Updated Civil Defence Code Requirements in the Light of Recent High Rise Fires

Adrian Brown

Fire Service Advisor - Dubai Civil Defence

- Adrian is a fire service advisor with Dubai Civil Defence. His primary function is to provide support and advice to the Civil Defence for operational intervention, Fire preventative services and fire investigation.

- His role in this position currently involves the responsibility for the approval of fire related equipment, products and systems for DCD listing. This also includes the approval for all Dubai facade and cladding systems.

- Before arriving in Dubai Adrian spent 38 years with the Uk fire and rescue Service the last 4 of which as the director of the fire engineering and fire investigation courses at the UK Fire Service College. He was also seconded to the office of the deputy prime minister as the north of England project manager responsible for the implementation of TETRA radio to the UK Fire and Rescue Services.

- Adrian is a chartered fire engineer, a forensic fire investigator with the international association of arson investigators, a police officer with Thames Valley Police and also sits on the editorial board with BSI committee FH14 for British standards 9999, 9991 and 7974

Learning Objectives

1. *To review the new content of the UAE Fire and Life Safety Code 2017*
2. *To provide an overview of the Dubai Civil Defence Equipment and Materials Listing Process*
3. *To Discuss the Function of the Civil Defence in the Municipality Building and Façade Approval process*
4. *To illustrate the Facade NOC process and discuss DCD expectations for the project Façade NOC application*

UAE Fire Code 2017

- The 2017 Code seeks to instill higher standards of fire safety at all stages of construction.

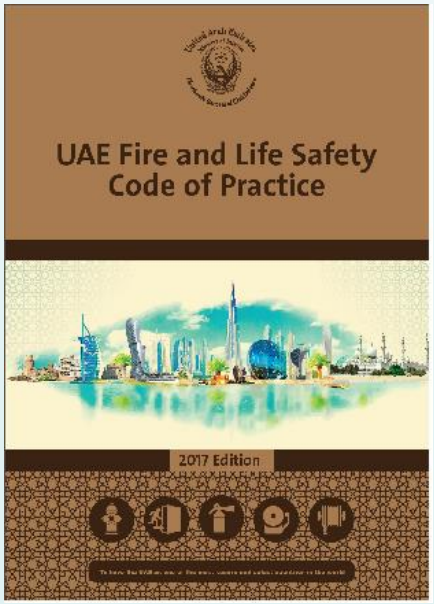
- Companies involved in the installation of materials will now need to be registered and licensed by the Civil Defence. Previously, such registration was incumbent only on consultants and contractors.

UAE Fire Code 2017

- 20 chapters, 1,564 pages increased number of diagrams and reference tables.
- Facades and cladding systems
- Flammable liquids
- Fire Appliance Access
- Renewable Energy Systems
- Responsibilities
- Enforcement

UAE Fire Code 2017

- 20 chapters, 1,564 pages increased number of diagrams and reference tables.



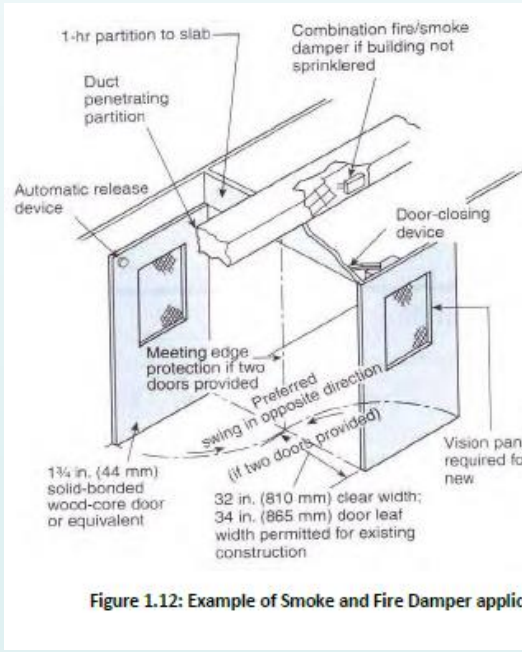


Figure 1.12: Example of Smoke and Fire Damper applic

CHAPTER 1, SECTION 4
FAÇADE AND CLADDING

UAE FIRE & LIFE SAFETY CODE OF PRACTICE

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 AS WALL ASSEMBLY
1. SUPER HIGHRISE BUILDING 2. HIGHRISE BUILDING 3. MALLS 4. THEME PARKS 5. SCHOOLS 6. HOSPITALS 7. ASSEMBLY	i. Core shall be mineral core, OR non-combustible core, tested with the thickness intended to the following criteria. AND ii. EN 13501-1 Core, Metal skin and adhesives shall be tested With pass criteria A1 OR A2-s1-d0 AND iii. ASTM D1929 With pass criteria MCM/ACP shall have self ignition temperature of not less than 343°C.	iv. BS 8414 –1 Or 2 With pass criteria as per BRE 135 OR v. NFPA 285 With pass criteria "Pass" OR vi. FM 4881 With pass criteria "Pass" OR vii. ISO 13785-2 With pass criteria "Pass"

UAE Fire Code 2017

- Facades and cladding systems -CHAPTER 1 !

NOT RETROSPECTIVE BUT RECOMMENDED TO BE UGRADED

Requirements for:

- Testing – approved DCD Listing for materials and systems.
- Panel manufacturers responsible !
- 10 point approach to tackle Façade fires
- Certification of Inspectors – ISO 17020/IAS AC 291

4.4.1. Ten Point Approach to tackle Façade Fires

Following 10 approaches have been adopted by UAE Civil Defence to tackle the causes of Façade flame spread, pointed out in **Section 4.3.9.**

4.4.1.1. Core of the Façade material shall be mineral core or non combustible core and tested in exposed form.

4.4.1.2. Façade panel as a product shall be tested.

4.4.1.3. Façade system as wall assembly shall be tested. (Or listed as per test requirements of this code)

4.4.1.4. Curtainwall, Perimeter joints and fire stopping shall be a listed system.

4.4.1.5. Cavity Fire Barrier bands shall be provided in concealed cavities between façade and primary substrate, at every slab.

