



Getting Specified in a Digital World & Making it Stick

David Mitchell

Chairperson buildingSMART Australasia

Contents

- What's the problem?
 - a little bit of digital history
- Where's the demand?
 - what's changing?
- One solution?
- Who's doing it and how?
- Opportunities?
- Where can you start?

buildingSMART Australasia

Not-for-profit Industry-led Volunteer Organisation

Operate in Australia and New Zealand

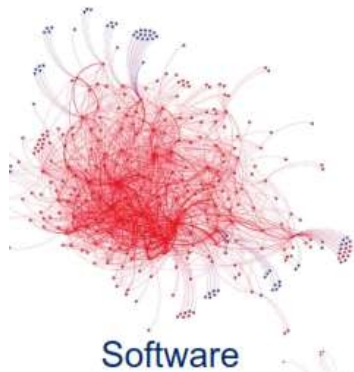
Activities:

- Technical standards (bSA & bSI)
- Advocates for BIM and Open Data Exchange

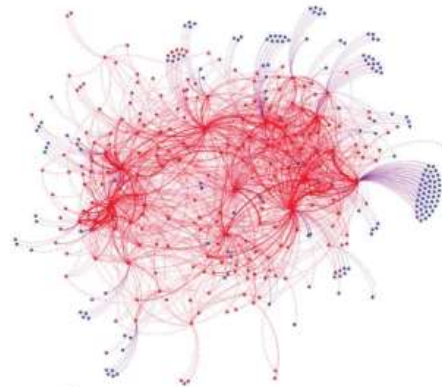


What's the problem?

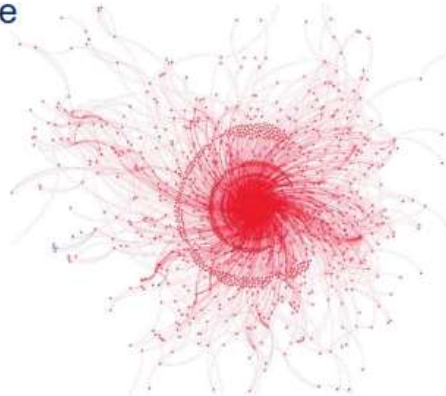
Information exchange...



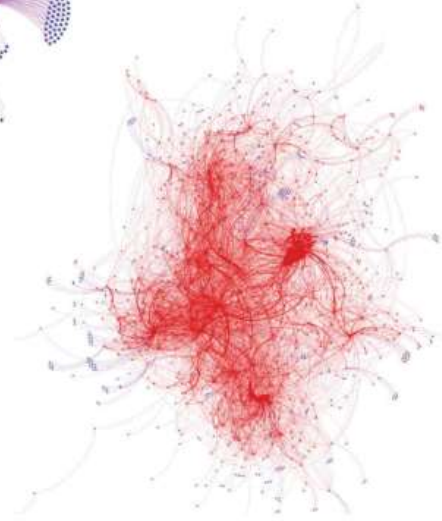
Software



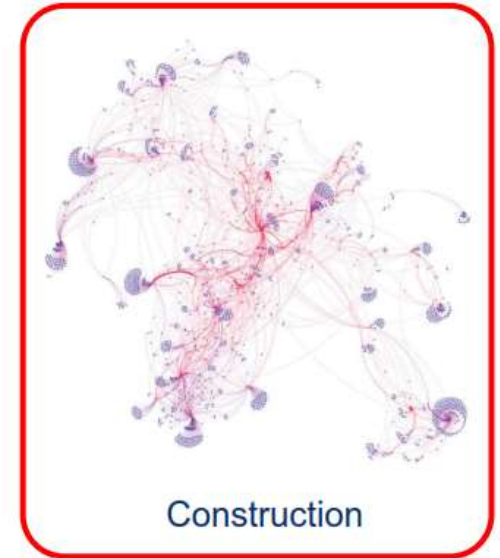
Media and
Entertainment



Financial Services



Manufacturing



Construction



The ability to share project information is the top factor affecting collaboration in construction

Source: [Mapping the Information Economy: A Tale of Five Industries \(Box, June 2014\)](#)



Expert warns Australia could turn into slums in 20 years | 60

60 Minutes Australia ✓

3M views



The looming crisis over defective buildings in Australia

ABC News In-depth ✓



Construction crisis to top \$6.2 billion

By Sandra van Dijk | 20 August 2019

Australia's construction industry has reached crisis point. From cracking apartment buildings to massive cost overruns in public infrastructure, there is not one part of the sector that isn't failing in some way.



The much-publicised Opal Tower saga now enters its fifth week of uncertainty with 105 of the buildings 392 apartments declared “unliveable” and structural repairs



Image: Four Corners

Cracking Up

Posted Tue 20 Aug 2019, 5:09pm Updated Thu 22 Aug 2019, 4:30pm

Expires Wednesday 17 July 4757 5:09pm

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Related



Cracking Up
Four Corners

Investigating Australia's apartment building crisis.

"We've got a real problem here. It's systemic and it's infecting lots of buildings across the landscape, in all parts of the country. It's very clear." Building defect analyst

For 20 years the nation's city skylines have been changing with the building of more than 650,000 apartments across the country.

Money / Property / Buying /

Apartment building defects

Thinking of purchasing an apartment or unit? Make sure you know what you're buying into.




Meanwhile > groundhog day



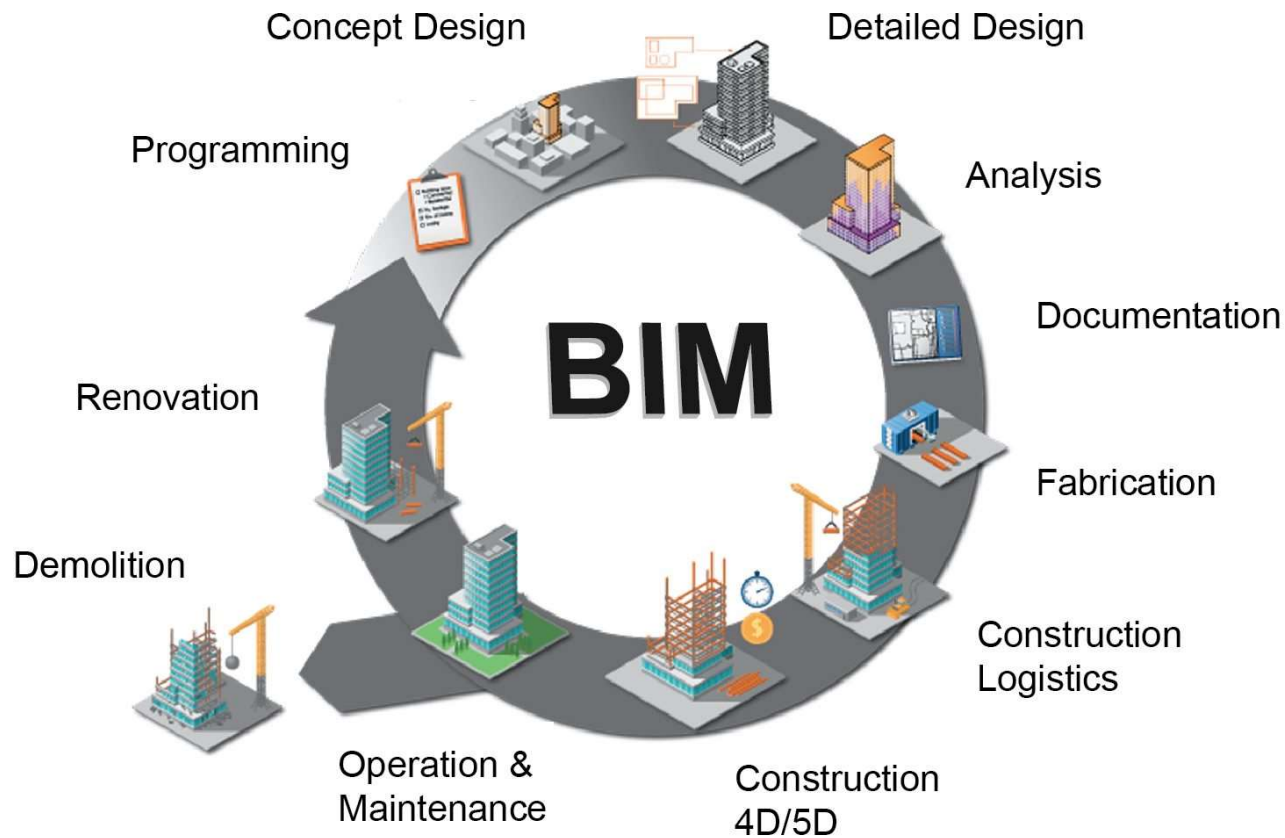
2014: Lacrosse Tower Fire, Docklands Melbourne

In ten minutes (2.23 – 2.35AM) the fire spread up the external wall cladding to the roof (L21) from an apartment balcony (L6) whose resident had left a cigarette butt in a plastic food container sitting on a timber surfaced balcony table.



