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Document Title:	Certification of Insulation Materials for Compliance to 2018 UAE Fire Life & Safety Code of Practice	عنوان الوثيقة:	Dubai Municipality
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Rev. No.	Summary of Amendments
0	Draft for comments
0	Final draft
1	Issue for use
2	Updated as highlighted.
3	Changing section name as per the new organizational structure, and replace HOU by CQPSM
	(Section's Manager). Replace system by scheme.
4	Full re-structuring and transfer of common provisions to the general rule. Clauses are re-numbered
	and re-arrange, document title has been revised accordingly. Additional minor changes
	(highlighted). Use of New DM Logo
	0 0 1 2 3

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#### 1. INTRODUCTION AND SCOPE

- 1.1 This document prescribes the specific rule for certification of the product(s) as identified herein, in accordance with the requirements of DM Third Party Product Certification Scheme Through Type 1B, taking into consideration the applicable normative references and standard specification, in addition to the requirements for conformity evaluation, as stated below.
- 1.2 The applicant shall comply with these specific rules, and with those already mentioned in the "General Rules for Type1 Product Certification Scheme" (DM-DCLD-RD-DP32-5001(IC)).

#### 2. PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

2.1 Product name: Thermal Insulation Materials

2.2 Applicable standard/Normative reference: 2018 UAE Fire Life and Safety Code of Practice

#### 3. DEFINITION OF TERMS

The definitions given in DM-DCLD-RD-DP32-5001 shall apply.

#### 4. GENERAL REQUIREMENTS FOR CERTIFICATION

- 4.1 The process of application of applicant/client, product sampling, fees and condition for issuance of the Type 1B certificate of conformity shall be in line with the related provisions in the general rule and the standard specifications.
- 4.2 Sampling and Testing
  - 4.2.1 For detailed sampling procedure Refer to related provisions in the general rules of the scheme.
  - 4.2.2 Based on the defined batch and the tests to be carried out as per clause [4.2.3], a "Sampling and testing plan" shall be prepared that will give details of the number of samples and the tests to be carried out on each selected sample. The applicant for certification shall agree to the sampling and testing plan.
  - 4.2.3 Tests to be carried out on each sample (The test shall be carried out at an independent UAE-CD approved laboratory). Refer also to clauses 4.2.4 and 4.2.5 as applicable.
    - 4.2.3.1 The Type 1 Certification shall be based on the satisfactory compliance of the test results on the requirements of the UAE Fire and Life Safety Code of Practice 2018 for building thermal insulation materials (PUR/PIR, Polystyrene, Mineral Wool, Phenolic, Cellular Glass, etc.) and pipe and duct insulation materials (Phenolic, PUR/PIR, Mineral Wool, Cellular Glass, EPDM, XLPE, NBR, PET, etc.) to be carried out on each sample.

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- 4.2.3.2 Building Thermal Insulation materials shall comply with the applicable clauses as per the requirements of the standard specification.
  - 4.2.3.2.1 PUR/PIR Results of the fire safety tests SHALL comply with the requirements of Tables 1.15a,
     1.15b, 1.17a, 1.17b and 1.17c (whichever is applicable) for test 1 only of the standard Specification as given in Annex A.
  - 4.2.3.2.2 Polystyrene Results of the fire safety tests SHALL comply with the requirements of Tables 1.15a and 1.15b (whichever is applicable) for test 1 only of the standard specifications given in Annex A.
  - 4.2.3.2.3 Mineral Wool Results of the fire safety tests SHALL comply with the requirements of Tables 1.14a, 1.14b, 1.15a, 1.15b, 1.17a, 1.17b, and 1.17c (whichever is applicable) for test 1 only of the standard specification as given in Annex A.
  - 4.2.3.2.4 Phenolic Results of the fire safety tests SHALL comply with the requirements of Tables 1.15a, 1.15b,
     1.17a, 1.17b and 1.17c (whichever is applicable) for test 1 only of the standard specification as given in Annex A.
  - 4.2.3.2.5 Cellular Glass Results of the fire safety tests SHALL comply with the requirements of Tables
     1.14a, 1.14b, 1.15a, 1.15b, 1.17a, 1.17b, and 1.17c (whichever is applicable) for test 1 only of the standard specification as given in Annex A.
  - 4.2.3.2.6 Pipe and duct insulation materials Fire Performance shall have, in the form in which they are used, a maximum flame spread index of 25 without evidence of continued progressive combustion and a maximum smoke developed index of 50 when tested in accordance with ASTM E 84 or UL723. Please refer to Annex A.8 Extracted from the standard specification
- 4.2.4 Where the client has valid test reports for the defined lot/batch <u>OR</u> from the same product category under Type 1 certification with a written proof that the formulation of final products and the raw materials has never been altered/modified during the three years validity of the submitted test reports (check clause 4.2.5.2 below), then sampling might be waived.
- 4.2.5 Acceptance of Test Reports
  - 4.2.5.1 Test reports may be accepted provided that the test are done in a laboratory which is approved by UAE Civil Defense.
  - 4.2.5.2 During initial evaluation, test reports submitted by the client/applicant may be accepted provided that the report is not more than (3) years old from the date issue at the time of evaluation and it was carried out on the same category of the products to be certified under Type 1b and that the client has submitted a written confirmation that the formulation of final products and the raw materials has never been altered/modified during the three years validity of the submitted test reports.

