

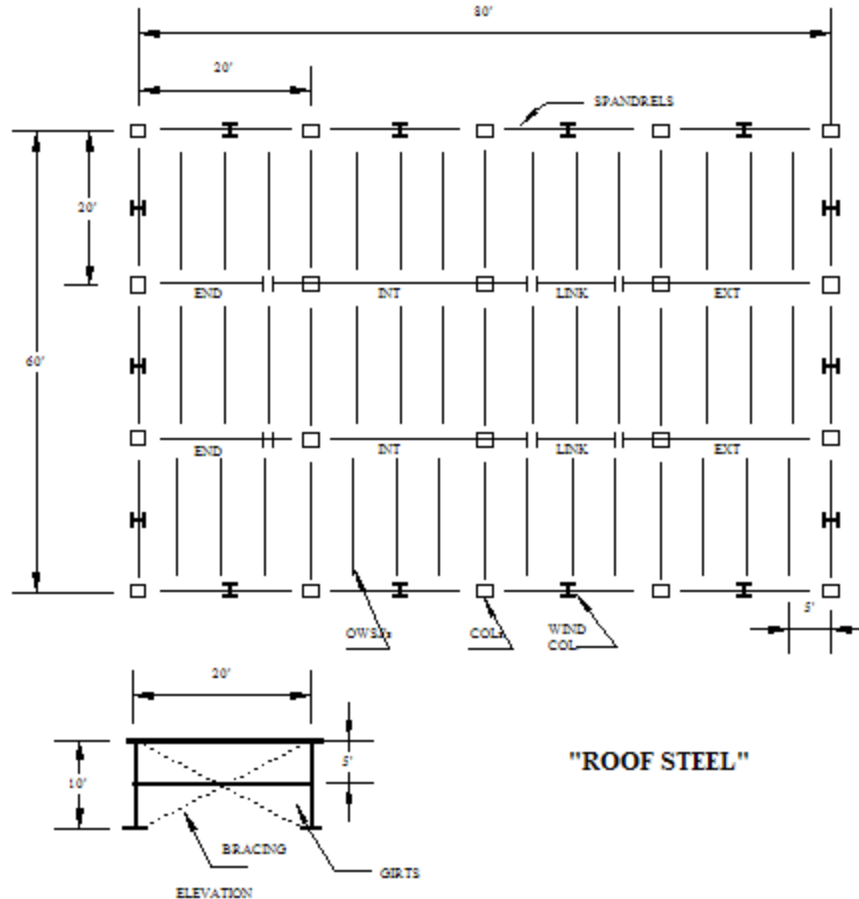
# **MR. ESTIMATOR® SOFTWARE**

## **GERBER GIRDER “PLUS” VERSION**

**SOLUTION FOR A TYPICAL SMALL STEEL STRUCTURE –  
ILLUSTRATED BELOW**

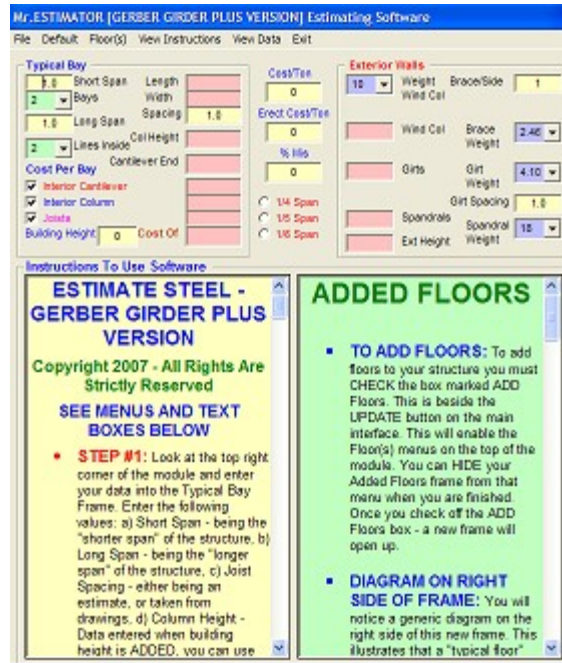
**SAMPLE CALCULATION: IMPERIAL UNITS: 12 BAYS  
[EACH BAY 20 Ft x 20 Ft]**

### **PART 1 – NO FLOORS ADDED**



- This software is “great” to use before the structure is designed. The end user can optimize the cost of the steel [based on past designs]. This information can then be used by the Structural Engineers to minimize the weight of the steel selected, etc.

