

SECTION 09 83 16

ACOUSTICAL PLASTER CEILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Acoustical Plaster

1. fade® Acoustic Plaster finishes
 - fade® Acoustic plaster - Albus (Smooth)
 - fade® Acoustic plaster - PLUS+ (Ultra Smooth).

B. Accessories

1. Mounting: fade® Special Washer, approved adhesive, mesh tape
2. Acoustic board: Mineral wool (glass fiber) acoustic boards

**** NOTE TO SPECIFIER **** Delete any sections below not relevant to this project; add others as required.

1.2 RELATED SECTIONS

- A. Section 05 50 00 - *Metal Fabrications* for suspended installation on steel grid systems.
- B. Section 09 29 00 - *Gypsum Board Assemblies* for direct installation on a plasterboard substrate.

**** NOTE TO SPECIFIER **** Delete references from the list below that are not actually required by the text of the edited section.

1.3 REFERENCES

A. Reference standards:

1. BS EN ISO 354:2003 Mounting Type A and Type E for NRC
2. BS 6853: 1999: Annex D.8.4 / LUL S 1085: 2015: Attachment B.6 for Measuring Smoke Density
3. EN 13823, 2002 for Heat Release Rate, Smoke Production Rate & Fire Growth Rate
4. ASTM E84-11a for Surface Burning Characteristics
5. ISO 18314-1, 2015 for Light Reflectance

6. ASTM E1477 for Light Reflectance
7. M1 Protocol for Chemical and Sensory Testing of Building Materials as published by Rakennustietosäätiö RTS (version 22.1.2015) for VOC
8. ASTM D3273 for Mold
9. ASTM G 154-16/ISO 18314-1, 2015 for UV exposure
10. DS/EN ISO 6270-2, 2005 for Humidity testing
11. ASTM D6991-17 for Internal Stress
12. Cradle to Cradle version 3.1 – Silver Level
13. ISO 14025/EN 15804 for EPD (Environment Product Declaration)

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.

**** NOTE TO SPECIFIER **** Delete if not required.

- C. LEED Submittals: Product data showing Cradle to Cradle Silver Level
- D. Verification samples: For each finish, two samples, minimum size 200 mm square representing actual product, finish and colour.

1.5 QUALITY ASSURANCE

- A. Manufacture Qualifications: Minimum 10 years of experience manufacturing similar products.
- B. Installer Qualifications: Installers must be authorized and certified representatives of the Manufacturer, who are trained and approved for installation of finishes and systems required for this Project.

**** NOTE TO SPECIFIER **** Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified.

- C. Mock-Up: Provide a Mock-Up for evaluation of finish and application workmanship
 - 1. Area designated by Architect

1.6 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials to the project site in original and unopened packages.
- B. Storage and protection: Store materials protected sunlight and extreme humidity
- C. Handling: Handle the materials with care to avoid damages.

1.7 FIELD CONDITIONS

- A. The project site must be properly heated (if the installation takes place in cold climates) and that the project site can be dehumidified if necessary (if the installation takes place in a hot and humid climate). It is not recommended that installation is carried out in temperatures below 1 °C. The building must be watertight to prevent any water leaks destroying the materials.

PART 2 PRODUCTS

2.0 MANUFACTURER

- A. Acceptable Manufacturer: fade® Acoustic Ceilings EUROPE ApS; Stamholmen 157, 2650 Hvidovre, Denmark; Tel: +45 25 7001 76, contact@fadeceilings.com, www.fadeceilings.com.

2.1 PERFORMANCE CRITERIA

- A. NRC as high as 1.0
- B. Fire testing as per ISO EN 13501, 2007: A2s1d0
- C. Fire testing as per ASTM E84-11a: Class A
- D. Light Reflectance as per ISO 18314-1, 2015: 83
- E. Light Reflectance as per ASTM E1477: 93.3
- F. VOC (0.014 mg/m²h) 0,02 g/L as per the M1 Protocol for Chemical and Sensory Testing of Building Materials as published by Rakennustietosäätiö RTS (version 22.1.2015)
- G. Internal stress as per ASTM D6991-17: 1.8 MPa

- H. Mold: Meets ASTM D3273-16 mold specification requirements.
- I. Exposure to UV-light as per ASTM G 154-16 & ISO 18314-1, 2015: No visible changes after 1000 hours
- J. Determination of resistance to humidity as per DS/EN ISO 6270-2, 2005, 40°C/95%RH: No visible changes
- K. Cradle to Cradle version 3.1: Must have achieved the Cradle to Cradle version 3.1 certification on Silver level.
- L. Must have an EPD (Environment product declaration)

2.2 ACOUSTICAL PLASTER FINISH

**** NOTE TO SPECIFIER **** Choose between the specification text below. Delete if not required.

A. fade® Acoustic Plaster System – PLUS+

1. Acoustic plaster:

- Acoustic ceiling must be fade® acoustic plaster – PLUS+.
- Acoustic plaster finish must be sanded fine as the fade® acoustic plaster – PLUS+ finish.
- Seamless acoustic ceiling finish must be sanded fine as the fade® acoustic plaster – PLUS+ finish.
- Ultra-smooth, dirt-resistant, anti-static, microporous acoustic plaster finish, two acoustic plaster coats trowelled to a smooth finish or sanded to an ultra-fine finish.
- Light reflectance of the acoustic plaster must be 83.6 %
- Standard colour of the acoustic plaster must be NCS colour S 0300-N
- Grain size of the acoustic plaster must be no more than 0,7mm
- The acoustic plaster must have achieved the Cradle to Cradle certification on Silver level.

