SECTION V



5 MODEL EXTERNAL AREA TILE, NATURAL STONE OR MOSAIC CONTAINER CHASSIS CONNECTION DETAIL
SCALE:1/16

SECTION VI





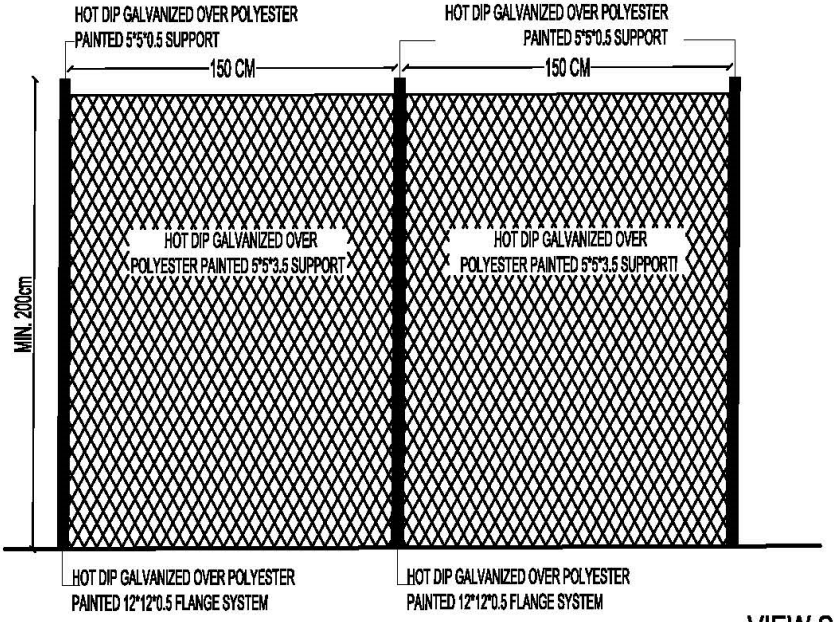
110/923 TRAPEZOIDAL SHEET

Thickness : 0,6 mm (ral9002)
(Useful width: 880 mm)

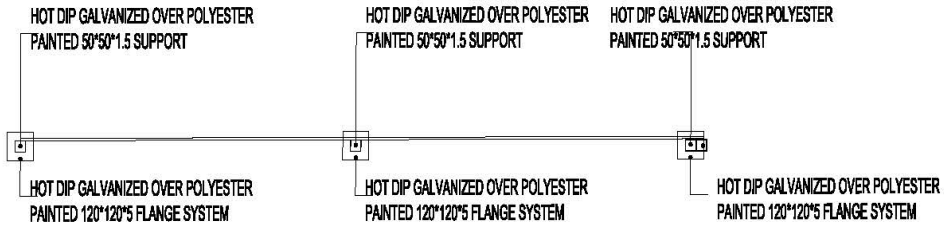
110/923 TRAPEZOIDAL SHEET					
NO:	TH(mm)	Color	Useful Width (mm)	Length(mm)	Qty.
FT-1	0.6	RAL 9002	880	1188	4
FT-2	0.6	RAL 9002	880	988	4
FT-3	0.6	RAL 9002	880	790	4
FT-4	0.6	RAL 9002	880	590	4
FT-5	0.6	RAL 9002	177	391	4

SECTION VII (Part A19.1 Fence)

FENCE (STEEL MESH)



