

CMCE 1215 Strengths of Materials
Spring 2014

Prof. Villatoro

Project #2

Wood Deck Plan: Shear & Bending Moment Diagrams

Date Due: Tuesday, May 20, 2014

For your individual case number, perform the following hand calculations and computer analysis for each of the 4 Wooden Beams:

- I. Simple Supports – Floor Joist “J1”
- II. Simple Supports – Floor Joist “J2”
- III. Overhanging – Floor Joist “J3”
- IV. Simple Supports – Girder “G1” *Span 1*

GENERAL REQUIREMENTS

1. **Draw** by hand a Complete Loading Diagram, Shear Diagram, and Bending Moment Diagram for each of the four beams. Use Engineering Graph Paper. Fully Label the Shear & Moment Diagram. (Reactions, Maximum V & M, Points of Zero Shear).
2. **Computer Solution** - Using the computer program "MDSolids" determine the **Maximum Shear** and **Bending Moment** on each of the beams. The computer program can be downloaded for FREE at <http://www.mdsolids.com/download.htm>. The version of **MDSolids** that you download from this site may be used free-of-charge for a 30-day evaluation period. Fully Label the Shear & Moment Diagram (*Maximum V & M, Points of Zero Shear*).
3. **Beam Design** – For each of the four beams, Calculate the required Section Modulus and Select an adequate Douglas fir Timber section.
4. **Submission** - Submit all work neatly packaged (stapled).

1. Cover Page - Include your Name, Course #, Case #, and Project Name, Date Submitted, Date Due

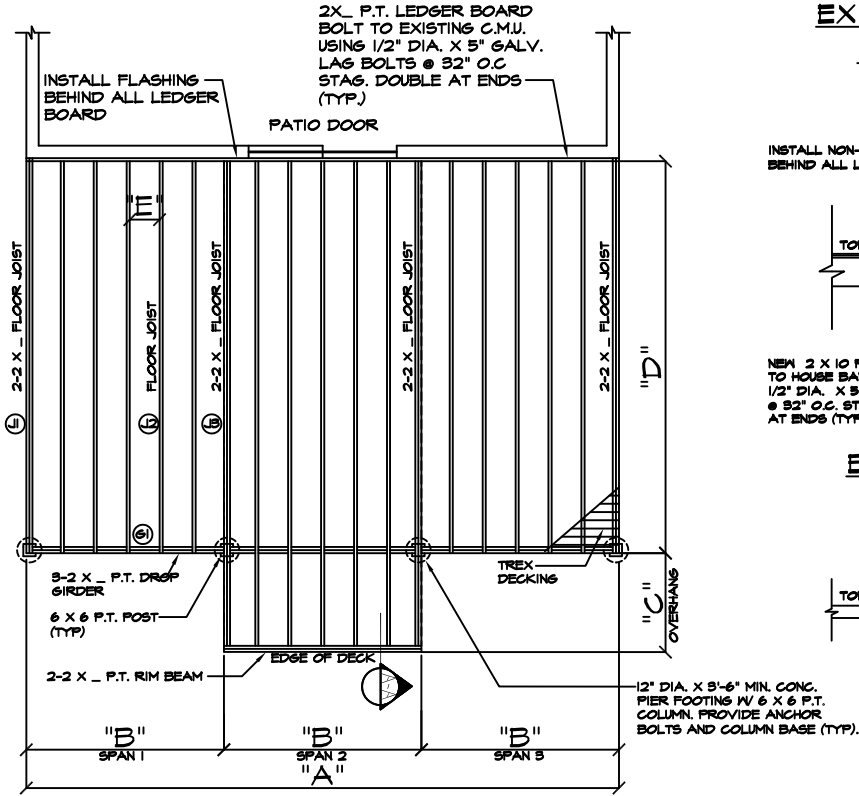
Wood Deck Framing Plan – Dimensions & Loading

