

BIM Objects
for
PECAVOID[®] Ground Heave Solution

March 2018

1. Introduction

The BIM object for PECAVOID® have been created to comply with the NBS BIM Object Standard.

The BIM object is a REVIT floor system family, for this reason a sample of each of the products can be found within the BIM object file. The user should be able to obtain the required products from this BIM object file and add them to their project families. Refer to 1.1 and 1.2.

The thickness of the different layers that compose each product are the accurate manufactured thicknesses. Although bespoke manufactured products may also be available, please contact Max Frank LTD.

Grades should be defined by the user in accordance with concrete depth of the structural element to have ground heave protection. Refer to 1.2.2 and 1.2.3.

All parameters relating to PECAVOID® properties are 'Shared Parameters' and as such all properties of all instances of any PECAVOID® element modelled can be added to REVIT schedules. This can be of significant usefulness for take-off purposes, modelling and model management purposes. A PECAVOID® properties schedule is already created within the BIMObject file which can be copied into the user project as an example.

PECAVOID® BIM Object geometry and all parameters are consistent with building smart IFC 2x3. (IFC 2x3 coordination view 2.0). PECAVOID® BIM Object was created in REVIT 2016.

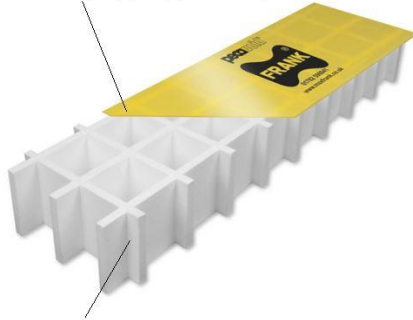
This BIMObject is to be used in conjunction with MAX FRANK Pecavoid® Technical information.

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2. Product range and description

Pecavoid® CB/RDB

4.5mm polypropylene top



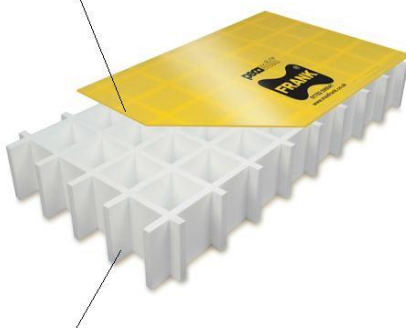
EPS cellular base

The CB range is to be used when heave protection is required for ground beams and pile caps.

RDB is the reduced depth series and as such they can be used when shallower void is a requirement.

Pecavoid® CL/RDS

10mm polypropylene top



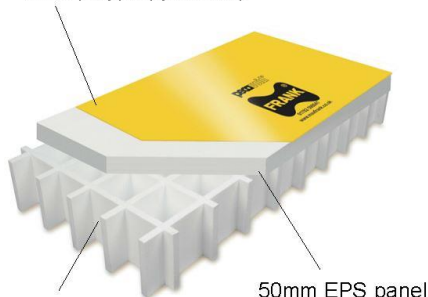
EPS cellular base

The CL range is to be used when heave protection is required for concrete slabs.

RDS is the reduced depth series that is required when a shallower void is presented.

Pecavoid® CS/RD+

2mm polypropylene top



EPS cellular base

50mm EPS panel

The CS range is required under concrete slabs when insulation is also needed.

RD+ is the reduced depth series and such as they can be used when a shallower void is presented and insulation is a requirement.

3. Notes to users

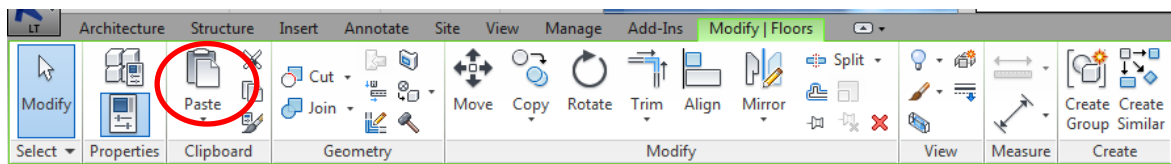
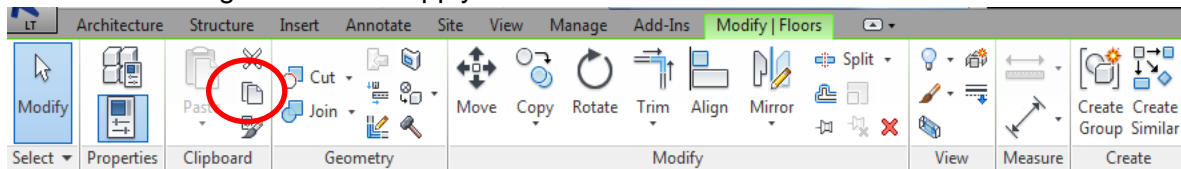
3.1. Grades

This Model contains a sample BIM Object of every product available in the range and grades. Available Grades (Structural Load Bearing Capacity) for the different products are contained in each product sample under 'AvailableGrade' parameter and the user should select the required grade (see note 5).

BIM objects of bespoke manufactured products may be available, please contact us for more information.

