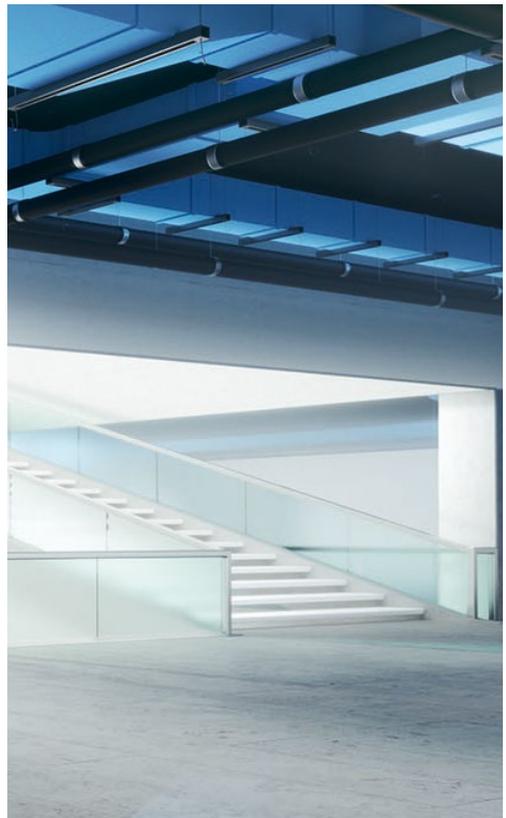


KNOW HOW

Building Information Modelling (BIM)

This manual provides a step-by-step guide on using Armacell's BIM plug-in and integrated ArmaWin calculator, for your planning of technical insulation in the Autodesk Revit® software. **At Armacell, we help you succeed.**

www.armacell.com



Building information modelling (BIM)

Our job does not start nor end with the manufacturing and supply of the right products. We are there from the beginning of the project to help you choose the right product.

Armacell's BIM plug-in is designed to help you specify the right thermal and acoustic insulation for your entire ducting and piping system design. Seamlessly integrated in the Autodesk Revit® software, you can model details of your design in 3D to detect any design or logistics issue, reduce addition and alteration works and ultimately improve productivity.

ARMACELL'S BIM PLUG-IN

Building Information Modelling (BIM) is a computerised system of modelling the precise details of design, engineering and architecture in three dimension. It is an aspect of a construction methodology called virtual design and construction, which is used to simulate the construction process before execution. This helps to detect potential design and logistics problems early on, reduce addition and alteration works and ultimately improve productivity.

When you are designing the duct- and pipework of heating, ventilation and air-conditioning (HVAC) systems, you can use BIM to simplify your selection of technical insulation. Often, the equipment such as pipes or ventilation ducts are already decided, and your choice of insulation will depend on various parameters – such as the diameter of the pipe or the operating temperature conditions. Upon reviewing different product materials and catalogues, the product details would then need to be manually entered into the system.

With the new BIM plug-in, product details can be automatically inserted into your drawing, facilitating your planning and design process and reducing the chances of error.

Our BIM plug-in helps you to select thermal and acoustic insulation on the Revit software¹. There are two ways to specify the material in your design:

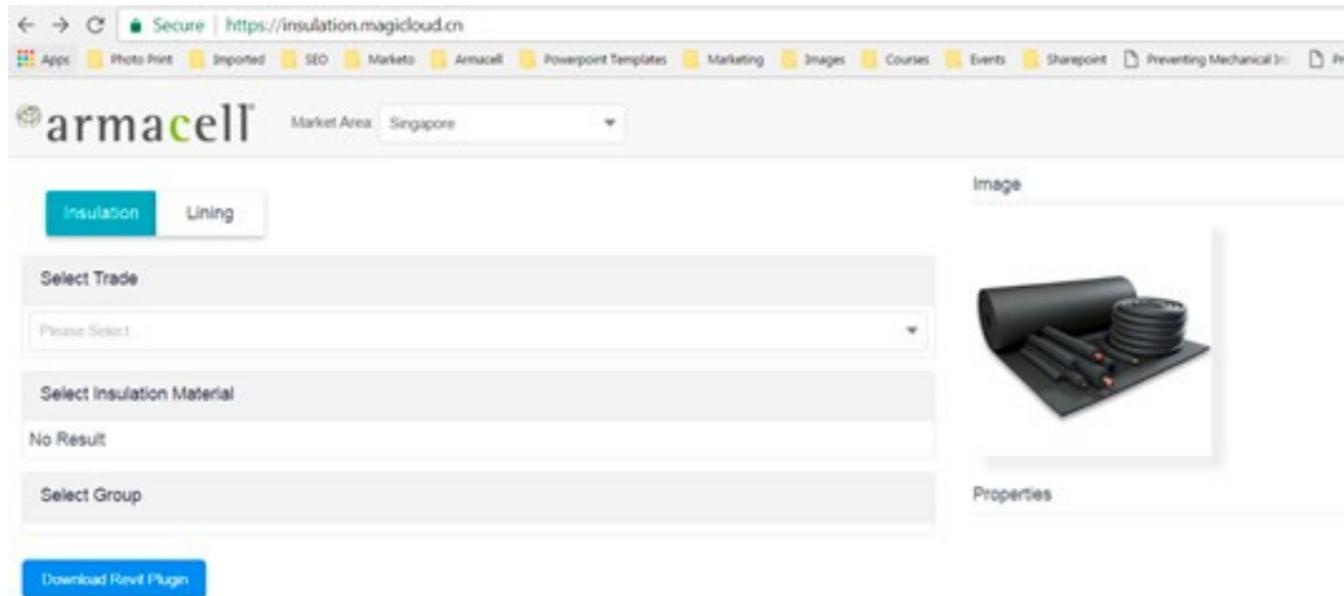
- 1 If you are aware of the product to be used, you can simply select the desired material from the tool; or
- 2 You can use the integrated ArmaWin calculation tool, to identify the material and required thermal insulation thickness for your application, and then insert the identified product details into your drawing.



DOWNLOADING THE PLUG-IN

The thermal insulation plug-in for BIM was specially developed by Armacell to be used with the Revit® software. With just a few simple steps, you can effortlessly select the right material for your ducting and chilled water pipe system design – be it for thermal or for acoustic applications, or on the exterior as a wrap or in the interior as a lining. Follow the steps outlined here to install the plug-in on your computer.

