PARTICIPATION IN DESIGN OF COMMUNITY CENTRES

Designing with electronic medium

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Abstract. Until recently, most of the architectural projects had only two players – an Architect and a Client Architect was commissioned by a client and did what that client wanted. Now, end users, citizens, communities, voters and ordinary people want to have a say in projects that are provided for them. The days of an Architect being a tool of moneyed clients and politicians are gone.

Social and political changes in the second half of 20th century provided a platform for affirmation of individual and collective rights of citizens to take active roles in decision-making. In the field of Architecture, this in particular applies to the process of design. What was once a one-way street for decision-making is now a profoundly different – multidirectional process of initiative, consultation and agreement between all parties that are or will be directly or indirectly involved in a project. In this way completed projects are the result of a variety of contributions of all stakeholders, thus potentially better meeting a broader variety of their needs and expectations.

Stakeholders' participation is required not only during the design, but also after the completion of a built project. Once they start using 'their' finished project, they provide feedback about its qualities and shortfalls. This is done through the Post Occupancy Evaluation (P.O.E.). Data collected in this way can then be used to revisit the original design and draw lessons from it, making the next design better suited to the stakeholders of future projects.

These laborious, repetitive and complex tasks were difficult to achieve without spending vast amounts of time and resources. This process threatened to be detrimental to the overall success of a project.

However, advent of more powerful and user-friendly electronic technology, made most of these tasks much more streamlined and effective. The first trial of this concept was with the Design Standards for Fire Stations for the Department of Emergency Services, Queensland, Australia. After the resounding success of that trial, other government departments embarked on similar exercises on projects relevant to their area of expertise. The topic of this paper is a recently completed application of Design Standards technique to the design of Community Centres for the Department of Families, Queensland, Australia. The solution was to create a 'kit of parts' that can be put together in a way that will match individual needs and expectations of any community a project is being procured for.

1. Introduction

Historically, public comments about intricate qualities of institutional buildings were rare and sporadic, but in the second half of twentieth century they became louder. In the Architectural profession, this view is strongly supported in the sphere of design for institutional buildings. What was heard was rather disturbing! These projects were seen more as monuments of power and influence of the state than the response to the needs of the people they were built for. This was the problem. It became obvious that the whole process of building procurement, and in particular its design stage, excluded project's stakeholders from having a role in decision making.

> 'It is not that many years ago since people trusted local or central government to analyze their problems and prescribe the solutions. Those were the days when people accepted that new and exciting developments were bound to be better and when change seemed to be welcomed. . . Today we face different situation. Community groups, voluntary organizations of many kinds, and indeed individuals, now demand a say in the definition of problems and role in determining and then implementing solutions' (Burns, 1963).

This demand has grown from project to project. Success of the previous projects was a catalyst for even more participation of all stakeholders. Citizen participation appeared a possible context through which these shortcomings could be remedied and the quality of the final project improved. Early trials with increased participation during the design stage resulted in some improvements to the quality of those projects. These results pointed to an important relationship between increased participation during design stage of a project and the quality of the finished project? Based on the available data,

derived from completed projects, the hypothetical solution was to increase participation of stakeholders during the design process, which will, in turn, result in higher quality design and a higher level of users' satisfaction with the finished product.

This research intends to analyze current practice of participation and examine the nature of participatory design and use of electronic media as a means of improving the overall quality of architectural design.

In order to test this hypothetical solution, several case studies were conducted on institutional projects delivered by the Queensland State Government in the area of Education, Police and Emergency Services. Results of these case studies and subsequent P.O.E. evaluations validated the hypothesis and opened doors to the increased and more structured participatory design processes on a variety of the current and future State Government projects.

One of the more tangible advantages of government's readiness to embrace the new era of participation was creation of different Design Standards. This paper examines broad aspects and application of the participatory design concept during creation of the Design Standards for Community Centres procured for the Department of Families. The document was prepared by Project Services – a business unit of Department of Works, which provides a majority of professional services for a variety of Queensland Government Departments.

Particular aim of this paper is to analyze the logistical and procedural complexities and challenges of the processes involved in the preparation of Standards and a role of electronic medium as its platform, its final creation and application.

