

# E-NEWSLETTER

KEEPING YOU INFORMED

Issue 12

July 2021

Technology is an enabler for us to transform digitally. In this issue, we will share with industry professionals on our recently developed PUB BIM e-Checker and the simple navigation guide to resources available within the portal.

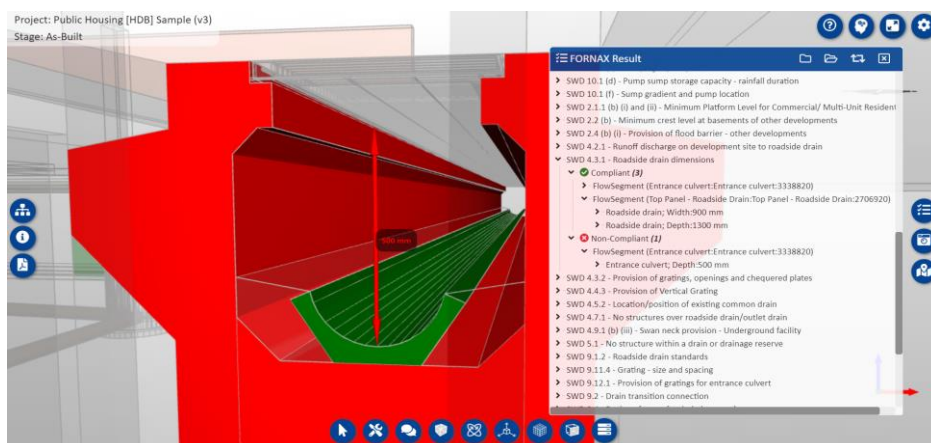
Create your account now to try out the BIM e-Checker!

<https://buildingplanchecker.pub.gov.sg>

## PUB BIM (Building Information Modelling) e-Checker

Today, industry professionals (Professional Engineers/Registered Architects) will send their proposed designs to PUB for approval before commencing their proposed works. Multiple re-submission is common when the submission are non-compliance.

To help the industry in preparing compliant design, PUB has developed the PUB BIM e-checker that allows the industry to self-check their designs for compliance before making a formal submission. This can greatly reduce the need for re-submission. Industry professional will be able to self-check their design using the e-Checker, get a reply highlighting area of non-compliances (within 24 hours) and be able to proceed to rectify their design non-conformities before formal submission to PUB for approval.



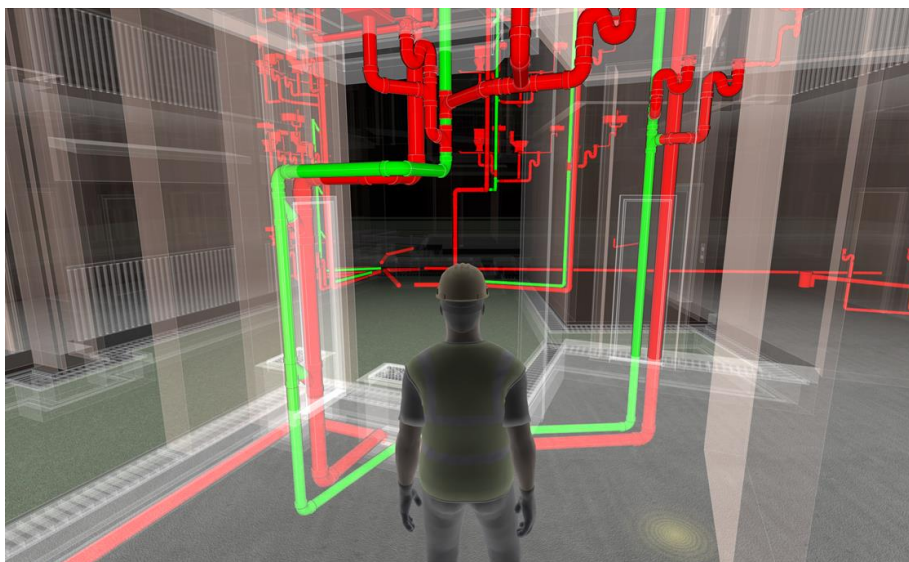
SWD 4.3.1 - Roadside drain dimensions

- Internal width and clear depth of a roadside drain shall be at least 600 mm

## Digitalisation of Regulatory Requirements

This innovation involves the digitalisation of PUB's regulatory requirement found in the Codes of practice for Sanitary and Sewerage Works, Surface Water Drainage and Water Supply Requirements based on Singapore Standards (SS636), which were converted into programming rules.