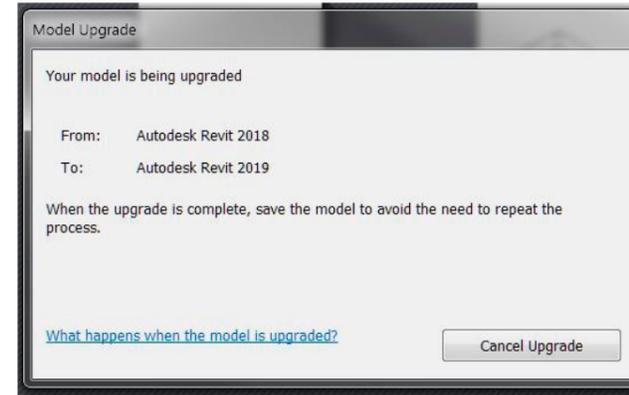
- 1 Ensure that you have Autodesk Revit installed on your computer, and that you have an active subscription to Revit. Visit <https://www.autodesk.com/products/revit/overview> for more information.
- 2 Visit insulation.magiccloud.cn and click “download Revit plug-in” to access the latest version of the software. At the moment, versions that support the Armacell thermal insulation plug-in include Revit 2017, Revit 2018 and Revit 2019.
- 3 Log into MagiCloud. If you do not have an account, visit <https://www.magicad.com/en/cloud/subscribe> to set up your free account.



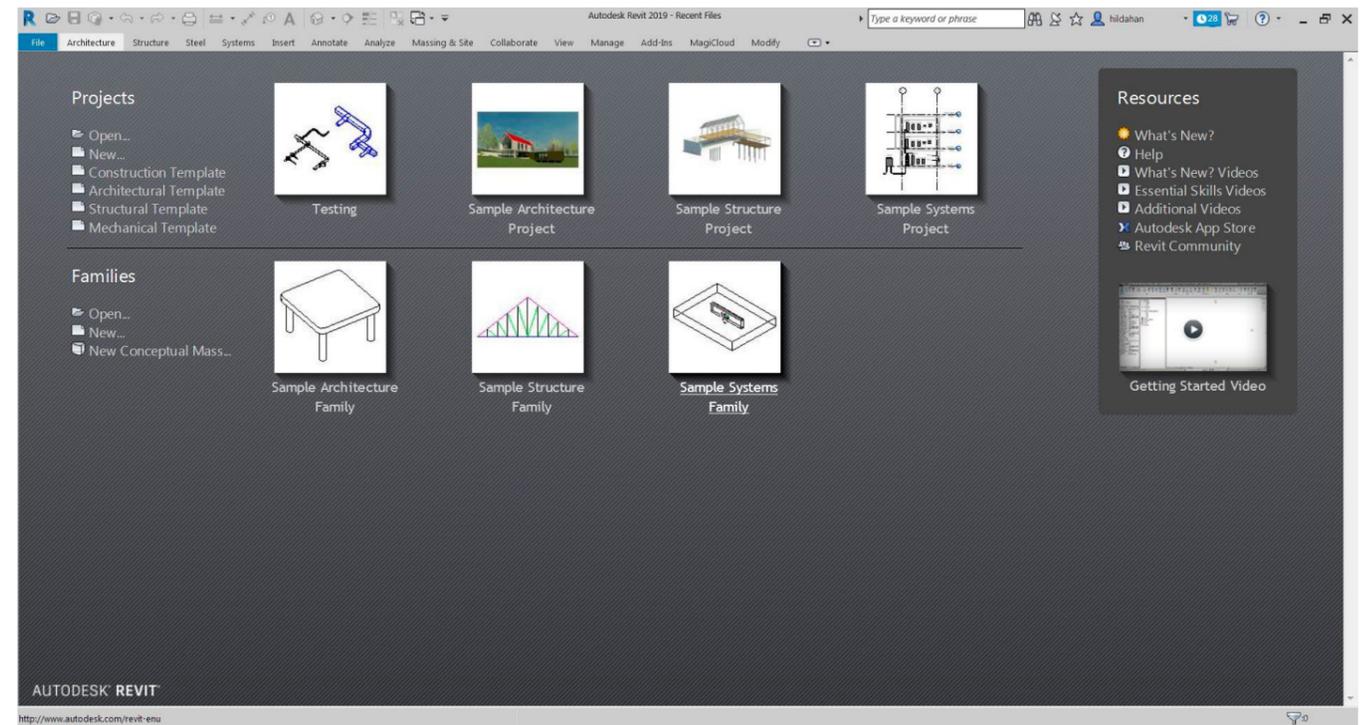
USING THE BIM PLUG-IN

Whenever you open the Revit software, a notification similar to the below will be displayed in case any updates to the software is available.

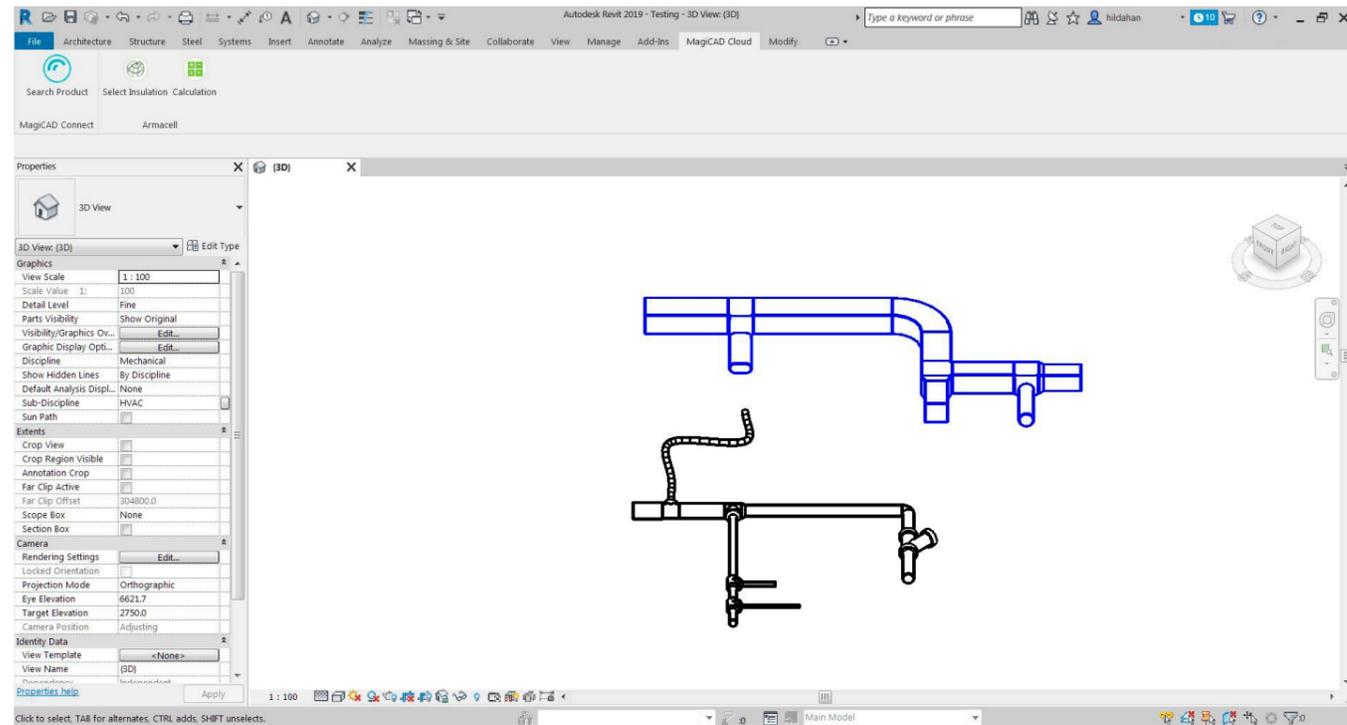
// Note: You should be connected to the Internet to use Armacell's BIM plug-in. If you are offline, you can continue to use Revit, without the technical insulation plug-in.



