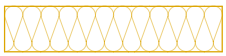
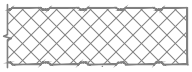
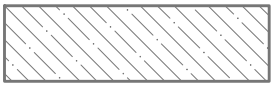
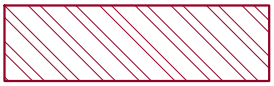
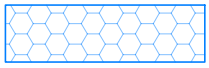
# TECHNONICOL

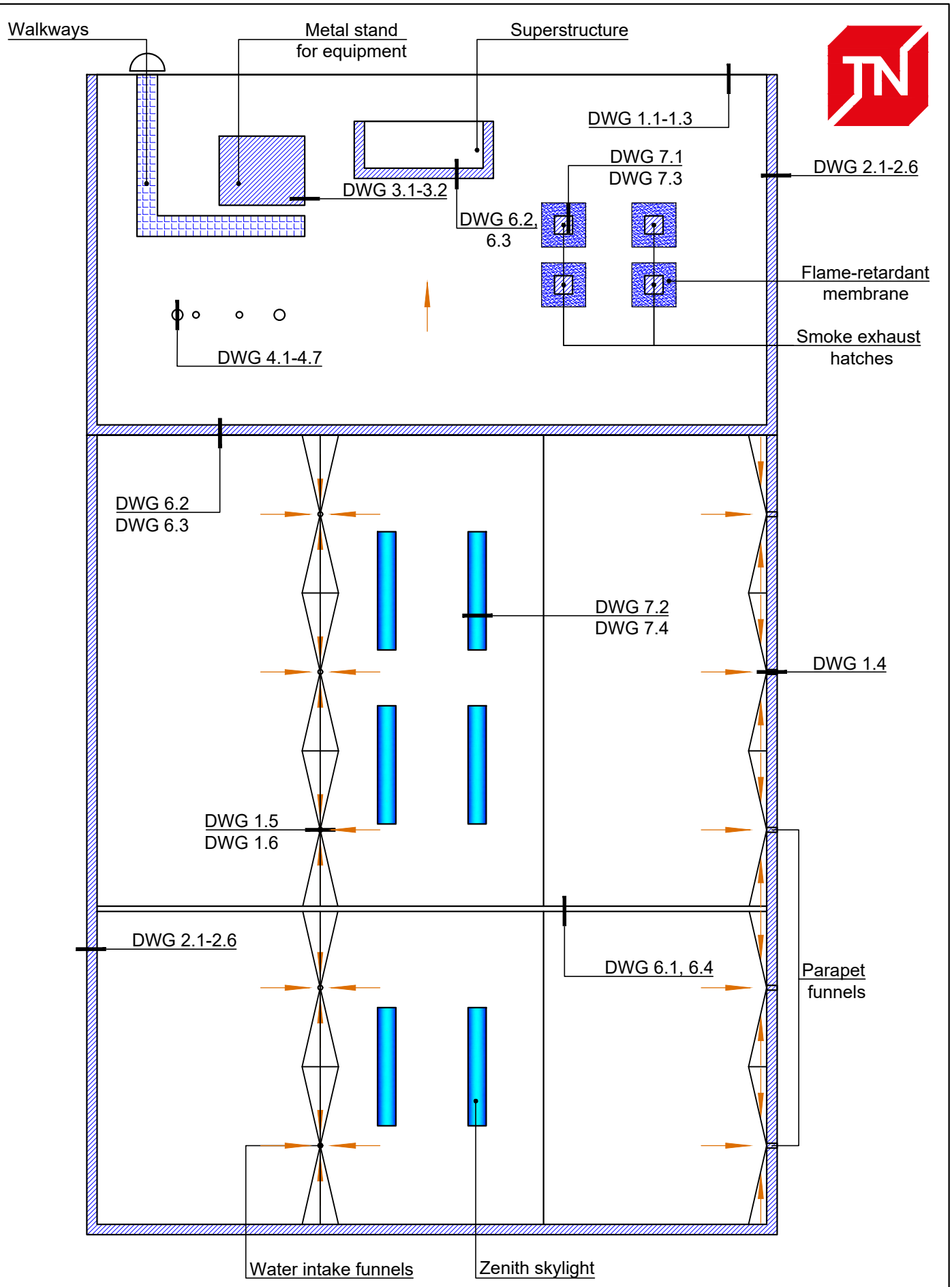
# TECHNICAL SOLUTIONS FOR ARRANGEMENT OF JUNCTIONS IN FLAT ROOFS WITH WATERPROOFING LAYER MADE OF BITUMEN ROLL MEMBRANES ON CONCRETE BASE WITH SLOPING FORMED WITH EXTRUDED POLYSTYRENE (XPS) SLOPE SHAPED SLABS

TN_ROOF_BRM_CONCRETE_STANDARD_EN

# SYMBOLS

| Rough sketch | Description |
|---|---|
|  | Vapor barrier |
|  | Insulation (Stone wool) |
|  | Separation layer (Geotextile) |
|  | Waterproofing (top layer) |
|  | Waterproofing (bottom layer) |
|  | Mastic |
|  | Clamping rail |
|  | Edge rail |
|  | Sealant |
|  | Sandwich panel |
|  | Reinforced concrete structure |
|  | Brick construction (block construction) |
|  | Insulation (PIR) |
|  | Insulation (XPS) |
|  | System (material set) |
|  | Waterproofing (reinforcement layer) |

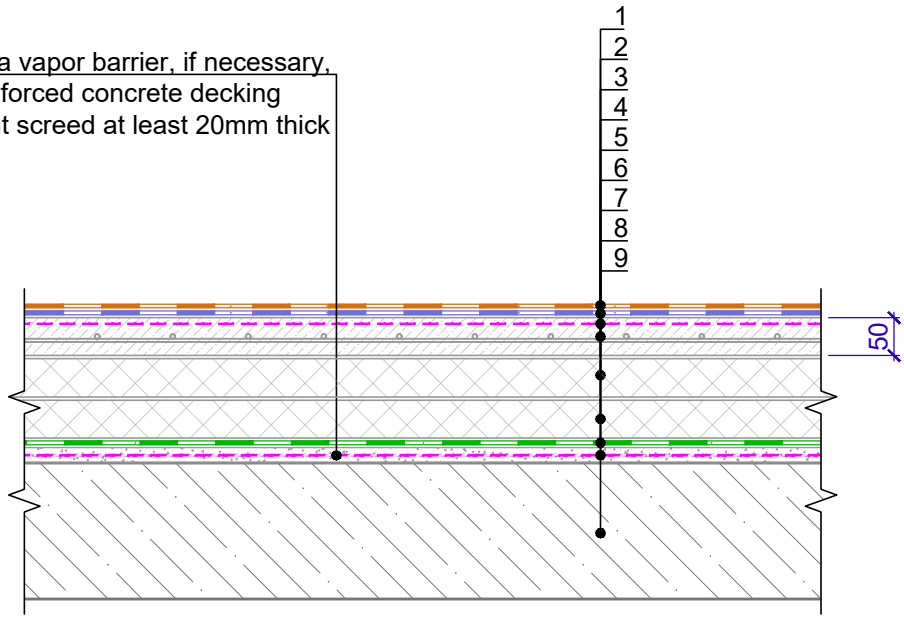
| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Symbols | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. | REV. |




| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
|---|---|---|---|---|---|---|
| | | | | | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | Scheme of labelling of system details | DWG No. | REV. |

DWG No.
**01 - 2021.05**

Before installing a vapor barrier, if necessary, level the reinforced concrete decking with sand-cement screed at least 20mm thick




1 Waterproofing (top layer) - **Ultraplast B Grey Mineral (APP)**

2 Waterproofing (bottom layer) - **Ultraplast B (APP)**

3 **Bitumen Prime Coating**

4 Reinforced sand-cement screed

5 **Sloping layer Technonicol Carbon Prof Slope**

6 **XPS thermal insulation boards, Technonicol Carbon Prof 300** (if required)

7 Vapor barrier - **Ultraflex SA**

8 **Bitumen Prime Coating**

9 Reinforced concrete

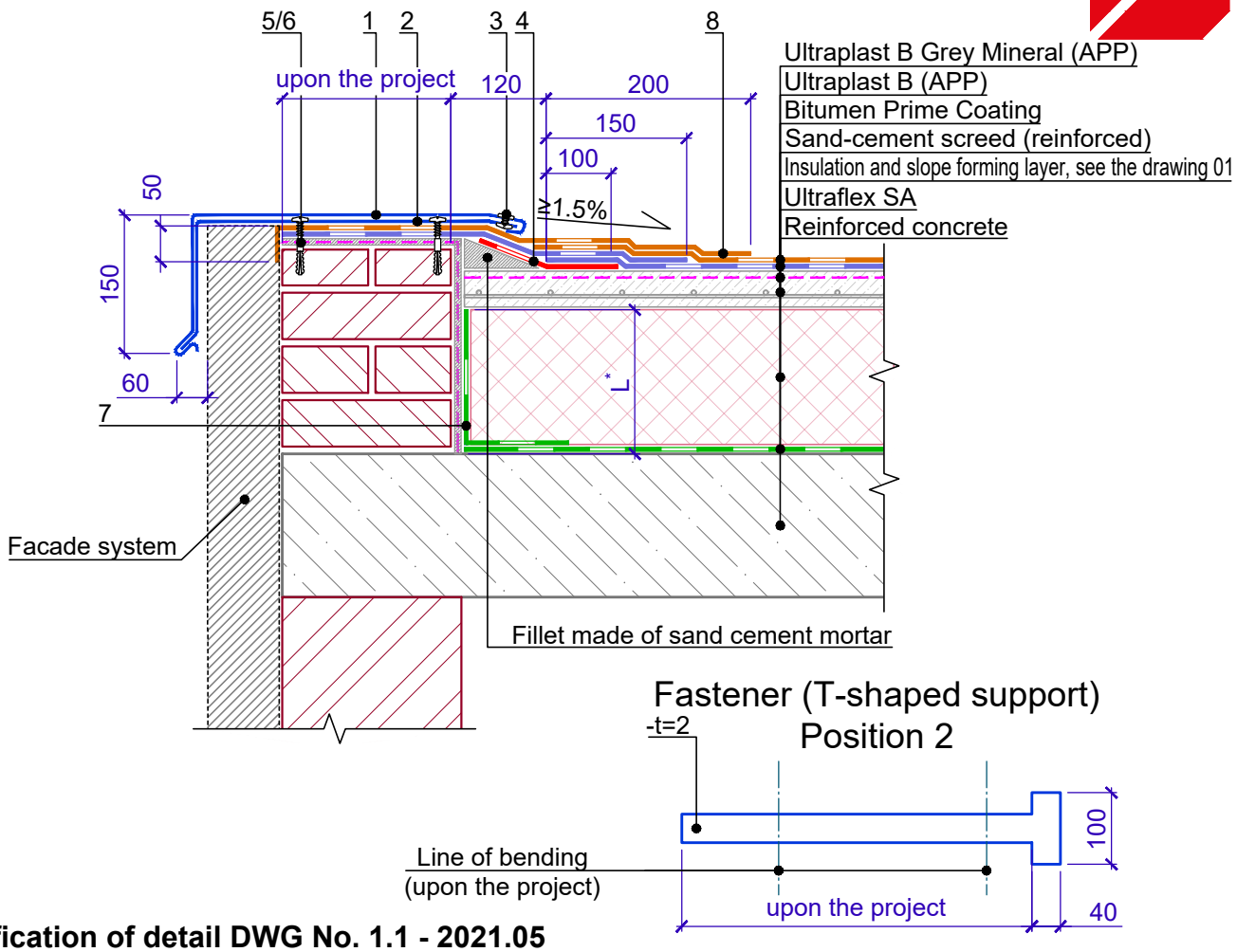
| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Structure of roofing solutions | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN

# Register of drawings for gutter construction

| № | Name | DWG No. |
|---|---|---|
| 1.1 | Junction to external wall without installing a parapet | 1.1 |
| 1.2 | Junction to external wall without installing a parapet with external free water removal | 1.2 |
| 1.3 | Junction to external wall without installing a parapet with external controlled water removal | 1.3 |
| 1.4 | Drain through the parapet with insulation | 1.4 |
| 1.5 | Inner drain. Water intake funnel with put-on element | 1.5 |
| 1.6 | Inner drain. Water intake funnel without put-on element | 1.6 |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **1.1 - 2021.05**







## Specification of detail DWG No. 1.1 - 2021.05

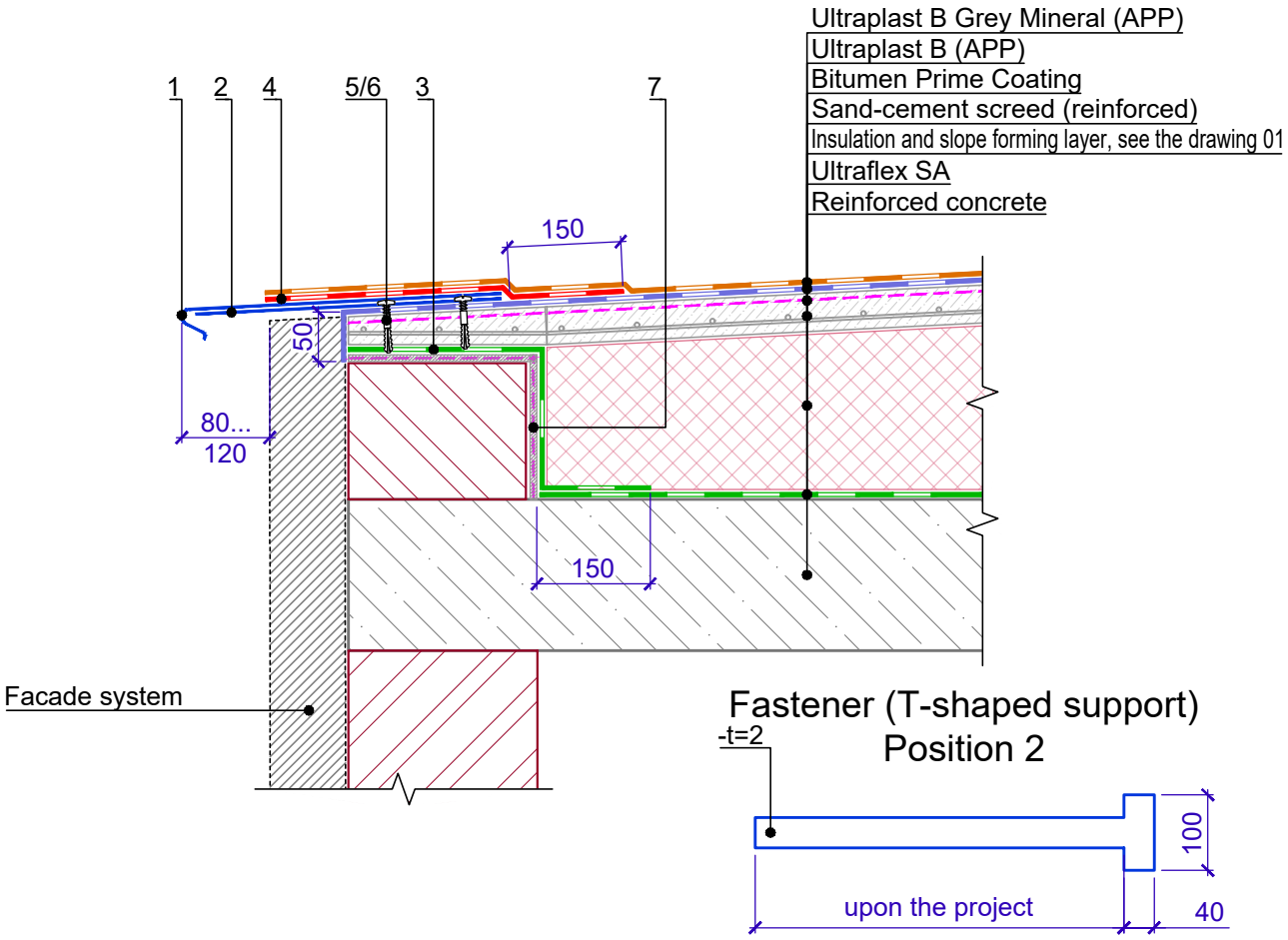
| Position | Name | Consumption on 1 l.m. of junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Drain element made of galvanized steel | 1 | m | |
| 2 | Fastener (T-shaped support) | 1.70 | pcs. | |
| 3 | Rivet | 1.70 | pcs. | |
| 4 | Ultraplast B (APP) | 0.35 | $m^2$ | reinforcement layer |
| 5 | Pointed self-tapping screw 4.8x50 | 3.40 | pcs. | |
| 6 | Anchor element 8x45 | 3.40 | pcs. | |
| 7 | Ultraflex SA | upon the project | $m^2$ | |
| 8 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 9 | Ultraplast B (APP) | upon the project | $m^2$ | |

Notes

1. Attach the fastener (T-shaped support) to the screed. The support pitch should not exceed 600 mm.
2. The length of the galvanized steel drip cap should not exceed 4 m. Put two strips of sealing mastic at the junction of drip caps. The overlap of the caps should be at least 150 mm.
3. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Junction to external wall without installing a parapet | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. 1.1 - 2021.05 | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **1.2 - 2021.05**




## Specification of detail DWG No. 1.2 - 2021.05

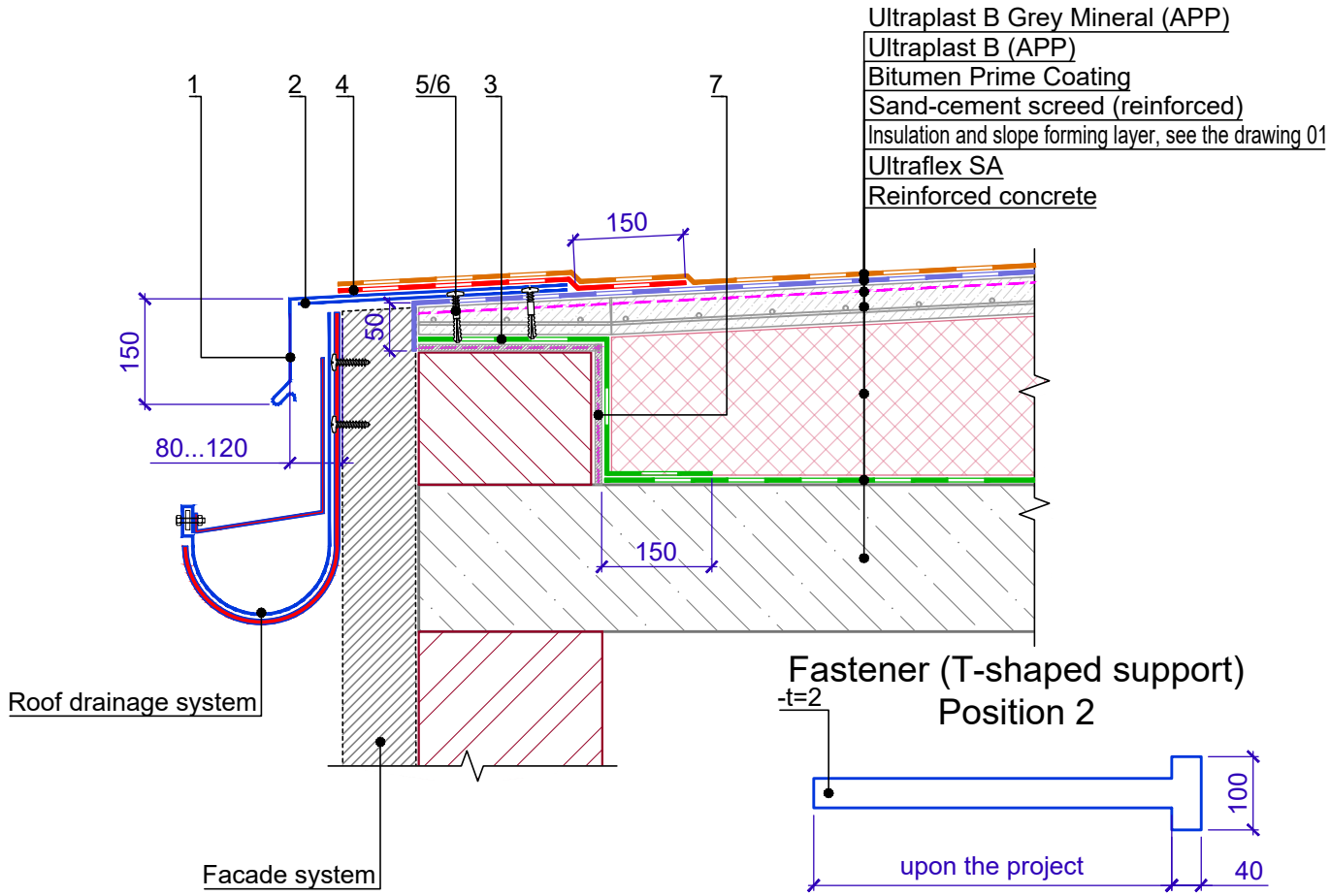
| Position | Name | Consumption on 1 l.m. of junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Drain element made of galvanized steel | 1 | m | |
| 2 | Fastener (T-shaped support) | 1.70 | pcs. | |
| 3 | Ultraflex SA | upon the project | pcs. | |
| 4 | Ultraplast B (APP) | upon the project | $m^2$ | reinforcement layer |
| 5 | Pointed self-tapping screw 4.8x50 | 3.40 | pcs. | |
| 6 | Anchor element 8x45 | 3.40 | pcs. | |
| 7 | Bitumen Prime Coating | upon the project | l | |

