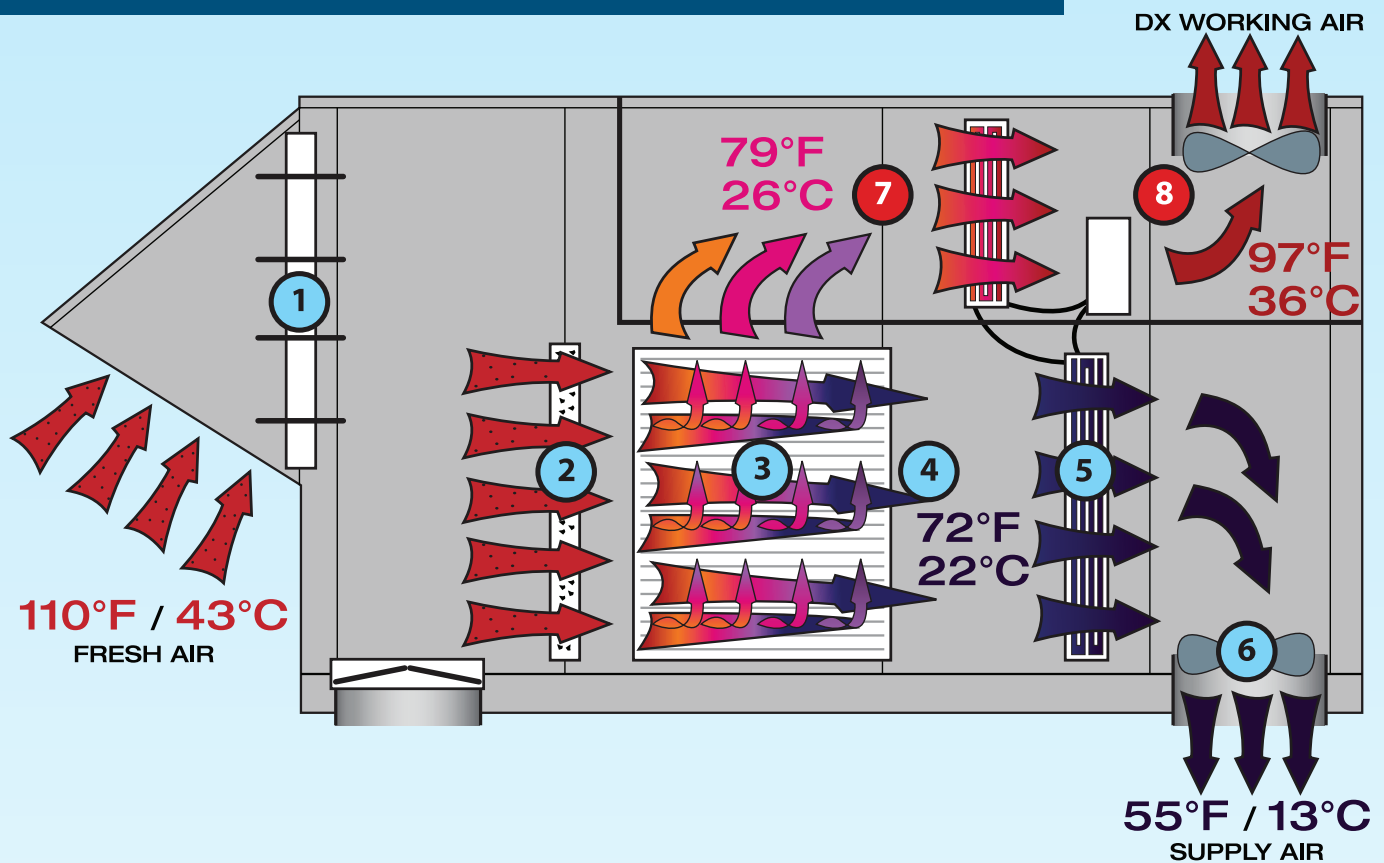


How It Works: Coolerado Hybrid H80 - Fresh Air Example

Dedicated Outdoor Air System (DOAS)



