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PO Box 705 Jamison ACT 2601
Email: aib@aib.org.au
Telephone: +61 (0)2 6253 1100
Facsimile: +61 (0)2 6253 4411
Website: www.aib.org.au

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An introduction to the Australian Institute of Building

The Australian Institute of Building (AIB) is incorporated by Royal Charter and is the preeminent professional body for building professionals in Australia and the Asia-Pacific region. The AIB has a long and proud history of supporting and serving the building profession. For more than sixty years the Institute has worked with the building and construction industry, government, universities and allied stakeholders to promote the building profession, support the development of university courses in building whilst promoting the use of innovative building techniques and a best-practice regulatory environment.

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A Message from the National President Norman Faifer FAIB FAIQS FIAMA



Welcome to my fourth **Construct** magazine column as National President of the Australian Institute of Building.

On 26 September 2015, following the holding of all the State Professional Excellence in Building Award (PEA) events, the National PEA event was held in Sydney where some 275 members, award entrants and guests were present. I congratulate all National winners and make mention of the joint winners of the Professional Builder of the Year, 2015, Jon Stone FAIB of WA and Gary McLeod of NSW.

The National PEA event is our annual signature event and in addition to a great attendance there over 1,100 persons attended the six state events, indicating that the awards are held in very high esteem.

I also make mention that at the National PEA event this year we had as honoured international guests, the President of the Singapore Institute of Building Limited, Mr. Peter Chua FSIBL, and the President of the New Zealand Institute of Building, Mr. Grant Harris MNZIOB and the NZIOB CEO, Mr. Malcolm Fleming. All came to attend the National PEA event and to hold initial discussions as to how our recently signed Tripartite Agreement was to progress.

With Rt. Hon. Mr. Malcolm Turnbull MP recently assuming the role of the Prime Minister, a reshuffle of the Federal Cabinet occurred and a most interesting and relevant new portfolio and Minister was announced, that of the Ministry of Cities and Built Environment, with the

Rt. Hon. Jamie Briggs MP being appointed as its first minister. This is a significant development for the building and construction industry and our profession, and is a great opportunity for us to be represented at Cabinet level and in the National Parliament. Whilst Minister Briggs was only in office for four days before the National PEA event he did pen a letter to the Institute which I read out at the dinner. This Institute together with other stakeholders in the industry will be doing our bit to support our new Federal Minister.

It is now just over a year since the new slim-lined National Council came into being. Whilst there have been certain challenges and hurdles to overcome in implementing and bedding down its structure and procedure; I can now report that the Council is, I believe, in a much better position to deal with issues as they arise. It is a more nimble and reactive body, which is also being proactive in voluntarily bringing items to the table.

As mentioned in past magazine columns of mine, this Institute is a truly National and united organisation which does not suffer from "Federation Issues", those of being a collection of States and Chapters each doing their own thing but rather practicing a unified "united we stand" approach – this is most noticeable in the way the new Council structure has most positively moved forward.

It is pleasing to note that a number of our members have been appointed to various State and Federal Government Boards, Commissions and Regulators, this is both a testament to the individual standing of those members and of this Institute being a stakeholder in the industry and profession.

The current discussions and debates on non-conforming building products is still a very hot topic, with much being done to identify, discuss and resolve issues. Each state, and the country as a whole, has been affected and the various industry stakeholders (associations, professional bodies, building product manufacturers and distributors, testing and code entities, regulators and government) all involved to broker a solution. As the issue is complex and multifaceted the resolution will not be achieved overnight.

Members will be aware of developments within the TAFE sector of education and of the various (State and Federal) government attempts at 'cleaning up' and rationalising the sector. This is work in progress and this Institute is watching developments closely.

The Institute is making great strides in representing its members in many forums however we still require your active participation. We welcome constructive comment and suggestion. This Institute is only as strong as we make it, so we all have a role to play and remember there are many advantages and benefits that you derive as being a member.

I wish us all well in the last months of 2015.

Norman Faifer FAIB FAIQS FIAMA

National President (and Chairman of National Council)
The Australian Institute of Building

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Understanding Megaproject Success beyond the Project Close-Out Stage

Johan Fahri, Christopher Biesenthal, Julien Pollack and Shankar Sankaran
School of the Built Environment, University of Technology, Sydney.

Abstract

Project success has always been an important topic in the project management literature. One of the main discussions is concerned with how a project's success is evaluated and what factors lead to achieving this success. Traditionally project success has been measured at the point where the project outputs are handed over, after the close out phase. Recently, questions have been raised in the literature as to whether we should be evaluating project success beyond the close out phase, to better account for organisational and societal outcomes. However, not much has been published about how the long term impacts and outcomes are measured. This is of particular concern in megaprojects as they often attract a high level of public attention and political interest, and have both direct and indirect impacts on the community, environment, and national budgets. In this paper the authors review success factors and criteria that are applicable to projects in general and megaprojects in particular. They identify the significance of evaluating outcomes and impact and propose an ex-post project evaluation (EPPE) framework for megaprojects.

Introduction

The success of a megaproject is typically assessed when the project has reached its goal or objective, and it is usually measured in terms of the conventional criteria of cost, time, and quality/performance, defined during the scoping stage of the project. However, in order to be successful, critical success factors (CSFs) need to be considered, including the specific conditions, events, and circumstances that lead to project results (Ika, 2009). The CSFs for a project become more challenging as a project increases in complexity. Issues such as large investments of time and money, uncertain scope, and increased stakeholder attention all raise the complexity of a project, and are all common factors in large infrastructure projects. Such projects are often categorised as megaprojects due to their tendency to consume large investments and timeframes, as well as involvement of various types of stakeholders (Fiori and Kovaka, 2005; Hertogh and Westerveld, 2014; Jia et al., 2011; Kardes et al., 2013; Turner and Zolin, 2012; Zhai, Xin and Cheng, 2009).

Research shows that most megaprojects fail to

meet their stated objectives (Flyvbjerg, 2007). In other words, "megaprojects' characteristics cause significant project management difficulties that lead to underperformance" (Haidar and Ellis, 2010). Megaprojects tend to experience time and cost overruns (Flyvbjerg, 2009, 2014; Han et al., 2009; Lehtonen, 2014; Merrow, 1988), and the project management literature has tended to emphasise time, cost and quality as the three primary criteria for understanding project success. However, Ika (2009) argued for these criteria to be extended, to include client satisfaction, realisation of the strategic objectives of the client organisations, the satisfaction of end users, and the satisfaction of other stakeholders. However, many of these criteria can only be understood long after a project has been delivered.

Many studies have focused on identifying the CSFs required to deliver the project successfully (Ballantine and Stray, 1998; Chan, Ho and Tam, 2001; Chua, Kog and Loh, 1999; Fortune and White, 2006; Nguyen, Ogunlana and Thi Xuan Lan, 2004; Ogunlana, 2008; Yu et al., 2006). These studies typically only considered success up until the point at which the project was closed and outputs delivered. However, beyond the close-out phase the outputs of project had to produce results that not only demonstrated the performance of the product or service delivered, but which also met the criteria used to sanction the project at an organisational strategic level. This has been classified as the outcome and impact levels of a project (Turner and Zolin, 2012; Vedung, 2010).

Although the success of a megaproject may be classified during the project close-out phase when deliverables are accepted, stakeholders' lingering perception of success and the associated benefits are arguably more influenced by the longer term impacts and outcomes resulting from a project. Managing the CSFs that affect project impacts and outcomes might provide better results than exclusively focusing on CSFs targeted towards the successful acceptance of deliverables. This is particularly significant for megaprojects, where the impact and outcome stages of a project may last for many decades.

This paper reviewed the literature on CSFs and post-project evaluation to understand the factors

contributing to the success of megaprojects. First, this paper elaborates on the CSFs in a typical project lifecycle. We then argue for the need to consider success beyond the traditional project lifecycle, the importance of post-project evaluation, and the need to consider CSFs beyond the project close out phase. The paper concludes by highlighting CSFs that are important to megaprojects.

Understanding Megaproject Success beyond the Project Close-Out Stage

Critical Success Factors in Project Lifecycle

Traditionally, a project's success is measured against its original scope, time of delivery, budget, and the quality or performance of deliverables. The term 'Critical Success Factors' refers to the specific "conditions, events, and circumstances that contribute to project results" (Ika, 2009, p. 8). Table 1 summarises CSFs that have been found to contribute to project success in research over the last fifteen years.

As projects become more complex they may be classified as megaprojects (Flyvbjerg, 2014; Kardes et al., 2013). Megaprojects have to perform in a challenging and unique environment, have to satisfy multiple stakeholders who often have conflicting expectations, and are often expected to deliver outcomes and benefits that go beyond specified budget and schedule (Fiori and Kovaka, 2005; Flyvbjerg, 2014; Jia et al., 2011; Kardes et al., 2013). These demands lead to a selection of issues more commonly faced on megaprojects than on smaller or more contained projects. Priemus (2010, p. 1037) identified the following key issues on megaprojects: inadequate problem analysis; lack of project alternatives; no functional programme; uncertainty about the scope of the project; inadequate process architecture; questions on analyses; contested information; issues with land acquisition; type of chosen technology; changing markets; political discontinuity and inconsistencies; and changing standards and changing legislation.

Besides consuming a large investment in money and time, megaprojects also attract the interest of a wide range of stakeholders due to their political and social impacts. Attempting to meet the needs of a variety of stakeholders involved in megaprojects

Study	Critical success factors
Chua, Kog and Loh (1999)	Project Characteristics Contractual Arrangements Project participants Interactive processes
Nguyen, Ogunlana and Thi Xuan Lan (2004)	Comfort Competence Commitment Communication
Chan, Ho and Tam (2001)	Project team commitment Contractors' competencies Risk and liability assessment Client's competencies End-users' needs Constraints imposed by end-users
Fortune and White (2006)	Goals and objectives, Performance monitoring Decision-maker(s) Transformations Communication Environment Boundaries Resources Continuity
Yu et al. (2006)	Project-related factors Human-related factors Process-related factors Input-related factors Output-related factors
Ogunlana (2008)	Comprehension Commitment Competence Communication

Table 1 - Studies on critical success factors

tends to cause uncertainty and change throughout the lifecycle. This is particularly significant with respect to the level of stakeholder engagement in decision-making, as pointed out by Priemus (2010).

Despite the length of many megaprojects, their delivery lifecycle still ends at a definite point at which deliverables reach final completion and acceptance from the client. The traditional project lifecycle in the PMBOK Guide (2013) defines four stages of a project: starting the project, organising and preparing, carrying out the work, and closing out the project. In contrast, Priemus (2010) proposed a five-

stage conceptualisation of the process of managing a megaproject. The steps he proposes are: (1) problem analysis; (2) compilation of a functional programme of requirements; (3) elaboration of the technical, practical and economic aspects and preparation of the project until it is ready for execution; (4) realisation of the project from the moment the first spade hits the soil to the handover; and (5) the operation of the infrastructure after completion. It is interesting to note that only one of these five stages occurs during project implementation, the period on which traditional project management typically focuses. This is comparable to Lai's (2000) research

on project communication, which identified that only one of six broad areas of project communication breakdown occurs during project implementation.

Project close-out marks the stage when project outputs are delivered, regardless of whether a project is local and contained, or a sprawling megaproject, delivered across years and different continents. However, the impact of a project depends on how deliverables are used after the project is completed. It may take some time before benefits are realised, or the impact of outcomes on the wider context within which the project is delivered, are understood. Therefore it is suggested that an additional phase should be included in the project lifecycle when examining CSFs. The following section reviews how project success is traditionally assessed, before exploring issues of temporality and alternative options for the evaluation of megaproject success.

Post-Project Evaluation

Post-project evaluation has been the subject of project management research for many decades (Kasi et al., 2008; Maheswar and Javalagi, 2014; Song and Letch, 2012; Toor and Ogunlana, 2010). However, post-project evaluation faces its challenges in practice. First, post-project evaluation is not an assessment of the sustainability of the benefits the project delivers (Cleland, 1985). Rather, the evaluation targets the time immediately after phase-out (Sandru, 2013). It tends to assess how a project satisfies its agreed plan, which may merely include time, cost, and quality/performance criteria. Archibald, Di Filippo and Di Filippo (2012, p. 29) emphasise the importance of post-project evaluation and note that the "post-project evaluation phase obviously requires a flexible amount of time depending on the type of product that the project has produced". However, it can be difficult to conduct a thorough evaluation, as project personnel are typically released once the project is finished (Ahsan and Gunawan, 2010). This can create issues associated with access to the data needed to conduct the evaluation.

The second barrier to conducting post-project evaluation relates to management support for the evaluation, and a more general lack of support to continuous improvement, in favour for sanitised reporting buried issues (Bowen, Cheung and Rohde, 2007). In many cases a project has no obligation to conduct post-project appraisal (Ahsan and Gunawan, 2010). It has been found that project managers often perceive evaluations as a mere formality (Al-Yaseen et al., 2010), and that existing policies and procedures can limit the ways that information from post-project reviews is to be relayed back to decision makers (Kumar, 1990).

However post-project evaluation remains an essential part of how organisations learn and improve. Although many of the studies of post-project evaluation focus at the level of those stakeholders who were intimately involved in the process, a management that supports the evaluation process, and values transparency in the process, remains vital to capability development. Despite the significance of post-project evaluation, this project stage seems to have received very little attention in published project management bodies of knowledge. Archibald, Di Filippo and Di Filippo (2012) argue that the traditional project lifecycle promoted by the PMBOK Guide and other similar normative texts, is not complete. They claim that a post-project evaluation stage

Stakeholder	Output: at completion	Outcome: months after completion	Impact: years after completion
Investor or owner	Time Cost Features Performance	Performance Profit Reputation Consumer loyalty	Whole life value New technology New capability New competence New class
Project executive or project sponsor	Features Performance Time and cost	Performance Benefits Reputation Relationships Investor loyalty	Future projects New technology New capability New class Value creation Reputation
Consumers	Time Price of benefit Features	Benefit Price of product Features Developments Usability	Competitive advantage Price of product Features Developments
Operators/users	Features Performance Documentation Training	Usability Convenience Availability Reliability Maintainability Cost reduction: • Operating • Maintaining • Training • Staff	New technology New capability New competence New class
Project manager and project team	Time Cost Performance Learning Camaraderie Retention Well-being	Reputation Relationships Repeat business	Job security Future projects New technology New competence
Senior supplier (design and/or management)	Completed work Time and cost Performance Profit from work Safety record Risk record Client appreciation	Performance Reputation Relationships Repeat business	Future business New technology New competence
Other suppliers (goods, materials, works, or services)	Time Profit Client appreciation	Reputation Relationships Repeat business	Future business New technology New competence
Public	Environmental impact	Environmental impact Social costs Social benefits	Whole life social Cost-benefit ratio

Table 2 - Project success understood by timeframe (Adopted from Turner and Zolin, 2012)

should be added to the project lifecycle, involving four dimensions: “project management dimension, product dimension, stakeholder satisfaction dimension, and the cognitive constraint dimension” (Archibald, Di Filippo and Di Filippo, 2012, pp. 26-27).

Project outputs, outcomes and impacts

Although project success is usually assessed at the time that deliverables are accepted by the client, the real success of a project is often only understood after the benefits have been achieved (Song and

Letch, 2012). Long-term perception of success tends to result from an assessment of deliverables’ beneficial impacts on the wider purpose and context. These results are typically experienced at the strategic level, not necessarily at the tactical level at which they were delivered. At the tactical level finishing the project means that the project has entered the operational phase. At the strategic level, a project’s success needs to be assessed much more comprehensively.

One of the difficulties in comprehensively assessing the success of a project lies in what Li (2008) refers

to as a “conditional causality” which makes the relationship between project outputs and outcomes somewhat opaque. A simplistic perspective on the link between output and outcome may neglect the importance of the timeframe of evaluation, which becomes increasingly apparent to stakeholders as promised benefits either do, or do not, appear. Within these conditional relationships and timeframes, stakeholders possess different expectations. Turner and Zolin (2012) have referred to this as “different timelines, various stakeholders”. They assert that:

project success is measured not just by completion of

the scope of work to time, cost, and quality, but also by performance of the project's outputs, outcomes, and impacts, and thereby the achievement of the desired business objectives, as assessed by different stakeholders over different timescales (Turner and Zolin, 2012, pp. 87-88).

According to a system developed by the Asian Development Bank (Turner and Zolin, 2012, p. 4) project results can be divided into three stages: project output, project outcome, and project impact. Table 2 summarises factors related to success according to this categorisation, drawing on Turner and Zolin (2012) and sources.

Benefits may be recognised in financial and non-financial forms. On a daily basis the financial benefits include improved system costs, such as operational cost, training cost, maintenance cost, upgrade cost, reduction in other staff cost, reduction in salaries, and other expenses saved (Al-Yaseen et al., 2010; Kumar, 1990; Love and Irani, 2001). Non-financial benefits mostly cover the operational and the intangible benefits (Liu et al., 2003) such as value creation (Archibald, Di Filippo and Di Filippo, 2012; Horvath, Hatfield and Hill, 2011) through project outputs. Along with the expected outcomes shown in Table 2, the non-financial benefits may include changes in the system's effectiveness and efficiency (Poon and Wagner, 2001) or the quality of programmes (Eldabi, Paul and Sbeih, 2003). It is necessary to consider the intended and unintended benefits of project's outputs if the project success is to be assessed comprehensively (Archibald, Di Filippo and Di Filippo, 2012). Evaluation at the outcome level may also provide benefits that evaluation of outputs at project completion cannot provide. Vedung (2010, p. 273) has identified that evaluation at the outcome stage produces safer knowledge, based on the presentation of empirical evidence of intervention effects.

The general literature on evaluation provides further insight into approaches that may be appropriate for the evaluation of megaproject outcomes and impacts. Conrad and Miller (1987, p. 28) suggest that evaluation has five primary stages: 1) measuring philosophy, 2) means testing, 3) implementing testing, 4) philosophy testing, and 5) reflection.

Due to their extended duration and the wide variety of stakeholders potentially influencing megaprojects' success criteria, goals on a megaproject can become somewhat dynamic. Lehtonen (2014, p. 289) comments, that in dynamic situations it may be necessary to use more than ex-ante evaluation. To account for the dynamic, emerging goals as an evaluation criterion, it would be necessary to broaden the criteria and perspectives considered in an evaluation. The present bias in favour of ex-ante assessment would likewise need to be complemented by ex-post evaluation and ex nunc monitoring.

