DURABOND

TECHNICAL BULLETIN

Fire Performance of Durex Exterior Wall Assemblies

Durex EIFS Code Conformance Assessment to NBC 2015, OBC 2012 and ABC 2014

General

Confirmation of Code Compliance of Durex EIF Systems:

Durex EIF Systems are code compliant to the National Building Code 2015 the Ontario Building Code 2012 and the Alberta Building Code 2014. Compliance to the noted building codes is confirmed in section 1 of the NRC/Evaluation Report CCMC 13103-R (report hereto attached). Specifically ***"Clause 3.2.3.8(1)(b) Protection of Exterior Building Face"*** *and* ***"Article 3.1.5.5. Combustible Cladding on Exterior Walls".***

Code compliant features of Durex EIF Systems:

The noted Durex EIF Systems are code compliant based on the following features:

PROPAGATION – Limiting and Preventing the Propagation of fire up the façade of the building face – ***Compliance to Article 3.1.5.5***

PROTECTION - Protection of the EPS by non-combustible basecoat lamina – ***Compliance to Article 3.2.3.7***

CONTAINMENT - Containment of fire by fire barrier - fire resistance rating of the wall assembly – ***ULC Listings of Durex Wall Assemblies Fire Rated up to 2Hrs***.

COMPATMENTALIZATION – introduction of tie-back of the non-combustible protective lamina to the structural substrate – ***Durex Wall Assemblies Complete Systems Details***

Code Requirements Subsection 3.1.5 and Article 3.1.5.5

PROPAGATION – Ability of the Durex EIF Systems to limit and prevent fire propagation up the façade of the building is addressed by the requirements of clause 3.1.5.5 of the respective building code, which requires the wall assembly to be tested in accordance to standard CAN/ULC S134 which assesses the ability of a the cladding to limit and prevent propagation of fire, simulated to exit out of a window opening, from propagating up the side of the façade (refer to Intertek listing DPL/WEIFS 30-01. Applicable Standard CAN/ULC S134.

Subsection 3.1.5. Noncombustible Construction

In general, a building or a part of a **building required to be of non-combustible** construction **shall be constructed with non-combustible materials**. (Default Condition)

NBC Article 3.1.5.5. "Combustible **Cladding** on Exterior Walls" - It allows the use of combustible claddings under 3.1.5.5.

OBC Article 3.1.5.5. "Combustible **Components** on Exterior Walls"

NBC Articles 3.1.5.5. and 3.1.5.6 permit an exterior, non-load bearing wall assembly containing combustible components to be used in buildings to be of non-combustible construction provided:

The Bldg. is unsprinklered and less than 3 storeys in building height, **or**

The Bldg. is sprinklered throughout, **and**

The interior surfaces of the walls are protected with a thermal barrier

The wall meets the performance requirements of CAN/ULC-S134 "Fire test of Exterior Wall Assemblies".

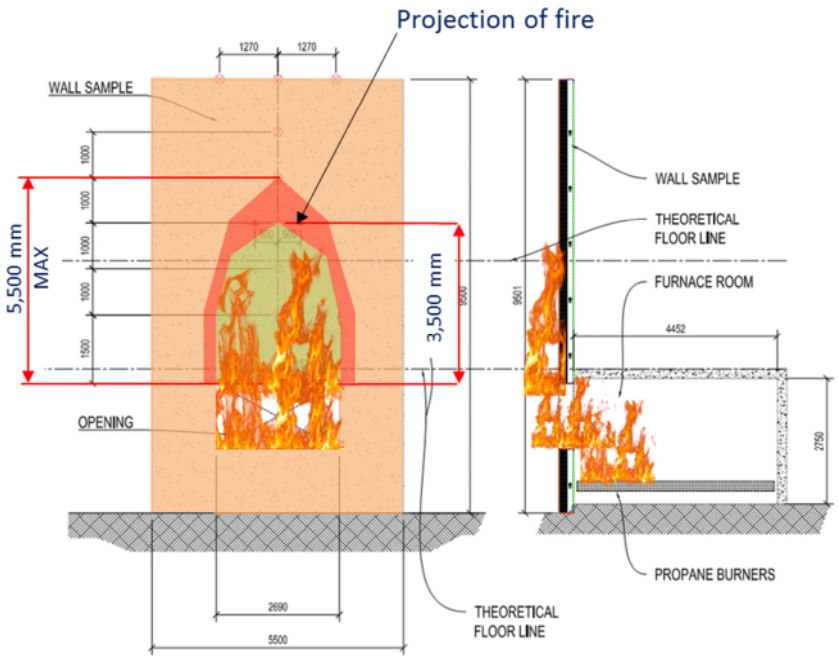
Note 1: Compliance with Article 3.1.5.5 is sufficient to waive the requirements for non-combustible cladding and materials in an exterior wall assembly.

