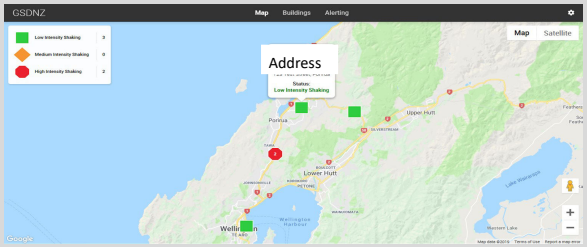
Engineer Login to Backend

This shows the recorded movement of the quake.

Map of buildings

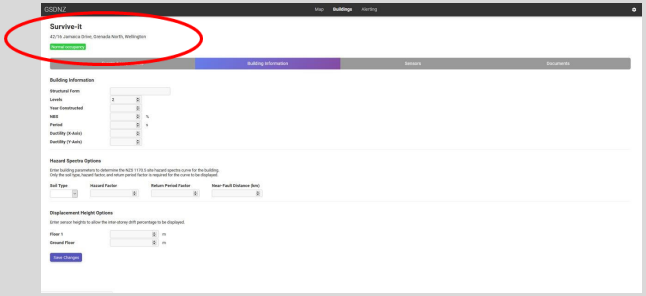


Map of the building status is shown if the company has multiple buildings monitored.

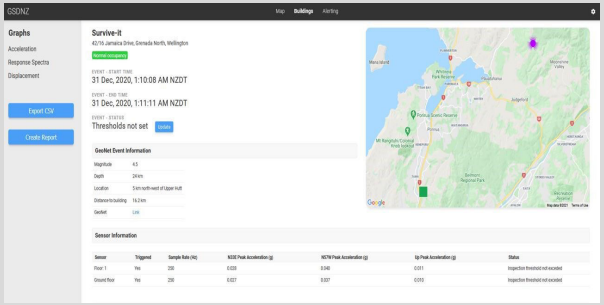
Building meta data

Select the building tab. You can enter the building meta data in the backend as shown on the below:

- Structural form
- Levels
- Year of construction
- NBS %
- Period
- Ductiility rating on X and Y axis

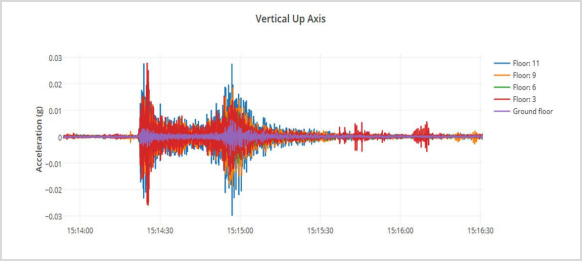


The building information as well as the summary of graphs will be available as an email post-event with a summary message that can be sent to stakeholders.

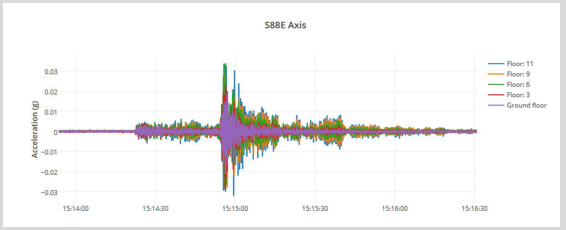


Shows the event, sensors that triggered, acceleration on north/south, east/west and vertical in G force.

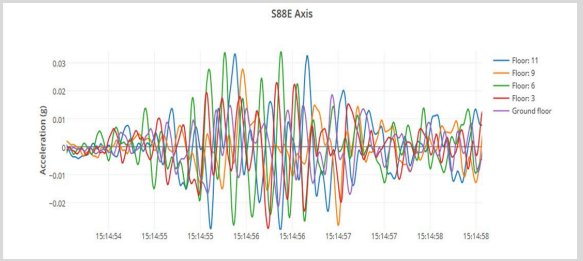
Event data



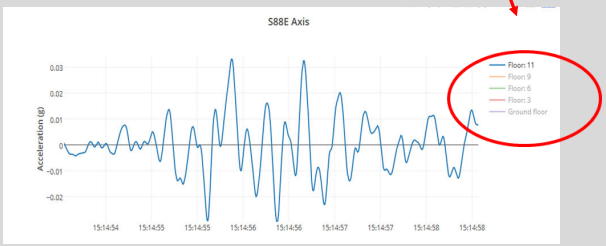
The event data can be downloaded by engineers in a CSV file for modelling purposes.