Notes

1. Attach the fastener (T-shaped support) to the screed. The support pitch should not exceed 600 mm.
2. The length of the galvanized steel drip cap should not exceed 4 m. Put two strips of sealing mastic at the junction of drip caps. The overlap of the caps should be at least 150 mm.
3. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Junction to external wall without installing a parapet with external free water removal | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **1.2 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **1.3 - 2021.05**




## Specification of detail DWG No. 1.3 - 2021.05

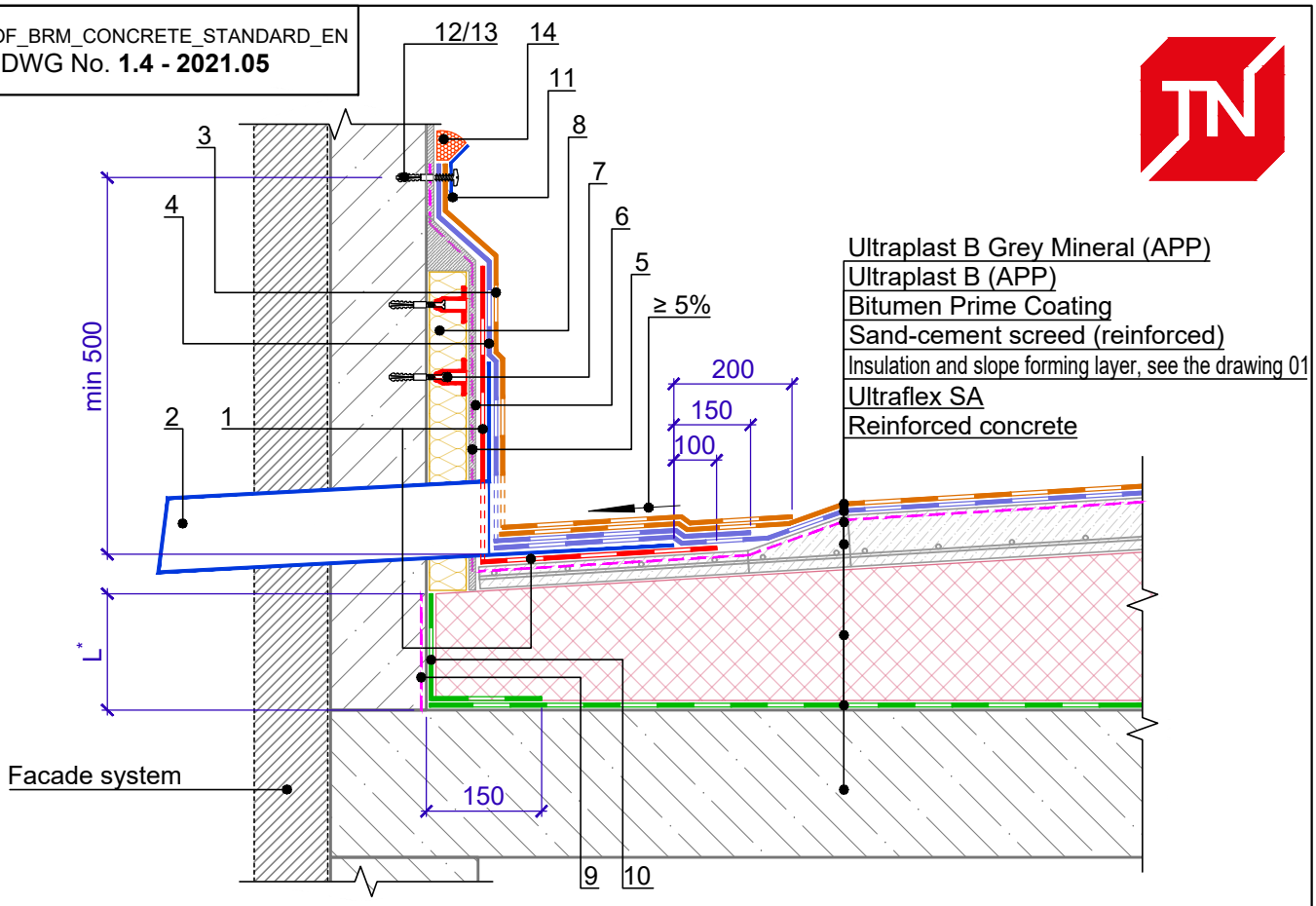
| Position | Name | Consumption on 1 l.m. of junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Drain element made of galvanized steel | 1 | m | |
| 2 | Fastener (T-shaped support) | 1.70 | pcs. | |
| 3 | Ultraflex SA | upon the project | pcs. | |
| 4 | Ultraplast B (APP) | upon the project | $m^2$ | reinforcement layer |
| 5 | Pointed self-tapping screw 4.8x50 | 3.40 | pcs. | |
| 6 | Anchor element 8x45 | 3.40 | pcs. | |
| 7 | Bitumen Prime Coating | upon the project | l | |

Notes

1. Attach the fastener (T-shaped support) to the screed. The support pitch should not exceed 600 mm.
2. The length of the galvanized steel drip cap should not exceed 4 m. Put two strips of sealing mastic at the junction of drip caps. The overlap of the caps should be at least 150 mm.
3. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Junction to external wall without installing a parapet with external controlled water removal | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **1.3 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **1.4 - 2021.05**

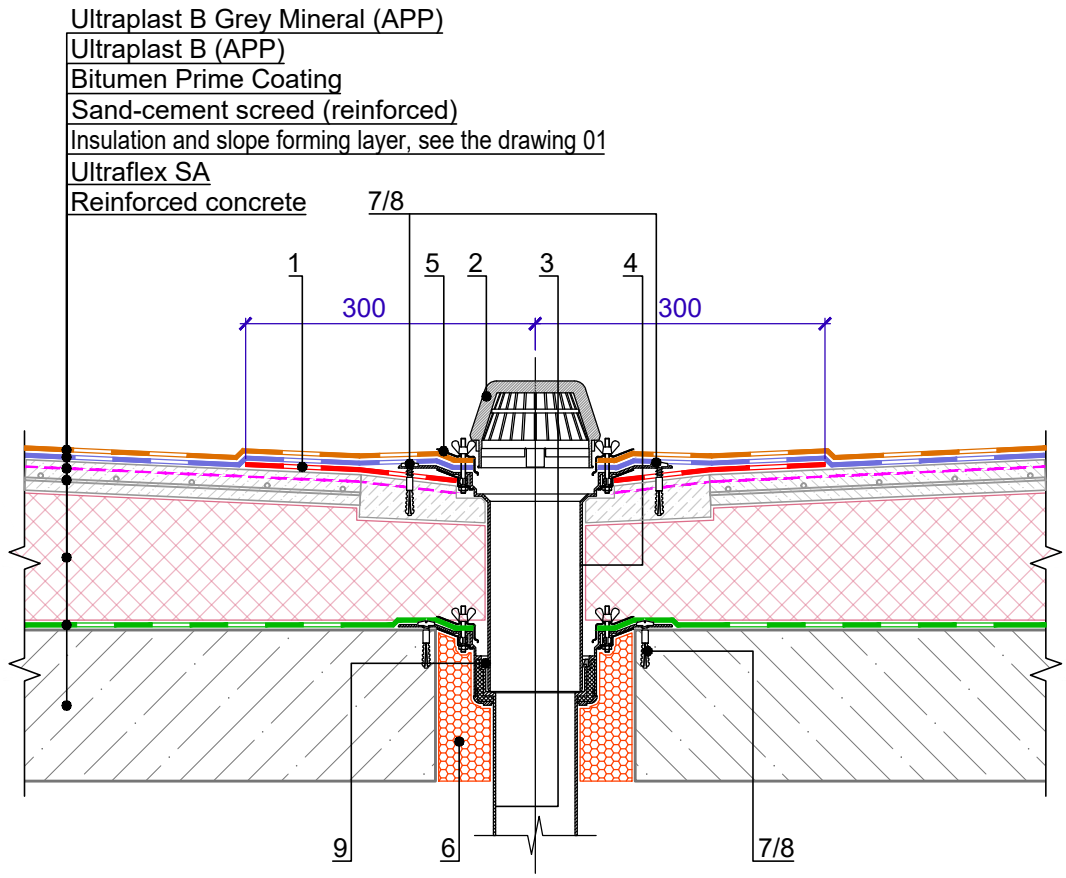



## Specification of detail DWG No. 1.4 - 2021.05

| Position | Name | Consumption on 1 junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) (strip 0.5x0.5m wide) | upon the project | $m^2$ | reinforcement layer |
| 2 | Parapet funnel | 1 | pcs. | |
| 3 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 4 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 5 | Bitumen Prime Coating | upon the project | l | |
| 6 | Plaster layer of sand-cement mortar on a grid 100x100mm | upon the project | | |
| 7 | Fastening element for plaster facade | upon the project | pcs. | |
| 8 | Stone wool | upon the project | $m^3$ | |
| 9 | Bitumen Prime Coating | upon the project | l | |
| 10 | Ultraflex SA | upon the project | $m^2$ | |
| 11 | Edge rail | 1.00 | m | |
| 12 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 13 | Anchor element 8x45 | 5 | pcs. | |
| 14 | Bitumen-polymer sealing mastic | 150 | g/m | |

1. Instead of applying a plaster layer on the vertical surface of the parapet for subsequent torching of the waterproofing layer, it is allowed to use cement bonded particle boards with mechanical fastening to the load-bearing part of the parapet using telescopic or disk-shaped fasteners.
2. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
|---|---|---|---|---|---|---|
| | | | | | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | Drain through the parapet with insulation | DWG No. 1.4 - 2021.05 | REV. |



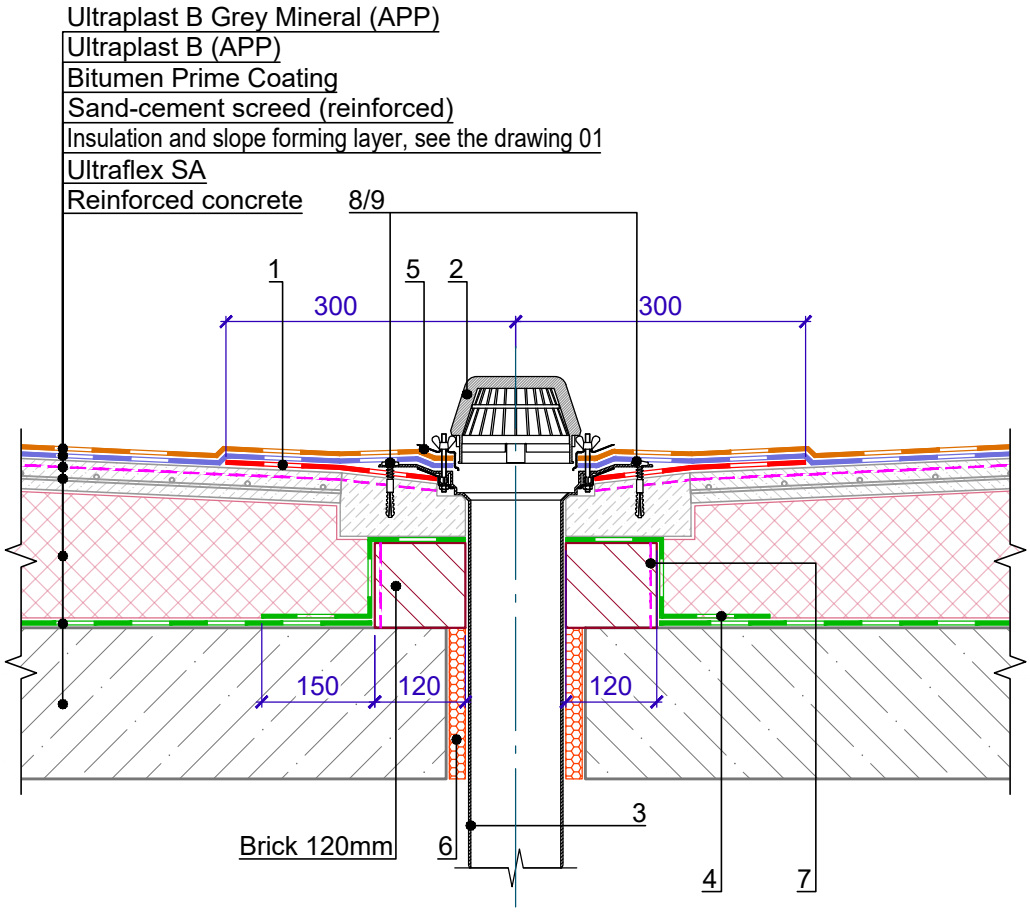

## Specification of detail DWG No. 1.5 - 2021.05

| Position | Name | Consumption on 1 junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | 0.36 | $m^2$ | reinforcement layer |
| 2 | Leaf catcher | 2 | pcs. | |
| 3 | Water intake funnel | 1 | pcs. | |
| 4 | Put-on element | 1 | pcs. | |
| 5 | Crimping flange (set with funnel) | 1 | pcs. | |
| 6 | Construction foam | upon the project | pcs. | |
| 7 | Pointed self-tapping screw 4.8x50 | 12 | pcs. | |
| 8 | Anchor element 8x45 | 12 | pcs. | |
| 9 | O-rings for put-on element | 1 | pcs. | |

Notes

1. Provide for an increase in the slope at the funnel up to 5% within a radius of at least 500 mm around. It is recommended that the funnel be deepened by 20-30 mm relative to the roof level.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Inner drain. Water intake funnel with put-on element | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **1.5 - 2021.05** | REV. |




## Specification of detail DWG No. 1.6 - 2021.05

| Position | Name | Consumption on 1 junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | 0.36 | $m^2$ | reinforcement layer |
| 2 | Leaf catcher | 2 | pcs. | |
| 3 | Water intake funnel | 1 | pcs. | |
| 4 | Put-on element | 1 | pcs. | |
| 5 | Crimping flange (set with funnel) | 1 | pcs. | |
| 6 | Construction foam | 1 | pcs. | |
| 7 | Bitumen Prime Coating | upon the project | l | |
| 8 | Pointed self-tapping screw 4.8x50 | 6 | pcs. | |
| 9 | Anchor element 8x45 | 6 | pcs. | |

Notes

1. Provide for an increase in the slope at the funnel up to 5% within a radius of at least 500 mm around. It is recommended that the funnel be deepened by 20-30 mm relative to the roof level.

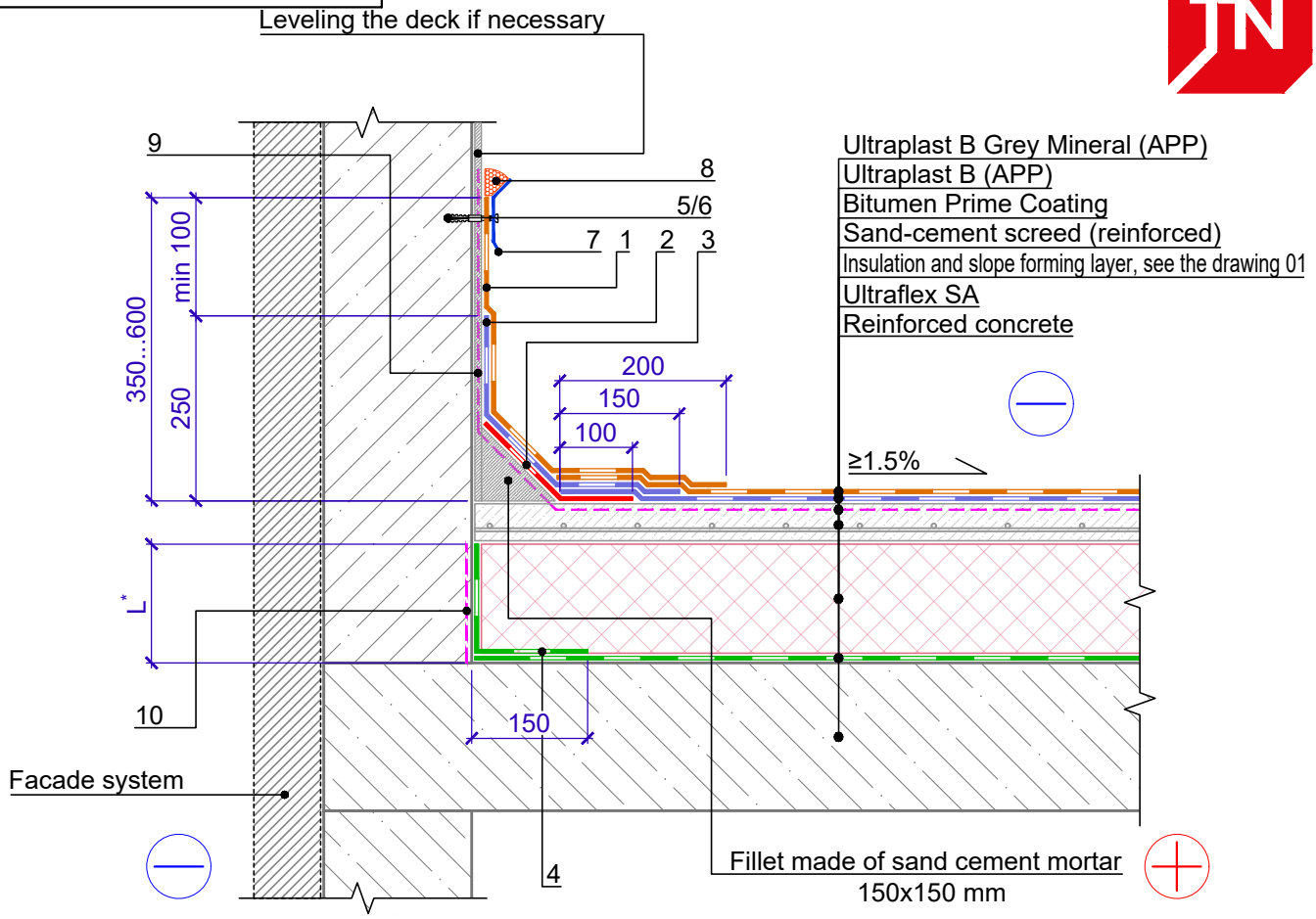
| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Inner drain. Water intake funnel without put-on element | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **1.6 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN

# Register of drawings for arrangement of junctions to vertical surfaces

| № | Name | DWG No. |
|---|---|---|
| 2.1 | Junction to vertical surfaces without vertical insulation. For rough surfaces (concrete, brick) | 2.1 |
| 2.2 | Junction to vertical surfaces without vertical insulation. For smooth surface (metal) | 2.2 |
| 2.3 | Junction to a parapet no more than 1200mm high with insulation and waterproofing installation on the parapet. Option 1 | 2.3 |
| 2.4 | Junction to a parapet no more than 1200mm high with insulation and waterproofing installation on the parapet. Option 2 | 2.4 |
| 2.5 | Junction to a parapet with a fence with additional insulation | 2.5 |
| 2.6 | Junction to a vertical surfaces with additional insulation | 2.6 |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **2.1 - 2021.05**




