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Involving the users

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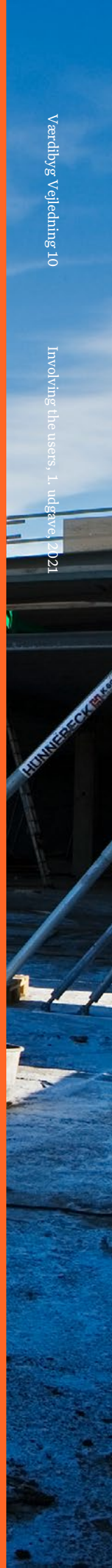
VALUE TO THE USERS

Value creation in building projects and user involvement are closely related. What use is a good building which has been delivered on time and within budget if the users' underlying needs have not been understood and so have not been met?

User involvement is key to understanding the users' needs, and is therefore vital to achieving a high level of user satisfaction. User involvement can also promote understanding and ownership of the chosen solutions, which in itself can contribute towards a positive perception of the end-product.

Although the purpose of user involvement may seem obvious, the process is often a source of frustration for both users and professionals. This guide is designed to pass on good experience from practitioners across the industry and inspire effective, value-creating building processes.

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INSTALLATØRERNES ORGANISATION

INVOLVING THE USERS

VÆRDIBYG **Realdania**

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- Remember that most users have never been part of a building process before
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- Structure topics for user comments – one thing at a time
- Challenge fixed ideas and thinking – and remember to listen
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- Be aware of how you and others influence the choice of solutions
- Create a common language – use visualisations
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- Understand and handle the 'change of ownership' between builders and users
- Brief users on areas of responsibility with regard to faults and deficiencies
- Appoint one contact person
- Hand over to the operations staff
  Gather experience

Throughout the process
- Communicate the plan for user involvement and development in the project to the users

ABOUT THE GUIDE

User involvement may go on to a greater or lesser extent throughout the project, from the very early planning of the project right through to the operations phase. This guide describes a recommended user process from the initial phase of programming to the operations phase when the building is in use. The guide can be read in its entirety or serve as inspiration for the different project phases.

The target group for the guide are clients, consultants and contractors who need inspiration and good advice on how to run a building process in medium to large-scale construction projects. The guide is relevant to people with experience of user involvement who are looking for fresh inspiration and to beginners who want to get it right from the start.

There is no one right way of running a building process. The right process has to be tailored to the specific project and to the users, in terms of staffing, size and content, needs etc.

The guide is supplemented with specific tools and examples in a separate appendix. There is also a case-study on user involvement from Copenhagen University's Plant Science Centre.

The appendices and case-study can be downloaded from www.vaerdibyg.dk.

INITIAL CONSIDERATIONS ON USER INVOLVEMENT

WHY INVOLVE THE USERS?

There is almost always a need for user involvement in a building project, particularly where the project has some unique features in terms of specific user groups, context, architecture, values etc. The first step is then to recognise that there is a need for user involvement and clarify what you want to achieve and why a user process should be initiated.

THREE GOOD REASONS FOR INVOLVING USERS

1. **A better product**
   that meets the users' real needs

2. **A better process**
   because the users are managed proactively, leading to fewer changes later in the process

3. **A better experience**
   based on ownership of the chosen solutions

It is also a **requirement** in most public-sector projects.

WHO ARE THE USERS?

The next step is to identify who the users are. A user and stakeholder analysis can provide a more nuanced picture of the user groups and determine when, how and in what areas users and stakeholders need to be involved, depending on their expertise, influence, interests etc. An example of a stakeholder analysis is given in Appendix 1.

The right user representatives should be identified and user groups defined. Important considerations when choosing user representatives are:

- What interests do the users have?
- What expertise and knowledge do they have?
- Who has power/influence – both formal and informal?

- Do the users collectively represent all of the essential needs?
- Are there possible conflicts between user interests?
- Should the users be split into separate user groups?

User groups can be split or merged according to their interests and priority areas and how far through the process you are. For example, a school building project could have one user group focusing on outdoor areas, another discussing classroom facilities and a third working on new teaching methods.

