33 OPTIMISING PERFORMANCE REQUIREMENTS

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Western societies are changing into knowledge societies. Architectural engineers are expected to change with them as well. Characteristic for a knowledge-based society is inter-action and communication between people with different backgrounds in terms of professional discipline, culture and life-style. It calls for people getting out of the shell of personal professional discipline, of reassuring norms and values, of personal life-style and aesthetic taste; while communicating openly and creatively. The sociologist Jürgen Habermas talks about 'acting communicatively'. The term 'acting' is indicating, that people are conscious about the context in which they meet, prepared to recognise that there are several ways of looking, and that this multiplicity should be catered for in solutions to be designed.

Developing a programme of requirements is a fine opportunity for acting communicatively; since the development of performance requirements for a building is taking place during a process in which several agents discuss and negotiate with one another on the content of these requirements. Sequentially: in the commission, the statement of points of departure, the sketched design, the programme of requirements, and in further documents the performances to be delivered by the building have been made increasingly more explicit; differentiated further and more specified. Certain requirements may well be getting more weight during the process; or may be rather weakened. Particular requirements may end up higher, equal or lower than on the usual moment to assess a certain performance. It is also possible that, ex post performances may be read in the design that were not topics of discussion at all. In such cases it may concern, for instance, routine, prevailing norms or performance requirements based on official prescriptions beyond discussion.

33.1 METHODICAL APPROACH

The present Chapter is dealing with methodical points of departure for acting communicatively in order to formulate performance requirements, from which parties concerned are expecting that they are leading to optimal results.[a] In this context, 'optimising' means to make actors conscious of the fact that they are playing in the concrete situation a rôle in creating the best possibilities for that situation and the near future. The emphasis on 'best possibilities' is related to the fact that by all kinds of modernising trends changes in science and society have come to the fore strongly. If people, professionals, and therefore agents in the design process do not want to be swept away themselves by the present, post-modern stream of changes, it is a necessity to make choices in order to follow that stream as responsibly as possible. In this context optimising is implying that people want to facilitate in the design the development they consider to be desirable.

When agents in a design process want to strive for optimising their choices like that, they should found their considerations well, while inviting criticism; where needed, they are 'criticising' statements on the performances of the building to be realised. In this, criticism means to say: an argued effort to 'improve upon' the statement of someone on a performance, deemed probable or desirable.

These developments show that from the stand-point of methodology allowance should be made for the increasing variety of visions for the performance requirements of the building within a technological and social context, in which a strong pressure heading upwards for quality is prevailing. How to deal with the ensuing proliferation and development of performance requirements? How can there be balanced attention for aspects between content and relation? How can right be done to the fact that the agents in this post-modern era are 'learning' professionals?

a   Houben, P.P.J.A.M. (1992) *Methodisch innoveren in de ouderenhuisvesting.*

In order to have the process of critique run well, the following three methodical aspects are of importance:

- Balanced attention for aspects of the process in terms of content and relation
- Critique articulated according to the specific domain of reality
- Phased plan development and crucial rôle of the encompassing concept.

33.2   BALANCED ATTENTION FOR ASPECTS OF CONTENT AND RELATION

Since in all segments of society households of 'command' are making place for 'negotiating' households, communication in the designing process has changed in character. The historical central position of the architect gave way to a situation in which responsibilities for the design were shared by other disciplines. The relationship with the modern commissioner towards a dialogue has evolved as well; while he can formulate – assisted by experts; or not – a clearer picture of the desirable programme of requirements and type of architecture. More than ever before, representatives of the users of the building are voicing what needs and desires live with them in terms of performance requirements.

As in all processes of co-operation, within a team of designing agents communication not only entails exchange in terms of content, but also in those regarding relation. How people relate to one another proves to be at least as important for realising a good design as the quality of the input of content. By the way of communicating a 'platform' must be created, so that all, or at least the most important agents, should be backing the design to be realised. That may be difficult, when certain distributions of power, or forms of dominant behaviour stand in the way of a sound discussion of content. It is not for nothing, that occasionally a process consultant is hired to ensure that aspects of content and process come to the fore in a balanced way.

