2015 NBCC Interpretation of Temperature Rise Rated Door Requirements

Article 3.1.8.17, in conjunction with Table 3.1.8.17, requires the opaque portion of closures (i.e. fire doors) in a fire separation having a Fire Resistance rating of not less than 45 min to have a temperature rise rating not exceeding 250°C for either 30 min or 60 minutes (based on the Table 3.1.8.17 below) where the closure is installed:

1. Between a dead end corridor and any adjacent occupancy (i.e. a dead end corridor leading to an office) if that corridor is required elsewhere by the NBCC to have a fire resistance rating of minimum 1 hr. In this case, a 45 min rating, and 30 min. temperature rise rating is required, and the fire door is permitted to have up to 0.0645m^2 of glazed openings.
2. Between an exit enclosure and any floor area, if the buildings is greater than 3 storeys in building height. In these case, the duration of the temperature rise rating is based on the required duration of the fire protection rating of the fire door (i.e. 30 min for 45 min rated doors, or 60 min for 1, 1.5, and 2 hr rated doors). These fore doors are also permitted to have up to 0.0645m^2 of glazed openings.
3. In a 2 hr fire resistance rated firewall, with the door having a 1.5 hr fire protection rating, the doors are required to have a 30 min temperature rise rating, and the fire door is permitted to have up to 0.0645m^2 of glazed openings.
4. In a 4 hr fire resistance rated firewall, requiring the door to have a 3 hr fire protection rating, and a 60 min temperature rise rating, but the fire door is not permitted to have any glazed openings.

Subsequently, article 3.1.8.19 waives the requirement for a temperature rise rating (as well as the glass area limits of Table 3.1.8.17) between the closure (i.e. fire door) and a vestibule or corridor, provided:

1. The vestibule or corridor is separated from the remainder of the floor area by a fire separation wall with a minimum 45 min fire resistance rating, and
2. The fire separation in which the door is installed contains no wired glass or glass block within 3 m of the fire door, and
3. There is no occupancy in the vestibule or corridor (i.e. a kiosk, coffee shop, etc.).

Note: Because "Vestibule" is not a defined term in the NBCC, the common definition applies, so a vestibule is a passage, hall, or room between the outer door and the interior of a building.

Additional Information

In interpreting the requirements for temperature rise ratings for fire doors, it is also useful to review the NBCC Definitions that apply to the explanations below.

> *Closure* means a device or assembly for closing an opening through a *fire separation* or an exterior wall, such as a door, a shutter, a damper, wired glass or glass block, and includes all components such as hardware, closing devices, frames and anchors.
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> *Exit* means that part of a *means of egress*, including doorways, that leads from the *floor area* it serves to a separate *building*, an open public thoroughfare, or an exterior open space protected from fire exposure from the *building* and having access to an open public thoroughfare.
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> *Means of egress* means a continuous path of travel provided for the escape of persons from any point in a *building* or contained open space to a separate *building*, an open public thoroughfare, or an exterior open space protected from fire exposure from the *building* and having access to an open public thoroughfare. *Means of egress* includes *exits* and *access to exits*.
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> *Fire-protection rating* means the time in minutes or hours that a *closure* will withstand the passage of flame when exposed to fire under specified conditions of test and performance criteria, or as otherwise prescribed in this Code.
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> *Fire-resistance rating* means the time in minutes or hours that a material or assembly of materials will withstand the passage of flame and the transmission of heat when exposed to fire under specified conditions of test and performance criteria, or as determined by extension or interpretation of information derived therefrom as prescribed in this Code.

Table 3.1.8.17.
Restrictions on Temperature Rise and Glazing for Closures
Forming Part of Articles 3.1.8.17. and 3.1.8.18.

Location	Minimum Required *Fire-Protection Rating* of Door	Maximum Temperature Rise on Opaque Portion of Unexposed Side of Door, °C	Maximum Area of Wired Glass in Door, m²	Maximum Aggregate Area of Glass Block and Wired Glass Panels not in a Door, m²
Between a dead-end corridor and an adjacent *occupancy* where the corridor provides the only *access to exit* and is required to have a *fire-resistance rating*	Less than 45 min	No limit	No limit	No limit
	45 min	250 after 30 min	0.0645	0.0645
Between an *exit* enclosure and the adjacent *floor area* in a *building* not more than 3 *storeys* in *building height*	All ratings	No limit	0.8	0.8
Between an *exit* enclosure and the adjacent *floor area* (except as permitted above)	45 min	250 after 30 min	0.0645	0.0645
	1.5 h	250 after 1 h	0.0645	0.0645
	2 h	250 after 1 h	0.0645	0.0645
In a *firewall*	1.5 h	250 after 30 min	0.0645	0
	3 h	250 after 1 h	0	0