Once the update is complete, you will see a screen similar to the below. You can open a new project or choose to work on an existing project. For the purpose of this manual, we will open the “Testing” file as an example.



This is the main page of Revit with the "Testing" project open.



In this example, the main screen shows the drawing of a duct and a pipe system. You can use your mouse to specifically select just one section on which you would like to apply insulation. Or, you can hold down the left button of your mouse to hover and select multiple sections of the drawing.

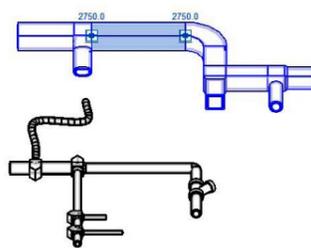
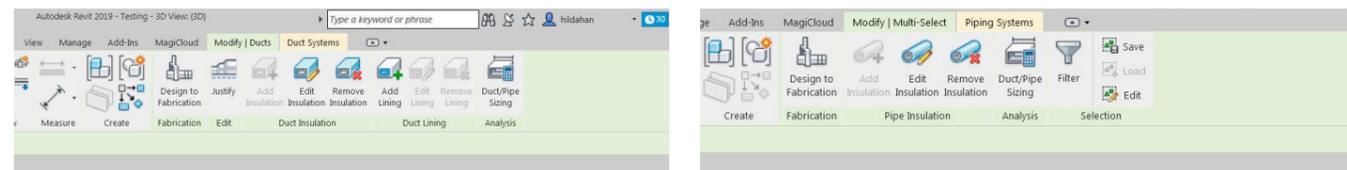


Figure 1: Single selection of a duct section

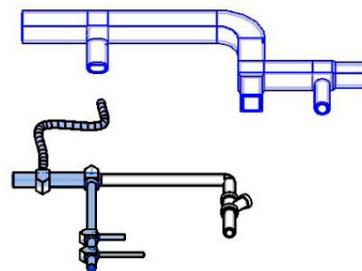
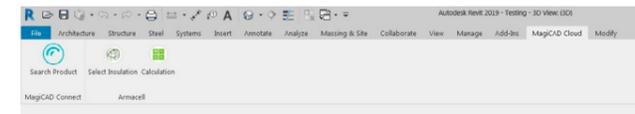


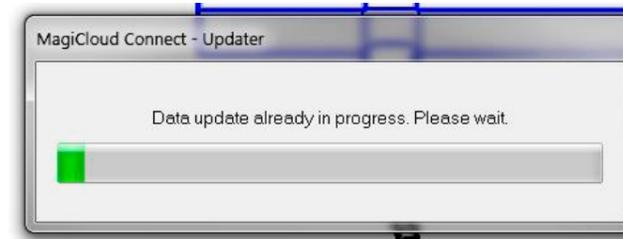
Figure 2: Multiple selection of a pipe section

From the main menu of Revit, refer to the top navigation bar and click on MagiCloud. You will then see two tools here, namely "Selection" and "Calculation".

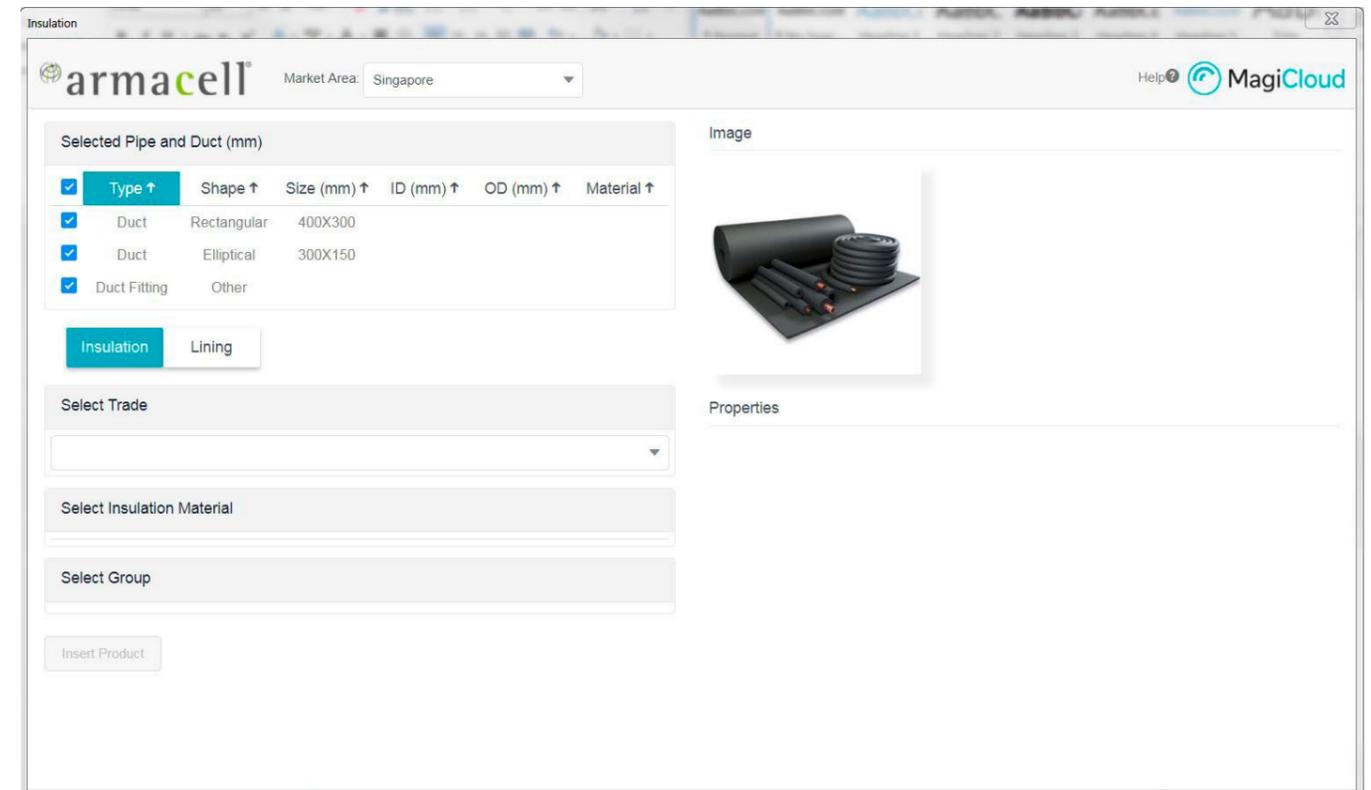
- Selection refers to the BIM plug-in, which will show you information related to the insulation product you are interested in and would like to have inserted into your project drawing.
- Calculation refers to the ArmaWin thermal insulation thickness calculator. You can use this tool to determine the required insulation thickness for your application design.