## The Main Screen Will Appear as Illustrated Below:



- The instructions should be read through completely, before using the software. These can then be hidden to begin to enter your data.
- NOTE: The weights used in this problem are “fictitious” only and DO NOT reflect a typical steel design. These are only used to illustrate the problem. We are assuming the following: 1) Interior Cantilevers, Exterior Cantilevers, Spandrels, Links End Beams, Interior Columns and Exterior Columns are all 18 lbs/Ft (assuming W Shapes). 2) Wind Columns are 10 lbs/Ft. 3) Girts are 4.1 lbs/Ft. 4) OWSJ for the Roof are 2.5 lbs/Ft [assumed to 5 ft OC]. And 5) Bracing is 2.46 lbs/Ft [assuming 1 per side in this problem]. 6) Erection costs in this area are approximated at \$200/Ton. This structure is 4,800 Ft<sup>2</sup>. We are NOT considering the decking in this software [note: this can be ADDED to the cantilever weights, based on the tributary area in question]. The building height is assumed to be 10 ft, with a Girt at 5 ft. See the sketch provided above.
- **STEP #1:** Enter you data into the yellow text boxes: Adjust the steel weight with the drop down boxes. The software will automatically recalculate your estimate. Configuration 1 is selected, which allows for

an Exterior Cantilever and an End beam at each end. Press the UPDATE DATA button if the calculation is not completed.

The screenshot shows the 'Mr. ESTIMATOR [GERBER GIRDER PLUS VERSION] Estimating Software' interface. It features several sections for data entry and calculation results:

- Typical Bay:** Includes fields for Short Span (Length: 80, Bays: 4), Long Span (Spacing: 5, Col Height: 10), Lines Inside (2), Cantilever End (4), Cost/Ton (1200), Erect Cost/Ton (200), % Ibx (0), and Building Height (10).
- Exterior Walls:** Includes Weight (18), Wind Col (14), Girts (14), Spandrel (14), and Est Height (10).
- Typical Single Line Down Structure - Short Span:** A grid showing quantities for Exterior Cantilever, Interior Cantilever, Link, End Beams, Interior Columns, Exterior Columns, Over Columns, and Joists Between Columns.
- Material Lists:** Lists items like Int Beams, Ext Beams, Link Beams, End Beams, Spandrel, Int Col, Ext Col, Wind Col, Girts, Roof Joists, Brooding, and Misc Steel with their respective quantities and costs.
- Summary:** Shows 'COST STEEL-NO ADDED FLOORS' as \$11,731 and '4,800 FT\*2 @ CostT\*2' as \$2.

- The software calculates the following: 1) 2 Interior Cantilevers, 2) 2 Exterior Cantilevers, 3) 2 Link Beams, 4) 2 End Beams, 5) 14 Spandrels, 6) 6 Interior Columns, 7) 14 Exterior Columns, 8) 14 Wind Columns, 9) 14 Girts, 10) 45 OWSJ's for the Roof, 11) 4 Braces @ 2 Angles/Brace = 8 Bracing Members.
- **STEP #2:** Select the View Data Module. All the input and output is listed there.

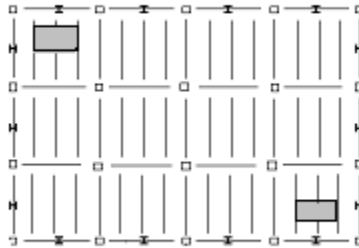
The screenshot shows the 'View Data Output - Contact: sapper1@sympatico.ca' window. The main title is 'Raw Data - Steel Cost Gerber Girder Structure'. It is divided into three main sections:

- Input Data:** Lists parameters such as Short Span = 20, Long Span = 20, Configuration = 1, Spacing = 5, Col Height = 10, Exterior Height = 10, Wind Col Weight = 10, Girt Spacing = 5, Brace Weight = 2.46, Girt Weight = 4.10, Spandrel Weight = 18, and various weights for cantilevers, link beams, end beams, and columns.
- Output Data:** Shows calculated values like COST PER BAY (Int Cantilever \$ = \$605, Int Column \$ = \$432, Int Joist \$ = \$100, Bay \$/Area = \$3), STRUCTURAL MEMBERS (Int Beam No = 2, Link Beam No = 2, End Beam No = 2, Span Beam No = 14, Int Col No = 6, Ext Col No = 14, Wind Col No = 14), and totals (TOTAL \$ = \$11,731, COST/AREA \$ = \$2).
- Input Notes:** A section for additional notes, currently empty.