STUDENT No.	"A" (feet)	"B" (feet)	"C" (feet)	"D" (feet)	"E" (inches)	Uniformly Distributed Load	
						Live Load (#/ft ²)	Dead Load (#/ft ²)
1	24	8	3	12	16	30	10
2	18	6	4	14	12	30	10
3	24	8	3	16	16	40	10
4	18	6	4	12	12	40	10
5	24	8	3	14	16	50	12
6	18	6	4	16	12	50	12
7	24	8	3	12	16	30	12
8	18	6	4	14	12	30	12
9	24	8	3	16	16	40	15
10	18	6	4	12	12	40	15
11	24	8	3	14	16	50	15
12	18	6	4	16	12	50	18
13	24	8	3	12	16	40	18
14	18	6	4	14	12	40	18
15	24	8	3	16	16	30	18

NOTE: Late Submittals and or Sloppy Submittals will not be accepted!!



**EXISTING HOUSE
SUNROOM**



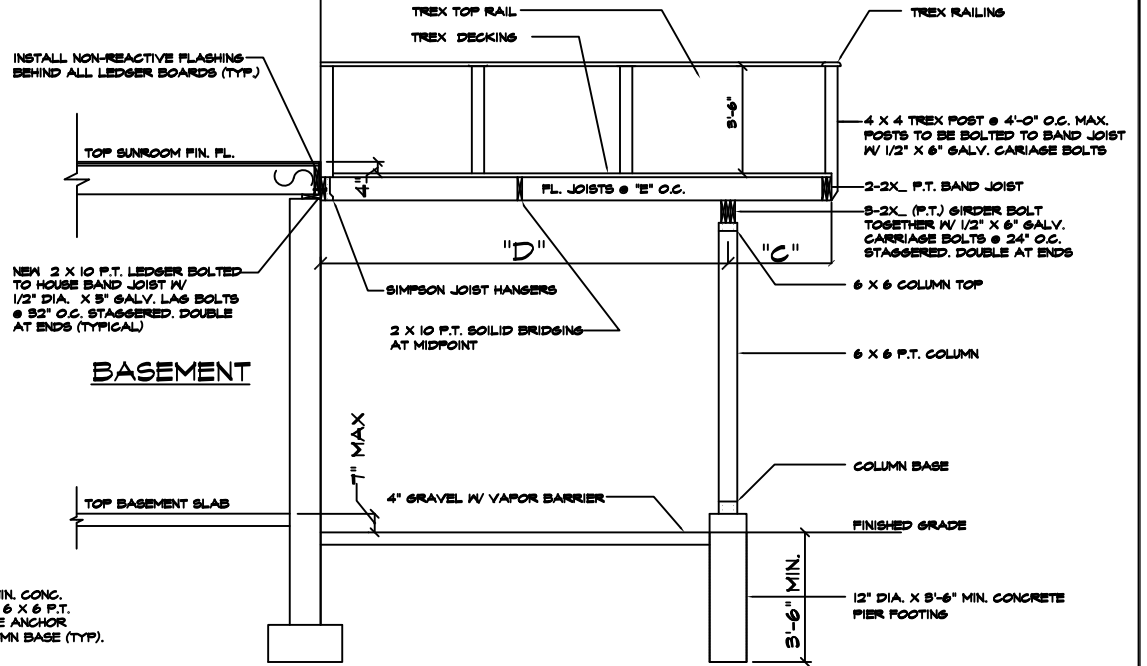
DECK FRAMING PLAN

SCALE: NTS

NOTES:

I. REFER TO PROJECT ASSIGNMENT FOR DIMENSIONS AND LOADING

**EXISTING HOUSE
SUNROOM**



**SECTION A - A
TYPICAL DECK RAIL DETAIL**

SCALE: NTS

WOOD DECK FRAMING PLAN
PROJECT #1 #2 #3

PROJECT#1 REACTIONS

DATE: 4/22/14

CMCE 1215
STRENGTHS OF MATERIALS II

N.Y.C.C.T.
CMCE DEPARTMENT

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