

## **B407**

### **Cross Frame Intermediate Diaphragm (For Straight Steel Beams)**

Approved, and signed, March 23, 2009. Last date revised: November 3<sup>rd</sup>, 2015

#### **Revised 11-03-2015**

At the ELEVATION:

- Coped the cross members at the gusset plates to match both Detail “A” and Detail “B”.

REMOVED: Changed “Mn/DOT” to “MnDOT” in the designer notes.

Under NOTES:

- Changed the first note *from*: All steel shall conform to Mn/DOT spec. 3309 *to* Provide steel per spec. 3309.
- Added to the end of ①: For diaphragms located beneath deck joint, orient flanges of cross frame members away from the deck joint.

#### **Re-Approved 03-26-2009**

This detail has undergone substantial revisions including changing the connection of the diagonal members from bolted to welded and providing the designer an option in selecting the connection between the diaphragm connection stiffener and the flanges.

At Sheet Sub Title: changed from “FOR STEEL BEAMS” to “FOR STRAIGHT STEEL BEAMS”.

Under NOTES: Notes and note numbers have changed throughout the sheet.

Removed: Section D-D and the Section D-D arrows were removed from the sheet.

Added: Designer note reading "Designer to specify gusset plate thickness, ½” minimum. Filler plate thickness to match gusset."

At ELEVATION:

- Widened the bottom flange of the beams.
- Changed note from " \_x\_x\_ FILL PLT." to " \_ " FILLER PLATE".
- Changed note at the Interior Beam from "SEE COPED STIFFENER DETAIL B411" to "SEE STIFFENER DETAILS, DETAIL B411".
- Moved the top and bottom flange "TIGHT FIGHT..." notes from the fascia beam to the interior beam and replaced them with a DESIGNER NOTE that gives the designer a choice of connection type.
- Moved the weld symbol from the interior beam/web location to the fascia beam/web location and removed numbered Note ①.
- Moved Section C-C arrows to reflect the view shown.
- Removed the bolting details from the lower gusset plates.
- Changed note "③ INTERMEDIATE DIAPHRAGM STIFFENER" to "② DIAPHRAGM CONNECTION STIFFENER".
- Added weld symbol to the filler plate/cross frame location.
- Removed the 90 degree angle at the bottom of the fascia beam.
- Changed the labeling "INTERIOR BEAMS" to "INTERIOR BEAM".
- Added numbered note ① under 6" dimension at the fascia beam flanges.
- Added numbered note ② to the "USE OUTSIDE STIFFENER..." note.
- Changed numbered note at the “BEAM SPACING” dimension from ③ to ②.
- Changed numbered note at the fascia beam dimension between top and bottom flange from ③ to ②.
- Removed the weld symbol from the gusset plate/L-shape at the fascia beam.

At DETAIL "A":

- Changed the numbered note at the weld symbol from ① to ④.

- Changed note "INTERMEDIATE DIAPHRAGM STIFFENER" to "DIAPHRAGM CONNECTION STIFFENER".
- Added "1 ½" min." horizontal dimension between the stiffener and the cross member with clipped corner of the cross member shown.
- Added a z-break line to the left side of the detail.

At DETAIL "B":

- Added a z-break line to the left and bottom sides of the detail.
- Removed the bolting detail and dimensions from the cross member to gusset plate connection.
- Changed note "INTERMEDIATE DIAPHRAGM STIFFENER" to "DIAPHRAGM CONNECTION STIFFENER".
- Remove numbered note ④ from the gusset plate note.
- Moved the weld symbol location and added double leader lines to clarify weld locations.
- Changed the numbered note at the weld symbol from ① to ④.

At SECTION C-C:

- Removed bolted detail for the cross member to gusset plate connections.
- Removed the "PLATE CONNECTION OPTION..." note and the bolted plate connections.
- Widened bottom flange to match change at the elevation view.
- Changed note from " x\_x\_ INTERMEDIATE DIAPHRAGM STIFFENER" to "DIAPHRAGM CONNECTION STIFFENER" and added numbered note ②.
- Changed gusset plate note from " \_x\_x\_ ", to " \_" thickness".
- Added weld symbol with numbered note ④ to gusset plate/L-shape cross member connection.
- Removed the lower L-shape member and the " L\_x\_x\_ " designations on the left side of section C-C to reflect the section arrows in the elevation view.

**09-11-2004**

At ELEVATION: changed ③ INTERMEDIATE STIFFENER PLATE to ③ INTERMEDIATE DIAPHRAGM STIFFENER

At DETAIL "A": changed INTERMEDIATE STIFFENER PLATE to INTERMEDIATE DIAPHRAGM STIFFENER

At DETAIL "B": changed INTERMEDIATE STIFFENER PLATE to INTERMEDIATE DIAPHRAGM STIFFENER

At SECTION D-D: changed \_\_ x \_\_ x \_\_ INT. STIFFENER PLATE to \_\_ x \_\_ x \_\_ INTERMEDIATE DIAPHRAGM STIFFENER

At SECTION C-C: changed \_\_ x \_\_ x \_\_ INT. STIFFENER PLATE to \_\_ x \_\_ x \_\_ INTERMEDIATE DIAPHRAGM STIFFENER

**Approved, and signed, November 22, 2002.**