



GENERAL NOTES:

CONCRETE TYPES:

- TYPE 1: WALLS AND FOUNDATIONS NOT EXPOSED TO WEATHER. INTERIOR SLABS-ON-GROUND, NOT INCLUDING GARAGE FLOOR SLABS
- TYPE 2: WALLS, FOUNDATIONS, AND OTHER CONCRETE WORK EXPOSED TO WEATHER, EXCEPT AS NOTED IN TYPE 3
- TYPE 3: DRIVEWAYS, CURBS, WALKWAYS, RAMPS, PATIOS, PORCHES, STEPS, AND STAIRS EXPOSED TO WEATHER AND GARAGE FLOOR SLABS

CONCRETE MIX DESIGN (NORMAL WEIGHT):

- CEMENT TYPE: II
- 28 DAY COMPRESSIVE STRENGTH, f'c, TYPES 1,2: 3000 PSI
- 28 DAY COMPRESSIVE STRENGTH, f'c, TYPE 3: 4500 PSI
- AGGREGATE SIZE: 3/4"
- AIR CONTENT PERCENT, TYPES 2,3: 6.0 (±1.5)
- MAXIMUM SLUMP: TYPES 1,2: 6"
- MAXIMUM SLUMP: TYPE 3: 5"
- CALCIUM CHLORIDE: 2.0% MAXIMUM (BY WEIGHT OF CEMENTITIOUS MATERIALS) FOR DRY, UNREINFORCED CONCRETE PROTECTED FROM MOISTURE IN SERVICE; 0.30% FOR REINFORCED CONCRETE OR CONCRETE THAT IS EXPOSED TO MOISTURE IN SERVICE.

MIX DESIGN NOTES:

- MIX DESIGN IS NOT PROPORTIONED FOR EXPOSURE TO HIGH SULFATE LEVELS. CONTACT ENGINEER IF SUCH LEVELS ARE ENCOUNTERED.
- IF AGGREGATES TO BE SUPPLIED ARE CONSIDERED POTENTIALLY REACTIVE, CONCRETE MIX DESIGN SHALL INCORPORATE MEANS TO CONTROL ALKALI-SILICA REACTIONS. REFER TO "PCA-GUIDE TO SPECIFICATION FOR CONCRETE SUBJECT TO ALKALI-SILICA REACTIONS" FOR DETAILED INFORMATION.
- ALL CONCRETE MATERIALS SHALL CONFORM WITH ASTM STANDARDS AS OUTLINED IN ACI 332-04, SECTION 3.1.

CONCRETE COVER:

- CONCRETE CAST AGAINST EARTH: 3" (±3/8")
- CONCRETE PLACED IN FORMS AND EXPOSED TO EARTH OR WEATHER IN SERVICE: 2" (±3/8")
- CONCRETE PLACED IN FORMS AND NOT EXPOSED TO EARTH OR WEATHER IN SERVICE: 1"
- SLABS: PLACE IN MIDDLE THIRD OF SLAB THICKNESS

FORMWORK: FORMS, FORM TIES, BULKHEADS, AND OTHER ACCESSORIES SHALL BE CONSTRUCTED OF MATERIALS CAPABLE OF PERFORMING THE FUNCTION FOR WHICH THEY ARE INTENDED. GUIDANCE ON DESIGN AND CONSTRUCTION OF FORMWORK CAN BE FOUND IN ACI 347 AND ACI SP-4.

REINFORCEMENT:

- DEFORMED STEEL REINFORCING BARS SHALL CONFORM TO ASTM A615, ASTM A706, OR ASTM A996. THE SPECIFIED YIELD STRENGTH OF REINFORCEMENT SHALL NOT BE LESS THAN 60,000 PSI.
- WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A185.
- FIBER REINFORCEMENT (SYNTHETIC) SHALL CONFORM TO SECTION 4.1.1, TYPE III, OF ASTM C 1116 AND ASTM C 1399. FIBER REINFORCEMENT (STEEL) SHALL CONFORM TO SECTION 4.1.1, TYPE I, OF ASTM C 1116 AND ASTM A 820.