What's the problem? - some history

BIM > beta version



Manufacturers built their own content

← → ↺ <https://market.bimsmith.com/>

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All Categories

Project location

Manufacturers
All manufacturers

Project data type















Material Libraries

Sustainability & Wellness

Fire & Life Safety

Building Code Compliance

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 ARCHITECTURAL ACCESS DOOR Nystrom	 RECESSED ACCESS DOOR Nystrom	 LIGHTWEIGHT ACCESS DOOR Babcock-Davis	 PLASTIC ACCESS DOOR Babcock-Davis	 RENOVATION ACCESS DOOR Nystrom	 DS336 - HIGH SECURITY MANUAL PASSAGE GATE Designed Security, Inc.	 ES5200 STANDARD ENTRY SENTRY SERIES Designed Security, Inc.
 24" / 27" SELF-CLEAN SINGLE WALL OVEN -	 24" SINGLE ELECTRIC WALL OVEN	 FIXED EXTENSION COLUMN	 MULTI-DISPLAY ADJUSTABLE DROP	 REALIS WUX450ST Canon U.S.A., Inc.	 S VIDEO INTERIOR Sansi North America (SNA)	 S VIDEO EXTERIOR Sansi North America (SNA)

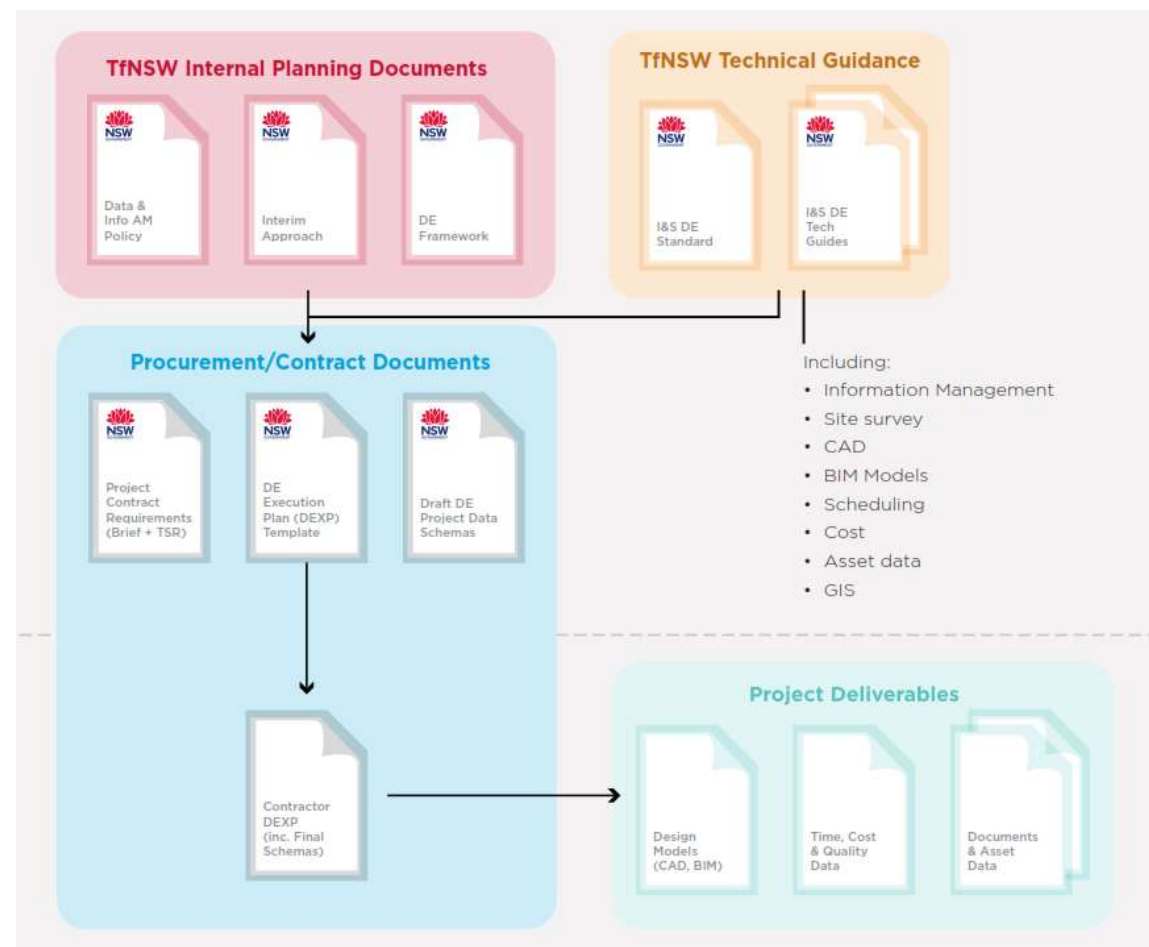


Where's the demand? - what's changing?

State Govts are asking for open data

The next four years, Eastern Govt alone will use BIM to deliver **\$210.9B** of major infrastructure projects:

- VIC \$78.9B
- NSW \$87B
- QLD \$45B



BoT are also calling for it...

Board of Treasurers (BoT) – the Australian BIM Strategic Framework:

- Aug 2019 - The framework was endorsed and proposed implementation by **all state and territory governments**.
- Standardised approach to using BIM in buildings and infrastructure.
- Strategic Action Area - Adopt standards and ensure an **open and common data environment**



...BMF...

2019 Mar: BMF released - Building Confidence Implementation Plan

- Regulate Building Certification
- Poor documentation and lack of specifications – what was the design intent?.
- Building Certifier allows occupation – can't know everything about the building.
- The BCA is performance based and not prescriptive – fit for purpose and product compliance is difficult.
- As built information is not recorded –. what products? Did substitution occur?.

Emerging technologies,.. It is recommended that further work examine how the Building Information Management (BIM),... and other similar emerging digital solutions could be relevant to the establishment of these databases.”

ISO 19650: the how...

Organization of information about construction works – Information management using building information modelling:

- Part 1: Concepts and principles
- Part 2: Delivery phase of assets

Overarching principle...Exchange using open standards



International
Organization for
Standardization

ISO19650 STAGES

PART 1:

deals with concepts and principles and applies to the whole life cycle of a built asset.

PART 2:

deals with the delivery phase of assets and enables the client and/or appointing organisations to establish their requirements for information during the delivery phase of assets.

...OBOS and GS1 GDS



MRO Identification Standards in the Australian Rail Industry

Case Study Sample: OneSteel – Identification of Steel Products (including rails) using GS1 keys

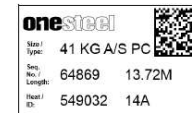
In Australia, OneSteel is the premier manufacturer and distributor of long steel products, and is the sole Australian manufacturer of both plain Carbon and head hardened steel rails supplied from the OneSteel Whyalla Steelworks in South Australia.

For some time OneSteel has recognised the supply chain & quality benefits that can be gained from standard product identification & barcoding and has worked closely with GS1 Australia to consistently utilise GS1 keys in the identification of its products. The examples below illustrate how these principles have been applied

STEEL RAILS

Steel rails ex OneSteel Whyalla are individually labelled on the bottom flange of the rail identifying each piece.

The label typically will look like the example below:



The GS1 DataMatrix applied for OneSteel rail uses the following GS1 keys:

AI Code	AI Type	Data	Comments
01	Global Trade Item Number (GTIN)	99316183038858	This is the OneSteel issued GTIN for AS 41kg Plain Carbon Steel Rail produced in 13.72m lengths to OneSteel Rail Technical Standard RT23, supplied undrilled & with a length tolerance of +150mm / -0mm
11	Production Date (YYMMDD)	150609	Production date: 9th June, 2015
21	Serial Number	54903214A	This is the combination of the cast, or heat, of steel and the production identity of the feed length of rail.
250	Secondary Serial Number	64869	The secondary serial number indicates the individual identity of the rail length cut from the production identity & combined with the Serial Number & GTIN gives the unique identity of the individual rail length.
3112	Length or first dimension, metres (Variable Measure Trade Item)	001372	This is the length of the rail in metres, the "2" in the AI (3112) string indicates that the decimal point sits between the 4th & 5th digit ==> 13.72m



**What's one solution
for Industry?**

Standards working together

(bSA + GS1au & BIM-MEPaus)

Design to manufacture and product identification using:

- BIM-MEPaus standards—for design, manufacture and construction workflows
- GS1 standards—for product identification
- openBIM (.ifc) standards—for information exchange

Allows traceability and product authentication to:

- Check products against specifications
- Identify recalled products
- Minimise product failures



MEMORANDUM OF UNDERSTANDING

BETWEEN

AIR CONDITIONING AND MECHANICAL CONTRACTORS' ASSOCIATION OF AUSTRALIA

AND

buildingSMART AUSTRALASIA



IT

MEMORANDUM OF UNDERSTANDING

Between buildingSMART Australasia

and

GS1 Australia Ltd

This Memorandum of Understanding (MOU) is entered this 14 February 2019 between buildingSMART Australasia Ltd (ABN 96 021 754 479) (bSA), with its registered office at 1 Creek Street, Forrest Lodge, New South Wales, 2037 and GS1 Australia Ltd (ABN 67 005



Create design models using object standards...

