



**STRATFORD NORTHWESTERN  
SECONDARY SCHOOL  
TECHNOLOGICAL STUDIES**



**DRAKE FAMILY COTTAGE DESIGN CHALLENGE**

**SITUATION:**

Your design and drafting company has been contracted by the Drake family regarding a rental cottage they currently own at Sauble Beach. They would like to tear the existing cottage down and replace it with a new energy efficient design. The cottage is located at 426 Second Ave. North, Sauble Beach, Ontario, on a lot 41'0" x 248'0".

The lot slopes towards the lake but levels out in the middle where the existing cottage sits. Therefore, the new cottage should be designed to fit on the existing footprint of 32'0" X 55'0" to take advantage of the existing grades.

The Drake family would like to make this cottage as energy efficient and environmentally friendly as possible and would like to explore their options to make it an 'off-the-grid' design. Therefore, you will need to explore the options for generating electricity, storing electricity, pumping and heating water, treating waste water, energy conservation, etc.

They have a budget of \$255,000 and have been given building estimates of between \$125 - 175 per sq. ft. (eg.  $\$255,000 / 1700 \text{ sq. ft.} = \$150.00 \text{ per sq. ft.}$ ....standard construction)

**PROBLEM STATEMENT:**

Write a problem statement describing what your design & drafting company will be contracted to do. Include in your problem statement a description of the style of house you will be designing (# of bedrooms, formal or informal layout, bathroom, washroom, en suite, laundry etc.). Include the target price per square foot for the cottage you will be designing.

*Write problem statement here:*

## **INVESTIGATION:**

Write design criteria here:

**Step 1** - Begin by creating bubble diagrams for your floor plan layout. Use a piece of graph paper first and then layer sheets of sketch paper on top as your plan develops.

**Step 2**- Peer meeting.

**Step 3** - Create a straight line diagram on a piece of sketch paper overlaid on your finished bubble diagram. Do this by drawing straight lines to represent the rooms to better define the original bubbles. Be sure you have space for doors and windows into each area. Draw a solid arrow to represent the entry door and a hollow arrow at each secondary entrance.

**Step 4** - Design meeting with Mr. Edwards.

**Step 5** - Assign sizes to your sketch. You can begin with an overall building size and subtract wall thicknesses and known room sizes to determine any unknown sizes. Alternately, you can assign room sizes and add them to the wall thicknesses to calculate your overall size.

Do not exceed the maximum building size. The more sizes you can calculate before you begin the easier your drafting process will be.

## **CONSTRUCTION:**

Create a presentation drawing of your design using AutoCAD and the following standards:

paper size:	P3-PAPER-IMPERIAL
scale:	3/16"=1'0" (calculate your scale factor, 1: <u>  ?  </u> )
title:	DRAKE COTTAGE FIRST FLOOR PLAN
drawing number:	17-DRAKE-03

Use all the architectural drawing standards and symbols you learned while drawing the ski chalet floor plan earlier in the semester.

## **EVALUATION:**

Your completed design will be inserted into a mock sub-division for peer review, as well as presented to the Drake family.

Your completed drawings will be submitted to Mr. Edwards to be evaluated based on the standard DRAFTING - CADD rubric posted in class as well evaluated on the overall DESIGN quality of your floor plan.

As yourself, have you solved your Problem Statement?