

Can you defend
yourself
and
your family
from the disaster?



1. Is surrounding of your house safe?

Danger fully, surroundings of your house! Please check surroundings of your house once. Does any dangerous part exist?

1.1 Retaining Wall

As for danger concerning the retaining wall, the following there are enumerated.

1. Is retaining wall receives the load of the base of the building.
2. Where dose your building stands? Just near the retaining wall.
3. is your building walls is acting as retaining wall



The photograph above is an example of the building wall collapsed because the retaining wall was bearing the load of the wall. Doesn't such a case exist in your house?



The photograph above is an example of retaining wall collapsed on adjacent building wall and damaged it.

Please check the retaining wall which exists in the turn of your house, and assumes the case where it collapses.



Please check on the retaining wall beside your house. Isn't there crack?



This photograph shows the under construction building. This part has received the earth pressure directly though the part covered with the vinyl sheet. This is a brick wall.

There is no vertical and horizontal reinforcement in the brick wall Soil will enter in the house directly when this wall collapses. Isn't such a dangerous part in your house?

As for the soil which contains moisture, the phenomenon in which it liquidizes happens and the earth pressure rises at the earthquake.

1.2 Steep cliff

Isn't there sudden cliff behind or in front of your house? Is there the slope include the crack? "The mountain moves" at time of the earthquake. Please check for the crack in ground once.



1.3 Big rock

Isn't there sudden cliff behind your house? Will you see a big stone there? Can you say that the stone will not drop at on earthquake or in extreme rain?

The left photograph shows the doctor's house crushed by the big rock and the right photograph's rock has shifted around 4 inch, so at next earthquake or torrential rain, this rock will attack the staff house below.



