

MATERIAL LIST & TECHNICAL SPECIFICATIONS

1. CONCRETE MASONRY UNITS

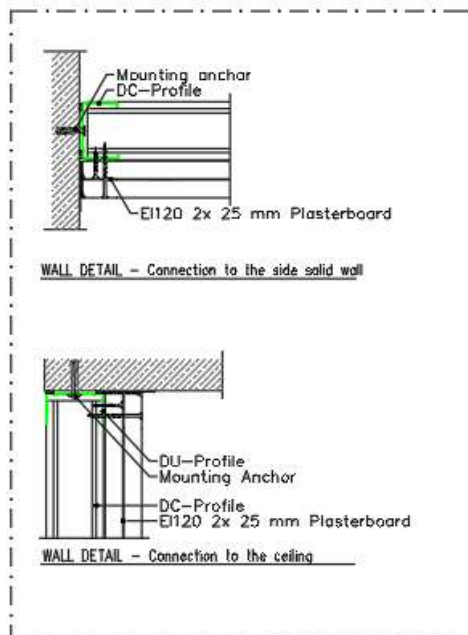
- Construction of concrete masonry units shall follow the items at EN 1996-1-2
- The CMU block that will be used must have been certificated from TSE according to TS EN 771-3. In this certificate, the "Net Dry Unit Volume Mass must be between 400 kg / m³ and 1600 kg / m³, and the average compression strength must be greater than 2.0 N / mm².
- The thickness (ie width) of the CMU blocks should not be less than 140 mm.
- It is also recommend a plaster to be applied at a thickness of 1 cm on the inner (building side) surface of the wall. (Plaster must be TSE EN 998-1 class LW or T)
- These walls should not be penetrated through (longitudinally) service members (pipes, cable trays etc.) that leads damaging the installation or in other words, there shall be no holes in these walls.
- Approved fire stopping precautions must be applied where service members (piping, electrical etc.) passes transversely.
- At the ceiling-floor joints of these walls or with the other sidewalls of façade, the gaps can be filled up to 2.5 cm thick with cement mortar or the plaster, if a movement is not expected as a result of expansion. In widths above this or if these gaps are places where movement is expected (due to expansion, seismic, etc.), it is necessary to first fill it with rock wool and then apply a special fire stop insulation material on it.
- Apply any other insulation material on either side of wall as you need as per heat insulation requirement as soon as their non-combustible (e.g. mineral wools etc.)

2. GYPSUM WALL BOARD

2.1. Gypsum Board Regular

Provide type of gypsum board for use in each system specified herein as indicated.

2.1.1. EI 120 2x 25 mm Partition Wall System



Edge and Intermediate Studs:

- Type : Wall DC stud, galvanized steel. According to TS EN 14195
- Dimensions : 2970 x 48.9 x 49 x 0.56 mm(l x d x w x t)
- Fixing : Galvanized steel screw and plastic dowel
- Location : 6 pcs., C.t.c. distance of 600mm
- Dimensions : M8 dowel/ 22 x 45 (Ø x l) mm
- The studs have 15mm gap at top to let the profiles expand freely. Each stud has 600 mm distance to each other.

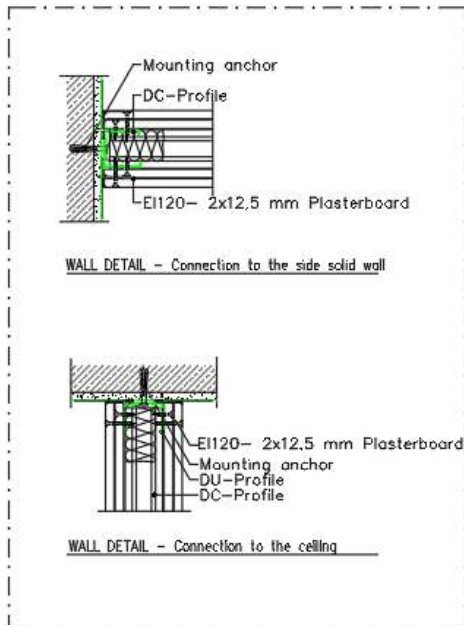
Plasterboards:

- Type: 2X 25 mm plasterboards according to TS EN 520

Figure 1. System Detail for EI120 Wall constructed by mounting plasterboards from one side



2.1.2. EI 120 2x 15 mm Partition Wall System



Edge and Intermediate Studs:

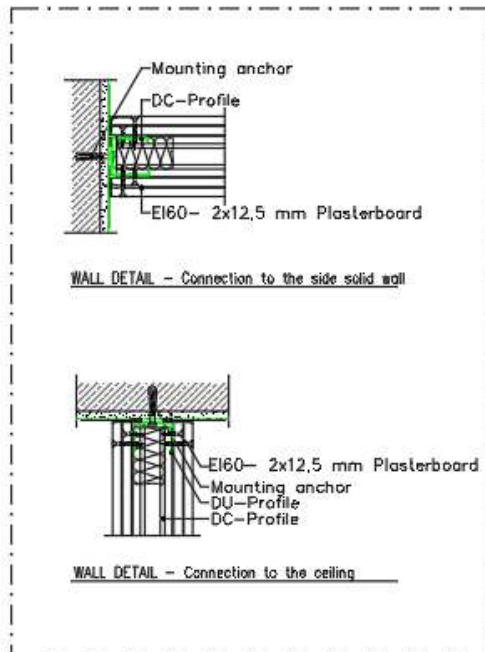
- Type : Wall DC stud, galvanized steel. According to TS EN 14195
- Dimensions : 2970*50*50*0.6mm(l x d x w x t)
- Fixing : Galvanized steel screw and plastic dowel
- Location : 6 pcs., C.t.c. distance of 600mm
- Dimensions : M8 dowel/ 22 x 45 (Ø x l) mm
- The studs have 15mm gap at top to let the profiles expand freely. Each stud has 600 mm distance to each other.

Plasterboards:

- Type: 2X 15 mm plasterboards according to TS EN 520

Figure 2. System Detail for EI120 Wall constructed by mounting plasterboards from both sides

2.1.3. EI 60 2x 12.5 mm Partition Wall System



Edge and Intermediate Studs:

- Type : Wall DC stud, galvanized steel. According to TS EN 14195
- Dimensions : 2970*50*50*0.6mm(l x d x w x t)
- Fixing : Galvanized steel screw and plastic dowel
- Location : 6 pcs., C.t.c. distance of 600mm
- Dimensions : M8 dowel/ 22 x 45 (Ø x l) mm
- The studs have 15mm gap at top to let the profiles expand freely. Each stud has 600 mm distance to each other.

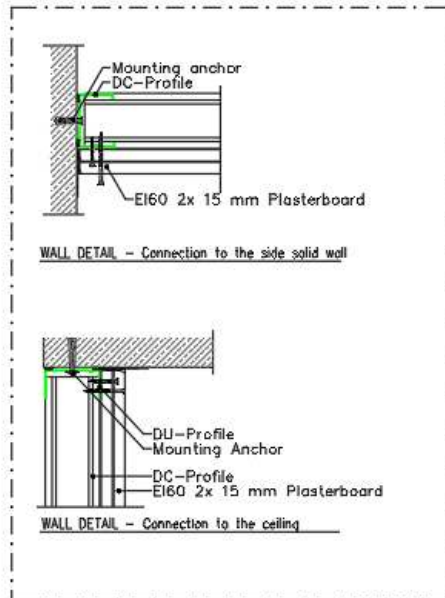
Plasterboards:

- Type: 2X 12.5 mm plasterboards according to TS EN 520

Figure 3. System Detail for EI60 Wall constructed by mounting plasterboards from both sides



2.1.4. EI 60 2x 15 mm Partition Wall System



Edge and Intermediate Studs:

- Type : Wall DC stud, galvanized steel. According to TS EN 14195
- Dimensions : 2970*50*50*0.6mm(l x d x w x t)
- Fixing : Galvanized steel screw and plastic dowel
- Location : 6 pcs., C.t.c. distance of 600mm
- Dimensions : M8 dowel/ 22 x 45 (Ø x l) mm
- The studs have 15mm gap at top to let the profiles expand freely. Each stud has 600 mm distance to each other.

Plasterboards:

- Type: 2X 15 mm plasterboards according to TS EN 520

Figure 4. System Detail for EI60 Wall constructed by mounting plasterboards from one side

2.1.5. 12.5mm Gypsum (Plaster) Board Lining above the Existing Wall

-For the walls which are demolished in the construction process and if it is not required to have fire rating, 12.5mm gypsum board will be mounted instead of the demolished ones.

-For some parts of walls, as indicated at the "Improvement of Fire & Smoke Confinement Features Drawings", existing gypsum board will be kept, if there is a space between the slab at the ceiling and the wall, it will be covered by 12.5mm plasterboard to close the vertical openings. Then, there will be mounting of new gypsum board -thickness of one layer plasterboard depends on the fire-rating system as seen in the Figures 5 & 6- over the existing wall without dismantle of the existing one to provide the required fire rated wall.