VIEW SCALE:1/1

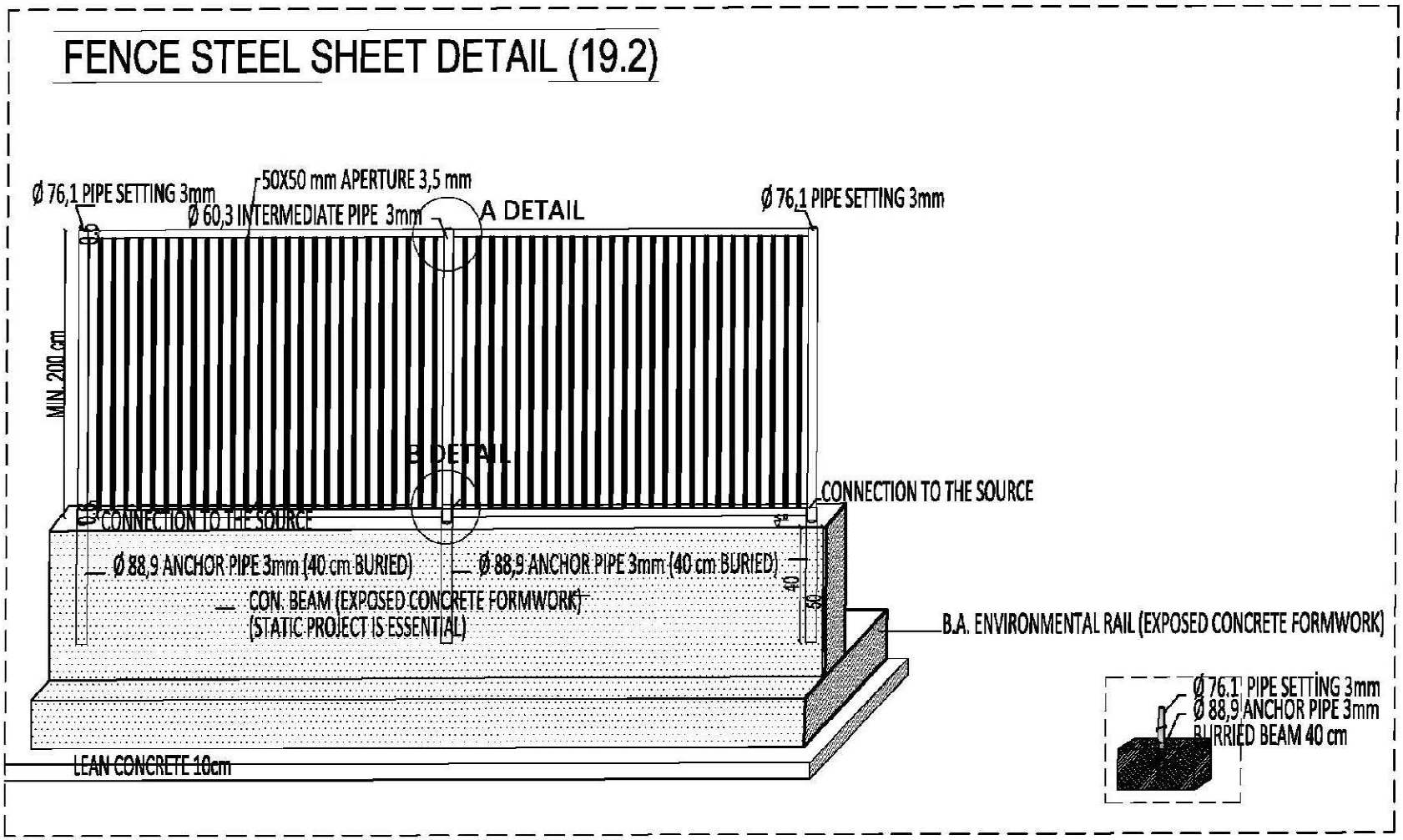


PLAN SCALE:1/1

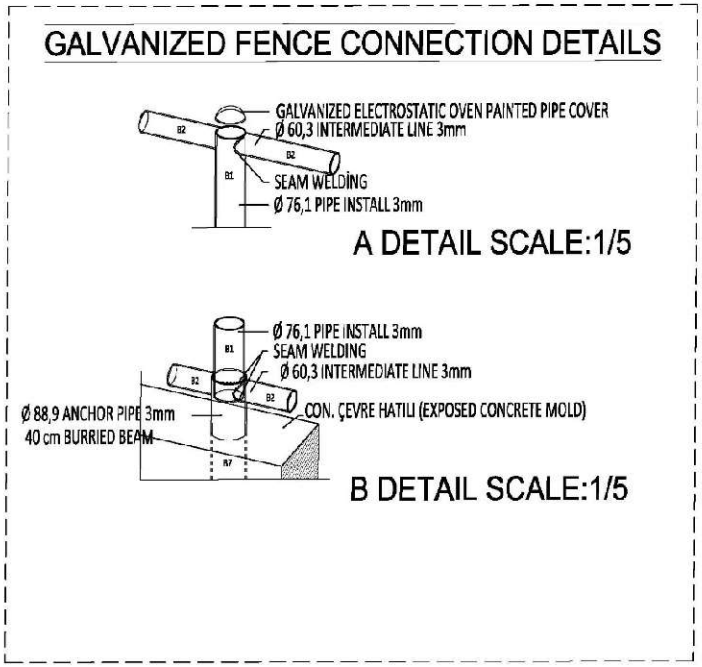
NOTES:

- BEFORE STARTING MANUFACTURING, ALL MEASUREMENTS WILL BE CHECKED ON-SITE AND MANUFACTURING MEASUREMENTS WILL BE TAKEN.

