

LARGE SCALE GLAZED CONCRETE PANELS A DIALOGUE WITH ARCHITECTURE

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ABSTRACT

World famous architects challenge today the exposure of concrete in their architecture. It is my hope to be able to complement these. I try to develop new aesthetic potentials for the concrete and ceramics, in large scales that has not been seen before in the ceramic area. It is expected to result in new types of large scale and very thin, glazed concrete façades in building. If such are introduced in an architectural context they will have a distinctive impact on the visual expression of the building. The question is what kind. That I will attempt to answer in this article through observation of selected existing buildings in and around Copenhagen covered with mosaic tiles, unglazed or glazed clay tiles. Its buildings which have qualities that I would like applied, perhaps transformed or most preferably, interpreted anew, for the large glazed concrete panels I am developing.

Keywords: Color, Light and Texture, Glazed and unglazed, building facades

THE DREAM OF LARGE SCALE GLAZED CONCRETE PANELS

In 2009 I received grants from the Realdania Foundation for a development project; "Lasting large scale glazed concrete formwork." It is a project where possible glaze treatments for selected concretes are identified, concretes are designed for large scale ceramic constructions and sculptures, new types of lasting formwork is developed and a new façade system is designed. The goal is to achieve qualities that are unknown for concretes and in scales that are unknown for ceramic material. The glazed large-scale concrete panels will act for the extension of a whole concrete- element and not as it is most often seen, be divided into mosaic, tiles and joints. It will invariably affect the visual expression and articulation of the façade as well as the spatial rhythm and progress. What qualities are lost by moving up in scale, which can be transformed from smaller scales to larger, and how? This article is the introduction to this study. Here I consider selected buildings' façades with mosaic tiles and clay tiles, primarily in the Copenhagen area and pinpoint their qualities in relation to color, texture, pattern and light reflection. Based on this I will in the end of the article shortly discuss if they can be transformed to large scale and possibly state how.

SMALL SCALE MOSAIC TILES

In the 1960s, Furniture designer Nanna Ditzel chose to coat a formerly plastered building from the 1700s with Ital-

ian glass mosaic tiles. The tiles are 2 x 2 cm, with small divergences from the stringency of the square with oblique angles and uneven sizes. The primary color changes from Prussian blue, via cobalt blue to light gray in five stories, interrupted only by horizontal division fillets of smaltite tiles in a yellow-gold-ochre color spectrum. The tiles cover an even surface, but will, as a consequence of its variation of thickness even in the same tile, either be slightly angled relative to the surface or protrude or be submerged. Furthermore, the joints, which are slightly recessed, will add to the divergence from the surface of the façade. Day light and light from the houses nearby, the street lightning or cars, will in the multifaceted glass tiles and surrounding joints, produce dynamic, constantly changing shadow-light effects. The façade thus becomes a vibrant and living organism, or as a large textile, which in its texture plays with the light. Nanna Ditzel is known for her furniture design with its own rhythm and poetry in the details. Likewise, Nanna Ditzel has coated the building in its finest clothing, as with furniture, that even after 40 years appears natural and still patinates beautifully.



Fig. 1

Front page: Glazed concrete with exposed non-glazed concrete part. Photos and concrete objects Anja Margrethe Bache.

Fig. 2

Glazed and unglazed concrete objects. Objects and Photos: Anja Margrethe Bache

Fig. 3

House in Klareboderne 4 in the centre of Copenhagen. Photo: Anja Margrethe Bache

LARGER SCALE TILE

Arne Jacobsen's gas station from 1939 by Skovshoved Harbour with its continually casted mushroom-shaped eaves, is an iron-concrete construction with a cubic building body. It is coated with light grey, smooth, ceramic tiles industrially manufactured alike measuring 15 x 30 cm (Dahl, 2000). The 5 mm dark grey joints underline the limits of the tiles and separate the building's surfaces in repeated and staggered levels. The tiles and the deep joints with their detail and refraction of light contrast with the sculpturally formed mushroom, which looks as though it was formed in one-piece by the hand of a sculptor. The mushroom and the body of the building are connected, but separate in their expression. The body of the building attests to the perfection and standardized repetition of industrialization. The surfaces of the tiles remain on the same level with the exact same color and shape and does not arouse curiousness. From far away the textile expression remains intact, but close-up it is dissolved into tiles and joints. The light is reflected and the tiles express a refreshing coolness. Only the scale of the tiles, which corresponds to an outstretched hand, that warrants closeness, but otherwise it is like a piece of art in a museum that is to be seen and not touched.