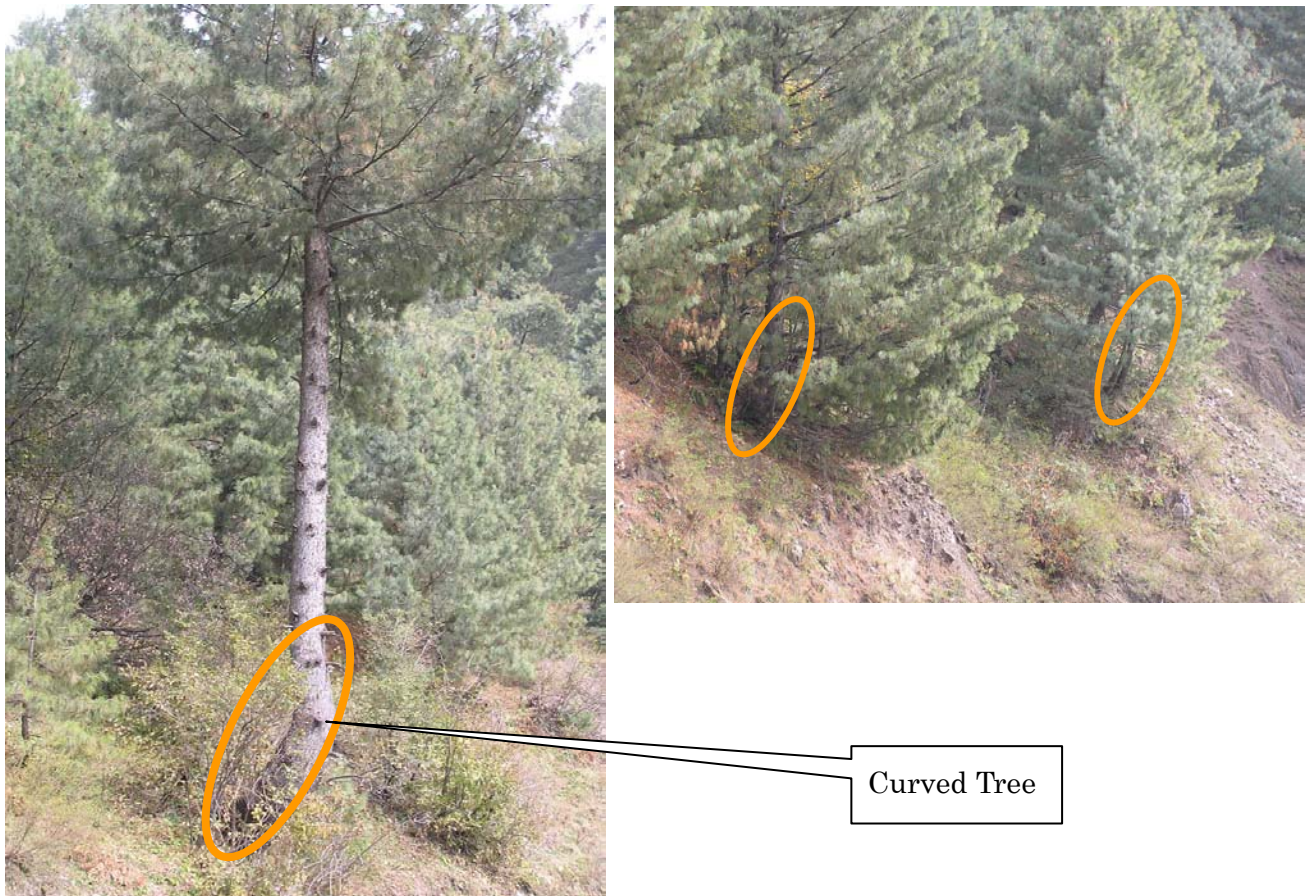
1.4 Small flow



Do you never see the flow of such small water surroundings of your house after rain? Such a small flow becomes a big flow, and will attack your family at the rush of rain.

When a small flow becomes the torrent of muddy water, and it attacks your house during the downpour, the specific gravity becomes exceeding 2.0, twice or more of the usual water floating a big rock.

1.5 Curved tree



A curved tree might show that a past landslide existed. First of all, please think as a record of the landslide or it is likely to bend by the wind which blows in a constant direction and weight of the snow.

The annual ring of the tree does not become a concentric circle.

1.6 Heavy fence



Rock or Block fence was collapsed at many places on the last year Seismic. Please think the wall of such a heavy material to be a fall when it is not properly reinforced.

Then what kinds of solution are there?

There are no methods other than reinforcement, foundation and the keeping from buttress.

2. Is your house safe?

Danger, in your house! Please check room by room once according following items.

2.1 The earthquake attacks the corner in the building first.



Is there a column of concrete in the corner in your house? The earthquake destroys the corner in the building or the corner of each room first. How will it become if the corner is broken? The part where the wall is fixed is lost, the wall will be collapsed, and next, the roof will be collapsed.

2.2 The earthquake attacks the gable of the building.

The parts of gable of many saddle roofs were destroyed at the earthquake. Why was it destroyed? Because, it is heavy and free.



Then what kinds of solution are there? There are some Solutions as follows:

1. Provide a beam on the top of the gable. Like orange line is shown in above photo.

Not so good solution! Because still it is heavy!

2. Change the material from a heavy to light one.

Good solution!

3. Change the shape of roof from the saddle roof to the rectangular hipped

roof.



This is the rectangular hipped roof.
Good solution!

2.3 The earthquake attacks a heavy material wall.



The house in a left photograph above is made by the stone masonry and the house in a right photograph is a house of the concrete block masonry. Both houses do not have reinforcement in the walls either.

However, the walls in the concrete block house have not collapsed and appear some cracks alone. The house of the uneven shape rock masonry



Section of collapsed wall of stone.
The space is between stones, and collapses easily.

collapsed easily.

The brick wall is stronger than the stone wall, but entire wall falls in a big earthquake too. If it is not reinforced as shown in the following photographs, show the method of reinforcement of the Brick wall.