In today's post-modern times it is striking that performance requirements are changing at a more rapid rate. In the arenas of building technology, architecture and society are causing a sweeping stream in terms of improvement and innovation in buildings. It is characteristic for innovations that they – in contrast with a more gradual increase of the quality in improving – are performing a 'Quality Jump'. This is expressed in a new mix of quality requirements and a more than gradual improvement of quality levels. In order to be able to innovate, agents concerned in the designing process must be open to the most recent knowledge and insight; and to an approach rather more experimental than before. Since the actors are usually only aware of the newest developments in their own field of expertise and social niche, the communication process needs reserve space for discussion. In analogy with the contemporary principle of the 'learning organisation', agents in a designing process will develop themselves mutually, in order to reach better results. So its is desirable, that the designing process should be phased in a certain way.

33.3   TOWARDS A CRITICISM BASED ON A SECTIONALISATION OF REALITY

During the process, discussions are held regarding quite varied performance requirements, some of which will be new to some of the actors involved. Developments and standards within every concerned discipline, changes in norms and notions of quality in relevant social sectors, and increasing variation in forms of lifestyle all lead to dynamics in, and increasing pressure on, the results to be achieved. Based on the developmental perspective on optimisation outlined, a well-balanced way of looking at reality is desirable. An important aspect is that one distinguishes between three different fields of reality in which performance requirements can be developed, to wit:

a. empirical science and technology
b. social values and norms
c. individual preferences and needs, and aesthetic criteria.

Employing this sectionalisation in the criticism process is essential if optimisation is to occur. It is also important that statements about performance requirements in each of these fields be tested against qualification criteria that apply specifically to the field in which they are made. Development in each of the fields becomes hampered, as soon as evaluation criteria from other fields are employed during the criticism process. Developments in society (and the buildings designed for it) benefit from an equality in how these fields are used during the processes of communication and criticism. Before addressing the dangers of using these unequally, let us first identify the most important types of assessment criteria, per field:

a.   Empirical science and technology
In the field of empirical sciences and technology, the criteria that apply are derived from description and explanation of phenomena as true to reality as possible; these criteria involve efficiency and suitability of a certain measure. In the design process, the state of science and technology determines the best solution for a problem at that point in time, as well as the performance requirements that can be generated from this solution in the building to be designed.

The field of insulation, for example, deals with statements within this field that exclusively address the insulation value of a certain kind of windowpane, or thickness of the glass.

These kinds of objective statements in the field of empirical science and technology must not be confused with statements about the two other fields. Towards this end, statements about perceivable or expected insulation values must not be confused with society's or an individual's desire for insulation.

b.   Social values and norms
In the field of social norms, statements in the design process must be tested against the currently prevailing notions about quality, and the customary norms regarding presentation requirements.

Arguments for criticism can then initially be tested on the basis of how, in the social debate and in the political decision-making process, norms and performance requirements considered desirable by a society are thought of and decided upon. This field has been set in motion, on one hand, by economic and technological developments and individualisation, and on the other by increased information about these things as a result of television and electronic tools. The modern phenomenon of "social debate" facilitates these dynamics. Critical, contemplative science contributes to the clarification of opportunities in these kinds of debates.

On the topic of insulation, for example, the debate revolves around insulation norms that address considerations of a clean environment and durability on one hand, and around affordability and economical feasibility on the other. Again, these kinds of considerations must not be confused with the preferences and tastes of, future users, for example.

c.   Preferences and needs of individuals; aesthetic criteria
The third field concerns the one of 'Taste'. It is comprising preferences and needs of would-be future users as well aesthetic criteria regarding designing. Neither the sciences – see the first domain – nor society – see the second domain – can command from an environment in which both domains of reality are equitable, prescribe and ordain what someone needs to experience and think consciously; or to what demands an architectural vision on designing should comply.

