BIM – Government Construction Strategy

**Lower costs**
33%
_reduction in the initial cost of construction and the whole life cost of built assets_

**Faster delivery**
50%
_reduction in the overall time, from inception to completion, for newbuild and refurbished assets_

**Lower emissions**
50%
_reduction in greenhouse gas emissions in the built environment_

**Improvement in exports**
50%
_reduction in the trade gap between total exports and total imports for construction products and materials_

#BIMToolkit
Completing “Level-2” BIM Suite
The Missing Pieces

Classification

Digital Plan of Work
The Project

<table>
<thead>
<tr>
<th>Clients</th>
<th>Brief</th>
<th>Team</th>
<th>Industry</th>
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<td>Department for Business Innovation &amp; Skills</td>
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<table>
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<td>Jan</td>
<td>Feb</td>
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<td>Scope</td>
<td>Brief</td>
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Assessment and need

Post-contract award and mobilisation

Production

Maintenance and use

Figure taken from PAS1192-2:2013 – Copyright Mervyn Richards
Welcome to the NBS BIM Toolkit
Logged in as chris.dunn@thenbs.com

4 active projects

- **003 - MORNING SUN COUNTRY PARK**
  Last modified 25/02/2015
  Landscaping and drainage work to the external areas and an extension to the visitor centre. Client has high...
  Open
  Edit detail
  Delete project

- **004 - LAKESIDE RESTAURANT**
  Last modified 25/02/2015
  Sample project - demonstrating how to use the BIM Toolkit - have a play!
  Open

- **007 - NEWTOWN HIGH SCHOOL**
  Last modified 25/02/2015
  New high school for 2,500 children aged 11-18. Must have community aspirations...
  Open

- **011 - A169 HIGHWAY EXTENSION**
  Last modified 25/02/2015
  Highway extension to link Newtown with Oldtown through the Newtown conservation area.
  Open

A collection of projects
003. Morning Sun Country Park

Location: Newtown Country Park, Newtown County, NE28

Reference:
A unique identifier for your project consisting of numbers, letters and/or symbols.
003

Title:
Morning Sun Country Park

Address:
Newtown Country Park, Newtown County

Location:
Enter the postcode of your project and use the map below to refine the location if required.
NE28

Latitude: 55.01616066399307, Longitude: -1.524957988681638

Information at a project level
Information at a stage level

- **Stage deadline**: 1 February 2015
- **Construction start**: 1 September 2015
- **Construction end**: 18 December 2015
- **Construction cost**: £2,200,000
- **Environmental assessment rating**: BREEAM: Excellent

Working together to define the brief with the client advisor and cost consultant.

Key tasks include assembling the project team - agreeing the tasks and deliverables as far as possible.
At the start of the project the client has not assembled their team.
At strategy/brief stage it is possible to determine information needs.
Template tasks can be modified, removed and added to.
Tasks and deliverables are assigned to roles prior to the team being assembled.

This information may be exported.
Assessment and need

Export to MS Excel for inclusion within the EIR document (PDF)

...and export to IFC/COBie for digital re-use
Moving into the design phases the team is now assembled and the information requirements grow.
Level of detail guidance can be defined for each deliverable.
Level of **information** guidance can be defined for each deliverable.
A definitions library of 6,000 items across all construction disciplines will be provided.
RICS have joined the core team and have provided classification mappings to NRM1.
CO-45-75-70
Single Social Recreation Complexes
Uniclass 2015 – Table EN Entities

EN-45-20-70
Single Dining Buildings
Uniclass 2015 – Table AC Activities

AC-55-50-68 Public Dining
AC-65-30-50 Men's Changing
EE-25-40-10 Internal Walls and Fences
SP-65-30-53 Men’s Public Toilets
Uniclass 2015 – Table SS – Systems and Table PR - Products

SS-35-70-70-92 Wash Basin Systems
PR-45-35-70-22 Proximity Sensor Controls
The NBS ecosystem
Paul Swaddle
ICIS DA, Brno 2015
• 40+ years of information management
Linking everything together

- Object-oriented
- System-based
- Connecting and sharing information

- Creating an ‘ecosystem’ of related tools as the foundation of best-practice BIM processes
124 Wash basin assembly

For specific requirements for wash basins in health care facilities, consult the assembly and component data sheets. Select the appropriate water supply fittings in relevant product clauses. For ergonomic considerations, refer to HBN 00-03 Appendix 1.