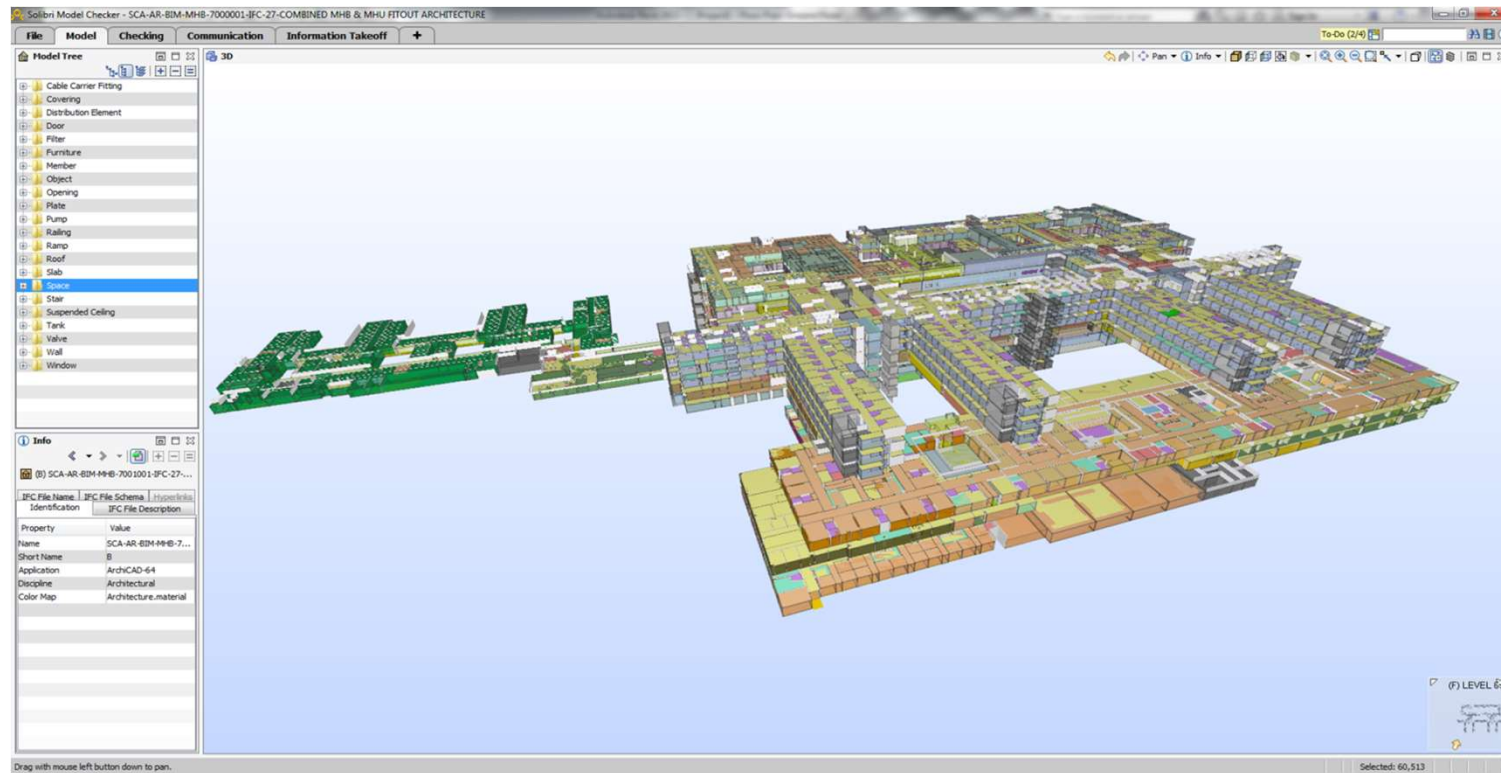


Image courtesy of Mitchell Brandtman

Link specifications to models...

Masterspec NZ:

MasterKey & miProducts

NBS UK:

Chorus & National Product Library

4.2 GIB® ULTRALINE CEILINGS 13mm

Location: Plasterboard type / Lining requirements

All ceilings see dwg 520

GIB® ULTRALINE PLUS plasterboard

13mm GIB® plasterboard is recommended for ceilings fixed on ceiling battens at 600mm centres.

13mm GIB® plasterboard is recommended for ceilings fixed on ceiling battens at 600mm centres. When battens, labour and board costs are taken into account this system is the most cost-effective as well as the best price to deliver.

13mm GIB® ULTRALINE PLUS has a smoother finish than GIB® ULTRALINE PLUS, which is a very high quality finish.

Finish level usually Level 4 with Level 5 for where a very high quality is required.

4.3 GIB® BRACING SYSTEMS

Refer to GIB® Bracing Systems. For bracing system location refer to drawn documentation.

Refer to Structural Wallboards Limited's publication GIB® Bracing Systems, GIB® 2010 and GIB® Residential and Low Rise Steel Framed Part 2 2010 Design Criteria.

The default level of finish is Level 4 with Level 5 for where a very high quality is required.

4.4 GIB® CEILING BATTENS

BrandType: GIB® Roundell Ceiling battens

Wittstone Wallboards Limited recommends the use of steel battens for ceilings. If timber battens are unavoidable, they are typically with a 40x100 (200) section.

4.5 GIB® TAPE ON EDGE OF CORNER TRIMS

BrandType: GIB® Paper Joint Tape

Read the sheet manufacturer's technical information for the range of trims and edgings available.

4.6 GIB® EDGE PROFILES

BrandType: GIB®

Read the sheet manufacturer's technical information for the range of profiles available.

5113G.4.2 - GIB® ULTRALINE CEILINGS [REFER SPEC]

Living

Mech.

5113G.4.2 - GIB® ULTRALINE CEILINGS [REFER SPEC]

GRAPHISOFT ARCHICAD

Properties

Modify | Roofs

Basic Roof

BDP_Roof_Sedum_153.5mm

Roofs (1)

Constraints

Base Level: Level 01

Room Bounding: [X]

Relative to Mass: [X]

Base Offset From: -153.5

Cutoff Level: None

Cutoff Offset: 0.0

Construction

Rafter Cut: Plumb Cut

Finish Depth: 153.5

Maximum Ridge: 4000.0

Dimensions

Slope: Thickness: 153.5

Apply

Project Browser - MHP_BDP_XX_XX_M1_A_MainModel

Schedules/Quantities

27_RoofSchedule

31_Ext Door Ironmongery

31_Ext Window Schedule

31_Truckee Schedule

32_Ext Door Ironmongery

32_Ext Window Schedule

32_Ext Window Ironmongery

35_Ceiling Schedule

42_Internal Door Signage & Asset Tag

42_Graphics / Wayfinding / Manifest

68_Ext Exit Signage Calculations

68_Room Occupancy - Level 00

68_Room Occupancy - Level 01

68_Room Occupancy - Roof Level

Floor Schedule

Room Schedule

Sheet List / Drawing Register

View List - Not Published

View List - D. Alkhatib

Curtain Wall Grids: Curtain Wall Grids: Grid Line

Schedule 27_RoofSchedule - MHP_BDP_XX_XX_M1_A_MainModel

UNIFORMITY	UNIFORMITY	NBSCHORDTYPE	AREA	VOL
S4_30_42_30_30	Single layer sheet warm roof covering systems	RCS_301	215.41 m²	48.83 m³
S4_30_42_30_30	Aluminum sheet roof covering systems	RCS_002	522.42 m²	123.05 m³
S4_30_42_30_30	Single layer sheet warm roof covering systems	RCS_301	85.24 m²	25.17 m³
S4_45_40_47_28	Extensive green roof systems	RCS_005	422.25 m²	64.01 m³
S4_45_40_47_28	Extensive green roof systems	RCS_005	60.90 m²	15.18 m³
S4_30_42_30_30	Single layer sheet warm roof covering systems	RCS_301	320.96 m²	86.04 m³
S4_30_42_30_30	Single layer sheet warm roof covering systems	RCS_301	329.26 m²	86.60 m³
S4_30_42_30_30	Single layer sheet warm roof covering systems	RCS_301	62.68 m²	17.24 m³
S4_30_42_30_30	Single layer sheet warm roof covering systems	RCS_301	62.68 m²	17.24 m³
S4_30_42_30_71	Reinforced column membrane inverted roof covering systems		133.62 m²	22.71 m³
S4_30_42_30_71	Reinforced column membrane inverted roof covering systems		135.63 m²	23.12 m³
S4_30_42_30_72	Reinforced column membrane warm roof covering systems		36.05 m²	5.40 m³
S4_30_42_30_30	Single layer sheet warm roof covering systems	RCS_301	628.56 m²	200.39 m³
S4_30_42_30_30	Single layer sheet warm roof covering systems	RCS_006	1967.25 m²	90.48 m³
S4_30_42_30_30	Single layer sheet warm roof covering systems	RCS_006	68.80 m²	3.99 m³
S4_30_42_30_30	Single layer sheet warm roof covering systems	RCS_006	520.14 m²	23.93 m³

NBS Chorus Panel

NBS Chorus

Guidance

See 45, 40, 47, 28

Extensive green roof systems

These roofs are extremely lightweight and so are suitable for sheds, garages and buildings with a very low roof loading capacity.

See general guidance 1.4.3 Repeat this clause for each type, location or function where the extensive green roof varies.

Description

No guidance available

System performance

Include one or more of these clauses to describe the required performance of the system. This may be a statement of design intent where the design work is to be completed by others. Where this is the case, ensure that appropriate supporting contractual arrangements are in place.

Performance requirements must be verifiable, and must be used to assess the suitability of proposed or substituted systems or products.

