

Radiant Heating Brochure



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Introduction

Radiant heating products are an alternative space heating solution to traditional wall-mounted radiators, air-conditioning systems and underfloor heating. Energy efficient, easy to clean and safe*, SAS International offers a range of integrated radiant ceiling products and freely suspended radiant rafts.

Benefits

- Radiant heating systems offer value and work using small quantities of water, facilitating rapid warm-up times and low energy consumption.
- Easy to clean with flat surfaces featuring no moving parts, resulting in low service and maintenance requirements, and reduced whole life costs.
- *Safely out of reach of building users, radiant products are fully compliant with HSE HSIS6 guidance (see page 6).
- Wall and floor space is freed up with the installation of ceiling mounted radiant heating panels, leading to an increase in the net usable floor area.
- SAS systems operate without significant air movement, leading to less air-borne particles, such as dust.
- Important for wellbeing, radiant heating increases productivity by improving occupant comfort.



SAS radiant heating solutions are HLK Stuttgart GmbH tested to EN 14037 for quality and performance.

How Radiant Heating Works



How it works

SAS Radiant Panels use the physical property of radiation to heat the working environment silently and without draught. Warm water passes through the copper element, warming the air around the tile and radiating heat into the space.

Radiant heating systems use approximately one seventh of the water contained in a traditional radiator system. This results in quicker heat up times and smaller plant demands.

Demands on central plants and energy, are further reduced by the lower friction levels experienced by water as it passes through the pipe-work. The surface area that water passes over as it flows through a traditional radiator system is larger, creating greater drag and requiring higher water pressures.

Manufacturing

With over 30 years of manufacturing experience, every panel is fully assembled and pressure tested before leaving the factory.

In the manufacturing process, copper elements are bonded to the rear of a panel via aluminium pipe saddles.

Additionally, our own pad line offers tailor-made thermal and acoustic insulation options for every project. These manufacturing advantages combined ensure product quality and ease of installation.



radiant heating panels operate on average 2°C to 4°C lower than spaces using traditional convection heating methods.



Performance & Widths

Standard Dimensions

Panel Ref	Nominal Width (mm)	Heat Output per linear metre of panel [W/m] @ 55 K
RCT 300	300	169
RCT 450	450	254
RCT 600	600	338
RCT 750	750	423
RCT 900	900	507
RCT 1200	1200	676

Rated Thermal Heat Output Φ_D

Tested to DIN EN 14037
 Test no. DC216 D12.4195-200
 Issued by HLK Stuttgart

Panel Ref	Nominal Width (mm)	Pipe Connections	Heat Output per linear metre of panel* [W/m] @ 55 K
RCT 600	600	s/e	338

*tested at water flow rate of 0.0149 l/(s*m)