3.2. Inserting the objects

To incorporate any of the Pecavoid® BIM objects in your working Model select and **copy** the desired product in the BIMObject model and **paste** it into your working model using the "**Paste**" button in the "**Modify**" Quick Access Toolbar. This will place an instance in your working model (which can then be deleted) and loads the "System Family" of that Pecavoid® BIM Object into your working model (which will become available to model instances of the BIM Object). It is recommended that the parameters concrete depth and selected grade are accurately set for each element modelled to achieve accurate and complete data to be shared with design team and supply chain.

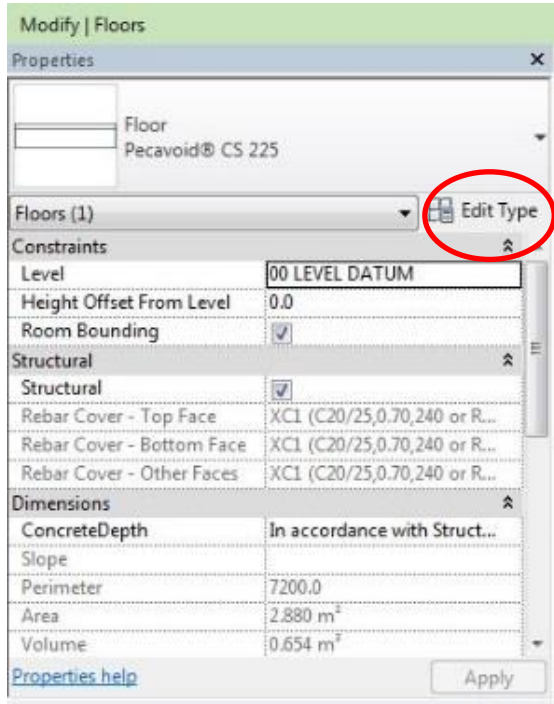


3.3. Grade Selection walkthrough

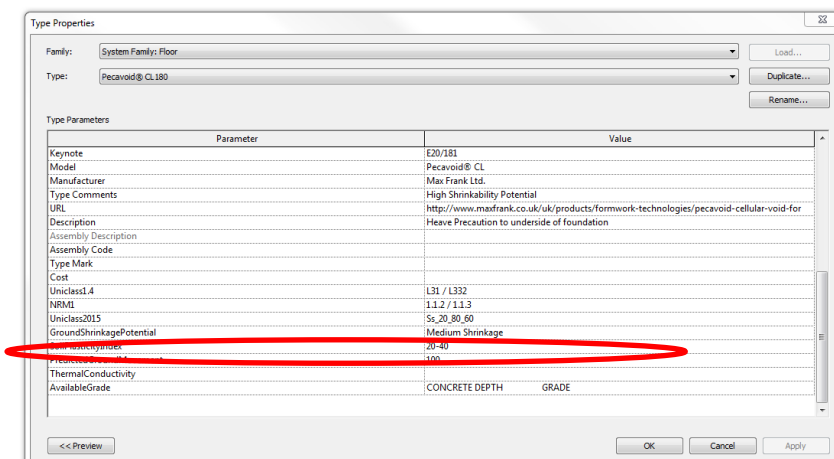
(This assumes that instances of Pecavoid® are already modelled).

Select the desired Pecavoid® instance and on the 'properties window', click on 'edit type'.

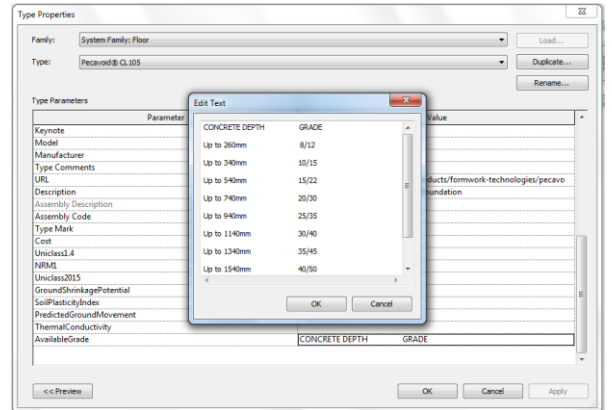
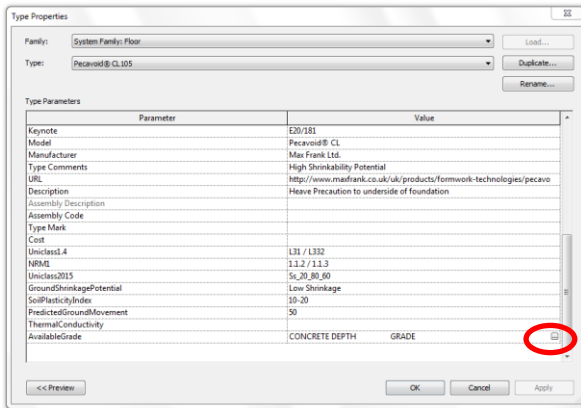
This should bring up the 'type properties' window.



