tector
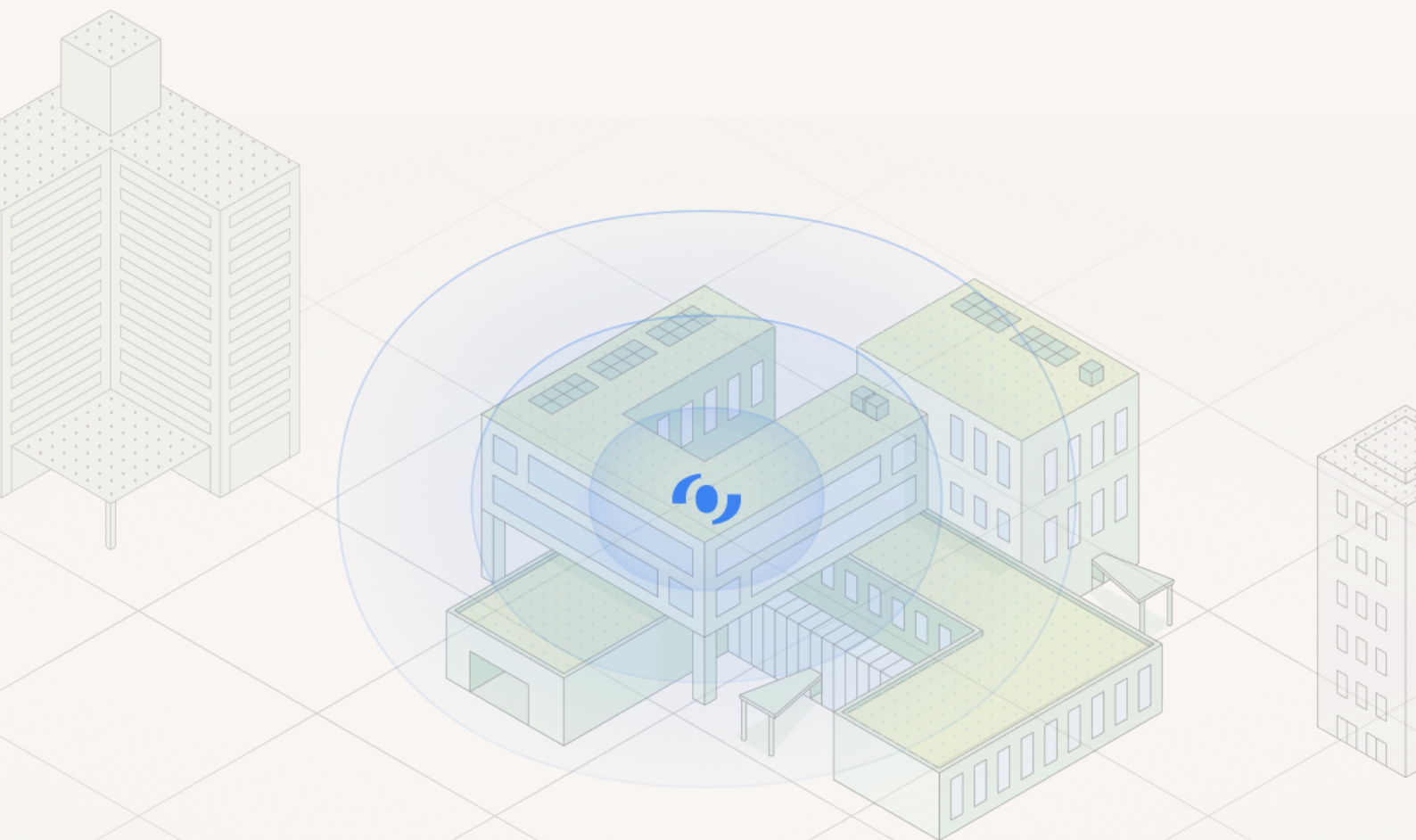
Setup Guide

A comprehensive guide to installing
and using Tector sensors, gateways,
and application.

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Care guide for your sensors

When working with **woody v1.1 sensors**, maintaining battery life is essential for effective monitoring and reliable data. You can check the version of the sensor on the label on the right side of the sensor:

Here are some practical tips to help avoid premature battery depletion in **woody v1.1 sensors**, especially in challenging environments.

1. Ensure Reliable Gateway Connectivity
One of the primary causes of battery drain in sensors is weak or inconsistent connectivity with a gateway. When a sensor struggles to maintain a connection, it uses significantly more power, potentially **draining up to 30 times faster** than under strong signal conditions.

Best Practices:
- Place additional gateways in areas with known signal issues. For instance, if signals are weak at prefabrication sites, or within specific buildings (as shown on the blueprint), adding gateways in these locations can greatly enhance connectivity.

- Avoid prolonged disconnection from the gateway. Leaving sensors unconnected for long periods will cause them to repeatedly attempt reconnection, using extra battery power. If they're left like this for months the battery has a high chance of being discharged.

2. Optimize Sensor Placement to Avoid Environmental Stress

Battery performance can deteriorate under harsh environmental conditions. Proper sensor placement can help minimize exposure to damaging elements and extend battery life.

Key Tips:

- **Protect from Rain**: Avoid placing sensors where they'll be exposed directly to rain. Water exposure will not only damage sensors, but will also drain batteries.

- **Avoid Direct Sunlight**: Placing sensors in direct sunlight, especially in containers made from dark plastic or metal, can cause overheating. Temperatures over 40°C can degrade the battery quickly.

- **Protect from Freezing Temperatures**: In winter, position sensors under some form of shelter to avoid sub-zero exposure, as freezing temperatures also shorten battery lifespan.

3. Monitor and Adjust for Prolonged Inactivity

If sensors are inactive for extended periods (e.g. 14 days), check the installation area for factors that could be contributing to this downtime, such as signal interference or poor placement.

Strategies:

- **Check Signal Strength:** If many sensors are inactive, especially in low-signal areas, adding or repositioning gateways could re-establish connectivity and preserve battery.

- **Inspect Environment:** For sensors placed in prefabrication sites / storage / after installation, consider if weak connectivity during these periods is causing extra battery drain. Adjust gateway placement or reduce storage time in signal-limited areas.

While some environmental factors are difficult to control entirely, taking small steps – such as reinforcing signal strength with additional gateways, strategically positioning gateways, and tracking environmental conditions – can make a significant difference in battery life. Monitoring these areas and making slight adjustments can help improve sensor performance and reduce the frequency of battery replacements.

If in doubt you're always welcome to reach out to Tector, we'll be happy to look through sensors and give recommendations on actions.

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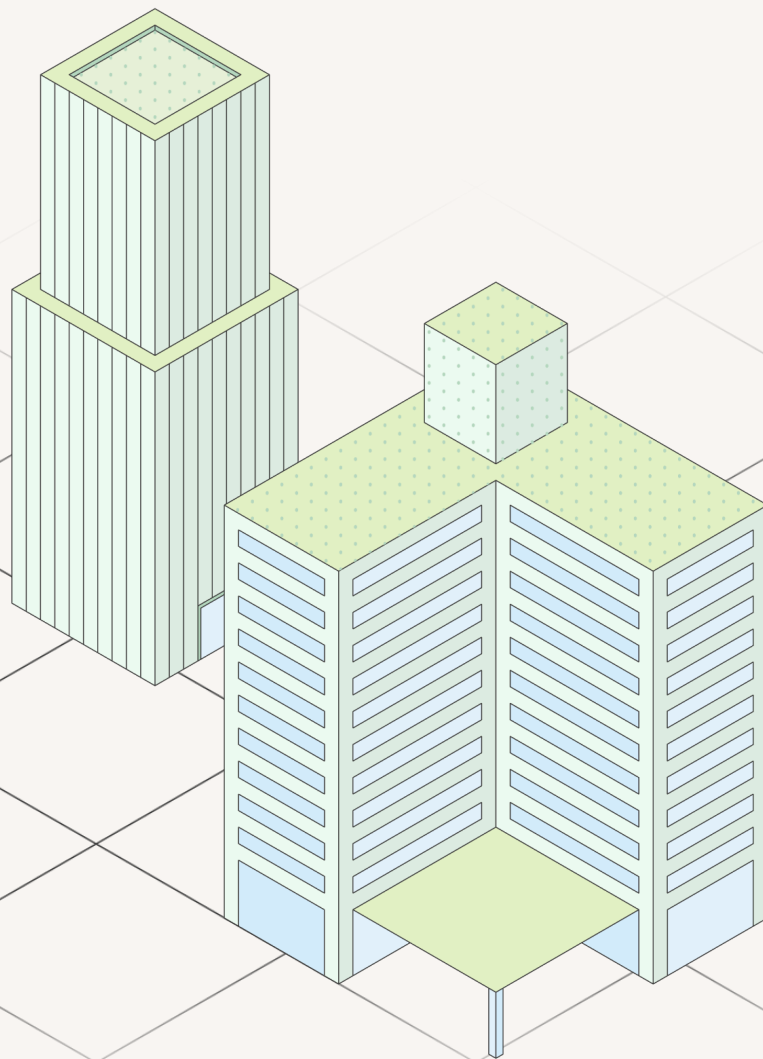
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Prepare

Before going on site

# Prepare

Log in on computer and phone

It's important to log in on both devices for easy registration on site with phone and managing the devices on the platform.