2. Participatory Design

2.1. HISTORY

The seminal period of citizen participation in social planning begun in 1930's in the USA, 1940's in Europe and in late 1960's in Australia. Development of democratic societies and institutions was a catalyst for the upsurge of participation. Some authors see this participation as a 'cornerstone of democracy' (Arnstein, 1969:216), while others see it as 'voicing grievances directly to authority figures' (Painter, 1992:22). Whatever the definition, citizen participation was gaining strength and becoming more structured and powerful. Over a period of several years this participation started to take place on number of projects like community housing, university campuses, agricultural projects etc. On all of these projects design decisions were

developed agreed with citizens, before they were formalized in the final project documentation.

Architect was not the sole player in the design process any more. The 1970's saw some architects and planners, like Nicholas Habraken, Lucian Kroll, Ralph Erskine etc. extending their design processes, not only to include stakeholders during design stages of a project, but also to collect invaluable feedback well after its completion date. All of these cases involved 'established Architects who believed and continue to believe that a good design requires a dialogue with the people it is provided for. It is and enabling form of empowerment intended to involve people in decisions about their environment' (Comeiro, 1987:19).

In Queensland, it was considered that the State and its institutions had adequate knowledge and expertise I the field of design and construction and that it should not be challenged. However, increased openness and, at times, acrimonious comments by the general public, created a credibility crisis for the Government. Until the mid 1990's most of Queensland Government provided very limited opportunities for citizen involvement during design stages.

One of the recommended ways to address the newly identified credibility problem was to create a new concept which would facilitate citizens involvement, not only in day-to-day matters of the Government, but to increase their say during design stages of all projects planned by the same Government. At that time the Government decided to test this increased citizen participation on a number of different types of projects. They were delivered with different levels of success. Subsequent analyses recommended further improvements in the process and current indications are quite encouraging.

2.2. MODELS

Most of the authors in the field of citizen participation conclude that there is no universal model of participation applicable to the whole range of different issues. Different authors provide their individual models, which reflect socio-economic characteristics of the times they have developed them in. Various models of citizen participation and participatory design offered in the available literature reflect its complexity and a vast range of issues it is supposed to deal with.

The common consensus is that a form of participation must relate to nature of issues it is expected to deal with. Different types of projects would require different scope and type of participation. To achieve this, the participants have to be selected and prompted to provide much needed information to the designers. Public and civic works that will affect day-to-

day lives of masses of people would certainly have a greater need for participation than construction of a secret semi-government facility. Participation is as successful as the usefulness of participant's contributions to the process.

Two distinct models that characterize to some extent all other participatory design processes depend on the direction of the decision-making that takes place during that process. The first, traditional and still extensively used model is 'top down' model (Figure 1). It exhibits 'primary concern for the goals and objectives of the central agency rather than the communities affected (Hyde, 1989:142). In this case, although project brief reflects some broader known needs and expectations of the end users, the client (government) still has the right to impose its own rules and determine the final form of any project. Even if sought in some rare instances, community and citizen feedbacks and concerns are not seriously considered in the final design solutions of a project.

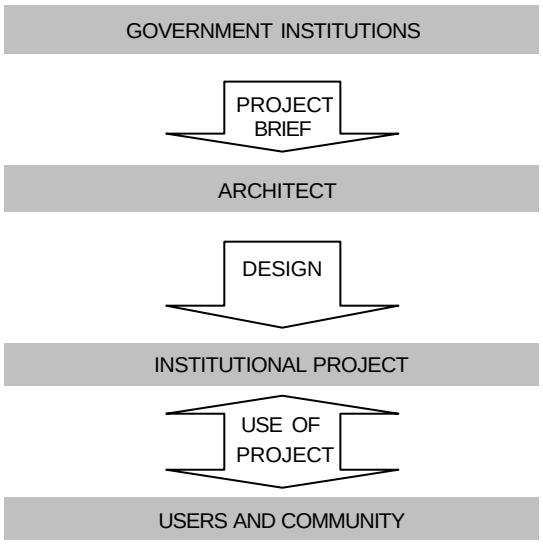

Figure 1: 'Top down' design process

The second model is the one which is less hierarchical and much more interactive. In this 'bottom up' model preparation of a project brief is much more complex. Contrary to the 'top down' model where the brief has a standard format and very little, if anything, can change during design process, in the new model, participation of all interested parties is encouraged to allow production of a specific brief for a particular project. In

this way most of the crucial issues to be addressed in the project could be identified before the design stage of the project is initiated.

