"STRIVING TO DELIVER A SUCCESSFUL PROJECT"

Engineering Services – A full service MEP Company
HVAC – PLUMBING – FIRE FIGHTING

35 years young!
Established in 1984

Projects throughout Pakistan and Afghanistan
OUTLINE/AGENDA

- Definition of a Successful Project
- Various project hierarchies
- Requirements for a successful Project
- Issues of Developing Economies
- Conclusion
THE GREATEST PROJECT ON EARTH
THE GREATEST PROJECT ON EARTH

- Height 481 feet - tallest building for 4,000 years
- Made from 2.3 million blocks weighing 2.5 tons each
- The Great Pyramid of Khufu weighs 5,750,000 tons
- Comparing to Burj Khalifa weighing 500,000 tons
- Took 20 years to build with a workforce of 100,000
- Constant temperature of 20 degrees inside pyramids
- Standing strong for 5,000 years!
THE GREATEST PROJECT ON EARTH

A truly WOW Project   !!!!!
SUCCESSFUL PROJECT DEFINED

Definition of project success has changed with time

In the early days success of a project was measured entirely in technical terms

Either the project / System worked or it did not

Customers and Contractors not too concerned with cutting costs or energy conservation
No concept of Life Cycle cost analysis

No Proper standards and Codes

Effective Project Management was introduced in 1960’s

As better and stronger cost and quality control became a requirement, the definition of success changed
SUCCESSFUL PROJECT DEFINED

“The Golden Triangle of Time, Cost and Quality”

Completed at the described level of quality
Completed on time
Completed within budget

Completion Certificate Issued - Accepted by the Client
VARIOUS PROJECT HIERARCHIES

Client / Owner

- Architect / Engineer
  - Various Service Consultants

- General Contractor
  - Civil Works Subcontractors
  - Mechanical Subcontractors
  - Electrical Subcontractors
  - Other Contractors / Traders

- Facility Managers
VARIOUS PROJECT HIERARCHIES

Client / Owner

- Architect / Engineer
  - Various Service Consultants

- Construction Manager
  - General Contractor
    - Civil Works Subcontractors
    - Mechanical Subcontractors
    - Electrical Subcontractors
    - Other Contractors / Traders

- Facility Managers
VARIOUS PROJECT HIERARCHIES

- Client / Owner
  - Architect / Engineer
    - Various Service Consultants
  - Construction Manager
    - Civil Works Contractors
    - Mechanical Contractors
    - Electrical Contractors
    - Other Contractors / Traders
  - Facility Managers
VARIOUS PROJECT HIERARCHIES

Client / Owner

Project Manager

Architect / Engineer

Various Service Consultants

General Contractor

Civil Works Subcontractors

Mechanical Subcontractors

Electrical Subcontractors

Other Contractors / Traders

Facility Managers
VARIOUS PROJECT HIERARCHIES

Client / Owner

Project Manager

Architect / Engineer

Various Service Consultants

Civil Works Contractors

Mechanical Contractors

Electrical Contractors

Other Trade Contractors

Facility Managers
PROJECT ESSENTIALS FOR SUCCESS

1. Extensive pre-planning and ‘starting well’
2. Robust Leadership and effective responsibility sharing
3. Detailed and logical Project Scheduling
4. Deployment of adequate human resources
5. In depth knowledge of the project requirements
PROJECT ESSENTIALS FOR SUCCESS

Positive behaviors which encourage success

Modern project management techniques are applied

Modern Designing techniques are applied

Appropriate Codes and Standards are followed
PROJECT ESSENTIALS FOR SUCCESS

10. Flexible and effective risk and change management processes

11. Detailed and logical Budget and cost control

12. Design Reviewed and Frozen

13. Competent Project Professionals employed

14. Shortest possible Billing Cycle

15. End Users engaged in design and execution
PROJECT ESSENTIALS FOR SUCCESS

- Aligned supply chain
- Regular progress monitoring and review throughout project duration
- Post-project review to identify ‘lessons learned’

16
17
18
19
Commissioning

4th HVAC Contracting Conference “Bridging the Gap Between Design, Construction and Facility Management”
ASHRAE DEFINITION OF COMMISSIONING PROCESS

A quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria.
Commissioning team should be involved from the beginning of the project.