-For the installation details that are applied without any additional structural profiles (e.g. attaching a single plasterboard over existing wall) span between existing profiles and the type of existing profiles shall be verified by the contractor as per manufacturer's requirements.

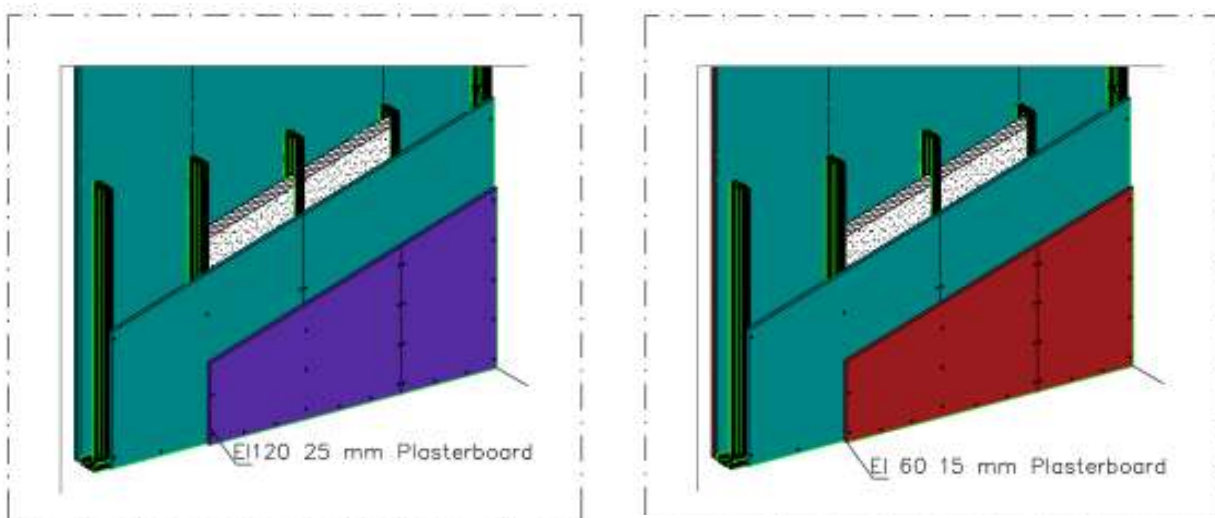


Figure 5&6. Systems for Wall constructed by mounting one layer plasterboard over existing wall



2.2. Application of Gypsum Board

-Coordinate with the drawings to ensure that all types of gypsum board specified are indicated.

-Apply gypsum board to framing and furring members in accordance with ASTM C840 or GA 216 and the requirements specified. Related fire resistance test shall be in conformity with the general requirements of standards EN 1363-1, with substitute and with the particular requirements of standard TS EN 1364-1 "Fire resistance tests for non- loadbearing elements- Part 1: Walls".

-Apply gypsum board with separate panels in moderate contact; do not force in place. Stagger end joints of adjoining panels. Neatly fit abutting end and edge joints. Use gypsum board of maximum practical length; select panel sizes to minimize waste. Cut out gypsum board to make neat, close, and tight joints around openings. In vertical application of gypsum board, provide panels in lengths required to reach full height of vertical surfaces in one continuous piece. Lay out panels to minimize waste; reuse cutoffs whenever feasible.

2.2.1. Application of Partition Wall Systems

2.2.1.1. Measuring and Marking

Layout of inner walls is marked on the floor by help of a chalk line and on the ceiling by help of plumb line according to the architectural plan. If this is required to be done faster, such instruments as laser, etc. can be used.

2.2.1.2. Installation of the Substructure

-Self-adhesive sealing tape is affixed or acoustical sealant is applied onto the reverse sides of U runners and C studs that form the frame of gypsum board partition walls, contacting the structure, for preventing sound transmission and thermal bridges. Note that surface to be applied must be clean and dry

-Metal profiles are cut at least 1 cm short from the height of wall and fixed at least three points in 1 m spacing onto the construction elements around them. (recommended distance is 60cm) In the applications where connections to the ceiling and floor are fixed by using steel dowels. Fixation space must be one at most every 50 cm.

-C studs should be placed inside U runners with max 60 cm spacing. If much more stability or height of wall is required, spacing can be decreased to 40 cm or 30cm.

