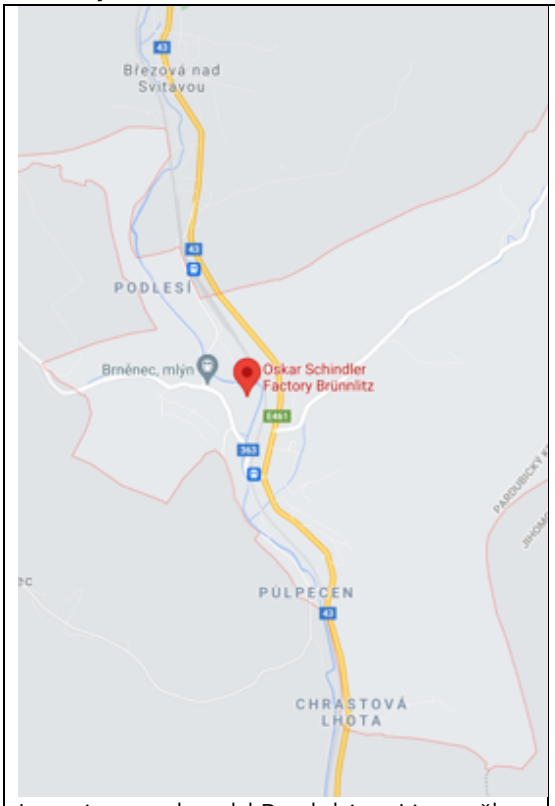
PROF. DR. IVO HAMMER
KONSERVIERUNG-RESTAURIERUNG VON WANDMALEREI/ARCHITEKTUROBERFLÄCHE
CONSERVATION OF WALL PAINTING / ARCHITECTURAL SURFACE

Wien, den 23.6.2021

Brněnec project. Preservation of architectural surfaces. Concept # 1

Place:
Brněnec 3, 569 04 Brněnec, Czech Republic
Object:
Löw-Beer Factory, Schindler's Ark
Owner:
Löw-Beer & Schindler Foundation, Dr. Daniel Löw-Beer, www.arksfoundation.net, daniellowbeer@gmail.com
Local manager: František Olbert, Brněnec 101, 569 04 Brněnec, +420 731 494 182, olbert.arks@email.cz
Scientific advice: Ivo Hammer (on-site inspection together with Dr. Daniel Low-Beer, Saturday, June 5, 2021)



Location on the old Pardubice, Litomyšl - Brno trade route

A

B

Bird's eye view (Google maps). A: Spinning mill, administration building (1944/1945: Oskar and Emilie Schindler), former laboratory (SS building), Schindler's Ark. B: Destroyed weaving mill

Zeittafel:
Around 1820: Founding of a company for the manufacture and sale of carded yarn in Boskovice (Ghetto)
Before 1850 (?): Railway station in Brněnec
1851 Acquisition of the Daubek paper mill (1840, in the area of the former weaving mill) by Aaron (1783-1994) and Jacob (1795-1864) Löw-Beer

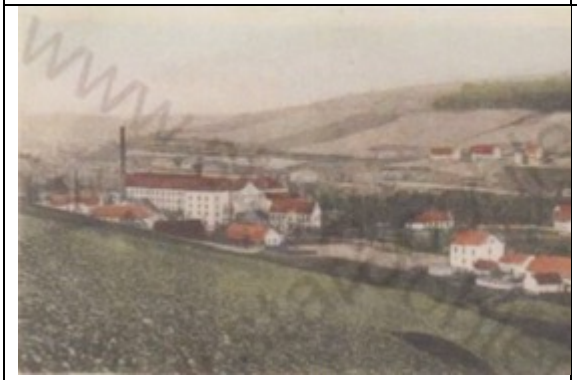
1854: Foundation of the textile factory by Aaron L-B and Jacob L-B and his son Isaac (1811-1898) in Elisenthal / Eliščino údolní, Post Brünnlitz / Brněnec and in Rossrain / Rozhraní
From 1864: Aron & Jacob Löw Beers Son's. Old villa by the weaving mill, Neue Villa 100 to the south-west

Old hall with wooden architecture, after 1854. Photo: Archives Frantisek Olbert, approx. 2010

Postcard Brünnlitz-Brenenec, before 1899.
www.fotohistorie.cz

Postcard from 1899 ("Greetings from Brünnlitz") Villa Daubek (sic!) and mill. Re. Hall with hypäthral roof (saw gable).
www.fotohistorie.cz

Postcard from 1898
www.fotohistorie.cz



Postcard from 1903
www.starepohledy.cz

Around 1900, northern area,
www.starepohledy.cz

Southern area (?), Newly built hall according to the Hennebique system, around 1900. Photo: after r21 architects

Southern area (?), Newly built hall according to the Hennebique system, around 1900. Photo: after r21 architects

Construction of a weaving hall (Moses Löw-Beer company) in Ingrowitz (Jimramov-Benátky), 1906. Photo from PS 2017, p. 125 (Pavel Novotný archive)

Around 1900, northern area? Photo: www.starepohledy.cz

Residential house, around 1900?, Northern area
www.fotohistorie.cz

1899 Brnenec
www.fotohistorie.cz

Brünnlitz/Brnenec, Neue Villa von Arnold L-B (PS, S. 121), 1911-13, Architekt: Hans Weisz, Brno. Brno Václavská 2 (Ugartova), Brno, (PS, S. 115)

Brno Václavská 2 (Ugartova), Brno, (PS, p. 115)

1877 second factory in Brno Václavská 2 (1700 workers)
From 1885 the company was managed by Jonas (1845-1924, son of Jacob (1812-1886)) and Arnold (1852-1922, son of Leopold) Löw-Beer. First woolen goods, hats, felt caps. Later, around 1890, a wool mill, buildings and warehouses. Up to 1600 workers.
Since 1892 (for a short time) military clothing for the state company Offermann und Co.
Part of the Habsburg monarchy until 1918
Management of the factory by the sons of Arnold LB (1852-1922) and Friederike Pollack (1857-1915): Felix LB (1879-1932, managing director, married to Gusti Munch, 1890-1975), Walter LB (1881-1954, technical Director, wool purchasing, married to Alice Bettina Stadler, 1997-1991), August LB, 1883-1942, marketing, married to Alice Gottlieb, 1889-1979).
Developed into a transnational company in the twenties and thirties.
1931 Branch in Cottbus
1938 occupation by the Germans. Aryanization of the Jewish property (Löw-Beer). Escape of the Löw-Beer families.
1944 Oct. Oskar Schindler's Ark: 1200 mostly Polish Jews
1945, May 10th: Liberation by the Red Army
1946 Nationalization, part of the state enterprise Mosilana
Approx. 1961/1961: New heating plant
1968-1972 Expansion of the factory, new buildings and machines: waterworks, warehouses, administration building.
1977: Frantisek Olbert joins the factory.
1989 overthrow of the state socialist system
1992 privatization of the factory. "Manufacturing capacities and employment were reduced to European efficiency standards and the company is better equipped to face competition in the West European conditions." VITKA company. Director: Frantisek Olbert.
2010 closure of the factory.
2012 Devastation of the factory area by thieves within 3 months: Removal of all machines and metal parts (were melted down or sold to Pakistan).
2018 Takeover of large parts of the devastated factory by the Löw-Beer & Schindler Foundation (arksfoundation), Dr. Daniel Löw-Beer, grandson of one of the last owners (Walter L-B) in cooperation with the municipality of Brněnec and Frantisek Olbert. Planning of a museum and exhibition site, including a glass pavilion.

