




 GOVERNMENT OF DUBAI	<b>Organization/Unit:</b>	إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
	<b>Document Title:</b>	<b>Specific Rules for Certification of Aluminum Composite Panel Through Factory Assessment as per DMS:036</b>	عنوان الوثيقة:	
	<b>Doc Ref.</b>	<b>DM-DCLD-RD-DP21-2214 (IC)</b>	رقم الوثيقة :	

Issue Date	Rev. No.	Summary of Amendments
18/11/2019	0	First draft for comment
15/12/2019	0	Include DCL – Technical committee feedback and comments
29/12/2019	1	Issue for use
06/09/2020	2	Add the options for initial audit by the approved CAB and remotely by PCAS. Adding definition for authorized auditor. Update for the terminologies. Add provision for accepting valid test reports. Add additional provisions related to sampling and testing, in addition to minor additional highlighted changes
24/05/2021	3	Tensile test requirements changed , fee structure number updated. Merging and addition of some classes under sampling ad testing. Removing fire safety requirements form the table as it is already required for all façade systems. Accepting test reports for long term test (adding note under the table). Adding clause 2.3.1 in addition to some other highlighted changes to align with same structure of other specific rules
29/07/2021	4	Table 1 & 2 of the DMS 036 standard have been added, the standard revision date has been updated. DMS 036 has been added to the SR's title
26/09/2021	5	Revised to reflect the Removal of the documents in clause 2.1.2, in addition to further amendment in the provision for accepting valid test reports ( clause 2.4.2.3), in line with DM 30% reduction of requirements (both service and specialized). Modifications in the auditing part for the factories already certified against ISO 9001 to opt for auditing only the areas of production and monitoring stages of product realization, quality control and final product testing and evaluation.

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## 1. GENERAL

### 1.1 INTRODUCTION

- 1.1.1 This document prescribes the Specific Rules for the implementation of the DM Third Party Product Certification Scheme through factory assessment as applied to the specific product(s) identified herein, taking into consideration the applicable normative references and standard specifications.
- 1.1.2 The client shall comply with these specific rules, and with those already mentioned in the “General Rules for DM Third Party Product Certification Scheme Through Factory Assessment“, DM-DCLD-RD-DP21-2001 (IC).

### 1.2 SCOPE

This specific rule applies for Aluminum Composite Panel when used for constructing curtain walls facade (external and internal) for buildings. This specific rules does not apply on roofs and roof cladding and thermal insulation panels.

### 1.3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

- 1.3.1 Product name: Aluminum Composite Panel
- 1.3.2 Applicable Standard/Normative Reference: DMS 036 : 2021 Standard Specification for Aluminum Composite Panel
- 1.3.3 Additional References:
- 1.3.3.1 ISO 9001, Quality Management System – Requirements
- 1.3.3.2 ISO 19011, Guidelines for Auditing Management Systems.

### 1.4 DEFINITION OF TERMS



In addition to the definitions given in the Applicable Standard specification DMS 036 (clause 3) , Normative Reference, and DM-DCLD-RD-DP21-2001(IC) the following shall also apply:

- 1.4.1 Independent Testing Laboratory - Dubai Central Laboratory (DCL) or any testing laboratory recognized by–DCLD-PCAS.
- 1.4.2 Independent Test – test performed or conducted by the recognized Independent Testing Laboratory
- 1.4.3 Standard Specification - DMS 036 : 2021 Standard Specification for Aluminum Composite Panel
- 1.4.4 Product Quality Assurance Plan – a document being agreed upon both by the client and DCLD-PCAS being used to ensure continuous compliance of the certified product.
- 1.4.5 QMS - Quality Management System aligned with the requirements of ISO 9001 Standard

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1.4.6 Client : The factory or the manufacturer of Aluminum Composite Panel

1.4.7 DCLD-PCAS : Dubai Central Laboratory Department – Products Conformity Assessment Section

1.4.8 Authorized auditor : is any approved auditor by DCLD-PCAS either internal within DCLD or external (Approved CAB's auditor or approved auditor based on a signed contract

## 2. REQUIREMENTS FOR CERTIFICATION

### 2.1 APPLICATION

2.1.1 The client shall apply to DCLD-PCAS for the authorization to use the DCL Conformity Mark.

2.1.2 Application form shall be submitted by client to DCLD-PCAS.

2.1.3 Separate application shall be submitted for each product type or group of products that refers to a different specific rules.