At the bottom, there is a disclaimer: 'Based On Current Laws, Codes And Statutes, The Final Design May Require A Professional Engineer'.

- The software calculates a cost of steel @ **\$11,731.00** [Assuming \$1200/Ton of steel]. The erection cost is estimated at **\$1,676.00**. This particular structure consists of approximately **8.4 tons** of steel.
- **Note:** This problem is based on “fictitious” steel weights for the members [the default settings for the Imperial units used]. A real structure will be based on the “average” weights for each member. Remember, this is only an estimate.

## PART 2 – ONE FLOOR ADDED



- We can assume for this example that we select ONE floor to be added. The grey boxes in the sketch above indicate HOLES in the floor. There can be any number of these. The software will remove the concrete volume and OWSJ + decking associated with these holes. This is “assumed” the same for every floor.
- **STEP #3:** Check the box marked ADD Floors [beside the Update button]. This opens a frame to ADD floors to the structure. Fill in the required information. When you enter 1 floor @ 4 inches of concrete, your column height increases to 20 feet. Your number of girts increases from 14 to 42 girts 9as the software assumes a girt at the floor level to pick up the exterior skin. We assumed \$100/Yd<sup>3</sup> of concrete for this example – With NO HOLES in the floor [to simplify the problem]. In a real case there would have to be access to the floor, etc.. We have also assumed NO error in calculation and NO labor, or Expenses.

The screenshot shows the software interface with the following sections:

- Typical Bay:** Short Span Length 60, Width 60, Spacing 5; Long Span Spacing 5; Lines Inside Col Height 20; Cantilever End 4; Coat Per Bay 4; Interior Cantilever \$605; Interior Column \$884; Joists \$150; Building Height 10; Cost Of \$5.
- Exterior Walls:** Weight 1200, Brace/Side 1, Wind Col 14, Brace Weight 2.48, Girts 42, Girt Weight 4.18, Girt Spacing 5, Spandrel 14, Spandrel Weight 18, Ext Height 20.
- Typical Single Line Down Structure - Short Span:** Exterior Cantilever 2, Interior Cantilever 2, Link 2, End Beams 2, Interior Columns 6, Exterior Columns 4, Over Column 9, Joists Between Columns 36.
- Estimate Composite Floor - OWSJ + Concrete - ONE BAY:** Opening Length 0, Width 0, No 0; Concrete S/Vol 100, Sp 5, % E 0; Labor #1-2-3 No 0, Hrs 0, \$/hr 0; Expenses S/Bay 0, Lab+ Exp \$ 0; Total Steel + Concrete \$\$ \$30,621.4.

- Software will adjust the Erection Cost + Miss Steel Cost, as well as the Wind Columns Steel Cost.

The screenshot shows the software interface with the following sections:

- Typical Bay:** Same as the first screenshot.
- Typical Single Line Down Structure - Short Span:** Same as the first screenshot.
- Cost Breakdown:**
  - Int Beams: 2 @ \$605 = \$1,210
  - Ext Beams: 2 @ \$518 = \$1,036
  - Link Beams: 2 @ \$259 = \$518
  - End Beams: 2 @ \$346 = \$692
  - Spandrel: 14 @ \$3,024 = \$42,336
  - Int Col: 6 @ \$1,296 = \$7,776
  - Ext Col: 14 @ \$3,024 = \$42,336
  - Wind Col: 14 @ \$1,680 = \$23,520
  - Girts: 42 @ \$2,866 = \$120,492
  - Roof Joists: Fabricator 45 @ \$1,356 = \$61,020
  - Bracing: 8 @ \$334 = \$2,672
  - Miss Steel + Total Erect: \$2,417
  - COST STEEL + CONCRETE: \$37,317**
  - Long Beams: 18 @ \$3,240 = \$58,320
  - Short Beams: 18 @ \$3,456 = \$62,208
  - OWSJ Floor: 18.0 @ 36 = \$6,480
  - Concrete Floor: 59.3 @ \$5,925.9 = \$351,405.87

- **STEP #4:** You can now turn off the frame used for the added floors. The software calculates a final cost of \$37, 317.00 [including the additional steel + Concrete]. The cost of the ONE floor was determined as \$20, 392.00.