In this process stakeholders exercise ultimate 'citizen control' (Arnstein) through their active involvement in decision-making and direction of the whole project procurement process. This' bottom up' model (Figure 2) has the client as just one of the stakeholders with shared power to make final decisions, but still being able to veto final design issues. The model is much more complex and requires additional time, money and human resources to conduct. This inherent complexity was considered one of the main reasons for its slow introduction and implementation in the project procurement processes, in particular in the area of large institutional projects. However, the unstoppable advent of democracy provided much needed impetus for its final introduction and fast spreading acceptance among government and private project procurement organizations.

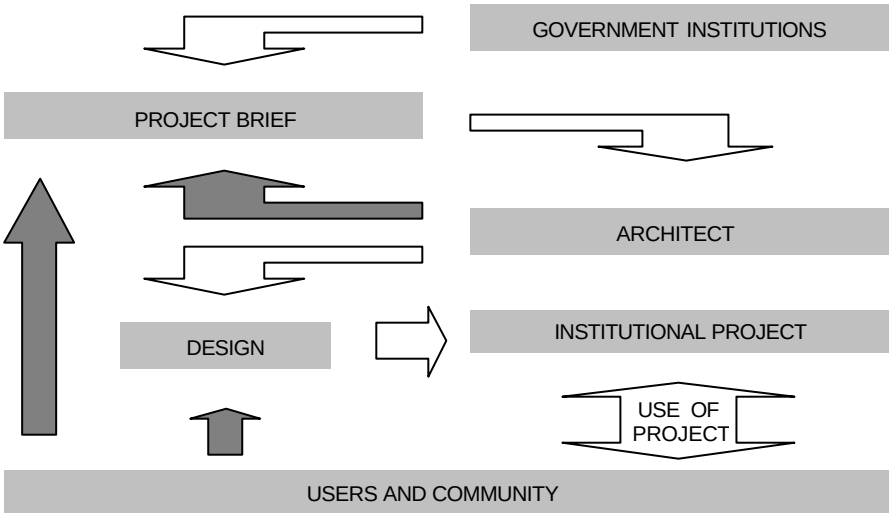

Figure 2: 'Bottom up' design process

2.3. QUEENSLAND GOVERNMENT CONTEXT

During the late 90's, after a substantial public and media pressure, new Government of Queensland conducted a number of successful trials with participatory design on government projects. This increase in participation of all project's stakeholders resulted in projects which better addressed needs and expectations of the public. Public feedback indicated that socially, environmentally and even politically, this process was judged as a success. This encouraged Queensland Government to embark on a much more

structured and extensive use of participatory design in their procurement of capital works. Education Department was at the forefront, extending consultative processes not only to teachers, students and parents, but to a broader community. Law and Order departments now consult with specific interest groups within communities. Department of Health targets the intricate knowledge of medical practitioners to enable Architects to design much better health facilities.

One of the first to adopt this strategy was Department of Emergency Services. Ambulance and Fire officers are regularly providing invaluable information to designers about operational and working requirements of new emergency facilities. Use of participatory design is now a generally accepted mode of operation and current experiences are analyzed and used to make it even more streamlined and effective. As a result, an attempt was made to use participation to document all design issues and their alternative options for a standard Fire Station. The aim was to streamline the design process and redirect energies used on repetitive and standardized issues to specifics of each individual project.

The latest type of projects where Queensland Government is encouraging increased participation during design is the area of procurement of Community Centres which is conducted by the Department of Families. The most obvious solution was to create a Standard Design of Community Centres. However, this format was not able to provide flexibilities required for local characteristics of each of the projects and would limit effective contributions of future participants thus contradict the notion of participation in design. Instead, it was agreed to create Design Standards for Community Centres .

This document would have all of the elements and their different variations of required functional 'standardization', but only in a modular format thus allowing individual combinations of these modules to produce original design. Adopting this methodology each of the new Community Centres would be an individual creation of a particular community, but would still maintain standardized facilities the Government is insisting on in order to promote equality and fair treatment of each of the communities.

3. Design Standards for Community Centres

3.1. THE CONTENT

Government procures a variety of projects for diverse groups of stakeholders. Particular government departments specialize in projects that provide specific services for, sometimes, very narrow group of people. Out of all types of government projects, Community Centres have the broadest and the most

versatile group of stakeholders. Inherently, these facilities are built for use by a wide range of people from local communities and are catering for a range of community needs. Each of the communities has their own specifics. Their socio – economic structure usually determines the preferences, ranging from basic existential, to more recreational needs. It is thus obvious that the only way to ensure that all of these needs are met is to involve these communities in design stage and let them help designers by sharing their own needs and expectations.

