

Highlights of 2015

2015 was a year of progress, with five buildingSMART standards published, while our user and chapter services were strengthened along with our membership. Our current certification activities also continued. In this summary, the officers of buildingSMART International, room leaders and colleagues responsible for major programme and group work select their own highlights.



Welcome

Richard Petrie, chief executive

Welcome to this 'Highlights of 2015' document, in which the leaders of our various rooms and activities present and celebrate their achievements.

My separate Chief Executive's report summarises issues of strategy, leadership, membership and operational progress. It also addresses priorities for 2016, notably software certification to IFC4, improving our understanding of user needs and increasing our membership. In my report, I flag up issues of resourcing, strengthening our reputation in the marketplace and the difficulties that lie ahead.

But with 'Highlights of 2015', we are taking time to look back at our last reporting year. In our work to develop standards and solutions to assist digitisation, we have access to outstanding technical expertise and industry experience. I would like to congratulate my buildingSMART colleagues on their successes during 2015.



Novo Nordisk's HQ in Bagsværd, north Copenhagen (Henning Larsen Architects)

Standards programme

*Richard Kelly,
operations director*

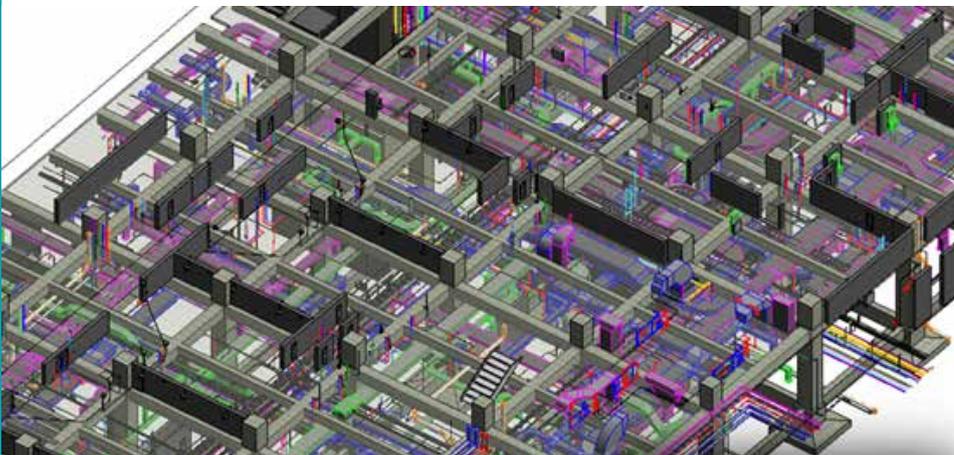
- Alignment 1.0 published – our first IFC standard for infrastructure
- Model coordination view released in two parts: reference view and design transfer view
- The BIM Collaboration Format's XML version and application programming interface (API) also published
- Mvd XML upgraded.

“The publication of five standards during 2015 reflects the hard work of our technical people and our stakeholders. The publication of the reference and design transfer views, which replaced the coordination view in IFC2x3, opens the way to the implementation of IFC4 by software vendors.

Publication of Alignment 1.0 was particularly pleasing, as it passed through the Standards Process quickly, showing what can be achieved through a combination of technical expertise, funding from committed organisations and a strong will to deliver with the correct balance of pace and rigour.

Our Standards Process, introduced in 2014, continued to be embedded and improved to enable the greater professionalism of the company. We have 26 activities (figure as at May 2016) in the initiation phase for development as buildingSMART standards.

The Infrastructure Room has been particularly successful at attracting client funding for new activities. The Swedish, Dutch and Finnish transport agencies are together funding a suite of new infrastructure standards, and we are grateful to Trafikverket, Rijkswaterstaat and Liikennevirasto for their support.”



Model used by Acciona Infraestructuras of Spain for a new hospital development owned by the Mexican Social Security Institute (IMMS). They used detailed discipline and coordination models to improve the management and control of the design and construction processes

Compliance programme and certification

Rasso Steinmann, software certification lead, and Mark Baldwin, individual certification lead

- 11 software certifications to IFC2x3 during 2015
- Groundwork done for certification to IFC4
- Programme proposal for people certification formulated
- Learning outcome framework for basic training developed

Software certification, Rasso Steinmann

“We completed 11 certifications, based on the IFC2x3 coordination view 2.0 for export and import, while three more were registered and expected to be completed in early 2016. The applications came from the US, Germany and China.