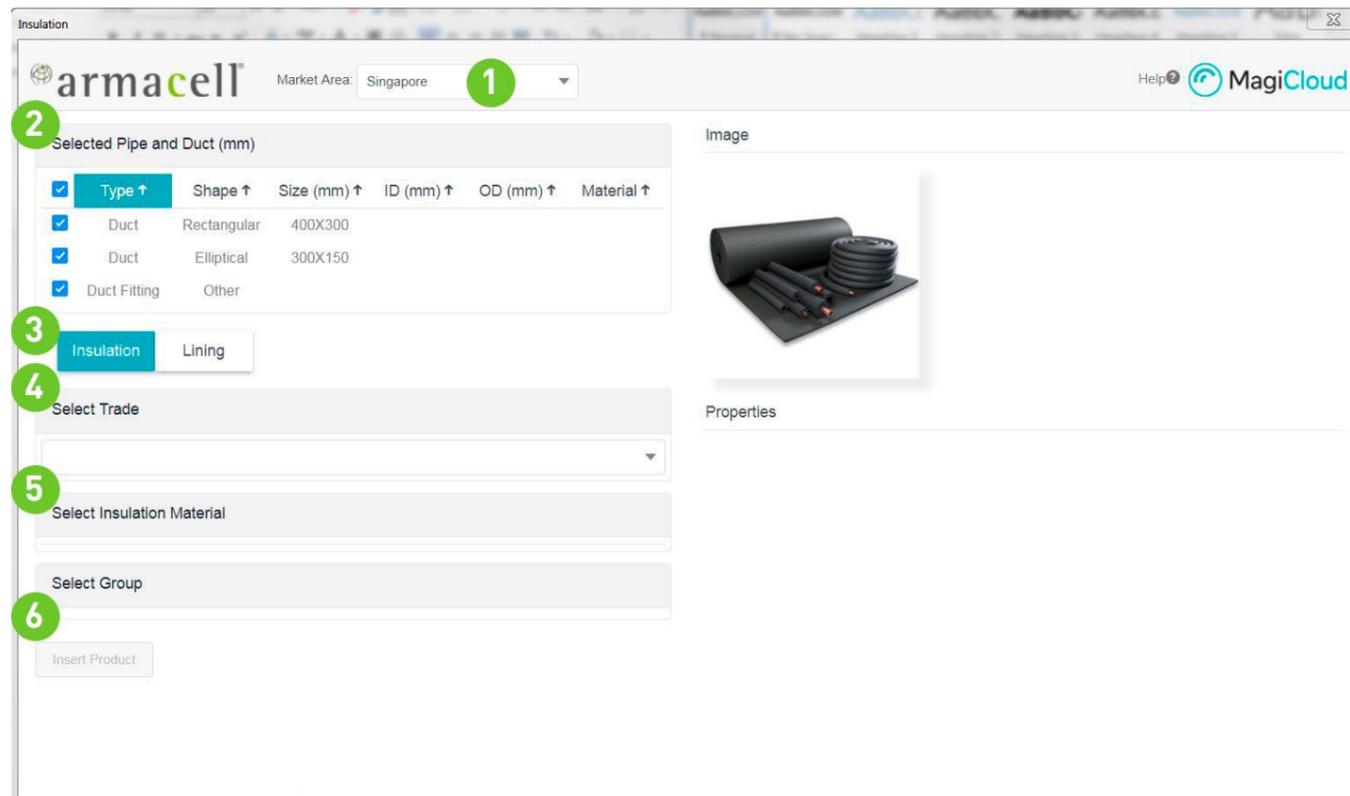


Click on "Selection" and a pop-up similar to this image will appear. This is because Armacell's BIM plug-in and integrated ArmaWin calculator are cloud-based tools, to ensure that you have access to the latest Armacell product information.



Once the update is complete, a new window similar to the below will appear, and you can select the desired insulation product based on your project requirements.





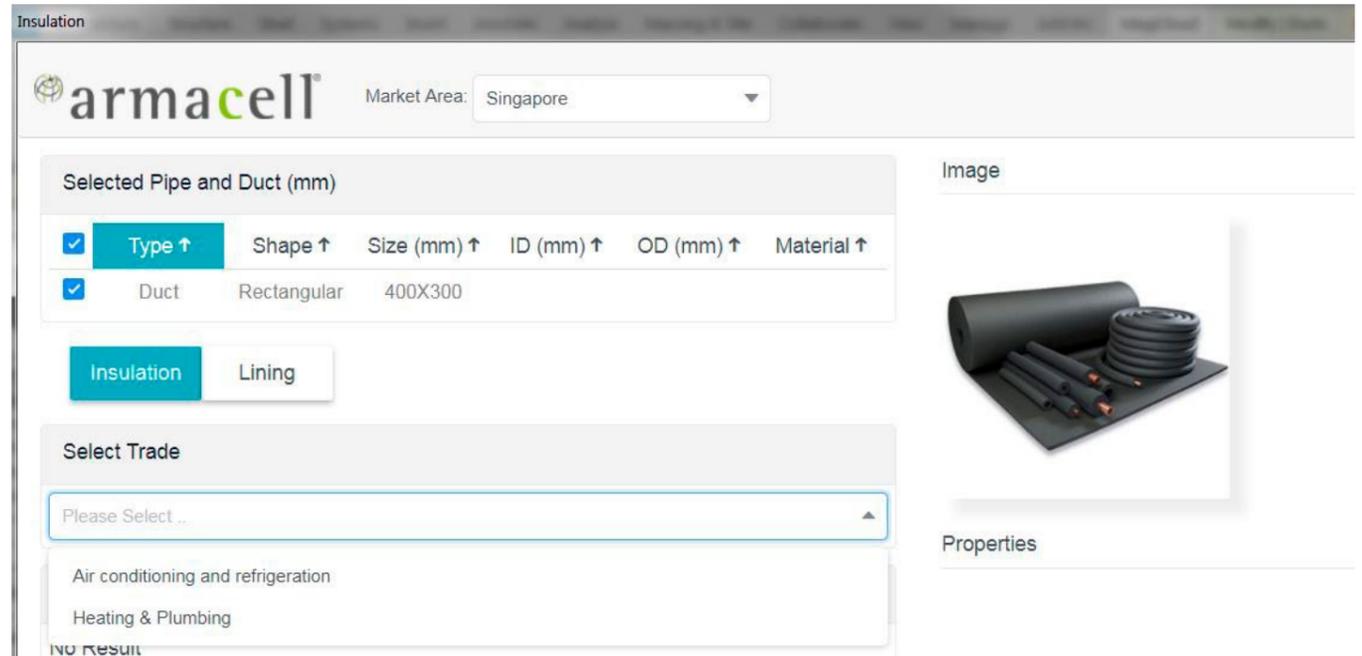
1 Select the country in which your project will be sited from the drop-down menu. The current options include Australia, Mainland China, Hong Kong, India, Indonesia, Japan, Korea, Singapore, Thailand, Vietnam and the Philippines.