Industriens House by Erik Møllers Architects is coated with clay tiles from the first to the sixth floor. The tile covering has much variation in color and texture in red and brown-black nuances. It is not possible to touch the tiles, they can only be observed from a distance. The tiles are neither glazed nor engobed nonetheless, they vary very much in color and shimmer. There are tiles that seem entirely smooth as though they were glazed, while others are dull and seem porous and vulnerable. On Arne Jacobsen's gas station we saw how the industrial process can manufacture entirely identical tiles. The tiles on Industriens House are likewise manufactured industrially, but here the variation in color and texture of the tiles are a function of where in the kiln they have been placed and thus how close to the source of heat they are. The coating of Industriens Hus exemplifies the possibilities of variation in a standardized industrial process and thus suggests what neo-industrialism demands with only a few devices. The tiles measuring 10 x 10 cm are cast into hung concrete panels. The light grey concrete joints, are visible, as are the more marked dilation joints between the concrete panels. The façade of the building is like a massive and fuzzy patchwork, sorted after the tight geometrical logic of the concrete element building. The distance of the reading along with the variation of the tiles' expression is what, like thousands of pixels in an image, make the façade vibrate.

Stellings House, designed by Arne Jacobsen in 1937, (Dahl, 2000), is coated in light gray-blue smooth and glazed Siegerdorf tiles and are both even and curved. The even tiles measure 52 x 52 cm and are set in cast metal anchors 5 cm apart, (Møller, 2000). The tiles are glazed but here begin to resemble the painted metal plate and the two are hardly distinguishable. The only thing that reminds the spectator of tiles is their size as well as their thickness uncharacteristic for the metal plate. In Stellings House, the tiles are so large that they despite the larger distance of the reading do not have a textile expression. Arne Jacobsen's Stellings House articulates industry and is as a premonition of the myriad of hung metal façades that decades later will follow.

SCULPTURAL TILE

Architect Bent Helweg Møller's Berlingske House, which used to house Denmark's largest newspaper, each individual clay tile has been sculpturally processed, with reference to the typesetting and printing methods of the day.

Berlingske House is from the first floor and upwards covered in yellow-ochre clay relief tiles of 10 x 10 cm. The tiles are cast into light grey concrete that looks as light surrounding joints in a network of vertical and horizontal lines. Each tile is a work of art in its own right, a one-of-a-kind piece of work multiplied with industrial manufacturing processes for the uniformity of the standard product. The façade is thus covered in thousands of completely identically sculpturally formed tiles. The distinctiveness of tile fades in an unending repetition, fixed inside the area of the façade as a shimmering play of shadow and light that suspends the laws of gravity and mass and transfer to textile covering. Here there are no visible dilation joints between concrete panels or vertical metal fillets for hanging advertisements, here only the windows interrupt the tile covering and a tale of scale and the function division of the interior of the building. The level tile has here moved into the three-dimensional room, which though with the distance of the reading fades into a two-dimensional pattern of light and shadow. The sculptural effect wanes with distance, but surprises with a closer reading.



