

MALTBYS

DEFINING COSTS · MANAGING RISK · DELIVERING RESULTS

THE FULL MEASURE

ISSUE: DEC 2016

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Current Project List

Wellington Office

Ganges Road Development
Ngaio School
Khandallah Normal School
Home Street Development
Wellington Zoo - Meet the Locals
Ministry of Education - Various Schools
Taranaki Schools Bundle - Various
Wellington City Council Children's Garden
Thorndon School
Queen Margaret College
Museum of New Zealand , Te Papa
Big Chill, Queenstown
Molesworth Street
Tory Street, Te Papa

Auckland Office

HNZC 200, Wordsworth Road Redevelopment
HNZC Koa/Tahapa Redevelopment
HNZC Walters Road Redevelopment
HNZC Maroa/Tuata Redevelopment
Whangarei Girls High School
Te Wharekura o Maniapoto
Northland College
Lava Hotel, Samoa
Kingsman Development
Upper Queen Street Apartments
Endeavour School Stage Two
Ministry of Education - DRP Schools

Countdown, Mt Eden
Rototuna High Schools
Diocesan Arts Centre
Western Springs College
HNZC Titirangi/Great North Road Redevelopment
Animates
CPD Batch 14 Schools
Takapuna Grammar School
Foodstuffs, Newton
Aotea Refurbishment
The Homestead, Bay of Islands
Mt Eden Corrections Car Park

Queenstown Office

Panorama Terrace
Mill Green, Millbrook
Copthorne Lakefront Hotel
Residence Du Lac
Peak View Heights
Beachlands Junction
Beach Street
St Mathews Place, Queenstown
Q1 Apartments
Remarkables Ski Field
Golden View Lifestyle Village

Christchurch Office

Christchurch Schools bundle
Southern Response - Various
Avonhead Primary School
Papanui Primary School
Shirley Primary School
Waltham Primary School
Leinster Road, Christchurch

Northland College Redevelopment, Kaikohe



An Artist's Rendition of Northland College
Source: MOAI Architects

The major redevelopment of Northland College in Kaikohe is a \$14m project and involves the demolition of the existing Hall, Library and Tuck shop buildings, together with the construction of a new Trades block, new pool changing rooms and a new main classroom block and multi-purpose space. The project was tendered on a Design and Build contract based on the completed Preliminary Design documents and set of Principal's Requirements. The contract was awarded to A-Line Construction of Whangarei. The work is now well underway, with the Trades Block completed and the main classroom block and multi-purpose space due for completion in June 2017.



On Site Pictures of Northland College as of 25/02/17
Source: Northland College



On Site Pictures of Northland College as of 25/02/17
Source: Northland College

Whangarei Girls High School, 10 classroom block

A new 10 classroom block is to be constructed at Whangarei Girls High School due to the current roll growth at the school. The new block will provide 1,040m² of space in a two storey building which will house art, photography, enterprise, commerce and literacy. The project was tendered on a Design and Build contract based on a preliminary design sketch and a set of Principal's Requirements. The contract was awarded to A-Line Construction of Whangarei in August 2016 and the project is currently in the developed design stage. Construction is due to start in March 2017 and be completed in December 2017.



An Artist's Rendition of the 10 classroom block
Source: McIldowie Upton Architects



An Artist's Rendition of the 10 classroom block
Source: Whangarei Girls High School

Housing New Zealand Corporation

Housing New Zealand are responding to the Auckland housing shortage and the shortage of Social Housing with a significant development programme over the coming years. Maltbys are assisting HNZN with a number of tender evaluations together with acting as Engineer to the Contract on a number of design build developments. The first of these are now underway in Auckland and include the following redevelopment projects. Typically these projects include removing existing State owned houses from a site and redeveloping the site to intensify the number of dwellings on the site (or combined sites), with each new property having an individual unit title.

3146-3148 Great North Rd & 3-5 Titirangi Road, New Lynn – 8 new dwellings

3 & 5 Koa Street & 68 Tahapa Crescent, Meadowbank – 9 new dwellings

1-7 Tuata Street & 13 Maroa Rd, One Tree Hill – 17 new dwellings

25-35 Walters Road, Mt Wellington – 13 new dwellings



Great North Road Site



Koa Street & Tahapa Crescent Site

Andrew Pryke discusses how a BIM application can help risk management at different stages of a project's lifecycle

A model answer

Whenever you undertake a project, there is always some element of risk, whether from cost overruns, project delays or buildings not performing as expected. While adopting building information modelling (BIM) cannot eradicate all risks, it enables us to de-risk many areas across the project

lifecycle. This provides greater certainty and ensures that key project milestones are met and assets delivered as expected.