SECTION VIII (Part A19.2 Fence

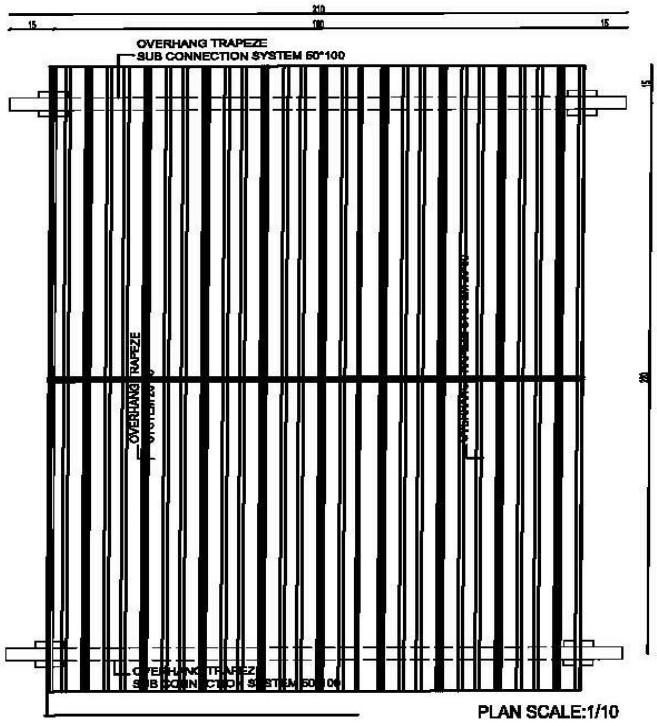


SECTION IX (Part A19.2 Fence)

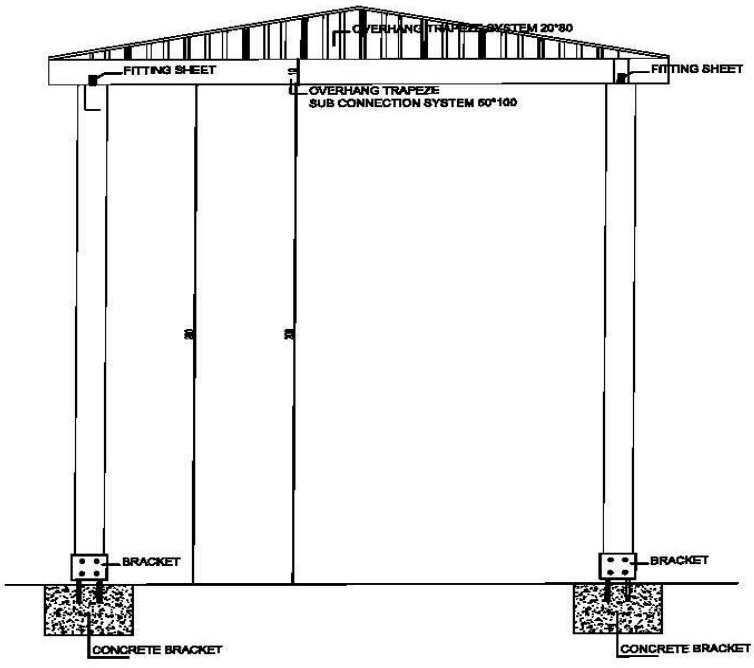


SECTION X (Part A20 Shade)