The user groups should be supplemented with relevant people from the operations side. Operations staff can provide useful knowledge of the more technical areas of the future building. But these are often specialists who have a tendency to discuss needs and solutions at a technically detailed level. So it is important to plan and organise the user process in such a way that both the technical needs and the 'softer' aspects are addressed[1].

It is also important to involve health and safety representatives and members of a liaison committee in the user process. And finally, it is essential for representa-

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INVOLVING OPERATIONS STAFF

Operations manager: "By being involved in the user process, I gained an understanding of the depth of detail to go into. That's something I have not seen before. We actually sat there and discussed: What things should we prioritise? If we do this, we can't have that.

I got a lot out of it. Now, when I go to residents' meetings, I am able to give an explanation and say: The reason why the railings have not been painted is that we had this much in the budget and we wanted heat recovery and broadband, or whatever.

I was in a position to pass this information on. We had this budget and we did all we could to get the best out of it."

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1) You can read more on the involvement of operations staff in Værdibyg's 'Guide to the operations-focused construction process' (2013)

tives from management with decision-making powers to take part in the whole process.

USER TERMS OF REFERENCE

When the decision to run a user process has been taken, the organisational and procedural framework needs to be defined. The user process should be linked to the top level of management, and the decision-makers should recognise that user involvement delivers real value. To ensure clarity and to align expectations, we recommend drawing up terms of reference for user involvement (also referred to as a process specification), to serve as a general scoping of the user process.

Terms of reference for user involvement should include:

- Purpose and success criteria

- Organisation/decision-making hierarchy

- Roles and responsibilities in the process

- How the process should be run, including:

  - Which users should be involved, when and to what extent

  - Scope and time needed for the user process

- Clear information on where and when the users can exert real influence, when they are 'only' consulted and when they are informed.

An example of user terms of reference can be found in Appendix 2. The terms of reference should be discussed and approved by the decision-makers/the client. On larger building projects, specific terms of reference can also be produced for each user group, describing their degree of user involvement, scope and influence.

USER MEETINGS

In drawing up user terms of reference, you should also determine the need for meetings with the users throughout the building process. We recommend a kick-off seminar for all of the user groups together, to provide an insight into the project and give the users

and construction professionals a chance to meet each other. See example agenda in Appendix 3.

Later in the process, separate user meetings can be held for the different user groups, attended by relevant

USER INVOLVEMENT TAKES TIME

- Remember to allow time for user involvement – both in internal schedules and in the tendering schedule.

- Remember to brief users on the schedule and emphasise when they are expected to step up.

representatives from the client's organisation, consultants, implementers, operations staff etc.

WHO CONTROLS THE PROCESS?

Before the programming phase, the user process will often be run by the client or a client consultant. The responsibility for the process may later be passed to the consultant who is to produce the design brief or plan the work, or to an external facilitator. Anyone managing the user process must be able to:

- Familiarise yourself with and understand other peoples' concerns and dissatisfaction

- Adapt their communication to the type of users

- Adapt the process according to the purpose and objectives

- Adhere to the ground rules that have been agreed upon

- See beyond their own opinions

- Bring the participants' knowledge into play

DEGREE AND TIMING OF USER INVOLVEMENT

In drawing up the terms of reference for user involvement, we have to consider the degree and timing of this involvement. In the early phases, it makes sense to involve the users a lot and get as much input as possible. Later in the process, when the consultants are discussing technical details, user involvement can be disruptive. It is a matter of finding the balance where the user process adds the greatest possible value to the project.

There are three possible levels of interaction with the users:

- **Developing ideas**: The users contribute directly and actively to developing the project and offer ideas.
- **Commenting**: Users are invited to comment on chosen solutions etc.
- **Informing**: The users are kept informed of the progress of the project and the choices and decisions made within the project.

At some points in the process it will be most helpful for the users to develop ideas, while at other times they will simply need to be informed. It is essential for the process to make the level of involvement clear to the users at all times, and never to 'drop' them completely.

USER DEVELOPMENT

It is important to realise that the users themselves will also be developing alongside the building project. A new building often entails organisational changes, new work processes, mergers of departments etc. These changes will take place alongside the development of the project and can bring a stream of new thoughts and ideas, and hence potential conflicts, into the project.