### 2.2 FACTORY OPERATION

#### 2.2.1 Quality Management System

The client shall have a Quality Management System that is aligned to the requirements of ISO 9001 standard.

*NOTE: Having a certificate of ISO 9001 is not a mandatory requirement; however the structure of the manufacturer's QMS shall be in line with its requirements.*

#### 2.2.2 Laboratory

The client shall have a quality assurance laboratory to carry out factory production control testing to ensure that the produced Aluminum Composite Panels comply with the requirements of the standard specification.



The laboratory can be part of the factory facilities, or, can be through a documented agreement with an accredited external laboratory. As a minimum requirement, the factory shall have the following minimum test equipment to check product compliance with the requirements of standard specification.

- Calibrated Caliper
- Peel off tester
- Coating thickness instrument
- Pencil hardness tools and instruments
- Impact resistance apparatus
- T-Bend tester for Coated Aluminum Coil
- Gloss tester instrument
- Tension machine

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### 2.3 INITIAL FACTORY AUDIT

- 2.3.1 Initial factory audit will be carried out by duly authorized auditor(s) which will cover auditing of the quality management system to verify its compliance with the requirements of ISO 9001, in addition to verify the implementation of DCLD-PCAS certification's requirements. Where possible; the audit can be carried out remotely as per (DM-DCLD-RD-DP21-2098 (IC) Guidelines for Remote Audit) or as per the related approved guidelines which are followed by the approved outsourced CAB.

*NOTE: An independent certification to ISO 9001 issued by a QMS certification body recognized by DCLD-PCAS may be considered as having satisfied this requirement; however, DCLD-PCAS may still opt to carry out verification audit to confirm that the factory is in compliance with requirements of DCLD certification schemes and rules, mainly the areas of production and monitoring stages of product realization, quality control and final product testing and evaluation.*

- 2.3.2 Factory audit shall be conducted by designated audit team based on ISO 19011 – Guidelines for Auditing Management Systems.

### 2.4 PRODUCT EVALUATION

#### 2.4.1 Sampling

- 2.4.1.1 Sampling for initial testing shall be taken randomly by the authorized auditor from the products to be certified (sizes to and quantities to be determined) either from production lines or the factory warehouse. The minimum sample size shall be as given in the related standard specifications and shall be drawn at random to be representative of the batch or consignment.

- 2.4.1.2 Three sets of sample per product per type shall be subjected to testing; the first set where possible, will be tested in the plant witnessed by a duly authorized auditor, the second set will be sent to DCLD-PCAS approved independent testing laboratory. The third set will be kept by the client as reference for future use. Independent test shall only be conducted if the results of the in-plant test show satisfactory results.

- 2.4.1.3 Test sample(s) for independent test shall be identified and signed in the presence of the authorized auditor and shall be submitted to an approved DCLD-PCAS independent testing laboratory.

#### 2.4.2 Product Evaluation, Testing and Testing methods

- 2.4.2.1 The testing methods shall be according to table (1 & 2 & 3) of the standard specification (DMS 036) as follows:



Tolerances for length, width, straightness and squareness of edges

Item	Tolerances
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Length/mm	±3
Width/mm	±2
Thickness/mm	±0.2
Diagonal Line Differential/mm	≤5
Side Straightness/(mm/m)	≤1
Warp Degree/(mm/m)	≤5

#### Aluminum skin properties

Physical Properties	Test Method	Requirements
Thickness - Aluminum skin (top and bottom)	Caliper	≥ 0.50 mm
Tensile strength	ASTM E 08	≥170 MPA
Elongation %	ASTM E 08	≥ 7

NOTE : ASTM B209- Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

#### Performance Requirements

S/ No.	Property	Test method	Requirement
1	Thickness of panels	Calibrated Caliper	±0.2 mm
2	Weight of panels	Calibrated weighing device	± 5% from Declared value
3	Coating thickness	ASTM D 7091	≥25 μm
4	Abrasion resistance	ASTM D 968 (Method A)	≥ 50 L/mil
5	Pencil hardness	ASTM D 3363	≥ H
6	Coating Film adhesion	AAMA 2605 (Clause 7.4) Or ASTM D3359	No loss of adhesion (0% failure)
7	Impact resistance	AAMA 2605 (Clause 7.5) Or ASTM D 2794	No removal of film from substrate
8	Shear strength	ASTM C 273	≥ 3.2 MPa
9	Gloss at 60°	ASTM D 523	± 5% from Declared value
10	T-Bend test	ASTM D 522	2T (No Cracks)
11	Peel off test	Peel off test (ASTM D903)	> 08 kg /25 mm for B > 11 kg /25 mm for A2
12	Panel tensile strength	ASTM E 08	> 35 Mpa 4mm > 25 Mpa 6 mm

