

QuakeStar HouseCheck instructions and notes

Instructions and notes aim to help you get the best possible results from QuakeStar HouseCheck.

- **Instructions** show the required steps to find your HouseCheck rating.
- **Notes** provide further information on how to fill in the HouseCheck form.

Instructions

You can use HouseCheck in one of two ways: **Basic** or **Advanced**.

Basic:

Step 1: Click to start HouseCheck

Step 2: Enter data on the form that is displayed.

Ratings will appear on screen once all relevant data is entered. You can change data entries at will to see what difference the changes make.

Step 3: When finished simply exit the window or return to the HouseCheck opening screen.

To assess a different house; return to the HouseCheck opening screen and **repeat the process from Step 1.**

Advanced:

The Advanced approach allows you to change the filename, paste photos and diagrams of the house and save or copy your file onto your device. To enable these features, open Google Sheets on your device.

Step 1: Open Google Sheets on your device

Step 2: Click to start HouseCheck. The following screen should appear:

The screenshot shows a Google Sheets spreadsheet with a form embedded in it. The form is titled "HouseCheck by QuakeStar" and contains the following sections:

- HouseCheck Rating:** Strength (0 stars), Damage (NA stars).
- Location of Home:** Name, Address, Postcode, GPS (optional), Closest town (Waluku).
- Site Info:** Slope, Foundation soil.

Two yellow callout boxes with red arrows point to specific areas:

- One points to the "Enter new Filename here" text in the top right corner of the spreadsheet.
- Another points to the "Put any photos or drawings here" text in the bottom right corner of the spreadsheet.

Step 3: Enter data on the form displayed.

Ratings appear on screen once all relevant data is entered. You can change data entries at will to see what difference the changes make.

Step 4: (Optional but recommended.) Change the Filename to provide a unique identifier for your reference.

If you rename your file, we recommend that you include the street name, town or suburb, and the Postcode of the property in the name.

Step 5: (Optional): Store any photos, drawings or images on the **Images** worksheet.

Step 6: (Optional.) Make a copy of your file to save on your device.

Step 7: When finished simply **exit the window** or return to the QuakeStar HouseCheck opening screen.

To assess a different house, return to the QuakeStar HouseCheck opening screen and repeat the process from Step 1.

Note that QuakeStar staff will be able to see results (which will only be used for general reference to monitor trends and for research purposes). QuakeStar will not divulge any specific details.

Guidance Notes

These Guidance notes are available on-screen by hovering over the black triangle at the top right of some cells.

Data entry

HouseCheck allows you to see the effect of different inputs as soon as you make an entry (once you have entered all relevant data).

If “NA” appears for the score it means you have not entered all relevant data, or you have a mismatch – for example different number of storeys in the input for area and for bracing.

1. Line 2: Strength

Strength Ratings: The ratings from 0 to 5 stars give an indication of the strength level compared to the minimum required by the code for your location. A 3-star Strength rating indicates that your house is about the same strength as a new house built to meet the minimum requirements of the current code. A 4-star rating is about 30% higher than a 3-star. A 5-star rating is about 80% of (or more) higher than a 3-star. A 1-star rating or lower is one-third or less and a 2-star rating is in between. The ratings are based on a Strength Score which is set at 100 for a 3-star rating. The score may be taken as comparable to %NBS used for commercial buildings.

1. Line 2: Damage

Damage Ratings: The damage score indicates the assess damage caused by one-in-500-year earthquake shaking – expressed as a percentage of the replacement value of the building.

A 3-star rating is comparable to a new building built to current code requirements.

Scores over 100 indicate particularly high vulnerability to damage in earthquake shaking. This means there could be high damage in shaking that is less intense than the 1-in-500-year shaking used for design.

2. Line 15: GPS (optional)

Open Google Maps. (www.google.co.nz/maps/) and touch and hold over your location. You'll see a red pin appear with the GPS coordinates in the search box at the top. HouseCheck does not need this information but it could be useful to pinpoint the location of your house.