Combining Lehtonen's (2014) classification of evaluation and Turner and Zolin's (2012) model for assessing project success, it is possible to demonstrate linkage between the stages for conducting the evaluation and the purpose of conducting it (Table 3). In this paper the evaluation of a megaproject's outcomes and impacts is referred to as ex-post project evaluation (EPPE). EPPE refers to both the period and the purpose of evaluation.

Ex-ante evaluation is simpler to conduct. It can be performed when a majority of project staff are still available to participate. It is also a simpler process

Types of Evaluation (Lehtonen,2014)	New Model of Project Success (Turner and Zolin, 2012)	
Ex-ante assessment	Project's outputs performance	
Ex-post evaluation	Project's outcomes performance	Ex-Post Project Evaluation (EPPE)
Ex nunc monitoring	Project's impact performance	

Table 3 - Stages in Conducting Project Evaluation

to reach consensus regarding the criteria that should be used in ex-ante evaluation. However, the original goals that initiated a megaproject are more likely to be at the output or impact levels. Assessment at these levels will not be possible during the close out phase, as benefits will likely not yet have been realised. In order to achieve the ultimate goals of a megaproject, it is believed that CSFs do still exist, and determine sustainability. It is expected that EPPE can be of assistance in revealing these factors.

Revealing CSFs beyond project closing out phase

To improve project performance it is important to consider factors leading to the achievement of desired benefits, unexpected outcomes or effects, and the impact of the project. These can only be assessed by conducting a post-project evaluation. Table 4 summarises previous research into critical success factors at the project outcome level. Vedung (2010, p. 273) identifies the outcome stage as the appropriate level at which to produce safe knowledge and empirical evidence of intervention effects. Outcome evaluations may focus on the individual level, organisational level, community level, and the policy or government level (Mathison, 2005, p. 287).

It is also important to consider whether the project stakeholders planned the outcomes of a project. Turner and Cochrane's (1993) classification of project types may provide one approach to addressing this question. These purposes would be achieved by employing project management tools and techniques, such as suggested, for instance, in PMBOK Guide (Project Management Institute, 2013) and PRINCE2 (AXELOS, 2015). Arguably, the timeframe will determine the consistency of goals and methods used. The longer time period a project requires (e.g. megaproject), the more challenging it becomes to maintain consistent goals and methods. This consistency will also be revealed when conducting a post project evaluation. The comparison between initiated and expected outcome and the actual, expected or unexpected result implies that there are essential elements (CSFs) contributing the project results at later stages. These factors may provide causal-relationship explanation to the achievements.

The issue of temporality in megaproject evaluation is particularly significant, not only due to the extended duration of most megaprojects, but also the period over which benefits are typically realised. Issues of the sustainability of outcomes need to be considered during evaluation. For example, the I-595 Port Everglades Expressway, the Denver Airport Megaproject, Boston's Central Artery/Tunnel Project, and power plants are delivered on the expectation of expected to have sustained economic impacts. A variety of studies have identified outcome specific

critical success factors, and these are summarised in Table 4.

However, the majority of factors identified in Table 3 are taken from relatively small to medium sized projects, and caution should be extended when transferring them to megaprojects. Studies of CSFs have generally not depicted essential factors leading to the achievement of megaproject goals at the outcome and impact stages. These CSFs, for example, include managing risks (Kwak and Smith, 2009), top management involvement, business plans, vision, vendor support, change readiness, teamwork, team composition and communication (Ramayah et al., 2007).

Other CSFs related to megaproject delivery may include lack of owner's ability to manage a hi-tech oriented megaproject; frequent changes triggered by conflicts between public agencies and growing public resistance from environmental concerns; inappropriate project delivery system; a lack of appropriate scheduling for the size of the project (Han et al., 2009). Other factors may include: lack of clear constraint, marketing and estimation issues, and financial capability (Le-Hoai, Lee and Lee, 2008). In the context of megaprojects in the construction industry, instead of referring to success factors, Toor and Ogunlana (2010) refer to key performance indicators (KPIs), and focus on safety, efficient use of resources, effectiveness, satisfaction of stakeholders, and conflicts and dispute reduction.

Evaluation is conducted in order to measure the congruence planned and actual project results. A common assumption in evaluation is the link between actions taken during the project, and project results. However, Cook (2000) argues that the evaluation is likely to be insufficient to conclude a causal inference; rather than "falsely choosing" between randomisation and program theory, the evaluator can make the optimal choice and combine both. In other words, for instance, the evaluation of IT/IS in organisations can be seen as the movement from automating to informing, more recently to transformation (Ballantine and Stray, 1998). In addition, the role of IT/IS has changed from one of support to one of strategic importance, the focus of evaluation has progressed from efficiency to effectiveness, and advanced understanding (Love and Irani, 2001). The tendency of project results is the reason why project outputs need to be evaluated for a period after completion. This stage is one of the additional steps proposed by Archibald, Di Filippo and Di Filippo (2012).

Song and Letch (2012, p. 276) present "a descriptive analysis of research on IT/IS evaluation over the last 25 years (1986-2010)". Even though their study only focuses on IT/IS sector, it is a seminal reflection on the importance of conducting post-project evaluation. Their study examines why evaluation is carried out.

Studies	CSFs at Outcome Level
Scheers, Sterck and Bouckaert (2005)	<ul style="list-style-type: none"> - good support of and cooperation with the central agencies concerning the financial reforms - results-oriented culture and the acknowledgment of the necessity of cash reporting
Paul (1995, p. 63)	<ul style="list-style-type: none"> - Senior management has greater responsibility at the key performance outcome level while middle management and general workforce have greater responsibility at the key performance driver level. - Top management looks to the drivers and the people who manage them to get the outcomes moving in the right direction.
Lee (1990)	- User satisfaction measures the effectiveness of an information system.
(Pinjani and Palvia, 2007)	- Group diversity
Kassahun (2012)	- A public sector organisation in a developing economy can use BPR to improve process and overall organizational performance if it (a) has accumulated stock of BPR-relevant resources and capabilities; (b) has undertaken BPR with sufficient depth; (c) is developing a post-BPR complementary competencies to sustain and further enhance the BPR changes; and (d) has mitigated the adverse effect of BPR implementation problems
Dong, Neufeld and Higgins (2009)	Top management support <ul style="list-style-type: none"> - Top management support to resource provision - Top management support to change management - Top management support to vision sharing
Veiga et al. (2014)	Greater organisational support
Funnell (2000)	<ul style="list-style-type: none"> - Agreement by business to meetings with program advisers with a view to identifying possible solutions; few refusals - Preparation of action plans that include defined key elements - Business-specific examples of increased willingness

Table 4 - CSFs at Outcome Level

Their findings confirm the importance of identifying and appraising the IT/IS value (conceptual purpose), as well as the IT/IS planning and implementation (instrumental use). They also examine the timing of evaluations, finding that almost 60% of the assessment is conducted at ex-post or after the implementation stage. Their findings highlight the importance of evaluating a project's outputs after the project has finished.

However, not every post-project evaluation succeeds in revealing factors that contribute to the achievement of the project result at outcome stage. Evaluations typically focus on assessing the contribution to the organisation. Critical success factors of a project should also cover later stages of a project after outputs are delivered. However, the literature in this area is lacking.

Conclusion

Project success criteria include time, cost, quality, client satisfaction, the realisation of the strategic objectives of the client organisations, and the satisfaction of end users and other stakeholders. Success is contributed to by critical success factors, defining the specific conditions, events, and circumstances that contribute to project results. As aspects of success extend past the handover of deliverables, critical success factors need to be considered after the project has delivered the outputs. The later stages are termed project outcome and impact level.

To be able to determine the CSFs at project outcome and impact level, post project evaluation needs to be conducted. Such evaluation plays a significant role in establishing a means to assess project performance, comprehensively, at the strategic level. The evaluation determines the causal relationship between project process, outcome and impact, as well the evaluation congruence between planned and actual outcomes. It is anticipated that the CSFs

that affect megaproject outcomes and impacts will vary between sectors and industries. Future research may wish to examine these contingent differences, with a view towards understanding how outcomes and impacts can most effectively be achieved.

References

- Ahsan, K. and Gunawan, I. 2010. Analysis of cost and schedule performance of international development projects. *International Journal of Project Management*, 28(1), pp. 68-78. doi: <http://dx.doi.org/10.1016/j.ijproman.2009.03.005>
- Al-Yaseen, H., Al-Jaghoub, S., Al-Shorbaji, M. and Salim, M. 2010. Post-Implementation Evaluation of HealthCare Information Systems in Developing Countries. *Electronic Journal of Information Systems Evaluation*, 13(1), pp. 9-15.
- Archibald, R.D., Di Filippo, I. and Di Filippo, D. 2012. The six-phase comprehensive project life cycle model including the project incubation/feasibility phase and the post-project evaluation phase. *PM World Journal*, 1(5), pp. 1-40.
- AXELOS 2015, What is PRINCE2?, [online], Available at <<https://www.prince2.com/what-is-prince2>>, [Accessed 11 May 2015].
- Ballantine, J. and Stray, S. 1998. Financial appraisal and the IS/IT investment decision making process. *Journal of Information Technology*, 13(1), pp. 3-14. doi: <http://dx.doi.org/10.1080/026839698344927>
- Bowen, P.L., Cheung, M.-Y.D. and Rohde, F.H. 2007. Enhancing IT governance practices: A model and case study of an organization's efforts. *International Journal of Accounting Information Systems*, 8(3), pp. 191-221. doi:<http://dx.doi.org/10.1016/j.accinf.2007.07.002>
- Chan, A.P., Ho, D.C. and Tam, C. 2001. Design and build project success factors: multivariate analysis. *Journal of construction engineering and management*, 127(2), pp. 93-100. doi: [http://dx.doi.org/10.1061/\(ASCE\)0733-9364\(2001\)127:2\(93\)](http://dx.doi.org/10.1061/(ASCE)0733-9364(2001)127:2(93))
- Chua, D.K.H., Kog, Y.-C. and Loh, P.K. 1999. Critical

success factors for different project objectives. *Journal of construction engineering and management*, 125(3), pp. 142-150. doi: [http://dx.doi.org/10.1061/\(ASCE\)0733-9364\(1999\)125:3\(142\)](http://dx.doi.org/10.1061/(ASCE)0733-9364(1999)125:3(142))

Cleland, D.I. 1985. A strategy for ongoing project evaluation, *Project Management Journal*, 16, pp. 11-17

Conrad, K.J. and Miller, T.Q. 1987. Measuring and testing program philosophy. *New Directions for Program Evaluation*, 1987(33), pp. 19-42. doi: <http://dx.doi.org/10.1002/ev.1444>

Cook, T.D. 2000. The False Choice Between Theory-Based Evaluation and Experimentation. In P.J. Rogers, T.A. Haesi, A. Petrosino & T.A. Heubner (eds). *Program Theory in Evaluation: Challenges and Opportunities*. San Francisco: Jossey-Bass. pp. 27-34. doi: <http://dx.doi.org/10.1002/ev.1179>

Dong, L., Neufeld, D. and Higgins, C. 2009. Top management support of enterprise systems implementations. *Journal of Information Technology*, 24(1), pp. 55-80. doi: <http://dx.doi.org/10.1057/jit.2008.21>

Eldabi, T., Paul, R. and Sbeih, H. 2003. Operational use evaluation/post implementation evaluation of IT. *Proceedings of UKAIS*, pp. 9-11.

Fiori, C. and Kovaka, M. 2005. Defining megaprojects: Learning from construction at the edge of experience. In *Construction Research Congress 2005: Broadening Perspectives*, San Diego, California, 5-7 April 2005. San Diego, California: ASCE.

Flyvbjerg, B. 2007. *Megaproject Policy and Planning: Problems, Causes, Cures*. Summary of Dissertation for Higher Doctorate in Science, (Dr. Scient.), Aalborg: Aalborg University.

Flyvbjerg, B. 2009. Survival of the unfittest: why the worst infrastructure gets built—and what we can do about it. *Oxford review of economic policy*, 25(3), pp. 344-367. doi: <http://dx.doi.org/10.1093/oxrep/grp024>

Flyvbjerg, B. 2014. What you should know about megaprojects and why: An overview. *Project Management Journal*, 45(2), pp. 6-19. doi: <http://dx.doi.org/10.1002/pmj.21409>

- Fortune, J. and White, D. 2006. Framing of project critical success factors by a systems model. *International Journal of Project Management*, 24(1), pp. 53-65. doi: <http://dx.doi.org/10.1016/j.jiproman.2005.07.004>
- Funnell, S.C. 2000. Developing and Using a Program Theory Matrix for Program Evaluation and Performance Monitoring. In P.J. Rogers, T.A. Hacsí, A. Petrosino & T.A. Heubner (eds). *Program Theory in Evaluation: Challenges and Opportunities*. San Francisco: Jossey-Bass. pp. 91-102.
- Haidar, A. and Ellis, R. 2010. Analysis and Improvement of Megaprojects Performance. In *Proceedings of Engineering Project Organizations Conference*, Tahoe, California, 4-7 November 2010. Tahoe, California: EOS.
- Han, S.H., Yun, S., Kim, H., Kwak, Y.H., Park, H.K. and Lee, S.H. 2009. Analyzing Schedule Delay of Mega Project: Lessons Learned From Korea Train Express. *Engineering Management, IEEE Transactions*, 56(2), pp. 243-256.
- Hertogh, M. and Westerveld, E. 2014. Complex Projects. In J.R. Turner (ed.). *Gower handbook of project management*. Gower Publishing, Ltd.
- Horvath, P.A., Hatfield, P. and Hill, D. 2011. Importance And Behavior Of Capital Project Benefits Factors In Practice: Early Evidence. *Journal of Applied Business Research (JABR)*, 18(3).
- Ika, L.A. 2009. Project success as a topic in project management journals. *Project Management Journal*, 40(4), pp. 6-19. doi: <http://dx.doi.org/10.1002/pmj.20137>
- Jia, G., Yang, F., Wang, G., Hong, B. and You, R. 2011. A study of mega project from a perspective of social conflict theory. *International Journal of Project Management*, 29(7), p. 817. doi: <http://dx.doi.org/10.1016/j.jiproman.2011.04.004>
- Kardes, I., Ozturk, A., Cavusgil, S.T. and Cavusgil, E. 2013. Managing global megaprojects: Complexity and risk management. *International Business Review*, 22(6), pp. 905-917. doi: <http://dx.doi.org/10.1016/j.ibusrev.2013.01.003>
- Kasi, V., Keil, M., Mathiassen, L. and Pedersen, K. 2008. The post mortem paradox: a Delphi study of IT specialist perceptions. *European Journal of Information Systems*, 17(1), pp. 62-78. doi: <http://dx.doi.org/10.1057/palgrave.ejis.3000727>
- Kassahun, A. 2012. The effect of business process reengineering (BPR) on public sector organisation performance in a developing economy context, PhD, RMIT. Available at,
- Kumar, K. 1990. Post implementation evaluation of computer-based information systems: current practices. *Communications of the ACM*, 33(2), pp. 203-212.
- Kwak, Y.H. and Smith, B.M. 2009. Managing risks in mega defense acquisition projects: Performance, policy, and opportunities. *International Journal of Project Management*, 27(8), pp. 812-820. doi: <http://dx.doi.org/10.1016/j.jiproman.2009.02.002>
- Lai, L.S.-I. 2000. An integration of systems science methods and object-oriented analysis for determining organizational information requirements. *Systems Research and Behavioral Science*, 17(2), pp. 205-228. doi: [http://dx.doi.org/10.1002/\(SICI\)1099-1743\(200003/04\)17:2<205::AID-SRES294>3.0.CO;2-T](http://dx.doi.org/10.1002/(SICI)1099-1743(200003/04)17:2<205::AID-SRES294>3.0.CO;2-T)
- Le-Hoai, L., Lee, Y. and Lee, J. 2008. Delay and cost overruns in Vietnam large construction projects: A comparison with other selected countries. *KSCE Journal of Civil Engineering*, 12(6), pp. 367-377. doi: <http://dx.doi.org/10.1007/s12205-008-0367-7>
- Lee, S. 1990. Effective management of information systems in small business organizations: An empirical study of critical success factors, PhD, University of Nebraska, Lincoln. Available at <<http://search.proquest.com/docview/303865669?accountid=26503>>.
- Lehtonen, M. 2014. Evaluating megaprojects: From the 'iron triangle' to network mapping. *Evaluation*, 20(3), pp. 278-295.
- Li, J. 2008. Three Dimensions Structure Model Based on Project Evaluation. In *WiCOM'08. 4th International Conference*, Dalian, 12-14 October 2008. Dalian: IEEE. doi: <http://dx.doi.org/10.1109/wicom.2008.1840>
- Liu, Y., Yu, F., Su, S.Y. and Lam, H. 2003. A cost-benefit evaluation server for decision support in e-business. *Decision Support Systems*, 36(1), pp. 81-97. doi: [http://dx.doi.org/10.1016/S0167-9236\(02\)00133-1](http://dx.doi.org/10.1016/S0167-9236(02)00133-1)
- Love, P.E. and Irani, Z. 2001. Evaluation of IT costs in construction. *Automation in Construction*, 10(6), pp. 649-658. doi: [http://dx.doi.org/10.1016/S0926-5805\(01\)00058-9](http://dx.doi.org/10.1016/S0926-5805(01)00058-9)
- Maheswar and Javalagi, D.C. 2014. A Review of Enterprise Resource Planning Implementation Issues. *The International Journal Of Business & Management*, 2(6), pp. 28-34.
- Mathison, S. (ed.) 2005. *Encyclopedia of Evaluation*. SAGE Publications, Inc., Thousand Oaks, CA. doi: <http://dx.doi.org/10.4135/9781412950558>
- Morrow, E.W. 1988. *Understanding the Outcomes of Mega-Projects: A Quantitative Analysis of Very Large Civilian Projects*. Rand Corporation, Santa Monica, CA.
- Nguyen, L.D., Ogunlana, S.O. and Thi Xuan Lan, D. 2004. A study on project success factors in large construction projects in Vietnam. *Engineering, Construction and Architectural Management*, 11(6), pp. 404-413. doi: <http://dx.doi.org/10.1108/09699980410570166>
- Ogunlana, S.O. 2008. Critical COMs of success in large-scale construction projects: Evidence from Thailand construction industry. *International Journal of Project Management*, 26(4), pp. 420-430. doi: <http://dx.doi.org/10.1016/j.jiproman.2007.08.003>
- Paul, W. 1995. Overcoming chronic TQM fatigue. *The TQM Magazine*, 7(5), pp. 58-64. doi: <http://dx.doi.org/10.1108/09544789510098650>
- Pinjani, P. and Palvia, P. 2007. The Role of Diversity and Technology in Global Virtual Teams. In *America Conference on Information System*, p. 66.
- Poon, P. and Wagner, C. 2001. Critical success factors revisited: success and failure cases of information systems for senior executives. *Decision Support Systems*, 30(4), pp. 393-418. doi: [http://dx.doi.org/10.1016/S0167-9236\(00\)00069-5](http://dx.doi.org/10.1016/S0167-9236(00)00069-5)
- Priemus, H. 2010. Mega-projects: Dealing with Pitfalls. *European Planning Studies*, 18(7), pp. 1023-1039. doi: <http://dx.doi.org/10.1080/09654311003744159>
- Project Management Institute 2013, *A Guide to the Project Management Body of Knowledge (PMBOK Guide)*, Newtown Square, PA: PMI.
- Ramayah, T., Roy, M.H., Arokiasamy, S., Zbib, I. and Ahmed, Z.U. 2007. Critical success factors for successful implementation of enterprise resource planning systems in manufacturing organisations. *International Journal of Business Information Systems*, 2(3), pp. 276-297. doi: <http://dx.doi.org/10.1504/IJBIS.2007.011980>
- Sandru, R. 2013. *The Sustainability of Aid: The Case of the Vi Agroforestry Programme*, Masters, Uppsala University. Available at <http://www.diva-portal.org/smash/record.jsf?sessionid=fMskHuLUeE9LdJOAAtUIKpSzixQC4JCaAeXtdWa1.diva2-search7-vm?pid=diva2%3A586113&dsid=-756>.
- Scheers, B., Sterck, M. and Bouckaert, G. 2005. Lessons from Australian and British Reforms in Results-oriented Financial Management. *OECD Journal on Budgeting*, 5(2), pp. 133-162. doi: <http://dx.doi.org/10.1787/budget-v5-art14-en>
- Song, X. and Letch, N. 2012. Research on IT/IS Evaluation: A 25 Year Review. *Electronic Journal of Information Systems Evaluation*, 15(3), pp. 276-287.
- Toor, S.-u.-R. and Ogunlana, S.O. 2010. Beyond the 'iron triangle': Stakeholder perception of key performance indicators (KPIs) for large-scale public sector development projects. *International Journal of Project Management*, 28(3), pp. 228-236. doi: <http://dx.doi.org/10.1016/j.jiproman.2009.05.005>
- Turner, J.R. and Cochrane, R.A. 1993. Goals-and-methods matrix: coping with projects with ill defined goals and/or methods of achieving them. *International Journal of project management*, 11(2), pp. 93-102. doi: [http://dx.doi.org/10.1016/0263-7863\(93\)90017-H](http://dx.doi.org/10.1016/0263-7863(93)90017-H)
- Turner, R. and Zolin, R. 2012. Forecasting success on large projects: developing reliable scales to predict multiple perspectives by multiple stakeholders over multiple time frames. *Project Management Journal*, 43(5), pp. 87-99. doi: <http://dx.doi.org/10.1002/pmj.21289>
- Vedung, E. 2010. Four waves of evaluation diffusion. *Evaluation*, 16(3), pp. 263-277. doi: <http://dx.doi.org/10.1177/1356389010372452>
- Veiga, J.F., Keupp, M.M., Floyd, S.W. and Kellermanns, F.W. 2014. The longitudinal impact of enterprise system users' pre-adoption expectations and organizational support on post-adoption proficient usage. *European Journal of Information Systems*, 23(6), pp. 691-707. doi: <http://dx.doi.org/10.1057/ejis.2013.15>
- Yu, A.T., Shen, Q., Kelly, J. and Hunter, K. 2006. Investigation of critical success factors in construction project briefing by way of content analysis. *Journal of Construction Engineering and Management*, 132(11), pp. 1178-1186. doi: [http://dx.doi.org/10.1061/\(ASCE\)0733-9364\(2006\)132:11\(1178\)](http://dx.doi.org/10.1061/(ASCE)0733-9364(2006)132:11(1178))
- Zhai, L., Xin, Y. and Cheng, C. 2009. Understanding the Value of Project Management From a Stakeholder's Perspective: Case Study of Mega-Project Management. *Project Management Journal*, 40(1), pp. 99-109. doi: <http://dx.doi.org/10.1002/pmj.20099>