By using BIM to design their projects, the QP will be able to submit the IFC files into BIM e-checker to assess whether the design is complaint with PUB's requirements and provides a list of results within a day. The users will be able to use the result to amend their design at their own pace without the need to formally make a submission and needing to wait for an officer to review the results. If users can correct these issues and submit their design with no non-compliances upfront, it will ultimately speed up their building plans approval time significantly.

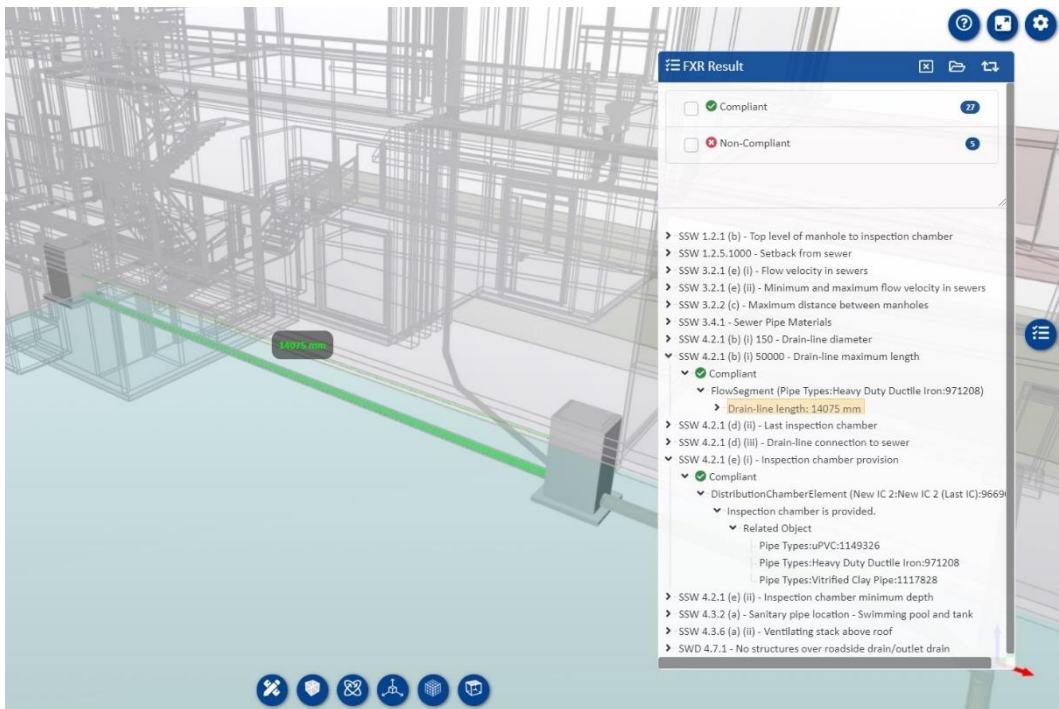


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## Examples of Rule Checking using PUB BIM e-Checker System

The example below shows one of the requirements from Code Of Practice for Sanitary and Sewerage Works (COPSSW), Clause 4.2.1 (b)(i) on distance between drain-lines between 2 inspection chambers not exceeding 50m.

The drain-line in green shows a length of 14m meters, which is a compliant design as it does not exceed 50m length. The table on the right shows a list of PUB requirements that was selected for checking for easy navigation.



This is just one of the 500 rules we have developed to help industry users conduct pre-check on their BIM model before they make a submission to PUB. This enables users to get an assessment on their design for PUB requirements much more quickly.



