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KEEPING UP WITH TECHNOLOGIES TO MAKE HEALTHY PLACES

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PT 2015

BOOK OF CONFERENCE PROCEEDINGS

A healthy city is one that is continually creating and improving those physical and social environments and expanding those community resources which enable people to mutually support each other in performing all the functions of life and developing to their maximum potential.
Health Promotion Glossary (1998)

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HEALTHY BUILDINGS: THE ICF CLASSIFICATION AS A DESIGNING TOOL

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ABSTRACT

In recent years, the issue of health has been increasingly linked to that of building design and urban planning. In fact, the expressions healthy buildings, healthy cities, healthy architectures and others are more and more recurrent in literature.

There are many and certainly different reasons: medical advances, the spread of the concepts related to sustainability, the studies on the toxicity of building materials, but also negative factors, such as the increase of pollution.

But what concept of health are we considering? How design can affect human health? What operational meaning the expressions above mentioned assume?

We will look for possible answers to the previous introduced questions through an interdisciplinary approach, starting from the etymology of the word “to design” (which in Latin is pro jacere, namely “to throw ahead”). If a project has to be intended as the realization of a “being there”, always projected forward, if a project entails the attention one has of himself and of other persons; then a project needs to take care of its surrounding world, and therefore of health.

As a result, health and environment come to be strictly intertwined. In 2001 the WHO proposed the ICF (International Classification of Functioning) offering the world of medical sciences the unique opportunity to interpreting “health” as a condition that affects and relates in a mutual way with social life, also through the environment. Following this perspective, design simply cannot leave aside an extensive analysis of “health”, supported or disadvantaged by the environment

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(built and not), and we suggest the ICF might become a valid operational tool useful for defining and building healthy and proactive environments.

Keywords: *healthy buildings, health, ICF, active design.*

INTRODUCTION

A way to understand the connection between the environment and health in the Western countries could be the understanding of how the relation between life and disease has changed in the past 150 years. The rising life expectancy is the result of medical, technological, social and cultural achievements.

Science achievements in social sphere have been used to fight epidemic diseases which were the major cause of early mortality. These science achievements have lead to issue laws concerning hygiene and prophylaxis, in order to eliminate the sources of infection by regulating disposal systems, sewage systems, territorial remediations and introducing rules of personal and community hygiene.

The combination of medicine and technology has been the successful model at the time when the relationship with the disease was to survive the disease itself. The achievements of the Unions have permitted to regulate timing, methods and working environments by significantly improving the early psycho-physical strain thanks to the advent of technologies that serve loads and repetitiveness. The increase in life expectancy inevitably leads to the change from infectious etiology as dominant cause of disease in the chronic as a source of wear due to the effect of the long life and the characteristics of the environment in which it is spent.

The degenerative process due to the growing age is expressed as a progressive loss of body functions to the extent estimated as 1% per year over 30 years of age (Singh-Manoux et al. 2003). This para-physiological evolution can be experienced in a positive way if the environment in which we live is able to compensate for, or prevent loss of functions by maintaining a good quality of life. The needs of a person change over time and the environment must be adapted to face this change. When people grow old the subjective perception of the health status does not necessarily correspond to the actual condition (Baum et al. 2003; Lehr 1991).

THE ICF AS A DESIGNING TOOL

The close link between the chronic disease and the design of environment that allow an appropriate daily life requires a farsighted planning that permits a high flexibility for the necessary adjustments that a chronic condition implies. The design should provide an analysis of the social context within which it is expressed



in order to clarify the main causes of social or personal malaise, so as to understand the issue core. Actually the word “design” derives from Latin “*pro jacere*”, namely “to throw ahead”. It has to be intended as the realization of a “being there”, always projected forward. To project entails the attention one has of himself and of other persons, it means to take care of our world and therefore of our health. Designing expresses the close and binding connection between health and environment and guarantees well-being if the environment satisfies the status of health or illness, and even better of disability, if seen as a health condition in an unfavorable environment.