SHADE STEEL STRUCTURE

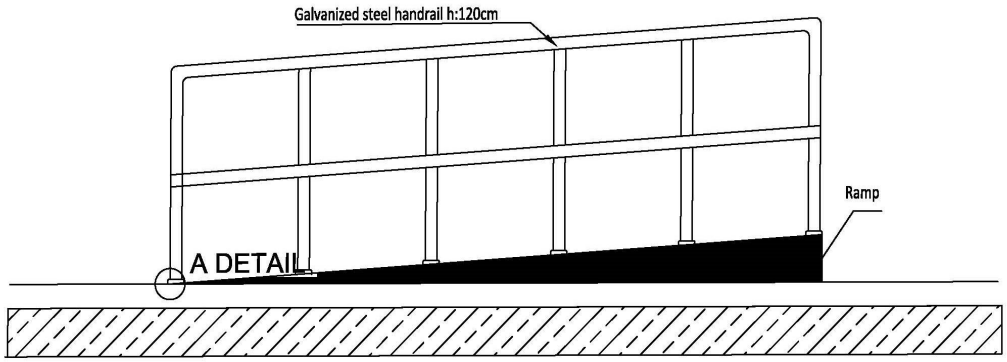


PLAN SCALE:1/10

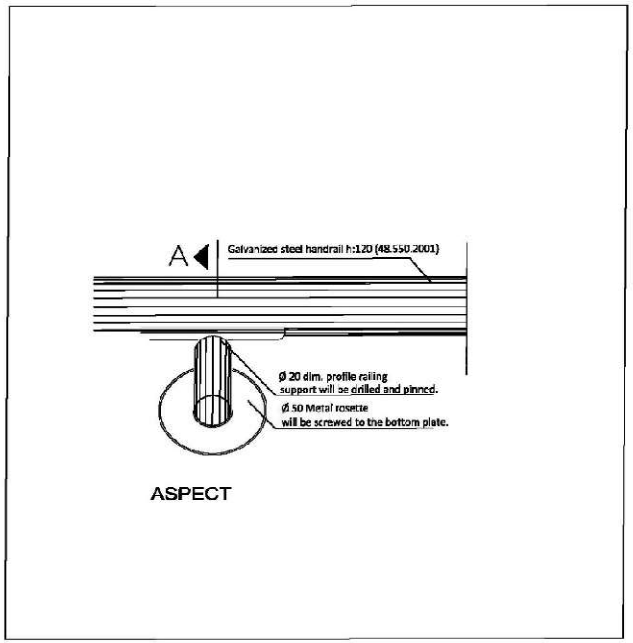


FRONT VIEW SCALE:1/10

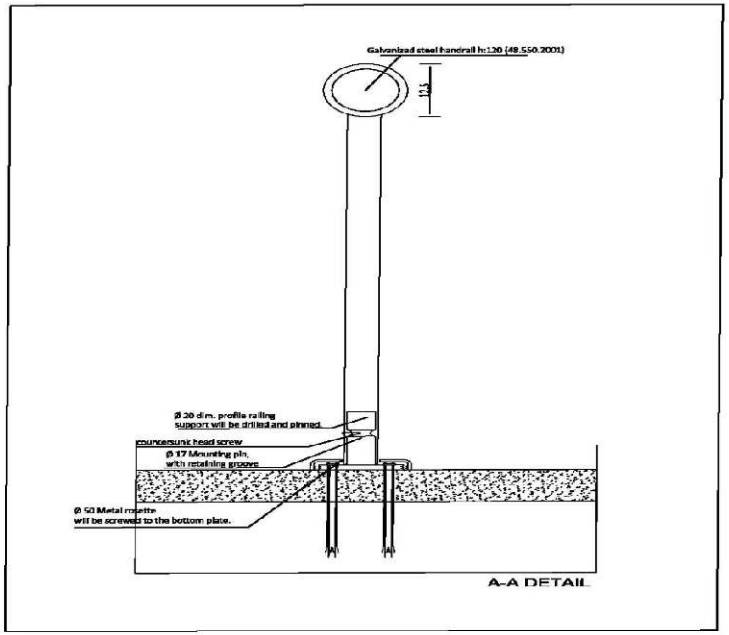
SECTION XI (A21 Handrail)



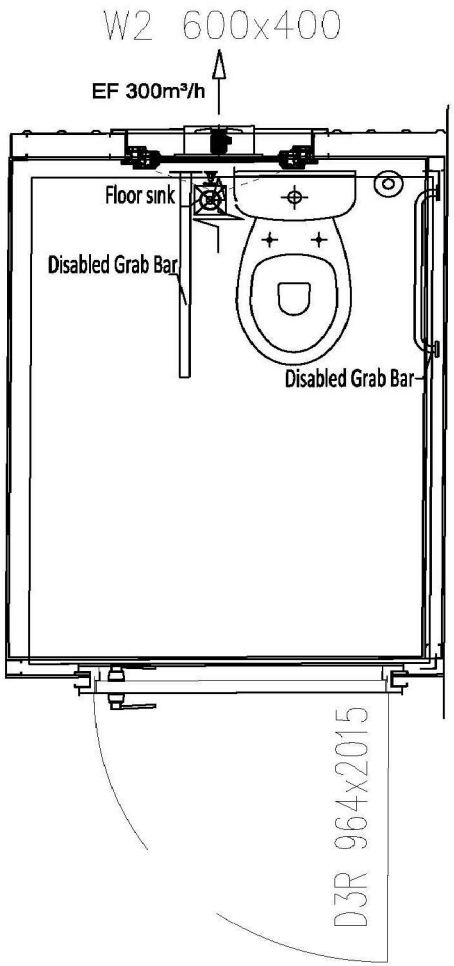
SECTION XII (A21 Handrail)



SECTION XIII (A21 Handrail)



SECTION XIV



SECTION XV