2 This area displays the portion of the drawing that you selected in Revit earlier. If your selection involves multiple duct or pipe sections, you can choose to proceed with either the complete selection or just a portion of it.

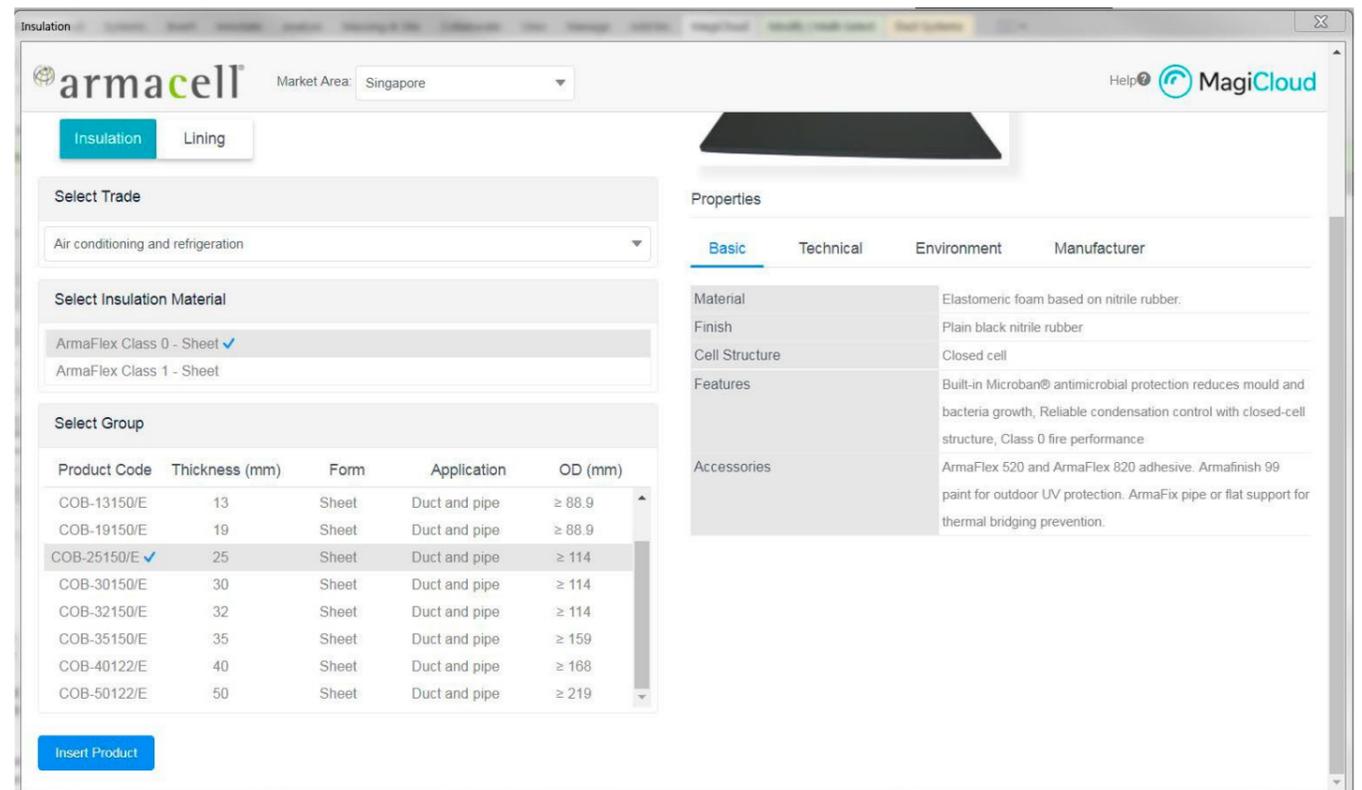
3 In this duct example, thermal insulation can be installed on the exterior of the ductwork, or on the inside of the system. If the material is to be installed on the external surface of your design, you should select "Insulation". If it is to be installed on the inside of your design, you should select "Lining".

