



# STRUCTALL BUILDING SYSTEMS

## ALUMINUM 7" & 10" I-BEAM - EDGE BEAMS

### PERFORMANCE EVALUATION (FOR USE WITH OPEN STRUCTURES)

THIS IS A NON-SITE-SPECIFIC PERFORMANCE EVALUATION. A DESIGN PROFESSIONAL SHALL BE RESPONSIBLE FOR CERTIFYING THE APPLICATION OF THIS INFORMATION TO ANY SITE-SPECIFIC LOCATION.

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SCOPE OF CERTIFICATION:  
THIS DOCUMENT IS INTENDED TO CERTIFY BEAM SPANS PER THE INCLUDED TABLES ONLY. PANEL SPANS AND CONNECTIONS, AND BEAM CONNECTIONS OR SUPPORTS SHALL BE PER SEPARATE ENGINEERING IN CONJUNCTION WITH THIS PLAN.

MAXIMUM ALLOWABLE DESIGN PRESSURES:

AS NOTED IN DESIGN TABLES

#### DESIGN NOTES:

POSITIVE AND NEGATIVE ASD GRAVITY DESIGN PRESSURE COMBINATIONS CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED BY OTHERS ON A JOB-SPECIFIC BASIS IN ACCORDANCE WITH THE GOVERNING CODE. SITE-SPECIFIC PRESSURE REQUIREMENTS AS DETERMINED IN ACCORDANCE WITH ASCE 7-16 & 7-22 AND CHAPTER 1609 OF THE INTERNATIONAL BUILDING CODE (2018 & 2021) SHALL BE LESS THAN OR EQUAL TO THE POSITIVE OR NEGATIVE DESIGN PRESSURE CAPACITY VALUES LISTED HEREIN FOR ANY ASSEMBLY AS SHOWN

#### GENERAL NOTES:

- THIS SYSTEM HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE (2018 & 2021). ALSO APPLICABLE FOR THE FLORIDA BUILDING CODE 7TH (2020) & 8TH (2023) EDITIONS, IBC/IRC (2015,2018 & 2021), AS WELL AS CURRENT VERSIONS OF THE MN, NC, NJ, NY, OH, SC, & VA BUILDING CODES AS APPLICABLE. CODE ENFORCED COMPLIES WITH STATE OF SEAL AND IF MULTIPLE VERSIONS ARE LISTED THEN MOST STRINGENT APPLIES. DESIGN SHALL UTILIZE ASD DESIGN METHOD USING ASCE 7-16 OR ASCE 7-22 CODES FOR SITE SPECIFIC APPLICATIONS AS APPLICABLE.
- COMPOSITE ROOF PANELS SHALL COMPLY WITH CHAPTER 7 SECTION 720, CHAPTER 8 SECTION 803, AND CLASS A INTERIOR FINISH, OF THE CODES AND STANDARDS STATED HEREIN. CONTRACTOR SHALL INVESTIGATE AND CONFORM TO ALL LOCAL BUILDING CODE AMENDMENTS WHICH MAY APPLY. DESIGN CRITERIA BEYOND AS STATED HEREIN MAY REQUIRE ADDITIONAL SITE-SPECIFIC SEALED ENGINEERING.
- THE ARCHITECT/ENGINEER OF RECORD FOR THE PROJECT SUPERSTRUCTURE WITH WHICH THIS DESIGN IS USED SHALL BE RESPONSIBLE FOR THE INTEGRITY OF ALL SUPPORTING SURFACES TO THIS DESIGN WHICH SHALL BE COORDINATED BY THE PERMITTING CONTRACTOR.
- SEPARATE 'SITE-SPECIFIC' SEALED ENGINEERING SHALL BE REQUIRED IN ORDER TO DEVIATE FROM LOADS, DEFLECTIONS, OR SPANS CONTAINED HEREIN. LINEAR INTERPOLATION OF THE ALLOWABLE SPAN TABLES LISTED HEREIN SHALL NOT BE PERMITTED. CONTACT THIS ENGINEER FOR ALTERNATE SPAN CALCULATIONS AS MAY BE REQUIRED.
- THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT.
- THE CONTRACTOR SHALL CAREFULLY CONSIDER POSSIBLE IMPOSING LOADS ON ROOF, INCLUDING BUT NOT LIMITED TO ANY CONCENTRATED LOADS WHICH MAY JUSTIFY GREATER DESIGN CRITERIA. THIS ADDITIONAL ROOF LOAD CRITERIA SHALL BE PROPERLY ANALYZED BY A LICENSED ENGINEER OR REGISTERED ARCHITECT.
- THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS.
- ENGINEER SEAL AFFIXED HERE TO VALIDATES STRUCTURAL DESIGN AS SHOWN ONLY. USE OF THIS SPECIFICATION BY CONTRACTOR, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COST & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION, & CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE, & FEDERAL CODES & FROM DEVIATIONS OF THIS PLAN.
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POSTAL ADDRESS:

2234 NORTH FEDERAL HWY #7664

BOCA RATON, FL 33431

ENGINEERINGEXPRESS.COM

STRUCTALL BUILDING SYSTEMS

350 BURBANK ROAD

OLDSMAR, FL 34677

(813) 855-2627

7" & 10" ALUMINUM I-BEAMS

STRUCTURAL SPAN TABLES

FBC 7TH (2020) & 8TH (2023) EDITIONS

REMARKS	DATE	DRWN	CHKD
ORIGINAL PROJECT (21-42210)	7/19/21	CCB	FLB
FBC 2023 (23-69372)	11/14/23	CLV	CCB

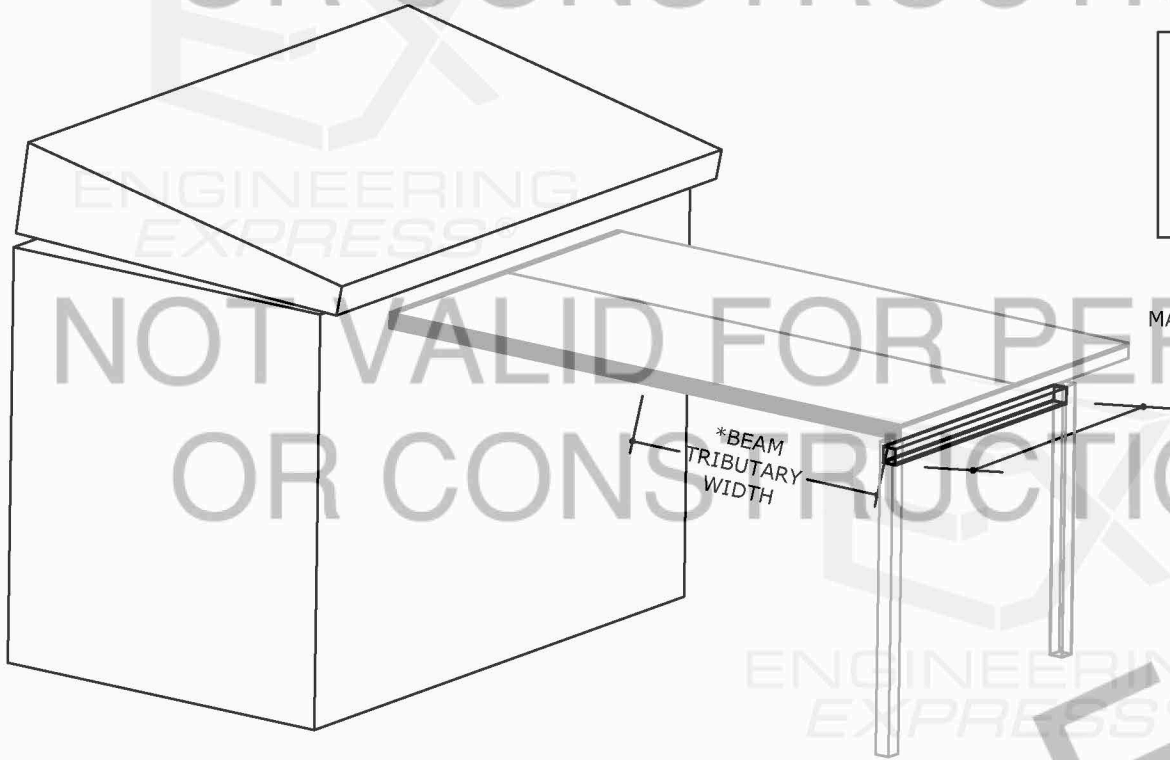
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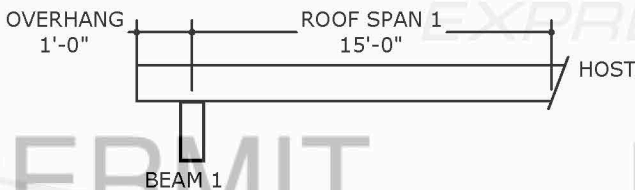
#### \*BEAM TRIBUTARY WIDTH NOTES:

- VALUES SHOWN IN DESIGN SCHEDULE CONSIDER THE TRIBUTARY WIDTH THAT EACH BEAM WILL SUPPORT. THE ILLUSTRATION SHOWN HEREIN CONSIDERS THE TRIBUTARY WIDTH TO BE HALF OF THE OVERALL ROOF SPAN WITH 50% OF THE TRIBUTARY WIDTH BEING SUPPORTED AT THE HOST STRUCTURE AND THE OTHER 50% OF THE TRIBUTARY WIDTH SUPPORTED BY THE EDGE BEAM.
- FOR THE TRIBUTARY WIDTH OF A SINGLE BEAM PLACED IN A MULTIPLE BEAM LAYOUT, THE TRIBUTARY WIDTH FOR EACH INDIVIDUAL BEAM SHALL BE CALCULATED AS THE SUM OF DISTANCES TO EACH ADJACENT BEAM DIVIDED BY 2.0. SEE EXAMPLE CALCULATIONS
- REFER SEPARATE SUBMITTALS FOR ALLOWABLE OVERHANG CONDITIONS. REFER CALCULATION EXAMPLES FOR OVERHANG CONSIDERATION

#### EXAMPLE TRIBUTARY WIDTH CALCULATIONS:

##### 1. EXAMPLE CALCULATION, BEAM 1:

- $(\text{ROOF SPAN 1} \times \frac{1}{2}) + \text{OVERHANG} = (15.0 \text{ FT}) \times (\frac{1}{2}) + 1.0 \text{ FT} = 8.5 \text{ FT}$

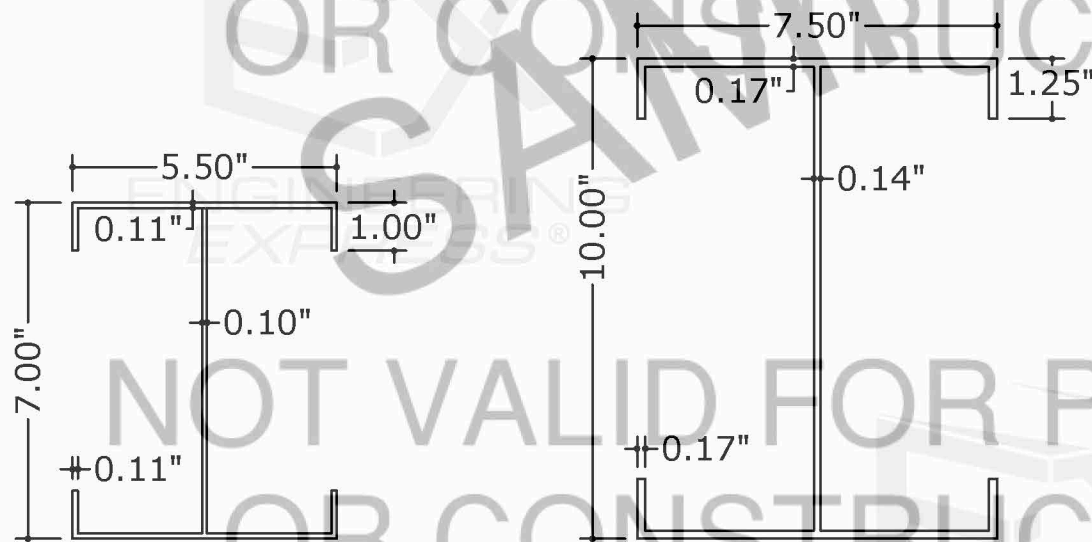
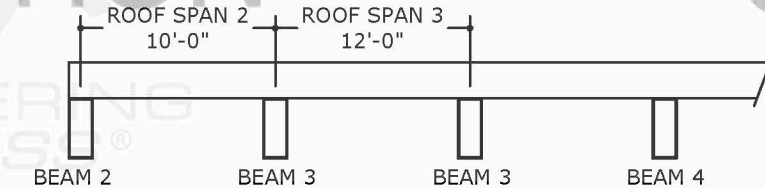