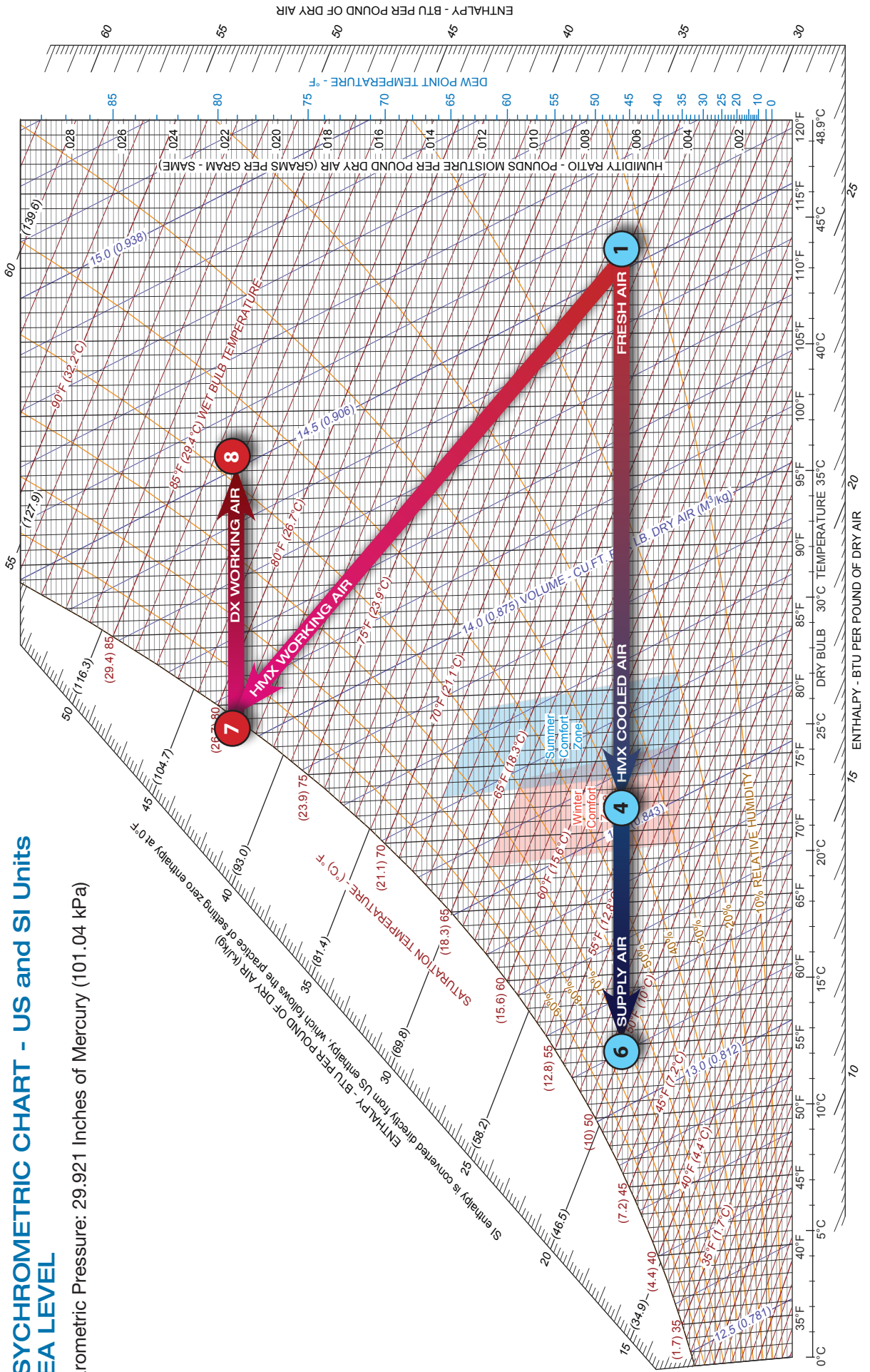
- 1** Fresh air is drawn into the air conditioner through an outside air damper. For example, outside summer air may be at 110°F (43°C).
- 2** The air is then filtered before it enters Coolerado's patented heat and mass exchange process.
- 3** The air that enters the heat and mass exchangers, or HMXs, is cooled without adding or removing humidity.
- 4** The example air will be cooled more than 35°F (20°C) with no change in humidity, and will leave the HMXs at 72°F (22°C).
- 5** The air then enters the cold refrigerant coils, where additional cooling and dehumidification can occur if needed.
- 6** The example air is cooled to 55°F (13°C). A high efficiency fan moves the conditioned air through the process and into the building where it is distributed via the building duct system.
- 7** The vast majority of cooling is performed by the HMXs by using about half of the entering air as working air. Water is evaporated into the working air, which pulls heat away from heat exchangers that in turn pull heat away from the conditioned air. At 79°F (26°C) the working air example is over 30°F (17°C) cooler than the 110°F (43°C) ambient air. The saturated and cool working air is used to remove heat from the hot refrigerant condenser coils more efficiently.
- 8** The working air leaves the hot coils at 97°F (36°C) and then goes on to cool the 2-stage refrigerant compressor and working air fan, saving more power.

How It Works: Coolerado Hybrid H80 - Fresh Air Example
Dedicated Outdoor Air System (DOAS)

