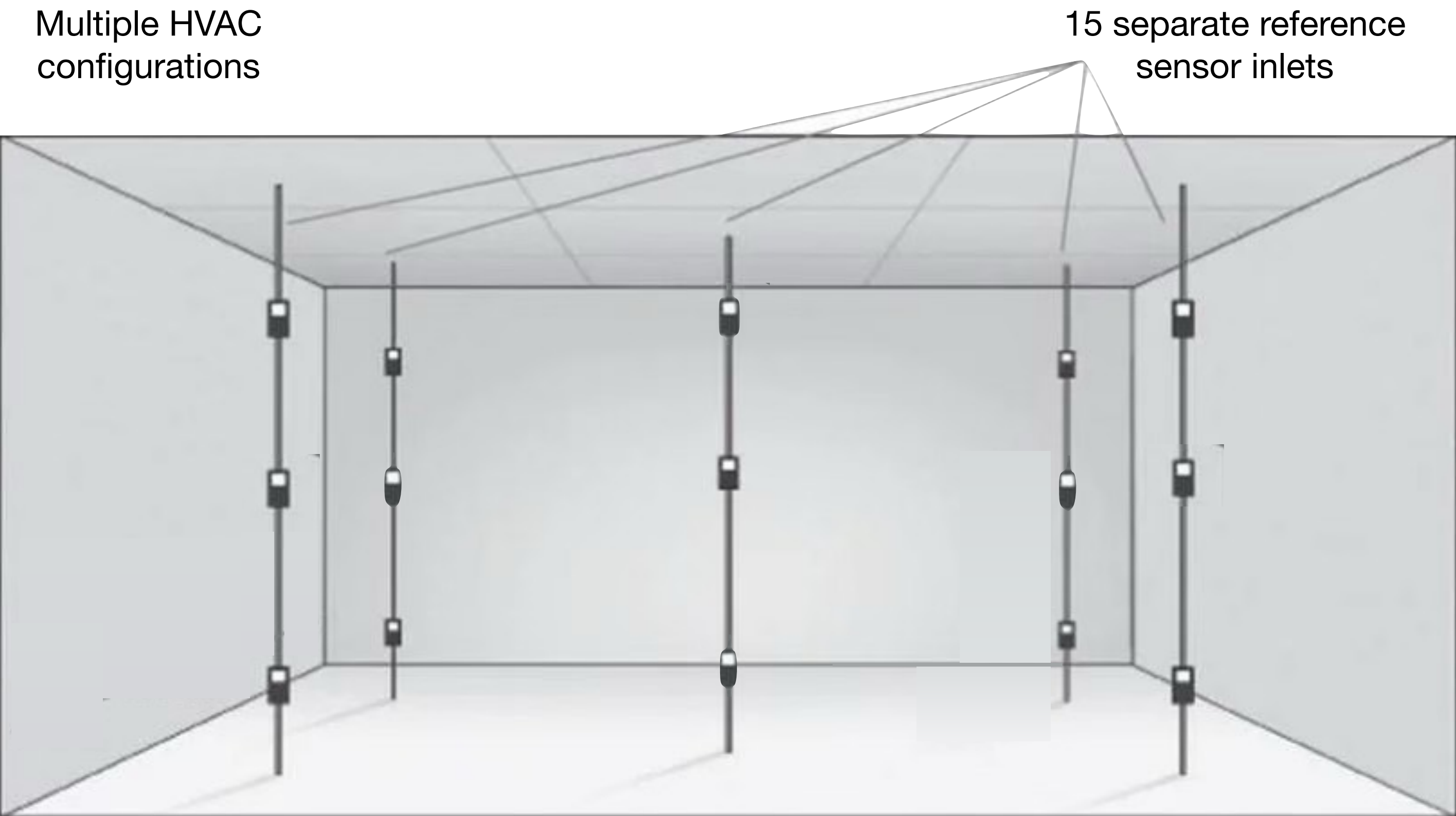


HEART: Holistic Environmental Aerosol and Reactive Component Auto Response Testing



Comprehensive Chemical and Aerosol Testing for iAQ
3,000 cubic foot chamber

Key Elements
Comprehensive Gas Phase Measurements of up to 1,500 species covering oxygen, nitrogen, hydrogen, sulfur, and halogen species as well as a very large range of volatile organic compounds.
Comprehensive Aerosol Measurements - (size distribution, shape, composition, identity).
Comprehensive Irradiance Measurements — UV to near infrared (190 — 1,100 nm) for the real-time evaluation of all photolysis rates.
Measurements of positive and negative ions
Multiple sampling inlets spanning the chamber to characterize any spatial gradients and dead zones.
Multiple HVAC configurations , with inlets in the ceiling, wall, and floor. Flow rates, humidity, and temperature are all fully adjustable. Adjustable duct length between any air quality remediation devices and room inlets. The ability to use multiple combinations or suites of remediation technologies at the same time.
Flexible time series repository for all data and configurations.
Comprehensive chemical data assimilation of all observations above to infer reactive species below the detection limit (such as OH) and other unmeasured species with an associated uncertainty. This assimilation utilizes a a master chemical mechanism containing 4,000+ chemical species and 14,000+ chemical reactions.
Automatic identification and characterization of all catalytic cycles in operation, their chain length, rate limiting step, and termination step.