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Campagne 2010

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BREVET DE TECHNICIEN SUPERIEUR

Groupement 15

Session 2010

ANGLAIS

Durée : 2 h

- SUJET -

Dès la remise du sujet, assurez-vous qu'il est complet.

L'usage du dictionnaire bilingue est autorisé.

Spécialités :

Agencement de l'environnement
architectural
Aménagement - finition
Bâtiment
Charpente - couverture
Constructions métalliques
Enveloppe du bâtiment
Études et économie de la construction
Géomètre topographe
Systèmes constructifs bois et habitat
Travaux publics

Straw house beats the shakes in earthquake test

CHEAP houses built from straw bales could dramatically improve building safety in earthquake zones. That's the conclusion from tests in the US in which a simple straw bale house withstood shaking equivalent to a major earthquake.

Originally developed a century ago in Nebraska, homes with straw-bale walls are enjoying a revival in the US and Europe because they use green materials and provide excellent insulation. But the technology could also provide protection in quakes.

Civil engineer Darcey Donovan was designing straw-bale houses in Truckee, California, when she heard of the quake that had just killed more than 75,000 people in the Kashmir region of northern Pakistan in October 2005. Most died when their homes collapsed. She volunteered to help with the recovery, and in May 2006 spent a month in the devastated area building a women's community centre made of straw bales. She was struck by the number of people who were homeless or living in tents yet who were afraid to return to or rebuild traditional stone-and-mud homes.

Realising that straw-bale houses might help, Donovan came up with a design that could be built cheaply with local materials. The foundations are made with sacks of gravel, while the building's base uses clay and sand mixed with cement. Straw bales form the walls, which can then be covered with a plaster made from clay, sand and chopped straw. The roof is made of corrugated sheet metal. In western designs, the bales serve as insulation while a wooden frame supports the load, but Donovan was able to use the straw walls for structural support by keeping the houses to a single storey. Not only are the buildings sturdier than stone, they are much lighter, so a collapse is less likely to kill anyone inside.

To test how the houses would fare in an earthquake, Donovan built one on a quake simulation table at the University of Nevada in Reno. In the final test, which was stronger than the Kashmir quake, the plaster cracked but the house survived.

Jeff Hecht

The New Scientist April 22, 2009

TRAVAIL DEMANDÉ

I - COMPRÉHENSION (10 pts)

Rédiger un compte-rendu en français de ce texte en environ 180 mots (plus ou moins 10%).

II - EXPRESSION EN ANGLAIS (10 pts)

Répondez en anglais à la question suivante :

- a) Do you really trust this type of housing? Why? Why not? (100 mots)
- b) Can you think of other types of buildings and other protection measures in case of earthquakes or other natural disasters? (100 mots)