4 Select the application purpose.

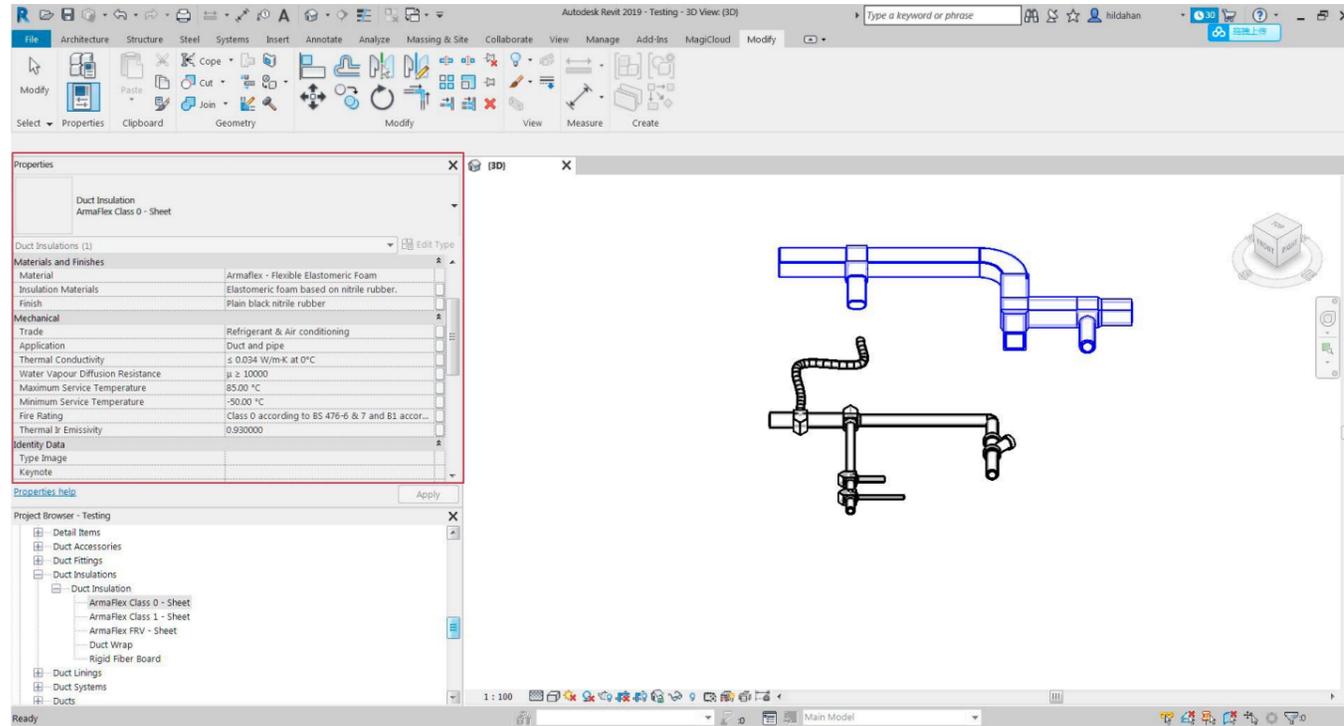


5 Depending on your application purpose, the insulation material option changes. Choose your desired product and insulation thickness. Information about your selected product will appear below the product image, on the right side of your screen.

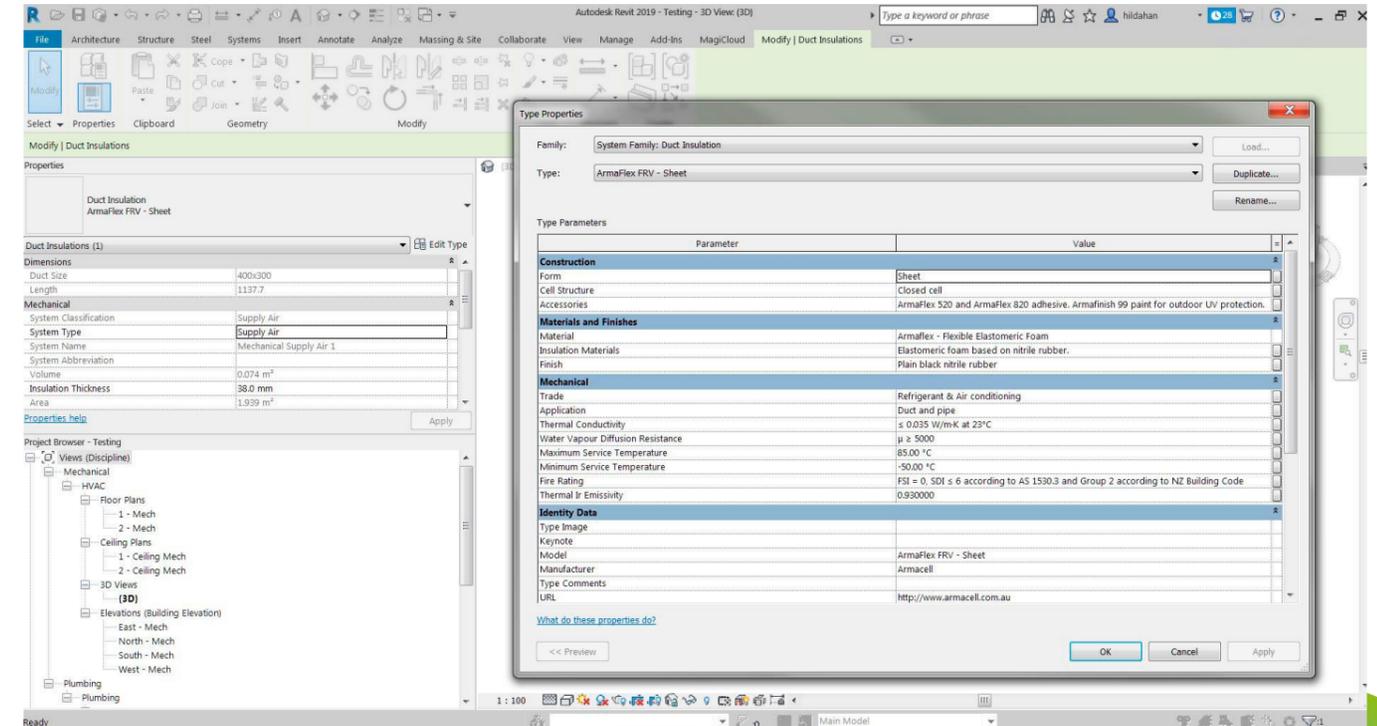
6 You can click on "Insert Product" to have the details of the selected product added into your Revit drawing.