Log in to the platform on this link: https://app.tector.com/

The buyer has received an email to create an account. If not, reach out to support@tector.com

The buyer will invite users to the platform – see next step. If you haven't received login information, reach out to the buyer.
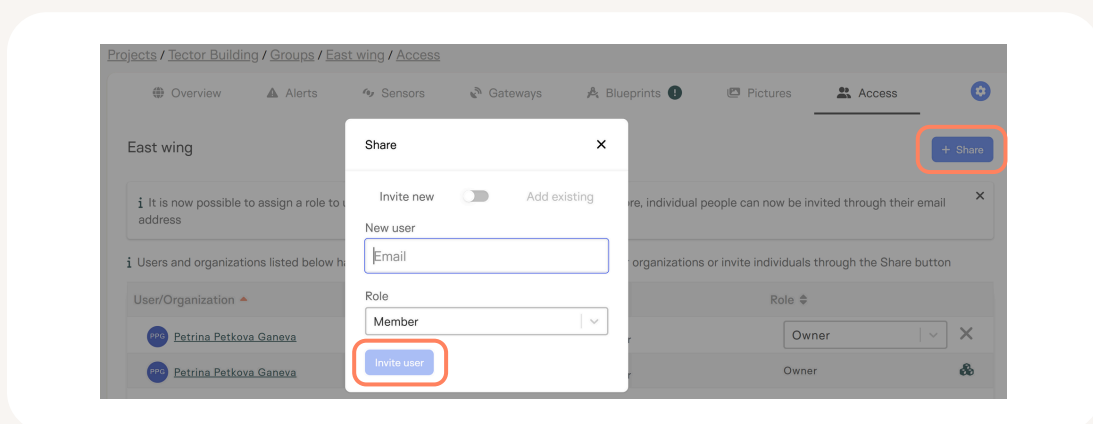
Add users to a project group/subgroup
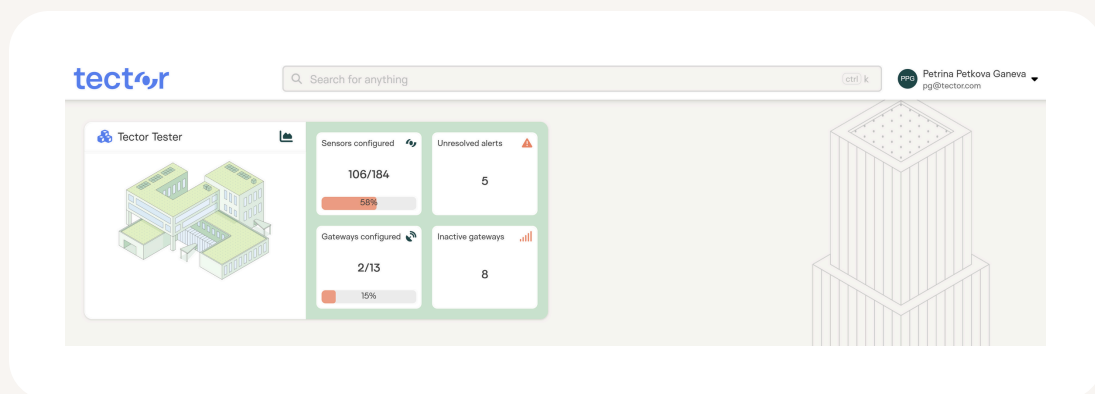
- Navigate to **Tector Dashboard** and press on your project group
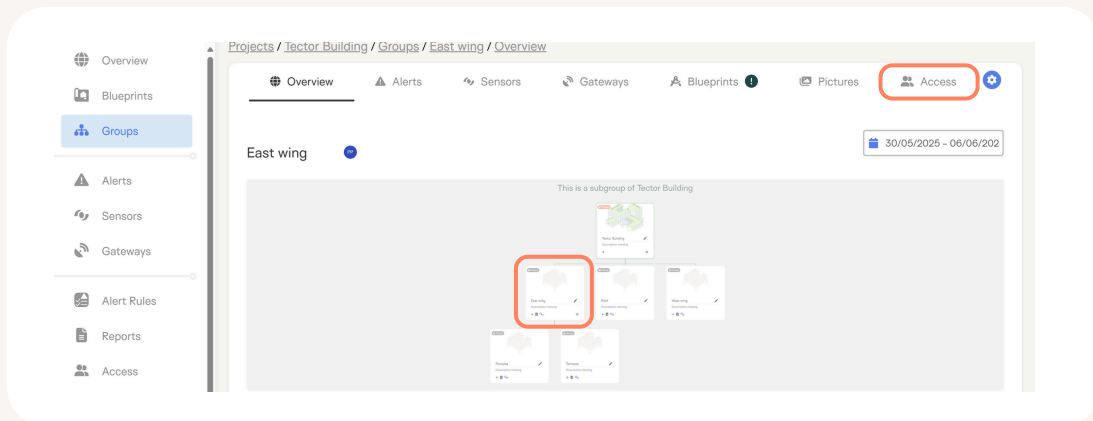
- Select the group/subgroup you want to share from the **Group hierarchy**
- At the top right of the page, click **Access**

- Press **Share**, then type in the email and select the role for the person

User roles
Owner: Full access (can add and remove users and devices)
Member: Can contribute to projects (edit, upload blueprint, setup sensors. etc.)
Guest: Read-only access

- The invited person should now get an email to create an account

Plug gateway into power and ethernet

Plug the gateway into power and find a location where the signal is not deflected and where the gateway will not be unplugged in the future.

Remember to install the antenna of the gateway that comes along in the box. The gateway can function just with the pre-installed SIM card, but if possible, plug ethernet cable into the gateway for a reliable backup connection.

Add gateways to a subgroup
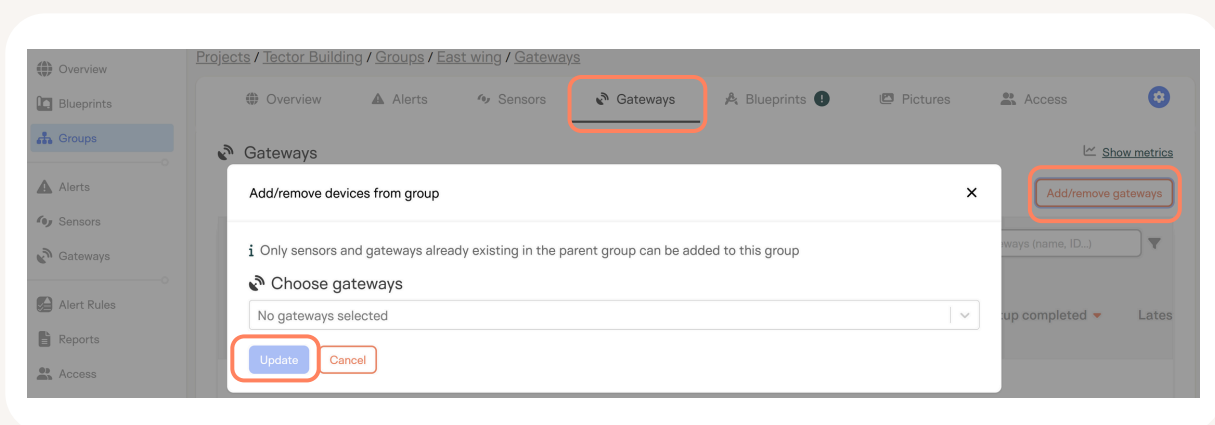
If you want to add a gateway to a subgroup, simply go to the **Gateways** tab, press **Add/remove gateways** and type in the ID of the gateway and press **Update**.