The whole concept of Design Standards revolves around increased participation of all parties that have active or passive interest in Community Centres An important ingredient of a good design of a Community Centre is possession of thorough knowledge about its function. Architects generally do not have that knowledge and production of the Standards was an opportunity to make it available to them for future projects. Extensive consultation with staff from a number of existing Community Centres provided comprehensive information about centre's operations and the effects a design can have on it.

Design Standards for Community Centres is a fully self-contained document. It contains all necessary information for the design of a new Community Centre. The document also contains sections relating to broader issues of centre's location, planning and traffic requirements. The main parts of the Design Standards are:

1. Site Development Guidelines
2. Functional Requirements
3. Technical Requirements
4. Design Brief
5. Room Data Sheets
6. Post Occupancy Evaluation

The Site Development Guidelines section is crucial for any successful project procurement. Consistent feedback obtained from the majority of participants was that unknown site conditions often imposed major financial and time constraints on the proposed project. Comprehensive feedback from the original questionnaire provided previously unknown information which helped the creation of a 'check list' which, when completed, should provide sufficient information about a site, its potential pitfalls and potential solutions to the encountered problems.

Functional Requirements are divided in functional units of a whole centre as well as functions that are performed within individual rooms or spaces. Special care was taken to address the issue of interaction of these functions and their prioritized effect on the social and welfare and even cultural nature of the operation of the whole Community Centre. Further on in the document, this information is specifically addressed in 'room data sheets'.

The Technical Requirements section provides in-depth information about requirements that are specific to the facilities and function of Community Centres. This information has been prepared by professionals from all relevant disciplines and is presented in the form of a Performance Specification, using the generally accepted NATSPEC platform. Apart from the feedback through the periodic P.O.E., the intention was to have separate updates to reflect the latest developments in the relevant technologies covered in this section.

Information required for the preparation of the Design Standards was obtained from a large number of participants. It was collated from the responses to the questionnaire sent over the email and the results were structured in the form of a Design Brief. Individual modules of the Design Brief are presented as 'room data sheets'. They contain a detailed drawing of the space – room with all fixed and loose furniture, services provided and detailed specification of required fit-out materials.

Attached schedules provide lists of main requirements about environment, communication, maintenance etc. Each of the spaces – rooms is identified as a stand-alone and also as an integral part of the broader function of the station. In some cases particular services could be delivered and organized in a number of various ways. To allow for this variety, Design Standards provide several spatial and functional solutions. This allows Design Standards to prescribe the 'standard' nature of each of the units, but still allows for flexibility in combining these units into a unique Station.

However, this process is not limited to the design stage only. After the completion of a project a Post Occupancy Evaluation will provide a response about suitability of design and all design decisions made on a particular project. It is also possible to include a feedback about the participatory process itself. Once conducted, its findings will prevent repetition of mistakes and draw attention to any additional issues that have to be resolved. Design Standards are intended to be an 'open-ended' document that will grow and improve after completion of every Community Centre.

3.2. DESIGN STANDARDS PRDUCTION METHODOLOGY AND ELECTRONIC MEDIUM

With the growth of public pressure to increase participation and a say of citizens in decisions that affect them, the State Government introduced public consultation as an integral part of design stages of most of its projects. As a result, in the early 1990's, Project Services undertook several projects of the similar nature where a large number of participants were expected to contribute with a complex and intricate information towards the creation of several generic 'standard' documents for the then departments of Education

and Police. Most of the work and time spent for completion of those documents was spent towards the non-productive administrative and physical jobs, just sharing and collecting required information.

Given physical, time and often even financial limitations, the number of potential, participants had to be reduced to the ones in or around large centers of the State, not giving a chance of participation to the vast number of clients in rural and remote areas. Slow communication limited the ability to quickly react and interact with the participants. Their contributions, already limited in number and scope, were taken on the face value, without offering another chance to clarify or modify their contributions as a result of the much needed but not provided interaction with other participants.

Encouraged by the success of projects completed in the past several years Project Services commenced production of a number of Design Standards for different client departments. Architects and other design professionals involved a full range of participants with a variety of professional and operational backgrounds. Organizing a large number of participants to provide detailed feedback about complex buildings like Community Centres presented Architects from Project Services with a number of logistical problems. How to collect it? How to collate and analyze it? How to provide an interactive platform for sharing data and comments? How to extract the most important responses and feed them back into the Standards? The obvious answer was to use modern electronic medium.