-For the installation details that are applied without any additional structural profiles (e.g. attaching a single plaster board over existing wall) span between existing profiles and the type of existing profiles shall be verified by the contractor as per manufacturers requirements.

-If the boards are not fixed simultaneously, in order to stabilize the arranged stud distances tight, C and U profiles are fastened together by profile crimper.

2.2.1.3. Processing of Gypsum Boards

-For cutting the gypsum board types, score one side with a utility knife and cut through the paper. Snap the board along the score and cut through the paper on the other side. Note that types of gypsum board may also be cut with handsaw.

-Scraps and burrs after the cutting are scraped away by edge rasp.

-In order to have a smooth and proper joint filling process, all cut edges should be tapered artificially by using special hand tools.

2.2.1.4. Fastening of Gypsum Boards

-In case of single or multi-layer vertical applications, horizontal on the same layer must be staggered (at least 40cm). At the same time, the vertical joints should not be overlapped on the same profile at the both sides. For boards that applied horizontally, vertical joints should be staggered on the same layer (at least 40cm).

-In order to prevent possible cracks that may occur specifically due to subsidence of buildings, gypsum boards are cut 1cm to 1,5 cm shorter than the height of wall and 12,5 mm thick gypsum board is raised from the ground with wedges and fixed on C studs. After completing the installation, wedge parts are removed and checked to ensure that gypsum boards are carried by means of C studs.

-Screwing process is performed starting from the top or bottom by pressing onto the surface of gypsum board. Vertical spacing for screwing is 25 cm for single layer applications, in case of double layer applications the first layer is 75 cm, and the final layer is 25 cm. In case of triple layer applications, Vertical spacing for screwing of the first layer should be 75 cm, the second layer should be 50 cm and the final layer should be 25 cm.

-After completing of the gypsum boards application of one side and before beginning gypsum board installation of the other side, installations such as power cables, etc. must be placed between the C studs. Note: This process must be done before joint filling application.

-In order to meet the requirements of sound insulation and fire resistance values, mineral wool insulation material must be placed tightly among the C studs.

-Screws are applied vertically onto the gypsum board and adjusted to exceed profiles at least 10 mm, and to be approx. 1 mm below from the surface of gypsum board. Screws remaining outside the surface should be smoothened.



-While gypsum boards on the other side are fixed, care must be taken those gypsum boards joints on both surfaces should not overlap on the same C studs. Likewise, also on these surface gypsum board joints are not intersected and must be absolutely staggered.

2.2.1.5. Joint Filling

Joint filling of gypsum boards is applied when expansions and shrinkage caused due to humidity and temperature changes are not expected. Avoid sudden heating of the location after the joint filling process. Following the joint filling process, in order to place accessories (such as lighting, etc.), cutting and breaking works for openings should not be applied. These kinds of works should have been completed in advance. During the application, temperature of the application area must not be less than 5 OC. Temperature is kept constant as much as possible for a period starting from two days before the joint filling application until the end of two days following completion. Because the factor of humidity prevents drying, and extends the drying period of joint filler gypsum, wet floor cement screed applications should have been completed before. All gypsum boards checked and examined before filling the joints; they are checked if screws are firm and strong enough and ensured that heads of screws are imbedded and flush completely. Edges of the cut gypsum boards are rasped before plastering process in order to form neat joints and the cut section of paper on the visible surface is sanded and smoothened. Joints should be dust-free; small holes and cracks are repaired with Fugagips or Uniflott. If there is more than 3 mm gap at connection joints of wall and ceiling gypsum boards, then a separating tape is placed onto the wall which is not drywall and pre-filling is made until the surface becomes smooth and flush. Ensure that the previous layers are completely dried before applying the next layer

2.2.1.6. Preparation of Plaster

-Water, pro rata to the quantity of plaster to be prepared, is taken into a clean bucket and gypsum is poured onto the water. Upon waiting for a period of 1-2 minutes it is mixed.

-All screw heads are covered with joint filler.

2.2.1.7. Application with Mesh Joint Tape

-Self-adhesive mesh joint tape is bonded onto the joint smoothly and properly and the first layer plaster is smeared abundantly over the tape at approx. 10 cm width so as to penetrate through the mesh in the joint.

-After waiting 2 hours, second coat of joint filling plaster is applied at width of 20cm and the excess at the edges are taken out with a damp sponge.

-After drying of the second coat, third coat is applied at approx. 30 cm in width and as a very thin layer. Likewise excess at the edges are cleaned with a damp sponge.

