

Rapid Visual Screening (RVS) in the Community – Field Trip

Putting Down Roots, pp. 30 - 31

Idaho State Standards:

8th/9th Earth Science 1.2.1, 1.2.3, 5.1.1

Objectives:

Students will:

1. Conduct a sidewalk survey of non-structural building hazards in their community.
2. Record their observations on data collection forms.
3. Identify non-structural building hazards.

RATIONALE

Students will perform an informal rapid visual screening (RVS) to determine the non-structural hazards to people and property that could result from damage to buildings in their community during an earthquake.

FOCUS QUESTION(S):

- What buildings in your town or city might pose a serious risk of casualties, property damage, and/or severe limitations of public services if a damaging earthquake happened here?
- What are non-structural hazards and can you identify them on a building?

TEACHING CLUES AND CUES

This activity makes for a great field trip. It may also serve as an independent study by students. In addition, the instructor may display pictures of buildings in the community and have students identify the non-structural hazards that exist. Use the diagram, p. 120, along with the vocabulary, p. 121, to prepare students for their analysis.

If conducting a field trip, it would be good public relations to contact any businesses that occupy the buildings you will be evaluating to let them know when and what you will be doing. It is important that students do not block public entrances to businesses while they are evaluating the building. It may also be appropriate to let students know that they may be questioned by passersby asking “what they are doing.” Rehearse appropriate responses with students prior to the field trip.

Read pp. 30-31 of *Putting Down Roots in Earthquake Country* for background information. Contact BHS (see sources below) to request a guest speaker to come to the classroom to prepare students for the walk-about of their community. Have digital cameras available for students to use during the walk-about. This activity has the ability to pull together the concepts of hazards, building structures and the effects of earthquakes.

MATERIALS: for teacher

- Transparency or projection of USGS National Seismic Hazards Map, p. 124
- Copies of Non-structural Hazards diagram, p. 120, one for each student
- Vocabulary terms for non-structural hazards diagram, p. 121
- Answer key for non-structural hazards diagram, p. 122
- Student copies of the RVS Observation Sheet, p. 123, six for each team
- Google maps or MapQuest image of observation site

for student groups

- Clipboard or notebook for holding observation sheets
- Student copy of Non-structural Hazards diagram, p. 120
- Pens or pencils
- Camera (cell phone, digital, etc.)

PROCEDURE:

Teacher Preparation

Select site(s) for the class field assignments, choosing the nearest large concentration of buildings. Students may choose buildings to survey or they may be assigned.

A. Introduction

Tell the students that they are going to assume the role of building inspectors in completing an informal sidewalk survey of buildings in their community.

B. Lesson Development

1. Ask students whether their region of the country is thought to be at low, moderate, or high risk for earthquakes. Make a copy of the USGS National Hazards Map, p. 124, or project the image. The image can be found on p. 19 of *Putting Down Roots* and an Idaho-specific image on p. 14. If your school is located in a region pictured on the map as low seismic hazard, remind students that they may not always live where they live now and other natural disasters may affect the buildings.

2. Tell students that a building may be structurally sound, but its exterior decorations may create a hazard. These are called non-structural hazards. Project the image of Non-structural Hazards, p. 120, and elicit student descriptions of non-structural hazards on the outside of buildings in the drawing (see Non-structural Hazards Key, p. 122).

3. Tell students that for the purpose of this exercise they will assume that a major earthquake is likely in their area in the next several years. They will take a walk and record their observations of non-structural hazards.

4. Assign each student a partner. Distribute six copies of the RVS Observation Sheet, to each pair and ask each pair of students to complete the following steps for six buildings, noting all the following information on their observation sheets.

- Record a description of the building and its address or location.
- Note materials used in construction.
- Estimate the year of its construction (sometimes a plate on the corner of the building gives this).
- Record its size (number of floors, area, shape, and other information).
- Determine the current use (business, apartments or other).
- List the readily visible non-structural hazards.
- Photograph the building (if no camera is available then make a sketch).