BACKFILL:

- FOUNDATION WALLS SUPPORTING UNBALANCED BACKFILL ARE DESIGNED TO SPAN VERTICALLY. BACKFILL SHALL NOT BE PLACED AGAINST THE WALL UNTIL THE WALL HAS REACHED SUFFICIENT STRENGTH AND HAS BEEN ANCHORED TO THE FLOOR ABOVE, OR HAS BEEN SUFFICIENTLY BRACED TO AVOID DAMAGE FROM BACKFILL. BRACING IS NOT REQUIRED FOR WALLS SUPPORTING LESS THAN 4 FEET OF UNBALANCED BACKFILL.
- USE ONLY HAND OPERATED TOOLS FOR COMPACTION ADJACENT TO FOUNDATION WALLS. BACKFILL AND COMPACT IN 24" MAXIMUM LIFTS.

WEATHER:

- DURING ANTICIPATED AMBIENT TEMPERATURE CONDITIONS OF 35 DEGREES FARENHEIT OR LESS, CONCRETE TEMPERATURES SHALL BE MAINTAINED ABOVE A FROZEN STATE UNTIL A CONCRETE COMPRESSIVE STRENGTH OF 500 PSI HAS BEEN REACHED. A MATURITY CURVE FROM THE CONCRETE SUPPLIER CAN BE USED. REFER TO ACI 306R FOR FURTHER INFORMATION REGARDING COLD-WEATHER CONCRETING PRATICES.
- CONCRETE MATERIALS, REINFORCEMENT, FORMS, AND ANY EARTH WITH WHICH CONCRETE IS TO COME IN CONTACT SHALL BE FREE FROM FROST. FROZEN MATERIALS OR MATERIALS CONTAINING ICE SHALL NOT BE USED.
- DURING HOT WEATHER, PROPER ATTENTION SHALL BE GIVEN TO INGREDIENTS, PRODUCTION METHODS, HANDLING, PLACING, PROTECTION, AND CURING OF CONCRETE TO PREVENT EXCESSIVE REQUIRED TEMPERATURES OR WATER EVAPORATION THAT COULD IMPAIR REQUIRED STRENGTH OR SERVICEABILITY OF THE MEMBERS OF THE STRUCTURE. REFER TO ACI 305R FOR INFORMATION ON HOT-WEATHER CONCRETING PRACTICES.

DRAINAGE: DRAINS SHALL BE PROVIDED AROUND ALL FOUNDATIONS THAT RETAIN EARTH AND ENCLOSE HABITABLE OR USABLE SPACES LOCATED BELOW GRADE (I.E. BASEMENTS). IT IS RECOMMENDED TO USE PERFORATED PIPE PLACED ON 2" MINIMUM OF WASHED GRAVEL OR CRUSHED ROCK AT LEAST ONE SIEVE SIZE LARGER THAN THE PERFORATION AND COVERED WITH NOT LESS THAN 6" OF THE SAME MATERIAL. RE: IRC SECTION R405.1 FOR OTHER APPROVED DRAINAGE SYSTEMS AND EXCEPTIONS.

DESIGN CRITERIA:

GRAVITY LOADS:

- ROOF DEAD: 15PSF (10 PSF SUPERIMPOSED)
- FLOOR DEAD: 20PSF (15 PSF SUPERIMPOSED)
- EXTERIOR WALL DEAD WEIGHT: 10PSF OF WALL AREA
- FIRST FLOOR LIVE: 40 PSF
- SECOND FLOOR LIVE: 30 PSF
- SNOW LOAD: 30 PSF

WIND LOADS:

- BASIC WIND SPEED (3-SECOND GUST): 100 MPH
- EXPOSURE CATEGORY: C

SEISMIC LOADS:

- SDS: LESS THAN OR EQUAL TO 28%G
- SITE CLASS: D
- SEISMIC DESIGN CATEGORY: B

FOUNDATIONS: THE FOLLOWING CRITERIA FOR THE FOUNDATION DESIGN IS PER IBC, TABLE 1804.2, ASSUMING THE SOILS PRESENT AT THE SITE ARE NO WORSE THAN THE VALUES ASSIGNED TO SOIL CLASSES SW, SP, SM, SC, GM, AND GC:

- ALLOWABLE SOIL BEARING PRESSURE: 1500PSF
- LATERAL BEARING: 100PCF
- LATERAL EARTH PRESSURE, ACTIVE: 60PCF
- SLIDING COEFFICIENT: 0.25

CLIMATE:

- WEATHERING PROBABILITY: SEVERE

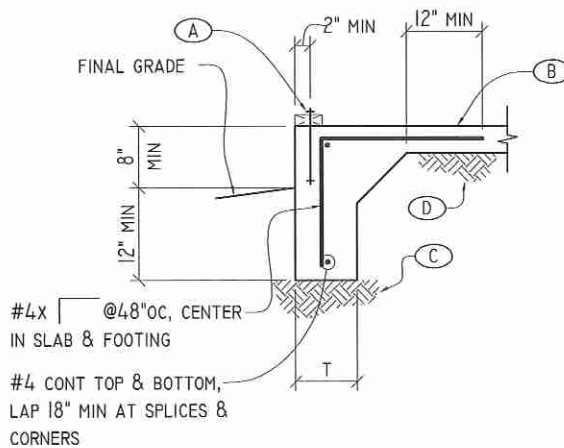
DISCLAIMER:

1) THE USER OF THESE DETAILS SHALL RECOGNIZE THAT SERVICEABILITY REQUIREMENTS FOR RESIDENTIAL CONCRETE ALLOW FOR CRACK DEVELOPMENT AND AGREE TO NOT HOLD LARAMIE COUNTY OR KING ENGINEERING LLC LIABLE FOR REPAIR OF AESTHETIC CRACKING.

2) UNTIL AN OPEN-HOLE INSPECTION CAN BE PERFORMED LARAMIE COUNTY AND KING ENGINEERING LLC MAKE NO GUARANTEE THE SOILS PRESENT AT THE SITE MEET THE DESIGN VALUES LISTED.

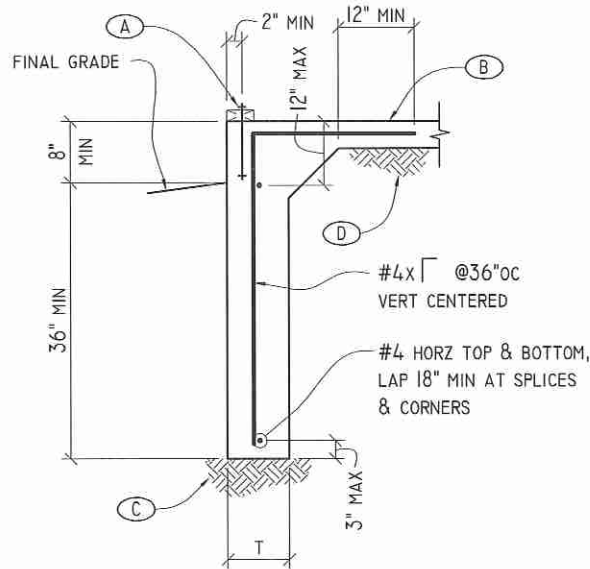


221-6735



**1** SHALLOW NON-FROST PROTECTED FOUNDATION  
-UNATTACHED, SINGLE STORY, WOOD-FRAMED ACCESSORY BUILDING LESS THAN 600 SQ FT (E.G. AGRICULTURAL/STORAGE BUILDING, DETACHED GARAGE)

ROOF CLEAR SPAN 'W' VS. WALL WIDTH, 'T'	
W	T
W ≤ 28'	8"
28' < W ≤ 34'	10"

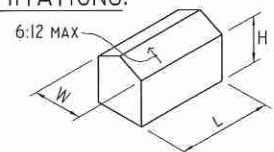


**2** FROST-PROTECTED FOUNDATION WALL BEARING DIRECTLY ON SOIL  
-ATTACHED, SINGLE STORY, WOOD-FRAMED GARAGE OR ROOM ADDITION  
-UNATTACHED, SINGLE STORY, WOOD-FRAMED ACCESSORY BUILDING GREATER THAN 600 SQ FT