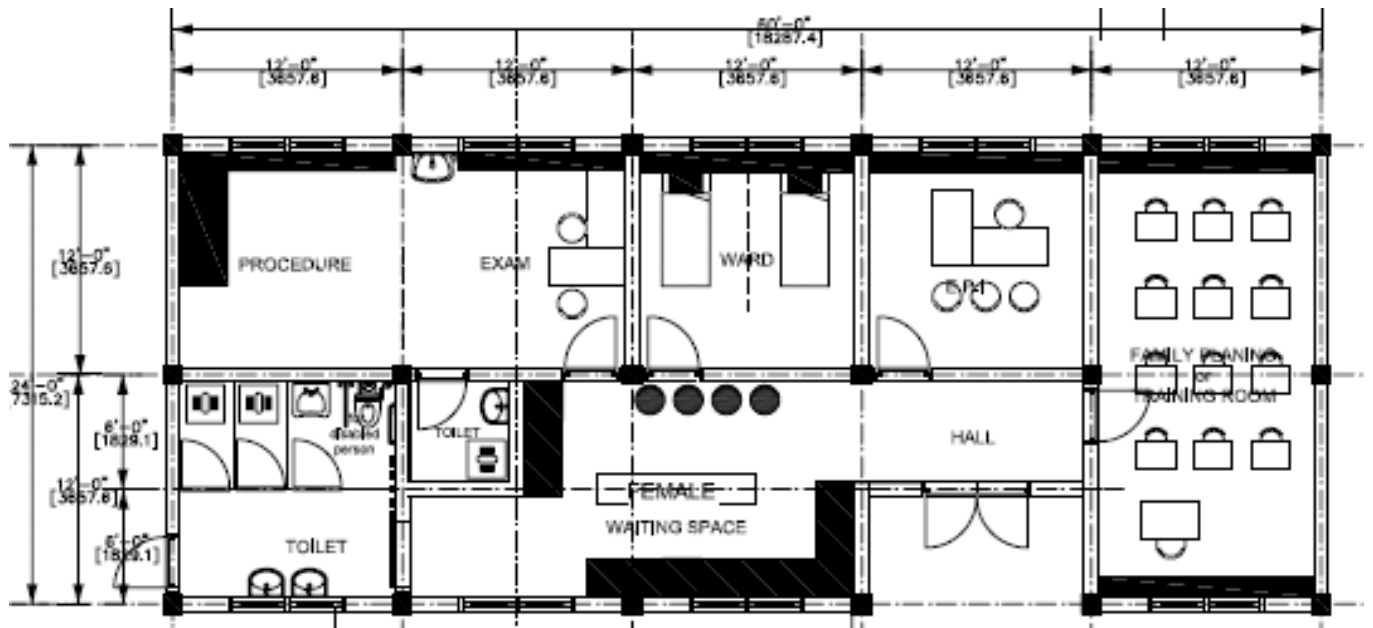
2.4 The earthquake attacks the part of head weight.

The photograph above is an example of the chimney of the fireplace collapsed. As for the chimney, the part of the head was not fixed. The earthquake attacks the place where the head is heavy and free.



2.5 The earthquake attack

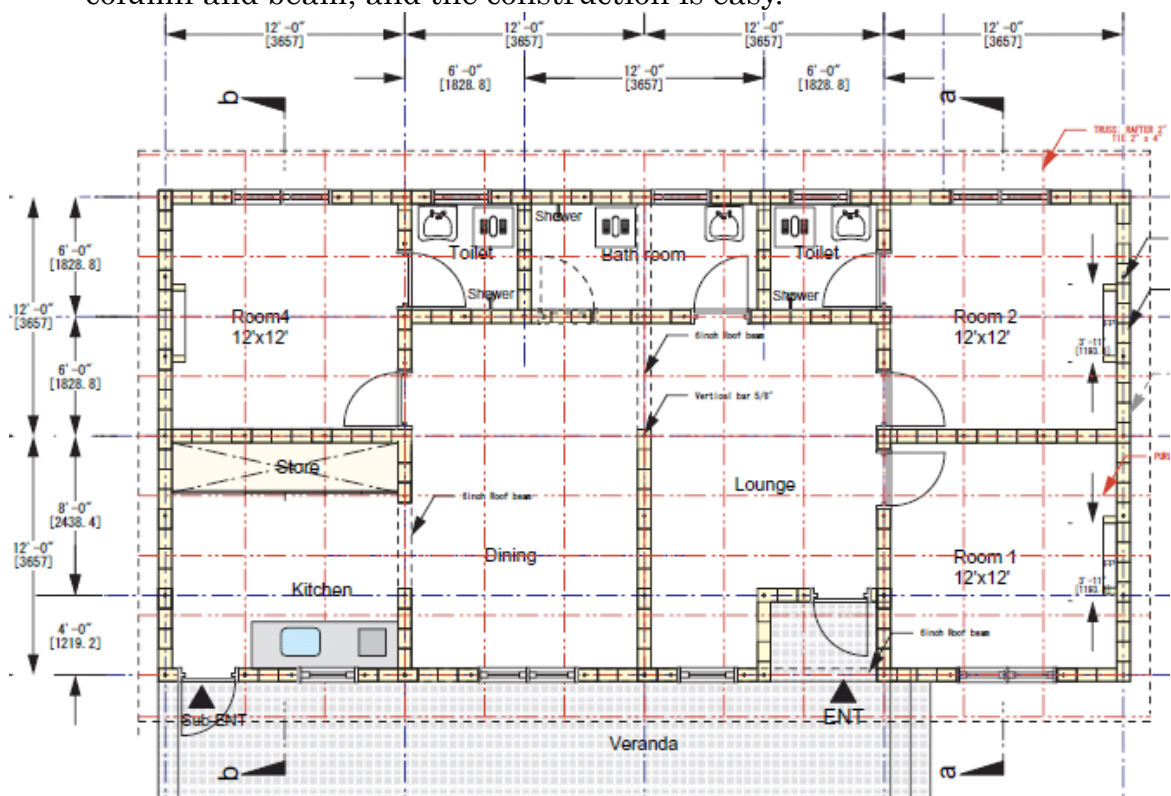
2.6 Is an ill-balanced house.