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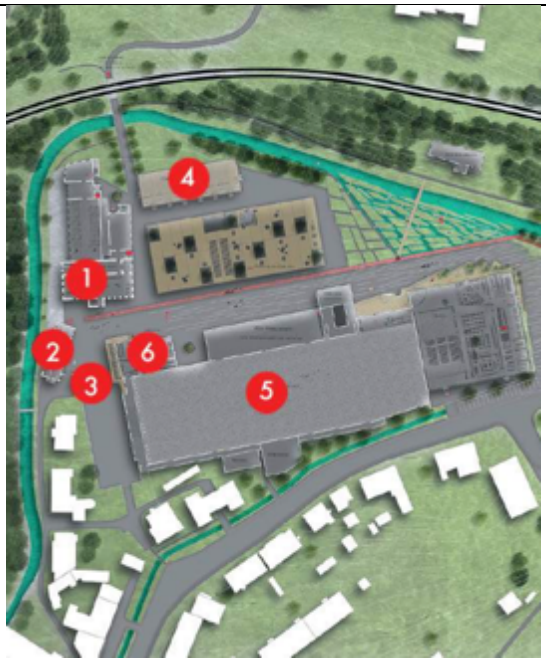
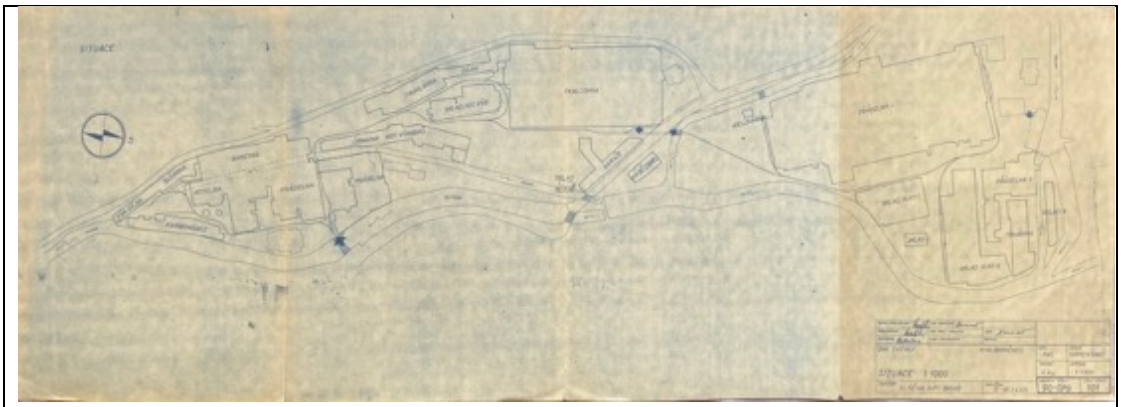
Dr. Daniel Low-Beer, 2018. Photo: www.arksfoundation.net.



⟸ North

Plan: 1. Schindler's Ark; 2. The German Building (former laboratory building); 3. Oskar and Emilie Schindler building (former administration building); 4. Glass and Reflection Room (lounge, toilets); 5. Events and Activities Space (former spinning mill); 6. Restaurant and Facilities Building (new building made of glass, concrete and bricks).



Former Löw-Beer factory, plan 1960 (designer: Malík?), August 1960

Former Löw-Beer factory, plan August 1960 (designer: Malík?), Detail of the north half: PŘÁDELNA I (laundry I); SKLAD VLNY I (wool storage I); SKLAD I (camp 1); PŘÁDELNA II (wash II); SKLAD III (Camp III); TRHÁRNA (market); SKLAD VLNY II (wool warehouse II)

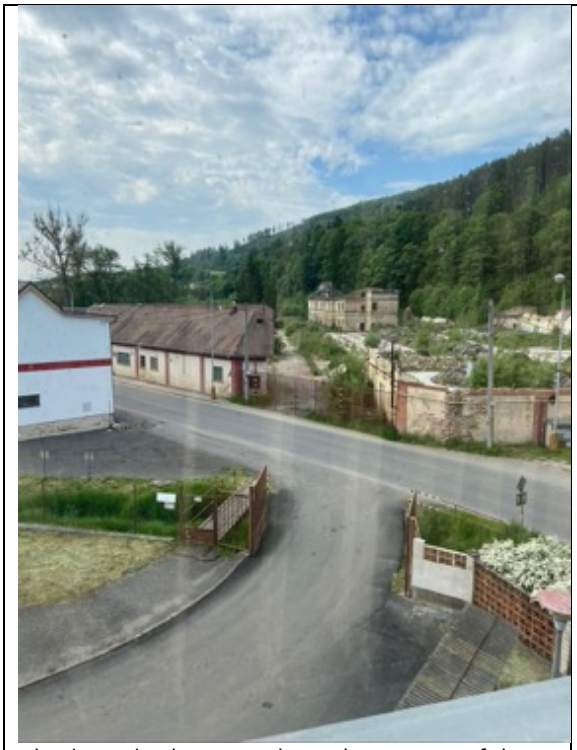
Former Löw-Beer factory, company VITKA, Brněnec, Plan Ing. Štoček, 10/1982

Literature / Sources:

- www.arksfoundation.net
- Ivo Hammer (with contributions from Marko Goetz), Techniques, damage processes and conservation of concrete stone and cement plaster, Docomomo ISCT, in print
- Jaromír Hanák (ed.), Exploring the history of the textile industrialists in Brno. Löw-Beer, Stiassny, Tugendhat, Brno (Museum Brněnska 2017 (PS 2017)
- Daniel Low-Beer, The arks. The Löw-Beer story behind Schindler's List and Villa Tugendhat, Brno 2021
- • František Olbert archive

Former Löw-Beer factory, company VITKA, Brněnec, plan Ing.Stoček, 10/1982, detail north half:
54: social room, 55: furniture cabinet, 56: Superba, 57: steel shed, ramp, 58: MEWA building, 59: vestibule; 60: warehouse for prefabricated raw materials; 61: laundry facility; 62: coal room; 63: laundry facility; 64: boiler room; 65: Hall for carding and combing the wool; 66: substation (transformer); 67: Canopy for the laundry (dye works?); 69: woodshed; 70: residential building; 71: residential building (management by Oskar and Emilie Schindler); 72: Mechanics workshop and chemical laboratory; 73: new dye works; 74: chemical store; 75: New dye works; 76: Dyeing equipment (?); 95: wood transport (?); 96: wood storage; 97: Brick construction (replacement) (?)

Former Löw-Beer factory, company VITKA, Brněnec, plan Ing. Štoček, 10/1982, detail, south side



The largely destroyed southern part of the factory site: right. Remains of the surrounding wall of the weaving mill, in the middle in the background: partially destroyed dye works (warehouse for finished products), left. Garages; all left The renewed fire station. Photo: Ivo Hammer 2021

Northern part of the factory, looking north; in the background the former laboratory (SS building) and Schindler's Ark. Photo: Ivo Hammer 2021

Brnenec, bird's eye view (google maps), northern part of the factory site with Schindler's Ark

Newer hall in the south of the spinning mill, north of the administration building, transversely positioned, with two aisles in north-south direction, approx. 8 aisles in east-west direction, with slender, square pillars. The double-T-shaped, slightly gabled (prefabricated?) Concrete girders span one of the two ships in a north-south direction. The overlays on the girders consist of U-shaped elements with partially exposed reinforcing bars. In the area of the middle of the girder there is a gable hypäthral light band made of windows in steel frames, with ventilation devices. The south wall contains a light band made of 7 rows of glass bricks.
In the foreground the openwork south wall of the spinning mill: block bond, thickness approx. 45 cm (truss and stretcher), the concrete pillar walled in. Remnants of plaster and whitewash. Photo: Ivo Hammer 2021

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Floor plan with ownership.
Plan: r21 architects 2020

Red dotted line: Löw-Beer / Schindler's Ark

Spinning mill from approx. 1890, outer facade of the southernmost part, the later) vestibule has been removed; Structure of the smooth plastered façade with pilaster strips and serrated eaves made of brick, originally presumably yellowish-white lime paint, later several whitewashes in yellow and pink. The oculi of the hypetheral roof are bordered with fascia. The eaves of the roof gable may have originally only been protected with sheet metal. Photo: Ivo Hammer 2021

Spinning mill from approx. 1890, south interior, view to the north.
Possibly the earliest monolithic concrete structure based on the Hennebique system, patented in France in 1892 (see I. Hammer, 2021), with hypetheral lighting.
6 (?) Naves, a total of approx. 30 (?) Yokes. Floor originally perhaps red terrazzo (?). Square pillars chamfered up to a height of approx. 3 m, three yokes each are connected with a high rectangular beam. Each pillar and additionally the center of each yoke are connected with U-shaped transverse girders, each of which protrudes slightly beyond the longitudinal girder and is pulled down a bit at the point of attachment and is thus higher. The lower edges of the girders and the cross girders are chamfered up to the pillars. A gable sits on the vertical beam of the U-girder, which is completely closed with formwork concrete on the south side and a stile reinforced at the gable base on the north side in the pillar area. The ribbon windows are glazed in steel frames, 8 windows per nave, one of which (in some areas) has a ventilation device. The western and southern outer walls or the partition walls, bricked in block bond and stretcher-binder thickness with a brownish mortar (Roman cement?), Or the partition walls were plastered with a brownish mortar (possibly only one layer, which is possible with a hydraulic lime mortar), the surface probably rubbed and probably painted with a whitewash colored with fine silicate particles of sand.
The concrete parts, like the plastered brick walls, are likely to have been painted with the same yellowish-white whitewash. Photo: Ivo Hammer 2021