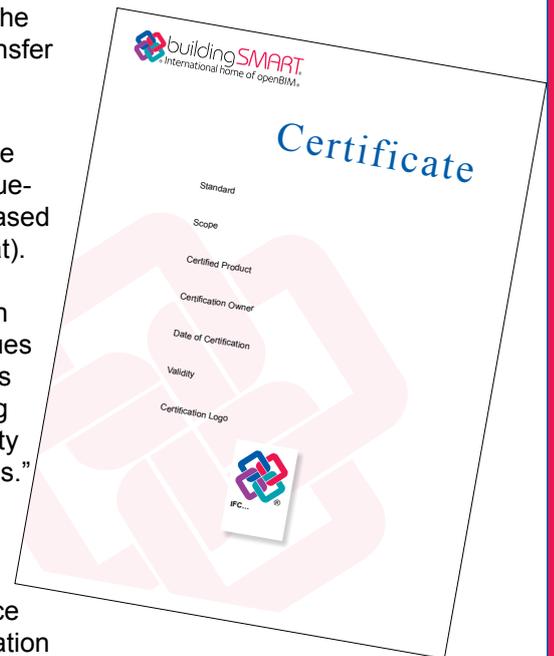
The certification team started to prepare for future software certification to IFC4. This includes an update of the test cases, taking on board the lessons learnt from the IFC2x3 certifications. We are also developing a new tool to improve automated export checking and a new cloud-based certification platform, benefiting from the experience gained with the existing GTDS platform. Our goal is to be ready to start IFC4-based

certification with the two MVDs – the reference view and the design transfer view – by summer 2016.

The new IFC4 certification will use our mvdXML standard, and the cloud-based platform will offer issue-handling through a web-service based on BCF (BIM Collaboration Format). This means that leading vendors who are supporting this format can automatically synchronise the issues tackled during the auditing process with their applications – supporting a seamless workflow to their quality assurance and development teams.”

People certification, Mark Baldwin

“My role in the people compliance programme – or individual certification – began only in 2016; however, we are building on the excellent work done in 2015 by the People Compliance working group. The group was charged with the much-needed task of developing an international certification programme for individual BIM competency. The group has harnessed a programme developed by bS Norway, with the emphasis on knowledge-based learning, delivered in the form of short courses (typically lasting 1–3 days). At buildingSMART we will not be delivering any training ourselves but will develop a framework which training organisations can use to create their own course content. The first learning framework for basic training has already been developed. And we are hoping to have the first basic-certified individuals advancing through the programme in Q4 2016.”



User Group

Kjell Ivar Bakkmoen, User Group lead

- User Group reinstated to meet real user needs – learning about new use cases and issues arising
- Explosion in the use of BIM and small software companies confirms the crucial role of User Group

“BuildingSMART is not just about developing standards and software – it’s about what the users actually need. So it has been a pleasure, if that’s not a contradiction, to see new players in the industry starting to report gaps and flaws in the IFC schema. This helps us to know that the IFC standard is being implemented on a broad scale and that the capacity of buildingSMART to respond to market needs has been recognised.

The finalisation of the model view definitions – the design transfer view and reference view – make it possible for IFC4 software products to be certified, and we are now seeing the first IFC4 implementations. At the User Group, we will continue to identify user needs at the front line and provide feedback.”



Chapter Development and Services

Chris Groome, secretary and business manager

- First-ever chapter workshop held in Paris in June 2015
- Our chapter survey identified chapter needs at grass-roots level
- Chapter Services differentiated from the User programme
- Regular online meetings between bSI and chapter leaders set up

“The launch of Chapter Services marked real progress in strengthening the partnership between International at the centre and the chapters themselves. The online meetings have proved hugely useful, as was our face-to-face chapter workshop in June where the views of chapter representatives were candid and incisive. We followed up by developing a chapter alignment agreement.

Launching new chapters is a meticulous and often complex process, and I was pleased to assist several prospective chapters during the year. A new Swiss chapter, with great promise, was near to launch at year end, while Korea and Japan upgraded from developing chapters to full chapters during the year. A number of chapters are involved in excellent development efforts in their own countries, and I congratulate them on their pioneering work.”



