



# **BRNO UNIVERSITY OF TECHNOLOGY**

VYSOKÉ UČENÍ TECHNICKÉ V BRNĚ

## **FACULTY OF CIVIL ENGINEERING**

FAKULTA STAVEBNÍ

## **INSTITUTE OF BUILDING STRUCTURES**

ÚSTAV POZEMNÍHO STAVITELSTVÍ

# **HOUSE WITH TATTOO STUDIO**

RODINNÝ DOM S TETOVACÍM ŠTÚDIOM

## **COMPOSITIONS**

### **BACHELOR'S THESIS**

BAKALÁRSKA PRÁCA

#### **AUTHOR**

AUTOR

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## **NOTES**

<b>F</b>	FLOOR COMPOSITION
<b>W</b>	WALL COMPOSITION
<b>R</b>	ROOF COMPOSITION
<b>E</b>	COMPOSITION OF EXTERIORS

The products/materials listed are just recommended. When using alternative products/materials, specified technical characteristics must be preserved (especially structural, thermal, acoustic and fire properties).

During implementation, all requirements, conditions, and instructions specified in the technical data sheets of the individual products must be followed!

Reinforced concrete elements and their reinforcement are subject of structural calculations, which are not included in this project documentation.

## **F01- FLOOR IN BASEMENT – CERAMIC**

LAYER FUNCTION	MATERIAL	THICKNESS (MM)	NOTES
1. SURFACE FINISH	CERAMIC FLOOR TILES FOR INTERIOR USE	10	CERAMIC FLOOR TILES FOR INTERIOR USE
2. GROUTING	SIKACERAM CLEANGROUT	—	CEMENT-BASED GROUT
3. ADHESIVE	SIKACERAM - 253 FLEX	6.0	SINGLE-COMPONENT CEMENT-BASED ADHESIVE FOR CERAMIC TILES (CLASS C2TE S1)
4. WATERPROOFING – PROTECTIVE	SIKALASTIC 220 W	1.0	SINGLE-COMPONENT DISPERSION WATERPROOFING COATING
5. PRIMER	SIKA LEVEL - 01 PRIMER	—	PRIMER BASED ON ACRYLIC DISPERSION WITH MODIFYING AGENTS
6. LEVELING LAYER	CEMENT SCREED / UNDERLAYMENT	29.0	CEMENTITIOUS MIX, PROPERTIES PER ČSN 74 4505, FLEXURAL STRENGTH CLASS F4 ACCORDING TO ČSN EN 13813, REINFORCED WITH STEEL MESH
+ REINFORCEMENT	STEEL MESH KH 20	2 × Ø 6	WELDED STEEL MESH KH 20, GRID 150 × 150 MM, WIRE DIAMETER 6 MM
+ UNDERFLOOR HEATING PIPES	—	—	16 MM PE-XA PIPES WITH EVOH OXYGEN BARRIER
7. SEPARATION LAYER	DEKPERIMETER PV-NR 75	40	SYSTEM BOARD FOR LAYING UNDERFLOOR HEATING PIPES
8. THERMAL INSULATION	EPS 150	100	BOARDS MADE OF STABILIZED EXPANDED POLYSTYRENE
9. THERMAL/ INSTALLATION INSULATION	CONCRETE SUB-BASE	40	MONOLITHIC CONCRETE
10. WATERPROOFING	GLASTEK 40 SPECIAL MINERAL	4.0	SBS-MODIFIED BITUMINOUS MEMBRANE WITH FINE MINERAL FINISH
11. PRIMER FOR SUB-BASE	DEKPRIMER	—	BITUMEN-BASED, WATER-DILUTABLE PRIMER EMULSION
TOTAL FLOORING THICKNESS:		230	