The UK government's Level 2 BIM mandate sets out a standard process for the industry to follow. The PAS 1192 – 2 and 3 information management standards track the RIBA work stages from briefing through to design and construction and, most importantly, the operations stage. This ensures that teams focus on their ultimate goal from the outset, and that assets are designed to meet client needs. The use of standard documents such as employer's information requirements, the BIM execution plan and the BIM protocol makes certain that the right material – graphical, non-graphical and data – is produced at the right time, and that everyone is working towards the same deadlines and goals.

The BIM execution plan is developed at the outset during the digital project execution workshop and it defines, for example, the roles and responsibilities for each team member as well as the way in which the model will be constructed. A BIM protocol is also established, which is an agreement between all parties to exchange models and information, ensuring that a transparent data-sharing environment is created. To be certain that each team member can fulfil these requirements, a gap analysis and supply chain capability assessment should be performed to identify any risks that would prevent effective collaboration or the achievement of PAS 1192, which covers areas such as skills and capability, organisational readiness and technology. Any issues should be addressed via workshops, ongoing training and support.

The design phase

Computer animation and 3D model fly-throughs help clients to experience their building before it is built, enabling them to understand

the effect their choices will have on its performance and the user's experience.

This enables better and earlier decision-making and greater collaboration between the client, design team and other stakeholders. It helps reduce the risk of buildings failing to meet employees' or customers' needs. These tools can be used to market properties at an earlier stage, helping clients to meet occupancy and sales targets.

By employing the same language, such as the common classification for objects in rooms, quantity surveyors can automatically take area information from the model in a format that is user-friendly, increasing the speed of calculating a design cost for a project.

At Aylesbury Vale Academy, for example, BIM enabled bills of quantities to be created 80% faster, while also improving cost certainty by 30%. The same classification allows facilities management service providers to assign operational data and costs during the design and construction phases, so they can develop a cost to operate and a service charge more accurately and earlier than before. At the Connect110NS development in Glasgow, we achieved this six months before completion, thereby de-risking operational costs for the client and tenants.

Pre-construction efficiencies, cost savings and waste reduction can all be achieved by using BIM, thereby reducing the risk of cost or time overruns. Logistics planning prevents site delays, while clash detection allows us to 'build the building' twice, saving time and money by reducing the amount of rework on site. At Leeds Arena, our ability to use the model to take off quantities to order materials reduced wastage by 8%, compared to the Leeds Beckett University Rose Bowl, a project completed two years earlier without the use of BIM.

The construction phase

Targeted software and mobile technology offers a way to manage risk during the construction phase by providing an accurate audit trail, up-to-date information, progress reports and

interim certificate analysis. It uses iPads and cloud connectivity to let individuals record information on site for access whenever they need it later. It means that everyone uses the same assessment tool, process and documentation, and so all users have information that is timely and relevant.

Changes can also be managed



“

At Aylesbury Vale Academy, BIM enabled bills of quantities to be created 80% faster

effectively using the model and the 3D intelligent objects it contains. When a decision is made to change an item such as a chair, the model automatically shows the other items this decision will affect and calculates the associated costs.

The operational phase

With 80% of a building's costs related to operations, risk does not disappear once construction is completed. The government's Soft Landings initiative, part of its Level 2 mandate, requires an annual post-occupancy evaluation for at least three years, to ensure buildings perform as anticipated and to allow lessons learned to be incorporated into future projects.

Information has to be collected during the design and construction phases to enable comparisons between actual performance and what has been predicted. This process is supported by the data-rich BIM model and PAS 1192, which allows the correct data to be identified and recorded from the outset and used during operations. This data can be continually enhanced by linking the model to a computer-aided facility management system, which ensures that the model is updated in real time and allows facilities managers to unlock efficiencies.