2. Indoor climate

- The acoustic plaster must have VOC content of no more than 0,2 g/L.
- No growth of mold below 70% RH as per ASTM D3273-16.

3. Life cycle, durability and maintenance

- The acoustic plaster must have achieved the Cradle to Cradle certification on Silver level.
- The acoustic plaster must have an EPD (Environment Product Declaration)
- The acoustic plaster finish must not show visible changes in colour when exposed of direct UV as per ASTM G 154-16 & ISO 18314-1, 2015.
- The acoustic plaster finish must not show visible changes in colour or shape when exposed of extreme humidity as per DS/EN ISO 6270-2, 2005 Paint and varnishes.
- The acoustic plaster can be repaired and re-sprayed.
- Internal stress not less than 1.8 MPa as per ASTM D6991-17

4. Fire rating

- A2s1d0 as per ISO EN 13501-1
- Class A as per ASTM E84-11a

5. Acoustic performance

- NRC as high as 0.9

6. Acoustic board:

- Available thicknesses: 20, 25, 40 and 50 mm
- The acoustic board must be produced using a minimum of 84% recycled material and re-used waste products from manufacture. The acoustic board must be made from glass fiber. The glass fiber must meet the requirements of Note Q of the European Regulation 1272/2008, which ensures that the fibres are bio soluble. The binder used in the acoustic board must be plant-based and free of fossil hydrocarbons.

7. Suitable substrates:

- Regular gypsum wallboard, MF metal drywall grid system 400 mm c/c or similar, concrete, previously painted substrates, timber/steel frame 400 mm c/c.

B. fade® Acoustic Plaster System – ALBUS

1. Acoustic plaster:

- Acoustic ceiling must be fade® acoustic plaster – ALBUS.
- Acoustic plaster finish must be troweled fine as the fade® acoustic plaster – ALBUS finish.
- Seamless acoustic ceiling finish must be sanded fine as the fade® acoustic plaster – ALBUS finish.
- Smooth, dirt-resistant, anti-static, microporous acoustic plaster finish, two acoustic plaster coats trowelled to a smooth finish or sanded to a smooth finish.
- Light reflectance of the acoustic plaster must be 80%
- Standard colour of the acoustic plaster must be NCS colour S 0500-N
- Grain size of the acoustic plaster must be no more than 2 mm
- The acoustic plaster must have achieved the Cradle to Cradle certification on Silver level.

2. Indoor climate

- The acoustic plaster must have VOC content of no more than 0,2 g/L.
- No growth of mold below 70% RH as per ASTM D3273-16.

3. Life cycle, durability and maintenance

- The acoustic plaster must have achieved the Cradle to Cradle certification on Silver level.
- The acoustic plaster must have an EPD (Environment Product Declaration)
- The acoustic plaster finish must not show visible changes in colour when exposed of direct UV as per ASTM G 154-16 & ISO 18314-1, 2015.
- The acoustic plaster finish must not show visible changes in colour or shape when exposed of extreme humidity as per DS/EN ISO 6270-2, 2005 Paint and varnishes.
- The acoustic plaster can be repaired and re-sprayed.
- Internal stress not less than 1.8 MPa as per ASTM D6991-17

4. Fire rating

- A2s1d0 as per ISO EN 13501-1
- Class A as per ASTM E84-11a

5. Acoustic performance

- NRC as high as 1.0

6. Acoustic board:

- Available thicknesses: 20, 25, 40 and 50 mm
- The acoustic board must be produced using a minimum of 84% recycled material and re-used waste products from manufacture. The acoustic board must be made from glass fiber. The glass fiber must meet the requirements of Note Q of the European Regulation 1272/2008, which ensures that the fibres are bio soluble. The binder used in the acoustic board must be plant-based and free of fossil hydrocarbons.

7. Suitable substrates:

- Regular gypsum wallboard, MF metal drywall grid system 400 mm c/c or similar, concrete, previously painted substrates, timber/steel frame 400 mm c/c.

PART 3 EXECUTION

3.0 EXAMINATION

A. Site verification of conditions

1. Verify that substrates conditions, for substrates previously installed under other sections, are acceptable for product installation with manufacturer's instructions.
2. Do not proceed with installation until unacceptable conditions are corrected.

3.1 PREPARATION

1. Install suitable substrates in compliance with manufacturer's written instructions.

3.2 INSTALLATION

A. Manufacturer's instructions:

1. Install the acoustic plaster system in accordance with manufacturer's instructions. Installation must comply with, but not limited to, the following instructions:
 - a. Direct-to-grid installation: Install the acoustic boards mechanically with special washers from the manufacturer.
 - b. Direct to a suitable substrate installation: Install the acoustic board mechanically with special washers from the manufacturer or install the acoustic board with approved adhesive on the suitable substrate.
 - c. Apply fibre glass mesh tape to joints and fill washers with acoustic plaster to prepare a flush and complete even surface before spraying.

- d. Spray-apply one layer of acoustic plaster and trowel to a smooth and flush finish. Let the acoustic plaster dry a minimum of 24 hours.
- e. Spray-apply one layer (finishing layer) of acoustic plaster and trowel to a smooth and flush finish. Let the plaster dry a minimum of 24 hours and sand for a completely smooth finish. Other finishes include: *troweled finish and textured finish*.

END OF SECTION