It is up to the individual to open up in terms of his/ her feelings and conceptions. Someone else can help that person in the creation of favourable conditions whereby someone can circumscribe and motivate authentic experiences and conceptions. This is particularly important for realising a personal style of living, working and housing. Market studies of the last decades demonstrate that preferences of consumers are becoming increasingly volatile.

Opinions of individual persons, for instance, on heating and isolation may be varying; because of differences in somatic-sensorial experience; in aesthetic preferences regarding noise-isolating measures taken for buildings and in awareness on the use of care for the environment; and thermal isolation balanced against personal financial possibilities.

The same applies to architectural vision on designing. Obviously, discussions about aesthetic perspectives and points of departure are viable, but arguments in the matter do need to restrict themselves to this domain; and should not be entangled with discussions on the functionality of the building to be realised – first domain – or social norms, - second domain.

33.4 PHASED PLAN DEVELOPMENT AND CRUCIAL RÔLE OF ENCOMPASSING CONCEPT

The designing process is in need of a phasing in which the input of each agent is warranted, as well as his/ her potential to learn, and to think along with what other agents are bringing to the fore. Given restrictions in time, this collective process of communicating and learning must get to results in a short period of time that can be surveyed. This is the reason that phasing is desirable during the trajectory of the development of a programme of requirements. Before the design team has formulated the final design requirements, there are two previous stages. The very first is termed 'shaping of image'; the second 'shaping of judgement'. The first and second stages are hinging around an encompassing concept of the design. Given the dynamics of technology and society, the first is gaining in importance; however, since it is considered, given its reflective and procedural character as time-consuming, it is often passed-by. In descriptions of design processes the stage of image creation is often resembling a black box. Nevertheless, it is crucial; since the foundation for the design is laid in it.

Stage 1: Creating the image

The first stage departs from clarification of the analysis. Information possibly lacking in the commission is supplemented. During it representatives of the principal and the users of the facilities to be housed in the building are becoming involved with providing input to the discussion. This imagining stage is pre-supposing a 'free' exchange between agents on the developments they deem relevant for the design and which may be recognised in various disciplines and social sectors. The agents are wording to what extent they consider to be themselves at home in a given development, and which points of departure and objectives should found the design. They are not to be pinned down on these statements, but should be available to be questioned by other agents critically. The aim is to elicit from each agent increasingly clear statements; not to negotiate with him/ her.

It is essential in this stage of imagining that each agent is at liberty to give his/ her vision on the design to be made. During this stage feasibility should not be held in too high esteem. This would dampen creativity, innovative potential and initiating power of the agents. In it, a maximally large space should be given to learning and developing shared support.

In a process developing well, the statement of a shared concept is crystalised; to which 2 or 3 main variants may be coupled. It is the responsibility of the facilitator of the process to make an effort, at the right time, to name the concept and variants. A useful technique in this regard is the meta-plan method. The prefix *'meta'* is referring to a higher level of abstraction. Here, concept and variants are worded in their kernel by way of a mission statement; and eventually represented in symbolical drawings. Their meta-level is so high in words as well in images, that each agent is recognising himself in it. This means that a well-formulated, en-

compassing concept is furthering the supporting forces of the effort; a source of inspiration for subsequent stages.

Stage 2: Forming of judgement

During the second stage, 'forming of judgement', the concept and possible variants are further developed into a programme of requirements, sketched designs and costing projections. With regard to his/ her discipline an agent, or a group of agents, further develops an aspect or part within the framework of the concept and possible main variants. Regularly, the results of the work of all (groups of) agents will be discussed and weighed, in order to see whether the separate detailing is fitting together in the concept and main variants. In principle, this servo-mechanism is just leading to adjustment of the detailing. During this stage all kinds of feasibility checks will take place at given times. During this checking the agents can contribute constructively – on behalf of the principal and the target group that also participated during the first stage and know, by the same token, the 'spirit' of the concept - in commenting on better performance requirements; and thinking along with them. Obviously, it should be ascertained that in these checks the principle of articulated criticism is followed.

