



CAPACITARTE

Es ser líder de tu vida



EJERCITACIÓN MÓDULO 2 – Clase 5

1. Projects and testing

1.1 What do you know about methods for making buildings earthquake-proof?

1.2 Read the article and answer these questions.

- a) What are the long-term aims of the project?
- b) What are the immediate objectives of the experiment?
- c) How will the force of a powerful earthquake be simulated?
- d) What will it mean for the experiment if the building is destroyed?

ENGINEERS at the Seismo-Build research project would not be worried or even surprised next month if their new building collapsed under the force of a powerful simulated earthquake. [A]

They have constructed a 167-square-metre, 36,288-kilo, wood-frame, mid-rise experimental building, which they plan to attach to the top of the massive piston-powered E-Defense shake table in Japan, the largest in the world. Before the shake begins, the building will be fitted with 240 displacement, strain and acceleration sensors and 50 LED light markers to allow optical monitoring via motion-recording video cameras. [B]

Once secured to the shake table, the building will be subjected to a series of three incrementally-increasing seismic simulations, starting with magnitude 6.7, then 7.1 and finally 7.5. Between tests, no repairs will be carried out to any damage to the building. [C]

The output from the sensor and video data will later be sent for post-test analysis of any displacement and deformation. In addition, visual inspections will assess degree and type of damage. [D]

The building is fitted with seismic dampers, each one about 44 centimetres long and 7.6 centimetres thick, attached to the base of triangular steel frames embedded within the walls of the house. Each fluid-filled damper is capable of absorbing kinetic energy, converting it into heat up to 93°C and dissipating up to 6,800 kilos of force, or the equivalent of 20 car shock absorbers. [E]

The engineers expect the dampers to absorb much of the energy from the movement of the house, but they don't know yet whether this would be enough to protect it from damage, as they hope.



The team fully accepts that it could suffer significant damage and could even collapse completely. It is, after all, a destructive test. However, even a total collapse would provide useful data. [F]

The project team have a clear purpose in running this three-test experiment. They hope that the tests will yield significant data about how well the seismic dampers cushion the effects of the three simulated earthquakes on the building. [G]

If successful, the experiment could change the way wood-frame buildings are designed and built in earthquake zones. The experiment is part of a long-running engineering project to design economical easy-to-build wood-frame houses that can withstand powerful earthquakes. [H]

1.3 Write the paragraph letters A-H from the news article which deal mainly with these topics.

- 1 the experimental setup, or preparations prior to the test (2 paras) __ __
- 2 the procedure that will be followed during the test (1 para) __
- 3 the data that will be studied following the test (1 para) __
- 4 the likely effects, or results, of the test on the building (2 paras) __ __

1.4 Decide on the best seven headings for the report that will be written about the completed test and its results. Put the headings in the best order.

Examples: 1 Introduction (or background) 2 Test objectives

2. Reporting Progress

In general, we use passive constructions to report progress. Use the phrases to complete the example sentences below