Suggestion(s)

- Design of living roofs
- Structural performance
- External fire performance
- Hydraulic performance of

View guidance published by NBS

CONTRACTS

MODELS

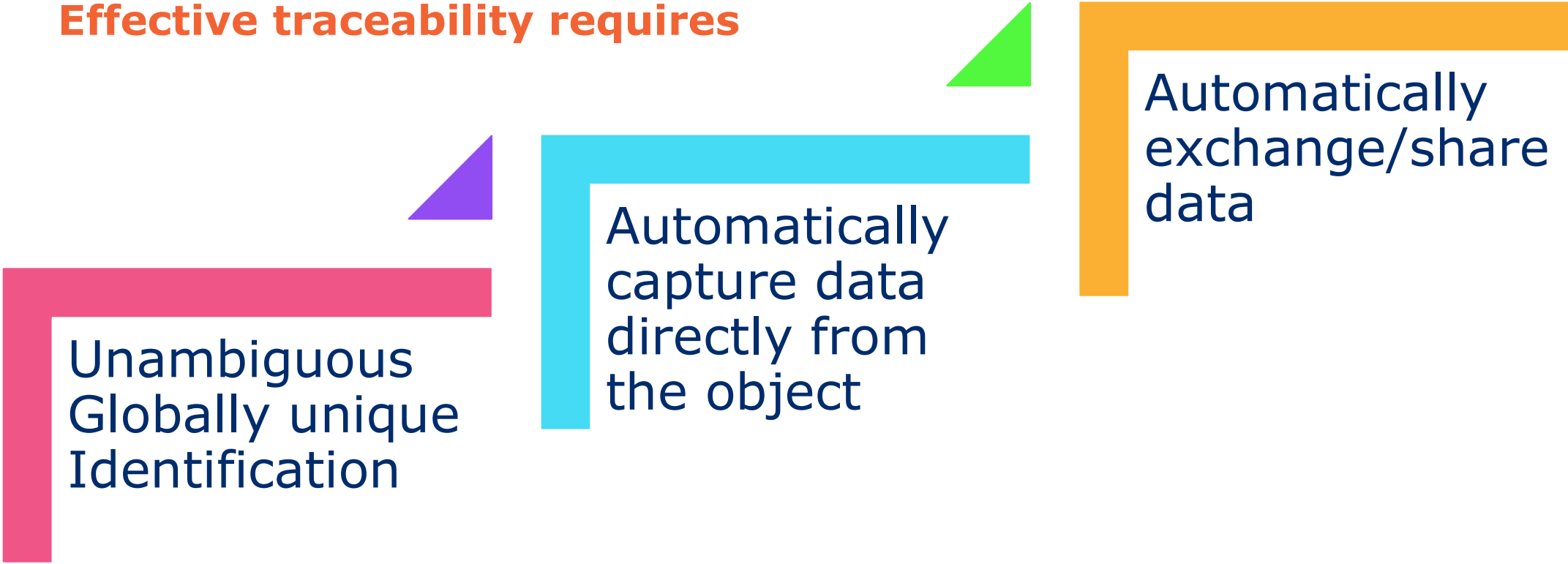
CLASH

PRODUCTS

Exclude Options

Specify GS1 GTIN to be clear about design intent...

Effective traceability requires



Unambiguous
Globally unique
Identification

Automatically
capture data
directly from
the object

Automatically
exchange/share
data

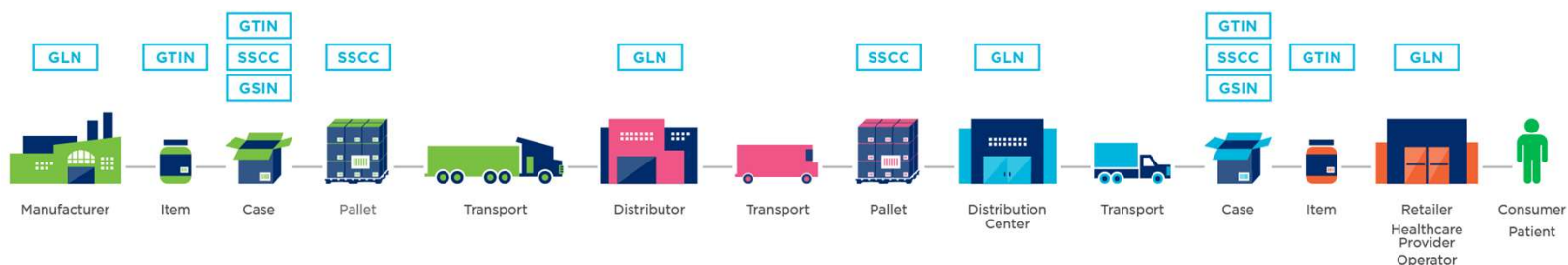
...Transfer design data via openBIM...

```
#223452= IFCSHAPEREPRESENTATION(#492,'FootPrint','GeometricCurveSet',(#223450));
#223454= IFCPRODUCTDEFINITIONSHAPE($,$, (#223429,#223452));
#223458= IFCSPACE('1yOlZoXEX02gxvYfh8NOVX',#12,'J.2.1',$,$,#223340,#223454,'Prep Room',.ELEMENT.,.INTERNAL.,$);
#223461= IFCRELAGGREGATES('1b306uOlB0mAob6pHt_uM2',
    #12,$,$,#223233, (#223458,#223593,#223714,#223813,#224440,#225109,#225263,#225395,#225638,#225814));
#223465= IFCPROPERTYSINGLEVALUE('Reference',$,IFCIDENTIFIER('Prep Room J.2.1'),$);
#223466= IFCPROPERTYSINGLEVALUE('Category',$,IFCLABEL('Rooms'),$);
#223467= IFCPROPERTYSET('2AzzsgQgy$G1psq0YB_Dq6',#12,'Pset_SpaceCommon',$, (#223465,#223466));
#223469= IFCRELDEFINESBYPROPERTIES('0WuIHQol_zDYKhcwIjJQS6',#12,$,$, (#223458),#223467);
#223473= IFCPROPERTYSINGLEVALUE('Renovation Status',$,IFCLABEL('New'),$);
```

Capture as-built: Use GS1 GDS to identify products

Identify GS1 Identification Numbers

GLN Global Location Number GTIN® Global Trade Item Number® SSCC Serial Shipping Container Code EPC®/SGTIN Serialized Global Trade Item Number GSIN Global Shipment Identification Number



Capture GS1 Data Carriers

Barcodes

EAN®/UPC



GS1 DataBar®



GS1 DataMatrix



ITF-14

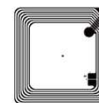


GS1-128



EPC-Enabled RFID Tags

HF RFID



UHF RFID



Share GS1 Data Exchange

Master Data Global Data Synchronization Network™ (GDSN®), GLN Registry® **Transactional Data** Electronic Data Interchange (EDI) **Physical Event Data** EPC Information Services (EPCIS)



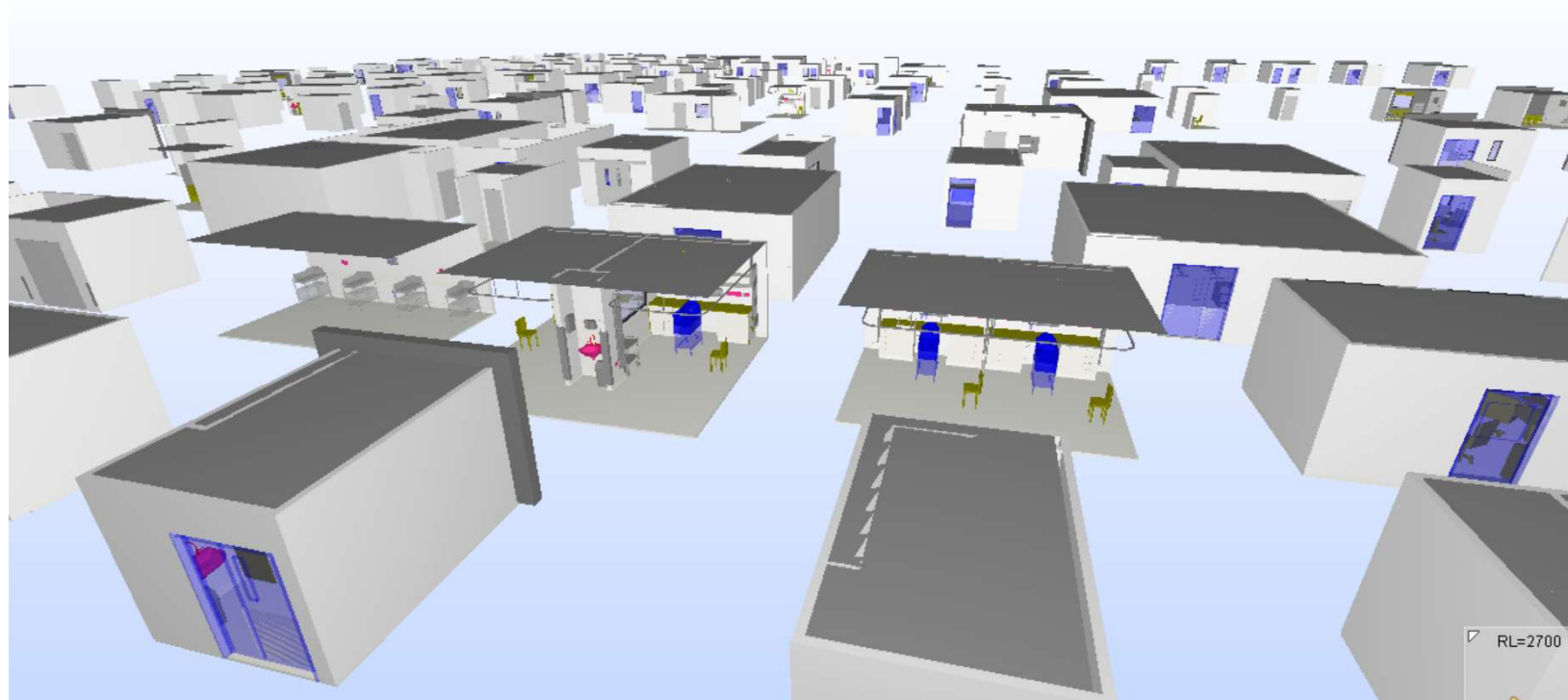


Who's doing it and
how?

