



Marmag Infra Pvt.Ltd.
An IIT Madras Incubated Company

PROFESSIONAL SKILLS MODULE NO. 1

MANAGE PROCESS OF MATERIAL WEIGHT DETERMINATION DOCUMENT FOR PRE-ENGINEERED BUILDING

6TH FLOOR, Block B,
IIT MADRAS RESEARCH PARK,
KANAGAM ROAD,
KANAGAM PERIYAR NAGAR 32,
THARAMANI,
CHENNAI-113.

Tel: (000) 000 0000

Fax: -----

E-mail:-----

Table of Contents

1.	INTRODUCTION	3
2.	HOW TO MASTER THE TAKE OFF IN CONSTRUCTION ESTIMATING	3
3.	BUILDING MATERIALS QUICK CALCULATION	3
3.1	Building Name	3
3.2	Building Location	3
3.3	Wind Speed	4
3.4	Building Type	4
3.5	Building Length	4
3.6	Building Width.....	4
3.5	Building Occupancy.....	5
3.6	Eave/Clear Height	5
3.5	Ridge Height	5
3.6	Bay Spacing	6
3.5	Roof Slope	6
3.6	Canopy Height	6
3.5	Brick Wall Height	7
4.	CONCLUSION.....	7

1. INTRODUCTION

The Building Materials Estimation and Calculator, with an advancement of technology there has been revolution in architectural space. Now a day's people are finding intelligent and smarter ways for their house plans and designs. Earlier architects used to provide building plans on a piece of paper, which was very tough to understand for common man and imagine how a house is going to look after completion. But now with the help of technology "3D" house plans are clearly visible and understood. It gives a fair understanding as how your house would look after the construction is over.

With the help of advanced technology people can now avail various services which can help in estimating the budget of the house and spend on materials through an estimate calculator. This technology has not only bridged the gap architectural service but it has also made life easier for common man.

The purpose of this module is easily calculate the exact quantity of construction material required for your house or project construction by using free building material calculator

People now are no more are hiring trainers or professional for estimation and calculation, people can calculate and estimate with following steps.

This is a simple calculation process that helps calculate the quantity of each type of material that will be required to construct the building or project i.e. Steel, roof and cladding sheet, connection materials required.

2. HOW TO MASTER THE TAKEOFF IN CONSTRUCTION ESTIMATING

Before an estimator can bid for or start a project, they need to know the types and quantities of different materials they will need to complete it. This ensures a proper estimation of the costs and requirements for the materials and will also give an indication of the labor costs involved in the installment or construction of said materials. This process is known as [takeoff](#) — or material takeoff (MTO).

3. BUILDING MATERIALS QUICK CALCULATION BY ENTER THESE VALUES

1) BUILDING NAME

The full name used to identify the physical building or property as part of its location.

Example

Building Name

SMC ENTERPRISES (P) LTD

2) BUILDING LOCATION

Site the place where something, especially a building, is or will be located; a place

Example

Building Location

UTTAR PRADESH

3) WIND SPEED (Values in m / sec...)

The wind speed that is used in determining wind load on a structure before other factors (such as height above the ground and the effects of shielding) are taken into account.

Example

Wind Speed

47

4) BUILDING TYPE (Based on the purpose...)

A building to be a structure constructed using any type of material (s) and for whatever purpose, be it for residential, commercial, industrial or other.