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# 5. ISSUANCE OF TYPE 1B CERTIFICATE OF CONFORMITY

5.1 The COC shall be issued based on the related provisions in the general ru

#### **ANNEX A**

# Annex A.1 Table 1.14a

Table 1.14.a.: MCM and ACP On Non-Fire Resistance rated and Non-Load bearing Exterior wall coverings-Test Requirements				
OCCUPANCY AND TYPE OF BUILDING	TEST 1  MCM/ ACP CORE AND PANEL AS PRODUCT	TEST 2  MCM/ ACP PANELS WITH  WALL ASSEMBLY		
<ol> <li>SUPER HIGHRISE BUILDING</li> <li>HIGHRISE BUILDING</li> <li>MALLS</li> <li>THEME PARKS</li> <li>SCHOOLS</li> <li>HOSPITALS</li> <li>ASSEMBLY</li> </ol>	<ul> <li>i. Core shall be tested to the criteria iii and iv.</li> <li>ii. Panel shall be tested with the thickness intended to the criteria iii and iv.</li> <li>iii. EN 13501-1         With pass criteria         A1 OR A2-s1-d0</li> <li>AND</li> <li>iv. ASTM D1929         MCM/ACP shall have self ignition temperature of not less than 343°C.</li> </ul>	v. BS 8414 –1 Or 2 With pass criteria as per BRE 135  OR  vi. NFPA 285 With pass criteria "Pass"  OR  vii. FM 4881 With pass criteria "Pass"  OR  viii. ISO 13785-2 With pass criteria "Pass"		
8. LOWRISE BUILDING 9. MIDRISE BUILDING 10. WAREHOUSE 11. INDUSTRIAL	<ul> <li>i. Core shall be tested to the criteria iii and iv.</li> <li>ii. Panel shall be tested with the thickness intended to the criteria iii and iv.</li> <li>iii. EN 13501-1         With pass criteria         B-s1-d0</li> <li>AND</li> <li>iv. ASTM D1929         MCM/ACP shall have self ignition temperature of not less than 343°C.</li> </ul>	v. BS 8414 –1 Or 2 With pass criteria as per BRE 135  OR  vi. NFPA 285 With pass criteria "Pass"  OR  vii. FM 4881 With pass criteria "Pass"  OR  viii. ISO 13785-2 With pass criteria "Pass"		

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#### Annex A.2 Table 1.14b

Table 1.14.b.: MCM and ACP on Fire Resistance rated Exterior wall coverings-Test Requirements

