502.10 Exhaust Air Energy Recovery Systems and Condensation of water

For Silver Sa'fa and for all new buildings that require treated outdoor air of over 1,000 l/s, energy recovery systems must be provided for at least 50% of the total exhaust air. The energy recovery systems must have at least 70% sensible load recovery efficiency.

For Golden Sa'fa and for all new buildings that require treated outdoor air of over 1,000 l/s, energy recovery systems must be provided for at least 60% of the total exhaust air. The energy recovery systems must have at least 75% sensible load recovery efficiency.

For Platinum Sa'fa and for all new buildings that require treated outdoor air of over 1,000 l/s, energy recovery systems must be provided for at least 70% of the total exhaust air. The energy recovery systems must have at least 80% sensible load recovery efficiency.

For Golden and Platinum Sa'fa and for all new buildings with a cooling load of 1 MW or greater, condensate water must be recollected and used as described in regulation no. 601.03. The thermal energy from the retrieved condensate water can be restored and can be re-used either in cooling the walking lanes in parking spaces or for public places within plot building limits or for cooling of potable water.

502.11 Pipe and Duct Insulation

For all new buildings, all pipes carrying refrigerant, hot water or chilled water and ducts including prefabricated ducts, supplying conditioned air must be insulated, to minimise heat loss and to prevent condensation.

1. Pipes and ducts passing through conditioned spaces must be insulated in accordance with British Standard BS 5422 or other insulation standards as approved by Dubai Municipality.

2. Pipes passing through outside or unconditioned spaces must be insulated with the minimum insulation thickness specified in Table 502.11 (1).

Table (1) 502.11 Minimum insulation thickness for pipes passing through unconditioned spaces

Steel pipe nominal pipe size (mm)	Temperature of contents (°C)					
	10°C		5°C		0°C	
	Minimum Insulation thickness (mm)					
	λ = 0.018 W/mK	λ = 0.038 W/mK	λ = 0.018 W/mK	λ = 0.038 W/mK	λ = 0.018 W/mK	λ = 0.038 W/mK
15	30	45	30	45	30	50
20	30	45	30	55	30	60
25	30	55	35	55	40	60
32	30	55	35	55	40	65
40	30	55	35	60	40	65
50	30	60	40	60	45	70

Table (1) 502.11 Minimum insulation thickness for pipes passing through unconditioned spaces

Steel pipe nominal pipe size (mm)	Temperature of contents (°C)					
	10°C		5°C		0°C	
	Minimum Insulation thickness (mm)					
	λ = 0.018 W/mK	λ = 0.038 W/mK	λ = 0.018 W/mK	λ = 0.038 W/mK	λ = 0.018 W/mK	λ = 0.038 W/mK
65	40	60	40	60	45	70
80	40	60	40	65	45	75
100	40	70	40	65	45	75
150	40	75	45	80	50	90
200	45	75	45	80	55	90
250	45	75	55	80	55	100
300+	70	80	75	100	80	100

λ = thermal conductivity of insulating materials at a mean temperature of 10° C.

3. Ducts passing through outside or unconditioned spaces must be insulated with the minimum insulation thickness specified in Table 502.11 (2).

Minimum air temperature inside duct (°C)							
15		10		5		0	
Minimum thickness of insulating material (mm)							
λ = 0.018 W/mK	λ = 0.038 W/mK	λ = 0.018 W/mK	λ = 0.038 W/mK	λ = 0.018 W/mK	λ = 0.038 W/mK	λ = 0.018 W/mK	λ = 0.038 W/mK
42	61	48	84	57	107	66	127

λ = thermal conductivity of insulating materials at a mean temperature of 10° C.

Insulation materials must meet the requirements of regulation 701.01, Thermal and Acoustical Insulation Materials or BS 5422:2009, whichever is more stringent.

Installation for all insulations must have suitable vapour barrier and protection from Ultra Violet (UV) light.