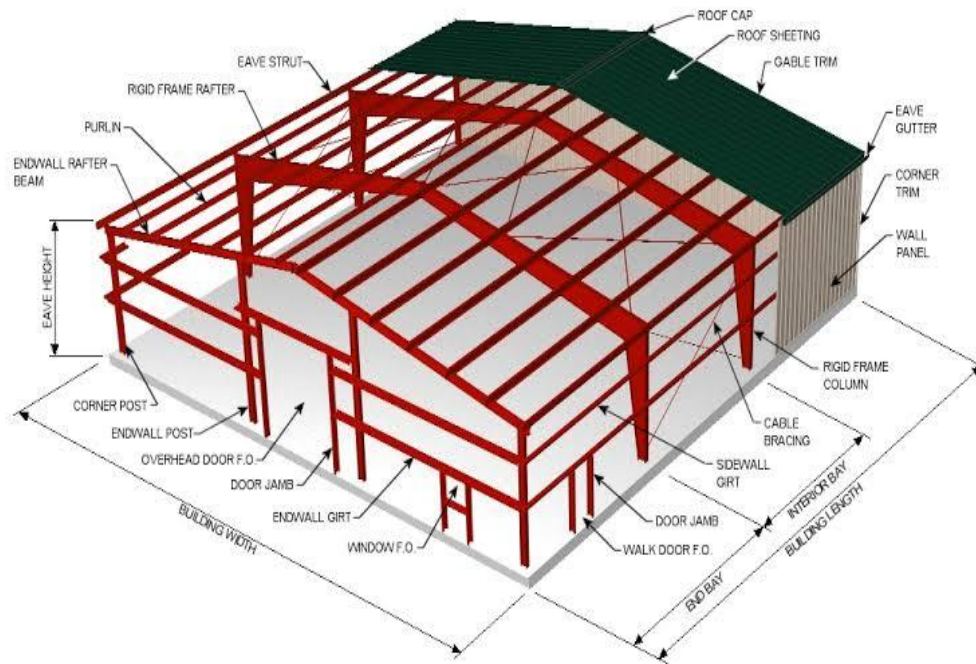
Example

Building Type

INDUSTRIAL

5) BUILDING LENGTH (Length in meters...)

Building length means "the longer or longest dimension of an object." So the length of a rectangle is the longest side.



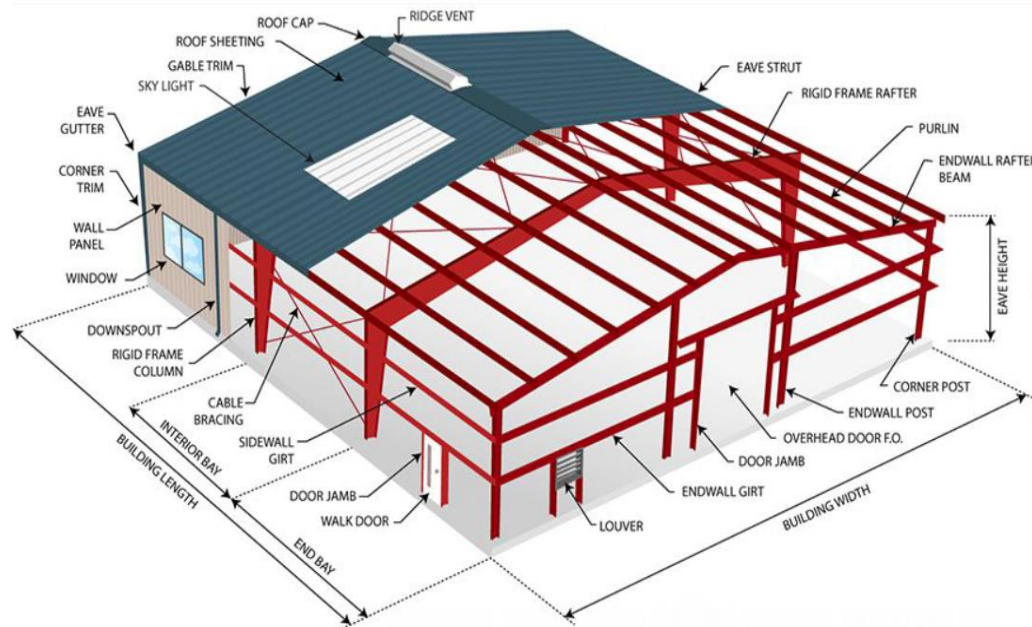
Example

Length

184

6) BUILDING WIDTH (Width in meters...)

Building width means "the shorter or shortest dimension of an object." So the width of a rectangle is the shortest side.



Example

Width

50

7) BUILDING OCCUPANCY (Area in m²...)