## **F02 – FLOOR ABOVE THE CEILING – CERAMIC**

LAYER FUNCTION	MATERIAL	THICKNESS (MM)	NOTES
1. SURFACE FINISH	CERAMIC FLOOR TILES FOR INTERIOR USE	10	CERAMIC FLOOR TILES FOR INTERIOR USE
+ GROUTING	SIKACERAM CLEANGROUT	—	CEMENT-BASED GROUT
2. ADHESIVE	SIKACERAM - 253 FLEX	6.0	SINGLE-COMPONENT CEMENT-BASED ADHESIVE FOR CERAMIC TILES (CLASS C2TE S1)
3. WATERPROOFING – PROTECTIVE	SIKALASTIC 220 W	1.0	SINGLE-COMPONENT DISPERSION WATERPROOFING COATING
4. PRIMER	SIKA LEVEL - 01 PRIMER	—	PRIMER BASED ON ACRYLIC DISPERSION WITH MODIFYING AGENTS
5. LEVELING LAYER	CEMENT SCREED / UNDERLAYMENT	33	CEMENTITIOUS MIX, PROPERTIES PER ČSN 74 4505, FLEXURAL STRENGTH CLASS F4 ACCORDING TO ČSN EN 13813, REINFORCED WITH STEEL MESH
+ REINFORCEMENT	STEEL MESH KH 20	2 × Ø 6	WELDED STEEL MESH KH 20, GRID 150 × 150 MM, WIRE DIAMETER 6 MM
+ UNDERFLOOR HEATING PIPES	—	—	16 MM PE-XA PIPES WITH EVOH OXYGEN BARRIER
6. THERMAL/ INSTALLATION INSULATION	DEKPERIMETER PV-NR 75	30	SYSTEM BOARD FOR LAYING UNDERFLOOR HEATING PIPES
7. ACOUSTIC – IMPACT SOUND INSULATION	RIGIFLOOR 4000	30	ELASTIC POLYSTYRENE BOARDS. FOR HEAVY FLOATING FLOORS WITH LOAD CLASS ≤ 4
8. INSTALLATION LAYER	LIAPOR MIX	40	LIGHTWEIGHT CONCRETE WITH CERAMIC AGGREGATE (GRAIN 4–8 MM)
TOTAL FLOORING THICKNESS:		150	

## FL03 – FLOOR ABOVE THE CEILING – LAMINATED

LAYER FUNCTION	MATERIAL	THICKNESS (MM)	NOTES
1. SURFACE FINISH	KRONO VARIOSTEP CLASSIC	8.0	LAMINATE FLOATING FLOOR
2. LEVELLING, ACOUSTIC – IMPACT SOUND INSULATION	ISOBOARD	5.5	WOOD FIBRE BOARDS FOR LEVELLING FLOATING FLOOR IRREGULARITIES. TENSILE STRENGTH $\geq 2$ MPA. DECLARED THERMAL CONDUCTIVITY 0.050 W/M·K
3. SEPARATION, VAPOR BARRIER	DEKSEPAR	0.2	LIGHTWEIGHT POLYETHYLENE FOIL, LOW-DENSITY
4. LEVELING LAYER	CEMENT SCREED / UNDERLAYMENT	26,3	CEMENTITIOUS MIX, PROPERTIES PER ČSN 74 4505, FLEXURAL STRENGTH CLASS F4 ACCORDING TO ČSN EN 13813, REINFORCED WITH STEEL MESH
+ REINFORCEMENT	STEEL MESH KH 20	2 × Ø 6	WELDED STEEL MESH KH 20, GRID 150 × 150 MM, WIRE DIAMETER 6 MM
+ UNDERFLOOR HEATING PIPES	—	—	16 MM PE-XA PIPES WITH EVOH OXYGEN BARRIER
5. THERMAL/ INSTALLATION INSULATION	DEKPERIMETER PV-NR 75	30	SYSTEM BOARD FOR LAYING UNDERFLOOR HEATING PIPES
6. ACOUSTIC – IMPACT SOUND INSULATION	RIGIFLOOR 4000	30	ELASTIC POLYSTYRENE BOARDS. FOR HEAVY FLOATING FLOORS WITH LOAD CLASS $\leq 4$ KN/M <sup>2</sup> . THERMAL CONDUCTIVITY 0.044 W/M·K
7. INSTALLATION LAYER	LIAPOR MIX	50	LIGHTWEIGHT CONCRETE WITH CERAMIC AGGREGATE (GRAIN 4–8 MM)
TOTAL FLOORING THICKNESS:		150	

