

## KINFRA – Mega Food Park, Palakkad

## IGBC Green Campus Rating - Guidelines for Plot Developers

## Site Management and Erosion control:

- Fertile topsoil (top 15 cm layer) to be stockpiled prior to construction, for future reuse or donation.
- During construction, measures such as bunding and sediment ponds shall be created to prevent soil erosion from the site.
- NBC guidelines for erosion control shall be followed
- Construction waste
  - Construction waste materials such as steel rods, metal pieces, broken bricks, concrete, cement bags, paint cans, broken wood, packing materials etc., shall be collected, stored in a segregated manner in separate scrap yards.
  - Hazardous construction waste shall be managed appropriately and should not be dumped on-site.
  - Recyclable Construction waste should not be dumped.
  - The quantity (weight or volume) of waste generated during construction shall be recorded on a weekly basis in a tabular format as per required format
  - The waste generated shall be either returned to the suppliers or to authorized recycling agents
  - Photographs of the waste scrap yards to be taken

## Daylighting:

- All buildings shall be designed with sufficient daylighting for all occupied spaces, by providing suitable size and number of windows and/or skylights.
- Building should be designed to achieve a Daylighting level of 110 lux minimum.
- In general, a window-wall ratio of 30% and skylight-roof ratio of 5% is ideal to optimise daylighting usage.
- Storage rooms, toilets and other unoccupied areas are exempt from this requirement.
- The building plan drawings shall be provided for verification.

## Reflective roofing:

- All building roofs (including that of parking, utilities) shall have reflective roof finish such as follows:
- For flat roofs and roofs with slope  $<2:12$ , the roof should have a minimum SRI of 78. Examples of materials to be used are heat reflective tiles, china mosaic, white paint, lime concrete. In case of Metal roofs, white coloured roofing sheet shall be selected. Plain / unpainted Bare galvalume or aluminium sheets do not meet this requirement.
- For steep sloped roofs ( $>2:12$ ), the roof should have a minimum SRI of 29 and maximum of 64. Coloured or Plain / unpainted Bare galvalume or aluminium sheets are suitable.
- Roof areas covered by solar panels, roof garden and other permanent fixtures are exempt.
- Details of the roof material shall be provided for verification.

### Shading (optional)

- At-least 75% of windows, doors and other building openings shall have sun-shades or overhangs or canopies or other external shading system.
- The length of such shading shall be at-least 50% of the “opening height”

### Water fixtures:

- Hand-wash taps: Any tap/faucet with flow rate of 4 LPM or below (at 3 bar pressure) is to be selected. Taps with easy turn (Quarter or half turn taps) is preferred. Alternately, semi-automatic (press and leave type) or fully automatic sensor taps may be installed.
- Water closet / flush tanks: Any “dual flush” tank model with rated flow of 4 ltr / 2 ltr
- For urinals flushing: Any automatic system with 1.5 litre per flush maximum is ok. Manual or Semi-automatic type (auto-closing) system is ok, provided the flow-rate in the pipe is restricted to 5 litres per minute (at 3 bar pressure).
- Health faucet: Rated flow shall be less than 4.5 litres per minute (at 3 bar pressure)
- Shower head/spray: Rated flow shall be less than 8 litres per minute (at 3 bar pressure)
- Other taps used for bucket filling purposes don't have any norms.
- The details of the models installed and their flow rates (from manufacturer manual / letter) shall be provided for verification.
- Dual-plumbing provision shall be provided for toilet flushing lines, to make use of the recycled water for flushing.
- All cooling towers installed shall be designed to use recycled water for make-up water purpose.

### Lighting Fixtures:

- All interior and exterior lighting fixtures shall be of high efficiency type such as T5, LED, Sodium vapour or CFL.
- Usage of incandescent bulbs, T-12 (40 watt tube lights), mercury vapour lamps shall be avoided. Usage of Metal halide lamps shall be minimised.
- The schedule of internal and external light fittings installed along with their wattage details shall be provided for verification.
- External lighting fittings shall be installed at an angle of 45 degrees or lower (from straight down). No external light fittings shall be upward looking.
- The lighting layouts shall be provided for verification.

### Air-conditioners:

- All space cooling Air-conditioners (except process related cooling equipment like freezers, cold rooms) shall be of high efficiency type. The efficiency (COP) shall be at-least 10% better than the minimum efficiency level prescribed by the Energy Conservation Building Code (ECBC).
- The requirement applies to all type of ACs including Split-ACs, window ACs, package ACs, central chilled water system and ducted systems.

- All ACs and refrigerators shall use only environment friendly “zero ODP and low GWP” Refrigerants such as HFC-134a.
- Use of R-22 refrigerant in Air-conditioners / other refrigeration system is prohibited.
- The details of the ACs and refrigerators installed shall be provided for verification.

#### Trees and Plantation:

- At-least 20% of the site area shall be allocated for greenery (on-ground vegetation). The site master plan shall be provided for verification.
- The developers shall take effort to minimise the cutting of existing mature trees within the site.

#### Hardscape:

- The site hardscape areas such as pathways and uncovered parking areas shall have:
  - Permeable interlocking pavers of light colours, or
  - Tree shading (saplings to be planted), in case of other surfaces.

#### Rain water harvesting:

- Rain water harvesting pits shall be provided within the site at the rate of minimum 3 pits per acre of site area. The rain water shall be harvested within the site and letting out of storm water is to be avoided.
- Excess storm water overflow during heavy storms shall be released only after proper filtering mechanism (such as sediment traps).

#### Other aspects:

- A dedicated space for bi-cycle parking (minimum 4 slots) shall be provided near (within 100 mts) the main entrance of the site/building
- Ramps with handrails shall be provided in the main entrances of buildings for use by differently-abled persons.
- Renewable power systems such as solar power may be installed (not mandatory)

#### Compliance:

- The developers shall submit a compliance report during design stage (prior to construction) describing the incorporation of above features and confirm that their design meets the above requirements.
- The developers shall enforce their construction contractors to follow the green norms prescribed above.
- The developers shall submit a compliance report after construction to demonstrate compliance with the above requirements.
- The compliance report shall be supported with drawings, documents and photographs.