GODREJ GROUP

- Founded in 1897 by Mr. Ardeshir Godrej & Mr. Pirojsha Godrej, we are India’s largest family-owned company
- Main facility spread over 3200 acres in Mumbai
- Sales revenue over US $ 4.1 billion
COMPANY STRUCTURE
Godrej Electricals and Electronics (E&E) is as old as the Company itself.

The services rendered by E&E were primarily procurement, distribution of power and maintenance of all substations and machines.

By the turn of the century, E&E became a Profit Centre.

The internal expertise gained over the years helped us to provide services to external customers in areas of

- Green Building Consultancy Services (GBCS)
- Power Infrastructure & Renewable Energy (PIRE)
- MEP Projects (MEP)
- Power Distribution Solutions (PDS)
- Compressed Air Solutions (CAS)
- Industrial Electronics & Automation (IEA)

Automation & Energy Management (AEM)
Mr. Abhijit Pisal
Head - Green Building Consultancy Services, Godrej & Boyce Mfg. Co. Ltd.

- More than **15 years of rich & varied experience** in:
  - Sustainability
  - Green Building Consulting
  - Energy Management Services
  - Operations and Maintenance
  - Project Management

- **LEED AP, BEE Certified Energy Auditor, GRIHA Trainer**

- **Working Committee Member** of CII-IGBC Mumbai Chapter

- Lead **faculty** for conducting training programs on behalf of CII
OUR TEAM

<table>
<thead>
<tr>
<th>TECHNOCRATS</th>
<th>72</th>
</tr>
</thead>
<tbody>
<tr>
<td>USGBC LEED / IGBC (Accredited Professionals)</td>
<td>35</td>
</tr>
<tr>
<td>BEE Certified Auditors / Managers</td>
<td>05</td>
</tr>
<tr>
<td>GRIHA Trainers and Evaluators</td>
<td>17</td>
</tr>
</tbody>
</table>
PROJECT CATEGORIES

- Institutions
- Healthcare
- Residential / Mixed Use
- Hospitality
- Multiplex
- IT Parks
- Airports
- Data Centers
- Industries
- Retail Malls
- Offices

Green Building Consultancy Services
OUR SERVICES

Green Building Consultancy

Building Simulation

Building Commissioning

MEP Design Consulting

Building Information Modeling (BIM)

Third Party Audits
GREEN BUILDING CONSULTANCY

- Green Building Consultancy
- Building Simulation
- Building Commissioning
- MEP Design Consulting
- Building Information Modeling (BIM)
- Third Party Audits
A green building is one which uses:

- less water,
- optimizes energy efficiency,
- conserves natural resources,
- generates less waste and
- provides healthier spaces for occupants, as compared to a conventional building
BENEFITS OF GREEN BUILDINGS

- Recognition for commitment to green
- Water savings: 40 – 50 %
- Energy savings: 20 – 30 %
- Third party verification of design
- **Priority in Environmental clearance** from MOEF for projects above 20,000 sqm. of built-up area
- Extra *FAR / Incentives for green buildings in various cities & states viz. Punjab, Kolkata, Pune, Noida etc.
- Marketing exposure through listing on IGBC/ USGBC website

* FAR - **Floor area ratio**
GREEN BUILDING RATING

- LEED for New Construction (NC)
- LEED for Core & Shell (CS)
- LEED for Commercial Interiors (CI)
- LEED for Existing Buildings: Operations & Maintenance (EB:O&M)
- IGBC - New Buildings
- IGBC - Campus
- IGBC - Green Homes
- IGBC - Green Factories
- IGBC - Green Township
- IGBC - SEZ
- IGBC - Existing Buildings
- IGBC - Interiors

- GRIHA
  (Built up area > 2500 sqm.)
- SVA GRIHA
  (Built up area < 2500 sqm.)
- GRIHA for Large Development
  (Built up area >1.5 lac sqm.)

LEED – Leadership in Energy & Environmental Design  
GRIHA – Green Rating for Integrated Habitat Assessment  
IGBC – Indian Green Building Council
- Sustainable Sites
- Water Efficiency
- Energy Efficiency
- Material & Resources
- Indoor Air Quality
• **Sustainability Assessment:**
  A feasibility study done to assess the potential of the project in order to achieve the desired rating (CERTIFIED, SILVER, GOLD, or PLATINUM)

• **Consulting for Green Building Certification:**
  - Facilitation
  - Energy Simulation
  - Fundamental & Enhanced Commissioning
Green Building Consulting

Building Simulation

Building Commissioning

MEP Design Consulting

Building Information Modeling (BIM)

Third Party Audits
It is a software based analysis to work out **optimization of energy efficiency** and **climate responsive building design** from design stage itself.