## FL04 – FLOOR IN THE GARAGE – ON THE TERRAIN

LAYER FUNCTION	MATERIAL	THICKNESS (MM)	NOTES
1. SURFACE FINISH	SIKAFLOOR GARAGE	0.1 – 0.2	TWO-COMPONENT COLORED SEALING EPOXY RESIN COATING (2ND LAYER)
2. OPERATIONAL LAYER	SIKAFLOOR GARAGE + 5% WATER	MAX. 0.1	TWO-COMPONENT EPOXY RESIN COATING DILUTED WITH 5% WATER (1ST LAYER)
3. LEVELING LAYER	CEMENT SCREED / UNDERLAYMENT	35,5	CEMENTITIOUS MIX PER ČSN 74 4505, FLEXURAL STRENGTH CLASS F4 PER ČSN EN 13813, REINFORCED PER STRUCTURAL DESIGN, USUALLY DOUBLE-SIDED MESH
+ REINFORCEMENT	PER STATIC DESIGN	—	REINFORCEMENT ACCORDING TO STRUCTURAL DESIGN, TYPICALLY STEEL MESH ON BOTH SIDES
4. SEPARATION LAYER	DEKSEPAR	0.2	LOW-DENSITY POLYETHYLENE FOIL
5. THERMAL INSULATION	FIBRAN XPS 300 L	70	EXTRUDED POLYSTYRENE BOARDS, COMPRESSIVE STRENGTH 300 KPA AT 10% DEFORMATION. DECLARED THERMAL CONDUCTIVITY: 0.032 TO 0.036 W/M·K DEPENDING ON THICKNESS. FIRE CLASS E
6. PROTECTIVE LAYER	CONCRETE SUB-BASE	40	MONOLITHIC CONCRETE
7. WATERPROOFING	GLASTEK 40 SPECIAL MINERAL	4.0	SBS-MODIFIED BITUMINOUS MEMBRANE WITH FINE MINERAL FINISH
8. PRIMER FOR SUB-BASE	DEKPRIMER	—	BITUMEN-BASED, WATER-DILUTABLE PRIMER EMULSION
TOTAL FLOORING THICKNESS:		150	

## **FL05 – FLOOR ABOVE THE CEILING – CERAMIC**

LAYER FUNCTION	MATERIAL	THICKNESS (MM)	NOTES
1. SURFACE FINISH	CERAMIC FLOOR TILES FOR INTERIOR USE	10	CERAMIC FLOOR TILES FOR INTERIOR USE
2. GROUTING	SIKACERAM CLEANGROUT	—	CEMENT-BASED GROUT
3. ADHESIVE	SIKACERAM - 253 FLEX	6.0	SINGLE-COMPONENT CEMENT-BASED ADHESIVE FOR CERAMIC TILES (CLASS C2TE S1)
4. WATERPROOFING – PROTECTIVE	SIKALASTIC 220 W	1.0	SINGLE-COMPONENT DISPERSION WATERPROOFING COATING
5. PRIMER	SIKA LEVEL - 01 PRIMER	—	PRIMER BASED ON ACRYLIC DISPERSION WITH MODIFYING AGENTS
6. LEVELING LAYER	CEMENT SCREED / UNDERLAYMENT	29	CEMENTITIOUS MIX, PROPERTIES PER ČSN 74 4505, FLEXURAL STRENGTH CLASS F4 ACCORDING TO ČSN EN 13813, REINFORCED WITH STEEL MESH
+ REINFORCEMENT	STEEL MESH KH 20	2 × Ø 6	WELDED STEEL MESH KH 20, GRID 150 × 150 MM, WIRE DIAMETER 6 MM
+ UNDERFLOOR HEATING PIPES	—	—	16 MM PE-XA PIPES WITH EVOH OXYGEN BARRIER
7. THERMAL/ INSTALLATION INSULATION	DEKPERIMETER PV-NR 75	30	SYSTEM BOARD FOR LAYING UNDERFLOOR HEATING PIPES
8. THERMAL INSULATION	EPS 150	20	BOARDS MADE OF STABILIZED EXPANDED POLYSTYRENE
9. PROTECTIVE LAYER	CONCRETE SUB-BASE	50	MONOLITHIC CONCRETE
10. WATERPROOFING	GLASTEK 40 SPECIAL MINERAL	4.0	SBS-MODIFIED BITUMINOUS MEMBRANE WITH FINE MINERAL FINISH
11. PRIMER FOR SUB-BASE	DEKPRIMER	—	BITUMEN-BASED, WATER-DILUTABLE PRIMER EMULSION
TOTAL FLOORING THICKNESS:		150	

