“Home Run” Energy Retrofits
(Proven measures with near-certain cost/benefit results)

**LIGHTING**

1. Re-lamp fluorescent fixtures with 25-watt, high-K, low-mercury lamps.
   a. Concurrently, retrofit low-output (~0.7BF) ballasts
   b. Replace yellowed and/or translucent diffusers with high-transmission clear diffusers

2. Spaces with two lighting circuits should have one circuit controlled auto-on/auto-off and the second circuit manual-on/auto-off

3. Install timer switches on single lighting circuits in small spaces such as janitorial closets, mail rooms, storage rooms, etc.

4. Replace PAR-type lamps with LED direct replacement lamps

5. Install LED floodlights and wall packs

6. Retrofit LED or induction, bi-level, high-K parking lot and path lighting fixtures

7. Replace HID lamps with high-output fluorescent or LED lighting in gymnasiums and assembly spaces

8. Install bi-level fixtures in stairwells

9. Install bi-level controls for most corridor, lobby, and atrium lighting

**HVAC**

10. Retro or monitoring-based commissioning of existing systems. Energy waste of HVAC systems can be largely tied to failed components and uncalibrated control systems.

**SUB-METERING | DASHBOARDING**

11. Electrical metering
   - Interior and exterior lighting metered separately
   - Fan and pump energy metered separately
   - Plug load

12. Building management system
   - Graphical interface of air handlers, exhaust fans, pumps, and boilers
   - Graphical trends of equipment operations