OCCUPANCY AND TYPE OF BUILDING	TEST 1  MCM/ ACP CORE AND	TEST 2  MCM/ ACP PANELS IN	
	PANEL AS PRODUCT	WALL ASSEMBLY	
1. ANY BUILDING WITH ANY HEIGHT AND ANY OCCUPANCY HAVING REQUIREMENT OF FIRE RESISTANCE RATED EXTERIOR WALL CONSTRUCTION, WHERE REQUIRED BY OTHER SECTIONS OF THIS CHAPTER.	<ul> <li>i. Core shall be tested to the criteria iii and iv.</li> <li>ii. Panel shall be tested with the thickness intended to the criteria iii and iv.</li> <li>iii. EN 13501-1         With pass criteria A1 OR A2-s1-d0</li> <li>AND</li> <li>iv. ASTM D1929         MCM/ACP shall have self ignition temperature of not less than 343°C.</li> </ul>	<ul> <li>v. ASTM E 119     With pass criteria     "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.</li> <li>OR</li> <li>vi. UL 263     With pass criteria     "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.</li> <li>OR</li> <li>vii. EN 1362-3     With pass criteria     "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.</li> <li>OR</li> <li>viii. EN 1362-4     With pass criteria     "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.</li> <li>OR</li> <li>viiii. EN 1362-4     With pass criteria     "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.</li> </ul>	

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#### Annex A.3 Table 1.15a

Table 1.15.a.: EIFS and ETICS on Non-Fire Resistance rated and Non-Load bearing Exterior wall coverings-Test Requirements

coverings-Test Requirements				
OCCUPANCY AND TYPE OF BUILDING	TEST 1  EIFS/ETICS  COMPONENTS AND  PANEL AS PRODUCT	TEST 2 EIFS/ETICS AS WALL ASSEMBLY		
1. ANY BUILDING 2. ANY INSTALLATION 3. ANY AESTHETICS	<ul> <li>All components of the EIFS (All layers including EPS/ XPS, coating, insulation, mesh, adhesive and finish.) shall be class A (Flame spread 0-25, Smoke development 0-450) when individually tested to ASTM E 84 or UL 723</li> </ul>	iii. BS 8414 –1 Or 2 With pass criteria as per BRE 135  OR  iv. NFPA 285 With pass criteria "Pass"		
	ii. NFPA 268 With pass criteria "No Ignition at 12.5 kw/m² at 20 minutes"	v. FM 4881 With pass criteria "Pass"  OR  vi. ISO 13785-2 With pass criteria "Pass"		

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Annex A.4 Table 1.15b

Table 1.15.b.: EIFS and ETICS on Fire Resistance rated Exterior wall coverings-Test Requirements

OCCUPANCY AND TYPE OF BUILDING	TEST 1  EIFS/ETICS  COMPONENTS AND  PANEL AS PRODUCT	TEST 2 EIFS/ETICS AS WALL ASSEMBLY
1. ANY BUILDING 2. ANY INSTALLATION 3. ANY AESTHETICS	<ul> <li>i. All components of the EIFS (All layers including coating, insulation, mesh, adhesive and finish.) shall be class A when individually tested to ASTM E 84 or UL 723</li> <li>AND</li> <li>ii. NFPA 268         With pass criteria         "No Ignition at 12.5 kw/m² at 20 minutes"</li> </ul>	<ul> <li>iii. ASTM E 119     With pass criteria     "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.</li> <li>OR</li> <li>iv. UL 263     With pass criteria     "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.</li> <li>OR</li> <li>v. EN 1362-3     With pass criteria     "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.</li> <li>OR</li> <li>v. EN 1362-3     With pass criteria     "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.</li> <li>OR</li> <li>vi. EN 1362-4     With pass criteria     "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.</li> </ul>

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#### Annex A.5 Table 1.17a

Table 1.17.a.: Sandwich Panels on Non-Fire Resistance rated and Non-Load bearing Exterior wall coverings-Test Requirements