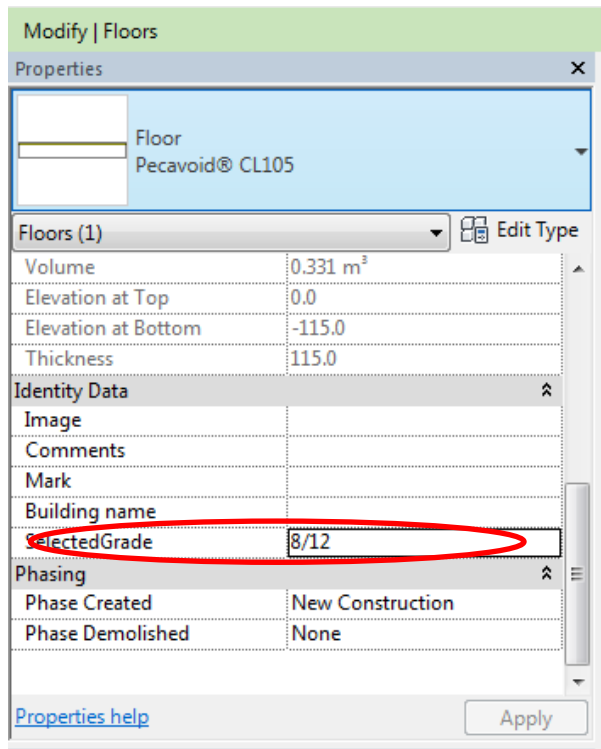
Find 'Available Grade' under 'identity data' set of properties.



Select the row and then click on the **browse** button on the far right side of the row to show the available grades and which ones correspond with your desired concrete depth.



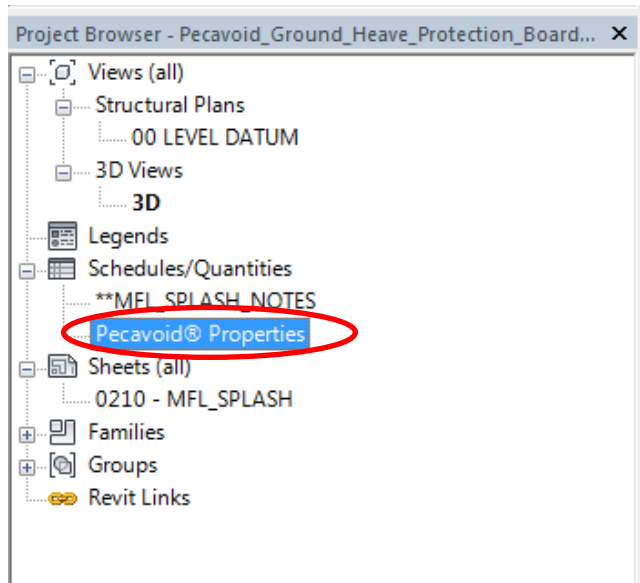
Then go back to the instances properties window and find '**Selected grade**' under the '**identity data**' row and **type** your chosen grade in the row, e.g. 8/12.




3.4. Alternative Grade Selection walkthrough

Assuming all Pecavoid® elements are modelled and that 'ConcreteDepth' is accurately set to all Pecavoid® elements.

Copy the Pecavoid® Properties schedule into your project, **select** and **open** it.



Find the 'AvailableGrade' parameter and click on the **browse button** on the right hand side of the cell to highlight the available grades.

<Pecavoid® Properties>						
I	J	K	L	M	N	O
CompressibleLegDepth	ThermalConductivity	Manufacturer	AvailableGrade	ConcreteDepth	SelectedGrade	Area
105		Max Frank Ltd.	CONCRETE DEPTH 	In accordance with Structural Element	Refer to Pecavo	3 m²
150	0.036 W/(m²K)	Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
100		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
85		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
90		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
130	0.036 W/(m²K)	Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
175		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
180		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
225	0.036 W/(m²K)	Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
155		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
160		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
200	0.036 W/(m²K)	Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
250		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
255		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
300	0.036 W/(m²K)	Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
220		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
225		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
265	0.036 W/(m²K)	Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
300		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
305		Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
350	0.036 W/(m²K)	Max Frank Ltd.	CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²

Under 'SelectedGrade' type the grade in accordance with the concrete depth and available grades.

<Pecavoid® Properties>						
I	J	K	L	M	N	O
Compress			AvailableGrade	ConcreteDepth	SelectedGrade	Area
1			CONCRETE DEPTH	250	8/12	3 m²
1			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
2			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
2			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
1			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
1			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
1			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
1			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
2			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
2			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
1			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
1			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
2			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
2			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
1			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
2			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
2			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
3			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
3			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	1 m²
2			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
2			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
3			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²
3			CONCRETE DEPTH	In accordance with Structural Element	Refer to Pecavo	3 m²

Edit Text	
CONCRETE DEPTH	GRADE
Up to 260mm	8/12
Up to 340mm	10/15
Up to 540mm	15/22
Up to 740mm	20/30
Up to 940mm	25/35
Up to 1140mm	30/40
Up to 1340mm	35/45
Up to 1540mm	40/50