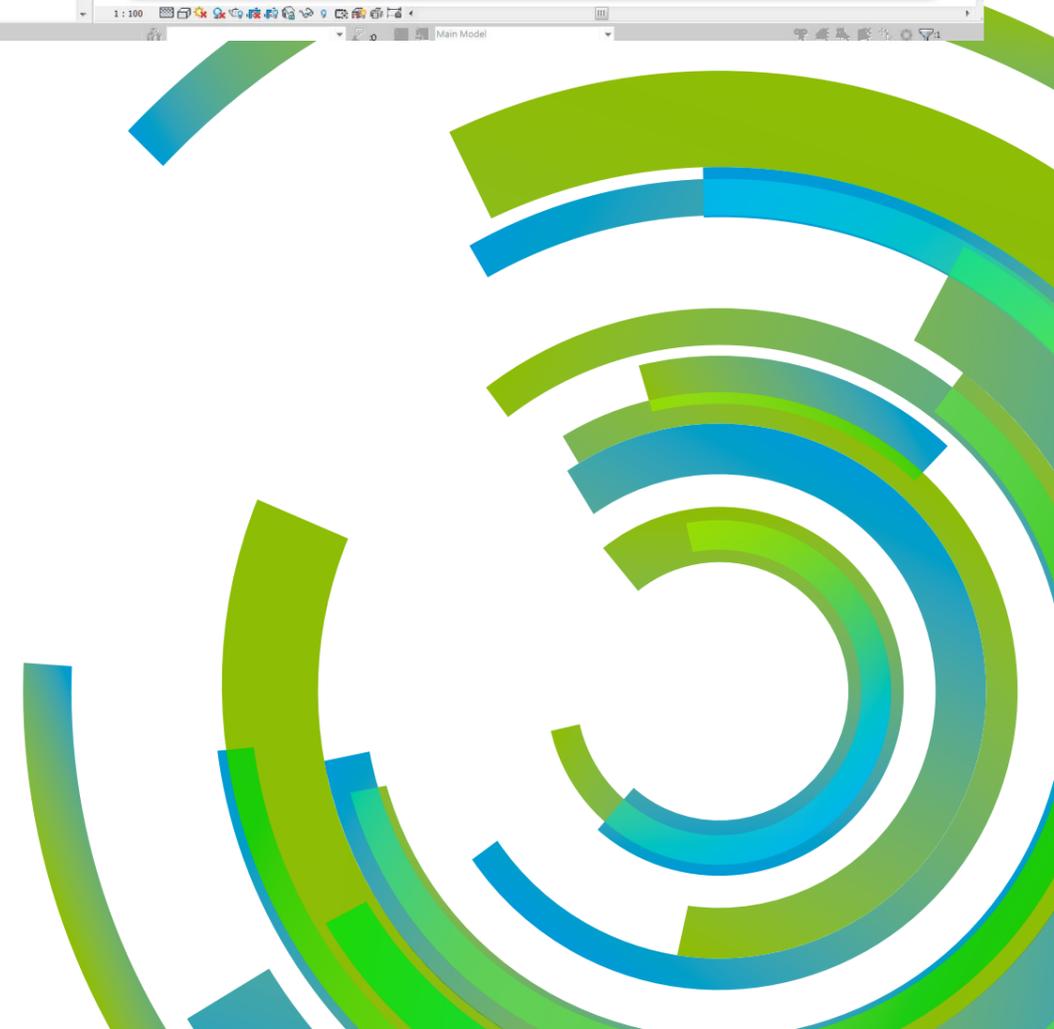
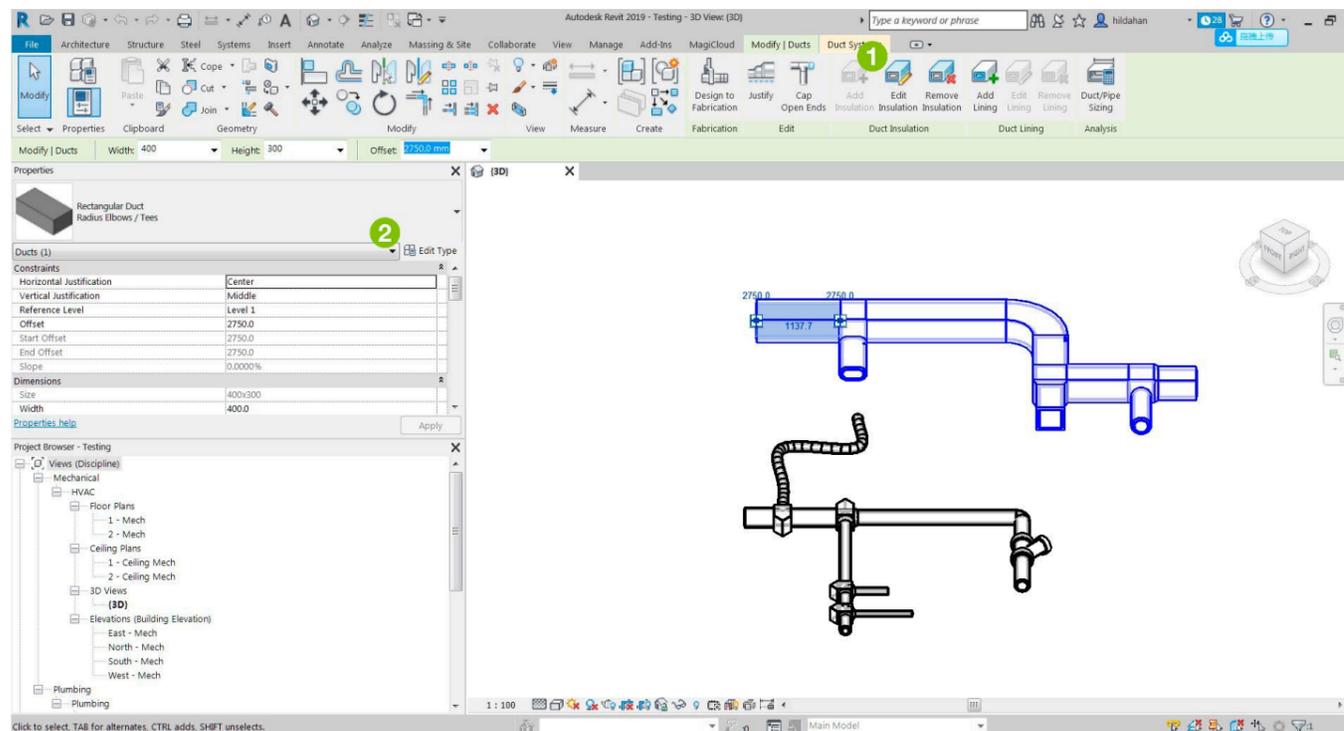
When you return to the Revit program, you would see that the insulation material that you selected is now displayed in the relevant section on the left.



A pop-up window with all information relating to the insulation material specified in the drawing will appear.



You can also retrieve additional information about the insulation material by selecting the section of interest, click on "Edit insulation" icon, followed by "Edit Type" on the right corner of the Properties bar.



ARMAWIN

The right insulation material matters as it directly affects the reliability of its long-term performance, especially in condensation control. Based on project details known to specifiers, such as operating temperatures and humidity, ArmaWin can be used to provide them with technical recommendations about the appropriate insulation thickness for their application, as well as the right Armacell product for their project.

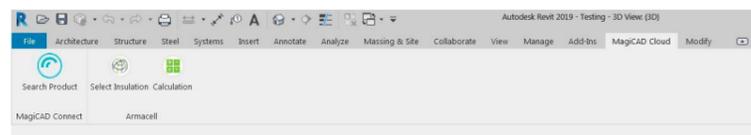
In addition to the International Standards Organisation (ISO) and Verein Deutscher Ingenieure (VDI) calculation rules, ArmaWin includes two additional calculation rules, namely the Japanese Industrial Standard (JIS) and the Chinese GB/T standards. Offering the option to select different pipe materials and their respective standards, customers can choose the relevant local standards for their project. In cases where non-standard pipe sizes are required, users can easily perform the required calculations, as ArmaWin allows for custom input of pipe diameter and emissivity values.

