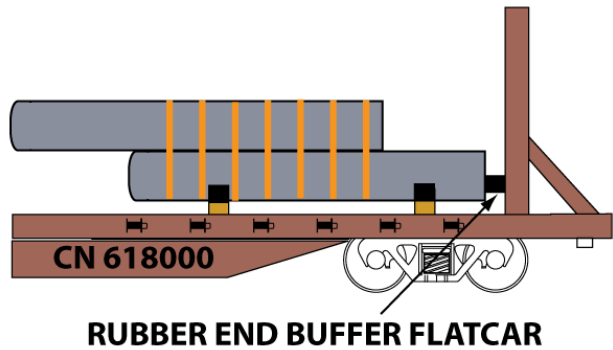
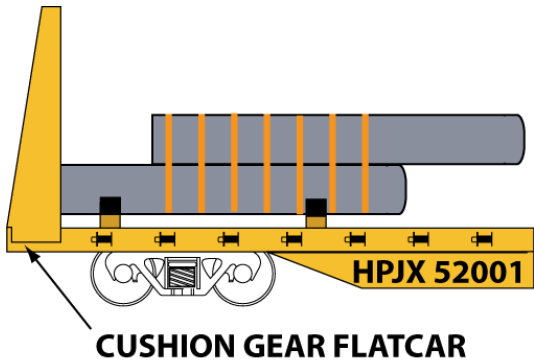
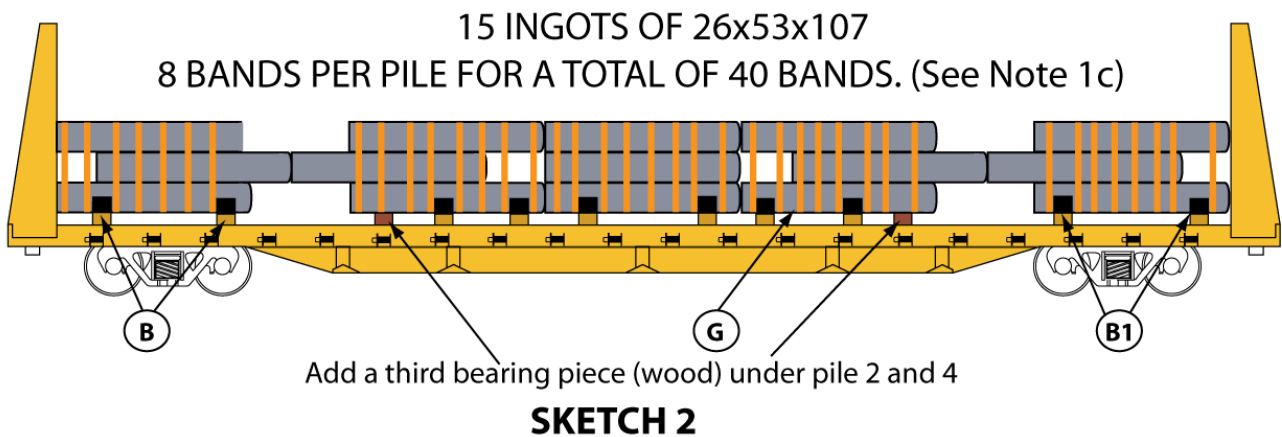
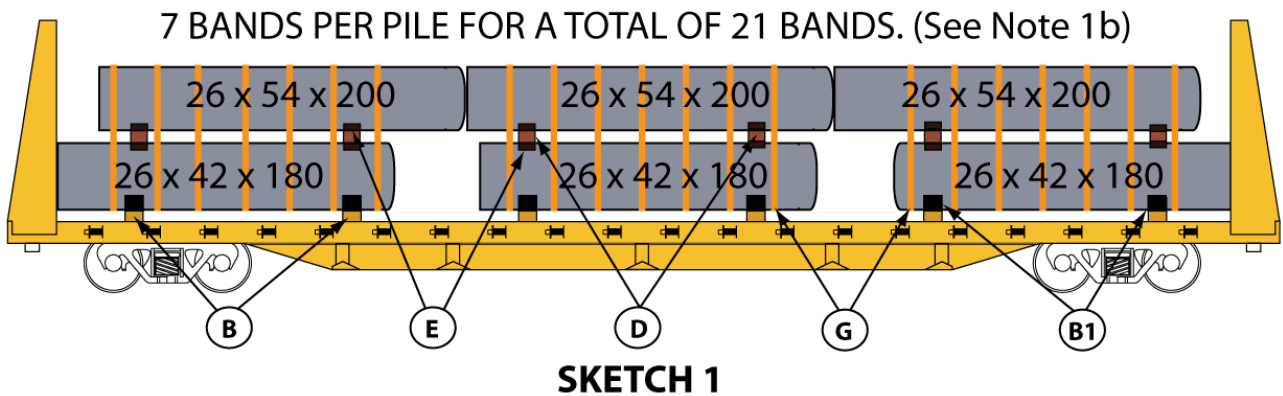


