

# Dean Clough Mill, Halifax



## VRV Heat Recovery helps reshape historic mill into comfortable offices

Reshaping redundant Victorian industrial space into stylish modern office accommodation brings many challenges – among them how to ensure a comfortable working environment for a largely desk-based staff.

At Dean Clough in Halifax, Daikin VRV IV Heat Recovery systems provide year-round workplace comfort for 700 insurance company employees in a six storey former carpet mill. Both indoors and outdoors, system components have been installed sensitively to minimise impact on the historically significant building.

Known as A & B Mills, it is the oldest of numerous buildings in what was once the world's largest carpet factory. The 20-acre complex of Yorkstone mills, built by John Crossley and Sons between 1840 and 1870, ceased production in the 1980s.

In 1983 Dean Clough Ltd. acquired and slowly regenerated the site through an inspired combination of commercial and retail leases. It is now renowned both as a business centre and for its arts and leisure programme

A & B Mills has been transformed into a main office site for French-based Covéa Insurance, which has offices on the five upper floors with a breakout area housing a coffee shop on the ground floor, along with a training suite on the first floor.

Its air conditioning systems, chosen by the client to meet its requirement for advanced technology with energy efficiency a prerequisite, were installed by Bradford-based Daikin installer, Heatworks.

Heatworks Director Craig Ayrton says accommodating the air conditioning within the constraints of architectural and conservation requirements posed special challenges.

“The building has a 110 by 12 metre footprint, and is mostly open-plan office space with exposed ceilings. Several types of Daikin VRV fan coil units are installed, but most of the space heating and cooling is via exposed Roundflow cassettes with visible pipework. The low sound output of the new Daikin branch selector boxes is a big advantage in this installation.”

Smaller offices and meeting rooms are served mostly by floor-mounted cased fan coil units.

Craig Ayrton says: “Condensing units could not be sited on the roof, for planning reasons, or on the ground, because there was not enough space. The compromise was a sympathetically designed, part-louvred, 6 by 3 metre steel plant tower at the rear of the building. There are separate ‘A’ and ‘B’ systems on each level, with access to the condensing units from the appropriate floor - a great help on future service visits.”

### Year of installation

> 2016

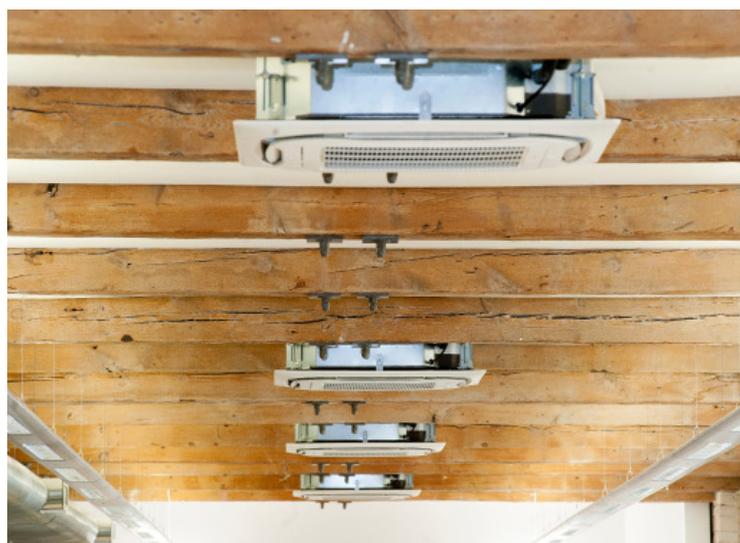
### Project requirements

- Air conditioning
- Air curtain
- Air purification
- Control
- Heating
- Hot water
- Refrigeration
- Ventilation

### Installed systems

- > VRV HR
- > Various VRV fan coil units
- > Smart outdoor unit
- > Smart wall mounted unit
- > ITM

He says air conditioning was an obvious choice for heating the building. "There was no gas supply, so boilers were ruled out. The heat recovery facility provides the economy of a heat pump with the added benefit of simultaneous heating and cooling when needed."



There is also a communications and server room, where cooling is provided by a pair of Daikin Seasonal Smart Inverter systems with wall mounted fan coil units.

A separate VRV IV heat recovery system serves the main reception and lobby areas managed by the landlord.

The air conditioning systems are centrally controlled through a Daikin iTouch Manager with an expansion module. There is also a BACnet gateway interface with expander board, to link the systems into an overall building management system.

Each of the building's air conditioning zones has a wired controller, which permits local adjustments within centrally specified limits.

Daikin VRV IV Heat Recovery systems are based on seven sizes of condensing units from 8hp to 20hp that can be used singly or in combinations for systems up to 54hp. The systems' ability to channel waste heat into useful energy – for example to generate domestic hot water or warm 'cool' areas of a building – enhances the basic efficiency of Daikin VRV IV technology.

The Roundflow cassette, dominating the A & B Mills installation, delivers an even 360° airflow, making it ideal for use in large open plan areas – with or without ceiling voids. There are nine models of Roundflow cassette ranging from 2.2-14kW nominal cooling (2.5-16kW heating).

In addition to the Roundflow cassette's standard decoration panel, Daikin offers an accessory a self-cleaning panel designed to minimise dust accumulation on the cassette. This reduces soiling of ceilings and fan coil performance impairment.

#### Kit List

| Code                   | Description                                 | No of units |
|------------------------|---|-------------|
| <b>Main floors</b>     |   |             |
| REYQ-T                 | VRV IV Heat Recovery condensing units       | 18          |
| FXDQ-A                 | VRV Fan coil: Slim ducted                   | 1           |
| FXFQ-A                 | VRV Fan coil: Roundflow cassette            | 86          |
| FXHQ-A                 | VRV Fan coil: Ceiling suspended             | 3           |
| FXLQ-P                 | VRV Fan coil: Floor mounted cased           | 24          |
| FXNQ-A                 | VRV Fan coil: Vertical chassis unit         | 3           |
| FXSQ-A                 | VRV Fan coil: Concealed ceiling unit        | 3           |
| BRC1E52A               | Premium controller with energy features     | 57          |
| <b>Comms Room</b>      |   |             |
| FAQ71C                 | Seasonal Smart Inverter – Wall mounted unit | 2           |
| RZQG-L9V1              | Seasonal Smart Inverter – outdoor unit      | 2           |
| <b>Landlord System</b> |   |             |
| REYQ-T                 | VRV IV Heat Recovery condensing units       | 1           |
| FXSQ-A                 | VRV Fan coil: Concealed ceiling unit        | 7           |
| BRC1E52A               | Premium controller with energy features     | 1           |
| <b>Control</b>         |   |             |
| DCM601A51              | Intelligent Touch Manager                   | 1           |
| DCM601A52              | Intelligent Touch Manager expansion module  | 2           |
| DMS502A51              | Bacnet Gateway Interface                    | 1           |
| DAM411B51              | Bacnet Gateway Expander Board               | 1           |