Note 2: Article 3.1.5.6. allows the use of combustible materials in lieu of noncomustible materials within a cladding system.

Note 3: Article 3.1.5.5. of the NBC has 3 Sentences while the same Article in the OBC has 6 Sentences. In Sentence 3.1.5.5.(6) of the OBC which is not in the NBC, it states: [***that the requirements of Article 3.1.5.5. do not apply where foamed plastic insulation is used in an exterior wall assembly of a building and the insulation is protected in conformance with Sentences 3.2.3.8.(1) and (2).*** **]**

Note 4: These differences between the NBC and OBC have existed since the 2006 OBC.

CAN/ULC S134



CAN/ULC S134

Durex Assembly Test Listing

Intertek Listing	Cladding Type	Lamina Type	Insulation Thickness
DPL/WEIFS 30-01	**Combustible**	**Combustible (Flexcrete)**	**6"**

Code Requirements Subsection 3.2.3 and Article 3.2.3.7

NBC Subsection 3.2.3. addresses "Spatial Separation and Exposure Protection":
NBC Article 3.2.3.7. in its table 3.2.3.7 defines the Type of Construction, the Type of Cladding and the required Fire rating of the Wall Assembly.

Note 5: Table 3.2.3.7. needs to be read taking into consideration Note (1) and (2) stated herein.
3.2.3.8. Protection of Exterior Building Face

3.2.3.8.(1). Except as permitted by Sentence (3) and in addition to the requirements of Sentences 3.2.3.7.(1) and (2) and where the maximum permitted area of unprotected openings is greater than 10% of the exposing building face, foamed plastic insulation used in an exterior wall of a building more than 3 storeys in building height shall be protected on its exterior surface by:

a) concrete or masonry not less than 25 mm thick, or
b) noncombustible material that complies with the criteria for testing and the conditions of acceptance stated in Sentence (2) when tested in conformance with CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials."

Sentence 3.2.3.8.3 - The requirements of Sentence (1) are waived for wall assemblies that comply with the requirements of Article 3.1.5.5. (See Note A-3.1.4.1.(1).)

Particularities

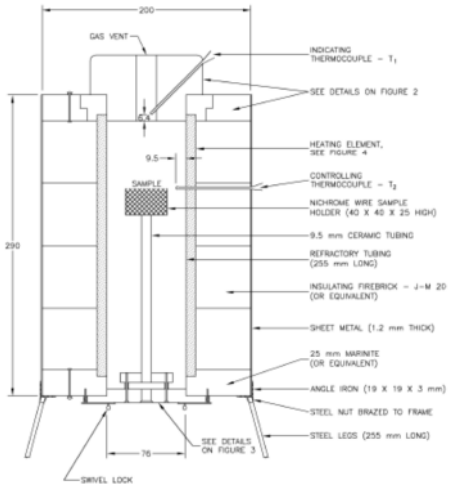
Note 6: Foamed plastic Insulation can be used in the construction of an exposing building face where:
The limiting distance would allow unprotected openings to be more than 10% and
When the exterior wall assembly complies with the requirements of Article 3.1.5.5

Protection of Foam Plastic Insulation

PROTECTION – compliance with clause 3.2.3.8(1)(b) of the OBC requires that the Expanded Polystyrene insulation is protected on the exterior by a non-combustible lamina that remains in place when exposed to fire (refer to table below for summary of ULC listings). Applicable standards CAN/ULC S114 and CAN/ULC S101.

Noncombustibility CAN/ULC S114

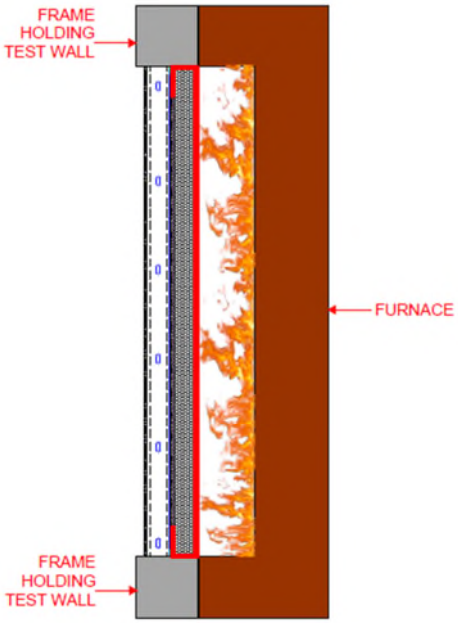
(noncombustible basecoats)



CAN/ULC S114 – Noncombustibility in Building Materials

Durex EIF Systems feature the use of the base coats rated as Noncombustible materials (passing the requirements of CAN/ULC S114). Refer to table below for the summary of all of the assemblies that include a Durex non-combustible basecoat as part of the assembly.