**excess temperature ΔT [K] = mean water temperature t_m [°C] - reference temperature t_{ref} [°C]

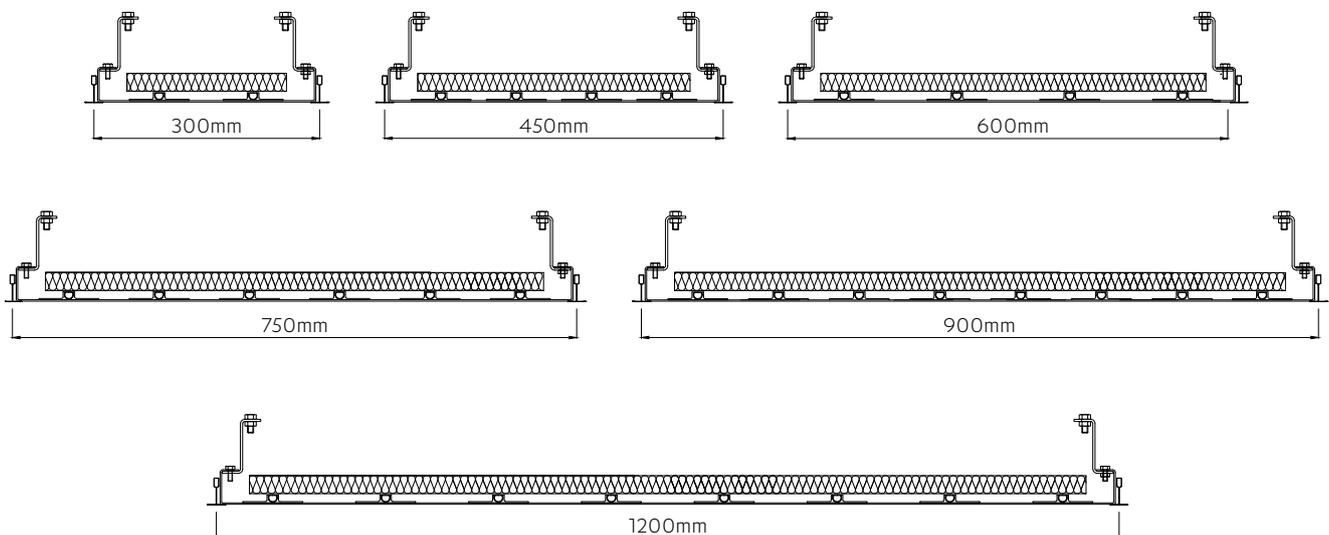
Correction Factors

Variation in excess temperature**

ΔT [K]	Correction factor
25	0.40
30	0.49
32	0.53
34	0.57
36	0.61
38	0.65
40	0.69
42	0.73
44	0.77
46	0.81
48	0.85
50	0.90
51	0.92
52	0.94
53	0.96
54	0.98
55	1.00
56	1.02
57	1.04
58	1.07
59	1.09
60	1.11

Widths

Panels are available in lengths starting from 600mm and widths from 300mm up to 1200mm.



Sector Demands



Education

Removing radiators from ground level creates valuable teaching space and reduces the risk of accidental burning. Radiant heating panels are durable and robust, an ideal solution for both learning and working environments.

Acoustic absorption pads can be incorporated in order to meet specific acoustic requirements e.g. Building Bulletin 93 (BB93).

SAS systems operate without significant air movement, leading to less air-borne particles, such as dust.

Leisure

Sports and leisure venues, which may only be used sporadically, can quickly and efficiently heat their premises using radiant heating. Due to a lack of moving parts, radiant heating systems require minimal maintenance and their smooth surfaces enable easy cleaning, perfect for busy leisure facilities.

Healthcare

Radiant heating panels are ideal for long corridors and hospital wards.

Radiant panels and rafts are safely out of reach of children, the elderly and people who cannot react appropriately, or quickly enough, to prevent injury caused by hot surfaces.

Specified with an Anti-Microbial (AM) polyester powder coating inhibits the growth of viruses, spores and bacterial growth such as E. coli and MRSA.

Durable, flat and smooth faced, radiant heating panels can be easily cleaned.



**Maximising Safety
Health & Safety
regulations are
crucial for all building
sectors especially
in education
and healthcare.**

**Suspended radiant panels
support H&S procedures by:**

- **Removing the risk of burns from hot surfaces and radiators**
- **Keeping sharp corners and edges away from building users**
- **Reducing the risk of Legionnaire's disease and microbial build-up associated with air-conditioning systems**

SAS International stringently follows the HSE HSIS6 guidance for Managing the risks from hot water and surfaces in health and social care.

Radiant Ceiling Panels



Radiant Ceiling Panels

Ceiling mounted Radiant Heating Panels offer a space saving alternative to traditional wall or floor mounted heating systems.

Radiant Heating Panels with their rapid warm up times, radiate heat downwards, warming the occupants and surfaces in a space.

Panels can be manufactured to a variety of sizes and integrate into a plasterboard surround or suspended ceiling grid.

System Benefits

- Easy to clean
- Frees up floor and wall space
- Rapid warm up times, due to low water content
- Low air movement
- Low pressure drop (operating pressures)
- Low whole life costs – lack of moving parts
- Easily installed in standard T-Grid ceiling
- Different option available for integration in plasterboard

Types

- Square Edge
- Dutch-Fold
- Anti-Ligature

Standard Sizes & Weight

Panels are available in lengths from 600mm and widths from 300mm. (See page 5 for widths)

Approximate weights of radiant panels are between 9.70kg/m² – 16kg/m² depending on the width and gauge of the panel.

Finish & Perforations

RAL 9010 Polyester Powder Coat supplied as standard.

Fine-texture smooth finish, anti-microbial (AM) and the full RAL range of colours are also available.

Perforation patterns dependant on the thermal and acoustic requirements of each project.



SAS radiant heating solutions are HLK Stuttgart GmbH tested for quality and performance.