INGOTS, ALUMINUM-BULKHEAD FLATCARS, WITH RUBBER END BUFFERS ON BULKHEADS OR CUSHION GEAR

RAC 12043K-1
New 08-2017

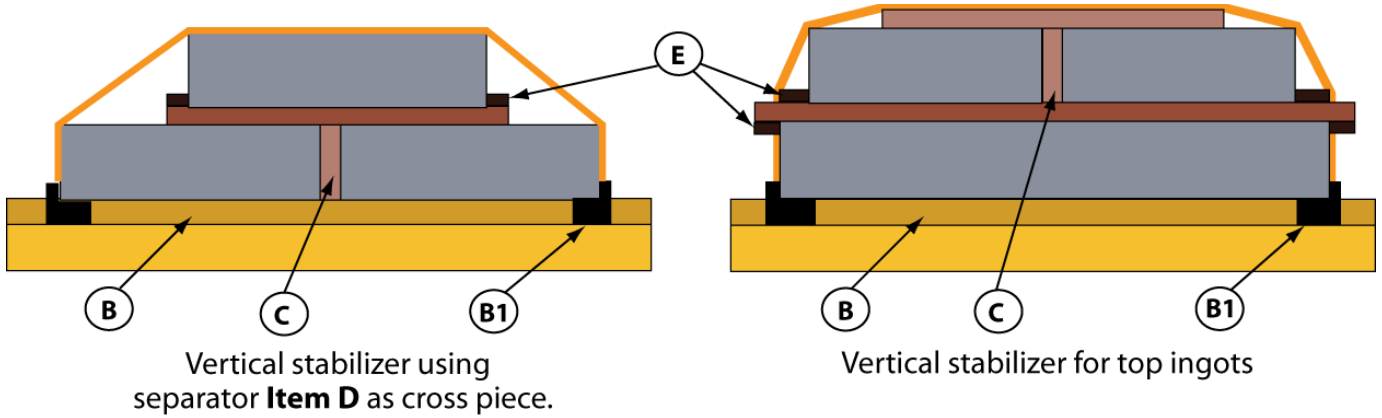


VARIOUS LENGTHS:
3 INGOTS OF 26 x 54 x 200
3 INGOTS OF 26 x 42 x 180



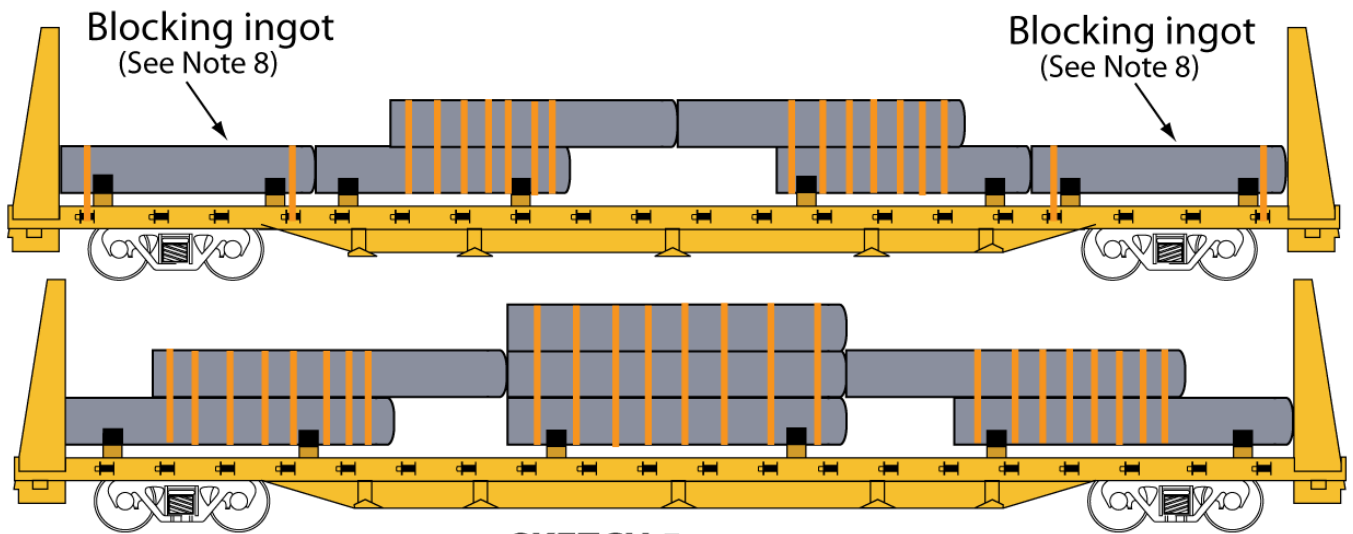