Scan QR code to set up gateway

In order to set up the gateway scan the QR code with your phone and follow the setup steps:

- Describe the location of the gateway

- Upload a photo of the gateway and its surroundings for future reference

If your gateway isn't set up using the steps after reading the QR code, then you won't be receiving alerts if it goes offline.
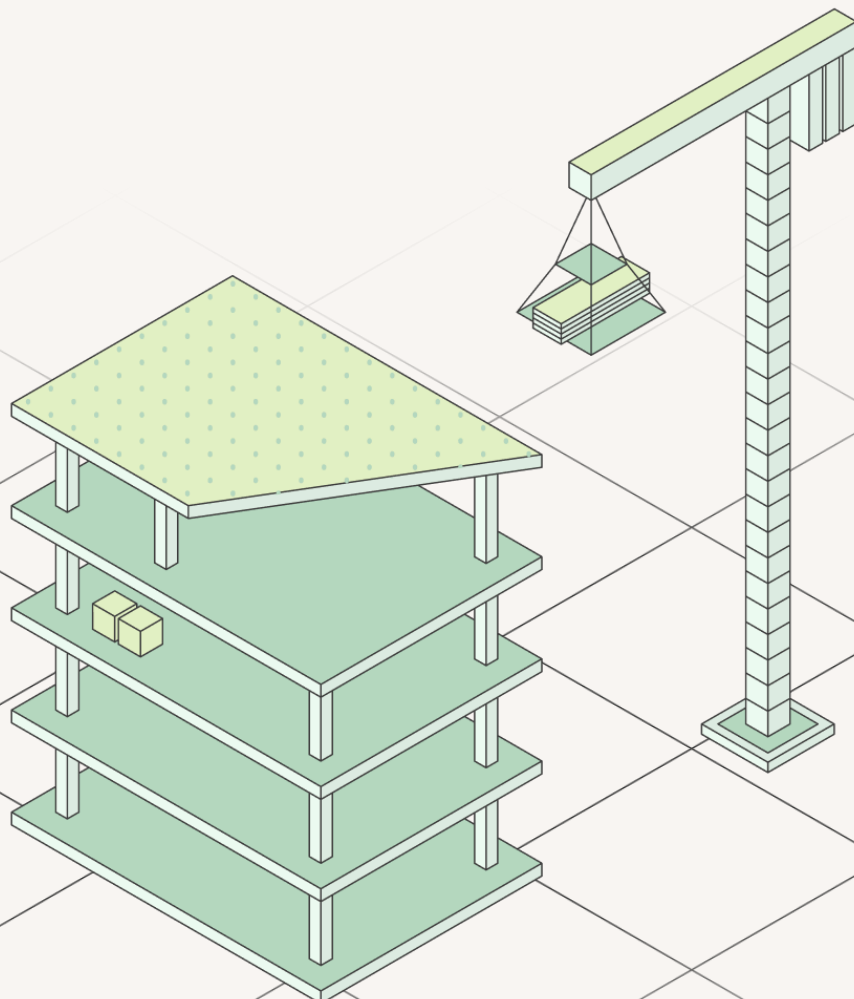
Prepare plan for sensor locations

Note down the desired sensor placements on blueprints, physically or digitally. Have the blueprints ready for later, so that you can note down the ID (eg. woody9372) onto the blueprint as you go around the construction site to install the sensors.

Installation

While on site

Installation

Sensor for flat roof monitoring

Only for sensors that come pre-installed on a timber block.

The basic steps of installing are:

- Identify sensor location.

- Cut out a hole in the insulation slightly larger than the sensor.

- Register the sensor as described in page 22.

- Put insulation above the sensor.

The sensor should be under the insulation, but above the bottom membrane.

There should be no drainage, pipes or similar in the insulation directly above the sensor.

The sensor should never be exposed directly to rain and should be covered immediately.

It should be placed on the membrane.

Sensor for monitoring directly on timber

The basic steps of installing are:

- Identify sensor location

- Mount the accompanying screws into the eyes of the sensor (or extension)

- Register the sensor as described in page 22

However, customisations are common depending on the different measurement needs of your project.

Orientation

If the sensor will be exposed to rain, place the sensor upside down with the measuring pins closest to the ground.

Else, place the measuring pins with the fibres.

Insulated pins

You want to use insulated pins, when you want to measure the wood moisture content at a specific depth or want to avoid high spikes in moisture readings caused by rain and water on the surface of the timber. Without insulated pins, the sensor will measure the wood moisture content, where the moisture is the highest between the two pins.

Extensions

If you have pins that have a diameter wider than the eyes of the sensor (wider than Ø4mm), then an extension is needed. This will be pre-installed on the sensor before shipment.

Using extensions can also help obtain measurements in areas, where there isn't space for the sensor or if you wish to replace the sensor after the battery has been used. ***Note: When using extensions, the minimum moisture content that can be measured is 9%.**

Sensors with only insulated pins

When you are installing a sensor with only insulated pins, then always **predrill holes** for the screws with the following specifications:

- the length of the insulation minus 3mm (e.g. if the insulation on the screw is 20mm then predrill a hole that is 17mm)

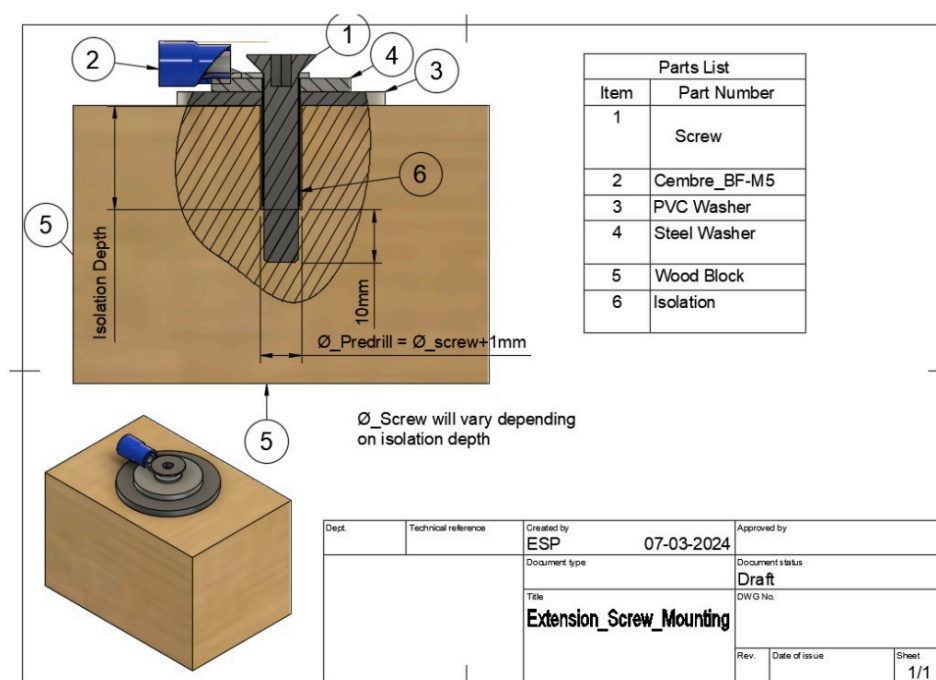- 1mm – 1.5mm thicker than the diameter of the screw
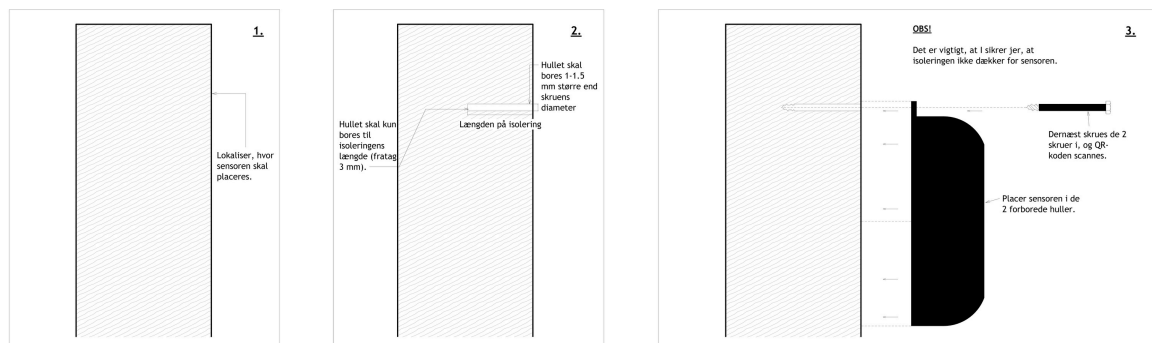
Sensors with extensions and insulated pins

When installing sensors with extensions and insulated pins, select the place where the pins will be located and predrill holes with the following specifications:

- the same length as the insulation (e.g. if the insulation on the screw is 20mm then predrill a hole with that length)

