considerations. Requirements for performance testing must be clearly defined in the contract documents of contractors, as this requires contractor personnel to return to the site after the project is completed and coordinate with building operators, whose role is to facilitate overall process.

For evaluating the performance of building, the following procedures as per ASHRAE can be followed

a. Collect building characteristics
b. Performance observation, measurement, analysis
c. Performance comparison – benchmarking
d. Identify issues needing correction and take corrective action
e. Re-measure performance
f. Compare new to past performance
g. Report results

Building performance measurement plan should be developed that includes the scope, roles and responsibilities of the contractor, building operator, performance monitoring schedule, performance test procedure, performance indicators and baselines and targets. Performance indicators must be identified for all the major system from commissioning test results or technical data sheet.

The performance measurement and analysis must be carried for at least the building systems indicated in Table 503.07 (1). Respective performance indicators must be recorded and compared against the design consideration.

Table 503.07(1): Performance Indicators For Various Building Systems

Building System	Performance Indicator
Chiller	COP or kW/ton
Chilled water pump	Pump efficiency (μ), Power consumption (kW)
Cooling tower	Cooling Tower effectiveness (ε), Power consumption (kW)
Air handling units / Fan coil units	Supply air quantity (l/s), Space temperature and humidity
Fresh air handling units	Fresh air quantity (l/s), Space CO_2 level
Lighting and Lighting control system	Presence detectors and light sensors control the lighting as intended in design
Heat recovery unit	Sensible and latent effectiveness
Control system	Sequence of operation

Additionally, monthly consumption data for the following services should also be recorded: chilled water consumption, energy use intensity, end-use energy consumption cooling, lighting, service water heating, process load etc.), building energy consumption and domestic water consumption.

Occupant survey should also be carried out at least once during performance period. Survey should factor for thermal comfort, acoustics, indoor air quality, lighting levels, building cleanliness and other occupant comfort issues.