

RECONSTRUCTION AND EXTENSION OF BUILDING OPUŠTĚNÁ 4, BRNO

MATERIAL SOLUTIONS - STANDARDS

HSV WORKS

- FOUNDATION CONSTRUCTION:
 - Reinforced concrete base slab made of waterproof structural concrete C30/37
 - Pile foundation of the annex building
 - Jet grouting for stabilisation of a reconstructed building
 - Pile dike wall
- LOAD-BEARING VERTICAL STRUCTURAL SYSTEM
 - Perimeter walls of underground floors: Reinforced concrete foundation walls made of waterproof structural concrete C30/37
 - Perimeter walls of lower floors above ground level: Reinforced concrete superstructure walls C25/30
 - Columns and pillars: Columns made of reinforced concrete C30/37
 - Perimeter walls of higher floors above ground level: POROTHERM P15, 300 mm thick
 - Perimeter walls of the reconstructed building: existing CPP on MVC
 - Acoustic masonry (between the apartment walls): POROTHERM AKU P15, 300 mm thick
 - Caps: POROTHERM 23.8 + thermal insulation or reinforced concrete as part of the ceiling slab.
- NON-LOAD BEARING VERTICAL STRUCTURES:
 - Internal partitions: POROTHERM 11.5 and 14 P+D on MVC
 - Interior extensions to existing perimeter walls: POROTHERM 8 P+D on MVC
 - Installation retention walls: YTONG, thickness 100 and 150 mm
 - Caps for internal partitions: POROTHERM, flat, 11.5 and 14
- HORIZONTAL STRUCTURES:
 - At the annex building: Reinforced concrete ceiling slabs, including monolithic caps/main beams made of C30/37 reinforced concrete
 - For the reconstructed part: Reinforced concrete ceiling slab C30/37 on the existing wooden beam ceiling
- STAIRWAY:
 - Reinforced concrete stairway structures C25/30. It will be acoustically separated from the surrounding structures by system elements
- LOWER CEILINGS:
 - For the reconstructed building: suspended ceiling between beams made from 15 mm thick SDK RB boards
 - Attic of the reconstructed building: Lower ceilings and lining of sloping parts made of fire-resistant RF SDK boards, thickness 15 mm
 - For the annex building, lower ceilings made of SDK boards RB, thickness 15 mm and RBI 15 mm thick, for wet environments
 - For the annex building, acoustic lower ceilings

- INTERIOR WALL FINISHES
 - Lime cement plaster, interior stucco
 - Integrated screeds
- EXTERNAL WALLS FINISHES
 - Silicone screed for concrete walls Baunit SilikonTop, scraped, 1.5 mm grit
 - Contact insulation system (hereinafter referred to as KZS) ETICS with mineral fibre insulation ($\Lambda=0,04$) of longitudinal thickness 150 mm (or 100 mm). Insulation glued with system sealant over entire area and mechanically anchored with facade plate anchors with hidden system plugs.
 - Baunit SilikonTop K2 thin-film silicone plaster with a grain size of 1.5 mm for KZS
 - Brick facing made of Klinker face strips inserted into flexible adhesive, 250x65x10 mm strip
 - The external walls of the original building have lime-cement external plaster. It will be a replica of the historicizing facade
- FLOOR CONSTRUCTION
 - Cast cement screed PROFI CT-C25-F5
 - CemFlow CF screed
 - Machine-smoothed monolithic floor finish with filling
 - On terraces, frost-resisting concrete paving 500 x 500 mm, 50 mm thick, laid on rectifying targets

PSF WORKS

- HYDROSOLATION:
 - The lower structure is designed in the form of waterproofing concrete (white tub), which also serves as waterproofing
 - In the bathrooms and toilets waterproofing trowel against moisture. Screed on the wall plinth up to 150 mm. Screed up to 2 metres behind the shower and bath and up 1.5 metres on the walls behind the urinal, in the cleaning room and on the walls behind the sinks.
- FLOORING AND ROOFING:
 - The flat roof in the atrium of the 1st floor of S1 is made of a substrate for arid-loving plants placed on fabric and plastic profile sheeting. Underneath this treatment is a certified TPO waterproofing foil preventing root ingrowth and thermal insulation made of EPS
 - The green roof of S2 and S3 forming the gardens above the garages is made up of substrate, a plastic profile sheeting, geotextile and two layers of modified asphalt strip. One strip is certified against root ingrowth
 - Above the 7th floor of the annex building there is a flat roof of S4 composition with a pebble bed. The waterproofing consists of a UV-resistant TPO foil. The thermal insulation is EPS 150 s and a gradient layer of EPS 100 S on a vapour barrier of asphalt strip with a glass fabric liner.
 - The sloped roof of the reconstructed part is angled to 33° to 75° and made of smooth metal sheeting connected to the standing and lying groove, which is fixed on a full-width formwork of OSB boards of thickness 18 mm. The thermal insulation of this roof is made of PIR boards. For a more detailed composition, see S5 and S6.
- THERMAL INSULATION:

- Insulation of floors from EPS 150 in thicknesses according to individual compositions, or EPS T 4000 in thicknesses of 30 or 40 mm.
- Insulation of roofs made of EPS 100S, EPS 150S, PIR, XPS according to individual compositions
- Insulation of external walls as KZS in the ETICS system with mineral fibre insulation, 150 mm or 100 mm thick.
- **ACOUSTIC INSULATION:**
 - ISOVER N/PP expansion joint strip along the walls, thickness 10 mm
 - Floor insulation EPS T 4000, thickness 30 and 40 mm
 - Acoustically separating elements for stairways, acoustic damping of elevator shafts
- **FILLING THE OPENINGS:**
 - In the reconstructed part wooden spruce EURO windows of Thermo gold 78 profile. Insulating triple glazing $U=0,7 \text{ W}/(\text{m}^2\cdot\text{K})$ in composition 4-12-4-12-4 mm. Sigenia Aubi Titanium fittings along all circumference, three-position, summer/winter ventilation. Epoxy aluminium guttering with interrupted thermal bridge
 - Glass facade made of aluminium profiles MB-SR50N. Triple glazing.
 - Windows in the annex building and shopfront made of aluminium profiles MB-86 SI. Windows with triple glazing, handles, silver hinges. Doors with safety triple glazing, three-part hinges, panic lock, auto-closer and handle-handle fittings on most elements
 - Panes with fire resistance EI 30 from aluminium profiles MB-78
 - Inner sills made of plastic boards
- **CARPENTRY PRODUCTS:**
 - The existing ceiling beams of the reconstructed building will be sanded and painted. These beams will remain in view and a ceiling of SDK boards will be created between them.
 - The existing building has a pitched roof made of metal sheeting. The supporting part of the roof will be made of wooden impregnated structural elements of the truss and steel profiles HEA 120.
- **JOINERY PRODUCTS:**
 - Internal doors in 1st and 2nd floor, fireproof
 - Residential security entrance doors, fire-proof, with noise attenuation
 - Interior doors with panelled frames, CPL laminate, BB lock in bathrooms and toilets,
 - Office and other internal doors with panelled frames, CPL laminate, FAB lock,
 - Outdoor terraces made of larch planks with colourless impregnation laid on beam grates.
- **LOCKSMITH PRODUCTS:**
 - Garage doors
 - Railing of the internal stairway
 - Office walls including sliding doors
 - External railings of atria, balconies, loggias, pavilions and terraces made of steel with hot-dip galvanised finish
- **FLOORS:**
 - Multilayer wooden floor DUB STANDARD, 3 segments, 3 layers, wooden

- construction, dimensions 2200x207x14/2.5 mm (rooms in the reconstructed part of object)
- CERAMIC TILING AND SLABBING:
 - Tile LA FUTURA CEMENTO 1.0 white 60x60 rectified, matt, color WHITE,
 - LIGHT GREY, IVORY, BROWNISH GREY
 - Tiles PAMESSA Mayfair ocre 19,8x22,8 mat decor hexa, in colors BLANCO, OCRE,
 - GRANA, VERT, NAVI, GRAPHITE, NEGRO
 - Tiling RAKO System white 30x90 ret gloss TERAZZO FLOORS
- TERAZZO FLOORS
 - Lining of stairway steps with terrazzo
 - Machine-glazed. lit. terrazzo, 40 mm thick, on the intermediate floor
- PAINTING
 - Protective dust-proof coating for concrete lower ceiling
 - Protective dust-proof coating for concrete walls
 - Epoxy coating of concrete floors
- WALL PAINTINGS
 - Double white painting including penetrating primer

TECHNICAL INSTALLATIONS

- BTI:
 - Plastic water pipes. Water pipe insulation, Tubolit + Rockwool insulation
 - HT sewage piping connection, sewage vertical, rainwater. Sewage piping horizontal KG piping.
 - Washbasin - Washbasin IDEAL STANDARD - CONNECT AIR CUBE + ALCAPLAST siphon T with overflow nut, metal + HANSGROHE basin mixer - VERNIS BLEND lever 100, chrome with drain set
 - Toilet - Hanging toilet TMS - ELBA SMART + under-plaster hidden module ALCAPLAST + Flush button ALCAPLAST, chrome 24x16 M1721 + WC seat TMS Elba soft-close white
 - Bathtub - KALDEWEI Saniform plus - white + TMS Miva bath mixer, chrome, without accessories + TMS Idealrain shower set S1 jet, chrome + bath trap auto, chrome ALCAPLAST
 - Shower - HANSGROHE Vermis Blend wall-mounted lever shower mixer, chrome + shower set HANSGROHE Vario, chrome, with shower rod 65cm + shower screen HÜPPE X0 Flex flying door - mid. semi-gloss/clear antiplaque 90/190 + TMS tray Perseus Pro-90, chrome white + TMS trap, chrome
- GAS:
 - The existing NTL gas connection Ø80/steel will be used for the building. Gas distribution will be made in the building to the area with a gas stove in the

kitchenette room in the administrative part of the building on the 2nd floor. The gas stove will be used for heating food in the offices.