Digital Design Kits & Objects

Design requirements –
models & objects:

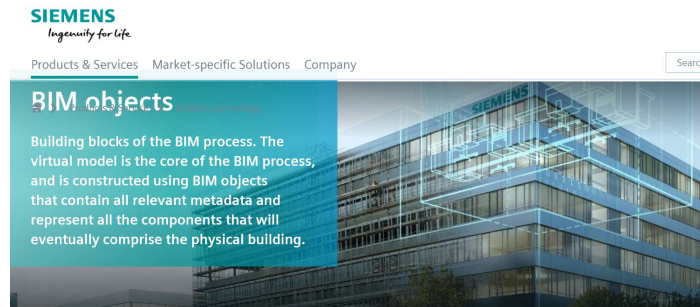
- Coles & Woolworths
- Health Infrastructure NSW
- Roads and Maritime Services NSW



Digital Product Libraries

Manufacturers:

- Siemens & Schneider Electric
- Knauf
- Dulux
- Kingspan & Stowe



Download BIM object library

These objects are the building blocks that form the foundations of the BIM. Building Technologies provides an ever expanding library of BIM objects representing our broad portfolio. Free to download and complying with several industry formats, the library is available in conjunction with a powerful plug-in to facilitate



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Download BIM objects for insulation boards, cavity closers and membranes



OneSteel Manufacturing Pty Limited
ABN 42 004 651 325

CUSTOMER ONESTEELST
DESTN: ZIX
MELBOURNE

DELIVERY M92A
ONESTEEL
1257-1259 FERNTREE GULLY RD
JELLS PARK
SCORESBY

C/O No.	ITEM	Number of Bars	Weight
M5318	0015	No. 10	4.24 t

300PLUS/S0 (AS/NZS 3679.1-300/300S0)
ACRS CERT NO. 110301

310UB40.4 300PLUS/S0

10.50m 40.4kg/m 00000 200C

UNITID: 295



ACRS Cert: 111104

LOT Q131713
ITEM 54988

75X 75X4.0
DURAGALPLUS 8.0 M
AS/NZS1163-C450L0

UNIT ID 7113228003

QTY 25 LENGTHS

MASS 1.698 T NOM

1.00 PACK

16/08/13
12:20

GTIN(01) 9 9317869 54988 0 (21) 7113228003



AUSTRALIAN MADE

ACRS CERT NO. 311021

MICRO-ALLOYED AS/NZS 4671-500N

Deformed Bar Coil 16mm SQ

UNIT ID: 16785276

HEAT: 211479

GTIN: 99316266013925

Item: 90253

COUNT 1

MASS 2.073t

(01)99316266013925(21)16785276

Member of GFG Alliance



www.infrabuild.com

Slide courtesy of Infrabuild

GS1 GDS at Work!



WHAT THE SCANNER SEES



AI Code	AI Type	Data	Comments
01	Global Trade Item Number (GTIN)	99316183038858	This is the OneSteel issued GTIN for AS 41kg Plain Carbon Steel Rail produced in 13.72m lengths to OneSteel Rail Technical Standard RT23, supplied undrilled & with a length tolerance of +150mm / -0mm
11	Production Date (YYMMDD)	150609	Production date: 9th June, 2015
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GS1 GDS at Work!



WHAT THE SCANNER UNLOCKS

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Printed / viewed by: [Email Address] @ 2017-02-29

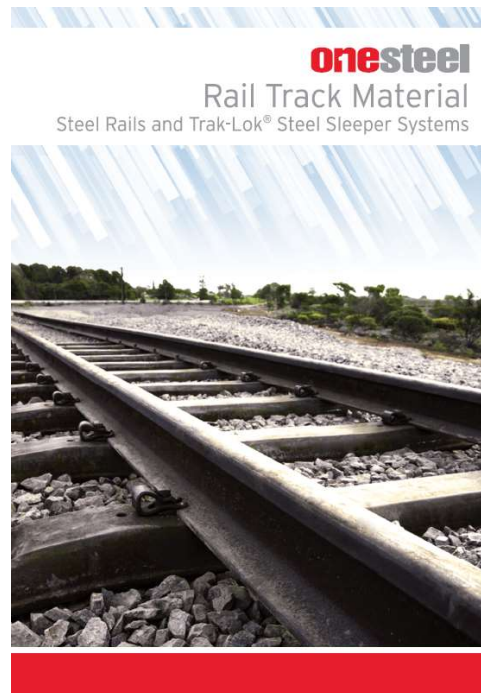
AS 1085.1—2002
(Incorporating Amendment No.1)

AS 1085.1—2002

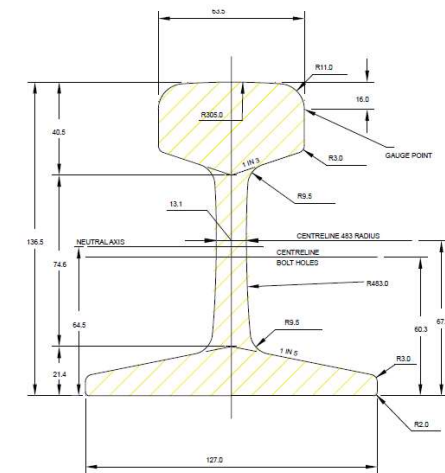
Australian Standard™

Railway track materials

Part 1: Steel rails



41kg Rail Profile



41kg Rail			
Area of Head	2,362 mm²	Horizontal Axis	Second Moment of Area
Area of Web	1,132 mm²		13,250 mm⁴
Area of Foot	1,907 mm²		184.3 cm³
Total Area	5,399 mm²		Section Modulus Foot
Calculated Mass	40.8 kg/m		205.7 cm³
Maximum Rail Length	27.5 m		Section Modulus Head
			184.3 cm³
			Section Modulus Foot
			205.7 cm³
			Section Modulus Head
			184.3 cm³
			Section Modulus Foot
			205.7 cm³

Page 9

GS1 GDS at Work!



WHAT THE SCANNER UNLOCKS

onesteel

DESPATCH ADVICE
CUSTOMER COPY
MELBOURNE FREIGHT TERMINAL
MELBOURNE

ADVICE NO: MD-233022
DATE: 28/09/15
PAGE: 1 OF 2

DESPATCHED TO: DESPATCHED BY: LORRY
VEHICLE: XQ2240
CARRIER: K & S

Customer Reference	Supplier Order Number	Product Description	Despatch Units	Heat Number	Number of Part Units	Tonnes Nett Gross
089706		AS 41KG RAIL X 13.72M RT2341KGFC REV11 INVOICED LYJM-2648 REF=931618303855	A06A64821		1 BAR	.560
			A06A64822		1 "	.560
			A06B64882		1 "	.560
			A06B64886		1 "	.560
			A08A64820		1 "	.560
			A08B64817		1 "	.560
			A08B64818		1 "	.560
			A08C64819		1 "	.560
			A08C64847		1 "	.560
			01A69287		1 "	.560
			01A69291		1 "	.560
			02A64849		1 "	.560
			02A64850		1 "	.560
			02A64859		1 "	.560
			02A64860		1 "	.560
			02B64851		1 "	.560
			03A69288		1 "	.560
			03A69296		1 "	.560
			04A64884		1 "	.560
			04A64885		1 "	.560
			04A64888		1 "	.560
			04B64856		1 "	.560
			04B64857		1 "	.560
			04B69292		1 "	.560
			04C64858		1 "	.560
			09B64816		1 "	.560

Signatures
Loaded By: _____ Driver: _____ Received
in Good Order: _____ Unloaded Date: _____ Time: _____

onesteel

DESPATCH ADVICE
CUSTOMER COPY
MELBOURNE FREIGHT TERMINAL
MELBOURNE

ADVICE NO: MD-233022
DATE: 28/09/15
PAGE: 2 OF 2

DESPATCHED TO: DESPATCHED BY: LORRY
VEHICLE: XQ2240
CARRIER: K & S

Customer Reference	Supplier Order Number	Product Description	Despatch Units	Heat Number	Number of Part Units	Tonnes Nett Gross
			10A64848		1 "	.560
			10C64887		1 "	.560
			14A64868		1 "	.560
			14A64869		1 "	.560
			16A64865		1 "	.560
			16A64866		1 "	.560
			17B64863		1 "	.560
			17B64864		1 "	.560
			17C64867		1 "	.560
			19A64861		1 "	.560
			19A64862		1 "	.560
			25A64893		1 "	.560
			27B69294		1 "	.560
			32A69283		1 "	.560
			32B69284		1 "	.560
			33A69285		1 "	.560
			ORDER/ITEM TOTAL :		42 BUNDLES	42 BARS 23.520
			TOTAL FOR ADVICE MD-233022 :		42 UNITS	42 UNIT 23.520

Signatures
Loaded By: _____ Driver: _____ Received
in Good Order: _____ Unloaded Date: _____ Time: _____

GS1 GDS at Work!