## Specification of detail DWG No. 2.1 - 2021.05

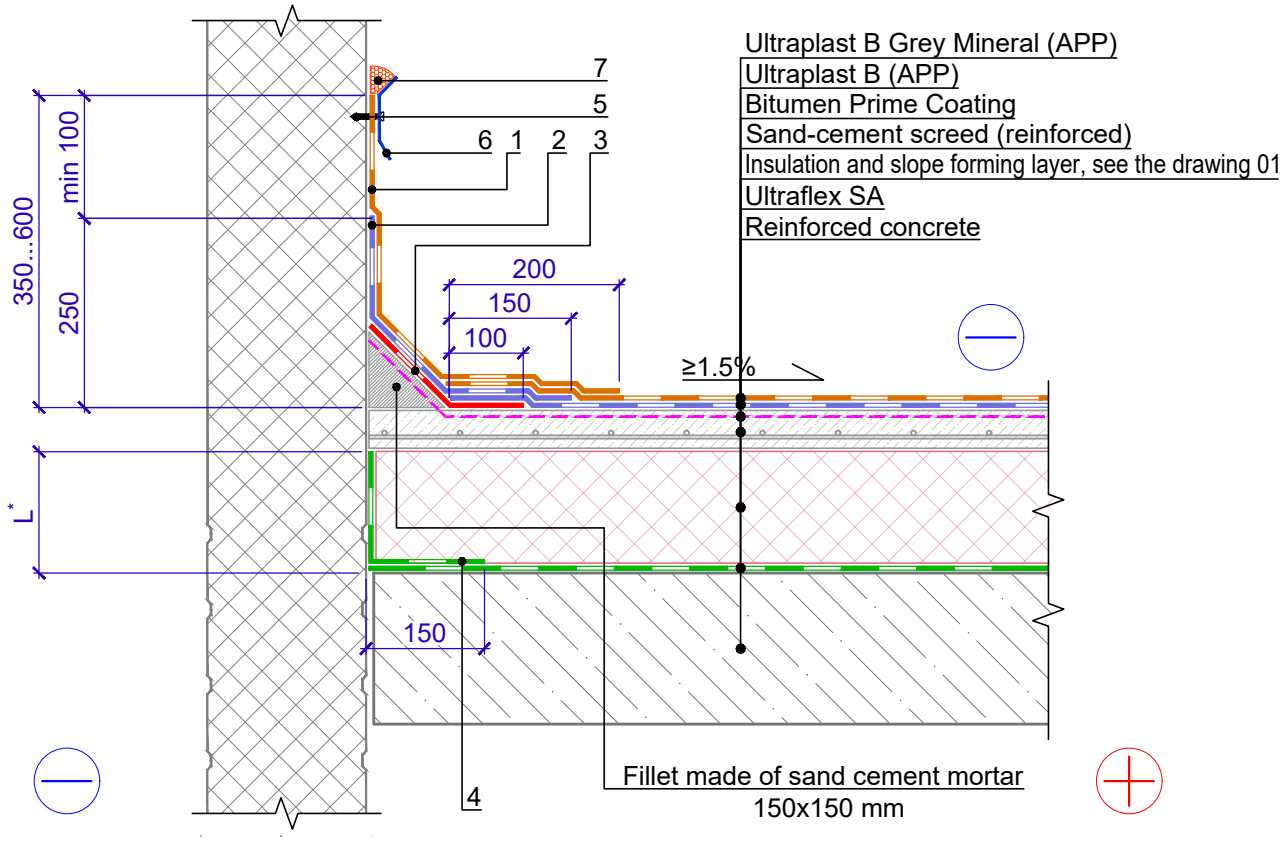
| Position | Name | Consumption on 1 l.m. of junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Ultraplast B (APP) | 0.35 | $m^2$ | reinforcement layer |
| 4 | Ultraflex SA | upon the project | $m^2$ | |
| 5 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 6 | Anchor element 8x45 | 5 | pcs. | |
| 7 | Edge rail | 1.00 | m | |
| 8 | Bitumen-polymer sealing mastic | 150 | g/m | |
| 9 | Bitumen Prime Coating | upon the project | l | |
| 10 | Bitumen Prime Coating | upon the project | l | |

Notes

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | | |
|---|---|---|---|---|---|---|
| | | | | Junction to vertical surfaces without vertical insulation. For rough surfaces (concrete, brick) | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **2.1 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **2.2 - 2021.05**




## Specification of detail DWG No. 2.2 - 2021.05

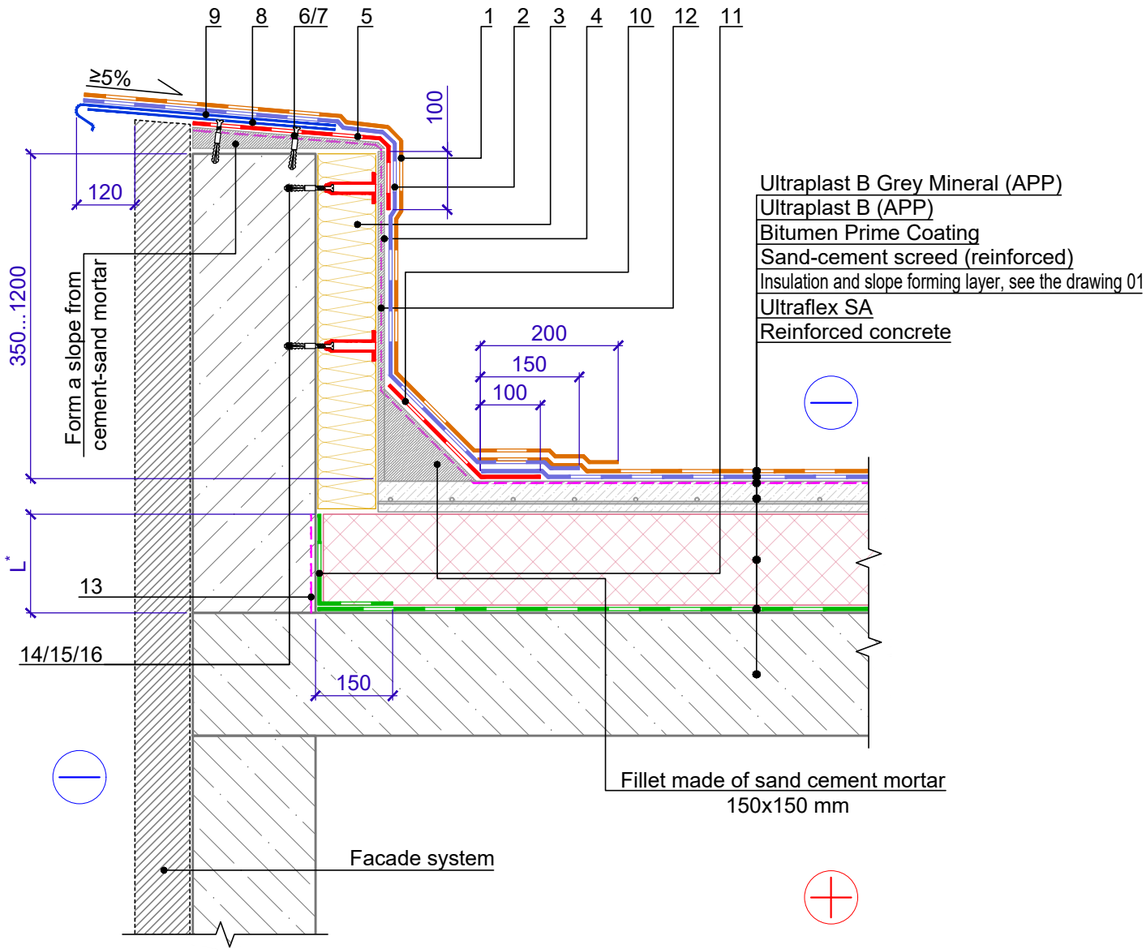
| Position | Name | Consumption on 1 l.m. of junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Ultraplast B (APP) | 0.35 | $m^2$ | reinforcement layer |
| 4 | Ultraflex SA | upon the project | $m^2$ | |
| 5 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 6 | Edge rail | 1.00 | pcs. | |
| 7 | Bitumen-polymer sealing mastic | 150 | m | |

Notes

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | | |
|---|---|---|---|---|---|---|
| | | | | Junction to vertical surfaces without vertical insulation. For smooth surface (metal) | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **2.2 - 2021.05** | REV. |

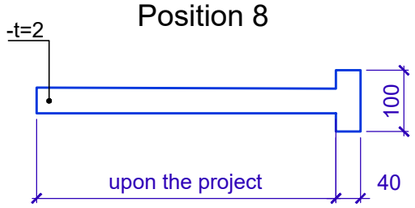
TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **2.3 - 2021.05**




## Specification of detail DWG No. 2.3 - 2021.05

| Position | Name | Consumption on 1 l.m. of junction | Unit | Note |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Stone wool | upon the project | $m^3$ | |
| 4 | Plaster layer of sand-cement mortar on a grid 100x100mm | upon the project | $m^2$ | |
| 5 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 6 | Pointed self-tapping screw 4.8x50 | 3.40 | pcs. | |
| 7 | Anchor element 8x45 | 3.40 | pcs. | |
| 8 | Fastener (T-shaped support) | 1.70 | pcs. | |
| 9 | Drain element made of galvanized steel (cap) | 1.00 | m | |
| 10 | Ultraplast B (APP) | 0.35 | $m^2$ | reinforcement layer |
| 11 | Ultraflex SA | upon the project | $m^2$ | |
| 12 | Bitumen Prime Coating | upon the project | l | |
| 13 | Bitumen Prime Coating | upon the project | l | |
| 14 | Pointed self-tapping screw 4.8x50 | upon the project | pcs. | |
| 15 | Anchor element 8x45 | upon the project | pcs. | |
| 16 | Telescopic fastener | upon the project | pcs. | |

### Fastener (T-shaped support)
### Position 8

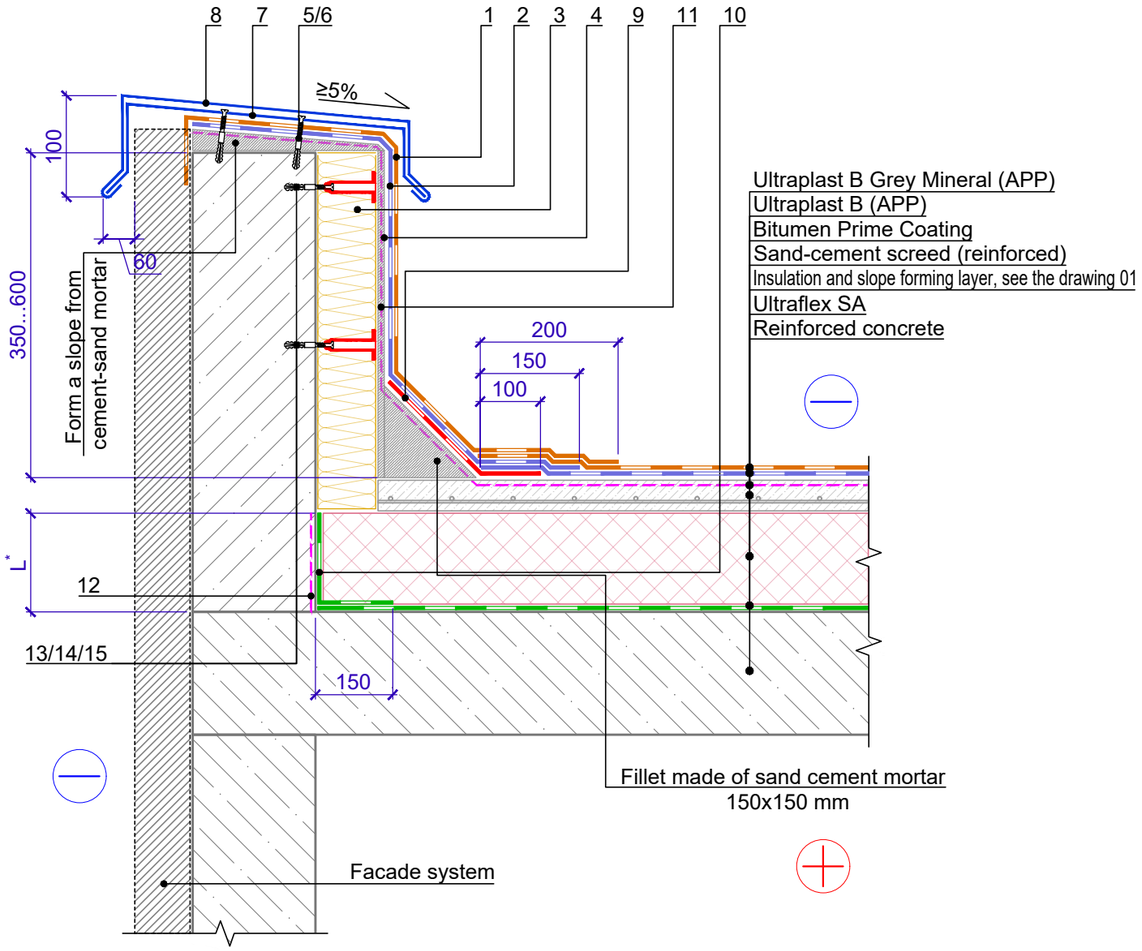



Notes

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.
2. Instead of applying a plaster layer on the vertical surface of the parapet for subsequent torching of the waterproofing layer, it is allowed to use cement bonded particle boards with mechanical fastening to the load-bearing part of the parapet using telescopic or disk-shaped fasteners.
3. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
|---|---|---|---|---|---|---|
| | | | | Junction to a parapet no more than 1200mm high with insulation and waterproofing installation on the parapet. Option 1 | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **2.3 - 2021.05** | REV. |

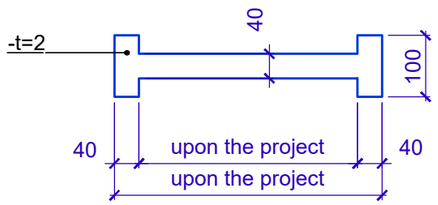
TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **2.4 - 2021.05**




## Specification of detail DWG No. 2.4 - 2021.05

| Position | Name | Consumption on 1 l.m. of junction | Unit | Note |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Stone wool | upon the project | $m^3$ | |
| 4 | Plaster layer of sand-cement mortar on a grid 100x100mm | upon the project | $m^2$ | |
| 5 | Pointed self-tapping screw 4.8x50 | 3.40 | $m^2$ | |
| 6 | Anchor element 8x45 | 3.40 | pcs. | |
| 7 | Double ended fastener (T-shaped support) | 1.70 | pcs. | |
| 8 | Drain element made of galvanized steel (cap) | 1.00 | pcs. | |
| 9 | Ultraplast B (APP) | 0.35 | $m^2$ | reinforcement layer |
| 10 | Ultraflex SA | upon the project | $m^2$ | |
| 11 | Bitumen Prime Coating | upon the project | $m^2$ | |
| 12 | Bitumen Prime Coating | upon the project | l | |
| 13 | Pointed self-tapping screw 4.8x50 | upon the project | l | |
| 14 | Anchor element 8x45 | upon the project | pcs. | |
| 15 | Telescopic fastener | upon the project | pcs. | |

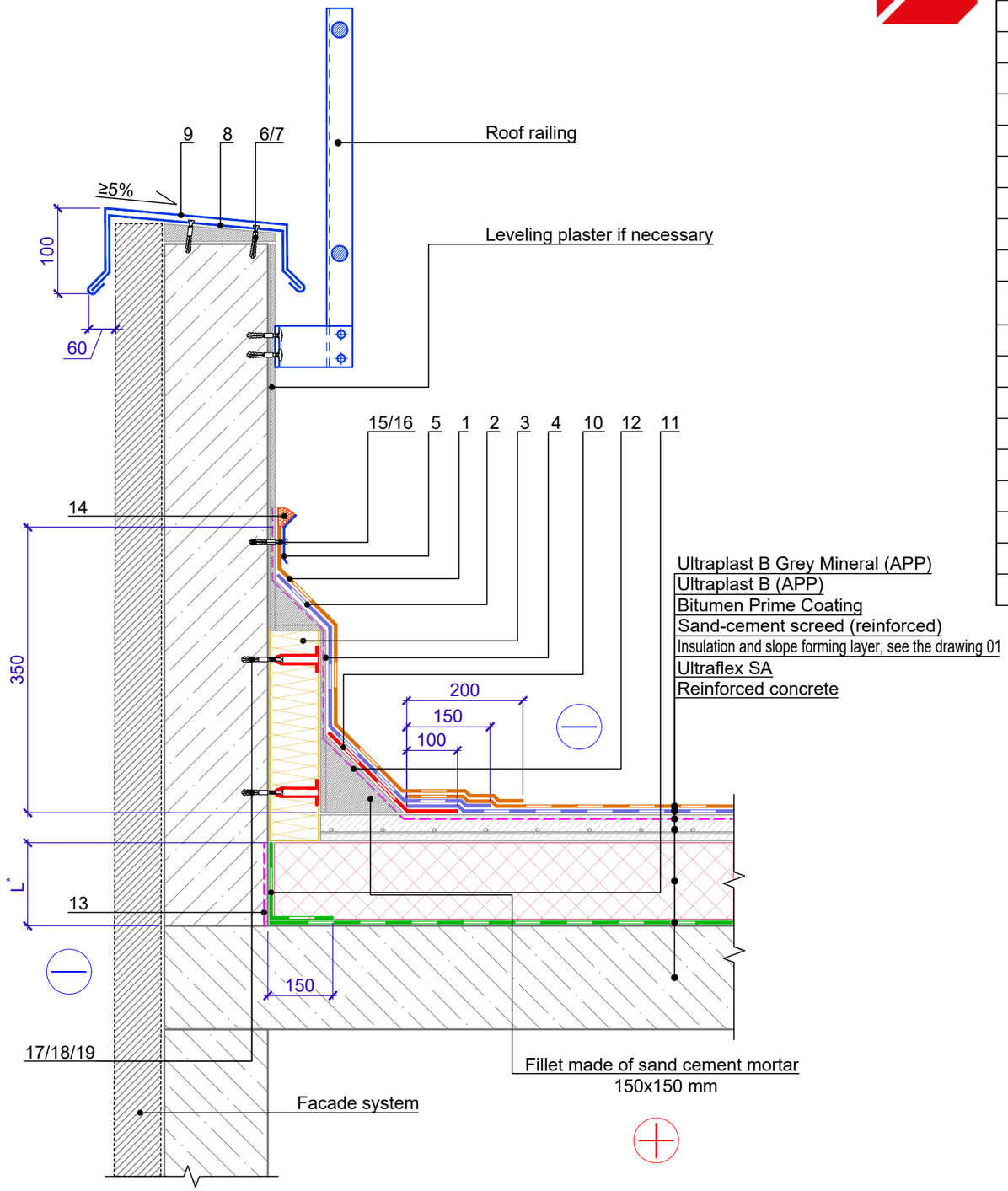
### Double ended fastener
### Position 8




Notes

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.
2. Instead of applying a plaster layer on the vertical surface of the parapet for subsequent torching of the waterproofing layer, it is allowed to use cement bonded particle boards with mechanical fastening to the load-bearing part of the parapet using telescopic or disk-shaped fasteners.
3. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

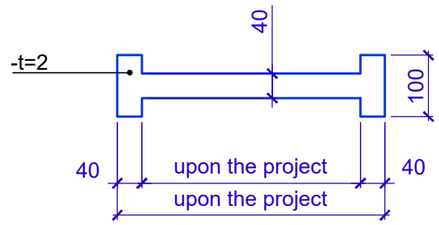
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
|---|---|---|---|---|---|---|
| | | | | Junction to a parapet no more than 1200mm high with insulation and waterproofing installation on the parapet. Option 2 | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **2.4 - 2021.05** | REV. |




## Specification of detail DWG No. 2.5 - 2021.05

| Position | Name | Consumption on 1 l.m. of junction | Unit | Note |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Stone wool | upon the project | $m^3$ | |
| 4 | Plaster layer of sand-cement mortar on a grid 100x100mm | upon the project | $m^2$ | |
| 5 | Edge rail | 1.00 | m | |
| 6 | Pointed self-tapping screw 4.8x50 | 3.40 | pcs. | |
| 7 | Anchor element 8x45 | 3.40 | pcs. | |
| 8 | Double ended fastener (T-shaped support) | 1.70 | pcs. | |
| 9 | Drain element made of galvanized steel (cap) | 1.00 | m | |
| 10 | Ultraplast B (APP) | 0.35 | $m^2$ | reinforcement layer |
| 11 | Ultraflex SA | upon the project | $m^2$ | |
| 12 | Bitumen Prime Coating | upon the project | l | |
| 13 | Bitumen Prime Coating | upon the project | l | |
| 14 | Bitumen-polymer sealing mastic | 150 | g/m | |
| 15 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 16 | Anchor element 8x45 | 5 | pcs. | |
| 17 | Pointed self-tapping screw 4.8x50 | upon the project | pcs. | |
| 18 | Anchor element 8x45 | upon the project | pcs. | |
| 19 | Telescopic fastener | upon the project | pcs. | |