Recent developments in the electronic medium and its increased user friendliness provided a very good platform and offered a simple solution for all of the previously insurmountable problems. Its use during production of Design Standards for Community Centres demonstrated its suitability for the following:

- Quick and accurate dissemination and collection of complex written and drawn information to the large number of recipients.
- Collaborative multidirectional interaction of a large number of geographically scattered participants who need to be contacted from a central office and when their individual contributions are crucial to the quality of expected feedbacks.
- Selection and collation of the large amount of information into a single document.
- Distribution of hard or digital copy documentation throughout the State
- Documentation that is expected to be regularly monitored and updated through the multipoint feedbacks.

As part of the on going modernization, current Government's policy is to promote the use of the latest developments in electronic medium. The newest IT platforms and a variety of digital applications have already been used at

all stages of contract documentation and administration on Queensland Government projects. With the advancement of computer-aided design and its wide use in government and private sectors, the use of electronic medium for participatory design and Design Standards was an obvious choice.

Work on the Design Standards for Community Centres had seven distinct stages:

1. Collection of feedback from a range of existing Community Centres
2. Analysis of available documentation for the existing and planned Community Centres
3. Thematic Workshops for establishment of design parameters and benchmarking
4. Establishment of P.O.E. parameters and procedures for its conduct
5. Conversion of the document for use on the web site
6. Document integration with the existing Asset Management platform
7. Development of document use and maintenance guidelines

The original Questionnaires have been sent to all of the potential participants via e-mail. These participants were selected from the agreed list of the 'best practice' projects, which were identified by the Department of Families as the ones that either completely, or partially satisfied their end users – communities. The responses and all follow-up questions and clarifications were handled in the same way. Once analyzed, the responses were prioritized in a data bank and then distributed to specialist participant groups for further analysis and recommendation for inclusion in the final version of the Standards. Over a period of several months four workshops were held with participants from the whole state of Queensland.

Subsequent comparison of these findings with the original documentation for each of the stations reviewed, provided additional information on how design effects Community Centre's function and the levels of satisfaction of its staff (Figure 3). Most of the analyzed documentation was handled digitally. Project Services prepared the complete draft of written and drawn content and distributed it via e-mail to all participants for comment and final amendments. In this way the reviewed data from participants was, in most cases, ready for inclusion in the subsequent versions of the developing document. Gathered data from the 'best practice' projects provided an insight into the established patterns of what a good design solution was and how it was arrived at.

Once the final version of the document has been agreed to by all interested parties, it was issued in a digital version and placed on a web site. The electronic version of the document follows exactly the format of the hard copy. For ease of its use, all elements of the document are hyper linked. The Table of Content is linked to the relevant sections and subsections. Individual Room Data Sheets are cross-linked to all relevant Functional and Technical

Requirements in each of the discipline field (Mechanical, Electrical, security etc). For planning purposes, all rooms – spaces belonging to a functional unit of a Community Centre are linked. This cuts down the time required for identification of main functional requirements of a center and makes the creation of a design brief very time effective and accurate.

