Resilient Building Toolkit Adaptation Measures Factsheet

Name and description of measure: **Variable Frequency Drive (VFD)**

Variable Frequency Drive (VFD) vary the frequency and voltage supplied to an electric motor. They can be used in electro mechanical applications from small appliances to large installations. By varying the speed of a motor connected to a fan for example considerable energy savings can be achieved.

Cost of measure (high, medium or low):
Medium

Pros and Cons:
Pros:
When using a VFD the electricity consumption is reduced as the speed of the fan is reduced. A typical relationship between energy use and airflow reduction using a VFD is that running fans at 20% capacity will yield over a 90% reduction in energy use.

Using VFD's to modulate the speed of fans is preferable to cycling fans on and off as this will have a negative affect on motor life, fan belts and associated controls.

VFD's initiate on a 'soft start' which has little impact on fan life. As the VFD regulates the fan speed there is also less stress on fan belts and drives which in turn reduces some maintenance costs.

Cons:
The use of sensors and VFD control units will add installation, equipment and maintenance costs and therefore needs to be considered when establishing the viability of a project.

Effectiveness of measure (high, medium or low):
High

Photo:

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Additional Information:
Use of a Mechanical Electrical Engineer will likely need to be used to establish the feasibility of a project. Further information regarding VFD's can be found here:
https://www.carbontrust.com/media/13063/ctg070_variable_speed_drives.pdf