Security Radiant Panel

TABLE OF CONTENTS

Security Radiant Panel

Vulcan R A D I A T O R

DESCRIPTION

Security panel is a new concept in radiant heating panels. It is a smooth faced steel radiant panel designed and constructed to form a building feature in accordance with architectural requirements. The product can be highlighted to form an architectural feature or more typically, blended into the structure to become a hidden source of efficient heating.

ADVANTAGES

Security ceiling panel system has proven to be the most economical method of heating high security areas. The security panel system is extremely flexible, yet is damage and vandal resistant while virtually maintenance free.

APPLICATIONS

Security panels are used for psychiatric assessment areas in hospitals, youth detention centres, prisons, holding cells, and military police stations.

Security Radiant Panel

Vulcan
R A D I A T O R

GENERAL SPECIFICATIONS

Material Specification

The security panel system is a custom designed system that can be recessed or surface mounted in or on columns, walls or ceilings. Hot water supply temperature may be varied depending on the heating performance required. Foil backed batt insulation on the coil or inactive side increases radiant heat transfer.

Panels are fabricated from steel plates 10 gauge satin coat (0.1345" thick). Temperature control is as for other hydronic systems; panels may be controlled individually or in zones with control and shut off valves set outside secured areas for easier maintenance. Thermostatic controls, connected to the security panel and arranged to control a zone of panels, can be supplied for setting by the customer to allow areas of a building to be heated as desired.

Dimensions and Weight

The panels are individually designed for a specific installation and are offered in widths of 12", 24" and 48". The steel panels are available in widths from 4" upward with a maximum panel length of 10'. Weight of the operating system is dependent on the design of the system but does not exceed 7.6 lb/ft^2 and can be as low as 4.3 lb/ft^2.

Security Radiant Panel

Materials of Construction

Pipework:	Each panel has its own serpentine pipe coil of $5/8$" O.D. tubing.
Pipework attachment system:	The coil is clipped to an extruded aluminum heat saddle using cadmium plated spring steel clips. The aluminum heat saddle is attached to the panel with steel studs. Heat transfer paste is used at the interface between the aluminum heat saddle and both the steel plate and the tubing.
Panels:	Steel security panel system 10 gauge satin coat sheet (3mm 0.1345" thick). The radiant panel can be supplied with edges formed to suit the individual installation. Non radiating "in fill" panels can be supplied to form a continuous covering for the wall, column or ceiling.
Paint finish:	Panels are supplied in a white electrostatic polyester powder paint.
Insulation:	As per consultant's specifications, usually a minimum of 1" thick foil-backed batt insulation.

Vulcan
RADIATOR

OPERATION AND MAINTENANCE

Security panels are incorporated into a building's heating/cooling systems and will remain trouble free provided the following procedures are followed and inspections performed during start up and maintenance.

Operation
Heating mains should be flushed prior to connection to the radiant panels. After connection, the hydronic system should be flushed again and then dry pressure tested to isolate any leaks. Any remaining air should be vented from the system and boiler temperature should be brought up gradually.

Maintenance
Apart from cleaning any strainers, little maintenance should be required on the pipework system. Any descaling of pipework should be carried out in the same way as for other hydronic heating systems. The panels are robust and should resist damage. If for some reason a panel has been damaged, the pipework should be inspected to ensure that no clips have been displaced and that extruded planks are still securely fastened.