-After drying of the finish coat, surface is lightly sanded and prepared for application of Satengips or Readygips.

2.2.1.8. Application with Paper Joint Tape

-Joint filler is applied abundantly onto joints in the form of dabs, as spatula stands vertical to the joint, and scrapped

-Paper tape is cut up to the length of joint, and is placed from top to bottom onto the joint filler with spatula or trowel. A little amount of joint filler is applied at 10 cm wide without pressing too much (in the manner as the paper tape is imbedded very lightly).

-2 hours later following the drying of first coat, the second coat is applied 20 cm wide in a thin layer.

-After drying of the second coat, the topcoat is applied 30 cm wide in a thin layer. Joints are checked for any roughness.

-After the topcoat is dried, surface is lightly sanded and prepared for application of Satengips or Readygips.

2.2.1.9. Application of Finishing Plaster

Satengips or Readygips is applied in the form of a thin layer (0,3 – 1 mm) all over the surface by using finishing trowel and after drying, it is sanded and becomes ready for the last coat applications.

2.2.1.10. Finishing Gypsum Board Surfaces

Surfaces of wall, ceiling and other construction elements made of Drywall systems are suitable and convenient for plaster surfaces such as painting, wallpaper or ceramic coating made by conventional methods.

2.2.2. Application of Gypsum Boards Suspended Ceiling Systems

2.2.2.1. Measuring and Marking

-The level of the ceiling according to the architectural plan is taken by using the water level or laser scales. The lower level of the U channel is marked on all around the wall by using a Chalk Line.

-Locations of the Hangers are determined according to the ceiling system and load class, the first one starting 25 cm away from the wall.

2.2.2.2. Installation of the Substructure

-U channels are fixed over the level line, with suitable dowels and YHB screws (each profile is to be fixed from at least 3 points at maximum 1 m spacings).

-Hangers are fixed with steel dowels at the pre-determined locations.

- The first and the last carrying C channels are mounted approximately 15 cm away from the wall. The distance between them is determined according to the load class of the suspended ceiling. C channels are fixed by using channel hangers which are suitable for the selected hanger wires. In cases where it is required to use UA Profile instead of C channel, UA Profiles are fixed to the suspension elements by UA Nonius hanger clips. Note: In situations where fire resistance or seismic properties are required for the suspended ceilings, a Direct or Nonius hanger suspension system is used.
- The furring C channels are attached to the carrying channels with single or double intersection connectors, at the distances to be determined according to gypsum board types. Note: In situations where fire resistance or seismic properties are required for suspended ceilings, a double intersection connection (one-piece) is used.
- The first and the last one of the furring C channels are installed approximately 10 cm from the wall. If the gypsum boards will be fixed in parallel direction to the furring C channels, the spacing of the C channels should be 40 cm and if they will be fixed in the perpendicular direction, the spacing should be 50 cm.

2.2.2.3. Processing of Gypsum Boards

- For cutting the gypsum board types, score one side with a utility knife and cut through the paper. Snap the board along the score and cut through the paper on the other side. Note: Types of gypsum board may also be cut with handsaw.
- Scraps and burrs left after the cutting are scraped away by edge rasp. In order to have a smooth and proper joint filling process, all cut edges should be tapered artificially by using special hand tools.

2.2.2.4. Fastening of Gypsum Board Types

- Gypsum boards are screwed on the furring C channels parallel or perpendicular by pressing on the frame. Screw spacing should be max. 20 cm. The screwing of the gypsum boards to is started from the center of the panel towards the edges, or may be done by starting from an edge to the other side.
- The joints formed at the short sides of gypsum boards should be placed crosswise and at least 40 cm from each other

2.2.2.5. Filling Board Joints

Joint filling of gypsum boards is applied when expansions and shrinkage caused due to humidity and temperature changes are not expected. Avoid sudden heating of the location after the joint filling process. Following the joint filling process, in order to place accessories (such as lighting, etc.), cutting and breaking works for openings should not be applied. These kinds of works should have been completed in advance. During the application, temperature of the location must not be less than 50C. Temperature is kept constant as much as possible for a period starting from two days before the joint filling application until the end of two days following completion. Because the factor of humidity prevents drying, and extends the drying period of joint filler gypsum, wet floor cement screed applications should have been completed before. All gypsum boards checked and examined before filling the joints; they are checked if screws are firm and strong enough and ensured that heads of screws are imbedded and flush completely. Edges of the cut gypsum boards are rasped before plastering process in order to form neat joints, and the cut section of paper on the visible surface is sanded and smoothened. . Joint should be dust-free; small holes and cracks are repaired with Fugagips or Uniflott. If there is 3 mm gap at the connection joints of wall and ceiling gypsum boards, then a separating tape is placed onto the wall which is not drywall and pre-filling is made until the surface becomes smooth and flush. Dusts, oil and other factors are cleaned off from the surface. Hand tools to be used are always kept clean and properly washed and cleaned after each application. Ensure that the previous layers are completely dried before applying the next layer.