### Double ended fastener
### Position 8

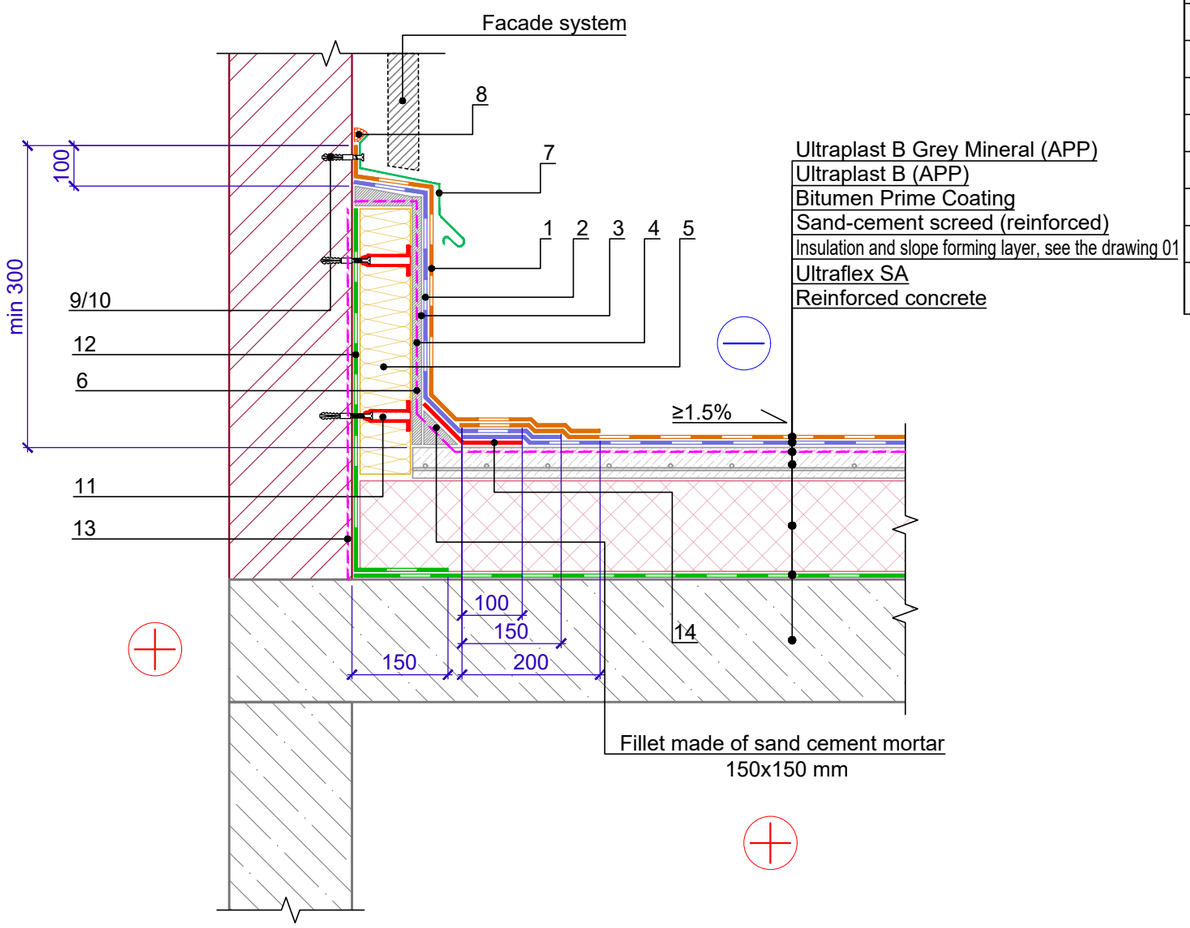



Notes

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.
2. Instead of applying a plaster layer on the vertical surface of the parapet for subsequent torching of the waterproofing layer, it is allowed to use cement bonded particle boards with mechanical fastening to the load-bearing part of the parapet using telescopic or disk-shaped fasteners.
3. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Junction to a parapet with a fence with additional insulation | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **2.5 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **2.6 - 2021.05**




## Specification of detail DWG No. 2.6 - 2021.05

| Position | Name | Consumption on 1 l.m. of junction | Unit | Note |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Plaster layer of sand-cement mortar on a grid 100x100mm | upon the project | $m^2$ | |
| 4 | Bitumen Prime Coating | 0.20 | l | |
| 5 | Stone wool | upon the project | $m^3$ | |
| 6 | Bitumen Prime Coating | upon the project | l | |
| 7 | Drain element made of galvanized steel | 1.00 | m | |
| 8 | Bitumen-polymer sealing mastic | 150 | g/m | |
| 9 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 10 | Anchor element 8x45 | 5 | pcs. | |
| 11 | Fastening element for plaster facade | upon the project | pcs. | |
| 12 | Ultraflex SA | upon the project | $m^2$ | |
| 13 | Bitumen Prime Coating | upon the project | l | |
| 14 | Ultraplast B (APP) | 0.35 | $m^2$ | reinforcement layer |

Notes
1. Instead of applying a plaster layer on the vertical surface of the parapet for subsequent torching of the waterproofing layer, it is allowed to use cement bonded particle boards with mechanical fastening to the load-bearing part of the parapet using telescopic or disk-shaped fasteners.
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

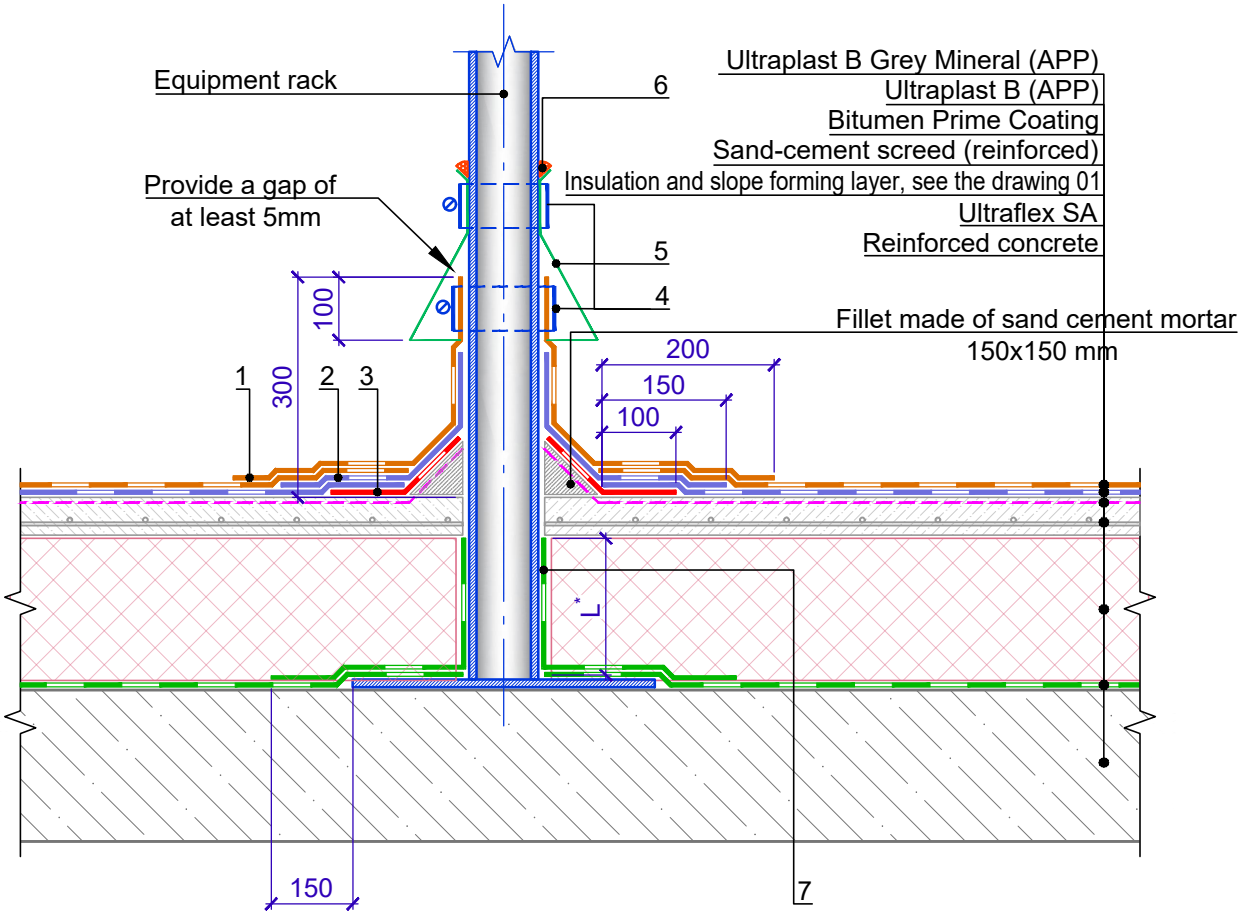
| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Junction to a vertical surfaces with additional insulation | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **2.6 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN

# Register of drawings of construction of junctions to the roof fence poles and equipment racks

| № | Name | DWG No. |
|---|---|---|
| 3.1 | Junctions to the equipment racks. Option 1 | 3.1 |
| 3.2 | Junctions to the equipment racks. Option 2 | 3.2 |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **3.1 - 2021.05**



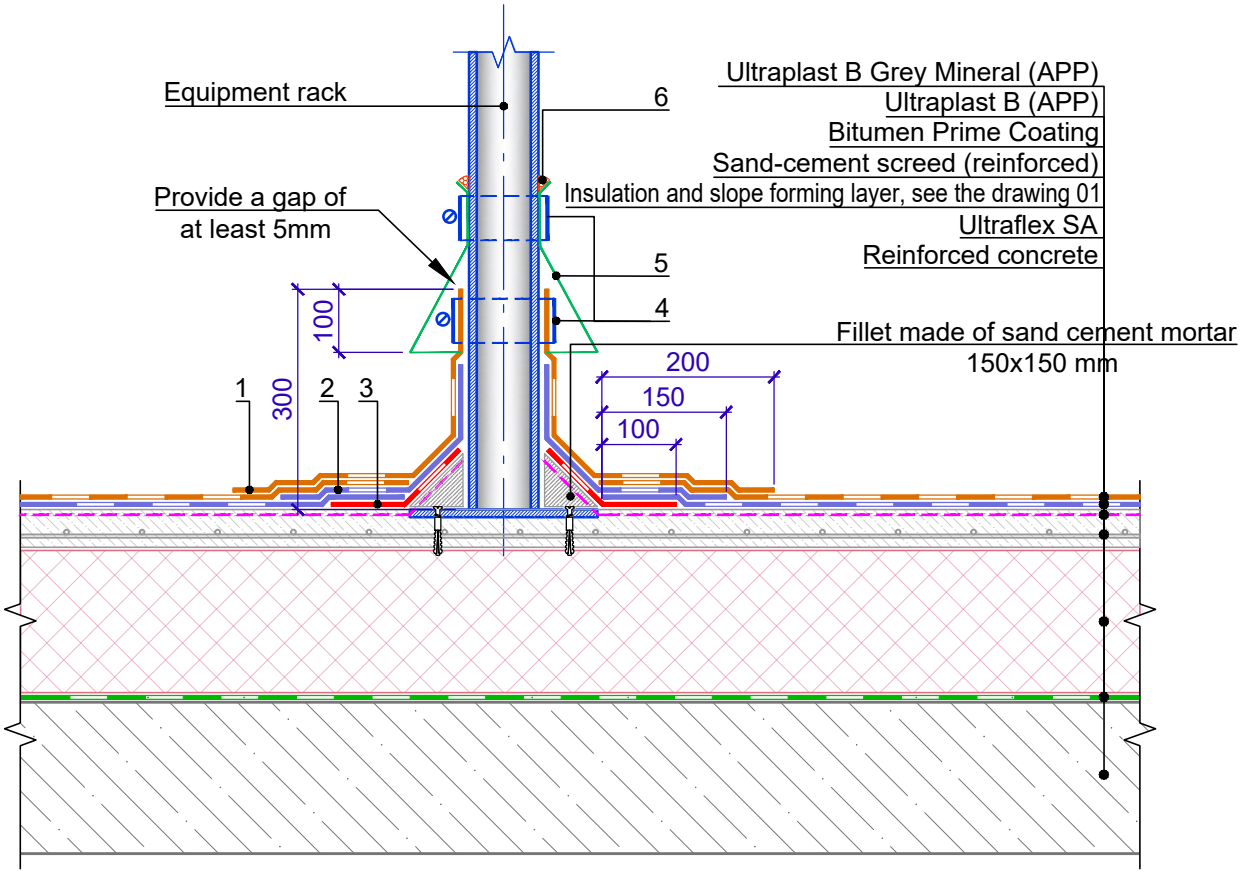

## Specification of detail DWG No. 3.1 - 2021.05

| Position | Name | Consumption on 1 junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Ultraplast B (APP) | upon the project | $m^2$ | reinforcement layer |
| 4 | Metal clip band | 2 | pcs. | |
| 5 | Metal collar | 1 | pcs. | |
| 6 | Bitumen-polymer sealing mastic | 150 | g/m | |
| 7 | Ultraflex SA (width 500mm) | upon the project | $m^2$ | |

Notes

1. The height of a fence pole above the waterproofing membrane should be not less than 500 mm.
2. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | | |
|---|---|---|---|---|---|---|
| | | | | Junctions to the equipment racks. Option 1 | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **3.1 - 2021.05** | REV. |




## Specification of detail DWG No. 3.2 - 2021.05

| Position | Name | Consumption on 1 junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Ultraplast B (APP) | upon the project | $m^2$ | reinforcement layer |
| 4 | Metal clip band | 2 | pcs. | |
| 5 | Metal collar | 1 | pcs. | |
| 6 | Bitumen-polymer sealing mastic | 150 | g/m | |

Notes

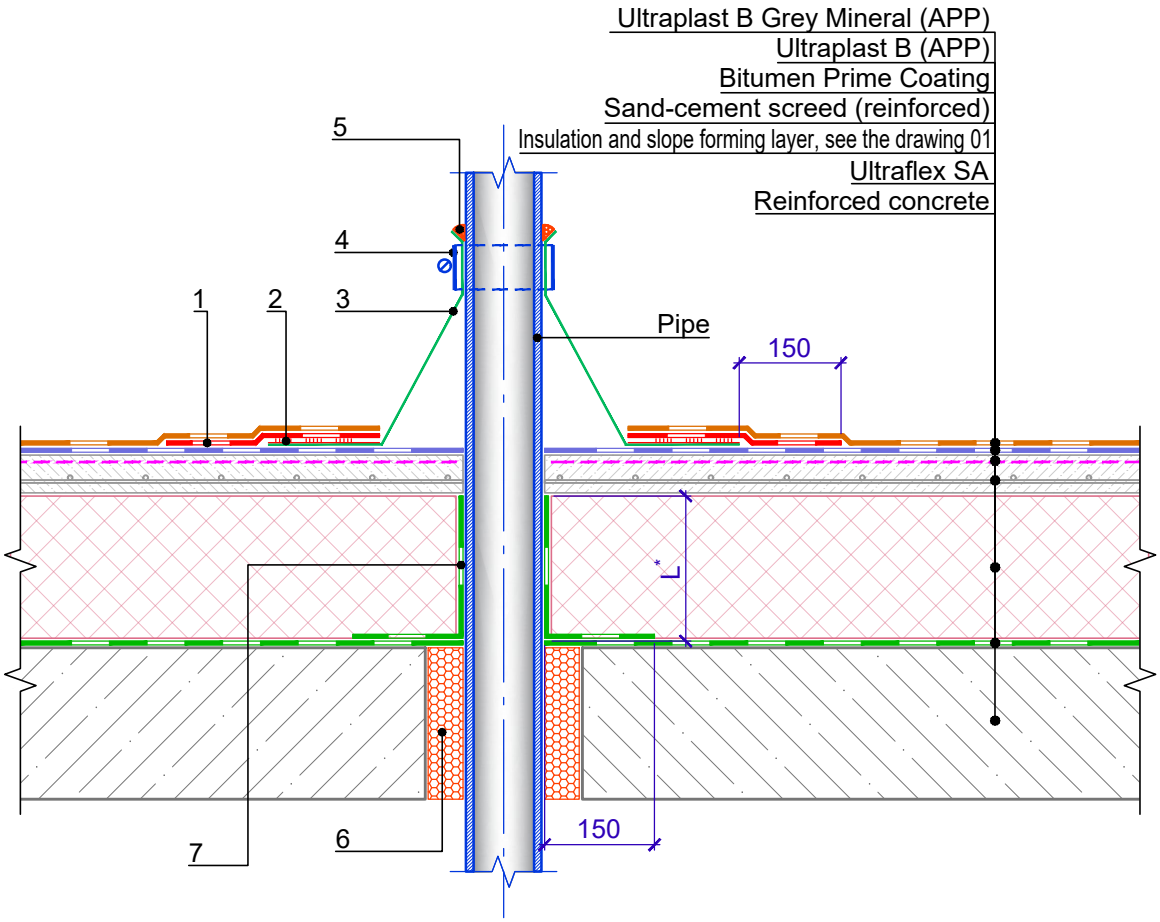
1. The height of a fence pole above the waterproofing membrane should be not less than 500 mm.
2. The junction is used for light constructions (less than 100 kg per equipment rack)
3. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | | |
|---|---|---|---|---|---|---|
| | | | | Junctions to the equipment racks. Option 2 | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **3.2 - 2021.05** | REV. |

# Register of drawings of construction of pipes and junctions to the aerators

| № | Name | DWG No. |
|---|---|---|
| 4.1 | Junction to the pipes. Option 1 | 4.1 |
| 4.2 | Junction to the pipes. Option 2 | 4.2 |
| 4.3 | Junction to the hot pipe. Option 1 | 4.3 |
| 4.4 | Junction to the hot pipe. Option 2 | 4.4 |
| 4.5 | Junction to the roof aerator | 4.5 |
| 4.6 | Junction to the bundle of pipes of small diameter | 4.6 |
| 4.7 | Junction to rectangular cross section ventilation sleeve | 4.7 |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **4.1 - 2021.05**




## Specification of detail DWG No. 4.1 - 2021.05

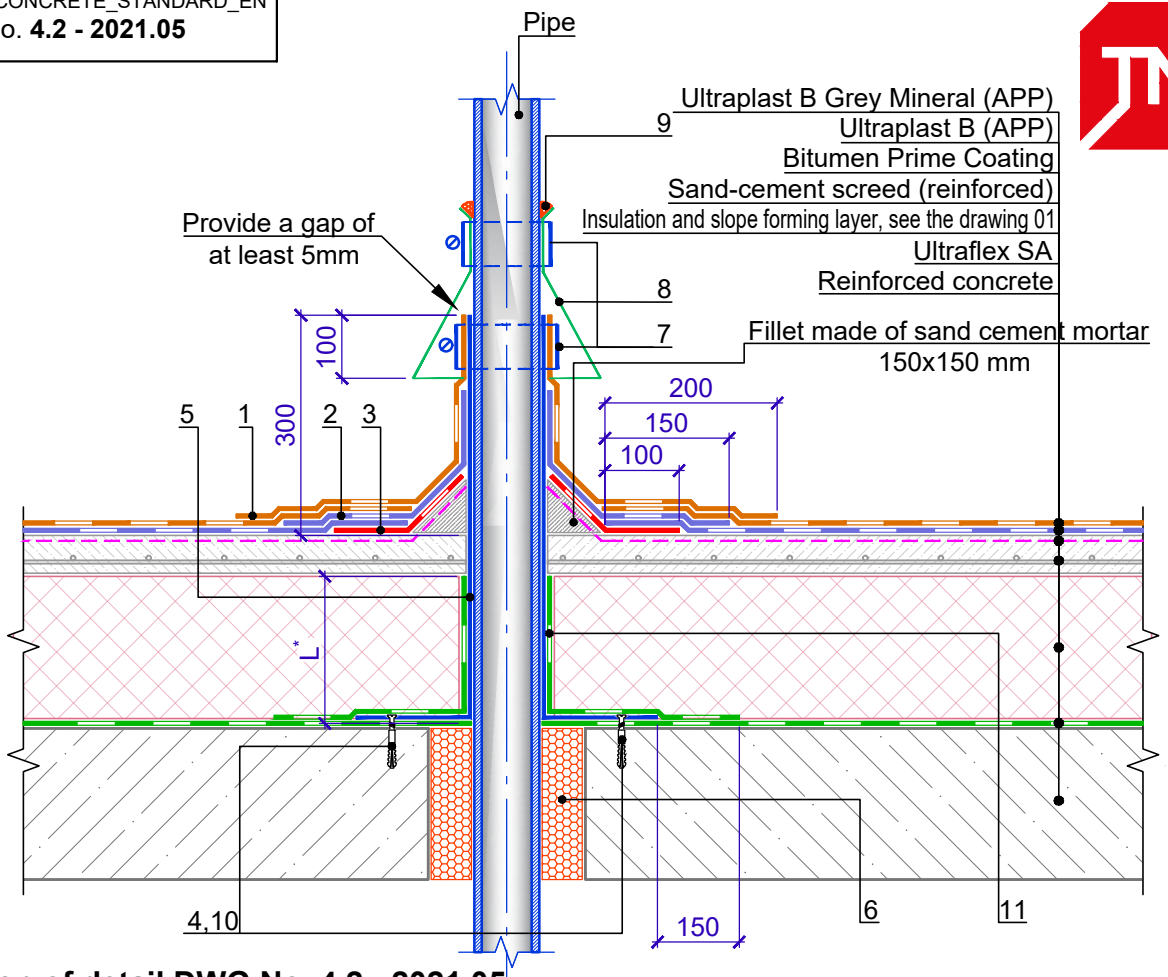
| Position | Name | Consumption on 1 junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | upon the project | $m^2$ | reinforcement layer |
| 2 | Bitumen-polymer sealing mastic | upon the project | - | |
| 3 | EPDM flashing | 1 | pcs. | |
| 4 | Metal clip band | 1 | pcs. | |
| 5 | Bitumen-polymer sealing mastic | 150 | g/m | |
| 6 | Construction foam | upon the project | pcs. | |
| 7 | Ultraflex SA | upon the project | $m^2$ | |