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Corresponding author: Shankar Sankaran; Email - Shankar.Sankaran@uts.edu.au

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ONESTEEL REINFORCING BAR MATS SET THE STANDARD FOR EFFICIENT CONSTRUCTION



Completed in 2015, ATO Box Hill is a 13-storey, 19,000sqm office tower in Box Hill, Melbourne. Constructed at a cost of \$120 million, it ushers in a new era of sustainable development for the City of Whitehorse.

Soiled turned for the site back in 2013 at a ceremony attended by WhiteHorse major Andrew Munroe and Grocon CEO Daniel Grollo and other dignitaries. Cr Munroe said the development was an example of



growing investment in the area and would provide business growth and jobs.

Built and developed by Grocon, Australia's largest privately owned construction company, the tower has become the new Eastern Region accommodation for about 1250 Australian Taxation Office (ATO) staff, with 690sqm for retail and 300 car parking spaces.

The building boasts a 5 Star Green Star rating and 5 Star NABERS ratings, a first for Box Hill, attaining the core values of safety, sustainability, community and innovation that drive Grocon as a company.

Daniel Grollo, CEO of Grocon said the development at the heart of the Box Hill central activities area and commercial precinct had created hundreds of local jobs.

"We believe this construction project will be the catalyst for future private sector growth in Box Hill," he said.

Enabling the faster, safer and more efficient construction of this new ATO building are BARMAT™ Class N reinforcing bar mats from OneSteel Reinforcing. An innovative steel reinforcing solution for civil and commercial construction, reinforcing bar mats allow steel to be prefabricated with variable spacing and in a variety of shapes and sizes – including a range of 3D designs – to significantly reduce steelfixing and congestion.

Exclusive to OneSteel Reinforcing, BARMAT™ Class N reinforcing bar mats are suitable for use in a variety of applications including in-situ parapets, road shoulders, bridge decks, suspended floors, culvert bases, precast walls and barriers.

According to Jim Berry, Grocon Project Manager for ATO Box Hill, the BARMAT™ product provided a raft of advantages that have allowed him and the rest of the Grocon construction team accomplish the task in a faster, safer and far more efficient manner.

"For this project, Grocon has had to build 13 floors of structural steel which will provide office space for the ATO as a single tenant. BARMAT™ Reinforcing Bar Mats, supplied by OneSteel Reinforcing, have helped with the construction in terms of productivity. Having achieved success with this product, we feel confident using it for future projects."

Michael Driver, Grocon Structural Foreman at the ATO Box Hill site said the benefits provided by reinforcing bar mats made it far superior to steel reinforcing products from competitors.

"When using other standard steel mesh products in

the past, our construction team have always had to lay them out. Frequently the crew would come up against cover issues with the sheets, along with the mesh lapping," Driver said.

"What BARMAT™ has done is greatly reduce that lapping issue thanks to its splicing detail.

"On this site we have bars at 1200mm at every shear stud. Since they are already repeat welded on the BARMAT™ sheet, it has enabled us to reduce the manpower we would normally need, allowing us to free up workers for other tasks.

"Reinforcing Bar Mats are perfectly suited to these types of jobs because of their speed to lay, cost efficiency by decreasing manpower and because the product has no lapping issues.

"Grocon has certainly derived much benefit from using BARMAT™ for the construction of this building," Driver said.

With OneSteel Reinforcing's design assistance, BARMAT™ can be manufactured to exact specifications to enable faster installation, reduced labour and steel fixing costs, less off-cuts and wastage. It can also contribute to Green Star steel credit points.

As a steelfixing alternative or replacement, BARMAT™ has been specifically engineered to reduce on-site congestion, improve site safety through less handling, and meets or exceeds Australian Standards for welding requirements.

However it hasn't just been the productivity benefits provided by BARMAT™ that has helped Grocon increase their efficiency on the ATO Box Hill construction job. The superior level of customer service and technical support from OneSteel Reinforcing has also played a crucial role in assisting Grocon with the ATO Box Hill build.

"The level of technical support Grocon receive from OneSteel Reinforcing has always been second to none. OneSteel Reinforcing are consistent, reliable and flexible with product delivery which has been conducive to the successful construction of ATO Box Hill on time and on budget."

"Grocon look forward to the successful completion of this important multimillion dollar project using a quality Australian made steel product," Driver said.



AIB Member Testimonials



Jon Stone

Membership to any professional body or institute is a privilege not a right. That said, I would encourage all of our construction professionals whether just starting out as a graduate or a seasoned professional to actively embrace and join the AIB. Institutes such as the AIB provide a wide degree of opportunities such as CPD (Continual Professional Development), opportunities to collaborate with our peers across all levels, and opportunities to visit other projects outside of our respective organisations.

The AIB provides access to local, national and sometimes international publications and news, enabling everyone to be kept up to date with new innovations and trends in the industry. The AIB is a truly professional organisation that is an advocate for the building professional. Becoming a member at whatever level, instils a sense of pride and honour in each individual which can only uplift and heighten the professional profile of this fantastic industry.



Kate Marinovic

The AIB has been my reliable source for professional growth and networking with other professionals from all sectors of the construction industry. There was place to examine technical issues, exchange views and learn from other building professionals. It helps me to be better prepared to meet demands faced in practice.

I would encourage all construction professionals to join the AIB and benefit endless opportunities by participating in technical activities, conferences, latest innovations and best practice in building construction management and to become the leader for promoting excellence in construction.



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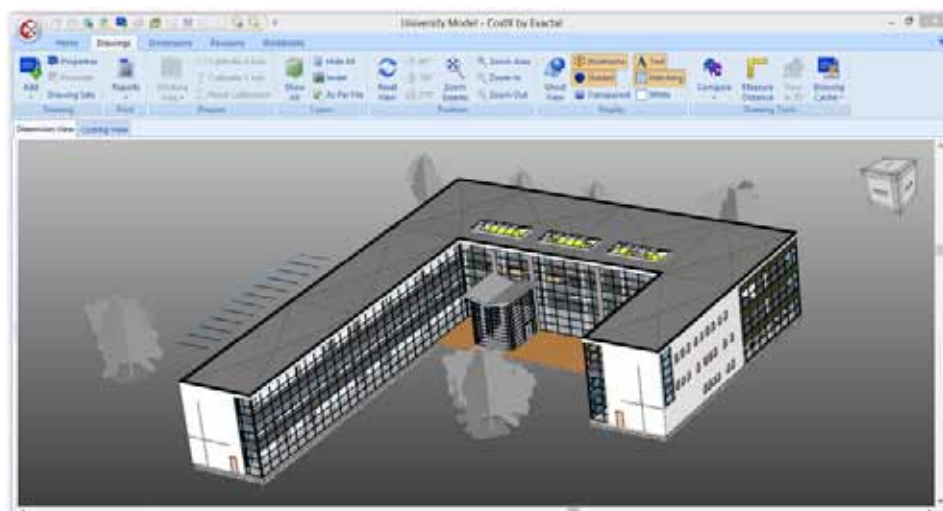
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Estimators Conquering Revisions with 5D BIM

By Tony Shaw (MNZIQS), Principal Product Specialist for Exactal



Scope 'creep', a progressive growth of project quantum and quality over that provided in the project cost budget, is a major cause of cost-overruns and client dissatisfaction with construction project outcomes. Changes to the building function, quantum and quality, which occur regularly throughout the design process, have a direct impact on the project cost budget.

To effectively control the project budget, scope must be clearly defined and managed throughout the design and delivery stages. Whilst major changes or design revisions are usually easy to identify, the more insidious form of scope creep arises from the myriad of small and minor changes which occur throughout progressive design iterations – none of major consequence within themselves, but with a cumulative effect that, if undetected, can lead to major cost implications.

Traditionally, the designs for the architectural, structural and MEP aspects of a construction project have been undertaken by separate parties largely working independently, communicating periodically to co-ordinate their discrete designs. In many instances this would lead to a staggered issue of re-design information on distinct drawings and documentation. Faced with this situation the estimator has to search through a multitude of unconnected information to identify the 'clouded' revisions and hunt down the myriad 'hidden' changes.

Today, in the modern world, BIM is starting to come to the fore. BIM uses 3D dynamic computer modelling to create a virtual representation of a building (A BIM Model) encompassing building geometry, spatial relationships, geographic information, quantities and properties of the building components. Multi-disciplinary project teams use model-based technology to share building data and collaborate in real-time on design, construction and lifecycle management.

With the advent of BIM, however, there is an

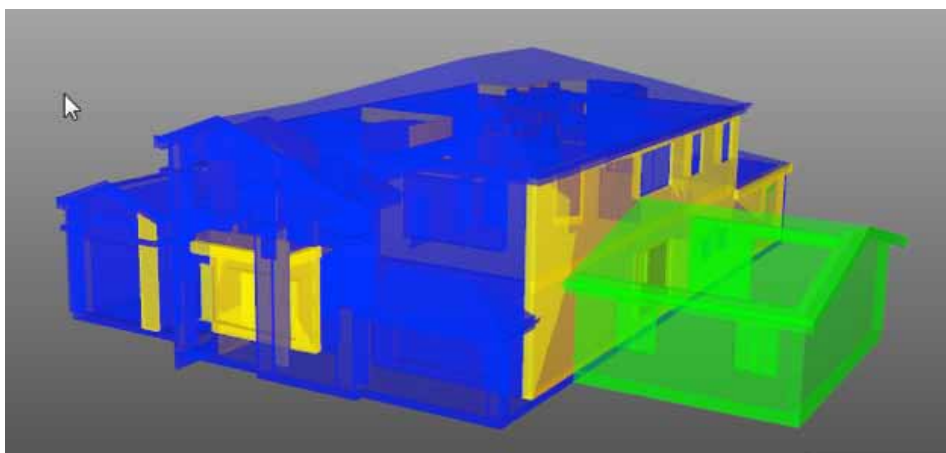
increasing complexity of buildings themselves driven by ever more dramatic building forms. Interpreting and accurately quantifying these forms from two-dimensional representations can prove difficult and time-consuming, and invokes a heightened aspect of risk for the estimator in reliably and accurately assessing the associated quantities and costs. This is anathema to the need for increased productivity against a back-drop of reducing margins.

Specialised estimating software such as CostX exists that allows the inherent property information embedded in each object in the model to be extracted, as opposed to measured, engendering huge time savings and improved accuracy in quantity take-off.

As BIM design evolves, the inter-relationships between the building's entities in the model mean that as one object is altered, all of those that are affected by that change will be updated accordingly. Using CostX, these changes can be visually represented in colour-coded 3D form providing an unequivocal view of the alterations made between each model iteration. The software's ability to recognize altered, deleted and new objects within the model, allied with the ability to extract the embedded quantity and specification data attached to each object, means that the time required for updating the project budget can be drastically reduced, with increased certainty that all of the revisions have been accounted for. As such, whilst the model may be continually evolving the estimator is able to rapidly provide frequent updates to monitor against the established project cost budget.

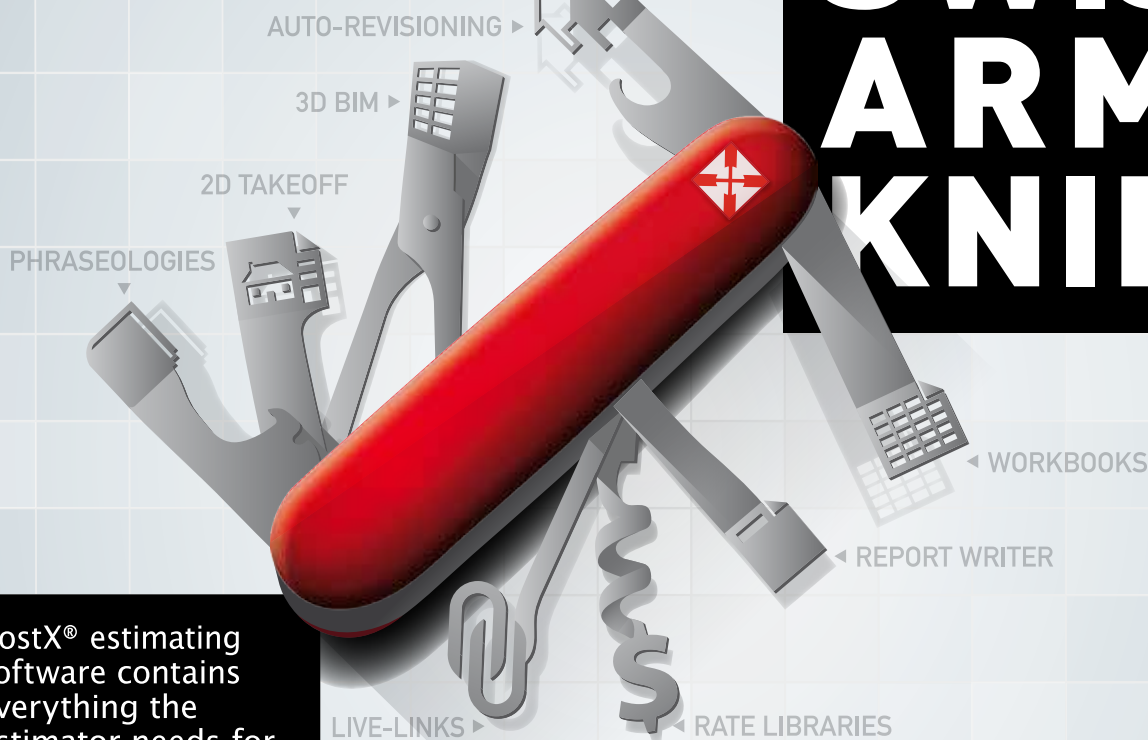
Therefore, with an increasing focus on sustainability and whole-of life costing of construction projects, BIM can be employed to quickly measure and analyse the alternative costs of 'what if?' scenarios, enabling swift feedback to designers & clients. As a counterpoint, the ease with which alternative designs can be tested, may incite some architects to constantly 'test the water' with alternative solutions to ensure that none of the Contingency Sum that has been provided in the budget gets left on the table!