So it is important to ensure that the users are never detached from the building process. To some extent, the changes taking place in the organisation must be reflected in the building project, so it does not end up with a mismatch between the new organisation and the new building. It is important to anticipate the users' future needs and to ensure that there is constant communication between the project and the user organisation.

Changes of personnel in the course of a prolonged building project mean that new users have be involved and briefed on why various choices were made and what the original intentions were.

DEVELOPING IDEAS

COMMENTING

INFORMING
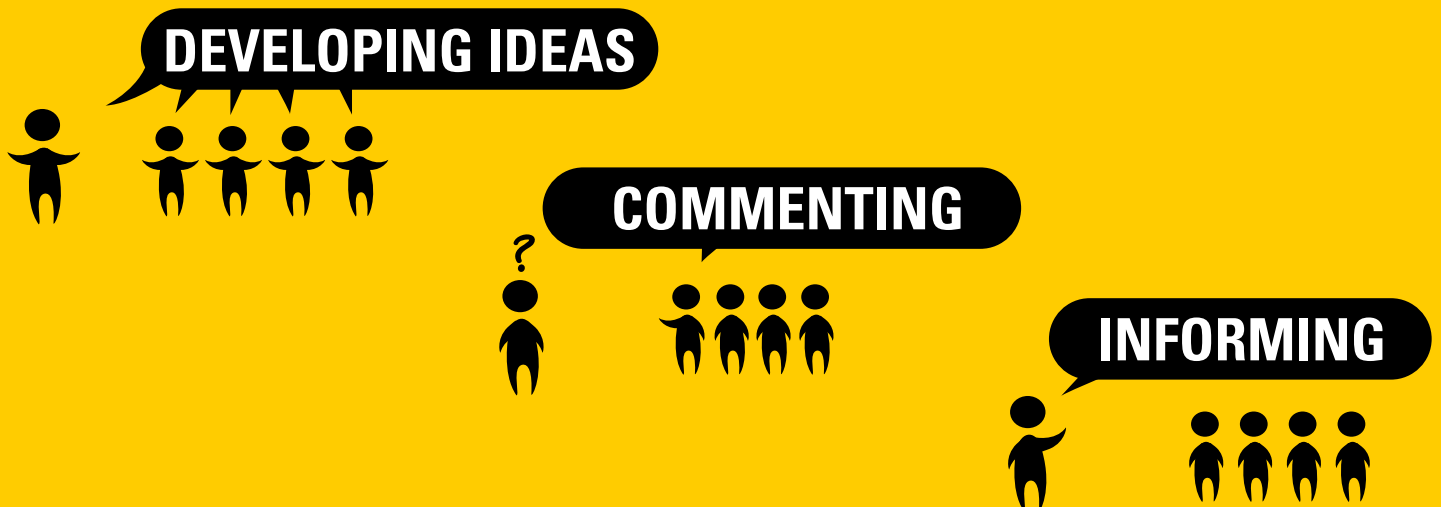
THE PROGRAMMING PHASE

The user involvement activities will typically be greatest in the programming phase. The user groups will be formed and the work of defining needs will start, with a view to producing the design brief.

ALIGNMENT OF EXPECTATIONS

It is necessary to remember that the users are not always familiar with the way a building process is run. So it is important at the outset to align expectations of the users' roles in the project, the process and the product. The terms of reference and the process for user involvement should be communicated and agreed with the users, so they are prepared and know when, how, why and at what level they are to be involved.

Users often have their own specific agenda which they want to focus on in the user meetings. For the meeting to be constructive, it is essential for everyone to know what is to be discussed and what degree of user involvement is expected; are we here to develop ideas, comment on a proposal or hear about a decision?

At intervals during the programming phase, solutions are identified and decisions taken in order to progress. The users should be kept abreast at all times of what can be changed and what has been fixed.

PLANNING TOPICS FOR USER COMMENTS

A building project is a complicated matter in which many choices have to be made. So it is important to break the project down into smaller parts which the users can grasp.