Notes

1. The height of a pipe above the waterproofing membrane should be not less than 500 mm.
2. The detail is used for single cold pipes with a diameter of up to 250 mm, anchors, antenna extensions.
3. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the floor must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | | |
|---|---|---|---|---|---|---|
| | | | | Junction to the pipes. Option 1 | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **4.1 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **4.2 - 2021.05**




## Specification of detail DWG No. 4.2 - 2021.05

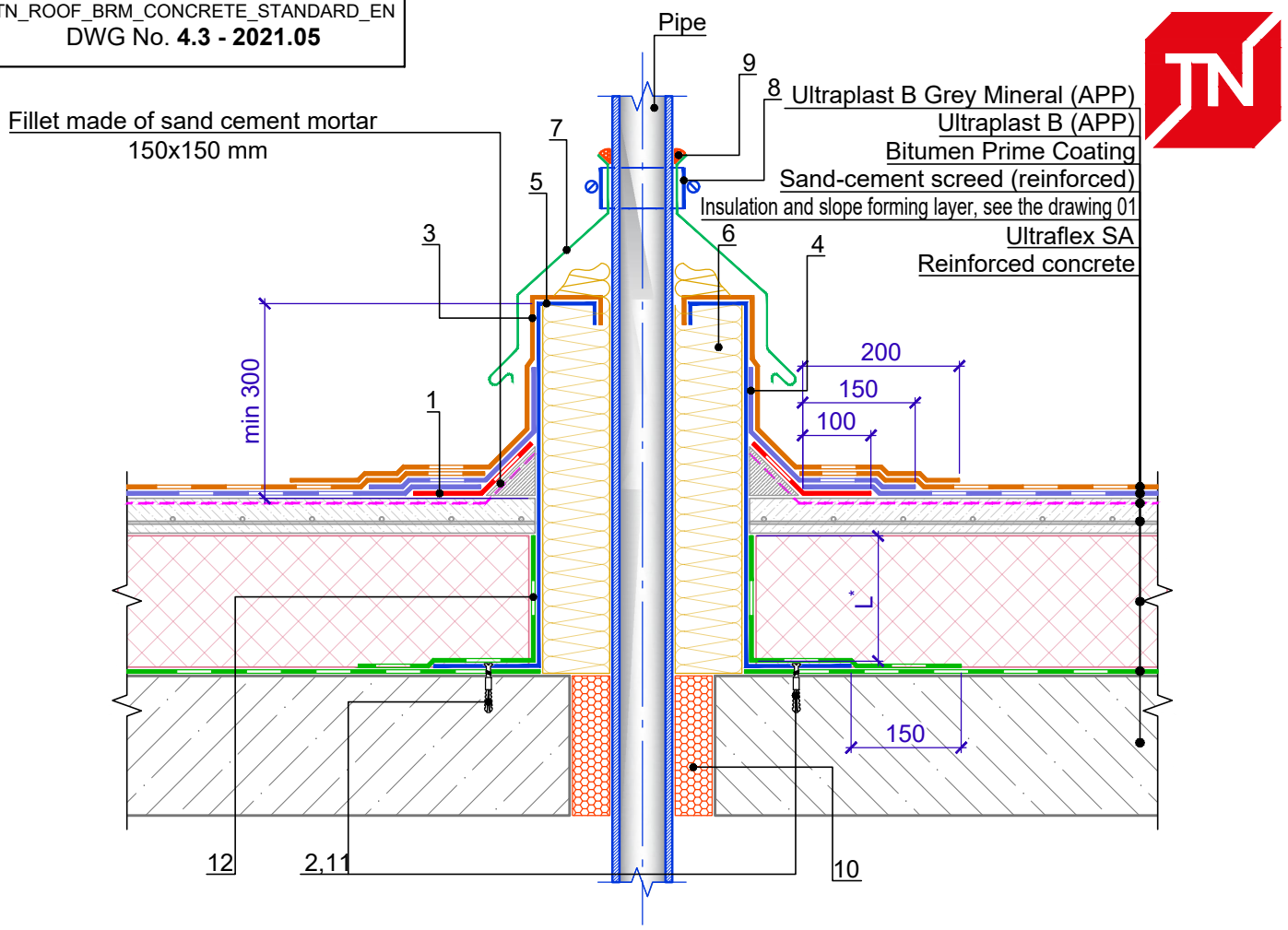
| Position | Name | Consumption on 1 junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | reinforcement layer |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 4 | Pointed self-tapping screw 4.8x50 | 6 | pcs. | |
| 5 | Galvanized steel sleeve, 1.0 mm thick | 1 | pcs. | |
| 6 | Construction foam | upon the project | pcs. | |
| 7 | Metal clip band | 2 | pcs. | |
| 8 | Metal collar | 1 | pcs. | |
| 9 | Bitumen-polymer sealing mastic | 150 | g/m | |
| 10 | Anchor element 8x45 | 6 | pcs. | |
| 11 | Ultraflex SA | upon the project | $m^2$ | |

Notes

1. The height of a pipe above the waterproofing membrane should be not less than 500 mm.
2. The detail is used for single cold pipes with a diameter of up to 250 mm, anchors, antenna extensions.
3. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | | |
|---|---|---|---|---|---|---|
| | | | | Junction to the pipes. Option 2 | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. 4.2 - 2021.05 | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **4.3 - 2021.05**




## Specification of detail DWG No. 4.3 - 2021.05

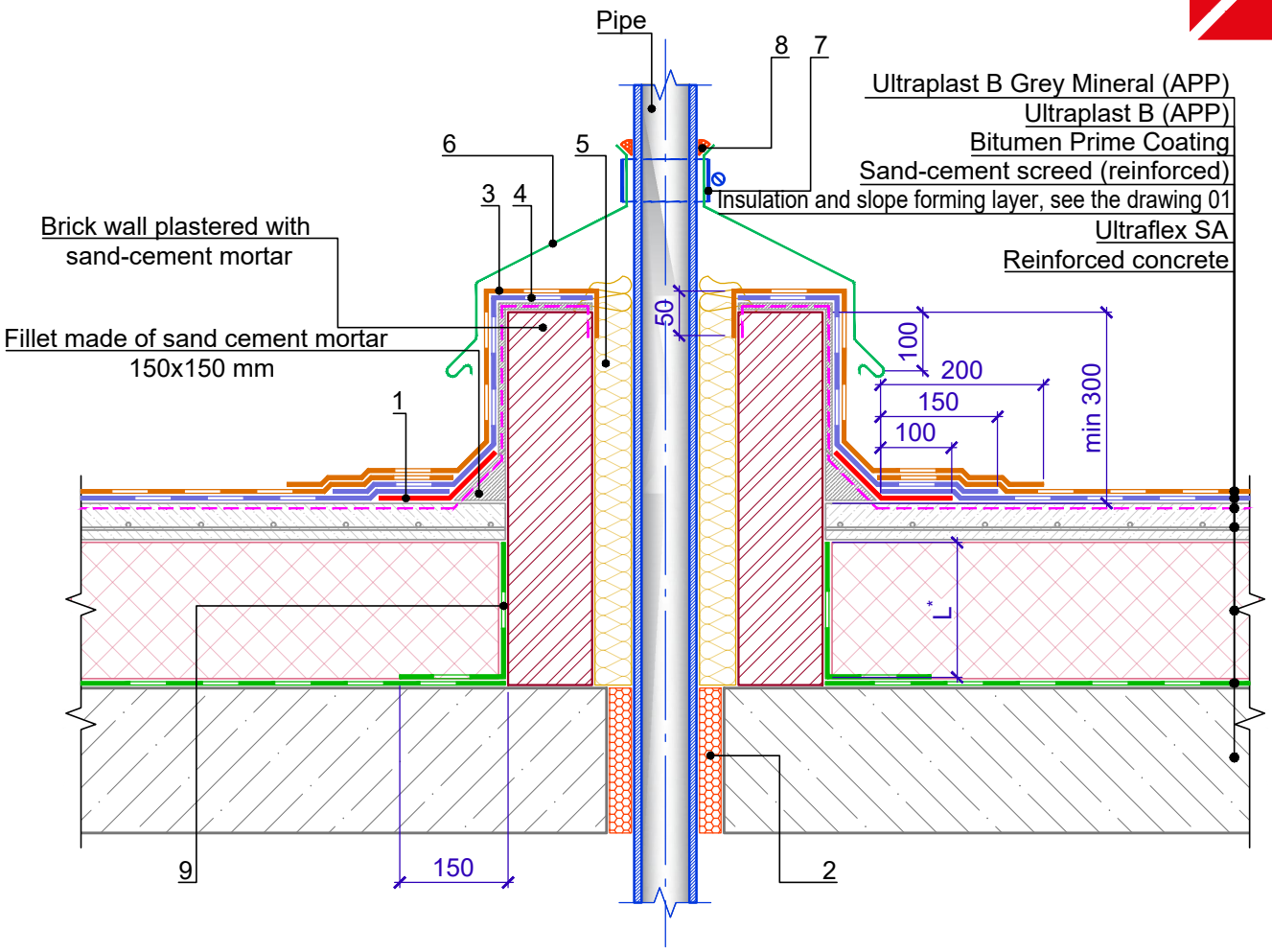
| Position | Name | Consumption on 1 junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | 0.35 | $m^2$ | reinforcement layer |
| 2 | Pointed self-tapping screw 4.8x50 | 6 | pcs. | |
| 3 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 4 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 5 | Galvanized steel box | 1 | pcs. | |
| 6 | Stone wool | upon the project | $m^3$ | |
| 7 | Flashing made of galvanized steel | 1 | pcs. | |
| 8 | Metal clip band | 1 | pcs. | |
| 9 | Bitumen-polymer sealing mastic | 150 | g/m | |
| 10 | Construction foam | upon the project | pcs. | |
| 11 | Anchor element 8x45 | 6 | pcs. | |
| 12 | Ultraflex SA | upon the project | $m^2$ | |

Notes

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | | |
|---|---|---|---|---|---|---|
| | | | | Junction to the hot pipe. Option 1 | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. 4.3 - 2021.05 | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **4.4 - 2021.05**



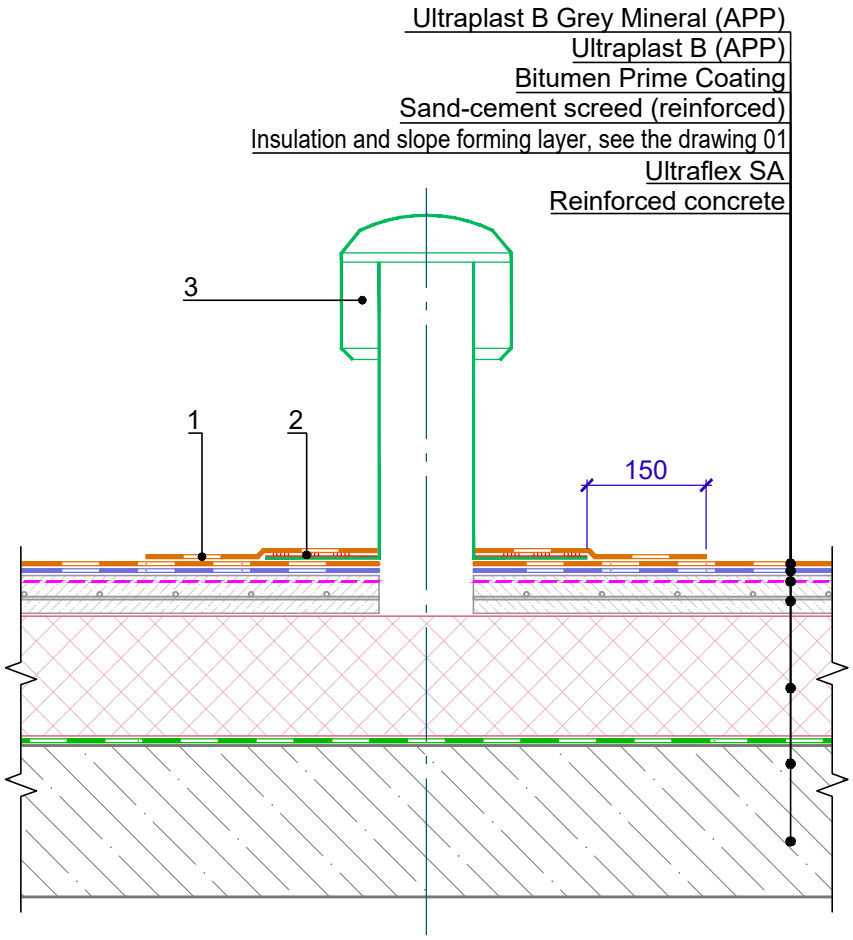

## Specification of detail DWG No. 4.4 - 2021.05

| Position | Name | Consumption on 1 junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | 0.35 | $m^2$ | reinforcement layer |
| 2 | Construction foam | upon the project | pcs. | |
| 3 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 4 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 5 | Stone wool | upon the project | $m^3$ | |
| 6 | Flashing made of galvanized steel | 1 | pcs. | |
| 7 | Metal clip band | 1 | pcs. | |
| 8 | Bitumen-polymer sealing mastic | 150 | g/m | |
| 9 | Ultraflex SA | upon the project | $m^2$ | |

Notes

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.

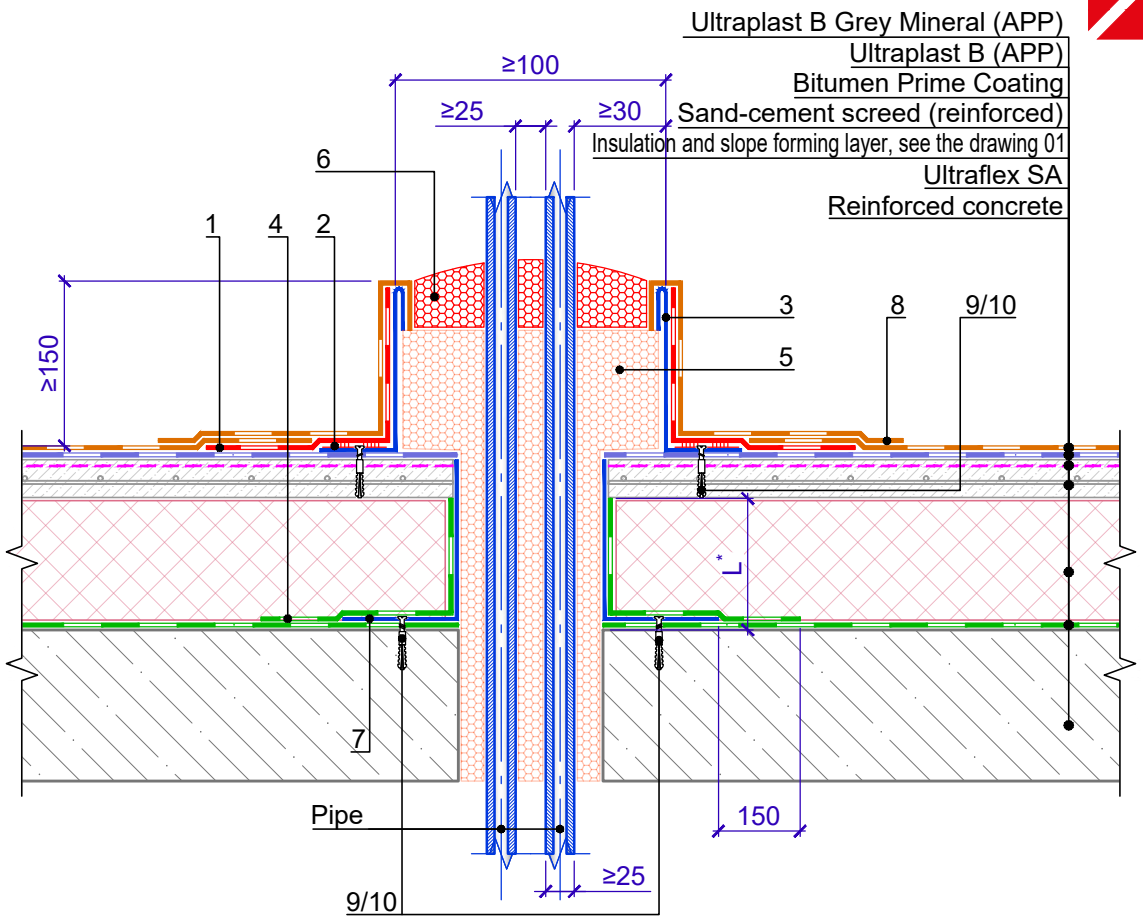
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | | |
|---|---|---|---|---|---|---|
| | | | | Junction to the hot pipe. Option 2 | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **4.4 - 2021.05** | REV. |




## Specification of detail DWG No. 4.5 - 2021.05

| Position | Name | Consumption on 1 junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Bitumen-polymer sealing mastic | upon the project | - | |
| 3 | Roof aerator | 1 | pcs. | |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **4.6 - 2021.05**