As the advantages of BIM to all project parties leads to an ever increasing prevalence of its adoption throughout the industry, it is important for estimators to have the right software to ensure that they are able to take full advantage of the benefits themselves and become part of the collaborative process to create a better building solution to meet the client's defined scope where the prospect of 'creep' can be mitigated accordingly.

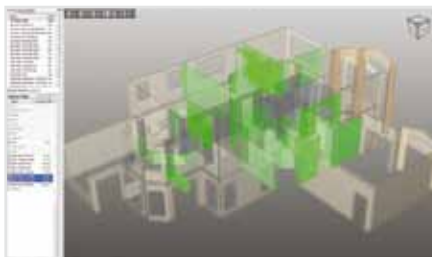
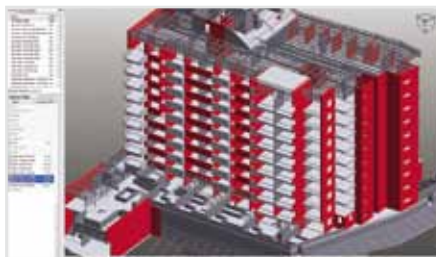


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Compliance to Processes is the First Best Practice

By Matt Stevens PhD

There is much written about practices in modern construction management literature. Many are claimed as best; however many are not proven in a quantitative (fact-based) way. From an in-depth reading of literature, it is clear that context (place, time, type of contractor, situation etc.) determines the level of value. Also, a person's view point appears to affect the perceived benefit. A subcontractor may see one as best however; the main contractor may see the same practice as good, but also witnesses the negative ripple effects it has to other parts of the project. So, depending on the person and their role in the construction project, disagreement exists over which ones are best. More importantly, many construction best practices are undocumented by the industry. Although, there is academic research that validates several in isolation; there are very few that test them in action at the same time and seeks to find what the total effect is.

This article will not contribute to that discussion; rather it emphasises a simple idea: compliance to efficient processes is critical to improve outcomes. My experience is that most construction contractors (main and sub) know what practices work best in their particular and unique business. They are comfortable that their processes are best for them from their years of experience. Although any firm can improve, insuring high compliance to standardised processes is a best practice the industry can agree and implement.

Below, we will share a case study that demonstrates compliance to basic processes results in early project completion while lowering cost. There are new ideas or breakthroughs such as app technology, human resource diversity or engineered material. The primary driver for better results is simple compliance.

In this age of documented declining industry productivity in Australia, a U.S. general contractor's approach may offer a creditable antidote. This approach is based on first principles of perfect information, extended planning, efficient execution, accurate measurement and prompt adjustment to any deficiencies (or efficiencies). Coupled with these basics is careful monitoring of backlog with the view that steady growth or constant revenue allow for focus on improvement (seeking perfection).

Effective processes in managing subcontractors are fairly standard and well-known. There is much anecdotal evidence which correlate them to positive outcomes. The following case study offers more evidence.

CASE STUDY OF A U.S. GENERAL CONTRACTOR

The researcher was engaged from 2012 to 2015 as a management advisor by a \$30 million general construction contractor (GCC) based in the United States. The firm's project work mostly relates to U.S. government needs. The major focus of the advising and training was

to transform the firm to a more efficient one. The approach taken was for the researcher to assess practices currently in use, use practices confirmed by research and experience would align with the company characteristics. lean construction was a strong, but not total influence on thinking. Individual coaching of key employees was part of the process. Online courses allowed for continuing education of management and staff.

Projects completed by GCC (see Table 1) are diverse and include Design Build, Hard Bid, New Construction, Refurbishment, Demolition, Building, Civil and Marine Work with completion times of three months to over a year. Locations were isolated from population centres and the general condition's amenities were modest due to market characteristics.

The company adopted, trained and implemented the following processes which were formalised and implemented in late 2013.

1) Formalised pre-construction and pre-task planning

a. Teams sought extensive project information and filled in a preconstruction checklist containing numerous critical items. It assigned specific personnel with responsibility and required timelines. The list was updated weekly with percentage complete for review by Project Manager (PM) and Senior Vice President (SVP) of firm.

b. Subcontractor pre-coordination meetings were held with GCC site personnel with minutes and action planning two to four weeks before subcontractor is required to mobilise. Mandatory review of material and craft readiness including a check to see if other projects will affect flow of crews to this project. Team reviews plan for completing work in regards to plans, specifications and contract. This meeting includes attendance by subcontractor and their "sub-subs" to assure communication is delivered in full.

2) Formalised on-going construction planning, execution, monitoring and feedback

a. Subcontractor coordination meetings with recorded minutes. Each week the Quality Coordinator and Superintendent held a coordination meeting with all trades in the Job Trailer. All trades met to discuss their next steps in scope so that they can work together to find the most efficient way to work around each other based on the current 30 day schedule. This meeting was recorded with minutes and distributed to all attendees and the GCC management staff. Part of this meeting included a review of each subcontractor's two-week look ahead planning submittal. Individual meetings were held with each sub, each week to ensure the subcontractor was on schedule; had the manpower to maintain the schedule, and would have the materials

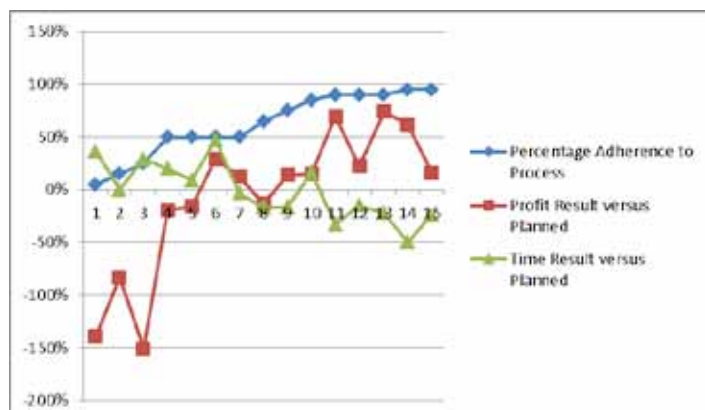


Table 1 – Company Furnished Data of Completed Projects Closed from 2012 to 2014 in Sequential Order Measuring Process Compliance, Cost and Schedule Results.

on site to complete their scheduled work each succeeding week.

b. Weekly submittals register updated. Since most construction products require technical approval from a designer before installation, this was a critical planning and monitoring process. This first component of material logistics, helped assure that a project will not be stopped due to lack of material.

c. Progress schedule update. Each week, project manager reviewed the project schedule with the superintendent. Late progress is noted and addressed with deficient subcontractor(s).

d. Weekly internal meetings. During this meeting, GCC reviewed the entire project status as a team. PM assigned weekly tasks if necessary. Everything was recorded and part of a later upper management review of project status.

3) Monitoring compliance to processes. The SVP actively measured compliance (as a percentage) to processes in face-to-face meetings and electronically (website and company intranet). He addressed non-compliance issues, as needed, with the senior executive of subcontractors.

4) Limiting revenue. The company limited its yearly contract revenue for various reasons including its focus on efficiency. They had less need to re-hire former staff or hire new staff because of this strategic decision. At times each year, estimators and business development personnel did not seek to win projects since company backlog was at a predetermined limit. For purposes of efficiency, when the firm won a project in an unfamiliar location, its first option was to send existing staff and not hire new local employees. Overall, the firm believed in and acted as if the employees were family. This led to unspoken emotion of togetherness and looking after each other.

Since full implementation of specific processes did not occur until late 2013, the first five and last five projects represent before and after adoption fairly accurately. The first five's unweighted outcomes were average project profit decreased (-81.69%) while exceeding the schedule (18.92%) than originally planned from lower compliance to processes (29%). The last five project's results improved; average project profit improved (48.68%) over the baseline estimate while shortening the baseline schedule (-28.78%) with a higher compliance to processes (92%). From a cash flow basis, gross profit dollars earned increased on a weekly basis from project estimate.

Conclusion

Studying efficient construction contractors provides insights and practices leading to improvement. This research approach is not prevalent in academia however; it has many obvious benefits. From an industry perspective, more efficient contractors threaten others to improve or be left behind. Our view is that productivity will increase when more firms gain a competitive edge over others.

Best practices may cause energised conversations in the industry; however for contractors, this article's case study shows ensuring high compliance to processes, whatever they are should be the first focus. Most construction companies know what works for their unique business. No doubt improvement can be made to any firm with the introduction of better methods. However, corporate inertia and employee learning curves may cause slow adoption. From my experience, employee compliance to formal company processes is the quickest method to improve results.

Matt Stevens is a Senior Lecturer in Master of Construction Management program at the University of Melbourne. He has been a management advisor to construction contractors since 1994 and continues his work. Stevens has over 35 years of industry experience. You may reach him at matthew.stevens@unimelb.edu.au.

Construct Magazine

Just a short note to remind you of the discounts you can receive by supporting the Australian Institute of Building **Construct** magazine.

As you are aware the **Construct** magazine goes to all members of the AIB, the last edition was distributed electronically and has received almost 10,000 reads so far from the AIB website, increasing exposure to more businesses other than members.

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The New Zealand Institute of Building – and how it can work with AIB

By Malcolm Fleming, CEO NZIOB

The incoming CEO for the New Zealand Institute of Building (NZIOB), Malcolm Fleming, is a former National Councillor of the Institute, and someone with an interesting construction background. Growing up in a South Island 'Hydro Town' instilled in Malcolm a keen appreciation of the merits of collaboration and teamwork between design consultants and contractors. It also embedded in him a great sense of pride in New Zealand's construction capability.

Malcolm entered the construction industry in the mid-1990's with New Zealand's largest paint company, Resene Paints. Prior to taking on the CEO role for the NZIOB, Malcolm spent twelve years as a director of an architectural practice in Wellington. He holds a Bachelor degree in Property and a Masters in Management. What follows is Malcolm's vision for the NZIOB, the NZIOB-AIB relationship, and the roles that the NZIOB and AIB can play both locally and internationally.

My vision for the NZIOB is for the Institute to realise the ambition that its Foundation Council laid out in 1983. That vision was for the NZIOB to be the body that brings together the design consultants (architects, engineers, Quantity Surveyors, Project Managers) and commercial contractors to collectively work together to be an energetic industry lobbyist, and an active promoter of construction research and innovation.

The NZIOB, like the AIB, is unique with its pan-wide industry membership and compelling history. Both institutes are well placed to take a position of leadership in the construction industry and to be an articulate, reliable, and unbiased resource to media and government. There is also an opportunity to undertake meaningful collaboration with fellow Institutes and industry stakeholders. Two recent NZIOB projects give some insight into the strategy:

- For 2016 the established New Zealand ArchEng Student Design Competition will for

the first time include Construction Management students. This development will see the existing Architectural and Engineering student pairings become construction teams, this being representative of current practice that graduates will be exposed to after their studies.

The new competition becomes ArchEngBuild with the NZIOB being the conduit for New Zealand's construction schools submitting their top students to vie for the ten available spots in this premium student competition.

|||| The NZIOB was one of five Institutes approached by BRANZ to send two representatives for BIM training as provided by BRE out of the UK. The 'pay-back' being that the five Institutes would then utilise those two trainers to disseminate the learnings back into the New Zealand construction industry. The NZIOB sought expressions of interest from its membership for those two spots, and received eight applications.

The enthusiasm that the NZIOB has exhibited for the program through its trainer representatives and its leadership has lead to the project's sponsor, New Zealand's BIM Acceleration Committee, tasking the NZIOB to lead the coordination of a singular BIM workshop program to disseminate the learnings, rather than having the five Institutes each run their own programs.

The above work packages have quickly elevated the NZIOB's standing in the New Zealand construction industry. There is much to be done with our fellow Institutes. Using the classic antipodes meat pie as an analogy, the NZIOB and AIB represent the 'whole construction industry pie' as opposed to the 'thin slice' of the construction industry pie that our countries' respective architectural, engineering, Quantity Surveying, and Master Builder institutes/organisations represent.

As the NZIOB's standing in the construction industry rises, this 'whole pie' quality will not be lost on those of our 'thin slice' institutional colleagues who may see an opportunity to increase the

'band-with' of those they represent, by partnering with the NZIOB to lobby Government on an issue that both Institutes share a common view on. The result, being that the Government will no longer see a grumpy architect or builder (etc) with an issue; they see a grumpy construction industry, which is a great deal more influential.

Collaboration extends to the NZIOB working closely with the AIB. As our respective Prime Ministers would say, we have a 'special relationship'. Our recent tripartite discussions in Sydney that included the Singapore Institute of Building (SIBL) unearthed a number of potential projects that we can work together on. Projects that particularly resonated with me and the NZIOB National President, Grant Harris included:

|||| The development of a biennale Construction Management focused Asia Pacific Conference.

|||| A shared Continuing Professional Development (CPD) Hub that our respective members have access to accrue the CPD credits our respective Institutes require of them.

|||| Achieving international recognition of Construction Management as a discipline, including qualification consistency across the Asia Pacific region.

|||| The three institutes working together on shared Trade Missions.

As with any construction project, you obtain a better result for both the client and the wider built-environment if you practice close collaboration and teamwork between all stakeholders. The same applies for the way our respective institutes collaborate with our 'thin slice' institutional colleagues in our home countries, and the way that the AIB, NZIOB and SIBL collaborate with each other to promote our shared objectives on the international stage. Home and abroad, there are many opportunities for the Institutes of Building.



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The Singapore Institute of Building

By Peter Chua, FCABE, FRICS, FSIB, President of SIBL

I am privileged to have the opportunity to pen an article for AIB's **Construct** magazine. I thought of what will be an interesting article for members of AIB. I would like to share my personal experiences and observations during my 32 years of professional practices and my goal as an industry volunteer for the built environment industry.

Not many people that I met are aware that I come from the 'Jurassic Era!' I spend about 18 years in the building and construction industry and in 1991; I left the building industry to work for another 14 years in the leisure and hospitality industry. I then retired from professional practice in 2005. Since then, I have been volunteering my time for the built environment industry; and in 2010, I also became the 'accidental' President of the Singapore Institute of Building Limited.

In today's construction businesses, I have to admit that it is totally alien to me. I learned about 'game changer technologies', and really what are they? I learned that 'game changer technologies' can drive productivity to higher levels. The only similarity between then and now with regards to 'Productivity Drive', then was a buzzing "Busy Bee Team" cartoon series hoping to educate the contractors about efficiency in using less manpower; then we also adopted high-tech reinforced concrete work processes such as 'slip forming' and 'flying formworks'; but today we are focusing on a host of Design for Manufacturing & Assembly (DfMA), using various 'prefabricated precast concrete components', 'cross-laminate timber (CLT)' installation methods, structural steel construction, and adopting mechanisation and including the application of IT solutions.

During my time in the building and construction industry in the early eighties, most Tender Documents are prepared traditionally, with Bills of Quantities (which quantity taking-off are measured manually directly from the

construction drawings), but today quantity surveying can use BIM as a tool in their projects; and it is more efficient and accurate in quantity taking off which may reduce up to 25 percent of time taken.

Let me share with you some insights between public and private co-operation in Singapore. According to a "Construction 21 Report (C21)", first published in 1999 and also discussed in the Singapore's Parliament by the Parliamentary Committee for National Development.

A Forum of Construction Industry Leaders The vision of C21 was: "To be A World Class Builder in the Knowledge Age".

The strategic thrusts highlighted were:

1. Enhancing Professionalism
2. Raising Skill Levels
3. Improving Industry Practices and Techniques
4. An Integrated Approach to Construction
5. Developing an External Wing i.e. bringing construction businesses to the region and beyond
6. A Collective Championing Effort for the Construction Industry

Ten years later, in 2010, we gathered at the National University of Singapore to discuss what have we achieved under the C21 Plan. The two key objectives of the Forum were:

|||| to discuss how C21 has impacted on the way construction firms and practitioners work; and

|||| to discuss the way forward for the construction industry in Singapore.

The outcome observed after the forum was: There is notable progress in the transformation of a '3D' industry, that is, Dirty, Demanding and Dangerous into a '3P' industry, that is,

Professional, Productive and Progressive.

But the degree of attainment has not been desirable, meaning, not up to the mark yet.

Therefore, in April, 2011, the Ministry of National Development and its agency, the Building and Construction Authority (BCA), together with the private stakeholders under the Construction Industry Joint Committee (CIJC) and key members of some Institute of Higher Learning, formed a "Built Environment Industry Rebranding Committee (BEIRC)", after 18 months of intensive discussions and debates, a report with a 5-year Roadmap was prepared; which BEIRC endorses:

"The vision of transforming the Built Environment (BE) sector into a highly integrated and technologically advanced sector; which is led by progressive firms and supported by a skilled and competent workforce. BEIRC aim to, over time, project the image of the BE sector as one which is professional, progressive, high-tech and environmentally friendly".

"Correspondingly, we must build up a strong local core made up of highly competent professionals, managers, executives (PMEs), technicians and associate professionals (TAPs) to support the vision for the BE sector. 'Skill Future' will be part of this long term learning supports."

In the 5 year Roadmap, there were a suite of initiatives to rebrand the BE sector, primary to attract and retain local talent. Subsequently, the Minister for National Development had accepted the recommendations of the BEIRC 5-year Roadmap in Parliament last year.

Following which, a Rebranding Implementation Work Group (RIWG) was formed, a continual working group from members of the BEIRC, which I co-chaired last year, and so far the work group have rolled out three key initiatives:

1. Good and Gracious Builders Scheme for all Licensed Builders in Singapore, focusing on an environmentally friendly construction site;
2. A HR Pledge by BCA-CIJC, the need for good company HR practices, attractive remuneration and progression path as important pull factors to attract new entrants and retain the BE professionals; and
3. "Seven-ship of Scholarship", offering Scholarships, Sponsorships, Apprenticeships & Internship Programmes", which include Universities, Polytechnics and ITE. To date, BCA has reported that 1500 recipients have benefitted from these programmes, and it is hoped to attract another 2000 recipients over the next three years.
4. Produced and telecast nationwide, a paid advertisement to promote the built environment industry.

The current challenges for the businesses and professional in the Singapore building and construction industry are:

- |||| Strong Pipeline of Projects
- |||| Transformation of the Built Environment Sector
- |||| Aging Local Construction Workforce
- |||| Public's Negative Perception
- |||| Tightening of Foreign Workforce

But the most challenging initiative is all about 'Productivity Drive', therefore, we are exploring and adopting 'Game Changer Technologies' that can drive productivity to higher level.