Shop drawings
Resource Allocation
Timelines
Material / Equipment Procurement
Installation
Start up
Project handover
DEVELOPING ECONOMIES ISSUES

- Inconsistent Govt. Policies
- Lack of funding for Govt. projects
- Market uncertainty often holding back private projects
- Currency rate fluctuation
DEVELOPING ECONOMIES ISSUES

- Brain drain of local resources to other countries
- No effective legal system retentions and final bills often get stuck up
- Contradictions within BOQ nomenclature and specs
- Contract wordings totally favoring client
- Specifications cut and paste lot of irrelevant specs put in documents
DEVELOPING ECONOMIES ISSUES

- Equipment often supplied by client
- Contractor responsibility to bring all equipment to work together as per design intent
- Design changes during and near end of projects
- Change orders not readily processed
- Long payment cycles – Contractors expected to fund project
“In this specification, anything (whether material or labor) which is usually furnished as a part of such system as is hereinafter called for (and any items which are necessary for proper completion and best operation of the system, shall be furnished as a part of this contract without additional cost whether or not shown in details on the drawings or described in detail in the specifications”
“Drawings shall take precedence over specifications and specifications shall take precedence over the Bill of Quantities.”
“All incidental components and appurtenance necessary for the proper operation of the system shall be provided and installed as required whether or not they were specifically mentioned in BOQ and the Contract Documents”
IMPACT ON PROJECT

- Owner: 5%
- Architect: 3%
- Project Management team: 34%
- Planning: 15%
- Contractor: 32%
- Design Consultant: 11%
### IMPACT ON PROJECT

#### SURVEY RESULT OF 100 PROJECT PROFESSIONALS

<table>
<thead>
<tr>
<th>Category</th>
<th>Critical</th>
<th>Very Important</th>
<th>Moderately Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective Governance</td>
<td>22</td>
<td>66</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Goals and Objectives</td>
<td>26</td>
<td>63</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Competent Project Team</td>
<td>26</td>
<td>61</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Project Planning and Review</td>
<td>22</td>
<td>64</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Proven Methods and Tools</td>
<td>28</td>
<td>53</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>Secure Funding</td>
<td>25</td>
<td>54</td>
<td>19</td>
<td>2</td>
</tr>
<tr>
<td>Capable End Users</td>
<td>23</td>
<td>58</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>Aligned Supply Chain</td>
<td>25</td>
<td>54</td>
<td>19</td>
<td>2</td>
</tr>
<tr>
<td>Appropriate Codes and Standards</td>
<td>21</td>
<td>52</td>
<td>25</td>
<td>2</td>
</tr>
</tbody>
</table>
CONCLUSIONS

In my 37 years experience projects have been successful due to the following main reasons:

- Proper Design
- Design Freeze before Execution
- Proper Equipment Selection
- Good Project Management
- Proper planning and scheduling
- Receptive Client Team
- **Good Payment Terms – Good Payment Terms**
- Good Project team from all sides
- Proper Commissioning and closeout.
CONCLUSIONS

For us as Contractors

- Design Freeze before Execution
- Good Project Management
- Proper planning and scheduling
- Receptive Client Team
- Good Payment Terms – Good Payment Terms
CONCLUSIONS

REMEMBER: Mistakes should be…

- Expected
- Respected
- Inspected
- Corrected

4th HVAC Contracting Conference “Bridging the Gap Between Design, Construction and Facility Management”
QUESTIONS?

Muhammad Abbas Sajid
mabbassajid@gmail.com