WORLD WIDE WEAVE

Combining functional high-tech architecture and aesthetic experimentation

Façades of stainless steel wire mesh

The social importance of architecture is a frequent issue of debate across disciplinary boundaries. Landscape planners, architects, sociologists, designers and civil engineers all call for more readiness to experiment in civil engineering in order to revitalize the building trade and to create cityscapes which are attractive spaces for cultural, occupational and domestic life. Building materials are the clay with which new ideas and approaches are shaped. Stainless steel wire mesh draws its conspicuous architectonic quality from two poles –change and permanence: as an aesthetically versatile structure, it reflects the neverending changes in nature and in city life with the permanence of steel cloaking.

The stability of stainless steel, the optical variability and formability of the woven mesh structure, its reflective quality and transparency are the key characteristics of the material. Practically unlimited service life and complete recyclability fulfil the expectations of intelligent Facility Management oriented to long-term sustainability of value: weather- and corrosionproof material with a long life cycle which requires only simple maintenance and cleaning – mostly through rain, when needed with high-pressure cleaners and brushes – or which, if necessary, can be fed back into the material cycle. Sir Norman Foster insists that the individual has a right to daylight. In this sense, façades made of stainless steel wire mesh can be described as daylight architecture or light architecture, since light is the main source of the aesthetic impact of buildings "living" within such façades. Fine cable lengthwise and monofilament rods crosswise give the structure tensile strength in the one direction and flexibility and cross-stability in the other. Its extreme flexibility inspires spatial compositions which interact with the surroundings, a wide variety of forms and unusual shapes. Helmut Jahn used a 5,800 square meter façade of woven wire mesh to cloak Europe's largest carpark at Cologne/Bonn Airport. The material lends a quality of rural art to the St.

Anton Railway Station at Arlberg or to Dominique Perrault's Cycling Arena and Indoor Swimming Pool in Berlin. Its formability allows it to be adapted to all shapes of buildings, even to completely round ones like the EXPO Pavillion Planet m.

Transparent structures are dominant currents in the architectural language of commercial and public utility buildings. They impart not only light but also the self-image of modern enterprise: openness and communicativity, expressed through translucent façades whose metallic high-tech grace also radiate an aura of continuity and competence. In Jahn's Sony Center in Berlin, double-shelled building façades of glass and stainless steel wire mesh provide of GKD backdrops for a colorful social melting-pot while reflecting the corporate image of the electronics concern.

Our perception not only of exteriors but also of interior spaces is influenced by the mood of the lighting. Without obstructing the view out through the windows, the woven wire mesh acts as a sunscreen while guiding and spreading adequate natural daylight into the interior room. The ift-Institute measures almost the same light transmission values at a 50 degree angle of incidence for a frequently used wire mesh type with a clear view outwards as for a conventional sunscreen system with almost completely closed lamellae. Over a surface area of 1,600 square meters, VW has cloaked the glass façade of the main administrative building of its VW-Autostadt in Wolfsburg with motorized retractable sunscreen elements. Woven wire mesh installed behind glass façades, according to the current findings of a research project, creates a flue effect between glass and mesh which conducts excess amounts of heat upwards past the individual storeys of the building for expulsion over the roof or for re-utilization.

The interaction of the material with light varies with the density of the mesh. As a multi-functional façade, it can be used as a projection screen for color and lighting effects, for example for company logos or for audiovisual

entertainment programs like at the new airport carparks in Barcelona or at the Sony Center in Berlin. Exemplary for the revitalization of former industrial areas, the EXPOMEDIA building towers over Saarbrücken as an enormous "lightcube" from within which lighting effects shine through the material of its optically seamless external façade.

Textile material structures are an invitation to fit buildings out with "new clothes" like we would people – to revitalize old buildings and to upgrade the optical value of public utility buildings with unattractive support structures. The option of conservation and modernization through "cloaking" with woven wire mesh provides impulses for aesthetic and utility-oriented further development of previously rather unloved architectural structures at the interfaces of public life. On carparks, the wire mesh preserves transparency from within, lets light flood in to illuminate the parking levels, provides protection against wind and rain and at the same time functions as a safety-ballustrade: in this way practical façades can be created, even with double layers between which users or service personnel can move safely without additional galleries or ballustrading. In the context of transport architecture - carparks, railway stations or airports - façade constructions must stand up to extreme mechanical strain. The 170 meter long façade of the St. Anton Railway Station is unaffected by the turbulence caused by express trains passing through the station at speeds of 100 kilometers per hour; at the Wells Fargo carpark, Des Moines, Iowa, the woven wire mesh façade with its specially reinforced substructure can stand up to wind speeds of up to 136 km per hour.

A building's façade is the first thing to be seen, and says something about the quality of the architecture – regardless of whether we are talking about new buildings, modernization of existing buildings, single-room or room-within-room concepts. Intelligent building materials for façades provide dynamic impulses, point the way to new functionalities and aesthetic solutions which will continue to secure the long-term value of architecture as a resource in the 21st Century.

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GKD – WORLD WIDE WEAVE

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