4.4.1.6. Fire Breaks shall be provided vertically on exterior façade.

4.4.1.7. Exterior Sprinklers should be considered for the balconies having combustible facade. Interior window sprinklers should be considered for the glazing. See Chapter 9.

4.4.1.8. Consultants shall have competent and qualified façade specialists in-house or shall hire Civil Defence approved house of expertise who have experience and expertise in façade consultancy for Façade design, system selection and supervision of the façade contractor.

4.4.1.9. Façade contractor and fabricator shall be approved by Civil Defence, with valid Civil Defence License.

4.4.1.10. Façade installation shall be inspected throughout installation process and certified by Consultant or Civil Defence approved House of Expertise.

UAE Fire Code 2017

- Facades and cladding systems -CHAPTER 1 !

Requirements for:

- Testing – approved DCD Listing for materials and systems.
- Panel manufacturers responsible
- 10 point approach to tackle Façade fires
- Consultant responsible for:
  Design and specification approval
  Installation as per design
  During installation and final inspection
- General Requirements for Façade systems
- Specific performance requirements for MCP/ACPs, EIFS, ETICS, PEWFS and Sandwich Panels

UAE Fire Code 2017

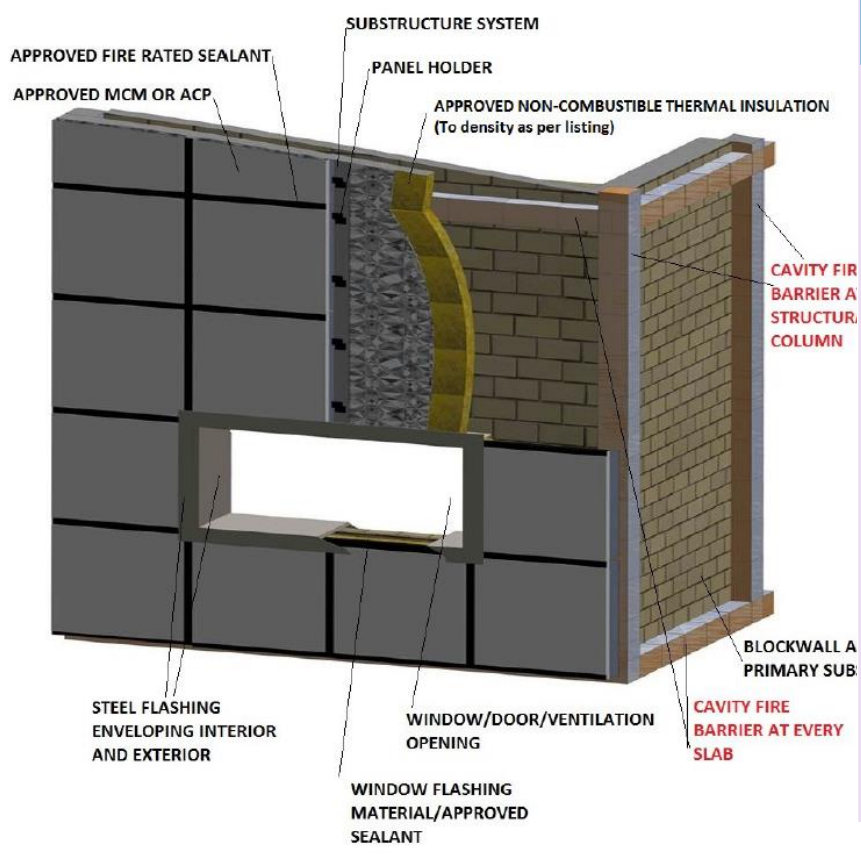


Table 1.16.a.: PEWFS on Non-Fire Resistance rated and Non-Load bearing Exterior wall coverings- Test Requirements

OCCUPANCY AND TYPE OF BUILDING	TEST 1 PEWFS PANEL AS PRODUCT	TEST 2 PEWFS AS WALL ASSEMBLY
1. SUPER HIGHRISE BUILDING 2. HIGHRISE BUILDING 3. MALLS 4. THEME PARKS 5. SCHOOLS 6. HOSPITALS 7. ASSEMBLY	i. EN 13501-1 With pass criteria A1 OR A2-s1-d0 AND ii. ASTM D1929 With pass criteria PEWFS shall have self ignition temperature of not less than 343°C	iii. BS 8414 –1 Or 2 With pass criteria as per BRE 135 OR iv. NFPA 285 With pass criteria “Pass” OR v. FM 4881 With pass criteria “Pass” OR vi. ISO 13785-2 With pass criteria “Pass”

