B-8. Lintels

Lintels are designed in accordance with CSA STANDARD A23.3-94 and ACI 318-99 Building Code Requirements for Structural concrete. Tables are provided for lintel heights of 300 (12”) and 500 (20”); concrete wall thickness: 100 (4”), 150 (6”), 200 (8”), 250 (10”). The span of the lintel should be from 900mm (36”) up to 6000mm (236”)

The lintels should be reinforced by deformed bars fy=400 MPa (60,000psi). Minimum concrete strength of fc=20 MPa (3,000 psi) [28 days]. The lintel reinforcement, in the tables below, have been calculated with the assumption that the end of the lintel is fixed and the factored load on the lintel is uniformly distributed. Lintel reinforcement of the opening with width less than 1200 mm (48”) should be taken such as for lintel with 1200 (48”) span.
Refer to CSA A23.3-94 and ACI 318 for minimum reinforcement requirements.

Lintel reinforcement shall be extended into the adjacent panels. For the length of reinforcement embedment inside the concrete wall, refer to CSA A23.3-94 and ACI 318.

The shear reinforcement of the lintel must be added to the lintel in accordance with requirements of CSA A23.3-94 and ACI 318.

Reinforcement installation sequence:

1) Horizontal reinforcement for the lintel is installed into the panels adjacent to the lintel panel.
2) The lintel panel is installed and connected to the adjacent panels.
3) The horizontal reinforcement described in step 1 is then pushed into the lintel panel.
4) While pushing the horizontal reinforcement into the lintel panel, shear reinforcement (stirrups) can be installed and tied to horizontal reinforcement, if necessary.

General Notes :

1. For minimum reinforcement requirements, refer to local building code.
2. In using the tables, apply the factored loads.
3. Lintels are designed for uniformly distributed load. Lintel is not subject to any concentrated loads. Both ends of the lintel are fixed against rotation.
4. The indicated size and number of rebars in each cell of the tables is placed at the top and bottom of the lintel.