##### 2. EXAMPLE CALCULATION, BEAM 2:

- $(\text{ROOF SPAN 2}) \times (\frac{1}{2}) = (10.00 \text{ FT}) \times (\frac{1}{2}) = 5.00 \text{ FT}$

##### 3. EXAMPLE CALCULATION, BEAM 3:

- $(\text{ROOF SPAN 2} + \text{ROOF SPAN 3}) \times (\frac{1}{2}) = (10.00 \text{ FT} + 12.00 \text{ FT}) \times (\frac{1}{2}) = 11.00 \text{ FT}$



#### 7" I-BEAM

#### CROSS SECTION

NOT TO SCALE

6005-T6  
OR 6061-T6

#### 10" I-BEAM

#### CROSS SECTION

NOT TO SCALE

6005-T6  
OR 6061-T6

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MAX ALLOWABLE TRIBUTARY WIDTH (L/180 DEFLECTION LIMIT):

BEAM TYPE	TRIBUTARY WIDTH:	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT	11 FT	12 FT
	EQUIVALENT ROOF PROJECTION (NO OVERHANG)	(6 FT ROOF PROJ)	(8 FT ROOF PROJ)	(10 FT ROOF PROJ)	(12 FT ROOF PROJ)	(14 FT ROOF PROJ)	(16 FT ROOF PROJ)	(18 FT ROOF PROJ)	(20 FT ROOF PROJ)	(22 FT ROOF PROJ)	(24 FT ROOF PROJ)
	ASD ROOF LOAD COMBINATION (PSF)	ALLOWABLE I-BEAM SPAN (FT-IN)									
7" I-BEAM	10 PSF	24'-0"	23'-4"	21'-8"	20'-5"	19'-4"	18'-6"	17'-10"	17'-2"	16'-8"	16'-2"
	20 PSF	20'-5"	18'-6"	17'-2"	16'-2"	15'-4"	14'-8"	14'-2"	13'-8"	13'-3"	12'-8"
	30 PSF	17'-10"	16'-2"	15'-0"	14'-2"	13'-5"	12'-8"	12'-0"	11'-4"	10'-10"	10'-4"
	40 PSF	16'-2"	14'-8"	13'-8"	12'-8"	11'-9"	11'-0"	10'-4"	9'-10"	9'-5"	9'-0"
	50 PSF	15'-0"	13'-8"	12'-5"	11'-4"	10'-6"	9'-10"	9'-3"	8'-10"	8'-5"	8'-0"
	60 PSF	14'-2"	12'-8"	11'-4"	10'-4"	9'-7"	9'-0"	8'-6"	8'-0"	7'-8"	7'-4"
	70 PSF	13'-5"	11'-9"	10'-6"	9'-7"	8'-11"	8'-4"	7'-10"	7'-5"	7'-1"	6'-9"

10" I-BEAM	10 PSF	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"
	20 PSF	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	23'-10"	22'-11"	22'-1"	21'-5"	20'-10"
	30 PSF	24'-0"	24'-0"	24'-0"	22'-11"	21'-9"	20'-10"	20'-0"	19'-4"	18'-8"	18'-2"
	40 PSF	24'-0"	23'-10"	22'-1"	20'-10"	19'-9"	18'-11"	18'-2"	17'-6"	16'-8"	16'-0"
	50 PSF	24'-0"	22'-1"	20'-6"	19'-4"	18'-4"	17'-6"	16'-6"	15'-8"	14'-11"	14'-3"
	60 PSF	22'-11"	20'-10"	19'-4"	18'-2"	17'-1"	16'-0"	15'-0"	14'-3"	13'-7"	13'-0"
	70 PSF	21'-9"	19'-9"	18'-4"	17'-1"	15'-9"	14'-9"	14'-0"	13'-3"	12'-7"	12'-1"

