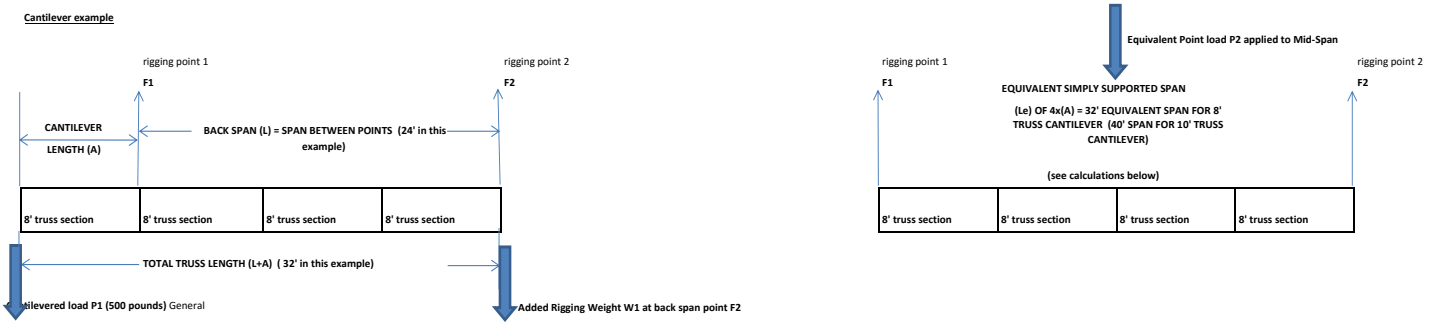
CHRISTIE LITES

GENERAL TRUSS CANTILEVER CALCULATOR



Explanatory Notes:

- The load at rigging point 1 (F1) equals the applied point load (multiplied by the total truss length and divided by the back span) plus the additional weight of the supported truss and rigging cable.

- The load at rigging point 2 (F2) equals the uplift load due to the cantilever point load (P) counteracted by the downward weight of the supported truss.

- The reactions provided do not account for any additional uniform or point loads applied to the truss back span (L) between the noted rigging points. See Christie Lites simply supported truss load tables for additional considerations at the truss back span (L).

- Use the "equivalent span / point load" results in order to help determine the moment, shear and deflection adequacy for the Christie Lites truss due to the cantilever loading.

- Net uplift loads at rigging point 2 (F2) will result in an unstable truss assembly (which will rotate about rigging point 1 (F1) and result in the entire truss weight being supported off of this rigging point).

- Additional weight may be added at rigging point opposite cantilever (point F2 in above example) to resist uplift. Applied weight should result in a minimum 250 LB down load, as well as a factor of safety of at least 1.5 for uplift (i.e. applied weight should be at least 1.5 times greater than noted uplift load, and at least 250 lbs down).

- In general, we recommend that enough weight is added to rigging point F2 to ensure a minimum 250 LB down load, as well as a factor of safety of 1.5 for any uplift reactions.

Cantilever Calculator - plug your numbers in the blue cells

What is your cantilever length (A)?	12	feet
What is your back span length (L)?	12	feet
Total Truss Length =	24	feet
Applied load at end of cantilever (P1)?	12	pounds
Weight of rigging cable at support points F1 & F2?Applied weight at end of back span F2 (W1)?	12	pounds
	12	pounds
Truss Type (A, B, C, D, E, F)?	c	
Truss self-weight per lineal foot =	8.50	plf (pounds per lineal foot of truss)

Truss Types (per Christie Lites)		Weight (plf)
A	12"	6.00
B	16"	7.50
C	20.5"	8.50
D	Swingwing	18.00
E	Tall Swingwing	20.00
F	Track Truss	15.75

Load at F1 will be: **240 pounds**

Load at F2 will be: **12 pounds** **LOAD F2 LESS THAN 250 LBS! ADD WEIGHT TO POINT F2 FOR MINIMUM 250 LB DOWN LOAD AT F2**

Equiv. Simply Supported Span (Le = 4xA): **48 feet**

Equivalent Point Load (P2) for Simply Supported Truss Span (Le): **12.00 pounds** **Verify this load against Christie Lites simply supported span tables for noted span (Le) with point load P2 applied at mid-span**

General Notes

1) Spreadsheet is for general planning / information only. Cantilevered truss stability is outside of the scope of this spreadsheet, and should be reviewed by an engineer or other competent person.

2) Calculations shown assume cantilever back span is unloaded between rigging points. Any additional back span loads shall be coordinated with Christie Lites span tables in order to verify back span truss adequacy.

3) Cantilevered truss deflections are outside the scope of this spreadsheet.

4) Maximum cantilever length is 10 feet long

5) Applied cantilever load (P1) may be applied anywhere along the cantilever span.

6) Back span length (L) shall be at least 3 times the length of truss cantilever (A). For example, with an 8' cantilever, the minimum length of the truss back span would be 24'.

7) Additional weight may be added at rigging point opposite cantilever (point F2 in above example) to resist uplift. Applied weight should result in a minimum 250 LB down load, as well as a factor of safety of at least 1.5 for uplift (i.e. applied weight should be at least 1.5 times greater than noted uplift load, and at least 250 lbs down).

8) No faceplates are allowed in a cantilever - they may not take the required loading

9) Cantilever point load must be hung evenly across both bottom chords.