Cleaning
The surface of linear panels is best cleaned using an industrial vacuum cleaner to remove dust. However, if the panels become soiled they can be cleaned using a damp cloth and mild detergent.
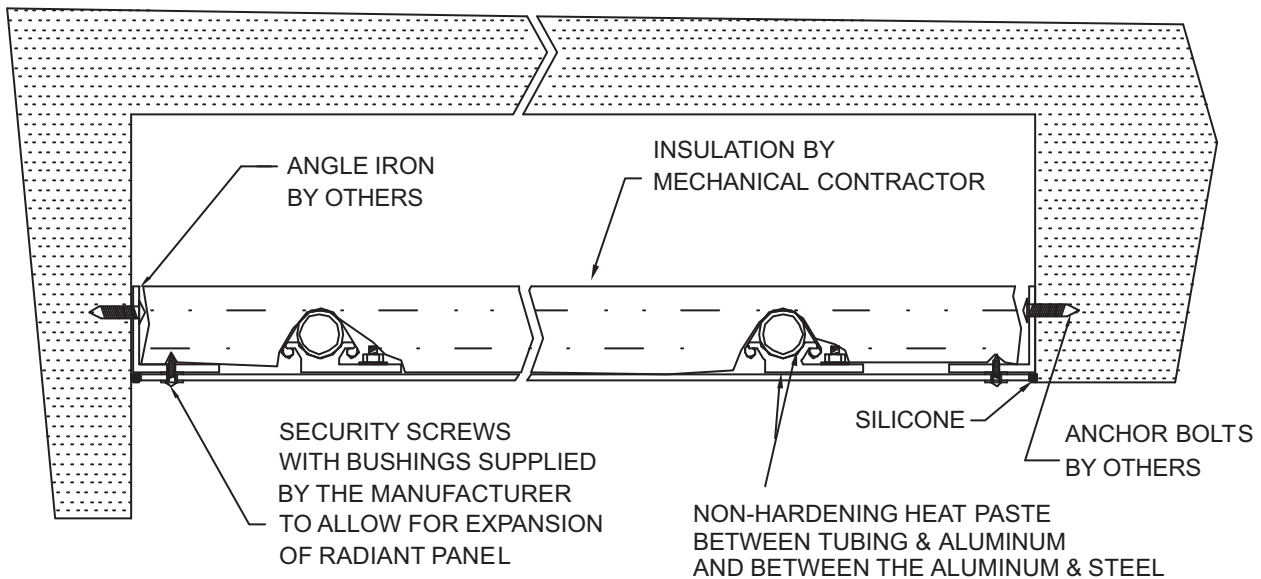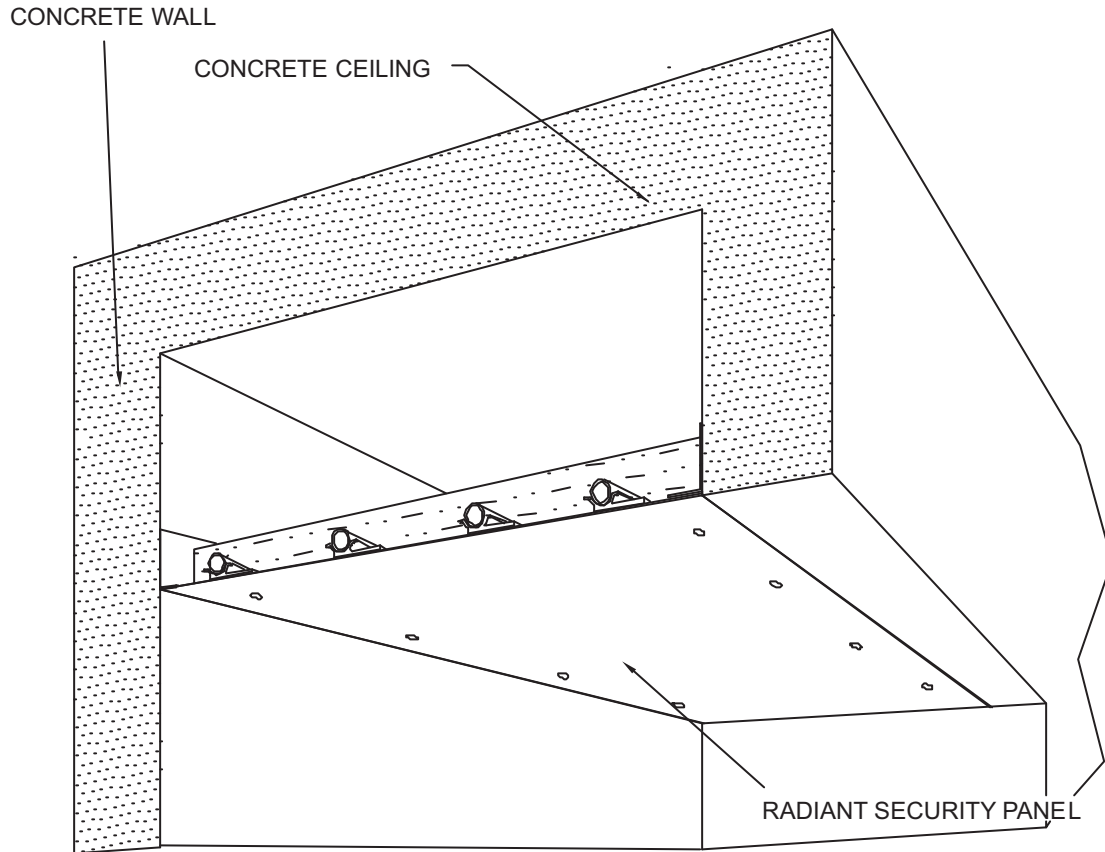
Security Radiant Panel