coverings-Test Requirements				
OCCUPANCY AND TYPE OF	TEST 2			
BUILDING	SANDWICH PANEL AS PRODUCT	SANDWICH PANEL IN WALL ASSEMBLY		
<ol> <li>SUPER HIGHRISE BUILDING</li> <li>HIGHRISE BUILDING</li> <li>MALLS</li> <li>THEME PARKS</li> <li>SCHOOLS</li> <li>HOSPITALS</li> <li>ASSEMBLY</li> </ol>	<ul> <li>i. Core shall be tested to the criteria iii and iv.</li> <li>ii. Panel shall be tested with the thickness intended to the criteria iii and iv.</li> <li>iii. EN 13501-1         With pass criteria         A OR A2-s1-d0</li> <li>AND</li> <li>iv. ASTM D1929         With pass criteria         PEWFS shall have self ignition temperature of not less than 343°C.</li> </ul>	v. BS 8414 –1 Or 2 With pass criteria as per BRE 135  OR  vi. NFPA 285 With pass criteria "Pass"  OR  vii. FM 4881 With pass criteria "Class 1"  OR		
		viii. ISO 13785-2 With pass criteria "Pass"		
8. LOWRISE BUILDING  9. MIDRISE BUILDING  10. WAREHOUSE  11. INDUSTRIAL	i. Core shall be tested to the criteria iii or iv and v.  ii. Panel shall be tested with the thickness intended to the criteria iii or iv and v.  iii. EN 13501-1 With pass criteria B-s1-d0  OR	vi. BS 8414 –1 Or 2 With pass criteria as per BRE 135  OR  vii. NFPA 285 With pass criteria "Pass"  OR		
	iv. FM 4880 With pass criteria "Non-combustible core"  AND  v. ASTM D1929 Shall have self ignition	viii. FM 4881 With pass criteria "Class 1"  OR ix. ISO 13785-2 With pass criteria "Pass"		
	temperature of not less than 343°C.			

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# Annex A.6 Table 1.17b

Table 1.17.b.: Sandwich Panel on Fire Resistance rated Exterior wall -Test Requirements

OCCUPANCY AND TYPE OF BUILDING	TEST 1	TEST 2		
	SANDWICH PANEL AS PRODUCT	SANDWICH PANEL IN WALL ASSEMBLY		
ANY BUILDING WITH ANY HEIGHT     AND ANY OCCUPANCY  (SHALL BE TESTED FOR THE     THICKNESS INTENDED TO BE USED)	Core shall be tested to the criteria iii or iv and v.      Panel shall be tested with the thickness intended to the criteria iii or iv and v.	vi. ASTM E 119 With pass criteria "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall. OR		
	iii. EN 13501-1 With pass criteria A OR A2-s1-d0 OR	vii. UL 263 With pass criteria "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.		
	iv. FM 4880 With pass criteria "Non-combustible core"  AND  v. ASTM D1929 Shall have self ignition temperature of not less than 343°C.	or viii. EN 1362-3 With pass criteria "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.  Or vix. EN 1362-4 With pass criteria "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.		

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#### Annex A.7 Table 1.17c

Annex A.7 Table 1.17c				
Table 1.17.c.: Sandwich Panel in various applications -Test Requirements				
APPLICATIONS	TEST 1 SANDWICH PANEL AS PRODUCT	TEST 2 SANDWICH PANEL IN WALL ASSEMBLY		
1. INTERNAL NON FIRE RESISTANCE RATED WALLS AND PARTITIONS  (SHALL BE TESTED FOR THE THICKNESS INTENDED TO BE USED)	i. EN 13501-1 With pass criteria B-d0-S1 OR  i. ASTM E 84/ UL 723 With pass criteria "Class A" OR  i. BS 476 Part 7 With pass criteria "Class 1" OR  i. FM 4880 With pass criteria "Non-combustible core"  AND  i. ASTM D1929 Shall have self ignition temperature of not less than 343°C.	NOT REQUIRED		
2. INTERNAL FIRE RESISTANCE RATED WALLS AND PARTITIONS  (SHALL BE TESTED FOR THE THICKNESS INTENDED TO BE USED)	i. EN 13501-1 With pass criteria B-d0-S1  OR  ii. FM 4880 With pass criteria "Non-combustible core"  AND  iii. ASTM D1929 Shall have self ignition temperature of not less than 343°C.	iv. FM 4881 With pass criteria "Class 1" OR  v. UL 1715 With pass criteria "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall. OR  vi. UL 1040 With pass criteria "1 Hr or 2 Hr OR 3 Hr as per required fire rating of the wall.		