## Specification of detail DWG No. 4.6 - 2021.05

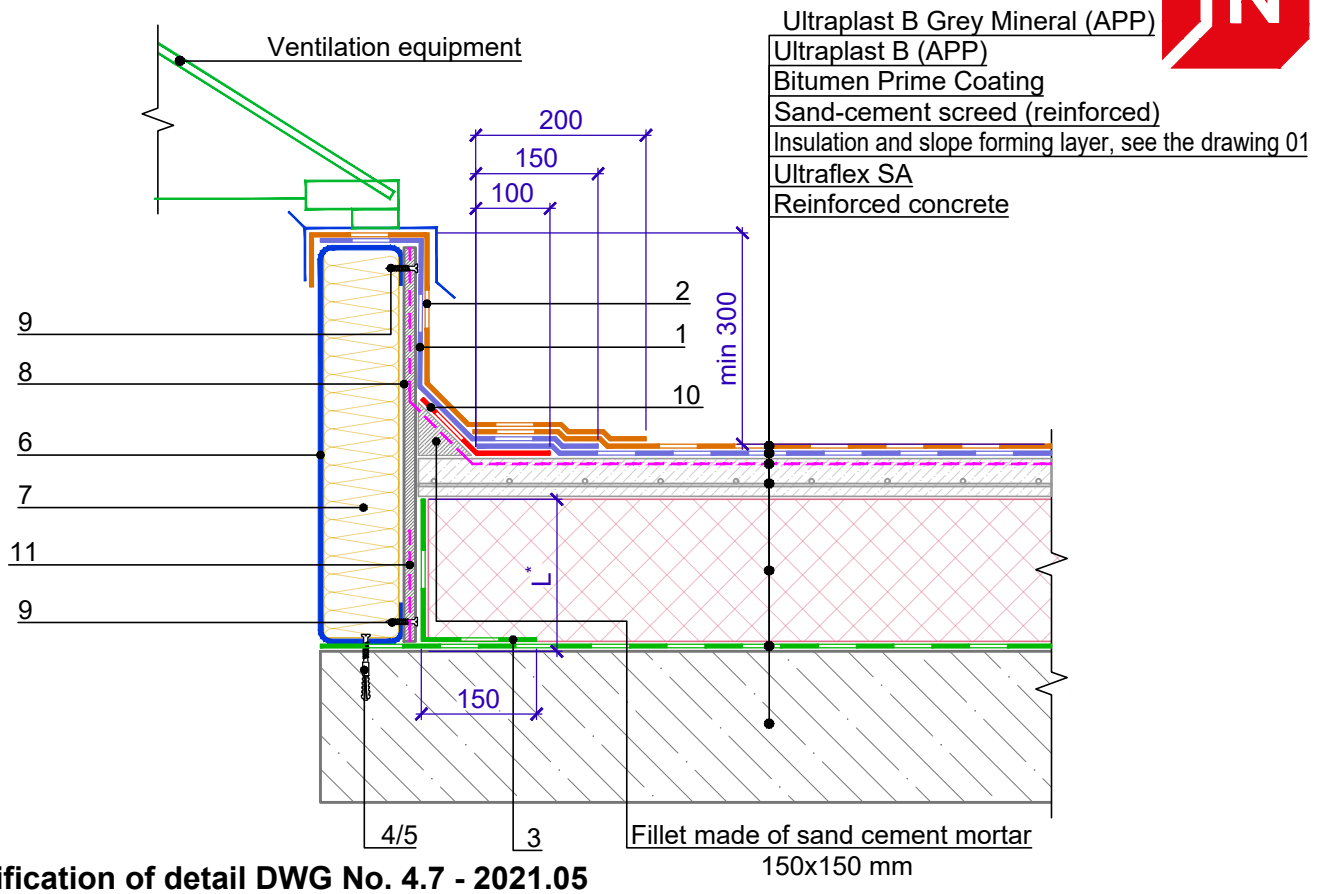
| Position | Name | Consumption on 1 junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | upon the project | $m^2$ | reinforcement layer |
| 2 | Bitumen-polymer sealing mastic | upon the project | - | |
| 3 | Waterproofing sleeve | - | - | |
| 4 | Ultraflex SA | upon the project | $m^2$ | |
| 5 | Construction foam | upon the project | pcs. | |
| 6 | Polyurethane sealant | - | - | |
| 7 | Metal sleeve | upon the project | - | |
| 8 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 9 | Pointed self-tapping screw 4.8x50 | 16 | pcs. | |
| 10 | Anchor element 8x45 | 16 | pcs. | |

Notes

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | | |
|---|---|---|---|---|---|---|
| | | | | Junction to the bundle of pipes of small diameter | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **4.6 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **4.7 - 2021.05**




## Specification of detail DWG No. 4.7 - 2021.05

| Position | Name | Consumption on 1 l.m. | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 3 | Ultraflex SA | 0.30 | $m^2$ | |
| 4 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 5 | Anchor element 8x45 | 5 | pcs. | |
| 6 | Galvanized steel profile | 1.00 | m | |
| 7 | Stone wool | upon the project | $m^3$ | |
| 8 | Cement bonded particle board | upon the project | $m^2$ | |
| 9 | Pointed self-tapping screw 4.8x50 | 10 | pcs. | |
| 10 | Ultraplast B (APP) | 0.35 | $m^2$ | reinforcement layer |
| 11 | Bitumen Prime Coating | upon the project | l | |

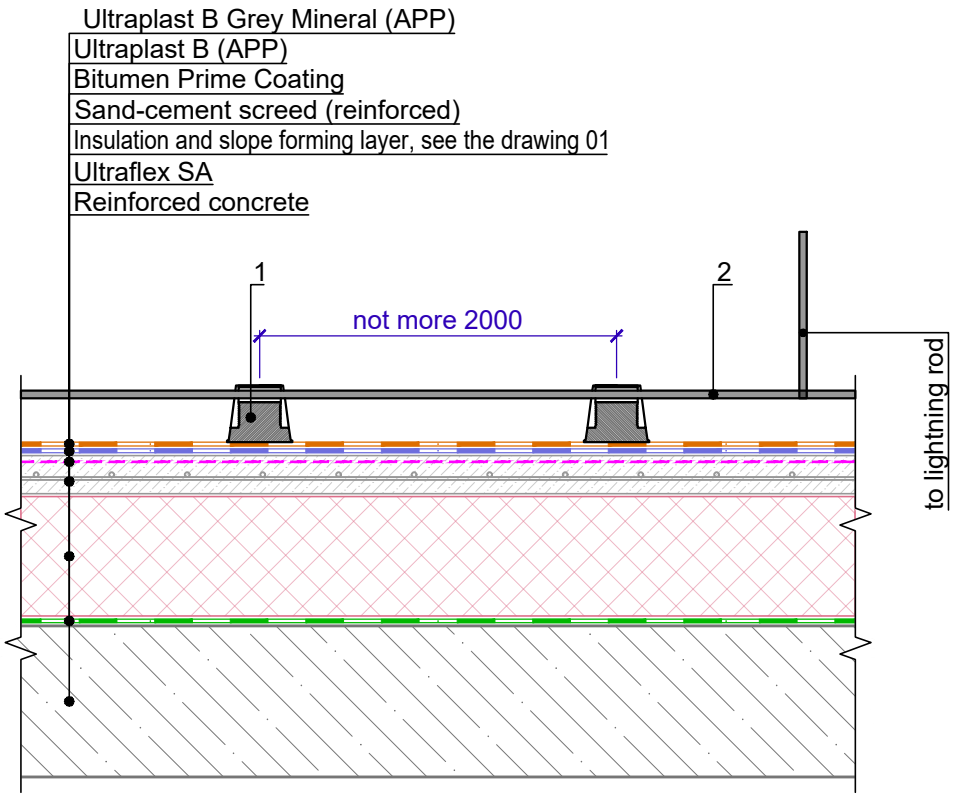
Notes

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | | |
|---|---|---|---|---|---|---|
| | | | | Junction to rectangular cross section ventilation sleeve | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **4.7 - 2021.05** | REV. |

# Register of drawings for the junctions to the lightning protection constructions

| № | Name | DWG No. |
|---|---|---|
| 5.1 | Construction of lightning protection. Option 1 | 5.1 |
| 5.2 | Construction of lightning protection. Option 2 | 5.2 |



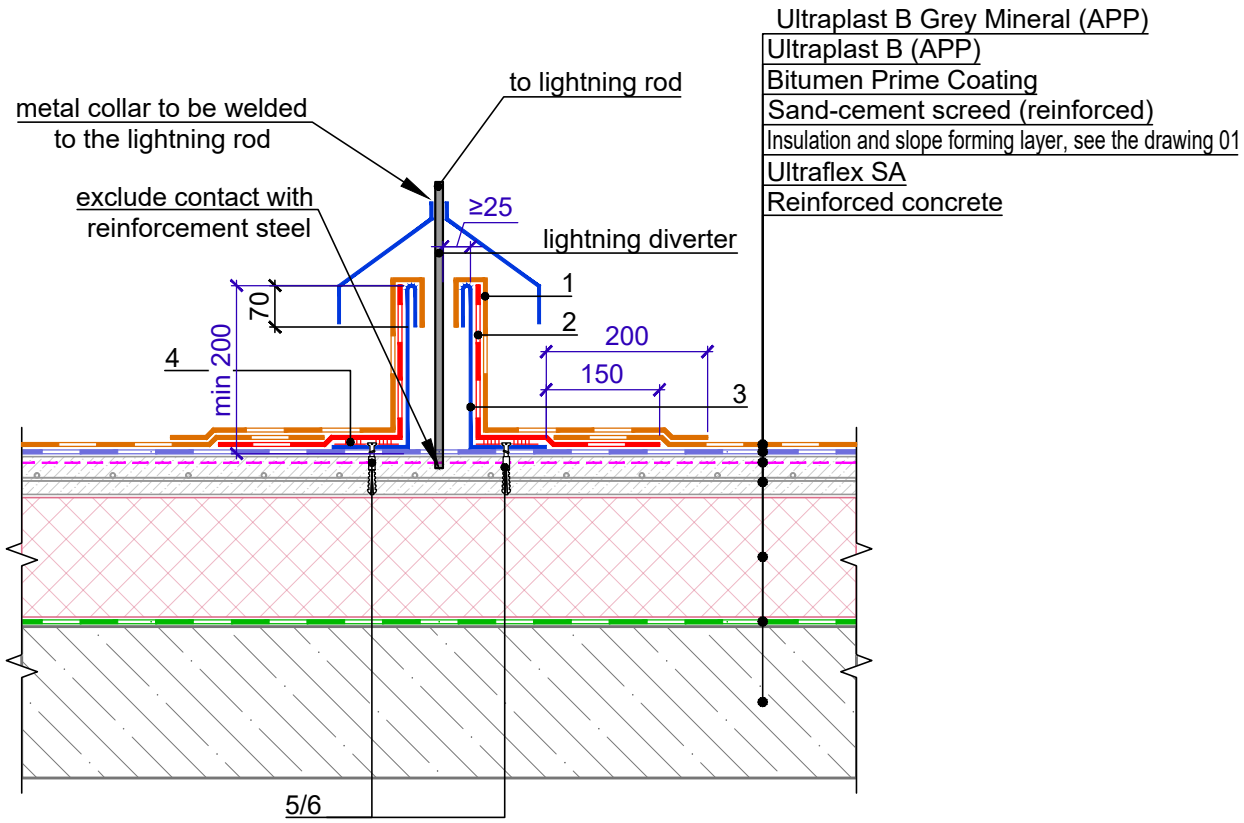

## Specification of detail DWG No. 5.1 - 2021.05

| Position | Name | Consumption | Unit | Notes |
|---|---|---|---|---|
| 1 | Lightning rod holder (stand) | upon the project | pcs. | |
| 2 | Lightning rod metal mesh Ø8mm | upon the project | m | |

Notes

1. Lightning rod holders (stands) are installed freely over the entire roof area without being fixed to the roof and filled with sand or cement-sand mortar. The lightning rod mesh is placed on the supports.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Construction of lightning protection. Option 1 | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **5.1 - 2021.05** | REV. |



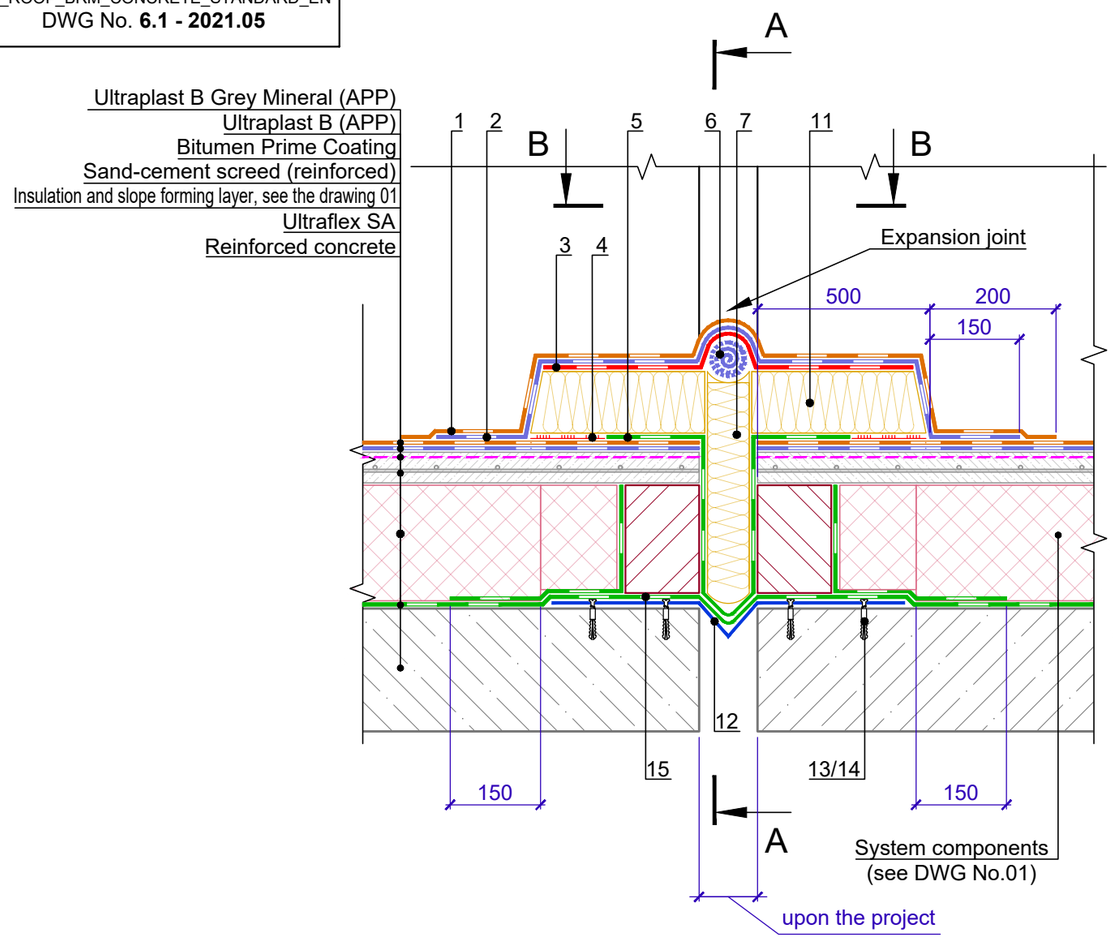

## Specification of detail DWG No. 5.2 - 2021.05

| Position | Name | Consumption | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Waterproofing sleeve | upon the project | - | |
| 4 | Hot-applied roofing mastic | upon the project | - | |
| 5 | Pointed self-tapping screw 4.8x50 | upon the project | pcs. | |
| 6 | Anchor element 8x45 | upon the project | pcs. | |

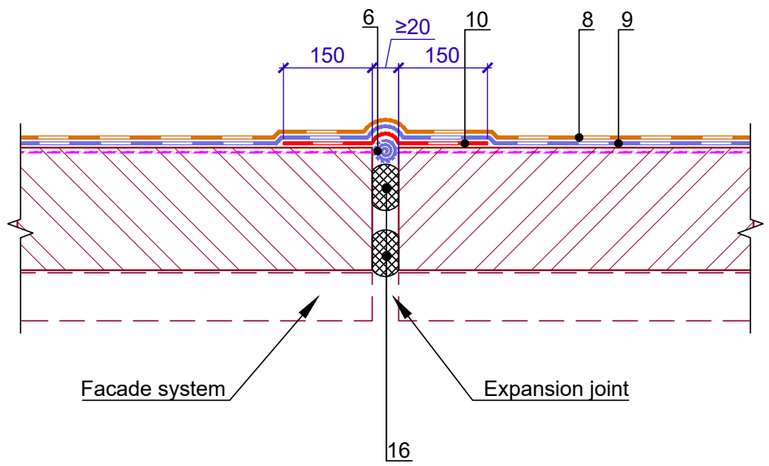
# Register of drawings for arrangement of junctions to expansion joints

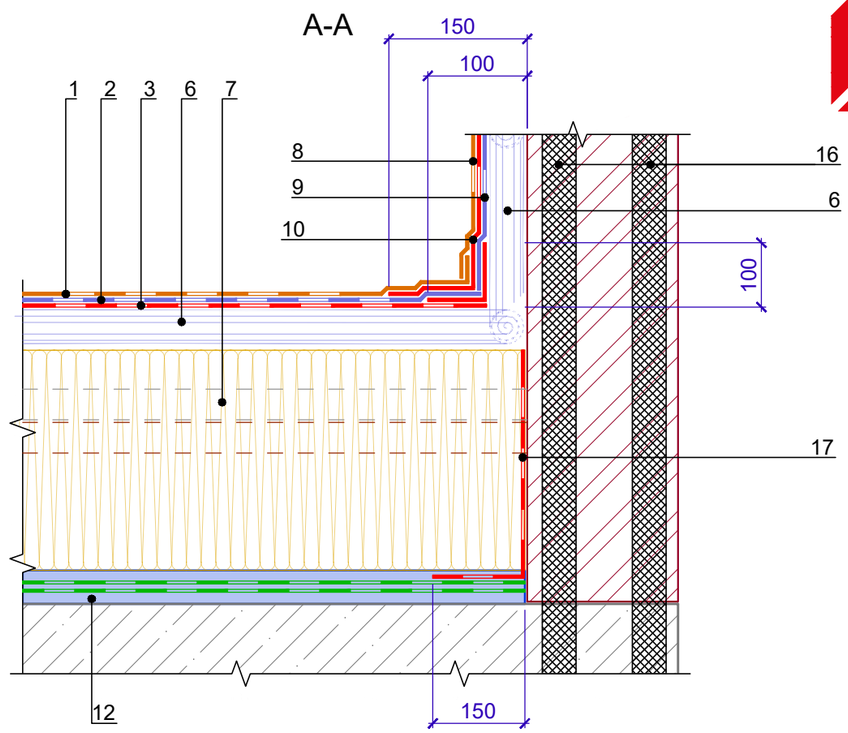
| № | Name | DWG No. |
|---|---|---|
| 6.1 | Expansion joint | 6.1 |
| 6.2 | Expansion joint in the junction to the wall. Option 1 | 6.2 |
| 6.3 | Expansion joint in the junction to the wall. Option 2 | 6.3 |
| 6.4 | Expansion spacer | 6.4 |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **6.1 - 2021.05**




B-B



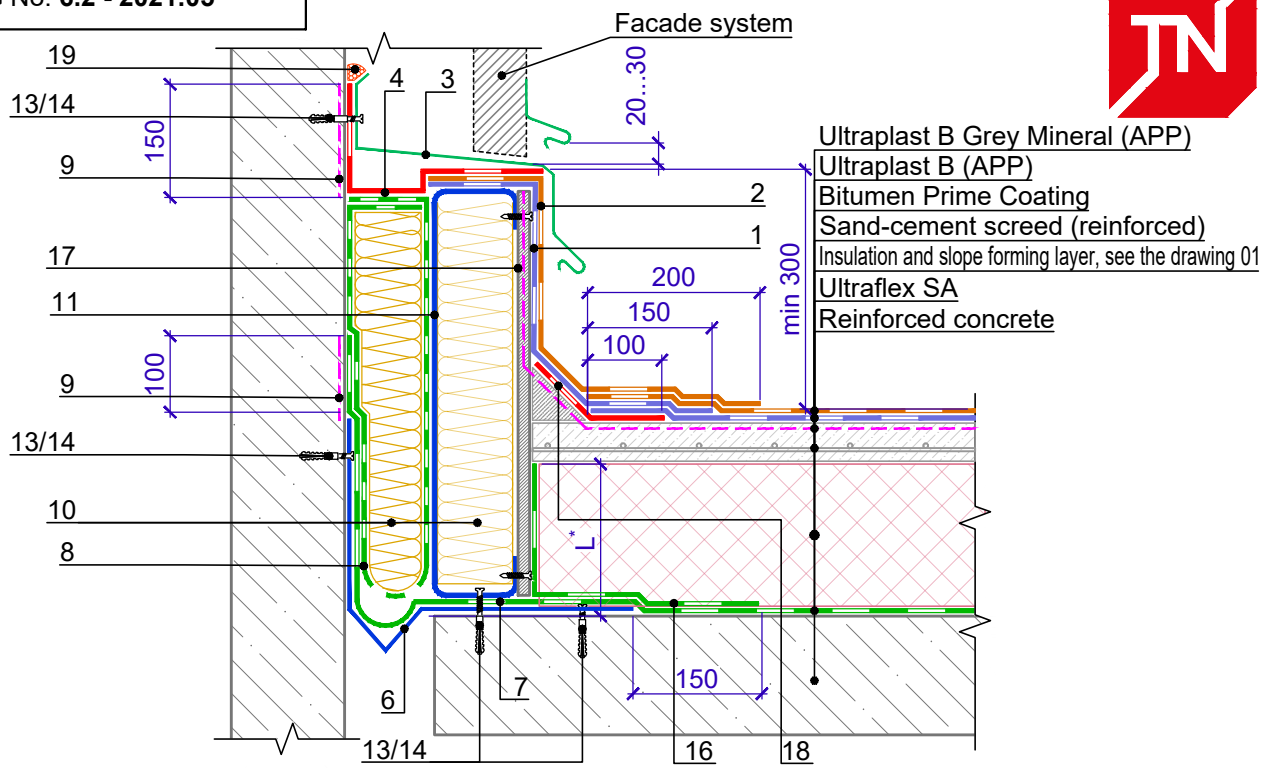




**Specification of detail DWG No. 6.1 - 2021.05**

| Position | Name | Consumption | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 4 | Bitumen-polymer sealing mastic | upon the project | - | |
| 5 | Ultraflex SA | upon the project | $m^2$ | |
| 6 | Roll of roofing material Ø50 mm | upon the project | $m^2$ | |
| 7 | Stone wool | upon the project | $m^3$ | |
| 8 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 9 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 10 | Technoelast Flex, 0.5 m wide | upon the project | $m^2$ | |
| 11 | Stone wool | upon the project | $m^3$ | |
| 12 | Galvanized steel compensator | 1.00 | m | |
| 13 | Pointed self-tapping screw 4.8x50 | 20 | pcs. | |
| 14 | Anchor element 8x45 | 20 | pcs. | |
| 15 | Ultraflex SA | upon the project | $m^2$ | |
| 16 | Sealing harness | 1.00 | m | |
| 17 | Technoelast Flex, 0.5 m wide | upon the project | $m^2$ | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | | APPROVED |
| | | | | Expansion joint | | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **6.1 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **6.2 - 2021.05**