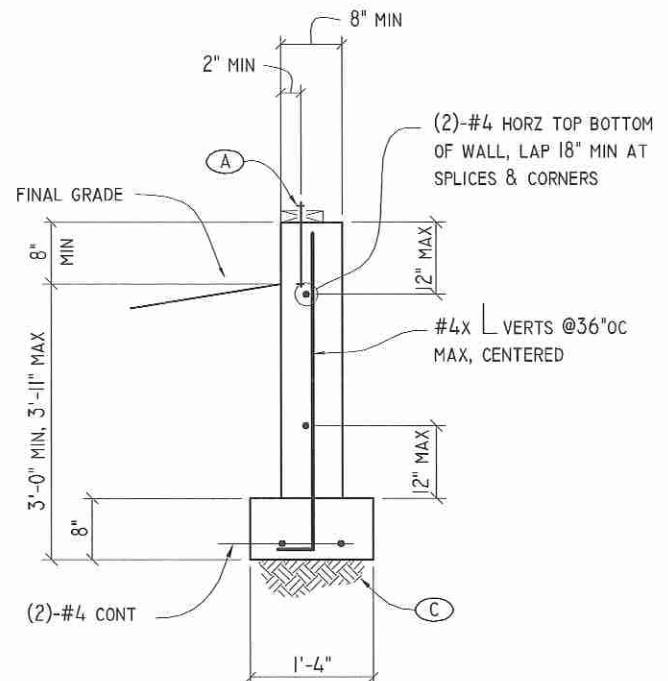
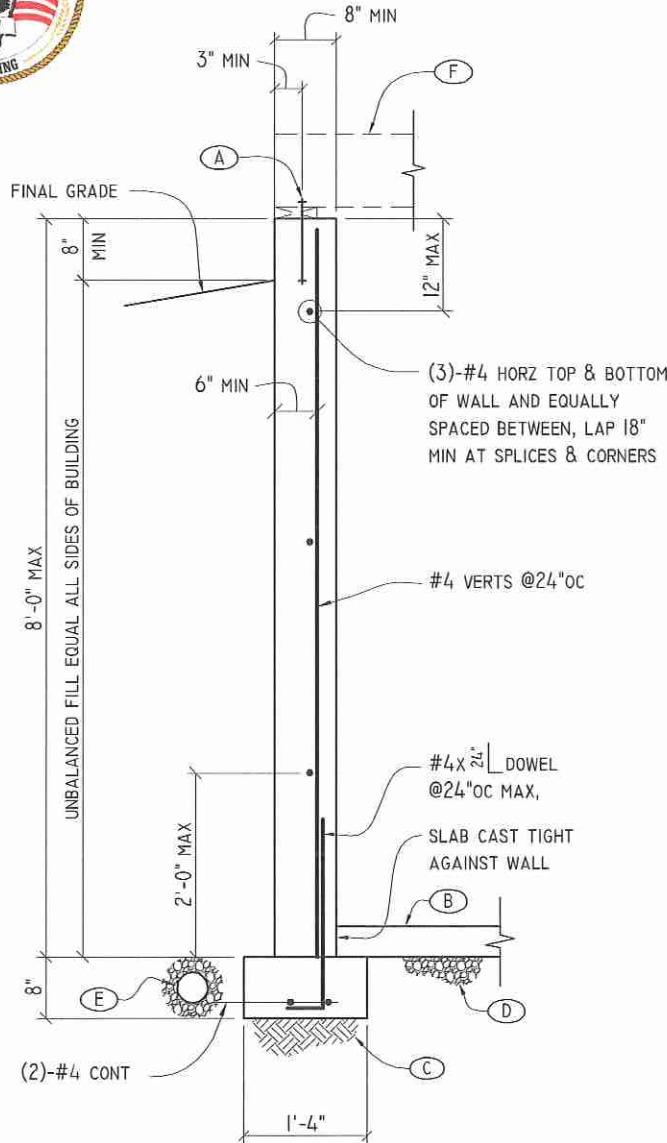
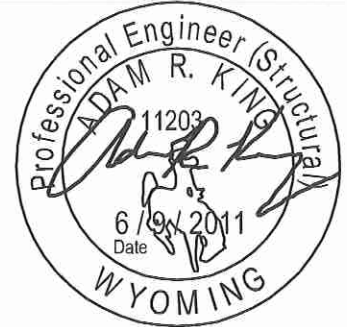
**NOTES:**

- (A) 1/2"Ø ANCHOR BOLT W/ 7" MIN EMBEDMENT @72"OC, PROVIDE (2) MIN PER PLATE SECTION, LOCATE WITHIN 12" MAX OF PLATE SECTION END.
- (B) 3 1/2" MIN SLAB-ON-GROUND, PROVIDE 1/8" WIDE X 1" DEEP TOOLED OR SAWCUT CONTROL JOINTS @10'-0"OC MAX WITH BAY ASPECT RATIO OF 1.5-TO-1 OR LESS. FOR ADDITIONAL CRACK CONTROL, IF DESIRED, REINFORCE WITH 6X6 W2.1XW2.1 (8 GAGE) WELDED WIRE FABRIC OR FIBER REINFORCING PER MANUFACTURER'S RECOMMENDATIONS.
- (C) NON-EXPANSIVE UNDISTURBED NATURAL SOIL.
- (D) NON-EXPANSIVE UNDISTURBED NATURAL SOIL OR FILL. ALL MATERIAL TO BE FREE OF ORGANIC AND FOREIGN MATERIAL. FILL SHALL BE COMPACTED TO PROVIDE UNIFORM SUPPORT OF THE SLAB. FILL DEPTHS SHALL NOT EXCEED 24" FOR CLEAN SAND OR GRAVEL AND 8" FOR EARTH.