WHAT THE SCANNER UNLOCKS

Consignment History (6) - panoramagroup.com.au/Panorama/Orders/ConsignmentHistory.aspx?IdentifierID=1722790&IdentifierType=Consignment&ExternalUser=1

Consignment History Monday, 29 May 2017

Consignment Details		Pickup and Delivery Details	
Customer Load No.	MD233022	Req Pickup	28/09/2015 17:11
Consignment No.	1722790	Actual Pickup	28/09/2015 17:11
Customer Consignment No.	MD233022	Cust Req Delivery Date	DD/MM/YYYY
Customer Reference		Actual Delivery	28/09/2015 17:32
Service Mode	LOCAL ROAD	System Scheduled Delivery	28/09/2015
Actual Weight (kgs)	23520	Switch History	
Volume (m3)		Consignment MD233022	Show History
Consignment Status	Goods Delivered		
Link to POD	View POD Image 1		
POD Link not working?	View POD Image 2		

Events Tasks Add Incident

Event Date/Time	Description	Consignment
28/09/2015 5:31:00 PM	Local Task Planned	MD233022
28/09/2015 5:31:00 PM	Local Task In Transit	MD233022
28/09/2015 5:32:00 PM	Local Task Completed	MD233022
29/09/2015 5:16:00 PM	ORDER CAPTURED AND PICKUP REQUIRED AT 28/09/2015	MD233022
29/09/2015 5:16:00 PM	CON-NOTE RECORDED, Delivery Due 28/09/2015	
1/10/2015 9:27:00 AM	DELIVERY CONFIRMED	
1/10/2015 9:27:00 AM	CONSIGNMENT COMPLETED	
1/10/2015 9:27:00 AM	Order Completed	
6/10/2015 11:07:00 AM	POD RETURNED	
6/10/2015 11:07:00 AM	POD IMAGED	

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onesteel

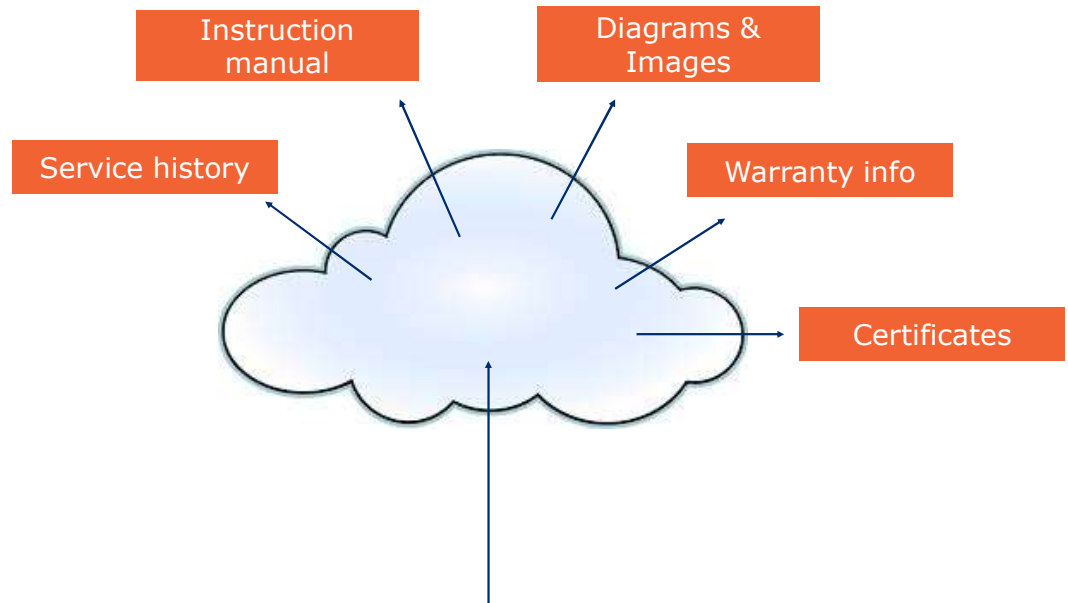
TEST CERTIFICATE

Page 1 of 1
Certificate No.: W021484
Transmission Date: 23/09/15

Customer:	Supplier:																																																																																
Ship To:	OneSteel Manufacturing Pty Limited Whyalla, SA - 5600, Australia A.B.N. 42 004 651 325 Sales Order No: 13324 Printed on: 23/09/2015																																																																																
Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced except in full.																																																																																	
Sampling undertaken by OneSteel Whyalla 15352 Approved Signatory - P. Ramsley Chemical results as identified are from Bureau Veritas Minerals Pty Ltd, Whyalla0334 Approved Signatory - K. Barsby																																																																																	
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I certify the conformance of the material to the specification and that the information on this certificate is in accordance with the records of the company. E. Bennett - OneSteel Whyalla																																																																																	

Siemens Mobility – traceability in action

GS1 Digital Link - Web enabled *next generation* barcodes





<https://siemens.com/gtin/9354335159652/sn/w12345600>





Where are the
digital
opportunities?


Get Specified via Libraries

 NBS National BIM Library

All Categories 

Search for manufacturers or products 





Hot and cold water supply products (51)

Hot and cold water supply products.

 Hide Filters

Clear all

Showing 1-36 of 51

Show more results per page

Most Relevant 

Results from My Library

☐ Downloaded (1)

Location

UK (51)

Sub Category

☐ Storage water heaters, electric (23)

☐ Direct hot water storage cyli... (11)

☐ Indirect hot water storage cy... (9)

☐ Instantaneous water heaters... (2)

☐ Instantaneous water heaters... (2)

☐ Pressure booster pumps (2)

☐ Flush control devices (1)

Can't find a BIM Object?

1 2 >

 Showing objects most relevant to your location first. 



Megaflo Cylinder Package
Hot Water Only
Heatrae Sadia Heating



Megaflo Cylinder
Package Hot Water Only
Heatrae Sadia Heating

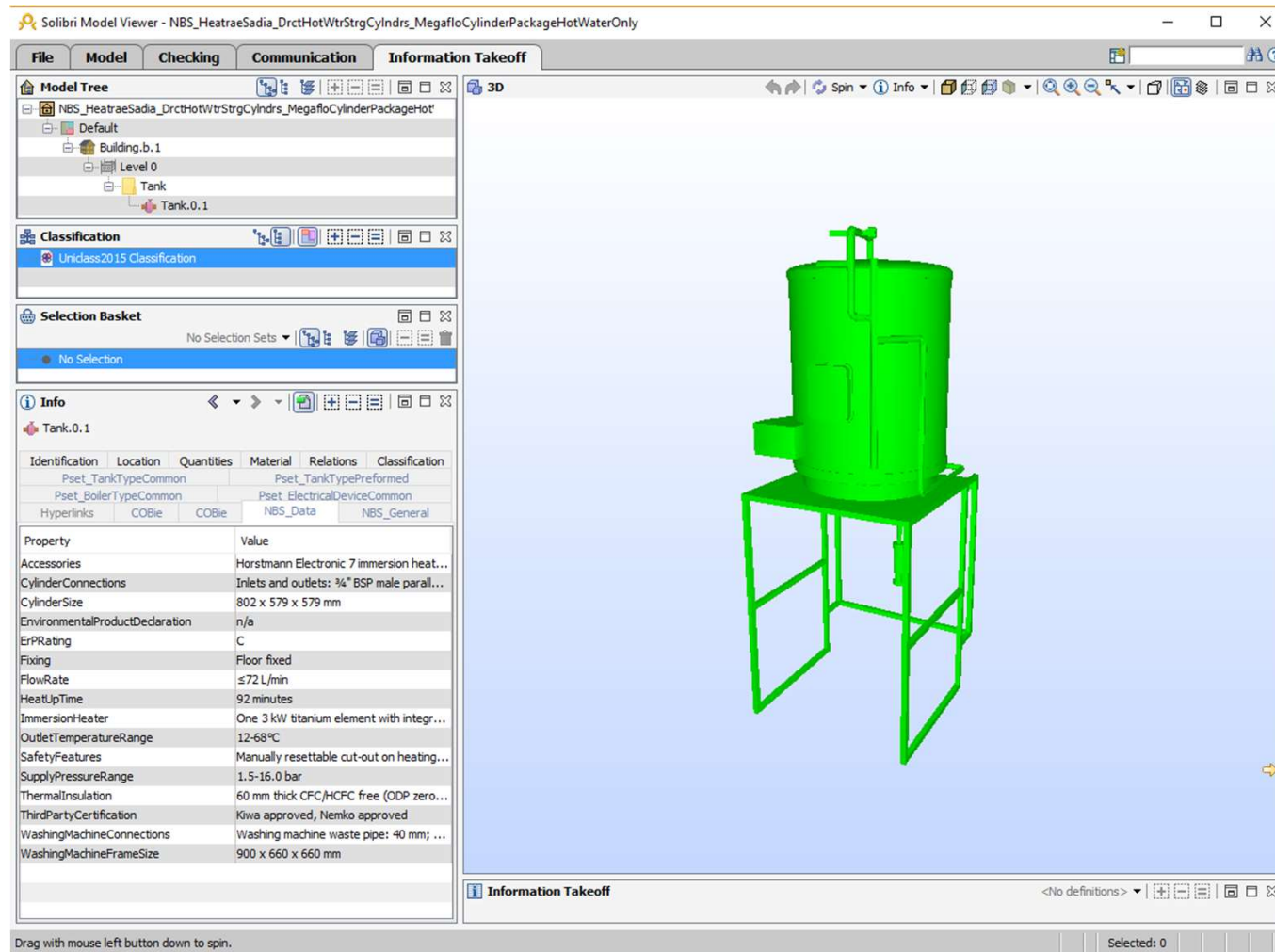


Electromax Combined
Electric Boiler and Hot
Water Only
Heatrae Sadia Heating



Hotflo - Storage water
heater
Heatrae Sadia Heating

Become famous for useable content



and intuitive plugins...