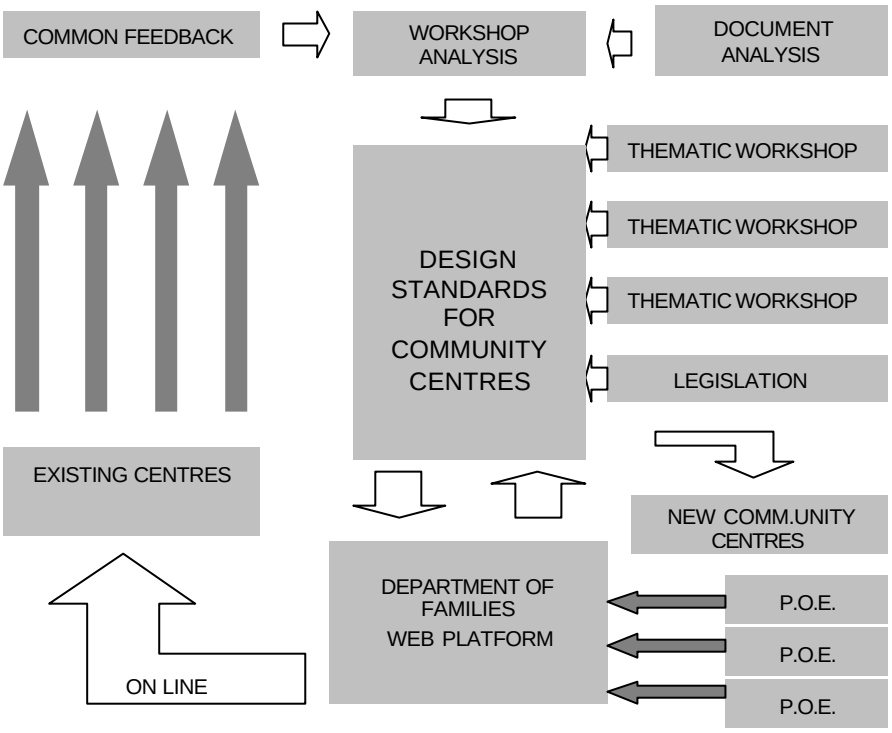

Figure 3: Production methodology employed for Design Standards

The driving force behind creation of Design Standards was the hypothesis that there is direct relationship between stakeholders' participation in the design process and the subsequent satisfaction of the end users with the completed project. Increased collaboration between client and designer would benefit all parties and result in a better design of new Community Centres.

Subsequent trials of the document on several new Community Centres proved the validity of the hypothesis. After only a few trials of Design Standards, this method provided some additional benefits to both client and Architect. These were in the areas of time and cost. Time savings achieved on the individual projects outweighed substantial time spent in the

preparation of the original document. In the area of elemental standardization of the project there are already strong indications that competition in the construction industry and increased benefits of the repetition and 'economy of scale' are also going to provide tangible financial and commercial benefits to the client. This success resulted in additional demand from other clients for production of Design Standards for projects they specialize in. It is expected that, subject to minor, ongoing, improvements, new standards will follow the same methodology applied for the production of all existing standards.

3.3. APPLICATION OF THE DESIGN STANDARDS

With the vast variety of projects Architects are exposed to, it is unreasonable to expect that they are capable of holding, sometimes, very intricate information about all of their functional and other requirements. In order to produce design solutions that will meet end users requirements and expectations, Architect has to obtain that intricate knowledge on every new project. The best way is to acquire it from the future stakeholders – end users. With project of similar type substantial component of that information would be repetitive and, unless the same Architect is used again, the whole process of general consultation would have to be repeated on every project.

Design Standards are doing away with that. They provide Architect with instant information about intricacies of the proposed project and leave more time for consultation about more intricate specifics required for the particular location, particular community and their particular needs and expectations. All plans in the standard are in digital format. That allows an Architect to use them as 'part drawings' and digitally combine them as a 'kit of parts' into the rough plan of the proposed new Community Centre. Time savings at this stage are already significant. Using digital medium and e-mail also allows an Architect to liaise with clients remotely and quickly respond to significant information received or address required changes.

In broader terms, this document also provides a wealth of generally agreed information about Community Centres. Detailed information, previously not widely available, is now accessible to all staff of Project Services and Client Department. Apart from being useful to designers, information contained in standards is now extensively used by client department too. Web based Design Standards are already used by the staff from Department of Families as a training tool for new staff. When requesting improvements, additions or redevelopment of the existing centers, staff are using the Standards as a technical reference tool that allows them to make informed decisions. In the case of remote communities, or communities with a limited access to the latest developments in the design for Community Centres, design standards are also extensively used as a prompt for a broader

consideration of their needs and introduction of some newer functions and facilities that particular community may have note been aware of. In this instance, the results of a broad community consultations are now applied in reverse order – helping other communities to use outside experience and adopt it their specific needs.

When proposing new Capital Work projects, purchasing new sites or just analyzing asset maintenance needs, Design Standards are used as a valuable tool. More predictable design solutions allow for more accurate pricing and timing of the proposed project. In the maintenance and asset management areas, Design Standards are frequently used as a source of information about agreed technical requirements, fit-outs, finishes etc. For the Department of Families information about existing assets, repair and maintenance needs are of paramount importance.. It is expected that all future projects shall have their digital documentation stored on the Asset Management data base. It will then be possible to integrate Functional and Technical Requirements modules of the standards with the maintenance schedules and costing, allowing for almost instant maintenance budgeting and reporting.

In the current drive for the most cost effective project delivery system government is putting additional emphasis on the time component of the project delivery. Although there is no evidence that this methodology shortened the time required for the construction of a project, there is very strong evidence of the commercially significant byproduct of the newly developed system. It is reduction in time required for project design and documentation. Client's and Architect's involvement during design stages of Community Centre projects is substantially shorter. This is already saving time, but also reduces professional fees paid for the project. This positive commercial result can only add to the significance of the recently developed system and ensure its wider use in the near future.

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