The Monte Rosa Hut, a sustainable and largely self-sufficient lodging in the Swiss Alps, was built using BIM software; the case study is reported on the BIM HUB and the Vectorworks website Credit: TBH Editor



Building Room

Jan Karlishøj, room leader

- IDM Configurator project initiated
- Content added to the reference and design transfer views, and to the FM handover model view
- Improved functionality for the BIM guidelines website with new interactive map
- Working group set up to explore potential of the BIM Collaboration Format (BCF)

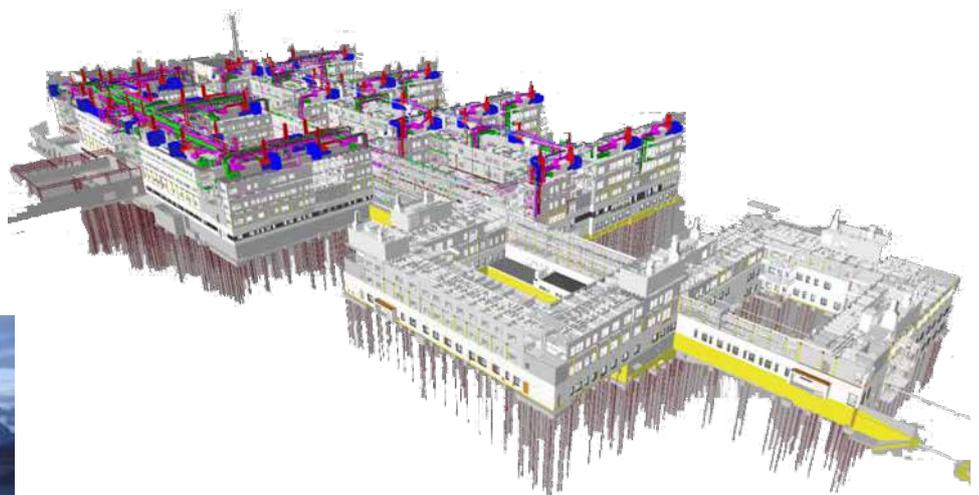
“The IDM Configurator project was launched to make it easier to design process flows and information exchanges, reusing existing information delivery manuals (IDMs) or creating new ones. It is the aim of the Building Room to develop a configurator based on existing methodologies, with delivery manual documents specified in a standardised XML format. A global server is planned to host all published IDMs and MVDs. This will be an open resource for project use, for example,

for the creation of digital execution plans and for quality control activities.

The Building Room recognises the BCF format as a powerful method not just to exchange issues but also to communicate ad hoc information or group together building elements. We have set up a working group to identify use cases.

We have also worked with the User Group to add content to the model views, ie properties on all building and building services elements, identifying with users what the industry most needs.

Our BIM guidelines website has become popular – both inside and outside buildingSMART – among people seeking a global overview of existing BIM guidelines.”



Above: Model of the New Østfold Hospital. The hospital was the overall winner of the last bSI Business Gain through Open Technology awards

Infrastructure Room

*Henk Schaap,
project coordinator*

- Alignment 1.0 published – the first IFC standard for infrastructure
- Work begun on alignment extension project
- Plans to harmonise road and rail put in motion with the drafting of a requirements definition
- Pilots to deploy the alignment standard proposed
- Early steps taken for standards for infra asset management
- Project on overall architecture for infra standards prepared