CAN/ULC S101 Protection of foamplastic insulation



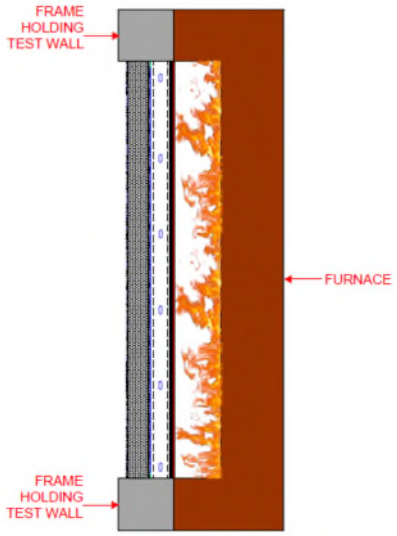
CAN/ULC S101 – Fire Endurance Test of Building Construction and Materials

The Durex basecoats that have passed the requirements of CAN/ULC S114 test for Noncombustibility have been tested if full scale wall assemblies in conformance to CAN/ULC S101 for assessment of protection of the Expanded Polystyrene Insulation from fire for a minimum of 15 minutes as per Section 3.2.3.8(1)(b) of the National Building Code of Canada. The table below is a summary of the ULC tested wall assemblies passing both requirements (CAN/ULC S114 Noncombustibility and CAN/ULC S101 15 minute stay in place protection).

ULC Listing	Product	Insulation Thickness
EW2	Uniplast	2” (50mm)
EW10	Uniplast	2” (50mm)
EW13	Uniplast	3” (76mm)
EW17	Uniplast	4” (100mm)
EW21	Uniplast	6” (152mm)
EW22	Monobase	6” (152mm)
EW23	Uniplast	6” (152mm)

Containment-Fire Rated Assemblies CAN/ULC S101

CONTAINMENT – the Canadian building codes address fire and safety measures against its spreading by ensuring that the fire is contained within the space where it started and prevent it from spreading into adjacent areas vertically or horizontally. The Durex EIF Systems have been tested for fire resistance ratings of 1 HR and 2 HRS (refer to ULC listings W442, W456, W485 and W489). Applicable standard CAN/ULC S101.



CAN/ULC S101 – Fire Rated Wall Assemblies and Resulting ULC Listings

The Durex EIFS wall assemblies have been tested in conformance to CAN/ULC S101 to assess the Fire Rating of the specific assemblies for the ability to act as a fire barrier in the containment of fire.

The table below is a summary of the main Durex wall assemblies and the respective Fire Resistance Rating of each of the assemblies. Important to acknowledge is the thickness of insulation utilized and the Assembly Type, whether Loadbearing or non-loadbearing.

ULC Listing	Fire Rating	Assembly Type	Insulation Thickness
W442	1 1/2 HRS from interior	Non-Loadbearing	2" EPS
	1 HRS from Exterior	Non-Loadbearing	2" EPS
W425	2 HRS From Interior	Non-Loadbearing	2” Mineral Fiber
W456	2 HRS from Interior	Non-Loadbearing	6" EPS
W485	2 HRS from Interior	Loadbearing	6" EPS
W489	1 HRS from Interior	Loadbearing	6" EPS

Conclusion

Conclusion:

Authorities Having Jurisdiction (AHJs) in the province of Ontario in their application of the Fire Protection Requirements of the OBC have accepted for applications on buildings with unprotected openings of more than 10% cladding systems with foam plastic insulation meeting the CAN/ULC S101 stay in place for 15 minute and a non-combustible base coat meeting CAN/ULC S114.

Durex Quantum Select **that is based on EPS insulation has been tested successfully to CAN/ULC S134 when used with Durex Flexcrete combustible base, and tested to CAN/ULC Stay in place 15 minutes with Durex non-combustible base coat.**

Durex Equalite Select **that is based on non-combustible mineral wool with a non-combustible base coat is by default a non-combustible cladding.**

Please note that OBC compliance to Article 3.1.5.5 is limited to maximum 6 storeys and must be sprinklered, while in the NBC it is not subjected to limited heights.

Having said that we have under our spectrum of systems and products the EIFS that would suit all the applicable OBC Fire Protection Requirements.

The combination of all of the testing noted within this technical bulletin confirm that the Durex family of Cladding Solution the most complete, reliable tested code compliant solutions available in the market.

DURABOND

HEAD OFFICE
55 Underwriters Road
Scarborough, ON M1R 3B4
T 416.759.4474 F 416.759.4470

MISSISSAUGA
6178 Netherhart Road
Mississauga, ON L5T 1B7
T 905.565.9283 F 905.565.9365

EDMONTON
14345 120th Avenue
Edmonton, AB T5L 2R8
T 780.451.6364 F 780.453.9056

INFO@DURABOND.COM WWW.DURABOND.COM 1.877.DURABOND (387.2266)