2.2.2.6. Preparing the plaster

- Water, pro rata to the quantity of plaster to be prepared, is taken into a clean bucket and gypsum is poured onto the water. Upon waiting for a period of 1-2 minutes it is mixed.
- All screw heads are covered with joint filler.

2.2.2.7. Application of Finishing Plaster

- The mixing process is done manually or by machine at a low speed. Plaster is applied on the entire surface as a thin layer (0.3 - 1 mm) by using a trowel. Following the drying of the Satengips, the surface is sand-papered and prepared for finishing applications.

3. GLASS PARTITION WALL- ALUMINIUM FRAMED ENTRANCES AND STOREFRONTS

Provide aluminum entrances, with glass and glazing, door hardware, and components for the halls if it is requested. Aluminum entrances include impact resistance entrances; medium stile, 88.9 mm and the vertical face dimension shall be min. 44.45 mm depth, for interior structural silicone glaze, for high-traffic/impact-resistant applications.

4. CERAMIC WALL TILE

- Provide tiles that comply with ANSI A137.1 and are standard grade tiles.
- Provide a minimum breaking strength of 57 kg for wall tile and 113 kg for floor tile in accordance with ASTM C648.
- Provide exterior building tile for cold climate projects that is approved by the manufacturer for exterior use when tested in accordance with ASTM C1026.

-Provide floor tiles with a wet dynamic coefficient of friction (DCOF) value of 0.42 or greater when tested in accordance with ANSI A137.1 requirements.

-Provide glazed floor tile with a Class V-Heavy Commercial classification as rated by the manufacturer when tested in accordance with ASTM C1027 for visible abrasion resistance as related to foot traffic. For materials like tile, accessories, and transition strips submit samples of sufficient size to show color range, pattern, type and joints. Submit manufacturer's catalog data.

-In order that gypsum boards are coated with tiles, ceramics, etc., primarily the application must have been made with double layer gypsum board. When ceramic is applied onto single layer 12,5 mm partition wall, spacing of C studs must be reduced to 40 cm. Because ceramic tiles are used generally at wet locations as bathroom, WC, kitchen, etc., water-resistant gypsum board should be used. The finishing works performed after completion of joint filling process are to be made only on such surfaces which are deemed absolutely necessary

5. VINYL COMPOSITION TILE

The vinyl composition tile flooring shall be renewed in places that needed to be dismantled or damaged during the construction of walls.

- Conform to ASTM F1066 Class 2, (through pattern tile), Composition 1, asbestos-free, 300 mm square and 3.2 mm thick. --
- Provide color and pattern uniformly distributed throughout the thickness of the tile.
- Provide certification of indoor air quality for Vinyl Composition Tile.

6. SUSPENDED CEILING

6.1. Standard Grid Suspended Ceiling

The main runners (T 24/38 Ventatec grid) are installed using quick hangers or other suitable, alternative hangers at 1250 mm centres (hanger centres max. 1250 mm). These are fixed to the soffit using approved fixings, dependent on the type of soffit. The grid is aligned and levelled. The Z-profiles are fixed to the installed main runners, using wire clips, dependent on the tile width. During the installation, the long edge of the tile with all-round GN edges is pushed or lay-on the Z-profile. The short edges of the tiles are reinforced or connected with T-profiles.

6.2. EI120 Grid Suspended Ceiling

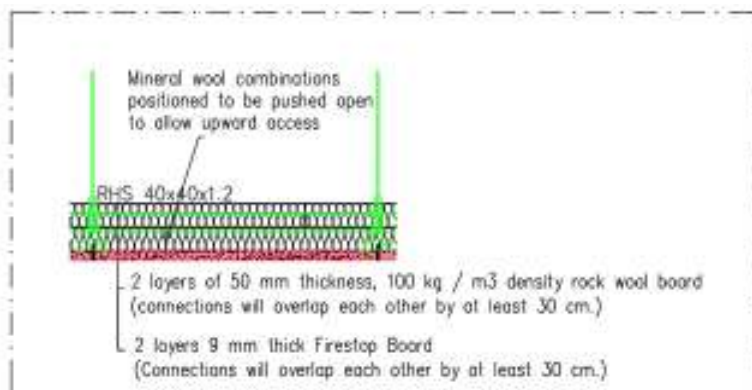


Figure 7. System Detail for EI120 Suspended Ceiling

* Suspended ceiling tamper cover:

With the EI 120 certified connection detail, it is suitable to intervene into the suspended ceiling. Accordingly, when intervention is required, this panel on the suspended ceiling will be removed and reinstalled after the intervention. In order not to lose the intervention panel in plaster and paint application, a strip marking will be made around the panel.