**LIMITATIONS:**



- MAXIMUM ROOF CLEAR SPAN, W (SEE TABLE)
- MAXIMUM BUILDING LENGTH PERPENDICULAR TO ROOF MEMBERS, L = 1.5 x W
- MAXIMUM BUILDING HEIGHT, H = 10'
- REAL BRICK/STONE VENEER NOT ALLOWED



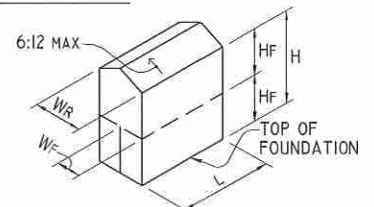
**3** BASEMENT  
-ONE OR TWO-STORY, WOOD-FRAMED ROOM ADDITION

**4** CRAWL SPACE  
-ONE OR TWO-STORY, WOOD FRAMED ROOM ADDITION

NOTES:

- (A) 1/2"Ø ANCHOR BOLT W/ 7" MIN EMBEDMENT @24"OC AT BASEMENT OR @72"OC AT CRAWL SPACE, PROVIDE (2) MIN PER PLATE SECTION, LOCATE WITHIN 12" MAX OF PLATE SECTION END.
- (B) 3 1/2" MIN SLAB-ON-GROUND, PROVIDE 1/8" WIDE X 1" DEEP TOOLED OR SAWCUT CONTROL JOINTS @10'-0"OC MAX WITH BAY ASPECT RATIO OF 1.5-TO-1 OR LESS. FOR ADDITIONAL CRACK CONTROL, IF DESIRED, REINFORCE WITH 6X6 W2.1XW2.1 (8 GAGE) WELDED WIRE FABRIC OR FIBER REINFORCING PER MANUFACTURER'S RECOMMENDATIONS.
- (C) NON-EXPANSIVE UNDISTURBED NATURAL SOIL.
- (D) 4" MINIMUM BASE COURSE CONSISTING OF CLEAN GRADED SAND, GRAVEL, CRUSHED STONE, OR CRUSHED STONE BLAST-FURNACE SLAG PASSING A 2" SIEVE FREE OF ORGANIC OR FOREIGN MATERIAL.
- (E) APPROVED FOUNDATION DRAINAGE SYSTEM WHERE REQUIRED. SEE GENERAL NOTES, PAGE 1 OF 5.
- (F) CONNECTION TO FLOOR DIAPHRAGM TO PROVIDE ADEQUATE LATERAL SUPPORT OF TOP OF FOUNDATION WALL. RE: DETAIL 6, PAGE 4 OF 5, FOR RECOMMENDATIONS.

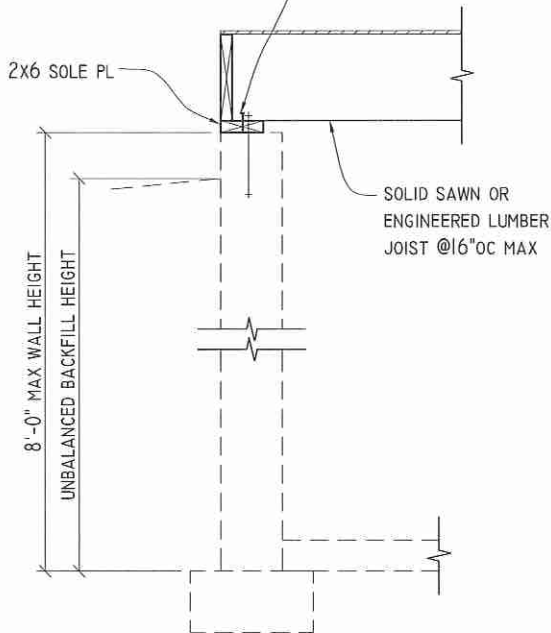
LIMITATIONS:



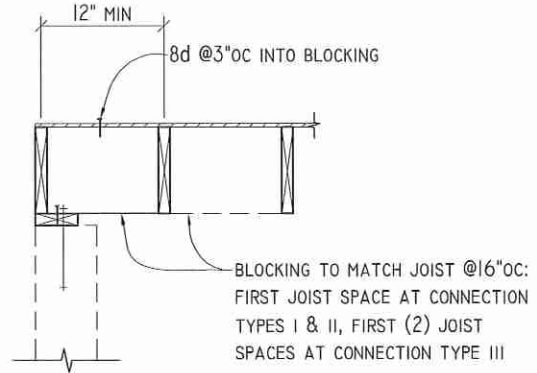
- MAXIMUM ROOF CLEAR SPAN, WR = 20'
- MAXIMUM FLOOR CLEAR SPAN, WF = 10'
- MAXIMUM BUILDING LENGTH PERPENDICULAR TO ROOF MEMBERS, L = 1.5 x WR
- MAXIMUM BUILDING HEIGHT, H = 20'
- MAXIMUM FLOOR-TO-CEILING HEIGHT, HF = 9'
- REAL BRICK/STONE VENEER NOT ALLOWED



RE: TABLE FOR CONNECTION OF JOIST/BLOCKING TO SOLE PL



WALL PERPENDICULAR TO FLOOR FRAMING



WALL PARALLEL TO FLOOR FRAMING

UNBALANCED BACKFILL HEIGHT	JOIST-TO-SOLE PL CONNECTION TYPE
4'-0" TO 4'-5"	I
4'-6" TO 5'-9"	II
5'-10" TO 7'-4"	III

CONNECTION TYPES:

- I - (3) 8d TOENAILS
  - II - SIMPSON A23 OR A34 ONE SIDE
  - III - SIMPSON A23 OR A34 EACH SIDE, STAGGERED
- \*RE: IRC TABLE R404.1(I) FOR ALTERNATIVE CONNECTIONS



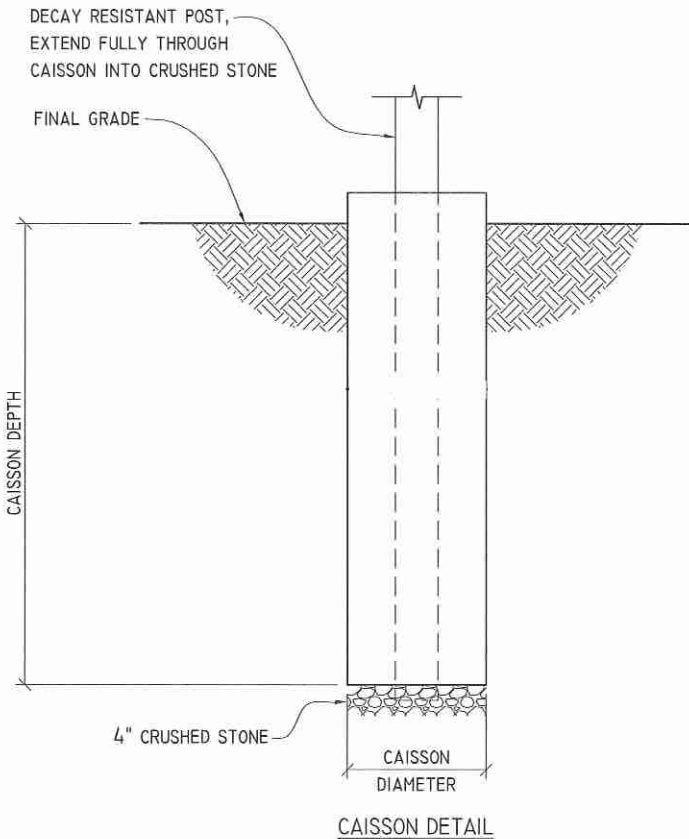
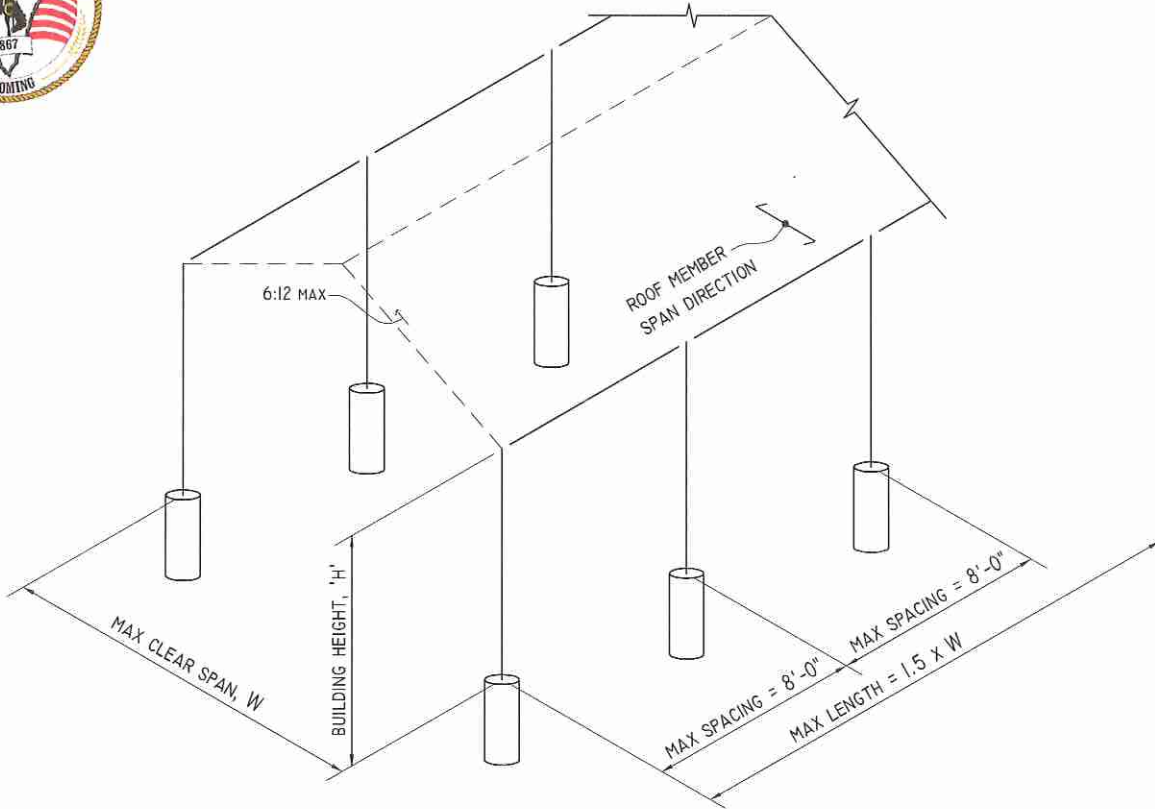
# LARAMIE COUNTY FOUNDATION STANDARDS