Data breakdown by floor



Click on the floor number to remove floors and view only floors selected.



Response spectra NZS1170.5

Response spectra curves are to the current NZS1170.5 standards.

A green line for 50% and orange line for 70% of the NZS1170.5 created spectra.

A response curve is produced post event. Functionality alters the setting to view the change of response spectra positioning and the building status.

We produce spectra curves for north/south, west/east and the vertical.

Select the building tab to enter the information for the building meta data. This can only be entered or altered by the engineer(s) who have access to the building

Response spectra is customised to a building by an engineer through completing the four boxes as detailed in NZS1170.S:

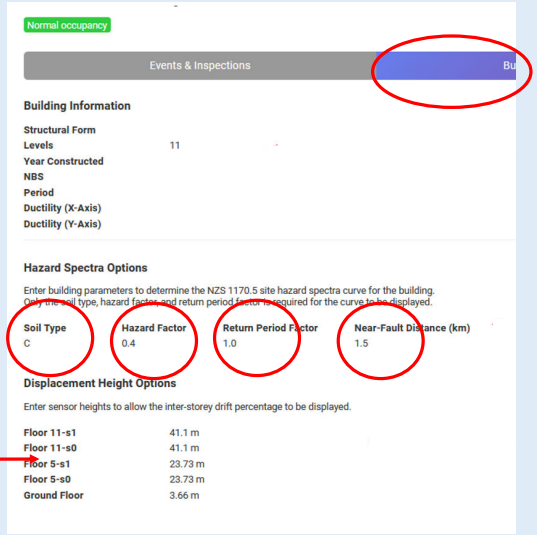
- Soil type
- Hazard factor
- Return period
- Near fault distance (km)

With acceleration data, we can calculate the response spectra for the floor on the X, Y and Z axis (vertical).

Once building meta data is entered, the response spectra curve will calculate.

Once the soil type, hazard factor, return period and near fault factors are known and entered, the curve will be correct.

If floor heights are entered for floors, it will enable measuring of inter-story drift.

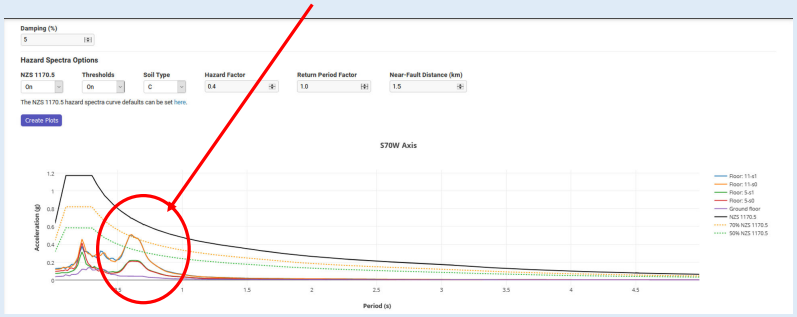


Only engineers can modify or adjust response spectra settings. Change:

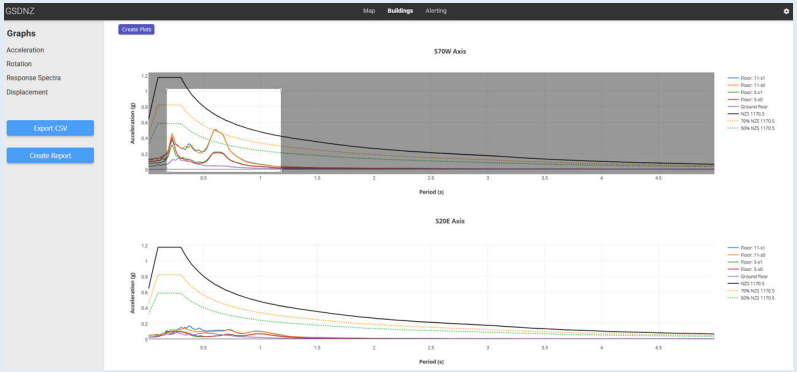
- Resolution, max period, units
- Damping
- Change spectra settings
- Recalculate graph plots

Levin quake 26 May 2020.

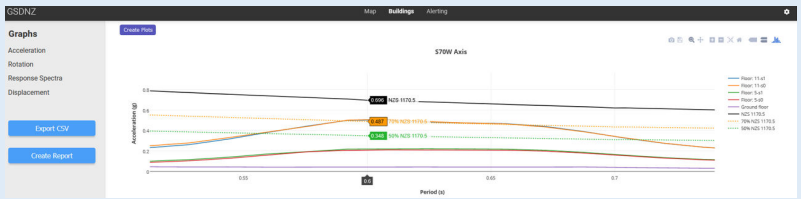
Building recorded movement. Engineers used the response spectra to assist with building inspection.



Hover over point on curve you can click and drag a box over the curve, the points can be expanded.



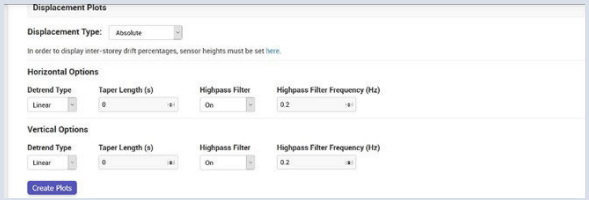
Click again and spread point further



Displacement

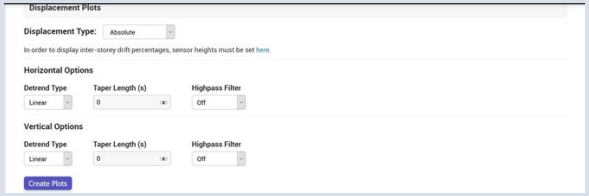
Displacement is calculated based on a double integration of event data, as shown in the following graphs. Event data can also be provided as raw unfiltered data, with actual noise.

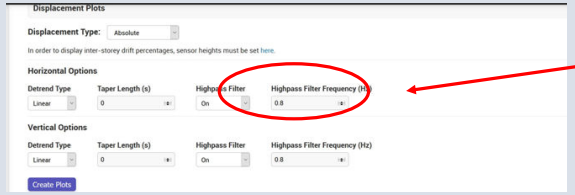
Measured in mm, m or as %.
The following three graphs are different representations of the same event data.



Standard high-pass filter on with a filter frequency of 0.2hz.

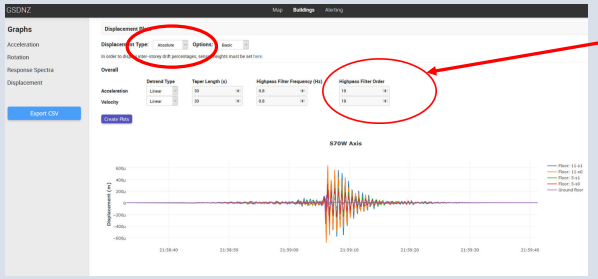
High-pass turned off, so shows raw unfiltered data.





Standard high-pass filter on with a high-pass filter frequency of 0.8hz to remove noise.