The users need to understand that the topics to be discussed will change as specifications and drawings gradually become more concrete and detailed. In the beginning, topics to be discussed will be the overall scope and functional planning, and areas with a long planning or delivery lead time. Later there will a chance to decide on the more low-level practical details, such as the colour of the walls or the type of door stoppers.

The figure on the next page shows an example of how the issues the users have to look into change over time.
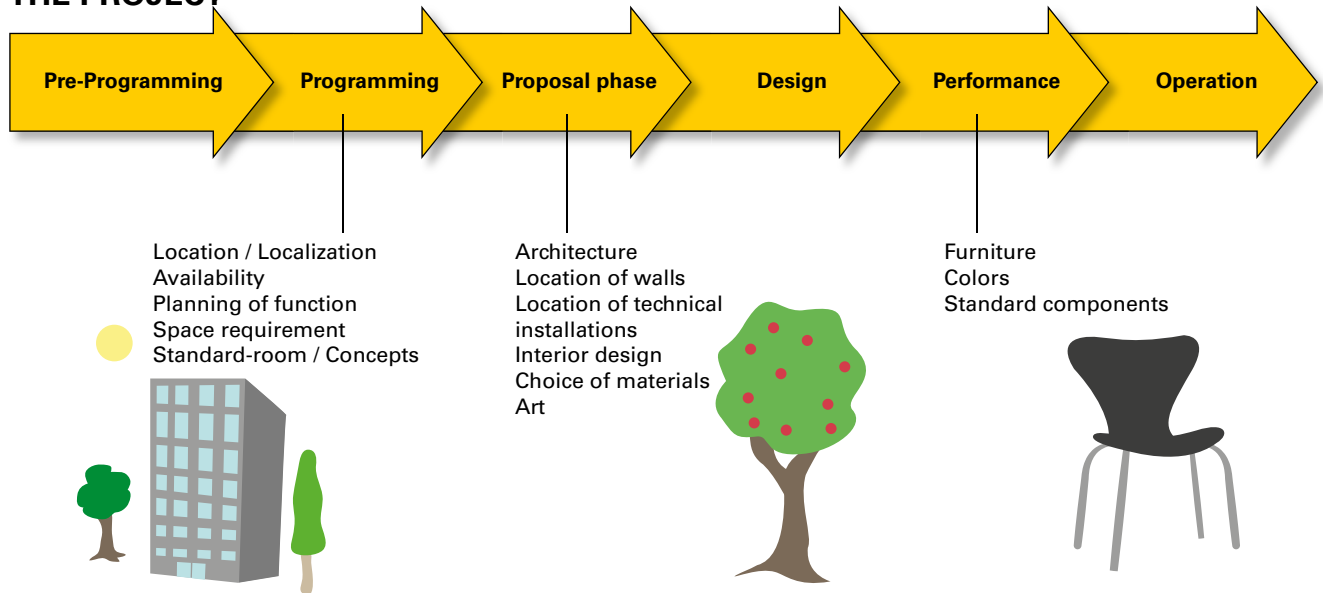
It is advisable to include a decision plan in the terms of reference for user involvement, showing the major milestones for decisions (see example in Appendix 4).

PROJECT TEAM ON PLACEMENT WITH THE USERS

To identify the users' needs, one or more consultants can go on a 'placement' with the relevant users and take part in their day-to-day work. This will allow the consultants to follow the user's procedures for themselves, and so pick up an extra dimension of new and constructive suggestions for organising these areas.

It will also enable consultants and users to have informal, practical discussions on the daily tasks, which could give rise to completely fresh ideas. It can therefore be a good investment for all parties to conduct the dialogue process on the ground. However, it is important to emphasise to the users that the consultants are on placement and not there to pick up wish lists or a requirements specification.

THE PROJECT

| Pre-Programming | Programming | Proposal phase | Design | Performance | Operation |

Location / Localization
Availability
Planning of function
Space requirement
Standard-room / Concepts

Architecture
Location of walls
Location of technical
installations
Interior design
Choice of materials
Art

Furniture
Colors
Standard components

USER PROCESS

| Analysis and choice of actors in process | Covering needs, idea development and matching expectations | Commenting and evaluating | Briefing | Preparation | Commissioning and experience collection |

When needs and solutions are discussed, it is important to understand whether a user representative is expressing personal needs or needs on which there is broad agreement among the users. There may be changing user representatives with conflicting needs, and needs may change in the course of the process. So it is essential from the outset to plan the dates by which decisions need to be taken.