Clinical basin assemblies require:

- Health care clinical basin:
  - Water supply fittings: HBN 00-10 TB H2a thermostatic combination mixer tap.
  - Wastes: Not required (integral open back outlet).
  - Trap: HBN 00-10 TRR1/P resealing bottle trap.

General health care basin assemblies require:

- Health care general basin:
  - Water supply fittings: HBN 00-10 TP5 pair lever action thermostatic monobloc pillar mixer tap.
  - Wastes: HBN 00-10 WT3 waste with plug and chain.
  - Trap: HBN 00-10 TRR1/P resealing bottle trap.

Health care hand rinse basin assemblies require:

- Health care hand rinse basin:
  - Water supply fittings: HBN 00-10 TP6 thermostatic monobloc pillar self-closing press action mixer tap.
  - Wastes: HBN 00-10 WT1 flush strainer waste.
Welcome to the award-winning NBS National BIM Library

The only BIM object library which directly links to the market leading NBS specification software

Find BIM objects

Download plug-ins
Flat roof with polymeric membrane and insulation on beam and block

Flat roof construction comprising: 150 mm beam and block, 2 mm VCL, 150 mm mineral wool slab insulation and 2 mm polymeric membrane.

Flat roof with polymeric membrane and insulation on concrete slab

Flat roof construction comprising: 150 mm in situ concrete slab, 2 mm VCL, 150 mm mineral wool slab insulation and 2 mm polymeric membrane.
Insulation (62)

Category: Roofs (62)

Sub Category:
- Flat (62)
- Pitched (10)

Objects from:
- Manufacturers (62):
  - Sika Sarnafil (23)
  - Kalzip Ltd, A Tata Steel Enterprise (10)
  - Sika Liquid Plastics (10)
  - Sika Trocal (9)
  - Axter Ltd (8)
  - Delta Membrane Systems Ltd (2)
  - NBS (31)

Platform:

Discipline:

G410-ELF Adhered Roof System - Sarnavap 5000E SA

G410-ELF Adhered Roof System - Sarnavap 500E
NBS Create

- A specification tool for use across the project timeline designed with BIM at its centre
- Co-ordinated linkage between Office Master clauses, live project specifications and external information
NBS Create System Outline clauses can be used to generate links to a range of other specification clause types.
An example system performance specification clause within NBS Create

Using NBS allows specification of systems, performance, products, execution and completion requirements.
Each selection in NBS is a link to a clause object, so the information can be interrogated, reported on, scheduled and exported etc.
An example manufacturer product specification clause within NBS Create.
Users of NBS can add clauses to an Office Masters library of clauses reusable on future projects. These can be updated.
Plug-in for Autodesk® Revit®

- Import NBS National BIM Library objects
- Associate object with system outline or product clause
- View clause in NBS Create
- Association report (errors, warnings, non NBS National BIM Library objects)
- Import property information from the NBS Create specification into the model
- Automatically generate specification
- Link specification file to model file
- View NBS Guidance, standards & regulations, access to ribaproductselector.com
- Generate IFC file with combined geometric and specification data
Linking geometric models and specifications
All National BIM Library objects include the NBS specification clause references for quick annotation.
In addition to system and component objects, 2D and material objects may also be annotated.
A report indicates to the user where there is a clash between the annotations in the model and the live specification information.
The user may then view the latest project specification clauses and correct any broken annotations.
Doorset system type C: Internal doors to Restaurant Toilets (D21, D22, D23).