UAE Fire Code 2017

- Flammable liquids

Removal of LPG cylinders from buildings

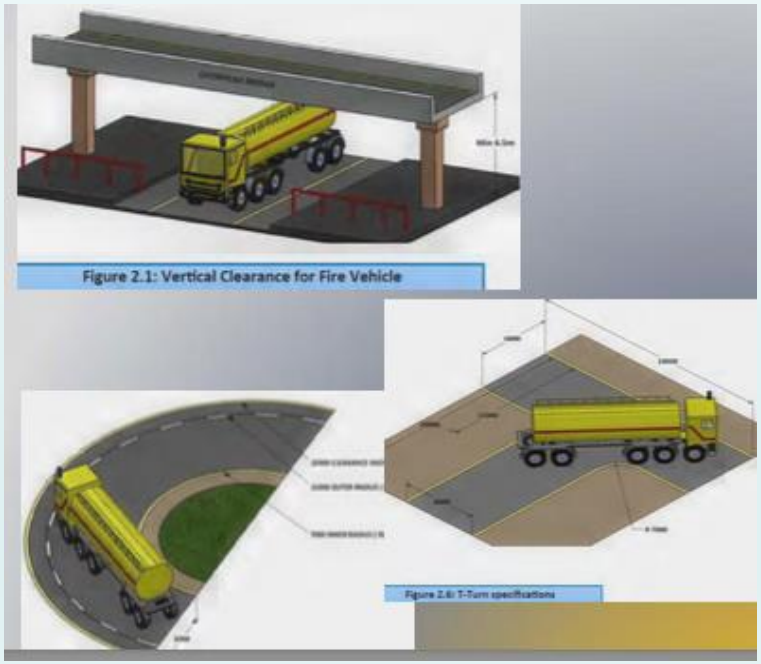
Requirements for:

- Fixed installations and LPG alternatives
- Increased reliance on electricity (!!!!!)

UAE Fire Code 2017

- Fire Appliance Access

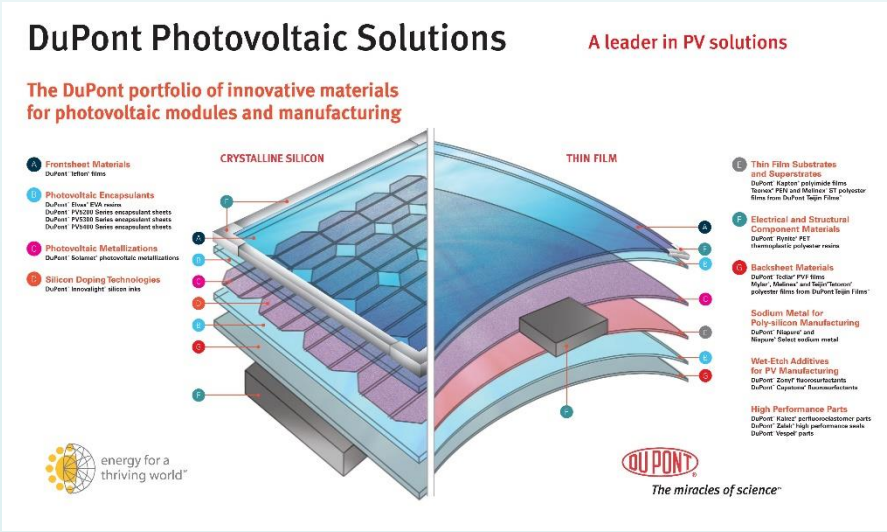
Increased /Rationalised Fire Vehicle access widths



UAE Fire Code 2017

- Renewable Energy Systems

Installation/ Materials/ Firefighter safety



UAE Fire Code 2017

- Responsibilities'

New and clear responsibility for:

Consultants
Developers
Owners
Tenants
Designers
FM Managers
School Managers
Hospital Managers

Following construction, both the main works consultant and manufacturer of any fire safety materials will be required to sign-off jointly on completion of the project before obtaining the final approval from the Civil Defence.

Consultants will remain responsible for defects for at least one year following delivery of a project

UAE Fire Code 2017

- Enforcement

Fines on building consultants in relation to faulty or unapproved fire safety material and work are to be introduced.

Penalties also include criminal prosecution and fines between AED 500 to AED 50,000 per violation.

All DCD Stations will have local inspectors who will record the inspection.