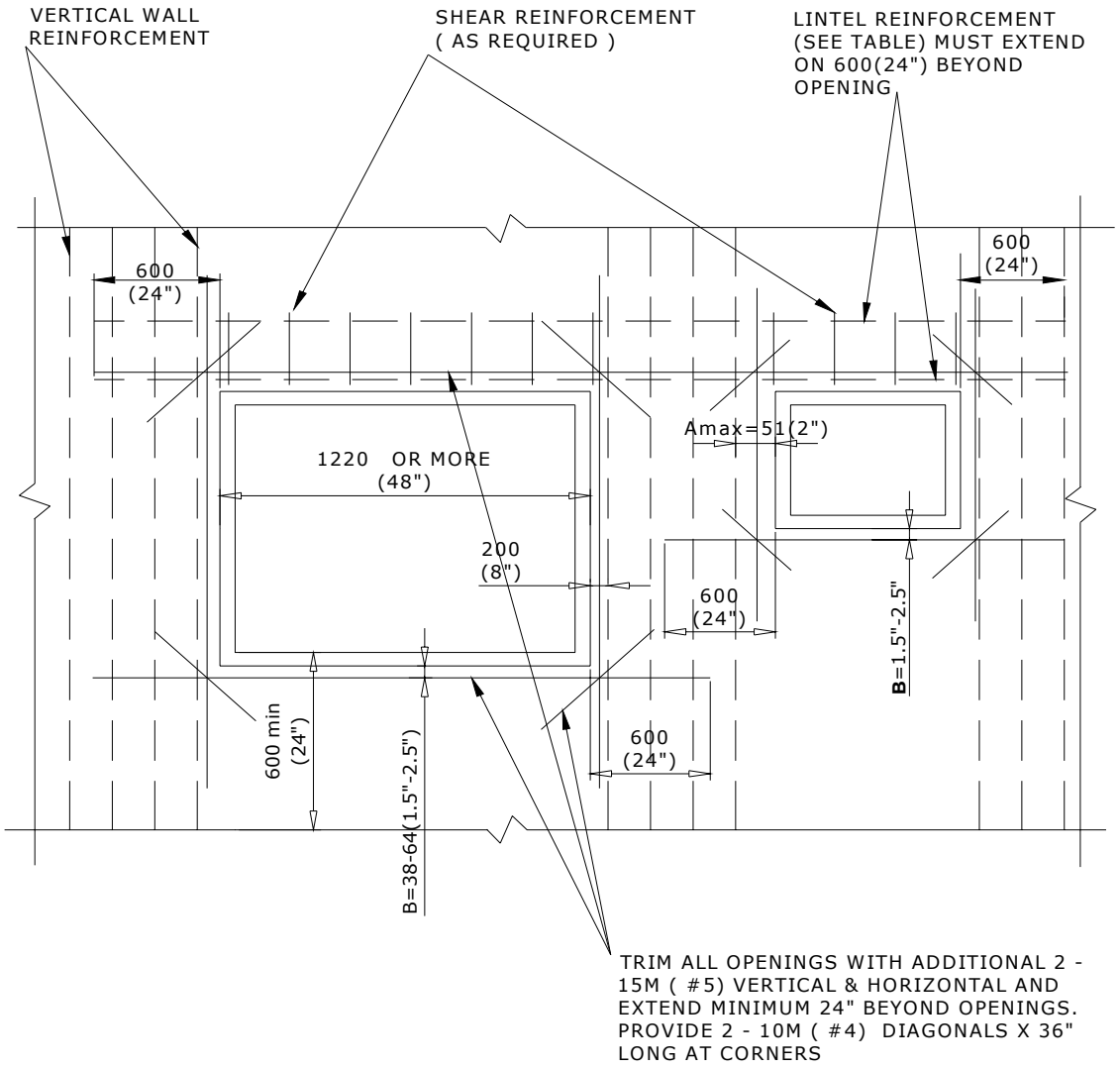
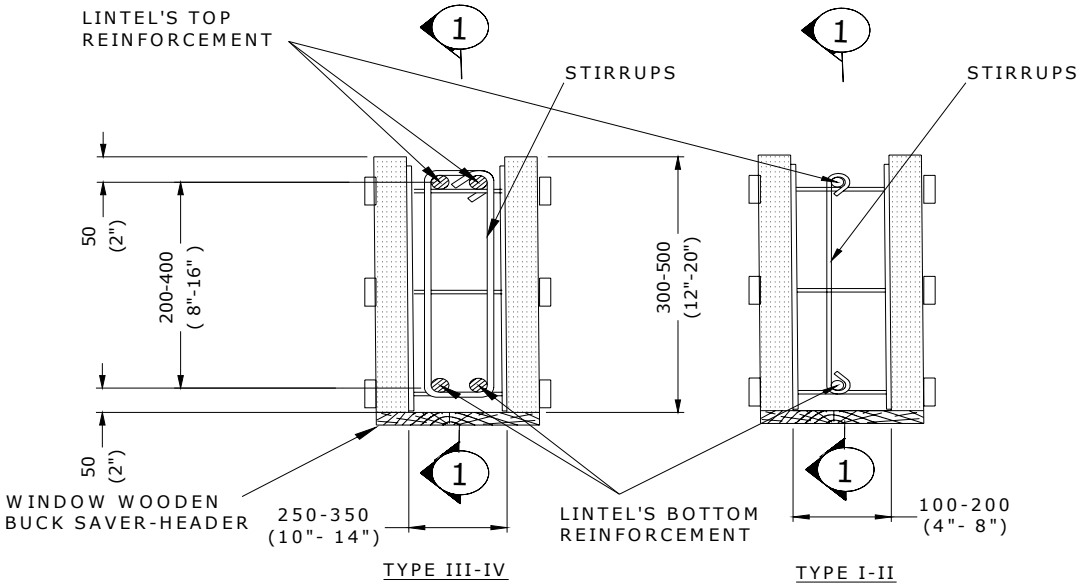