It is done to assist architects, consultants and project team to

- **Decide on design strategies,**
- **Improving/achieve overall energy efficiency,**
- **Selection of building materials** and
- **Optimization of building economics based on Life Cycle Cost (LCC).**

All types of building viz. residential, institutions, office buildings, factories, data centers etc. are covered.
Energy savings from various ECM’s calculated

Comparison between Recommended Options and ASHRAE Budget Case
• To check the amount of daylight coming inside the workplace
• Helps in selection of glass to avoid the glare and increase visibility with less heat ingress
- To check the light trespass from individual luminaries.
- Calculation the energy savings from integration of daylight and efficient lighting design.
- Designing of lighting and maintain uniform lumens levels in the user areas.
- To reduce the lighting power densities or excessive lighting.

Lighting analysis at Office space

Lighting analysis in Cabin

Lighting analysis – Exterior lighting
Climate analysis will include the following studies to determine the design strategies at conceptual design stage:

- Shading Analysis
- Sunpath Analysis
- Solar Insolation Analysis

Benefits of Climate analysis:

- Enhance daylight
- Determine sun shading
- Determine the envelope elevations
- Determine the master plan with landscape layout
- Ensure natural ventilation through wind analysis
Study of shadows and orientation at different times on 21\textsuperscript{st} June.

At 09:00 Hrs

At 11:00 Hrs

At 15:00 Hrs

At 17:00 Hrs
SOLAR INSOLATION ANALYSIS
BUILDING COMMISSIONING

- Green Building Consulting
- Building Simulation
- Building Commissioning
- MEP Design Consulting
- Building Information Modeling (BIM)
- CFD Analysis
- Third Party Audits
Systematic process of verifying and documenting the building systems as designed to meet the owner’s requirements.

Part of the Green Building Commissioning requirements under green rating systems (Mandatory).

These ratings require appointment of a “Commissioning Authority”, independent from the design and O&M team.
Green Building Consulting
Building Simulation
Building Commissioning
MEP Design Consultancy

Building Information Modeling (BIM)
Third Party Audits
OUR PROPOSITION

MEP DESIGN + GREEN FEATURES = GREEN & LEAN DESIGN

MECHANICAL

ELECTRICAL

PLUMBING & FIRE FIGHTING
• Design Optimization
• Customized Solution
• Efficient Technologies
• Recycle – Reuse
• Monitoring & Control System
• Commissioning & Quality Check
• Post Occupancy Review
OUR METHODOLOGY

MASTER PLANNING & CONCEPT DESIGN STAGE
- Engineering studies based on architectural drawings
- Cost benefit options of different technologies.
- Development of sustainable strategies
- Assistance for statutory & other approvals.
- Preparation of concept design basis report

SCHEME DESIGN STAGE
- Proposal of bill of quantities & cost estimation.
- Tender drawings & specifications.
- Participating in pre-bid meeting.
- Scrutinizing quotations received from contractors.
- Award of contract.

DETAIL DESIGN STAGE
- Finalize the design criteria
- Detail drawings with all floor & external layouts.
- Co-ordination with Architect & Interior Designer.
- Building information modeling (Optional).
- Preparation of final design basis report.

TENDER STAGE
- Kick-off meeting with all contractors.
- Review & approval of contractor’s Shop/GFC drawings.
- Periodic site visits for quality checks.

CONSTRUCTION STAGE

INSPECTION & DOCUMENTATION
HVAC DESIGN:

- Heat Load Calculations
- Project Scheme Design
- Equipment Selections
- Air Distribution Scheme & Piping Design
- Ventilation Systems
- Staircase / Lift well Pressurization System
- Control System
ELECTRICAL DESIGN:

- Project Scheme Design
- HT/LT Distribution System
- Electrical Load Calculations
- Back-up Power Arrangement
- Cabling & Bus Riser System
- Panel & Cable Schedules
- Lighting & Power Scheme Design
- Earthing & Lightning Protection
- Renewable Energy
OUR DELIVERABLES

- **Low Voltage System:**
  - Fire Alarm System
  - Public Address System
  - Access Control System
  - Integrated Building Management System
  - Tele-communication System
  - CCTV System
  - Parking Management System
Plumbing & Fire Fighting:

- Project Scheme Design
- Water Demand Calculations
- Water Storage & Distribution
- Drainage System
- Rain Water Harvesting
- Sewage Treatment Plant
- Fire Hydrant & Sprinkler System
GREEN & LEAN DESIGN