INGOTS, ALUMINUM-BULKHEAD FLATCARS, WITH RUBBER END BUFFERS ON BULKHEADS OR CUSHION GEAR

RAC 12043K-1(Continued)
New 08-2017

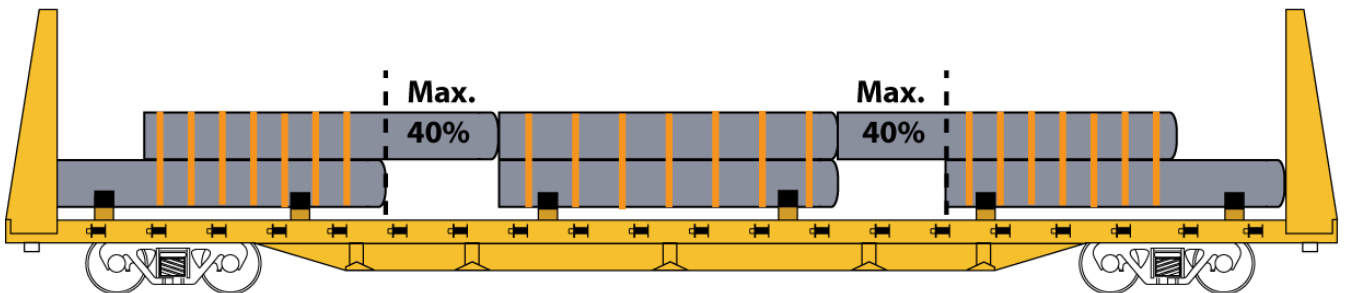


SKETCH 3

SKETCH 4



SKETCH 5 (See Note 1d)



SKETCH 6: OVERHANG (See Note 4)

