Addendum for GRIHA V 2015

Summary

Criterion	Changes made in the criterion
Criterion 28	'Installation of energy and water meters at each building level' have been removed from mandatory appraisal 28.1.1. It has been added as a part of appraisal 28.1.2 which is optional. However, digital meters for basic energy and water metering under appraisal 28.1.1 still remains mandatory.

Detailed Criterion 28 has been attached in the annexure.

Annexure

Criterion 28: Smart metering and monitoring

Intent:

The intent of this criterion is to promote smart metering and monitoring of energy and water consumption on-site to analyze the performance of the building.

Maximum Points: 8

Appraisals:

28.1.1: Comply with the following Basic metering requirements of GRIHA

– Mandatory

Basic Metering Requirements	
Energy Water	Water
Ensure regular monitoring of the project's energy consumption by installing digital meters at the following point sources at the project level: • Utility grid • On-site renewable energy system • Diesel Genset, Gas Genset etc.	Ensure regular monitoring of the project's water consumption by installing digital meters at the following point sources at the project level for: • Municipal Supply • Borewell • Treated water outlet from STP • Captured rainwater

28.1.2: Comply with Extended metering requirements as mentioned in the table

– 2 points

Extended Metering Requirements	
Energy Water	Water

Sub-meter the following points to monitor energy consumption:
• Commercial/Institutional:
  o HVAC central plant- AHU, Cooling tower, Chillers (BTU meters) and/or distributed units (split/window ACs)
  o Lighting (Indoor and outdoor)
  o UPS
  o Basement parking lighting
  o Each building level
• Residential:
  o For Basement Parking Lighting, Community/Recreation center, Water pumping, Outdoor Lighting
  o Lifts and common areas
  o Each building level
  o Each apartment/commercial tenant
	Sub-meter at the following points to monitor water consumption:
	• Irrigation
	• Cooling Tower
	• STP/WTP/ETP
	• Each building level
	• Each apartment/commercial tenant

28.1.3: Installation of one-way communicable[1] Smart metering[2] and monitoring system capable of tracking energy and water consumption through a web-hosted portal and also capable of the following, for at least all meters mentioned in 28.1.1

– 3 points

- Hourly data reporting in near-real-time (no more than 15-minute delay)
- Energy mix breakdown and consumption patterns
- Water consumption patterns from various sources
- Ability to set energy & water consumption targets, alarms and pricing
- Ability to compare historical trends and benchmark data
- Real-time monitoring with a user interface which operates even on mobile devices

28.1.4: Connect to the GRIHA Online Benchmarking platform (linked to smart metering) to allow for two way communication on the following:

– 3 points

- Monthly energy consumption (with fuel mix) and water consumption (with source split) with the GRIHA IT platform
- Receive, average energy and water consumption (normalized for building typologies, location and area) for a display to building occupants to assess building energy and water efficiency

Compliances:

28.2.1. Submit drawings indicating the location of various meters in the project.
28.2.2. Submit specification sheets and purchase orders for the various meters installed in the project.
28.2.3. Submit details and purchase orders of the Smart Metering system installed in the project.
28.2.4. Upload photographs, with a description, of the measures, implemented.

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[1] Project teams may opt for two-way communicable if they want to enable demand response.
[2] The following details
- All Energy meters that are installed to be of at least class 1 with Class 1 CT's/PT's, and should have an active RS-485 port, with industry standard Modbus protocol with publicly available register maps.
- All Water/BTU meters should have an RS 485/RS232 port with publicly available/industry standard Protocol (Modbus, etc.) and register maps
- All meters/CT should be calibrated by an authorized certified auditor at least every 2 years.
- The metering and monitoring hardware and software should support compliance with the relevant requirements of "IS/ISO 50001 - Energy Management Systems - Requirements with Guidance for Use".