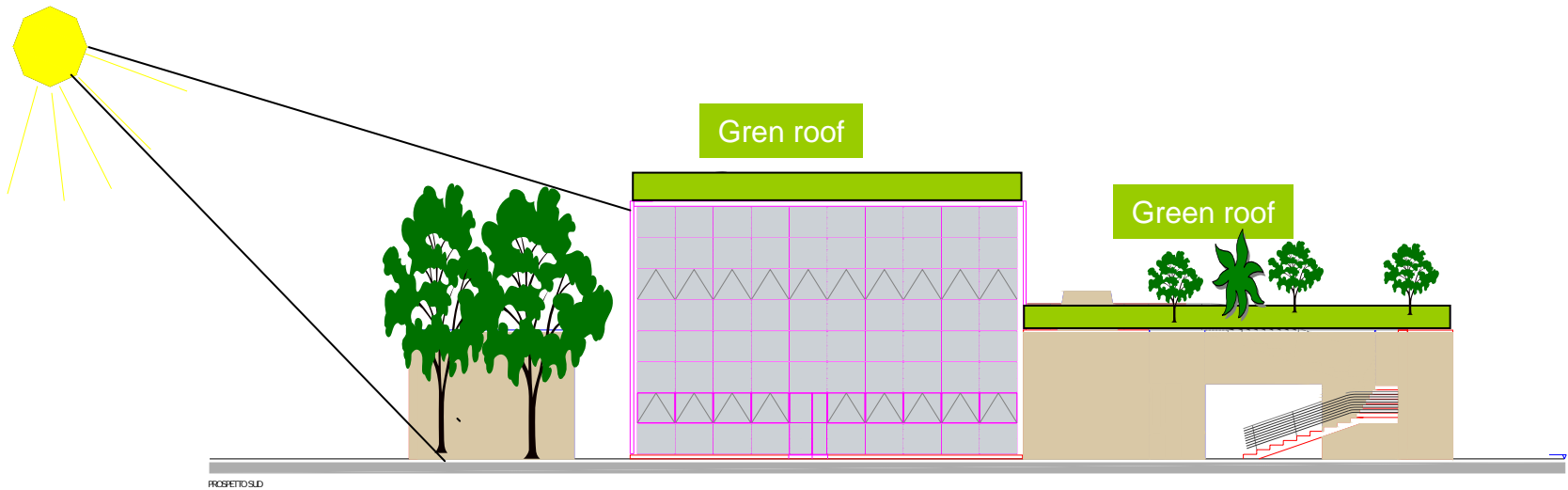


COMPAGNONI – FENULLI DISTRICT

RETROFITTING OF COLLECTIVE CENTER

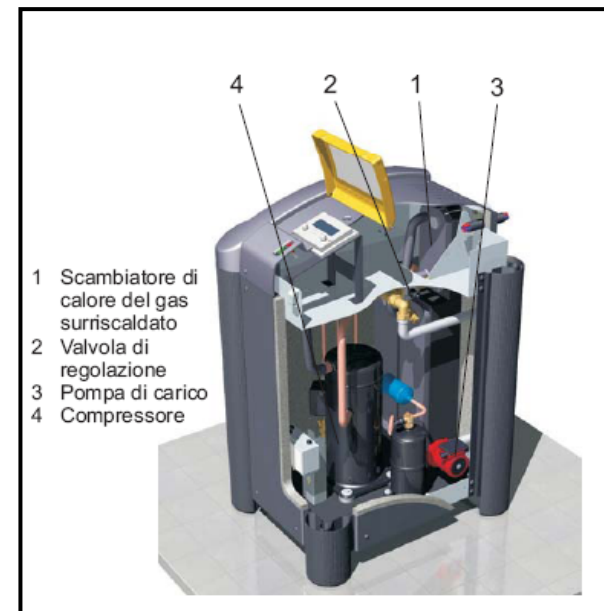
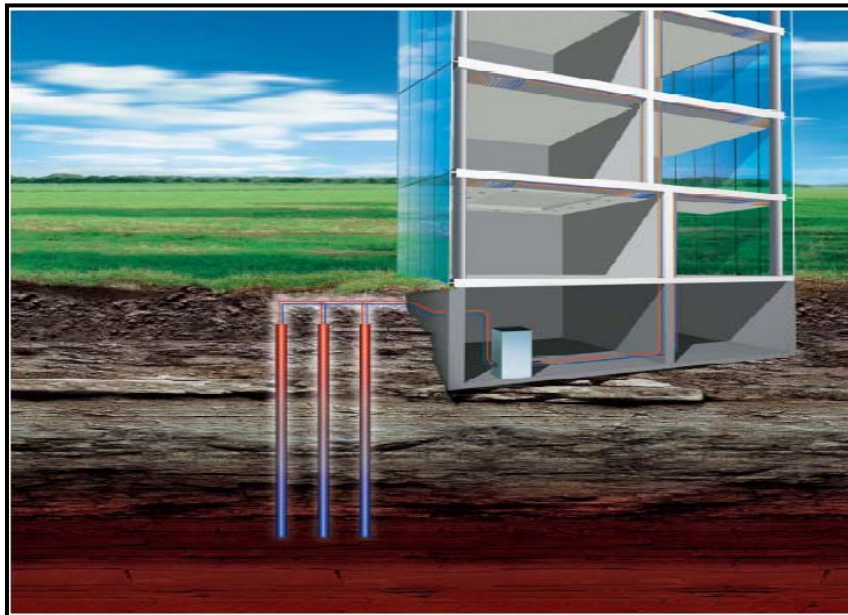