Application details:

- Lighting elements will be applied on plaster.
- Fire stopping will be applied around the sprinkler.
- If there are ventilation grilles opening to protected corridors, the channel will be wrapped with a 70 mm 150 kg / m3 rock wool board and covered with 0.6 mm galvanized sheet. (Red plasterboard is also suitable instead of galvanized sheet.) Also, on the wall where the channel is connected to the protected corridor, damper will be used.
- Suspension rods will be placed at maximum 1000 mm intervals so that the tensile stress affecting any suspension does not exceed 10 N / mm2.
- Main carrier profiles will be laid with 610 mm intervals at most.
- The profiles placed in the periphery will be fixed to the masonry structure or concrete with self-tapping screws of 400 mm, with M4 x 32 mm self-tapping screws to fireproof anchors or equivalent.
- It will be fixed every 300 mm with self-tapping screws. Joints will be staggered.

6.3. PVC Hygienic Suspended Ceiling

Healthcare facilities place especially high demands for hygiene requirements on rooms and therefore on the ceilings, so for clean rooms, wet areas PVC Hygienic Suspended ceiling will be used as indicated at the "Improvement of Fire & Smoke Confinement Features Drawings. Guidelines for hospital hygiene and preventing infection shall be in accordance with EN ISO 14644 or DIN 1946.

7. STEEL DOOR

-Steel doors will be provided for final exit doors with panic devices.
-Where the steel door is required to be fire rated (See the construction drawings and Fire & Life Safety drawings) test certificates of steel door shall be in accordance with EN 1634-1 and the classification certificates shall be in accordance with EN 13501-2. They must be submitted for control and approval together with the offer.

8. FIRE DOOR

-The test certificates of the proposed fire doors according to EN 1634-1 and the classification certificates to EN 13501-2 must be submitted for control and approval together with the offer.

- In door resistance, in addition to the integrity criterion (E), the insulation criterion (I1 or I2) should be met as same as the desired integrity criterion and these values should also be specified in the certificates.

- Fire doors shall be smoke proof and the doors must be tested according to EN 1634-3. Doors must be tested from both sides.

- In order to ensure traceability on the doors, production and certification, on each door upon delivery, the name of the manufacturer, the model of the door, the fire resistance of the door according to EN 13501-2 (EI 1 60, EI2 90 etc.), and the norm of the fire resistance test, it is requested that the cold sealed metal labels showing the production date and the production date are made according to EN 1634-1.

-It is for eligibility is, an accredited laboratory by experiment that are given by trial (test) In case of documents, the last assessment that is appropriate will be made by the employer.

-For compliance, the declaration letter (self-declaration) given by the manufacturer will not be accepted.

-The Contractor shall indicate in its offer by which organization the products have been approved.

-Not only the door leaf and frame, but also the hardware to be used on the door shall comply with the standards and be approved for fire use.

-It is the Contractor's responsibility to take the exact measurements of the openings where the Fire Resistant Doors will be installed to determine the Manufacturing Drawings and the frame-wing dimensions.

-If the existing opening, whose dimensions are given, does not comply with the standard door production dimensions, narrowing or widening can be made, not more than 5% in the dimensions.

-During the installation of the doorframe, PU (Polyurethane foam), silicone, wooden wedges, etc. flammable filling material will never be used.

-In case of filling in case cavities, non-combustible material or material that expands under heat will be used.

-The contractor will bring the hardware to be used on the door without damaging the strength properties of the door, in the workshop environment and in accordance with the standards, and will not install it at the facility or during the door installation. If the contractor wishes, he will be able to set up his workshop (workshop) for hardware installation in the facility.

-If Blind Casing is required, the Blind Case made of steel profile will be made by the Employer. Any description, drawing, etc. related to the Blind Casing will be provided by the compliance control and will be made by the contractor.