At Wharfedale Hospital in Leeds, we have seen savings of 45% on unplanned maintenance activities and 20% on planned preventative maintenance tasks. In addition, response rates to problems have improved by 54% and productivity has increased by 50% during planned preventative maintenance tasks.

Estate management

The creation of an estate-wide model allows monitoring and performance benchmarking across all assets. The model's data can be supplemented by technology such as sensors and smart applications, which enhance the building information with additional sets containing environmental, social and business data.

These extra layers enable estate managers to take a more holistic view in decision-making and allow them to reduce risk and realise new opportunities, including managing spaces more effectively and planning estate-wide maintenance activities.

The digital world is moving at speed, resulting in a smarter environment, smarter business systems and hence smarter people. Failure to adopt will ultimately mean a failed business. ●

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Related competencies include
Data management, Risk management

From surveyors, for surveyors

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BCIS®

Cosmas Kamasho and **Marianne Chowdhury** urge construction firms to supply their data so BCIS can help the industry provide better service

Project cost data has always been at the heart of the RICS Building Cost Information Service (BCIS) since its inception in 1961, and continues to be the backbone of the economic advice it provides to the industry. By analysing a large enough sample of project data, BCIS gains an insight into the level of economic activity in construction and can help determine related economic indicators, which can in turn inform future project pricing levels.

Bills of quantities provide a wealth of information from which BCIS can generate benchmarking cost data and the All-In Tender Price Index (TPI), widely recognised as one of the best measures of contractors' pricing trends in accepted tenders.

But progressive changes in procurement have meant less and less detailed project information is submitted for analyses, so BCIS finds it increasingly hard to obtain detailed cost data while sample sizes are declining.

The integrity of the service depends on a steady flow of project data, which helps BCIS to help surveyors provide high-quality construction consultancy services. This is why BCIS would like to hear from you if you would like to submit data.

The service wants to make it easy to contribute, and it can also collect data from you if you would prefer. David Mulford, Construction Procurement Manager, Commercial and Operations at the London Borough of

Haringey, advises that the council has even made it mandatory for contractors to submit their project data to support BCIS. ●

Cosmas Kamasho is Head of
Data Management, BCIS

Marianne Chowdhury is Head of
Data Collection, BCIS

+info

If you would like to talk about
submitting data, please contact
Marianne on 020 7695 1532 or
email mchowdhury@bcis.co.uk

Common ground

Alan Muse discusses progress on the International Construction Measurement Standards



Businesses operating internationally increasingly demand global rules. We have seen this in accountancy with the International Financial Reporting Standards, and the same approach is now being extended to professionals in land, property and construction.

In a previous *Construction Journal* article, I introduced the International Construction Measurement Standards (ICMS) initiative ("Measuring up", September/October 2015, pp. 6–7). So how has this developed? How will it affect cost management professionals and others interested in the economics of construction, both in the UK and globally?

After the formation of the ICMS Coalition at the International Monetary Fund in Washington DC in June 2015, an ICMS Standards Setting Committee

(SSC) was elected, comprising 27 experts from around the world. Since then, the coalition has grown to 42 professional bodies, representing cost management professionals in building and infrastructure in key global markets.

Meanwhile, the SSC has been busy developing the standards. After an initial review of practice in different parts of the world it established a project brief, which was then agreed with the coalition. The aims and objectives of ICMS are:

- to agree what is included and excluded from construction costs at both a project level and a national reporting level
- to create a framework for a standard system of costing for building and civil engineering projects, which will allow cost comparisons to be made on a like-for-like basis between countries
- to let governments and international bodies compare construction costs for building and civil engineering projects so:
 - construction costs can be consistently

- and transparently benchmarked
- the causes of costs differences between projects can be identified
- properly informed decisions on the design and location of construction projects can be made
- data can be used with confidence for construction project financing and investment, programme and project decision-making and related purposes.

To meet this brief, the SSC divided itself into four groups, the first three covering buildings, infrastructure and drafting, with a steering group providing oversight. This allowed a closer focus on specific problems together with regular, integrated reviews.

Meetings were held by teleconference and augmented by a pair of two-day workshop sessions. The first of these was hosted in March by the European Commission in Brussels, which has been very supportive of ICMS, with the second at the RICS offices in London in June.