Our industry stake-holders believed that such innovative technology systems and solutions will improve project development time saving of up to 30 to 50 percent. Some of these Game Changers are:

- Design for Manufacturing and Assembly (DfMA)
- Prefabricated Bathroom Unit (PBU)
- Cross Laminated Timber (CLT) and Glued Laminated Timber (GLT)
- Prefabricated Modular Construction (PMC)
- Building Information Modelling (BIM)
- Virtual Design & Construction (VDC) – a collaborative BIM methodology with the Early Contractor Involvement (ECI); VDC tracks, monitors and validates the effectiveness of processes between consultants and contractors.
- Sustainable Cities & Green Mark Buildings
- Big Data Analytics and developing Smart Cities

Interestingly, in August 2015, it was reported that Prime Minister Narendra Modi of India laid out a bold plan to create 100 'Smart Cities' by 2022, an ambitious scheme to attract more

foreign investment in urban infrastructure to create modern and green cities to help spur economic growth and create jobs. The 'Smart Cities' have been defined by the Indian Government as those that have adequate water and electricity supplies, good sanitation, efficient public transport, internet connectivity and affordable housing, and are safe for women and children to live in.

Singapore expertise will be consulted as it has already helping to shape the master plan for Amaravati, Andhra Pradesh's new capital city.

'Smart Cities' can be very subjective, as it varies from developed countries to less developed countries. The federal government of India is looking at spending 480 billion Rupees (about AUD\$10 billion) via private –public partnership (PPP) model, but an independent estimate by KPMG has put the cost of these projects at above US\$1 trillion (about AUD\$1.3 trillion).

A number of 'smart cities' in Asia are being developed:

Japan is developing "Kashiwa-no-ha Smart City", a city that coordinates its information and communications technology to improve its urban services and increases its sustainability, while making lives of individual citizens more convenient and comfortable. For example, it utilises an Area Energy Management System (AEMS) to gather and analyse information about the energy supply and demand across the region, and regulate the power grid accordingly.

China is also developing the Dalian BEST City, adopting the Community Energy Management System (CEMS); a sustainable city at 'Tianjin Eco City', a collaborative developed sustainable city model, between the Chinese and Singapore governments. The project started in 2008, and it is now into its second phase of development.

For me, all these are big innovations are really complicated to comprehend. Almost every industry is facing new challenges. I would like to share with you some new findings about "Smart Asia World" from a series of reports prepared by Jones Lang Lasalle's real estate division. Selected quotes and contents from their reports:

"Technology take-up is advancing in leaps and bounds in Asia with millions of new consumers owning smart phones without having ever used landline phones or the computer technology of previous years.

This brave new 'mobile-first' market has significant implications for real estate in the region as many Asian residents ask why bother going down to a bank branch, when you can get a loan, buy a home and invest all on your iPhone 6S or Samsung Galaxy 6?

"People are buying flats worth US\$1 million to US\$2 million on their mobile device, without ever looking at the product 'live' "

However, "Asia isn't necessarily more tech-savvy than Silicon Valley, some might argue that, but the region definitely 'adopts' new applications more quickly."

According to Nielsen, smartphone penetration is approaching saturation in a number of Asian markets. The rate is highest in Hong Kong and Singapore, at about 87%, with Malaysia at about 80%, Australia at about 75% and China at about 71%. Almost half the Malaysian population (47%) owns more than one mobile phone, the highest rate in the region.

The rising tide of e-commerce - shopping through a mobile phone is most common in Japan, with 89% of consumers engaging in m-commerce, according to a Nielsen's statement in January. Two-thirds of Koreans have done the same. Rates are lower in other markets, with only around one-third reporting m-commerce activity in Singapore and Hong Kong, and about one in four in Malaysia and Australia.

In Hong Kong and Singapore, shopping is often seen as a leisure pastime and the cities' efficient transport systems mean that a shopping mall is never too far away. But in many emerging markets, infrastructure is poor, and it is a lot easier to order online. In places like China, e-commerce is simply seen by many 'millennials' as cooler than hanging out at the mall.

In China, for example, figures from its State Post Bureau show that more than 10 express delivery packages for every person in the country are delivered each year, fuelled by the booming e-commerce industry. On the streets of China, traditional bicycles are now being replaced by a fleet of young men on mopeds rushing to deliver a package.

A wide reaching impact – it is not just retailers who are evolving in a mobile first world. Citibank branches now resemble Apple stores rather than a typical bank branch, with interactive media walls, touchscreens and digital browsers helping to improve the customer experience. This trend is now not only prevalent in malls and retail banking outlets but increasingly common in restaurants too.

But for all the online interaction, many people still do not want to replace real life with a virtual world; they still want to congregate to eat, shop and have fun. Korea is the most wired nation in the world in terms of broadband penetration. But malls are still packed.

"People definitely want to congregate";

"Mobile is just changing the way we live. Luxury is going to be done in the real world. Convenience is going to be done online".

However, we have to embrace technology innovations:

Consultants, developers and contractors

must “change mind-sets” in the way they do businesses, the way they design buildings, and in the way they develop and construct buildings.

Certainly, Innovative and creative IT Engineers or Technopreneurs will be part of the BEI progression in the near future.

Finally, I would like to share with you my endeavour and effort to transform SIBL into a progressive and relevant professional organisation for the BEI.

SIBL is also evolving as a not-for-profit professional organisation. SIBL started 35 years ago as a professional institution for building professionals. Today, SIBL have introduced the Enterprise Members category, primary for SME Companies that serves the BEI. SIBL is very services oriented and business focus now, they endeavours to provide good services and create business opportunities for their Members in the areas of:

1. CPD Seminars: topics covering Construction Contracts, BIM Technology, Construction Innovations and Technology, and Sustainable Designs and Technology
2. Cross benefits and privileges for members

with Alliances across the Regions, SIBL's alliances include CABE-UK, CIOB-Singapore Branch, AIB-Australia, NZIOB-New Zealand, NIOB-Nigeria, RICS-ASEAN Region, SHRI-Singapore, MCEA-Myanmar, and SCL-Singapore.

3. Provide an industry platform to help grow our SME – Enterprise Members of SIBL, both locally and regionally, to benefit from the upcoming ASEAN Economic Community (AEC), which will transform ASEAN, with a combined population of about 650 million, into a highly competitive economic region with an effective market structure and free flow of investments, capital, goods, services and labour.

4. Expanding our Members Regional Networks through participating and supporting both local and regional trade shows and conferences. SIBL has supports many major events in Singapore and regionally in Indonesia, Malaysia, Myanmar, Sri Lanka and Thailand; Soon we will support events in the Philippines and Vietnam.

Why are we evolving? Primarily it is to stay relevant and secondly it is for long-term sustainability of SIBL futures.

How do I “change mind-sets” in managing SIBL? On my first two terms as President of SIBL, I created and focused on “A Single-Minded Preposition”, to rebrand and capitalised on the expertise of a 30 year industry organisation; then on my 3rd and 4th term, I created “Leadership by Chairmanship” for various key committees. Chairpersons will lead by example, with fully autonomous authority in their respective committee work. During my 5th term, I encourage my Board of Directors to “Make Things Happen!”, and that is to ride on the ‘progressive platform’ that we have built over the years and champion SIBL to greater heights. In order to facilitate future Board of Directors to continue this long journey of championing SIBL, we have also carefully reviewed our Memorandum of Articles and Associations and boldly amended and added provisos thereto.

Over the 12 months, I will strengthen our partnership with our regional alliances and make SIBL more visible in the region. My target is to grow SIBL's Enterprise Members to hit EM50, a much diversified group of business that serves the built environment industry, a business platform business synergies and growth for local and regional markets.



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Pipe dream comes true for Brisbane construction company



Aussie engineering know-how was put to the test and passed with flying colours as Brisbane construction company Canstruct completed phase one of a complex underwater pipeline project off New Caledonia.

The USD \$36 million project to attach a new line to an old pipeline seemed a logistical nightmare on paper but the Brisbane-based firm completed the opening phase on time

and on budget despite several challenges, including wild seasonal storms.

Canstruct project manager Adrian Murphy said working off the Pacific island was far from paradise but could not be happier with the end result.

"To think we had to ship a barge and giant crane all the way from Adelaide to Noumea before we could even start appeared difficult enough but the next seven months presented a whole raft of complexities."

To lay more than three and a half kilometres of pipeline which carries treated effluent from New Caledonia's Vale Nickel Mine, separate parts of the pipe needed to be weighed down with specially designed concrete anchors and attached to the line every six metres.

"We had to ensure there was enough weight to stop the pipe from refloating and withstand a 200 year ARI cyclonic event, which in these parts, can happen," said Mr Murphy.

In all, 3567 metres of pipe string was laid on

the ocean floor in depths up to 58 metres. The task was made even harder because of a narrow pre-existing corridor which already housed a pipe.

After the new line was laid, the next challenge was to join the old and new together and attach an additional 750 concrete anchors. A team of 79, including nine saturation divers, managed to complete this most difficult of tasks despite buffering oceanic conditions.

"All the team from Canstruct to Madsen Giersing, Maritime Constructions to DOF Subsea worked superbly together. I could not be prouder of our efforts but I know there are still many challenges ahead particularly coming into cyclone season."

Phase two began in October and involves removing the old pipeline and installing a flowmeter into the new pipe.



Philip Evans FAIB Wins Award from The Resolution Institute

Early this year the Institute of Arbitrators and Mediators (IAMA) and Lawyers Engaged in Alternate Dispute Resolution (LEADR) merged to form a new organisation; The Resolution Institute. The new organisation was launched at the inaugural state conference in Perth on Friday 18 September 2015. To commemorate the merger an award was introduced to acknowledge the Contribution to the Professional Development of Others in ADR (Alternate Dispute Resolution).

Philip Evans FAIB was presented with a Practitioner Award by Resolution Institute at the recent conference in Perth, in the award category 'Contribution to the professional development of others in DR'. The citation which was read out at the ceremony referred in part to his Fellowship with the AIB.

More details about the 2015 Practitioner Awards are also available on Resolution Institute's website at <http://www.resolution.institute/about-leadr/leadr-practitioner-awardees/2015-awards>.



Philip Evans at the ceremony with Mr Laurie James AO, the co-convenor of the WA Chapter of the Resolution Institute.

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Total Construction Celebrates the Successful Completion of Stage 2 of the Central Thermal Plant (CTP)

AUTHOR: ASTRID CAMERON, BID & BRAND MANAGER, TOTAL CONSTRUCTION

The CTP is an Australian first in a residential setting; generating hot and chilled water, and its own electricity with 2 natural gas fired engines. It provides district heating and cooling for 2,100 apartments and 50,000m² of office / commercial space across 11 high rise buildings in the Central Park precinct in Chippendale, Sydney.

Stage 1 – Total was engaged to design, supply, fabricate and install all mechanical, electrical and hydraulic services, as well as commission the plant to ensure it worked.

The project won 'Most Innovative Project 2014' from NSW Master Builders & 'Best Cogeneration or District Energy Project 2014' from Energy Efficiency Council.

Stage 2 – Due to the enormous success of Stage 1, Total was awarded Stage 2 of the development project which included design, procurement, construction and commissioning.

After the successful completion of Stage 2 of the project in July 2015, Total hosted a cocktail party to celebrate and included a cross section of professionals from the industry and our special guest, the Hon Lord Mayor Clover Moore.

"The Central Thermal Plant raises the bar for sustainability, with heating and cooling for 2,100 apartments and 50,000m² of commercial space." Clover Moore tweeted after the event.

Guests were treated to a walk-through of the plant and explanations of the technical aspects

and overcoming challenges during design and construction. These included:

||||| Spatial constraints that were overcome by utilising 3D modelling in order to fit all of the components.

||||| High risk operations including lifting the 48 metre long flue in 1 piece and installing it into the

heritage chimney from above.

||||| All components were limited in size so careful materials handling and communication was key to the success of construction activities.

||||| All materials, including heavy equipment, were lowered into the basement areas through access hatches involving hundreds of crane movements.

||||| Safety challenges due to working concurrently across multiple work faces and across multiple sites.

Total's CEO, Jeff Jones, commented: "The function was a great opportunity to showcase Total's capability and thank all those that were instrumental in our success over the 4 years, as well as to launch our dedicated Renewable Energies division. The calibre of those that attended was a great reflection of how far Total has matured as a specialised design and construct contractor."

On the back of the success of this project and the internal capability of Total, we have established a division focused on Renewable Energies led by James Bolton, with the value proposition being targeted at:

||||| Complex and unique projects in energy efficiency and water re-use.

||||| Projects that allow involvement from concept to completion.

||||| Utilising our in-house process design capability.

"It is a very exciting time to be growing a business with a focus on the efficient use of energy when the world is moving towards a sustainable model. Total is set to grow and I am looking forward to the journey with you all, just as much as getting to the destination." James Bolton stated.

For more information please visit www.totalconstruction.com.au



Pictured: Hon Lord Mayor Clover Moore and James Bolton, Renewable Energies Manager

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RISK ASSESSMENT IN TENDERING

By Stephen Hallett FAIB

Risk assessment during construction projects is a practiced management skill for most construction professionals, but risk assessment during the tendering process is often neglected, or at least treated with less importance. The tendering process in the construction environment is loaded with risk, and the use of proper risk assessment and management techniques must be employed during the tender period by any organisation aiming for success.

Whilst it is possible to manage, share or transfer risks, they certainly should not be ignored. It should also be understood that tendering risks can create opportunities as well as challenges.

In addition to measuring and rating all the components of the project, and combining this with properly vetted sub-contractor figures, carefully estimated preliminary costs, and a margin for overheads and profit, it is also very important to undertake a risk assessment of the project being tendered. Risk assessment is defined in AS/NZS 4360 as “the overall process of risk analysis and evaluation”, therefore implying that a structured process driven approach is necessary.

These tendering risks may be found in a range of different tender documents including the drawings, specifications, bills of quantities, geotechnical reports, and contract conditions. It can also be found in peripheral information such as identification of the other tenderers, an inspection of the site itself, the geographic location of the project, neighbouring properties, planning permit conditions, the financial capacity of the client, the calibre of the consultants engaged on the project, and previous work undertaken with any or all of these people.

As part of the tender process, the bid manager or a senior member of the management team should be responsible for identifying all of these risks, listing them, evaluating their potential magnitude and impact, ranking them in order of significance, and then assigning a financial value to them. Although not all of these financial values may be added into the tender sum, it is imperative that the costs of these risks are clearly understood, and that the decision to include or not include the financial cost is a carefully considered one.

Where the financial value of the identified tender risks is not being included in the tender sum, perhaps to keep the bid as competitive as possible, the accompanying tender letter should include detailed and specific wording which either excludes certain risk factors, seeks to modify the way they are treated in the tender documents (such as contract conditions), or clearly prescribes the extent to which the tenderer is accepting the risk item.

Applying risk assessment and management techniques to the tendering process is likely to lead to more efficient construction projects with a substantially reduced risk exposure profile.

Fair Work Ombudsman building and construction campaign results

The Fair Work Ombudsman has flagged ongoing efforts to improve compliance rates within the building and construction industry following a recent national campaign.

While an improvement in compliance over the past five years is encouraging, the industry will remain a high priority for the Agency, Fair Work Ombudsman Natalie James said today.

Ms James released the findings of random audits of 700 businesses throughout Australia as part of a 2014-15 National Building and Construction Industry Campaign. The latest auditing found that 75 per cent of employers were paying their employees correctly.

Seventy-seven per cent of employers were compliant with their record-keeping and pay-slip obligations and 59 per cent of businesses were compliant with all requirements.

Fair Work inspectors scrutinised 700 employers to check minimum wage rates, penalty rates, allowances, overtime, pay-slip, record-keeping obligations and contracting arrangements.

Ninety-six employers were found to have underpaid a total of 201 employees almost \$260,000. The largest amount required to be reimbursed by any one business was \$58,000.

Ms James says four employers have been issued with formal Letters of Caution, putting them on notice that further workplace breaches may result in enforcement action.

Fair Work inspectors found no prima-facie evidence of inappropriate contracting activity by any of the employers who had their contracting arrangements reviewed. However, Ms James says that given the complexities of some of the arrangements examined, further investigations will be conducted to ensure their bona fides.

The Fair Work Ombudsman earmarked the building and construction sector for attention after assessing its complaints data and in light of the results of previous campaigns.

In the 2013 calendar year, the Agency received 2083 requests for assistance from employees in the construction industry, of which 1027 were sustained, resulting in a 49 per cent contravention rate.

Six regional campaigns since 2009, which audited more than 500 businesses, resulted in an overall contravention rate of 65 per cent. Between January and June, 2014, the Fair Work Ombudsman received 770 requests for assistance from apprentices – 38 per cent from apprentices in the building and construction industry.

Ms James says that in the most recent campaign, trade-qualified employees tended to be paid above their minimum entitlements, and most underpayments related to low-skilled workers reliant on Award conditions.

“Of note, 64 per cent of businesses who belonged to employer bodies were compliant, compared with 57 per cent for those who were not,” she said.

Ms James says the Fair Work Ombudsman will continue to work collaboratively with key stakeholders to build a culture of compliance with workplace laws.

Some of those with contraventions will be re-audited in this financial year’s National Compliance Monitoring program to ensure behavioural change.

Employers and employees seeking further information or advice are encouraged to visit www.fairwork.gov.au or call the Fair Work Infoline on 13 13 94 for free advice.

A free interpreter service is also available on 13 14 50.

Of the 610 businesses audited;

- |||| 460 (75%) employers were paying their employee’s correctly;
- |||| 468 (77%) employers were compliant with their record-keeping and payslip obligations.
- |||| 360 (59%) employers were compliant with all requirements; and
- |||| 250 (41%) employer had at least one error; of which; o 108 (18%) had monetary errors;
- |||| 100 (16%) had pay-slip and/or record-keeping errors; and
- |||| 42 (7%) had both monetary and pay-slip/record-keeping errors.



AIB National Awards Dinner

The President and Council of the Australian Institute of Building (AIB) were delighted to host the National Awards Dinner in Sydney on 26 September 2015 to celebrate the achievements of the AIB and its members. During the evenings, the winners of the 2015 AIB's Professional Excellence in Building Awards were presented. The AIB's Professional Excellence in Building Awards are the only Australian awards that recognise the contribution of individual building professional excellence in the building and construction process.