This building is a plan of the female building of BHU. The column stands in 12-foot grid, and the wall is arranged almost evenly.

The building where the structure is simple and clear can be said as a strong building to the earthquake.

Such like grids plan as module has flexibility in meeting both present and future need, adaptability to difference size of land, uniformity of the size of column and beam, and the construction is easy.



This is a plan of the house in 12-foot grid. This is arranged the column and the wall almost evenly, and a strong plan in the earthquake.

2.7 The earthquake attacks a weak part.



The opening of door and the window are one of the weakest points of the Building, so the crack concentrates on its surroundings.



Roof beam

Lintel beam

The Earthquake finds weak points even it was hided like as below photographs.

The earthquake causes Settlement and the column was pulled down then there is no reinforcement found which joint the column and beam.



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Nothing any joint between columns and beams were found.

2.8 The earthquake will attack even new building if it takes a wrong way.



How did they joint between this beam and Building column though there is no corner column?

Truss is very weak for this direction's force.

Where did they anchor the truss though there is no column or beam?

Nothing any column

This building is new construction after the Earthquake, but there is not any consideration for the earthquake.

How to avoid such matter? Uh....., it is very difficult question!

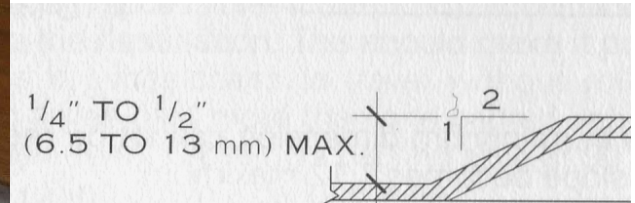
Just I can say as solution that you shall select a good contractor, an experienced surveillant and a good designer.

3. How to prevent a small accident in your home

In your house, don't you have old person and inconvenient hands and feet? They can live more comfortably and can be defended from the disaster by your small consideration.

3.1 Gap

Is there a small floor level difference in your house? A small gap is a large issue for an old or handicapped person.



The difference that the taper has adhered to the corner is assumed to be "Allowed" by 1/2 inches.

3.2 Handrail

Handrail really becomes help when the age is moving. The function of the body might be activated by moving, and functions of handicapped hands and feet might be recovered.





Elderly person's accident in the stall shower can be prevented when there is a chair in the shower room.



3.3 Location of thing

Your small consideration that you put the something which the age uses usually a little forward near or a little low place makes the age easy to live.

You do not put the thing and you keep the way on the passage to go outside, then it might saves the elderly person's life and your life also at a disaster.



I hope that you defend your family and yourself from the disaster even a little becomes possible by this textbook's being effectively used.