References

Changjia Residential Villa in Kunshan (Suzhou), China

Uponor involvement

✓ 250 sqm

Changjia Residential Villa in Kunshan (Suzhou), China

A private owned residential villa, located in Kunshan (Jiangsu Province) is the first Villa project in China region. Changjia Villa, a private owned residential villa, located in Kunshan (Jiangsu Province) is the first Villa project in China region. The owner of this 250m^2 one-story residential villa wants to achieve low energy consumption and at the same time enjoy high level of thermal comfort in his premise. To fulfill client’s requirement, ceiling radiant cooling and floor heating system are selected together with utilization of ground source heat pump to create a comfort indoor climate solution. With 15kW cooling capacity of the ground source heat pump, it serves as the cooling and heating source. The project was completed in December 2016 and is now in operation.

Project Facts:

Location	Completion
Shanghai, China	2016
Building Type	**Product systems**
Single family home	Radiant Heating & Cooling
Project Type	
New building	

Uponor Teporis ceiling cooling, Uponor PEX-a pipe underfloor heating and invisible supply air duct are installed in the whole villa, except kitchen and bathroom area. DOAS (dedicated outdoor air system) in parallel with radiant cooling system entirely designed by Uponor Asia Engineering & Design, has been applied in the project. 100% of the internal latent load (3.2kW) and 30% of the internal sensible load (3.75kW) are covered by the DOAS. The remaining sensible load (8.75kW) is covered by the Uponor radiant cooling & heating system and controlled by Uponor Smatrix Wave Plus individual room temperature controller. Uponor Smatrix Wave Plus provides individual thermal comfort in each room and at the same time highest energy savings.

Uponor Teporis system is ideal for residential villa. Panels are possible to integrate lighting, ventilation and electrical plug, which give high level of freedom for interior design and furnishing. The absence of radiators, fan coils and other cumbersome devices also help owners to utilize all spaces in the villa. With Uponor Teporis gypsum panel high cooling capacity, energy is exchanging between surfaces and the surrounding areas by radiation with no air movement involved. The temperature of the water in the radiant panels is between 15°C and 18°C in cooling mode and between 35°C and 40°C in heating mode to achieve high level of thermal comfort.

Changjia Residential Villa in Kunshan (Suzhou), China