- VENTILATION AND COOLING:
 - Office space ventilated by an indoor standing standard HVAC unit: P/O= 15.460/15.180 m³/hr, 350 Pa, EU5/EU7 filters, water heating Qt=39,5 kW (water 45/35°C), water cooler Qch=25 kW /(water 6/12 °C)
 - Commercial premises ventilated by an indoor standing standard HVAC unit: P/O= 9.160/9.160 m³/hr, 350 Pa, EU5/EU7 filters, water heater Qt=23 kW (water 45/35°C), water cooler Qch=15 kW /(water 6/12 °C)
 - Ventilation of flats by recuperative units. In the kitchen, kitchen hood is installed
 - Ventilation of the protected escape route
 - Ventilation of the waste area - pipe fan diagonal TD 1000/250 connected via sound dampening hose, Qv=250 m³/h - dPext 150 Pa, three-speed design
 - Ventilation of the garage with exhaust fan O=4170 m³/hr, 250 Pa, 400 V, incl. 2x PV,
 - Transformer cooling, main substation, EPS substation, fire substation, light-current technical room, substation air conditioning SPLIT with outdoor/indoor unit
 - Ventilation for heat and smoke extraction, warehouses, cellars, technical areas, mechanical room cooling and corridor ventilation by fan
- HEATING AND HOT WATER PREPARATION:
 - Steel central heating pipes with Tubolit + Rockwool thermal insulation. Pex/Al/Pex pipes in apartments.
 - Korado heating elements - VK plate heaters + FKO floor convectors + LKE floor convectors + Koralux Linear Max bathroom heaters
 - In the building machine room with 3x Carrier 80 kW air-to-water heat pump, 2x accumulation vessel 100 l, 2x DHW heater - 2000 l, heat exchanger 246/360 kW - DHW/COOL
 - Heating and cooling of the building will be provided by a two-pipe system with forced circulation of heating and cooling water.
- HEAVY-CURRENT WIRING:
 - The multifunctional building will be connected from the HV - 22 kV electrical distribution network. The electricity supply will be provided from the customer's own 22/0.4 kV transformer station, which is expected to be equipped with one transformer of 800-1000 kVA. The E-on HV substation will be located on the 1st floor of the building, from which the customer HV substation located in the 1st floor of the building will be connected. The building will be connected from the E-on distribution network via a new HV connection.
 - In the flats, power and light installation will be carried out in the walls under the plaster, on concrete walls with flat wires in the plaster, in shallow grooves with conventional cables and in the floors. Switches and sockets in ABB Time, standard white
 - The illumination fittings in the flats will be provided directly by the owners of the flats. The illumination fittings shall be of a design and coverage to match the characteristics of the premises concerned. For the illumination fittings in the flats, cable outlets terminated with a terminal block will be prepared as part of the wiring

- In the commercial units, only the electrical wiring will be done to the extent necessary - lighting and basic socket wiring. The rest of the wiring will be done according to the requirements of the specific tenant. The main lighting will be done by LED illumination fittings with electronic ballasts. In commercial units, only basic socket wiring will be done
 - In the office units, only the electrical wiring will be carried out to the extent necessary - LED lighting with electronic ballasts and basic socket wiring
 - Lightning conductor - on the roof of the building a grid system will be built, which will be made with galvanized FeZn D8 wire. The collecting system will be supplemented with auxiliary arrestors and collecting rods. The earthing system will be connected via test clamps to the earthing system by surface leads.
 - Equipment backed up in the event of a power failure from an alternate power source - ASTIP STRONG 50KVA/3F/60M backup power supply with 60 minutes of backup to power the protected escape route ventilation, SOP ventilation, EPS control panel and dampers.
- ELECTRIC FIRE ALARM, EPS
 - EPS is to be installed in the fire section of the garage, technical rooms, push button and smoke detectors will also be installed in CHUC B. Fire detection method - optical-smoke and temperature detectors will be used.
 - LIGHT-CURRENT WIRING
 - CCTV camera system - CCTV cameras will be installed in the building. The situation in the underground car parks, the entrance to the building, entrances to the buildings and entrances to the individual floors (stairways, area in front of the lift) will be recorded.
 - SK structured cabling - in each residential room, a double data socket will be installed for internet connection or for IPTV use.
 - TV and satellite signal distribution system STA - individual housing units will be equipped with a distribution system for terrestrial TV signal. TV antenna will be installed on the roof of the building
 - ACS Access Control System - an ACS access control system will be installed in the building to allow authorized persons to enter the building. It will be part of the door phone system.
 - Door phone system DT - in complex E, the entrance doors to individual buildings and garage doors will be equipped with a door phone with an integrated access system. The entrance door to the building will be blocked by an electromechanical lock from the outside, controlled by a contactless card reader. Entrance to the garage through the entrance gate with a smart card, or by using a automatic doorman. Exit controlled by photo eye.