As it is rarely possible to satisfy all wishes, needs have to be prioritised. The users should prioritise which needs absolutely have to be met, and which are simply desirable – i.e. which are *'need-to-have'* and which are *'nice-to-have'*?

RECOGNISING AND PRIORITISING NEEDS

When it comes to clarifying needs, it can be a major challenge to ensure that the users actually know and understand their own needs. The users' needs will change with developments in working methods, technology, society etc. and it may be difficult – but necessary – for them to imagine what they will need in five years' time.
So it is necessary to distinguish between needs and solutions. When users are asked what they would like from the new building, they will often unconsciously describe a solution which is like what they already have – only better.

To open people's minds to alternative solutions, it is important to delve into the need: "What do you do that we need to find a solution for?"

Another possibility is to observe the users going about their work or for consultants to present various scenarios and options[2]. Study visits can also be inspirational for both users and consultants, to come up with new ideas and establish a common basis for future discussions.

SIMULATION AS A DESIGN TOOL IN USER-DRIVEN PROCESSES

It can be hard for the users to understand how a new building will affect their working procedures or daily routines. A simulation can help to give the users an overview of the implications for them of different project solutions.

For example, employees could get together for a 'game' to play through and discuss future workflows. A simulation game can give a better understanding of benefits and challenges in the spatial design under review than having users comment on textual material or drawings, for example.

You can find more information and examples of the use of simulation games at www.regionh.dk.

ONGOING EVALUATION

It is advisable to allow time for evaluation of the user process at regular intervals – e.g. quarterly or every six months. The users should be invited to comment on the process, and consultants and contractors may need to explain why the process is organised as it is. To limit the number of meetings, it is recommended to schedule the evaluation sessions as part of user meetings that have already been planned. If the process is fraught with conflict, however, there may be a need for separate evaluation meetings.

2) Find out more about scenario-building and other methods of clarifying users' needs at www.i2p.dk/vaerktojer

THE PROPOSAL PHASE

In the proposal phase, the focus moves from needs to solutions, which places special demands on the user process.

INFLUENCE OF CONSULTANTS ON PROCESS AND PRODUCT

The experience and knowledge of consultants and contractors can help to raise users' awareness so they can suddenly see fresh solutions to needs they did not know they had. On the other hand, the expertise and interests of consultants and contractors can also inhibit the innovative user process.

To avoid bias, consultants and contractors should present several of the alternatives they are working on in their project planning – and not just the solution they think is best. It is also worth considering who should be in control of the process. An external facilitator or process manager can act impartially and mediate in discussions of alternatives, to ensure that neither users nor the project parties are driven by fixed ideas or special interests.

TALKING AT CROSS PURPOSES

Architect: "The user representatives were depressed. I just wanted to show them the finest building in the city. But they didn't think so. They didn't like the light or the raw concrete surfaces."

COMMUNICATION BETWEEN USERS AND PROJECT PARTIES

The challenge in clarifying requirements is communication. Just as it may be hard for the users to communicate their needs, it can also be difficult for consultants and contractors to convey technical information in a language and format that the users can understand.

Communication is not just about transmitting information. In most cases, the aim is to create a common understanding and reach agreement on a decision, for example.

Good communication calls for a common language and needs to be adapted to the particular situation. When consultants and contractors present solutions, they can make use of various tools to explain the content of general drawings, specifications and calculations.

As 3D models are becoming a natural way of working for consultants, it makes sense to use them to communicate and visualise the project for the users. Physical models or mock-ups can also be used to give an impression of the materials and the layout of rooms.