- 1mm – 1.5mm thicker diameter than the diameter of the screw
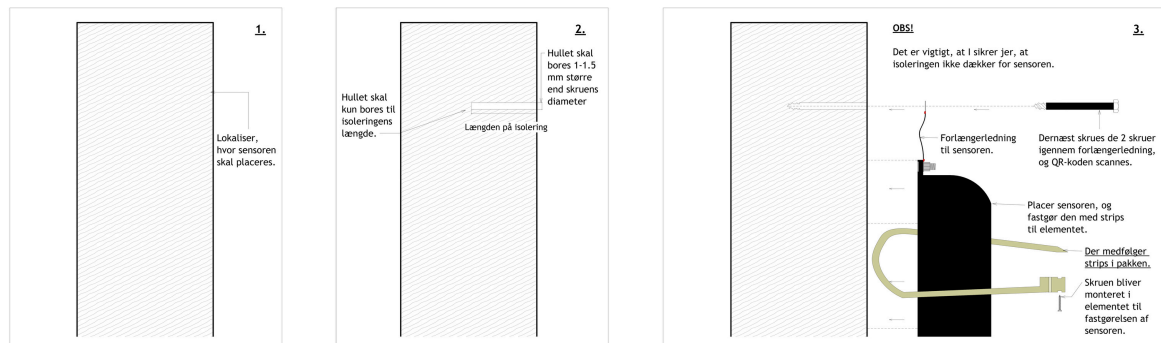
When installing a sensor with an extension, it's important to remember the accompanying metal and PVC washers in between the extension and the timber to prevent surface readings.
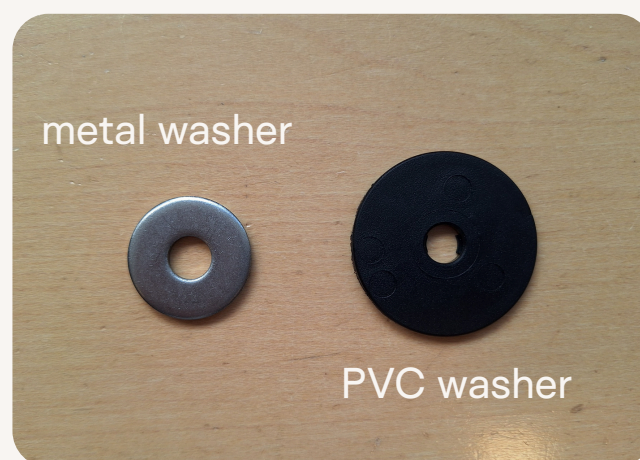
The correct order of installation, as shown in the illustration below, is to place the PVC washer closest to the wood, then the metal washer, then the eye of the extension and finally the screw at the very top. Make sure you are not installing the pins at an angle– they should be perpendicular to the surface, so the insulation doesn't tear.

Parts List

Item	Part Number
1	Screw
2	Cembre_BF-M5
3	PVC Washer
4	Steel Washer
5	Wood Block
6	Isolation

Ø_Predrill = Ø_screw+1mm

Ø_Screw will vary depending on isolation depth

Dept.	Technical reference	Created by ESP 07-03-2024	Approved by
		Document type	Document status Draft
		Title Extension_Screw_Mounting	DWG No.
			Rev.	Date of issue	Sheet 1/1

When installing the pins, remember to ensure that:

- The head of the screw has contact with the metal plate in the eyes of the sensor or of the extensions.

- The pins are not measuring across panels of timber in, for example, LVL.

Furthermore, when installing a sensor with extensions, we recommend mounting the sensor with a nylon wire screw mount cable tie, so that the sensor will stay in place.
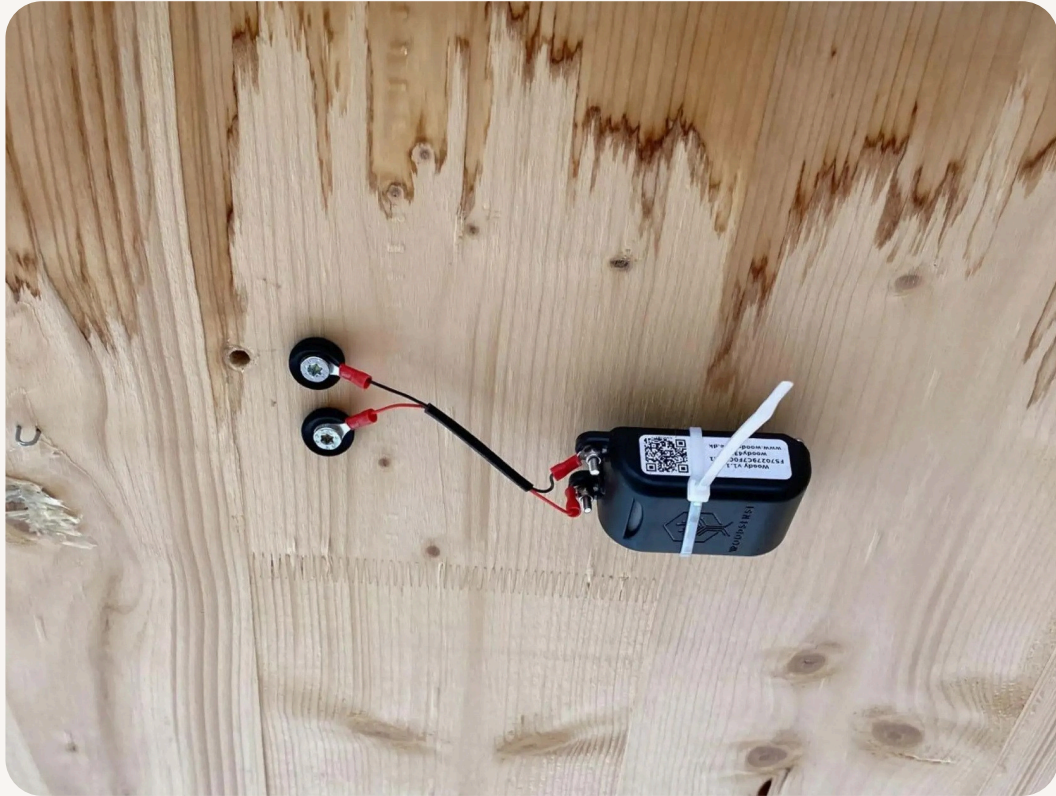
This can be useful if the extension is measuring in a CLT roof element from below or if the sensor casing needs to be attached to a column, while the wood moisture reading is elsewhere.

Register

While on site
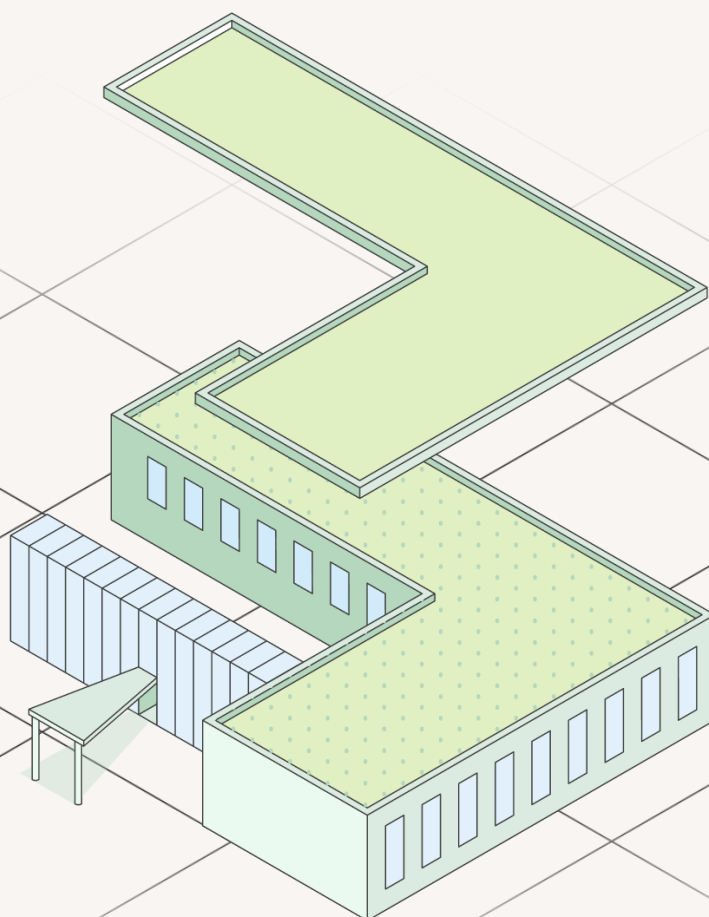
Register

<div style="background:#4285f4;color:white;padding:1em;border-radius:8px;text-align:center;">

Same steps for all kinds of sensors

</div>

Scan the QR code with the phone's camera and follow setup instructions:

- Fill out location details.

- Upload 2 photos. One from up close and one from +2 m away.

- Fill out **Placement** and **Climate** tags or copy from previously installed sensors.

- Add additional notes if necessary.