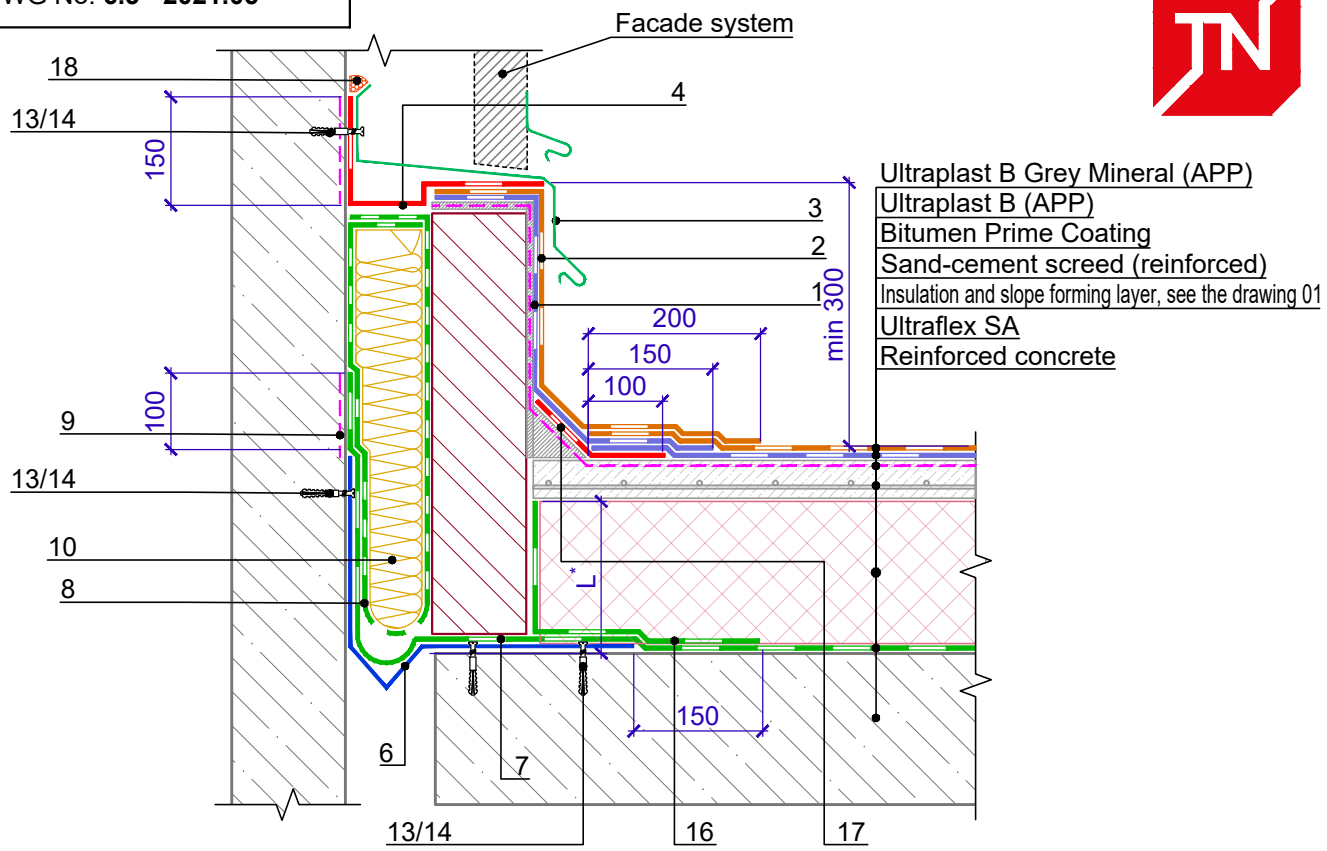

## Specification of detail DWG No. 6.2 - 2021.05

| Position | Name | Consumption on 1 l.m. of junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 3 | Flashing made of galvanized steel | 1.00 | m | |
| 4 | Technoelast Flex, 0.5 m wide | upon the project | $m^2$ | |
| 6 | Galvanized steel compensator | 1.00 | m | |
| 7 | Ultraflex SA | upon the project | $m^2$ | |
| 8 | Ultraflex SA | upon the project | $m^2$ | |
| 9 | Bitumen Prime Coating | 0.10 | l | |
| 10 | Stone wool | upon the project | $m^3$ | |
| 11 | Galvanized steel profile | upon the project | m | |
| 13 | Pointed self-tapping screw 4.8x50 | 20 | pcs. | |
| 14 | Anchor element 8x45 | 20 | pcs. | |
| 16 | Ultraflex SA | upon the project | $m^2$ | |
| 17 | Cement bonded particle board | upon the project | $m^2$ | |
| 18 | Ultraplast B (APP) | 0.35 | $m^2$ | |
| 19 | Bitumen-polymer sealing mastic | 150 | g/m | |

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Expansion joint in the junction to the wall. Option 1 | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **6.2 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **6.3 - 2021.05**




## Specification of detail DWG No. 6.3 - 2021.05

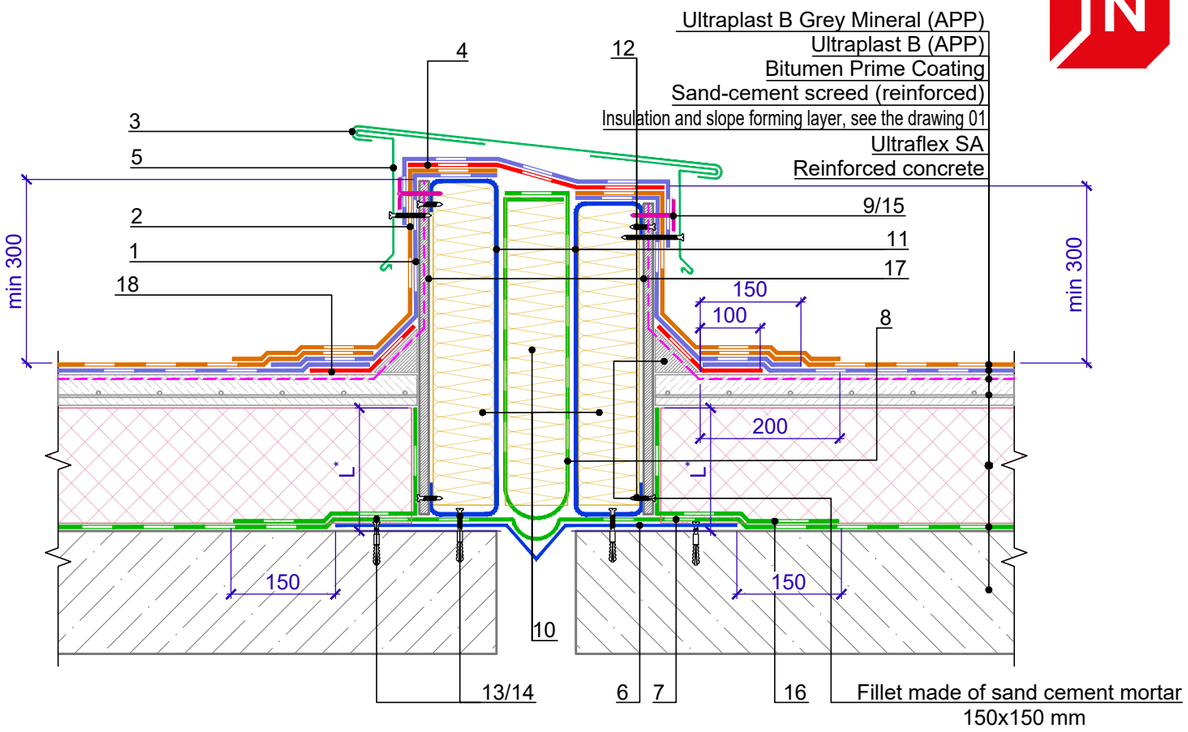
| Position | Name | Consumption on 1 l.m. of junction | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 3 | Flashing made of galvanized steel | 1.00 | m | |
| 4 | Technoelast Flex, 0.5 m wide | upon the project | $m^2$ | |
| 6 | Galvanized steel compensator | upon the project | | |
| 7 | Ultraflex SA | upon the project | $m^2$ | |
| 8 | Ultraflex SA | upon the project | $m^2$ | |
| 9 | Bitumen Prime Coating | 0.10 | l | |
| 10 | Stone wool | upon the project | $m^3$ | |
| 13 | Pointed self-tapping screw 4.8x50 | 20 | pcs. | |
| 14 | Anchor element 8x45 | 20 | pcs. | |
| 16 | Ultraflex SA | upon the project | $m^2$ | |
| 17 | Ultraplast B (APP) | 0.35 | $m^2$ | |
| 18 | Bitumen-polymer sealing mastic | 150 | g/m | |

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

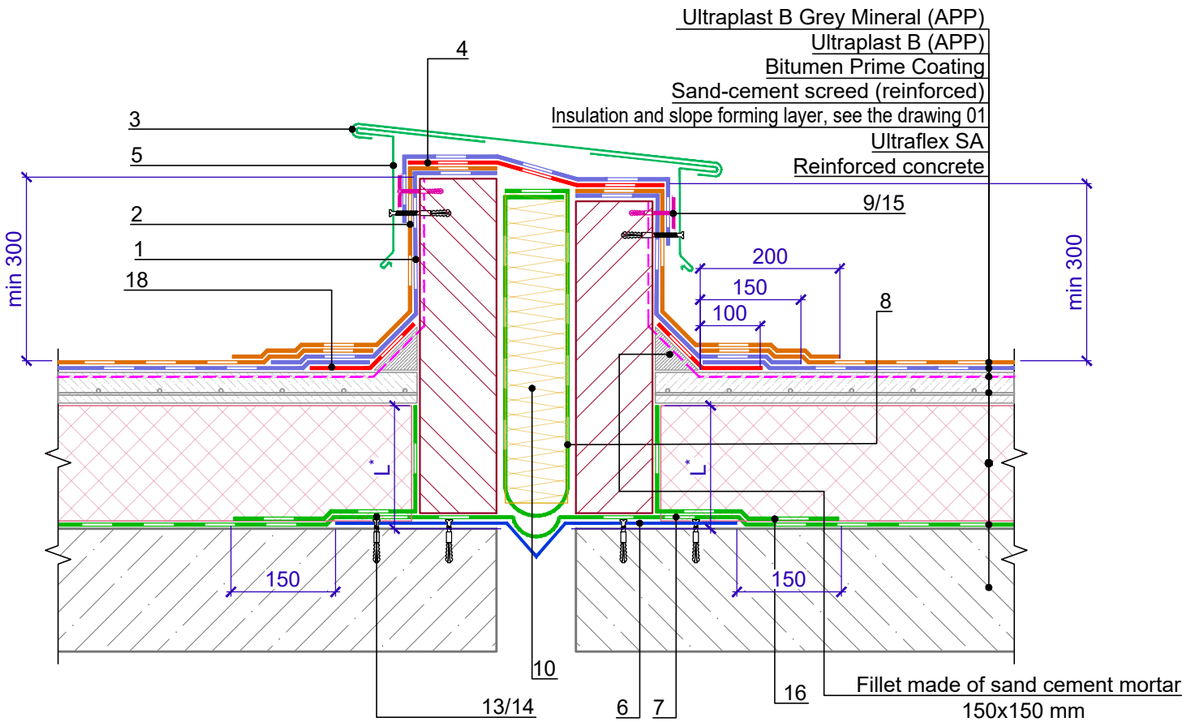
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
|---|---|---|---|---|---|---|
| | | | | | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | Expansion joint in the junction to the wall. Option 1 | DWG No. **6.3 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **6.4 - 2021.05**

## Expansion spacer. Option 1




## Expansion spacer. Option 2




## Specification of detail DWG No. 6.4 - 2021.05

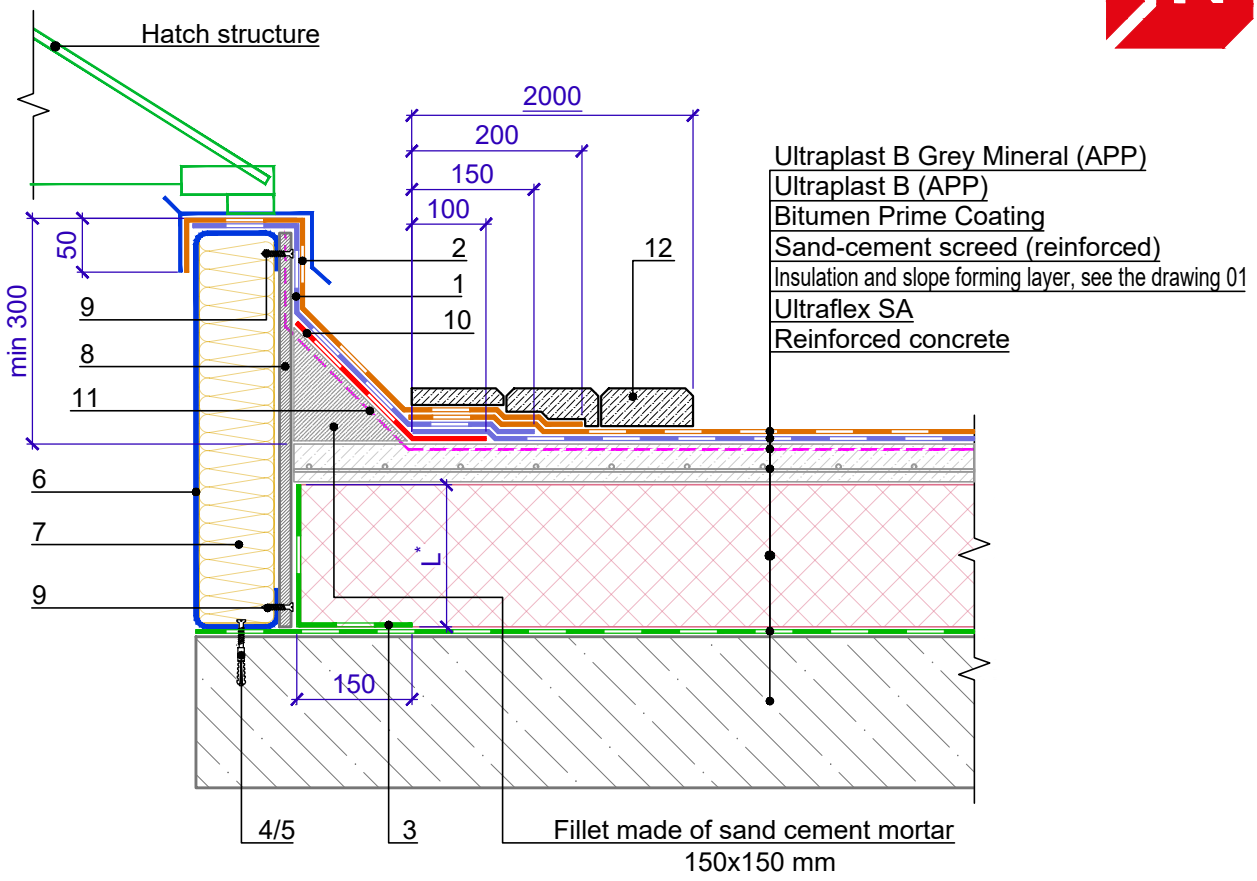
| Position | Name | Consumption on 1 l.m. of junction | Unit | Note |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 3 | Flashing made of galvanized steel | 1.00 | m | |
| 4 | Technoelast Flex, 0.5 m wide | upon the project | $m^2$ | |
| 5 | Fastener | 1.70 | pcs. | |
| 6 | Galvanized steel compensator | upon the project | | |
| 7 | Ultraflex SA | upon the project | $m^2$ | |
| 8 | Ultraflex SA | upon the project | $m^2$ | |
| 9 | Pointed self-tapping screw 4.8x50 | 10 | pcs. | |
| 10 | Stone wool | upon the project | $м^3$ | |
| 11 | Galvanized steel profile | upon the project | | |
| 12 | Pointed self-tapping screw 4.8x50 | 26 | pcs. | |
| 13 | Pointed self-tapping screw 4.8x50 | 20 | pcs. | |
| 14 | Anchor element 8x45 | 20 | pcs. | |
| 15 | Circular or oval-shaped washer | 10 | pcs. | |
| 16 | Ultraflex SA | upon the project | $m^2$ | |
| 17 | Cement bonded particle board | upon the project | $m^2$ | |
| 18 | Ultraplast B (APP) | upon the project | $m^2$ | reinforcement layer |

1. L*- vapor barrier installation height. The vapor barrier at the junctions of the heat-insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the heat-insulating layer and glued to a vertical surface, and in places of expansion joints it should cover the metal compensator forming the compensating fold
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
|---|---|---|---|---|---|---|
| | | | | Expansion spacer | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **6.4 - 2021.05** | REV. |

# Register of drawings for junctions to the zenith skylights

| № | Name | DWG No. |
|---|---|---|
| 7.1 | Junction to the smoke exhaust hatch. Option 1 (before installation of the hatch) | 7.1 |
| 7.2 | Junction to the zenith skylight. Option 1 (before installation of the skylight) | 7.2 |
| 7.3 | Junction to the smoke exhaust hatch. Option 2 | 7.3 |
| 7.4 | Junction to the zenith skylight. Option 2 | 7.4 |