- Reduced Lighting Loads
- Reduced Envelope Loads
- Reduced Power Loads

OPTIMIZED BUILDING DESIGN
**Technical Software**

- **Building Simulation**
  - Visual DOE
  - e-Quest
  - IES
  - Dialux
  - Ecotect
  - Radiance
  - Revit 2013

- **MEP Design**
  - Revit 2013
  - Auto CAD 2013

- **CFD Simulation**
  - FloVENT

- **Building Information Modeling**
  - Revit 2013
  - Naviswork
ENGINEERING STANDARDS
BUILDING INFORMATION MODELLING (BIM)

- Green Building Consulting
- Building Simulation
- Building Commissioning
- MEP Design Consulting
- Building Information Modeling (BIM)
- Third Party Audits
Building information modelling is an intelligent model-based process which not only manages graphics but also helps in automatic generation of drawings, reports and design analysis.

This helps in sharing various information to support decision making about the project in early conceptual stages, based on design, construction and its operational life.
1. Enhanced coordination, less errors and quantitative error check
2. **Detailed 3D Model** for reference and actual visualization
3. **Final GFC** with all the service plans updated
4. Accurate quantity take-offs
5. Get all the GFCs before construction
6. Reduce construction wastes
7. **No clashes in the service drawings** which can save time, money and efforts
8. **Estimate bill of quantities** for construction
9. Faster project delivery
10. Better outcomes through collaboration
PROJECT SNAPSHOTS – Hospital Project in Ahmedabad
PROJECT SNAPSHOTS - Godrej Construction Division Building
Beam & Columns only
Typical floor
BIM PROJECT SNAPSHOTs

MEP-Layout

Layout locations of diffusers & fixtures etc
HVAC- Ducting
BIM PROJECT SNAPSHOTS

Plumbing

Green Building Consultancy Services
THIRD PARTY AUDITS

- Green Building Consulting
- Building Simulation
- Building Commissioning
- MEP Design Consulting
- Building Information Modeling (BIM)
- Third Party Audits
THIRD PARTY AUDITS

- Energy Audit
- Fire Fighting Assessment
- Electrical Safety Audit
- Thermography
- Lighting Audit
- Water Audit
- Vibration Analysis
Experience of over 400 projects spread across various sectors such as Residential, Commercial, Corporate Offices, Hotels, Retail, Hospitals, Banks and Data Centres

| 300+ Ongoing Projects in various stages of completion | 200+ Certified / Pre-certified Green Building Projects | 60+ Platinum rated projects 100+ Gold rated projects |
OUR CLIENTELE

MANTRI
K RAHEJA CORP
AHUJA CONSTRUCTIONS
ACC Limited
THE LEELA
PALACES ~ HOTELS ~ RESORTS
ADITTA BIRLA GROUP
VIJAY GROUP
HSBC
RNA CORP.
Dabur
LARSEN & TOUBRO LIMITED
NOVOTEL HOTELS
AXIS BANK
OPEN INSULA
HDFC BANK
Kohinoor
KUL
Crisil
DLF
Reliance Industries Limited
Oberoi Mall
Asian Paints
ICICI Bank
Godrej Properties
Abbott
Siemens
Mahindra
Omkar
Green Building Consultancy Services
Mr. Abhijit Pisal (LEED AP, BEE Certified Energy Auditor, GRIHA Trainer)
Head, Godrej - Green Building Consultancy Services
Head Office: Godrej & Boyce Mfg. Co. Ltd., Electricals & Electronics Division, Plant No. 1, Pirojsha nagar, Vikhroli West, Mumbai – 79.

Mob No : +91 9820859952  
Email : arpisal@godrej.com

Our Representatives:

**Mumbai, Pune & ROM**  
Ms. Nitee Mitra  
Email: nitee@godrej.com  
Mob No: +91- 9820692733

**Chennai**  
Mr. Varatharajan.K  
Email: varathk@godrej.com  
Mob No: +91- 9884997920

**Kolkata**  
Mr. Shashi Ray  
Email: sray@godrej.com  
Mob No: +91-9920135828

**New Delhi**  
Mr. Vaibhav Goel  
Email: vaibhavg@godrej.com  
Mob No: +91-9810125911

**Bangalore**  
Mr. Praveen Kumar  
Email: pkk@godrej.com  
Mob No: +91-8884 391112

**Hyderabad**  
Mr. Varatharajan K  
Email: varathk@godrej.com  
Mob No: +91- 9884997920

**Ahmedabad**  
Mr. Viral Mehta  
Email: viralm@godrej.com  
Mob No: +91- 75675 26486
THANK YOU