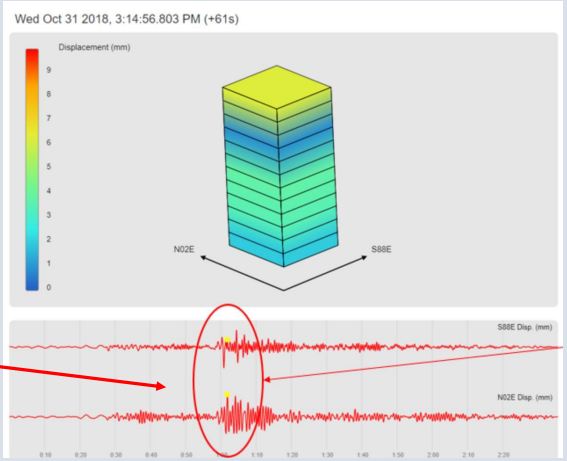
Displacement



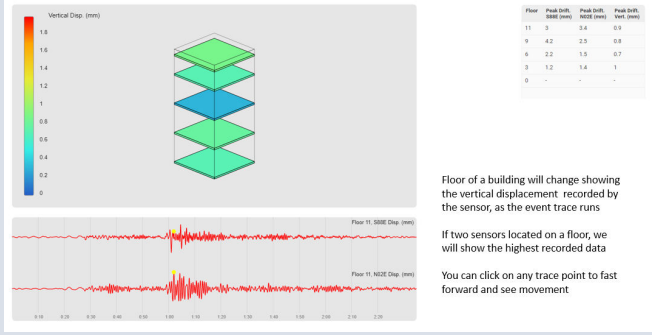
Change the high-pass filter frequency to 0.8 to remove noise.

- Displacement can be absolute or relative to the ground
- Relative displacement can be measured in metres (m) or as a percentage (%)
- Adjust the taper length, high-pass frequency and filter order

Displacement heat map of the building's movement during the event. Colour based on scale of movement (in mm)



Colour will change based on trace of the event.

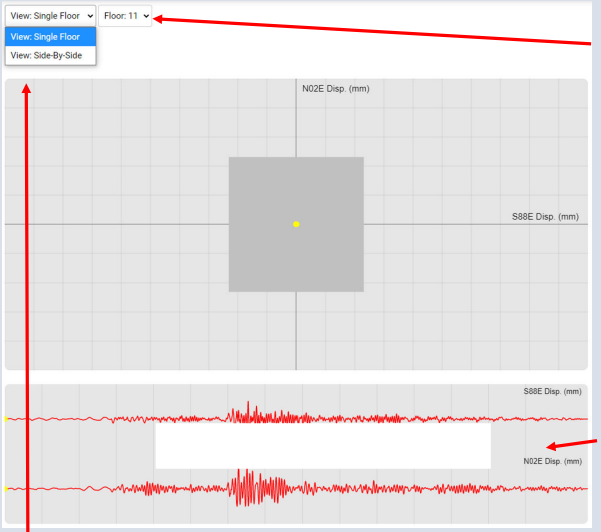


Floor of a building will change showing the vertical displacement recorded by the sensor, as the event trace runs

If two sensors located on a floor, we will show the highest recorded data

You can click on any trace point to fast forward and see movement

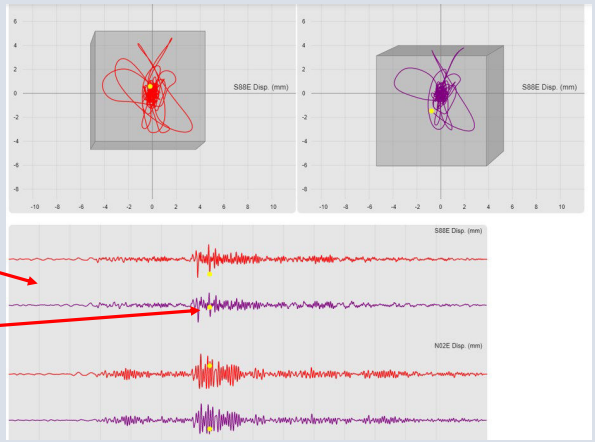
Displacement scratch pad



Option to view displacement scratchpad as a single floor or side by side.