METRIC AND IMPERIAL OUTPUTS FOR SECURITY PANELS

METRIC AND IMPERIAL OUTPUTS

MWT°C	WATTS/metre ^{2}	MWT°F	BTUH/foot ^{2}
65.6	460	150	141
68.3	490	155	150
71.1	520	160	160
73.9	545	165	171
76.7	580	170	183
79.4	615	175	192
82.2	640	180	202
85.5	680	185	211
87.8	710	190	225
90.6	745	195	234
93.3	770	200	247
96.1	805	205	258
98.9	840	210	273
101.7	875	215	286

Outputs based on 6" centers and 70°F room temperature.

Security Radiant Panel

Vulcan
R A D I A T O R

FLUSH MOUNTED SECURITY RADIANT PANEL

CONCRETE WALL

CONCRETE CEILING

RADIANT SECURITY PANEL

ANGLE IRON
BY OTHERS

INSULATION BY
MECHANICAL CONTRACTOR

SECURITY SCREWS
WITH BUSHINGS SUPPLIED
BY THE MANUFACTURER
TO ALLOW FOR EXPANSION
OF RADIANT PANEL

SILICONE

ANCHOR BOLTS
BY OTHERS

NON-HARDENING HEAT PASTE
BETWEEN TUBING & ALUMINUM
AND BETWEEN THE ALUMINUM & STEEL

Security Radiant Panel

Vulcan RADIATOR

DROPPED SECURITY RADIANT PANEL TO ENCLOSE HEATING MAINS

CONCRETE CEILING

CONCRETE WALL

H.W.S.   H.W.R.