Facade $U_F = 1,4 \text{ W/mq}^\circ\text{C}$
glass shading factor 0.25

HVAC system

- Application of new technologies for Energy Saving (State of Art)
 - Geothermal Heat Pump (energy saving 50%)
 - Direct-cooling (deep probe) (energy saving 90%)
 - Soft cooling soft heating, (Ray conditioning) (energy saving 30%)
 - Heat recovery for ventilation air (energy saving: winter 78%, summer 30%)
 - Displacement ventilation (energy saving: 30%)

- **Geothermic Heat pump (GHP)** with deep probe
- COP (coefficient of performance) > 4,5



Comfort is the balance condition of the human body when it manages to give out its metabolic heat in the right proportions through the four ways of thermic exchange uniformly. These proportions depend, in importance order on:

- Surfaces temperature
- Air temperature
- Relative humidity



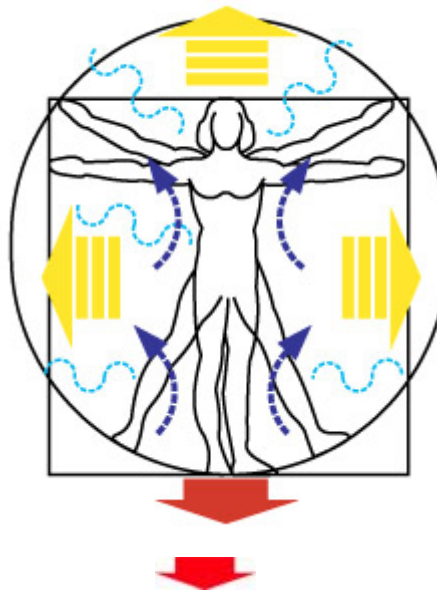
CONVECTION

It depends on the temperature and the speed of the air.







EVAPORATION

It depends on the physical activity, the inner surfaces temperature and the air one.