Largs College

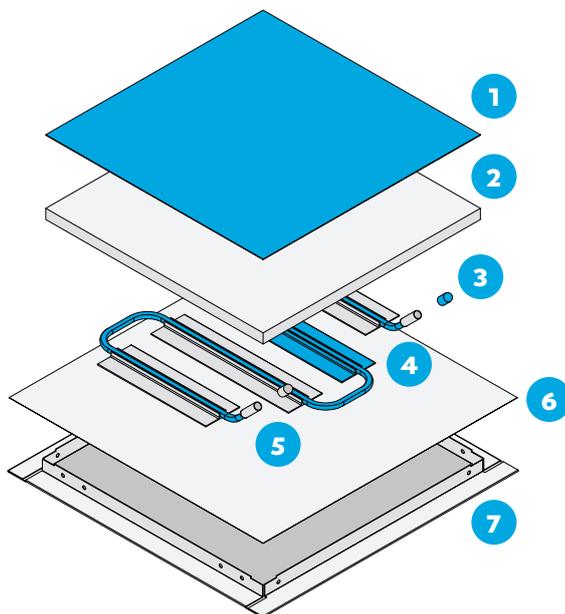
Location
Ayrshire
 Architect
JM Architects

System
Dutch-Fold Radiant Panels
 Sector
Education

Radiant Ceiling Panels

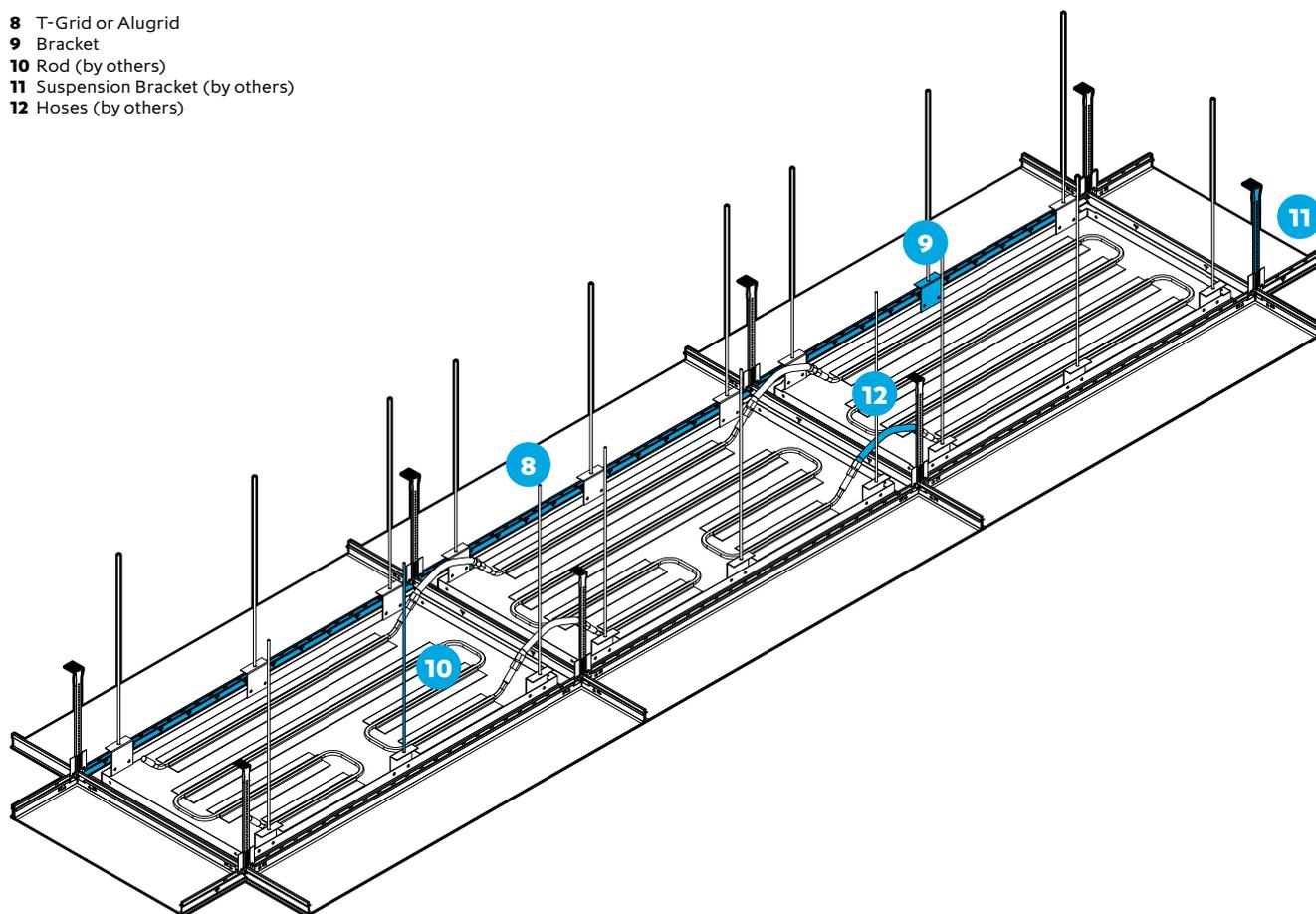
Exploded Dutch - Fold

- 1 Foil Backing
- 2 Mineral Wool Pad
- 3 End Caps