ArmaWin is available as a stand-alone, cloud-based calculation programme, and can be downloaded from Armacell's website. An optimised version is integrated in the Revit software to help users quickly determine the product of the right insulation thickness, and insert the relevant product information in their drawings.



USING THE INTEGRATED ARMAWIN CALCULATOR

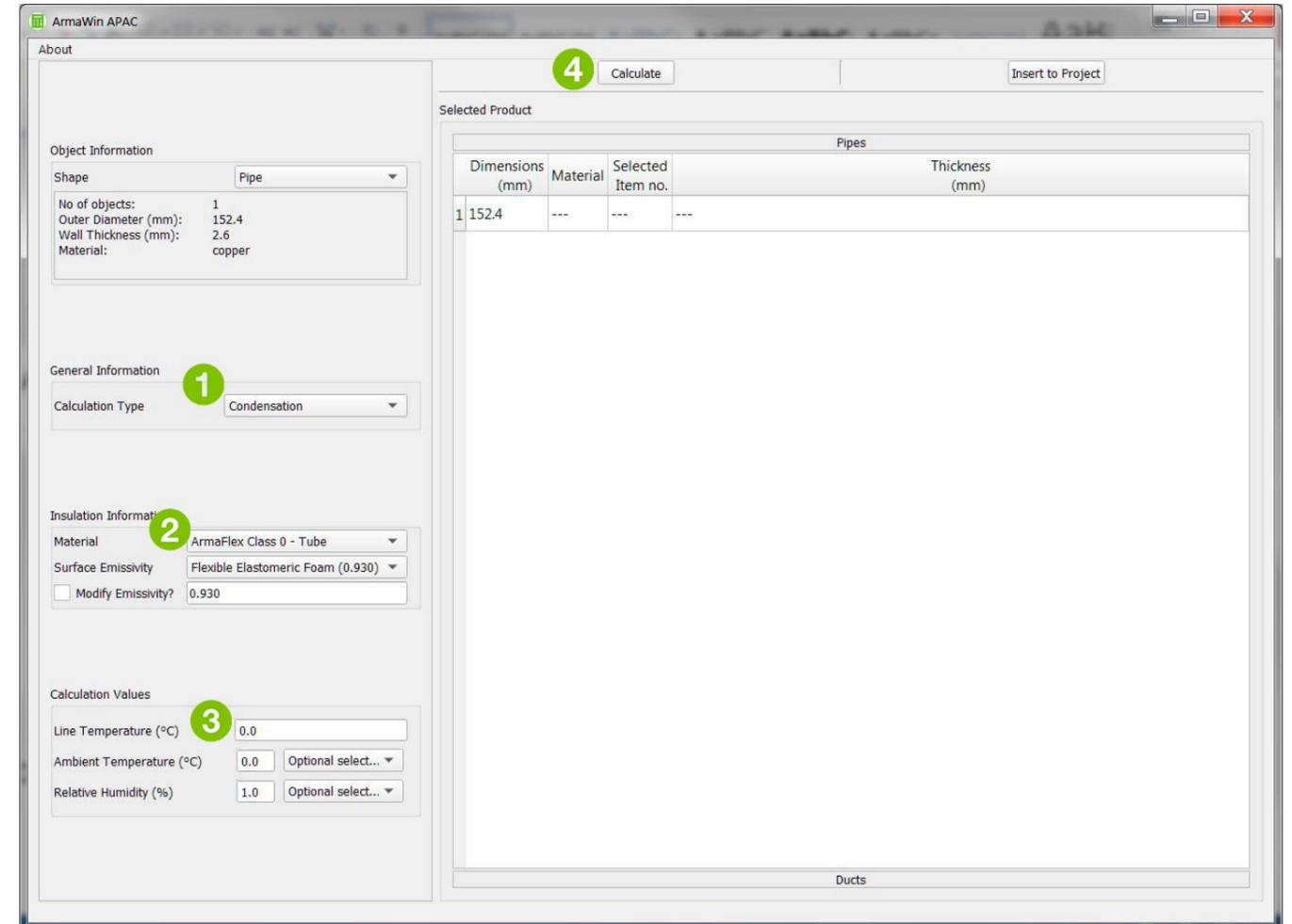
For guidance about the right thermal insulation thickness for your application, click on the calculation icon.



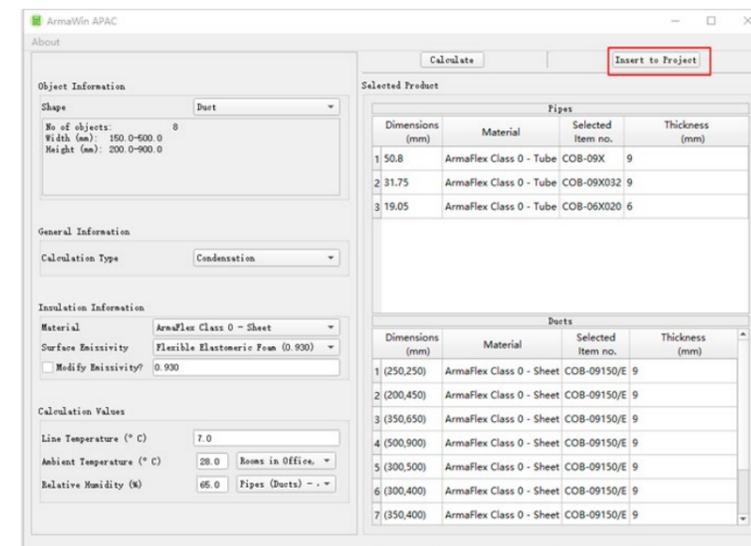
An image such as the below will appear as the programme accesses the database on your computer.



The integrated ArmaWin calculator will appear as a separate window. Edit the details as outlined in points 1 to 3 in the image below, and click Calculate.



The recommended product will appear and you can click "Insert in Project" to have the details of this product included in your Revit drawing.



All data and technical information are based on results achieved under the specific conditions defined according to the testing standards referenced. It is the customer's responsibility to verify if the product is suitable for the intended application. The responsibility for professional and correct installation and compliance with relevant building regulations lies with the customer. Armacell takes every precaution to ensure the accuracy of the data provided in this document and all statements, technical information and recommendations contained within are believed to be correct at the time of publication. By ordering/receiving product you accept the **Armacell General Terms and Conditions of Sale** applicable in the region. Please request a copy if you have not received these.

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ABOUT ARMACELL

As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With 3,100 employees and 25 production plants in 17 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology.

For more information, please visit:
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