Note down the sensor's placement and ID on a physical blueprint, so that you can attach the right sensors to the right place on the digital blueprint in the platform on your computer afterwards.

Repeat until all sensors are registered.

Finalise

Post-installation
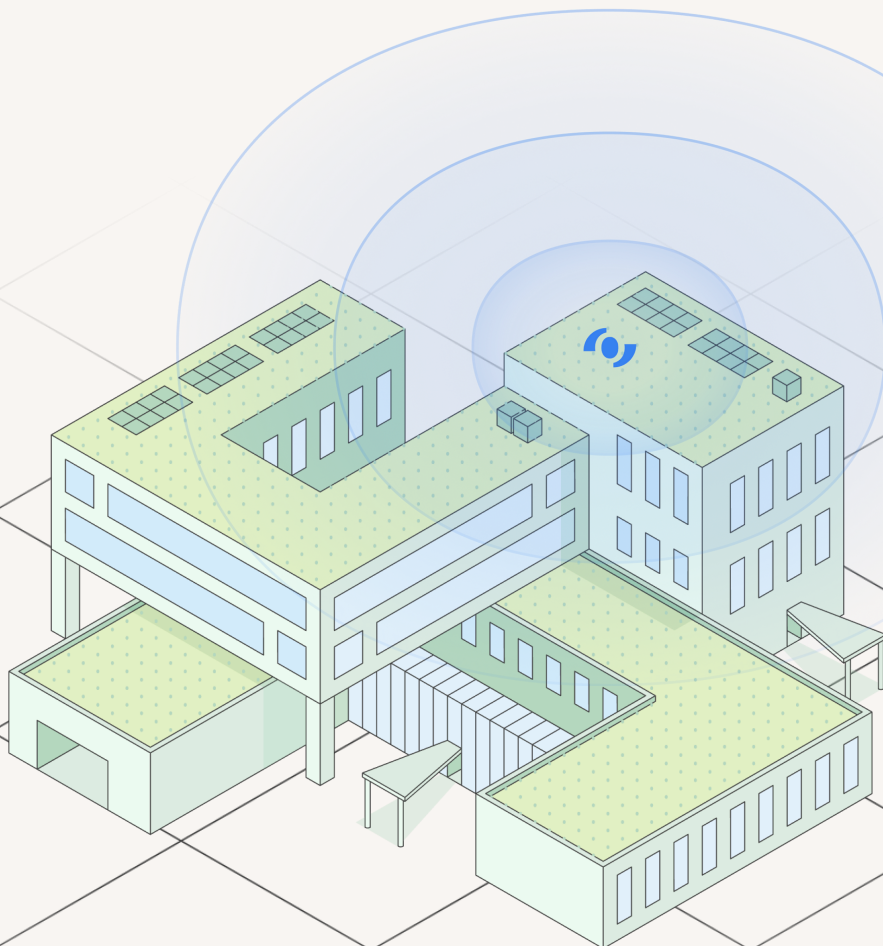
Finalise

Create groups

When your order is finalised and sent, all sensors will be placed in one project group. For better overview and in order to compare sensor readings more efficiently, we recommend you divide the sensors into different subgroups. You can choose your own structure. For example, you can divide groups into different buildings, or different floors or areas such as Facades, Roof, Basement, Wet Rooms. It can be beneficial to divide the subgroups based on the blueprints you want to upload.

To create a subgroup use one of the following methods.

Option 1:
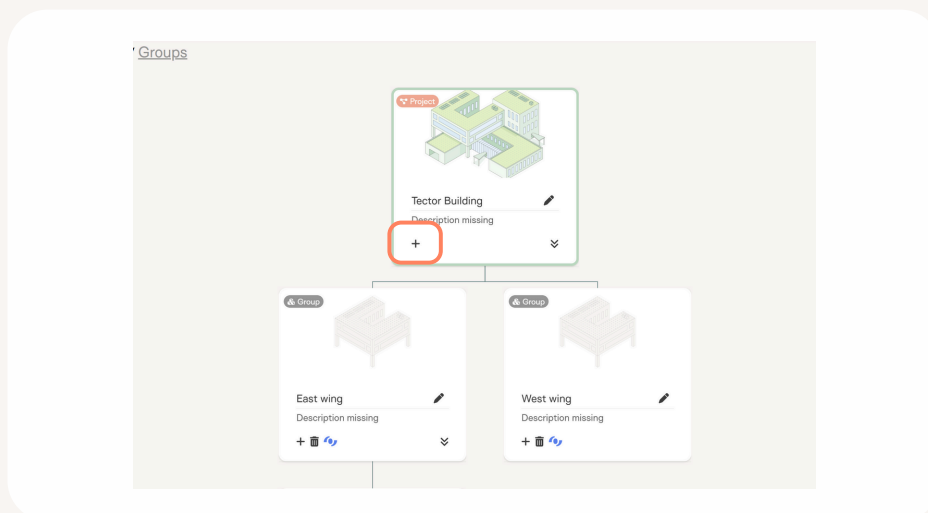
- Go to the **Group Hierarchy** in the group overview
- Press the **+** icon to create a subgroup
- Fill out subgroup name
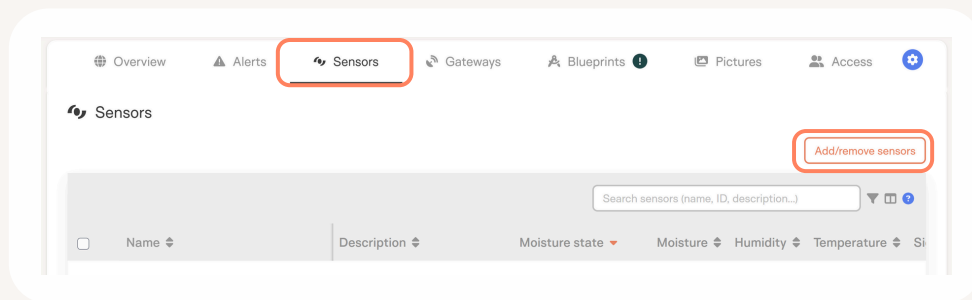
- Click on the newly created subgroup and go to **Sensors** tab

- Press the **Add/remove sensors** button in the top right corner
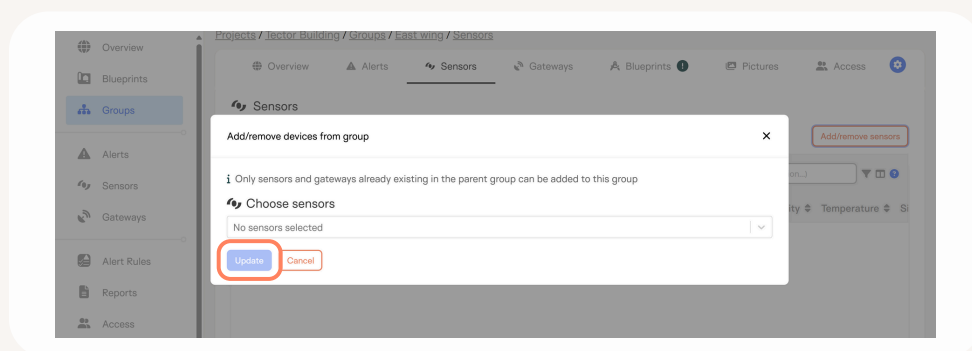
- Fill out the IDs of the sensors you want to add and press **Update**

Option 2:
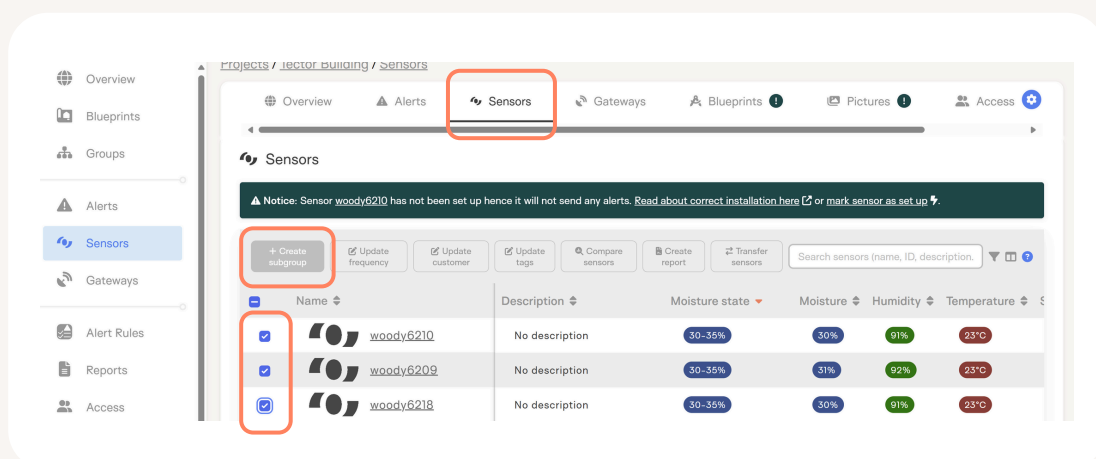
- Navigate to your main project group

- Go to **Sensors** tab

- Check the checkboxes of the desired sensors in the list view

- Press the **+Create subgroup** button

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Upload blueprint and attach sensors

The blueprint itself must consist of a single image file that can be selected from the user's computer/mobile and must be of the jpg, png, bmp, or heic file format. If the blueprint is uploaded as a pdf, the blueprint must appear on the first page of the file.