- 4 Aluminium Carrier
- 5 Copper Meander
- 6 Fleece
- 7 Metal Tile

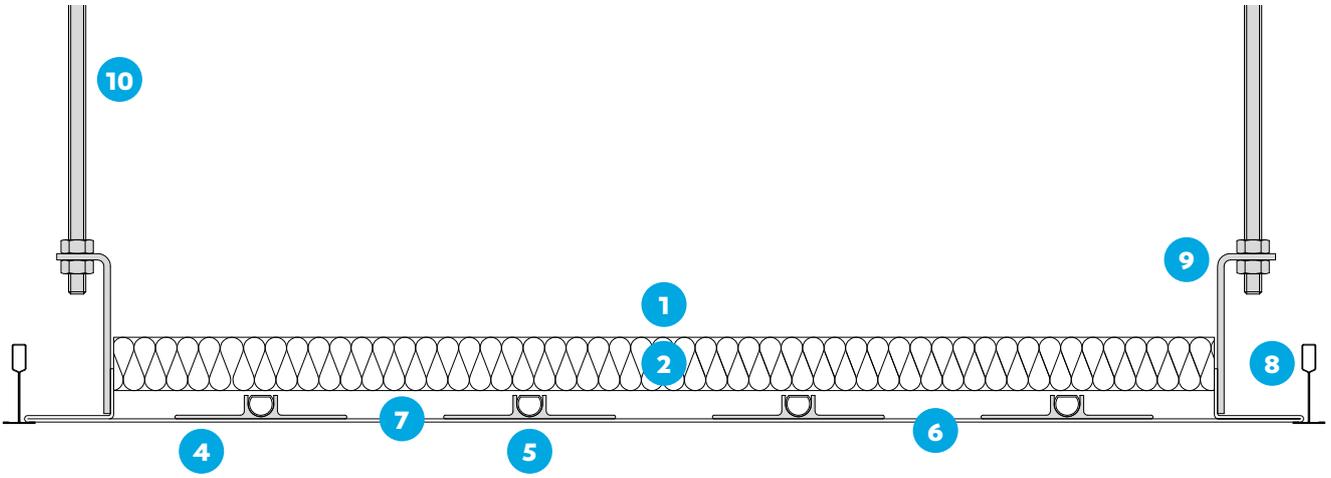


Dutch-Fold Application Perspective Drawing

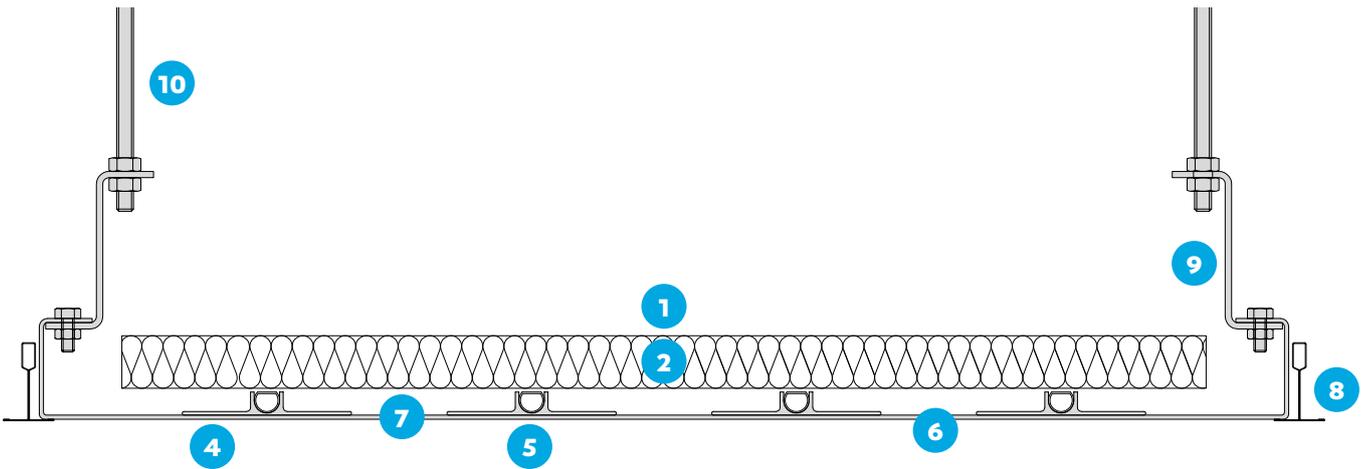
- 8 T-Grid or Alugrid
- 9 Bracket
- 10 Rod (by others)
- 11 Suspension Bracket (by others)
- 12 Hoses (by others)