# WL01 – UNDERGROUND PERIPHERALL WALL

No.	Layer Function	Layer Name	Specifications	Assembly	Thickne ss
1	Surface Finish	Paint	Silicate interior paint white colour	Evenly applied in 2-3 layers by roller or paint brush	0,3-0,45 kg/m²
2	Penetration	Primer	Primer for silicate interior paints	Evenly applied by roller or paint brush	0,25 kg/m²
3	Surface Layer	Finishing Plaster	Interior stucco plaster, grain size max 0.7mm, fire grade A1	Applied by trowel for plasters, smoothed	3 mm
4	Base Layer	Core Plaster	Interior lime-cement plaster, grain size max 1.2 mm, fire grade A1	Sprayed by machine, smoothed	15 mm
5	Load-Bearing Layer	Formwork Blocks	Formwork blocks BTB 50/30/25 (P+D), LxWxH 500x300x250mm, strength in compression 25 MPa, fire grade A1	Laid in bond dry, then RF inserted and concreted	300 mm
6	Penetration	Primer	Asphalt emulsion without dissolvers	Applied by roller or spray gun on clean surface	0,1-0,4 kg/m²
7	Waterproofing	Asphalt Felt	SBS modified asphalt felt with glass fibre, fire grade E	Melted in points	4 mm
8	Waterproofing	Asphalt Felt	SBS modified asphalt felt with polyester mat, fire grade E	Whole surface melting	4 mm
9	Adhesion Layer	Adhesive	Bitumen waterproofing adhesive compound for XPS adhesion, fire grade E	Applied by notched trowel to surface and to XPS block	3 mm
10	Thermal Insulation	XPS	Extruded polystyrene blocks, XPS 300 L, fire grade E	Whole surface adhesion	140 mm
11	Drainage, Filtration, Separation Layer	NOP Foil	Profiled NOP foil from HDPE (high-density PE)	Freely placed with NOPS oriented to the soil, overlapped in 2 rows of NOPS	8 mm



## WL02 – PERIPHERALL WALL

LAYER FUNCTION	SPECIFICATIONS	THICKNESS	NOTES
1. INTERIOR SURFACE	INTERIOR WHITE MATTE PAINT – WATER-DILUTABLE, VAPOR-PERMEABLE, OPACITY 3.3 M <sup>2</sup> /KG	-	APPLICATION BY ROLLER OR BRUSH
2. PRIMER	DEEP PENETRATION ON ACRYLIC BASE, YIELD 5–30 M <sup>2</sup> /KG	-	APPLICATION BY ROLLER OR BRUSH
3. SURFACE FINISH	SINGLE-LAYER LIGHTWEIGHT GYPSUM PLASTER	10	MACHINE APPLICATION, LEVELING
4. LOAD-BEARING	BRUSHED CLAY BLOCK 300 × 249 MM	300	LAID WITH THIN LAYER MORTAR
5. AIR BARRIER	DRY LIME PLASTER	10	MACHINE PLASTER APPLICATION
6. ADHESIVE	SBS MODIFIED ASPHALT MASTIC	10	TO FACADE BOARD, TROWELED
7. INSULATION	EPS GREY 140, THERMAL CONDUCTIVITY 0.031 W/MK	140	ADHERED TO FACADE
8. BASE COAT	CEMENTITIOUS BASE COAT FOR ETICS	4	APPLIED WITH FIBERGLASS MESH
9. PRIMER	ACRYLIC PRIMER	-	ROLLER APPLICATION
10. EXTERIOR FINISH	SILICONE RESIN PLASTER	2	TROWELED AND FLOATED