Steps to upload the blueprint:
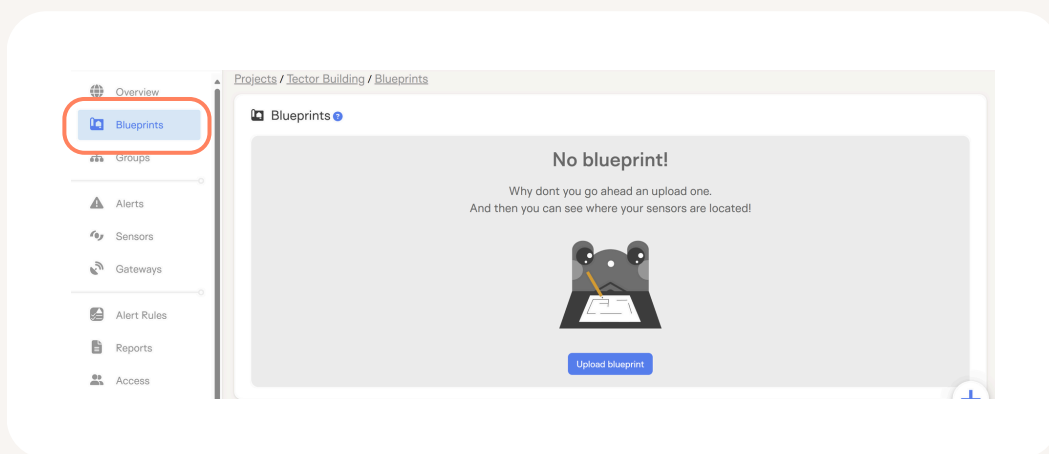
- Once in the main project group, go to **Blueprints** in the sidebar
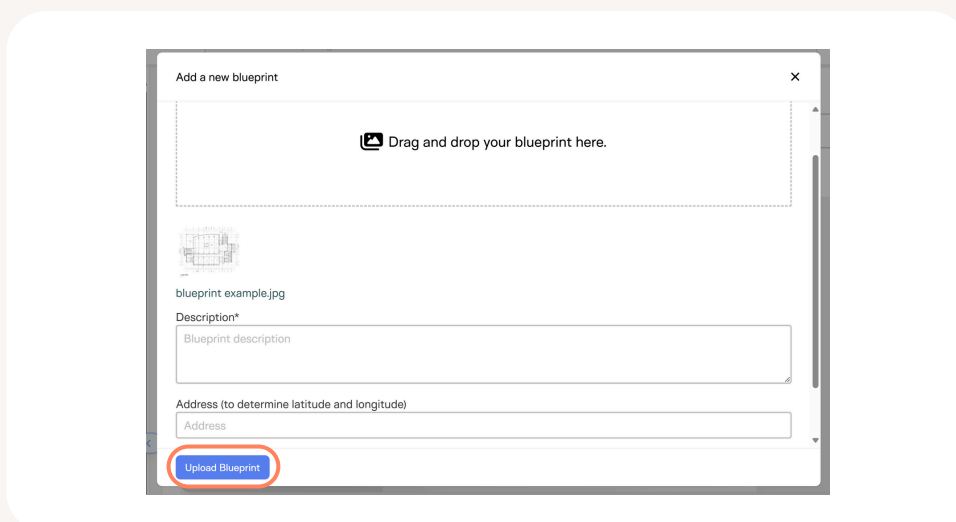
- Fill out name, description and address and press **Upload blueprint**

Steps to attach blueprint and add sensors:
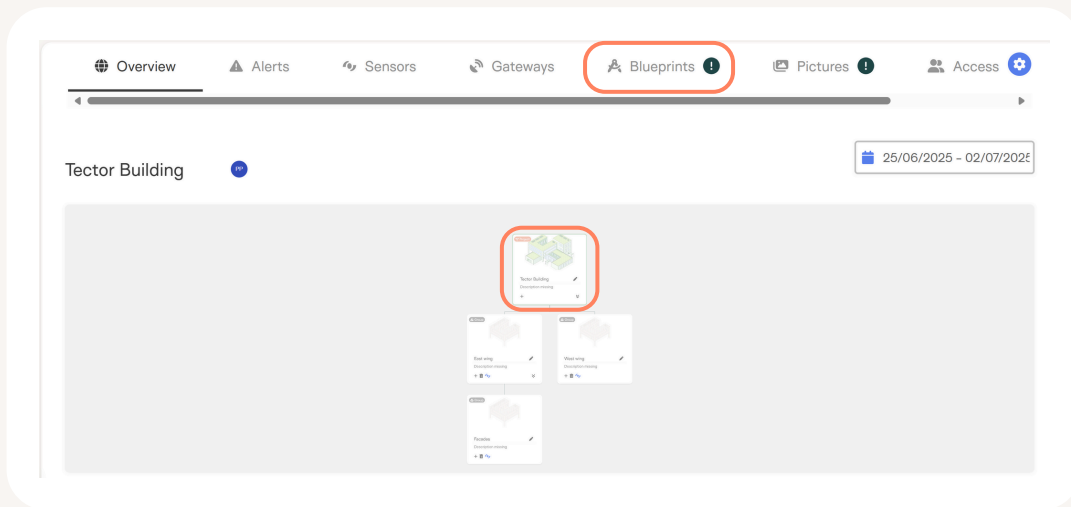
1. Go to the **Group Hierarchy**