The form and content of operations and maintenance data should also be agreed in the initial phases, so the project documentation is compatible with the systems used by the operations organisation.
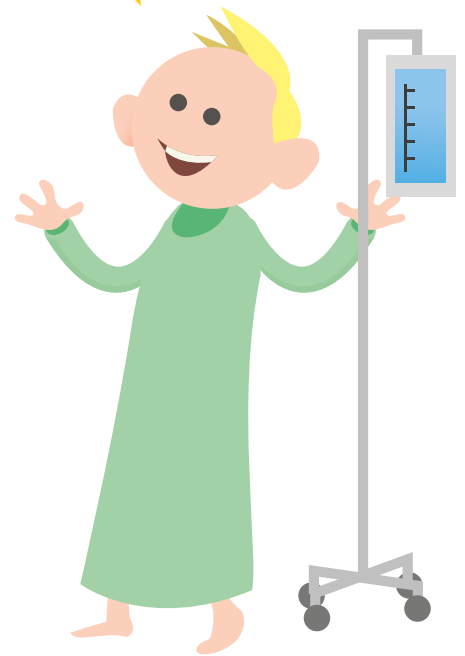
THE DESIGN PHASE

In the project design phase, the level of user involvement will typically decline as the focus shifts from clarifying requirements and choosing solutions to producing specifications and drawings.

When working in detail, it can be a challenge to stick to the original intentions that were set out in the programming phase. Nevertheless, the original vision can have a major bearing on the final project, and the detail may be crucial to the individual user.

In this phase, it is a challenge to maintain the users' commitment and sense of ownership of both process and solutions over a prolonged process period in which there will often be changes of user representatives as well.

COMMUNICATING CHOICES

To maintain good commitment and desire to contribute it is important to highlight the effect of the user process by showing how user input is actually being turned into solutions.

It is an advantage to be able to document *why* a decision was made if new parties (e.g. new user representatives, operations staff etc.) challenge solutions decided on earlier. Structured documentation of the final choice of solutions compared with the benefits, drawbacks and financial impact of the alternatives etc. can be seen in the table in Appendix 5.

When it comes to maintaining user ownership of the process, it is important, as we have seen, to have recurring evaluation meetings. These will allow users and consultants to discuss why the process has been set up as it has – and how it might be modified.

CHANGE MANAGEMENT IN THE DESIGN PHASE

As the level of detail in the project increases, the degree of freedom is reduced. A detailed design is made up of countless solutions and decisions which are all interrelated. Because of the many dependencies, it can be complicated to make changes even if they seem simple at first sight.

Every change has to be examined for its impact across disciplines. It can be hard for the individual consultant to keep track of all of the implications, so interdisciplinary communication is necessary if we are to make informed decisions on changes to be implemented. If a change is rejected, it is important to make the reasons clear to the users.

If there are many requested changes or additions, they have to be prioritised, and as the project progresses, it is assessed which changes there is time and money to include. This can be combined with a list of possible omissions that could provide the savings needed to incorporate the new requests.

In some projects, the contract, time frame, budget etc. do not allow for new user requests in the design phase – even if these requests could have great benefits for the users. The users should be informed, possibly via the terms of reference, when the latest date for change requests is.

THE CONSTRUCTION PHASE

In the construction phase, the many preparations come together in an actual product, and the users can easily feel disconnected from the development of the building project.

BRIEF USERS ON THE PROGRESS OF THE PROJECT

During the construction phase it is important to keep users informed of the progress of the project. If the construction is next to an existing facility, there will be a need to warn people of disruptive or noisy works, altered access roads, safety etc.

The users should be informed of the reasons if there are deviations in the construction phase which have a significant impact on them – possibly because of unforeseen financial or technical issues.

In the construction phase there is a constant need for communication with the users, and a contact person should be appointed to coordinate contact with them. This will be especially useful in dealings with residents in residential refurbishment projects, where people are moving in and out all the time.

HANDLING OF CHANGE REQUESTS IN THE CONSTRUCTION PHASE

In the construction phase it will be difficult if the users have not understood the real implications of the drawings and specifications in the design phase, and are then surprised at the final shape of the project. This can give rise to change requests which may be very difficult to implement without substantial impact on costs and schedule.

Some changes may be so important to the users that the client will also want to see them implemented, even

though this means delays and added costs. However, it is important to show the impact of any given change, so the users and the client can make an informed decision. At the same time, the professionals who have to redo their work need to be told how the change benefits the users.