NEWCASTLE TO BECOME A 'UNITED NATIONS CITY' AND ASIA-PACIFIC TRAINING HUB

Newcastle will become Australia's newest 'United Nations City' and a training hub for the Asia-Pacific region, under the leadership of Associate Professor Graham Brewer FIAB, following a UN decision to locate an International Training Centre at the University of Newcastle (UON).

The United Nations Institute for Training and Research (UNITAR) maintains a global network of 14 International Training Centres for Authorities and Leaders, known by their French acronym 'CIFAL'. The network of CIFAL hubs builds capacity among government authorities and society leaders on issues of sustainable development and meeting global goals of the UN.

UON will host the 15th CIFAL hub in the network. The Newcastle hub will become UNITAR's Centre for Disaster Preparedness and Risk Reduction, based on UON's disciplinary strengths in areas such as disaster resilience and recovery. The Newcastle CIFAL will also serve as UNITAR's base for capacity building across the Asia-Pacific.

Nikhil Seth, United Nations Assistant Secretary-General and Executive Director, UNITAR, said the strong alignment between UON, the City of Newcastle and UNITAR led to Newcastle's successful bid.

"We were fortunate that this great city's political and academic leaders not only shared our vision, they worked hard to realise it," said Mr. Seth.

"As a result, Newcastle will host the fifteenth International Training Centre for Authorities and Leaders (CIFAL) representing a model for collaboration between the United Nations, the University of Newcastle and Newcastle City Council."

"I thank the Lord Mayor of Newcastle and the University of Newcastle's leadership for supporting this initiative."

University of Newcastle Vice-Chancellor, Professor Caroline McMillen, said UNITAR's decision to locate its new training centre in Newcastle would enhance the Hunter's global engagement and provide new opportunities to build partnerships.

"Being selected to join this prestigious global network is a proud moment for the University of Newcastle, our city and this region and cements our status as a globally-engaged hub city," said Professor McMillen.

"CIFAL Newcastle will build on the academic strengths of the University in disaster recovery disciplines and help our researchers and partners to shape cutting-edge programs that make a real difference to communities around the world coping with the aftermath of disaster."

The Lord Mayor of Newcastle, Councillor Nuatali Nelmes, said Council's vision was for Newcastle to be a smart, innovative and resilient city.

"Over the years Newcastle has displayed outstanding resilience through natural disasters including the 1989 earthquake, the floods in both 2007 and 2015, and in adapting to after the BHP Steelworks closed," she said.

"As a Council we have recognised the importance of resilience in the face of hazards, the need to build our capacity to respond, and to understand and manage environment and climate change risks.

"The Council has a long relationship of support for the University, recognising its critical role as a source of innovation, education and employment for our region, and an important catalyst for growing the city's international connections.

"We are proud to partner with the University to attract global international training providers to Newcastle. This is a fantastic tripartite opportunity for Newcastle that will contribute to the international standing of our city."

Associate Professor Graham Brewer, the new Director of CIFAL Newcastle, said the collaboration between UNITAR and UON provided an opportunity to leverage their complementary strengths and academic synergies to produce cutting-edge training programs.

"This is a tremendous achievement for the University, and a great reflection of the character of the city and people of the Hunter."

"CIFAL Newcastle will play an important role in developing the capacity of organisations at home and across our region to meet the Sustainable Development Goals recently adopted by the world nations and other global agreements such as the Sendai Accord signed last March in Japan."

"We will quickly become an international hub for the exchange of ideas."

Associate Professor Brewer said the partnership began with UON and UNITAR working to identify and develop academic synergies, and will lead to significant education outcomes.

"A new suite of postgraduate qualifications is in development that integrate UNITAR's expertise with that of UON's School of Architecture and Built Environment, the first of which will be the Graduate Certificate in Disaster Risk Reduction."

"This programme, developed with UNITAR, is understood to be the first qualification of its type in the world. It will fill a substantial gap in the knowledge base of related practitioners, through exposure to UNITAR's online 'CityShare' platform and CIFAL Newcastle's visiting experts."





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Find out more about our construction management research and education programs:
www.newcastle.edu.au/sabe



Is your house a work of art?

An update on the law relating to copyright in architectural drawings

The recent Supreme Court of Queensland decision in *Coles v Dormer & Ors* [2015] QSC 224 (4 August 2015) provides a valuable reminder to the building industry of exactly what is at stake when copyright in building plans is breached.

A recap on who owns the copyright

In Australia, the Copyright Act 1968 (Cth) (Act) provides that copyright subsists in original literary, dramatic, musical or artistic works.[1] The author (or creator) of an artistic work is the owner of the copyright in that work.[2] Relevantly, 'artistic work' is defined to include a building or a model of a building, whether the building or model is of artistic quality or not.[3]

As such, there is copyright in architects' drawings, plans and models, and it is owned by the person who created those plans.[4] If you reproduce, or authorise the reproduction of, an architect's plans without his or her permission, you will be in breach of the Act.

This breach will occur whether an artistic work in two dimensional form has been reproduced in three dimensional form, and vice versa.[5] So, even if you do not copy the plans themselves, production of a building from plans, without the consent of the author of the plans, will constitute a breach of the Act.

What if I just modify the design a bit?

The Act does not require 100% reproduction of the copyrighted work before a breach of copyright will have occurred.[6] The Act only requires reproduction of 'a substantial part of the work'. Precisely what this means will depend on the facts of the case.

If I'm paying for the plans, don't I own the copyright in them?

The answer to question depends on the relationship you have with the architect.

In most construction matters, where an architect is contracted to draw the building plans for a fee, the person who pays for the plans does not own the copyright in them. Usually, the owner (or builder) is merely granted a licence to use the plans for the purpose for which they were commissioned.[7] The licence to use the plans extends to subsequent owners if the land is sold

with building or development approval in respect of the plans,[8] however the seller cannot proceed to build another building on a different site based on the same plans. The licence granted to use the plans only applies to the specific purpose for which it was contemplated by the parties at the time of the engagement of the architect.

Copyright can, however, be bought and sold. If it is important to you that you own the copyright in the plans so that you can do whatever you want with them, you can negotiate with the architect to include an assignment of copyright in the contract.

But the architect is part of my business – surely I own the plans?

Where plans are produced by an architect pursuant to a contract of employment, the copyright in the plans will vest in the employer.[9] However this is not the case with independent contractors. If you use an in-house draftsman, you may need to check whether that draftsman was engaged as an employee. If they are engaged as an independent contractor, you may not own the drawings they produce for you unless you specifically say so in their terms of engagement.

What's the worst that could happen if I breach copyright laws?

In *Coles v Dormer & Ors*, the claimant purchased a house for \$1.15 million that had been designed in essence by the original owners who had then engaged an architect, Gregory Skyring, to finalise and draw the plans for the house.

Shortly after buying the house, the claimant discovered that a couple who had unsuccessfully bid on his new house loved the design so much



that they intended to build the same house in the same estate. In fact, they even engaged the builder of the claimant's house to build their new house.

Concerned about the rumours he was hearing, the claimant approached the architect, Mr Skyring, and purchased the rights in the building plans. Even though Mr Skyring's plans had been used to build the house, the original owners only had a licence to use the plans to build the house. The copyright in the plans had remained with the architect.

Having safely secured the copyright in the plans, the claimant put the builder on notice of that fact and formally objected to the construction of a house identical to his. The builders pressed on regardless, and built another house using Mr Skyring's plans, that was substantially similar to the claimant's house.

The court found that both the builders and the owners of the copy-cat house were in breach of the Copyright Act. Accordingly, the judge ordered the defendants to significantly change features of their copy-cat house (two years after the house had been completed!). The defendants were ordered to:

1. Remove and replace the dormer roofs;

2. Remove the arched and circular windows at the front of the house and such other arched and circular windows as are ordinarily visible from public paths or streets and replace them with square or rectangular windows, concealing any outline of the arched or circular window shapes by rendering; and

3. Grind, cut away or remove the areas of the stone edge trim corners at the front of the house and such other stone edge trim corners as are ordinarily visible from public paths or streets to the extent necessary to render those areas flush with the walls and fill and conceal with render any remnant appearance of the stone edge trim.

In addition to undertaking these measures to alter the appearance of the house, both the builder and the owners of the copy-cat house will have to pay the claimant either damages or an account of profits, at the claimant's election, as well as a significant proportion of the claimant's legal costs.

If you would like to know more...

As you can probably tell by now, it can be a very costly and unrewarding experience (both for the owner and the builder) to use building plans, or replicate a building, when you do not own the copyright in the relevant plans or have a licence to use the plans for that purpose.

If you would like know more about your rights and obligations in relation to building plans, the specialist Construction Dispute Resolution team at Meyer Vandenberg can advise you.

Contact

Alisa Taylor
Partner
Construction Dispute Resolution Team

(02) 6279 4388
Alisa.Taylor@MVLawyers.com.au

Kate May
Lawyer
Construction Dispute Resolution Team

(02) 6279 4403
Kate.May@MVLawyers.com.au

[1] Copyright Act 1968 (Cth) s 32.

[2] Ibid s 35.

[3] Ibid s 10.

[4] Except where the architect is drawing the plans as an employee (as opposed to a contractor).

[5] Copyright Act 1968 (Cth) s 21(3).

[6] Ibid s 14.

[7] Concrete Pty Ltd v Parramatta Design & Developments Pty Ltd (2006) 229 CLR 577.

[8] Ibid.

[9] Copyright Act 1968 (Cth) s 35(6). As to the distinction between an employee and an independent contractor in this context, see *Beloff v Pressdram Ltd* [1973] 1 All ER 241.



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Small businesses get protection from unfair contract terms...

On 14 September 2015 the Senate passed the Treasury Legislation Amendment (Small Business and Unfair Contract Terms) Bill 2015 (Cth). This means that small businesses will, from 12 months after the Bill receives Royal Assent, have the right to be protected from terms that are 'unfair' in any standard form contract. These protections are an extension of the protections that already exists for consumers in s 23 of the Australian Consumer Law.

Will these changes affect me?

If you are a small business, or you contract with small businesses, yes.

The draft legislation originally only applied to any standard form contract with a small business where the up-front price payable was no more than \$100,000 or, for contracts where the term is longer than 12 months, no more than \$250,000. Due to changes introduced in the Senate, these thresholds have been increased.

The legislation will now apply to standard form contracts with a small business where:

■■■■ for contracts where the term is up to 1 year, the up-front price payable is no more than \$300,000; or

■■■■ for contracts where the term is longer than 1 year, the up-front price payable is no more than \$1 million.

If a term in one of these contracts is found to be 'unfair', it will be void and therefore unenforceable.

What is a 'small business'?

A business is a 'small business' under this legislation if, at the time the contract is made, it employs fewer than 20 persons. This includes full-time employees, part-time employees and casual employees who work on a regular and systematic basis. That is, using a 'headcount approach' regardless of an employee's hours or

workload.

You will be able to tell if you are a small business and therefore protected by these changes. However it will be difficult for you to know with any certainty whether the businesses you are contracting with are small businesses. It would be prudent for you to ensure that all of your standard form contracts comply with this new legislation.

What is a 'standard form contract'?

The legislation does not strictly prescribe a definition of 'standard form contract'. Instead, it says that, in determining whether a contract is a standard form contract, a court may take into account any matters it considers relevant,[1] but must take into account the following:

1. whether one of the parties has all or most of the bargaining power relating to the transaction;
2. whether the contract was prepared by one party before any discussion relating to the transaction occurred between the parties;
3. whether another party was, in effect, required either to accept or reject the terms of the contract in the form in which they were presented;
4. whether another party was given an effective opportunity to negotiate the terms of the contract; and
5. whether the terms of the contract take into account the specific characteristics of another party or the particular transaction.

The ACCC considers standard form contracts to be contracts presented on a 'take it or leave it' basis. All of your standard terms of trade will be considered standard form contracts.

What makes a term 'unfair'?

There is no express list of 'unfair' terms. The court will consider a term to be unfair if:

1. it would cause a significant imbalance[2] in the parties' rights and obligations arising under the contract; and
2. it is not reasonably necessary in order to protect the legitimate interests of the party who would be advantaged by the term; and
3. it would cause detriment (whether financial or otherwise) to a party if it were to be applied or relied on.[3]

The legislation also provides a long list of the types of terms that might possibly be unfair. The types of terms are very broad, including (amongst others) unilateral variation clauses, certain indemnity clauses, and clauses limiting a party's liability for breach of contract. In some cases, dispute resolution clauses might also be considered 'unfair'.

That's all very vague... how can I ensure my contract is OK?

There is extensive case law, both in Australia and overseas, relating to unfair contract terms in a consumer law perspective that help give some guidance as to how this legislation will be applied in a business-to-business context.

The team at Meyer Vandenberg has considered this case law and are ready to assist you with ensuring your contracts will be enforceable when the new legislation commences next year.

For more information contact:

Alice Tay
Partner
Corporate & Commercial

(02) 6279 4426
Alice.Tay@MVLawyers.com.au

Alisa Taylor
Partner
Construction Dispute Resolution

(02) 6279 4388
Alisa.Taylor@MVLawyers.com.au

Wendy Meredith
Special Counsel
Corporate & Commercial

(02) 6279 4390
Wendy.Meredith@MVLawyers.com.au

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[1] ACL, s 27(1).

[2] Director of Consumer Affairs Victoria v AAPT Limited [2006] VCAT 1493 page 11, [33] "The word "significant" simply means "important" or "of consequence". It does not mean "substantial". It is not a word of fixed connotation and besides being elastic is somewhat indefinite.

[3] Australian Consumer Law, Part 2-3, s 24(1).

NEW REVISED STANDARD FOR INSTALLATION OF BULK THERMAL INSULATION

Standards Australia has published the 2015 edition of AS 3999:2015, Bulk thermal insulation – installation. The 2015 edition supersedes AS 3999 – 1992, Thermal insulation of dwellings – Bulk insulation – Installation requirements.

The objective of AS 3999:2015 is to set out requirements on installing insulation for both new dwellings during construction and the retrofitting of existing buildings. The Standard is intended for construction of residential buildings. It also includes requirements for electrical safety and guidance on work health and safety.

Some of the key updates in the revised 2015 edition are:

- Updated advice on personal safety for insulation installers;
- Updated requirements aimed at improving the performance of installed insulation and information on new products and technologies; and
- Introduction of comprehensive detailed drawings to complement the text and to help demonstrate what compliant installations could look like.

The revised Standard was developed by Standards Australia Technical Committee BD-058, Thermal Insulation, which is comprised of representatives from industry associations, consumer organisations, government regulators, public health and safety officials, as well as academic and scientific institutions.

About Standards Australia

Founded in 1922, Standards Australia is an independent, not-for-profit organisation, recognised by the Commonwealth Government as the peak non-government Standards development body in Australia. It is charged by the Commonwealth Government to meet Australia's need for contemporary, internationally-aligned Standards and related services.

The work of Standards Australia enhances the nation's economic efficiency, international competitiveness and contributes to community demand for a safe and sustainable environment. Visit <http://www.standards.org.au>

NEW AUSTRALIAN STANDARDS ON TIMBER STRUCTURE DESIGN

Standards Australia recently updated its suite of Australian Standards related to timber structure design by revising two existing documents and adopting two International Standards.

The work program included:

- An amendment to AS 1720.1 – 2010, Timber structures, Part 1: Design methods
- A new 2015 edition of AS 1720.5, Timber structures, Part 5: Nailplated timber roof trusses
- An identical text adoption AS/NZS ISO 10984.1, Timber structures – Dowel-type fasteners, Part 1: Determination of yield moment
- An identical text adoption AS/NZS ISO 10984.2, Timber structures – Dowel-type fasteners, Part 2: Determination of embedding strength

AS 1720.1 has been updated to amend plywood panel shear strength design values. This revised text amendment is based on the latest testing of structural plywood and represents Standards Australia's commitment to keeping this important standard up to date.

AS 1720.5 was developed in response to the industry need for an Australian Standard in timber truss design.

Mr Geoff Stringer, Chair of Technical Committee TM-010 and representative of the Australian Forest Products Association, said, "The publication of a design standard for nailplated timber roof trusses adds significantly to the AS 1720 suite of standards on timber design. AS 1720.5 will assist manufacturers with achieving the required performance outcomes for their products."

On the adoption of two international standards as Australian Standards, Mr Stringer said:

"The European Yield Model for timber connection design is widely accepted. The two material properties which underpin this design method are the Embedment Strength of the timber and the Yield Strength of the doweled connector. Test methods to determine these two properties are well established in the ISO 10984 series and these test methods have now been adopted for Australian use. More reliable timber connections and improved building performance will be the outcome."

The publications were developed by Technical Committee TM-010, Timber Structures and Framing. Stakeholders from governments, regulators, industry associations, testing and research bodies, and academic institutions constituted the committee.