## WL03 – PLINTH

LAYER FUNCTION	SPECIFICATIONS	THICKNESS	NOTES
1. INTERIOR SURFACE	PAINT	-	SILICATE INTERIOR PAINT, DIFFUSION-OPEN, EQUIVALENT DIFFUSION THICKNESS $SD < 0.2M$ , ADHESION $\geq 2.0$ MPA, WHITE COLOUR
2. PENETRATION	PRIMER	-	PRIMER FOR SILICATE INTERIOR PAINTS
3. SURFACE LAYER	FINISHING PLASTER	3	INTERIOR STUCCO PLASTER, DIFFUSION-OPEN, GRAIN SIZE MAX 0.7MM
4. BASE LAYER	CORE PLASTER	15	INTERIOR LIME-CEMENT PLASTER, DIFFUSION-OPEN, GRAIN SIZE MAX 1.2MM
5. LOAD-BEARING	FORMWORK BLOCKS	300	FORMWORK BLOCKS BTB 50/30/25 (P+D), L×W×H 500×300×250MM, COMPRESSIVE STRENGTH 25 MPA
6. PENETRATION	PRIMER	-	ASPHALT EMULSION WITHOUT DISSOLVERS
7. WATERPROOFING	ASPHALT FELT	4	SBS MODIFIED ASPHALT FELT WITH GLASS FIBRE
8. WATERPROOFING	ASPHALT FELT	4	SBS MODIFIED ASPHALT FELT WITH POLYESTER MAT
9. ADHESION LAYER	ADHESIVE	3	BITUMEN WATERPROOFING ADHESIVE COMPOUND FOR XPS ADHESION, FIRE GRADE E
10. THERMAL INSULATION	XPS	140	EXTRUDED POLYSTYRENE BLOCKS, XPS 300 L, $\Lambda=0.039$ W/MK
11. LEVELING LAYER	CEMENT GLUE & MESH	-	CEMENT BASED GLUE, $\Lambda=0.51$ W/MK
12. PENETRATION	PRIMER	-	PRIMER FOR MOSAIC PLASTERS
13. SURFACE FINISH	MOSAIC PLASTER	2	PLINTH THIN-LAYERED MOSAIC PLASTER CONSUMPTION 6.5 KG/M <sup>2</sup>