Applicable Codes: IBC/IRC 2006

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Revised: June 1, 2009

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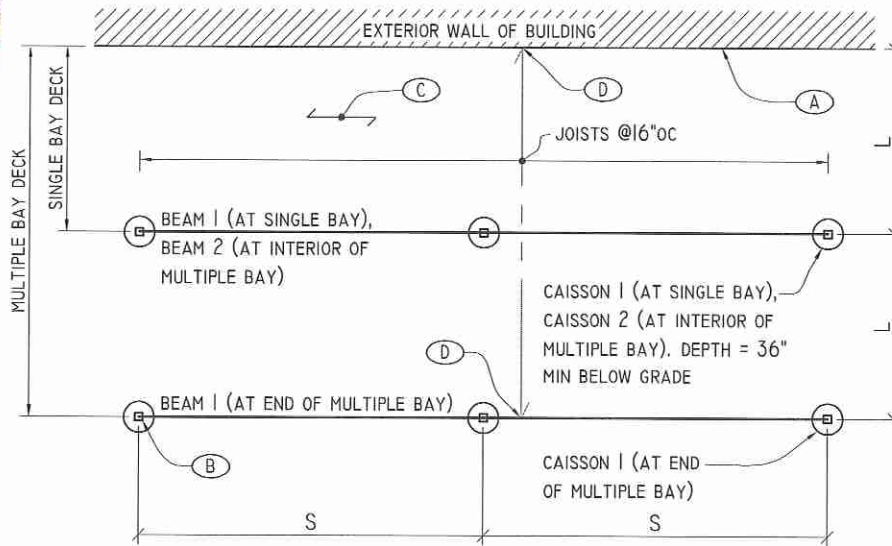
H	CAISSON DIAMETER / CAISSON DEPTH		
	W ≤ 24'	24' < W ≤ 30'	30' < W ≤ 40'
8'	18"Ø / 4'-0"	24"Ø / 4'-0"	30"Ø / 4'-0"
10'	18"Ø / 4'-6"	24"Ø / 4'-6"	30"Ø / 4'-6"
12'	18"Ø / 5'-0"	24"Ø / 5'-0"	30"Ø / 5'-0"
14'	18"Ø / 5'-6"	24"Ø / 5'-6"	30"Ø / 5'-6"
16'	18"Ø / 6'-0"	24"Ø / 6'-0"	30"Ø / 6'-0"