5. Back in the classroom, suggest ways for students to fill in any missing information. Students may need to contact the public works department at city hall to get date of construction information. Complete the form and then have students compare their data with another group(s) who evaluated the same building. The goal of this process should be an assessment of each building surveyed that represents the students' best consensus.

C. Conclusion

Open a class discussion on what students have learned. Using Google Maps or MapQuest, pull up a map of the area where the evaluation took place. Use a red marker to circle any block or group of blocks where concentrated non-structural damage could be expected in the event of an earthquake. If students have not already expressed an opinion, ask if the sidewalks they travel would be safe places during an earthquake. Generally, the most dangerous places are building exits and areas directly adjacent to buildings (on the sidewalks, for example).

Adaptations and Extensions

1. If a structural engineer is present or structural information is available from the building manager, students may also informally judge which buildings could be expected to withstand earthquake shaking.
2. Have students cut out pictures from magazines that show buildings with non-structural building hazards and identify those hazards as a homework assignment.

Nonstructural Hazards

Name _____ Date _____



AGU/FEMA Seismic Sleuths

Vocabulary Nonstructural Hazards

Canopy: a covered area that extends from the wall of a building, protecting an entrance.

Cantilever: a beam, girder, or other structural member which projects beyond its supporting wall or column.

Cladding: an external covering or skin applied to a structure for aesthetic or protective purposes.

Cornice: the exterior trim of a structure at the meeting of the roof and wall.

Glazing: glass surface

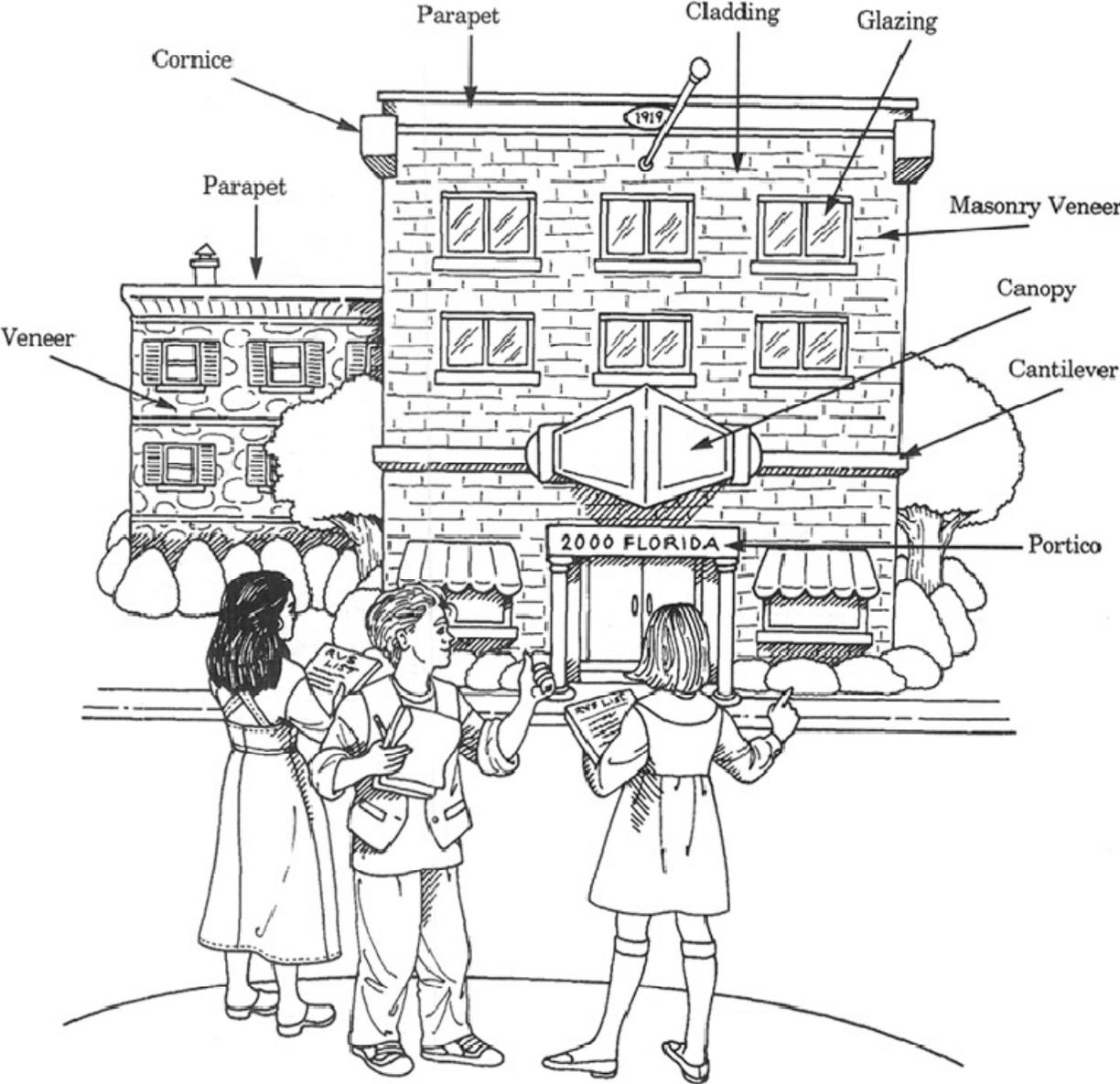
Masonry veneer: a masonry (stone or brick) facing laid against a wall and not structurally bonded to the wall.