MAX ALLOWABLE TRIBUTARY WIDTH (L/240 DEFLECTION LIMIT):

BEAM TYPE	TRIBUTARY WIDTH:	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT	11 FT	12 FT
	EQUIVALENT ROOF PROJECTION (NO OVERHANG)	(6 FT ROOF PROJ)	(8 FT ROOF PROJ)	(10 FT ROOF PROJ)	(12 FT ROOF PROJ)	(14 FT ROOF PROJ)	(16 FT ROOF PROJ)	(18 FT ROOF PROJ)	(20 FT ROOF PROJ)	(22 FT ROOF PROJ)	(24 FT ROOF PROJ)
	ASD ROOF LOAD COMBINATION (PSF)	ALLOWABLE I-BEAM SPAN (FT-IN)									
7" I-BEAM	10 PSF	23'-4"	21'-2"	19'-8"	18'-6"	17'-7"	16'-10"	16'-2"	15'-7"	15'-2"	14'-8"
	20 PSF	18'-6"	16'-10"	15'-7"	14'-8"	14'-0"	13'-4"	12'-10"	12'-5"	12'-0"	11'-8"
	30 PSF	16'-2"	14'-8"	13'-8"	12'-10"	12'-2"	11'-8"	11'-3"	10'-10"	10'-6"	10'-2"
	40 PSF	14'-8"	13'-4"	12'-5"	11'-8"	11'-1"	10'-7"	10'-2"	9'-10"	9'-5"	9'-0"
	50 PSF	13'-8"	12'-5"	11'-6"	10'-10"	10'-3"	9'-10"	9'-3"	8'-10"	8'-5"	8'-0"
	60 PSF	12'-10"	11'-8"	10'-10"	10'-2"	9'-7"	9'-0"	8'-6"	8'-0"	7'-8"	7'-4"
	70 PSF	12'-2"	11'-1"	10'-3"	9'-7"	8'-11"	8'-4"	7'-10"	7'-5"	7'-1"	6'-9"

10" I-BEAM	10 PSF	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	24'-0"	23'-10"
	20 PSF	24'-0"	24'-0"	24'-0"	23'-10"	22'-7"	21'-8"	20'-10"	20'-1"	19'-5"	18'-11"
	30 PSF	24'-0"	23'-10"	22'-1"	20'-10"	19'-9"	18'-11"	18'-2"	17'-6"	17'-0"	16'-6"
	40 PSF	23'-10"	21'-8"	20'-1"	18'-11"	18'-0"	17'-2"	16'-6"	16'-0"	15'-5"	15'-0"
	50 PSF	22'-1"	20'-1"	18'-8"	17'-6"	16'-8"	16'-0"	15'-4"	14'-10"	14'-4"	14'-0"
	60 PSF	20'-10"	18'-11"	17'-6"	16'-6"	15'-8"	15'-0"	14'-5"	14'-0"	13'-6"	13'-0"
	70 PSF	19'-9"	18'-0"	16'-8"	15'-8"	14'-11"	14'-3"	13'-8"	13'-3"	12'-7"	12'-1"

DESIGN TABLE NOTES:

1. BEAM CALCULATIONS CONSIDER VERTICAL LOADS ONLY. LATERAL LOADS DO NOT APPLY FOR USE WITH THE SPANS ILLUSTRATED HEREIN.
2. BEAMS HAVE BEEN CALCULATED CONSIDERING THE MAXIMUM BENDING MOMENT, SHEAR AND DEFLECTION DERIVED FROM THE VERTICAL LOADS & TRIBUTARY SPANS APPLIED TO EACH MAX ALLOWABLE SIMPLE BEAM WIDTH AS ILLUSTRATED HEREIN.
3. ALL EXTRUDED ALUMINUM BEAMS SHALL BE 6005-T6, 6061-T6 OR BETTER.
4. DEFLECTION LIMIT SELECTION SHALL BE BY OTHERS AND SHALL MEET THE MINIMUM REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE TABLE 1604.3.

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OLDSMAR, FL 34677  
(813) 855-2627

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STRUCTURAL SPAN TABLES  
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ORIGINAL PROJECT (21-42210)	CCB	FLB	7/19/21
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