2. Click the desired group

3. Go to the **Blueprints** tab
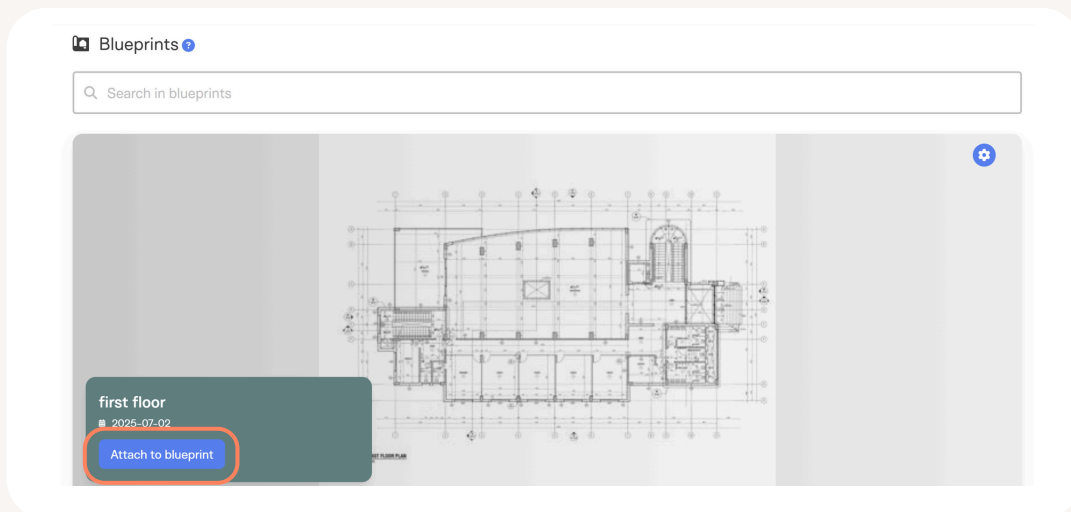
4. Find the uploaded blueprint and press **Attach to blueprint.** Multiple blueprints can be attached to the same group.
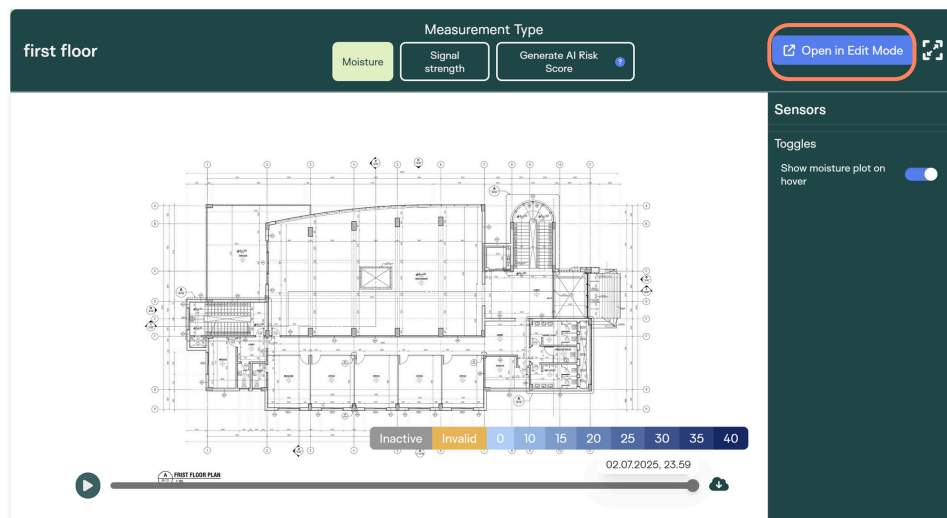
5. Once you have attached a blueprint, press on the **Open in Edit Mode** button.
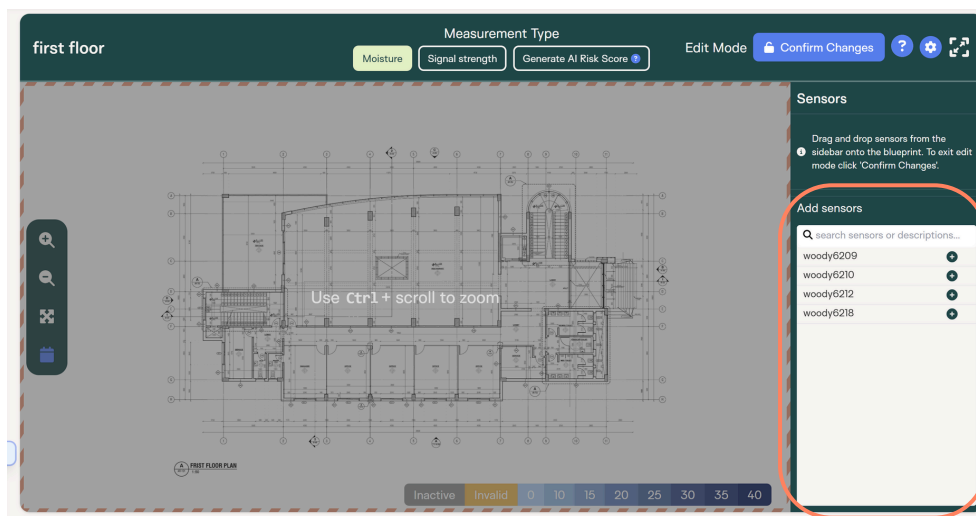
6. Now that you have attached the blueprint to a group, all the sensors in that group will appear in the **Add sensors** field. You can also search for specific sensors by entering their ID in the search bar.
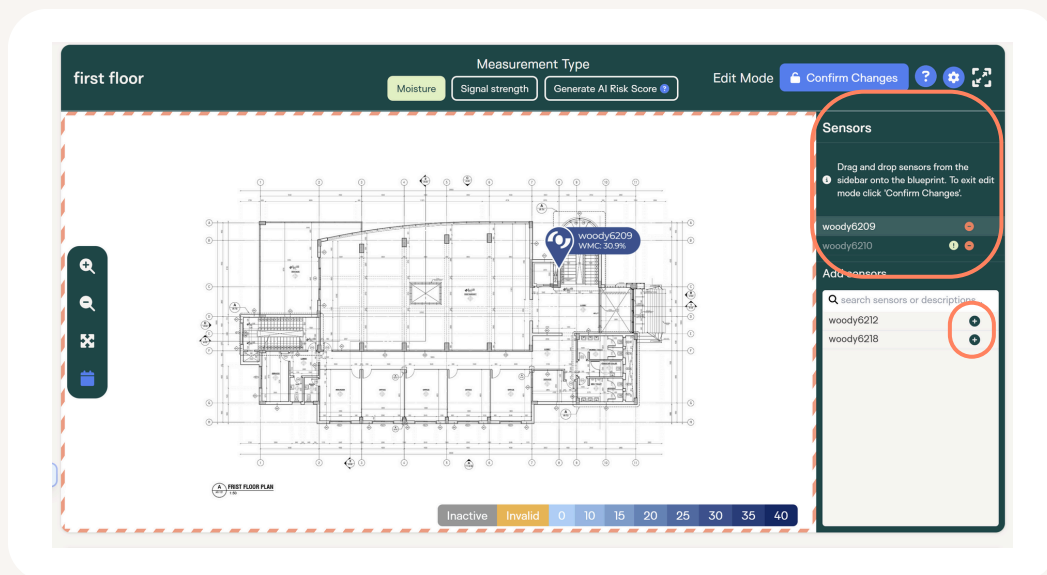
7. Press on the **+** icon next to the sensors to attach them to the blueprint. Once they appear in the **Sensors** field, then drag and drop them to the desired location.

8. Press **Confirm changes** to save your edits.

Set up custom alerts

Tector alert rules are enabled by default, **but the alerts are disabled until the sensors are set up correctly**. Therefore, make sure you have completed the registration process described on p. 22 to get the most out of the alert system.

To set up additional custom alerts:
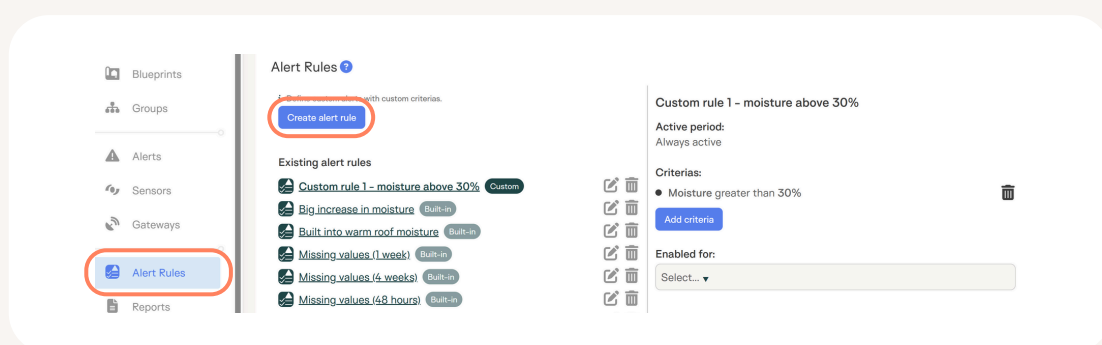
- Go to **Alert rules** in the sidebar