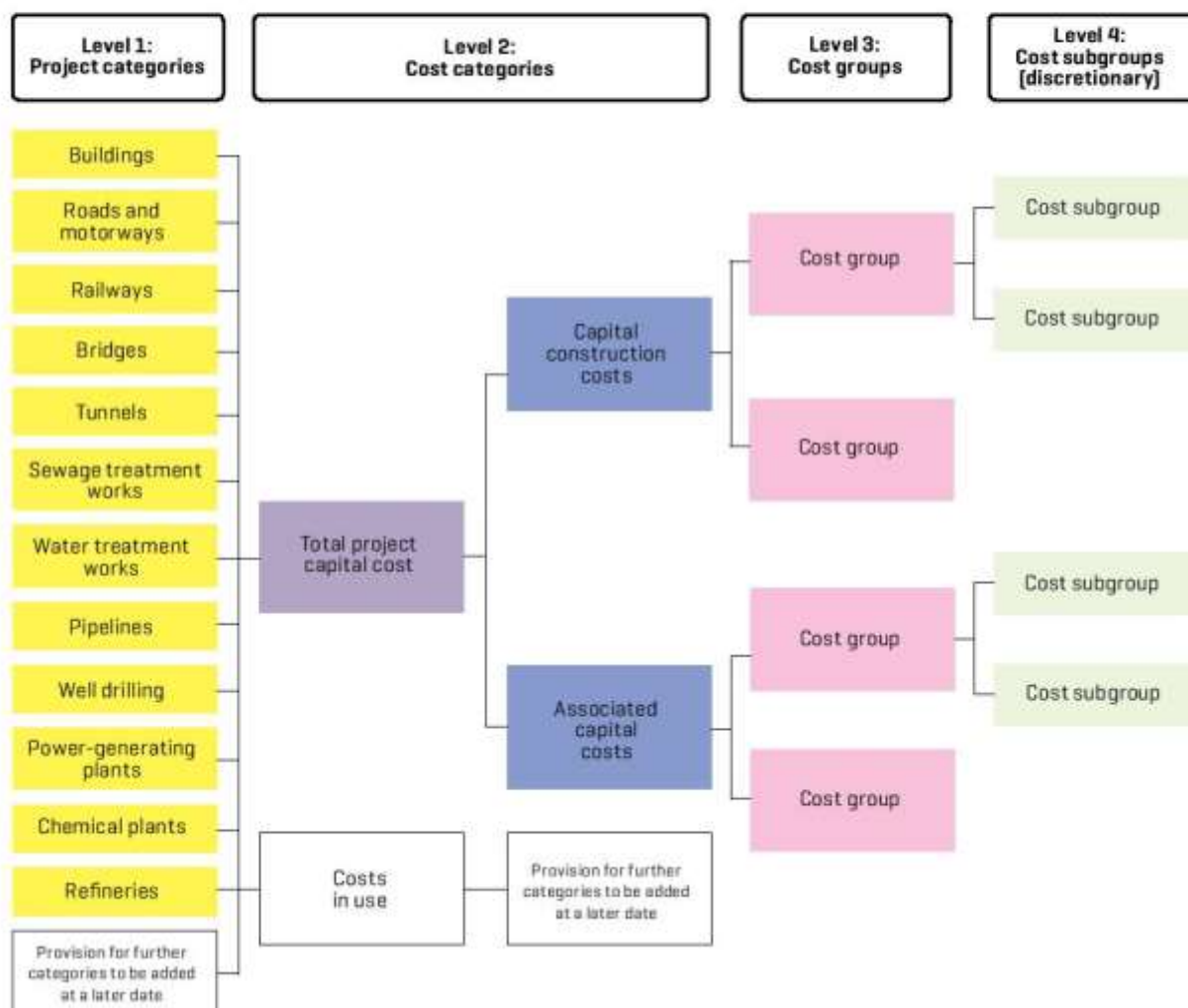
A preliminary draft for private consultation with selected external stakeholders was completed in August, and responses were expected as this article went to press. After these have been considered and incorporated, the ICMS Coalition trustees and the SSC are planning to meet in London in early November to launch the formal public consultation; publication is expected in May 2017. After publication, each coalition member will need to assess the changes required to their existing guidance to ensure compliance with ICMS.