## IFC (Industry Foundation Classes) File

QRcode to website

The PUB BIM e-Checker Portal requires BIM files in their native format to be exported using IFC (Industry Foundation Classes) format to be able to upload and verify using the BIM checking system. IFC was developed by buildingSMART International and is a neutral file format that can be read and edited by other BIM software. It is used to exchange information using established standards commonly used in the architecture, engineering, and construction industries. This provides an interoperable solution between BIM softwares like Autodesk Revit, GRAPHISOFT Archicad, and Bentley OpenBuildings Designer. Thus, the PUB BIM Checking System requires the native BIM models to be exported to IFC format, together with the relevant IFC parameters.



Link: <https://buildingplanchecker.pub.gov.sg>

## Self Help and Resources within Portal






PUB has made various resources readily available to assist users in modelling using BIM authoring software like Autodesk Revit to suit the requirements of the PUB BIM Checking System and ensure accurate verification results. The resources made available include video guides, portal navigation guides and detailed modelling guides for Revit, Archicad, and OpenBuildings Designer, as well as other resources that could help the user prepare their models for rule-checking, i.e. file containing BIM objects prepared to support the system rule checking. Next, we will show users how to navigate the PUB BIM e-Checker portal to obtain the various resources.






## Video Guides

In the PUB BIM e-Checker portal, video guides have been prepared for new users to watch and learn how to use the e-checker. These videos are viewable even without creation of an account.


No.	Video Guides	Description	Links	QR Codes
1	Getting Started	Account Creation and Project Creation	<a href="https://buildingplanchecker.pub.gov.sg/videotutorials?v=video-1">https://buildingplanchecker.pub.gov.sg/videotutorials?v=video-1</a>	
2	Regulatory Compliance Check	How to run rule-checking on IFC models in PUB e-Checker	<a href="https://buildingplanchecker.pub.gov.sg/videotutorials?v=video-2">https://buildingplanchecker.pub.gov.sg/videotutorials?v=video-2</a>	
3	Reviewing Results	How to review results using PUB e-Checker Portal and BCF (BIM Collaboration Format)	<a href="https://buildingplanchecker.pub.gov.sg/videotutorials?v=video-3">https://buildingplanchecker.pub.gov.sg/videotutorials?v=video-3</a>	
4	Comparing Models	How to compare models in different stages and review results	<a href="https://buildingplanchecker.pub.gov.sg/videotutorials?v=video-4">https://buildingplanchecker.pub.gov.sg/videotutorials?v=video-4</a>	
5	Revit Classification	How to apply classification to elements required by PUB using Autodesk Classification Manager for Revit	<a href="https://buildingplanchecker.pub.gov.sg/videotutorials?v=video-5">https://buildingplanchecker.pub.gov.sg/videotutorials?v=video-5</a>	

## PUB BIM e-Checker Portal User Guides

For information regarding using the PUB BIM e-Checker Portal, guides also have been prepared to help users navigate the portal, learn how to use the PUB BIM Checking System, view their checking results, and review them. User must be logged in to view the files.

Filename	Description	Links
Portal User Guide	PDF containing instructions and a brief explanation of the functionalities of the portal	<a href="https://buildingplanchecker.pub.gov.sg/api/footer/documents/userGuide">https://buildingplanchecker.pub.gov.sg/api/footer/documents/userGuide</a> 
PUB BIM e-Checker Portal User Navigation Guide	PDF containing information on navigating the FORNAX 3D Viewer and viewing checking results	

## General Modelling Guides

Filename	Description	Links
BIM Modelling Guidelines for Revit, Archicad and OpenBuildings Designer	PDF containing detailed modelling guide to obtain more relevant information needed to prepare their models to support rule-checking using PUB BIM Checking System	<a href="https://buildingplanchecker.pub.gov.sg/downloads/generalGuide">https://buildingplanchecker.pub.gov.sg/downloads/generalGuide</a> 
Federated Model Best Practices	PDF containing information regarding the proposed federated model breakdown and scenarios for use with the PUB BIM Checking System	
IFC Mapping	Excel sheet containing tabulated IFC requirements per rule grouped per code of practice (SSW, SWD and WTR)	

Please reach out to [Low\\_Yang\\_You@pub.gov.sg](mailto:Low_Yang_You@pub.gov.sg) if you have any potential projects using BIM and require assistance from PUB!