Queensland Major Project Pipeline

From Construction Skills Queensland (CSQ)

Greater Brisbane

Construction Industry Employment as at May 2015: 102,100 persons

- ||||| Underground Bus and Train Project: status EIS stage, estimated value \$5 billion
- ||||| Queens Wharf: status preferred proponent announced
- ||||| RNA Redevelopment (Stages 4 to 10): status commenced
- ||||| Racecourse Redevelopment: status development approval, estimated value \$1.2 billion
- ||||| Brisbane Airport New Parallel Runway: status construction commenced, estimate value \$1.35 billion

Cairns

Construction Industry Employment as at May 2015: 10,400 persons

- ||||| Aquis Integrated Resort Development: status approved with conditions, estimated value \$8.15 billion
- ||||| Ella Bay Integrated Resort: status approved with conditions
- ||||| Cairns Airport Redevelopment: estimated value \$1 billion
- ||||| Cairns Hospital Redevelopment: status construction commenced, estimated value \$454.6 million
- ||||| Bruce Highway Cairns Southern Approach (Stage 2)
- ||||| Darling Downs – Toowoomba
- Construction Industry Employment as at May 2015: 9,400 persons
- ||||| Inland Mainline Freight Rail
- ||||| Arrow Gas and Water Treatment Facilities
- ||||| Toowoomba Second Range Crossing: estimated value \$1.6 billion
- ||||| Nathan Dam and Pipelines: estimated value \$1.4 billion

Fitzroy

Construction Industry Employment as at May 2015: 13,500 persons

- ||||| Carmichael Coal Mine and Rail: status approved with conditions, estimated value \$16.5 billion
- ||||| China Stone Coal: status EIS stage, estimated value \$6.7 billion
- ||||| Alpha Coal: status approved with conditions, estimated value \$6.8 billion
- ||||| Galilee Coal Project: status approved with conditions, estimated value \$6.4 billion
- ||||| Kevin's Corner Project: status approved with conditions, estimated value \$6 billion
- ||||| South Galilee Coal: status approved with conditions, estimated value \$4.2 billion

Gold Coast

Construction Industry Employment as at May 2015: 34,800 persons

- ||||| Gold Coast Rapid Transit
- ||||| Varsity Lakes to Elanora Extension
- ||||| Commonwealth Games Village: status early site works underway, estimated value \$550 million
- ||||| Gold Coast International Marine Precinct: status approved with

conditions, estimated value \$390 million

- ||||| Jupiters Casino Expansion: estimated value \$345 million

Mackay

Construction Industry Employment as at May 2015: 34,800 persons

- ||||| Abbot Point Coal Terminal – Stage 3: status approved with conditions
- ||||| Grosvenor Coking Coal Mine: status construction commenced, estimated value \$1.4 billion
- ||||| Mackay Ring Road – Stage 1: status design phase, estimated value \$565 million
- ||||| Bruce Highway - Sarina to Cairns

Sunshine Coast

Construction Industry Employment as at May 2015: 16,300 persons

- ||||| Landsborough to Nambour Rail Upgrade: status approved with conditions
- ||||| Bruce Highway – Caloundra Road to Sunshine Coast Motorway (Stage 2)
- ||||| Mooloolah River Interchange
- ||||| Sunshine Coast Plaza Expansion: status approved, estimated value \$350 million
- ||||| Sunshine Coast Airport Expansion: status EIS stage, \$347 million

Townsville

Construction Industry Employment as at May 2015: 10,100 persons

- ||||| Townsville Port Expansion: status EIS stage, estimated value \$1.49 billion
- ||||| Bruce Highway – Houghton River Floodplain Upgrade: estimated value \$515 million
- ||||| North Queensland Bio Energy: estimated value \$520 million
- ||||| Austcane Energy Project – Ethanol: estimated value \$210 million
- ||||| Townsville Stadium and Entertainment Centre Precinct: estimated value \$350 million

Wide Bay

Construction Industry Employment as at May 2015: 7,700 persons

- ||||| Bruce Highway – Cooroy to Curra (Section C): estimated value \$624.3 million

Queensland Outback

Construction Industry Employment as at May 2015: 2,900 persons

- ||||| Etheridge Integrated Agricultural Project: status EIS stage, estimated value \$1.977 billion
- ||||| South of Embley: status approved with conditions, estimated value \$1.45 billion

About Construction Skills Queensland (CSQ)

Construction Skills Queensland (CSQ) is an independent industry-funded body supporting employers, workers, apprentices and career seekers in the building and construction industry. Funded by an industry training levy, we work closely with students, schools, employers, apprentices, industry partners, training providers and individuals across Queensland to build capability at every level of business. As a recognised industry leader, our mission is to promote the building and construction industry as a career of first choice, encourage investment in skills and training and increase the number of skilled workers in the industry.

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Interactive safety guides could be the tools to saving lives

By Jessica Stanton and Melania Berehovy

New technologies pop up every day and the way that we engage with key ideas and messages has evolved exponentially. Technology has changed the way we communicate and absorb information. No longer static, this information is now interactive, and it is called Augmented Reality (AR). Using a smartphone or tablet with an AR-capable application, anyone can hover over traditional print media and watch it come to life.

But what has this got to do with safety?

Thirty-five construction site workers are severely injured each day and over a quarter of onsite deaths are caused by falls from heights. These hard-hitting facts come from a recent report published by Safe Work Australia, highlighting the importance of understanding safe work practices in the building and construction industry.

Construction sites present a huge number of dangers, from fire hazards to falling objects to scaffolding safety. These three areas contribute to a large proportion of fatalities that occur in the industry, which is why it is so important for construction workers to understand the risks they face on site.

This is where AR fits in. A number of companies are using interactive technology to enhance safety information by developing new resources to help workers stay safe on the job. One such company is Pro-Visual Publishing and one such resource is the Pro-Vis AR app which enables their construction site safety information resource guides to act as a kind of portal, leading users to further information and allowing them to access hidden content.

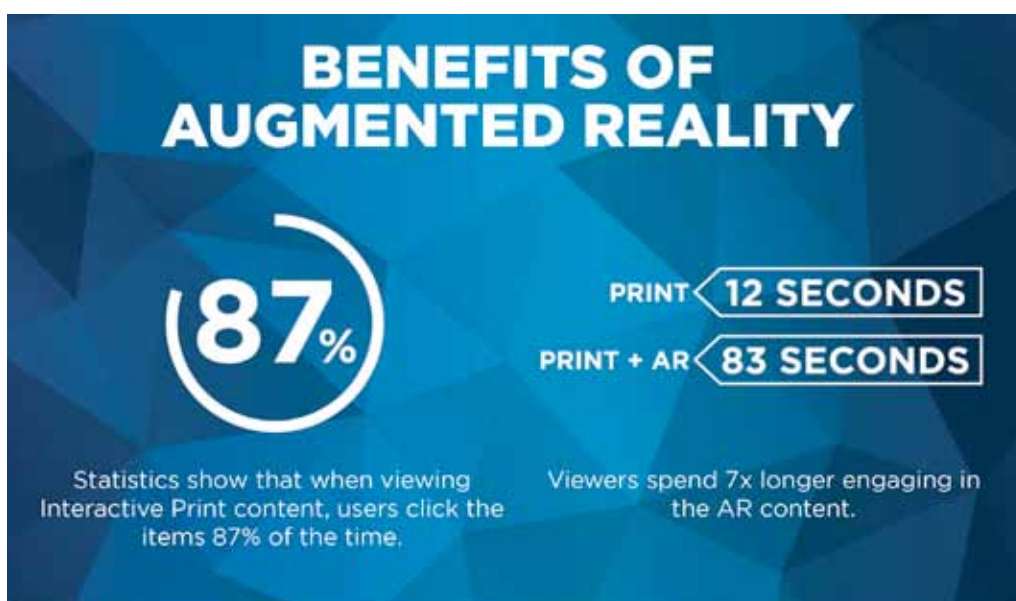
When working on construction sites, PCBUs, site managers and contractors each carry the responsibility for the health and safety of workers on site. The interactive safety guides, specific to each state, allow both

managers and workers to access the most essential information needed while working on construction sites, including Safe Work Method Statements and the Scaffolding Code of Practice, to name just some.

Toolbox meetings will take on a whole new level of engagement with news reel videos, training and induction resources, links to additional information and general safety awareness. But of all the extra content, the most effective aspect of the safety guide is the animated experience, of which there are three. Each animation demonstrates in striking detail a common cause of fatality on construction sites and how they often occur, providing a visual and aural experience for workers to gain a deeper understanding of potential hazards. Construction workers can then use this knowledge to prevent risking their own safety and the safety of their mates.

Viewers spend seven times longer engaging with interactive content, which really emphasises the importance of safe work practices. This greater level of engagement enhances safety information and legislation in a way that allows construction workers to engage in a more dynamic toolbox meeting experience. The construction site safety guides are vital resources to ensure construction workers return home exactly the way they came to work.

Pro-Visual Publishing's construction site safety guides are state-specific and free of charge. Visit www.provisual.com.au or email marketing@provisual.com.au to request a free copy and download the Pro-Vis AR app from the Apple app store or the Google Play store to keep your construction site safe. The future of safety is augmented reality.



Once again, Australia's sustainable property portfolios lead the world

From The Green Building Council Of Australia, September 2015

Australia and New Zealand continue to lead the world in sustainable real estate practices, according to the latest GRESB report.

GRESB, the global real estate sustainability benchmark, assessed 707 property companies and private equity real estate funds globally, representing 61,000 assets and USD \$2.3 trillion in asset value.

The Australia and New Zealand GRESB score of 69 was significantly higher than the global average of 56, a result welcomed by the Green Building Council of Australia (GBCA).

"Investors, governments and consumers are demanding more transparency and accountability – and clearly Australian property and construction companies are responding to this demand by making sustainability front-and-centre of all that they do," says the GBCA's Chief Executive Officer, Romilly Madew.

According to GRESB, 93 per cent of our region's companies and funds disclose their sustainability performance annually, compared with 85 per cent globally.

Across Australia and New Zealand, more than half (54%) of the companies and funds obtained green building certificates like Green Star and 87 per cent have an energy rating, compared with 71 per cent

globally.

Ninety one per cent of participants have introduced best practice leases that include sustainability-specific clauses, compared with 60 per cent globally.

The GRESB report also finds that disclosure, building ratings and best practice lease clauses also affect real building performance. Greenhouse gas emissions fell by 4.3 per cent and water consumption by 2.3 per cent. However, the amount of renewable energy generated by Australian commercial property remains very low.

Three Australian companies were identified as regional sector leaders: Stockland for diversified property, Lendlease for retail and office developments, and The GPT Group for diversified-retail/office. Lendlease was also named the 'global sector leader', coming top of the table of the 707 property companies surveyed.

"Once again, Lendlease is recognised for its steadfast commitment to sustainability. With more Green Star 'firsts' than any other organisation in Australia, including everything from the first constructed office to the first public library, it's no surprise that Lendlease is the global leader in sustainability," Ms Madew says.

"Stockland deserves applause for achieving the most Green Star ratings for retail centres, for its work on a range of Green Star – Communities projects

and for launching Australia's first green bond. And GPT Group has challenged the industry to upgrade its existing buildings by achieving the first Green Star rating for a building's operational performance at 800 Bourke Street in Melbourne.

"Australia's property and construction industry has moved well beyond regulation. Increasingly, both small and large companies are reacting to the signals set by the market leaders – and understand if they want to be competitive, they must embrace sustainable business practices," Ms Madew adds.

GRESB's Head of Asia Pacific, Ruben Langbroek, says the use of green building certification programs, such as Green Star, and energy ratings, such as the National Australian Built Environment Rating System (NABERS) have become standard practice in the Australian property market.

In March, the GBCA announced a partnership with GRESB to advance reporting on environmental, social and economic performance in Australia's real estate sector.

"Superannuation funds and large foreign institutional investors are increasingly engaging with their Australian and New Zealand investment managers to evaluate ESG performance, and are demanding reliable data on energy efficiency and sustainability to help guide their decision-making," Mr Langbroek says.

"These GRESB results once again confirm that the Australian property and construction industry is heading in the right direction. What was once seen as a 'back-of-house' responsibility for building managers to reduce costs is now understood by the industry as an opportunity to create brand value, encourage innovation, create new revenue streams, secure stakeholder confidence and, above all, mitigate risk," Ms Madew concludes.



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Progress claims, needless disputes and outdated methods in the construction industry costing the economy \$7 billion annually

Australia's \$300 billion construction industry is booming, with the latest ABS data revealing building approvals increased by 13.1% since August 2014, the largest annual increase on record.

However, industry experts have expressed concern that this rate of growth will be hampered by an increasingly costly burden on the construction sector – contract disputes. A CRCCI study even put a dollar figure to the problem stating that these disputes are costing the Australian economy around \$7 billion a year, adding 6 percent to the overall cost of each project.

According to construction experts, contract disputes are a result of outdated, manual methods of processing progress claims including spreadsheet reconciliations and paperwork.

"The construction industry plays a most significant role in our economy as the third largest contributing industry, so it's important that we adopt methods to streamline efficiencies where possible to increase productivity," said Brian Seidler, Executive Director of the Master Builders Association of NSW.

To address the problem, former construction company CFO Lincoln Easton recently launched Progressclaim.com, software tailor-made for the construction industry to process payment claims anytime and anywhere.

"As we've seen in several recent public disputes, the archaic methods of processing progress claims are causing inaccuracies, disputes and hold-ups on the build, impacting our broader economy," he said.

In recent months, a number of legal rows over payments have led to construction being interrupted or coming to a total standstill on major public projects, such as the Perth Hospital and the Wiggins Island Coal Export Terminal.

"With residential and commercial construction predicted to grow exponentially over the next few years to cater for Australia's population boom and major infrastructure upgrading, how the contracting parties deal with various

payment processes needs to be resolved," said Mr Seidler.

Industry data reveals that the construction sector's reliance on pen and paper processes has resulted in:

- 20 percent of projects leading to payment claim disputes between parties, typically over variations and contracts

- Approximately 22 percent of all domestic and commercial projects in Victoria alone involving disputes, with 23 percent related to contract and scope of work

- The average cost of contract and scope of work issues equating to approximately \$117 million per year in Victoria

Mr Easton said the data represents the frustrations around progress claims felt by most CFOs in the construction industry.

"When I was a CFO at a building company, I couldn't believe a business that turned over \$50 million annually was basing its contract variations on manual processes," said Mr Easton.

"I witnessed arguments, project managers bogged down in paper work and subbies threatening no-shows at work because they hadn't been paid – all due to poor progress claim documentation. I kept thinking that there had to be a better way, and so Progressclaim.com was born."

Emma Shipley, CFO at Built, a construction company with an annual turnover in excess of \$1 billion and over 500 employees, said the company will be rolling out Progressclaim.com on all national building sites because it is a user friendly technology that increases collaboration and efficiency.

"Built is the first major builder to adopt Progressclaim.com. Our focus is to continually find smarter ways to do things and take unnecessary processes and costs out of our projects for all concerned," said Ms Shipley.

"We want transparency and collaboration between our finance staff, project managers and sub-contractors and this software allows for this.

"We're already using Progressclaim.com and have noticed in some projects a 40 percent saving in time."

Mr Seidler said with the advent of more mobile technology giving access to the many layers of the construction sector, this is an opportunity for industry to improve its productivity.

"There's a plethora of technological and mobile options for construction businesses and subcontractors to increase efficiencies, which in turn will have a positive impact on our economy."

About Progressclaim.com

Founded in 2011, Progressclaim.com is based in Melbourne, Australia. Tailor-made for the construction industry, Progressclaim.com gets construction payments done in a flash with simple software that allows you to administer payment claims collaboratively, working on your computer, tablet or mobile phone.

With a growing list of Australia's top 100 builders and engineers as customers, Progressclaim.com offers over 50 years of construction and software industry experience.

Its major investor is stock exchange-listed Prescient Limited (JSE: PBT Group), a global provider of business intelligence and data transformation solutions, based in Johannesburg, S.A. with assets in excess of ZAR10 billion.

Progressclaim.com's key features:

- Progressclaim.com integrates with most leading construction ERP and accounting software vendors in the Australian marketplace.

- Progressclaim.com is scalable, mobile enabled, self-assessed and multicurrency.

- Progressclaim.com greatly reduces, and can even completely negate time spent on dispute resolution.

- Risk is also reduced when using the fully automated, collaborative system that is Security Of Payments Act compliant.

- It's a simple, easy to use interface that even the most IT illiterate understands.



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REFERENCE DATES

By Tom Grace of Fenwick Elliott Grace

A very recent decision of the New South Wales Court of Appeal revisits the thorny topic of “reference dates” in construction contracts. In most commercial construction contracts, the contractor is required to submit progress claims once a month on or before a particular date. Under the Eastern model of the Security of Payment legislation, there is a parallel requirement whereby a contractor can only ask for one progress payment per reference date. Usually the contract will stipulate when the reference date occurs but if not, the legislation provides that there is one reference date in each month. Recent cases in Queensland have held that no reference dates occur after a contract has been terminated therefore ruling out adjudication as a means of getting paid once the contract has been terminated.

In the NSW case, Lewence Construction Pty Ltd (“Lewence”) entered into an AS 4000 contract with Southern Han Breakfast Point Pty Ltd (“Han”) for the construction of a five storey apartment block for a contract price of \$14.2m. Construction commenced and the parties fell into dispute before completion.

On 8 October 2014, Lewence sent Han a payment claim for work done up to the end of 7 October 2014. This claim was paid by Han, but Han was clearly extremely unhappy with Lewence by this stage. Ultimately, on 27 October 2014, Han wrote to Lewence removing the remaining work out of its hands under clause 39.4 of the contract. Lewence responded claiming Han had repudiated the contract and accepting the contract was now terminated.

On 4 December 2014, Lewence sent a payment claim to Han seeking \$3.2m. Han responded with a payment schedule saying Lewence had already been overpaid in the amount of \$65,000 and refusing to pay anything further, at least until it had completed the works. Lewence lodged an adjudication application. The adjudicator handed down a determination, finding a reference date had occurred and requiring Han to pay Lewence \$1.2m. Han applied to the NSW Supreme Court seeking a declaration stating the adjudicator’s determination was void because no reference date had occurred and therefore the adjudicator was without power to make a decision. The Supreme Court agreed with Han and found an adjudicator has no jurisdiction to consider a dispute if there is no reference date. The Court said because the contract had been terminated, no reference date had arisen and therefore the adjudicator’s decision was void. Lewence appealed.

The NSW Court of Appeal handed down its decision on 25 September 2015, upholding Lewence’s appeal. In a decision that will have wide ramifications if followed across other states, the Court has found it is up to the adjudicator to decide whether a reference date has occurred. If the adjudicator decides a reference date has occurred, the adjudicator has power to go on and make a decision as to whether money should be paid. The Court also found that, in any event, a reference date had indeed occurred in this particular case because there was nothing in the contract precluding a reference date arising after termination and also because the provisions of AS 4000 which allow the Principal to suspend payment upon a Contractor’s breach (see cl 39.4) did not extend to payment for work already performed.

A lesson in how not to conduct a building dispute

By Nicholas Graham, Associate, Lynch Meyer Lawyers

Maples Winterview Pty Ltd v Liu & Anor [2015] ACTSC 58

The builder failed entirely on its claim to be paid following its termination of a simple building contract. If that was not bad enough, it had to pay the owners’ legal costs.

The ACT Supreme Court’s decision highlights the need for caution before terminating a building contract by reason of a failure to pay and the benefits of getting early advice from a construction law expert.

The Facts and Issues

Maples Winterview alleged that it had contracted to build a house for \$289,000 and carried out building work for the owners. The owners only paid Progress Claim No 1 but by the time the builder came to issue Progress Claim No 2 it claimed that approximately \$222,000 was due and payable, being progress payments for stages 2 to 5 of the contract and an additional invoice for “supplementary items”. The owners did not pay and Maples Winterview suspended work. Maples Winterview later terminated the contract due to the failure to pay.