ACCESS PANEL

RADIANT SECURITY PANEL

ANCHOR BOLTS
BY OTHERS

SECURITY SCREWS WITH
BUSHINGS SUPPLIED
BY THE MANUFACTURER
TO ALLOW FOR EXPANSION
OF RADIANT PANEL

INSULATION

NON-HARDENING HEAT PASTE
BETWEEN TUBING & ALUMINUM
AND BETWEEN ALUMINUM & STEEL

ALUMINUM SADDLE

ANGLE IRON BY OTHERS

Security Radiant Panel

Vulcan RADIATOR

ACCESS PANEL AND PIPING DETAILS

RADIANT SECURITY PANEL
ACCESS PANEL
EXTERIOR WALL

A   A

R   S

INTERIOR WALL

SOFT COPPER BY
MECHANICAL CONTRACTOR
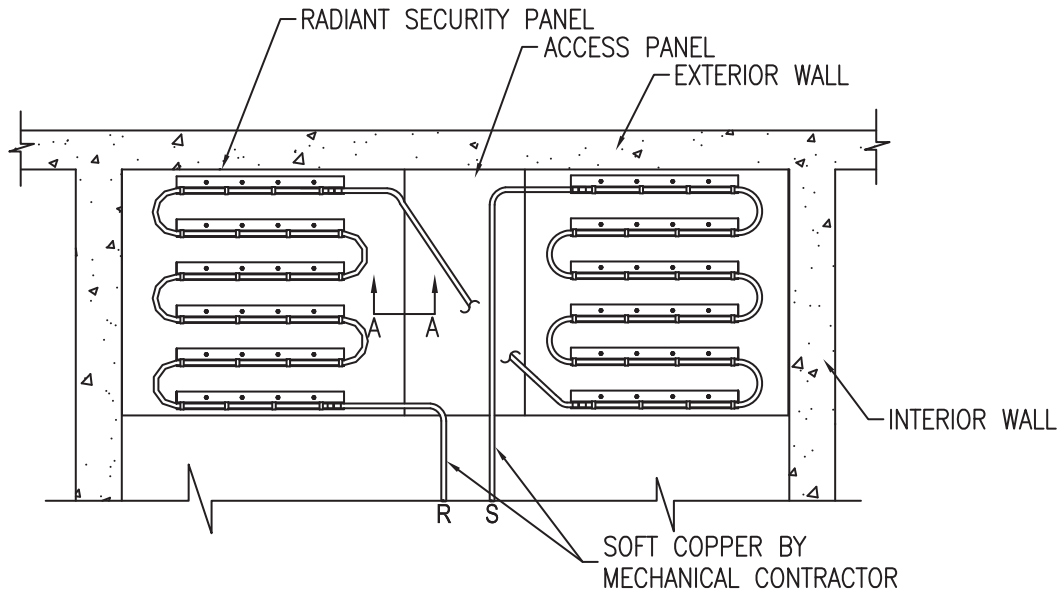
NOTE:
DUE TO WEIGHT OF PANELS, TWO SECURITY PANELS SUPPLIED
WITH ACCESS PANEL FOR EASE OF INSTALLATION.

INSULATION BY OTHERS

2" WIDE JOINER STRIP ATTACHED TO ACTIVE
PANEL, TO BE SCREWED INTO ACCESS PANEL ON
SITE WITH SECURITY SCREWS PROVIDED BY
THE MANUFACTURER.
ACCESS PANEL