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13	Punch shear test	ASTM D 732	≥20 MPa
14	* Corrosion resistance: 1. Humidity resistance for 4000 hrs at 38°C and 100%RH in accordance with ASTM D 2247 or ASTM D 4585. 2. Salt spray resistance ASTM B 117 See Note below	AAMA 2605	1. Humidity resistance: No formation of blisters to extent greater than “Few” blisters size #* as shown in Fig. 4 of ASTM D 714. 2. Salt spray resistance: Minimum rating of 7 on scribe or cut edges, and a minimum blister rating of 8 within the test specimen field in accordance with Table 1 & 2 of AAMA 2605 an
15	* Weathering resistance See Note below	ASTM C 481 (Cycle A)	<ul style="list-style-type: none"> <li>shear strength no effects when test as per ASTM C 273</li> <li>film adhesion no effects when test as per AAMA 2605 (Clause 7.4) Or ASTM D3359</li> <li>Impact resistance no effects when test as per AAMA 2605 (Clause 7.5) Or ASTM D 2794</li> </ul>
16	Temperature for thermal deformation	ASTM D 648	≥100 ° C
17	Thermal conductivity	ASTM C 518	Declare value
18	Linear thermal expansion coefficient	ASTM D696	≥ 2.4 mm/m/c°

*\*NOTE : Long term tests may be waived during initial evaluation, if testing is carried out within the last (5) years from the date of evaluation in an approved laboratory and subject to no change or modifications in the manufacturing process and the recipe of production with no major changes in raw material.*

2.4.2.2 The results of testing must meet the requirements as per the standard specification.

2.4.2.3 Where applicable, Independent test should only be conducted if the result of the in-plant test shows satisfactory result. DCLD-PCAS shall accept available valid test reports conducted by an approved DCLD-PCAS independent laboratory within one year from the date of the initial assessment, in line with the internal quality control testing plan of the factory. In such case, the testing of that particular parameter(s) shall be waived accordingly.

2.4.2.4 If the result of the test conducted by the approved DCLD-PCAS independent testing laboratory shows non-conformance to the specified requirements, the provision for rejection specified in the standard shall apply. The retest shall be carried out on the reference sample kept by the client or on new samples collected by the authorized auditor, on which full testing shall be carried out, if necessary.



2.4.2.5 If the retest passed, the initial product assessment is considered conforming to product specification. If not, the client will be advised to take corrective action.

2.4.2.6 All test results shall be held strictly confidential by the DCLD-PCAS approved independent testing laboratory concerned. Copies of the results will be provided only to DCLD-PCAS and the client

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2.4.2.7 Only after re-assessment and subsequent product compliance shall the client be allowed to use the DCL Conformity Mark on his product that have been tested and found complying with the certification requirements.

#### 2.4.3 Storage

2.4.3.1 The aluminum composite panel shall be stored in such a manner as to permit easy access for proper inspection and identification of each shipment,

### 3. GRANTING OF THE DCL CERTIFICATION

#### 3.1 CONDITIONS FOR GRANTING THE DCL PRODUCT CONFORMITY CERTIFICATE

3.1.1 When the results of the factory audit (clause 2.3) and product evaluation (clause 2.4) show conformity to the requirements specified in the General Rule and Specific Rule, the Certificate of Conformity and authorization to use the DCL Conformity Mark shall be issued to the client for the type(s) and size of the product covered by the assessment.

3.1.2 The client shall agree with DCLD-PCAS for the preparation and implementation of a product quality assurance plan to ensure continuing compliance with the Standard Specifications and the requirements of this certification scheme. It shall consist of (1) an internal product quality assurance plan, and (2) an independent testing plan.