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# Annex A.7 Table 1.17c (continuation)

Table 1.17.c.: Sandwich Panel in various applications -Test Requirements				
APPLICATIONS	TEST 1 SANDWICH PANEL AS PRODUCT	TEST 2 SANDWICH PANEL IN WALL ASSEMBLY		
3. COLD STORAGE WALLS  (SHALL BE TESTED FOR THE THICKNESS INTENDED TO BE USED)	i. EN 13501-1 With pass criteria B-d0-S1  OR  ii. FM 4880 With pass criteria "Non-combustible core"  AND  iii. ASTM D1929 Shall have self ignition temperature of not less than 343°C.	NOT REQUIRED		
4. ROOFING-SPRINKLERED BUILDINGS  (SHALL BE TESTED FOR THE THICKNESS INTENDED TO BE USED)	i. ASTM D1929 Shall have self ignition temperature of not less than 343°C.	ii. NFPA 256 With pass criteria "Class B" OR  iii. ASTM E 108 With pass criteria "Class B" OR  iv. EN 13501-5 +A1 With pass criteria "Class Broof t4". OR  v. UL 790 With pass criteria "Class B"		

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# Annex A.7 Table 1.17c (continuation)

# Table 1.17.c.: Sandwich Panel in various applications -Test Requirements

APPLICATIONS	TEST 1 SANDWICH PANEL AS PRODUCT	TEST 2 SANDWICH PANEL IN WALL ASSEMBLY			
5. ROOFING-NON SPRINKLERED BUILDINGS  (SHALL BE TESTED FOR THE THICKNESS INTENDED TO BE USED)	i. ASTM D1929 Shall have self ignition temperature of not less than 343°C.	ii. NFPA 276  With pass criteria  "Class 1"  OR  Iii. ASTM E 108  With pass criteria  "Class A"  OR  Iv. EN 13501-5 +A1  With pass criteria  "Class Broof t4".  OR  v. UL 790  With pass criteria  "Class A"  OR  vi. FM 4470 Or FM 4471  With pass criteria  "Pass"			

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#### Annex A.8 - Page Extracted from UAE Fire and Life Safety Code of Practice



SMOKE CONTROL AND SMOKE MANAGEMENT SYSTEMS

# 2.2. Components of Smoke Control and HVAC Systems

2.2.1. Components involved in Smoke Control Systems and HVAC Systems shall comply with Table 10.1.

Table 10.1.: Components of Smoke Control and HVAC Systems

#### 3. DUCTS

#### 1. HVAC DUCTS

- Air ducts for HVAC systems shall be constructed of iron, steel, aluminum, copper, concrete, masonry. See Figure 10.1. for illustrations.
- ii. Class 0 or Class 1 rigid or flexible air ducts tested in accordance with ANSI/UL 181 listing shall be permitted to be used for ducts when air temperature in the ducts does not exceed 250°C or when used as vertical ducts serving not more than two adjacent stories in height.
- iii. Pipe and duct insulation and coverings, duct linings, vapor retarder facings, adhesives, fasteners, tapes and supplementary materials added to air ducts, plenums, panels, and duct silencers used in duct systems, shall have, in the form in which they are used, a maximum flame spread index of 25 without evidence of continued progressive combustion and a maximum smoke developed index of 50 when tested in accordance with ASTM E 84 or UL 723. See Section 6 for Duct test requirements.
- Flammable, non-listed and non-approved insulation coverings and tapes shall not be installed.
- v. Pipe and duct insulation and coverings, duct linings and their adhesives, and tapes shall use the specimen preparation and mounting procedures of ASTM E 2231. See Figure 10.2. for illustrations.
- vi. Air connectors shall not pass through any wall, partition, or enclosure of a vertical shaft that is required to have a fire resistance rating of 1 hour or more. Air connectors shall not pass through floors.
- vii. A service opening shall be provided in air ducts adjacent to each fire damper, smoke damper and any duct smoke detectors that need access for installation, cleaning, maintenance, inspection, and testing.
- viii. Ventilation ducts should not pass through smokeproof enclosures or the firefighting lobby.
- ix. Where unavoidable, the part of the ventilation duct within the firefighting lift lobby shall be enclosed in construction with fire resistance rating at least equal to that of the elements of structure. See Figure 10.3. for illustrations. Such construction shall be in masonry. If other form of fire resisting construction is used, the fire damper shall be fitted where the duct penetrates the lobby enclosure. No air conditioning or ventilation ducts shall penetrate separating walls. See Figure 10.4.

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