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The Design Process on the Development of Ceramic Tiles for Accessibility

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We present in this poster the design process development of a new product for indoor public environments – the "Ceramic Tiles for Accessibility", a research cooperation project which is in development by the A2D, Agency for the Development of Ceramic Design, UFSC, and the ceramic industry group "Itagrês" located in the south region of Brazil. The research, which is in development, has as central focus the design of tactile tiles to support the orientation processes and independent movement of users with visual impairments. We will present the design process that conducted the whole project, as well as the industrial production aspects, conception, generation and materialization of the product.

The complexity of the problem demanded the integration of professionals from different fields, engineers, architects and industrial designers, organizations of visually impaired persons and technicians from the ceramic industry. The Universal Design methodology was employed on the development of the product, from normative requirements to industrial production aspects. The critical opinion of final users and their participation during the prototypes development were fundamental for the decision making, since both the system logic and the recognition possibilities of each one of the different tiles – alert, guidance and decision – are fundamental requirements for the system functioning. Important design requirements are: functional aspects such as tactile contrast on the system as a whole, and detectability of each piece; relief perception possibilities, shape and texture; color meanings; comfort; proportions, harmony and product aesthetics. About the industrial production it was still necessary to consider variables related to the particular industrial plant such as dimensional compatibility with the tile lines in production, machinery requirements, and relief without very sharp edges.

Besides these aspects, it is important to consider the architecture scale in order to assure the system logics and its legibility in different surrounding areas and environments. We also need to observe the possibilities of correct application and usage of the tiles, assuring the system contrast with the existing tiles, their dimensional compatibility, and environmental interferences such as water decanting, impact resistance and abrasion. Finally the design had to follow the existing technical rules, seeking to fulfill new needs presented by specific situations, mainly on the adaptation of spaces already built.

The approving of new spatial accessibility laws in Brazil makes obligatory the changing of the buildings and public areas in order to include citizens with disabilities. This situation generates new demands for civil construction products, currently with restricted and non-diversified offer. Tactile tiles in the ceramic material can not only fulfill this need as to guarantee a higher degree of technical performance when compared to other existing products (concrete, hydraulic tiles and polymers). Besides ceramic's superior technical and aesthetic quality its wide usage as revestment guarantees its integration possibilities in indoor built areas.