There were a multitude of issues that the Court had to contend with, including that a director, Mr Agostinho Martins, who liaised with the owners, unfortunately died during the performance of the building work, which had a significant effect on the operations of the builder. The insurance policy issued in respect of the building work also identified a related entity A & A Martins Pty Ltd as the builder.

The issues that were critical to the outcome were:

1. There existed a substantial defect (which could not be rectified after practical completion) that made it impossible for the builder to complete the building as specified, and accordingly precluded an entitlement to Progress Claim No 2 and therefore each later stage due to the requirement for the sequential completion of each stage of building work; and
2. No variation had been made to the contract to permit payment of Progress Claim No 2.

The Findings

Maples Winterview incurred a liability close to \$250,000 in relation to the building work but had no entitlement to issue progress claims for stages 2 to 5 of the contract. The owners were therefore not in breach of the contract and Maples Winterview was not entitled to terminate it. The result was that Maples Winterview did not recover any of the costs of the construction of the owner’s house due to difficulties that prevented its compliance with the terms of the contract.

Had the substantial defect been addressed at an early stage there could have been a variation to the Contract or the defect rectified. The other option would have been to have completed the contract without making progress claims, with an agreement reached for damages paid to compensate for the defect.

Having failed to recover anything, the builder then had to pay the owners’ costs of the dispute.

The Lesson

If in doubt, get legal advice. If you are considering terminating a building contract or have an issue with a building contract, a specialist construction lawyer can provide you with assistance to ensure that you can protect your legal rights and avoid an outcome like that experienced by Maples Winterview.



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New strata laws: what they could mean for developers

Former builder and Managing Director of Perpetual Strata Management, Matthew Wrigley identifies the key issues that could impact developers regarding the proposed changes to strata titles laws.

The New South Wales government's touted changes to the Strata Titles Act – the first significant overhaul since 1973 – will hopefully transform the development and management of the state's strata schemes for the better.

According to the Department of Fair Trading, there are around 75,000 strata schemes in NSW representing \$350 billion in assets. Approximately 2 million industry professionals, strata owners and residents in strata-titled townhouses and units could be affected by the changes to the current laws.

From the 90 proposed reforms in the two draft bills, five key issues have been identified that if the legislation is passed, are most likely to affect developers.

A security bond is needed

To help offset the costs of repairing defects as well as to ensure the burden of rectification is not unfairly imposed on new owners, the proposed reforms will see developers lodging a security bond equal to two per cent of the contract price of the building works.

If it is not paid out it will be refunded no later than two years after the completion of building work or within 60 days of the final inspection report – whichever occurs first.

New inspection schedule, defects and repairs flagged

Measures aimed at preventing building defects going unnoticed until after statutory warranty periods are over, include requiring developers or the strata scheme to arrange for building inspections, must be obtained between 12 to 18 months after completion of works.

The appointment of the inspector must be approved by the owners corporation who may also refuse to approve the appointment on any grounds. There must also be complete transparency to prove the inspector is not be connected with the developer. The developer is also responsible for all costs of obtaining an inspection and report.

As well building defects and rectification works must be included on the agenda for every general meeting of the owners corporation during the warranty period.

Voting restrictions

For the first time in 50 years, developers and their associates will be excluded from voting on matters relating to building defects and repairs.

This is intended to remove a conflict of interest that currently allows developers to use votes attached to unsold lots to influence such decisions.

Future action to assess, investigate or rectify building defects will need go to a general meeting of all current owners.

Developers must set realistic budgets and levies

If the bills are passed, developers will be required to set realistic levies for the initial stage before establishing a strata scheme and the first year thereafter.

This means developers must adequately budget to set realistic levies that cover all fixed costs including insurance, fire compliance and maintenance of lift and grounds plus variables such as additional repairs or dispute resolution.

If it can be shown that levies are too low or too high, owners and investors will be able to seek compensation from the developer via adjudication or a tribunal ruling. Unresolved matters can be listed for the district court.

Long term maintenance

Under the changes developers will also be expected to prepare an initial maintenance schedule which focuses on property and buildings that are likely to need servicing or maintenance – swimming pool filters, lifts, intercoms, alarms, trees, ducted systems, grease traps - over the coming years.

Designed to help owners corporations to assess costs more accurately, this measure could significantly improve forward planning and budgeting.

New owners though are not obliged to follow the developer's maintenance schedule. Regardless, developers remain liable for defects during the warranty period and the schedule can be used as evidence in any subsequent legal action.

About the author: Matthew Wrigley, a former builder, is managing director of the independent firm, Perpetual Strata Management. www.perpetualstrata.com.au



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The Need for Integration in the Construction Industry

By Rob Stummer, Managing Director, IFS Australia & New Zealand

BIM, or Building Information Modelling, is one of the relatively few buzzwords you will hear in the construction industry that continues to dominate conversations – and there's a very good reason for that.

Fuelled by government initiatives and industry momentum around the world, BIM empowers companies to plan infrastructure more effectively while reducing the cost and complexity of building and maintaining assets.

At the heart of BIM is a computer aided design driven model that enables you to visualise assets in all three dimensions. This means that the model is no longer simply a design tool – it becomes the master data source of an asset and the foundation for driving all business functions related to it.

So you would think that construction and contracting companies should be falling over each other in their haste to implement end to end business systems, right?

Unfortunately that isn't the case. Perhaps more than anything, what BIM has brought about is a realisation that in many ways construction is still an old-fashioned industry, still hampered by archaic, Excel-based processes and departmental silos. It has also reminded us that businesses need to act now to remain competitive.

The second lives of assets

Assets have a second, far longer life after construction. As such, the industry is increasingly looking at the total lifecycle of an asset, from construction expenditures to operation costs – something that's forcing construction, engineering, and infrastructure companies to adopt a much more joined-up, data-driven approach.

But many in the construction industry are still operating with non-integrated systems across lots of manually maintained Excel spreadsheets. Typically, project plans are developed in a software tool such as Microsoft Project, Primavera, or Asta, which are rarely integrated with other business systems for

engineering, procurement and construction.

What is more, today's computer design model is not typically integrated with the rest of the project and maintenance processes. This in turn creates the problem of transferring information from the design tool into the procurement, construction and maintenance systems.

According to Kenny Ingram, Global Industry Director for IFS, this is the primary fault line that BIM has uncovered.

"When processes are not joined up or automatically integrated, companies are overburdened with high overheads and cost inefficiencies," says Ingram. "They can incur damages by failing to keep to the key parameters of time and budget. What's more, they risk being overtaken by competitors with smarter systems who can offer better prices and deliver a better asset more quickly."

ERP with a twist

This is why we're continuing to see a significant shift to deploy enterprise resource planning (ERP) systems in the sector. More and more construction and contracting companies see the value in partnering with integrated project solutions experts for managing budgets, time and risk.

But is "ERP" really the right term to use?

Synonymous with finance and human resources in many large enterprises, ERP is fundamentally a product-centric solution which grew out of mass production manufacturing.

Specialists in project based business systems like Kenny Ingram would argue, however, that highly-specialised, project and asset lifecycle-based versions of ERP solutions – built for real-time management of complex projects – are where ERP's strengths lie in our industry.

True ERP is a fully-integrated software solution covering all the business processes and functions involved in building or maintaining assets. That gives you a single framework to consider how a BIM model integrates with other

business processes such as procurement, project management, project cost control, sales and sub-contract management, variation control, estimating, bid management, material control, plant and equipment hire, construction management, asset and facilities management.

It's become too inefficient to look after different IT systems across different architectures with no natural flow of data through a business. In today's competitive environment, uninformed decision-making is simply not an option.

With a project-based solution combining the integrated enterprise benefits of ERP, but designed specifically to support the complex business processes of project-centric organisations (the twist), it's possible to address the data flow problem, and to profitably manage and maintain contracts over the entire asset lifecycle.

The time to act is now

As numerous governments around the world are formulating and launching strategic plans for BIM, there's never been a greater emphasis on moving construction from a document-driven process to an integrated, data-driven one.

If there is one thing that BIM has made clear, it is that companies that engineer, construct and fabricate complex assets and infrastructure need integrated business software to effectively manage time, cost and risk.

And as the pressure to deliver affordable, timely projects mounts, now is the time to integrate business processes and streamline data flow.

About the Author

Rob Stummer is Managing Director, Australia and New Zealand for global enterprise applications company IFS, achieving significant growth over the last five years. He holds a Masters in Information Technology from Melbourne University and has consulted to many of the region's Top 500 companies. See: www.ifsworld.com/au

Are your showers ticking time bombs?

Despite builders best efforts, leaking showers are consistently listed in the BSA's top ten defects.

Sadly, sometimes this is due to sub-standard workmanship, but most of the time it is the design of the shower itself which is creating the potential for disaster.

Most contractors are at a complete loss as to why, but detailed testing has shown how, by the action of expansion and contraction, water is "pumped" along glue cavities to escape the shower enclosure, no matter how well it is water-proofed.

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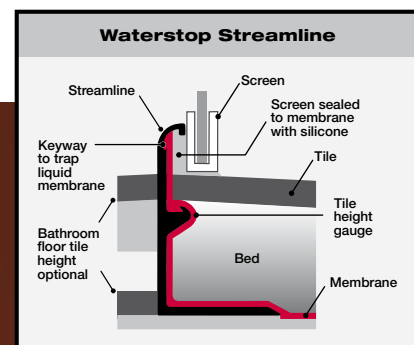
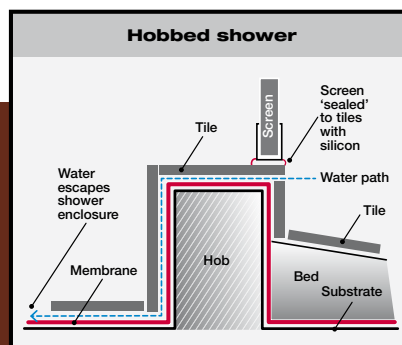
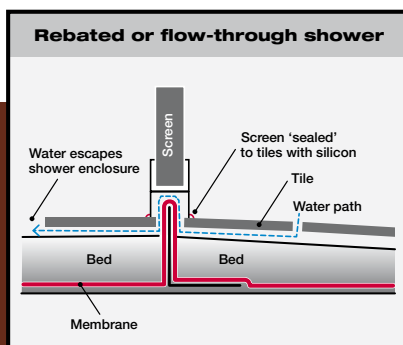
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Mr Fred Meddings, Managing Director
Watertight Australia (Water-proofers)

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Mr	Shui Kei	Yau	MAIB	N.T.	Hong Kong	Member
Mr	Chun Kit	Wong	MAIB		Macau	Member
Mr	Gary	Wisker		WA	Australia	Member
Mr	Wing Kei	Wang	MAIB		Hong Kong	Member
Mr	Lance	van Drunick	MAIB	WA	Australia	Member
Mr	Pak Lam	Tang	MAIB	N.T.	Hong Kong	Member
Mr	Reinald	Struwig		NSW	Australia	Graduate
Mr	Andrew	Staedler		VIC	Australia	Member
Ms	Kit Ying	Siu	MAIB		Hong Kong	Member
Mr	Craig	Simpson	MAIB	NSW	Australia	Member
Mr	Hon Kit	SEE	MAIB		Hong Kong	Member
Mr	Adam	Schober	MAIB	WA	Australia	Member
Mr	King Wo	Poon	MAIB		Hong Kong	Associate Level 4
Mr	Nicholas	Peters	MAIB	VIC	Australia	Member
Mr	Michelangelo	Pascuzzi	MAIB	VIC	Australia	Member
Mr	Arin	Panderman	AMAIB	NSW	Australia	Associate
Mr	Theron	O'Driscoll		WA	Australia	Member
Mr	Mark	Nyaanga	MAIB	WA	Australia	Member
Mr	Vincent	Mulholland	MAIB	WA	Australia	Member
Mr	Robert	McLaughlin	MAIB	WA	Australia	Member
Mr	Dayne	May	MAIB	QLD	Australia	Member
Mr	Gee Yee	Lui	MAIB		Hong Kong	Member
Mr	Ka Wai	Leung	MAIB		Hong Kong	Member
Mr	Shing Nang	Lee	MAIB		Hong Kong	Member
Mr	Tai Wai	Lai	MAIB		Hong Kong	Member
Ms	Yuen Man	Kan	MAIB	New Territories	Hong Kong	Member
Mr	Shane	Jez		WA	Australia	Member
Mr	Steven	Hu	MAIB		Hong Kong	Member
Mr	Scott	Harper	MAIB	NSW	Australia	Member

Title	Given Name	Surname	Honors	State/ Territory	Country	Member Group
Ms	Chunyan	Gu	AMAIB	VIC	Australia	Associate
Mr	Kim Man	Fung	MAIB		Hong Kong	Member
Mr	Tristan	Forster	MAIB	VIC	Australia	Member
Mr	Efren	Fierro	AMAIB	QLD	Australia	Associate Level 2
Mr	Didier	Faraone		SA	Australia	Member
Mr	Richard	Eden		WA	Australia	Member
Mr	Marcus	Curran			Hong Kong	Member
Mr	Wai Man	Chung	MAIB		Hong Kong	Member
Mr	Ka Ming	Cheung	MAIB		Hong Kong	Member
Mr	Chi Kong	Chan	MAIB		Hong Kong	Member
Mr	Tak Kong	Au	MAIB		Hong Kong	Member
Mr	James	Anasta		VIC	Australia	Member
Mr	Scott	Allen		WA	Australia	Member

**AIB would like to wish
all members and
stakeholders a very safe
and enjoyable festive
season.**

**The AIB office will be closed
from 5pm Wednesday
23 December 2014
To 9am Monday
11 January 2015.**

NEW AIB Merchandise

Membership of the Australian Institute of Building (AIB) provides recognition and distinction amongst professionals within the building and construction industry. To assist members demonstrate their support for the building profession through their AIB membership the Institute is pleased to make available a range of merchandise.

AIB Safety Hard Hat \$24.95*
One size fits all

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Sizes available – small, medium, large and extra large

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email administration@aib.org.au



Head office contact details

Robert Hunt CPA
CEO

ceo@aib.org.au

Unit 10, Building C,
Trevor Pearcey House, Traeger Court,
28-34 Thynne Street, Bruce ACT 2614
PO Box 705 Jamison ACT 2601

National Office Telephone +61 [0] 2 6253 1100

National Office Facsimile +61 [0] 2 6253 4411

Construct Magazine	policy@aib.org.au
Membership	membership@aib.org.au
Events & Marketing	marketing@aib.org.au
Accounts	accounts@aib.org.au
Policy & Advocacy	policy@aib.org.au
Education	education@aib.org.au
Merchandise & Book Sales	sales@aib.org.au
Professional Excellence Awards	awards@aib.org.au
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Chapter offices

New South Wales & ACT	nswbuild@aib.org.au
Queensland	qldbuild@aib.org.au
Victoria	vicbuild@aib.org.au
South Australia & NT	sabuild@aib.org.au
Tasmania	tasbuild@aib.org.au
Western Australia	wabuild@aib.org.au
Hong Kong SAR	hong.kong@aib.org.au

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No more 28 day render cure delays before painting

Fresh or “green” cement render and concrete is HIGHLY ALKALINE, traditionally requiring time to stabilise before painting, resulting in costly project delays and extended scaffolding costs.

In the real world, project schedules compress and painting sooner often results in coating failures or unsightly alkali staining (white salts or “efflorescence”).

AcraTex® GREEN RENDER SEALER eliminates the “28 Day” wait cycle - meaning project dollar savings and enhanced durability.



Eliminate unsightly efflorescence



Scaffolding costs reduced

Safe, Durable & Assured

- Water Based
- AcraTex® GREEN RENDER SEALER chemically reacts with free cement alkali to bind and block its migration
- Paint after only 2 days* render drying - instead of waiting 28 days
- Superior adhesion to masonry

Safe to paint over render In 2 days* - No more delays

Dulux Approved System for Cement Render

Cement render is highly alkaline and rigid due to the inherent nature of the cement binder. Coating systems for cement render must block alkali (salts) leaching and expand and contract to accommodate render shrinkage cracks. Low build (conventional) paint coatings are NOT recommended for cement render.

System Component	Dulux Recommended System	Feature Benefits
Primer Sealer	AcraTex Green Render Sealer Suitable for application over 2 day old cement render	- Blocks Cement Efflorescence - Reduces Project Delays - Optimises System Performance
Crack Bridging Topcoat	AcraTex AcraSkin Available across the full Dulux exterior colour range	High Build - Crack Bridging Protection Nap Roller - Paint Like Appearance Superior Application - Low Roller Spatter

Note: GRS is “Safe to paint after only 2 days” based on adequate drying of the substrate to a stable moisture content.

For further information about Dulux AcraTex Green Render Sealer please go to our website www.acratex.com.au

Fast track your project completion...

and reduce your scaffolding costs

SAFE TO PAINT
OVER RENDER IN
2 DAYS*
No more delays



AcraTex® Green Render Sealer™

The Anti-Efflorescence Primer-Sealer for fresh cement render eliminates project delays and unsightly efflorescence.



Fast Track - coat Render after only 2 days*



Lower Scaffolding Costs - drop scaffold faster



Restricts Efflorescence



Superior Adhesion



Water Based - low VOC

Dulux recommended system for cement render with AcraSkin crackbridging topcoat.

* Safe to paint over 2 days based on substrate adequately drying to a stable moisture content.



For further information go to: acratex.com.au
Dulux Customer Service: 13 23 77

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**No more 28 day
project delays**

**New
Green Render Sealer™**
- saves time
- improves finish



Dulux New Construction Services

Dulux provides builders and developers within the AIB with products and solutions that ensure every construction project has the highest degree of substrate protection and is constructed according to specification.

Our offer includes



Commercial solutions

Complete interior, exterior, woodcare, texture, powder and protective coating ranges



Quality Dulux paints and colour



Reliable site support and services



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Commitment to sustainability

VIC/TAS Manager Commercial Builders

Luigi Mercurio
P 0434 859 869
E luigi.mercurio@dulux.com.au

QLD Manager Commercial Builders

Tim Irish
P 0413 115 689
E tim.irish@dulux.com.au

NSW/ACT Manager Commercial Builders

Cameron Obrien
P 0401 135 015
E cameron.obrien1@dulux.com.au

National Manager

Tim Jamieson
P 0411 480 656
E tim.jamieson@dulux.com.au

Market leading quality and innovation in our products.

An experienced team dedicated to servicing commercial construction projects.