

G26.65(3)(c) Calculations for barriers on trucks pulling multiple trailers

The proposed amended section 26.65(1) and (3) of the *OHS Regulation* states:

- (1) For the protection of the driver, each logging truck must have a substantial barrier at the back of the cab that
 - (a) is at least 15cm (6 in) higher than the cab, and
 - (b) is at least 15cm (6 in) wider than the cab but does not exceed a maximum width of 2.6m (102 in)......
- (3) For the purposes of subsection (1), a barrier must be capable of withstanding a horizontal forward static load equal to 40% of the weight of the cargo being transported
 - (a) on the truck or trailer to which the barrier is affixed,
 - (b) on the semi trailer immediately behind the truck tractor to which the barrier is affixed, or
 - (c) that may shift and contact the bulkheadwith the weight uniformly distributed over the entire barrier.
.....

This guideline provides direction on how to calculate the weight that may shift and contact the bulkhead for the purpose of determining the strength of the barrier required under section 26.65(3)(c), where there are truck tractors pulling more than one semi-trailer.

Calculation of the weight of cargo that may shift and contact the bulkhead

Under s. 26.65(3) of the *OHS Regulation*, a barrier must support a static load that is at least 40% of the weight of the cargo that could strike the barrier. In some cases the cargo being transported is on a second, and possibly a third trailer. In determining the capability of loads to shift and contact the bulkhead:

- 100% of the load directly behind the bulkhead is considered to be able to shift and contact the bulkhead;
- 50% of the second trailer's load is considered to be able to shift and contact the bulkhead; and
- 25% of the third trailer's load is considered to be able to shift and contact the bulkhead.

Calculation of the strength of barrier required under s. 26.65(3)(c)

In order to calculate the strength of the barrier, bulkhead protection must withstand at least 40% of the load directly behind the driver, plus one half of 40% of the load in the next trailer, plus one quarter of 40% of the load in the next trailer.

Proposed OHS Guideline: Part 26, Forestry Operations

Note: These calculations assume that the:

- load is uniformly distributed and there is not a point load;
- barriers are at least 1.8 metres high; and
- overall length of truck tractors and semi-trailers do not exceed the requirements of the *BC Commercial Transport Regulations*, B.C. Reg. 30/78 as amended.

Example

Consider a total load of 100 tons with 50 tons directly behind the bulkhead and 25 tons on each of two attached trailers. The bulkhead needs to have a horizontal static load rating of:

$$0.4 \times 50 \text{ tons} + 0.4 \times 0.5 \times 25 \text{ tons} + 0.4 \times 0.25 \times 25 \text{ tons} = 27.5 \text{ tons}$$