# R01 – ROOF

LAYER FUNCTION	SPECIFICATIONS	THICKNESS (mm)	NOTES
1. VEGETATION LAYER	PLANTS	15–30	GRASSES, HERBS, SMALL SHRUBS
2. SUBSTRATE LAYER	SUBSTRATE	70	SAND AND TURF SUBSTRATE FOR SIMPLE INTENSIVE ROOFS, WEIGHT WHEN SATURATED 1300–1480 KG/M3
3. FILTRATION LAYER	GEOTEXTILE	300 g/m2	NON WOVEN GEOTEXTILE, 100% POLYPROPYLENE, SIZE OF HOLES 95MM, WATER PERMEABILITY PERPENDICULAR TO THE PLANE $5.2 \cdot 10^{-2}$ M/S
4. DRAINAGE & WATER ACCUMULATION LAYER	NOP FOIL	30	PROFILED NOP FOIL FROM HDPE (HIGH-DENSITY PE) HEIGHT OF 1 NOP 30 MM, SURFACE DENSITY 1.35KG/M2, COMPRESSIVE STRENGTH 175 KPA
5. SEPARATION LAYER	FOIL	470 g/m2	FOIL WITH FLL TEST (AGAINST ROOT GROWTH) FROM HIGH ELASTIC PELD (POLYETHYLENE LOW DENSITY)
6. WATERPROOFING	ASPHALT FELT	4	SBS MODIFIED ASPHALT FELT WITH POLYESTER MAT, TOP SURFACE - FINE SEPARATION COATING, BOTTOM SURFACE - SEPARATION FLAMABLE PE FOIL, SURFACE DENSITY 4.4 KG/M2, DIFFUSION RESISTANCE COEFF. $M=28\ 000$ , EQUIVALENT DIFFUSION THICKNESS $SD = 112 (\pm 6)$ M, FIRE GRADE E
7. WATERPROOFING	ASPHALT FELT	4	SBS MODIFIED ASPHALT FELT WITH GLASS FIBRE, TOP SURFACE - FINE SEPARATION COATING, BOTTOM SURFACE - SEPARATION FLAMABLE PE FOIL, SURFACE DENSITY 4.5 KG/M2, DIFFUSION RESISTANCE COEFF. $M=29\ 000$ , EQUIVALENT DIFFUSION THICKNESS $SD = 116 (\pm 6)$ M, FIRE GRADE E
8. SLOPING LAYER	EPS	min. 60	SLOPED KEYS FROM EPS 100 S, 1000X500X50MM, VOLUME DENSITY 18–19 KG/M3, COMPRESSIVE STRENGTH AT 10% DEFORMATION 100 KPA, HEAT TRANSFER COEFF. $\lambda_D=0.036$ W/MK, DIFFUSION RESISTANCE COEFF. $M=30-70$ , EQUIVALENT DIFFUSION THICKNESS $SD = 1.5-3.5$ M, FIRE GRADE E
9. THERMAL INSULATION LAYER	EPS	160	BOARDS FROM EPS 150 S, VOLUME DENSITY 23–25 KG/M3, COMPRESSIVE STRENGTH AT 10% DEFORMATION 150 KPA, HEAT TRANSFER COEFF. $\lambda_D=0.036$ W/MK, DIFFUSION RESISTANCE COEFF. $M=30-70$ , EQUIVALENT DIFFUSION THICKNESS $SD = 6-14$ M, FIRE GRADE E
10. WATER VAPOUR BARRIER	ASPHALT FELT	4	OXIDISED ASPHALT FELT TYPE S WITH GLASS FIBRE, TOP SURFACE - FINE SEPARATION COATING, BOTTOM SURFACE - SEPARATION FLAMABLE PE FOIL, SURFACE DENSITY 4.8 KG/M2, DIFFUSION RESISTANCE COEFF. $M=40\ 000$ , EQUIVALENT DIFFUSION THICKNESS $SD = 160$ M, FIRE GRADE E
11. PENETRATION	PRIMER	0.1-0.4 kg/m2	ASPHALT EMULSION WITHOUT DISSOLVERS, HARDENING TIME < 2H, WORKABLE COLD
12. LOAD-BEARING LAYER	BEST PANEL	250	BEST PANEL, WEIGHT 296KG/M, PERMANENT LOADING 1.5 KN/M2, COVER 259MM, C45/55XC1, STRENGTH 45 MPA, THERMAL RESISTANCE $R=0.19$ M2KW, SOUND RESISTANCE $RW = 50$ DB, FIRE RESISTANCE $REI 45$ DP1

## **T01 – PAVED AREA – WALKABLE**

LAYER FUNCTION	MATERIAL	THICKNESS (MM)	NOTES
1. SURFACE FINISH	VIBROPRESSED CONCRETE PAVING	40	WALKABLE, ANTHRACITE GREY, STANDARD SURFACE WITH NATURAL ROUGHNESS, FROST-RESISTANT, RESISTANT TO WATER AND CHEMICAL DE-ICING AGENTS. FINE BEDDING SAND. GARDEN EDGE RAISED 20 MM ABOVE ADJACENT TERRAIN. LAID ON THE BASE LAYER.
2. BEDDING LAYER	CRUSHED AGGREGATE 4–8 MM	30	LOW DUST CONTENT. LEVELED WITH A SCREED.
3. BASE LAYER	COMPACTED CRUSHED AGGREGATE 8–16 MM	50	COMPACTED BY VIBRATION.
4. BASE LAYER	COMPACTED GRAVEL-SAND MIX 0–32 MM	100	COMPACTED BY VIBRATION.
5. SEPARATION LAYER	NON-WOVEN GEOTEXTILE	2.9	POLYPROPYLENE GEOTEXTILE REINFORCED BY NEEDLE-PUNCHING, AREA DENSITY 300 G/M². LAID INTO EXCAVATION.