System Selector | Knauf

Internal Steel Stud Walls Select Sub Type Select Code Check for updates

System Filter

Reset System Filters

Properties Composition

Reset Property Filters

Total thickness (mm) ≤

Not Specified

Fire Protection

Any

Non-Load Bearing FRL ≥

Any

Load Bearing FRL ≥

Any

Rw ≥

Not Specified

Rw + Ctr ≥

Not Specified

Impact Sound Resistant

Any

Total R-Value (m2.K/W) ≥

Systems

Viewing 5970 Results - Click row to view System Details

System Code	Fire Protection	Non-Load Bearing FRL	Load Bearing FRL	Rw	Rw + Ctr	Impact Sound Resistant	Total thickness (mm)	Total R-Value (m2.K/W)
KSW317	Rated from both sides	-/120/120	120/120/120	55	48	No	128.0	1.7
KSW317	Rated from both sides	-/120/120	120/120/120	55	48	No	128.0	1.7
KSW212	Not rated	-/-	-/-	54	47	No	190.0	1.6
KSW331	Rated from both sides	-/90/90	30/30/30	59	51	Yes - Discontinuous Construction	243.0	4.0
KSW382	Rated from both sides	-/120/120	60/60/60	59	51	Yes - Discontinuous Construction	256.0	1.7

System Details Framing Options Output to PDF Add to Project

System Image

Composition

Side 1 Lining	16mm TruRock plus 10mm MastaShield
Side 2 Lining	16mm FireShield plus 10mm MastaShield
Framing	Double steel studs at maximum 600mm centres with minimum 20mm air gap
Cavity - Size	204
Cavity - Stud Size	92
Cavity - Insulation	60mm ASB3 Insulation

System Notes

1. **Fire Report:** FC11315-001
2. **Acoustics Report:** Day Design 3094-33
3. 16mm FireShield can be substituted with 16mm MultiShield or 16mm TruRock
4. 10mm MastaShield can be substituted with 10mm WaterShield

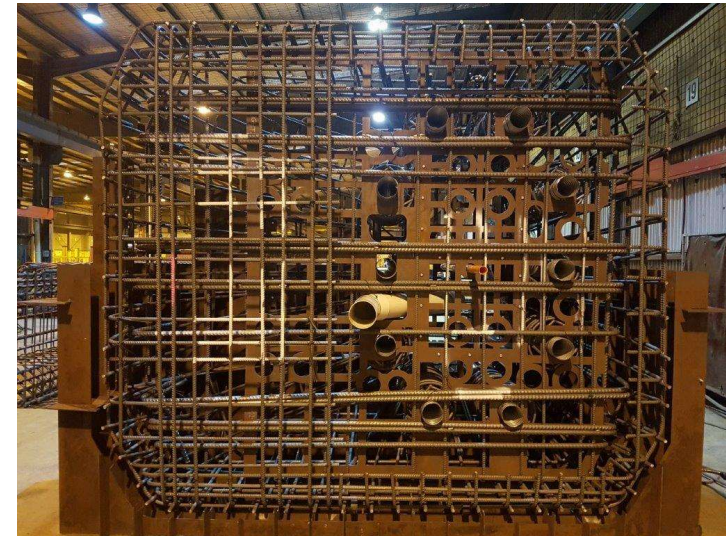
Transform design models into workshop models

Prior Situation:

- BIM focus is to enrich design models
- Prefabrication processes are not deeply integrated
- Information is lost
- Precast CAD and MES (manufacturing execution systems) interfaces are inflexible

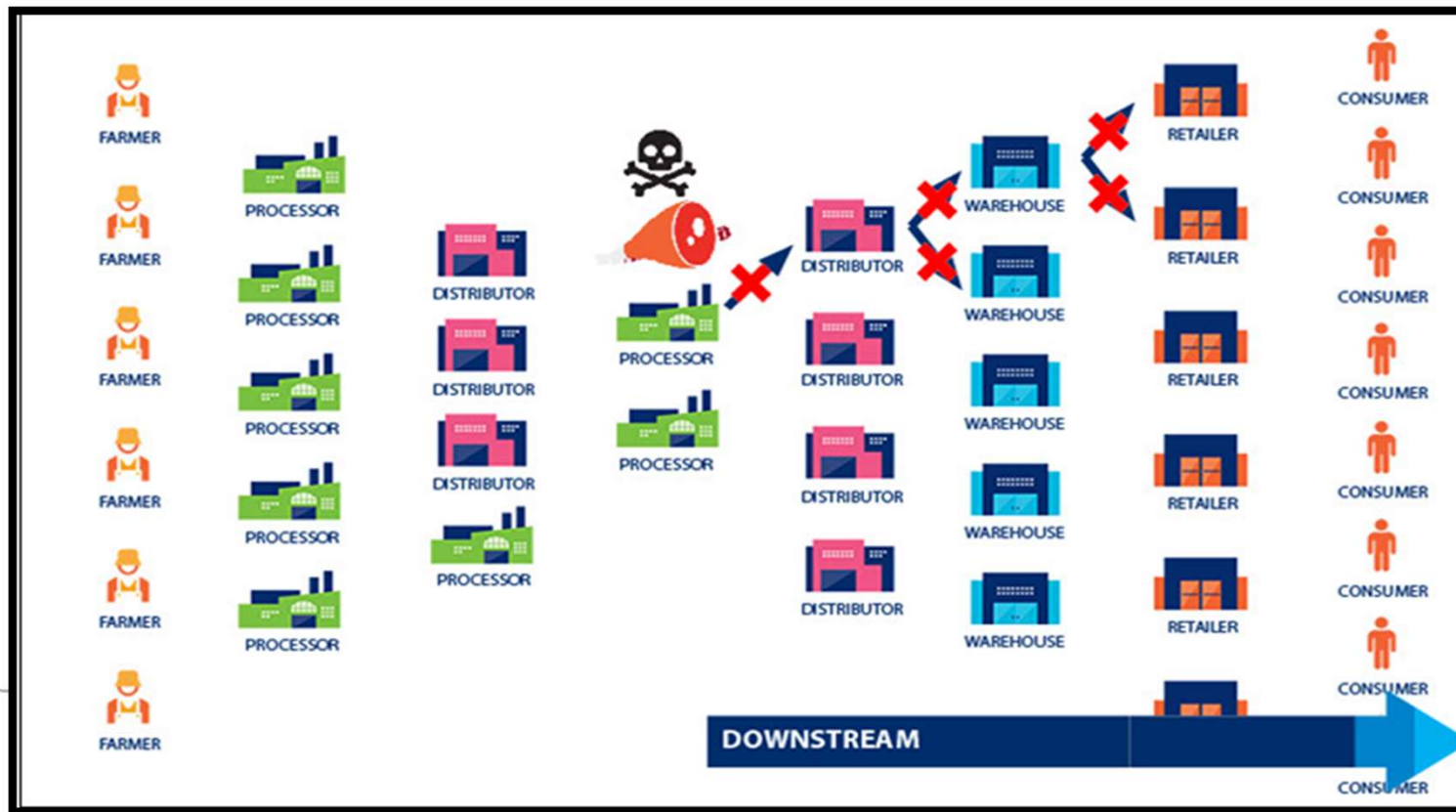
ifc4 Project - interface for automated precast parts fabrication:

- fdu + Betonwerk Eslohe-Bremke + IDAT & ProgressGroup
- Better link CAD, MES and PPS systems on a common data exchange
- Improve traceability of data over the building model and building cycle.



Help construction teams by sharing logistics

- **Tracking** is the capability to follow the path of a specified unit and/or batch of units **downstream** through the supply chain as it moves between trading partners.



