NBC Part 3 - Outlet Boxes - Firestop Decision Flow

START
Does the Outlet box penetrate a membrane of an assembly with a required FRR or FS?

YES

Default: FIRESTOP REQUIRED

Note: Outlet boxes include but is not limited to, electrical boxes, junction boxes, high and low voltage outlets, switches, enclosures for electrical equipment, laundry boxes, and shower diverters (A-3.1.9.3)

Penetrates a FIREWALL or HORIZONTAL FW for storage garage considered a separate building?

YES → **FIRESTOP REQUIRED**

NO

Outlet box NONCOMBUSTIBLE?

NO → **FIRESTOP REQUIRED**

YES

Does the outlet box penetration a horizontal fire separation?

YES → **FIRESTOP REQUIRED**

NO

Allowable noncombustible box sizes without fire stop:

- Single gang device boxes (2”x3” = 6in2)
- 4” octagon box
- 4” square box
- Double gang box (4”x 4”=16in2)
- 3 gang box (4”x5.75” = 23 in2)
  - Remember to measure the drywall opening, not the box. 3 gang boxes only work if tight fitting.
  - Aggregate area still matters

Check ALL:

- ❑ Box ≤ 0.016 m² (24.8 in²)
- ❑ Aggregate ≤ 0.065 m² (100.1 in²) per 9.3 m² (100.1 ft²) surface area (0.7%)
- ❑ Annular space ≤ 3 mm (1/8”)

ALL MET?

No → **FIRESTOP REQUIRED**

Yes

Are boxes on opposite sides of wall / back-to-back?

YES

Are boxes horizontally 600MM (24”) or more apart?

NO → **FIRESTOP OR FIRE BLOCK REQUIRED**

- ❑ Fire blocks to conform to 3.1.11.7 electrical box must be fully enclosed and any penetrations through fire block to be fire stopped.

(A-3.1.11.7(7))

- ❑ ½ gypsum board
- ❑ 0.38mm sheet steel
- ❑ 38mm wood *

*Assume that the elements listed in Part 9 meet CAN/ULC S101 therefore wood blocking would be permitted to support the fire block and enclose the box.

NO → **NO FIRESTOP REQUIRED**

YES → **NO FIRESTOP REQUIRED**

Legend: Blue = checks | Green = OK | Red = firestop required

Code references used: 3.1.9.1, 3.1.9.3. 3.1.11.7

NBC Part 9 - Outlet Boxes - Firestop Decision Flow

Note: Outlet boxes include but is not limited to, electrical boxes, junction boxes, high and low voltage outlets, switches, enclosures for electrical equipment, laundry boxes, and shower diverters (A-3.1.9.3)

START
Does the outlet box penetrate a membrane of an assembly required to have a FRR or a FS?

YES

Default: FIRESTOP REQUIRED

Allowable noncombustible box sizes without fire stop:

- Single gang device boxes (2”x3” = 6in2)
- 4” octagon box
- 4” square box
- Double gang box (4”x 4”=16in2)
- 3 gang box (4”x5.75” = 23 in2)
  - Remember to measure the drywall opening, not the box. 3 gang boxes only work if tight fitting.
  - Aggregate area still matters

Penetrates a FIREWALL?

YES → **FIRESTOP REQUIRED**

NO

Outlet box NONCOMBUSTIBLE?

YES

Check **ALL**:

- ❑ Box ≤ 0.016 m² (24.8 in²)
- ❑ Aggregate ≤ 0.065 m² (100.1 in²) per 9.3 m² (100.1 ft²) surface area (0.7%)
- ❑ Annular space ≤ 3 mm (1/8”)

ALL MET?

No → **FIRESTOP REQUIRED**

Yes

Are boxes on opposite sides wall / back-to-back?

NO → **NO FIRESTOP REQUIRED**

YES

Are outlet boxes on opposite side of the wall:

- ❑ Located horizontally 600mm (24”) or more apart? **OR**
- ❑ Separated from the remainder of the wall space by a fire block enclosure? **OR**
- ❑ Located in an insulated wall space with boxes fully encapsulated in insulation?

YES → **NO FIRESTOP REQUIRED**

NO → **FIRESTOP REQUIRED**

NO

Are COMBUSTIBLE outlet boxes:

- ❑ Separated from the remainder of the space within the assembly by an **enclosure 0.3m² (10.76 ft²) in area max,** made of fire block material conforming to 9.10.16.3 **AND do not exceed 0.016 m² (24.8 in²)? OR**
- ❑ Located in a space in the **assembly filled with Preformed Rock or Slag Fiber insulation** such that the exposed sides and back of the outlet box are encapsulated in insulation **AND do not exceed 0.016 m² (24.8in²)?**

Permitted fire block material (9.10.16.3):

- ❑ ½ gypsum board
- ❑ 0.38mm sheet steel
- ❑ ½” plywood, OSB, or waferboard
- ❑ 2 layers of lumber, each 19mm thick
- ❑ 38mm lumber

Yes → **NO FIRESTOP REQUIRED**

NO → **FIRESTOP REQUIRED**

Permitted on opposite side of FS (9.10.9.6(5)) without a fire stop

Legend: Blue = checks | Green = OK | Red = firestop required

Code references used: 9.10.9.6, 9.10.9.8, 9.10.16.3

Note: for Horizontal FS penetrations: If the vertical FS does not extend into the horizontal concealed space, then the ceiling of that space must have an equivalent FS as the required vertical FS and all penetrations through the ceiling membrane must be fire stopped (9.10.9.8(6)).