Dutch - Fold Cross Section

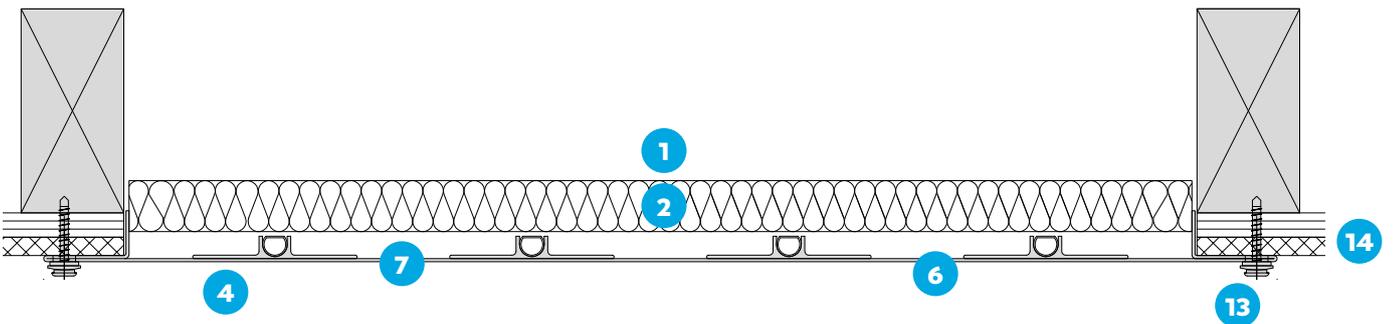


Square Edge Cross Section



Anti - Ligature Cross Section

- 13 Security fixings (by others)
- 14 Plasterboard surround (by others)



Radiant Ceiling Rafts

Radiant Ceiling Rafts

Radiant rafts are a freely suspended and cost-effective way of combining heating, lighting and acoustic absorption. Ideal for class rooms, the exact choice of raft will be a result of the:

- Building design and area
- Heat output required
- Location of the primary pipework
- Acoustic and aesthetic requirements

System Benefits

- Easy to clean
- Frees up floor and wall space
- Rapid warm up times, due to low water content
- Low air movement
- Low pressure drop (operating pressures)
- Low whole life costs – lack of moving parts
- Can be modular or joined together in continuous runs
- Freely suspended from the soffit

Types

- Acoustic
- Non-Acoustic

Services

Rafts can be manufactured with an aperture for lights and other services. The aperture width can be adjusted to suit the choice of light (supplied by others).

Standard Sizes & Weight

Radiant rafts are available in a range of lengths. Made from panels joined together, long runs can be designed to span the required length. (See page 5 for widths)

Approximate weights of radiant panels are between 9.70kg/m² – 16kg/m² depending on the width and gauge of the panel.

Finish & Perforations

RAL 9010 Polyester Powder Coat supplied as standard.

Fine-texture smooth finish, anti-microbial (AM) and the full RAL range of colours are also available.

A variety of perforation patterns dependant on the thermal and acoustic requirements of each project.



Acoustic rafts tested in accordance with BS EN ISO 11654:1997 for sound absorption and BS EN ISO 20140-9:1994 for sound insulation.