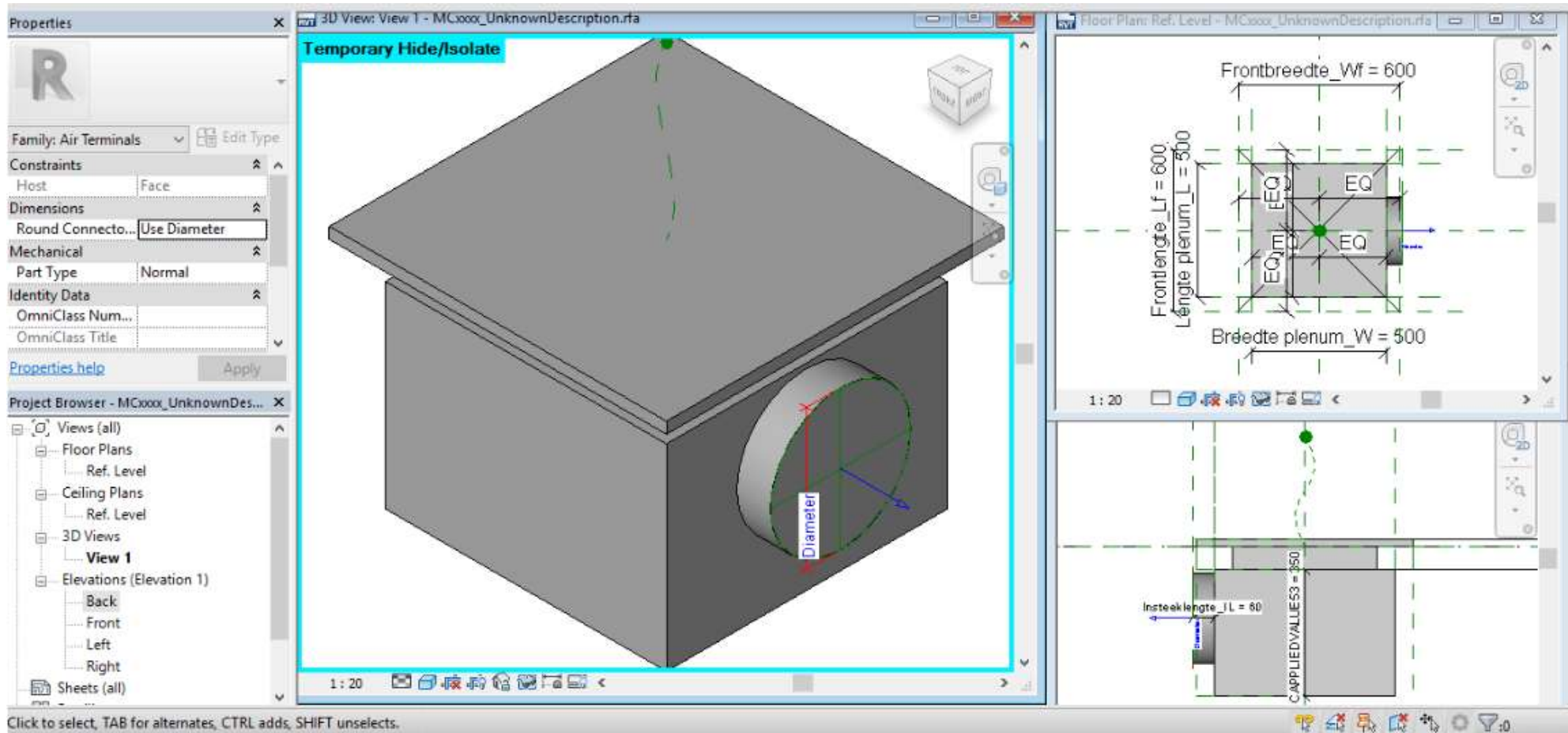
Engage in new ways via communities



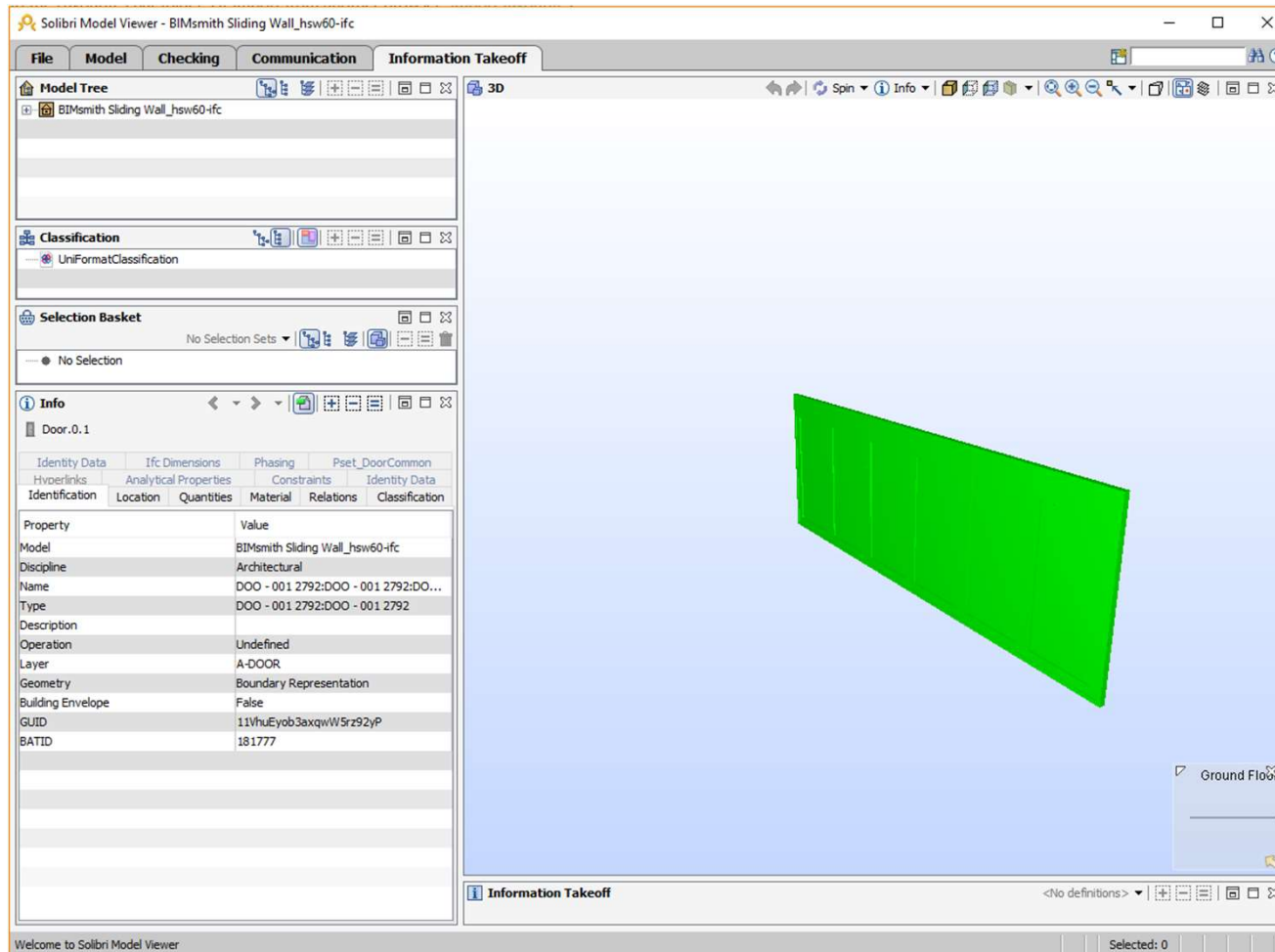


Where can you start?

Develop native content incl GS1 GTIN



Convert to open content



Build your own libraries



REVIT

Dulux

Specifier

Revit® users can now filter and select from over 650,000 colours, the touch of a button, directly from within Autodesk Revit® system with a specific acoustic rating, FRL and thermal insulation framing needs, the Knauf Revit® API can recommend products compliant with Australian New Zealand Revit Standard.

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First Name *

Company Name *

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Dulux BIM Solutions provides easy-to-use BIM content and add-ins so you can add Dulux colours to your Revit® & ArchiCAD® projects quickly and simply. Dulux BIM Solutions, inspiring colour creativity.



Share it - leverage other libraries

← → ↺ <https://market.bimsmith.com/>

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[BLOG](#) [NEWSROOM](#) [CONTACT](#) [davidc](#)

All Categories

Project location

Manufacturers
All manufacturers

Project data type















Material Libraries

Sustainability & Wellness

Fire & Life Safety

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 ARCHITECTURAL ACCESS DOOR Nystrom	 RECESSED ACCESS DOOR Nystrom	 LIGHTWEIGHT ACCESS DOOR Babcock-Davis	 PLASTIC ACCESS DOOR Babcock-Davis	 RENOVATION ACCESS DOOR Nystrom	 DS336 - HIGH SECURITY MANUAL PASSAGE GATE Designed Security, Inc.	 ES5200 STANDARD ENTRY SENTRY SERIES Designed Security, Inc.
 24" / 27" SELF-CLEAN SINGLE WALL OVEN -	 24" SINGLE ELECTRIC WALL OVEN	 FIXED EXTENSION COLUMN	 MULTI-DISPLAY ADJUSTABLE DROP	 REALIS WUX450ST Canon U.S.A., Inc.	 S VIDEO INTERIOR Sansi North America (SNA)	 S VIDEO EXTERIOR Sansi North America (SNA)

Physical identification



<https://data.gs1.org/gtin/9507000009060/>

Digital identification



Want to know more?



Digital Supply Chains in the Built Environment

25 March

Sydney

26 March

Melbourne

28 April

Brisbane

Tickets:







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FREE EVENTS

BIM/DE Community Noticeboard

<p>01:00 pm</p> <p>Ticket, agenda TBA. Sign up here to be notified: www.buildingsmart.org.au/notify-me</p>	<p>buildingSMART International Standards Summit, Oslo – 2020 @ Thon Hotel</p> <p>MAR 23 MON 26 THU</p> <p>All-day</p>  <p>See bSI's event website for updated details here: https://www.buildingsmart.org/event/international-standards-summit-oslo-2020/</p>	<p>on 8 Stages (details below). Over 350+ exhi ...</p>	<p>accurate way. We'll also be covering the follo ...</p>
<p>Build-SA BIM Breakfast</p> <p>MAR 26 THU</p> <p>08:00 am</p> 		<p>Digital Supply Chains in the Built Environment seminar (Sydney) @ Willow</p> <p>MAR 25 WED</p> <p>03:00 pm</p>  <p>Get notified here: https://buildingsmart.org.au/notify-me/</p>	<p>Masterspec Specification Workshop (Auckland North) @ North Harbour Netball Centre</p> <p>MAR 25 WED</p> <p>10:00 am</p>  <p>This training event focusses on the basics of specifying with Masterspec. We'll cover how to create a quality specification in the most efficient and accurate way. We'll also be covering the follo ...</p>
<p>Digital Supply Chains in the Built Environment seminar (Melbourne) @ Australian Institute of Architects (Melbourne)</p> <p>MAR 26 THU</p> <p>03:00 pm</p> 	<p>Masterspec Specification Workshop (Auckland North) @ Tauranga Yacht Club</p> <p>APR 3 FRI</p> <p>09:00 am</p> 	<p>buildingSMART International Chapter Leaders Monthly Call @ GoToMeeting</p> <p>APR 7 TUE</p> <p>10:00 am</p>	<p>Masterspec Specification Workshop (Auckland)</p> <p>APR 7 TUE</p>

www.buildingsmart.org.au/events-calendar

Final Words

Choose open data formats and share it to:

- Improve data exchange, storage and traceability
- Link design to manufacture systems

Get specified by:

- Leveraging libraries
- Having useable & intuitive content

Make your product stick by:

- Improving logistics at construction sites
- Combating substitution via product identification
- Supporting validation and recall