25-50-20/120 - Doorset system type

20-55-35/140 - Internal floor tiling system

45-35-70/407 - Accessible WC Doc

35-70-70/134 - WC assembly

45-35-72/366 - Toilet paper bulk disp

35-70-70/124B - Wash basin assembly

45-35-72/334 - Hand driers type A
Working with office masters
Users can author and maintain Office Master specification content in a private NBS Create library.

This will be used to author pre-populated areas of specification and manage commonly used clauses.

Office Masters can also be associated with objects.
The appropriate information has been stamped into the BIM object from the NBS Office Master clause.
Generating specifications from the model
An NBS specification can be automatically created from the objects in the Revit® model.

By default, the most appropriate generic NBS clause is selected for each NBS National BIM Library object.
Where objects are linked to Office Masters, then a percentage of the project specification will be pre-populated.
The viewer has different display options and internal and external hyperlinks.
BS 8300:2009+A1:2010

BRITISH STANDARD

Figure 8.1 Zones of good, acceptable and poor visual contrast in relation to the LRV of two adjacent surfaces
Dimensions in millimetres

R.2 Methods of measuring LRVs

20-55-90/260 Visual contrast of wood and composite unit flooring systems
- Standard: In accordance with BS 8300.
- Visual contrast:
  - Level surfaces vs wall: As wall surface.
  - Skirtings: Not permitted.
- Use of adhesive tapes to provide visual contrast:

20-55-90/305 Product samples
- Submitals: Wood block.
- Purpose: For use as a reference sample.
- Labelling: Clearly label all submitted samples.
- Timing: Before ordering for project.

45-20-35/320 Construction joint trims
- Manufacturer: Submit proposals.
- Material: Stainless steel.
- Finish: Satin.

45-20-35/340 Floor edge trims
- Manufacturer: Submit proposals.
- Material: Manufacturer's standard.
- Finish: Stainless steel.
Co-ordinating linked project information
25-80-70/120 - Drained and back-ventilated rainscreen cladding system

45-45-95/410 - Cement-bonded particleboard

45-70-06/390 - Stainless steel carrier rails

45-45-85/301_USR - Phenolic foam board
In the specification the user may modify the type of cavity insulation in the wall.
The coordination problem is then highlighted in Autodesk Revit and the user can import data from their NBS specification into the model parameters.
HI PAUL SWADDLE,
HERE'S A LIST OF YOUR EXISTING PROJECTS

Create new project

5 PROJECTS

View:  
Sort: A-Z

Filter by project reference or title...

011 A179 HIGHWAYS EXTENSION
017 MORNING SUN COUNTRY PARK
003 NEWTOWN HIGH SCHOOL
009 OFFICE REFURBISHMENT

Last modified 06/04/2015

Last modified 06/04/2015

Last modified 06/04/2015

Last modified 06/04/2015

Confidential
003. Morning Sun Country Park

Newtown Country Park, Newtown County, NE28

Stage 4. Design

**Objects at Stage 4**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Deliverable</th>
<th>Type</th>
<th>Responsibility</th>
<th>LOD</th>
<th>LOI</th>
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</thead>
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<tr>
<td>Ss_20_05_65_24</td>
<td>Driven precast or prestressed concrete piling system</td>
<td>Big Beam Ltd</td>
<td>(Structural engineer)</td>
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<td>Ss_20_10_75_35</td>
<td>Heavy steel framing systems</td>
<td>Big Beam Ltd</td>
<td>(Structural engineer)</td>
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<td>Ss_25_30_20_29</td>
<td>Flexible doorset systems</td>
<td>ABC Architects</td>
<td>(Architect)</td>
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<tr>
<td>Ss_25_10_20_90</td>
<td>Unitized curtain walling systems</td>
<td>ABC Architects</td>
<td>(Architect)</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Ss_45_40_47_28</td>
<td>Extensive green roof systems</td>
<td>ABC Architects</td>
<td>(Architect)</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
Thank you

paul.swaddle@theNBS.com
sarah.delany@theNBS.com