

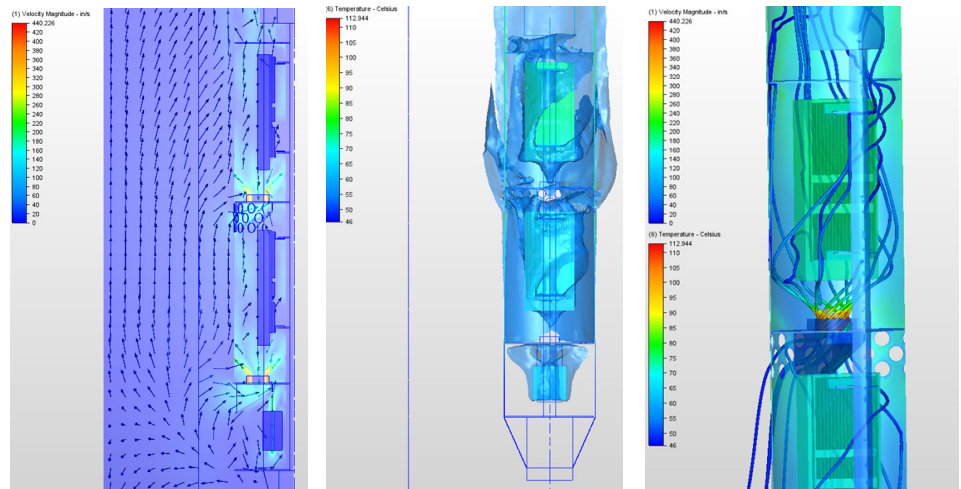
STEALTH Concealment Solutions Thermal Analysis Capabilities

Raycap incorporates comprehensive analysis and rigorous testing in the development of its products to solve real-world engineering challenges of complex fluid flow and thermal heat transfer to support climates across the USA and the world.

An increasingly connected consumer is demanding higher-speed communications provided by 5G technologies. The outdoor telecommunications equipment supporting these technologies exhibits a greater heat generation density than previous generations, therefore creating the need for solutions to optimize the removal of heat from new and existing concealment systems.

Raycap engineers smart, energy efficient systems, seeking to passively cool installations with only natural convection where possible. These solutions provide **reduced energy consumption, no fan noise, and minimal maintenance**. When heat loads increase to where passive cooling is not sufficient, we incorporate the use of rugged outdoor-rated fans to provide forced ventilation. Our active solution includes a fan speed controller that continuously varies the power to the fan(s) to meet the demand while minimizing noise. It also provides an alarming capability allowing the user to monitor the system status offsite.

We develop our cooling solutions with the use of **Finite Element Analytical (FEA)** tools. **Computational Fluid Dynamics (CFD)** model are created to calculate the heat transfer due to conduction, convection, and radiation through solid and fluid bodies. Computer modeling is an exceptional tool to evaluate and optimize various design options, like fan placement and vent geometry, prior to fabrication. Virtual models are cost efficient, increase accuracy, and provide valuable design insights to reduce overall design and implementation time.



Simulation results are confirmed with physical testing, often in partnership with **Original Equipment Manufacturers (OEMs)**. This testing is performed both on-site and by partnering with world-class third-party test facilities to employ thermal chambers to simulate high ambient temperature conditions. When weather is uncooperative, solar load can be simulated in the test environment by high-powered metal-halide lamps.

All tests and analyses incorporate a wide range of standards including Telcordia GR-487, GR-3108, ASHRAE Climatic Design Conditions, and various other telecommunications industry standards.