**INGOTS, ALUMINUM-BULKHEAD FLATCARS, WITH RUBBER END BUFFERS ON
BULKHEADS OR CUSHION GEAR**

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Item	No. of Pieces	Description
A		Vacant
B	Minimum 2 per pile for ingots 190 inches long or less add 1 for ingots up to 300 inches	Bearing pieces steel fabricated with moveable side chocks: Locate one approximately 24 inches from each end of bottom ingots in each pile with others, when required, equally spaced between.
B1	2 per each Item B	Moveable side chocks must be placed as close to side of ingots as possible.
C	2 between side by side ingots	Vertical stabilizers: lumber 4in.x 4in.length to extend from top to bottom of pile. Cross piece, lumber 2in x 4in.x 24 in. Secure to vertical piece with three 20-D nails. Separator Item D can be used as cross piece. (Sketches 3&4)
D	2 per ingots optional	Separators: Hardwood 2in. x 6in. or 5in. x 5in. minimum length equal to width of pile. Must be long enough to allow for the application of top and bottom side blocks when required. Must be in one piece.
E	4 per each Item D	Side blocks: Minimum 2 in. high, width equal to width of separator. Locate against ingots and secure to top and/or bottom of separators with three 16-D nails. (Side blocks are not required when Ingots are the same width).
F	As required	Blocking filler: Hardwood or using aluminum T-ingots required to fill void between 2 piles or end of car. Must be secured to rail car with two 2in. x .044 in. high tension steel bands. (Not required for loads utilizing overhang method to eliminate longitudinal voids.)
G	See Note 1	Encircling bands: Type 1A Grade 7 non-metallic band. Locate one not less than 12 inches from each end of piles with others more or less equally spaced between. (May be substituted by 2in. x .044 in. high tension steel bands)

INGOTS, ALUMINUM-BULKHEAD FLATCARS, WITH RUBBER END BUFFERS ON
BULKHEADS OR CUSHION GEAR

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Alternate Item G for blocking method

Item	No. of Pieces	Description
Alt G	Per top ingot	Encircling bands: Type 1A Grade 7 non-metallic band. Locate one not less than 12 inches from each end of piles with others more or less equally spaced between. (May be substituted by 2in. x .044 in. high tension steel bands).

Notes and Additional Requirements:

- 1- Encircling Bands: All 4 criteria a,b,c,d combined must be met to determine the **MINIMUM** number of encircling bands required on a load.
 - a) Number of bands equal to the weight of the load, divided by the MBS of the band rounded to the next even number (i.e. Load 205000 lbs., band MBS 10,000 lbs. hence $205000/10000 = 20.5$ bands rounded off therefore 21 bands divided into the number of piles on the car.
 - b) Each pile 2 ingots high must have a minimum of 7 bands per pile. See **SKETCH 1**
 - c) Each pile of 3 or more ingots high must have a minimum of 8 bands per pile. See **SKETCH 2**
 - d) The number of bands per pile must be equal for each pile except for a pile consisting of 1 ingot placed against the bulkhead. See **SKETCH 5**.
- 2- All longitudinal voids must be eliminated using blocking or the alternate overhang method.
- 3- When using blocking, filler blocking item must be secured laterally with lumber cleats 2 in. x 4 in. x18 in. secured to car deck
- 4- When loading the overhang method, ingots may not overhang or extend beyond the supporting ingot by more than 40% of the length of the overhanging ingot. Overhangs must be equally distributed over all piles to minimize the overhang length on any pile. See **SKETCH 6**.
- 5- Loads must sit properly on bearing pieces located 18 to 24 inches from the ends of ingots.
- 6- Load must not exceed height of bulkhead by more than half the thickness of top ingot.
- 7- When the number of steel fabricated bearing pieces is insufficient hardwood bearing pieces of same dimensions may be used.
- 8- All blocking items used must be secured to railcar.
- 9- The total weight of the load must be distributed evenly on the car

INGOTS, ALUMINUM-BULKHEAD FLATCARS, WITH RUBBER END BUFFERS ON
BULKHEADS OR CUSHION GEAR

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10- When a wider ingot is placed on top of a narrower ingot the width of the wider ingot must not exceed the narrow ingot by more than 30% total width. (Ex: bottom ingot 40 in. x 30% = 12 in. therefore top ingot's maximum width may not exceed 52 inches total).

For further details see General Rules.

All loading sketches are available on RAC website

<https://www.railcan.ca/what-we-do/regulatory-affairs/rac-circulars/>

<https://www.railcan.ca/fr/ce-que-nous-faisons/affaires-reglementaires/circulaires-de-lacfc/>