Key features of ICMS are a high-level cost presentation and reporting classification system, aligned with the UN's Standard Industrial Codes, with standard project values and attributes across buildings and principal infrastructure sectors (see [Figure 1](#)). They are designed to be used both with the International Property Measurement Standards (www.ipmsc.org), in terms of reporting cost per square metre or square foot of building area, and with building information modelling, in terms of a standard classification, values and attributes. At the moment, the ICMS only deal with capital costs across defined project categories: there are plans to add lifecycle cost classification and further civil engineering sectors at a later date.

As the UK works through the implications of Brexit, international standards may assume greater significance. These will provide common terminologies and systems for the

Figure 1

Draft ICMS framework



development of trade agreements, particularly in professional services.

In any case, foreign direct investment in property and infrastructure is an important component of the UK economy, and harmonised ways of presenting and reporting space (IPMS) and cost (ICMS) enable such investors to make better decisions. ICMS also help with the globalisation of the quantity surveying, cost management and cost engineering professions. These have similar core skills, but there has been no universal taxonomy or body of knowledge. ICMS bring that a step closer.

UK practice will need to adapt to this new environment. Therefore, after the publication of ICMS, RICS will review its current UK guidance material, such as

the New Rules of Measurement (NRM) and the Black Book, so that this accords with ICMS. It may also be necessary to write a new global professional statement that, within the framework of ICMS, summarises the principles included in the NRM and Black Book. This could then be used to regulate RICS cost management professionals on a global basis.

This also presents huge opportunities for the global cost management profession. In both mature markets, where cross-border consistency in making investment decisions is increasingly critical, and in emerging and developing economies, where establishing transparent cost systems is necessary for investment, ICMS allow global rules for the first time. ●



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www.icms-coalition.org



Related competencies include
Quantification and costing of
construction work

In the second of a series of articles providing guidance to APC candidates, **Ian Frankton** looks at the Design economics and cost planning competency

Reaching the next level



One important task for a quantity surveyor is to establish a project budget. It is crucial that this is calculated with considerable care, as the more accurate the budget, the more successful the project will be. Design economics and cost planning is therefore one of the primary competencies of the Quantity surveying and construction pathway, and one in

which you must demonstrate that you have achieved Level 3.

This means that your written submissions and questioning at final interview must demonstrate your ability to give reasoned advice, along with a depth of knowledge specific to your experience and the requirements of the competency itself.

Seminars, a degree and structured reading should provide you with the basic knowledge for Level 1. Work activities should then give you sufficient experience to demonstrate Level 2 and, critically, show you have provided advice to meet Level 3.

I often see candidates who remain at Level 2 because they cannot highlight at Level 3 what specific advice they have given and why. When candidates prepare written submissions, particularly their experience records, many just state what they know about Design economics and cost planning. However, the purpose of your written submissions is to sell yourself to the assessment panel, by telling them what you have done or achieved (Level 2) and then what advice you gave and why (Level 3). The following is an example of what you might write.

"I produced a detailed cost plan in accordance with the NRM 1 for a proposed primary school in Warwickshire (Level 2), which was 5% above the client's maximum expenditure. I advised that I should consider the design in detail by reviewing various building ratios – such as floor-to-wall ratios – and storey heights, to see whether these were higher than expected compared to a 'normal' school design model.

"I therefore looked at the proposed specification and advised that a full-value engineering exercise should be undertaken to identify elements of the design/specification where costs could be reduced without affecting the building's functionality. I then reported these to the client and design team and advised them of the items that could be reviewed to allow the client to progress the project within their budget constraints (Level 3)."

This approach must also be remembered at your interview. Assessors will signal as much as possible the competency and level of answer they are seeking, so listen carefully. They will be specific in their questioning and will use questions such as "How would you perform a value engineering exercise?" The key phrase is "How would you perform...?", which indicates they are looking for a Level 2 response, detailing how you

would prepare this report. However, if your assessor says "Tell me about a situation when you gave a client advice on reducing project costs," this indicates they want you to confirm what advice you gave on value engineering and details of when, what and why you gave that advice; that is, a Level 3 response.

You must have a good understanding of all aspects of design economics and cost planning and the assessors will use your written submissions to identify your experience. However, you should be aware how this relates to more general issues surrounding design economics and cost planning, and what effects these may have when formulating your opinions and giving advice to your clients. You should be prepared for questions in the following areas.