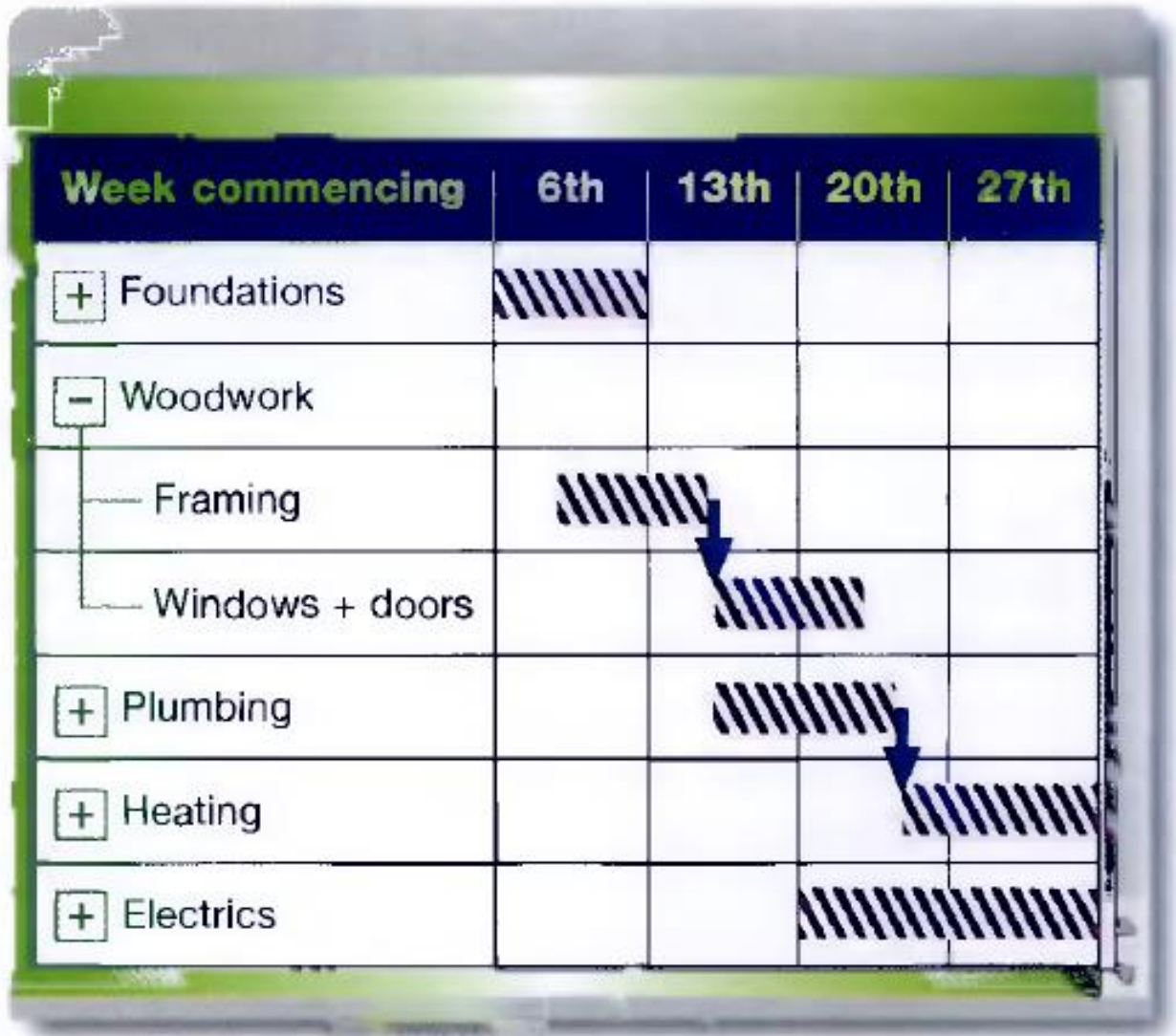
- | | |
|---------------------|----------------------|
| has to be done | can't be extended |
| has been repaired | is being laid |
| have been caused | are being towed away |
| should be filled in | |

2.1 Use the appropriate form of the verb *be* and the past participle to form passives.

Passives – continuous, perfect and modal forms

- Delays by the weekend's heavy rain.
 Cars.....all the time.
 The water main
 The cable
 The trenchesby now.
 The jobby Friday.
 The deadline

2.2 Discuss the Schedule of a construction Project. It's Monday, week commencing on May 13th.



- a) What's being done now?
- b) What's already been done?
- c) What can't be done until the plumbing's done?
- d) What has to happen before the windows and doors are installed?
- e) What should be done by the end of this month?