Ayr Academy

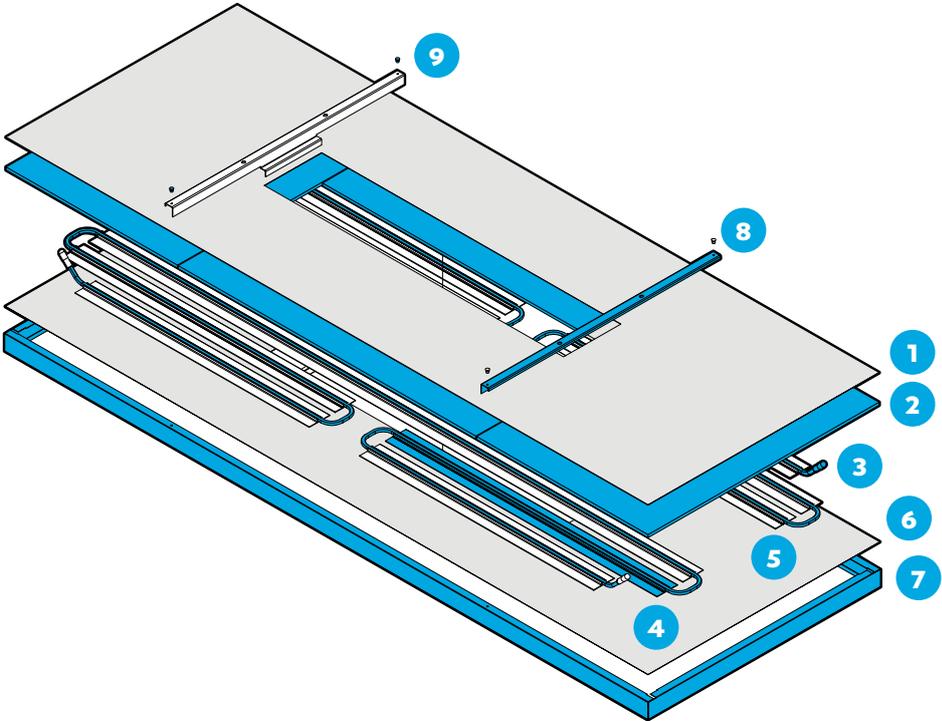
Location
Ayrshire
Architect
BDP Glasgow

System
Acoustic Radiant Raft
Sector
Education

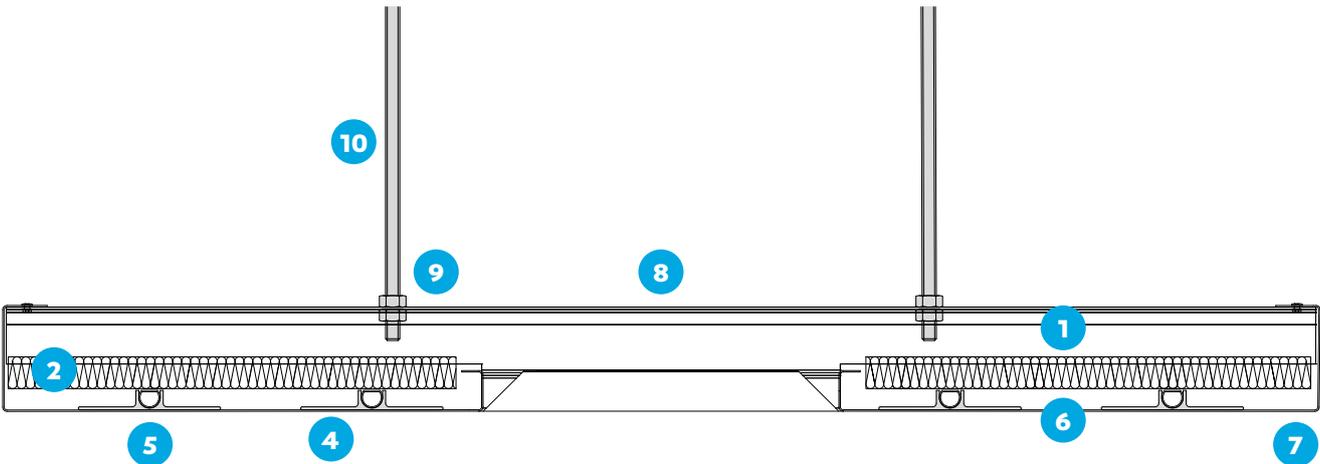
Radiant Ceiling Rafts

Raft Application Perspective Drawing

- 1 Foil Backing
- 2 Mineral Wood Pad
- 3 End Caps
- 4 Aluminium Carrier
- 5 Copper Meander
- 6 Fleece
- 7 Metal Tile
- 8 Stiffener
- 9 Rivet
- 10 Threaded Rod (by others)



Exploded Raft





Marr College

Location
Ayrshire
 Architect
BDP Glasgow

System
Radiant Raft
 Sector
Education