"occupancy" refers to the use, or intended use, of a building, or portion of a building, for the shelter or support of persons, animals or property

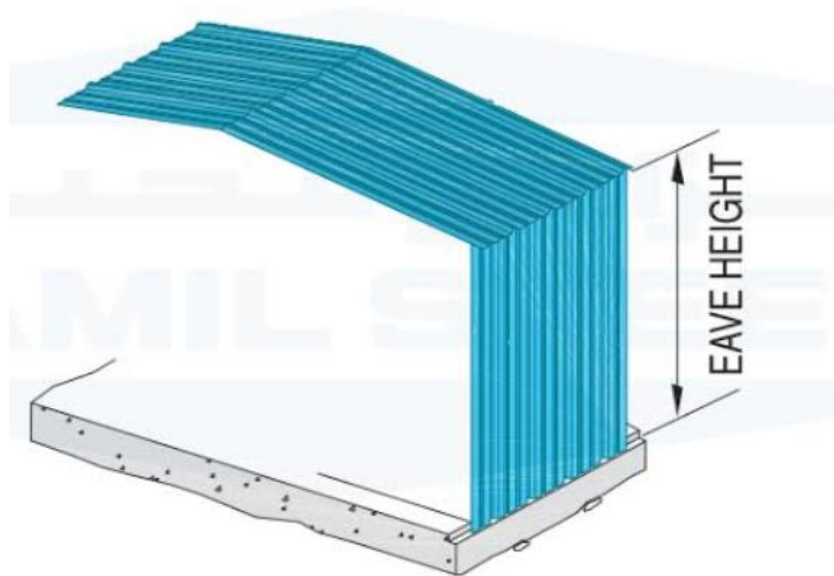
Example

Building Occupancy

9200 SQM

8) EAVE / CLEAR HEIGHT (Height in meters...)

Eave height is determined by measuring the distance from the bottom of the base plate to the point where the roof and sidewall intersect.



Example

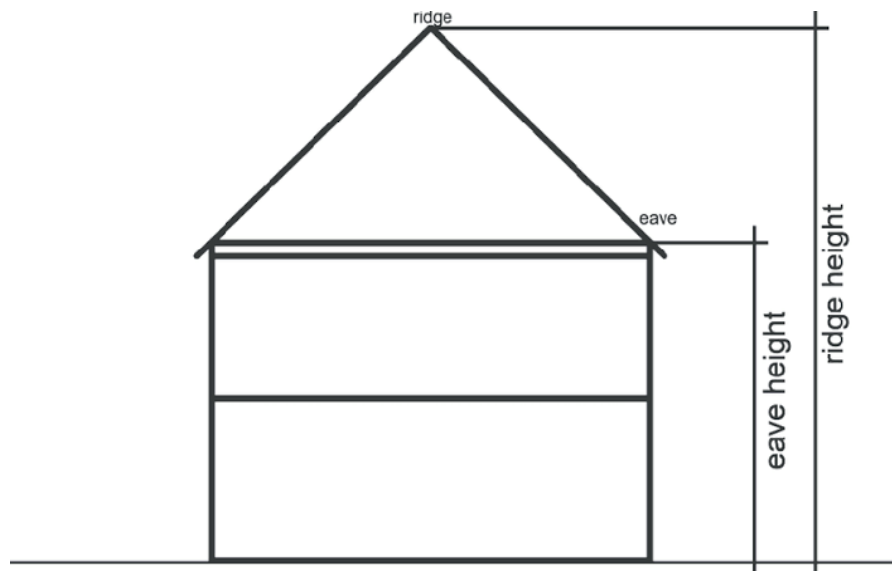
Clear/Eave Height

12

9) RIDGE HEIGHT (Height in meters...)

A long narrow raised land formation with sloping sides.