Fig. 4
Arne Jacobsen's gas service station top left. Industriens House, top middle and Stelling's house, top right Photos: Anja Margrethe Bache

Fig. 5
Bottom Berlingske House Photos Anja Margrethe Bache

Fig. 6
Next page left Toms Chocolate factory, right Elsinore water purification. Photos: Anja Margrethe Bache



LARGE SCALE CONSTRUCTIONS WITH TILES

Today, cities have grown so much that they surround industrial areas. This is the matter for Arne Jacobsen's Toms Chocolate factory from 1959-1961. It was then placed on an entirely empty field as a 23,000 square-metres production plant (Skriver, 1962). From far away the building is experienced as a white, shining, monumentally sculptural mixture of stringent geometrical shapes while it up close is dissolved into black vertical and horizontal lines of several metres in a uniform grid, which stems from the joints between the large, concrete sandwich elements of one square meter. With up close examination this grid as well is dissolved into a more fine-meshed grid, as a tale of the many 5 x 5 cm white, smooth tiles. Toms' factories are still there and have the same tiled coating. However, much has happened, which unfortunately causes the building as a whole to lose its sculptural stringency and magic.

Elsinore water purification plant by architects Lene Tranberg and Bøje Lundgård enter into a dialogue with the residential buildings of the city. It acts as a small fortress, as a modern pendant to the much larger Kronborg Castle of Elsinore, but in a scale that matches the surrounding mansions. The purification plant is behind a light grey, faceted concrete wall interrupted at the entrance of a series of cylindrical concrete pillars covered in cast-in broken white tiles. We have now returned to environments connected to water and cleansing; here the water is cleaned. Marketing is obsolete; the tiles tell the whole story. In Elsinore water purification plant we see the device that Arne Jacobsen also used in the gas station, the detail of the small tiles and joints between these contrasting to the continual material sequence, the mushroom in the gas station, the gray fortress and concrete walls also inside the water purification plant in Elsinore. This creates a tension and a material-wise and scale-wise relation and difference that adds quality to both and accentuates distinctiveness.

DISCUSSION AND CONCLUSION

Several buildings have been described. Consequently, it is now possible to point to some of the advantages of using such materials. For the close reading of the building I have mentioned qualities such as:

1. Variety
2. Dynamic play of light
3. Shimmering colors
4. Richness of detail
5. Sculptural three-dimensional shape
6. Materiality and texture
7. Sizes of tiles and mosaic enter into a dialogue with materials in other buildings
8. Color and lustre
9. Articulation of cleaning
10. Quality and attention to detail and choice of material

From a certain distance from the buildings the details more or less disappear and then the qualities can be that:

1. The buildings can be seen as whole, as a monumental, sculptural shape.
2. The tale of the surfaces is simplified.

3. The glazed surface can be read as the same distribution as the pre-fabricated concrete elements.

For large scale glazed concrete panels several aspects will be lost, for example, the dynamic textile expression and the relationship between the filigree expression found in the small tiles and for example the large unbroken surface, which is found in for example Elsinore water purification plant or Arne Jacobsen's gas station, will be lost.

The large panels will be able to cover entire sides of a house façade for smaller buildings and they will as individually connected plates cover the façade of larger buildings. The joints and spaces that emerge here will be able to articulate the distribution of a building. This will be possible by the joints accentuating and emphasizing corner sections, foundation, the meeting of the ground, and the roof element. The large, glazed concrete surfaces will be able to enter into a dialogue with newer pre-fabricated elements such as glass sections in office environments, concrete element building and perhaps also plastered façades.

The close up variation and the textile expression might be obtained by the use of glaze that shimmers and has a texture that can enter into a dialogue with the concrete body and its aggregates and fibers. There is also the possibility that the same glaze is far from unicolored, but up close breaks up into smaller color varieties. It is also possible to take advantage of the concrete's ability to relief effects, just as it is possible to engage in hang-fitting and back casting materials in the visual. The large, glazed concrete panels will be easier to clean and maintain than the small tiles, because there are less vulnerable joints. My hope is that I can obtain large scale glazed concrete panels that still as the mosaic tile and tiles generally can awake our sensuous approach to perception and that become meaningful, bodily and attractive.



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Fig. 7 and 8 This page and next page Glazed concrete Objects. Objects and photos: Anja Margrethe Bache