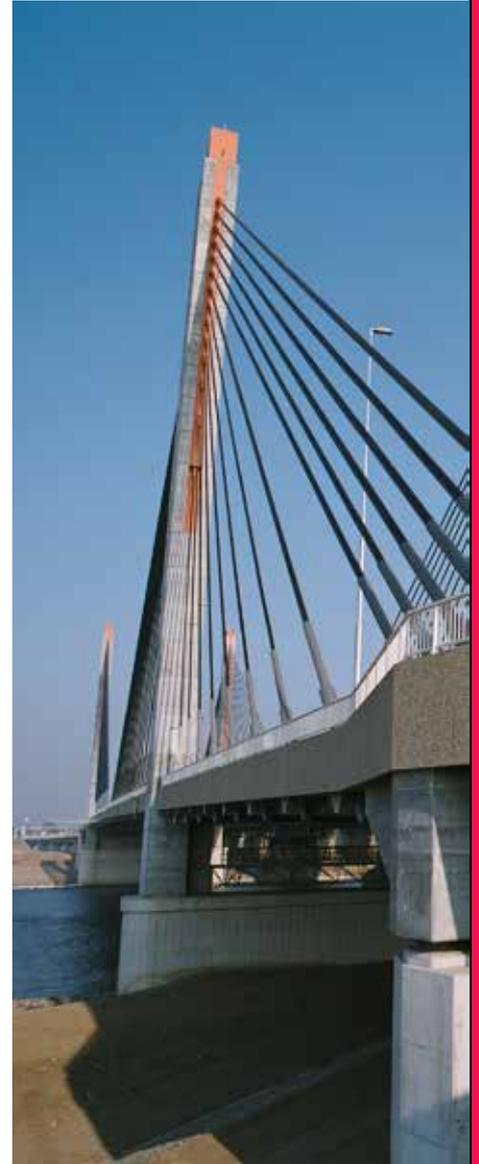
“An important step in 2015 was the publication in April of Alignment 1.0, an IFC extension to establish the route of a road or railway track. That was followed by a new funding agreement with Rijkswaterstaat (Netherlands), Travikverket (Sweden) and the Finnish Transport Agency (Finland), allowing further projects to be executed. Preparations were begun for Alignment 1.1, which will cover offset alignment, linear referencing and track-specific spirals. Plans were initiated to set up pilots around the world to test out the alignment

standard, with eight countries announcing their interest.

Also in 2015 we saw major developments in IFC for road and rail by KICT in Korea (roads) and the China Railway BIM Alliance (rail). This work will be published as a Publicly Available Specification (PAS) – a fast-track approach to releasing a specification – while a full international IFC road and rail standard is developed, starting with a requirements definition phase.

There was early discussion of a standard for asset management, while a project summary for the IFC Bridge initiative was discussed, with further scoping and a funding breakdown planned in order to take forward this vital work in 2016. Finally, we set up a working group on overall architecture to cover the common areas of different infrastructure. We shall have plenty of work on our plates in the coming year.”

Right: Martinus Nijhoff Bridge over the River Waal near Zaltbommel in the Netherlands – a cable-stayed concrete bridge carrying the A2 highway; below: Artist's impression of a fly-over rail viaduct for the A4 highway near Amsterdam



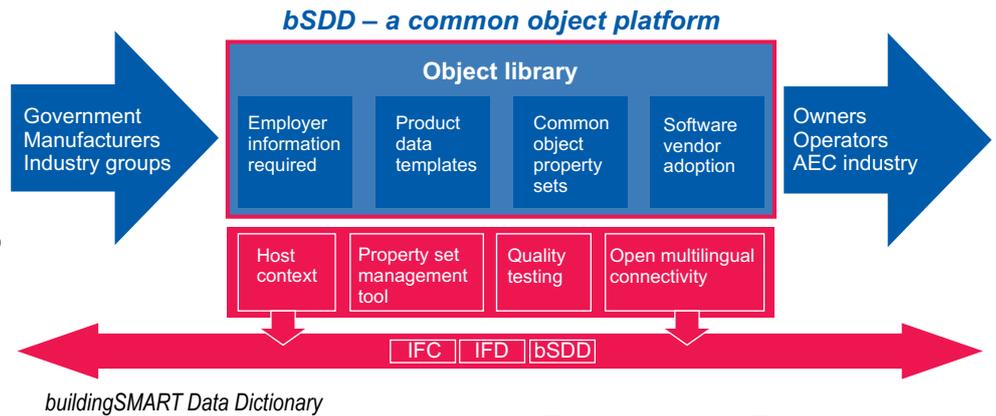
Product Room

Roger Grant, room leader

- Opportunities to position Data Dictionary as a game-changing tool being developed
- New object mapping tool to help content owners map their data directly to IFC using the bSDD browser
- Work done with commercial partners to bring all IFC4 entities, enumerated types and property sets into the bSDD
- First steps taken to set up working group on product data templates
- Groundwork done to establish working group on classification

“In our work in the Product Room, it is essential that we collaborate with other rooms to ensure consistency and the reuse of terminology and integration of the buildingSMART Data Dictionary (bSDD) with the other buildingSMART open standards. There is also coordination with software vendors, national object libraries and independent projects, such as those in Australia, Austria and Norway which are developing common object libraries and have developed special-purpose applications for loading their own content into the bSDD.