Example



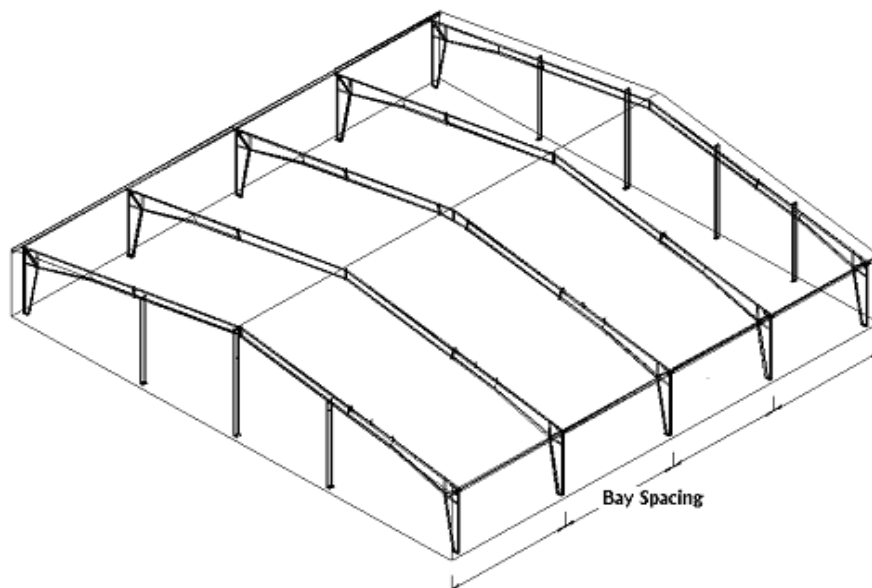
Ridge Height

2.19

10) BAY SPACING (Spacing in meters...)

Bay Spacing in Metal Buildings. Each space or interval between the frames of a steel building is a "bay".

Example



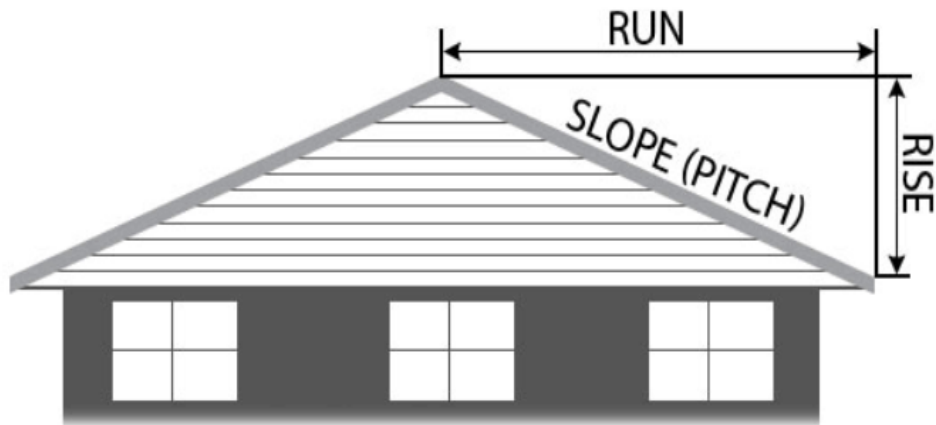
Bay Spacing

8

11) ROOF SLOPE (1 in 10)

Slope is the incline of the roof expressed as a ratio of the vertical rise to the horizontal run, where the run is some portion of the span.

Example



Slope

5

MODEL CALCULATION TO FIND THE ROOF SLOPE

Calculate roof height at attic center given roof slope

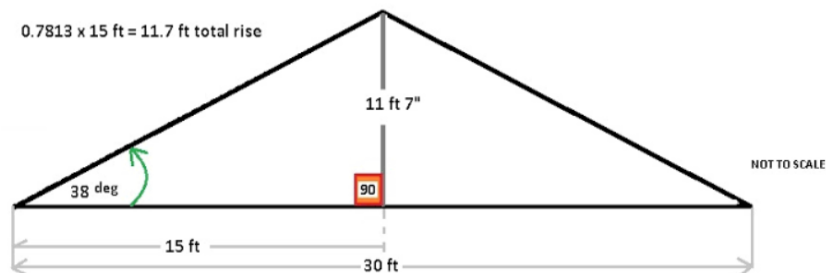
$$\text{TAN angle A} = \text{RISE} / \text{RUN}$$

$$\text{TAN } 38 = 0.7813$$

$$0.7813 = (\text{Rise Y1}) / \text{Run (X)}$$

$$0.7813 \times \text{Run (X)} = (\text{Rise Y1})$$

$$0.7813 \times 15 \text{ ft} = 11.7 \text{ ft total rise}$$



12) CANOPY HEIGHT (Height in meters...)

A canopy is an overhead roof or else a structure over which a fabric or metal covering is attached, able to provide shade or shelter from weather conditions such as sun, hail, snow and rain.

Example



Canopy Height

4.5

13) BRICK WALL HEIGHT (Height in meters...)

Usually, We provide some height of brick wall in industrial building.

Example



Brick Wall Height

3.5

4. CONCLUSION:

Please bear in mind that these are for guidance only and we cannot therefore accept any liability for the quantities given. There can also be a customized calculator that allows the parameters to be varied to suit your business needs.