##### 3.1.3 Factory Production Control System (Internal Product Quality Assurance Plan)

The client shall have an internal product quality assurance plan giving details of the tests to be carried out at the factory. This will include as a minimum, the following details: (1) location of sampling; (2) frequency of sampling; (3) quantities of samples; (4) tests to be carried out; (5) results acceptance criteria; and (6) responsible person to carry out the activity. The plan shall cover all inspections carried out thru out the whole manufacturing process; i.e. (raw materials – production lines- finished product testing and evaluation as per standard specifications – final packing.

##### 3.1.3 Independent testing plan



The client shall agree to an independent testing plan to be carried out on samples which are collected in accordance with DM-DCLD-RD-DP21-2096 (IC) – Surveillance of Certified clients under the Factory Assessment Scheme, and implemented by DCLD-PCAS and will be authorized to use the DCL Conformity Mark on the certified products.

#### 3.2 ISSUANCE OF DCL CERTIFICATE OF CONFORMITY

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If the conditions mentioned in clause 3.1 above have been complied, the client shall be issued the Certificate of Conformity and a Scope of Certification that covers the type(s) and size of the products that are certified and will be authorized to use the DCL Conformity Mark on the certified products.

### 3.3 RESPONSIBILITIES OF THE CERTIFIED CLIENT

- 3.3.1 The client shall ensure that his product, for which the Certificate of Conformity has been issued, conforms at all times to the requirements of the General Rule and Specific Rules and regulations and legislation, whenever applicable, and shall maintain to the satisfaction of DCLD-PCAS, a system of quality control including inspection and testing.
- 3.3.2 The client shall give the duly authorized auditor(s) by DCLD-PCAS, access during working hours, without prior notification, to the premises of the factory where certified product is manufactured, for the purpose of evaluating the materials, production processes, finished products, quality assurance facilities, records and others in accordance with the requirements of the scheme.
- 3.3.3 The client shall inform the DCLD-PCAS in writing of any change of management, transfer of plant site, modification in the product, manufacturing process or factory quality management system.
- 3.3.4 Upon transfer of plant site, the certification of conformity shall be deemed valid only after factory and product audit at the new site has been satisfactorily completed.
- 3.3.5 Any infraction stated in the Terms and Conditions of the certification scheme and the use of DCL Conformity Mark shall constitute sufficient grounds for suspension, withdrawal and termination of certification in accordance with DM-DCLD-IMS-RD-07.
- 3.3.6 Any dispute that may arise in connection with the Terms and Conditions of the certification scheme shall be settled in accordance with DM-DCLD-IMS-RD-08 - Appeals Disputes and Complaints Procedure.
- 3.3.7 The client shall pay all applicable fees related to the certification process.

### 3.4 USE OF THE DCL CONFORMITY MARK

- 3.4.1 The design and use of the DCL Conformity Mark shall be in accordance with DM-DCLD-IMS-RD-13 - Terms and Conditions for the Use of the DCL Mark.
- 3.4.2 The client shall submit samples of label/tag showing the DCL Conformity Mark, for approval by the DM DCLD-PCAS.
- 3.4.3 The Certificate of Conformity and the authorization to use the DCL Conformity Mark is non-transferable.


## 4. SURVEILLANCE

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4.1 DCLD-PCAS or their authorized auditor(s) shall carry out periodic surveillance to ensure consistent compliance with the requirements of this certification scheme as per DM-DCLD-RD-DP21-2096 (IC) – Surveillance of Certified clients under the Factory Assessment Scheme.

4.2 Testing as part of the surveillance shall be in accordance with the Independent Testing Plan (clause 3.1.4) above that has been agreed between DCLD-PCAS and the client.

## 5. FEE SCHEDULE

5.1 The client shall pay the applicable fees and charges related to the granting of the certificate of conformity the authorization to use the DCL Conformity Mark based on the DCLD-PCAS Official Fee Structure, DM-DCLD-DM-DCLD-RD-DP21-2074 (IC).

5.2 The fees for this certification scheme shall include but not limited to the following;

- 5.2.1 Application Fee
- 5.2.2 Initial Assessment Fee
- 5.2.3 Certification Fee
- 5.2.4 Marking Fee
- 5.2.5 Surveillance Fee
- 5.2.6 Annual Renewal Fee
- 5.2.7 Testing Fee
- 5.2.8 Outsource Activity fees (whenever applicable)

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