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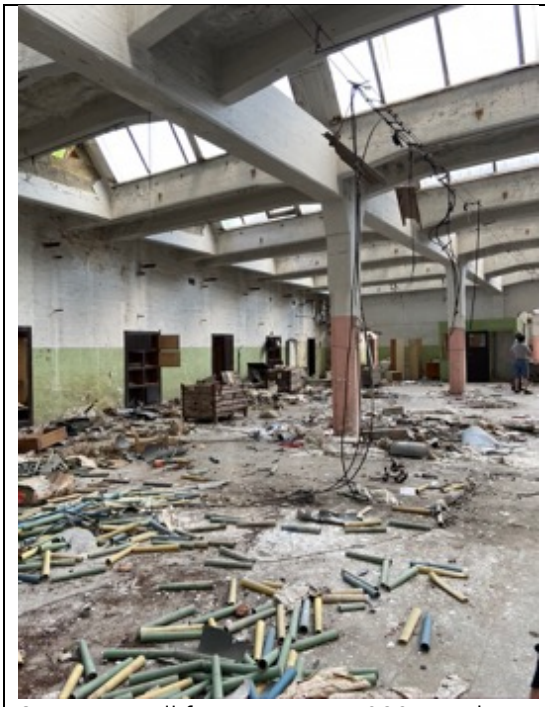
Spinning mill from approx. 1890, northern interior, looking north. Photo: Ivo Hammer 2021



Spinning mill from approx. 1890, south interior, view to the northwest. Photo: Ivo Hammer 2021

Spinning mill from approx. 1890, southern interior, western oculus of the gable wall of the hypäthral light. The inside of the gable wall is coated with panels that are black at the break edge. Possibly slag and bitumen or cement (?) Panels. The panels are probably used for thermal insulation. Photo: Ivo Hammer 2021

Spinning mill from approx. 1890, northern interior, broken edge of a machine pit: Under the destroyed recent concrete messenger, a possibly original slab of red terrazzo. Photo: Ivo Hammer 2021

Spinning mill from approx. 1890, northern interior, machine pit and the rest of the heating pipes below the cross member. Photo: Ivo Hammer 2021

Spinning mill from approx. 1890, north interior, view to the east. Photo: Ivo Hammer 2021

Spinning mill from approx. 1890, south interior, detail of a pillar. The cement is the brownish roman cement. A touch up? Photo: Ivo Hammer 2021

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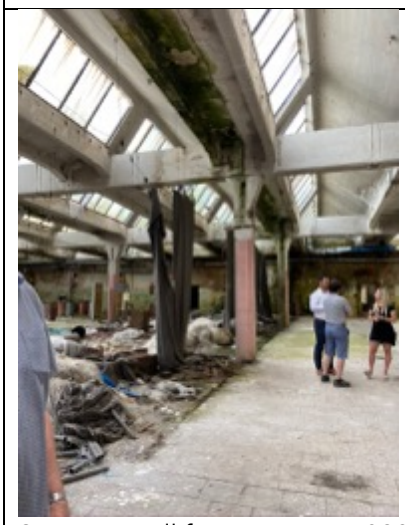
Spinning mill from approx. 1890, northern (?) Interior, detail of a cross member. The gray cement mortar and the reinforcing iron are visible in the mechanical damage.
Photo: Ivo Hammer 2021

Spinning mill from around 1890, northern interior, east wall, detail. The brownish masonry mortar is visible on the broken-out segmental arch overlay of the door.
Photo: Ivo Hammer 2021



Spinning mill from approx. 1890, northern interior, joint between two yoke compartments in the side member and the cross member. In this area, the pillar is not monolithically connected to the girders.
Photo: Ivo Hammer 2021

Spinning mill from approx. 1890, northern interior, detail of the west wall. Possibly original rubbed and whitewashed surface.
Photo: Ivo Hammer 2021

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Spinning mill from approx. 1890, southern interior, devastated in 2012 (?). Daniel Low-Beer with the rest of a fabric product. Photo: Ivo Hammer 2021

Spinning mill from approx. 1890, southern interior, devastated in 2012. Daniel Low-Beer with a textile worker's* hair protection. Photo: Ivo Hammer 2021

Spinning mill from approx. 1890, southern interior, devastated in 2012 (?). Daniel Low-Beer with the rest of a fabric product. Photo: Ivo Hammer 2021

Spinning mill from approx. 1890, southern interior, devastated in 2012 (?). Photo: Ivo Hammer 2021

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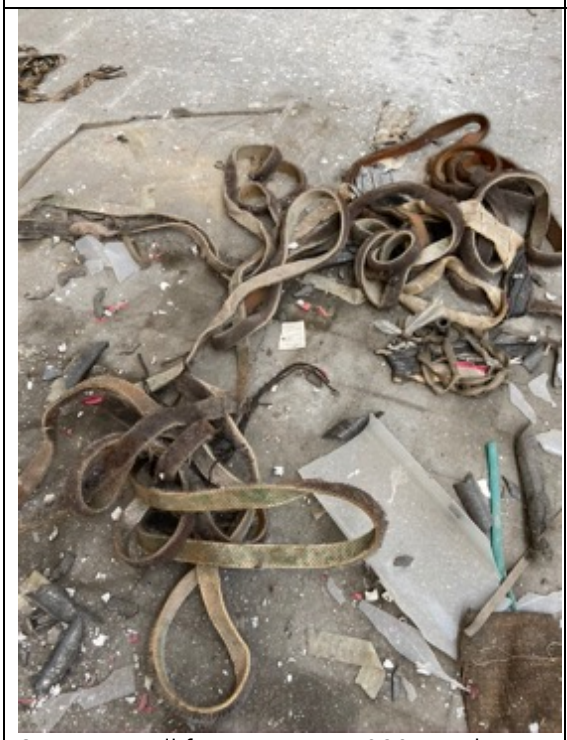
Spinning mill from around 1890, northern interior, devastated in 2012 (?). Basket with raw wool. Photo: Ivo Hammer 2021

Spinning mill from approx. 1890, northern interior, devastated in 2012 (?), Remains of spinning machines. Photo: Ivo Hammer 2021



Spinning mill from approx. 1890, northern interior, devastated in 20121 (?). Ribbons for carding wool. Photo: Ivo Hammer 2021

Spinning mill from around 1890, northern interior, dies in 2012 (?). Daniel Low-Beer with intermediate product from wool spinning. Photo: Ivo Hammer 2021

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Spinning mill, north and east facade. Photo: Ivo Hammer 2021

Brněnec, view from the upper floor of the former spinning mill II (Schindler's Ark) onto the courtyard (Brněnec concentration camp) with former carding (left), former residential building (administration Oskar and Emilie Schindler), former laboratory and mechanic's workshop (SS building). Photo: Ivo Hammer 2021

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> North.

Part of the spinning mill I (?). Plan: r21 architects 2020

Carding?), View from the southwest

Carding?), View from the northeast. Around 1900? With pilaster strips, segment-arched crowning of the windows, profiled brick eaves with tooth cut, smooth (cement?) Plaster, whitewashed yellow. Flat roof. Crowning the east facade. Photos: Ivo Hammer 2021

Residential building (management by Oskar and Emilie Schindler). Brick, block bond. Profiled eaves cornice. Raised south gable. 3 (?) Chimneys. Walled up doors. A window walled up with cement mortar. Photos: Ivo Hammer 2021

Residential building (management by Oskar and Emilie Schindler), facade detail: base plaster with yellowish-gray mortar with fine lime sparrows (dry slaking), fine plaster with the same mortar, only finer grain size.

Rubbed surface, very light yellowish-white, thin Freko whitewash. 2 thin yellowish-white whitewashes.
Stubby plaster with light gray mortar with fine lime sparrows, possibly natural plaster 3 whitewashes: brown, light red-brown, green. Photos: Ivo Hammer 2021

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Iron gate between the house and the SS building: entrance to the Brnenec concentration camp

Peephole in the iron gate. Photos: Ivo Hammer 2021

Former laboratory and workshop (SS-Bau des KZ Brnenec, German building). 2 construction phases: stone masonry mixed with bricks, 2 storeys. Gable wall built with brick. The windows on the upper floor possibly enlarged with brick, with a wedge-shaped brick lintel. Both gable walls raised. 2 chimneys in the east. Roof covered (2012?), Only the roof battens left. Completely devastated inside. Remains of plaster and whitewash preserved on the south facade. Window frames and window sashes still partially preserved. Photos: Ivo Hammer 2021

Former laboratory and workshop (SS-Bau des KZ Brnenec, German building). South facade. Profiled door frame with segmented lintel. Remnants of a tooth cut eaves.