DCD Equipment and Materials Approvals Process

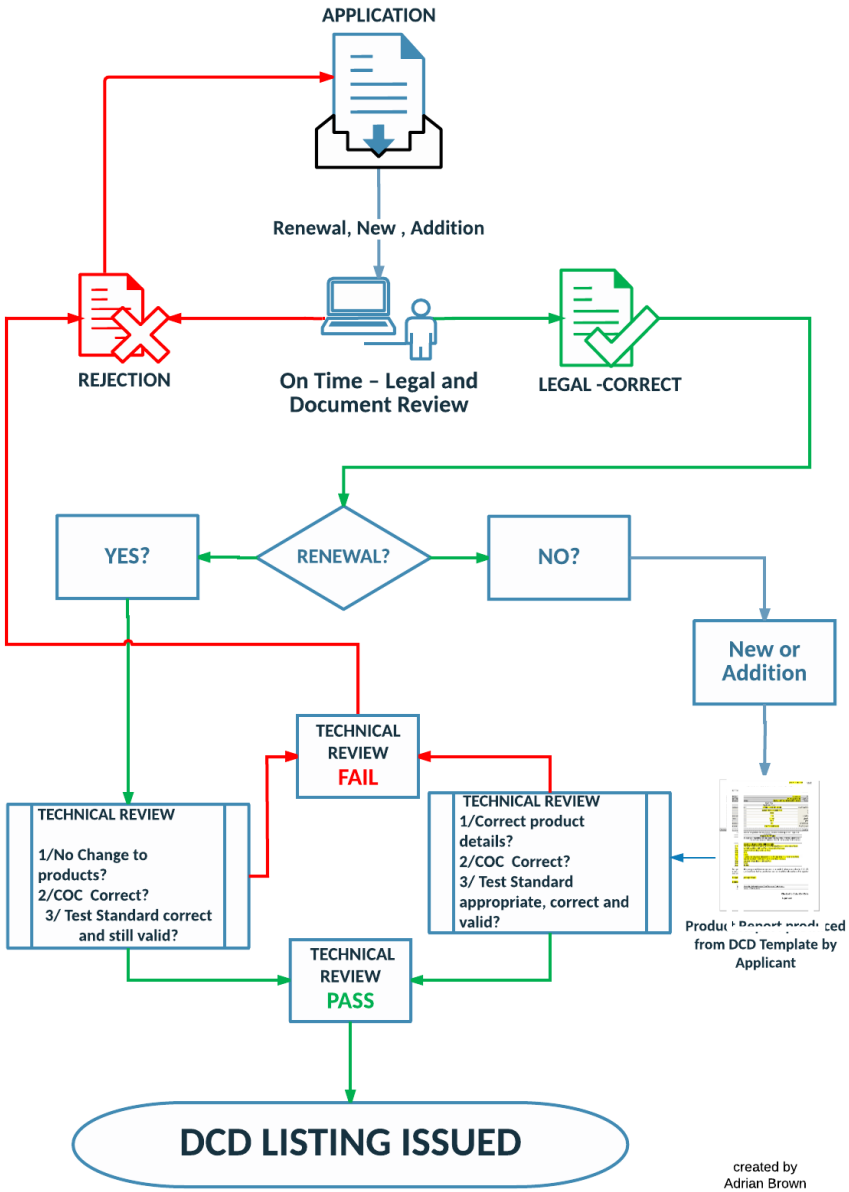
ADRIAN BROWN 10 OCTOBER 2017

DCD Approvals Process
RENEWAL AND APPLICATION ISSUES

- Use of out of date test standards
- In correct testing
- Corrupted certification and testing by approved laboratories' and test houses
- False, corrupted, inauthentic COCs and data
- Out of date tests
- Test data corrupted
- No legal link from manufacturer to brand
- False manufacturing country claims
- Un signed, corrupted seals and signatures
- In complete data in COC

Technical Reviews always required but on a risk based sliding

DCD Product /Material Application for license process



created by
Adrian Brown
10/10/2017

التاريخ : 23 / 08 / 2017 م

التقرير الفني الخاص بالمعدات المقدمة لقسم اعتماد الشركات

SUBJECT/ Technical Specifications — **الموضوع / المواصفات الفنية**

COMPANY	xxxxxxxxx	الشركة
Company Type	MANUFACTURER	نوع الترخيص
THE TRANSACTION NUMBER	PS-AC-LMTAD-01-05-2017-2xxxx	رقم المعاملة

بيانات المعدة

Equipment Data

Equipment/devices/ materials	DOORS RESISTING FIRE	المعدة/الأجهزة/المواد
Type:	WOODEN FIRE DOOR SET	النوع
Model:	FD60	موديل
Trade name to equipment	xxxx	الاسم التجاري
Factory name	xxxxxx	اسم المصنع
Made in:	UAE	بلد الصنع
Certificate safety No.	723	رقم شهادة السلامة
Issuer certificate:	EXOVA BMTRADA	جهة إصدار الشهادة

Technical opinion: — **الرأي الفني/**

The above mentioned equipment has been subject to certificated testing by a DCD registered Laboratory
(EXOVA BM TRADA)
All technical documentation has been reviewed in accordance with the UAE fire Code
The following equipment reference should be shown on the DCD certificate

- **UN-LATCHED WOODEN FIRE DOORS:**

1. MODEL:–LSADS-HO-60, single acting single leaf Wooden Door set , With Vision Panel,
Max. Leaf Size: 2400 mm High × 810 mm Wide × 56 mm Min. Thickness,
Overall Dimensions: 2440 mm High × 880 mm Wide,
Integrity: 60 Min.
Insulation: 60 Min.
2. MODEL:–LSASD-FB-120, single acting double leaf Wooden Door set , With Vision Panel,
Max. Leaf Size: 2400 mm High × 1050 mm Wide × 64 mm Min. Thickness,
Overall Dimensions: 2453 mm High × 1144 mm Wide,
Integrity: 120 Min.
Insulation: 120 Min.

The report identifies your product data and must match the certified information within the COC – Please be aware that any attempt to mislead or provide inaccurate or fraudulent information will be reported for prosecution.

Company Signatory Name:

Signature:

Information to be Followed as per Certificate and Test Report
1/ As per normal DCD condition:

Checked for Dubai Civil Defence

Signature:

The report identifies your product data and must match the certified information within the COC – Please be aware that any attempt to mislead or provide inaccurate or fraudulent information will be reported for prosecution.

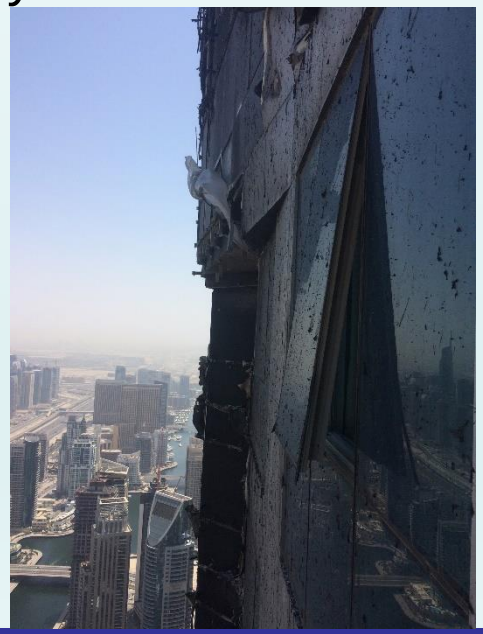
Company Signatory Name:

Signature:

DCD Façade NOC Process

Factors involved with fire development in Façade systems

- Readily Façade Material Combustible Core(Insulation/Sealants/panels)
- Inferior Façade Panel Integrity (Poor Panel manufacturing)
- Non tested and non listed façade, sealant and fire stopping systems
- Field Panels not as tested
- Poor Installation of Façade and Fire Stopping Syst
- Lack of thermal and cavity barriers



DCD Façade NOC Process

D. Approved Manufacturing Location

Plot # 689/106 St. # 27-28,
Industrial Area 13,
PO Box 4679
Sharjah, United Arab Emirates

E. System Configuration

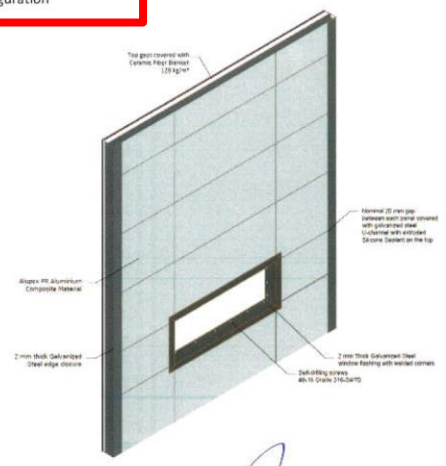


Figure 1. "Alupex FR" non-load-bearing exterior wall cladding assembly

Certificate number: TBW0300119.1
Page 3 of 9

Certification Manager
Nick Purcell

Seal number: 100166
Issued: 21 Feb. 2017
Valid to: 30 May. 2019

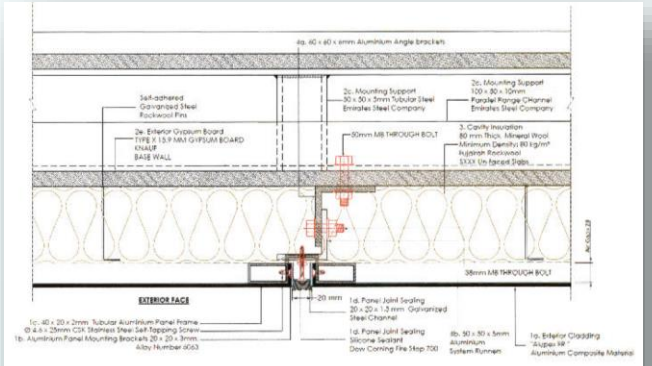


Figure 3. "Alupex FR" non-load-bearing exterior wall cladding Horizontal section details

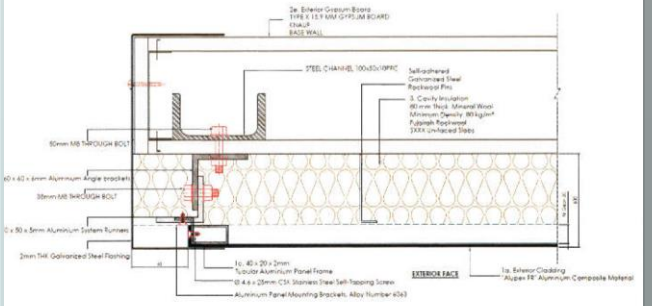


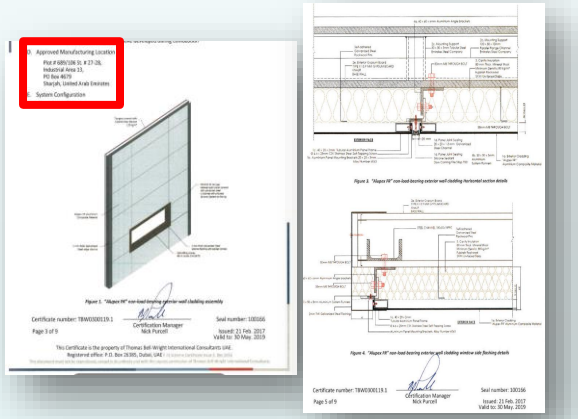
Figure 4. "Alupex FR" non-load-bearing exterior wall cladding window side flashing details

Certificate number: TBW0300119.1
Page 5 of 9

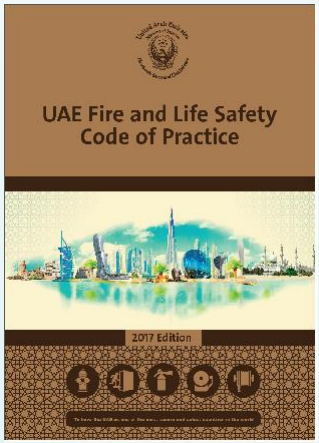
Certification Manager
Nick Purcell

Seal number: 100166
Issued: 21 Feb. 2017
Valid to: 30 May. 2019

DCD Façade NOC Process



ACP/MCM system Approval as per the UAE Code



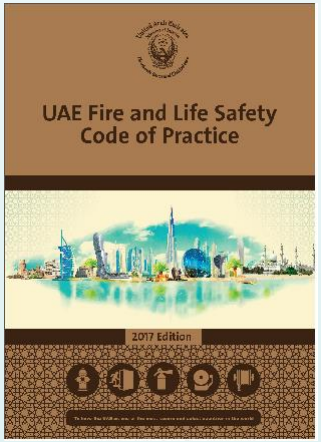
United Arab Emirates
Ministry of Interior
General Headquarters of Civil Defence