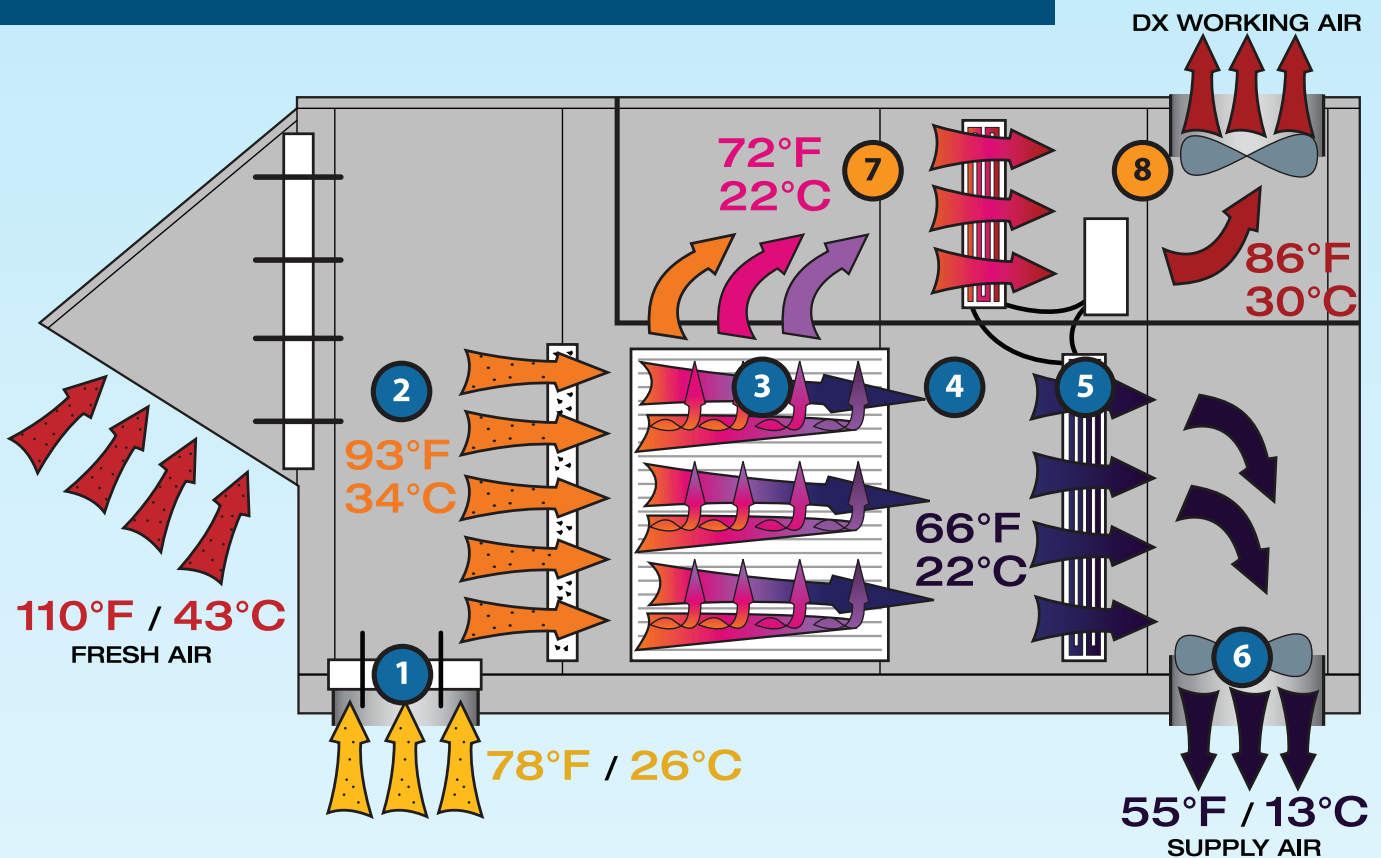


PSYCHROMETRIC CHART - US and SI Units
SEA LEVEL

Barometric Pressure: 29.921 Inches of Mercury (101.04 kPa)



How It Works: Coolerado Hybrid H80 - Mixed Air Example



- 1** If 100 percent fresh air is not needed, automatic dampers are used to mix return air from the building with outside air.
- 2** This mixed air will enter the filter at approximately 93°F (34°C). The air is then filtered before it enters Coolerado's patented heat and mass exchange process.
- 3** The air that enters the heat and mass exchangers, or HMXs, is cooled without adding or removing humidity. The mixed air goes through the air conditioner at cooler temperatures.
- 4** The example air will be cooled with no change in humidity, and will leave the HMXs at 66°F (26°C).
- 5** The air then enters the cold refrigerant coils, where additional cooling and dehumidification can occur if needed. In this example, only the first stage of the refrigerant system is needed; so the air conditioner requires less power and operates more efficiently.
- 6** The example air is cooled to 55°F (13°C). A high efficiency fan moves the conditioned air through the process and into the building where it is distributed via the building duct system.
- 7** The vast majority of cooling is performed by the HMXs by using about half of the entering air as working air. Water is evaporated into the working air, which pulls heat away from heat exchangers that in turn pull heat away from the conditioned air. At 72°F (22°C) the working air example is over 35°F (20°C) cooler than the 110°F (43°C) ambient air. The saturated and cool working air is used to remove heat from the hot refrigerant condenser coils more efficiently.
- 8** The working air leaves the hot coils at 86°F (30°C) and then goes on to cool the 2-stage refrigerant compressor and working air fan, saving more power.

How It Works: Coolerado Hybrid H80 - Mixed Air Example



PSYCHROMETRIC CHART - US and SI Units SEA LEVEL

Barometric Pressure: 29.921 Inches of Mercury (101.04 kPa)