Particularly if the pressure on feasibility is increasing greatly, it will show whether the mission statement character of the concept and the initiating and sustaining power of the agents is 'strong' enough for realising the original ideas as much as possible, without relinquishing essential points of departure and objectives. Nevertheless, it cannot be excluded that the concept is in need of adaptation during the judgement forming stage. That is an important moment for enhancing the process in order to see to it that it is happening in a well-considered way. Actually, a new imagining stage must be started in a shortened form. Particularly during the second stage it is important that during the development the feed-back of the development to the concept and in case of feasibility checks the discussion on performance requirements is differentiated according to the domain of reality to which they are relating. The second stage finishes with a preliminary programme of requirements.

Stage 3: Decision making

The third stage, 'decision making', starts with the preliminary programme. The aim of this stage is to get final approval. Adjustment is just possible on minor points. Instituting this stage is desirable, since those holding themselves responsible for realising the programme are comprising a more narrow circle of agents than those active during the first two stages. However it is desirable that the agents that participated during the first stages should be retained; because of their insight in backgrounds and choices underlying the preliminary programme of requirements.

33.5   SOCIAL RELATIONS AND POSSIBILITIES FOR ACTING COMMUNICATIVELY

The possibilities for communicative acting depend on social conditions. It may be stated, looking at the ways in which western societies have been organised, that performance requirements formulated on the first two domains of reality seem to strengthen one another mutually; and dominate the third domain. New discoveries in science and technology, in combination with welfare states and organisations operating globally, striving for modernisation of social institutions, respectively of economic activity, do establish a favourable breeding ground for developing new, and increased demands in these domains. The odds are, that this is happening in disregard of preferences and needs of individuals and aesthetic aspects. In that case a disproportion of statements on the three domains of reality is applying.

It should be kept in mind that during recent years such an individualisation has been going on in society, that the possibility of the individual to design his, or her, life according to personal insights and to steer it in that vein seem to show a nett gain. However, the social-economical

position of someone as a principal is depending on his/ her capability to deal independently and satisfactory with technological and welfare innovations. Luckily, during the last decades emphasis on functionality has also been reduced in architecture; and room gained for a larger variety in form and colouring of buildings.

33.6   PRACTICAL EXAMPLE: HOUSING FOR THE ELDERLY

Over the past 15 years, a wave of innovation has become visible in the housing of elderly people. This resulted in new construction regulations, new types of buildings, and new logistics of care and service provision. The innovations are a result of increasing criticism of the traditional approach. Critical questions regarding the three fields of reality:

Sub a: Is it actually effective and efficient to have people moved, as soon as they become less mobile and needy of care, first to special intermediary homes for older people with a mild need for care, and then, as their need for help increases, to a full-time care centre or convalescent home?

Sub b: With an eye towards the greying of the population and the high costs involved, can building and utilisation of care centres and convalescent homes be slowed down? Are there cheaper alternatives?

Sub c: Why do older people have to move when they become in need of care, leaving behind their trusted home and environment so as to move to a special home, or even to a convalescent home? Why are seniors "stored away" in a small sitting room/bedroom (care centre) or in a multi-person room (convalescent home)? Why are intra-mural facilities so large-scale, and why do they have the character of "hospital-like institutions"?

In developing and achieving innovative approaches, a number of discoveries were made now resulting in approaches towards validation:

Sub. a

Adaptable building or renovating of apartments and intermediary forms of residences, specifically aimed at achieving better accessibility to the kitchen and the sanitary unit, helps seniors to take care of themselves, and promotes efficiency of home care. This also applies to the development of various delivery services, specifically in so-called "home care zones" such as those in IJburg, as well as to computer and communication technologies increasing ease-of-use, comfort, and security of the residence. By expanding and intensifying home care, people with a moderate need for help can stay at home longer, and can continue to live in an intermediary form of housing.