VERTICAL WALL REINFORCEMENT
SHEAR REINFORCEMENT (AS REQUIRED)
LINTEL REINFORCEMENT (SEE TABLE) MUST EXTEND ON 600(24") BEYOND OPENING
600 (24")
600 (24")
Amax=51(2")
1220 OR MORE (48")
200 (8")
600 (24")
B=1.5"-2.5"
600 min (24")
B=38-64(1.5"-2.5")
600 (24")
TRIM ALL OPENINGS WITH ADDITIONAL 2 - 15M (#5) VERTICAL & HORIZONTAL AND EXTEND MINIMUM 24" BEYOND OPENINGS. PROVIDE 2 - 10M (#4) DIAGONALS X 36" LONG AT CORNERS

FIG. B-8.1.


LINTEL'S TOP
REINFORCEMENT
1
STIRRUPS
1
STIRRUPS
50
(2")
200-400
(8"-16")
300-500
(12"-20")
50
(2")
1
1
WINDOW WOODEN
BUCK SAVER-HEADER
250-350
(10"- 14")
LINTEL'S BOTTOM
REINFORCEMENT
100-200
(4"- 8")
TYPE III-IV
TYPE I-II

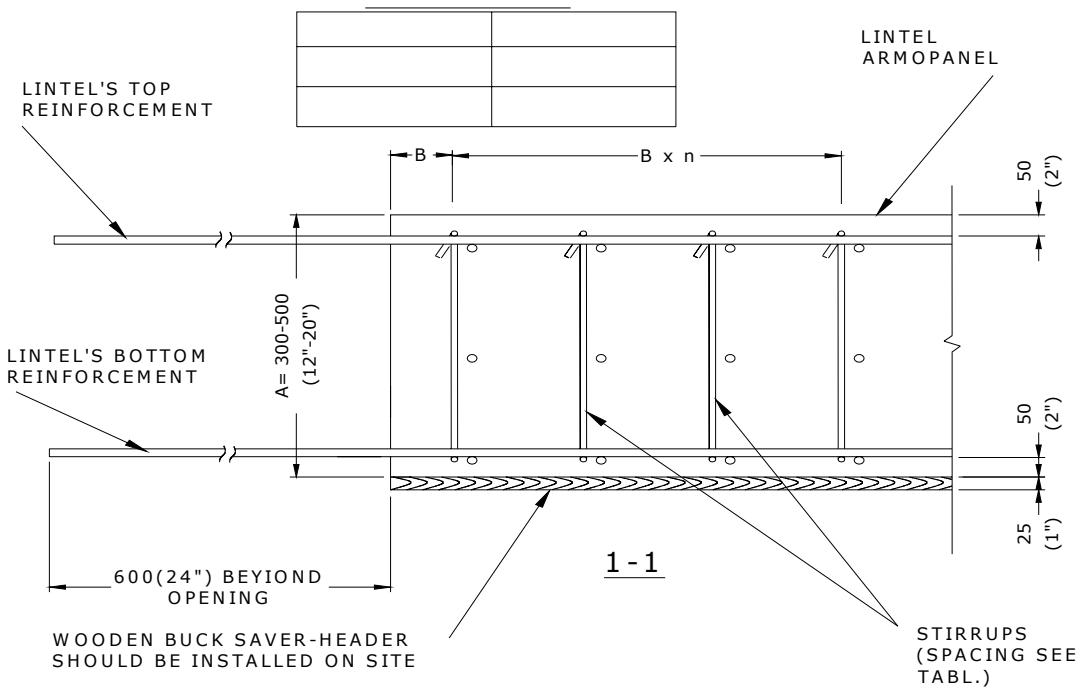

LINTEL
ARMOPANEL
LINTEL'S TOP
REINFORCEMENT
B
B x n
50
(2")
A= 300-500
(12"-20")
LINTEL'S BOTTOM
REINFORCEMENT
50
(2")
25
(1")
1 - 1
600(24") BEYIOND
OPENING
WOODEN BUCK SAVER-HEADER
SHOULD BE INSTALLED ON SITE
STIRRUPS
(SPACING SEE
TABL.)

FIG. B-8.2.