- What is the difference between a cost estimate and a cost plan? How does NRM 1 influence how these are prepared?
- What effect do site density, storey heights and so on have on construction costs?
- What sources of cost data do you use and why?
- How do you advise on site abnormalities?
- How do you benchmark data?
- How do you update data and ensure it remains correct?
- How do you advise handling inflation in your cost estimates?
- What advice would you give when revising specifications, consider capital costs, lifecycle costs and so on?
- What value management and value engineering techniques do you use?
- How do you manage risk on a project?
- What is the general state of the economy? What are local and global market forces? What effect will changes in interest rates have on your cost advice?

This list is not exhaustive, but it does give a flavour of the types of question you should expect during your interview. ●

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Info

The Black Book can be found at www.rics.org/blackbook
RICS training courses can be found at www.rics.org/training



Related competencies include
Design economics and cost planning

Professional guidance and standards for QS and PM

RICS international standards

Title	Date published
ICMS (International Construction Measurement Standards)	Expected 2017
IES (International Ethics Standards)	Expected 2017
International Property Measurement Standards: Industrial Buildings	Expected 2017
International Property Measurement Standards: Office Buildings	Nov. 2014
International Property Measurement Standards: Residential Buildings	Sep. 2016

QS and PM guidance notes

Title	Date published
<i>BIM for building surveyors</i> , 1st edition	Aug. 2016
<i>Driving commercial performance on major projects and programmes</i> (information paper), 1st edition	Aug. 2016
<i>Lessons learned</i> , 1st edition	Apr. 2016
<i>The informed infrastructure client</i> , 1st edition	Sep. 2015
<i>BIM for cost managers: requirements from the BIM model</i> , 1st edition	Aug. 2015
<i>International BIM implementation guide</i> , 1st edition	Sep. 2014
<i>Stakeholder engagement</i> , 1st edition	Sep. 2014
<i>NRM 3: Order of cost estimating and cost planning for building maintenance work</i>	Mar. 2014
<i>Managing communications</i> , 1st edition	Jul. 2013
<i>Appointing a project manager</i> , 1st edition	Apr. 2013
<i>NRM 2: Detailed measurement for building works</i>	Apr. 2012
<i>NRM 1: Order of cost estimating and cost planning for capital building works</i>	Apr. 2012
<i>Managing the design delivery</i> , 1st edition	Mar. 2012
<i>Reinstatement cost assessments of buildings</i> , 2nd edition	Apr. 2011
<i>Development management</i> , 1st edition	Aug. 2009
<i>Employer's agent services</i> (Scotland)	May 2008
<i>Employer's agent services</i>	May 2008
<i>Project manager services</i> (Scotland)	May 2008
<i>Project Manager Services</i>	May 2008
<i>Project monitor services</i> (Scotland)	May 2008
<i>Project monitor services</i>	May 2008
<i>CDM co-ordinator services</i> (Scotland)	May 2008
<i>CDM co-ordinator services</i>	May 2008
<i>Project Monitoring</i> , 1st edition	Mar. 2007

The Black Book

The Black Book is a suite of guidance notes that define good technical standards for quantity surveying and construction professionals.