3. Line 17: Closest town

The list is in geographical order from north to south. Choose the place closest to your house. This will determine the Seismic Hazard Factor for your location – as used in the NZ Standard for structural design. This is a major factor in determining the score. For example, a house in Auckland will score much higher for strength and lower for damage than the same house located in Wellington. This is because the earthquake code requirements for Wellington are much higher than for Auckland.

4. Line 22: Slope

Choose the slope that you think best describes the ground your house is on. Think in terms of how you would describe it if there was a driveway up the steepest part.

5. Line 23: Foundation soil

Choose “Clay” if not sure.

6. Line 24: Depth to rock

Choose “More than 50m” if not sure.

7. Line 25: Liquefaction

Choose “Moderate” if not sure or no information available from Council.

8. Line 29: Construction / Upgrade Date

Choose the date that applies to most of the house. Choose the date of latest significant structural upgrade or alteration.

9. Line 31: Overall construction

Solid means structural members larger than minimum and well connected. Well built.

10. Line 35: Cladding

Note that this is for cladding. Choose the main material in each case. If more than one type, choose more than one. The main effect is the weight of the cladding so choose materials that seem similar in weight (per square metre). You can choose more than one type if you have a mixture. The choice affects the weights used in the Strength calculations.

11. Line 48: Structure

Choice of material for bracing is important in estimating the strength.

12. Line 50: Roof structure

This is for the roof structure. Choose the one that best matches most of your roof. You can choose more than one.

13. Line 56: Basement

If you have a partial basement assume "Concrete" bracing for X and Y for parts that touch or are built into the ground.

14. Line 58: Foundations.

Choose one which best represents your situation. You can check the difference by choosing different types in turn.

15. Line 62: Floor areas

Enter two dimensions to define the approximate area of each floor. For example, entering 10 in X and 12 in Y will mean an area of 120 sq m of floor area. It does not matter what the actual shape of the floor is – provided the total areas match.

16. Line 66: Example of floor area calculation. The diagram below can be displayed on screen by hovering over the "Example of floor area calculation" and clicking on the link that appears.



17. Line 70: Bracing walls

Choose a direction parallel to any selected wall. Call that Direction X. Direction Y is at right angles. For each floor, add up the total length of full-height walls in each direction. They must be longer than 1 metre with no windows, doors or large holes. These walls will help brace your house to resist earthquake loads. Enter the total length in each direction (X and Y) for each floor.

18. Line 73: Example of bracing wall measurement.

The diagram below can be displayed on screen by hovering over the "Example of floor area calculation" and clicking on the link that appears.



HouseCheck assumes that all walls are of the bracing material selected. This may not be the case for your house. If you know which are bracing walls and which are not you can reduce your bracing wall length to match.

If you select all walls equal to or greater than 1.0 metre long (as shown) you will get an optimistic view of the strength score. You could determine a more “realistic” score by including only walls that are equal or greater than 2.0 metres long. Modern houses are using steel framing instead of bracing walls. It is hard to know the exact effect of these steel frame elements, but allowance could be made – as indicated above for the garage opening.

19. Line 79: Irregularities

Irregularities in the way your house is braced can severely affect the overall “strength” or performance in earthquake and greatly increase damage.

20. Line 81: Plan shape

Regular = bracing walls in both directions are well distributed – not mostly to one side.

Moderate = bracing walls are significantly off-centre in at least one direction.

Severe = bracing walls mostly on one side in at least one direction. Example: one side is mostly glass or a garage opening – at any level. Choose the worst case at any level.

21. Line 82: Vertical Irregularity Factor

This is a calculated value based on your bracing entries for each level. A factor of less than 1.0 indicates a reduction in strength score due to vertical irregularities.

22. Line 86: Appendages

Appendages such as chimneys and parapets may not affect the overall strength of your house, but they represent a risk of harm to people in and around the building. Their failure can add significantly to the overall damage bill. For this reason, HouseCheck reduces the “strength” score and increases the damage score for houses with heavy and/or brittle appendages.

23. Line 96: Strength

As for Line 2: Strength.

24. Line 98: Damage

As for Line 2: Damage.