Chapter 1
CONSTRUCTION

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
1. SUPER HIGHRISE BUILDING 2. HIGHRISE BUILDING 3. MALLS 4. THEME PARKS 5. SCHOOLS 6. HOSPITALS 7. ASSEMBLY	i. Core shall be tested to the criteria iii and iv. ii. Panel shall be tested with the thickness intended to the criteria iii and iv. iii. EN 13501-1 With pass criteria A1 OR A2-s1-d0 AND iv. ASTM D1929 MCM/ACP shall have self ignition temperature of not less than 343°C.	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"

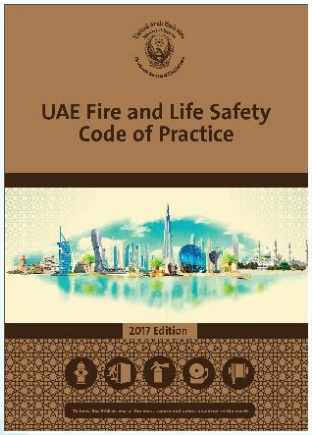
10 Point Approval



Competence to carry out tests — ISO 17025

Bodies certifying products, processes and services — ISO 17065

Certification and Listing



One
- Core material tested in exposed

Two
- Façade panel tested as product

Three
- Façade system wall assembly shall be tested or li

Four
- Curtainwall, Perimeter joints and fire stopping listed

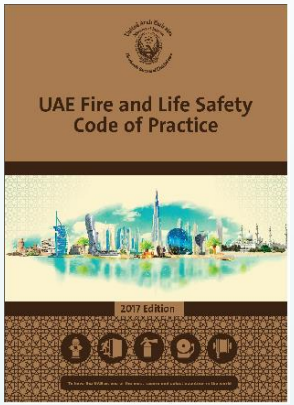
Five
- Cavity Fire Barrier at every slab

ISO 17020

Bodies performing inspection

ISO 17024

Bodies operating certification of persons



Six

- Fire Breaks provided vertically

Seven

- Exterior & Interior Sprinklers

Eight

- Competent and qualified specialists

Nine

- Civil Defence approved Façade contractor and fabricator

Ten

- Inspection throughout installation process

DCD Façade NOC Process

- DCD Façade NOC submission review
  - Should take the form of a comprehensive engineering report/ design note
  - May contain appropriate Engineering Judgements carried out by:
    - the HOE,
    - Façade Engineer or
    - Appropriate and Competent Engineer
  - ‘Paints the picture’
  - Focus on a Gap Analysis between the ’Benchmark’ and Project Design
  - Suggested Content should include:
    - Project and system description
    - Gap Analysis with benchmarked listed system and products, Geometry, balconies, projections
    - Fire risk analysis – where necessary
    - Justification of variations
    - Colour Coded Elevations
    - Detailed Shop drawings – perimeter fire stopping, cavity barriers
    - Undertakings – including manufacturer

INCOMPLETE DOCUMENTATION ACCOUNTS FOR 80 -85% DELAYS IN NOC PROCESSING TIME!

DCD Façade NOC Process

Date: xx.xx.xxxx

Ministry of Interior
General Directorate of Civil Defence – Dubai
Department of Preventive Safety

Kind Attn: Director – Preventive Safety Dept.

Subject: Undertaking | Exterior Façade System
Project: xxx Plot No.: xxx

We hereby confirm that following exterior wall covering / façade systems are approved on this project;

☑ ACP	☑ Curtain-wall	☐ Glazing	☐ EIFS
☐ GRC	☐ Concrete Panel	☐ MgO Board	☑ Stone
☐ Polycarbonate	☐ Solid Aluminum	☐ Any other (Specify):	

We have approved the above-proposed material submittals for this project. We undertake that only Civil Defence approved products/systems shall be used.

We undertake that inspection of on-site installation at 20%, 40%, 60%, 80% & 100% shall be conducted and reports for each stage shall be prepared for Civil Defence submission.

We also understand and agree that in case of failure to implement the provisions of this approval, Civil Defence may withdraw the approval unconditionally.

Thanks & Regards,

Name: xxx
Designation: xxx
For and on behalf of xxxx (the Consultant) Organization Stamp

DCD Façade NOC Process
Common causes of Rejection

- Lack of analysis by HOE – library of approval documents!
- No clear statement of compliance – ‘Expected’, ’Recommended’ ‘Assumed’
- Un justified/acknowledged variation in Benchmarked products;
  - Joint sealants and Gaskets – Non FR for FR
  - Cavity Barriers – GI?represntative?
  - Opening Flashings (Fire v Thermal performance?)
  - Base Wall construction
- Building Geometry assessment – Balconies, Projections, Canopies
- Open, Closed joint systems
- Vertical Panel Joints - not tested
- Cavity widths
- Perimeter Fire Stopping – EJs’ - misunderstanding of performance – Spandrels, Sprinklers smoke v Smoke, heat and fire