Former laboratory and workshop (SS-Bau des KZ Brnenec, German building). Look into the window to the left of the center entrance. Devastated interior. Photos: Ivo Hammer 2021

Former laboratory and workshop (SS-Bau des KZ Brnenec, German building). Details of the south facade (lower edge of the picture approx. 10 cm). Base plaster with yellowish-gray mortar with fine lime sparrows (dry slaking),

Fine plaster with the same mortar, only finer grain. Rubbed surface, very light yellowish-white, thin Freko whitewash. Approx. 5 whitewashes. Recent rub from (lime) mortar.
Photos: Ivo Hammer 2021

Brnenec, Schindler's Ark, west facade (left south facade of the SS building). Photo: Ivo Hammer 2021

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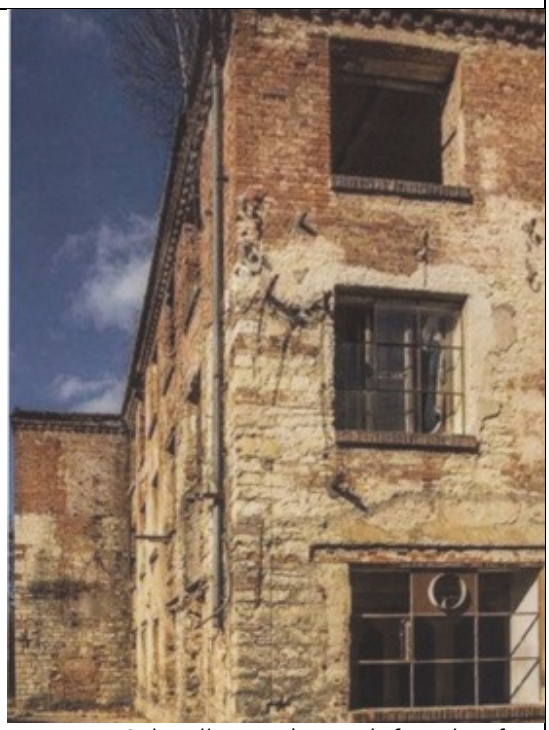
Schindler's Ark and dye works with annex. 1st floor (above) and 2nd floor.

3rd floor

Rosa: multipurpose rooms
Yellow: projection rooms
Gray: corridors
Purple: stairwell
Red: elevator
Blue: sanitary facilities
Green: storage rooms

Plans (with initial renovation proposals): r21 architects 2020

Brnenec, Schindler's Ark, north and west facade. Photo: wikimedia commons, 2020
The lower two floors in stone wall, mixed (repaired?) With brick, the upper floor in brick. The eaves are profiled with a tooth cut. All windows are apparently broken out or enlarged secondarily, with a protruding sill made of a group of bricks and lintels made of linteled double-T girders. The steel frames of the windows have largely been broken off. Photo: Alamy



Brnenec, Schindler's Ark, south facade of the stairwell risalit and part of the south wing. Photo: Ivo Hammer 2021

Brnenec, Schindler's Ark, west facade of the south wing. Photo: Ivo Hammer 2021

Brnenec, Schindler's Ark, west facade of the south wing, detail south corner. Stone masonry, masonry mortar alleged (share of Romanzmenet?). Remnants of the plaster made of lime mortar: light yellowish gray, dark parts of the grain, lime sparrows (from dry slaking). Photos: Ivo Hammer 2021

Local pink discoloration of the stone from the source of the fire.

Brnenec, Schindler's Ark, south facade. On the east facade, a secondary staircase is installed in the space between the adjoining building. Rebuilt several times.

Brnenec, Schindler's Ark, south facade, east corner, lower part.

Brnenec, Schindler's Ark, south facade. With subsequent older annex building of the dye works:

Schindler's Ark, east wall, detail of the south-east corner: stone masonry, sloping base

Space between Schindler's Ark and the annex to the dye works: concrete stairs. Photos: Ivo Hammer 2021

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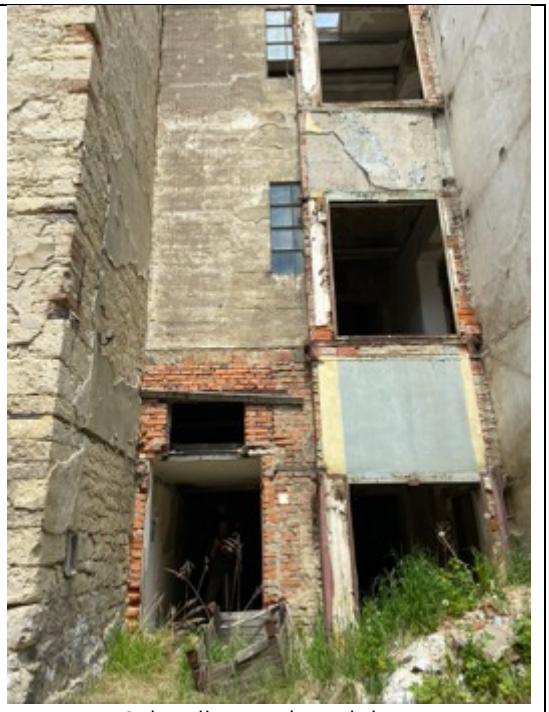
Right: (partially covered by a trailer) annex to the dye works: bricks, irregular structure, facade structure with pilaster strips, belt cornices with serrations and profiled eaves cornice. Flat roof. Lined window lintels made of double T-beams, cantilevered sills made of a group of bricks. The zero surface plastered smooth and whitewashed yellowish, the structure brick-faced (or red)? On the west wall of the Anex building, traces of a former external staircase (?), Which correspond in height to the adjoining wall openings, with smooth, yellowish-white plaster (damaged at the corners).
Photos: Ivo Hammer 2021



Between Schindler's Ark and the annex building of the dye works. On the right the structure possibly corresponding to the adjoining external staircase: steel girders with brickwork, HERAKLITH panels (wood wool with Sorel cement), plastered and leftover paint: yellow, gray (probably organic binder) and yellowish-white (lime) whitewash.
On the left on the ground floor a very irregular brick structure, the door opening has a lintel from a steel beam. Above a window opening with wooden elements. Above the brick structure, the roughly paved concrete wall of a stairwell with side windows. Traces of yellowish white whitewash and remnants of a smoothed (?) (Cement) plaster without whitewash.

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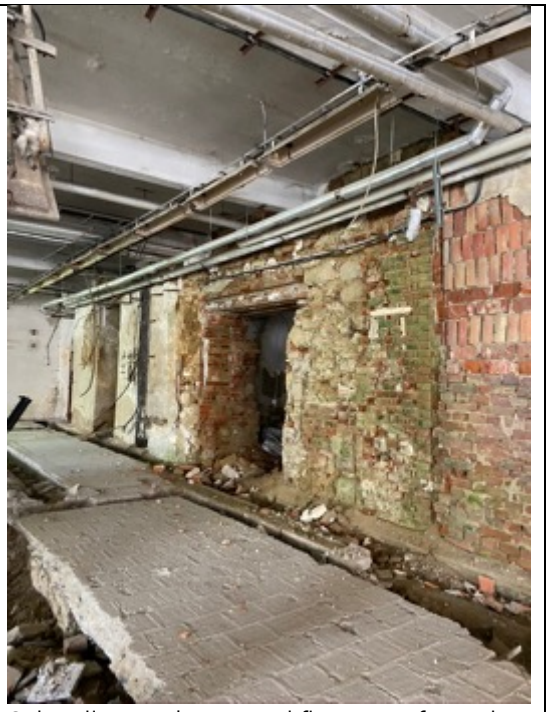
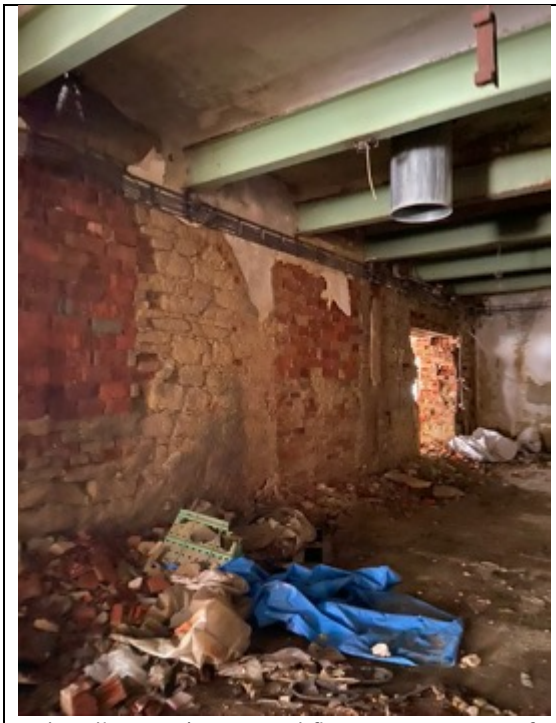
Schindler's Ark, ground floor, reinforced concrete hall, built into an older structure. View to the southeast. Photos: Ivo Hammer 2021



