



# NASA Marshall Space Flight Center

## Energy Assessments and Retro Commissioning Services

### About the Facility:

The George C. Marshall Space Flight Center, located in Huntsville, Alabama, is the U.S. government's civilian rocketry and spacecraft propulsion research center. As the largest NASA center, MSFC's first mission was developing the Saturn launch vehicles for the Apollo program. It was founded in 1960 and employs more than 6,000, including 2,300 civil servants.

SEA was contracted by NASA on two occasions to perform Retro-commissioning (RCx) for the National Center of Advanced Manufacturing and Astrionics Laboratory, a total of more than 439k square feet. The goal of this effort was to verify through hands-on-evaluation and testing that the buildings were operating at peak energy efficiency. SEA also provided guidance, instructions and overall execution of the projects to recognize energy consumption reduction and potential savings.

### National Center of Advanced Manufacturing

RCx services were solicited after SEA completed a low/no cost assessment of various facilities at MSFC. SEA recommended two low cost measures: upgrading incandescent fixtures and repairing compressed air lines. SEA also recommended RCx of the HVAC controls system.

As the commissioning lead, SEA coordinated the entire process and scope of work for the project, focusing on HVAC operational investigation and Direct Digital Control systems. SEA put an emphasis on the identification of operations or conditions that significantly impacted Indoor Environmental Air Quality (IAQ), current facility requirements, operability of the building, and/or energy consumption.

The results of RCx services at the building were:

- Improved environmental conditions for occupants
- Reduced complaints and maintenance work orders
- Overall reduced energy usage
- Increased facility life with reduced facility lifecycle operating costs

SEA helped identify \$90k in savings and a reduction of 15% in energy consumption.

90k

Potential Savings

15%

Reduction in Energy Consumption

439k

Square Feet

### Astrionics Laboratory

SEA was also contracted to perform a tri-fold study, which includes an energy assessment, LEED® survey and retro commissioning study for the MSFC Astrionics Laboratory. This two story structure originally built in 1957 is over 323k square feet and has undergone many renovations. The primary use of the facility is for offices and laboratories. Steam is provided by the Army's Redstone Arsenal central steam generation plant with domestic hot water provided by tank heaters scattered throughout the facility.

SEA developed tests to measure the Energy Utilization Index and Energy Cost, which was initially very high. As a result, SEA made the following recommendations for increased savings:

- Repair torn or missing pipe insulation on steam, hot water and chilled water lines
- Fix compressed air leaks serving HVAC and lab process equipment
- Replace existing inlet vane operated variable airflow HVAC units with high efficiency fan motors and VED operated units