- Press **Create alert rule**
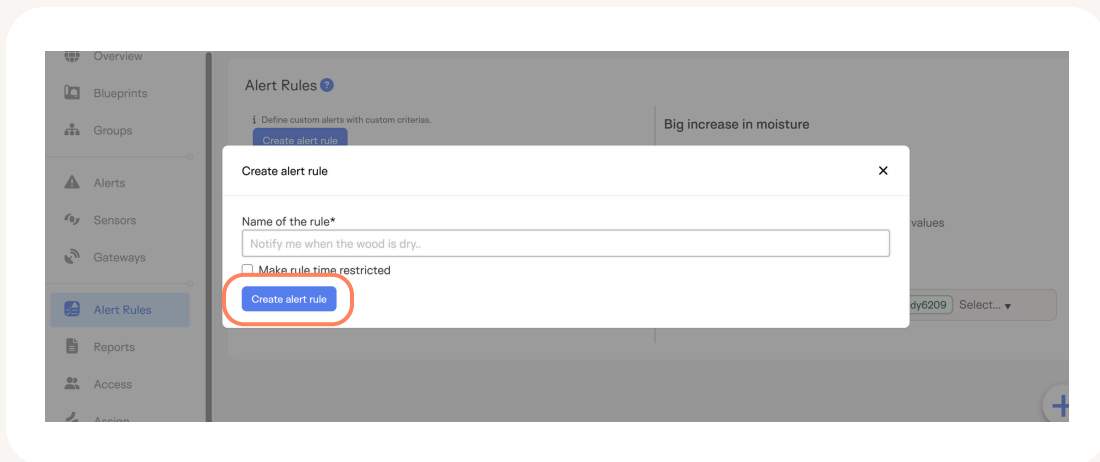
- Fill out the name and press **Create alert rule**
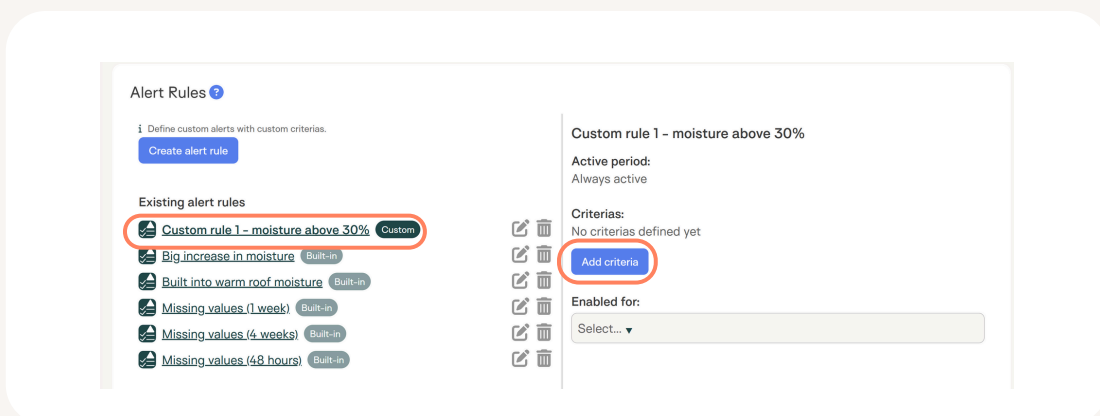
- Click on the newly created alert rule and press on the **Add criteria** button on the right
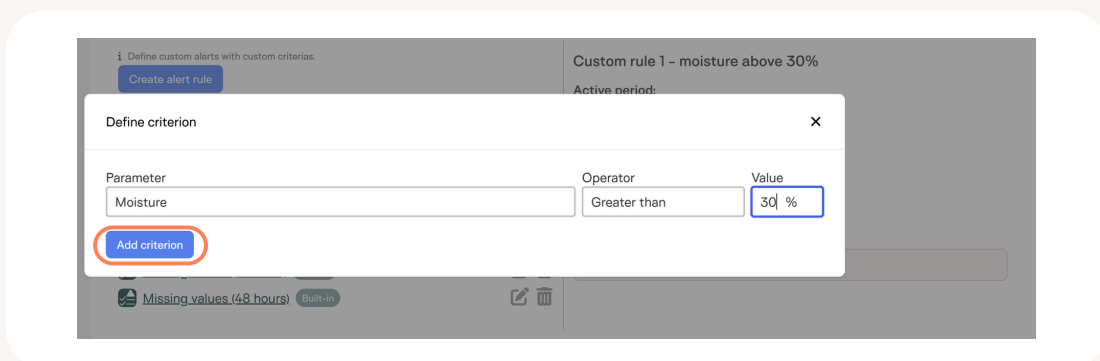
- Fill out details of the criterion (<u>example:</u> moisture greater than 30%) and press **Add criterion**
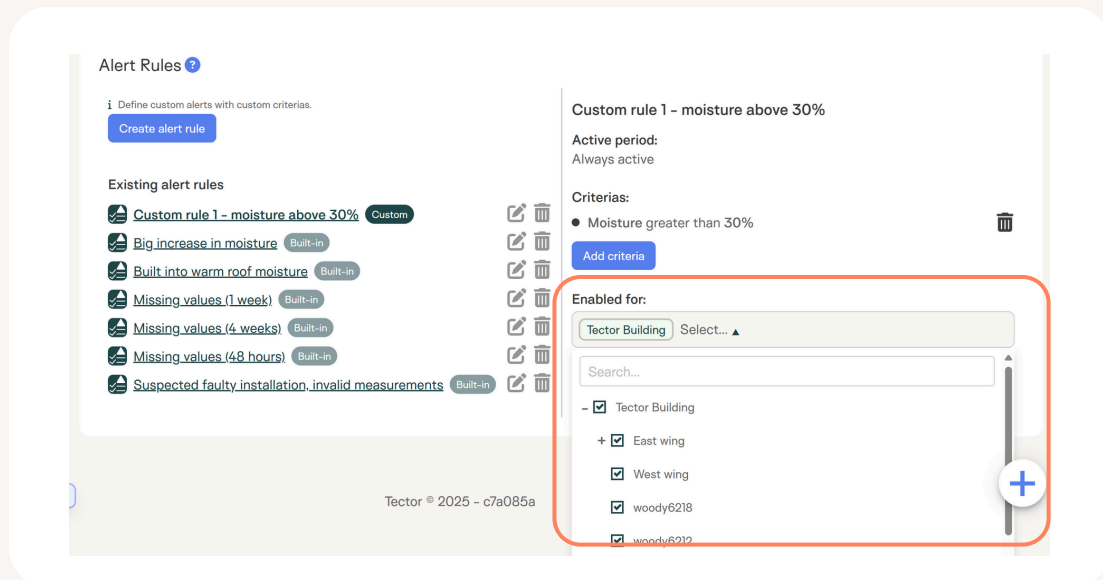
In order to add the newly created rule to a group or individual sensors then:

- While you are still on the **Alert rules** page, press the rule you want to add

- Press **Enabled for** and from the dropdown menu select either the whole group, a subgroup, or individual sensors

Refine

Bulk update tags or transmission frequency.
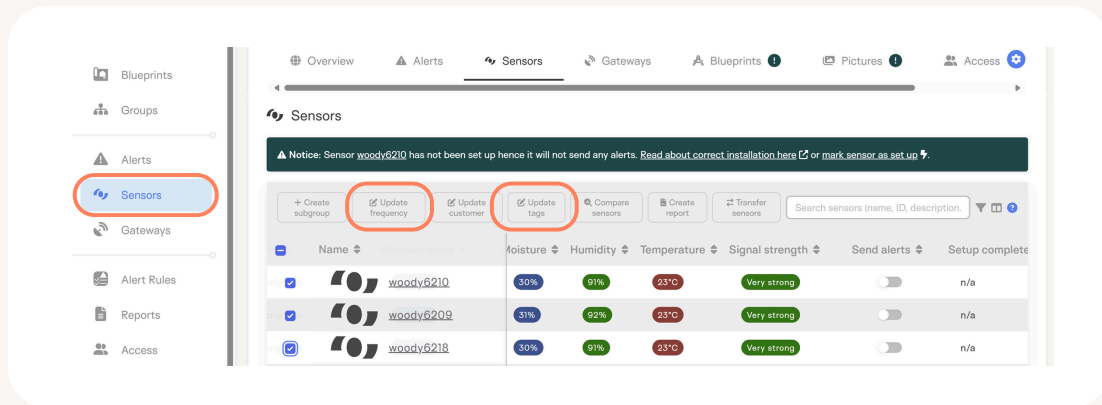
- Go to **Sensors** in the sidebar of a given group
- Check the checkboxes of the desired sensors
- Press the **Update frequency/Update tags** button that appears
- Fill out details and confirm

Tip:
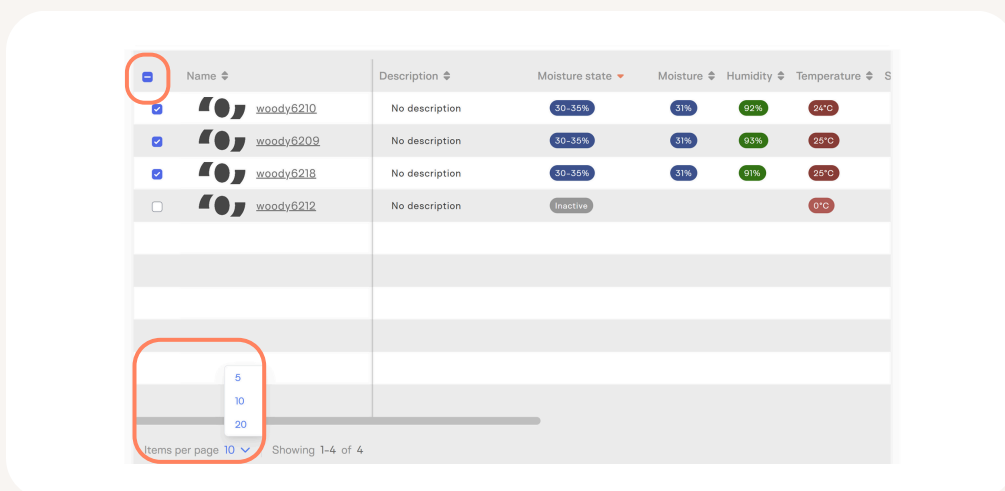
Press the **Items per page** dropdown field underneath the list to choose the number of sensors shown on the page (5, 10, or 20). Or press the checkbox in the top-left corner to select all rows in the table including the ones on the other pages in order to make bulk edits.

Other tips

- Go to **Groups** in the sidebar and select your project group

- Press the **Column** icon in the right of the header of the table

- Check the **All** checkbox

From there you can quickly see how your sensors are registered and get a good overview.

For more information visit: https://help.tector.com