Façade Assessment and Feedback

Metal Composite Materials and Panels		
Requirements	**Compliance (Y/N)**	**Comments**
General:		
Core of the façade material shall be mineral core or non-combustible cored and tested in exposed form		
Façade panel as a product shall be tested		
Façade system as wall assembly shall be tested		
Curtain wall, perimeter joints and fire be all tested system		
Fire breaks shall be provided vertically on exterior façade		
Cavity fire barriers bands shall be provided in concealed cavities between façade and primary substrate at every slab		
Cavity fire barriers shall be incorporated into façade design at every floor vertically to restrict flame spread laterally		
Cavity Fire barriers shall be of non-combustible material		
Cavity fire barrier shall be 100mm high band and should run through insulation horizontally at each floor level and vertically on each face of the façade		
Detailed:		
Minimum exterior skin thickness of 0.5mm		
Minimum interior skin thickness of 0.25mm		
Maximum panel thickness of 6.3mm		
Permitted to be Installed on the façade and exterior of type I, type II, type III or type IV construction		
MCM/ACP shall be marked/labeled to verify its certification mark from accredited certification laboratory		
MCM/ACP core is not foam plastic or LDPE, or any expanded plastic less than 320kg/m3		
MCM/ACP core has been tested and evaluated separately		
Building type 1-7 (on non-fire rated wall) Test 1: MCM/ACP core and panel as product (all of below)		
Core shall be mineral core or non-combustible core, tested with the thickness intended to the following criteria;		
EN 13501-1 Core, metal skin and adhesives shall be tested with pass criteria A1 or A2-s1-d0		
ASTM D1929 with pass criteria, MCM/ACP shall have self ignition temperature of not less than 340C		
Building type 3 11 (on non-fire rated wall) Test 1: MCM/ACP core and panel as product (all of below)		
Core shall be mineral core or non-combustible core, tested with the thickness intended to the following criteria;		
EN 13501-1 Core, metal skin and adhesives shall be tested with pass criteria B-s1-d0		
ASTM D1929 with pass criteria, MCM/ACP shall have self ignition temperature of not less than 340C		
Building type 1-11 (on non-fire rated wall) Test 2: MCM/ACP panels as wall assembly (either of below)		
Bs 8414-1 or 2 with pass criteria as per BRE 135		
NFPA 285 with pass criteria "pass"		
FM 4881 with pass criteria "pass"		
ISO 13785-2 with pass criteria "pass"		
All buildings (on fire rated wall) Test 1: MCM/ACP core and panel as product (all of below)		
Core shall be mineral core or non-combustible core, tested with the thickness intended to the following criteria;		
EN 13501-1 Core, metal skin and adhesives shall be tested with pass criteria A1 or A2-s1-d0		
ASTM D1929 with pass criteria, MCM/ACP shall have self ignition temperature of not less than 340C		
All Buildings (on non fire rated wall) Test 2: MCM/ACP panels as wall assembly (either of below)		
ASTM E119 with pass criteria "1 hour or 2 hour or 3 hour as per required fire rating of the wall"		
UL 263 with pass criteria "1 hour or 2 hour or 3 hour as per required fire rating of the wall"		
EN 1362-3 with pass criteria "1 hour or 2 hour or 3 hour as per required fire rating of the wall"		
EN 1362-4 with pass criteria "1 hour or 2 hour or 3 hour as per required fire rating of the wall"		
Product approved by Dubai Civil Defence material department		
Manufacturer registered and approved with Dubai Civil Defence		

1. Super High Rise
2. High Rise

INSUFFICIENT ANALYSIS BY H.O.E

ACCOUNTS FOR 75 % PROCESSING

TIME DELAYS!

United Arab Emirates
Ministry Of Interior
Gen. Dep. of Dubai Civil Defence
Department Of Preventive Safety

دولة الإمارات العربية المتحدة
وزارة الداخلية
الإدارة العامة للدفاع المدني- دبي
ادارة السلامة الوقائية

النظام:	نظام التكسية الخارجية
الاستشاري الرئيسي:	اركي تكتونك انترناشونال
المقاول الرئيسي:	شركة رمال الإمارات للمقاولات
مقاول التكسية:	يوبرو كون للصناعات المعدنية
تركيب الزجاج:	غير معروف
الشركة المورّدة للوحة:	يوبرو كون لمقاولات البناء
بيت الخبرة:	غير معروف/ لا ينطبق
المشروع:	حضانة للجمعية النسائية
رقم قطعة الأرض:	282-7437

تقرير الاستشاري:

- نظام التكسية الخارجية على المشروع المذكور أعلاه مقبول بناء على ما يلي (انظر المرفق).
- يجب أن يتوافق نظام التكسية الخارجية مع كود الإمارات 2017. يجب تركيب حواجز حريق أفقية وعمودية.
-
- ألواح التكسية المقترحة من (Alucopanel USA FR A2) حيث تم اختبارها وفقا NFPA 285 J ومن فئة (A) للوحة والمادة الداخلية وفقا ASTM E 84 ويحقق (A2-s1-d0) وفقا للمعيار الأوروبي EN 13501-1 كما اجتازت اختبار الاشتعال 500 J ° وفقا ASTM D1929 J وتعتبر مقبولة.
- نظام إيقاف الحريق (PROTECTA FR) وهو عازل أكريليك وجرافيت للألواح المقاومة للحريق وتغليف الأنابيب المقاوم للحريق. وهو نظام معتمد لدى الإدارة العامة للدفاع المدني بدبي.
- بالنسبة لجميع ألواح التكسية وأنظمة إيقاف الحريق وأنظمة التوصيل والعوازل إلخ.. يجب أن تكون من المواد والأنظمة المعتمدة لدى الإدارة العامة للدفاع المدني بدبي. يجب تركيب حواجز حريق أفقية (انظر التقرير المرفق).
- التفتيش الميداني في هذا المشروع الجاري يجب أن يتم بواسطة بيت الخبرة وفقا للتعهد المرفق.
-

يرجى الاطلاع على المرفقات والرسومات. الموافقة على التكسية المذكورة هي لهذا المشروع فقط.