RADIATION

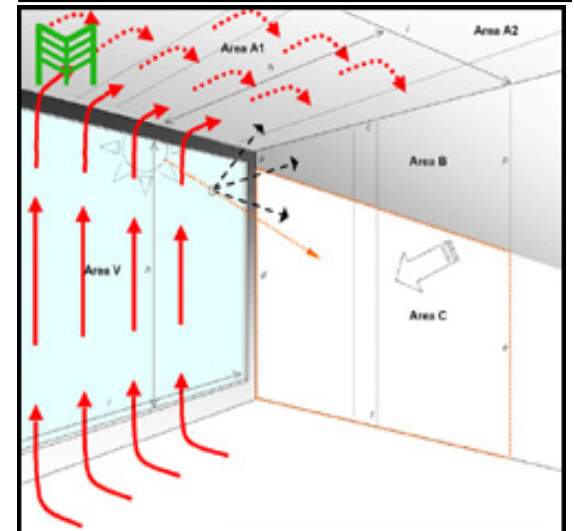
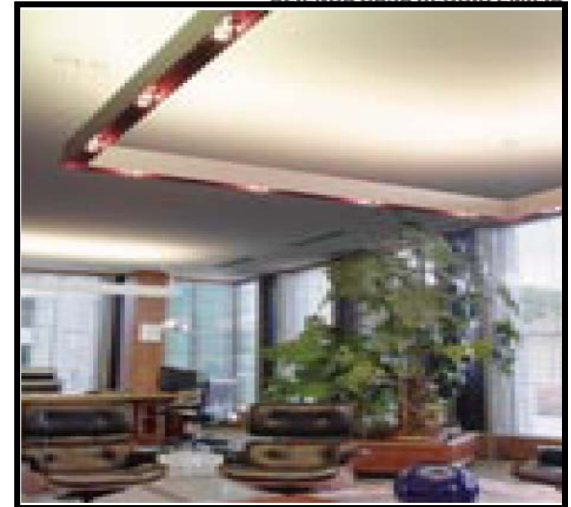
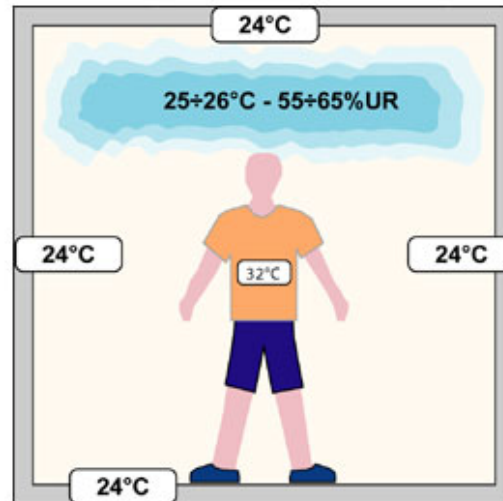
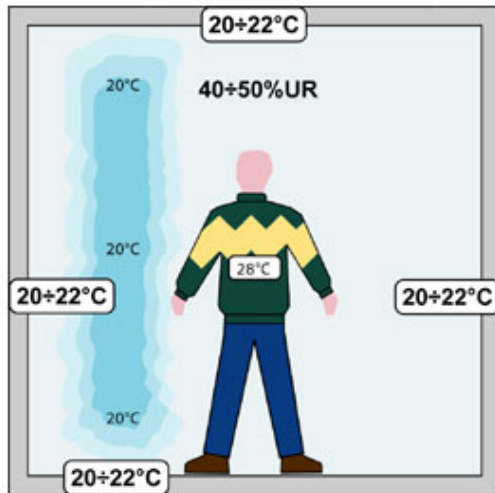
It depends on the around surfaces temperatures.

	Fan Coil	Ray conditioning
 E	35%	30%
 R	55%	30%
 C	1%	1%
 C	9%	39%

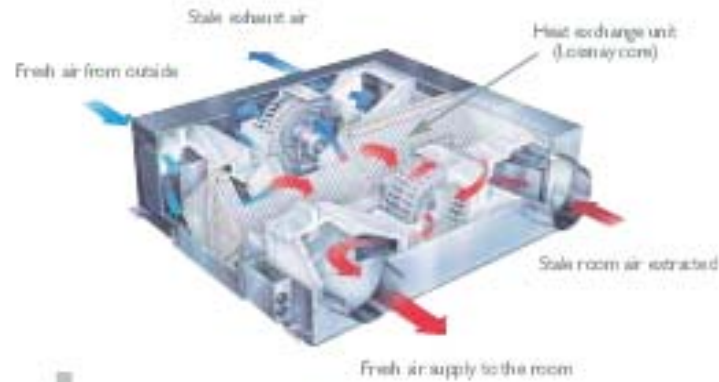
CONDUCTION

It depends on the surfaces temperature we feel

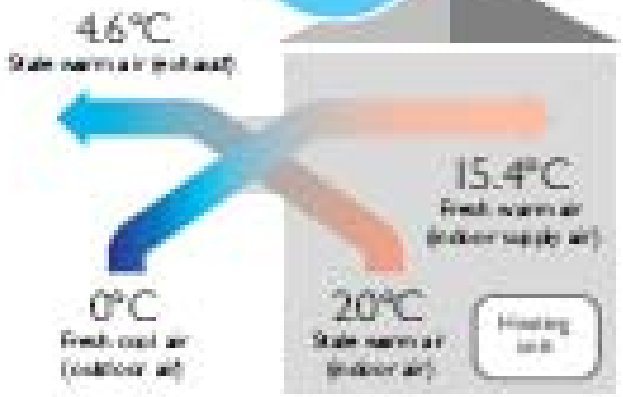
- Ray conditioning (soft cooling-heating)
- Comfort
- Efficiency
- Energy saving



HEAT RECOVERY



Operation in winter



Operation in summer



Displacement ventilation



Figure 9 Typical perforated plate wall diffuser