The real problem is not the health status or its cause, but how it can be placed in a context unable to receive it, which isolates the suffering person considering him as a neglect and unwanted subject, belonging to a minority group whose rights are not considered as a primary asset. Good health could become illness if placed in an unsuitable environment; on the opposite, a well designed environment makes a biological suffering condition acceptable if not livable. The paradigm that results is that each of us could be in a precarious environmental context and develop even temporarily a state of disability that can be determined by an unexpected accident.

In this perspective, the design of a house should meet requirements that consider the home as an essential condition to ensure the well-being and comfort. Designing and building with sustainable costs allows to reach a largest number of people, considering the families financial constrains as a primary source of discomfort. With low impact energy solutions, by joining a project of a clean environment and considering the pollution as the major source of respiratory diseases. With accessibility that directs to more movement instead of the use of lifts, with easy to run stairs and ramps suitable for an aging and overweight society but also suitable for the use of wheelchair in a status of disability. Any proposed project environment is tightly bound to the solution of problems that significantly affect the health status. Low back pain - caused by prolonged obliged postures - affects a huge number of people and is the main cause of work absence. Cinemas, theatres and public spaces are the example of an incorrect project design where the furniture are in lack of ergonomics principles. People in work places suffer from posture damage, sight problems caused by poor lightning and musculo-skeletal stress caused by improper lifting.

In 2001 the WHO approved and ratified the ICF (International Classification of Functioning, Disability and Health). It is an improvement for the medical science and not only; it recognizes the existing *continuum* between health and disability that concerns all of us, but especially emphasizes, in a bio-psycho-social complex, the importance of the multiple interaction between people, health and environment. A focus entirely centered on the concept of disease, it is replaced by a vision of society in which the result of a well-made intervention is measured in terms of participation. Health must be monitored in its possible changes with tools to

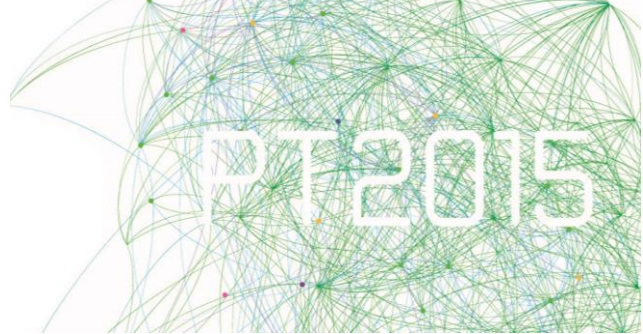


measure it and to measure the solutions (facilitators) once the limits (barriers) are identified. The ICF describes the person in his inseparable value body-function-environment. Any occasional, accidental, voluntary intervention express variations on one of three values affects so indispensable the others by favoring or limiting the core human values: the freedom to be active and involved in life, which is a fundamental condition to guarantee well-being, health and happiness.

In this perspective, design must carry out an extensive analysis of the health status favored or denied by the environment (built and not), so that the ICF may become an useful instrument to build and define healthy and proactive environments. In the "Health and Building Grid" (Figure 1) a first attempt to overlay the ICF concepts to the design demands is proposed. For example, if we consider the design issues related to noise, this will involve the hearing and nervous system, negatively influencing activities such as learning, general tasks and demand, communication, domestic life and interpersonal interactions. Conversely, if we consider the communication activity, it will involve nervous, visual, hearing, musculo-skeletal and psychological system, so that it will be necessary to find design solutions concerning the noise control, adequate and proper lighting, the requirement of accessibility, information and communication systems.

Analyzing the project by what the ICF dictate is not enough if we do not take into account the limits of the human physiopathology, which are disability, childhood, adulthood, aging and its needs and the problems that these limits bring about in the relationship with the environment. It is well-known that old and young people learn in different ways: the old learns by doing; the young learns by memorizing (Ratti, Amoretti 1991). In other words it is impossible to design for people we do not know and if we ignore the positive or negative interaction between biology and environment. On the other hand we may not want to operate on the environment if we have not the cultural means to change it, the knowledge of laws, the knowledge of materials.