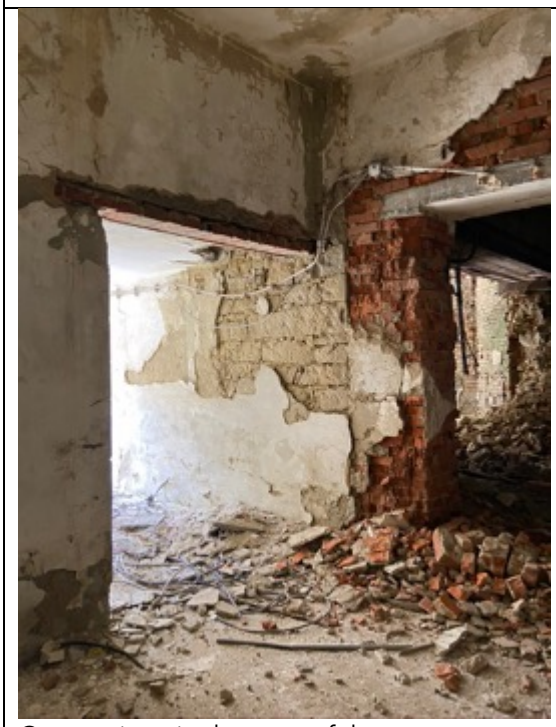
Schindler's Ark, ground floor, reinforced concrete hall, view to the northeast. Breakthrough through stone and brick wall. Bricking up a window. Photos: Ivo Hammer 2021

Detail of the walling up of the window

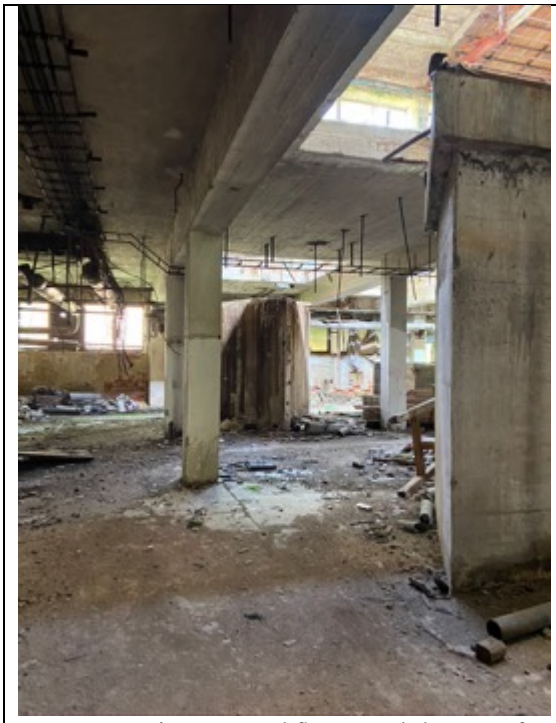
Schindler's Ark. View of the adjoining room to the east: ceiling made of double T-beams with vaulted spaces.



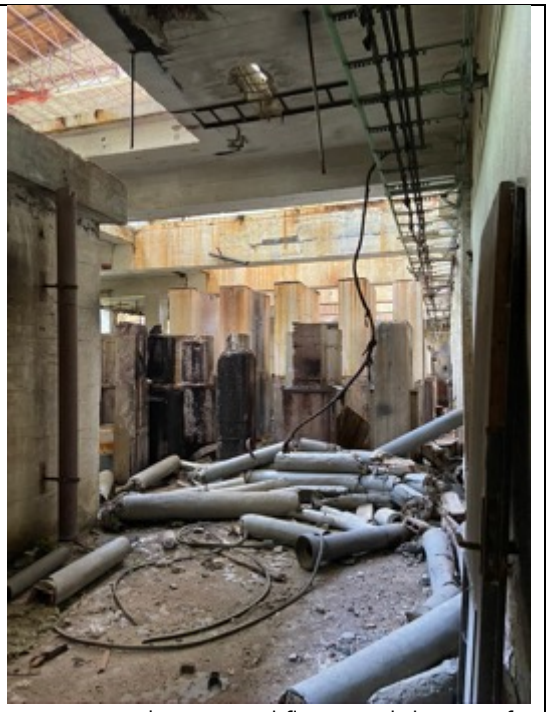
Schindler's Ark, ground floor, room east of the reinforced concrete hall. Stone masonry rebuilt with bricks.



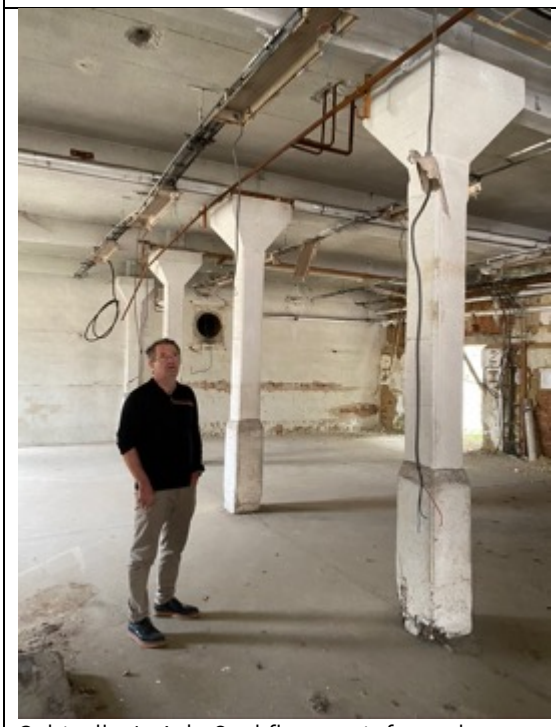
Conversions in the area of the annex building Photos: Ivo Hammer 2021



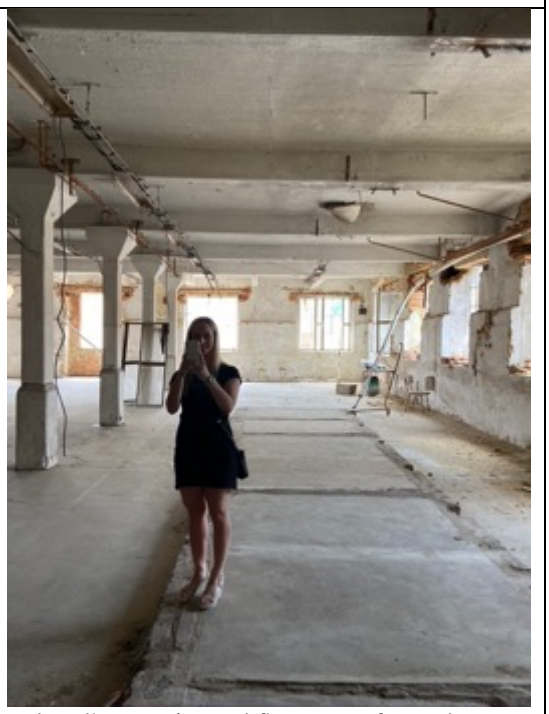
Dyeing works, ground floor, with bases of the dyeing centrifuges. Photos Ivo Hammer 2021



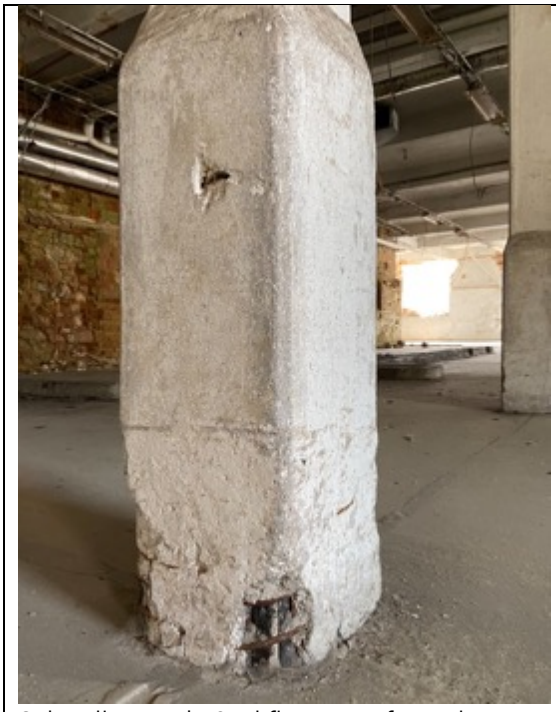
Dyeing works, ground floor, with bases of the dyeing centrifuges. Photos Ivo Hammer 2021



Schindler's Ark, 2nd floor, reinforced concrete hall, view to the northeast (with Daniel Low-Beer).