-All materials will be applied with first-class workmanship by knowledgeable, trained and experienced people in accordance with the manufacturer's information and technique.

-The works to be done in the field will only be assembly, installation (assembly) and finishing works, steel construction manufacturing, cutting, welding, sandblasting, painting, etc. The works will be carried out entirely in the workshop (workshop), using standard production techniques and machines.

-During the installation of the doorframe, PU (Polyurethane foam), silicone, wooden wedges, etc. flammable filling material will never be used.

-In case of filling in case cavities, non-combustible material or material that expands under heat will be used.

9. DOOR HANDLE

-All fire doors must have a door handle on one side.

-Door handles shall be in accordance with EN 179.

10. PANIC DEVICE

- All fire doors must have a door handle or panic device on one side of the door. Related section shall not be left blank.
- All staircase doors and final exit doors shall have panic devices allowing the door open in the direction of egress.
- Panic devices shall be in accordance with EN 1125.

11. DOOR CLOSER

All fire doors must be equipped with door closers in accordance with EN 1154. The self-closing and manual opening features of the doors and their fire resistance in this regard have been tested according to EN 1191 and shall be in class C5.

Solely spring mounted hinged doors will not be accepted and door closer will be required.

12. DOOR SEQUENCER

In order to provide sequential closing in double-leaf doors, it is mandatory to have a door closer and sequencer in accordance with EN 1158.

13. MAGNETIC DOOR HOLDER

For fire compartment passages (to each other) electrically controlled magnetic door holders shall be provided.

14. MASTER KEY

A master key system is a key plan whereby selected keys can open a number of pre-defined doors. It also provides quick access to all rooms within the premises, e.g. for security staff and management personnel. This is important to save lives in case of emergency. For master key system there will be 5 sets of keys, each sets having 6 keys, except change keys:

- Grand Master Key; 1 set of key to open all the doors at the hospital.
- First Group Master Key; 1 set of key to open all technical and storage rooms at the hospital such as IT room, MRI room, electrical rooms, pharmacy.
- Second Group Master Key; 1 set of key to open clinical rooms and operating rooms at the hospital, such as intervention rooms, surgery rooms.
- Third Group Master Key; 1 set of key to open only administrative offices.
- Change Key; 3 keys will be provided for all the doors.

In order to provide master key lock system, the door lock of all the doors at the hospital shall be changed.

15. FIRE PUMP ROOM CANTILEVER and STEEL STAIR

Provide at least 50 m² of a cantilever room constructed from composite sandwich panels (infilled with rockwool) as shown on drawings. Panel's thickness shall be not less than 75 mm. Trapeze formed units shall be used even in roof and in walls. System shop drawings indicating the structural elements shall be submitted prior to installation.

Provide a galvanized steel stair at the entrance to pump room where indicated on related drawing. Join pieces by welding. Fabricate units so that bolts and other fastenings do not appear on finished surfaces. Make joints true and tight, and connections between parts lighttight. Grind continuous welds smooth where exposed. Construct metal stair units to sizes and arrangements indicated to support a minimum live load of 500 kilogram per square meter. Provide framing, hangers, columns, struts, clips, brackets, bearing plates, and other components as required for the support of stairs and platforms. Fabricate stringers of structural steel channels, or plates, or a combination thereof. Provide closures for exposed ends of strings. Construct platforms of structural steel channel headers and miscellaneous framing members where necessary. Bolt headers to stringers and newels, and bolt framing members to stringers and headers. Form metal pans of 2.8 millimeter 0.1084-inch (12-gage) galvanized structural steel sheets, conforming to ASTM A653/A653M, Grade A, with zinc coating conforming to ASTM A653/A653M and ASTM A924/A924M. Construct risers and subtread metal pans with steel angle supporting brackets, of the size indicated, welded to stringers. Secure metal pans to brackets with rivets or welds. Secure subplatform metal pans to platform frames with welds. Between stringers, provide abrasive cast metal safety nosings, 100 mm wide by the full length of the step. Fabricate nosings to the thickness, profile, and surface pattern indicated. Equip each nosing with integral anchors for embedding in the pan fill material, and space the anchors not more than 100 millimeter from each end and not more than 380 millimeter on center. Provide raised-pattern steel floor plate fabricated from steel complying with ASTM A36/A36M. Provide the pattern indicated or, if not indicated, as selected from the manufacturer's standard patterns. Form treads of 6 millimeter thick steel floor plate with integral nosing and back-edge stiffener. Weld steel supporting brackets to strings, and weld treads to brackets.