

# How to measure your school's total useable floor area (TUFA)

## What to measure

TUFA should only be calculated for buildings (defined as roofed constructions having walls) where energy is used to condition the indoor climate, i.e. heating, cooling, ventilation etc. If there are buildings in the school where no energy is used for heating, cooling or ventilation they should not be included in the TUFA calculation.

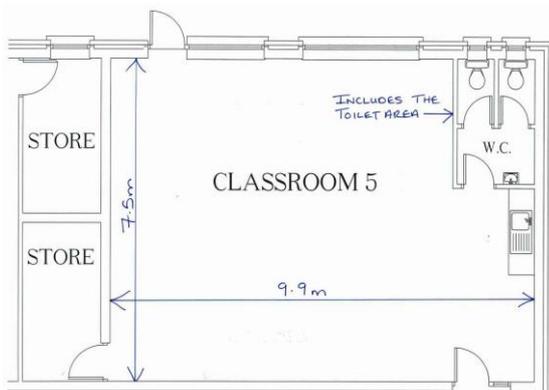
If your school has more than one floor, then you have to measure the area of each floor and add them up. So in two storey schools you have to measure the area of the ground floor and the first floor then add them up to obtain the total floor area.

Example for 2 storey school:	
Ground floor area:	3,890 m <sup>2</sup>
First floor area:	1,920 m <sup>2</sup>
<b>Total floor area:</b>	<b>5,810 m<sup>2</sup></b>

## Measuring

If your school has an aerial photograph, it is a good idea to look at it to obtain an idea about the shape of the school. It is almost like a map. The photograph could be old, so extensions may have been built onto the school since the photograph was taken, but it can still help.

When you measure the floor area, you have to include everything inside the school, including the inside walls. But you don't include the outside walls. The best way is to measure the school on the inside. You will probably have to measure the width and length of each room.



In a lot of classrooms there are toilets or a store room directly accessible from classroom contained within the overall footprint of the room. Instead of measuring the toilets or storeroom separately, you may see that the toilets, storeroom, and classroom fit into a rectangular shape, so you can just measure the total length and width of the rectangle to speed up measuring.



You have to measure the length and width of the corridors. Therefore you will need a long tape measure.

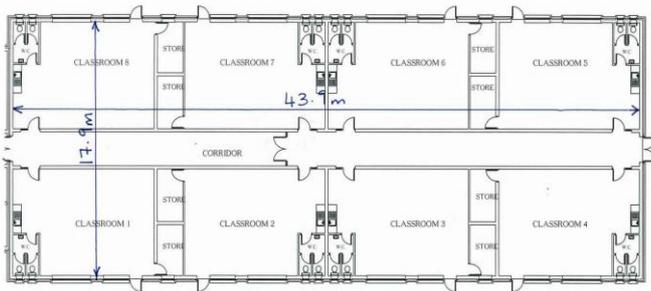


You will have to measure the thickness of the internal walls separating the rooms from the corridor and between the rooms. In the photograph here the interior walls are about 0.2 m thick. Wall thicknesses vary. Adding up all the dimensions, you can calculate the width and length of each part of the building.



The example school on this Factsheet has eight classrooms, four on each side of a corridor, each with toilets and store rooms. The total length of all four classrooms including the dividing walls and toilets and storerooms adds up to 43.9 meters. In this school, you could measure this length down the corridor. The width measured through the corridor and the classrooms either side of the corridor totals 17.9 meters. Therefore the total area of this part of the school is 785.8 m<sup>2</sup>.

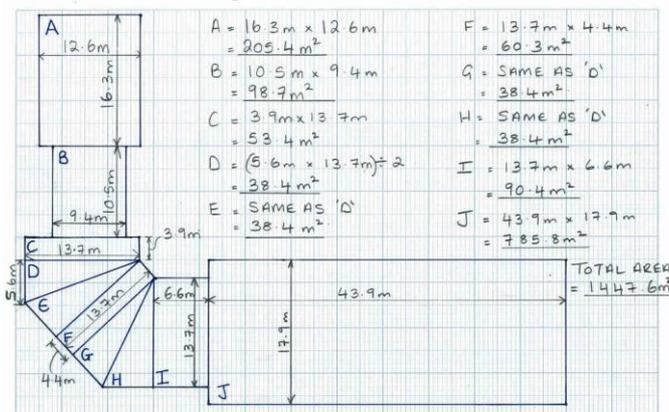
AREA OF THIS PART OF THE BUILDING = 43.9m x 17.9m  
= 785.8 m<sup>2</sup>



Total length of block = 43.9 m  
Width of 2 classrooms and corridor = 17.9 m  
Area of this part of school = 43.9 x 17.9 = 785.8 m<sup>2</sup>

Do the same for all the different parts of the school, repeating for upper floors, and basements if you have any, and you have the total area of the school.

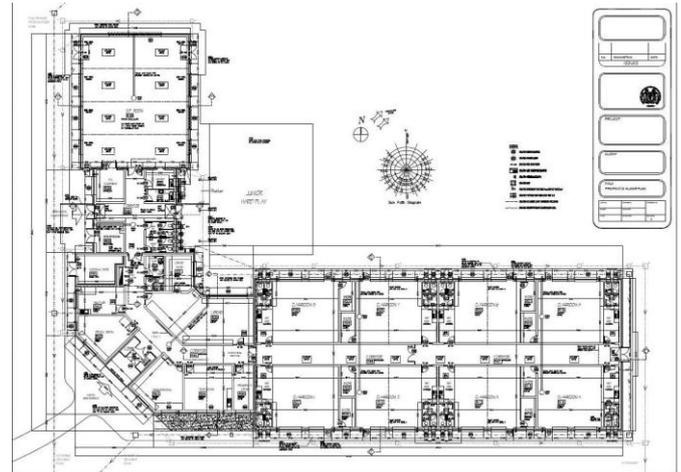
The sketch below shows a single storey school where the students have finished measuring and have drawn it on the graph paper, noting down all the dimensions. They have divided the school up into rectangles and triangles so that they can work out the area of each shape. Most schools will just be able to use rectangles.



The students added up the total area of all the shapes to obtain the total area for the school of 1,448 m<sup>2</sup>.

When measuring, you don't need to measure to the nearest millimetre or even centimetre. A measurement within 100 mm

is sufficiently accurate, and the total school area can be calculated to the nearest 1 m<sup>2</sup>.



## Architect's drawings

Another way to measure a school which might be easier is to see if you can obtain architect's plan drawings of the school. You would need to make sure that it is up to date and has all the various wings of the school on it. There should be a scale

Drawn	C.D	Check
Scale	1: 100	Stage

noted on the drawing. If the school knows a local architect or engineer, you might even ask them to come into the school and demonstrate how to measure from the plans.