Schindler's Ark, 2nd floor, reinforced concrete hall, view to the south.



Schindler's Ark, 2nd floor, reinforced concrete hall, view to the southeast, detail: reinforcement of the pillar with reinforced concrete. Photos: Ivo Hammer 2021

Schindler's Ark, 2nd floor, space between the reinforced concrete hall and the dye works, view to the southeast, reinforced concrete ceiling with hypäthral light.

Schindler's Ark, dye works. Reinforced concrete construction with large north windows, facing south, closed towards the annex. Reinforced concrete floor with openings for the centrifuges,

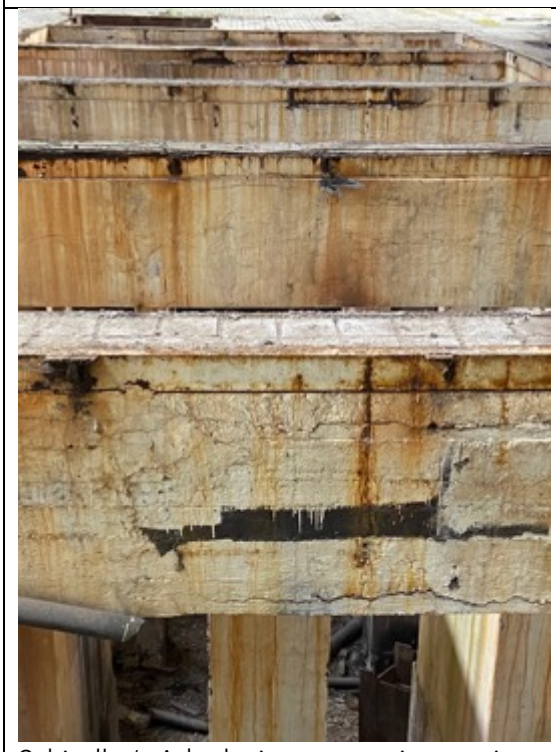
The walls are tiled up to the level of the sills of the north windows (blue, yellow, black). On the south side there is an additional tiled wall, probably as a splash guard (with recent wall paintings)

Schindler's Ark, dye works, looking east.
Concrete tiles of the floor with wedge joints. The steel structure of the roof with ribbon windows opening to the north and south. Photos: Ivo Hammer 2021

Schindler's Ark, dye works, looking west.

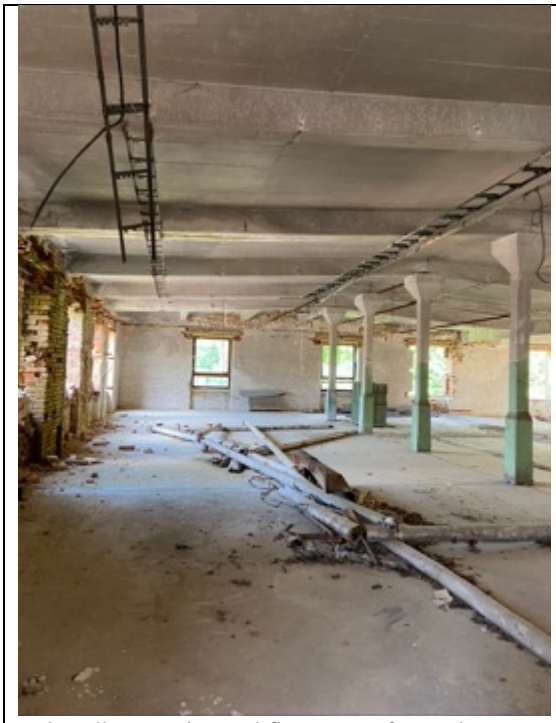
Schindler's Ark, dye works, northwest corner. Remnants of the crane

Schindler's Ark, dye works. Back of a tile: RAKO
Photos: Ivo Hammer 2021



Schindler's Ark, dyeing, protective coating (oil paint?)

Schindler's Ark, dye works, concrete reinforcement



Schindler's Ark, 2nd floor, reinforced concrete hall, view to the south. Photo: Ivo Hammer 2021

Schindler's Ark, 2nd floor, reinforced concrete hall, view to the northeast. Photo: Ivo Hammer 2021

Schindler's Ark, 2nd floor, reinforced concrete hall, northern annex room, view to the south. Photo: Ivo Hammer 2021

Schindler's Ark, 2nd floor, reinforced concrete hall, northern annex room, view to the southwest, detail. Photo: Ivo Hammer 2021

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Schindler's Ark, 2nd floor, reinforced concrete hall, northern annex room, view to the northeast. Photo: Ivo Hammer 2021

Schindler's Ark, 2nd floor, reinforced concrete hall, northern annex room, view to the south, detail: bricks, brownish masonry mortar, yellowish white lime directly on the brick wall. 1-2 later whitewashes. Photo: Ivo Hammer 2021

Brnenec, administration building from around 1968-1972, director's office, 6. 6. 2021; v. left Ivo Hammer, NN, Daniel Low-Beer, František Olbert, translator, 2 architects,

Methodical preliminary remark:
During the on-site inspection on June 9, 2012, the following information was available as historical data:

- www.arksfoundation.net
- Jaromír Hanák (ed.), Exploring the history of the textile industrialists in Brno. LöwBeer, Stiassny, Tugendhat, Brno (Museum Brněnska 2017 (Petra Svobodová, PS) 2017) (
- Daniel Low-Beer, The arks. The Löw-Beer story behind Schindler's List and Villa Tugendhat, Brno 2020
- Expert opinion Jana Vitková 20.6.2007, 130 pp, (Czech, google translation) (attachment).
- Ms. Daniel Low-Beer: The Glass Pavilion - Activities and Exhibition, s.d. (2020?) (Supplement)
- Interview of Daniel Low-Beer by Jitka Tláskalová, s.d. (2020?) Supplement.
- Oral communications by Daniel Low-Beer and František Olbert
- Frantisek Olbert gave the author a data carrier with photos and written documents (Czech)

The existing historical information and designations must certainly still be corrected and specified.

Only a period of approx. 3 hours was available for the phenomenological examination (partly with a forehead magnifier). The information available on the architectural surfaces can therefore only be assessed as initial cursory observations.

Summarizing remarks on the original surface appearance:
The construction history of the individual buildings still needs to be clarified in detail, i.e. which buildings belonged to the Daubek paper mill, which buildings were rebuilt or rebuilt when the Daubek paper mill was taken over by the company Aron, Jacob and Isaac and which buildings were added and when. Last but not least, it is interesting how one should imagine the structural area, its use and its surface appearance at the time of the takeover by Oskar Schindler and use as a concentration camp from October 1944 to May 1945. And finally, it would also have to be clarified which buildings were rebuilt after 1945, which were added and what the surface of these buildings was like and how they were repaired.
In general, the buildings were very likely painted with whitewash in a yellowish-white shade, both on the facade and in the interior, as is usual for industrial architecture around 1900 and in the first half of the 20th century. The color tone results from the mixture of hydrated lime with fine sand slurry, which has a pigmenting effect and at the same time has a hydraulic effect and apparently also accelerates carbonation. It is possible that the surfaces of the brick architecture were only coated with a lime slurry, at least in the interior (e.g. in Schindler's Ark, 3rd floor), but possibly also on the façade.
(see Ivo Hammer (with contributions of Marko Goetz), Techniques, damage processes and conservation of concrete stone and cement plaster, Docomomo International Scientific Committee Technology ISCT, in print (2021)).

Individual elements of the facades (pilaster strips, eaves cornices, window crowns) were possibly brick-exposed. The question of whether the combination of traditional brick architecture (with a profiled, brick-faced eaves cornice) and the most modern concrete architecture, e.g. in the case of the large spinning mill corresponds to a desired design or resulted from renovations of existing architecture.

Summarizing remarks on the condition of the architectural surfaces

Overall, the masonry made of stone masonry, bricks and reinforced concrete seems to be in a relatively good statically condition despite devastation in 2012 (?). The flat roofs also seem to be mostly tight. The main danger is the destruction of the roof of the SS building (former laboratory) and the destruction of the windows. Particularly in the area of the hypetheral windows (spinning mill, connecting space between Schindler's Ark and dye works) there is direct infiltration of water and massive deficiencies in the roof drainage, which lead to growth of plants and microorganisms (e.g. algae) and sometimes to considerable pollution soluble salts.