In 2015 we provided delegates to the new Linked Data Working Group, formed by the Technical Room to explore the relationship between bSI standards and linked data. We took steps to set up a working group on product data templates which – once developed as a standard – will help product manufacturers generate product templates using IFC and the Data Dictionary. Another working group on classification in models will develop a bSI standard for connecting IFC-based models and classification systems.



buildingSMART Data Dictionary

The new object mapping feature in the bSDD browser tool should prove useful for mapping purposes, while our work on bringing IFC4 entities into the bSDD (with help from member CoBuilder and from software vendor Catenda) was substantially completed, with the final stages continuing into 2016. Having the complete IFC model objects and properties available in the bSDD will facilitate the integration of non-model data with IFC-based model data in countries (and languages) around the world.”

Regulatory Room

Inhan Kim and Øivind Rooth, room leaders

- Standard for electronic submission (eSubmission) of planning applications identified as a priority for the Regulatory Room
- Automated code checking accepted as second area of work

“The time taken by regulatory authorities to issue planning permissions is highly disruptive to the industry. So too is the time taken to check that projects comply with building codes. The authorities in many countries are seeking systems that will help reduce this time. The Korean government, for example, is looking to cut the time it takes to issue planning permits by 50%. In 2015, the Regulatory Room drafted an MOU to encourage governments to commit to putting in place a BIM-based eSubmission process, and in the coming year we will use the draft to get governments on board.

Our second area of work is automated code checking. Our plan is develop a buildingSMART standard for both this and eSubmissions, and in 2016 we will be exploring what countries are already doing to create the basis for our standards. In turn, regulatory standards from us will guide software vendors, assist national authorities and deliver efficiency gains in countries that sign up.

Design

Submit for planning approval

Submit for building regulation approval

50% time saving

Technical Room

Leif Granholm, room leader

- Linked Data Working Group set up
- IfcOWL ontology progressed
- Links with Data Dictionary (bSDD) strengthened
- Plans to amalgamate three data delivery initiatives: the Multimodel Container (Germany), Coins (Netherlands) and DRUM (Finland)

“After the Singapore summit in 2015, the Linked Data Working Group was formally recognised. Linking different types of data, such as business, design or sustainability data, is vital to the future of building projects, and making IFC available in the OWL format – used in the semantic web – is an essential step. Singapore was a milestone in bringing ifcOWL, developed in an academic environment, into buildingSMART. Our aim is to have the work recognised as a buildingSMART standard during 2016.

Another big milestone coming up for buildingSMART is the specification of mvdXML, a machine-readable format to publish purpose-specific data exchange specifications based on the IFC standard. MVDs are a crucial component in making commercial contracts with IFC datasets as attachments instead of documents. Only when our MVDs are implemented will it be truly possible to say that BIM data is at the heart of building projects.

The Technical Room also works collaboratively with the other rooms and we are working with bSDD in the Product Room to achieve interoperability with other parts of IFC.”