Showing displacement trace in north/south, west/east direction.

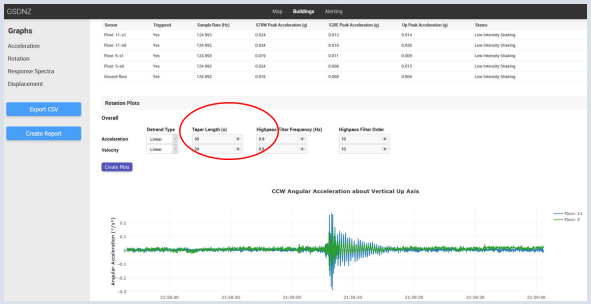
Select side by side—you can select the floors you wish to compare displacement on.



First floor shown is floor 11 the red trace. Floor 9 is the purple trace.

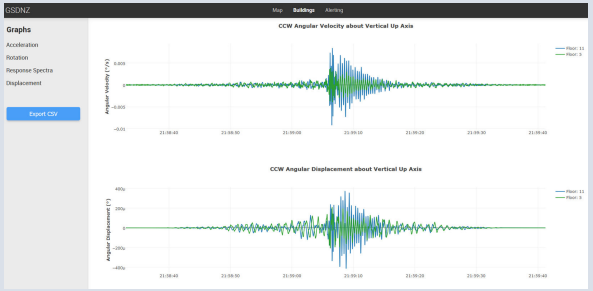
The yellow dot represents progress through trace in time with pad movement.

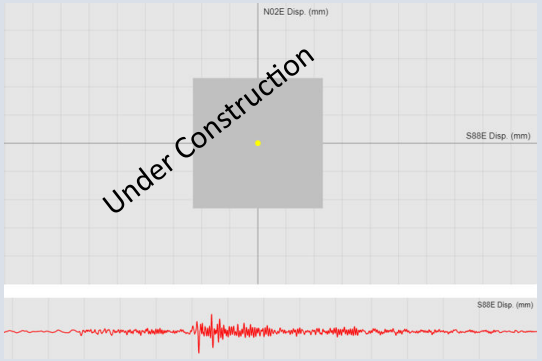
Rotation



Rotation is calculated by placement of two sensors on a floor, then two sensors on a different floor with sensors in the same floor position.

Change the high-pass filter frequency to 0.8 to remove noise.



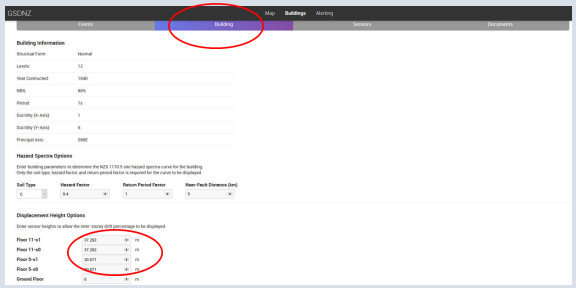


If a building is set up to measure rotation, a visualisation of the twist during the event can be shown.

Inter-story drift

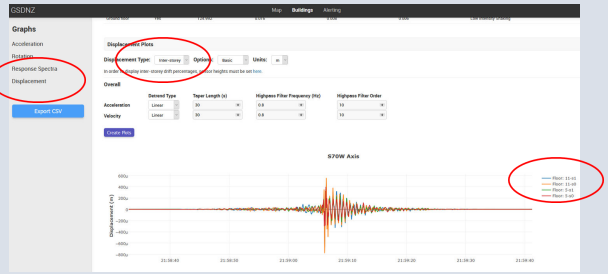
Inter-story drift is calculated based on a double integration of event data, as shown in the following graphs along with floor heights.