Years of neglect led to the extensive loss of plaster and whitewash on the facade of the existing buildings. Only a few plaster residues have survived on the facade of Schindler's Ark, the date of which is currently unclear. The historical buildings were probably also repaired in the period from 1945 to 1989 using traditional craft methods.

SUGGESTED MEASURES

(in each case consultation with monument preservation, owner and other stakeholders)

A) Immediate measures necessary for conservation: (urgent!)

1. **(Provisional) covering of the roof of the SS building (German Building) (**
2. **(Temporary) repair of the roof drainage (removal of vegetation, blockages, cover), especially in the area of the spinning mill (saw roof).**
3. **Covering the window openings (e.g. slatted frame with reinforced transparent foils)**
4. **Definition and securing of parts at risk of falling (eaves cornices, hypetheral roofs, etc.)**
5. **Photographic documentation, cataloging and securing of the remaining production elements: z. B. machine pits, machine parts, heating pipes, electrical systems, ventilation systems, spindles, threads, containers (by specialists in - historical - textile production, i. e. František Olbert)**

B) Conservation-science study:

1. **Production of documentation - digital: (urgently!)**
   (By architects and photographers, cooperation with monument preservation, , historians, technologists, conservators-restorers)
   1. Floor plans with binding designation and numbering of the individual buildings.
   2. Almost dimensionally accurate photos of all wall surfaces (facades, interiors)

2. **Historical data**
   Cooperation with heritage authority, historians*, technologists*, conservators-restorers*, local people. Special task of Frantisek Olbert.
   1. Collection and dating of all historical, visual and written documents:
   2. Plans from building authorities, former owners,
   3. Historical photos (building, production processes, surroundings)
   4. Collection of written and visual data on the building history and the renovations of the individual buildings

5. Collection of written and visual data on the use of the buildings, the corresponding machines, the energy supply, heating, ventilation and the products produced.

3. Technologische Untersuchung durch Konservatoren-Restauratoren.
(Interdisciplinary cooperation with preservationists, architects, technologists, building air conditioning experts, natural scientists),
On the following topics:

1. *Materials / technology*:
   Wall, coating, original surface (materials, structure, layers, texture, color, patina)
   • original surface
   • later (anthropogenic) changes: construction phases (design) - repair (layers)
2. *Condition: extent of preservation, well-preserved parts, damage phenomena (weathering):*
   Hollow spots (lack of adhesion), cracks, flaws, strength and adhesion, efflorescence of salts, color changes, microorganisms, etc .; distribution and intensity of damage
   • original surface
   • later (intentional, historically significant) changes: construction phases (design) - repairs (layers)
3. *Technical data:*
   Statics, roof, windows, doors, drainage system (roof, base).
   Cooperation of structural engineers and building technologists with conservators-restorers.
4. *Building physics data*:
   Climate (temperature, relative humidity RLF, wind direction, solar radiation, humidity (infiltration, thermal condensation, hygroscopicity), electrical conductivity of the surface, capacitance measurement with regard to wall moisture, heating, use, etc.
   If necessary, this data can be collected by conservators-restorers for an initial survey.
5. Scientific research
   Chemically (e.g. areas and depths of the plastering), physically (e.g. porosity), samples: (description, mapping / photo, question, working hypothesis, investigation methods, results, layer structure, materials).
   Cooperation between natural scientists and material scientists with conservators-restorers.

4. Interpretation
Of the data obtained and corresponding scientifically founded narratives regarding the following questions:

1. Historical data:
   • Building history
   • original appearance (well-preserved areas)
   • History, forms and historical significance of the changes
2. Technological data:
   • Materials, techniques and surfaces of all significant historical phases

- Factors favorable to conservation
- Causes of damage:
- anthropogenic factors (construction errors, manufacturing errors, repair materials, neglect, etc.)
- Weathering: assessment (evaluation) of the damage factors,
- Explanatory model of the damage processes: strength, effects, topicality, dynamics
- Conservation perspective

5. Owner's usage guidelines

Daniel Löw-Beer describes in the above-mentioned texts (interview with Jitka Tláskalová, 2020 (?) And The Glass Pavilion ...) the following usage plans for the existing buildings in the northern area of the former Löw-Beer factory, which contains Schindler's Ark:

1. Establishment of a museum of the history of Central Europe, a place of exemplary, creative coexistence of different languages, cultures and ethnicities, and "a monument to how to save a life and to survivors, a unique and universal theme from the twentieth century",
   - "Testimonies" (contemporary witnesses, in black and white) in the glass pavilion
   - "Survivors" (in color) and how they in fluence our world "(focus on textiles) in the glass pavilion.
   - "Film materials were the events occurred and current issues of discrimination" (Schindlers Ark s Ark, former dye works, guided tours by local people)
   - "Recreate both the sleeping arrangements (of the Schindler Jews, I. H.) and the work area".
   - Construction of a glass pavilion with echoes of the architecture of Ludwig Mies van der Rohe (Tugendhat House, Barcelona Pavilion) for exhibitions, discussions, lectures, and
   - Construction of a restaurant.
2. Revitalization of the former spinning mill
   as a place for cultural events, as a production facility for local businesses and as a production facility for high-quality textiles. The knowledge and skills still available on site in the field of textile manufacture should be used. The idea is to set up a New Bauhaus for textiles. Among other things, the plan is to manufacture two carpets for the Tugendhat House in line with the quality standards of Lilly Reich and Alen Müller-Hellwig.

6. Building authority requirements

František Olbert's team can ensure the safety of the construction site during the period of conservation research.
For the planning of the adaptation of the buildings as a museum, it is important with regard to the safety of the visitors that the planning is carried out from the beginning in cooperation with the heritage authority and the commissioned conservators-restorers in order to prevent interventions that officially could become approved, but would be detrimental to the historical substance.

7. Preservation objectives

The aim of the preservation of monuments is to preserve the materiality of the monuments as a manifestation of historical, creative and other ideal properties and forms that are ascribed to the cultural monument. These properties are objectified in the material substrate, in its materials, application techniques and also in the surface appearance and in the traces of its change. The source value of a monument, i.e. its authenticity, is based on its materiality.
(see: Ivo Hammer, Materialität und Konservierungswissenschaft. Notes on a cultural-scientific problem / Materiality and Conservation-Science. Notes on a Culture Studies Problem, in: Restauratorenblätter / Papers in Conservation, vol. 36 (im-material-ity), IIC Austria (Vienna) 2019, 23-42)
The material appearance of the surfaces can be summarized under the following categories:

1. The physical and chemical character of the materials, material combinations, through the manufacturing and processing technology, through work equipment and tools (structure, texture, design)
2. The purpose, use, utility value of the object and the material function of the part of the object
3. The design, the shape, the color, the color effect, the decorative concept and its material representation
4. The desired, anthropogenic changes (adaptation to changed use, changed design, repair)
5. Natural weathering, aging (physical, chemical, microbial processes (favored by material and processing errors during manufacture and repair, due to neglect, due to special natural events)

In the case of historical architecture, it is not only important to preserve the materiality of the memorial values, but also - in contrast to the purely museum presentation of an object - the preservation and rehabilitation of the current practical value. Regardless of the age and the valuation of a monument, there are always social and practical problems to be solved at the same time, which are related to the utility value: B. Problems of statics, security, weather protection, adaptation to modern use and their financing. The components must fulfill their physical function: e. g. roofs and the drainage of rainwater, windows and their protective function against rainwater, wind, temperature fluctuations, heating for usability and against thermal condensation, stairwells and their safe accessibility.

With regard to the aesthetic presentation of the buildings by Schindler's Ark, credible historicity is an essential element of memory value. A renovation that would make the buildings "shine in new splendor" (as one can often read trivial reports on monument preservation) is certainly out of the question in the case of Schindler's Ark, even if this renovation was carried out using historical technology the corresponding materials, techniques and surfaces. A balance has to be found between the technologically necessary measures of conservation and repair and the presentation of the traces of history.
In the course of the conservation-scientific investigation, the **necessary conservation measures** on the architectural surfaces can be defined. With regard to **aesthetically desirable measures**, there is usually a certain range of options available.

This balance between conservation on the one hand and restoration and repair on the other hand is of course particularly relevant to the facades and requires solutions adapted to the specific case, which must be developed by conservators-restorers in cooperation with the heritage authorities and other stakeholders and are to be monitored in cooperation with the craft during execution.

Monument preservation can be seen as a paradigmatic form of sustainable handling of historical buildings, specifically with regard to the following categories:

- intelligent use (satisfaction of cultural needs instead of greed and speculation)
- efficient maintenance and value retention, d. H. historical tradition of material-compatible periodic care
- Avoidance of (long-term) energy loss: gentle adaptation to new usage requirements instead of new buildings
- Old building materials and techniques can be repaired
- Reuse of materials in reconstruction and adaptation (recycling)
- Separability and safe disposal of no longer usable materials
- Lifespan of buildings and their surfaces if they are regularly maintained and repaired, no accelerated aging (obsolescence) such as B. with thermal insulation.