Title	Date published
Change procedure	Expected 2017
Value engineering	Expected 2017
Employer's agent design and build	Expected 2017
<i>Fluctuations</i> , 1st edition	Aug. 2016
<i>Life cycle costing</i> , 1st edition	Apr. 2016
<i>Commercial management of construction</i> , 1st edition	Mar. 2016
<i>Final account procedures</i> , 1st edition	Dec. 2015
<i>Ascertaining loss and expense</i> , 1st edition	Sep. 2015
<i>Interim valuations and payment</i> , 1st edition	Aug. 2015
<i>Management of risk</i> , 1st edition	Jun. 2015
<i>Lender's independent monitoring surveyor</i> , 1st edition	Mar. 2015
<i>Cost reporting</i> , 1st edition	Mar. 2015
<i>Extensions of time</i> , 1st edition	Nov. 2014
<i>Appropriate contract selection</i> , 1st edition	Nov. 2014
<i>Tendering strategies</i> , 1st edition	Jul. 2014
<i>Defects and rectifications</i> , 1st edition	Dec. 2013
<i>Capital allowances and land remediation relief</i> , 1st edition	Aug. 2013
<i>Cost analysis and benchmarking</i> , 1st edition	Jul. 2013
<i>Termination of contract, corporate recovery and insolvency</i> , 1st edition	Jun. 2013
<i>Construction security and performance documents</i> , 1st edition	May 2013
<i>Developing a construction procurement strategy and selecting an appropriate route</i> , 1st edition	May 2013
<i>Construction sectors and roles for chartered quantity surveyors</i> (information paper), 1st edition	Apr. 2013
<i>Cash flow forecasting</i> , 1st edition	Dec. 2012
<i>Conflict avoidance and dispute resolution in construction</i> , 1st edition	Apr. 2012
<i>Retention</i> , 1st edition	Apr. 2012
<i>Damages for delay to completion</i> , 1st edition	Sep. 2011
<i>Defining completion on construction works</i> , 1st edition	Jul. 2011
<i>Acceleration</i> , 1st edition	Jun. 2011
<i>e-tendering</i> , 2nd edition	Dec. 2010
<i>Valuing change</i> , 1st edition	May 2010
<i>Construction insurance</i> , 1st edition	Jul. 2009

RICS professional guidance and standards are constantly under review so for the most current list please visit www.rics.org/professional-guidance

SOCIAL EVENTS

- | | |
|----|---------------------------------|
| 11 | November 2016 |
| 12 | Christmas Dinner 2016 |
| 13 | Wellington Christmas Party 2016 |
| 14 | Auckland Team Building Day 2016 |
| 15 | Children's Christmas BBQ 2016 |



Maltbys Auckland office is proud to have participated in Movember to raise money for men's health.

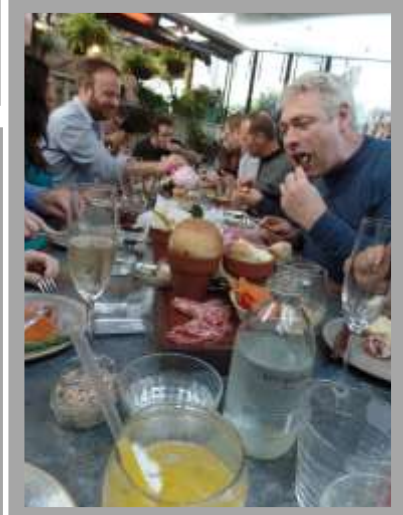
The Movember Foundation is dedicated to improving the health of men all over the world in both physical and mental aspects. They try to find out what works best to help make change happen sooner, so that the number of men dying prematurely can be reduced significantly.



From left: Alex Boyle, Phil Molineux, Jason McCamish, Dean Pooley, Tom Schimanski

Auckland Christmas Dinner 2016

This year the Auckland office celebrated Christmas by having dinner at The Garden Shed in Mt Eden. Everyone had a great time popping Christmas crackers and feasting on their delicious meals.



Wellington Christmas Party 2016

In mid-December, Wellington office work do was held at the Amora Hotel for The Improvisors Christmas Party Night, for a fun and interactive evening, including a five course buffet meal.

Upon arrival, we were greeted with a welcome drink. It seemed a long wait for the evening to get started and for other groups to arrive, however, the atmosphere livened up once others were there and when the entertainment progressed.

Throughout the evening The Improvisors entertained us with an interactive quiz, putting table against table in a series of physical, intellectual and creative challenges. This entailed a range of challenges from writing answers on paper to racing around the room collecting items and dressing up!

The night was made more entertaining by networking with other people and having a laugh at the hagglers, generally being able to relax.



Richard on the left - won best "Christmas Tree"



David and Bernard - An "intellectual" challenge



Geoff and Matt (left) - waiting for the "physical" challenge

Auckland Team Building Day 2016

This year the Auckland Office went out to South Head to participate in clay bird shooting and quad biking. Phil McCamish shot the most clay birds, followed by Alex Boyle. Everyone had a great time quad biking as well, as it was a beautiful sunny day over the paddocks, and the track was great!



Children's Christmas BBQ 2016

Once again, a BBQ was set up in Mission Bay for the children of the Auckland Office. The weather was sunny and the children had a lot of fun playing soccer under the warm sun. They had a great time participating in the lolly scramble, as well as going for a swim!