## Specification of detail DWG No. 7.1 - 2021.05

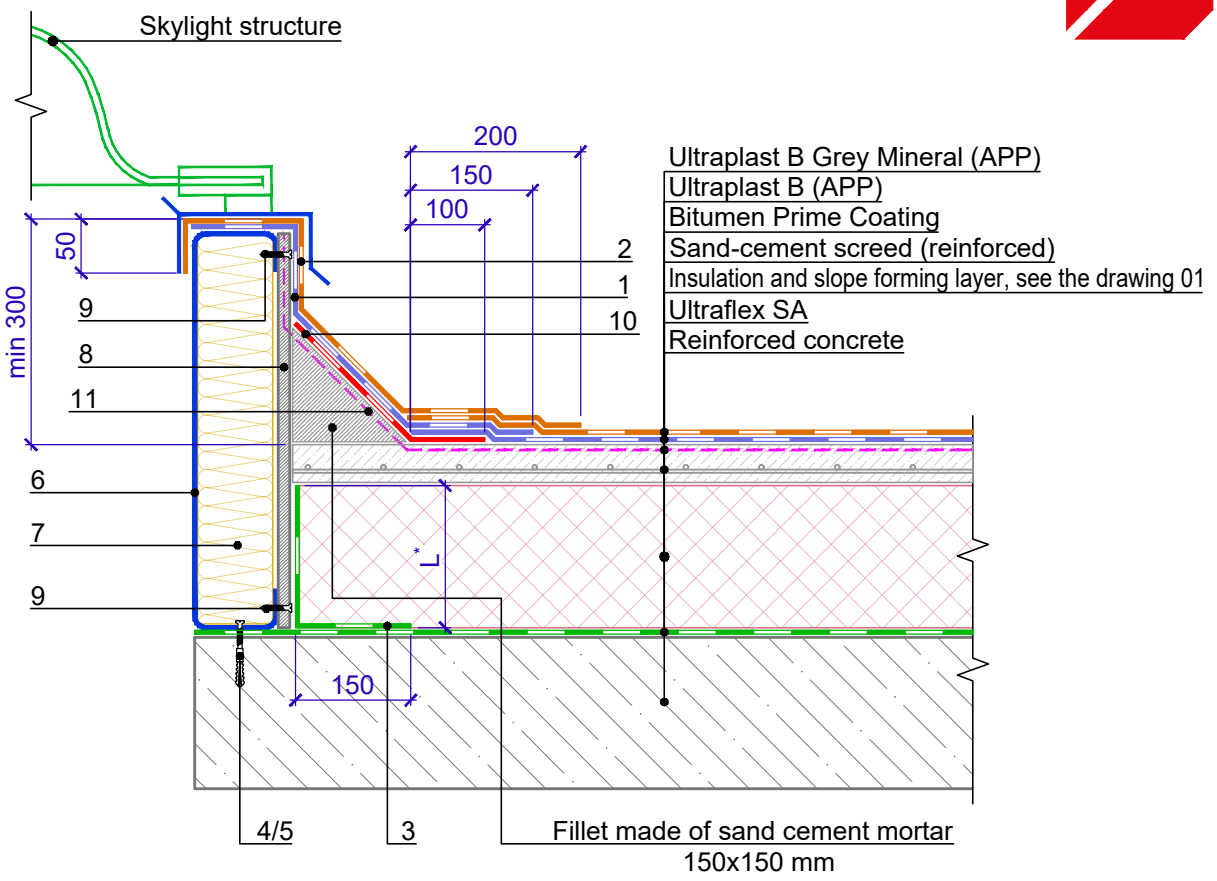
| Position | Name | Consumption on 1 l.m. | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 3 | Ultraflex SA | upon the project | $m^2$ | |
| 4 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 5 | Anchor element 8x45 | 5 | pcs. | |
| 6 | Galvanized steel profile | 1.00 | m | |
| 7 | Stone wool | upon the project | $m^3$ | |
| 8 | Cement bonded particle board | upon the project | $m^2$ | |
| 9 | Pointed self-tapping screw 4.8x50 | 10 | pcs. | |
| 10 | Ultraplast B (APP) | 0.35 | $m^2$ | |
| 11 | Bitumen Prime Coating | upon the project | l | |
| 12 | Protective layer of crushed stone or paving slabs | upon the project | $m^2$ | |

Notes

1. $L^*$ - vapor barrier installation height. The vapor barrier at the junctions of the thermal insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the thermal insulating layer and glued to a vertical surface.
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Junction to the smoke exhaust hatch. Option 1 (before installation of the hatch) | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **7.1 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **7.2 - 2021.05**




## Specification of detail DWG No. 7.2 - 2021.05

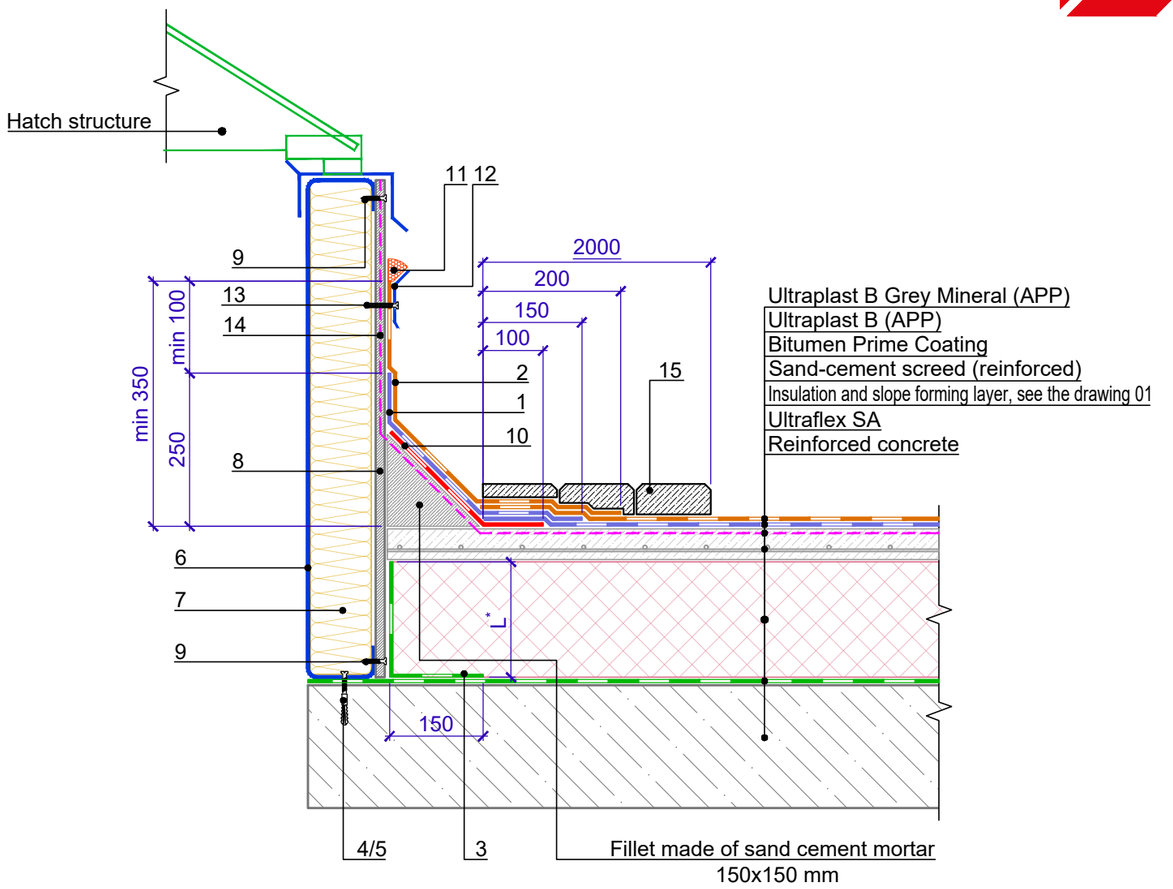
| Position | Name | Consumption on 1 l.m. | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 3 | Ultraflex SA | upon the project | $m^2$ | |
| 4 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 5 | Anchor element 8x45 | 5 | pcs. | |
| 6 | Galvanized steel profile | 1.00 | m | |
| 7 | Stone wool | upon the project | $m^3$ | |
| 8 | Cement bonded particle board | upon the project | $m^2$ | |
| 9 | Pointed self-tapping screw 4.8x50 | 10 | pcs. | |
| 10 | Ultraplast B (APP) | 0.35 | $m^2$ | |
| 11 | Bitumen Prime Coating | upon the project | l | |

Notes

1. $L^*$ - vapor barrier installation height. The vapor barrier at the junctions of the thermal insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the thermal insulating layer and glued to a vertical surface.
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
|---|---|---|---|---|---|---|
| | | | | Junction to the zenith skylight. Option 1 (before installation of the skylight) | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. 7.2 - 2021.05 | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **7.3 - 2021.05**




## Specification of detail DWG No. 7.3 - 2021.05

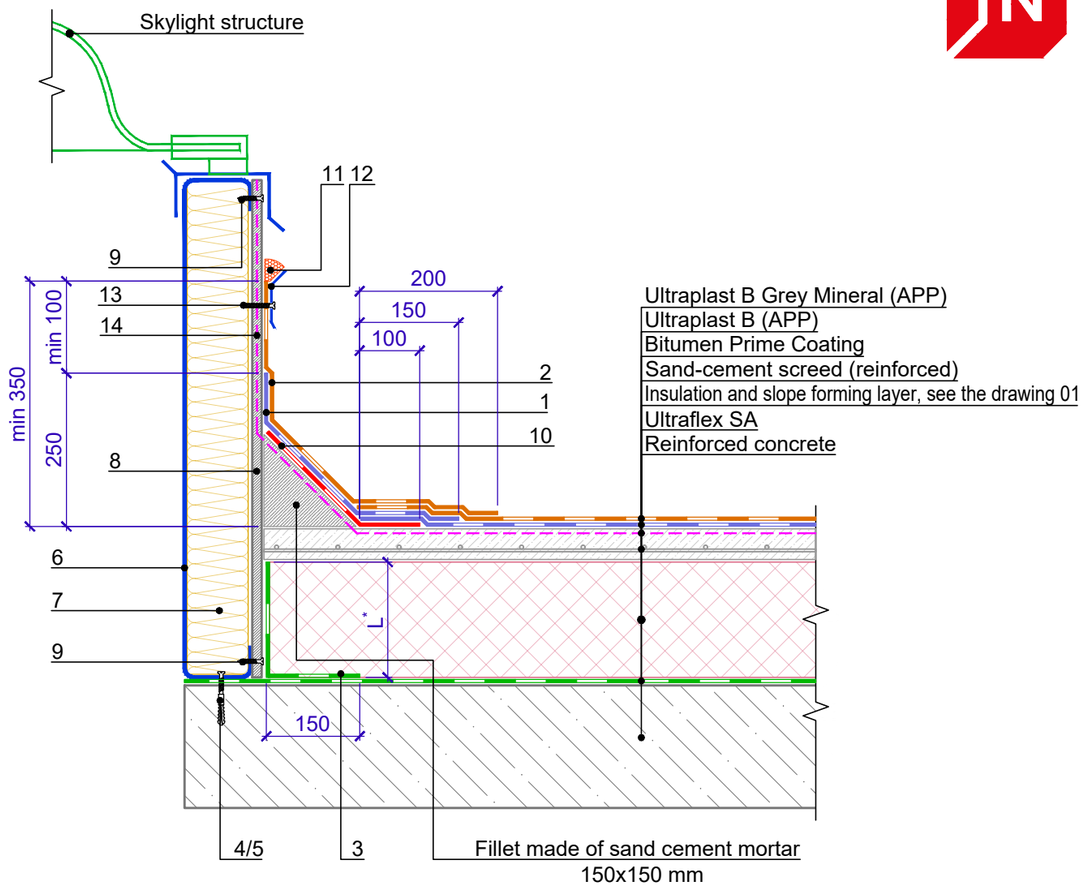
| Position | Name | Consumption on 1 l.m. | Unit | Note |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 3 | Ultraflex SA | 0.30 | $m^2$ | |
| 4 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 5 | Anchor element 8x45 | 5 | pcs. | |
| 6 | Galvanized steel profile | 1.00 | m | |
| 7 | Stone wool | upon the project | $м^3$ | |
| 8 | Cement bonded particle board | upon the project | $m^2$ | |
| 9 | Pointed self-tapping screw 4.8x50 | 10 | pcs. | |
| 10 | Ultraplast B (APP) | 0.35 | $m^2$ | |
| 11 | Bitumen-polymer sealing mastic | 150 | g/m | |
| 12 | Edge rail | 1.00 | m | |
| 13 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 14 | Bitumen Prime Coating | upon the project | l | |
| 15 | Protective layer of crushed stone or paving slabs | upon the project | $m^2$ | |

Notes

1. $L^*$ - vapor barrier installation height. The vapor barrier at the junctions of the thermal insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the thermal insulating layer and glued to a vertical surface.
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Junction to the smoke exhaust hatch. Option 2 | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **7.3 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN
DWG No. **7.4 - 2021.05**




## Specification of detail DWG No. 7.4 - 2021.05

| Position | Name | Consumption on 1 l.m. | Unit | Note |
|---|---|---|---|---|
| 1 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 3 | Ultraflex SA | 0.30 | $m^2$ | |
| 4 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 5 | Anchor element 8x45 | 5 | pcs. | |
| 6 | Galvanized steel profile | 1.00 | m | |
| 7 | Stone wool | upon the project | $m^3$ | |
| 8 | Cement bonded particle board | upon the project | $m^2$ | |
| 9 | Pointed self-tapping screw 4.8x50 | 10 | pcs. | |
| 10 | Ultraplast B (APP) | 0.35 | $m^2$ | |
| 11 | Bitumen-polymer sealing mastic | 150 | g/m | |
| 12 | Edge rail | 1.00 | m | |
| 13 | Pointed self-tapping screw 4.8x50 | 5 | pcs. | |
| 14 | Bitumen Prime Coating | upon the project | l | |

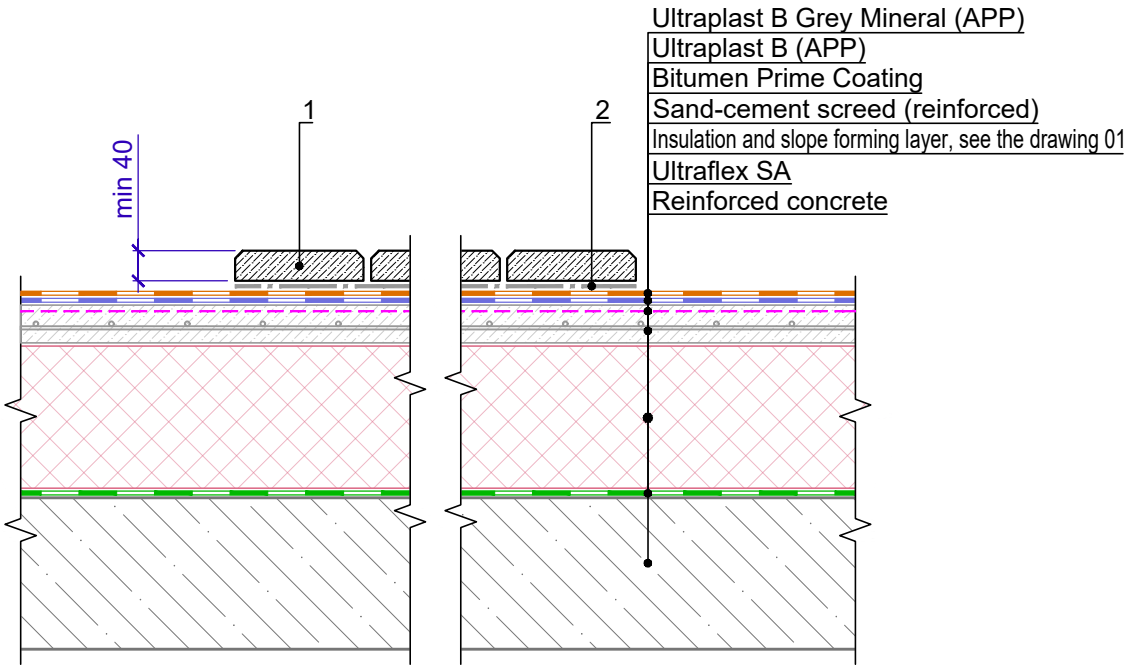
Notes

1. $L^*$ - vapor barrier installation height. The vapor barrier at the junctions of the thermal insulating layer to the walls, walls of the skylights, shafts and equipment passing through the cover must be raised to a height not less than the thickness of the thermal insulating layer and glued to a vertical surface.
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Junction to the zenith skylight. Option 2 | SCALE | DATE |
| | DATE | DESCRIPTION | CHECKED | | DWG No. **7.4 - 2021.05** | REV. |

# Register of drawings of junctions of the fire-cuts

| № | Name | DWG No. |
|---|---|---|
| 8.1 | Construction of the fire-cuts | 8.1 |




## Specification of detail DWG No. 8.1 - 2021.05

| Position | Name | Consumption on 1 l.m. | Unit | Notes |
|---|---|---|---|---|
| 1 | Protective coating of non-combustible panel materials, at least 40 mm thick. | upon the project | $m^2$ | |
| 2 | Heat treated nonwoven geotextile 150 $g/m^2$ | upon the project | $m^2$ | |

Notes

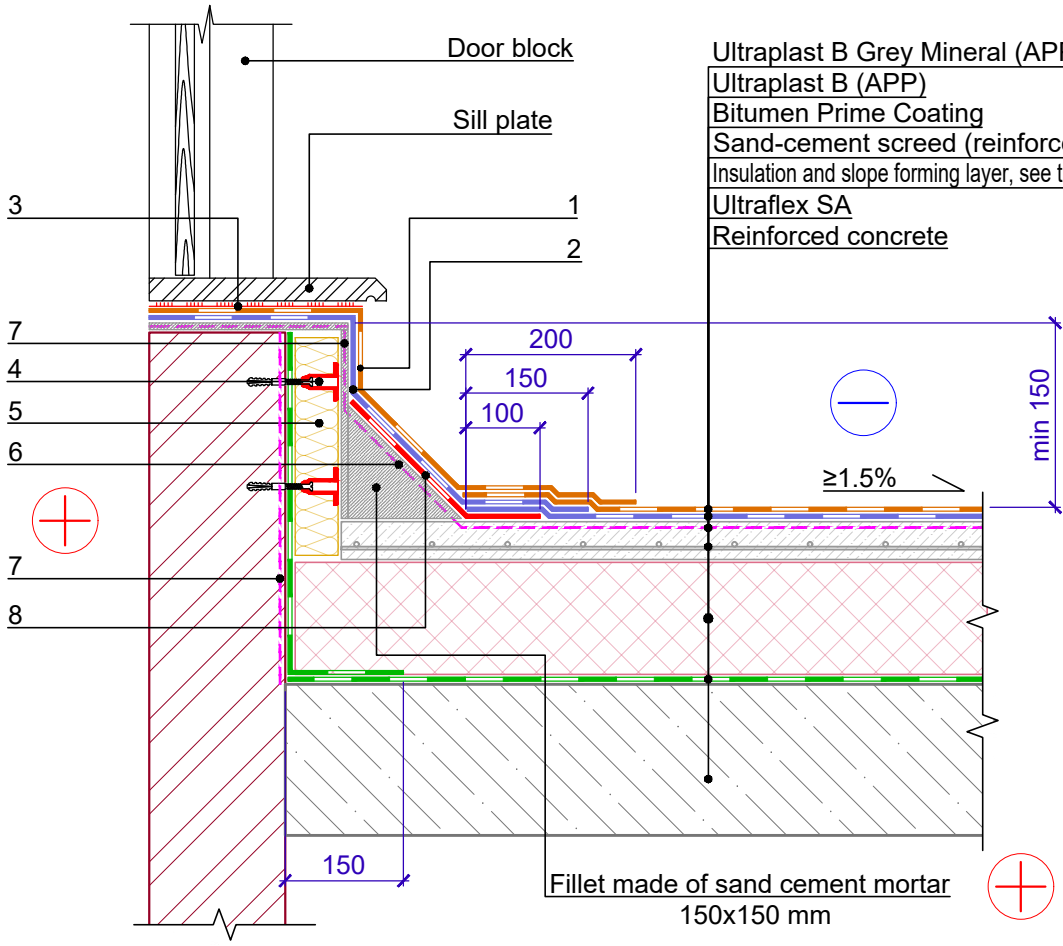
1. Construct pedestrian walkways in the same way at the walkway width required.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
| | | | | Construction of the fire-cuts | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | | DWG No. **8.1 - 2021.05** | REV. |

TN_ROOF_BRM_CONCRETE_STANDARD_EN

# Register of drawings for arrangement of junctions to roof access

| № | Name | DWG No. |
|---|---|---|
| 9.1 | Junctions to a roof access | 9.1 |




## Specification of detail DWG No. 9.1 - 2021.05

| Position | Name | Consumption on 1 l.m. | Unit | Notes |
|---|---|---|---|---|
| 1 | Ultraplast B Grey Mineral (APP) | upon the project | $m^2$ | |
| 2 | Ultraplast B (APP) | upon the project | $m^2$ | |
| 3 | Bitumen-polymer sealing mastic | upon the project | - | |
| 4 | Fastening element for plaster facade | upon the project | pcs. | |
| 5 | Stone wool | upon the project | $m^3$ | |
| 6 | Plaster layer of sand-cement mortar on a grid 100x100mm | upon the project | - | |
| 7 | Bitumen Prime Coating | upon the project | l | |
| 8 | Ultraplast B (APP) | 0.35 | pcs. | |
| 9 | Ultraflex SA | upon the project | $m^2$ | |

Notes

1. Instead of applying a plaster layer on the vertical surface of the parapet for subsequent torching of the waterproofing layer, it is allowed to use cement bonded particle boards with mechanical fastening to the load-bearing part of the parapet using telescopic or disk-shaped fasteners.
2. To arrange a smooth transition to a vertical, the use of a prefabricated product of high-rigidity stone wool slabs with side dimensions up to 100 mm is allowed - stone wool angle fillet.

| | | | | TN_ROOF_BRM_CONCRETE_STANDARD_EN | DESIGN | APPROVED |
|---|---|---|---|---|---|---|
| | | | | | SCALE | DATE |
| REV. | DATE | DESCRIPTION | CHECKED | Junctions to a roof access | DWG No. **9.1 - 2021.05** | REV. |