## **T02 – PAVED AREA - DRIVEABLE GRASS PAVING SLAB UP TO 3.5 t**

LAYER FUNCTION	MATERIAL	THICKNESS (MM)	NOTES
1. DRIVABLE LAYER	VIBROPRESSED CONCRETE PAVING	100 (80)	DESIGNED FOR PARKING/DRIVING OF VEHICLES UP TO 3.5T. NATURAL (GRAY) COLOR, ROUGH SURFACE, FROST-RESISTANT, RESISTANT TO CHEMICALS AND WATER, JOINTS 3–5 MM. FILLED WITH 70% GRAVEL AND 30% EXPANSIVE SUBSTRATE.
2. BEDDING LAYER	CRUSHED AGGREGATE 4–8 MM	40	LOW DUST CONTENT. LEVELED WITH A SCREED. MAX SLOPE 2%.
3. BASE LAYER	COMPACTED CRUSHED AGGREGATE 8–16 MM (EDEF2 = 60 MPA)	150	COMPACTED BY VIBRATION.
4. BASE LAYER	COMPACTED CRUSHED AGGREGATE 16–32 MM (EDEF2 = 90 MPA)	200	COMPACTED BY VIBRATION.
5. SUBGRADE	SOIL COMPACTED TO EDEF2 = 30 MPA	—	COMPACTED TO MODULUS OF DEFORMATION 30 MPA.

## **T03 – DRAINAGE STRIP**

LAYER FUNCTION	MATERIAL	THICKNESS (MM)	NOTES
1. SURFACE FINISH	VIBROPRESSED CONCRETE PAVING (600×400 MM)	60	ANTHRACITE GREY, ROUGH TEXTURE, FROST-RESISTANT, RESISTANT TO CHEMICALS AND WATER. LAID ON BASE LAYER. FINE BEDDING SAND. GARDEN EDGING 20 MM ABOVE TERRAIN.
2. BEDDING LAYER	CRUSHED AGGREGATE 4–8 MM	50	LOW DUST CONTENT. LEVELED WITH A SCREED. 1% SLOPE.
3. BASE LAYER	COMPACTED CRUSHED AGGREGATE 8–16 MM	200	COMPACTED BY VIBRATION.
4. SEPARATION LAYER	NON-WOVEN GEOTEXTILE	2.9	NEEDLE-PUNCHED POLYPROPYLENE, 300 G/M². LAID INTO EXCAVATION.

## **ST01 – STAIRCASE**

LAYER FUNCTION	MATERIAL	THICKNESS [MM]	NOTES
1. SURFACE FINISH	CERAMIC TILE FOR INTERIOR – STAIR TREAD, SLIP ANGLE 27°–35° (R12) PER ČSN 74 505, SLIP COEFFICIENT $\geq 0.50$ , SIZE 300×600 MM, MAX SURFACE LOAD 3 KN/M², MAX POINT LOAD 2 KN, WEAR RESISTANCE PEI 5	10	GLUING, ROLLING, GROUTING
2. ADHESIVE	FLEXIBLE ADHESIVE MORTAR CLASS C2TE S1, CEMENT-BASED, WATERPROOF	10	APPLIED WITH A NOTCHED TROWEL
3. LOAD-BEARING	TREAD AND RISERS OF MONOLITHIC REINFORCED CONCRETE STAIRCASE, CONCRETE C20/25, STEEL B500B, REINFORCEMENT PER STRUCTURAL DESIGN		CAST INTO FORMWORK, COMPACTED