Parapet: part of a wall which is entirely above the roof.

Portico: a porch or covered walk consisting of a roof supported by columns.

Veneer: an outside wall facing of brick, stone, or other facing materials that provides a decorative surface but is not load-bearing.

Nonstructural Hazards (key)



RVS Observation Sheet

Name _____ Date _____

1. Building name _____

2. Street Address _____

3. Materials used in construction _____

4. Year of construction _____

5. Size (number of floors), area, and shape _____

6. Current use _____

7. List of nonstructural hazards (see diagram and use appropriate vocabulary)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

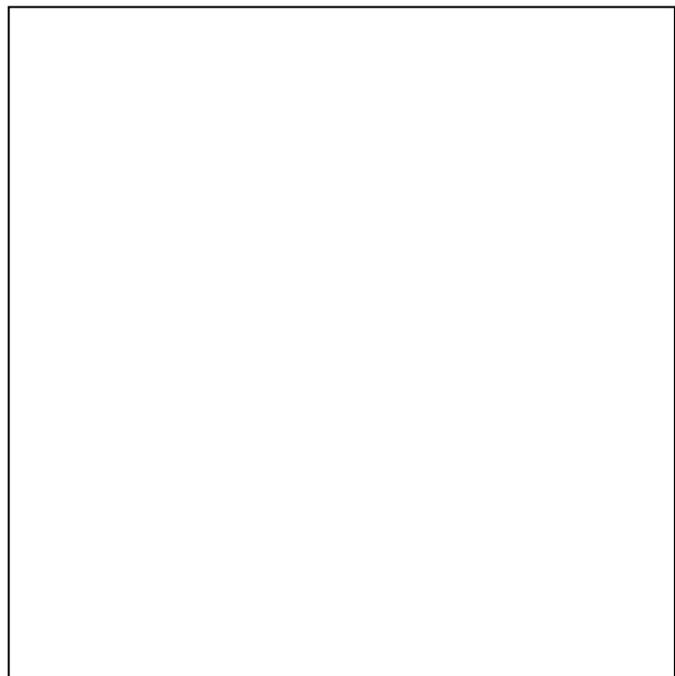
i. _____

j. _____

k. _____

l. _____

m. _____



Attach photo or sketch building

(Continue on back if necessary)

USGS National Seismic Hazard Map