RESPUESTAS:

1. Projects and testing

1.1 What do you know about methods for making buildings earthquake-proof? *Open answer*

1.2 Read the article and answer these questions.

ENGINEERS at the Seismo-Build research project would not be worried or even surprised next month if their new building collapsed under the force of a powerful simulated earthquake. [A]


They have constructed a 167-square-metre, 36,288-kilo, wood-frame, mid-rise experimental building, which they plan to attach to the top of the massive piston-powered E-Defense shake table in Japan, the largest in the world. Before the shake begins, the building will be fitted with 240 displacement, strain and acceleration sensors and 50 LED light markers to allow optical monitoring via motion-recording video cameras. [B]

Once secured to the shake table, the building will be subjected to a series of three incrementally-increasing seismic simulations, starting with magnitude 6.7, then 7.1 and finally 7.5. Between tests, no repairs will be carried out to any damage to the building. [C]

The output from the sensor and video data will later be sent for post-test analysis of any displacement and deformation. In addition, visual inspections will assess degree and type of damage. [D]

The building is fitted with seismic dampers, each one about 44 centimetres long and 7.6 centimetres thick, attached to the base of triangular steel frames embedded within the walls of the house. Each fluid-filled damper is capable of absorbing kinetic energy, converting it into heat up to 93°C and dissipating up to 6,800 kilos of force, or the equivalent of 20 car shock absorbers. [E]

The engineers expect the dampers to absorb much of the energy from the movement of the house, but they don't know yet whether this would be enough to protect it from damage, as they hope.



The team fully accepts that it could suffer significant damage and could even collapse completely. It is, after all, a destructive test. However, even a total collapse would provide useful data. [F]

The project team have a clear purpose in running this three-test experiment. They hope that the tests will yield significant data about how well the seismic dampers cushion the effects of the three simulated earthquakes on the building. [G]

If successful, the experiment could change the way wood-frame buildings are designed and built in earthquake zones. The experiment is part of a long-running engineering project to design economical easy-to-build wood-frame houses that can withstand powerful earthquakes. [H]

a) What are the long-term aims of the project?

To collect useful data from a series of seismic simulations to improve the design and building of wood-frame buildings in earthquake zones.

b) What are the immediate objectives of the experiment?

To construct wood-frame building and attach it to the top of the massive piston-powered E-defense shake table in Japan. To test the resistance of the building by subjecting it to a series of earthquake simulations

c) How will the force of a powerful earthquake be simulated?

It will be simulated by displacement, strain and acceleration systems, which will simulate a three incrementally-increasing seismic simulations (6 to 7.5 magnitude)

- d) What will it mean for the experiment if the building is destroyed?
It will mean that the dampers fitted are not sufficient to protect the buildings from damage caused by the earthquake. This provides useful data to improve the dampers cushion effects in the future.

1.3 Write the paragraph letters A-H from the news article which deals mainly with these topics.

- 1 the experimental setup, or preparations prior to the test (2 paras) B E
- 2 the procedure that will be followed during the test (1 para) C
- 3 the data that will be studied following the test (1 para) D
- 4 the likely effects, or results, of the test on the building (2 paras) G F

1.4 Decide on the best seven headings for the report that will be written about the completed test and its results. Put the headings in the best order.

Examples: 1 Introduction (or background) 2 Test objectives

3 Experimental Setup

4 Procedure

5 Further Testing

6 Results

7 Conclusions

2. Reporting Progress

In general, we use passive constructions to report progress. Use the phrases to complete the example sentences below

has to be done	can't be extended
has been repaired	is being laid
have been caused	are being towed away
should be filled in	

2.1 Use the appropriate form of the verb *be* and the past participle to form passives.

Passives – continuous, perfect and modal forms

Delays ...*have been caused*..... by the weekend's heavy rain.

Cars.....*are being towed away*.....all the time.

The water main ...*has been repaired*.....

The cable ...*is being laid*.....

The trenches*should be filled in*.....by now.

The job*has to be done*.....by Friday.

The deadline ...*can't be extended*.....

2.2 Discuss the Schedule of a construction Project. It's Monday, week commencing on May 13th.

- What's being done now? *The last part of framing work.*
- What's already been done? *Foundations*
- What can't be done until the plumbing's done? *Heating work*
- What has to happen before the windows and doors are installed? *Framing work*
- What should be done by the end of this month? *Heating and electrics*