

THE POWER OF AREA



Ted.



A GroSolar team works at and looks over every job.



Ted Petsas calculates area to help the environment!

On Earth Day, we talk a lot about how we can protect our planet. Ted Petsas does that for his job! He is a system engineer at GroSolar. Ted designs solar electric systems to power buildings. These systems use solar panels to create electricity from sunlight instead of from *non-renewable* resources (resources that will eventually run out).

When Ted was in college, he entered a contest to design and build an environmentally friendly house. "I was passionate about

environmental issues before that," Ted told *DynaMath*. "This was a chance to learn a lot about what actually goes into building a house that can be environmentally friendly and powered only by the sun."

Now, when Ted gets a project for his job, he goes to the building he'll be working on and finds its roof's **area**—the amount of space inside a closed region. Then, he figures out how many solar panels can fit on the roof. Work with area to see how Ted helps the environment, one roof at a time.



Ta-da! This building is ready to get power from solar energy!



PHOTOS COURTESY OF GRO SOLAR

What to Do

Read *Area of a Rectangle* below. Then answer the questions.

AREA OF A RECTANGLE

- ✓ Area of a rectangle (A) = length (l) \times width (w)
 - ✓ Area is measured in square units.
- Example:** What is the area of this rectangle?



- ✓ Multiply: 5 feet \times 4 feet = 20 square feet
- ✓ The rectangle's area is 20 square feet.

1 Say Ted is designing a solar-power system that will be built on a rectangular roof that is 24 feet (ft) long by 50 ft wide.

A. Write a multiplication problem that you would use to find the area of the roof:

B. What is the area of the roof?

2 Say Ted needs to calculate how many 3-by-5-ft solar panels will fit on a 27-by-45-ft roof.

A. What is the area of the roof?

B. What is the area of one panel?

C. Divide the roof's area by one panel's area to see how many panels will fit:

3 An apartment building has a rectangular roof that is 60 by 72 ft.

A. What is the area of the roof?

B. How many 3-by-5-ft solar panels will fit on the roof?

C. Ted decides to use 2-by-4-ft solar panels instead. How many will fit?

4 Say Ted is putting panels on a school's cafeteria and gym. The cafeteria's roof is 60 by 66 ft. The gym's roof is 42 by 75 ft. How many 3-by-5-ft panels will fit on both roofs combined?

5 An office building has a roof that is 36 by 54 ft. Which size panels (3-by-5 ft or 2-by-4 ft) will fit evenly on the roof, and how many will fit?

SUPERMATH

Say Ted builds a solar-panel system for a roof that is 30 by 55 ft. Each 3-by-5-ft panel produces 170 watts of electricity. How many watts of electricity will the whole roof produce?

Web Wise

For tips on how to save electricity, gas, and water, visit www.scholastic.com/dynamath.

—By Linda Buchwald