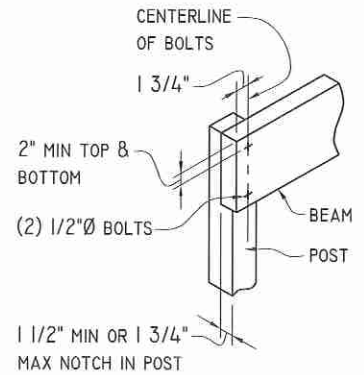
# LARAMIE COUNTY - Minimum Requirements for Residential Decks

Applicable Codes: IBC/IRC 2006

Revised: June 1, 2009



		JOIST LENGTH, L', FT				
		8	10	12	14	16
POST SPACING, S', FT	6	J: 2x6 B1: 2x8, (2)-2x6 C1: 12" B2: 2x12, (2)-2x8 C2: 20"	J: 2x8 B1: 2x10, (2)-2x6 C1: 16" B2: NA, (2)-2x10 C2: 22"	J: 2x8 B1: 2x12, (2)-2x8 C1: 18" B2: NA, (2)-2x12 C2: 24"	J: 2x10 B1: NA, (2)-2x10 C1: 18"	J: 2x12 B1: NA, (2)-2x12 C1: 20"
	8	J: 2x6 B1: 2x12, (2)-2x8 C1: 16" B2: NA, (2)-2x12 C2: 22"	J: 2x8 B1: 2x12, (2)-2x8 C1: 18"	J: 2x8 B1: NA, (2)-2x10 C1: 20"	J: 2x10 B1: NA, (2)-2x10 C1: 22"	J: 2x12 B1: NA, (2)-2x12 C1: 22"
	10	J: 2x6 B1: NA, (2)-2x10 C1: 18"	J: 2x8 B1: NA, (2)-2x12 C1: 20"	J: 2x8 B1: NA, (2)-2x12 C1: 22"	NA	NA
	12	J: 2x6 B1: N/A, (2)-2x12 C1: 20"	NA	NA	NA	NA



BEAM-TO-POST CONNECTION

## NOTES:

- 1) J = JOIST SIZE; B1 = BEAM 1 SIZE (SINGLE PLY, DOUBLE PLY); C1 = CAISSON 1 SIZE; B2 = BEAM 2 SIZE (SINGLE PLY, DOUBLE PLY); C2 = CAISSON 2 SIZE
  - 2) 'NA' = NOT ALLOWED
  - 3) BEAMS ATTACHED TO FACE OF POST ARE SINGLE OR DOUBLE PLY OPTION (RE: TABLE FOR ATTACHMENT OF BEAMS TO FACE OF POST), BEAMS OVER TOP OF POST ARE DOUBLE PLY OPTION ONLY.
  - 4) FRAMING TO BE HEM-FIR (PRESERVATIVE-TREATED) OR REDWOOD (OPEN GRAIN), No. 2 OR BETTER. CONNECTORS (HANGERS, SCREWS, ETC.) SHALL BE TYPE 304 OR 316 STAINLESS STEEL IN PRESERVATIVE TREATED LUMBER, OR HOT-DIPPED GALVANIZED IN NON-PRESERVATIVE TREATED LUMBER.
  - 5) MAXIMUM CANTILEVER IS 18" FOR 2X6 MEMBERS OR 24" FOR LARGER MEMBER SIZES.
- (A) SUPPORT DECK AT MAIN STRUCTURE AS DEEMED APPROPRIATE BY BUILDING OFFICIAL.
- (B) 4x4 POST. SET FULLY THROUGH CAISSON INTO GRAVEL BASE (DO NOT ENCASE END IN CONCRETE) OR USE SIMPSON AB44/EBP44/PB44 POST BASE CONNECTOR.
- (C) 2x4 MINIMUM DECK PLANKS PERPENDICULAR TO JOISTS. SPACE JOISTS AT 12" OC FOR PLANKS ANGLED UP TO 45° MAX.
- (D) FACE MOUNT JOISTS TO END SUPPORTS. ATTACH WITH SIMPSON LU OR LUS HANGER APPROPRIATE FOR JOIST SIZE OR EQUIVALENT METAL CONNECTOR (I.E. DO NOT END NAIL/SCREW OR TOE NAIL/SCREW). AT JOIST CANTILEVER, PROVIDE RIMBOARD TO MATCH JOIST AND END-SCREWED TO JOIST.
- (E) VALUES IN THIS BOX MAY BE USED FOR JOIST LENGTHS AND POST SPACINGS LESS THAN OR EQUAL TO INCREMENTS SHOWN IN THE TABLE.