Late changes can be very frustrating and costly, but it is natural for the users to gain a better understanding of their needs and wishes along the way, particularly when they are confronted with the actual solutions. A thorough review of requirements, planning of topics for comment by the users, and ongoing assessment of the robustness and flexibility of the solutions before the construction phase can minimise the need for later changes and reduce their impact.

PREPARATION FOR OPERATION

The use of new facilities, in a factory or a hospital for example, is another area for user involvement in the construction phase. In some cases users will need to be trained in new procedures and workflows made possible by a new building. It is important to initiate and manage this change process at an early stage, as a lack of understanding of new work processes and equipment can easily turn into dissatisfaction with the new facilities among the users.

Part of this 'reschooling' will naturally take place within the user organisation, but suppliers of production machinery etc. can also be involved in user courses, and the new facilities can be presented during the construction process so the users can get an idea of the new arrangements in good time.
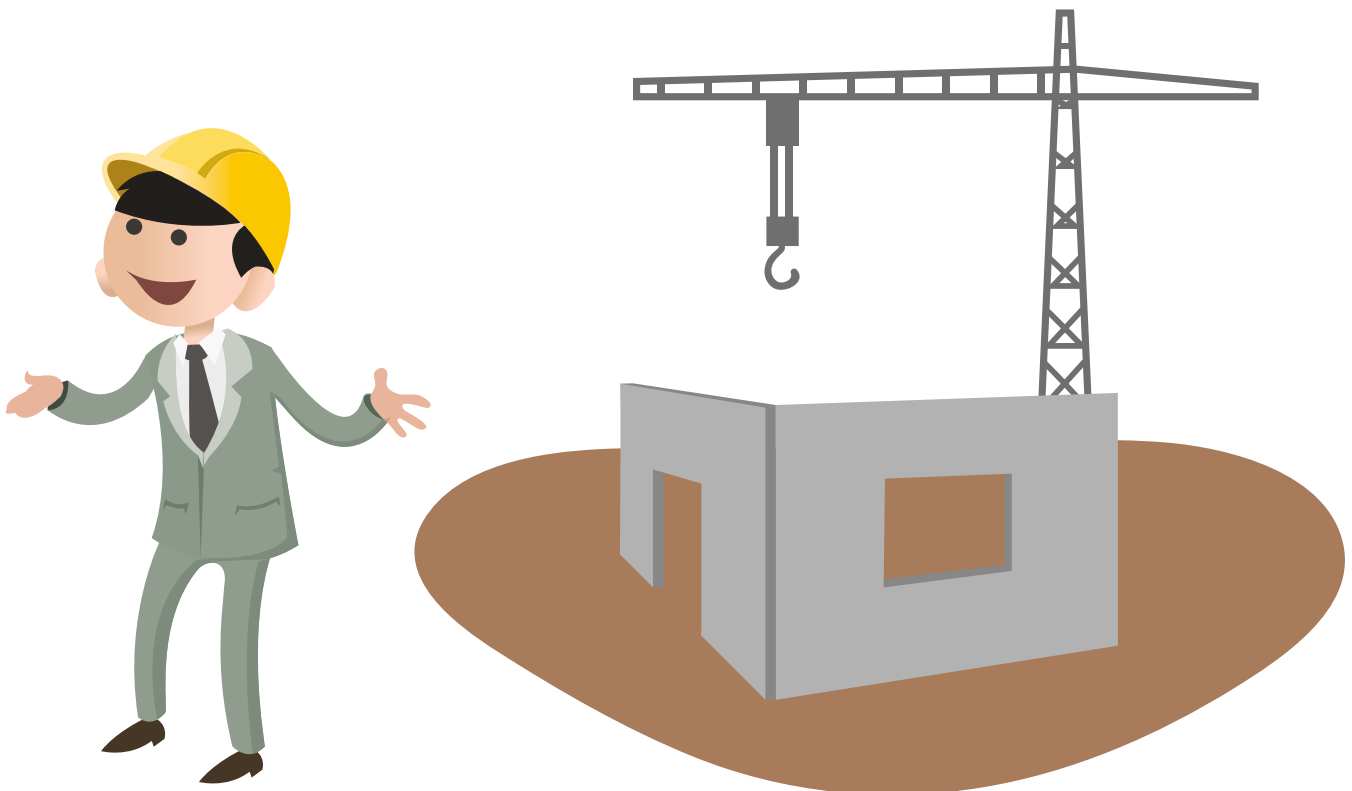
THE OPERATIONS PHASE

