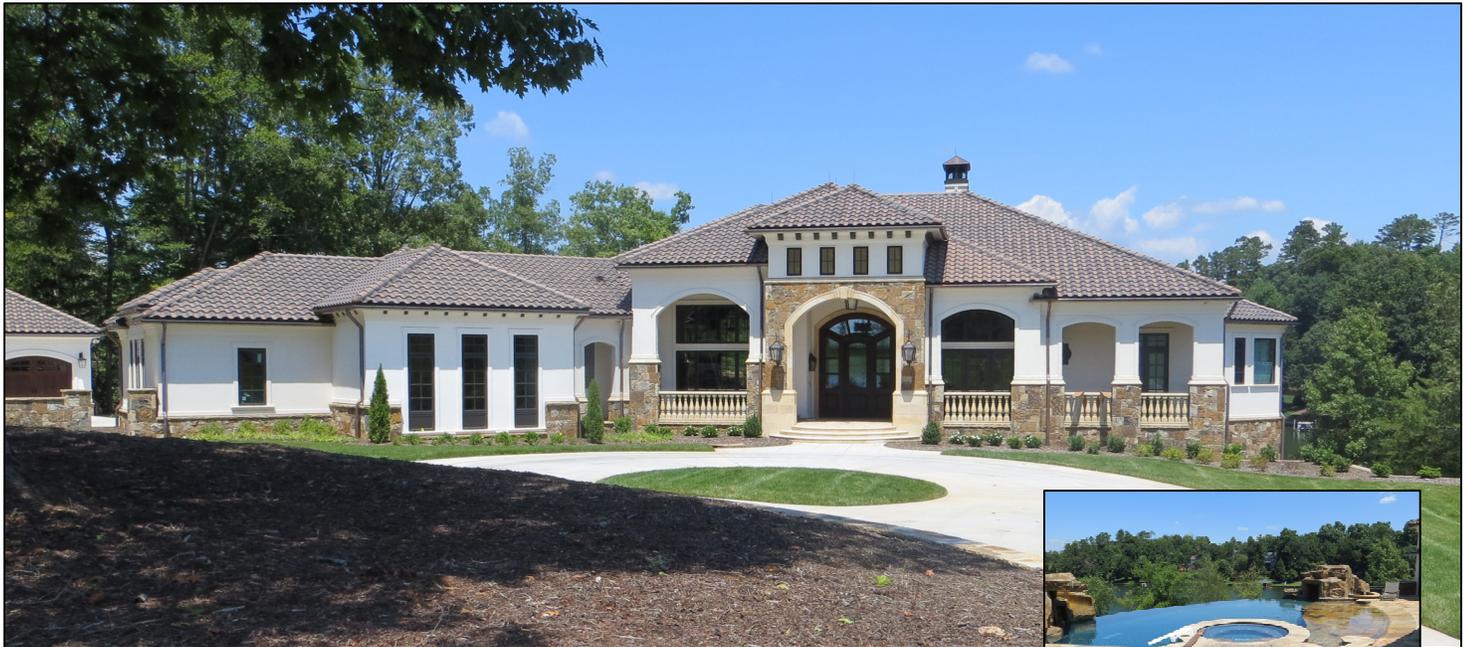


CASE STUDY



HICKORY, NC RESIDENCE

Extraordinary villa features the latest in mechanical system efficiency, comfort and control.

The owner of this high-tech 10,000+ sq.ft. Italian inspired residence had some pretty high demands with regards to being able to heat and cool her house in the most efficient way possible while still maintaining a high level of comfort and control. Architect Randy Barfield with Barfield Designs, Inc. turned to local comfort and energy consultant Danny Gough with Energy Solutions to evaluate the needs. Together with MrPEX Systems, Energy Solutions, and Hickory Sheet Metal came up with a cohesive tailored plan for the mechanical system using today's available technology.

The main living quarters were divided into 4 main air handler zones to target the cooling, dehumidification, and Indoor Air Quality needs. Within these air zones there are multiple radiant floor heating zones. The Cat Suite and Lake Side Suite are both dedicated hydronic radiant cooling/heating zones because of difficulty getting air ducts installed

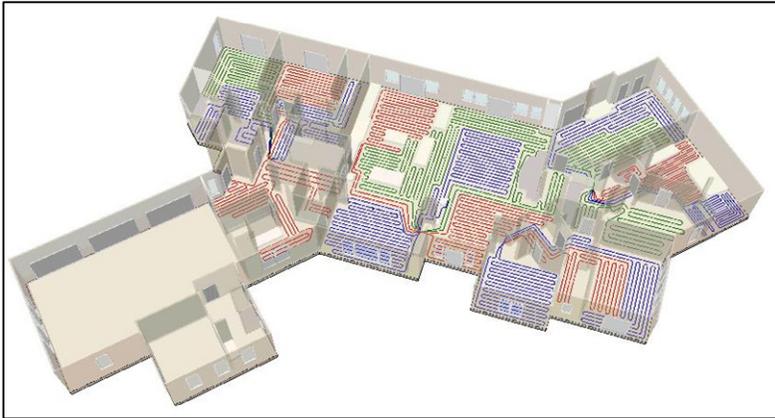
for these areas. The main garage has a dedicated hydronic air handler to take care of both the heating and cooling needs. There are a total of 23 zones with cooling and heating needs from air and hydronic systems. Along with this, there are ERV's attached to each air zone controlled by timers and VOC sensors.

Feeding all of this is a 7 ton, 2 stage ground source heat pump. The system required dedicated heating and chilled water buffer tanks since the house has hot and chilled water needs year round. MrPEX IDC Integrated Dynamic Control was chosen as the control package. IDC is a PC based intelligent control system which delivers optimized comfort and maximized efficiency by coordinating HVAC, Indoor Air Quality, and Hydronic Systems in one control. It also offers the ability to remotely monitor the system. There are no physical thermostats in the home. Instead, all of the zones and monitors are accessed via IDC SmartPhone, Tablet, or Computer.

Hickory, NC Residence



Project Type: Residential
Location: Hickory, NC
Architect: Barfield Designs, Inc.
Contractor: Hickory Sheet Metal
Engineer: Energy Solutions, Inc.



FEATURED SYSTEMS

- Hydronic Radiant Floor Heating and Cooling
- Hydronic Air Handlers for Heating and Cooling
- Ground Source Heat Pump
- Integrated Dynamic Control "IDC" System

IDC Animator Showing real time functionality of the mechanical system