Even where a new building is inevitable or necessary, the monuments offer, so to speak, suggestions for solving technical, aesthetic and other cultural and social problems. The memorials store the experiences of many years, even millennia, which have proven their technological and cultural suitability through their very existence. Why shouldn't we use these sources of knowledge?
(see: Ivo Hammer, Zur Materialität des Neuen Bauens. Bedeutung und Methode der Erhaltung (On the Materiality of Modern Movement Architecture. Significance and Method of Conservation), in: VDR Association of Restorers (Ed.), Beiträge zur Erhaltung von Kunst und Kulturgut (Contributions to the Conservation of Art and Cultural Property), 1 / 2017, pp. 88-96.
This can also affect the planned **glass pavilion**. The walls of this glass pavilion do not have to be made of the usual concrete construction, with unsustainable thermal insulation and coatings containing synthetic resin. An abundance of historical bricks is available on site for the walls of this glass pavilion. A sufficiently thick, dry brick wall, walled with hydraulic hydrophilic lime mortar, has thermal values (conductivity, capacity) that correspond to modern standards. In addition, hydrophilic lime plaster and whitewash on the facade and in the interior can create that aesthetic and tactile quality that corresponds to the textiles once produced in this location. At the same time, you can tie in with the materiality of the Tugendhat house. In the Tugendhat house, modern materials such as polished metal and glass walls are combined with traditional, highly precise handcrafted wall coatings (stucco lustro!).
Also conceivable are walls made of historical bricks that are not plastered (exposed brick masonry) and that show traces of their earlier use and thus also show a credible reference to the history of the surrounding buildings.

8. Division of tasks: who does what?

The entirety of transdisciplinary research by conservators-restorers * (confirmation of findings) and interdisciplinary art-historical and architectural-historical, technical and scientific research with the aim of preserving cultural heritage is what we now

call conservation-science study. The data obtained from the investigation of the material substrate only make sense if they are understood as the basis of the meaning justified by cultural studies, i.e. in the historical and cultural context. All disciplines that deal with culture, its matter, its evaluation and meaning must make their contribution in this epistemic process, e. g. architecture and design, architectural history, archeology, historical science (e.g. politics, society, law, culture, diversity, education, economy, technology of textile production), natural and material sciences, statics, building climatology, conservation-restoration.
The interdisciplinary cooperation between architects * and conservators-restorers * is of particular importance in order to achieve the monument conservation objectives with regard to the architectural surface, i.e. the meaningful connection between conservation and design, past and present. Design-oriented values, stereotypical aesthetic norms and prevailing modern technologies can lead to aesthetically inadequate and technologically harmful changes and loss of substance in architectural monuments whose memorable value is more associated with the historical dimension than with the dimension of design. The interdisciplinary cooperation between design and conservation-restoration is an essential part of the planning process and must take place from the start.
A second, essential point is the cooperation between conservators-restorers * and the craft. With the international change in economic paradigms in the direction of short-term calculation and the depletion of resources in the 20th century, the traditional tradition of manufacturing and repairing has been abandoned. The practical knowledge of the craft in the use of traditional materials has been replaced by so-called intelligent products that were developed in the laboratories of large companies, but which are usually technically and aesthetically incompatible with the historical substance. Together with the craftsman* and with the support of material science analysis and historical knowledge, including historical technology, the conservator-restorer * develops methods of manual repair that build on the historical technology found on the object and defined in the cultural context. In preparation for the preservation of larger objects, the conservator-restorer * will produce working samples together with the craftsmen * involved and finally, in agreement with the decision-makers, carry out a **pilot work** in which the necessary work steps are practiced, the necessary workload determined and the desired aesthetic result is clarified.

9. Carrying out the conservation-scientific investigation

Universities with courses in conservation-science are certainly particularly suitable for carrying out the investigations. The broad scientific expertise of the universities, which includes the historical, technological and scientific dimensions, the practical experience of the lecturers and the commitment of the students, leads to high-quality results, as can be seen from many examples, including the study and restoration of the Tugendhat House.
For reasons of principle and practicality, it is desirable that mainly Czech specialists are put in charge of the work. Complementary, international cooperation with competent experts also makes sense.
The owner entrusted me to act as Senior Scientific Advisor of the Schindler's Ark project: Architectural Surfaces.
I propose the following institutions and people, some of whom have already expressed their interest in participating in this project:

- University of Pardubice, Faculty of Conservation, Prof. Ing. Karol Bayer (natural and material sciences), studio for stone objects (Doz. Mag. Dr. Jakub Ďoubal), studio for wall painting (Prof. Mag. Dr. Jan Vojtěchovský). Contact: karol.bayer@upce.cz
- Brno, Mag. Josef Cervinka, conservator-restorer of architectural surfaces and stone objects. Contact: info@josefcervinka.cz
- Prague, Mag. Michal Pech, conservator-restorer and technologist for architectural surfaces. Contact: michalpech@gmail.com
- Brno, Technical University, Faculty of Architecture. Contact: slapeta@fa.vutbr.cz
- Technical University of Munich, Faculty of Architecture, Chair for Restoration, Art Technology and Conservation Science (Prof. Dr. dott. Thomas Danzl). Contact: t.danzl@tum.de
- Dresden, University of Fine Arts, degree course in art technology, conservation and restoration of art and cultural assets, specialist class for wall painting and architectural surfaces (Prof. Mag. Dr. Markus Santner). Contact: santner@hfbk-dresden.de
- Vienna, University of Applied Arts, Theory and History of Design (with a focus on the history of Jewish culture and architecture) (Dr. phil. Habil M.A. Elena Shapira). Contact: elena.shapira@uni-ak.ac.at

With the proposed institutions and people, there has usually been a long-standing professional collaboration in the field of architectural surfaces, not least through the joint work on the conservation-science study of the Tugendhat House and its conservation and restoration. Prof. Danzl is involved in several projects to preserve Holocaust memorials.

For the documentation of the examinations must be available

- Plans (floor plans, elevations) and true-to-size photographs (by local architects or photographers) (local architects and photographers)
- Historical data (written, visual) (compiled by Frantisek Olbert in collaboration with local historians, museums in Brno and Pardubice).

The appropriate construction site facilities must also be provided (accommodation, secure storage space for devices, electricity, water, scaffolding, security).

The intensity and thus also the scope of the investigations are based on the agreed monument conservation objectives and, in particular, on the technological needs and also on the financial framework.

In any case, one can assume that the investigations will take place in stages, i.e. investigation campaigns. Multiple campaigns may be necessary within two years.

10. Indicative timetable

- June 2021: Statement from the owner together with the local administration (doubts, open questions, suggestions, also suggestions for dates for the meeting in August / September 2021).
- July 2021: Statement by the proposed institutions and persons and the architects * and civil engineers * involved on the concept at hand (doubts, open questions, suggestions, including suggestions for dates for the meeting in August / September 2021).
- August / September 2021: Meeting with the TEAM (Daniel LB, Frantisek Olbert and employees, construction company, bricklayer, NN), architects, heritage authority, the proposed institutions (as far as

possible, at least Litomyšl), the proposed conservators-restorers and Ivo Hammer. To be discussed are:

- Status of preparation (documentation, planning new building)
- Objectives for the preservation of historical monuments
- Clarification of the cooperation: who does what?
- Schedule
- Financing
- Options for urgent protective measures
- Planning the meeting of architects (organized by the TU Brno)

- August / September 2021 (maybe immediately after the TEAM meeting, etc.). Ivo Hammer holds a small course on historical craftsmanship and communicates with the bricklayers in practical work in the presence of civil engineers and architects on the technological aspects of traditional repairs on the basis of plaster samples, which are carried out at one or two suitable locations by Schindler's Ark. The appropriate materials and equipment must be available for this: Hydrated lime, lime, Trassit Plus, Roman cement, various local sands, including unwashed sands, sieves, water, plastic buckets, beakers (1l, ½ l), mixer, brush (nylon hair, natural hair,) Brushes, various trowels, smoothing iron, rubbing board. These samples also serve to understand which materials can be used to secure bricks at risk of falling.
- For the meeting planned for October (when?), the results of the meeting in August / September 2021 and the material samples produced in the small craft course can be presented and the architects * can be sensitized to the materiality of the historical surfaces.

Vienna, June 23, 2021

(Prof. Dr. Ivo Hammer)
Senior Scientific Advisor to the Schindler's Ark project: Architectural surfaces