RADIANT SECURITY PANEL

SILICONE IN JOINT
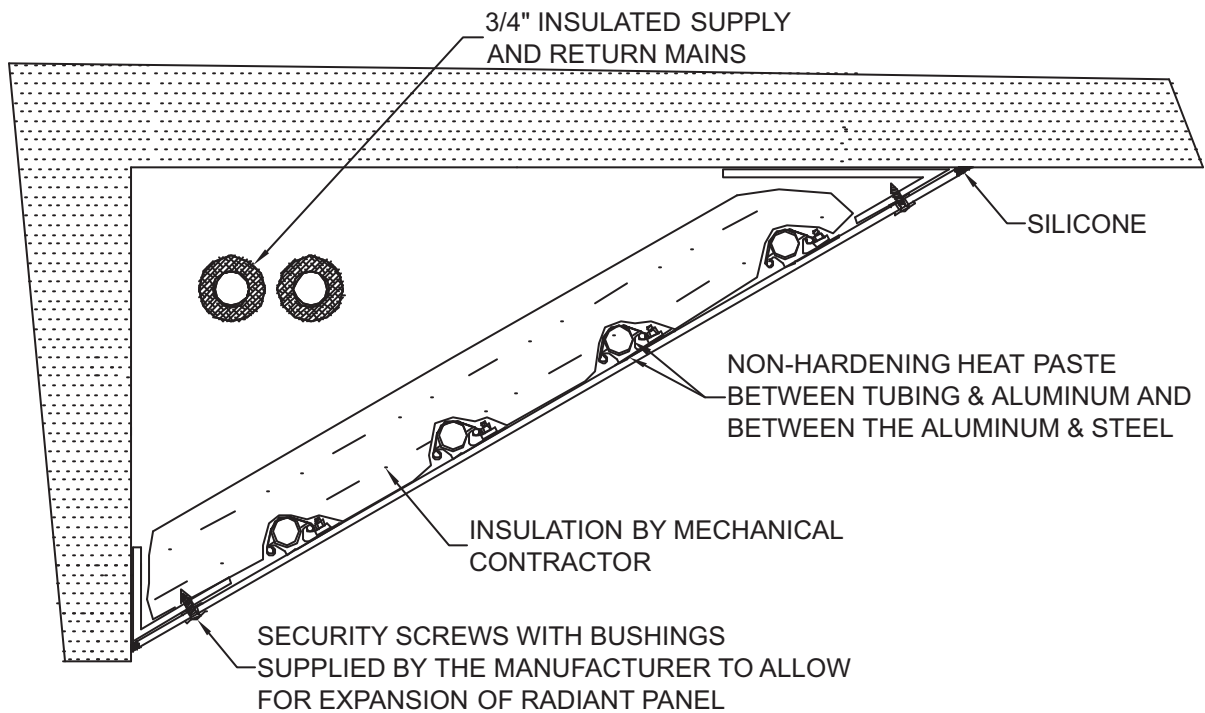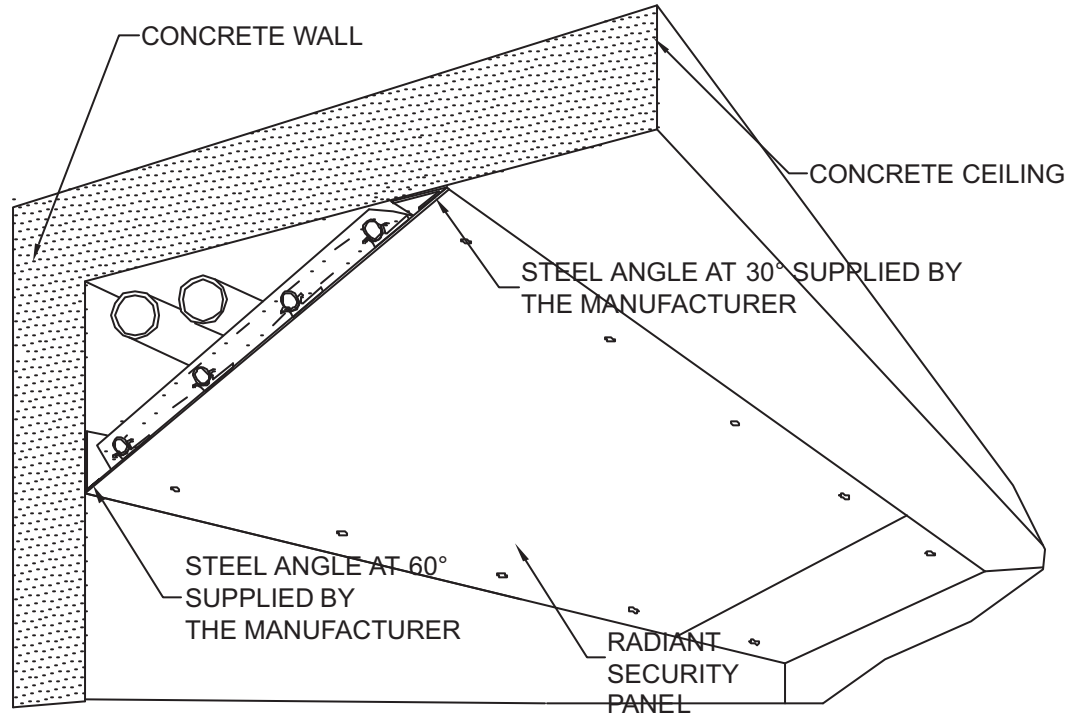
SECURITY SCREWS, WITH
BUSHINGS TO ALLOW FOR
EXPANSION OF RADIANT PANEL.
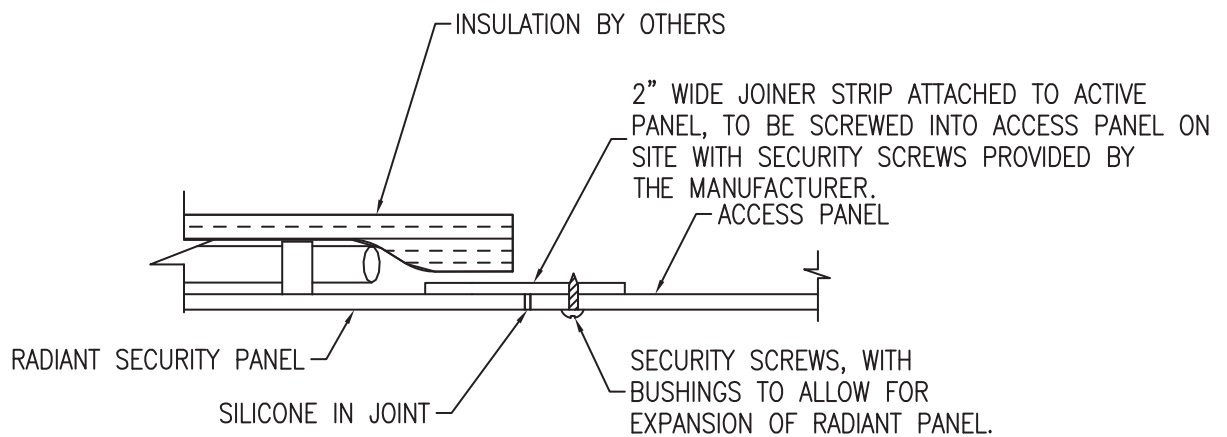
SECTION A-A
TYPICAL INTERFACE BETWEEN PANEL AND ACCESS PANEL