- **STEP #5:** Open the View Data Screen to view and print new data.

View Data Output - Contact: sapper1@sympatico.ca

File Case View

### Raw Data - Steel Cost Gerber Girder [PLUS] Structure

Input Data	Output Data	Input Notes
<b>IMPERIAL UNITS</b> Short Span = 20 No Of Bays = 4 Long Span = 20 No Of Lines = 2 Configuration = 1 Spacing = 5 Col Height = 20 1/2 Span Selected Exterior Height = 20 Wind Col Weight = 10 Girt Spacing = 5 Brace Weight = 2.46 Girt Weight = 4.10 Spandrel Weight = 15	<b>Output Data</b> <b>COST PER BAY</b> Int Cantilever S = \$605 Int Column S = \$564 Int Joist S = \$150 <b>Bay SS Area = \$6</b> <b>STRUCTURAL MEMBERS</b> Int Beam No = 2 Int Beam SS = \$605 Int Beam No = 2 Int Beam SS = \$605 Link Beam No = 2 Link Beam SS = \$259 End Beam No = 2 End Beam SS = \$346  Span Beam No = 14 Span Beam SS = \$3,024 Int Col No = 6 Int Col SS = \$1,296 Ext Col No = 14 Ext Col SS = \$3,024 Wind Col No = 14	<b>Input Notes</b>           <b>TOTAL \$ = \$37,317</b> <b>COST/AREA \$ = \$6</b>  <b>ADDED FLOORS</b> Long BM = 15 @ \$3,240. Short BM = 15 @ \$3,456. OWSJ = 36 @ \$7,776. Conc/Vol = 59.3 @ \$5,925.9 No Floors = 1 Spacing = 5 Depth Conc = 4 Joist Long Direction

Wind Col SS = \$1,680  
Girt No = 42  
Girt SS = \$2,086  
OWSJ No = 45.  
OWSJ SS = \$1,350  
Bracing No = 6  
Bracing SS = \$334  
Max Steel S = \$2,417

No File Used

Obtain Proper Drawings  
Work With Adequate Specs  
Utilities Must Be Marked  
Obtain Proper Permits  
Ensure Safety On Project

Based On Current Laws, Codes And Statutes, The Final Design May Require A Professional Engineer

## WHAT ARE SOME BENEFITS OF THIS SOFTWARE? 35 Reasons Why This Product Will “Add Value” to your projects.

- Easy to use. Simple interface.
- Very short learning curve. Don't have to train staff to use this product.
- Easy Instructions and definitions given.
- Very Low Cost per project. Make ALL your money back with one use.
- No Spreadsheets and No 3<sup>rd</sup> Party software required.
- Consider Material and Erection Costs.
- Reasonably accurate [average weights]. See sample problem above.
- Up to 50 x 50 bays [at any given length and height]
- ADD up to NINE Floors to the structure.
- Consider OWSJ for floors in long, or short direction
- Calculate Concrete Costs for floors ADDED.
- Calculate OWSJ for floor members + Costs.
- Calculate long and short beams + Costs.
- Software considers HOLES in the floors for stairs, etc.
- Software considers Labor costs and Expenses.
- Uses both Metric and Imperial Units.
- Only 10 data entry text boxes.
- Adjust steel weights with simple drop down boxes.
- Quantities are calculated for each member.
- Conversions calculator comes with the Professional Version.
- Excellent for Small Projects and Larger Projects.

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## **MR. ESTIMATOR® SOFTWARE**

- Excellent for small to medium contractors who want a FAST quote,
- Two different configurations are provided. Covers MOST structures.
- Estimate total cost per structural area, and per bay.
- Quotes for beam can be given over the phone in minutes.
- Turn ON and OFF members where required.
- No databases to be updated and maintained.
- No extra training is required. Use immediately to “automate” your design process.
- Simple View Data display and printout.
- Improve your “Bottom Line” immediately with one use.
- Professional Version can be “customized” for your business, or projects.
- Very **LOW** price compared to software using spreadsheets.
- Allows for project flexibility.
- Calculation ERROR is eliminated.
- Professional Version is “Personalized” for you.