The analysis of the project according to the ICF immediately matches the principles of the Universal Design, to be integrated with the newer principles expressed by the Human Centered Design and by the Active Design. The project, therefore, has to contribute to encourage, stimulate and maximize the people capabilities through an enabling environment. The focus must move from "cure" to "take care" since our society is characterized by chronic diseases that the people must face in environments which mitigate their negative consequences.



Health and Building Grid

The goal of this grid is to highlight the elements in a building that may have a direct impact on people's health.

	Human activities (WHO classification) that can be impacted								
	LEARNING	GENERAL TASKS AND DEMAND	COMMUNICATION	MOBILITY	SELF-CARE	DOMESTIC LIFE	INTERPERSONAL INTERACTIONS	MAJOR LIFE AREAS	COMMUNITY, SOCIAL AND CIVIC LIFE
	← Activities				→ Participation				
	Body Functions & Structures								
INDOOR AIR QUALITY	X				X	X			
THERMAL COMFORT	X	X			X			X	
ERGONOMICS		X		X	X				
NOISE	X	X	X			X	X		
SIGHT AND LIGHT	X	X	X	X	X				
HYGIENE					X	X	X		
DAILY DUTIES		X		X	X	X			
ACCESSIBILITY	X	X	X	X	X	X	X	X	X
COMMUNICATION / INFORMATION	X		X	X			X	X	X
LEISURES / FREE TIME					X				X

Considerations that should be taken into account to reduce the health impact of buildings

Figure 1: Health and Building Grid (this is the reworking of a grid presented by Foyer Rémois (Reims) in 2012).



CONCLUSIONS

For the designer is request to have an active role in the research of healthy situations (that according to the WHO is a “status of complete physical, psychological and social well-being and not just the absence of illness”) often with a prominent role in providing a therapeutic environment that is an environment that structurally encompasses within itself the means of access and appropriate use of all the capabilities in an interaction without barriers. The designer must therefore become a health operator since his work affects the area of freedom and autonomy of each person.

In this context ICF is a tool that allows the designer to have a correct approach to the project, by connecting person-health and environment in an efficient manner and by giving a deep meaning to the expressions: healthy buildings, healthy cities and healthy architectures.

REFERENCES

- Arengi A., Malgrati D., Scarazzato M. 2006. “Per un’ergonomia del territorio”. *Ergonomia*, no 4 (Gennaio/Maggio): 24-34.
- Baum E.E., Jarjoura D., Polen A.E., Faur D., Rutecki G. 2003 “Effectiveness of a group exercise program in a long-term care facility: a randomized pilot trial”. *Journal of the American Medical Directors Association*, Vol. 4, no.2 (March–April): 74-80.
- Boone Beard B. 1991. *Centenarians: The New Generation*. Westport: Greenwood Press.
- City of New York. 2010. *Active Design Guidelines: Promoting Physical Activity and Health in Design*.
- Lehr U. 1991. “Aspetti sociali e psicosociali della longevità”. *Giornale di Gerontologia*, no 10:517-20.
- Malgrati D., Scarazzato M., Arengi A. 2007. “Le basi culturali della progettazione accessibile”. In *Design for All. Progettare senza barriere architettoniche*, edited by Arengi A., 1-12. UTET.
- Ratti MT, Amoretti G. 1991. *Le funzioni cognitive nella terza età*. Firenze: NIS.
- Singh-Manoux A., Richards M., Marmot M. 2003. “Leisure activities and cognitive function in middle age: evidence from the Whitehall II study”. *Journal of Epidemiology and Community Health*, Vol. 57, no.11:907-13.
- World Health Organization. 2001. *International Classification of Functioning, Disability and Health (ICF [ICIDH-2])*. Geneva.