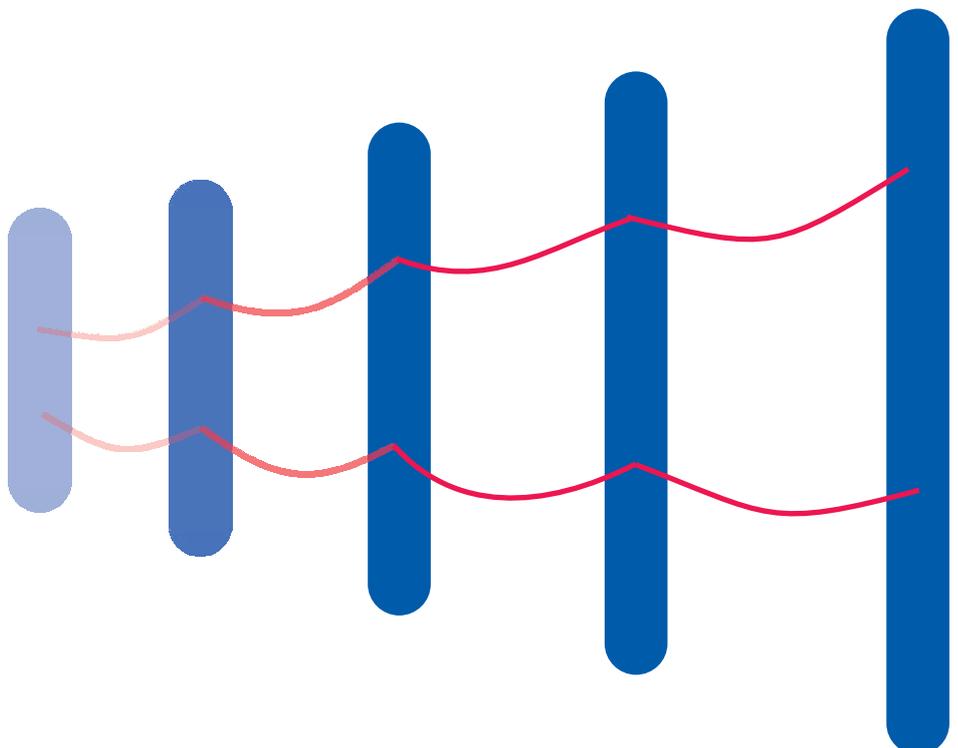
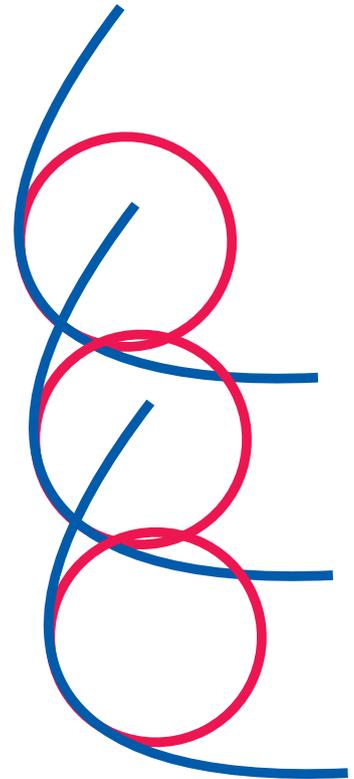
Model Support Group

Thomas Liebich, group lead

- Feedback from software community taken on board before finalisation and publication of IFC4 model view definitions
- Technical input into Alignment 1.0
- MvdXML published

“The Model Support Group is a small but active group, benefiting from the expertise provided by several chapters. We provide the technical capability that is needed to develop new standards, and 2015 was an excellent year with the publication of the reference view, the design transfer view, Alignment 1.0 and mvdXML. This last, mvdXML, is an upgrade of the 2013 standard; the 2015 version added rules for checking and validation.

Collaboration is at the heart of what we do in the MSG, with our technical capability underpinning the standards coming from the rooms. At the same time, we work with the implementer community in areas such as quality assurance. Over time, the need for our technical input has increased as new rooms and activities have emerged. Going forward, we will provide support for IFC certification, the Infra Room's Alignment 1.1 and the connections between IFC and the Data Dictionary.”



Communications

Richard Kelly

- Intranet developed and launched
- Presence on social media established

“It had been clear for some time that an intranet was essential to an organisation like ours which is globally dispersed. What we needed was a tool that would make people’s lives easier so they can work together more efficiently across the planet to deliver solutions for a common cause. At the same time, it had to be scalable and capable of managing many different teams. Working with a provider who had experience of buildingSMART in Germany, we created a system to meet our needs and began rolling it out at the end of 2015. We now have over 200 users, and I believe that the intranet is having a strong impact on collaboration, information-sharing and efficiency.

Social media plays a very important part in modern communication and marketing, and it was therefore essential to have a presence on all the main channels to lay down a carpet of brand awareness and information about our main activities. We now have buildingSMART International feeds on Twitter, LinkedIn, Facebook and YouTube. Our Twitter followers have trebled in the last 12 months and our LinkedIn following has grown to 740 after only three months of being on air (figures as at May 2016).

It is clear that there is a demand for information from buildingSMART that is aimed at the user level, and these channels are proving a useful way of achieving this while stimulating interesting exchanges.

Links to social media channels can be found right at the top of our website homepage, www.buildingsmart.org.”



Board, executive and contact points

As at May 2016

Chair

Patrick MacLeamy

Chief Executive

Richard Petrie

Board members

Tina Koppinen, Jan Myhre, Dirk Schaper and Rasso Steinmann

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Operations director

Richard Kelly – richard.kelly@buildingsmart.org (Standards programme, finance, marketing, IT and summits)

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Mark Baldwin – mark.baldwin@mum.ch (certification of people)

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Front cover: Hollandsch Diep Bridge, Moerdijk in the Netherlands – a 2 km bridge built of steel and concrete to accommodate a high-speed rail connection

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