When a new building is handed over, the users really take centre stage. The users take over the building and are often full of expectations. However, craftsmen will often need to go on completing tasks that only became accessible or visible after commissioning. Here it is important for tradesmen and supervisors to be aware that they are no longer working on a building site but in someone's home, school or workplace. Their presence may be perceived as very intrusive by the users, even though they are simply doing their jobs.

DIFFERENT PERSPECTIVES

The tradesmen need to bear in mind that the very immediate problems that can seem small in a wider perspective mean a lot in the users' minds. A positive and accommodating attitude is then essential, and simple things like flowers, coffee and cake should not be underestimated either.

There may also be a number of areas where the users cannot distinguish between the areas of responsibility of the project and the operations staff. For example, the indoor climate may provoke discussion. When planning air conditioning systems, we typically work from general design parameters for different categories of room. There will then be a need for customised adjustment, which is undertaken by operations. The customised adjustment will take account of individual users' views of a good indoor climate, and will need to cover the four seasons. This process can be outlined to the users, so they know that the customised adjustment will not be in place from the outset and therefore do not direct their frustration at the project staff.

CONTACT PERSON FOR COORDINATING CONTINGENCY ARRANGEMENTS

When the building is handed over, there will be a need for communication and coordination, so the users are disturbed as little as possible and are informed when disruptive works still have to be carried out. There should also be a contingency function to handle any problems that arise, e.g. when the technical systems are commissioned. This requires a clear line of communication, which is often a problem in the period immediately after handover.

One contact person should be appointed to handle these efforts, who can be contacted at all times in the event of problems. This person can work with the users and the operations staff to coordinate and prioritise remediation work until operations are in a position to take over for good.

If it has not happened in a previous phase, this is when the operations staff should be trained in the operation of the new facilities, and when the provision of operations and maintenance documentation should be accompanied by sufficient oral and practical instruction[3].

GATHERING EXPERIENCE

Last but not least, the operations phase is when a lot of good experience is gathered, which can be valuable in the next project and in future user processes. There are many ways of gathering experience, including questionnaires, meetings and workshops. In office, industrial and institutional buildings, a workplace evaluation report should be produced no later than six months after the users move in. This can be used to gather the users' comments on the working environment, and any defects can be listed and included in the one-year review. An example is shown in Appendix 6.

3) See also 'Guide to the operations-focused building process' (2013)

CHECKLIST

√ **Initial considerations**
- Why should there be any user involvement?
- Who are the users?
- What do you aim to achieve by involving them?
- What do those involved get out of it?
- What are the terms of reference for the process and for the users?
- Who should facilitate the user process?
- How is the user process expected to proceed?
- When and to what extent should the users be involved?
- How do we communicate additions to and exclusions from the scope?

√ **Programming**
- How do we align expectations and agree on terms of reference?
- What is the sequence of topics for user comments?
- How do we distinguish between nice-to-have and need-to-have?

√ **Proposal phase**
- How do we get away from fixed ideas?
- How do we communicate possible solutions?

√ **Project design**
- How are changes handled in the design phase?
- How do we stick to the original values?

√ **Construction**
- How are changes handled in the construction phase?
- How are users prepared to take over the building?

√ **Operation**
- How do we ensure an effective handover to the users?
- What contingency arrangements should there be for remedying defects?
- How should the building be handed over to the operations staff?

APPENDIX

1 STAKEHOLDER ANALYSIS

2 TERMS OF REFERENCE FOR USER INVOLVE-MENT

3 AGENDA FOR A USER MEETING

4 DECISION PLAN

5 FORM FOR CHANGE MANAGEMENT

6 INITIAL WPA

YOU CAN RETRIEVE THE APPENDICES AND CASE-STUDY FROM WWW.VÆRDIBYG.DK