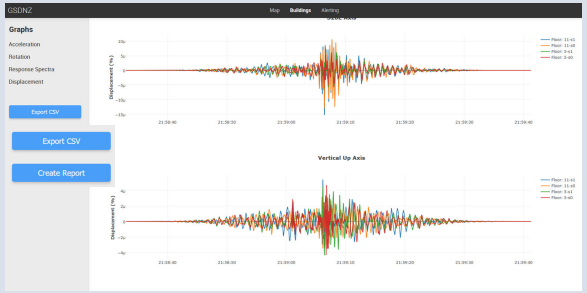
It can be calculated between two floors or over multiple levels. Actual floor heights as per plans, for ground and floors that have sensors must be entered.



- Set up a building tab, where response spectra is also set up
- Calculate inter-story drift, enter floor heights here
- SDS number will show floor level beside it
- We also record other useful information to assist engineers making rapid assessments of buildings

- Inter-story drift can be between two floors or multiple levels
- To measure this, enter floor heights
- Can be measured in m or as %
- Click on floors to remove them from graphs



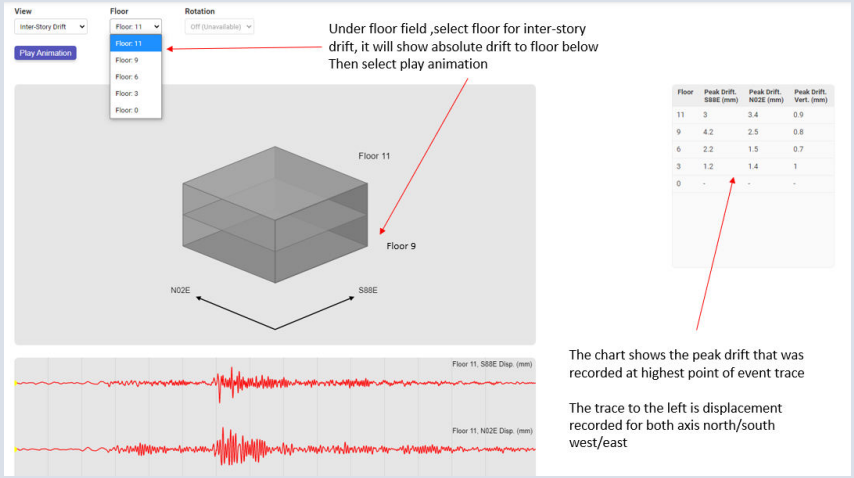


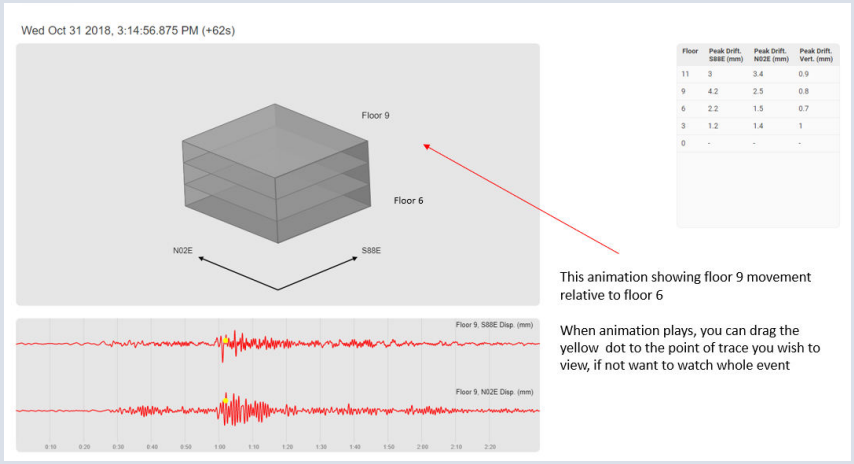
- Inter-story drift shown as percentage
- Isolate and unclick floors

Inter-story drift — animation

Post event the following animations will be available. Under displacement, scroll to bottom under graphs and animations drop down will be there.

Under construction are two of the below boxes available to select multi-level animation. Completion of these will be in the coming weeks





Contact us

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