الموافقة على التكسية غير صالحة دون إرفاق ورسالة تحمل المسؤولية من قبل الأطراف المعنية وتقرير بيت الخبرة

ادريان براون

15 أغسطس 2017

System: **Exterior Cladding - Replacement**

Main Consultant: **YOUNG Engineering Consultancy Services**

Main Contractor: **Fix Concrete Technologies Contracting**

Facade Contractor: **NA**

House of Expertise: **Locke Carey**

Project: **Adriatic Building Oceana Residence Fire Damage Repair**

Plot: **381-101**

Area: **The Palm, Dubai, UAE.**

Consultant's Report/NOC Reference: **TKS/CEDSR-26894/381-101/2017**

Dubai Civil Defence have no objection to the proposed replacement of the existing ACP Cladding System for the above project, which is found by the HOE to be acceptable based on the following:

- The building is considered as a 15 storey high-rise building, and is fully sprinklered in accordance with NFPA 13.
- The existing ACP system will be removed from the vertical façade area which forms the external envelope to the stair and lift cores.
- The main Consultant is directly responsible to ensure the replacement system complies fully with the UAE Fire and Life Safety code 2017.
- The proposed replacement cementitious render system comprises, stainless steel mesh with steel mechanical fixings,15-80mm cementitious render and water based primer and top coat paint systems.
- Fire stopping/ fire barriers (vertical and horizontal) are not to be provided as this system encloses the envelope with non-combustible materials.
- ConMix LLC are to provide all the above mentioned rendering system. ConMix and their products are not listed with the DCD at this time.
- Dubai Central Laboratory and Dubai Civil Defence approved 50mm Fujairah Rockwool is to be provided within the internal surfaces of the staircores and will be finished with 12.7mm Gypsum board and **a fire rated paint system to ensure class O surface spread of flame.**
- Only Water based acrylic or cementitious vapor barrier may be applied where necessary which must be approved by DCD.
- Inspection of this ONGOING project shall be carried out by the HOUSE OF EXPERTISE as per the attached declaration.

The proposal is accepted by the HOE that the system complies fully with the UAE Fire Code 2017.It is the HOE responsibility, together with the main consultant, to monitor and ensure compliance with the above items and the UAE fire code

Please see attachments and drawing. This NOC of the proposed cladding is only for this project (Adriatic, Oceania).
The NOC is null and void under any circumstances of rework, change, modification or renovation of this project from above declaration.

The acceptance of cladding is invalid without undertaking letters and the House Expertise report.

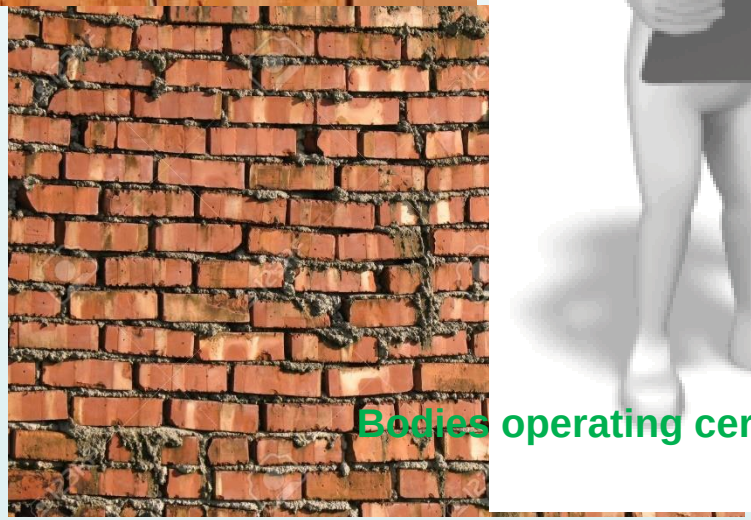
Adrian Brown
31th October 2017

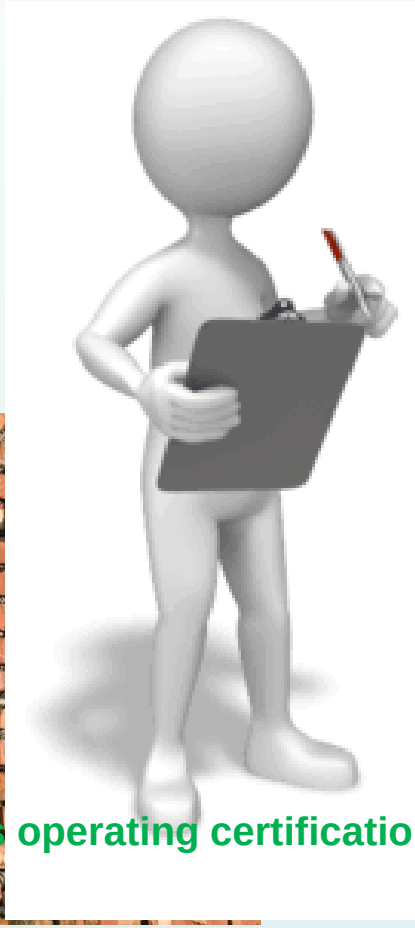
INSPECTION

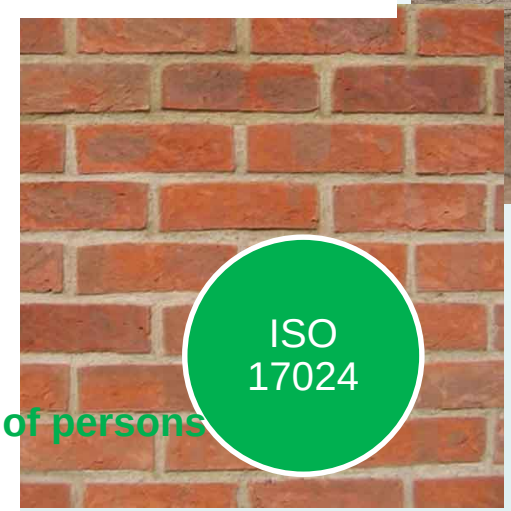
ISO
17020

Bodies performing inspection

WORKMANSHIP







Bodies operating certification of persons

EXAUNT