Security Radiant Panel

ANGLE MOUNTED SECURITY RADIANT PANEL

CONCRETE WALL

CONCRETE CEILING

STEEL ANGLE AT 30° SUPPLIED BY THE MANUFACTURER

STEEL ANGLE AT 60° SUPPLIED BY THE MANUFACTURER

RADIANT SECURITY PANEL

3/4" INSULATED SUPPLY AND RETURN MAINS

SILICONE

NON-HARDENING HEAT PASTE BETWEEN TUBING & ALUMINUM AND BETWEEN THE ALUMINUM & STEEL

INSULATION BY MECHANICAL CONTRACTOR

SECURITY SCREWS WITH BUSHINGS SUPPLIED BY THE MANUFACTURER TO ALLOW FOR EXPANSION OF RADIANT PANEL

Security Radiant Panel

Vulcan
R A D I A T O R

INSTALLATION INSTRUCTIONS

SECURITY RADIANT HEATING PANELS ARE FINISHED WITH ELECTROSTATIC POLYTESTER POWDER PAINT. HOWEVER, THE PANEL SURFACE MUST NOT COME IN CONTACT WITH BARE SKIN. PERSPIRATION OR GREASE FROM AN UNGLOVED HAND CAN POTENTIALLY LEAVE A MARK ON THE PANEL.

INSTALLATION PERSONNEL MUST WEAR CLEAN WHITE GLOVES WHEN HANDLING THE RADIANT PANELS.

USE A HEAT PAD BETWEEN RADIANT PANEL AND COPPER PIPE WHEN MAKING SOLDER CONNECTION. EXCESSIVE HEAT CAN DAMAGE THE PAINT FINISH.