Sub. b

These alternative solutions have lead to a reduction in the number of expensive care centres and convalescent homes. It is easier to ask the seniors themselves to contribute and invest, since this allows them to live independently for longer periods of time. This also contributes to savings.

Sub. c

The alternative solutions better fulfil the residential and caring needs of older people. By continuing to live independently for longer periods of time, they feel less discarded, remain active longer, and maintain an interest in the world around them. More small-scale residential possibilities also become available. In design, there is an increasing tendency for architects to warm to the idea of the "apartment" which can also be inhabited by non-elderly residents.

These new basic approaches can be seen in all kinds of innovative projects.[a] Applying them on a large scale, however, is a slow process. Established interests, engrained routines, and

viscous bureaucratic procedures all stand in the way of rapid change. Thus it seems that many architects are not well informed about the principles of accessibility, and too little involved in the development of innovative concepts. This results in unnecessary or incorrect solutions. The recently published *"Woonkeur"* consumer approval mark is a good example of practically applicable guidelines based on ergonomic and safety research (Field A), the readiness to build social housing with higher quality requirements and increased value for the future (Field B), and active participation on the part of older people, people with a handicap, and creative architects (Field C).[b] The plans for IJburg are also based on intensive exchange of ideas between experts from many different disciplines and organisations. This has led to an interesting schedule of demands for the district in general, and for care zones in particular.[c]

33.7 EXTRADUCTION: PROGRAMMING STUDY WITH AN EYE ON OPTIMISING

In this Chapter vital aspects of methodical optimising of performance requirements have been sketched for social development. One characteristic of this methodical approach is the search for a balance between analytical and synthetic ways of working.

The analytical aspect shows in clarifying the commission and free association during the stage of image forming, differentiation of performance requirements according to the three domains of reality and testing proposals to improve on them according to the appropriate domain of reality.

The synthetic aspect shows in the balance between content and process, judicious dealing with the domains of reality, 'finding' an adequate concept; while developing and criticising within the framework of the concept the performance requirements. The synthetic aspect is demonstrated by the staged approach, starting with a broad stage of forming the image, proceeding into activities concentrated around a 'concept' during the judgmental stage; and around a preliminary stage of deciding involving the programme of requirements.

This methodical approach demonstrates that starting from empirical study a contribution is viable with regard to probable effects of certain performance requirements; to what the wishes are in society and among users of buildings *vis-à-vis* performance requirements. The methodical steerage of the communication between agents during the development of performance requirements indicated is aiming at making this process transparent and, by that, scientifically verifiable. It has been especially developed for the present, post-modern society, after underlying trends and dynamics were first studied. Experiments with applying it have demonstrated that this methodical approach is working well generally, if some conditions have been fulfilled. A very important one: sufficient time and willingness of agents to invest in the first stage of image forming, was already mentioned. Just as in other designing processes, there are but a few systematic descriptions of experiments like that. Producing these descriptions needs quite a lot of energy; while it should be kept in mind that in publications on these projects the attention of most readers is rather focused on the final result than on the way in which the programme of requirements came into being. On top of that, expectations raised by the programme of requirements and assessment of the building realised eventually do not need to agree. Thus, in those cases the question emerges why one has to go through such a lot of trouble for the description of the process, with a result that, compared to it, is somewhat disappointing. Nevertheless, this disappointing experience can never legitimise denying transparency to designing processes. On the contrary: the importance of transparency – and therefore methodical developing and designing – is increasing; since increasingly better educated, but also specialised professionals and organisations, as well as more assertive consumers are being involved in realising the built environment.

a   Houben, P.P.J.A.M. (1997) *Reflexieve modernisering ouderenzorg*.
b   Woonkeur, Almere: SKW Certificatie bv, 2000; VROM (2000) *Nota wonen (ontwerp)*.
c   Lammers, B. and A. Reyndorp (2001) *Buitengewoon, nieuwe vormen van wonen, zorg en service op IJburg*.