An Integrated Approach to Low Voltage Design

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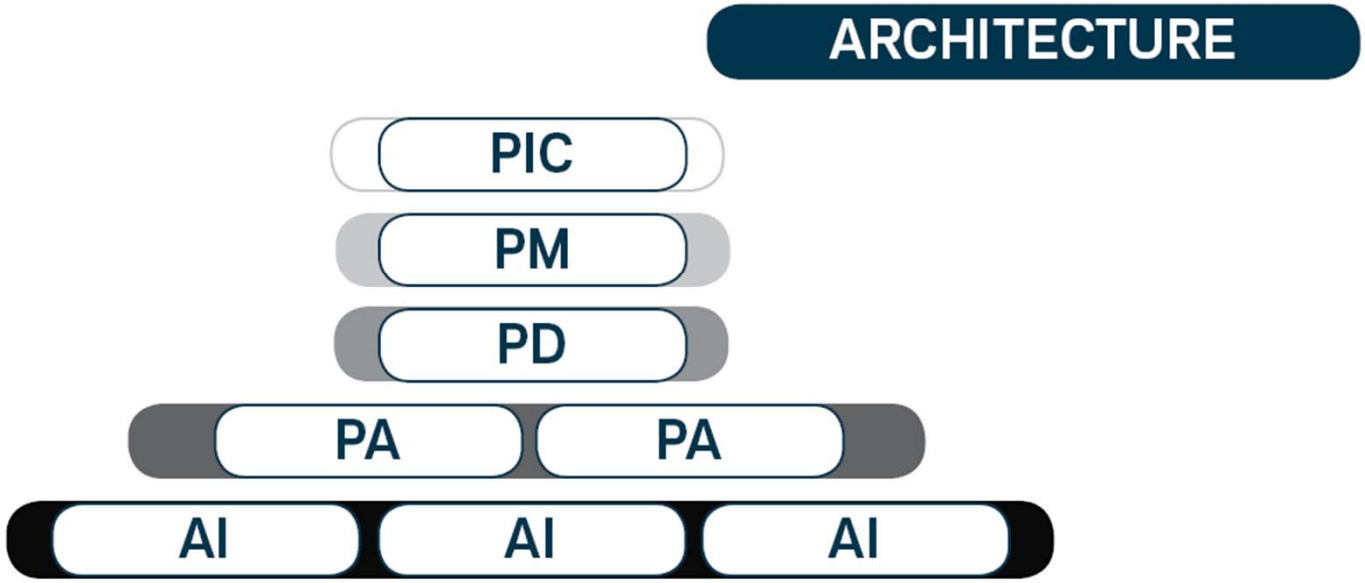
AGENDA

- Understanding the dynamics of an A&E team
- Understand the impact of project delivery type
- Understanding discipline specific needs
- Understand when to challenge and when to compromise
- Understanding the difference between needs and wants

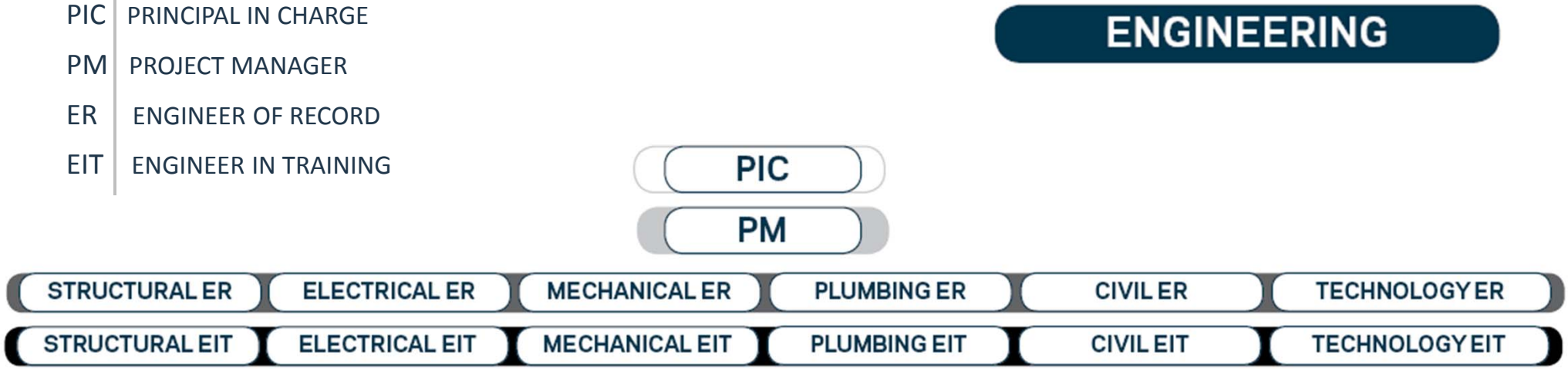
DYNAMICS OF A&E TEAM

PIC	PRINCIPAL IN CHARGE
PM	PROJECT MANAGER
PD	PROJECT DESIGNER
PA	PROJECT ARCHITECT
AI	ARCHITECTURAL INTERN



DYNAMICS OF A&E TEAM

PIC	PRINCIPAL IN CHARGE
PM	PROJECT MANAGER
ER	ENGINEER OF RECORD
EIT	ENGINEER IN TRAINING



DYNAMICS OF A&E TEAM

OTHER CONSULTANTS

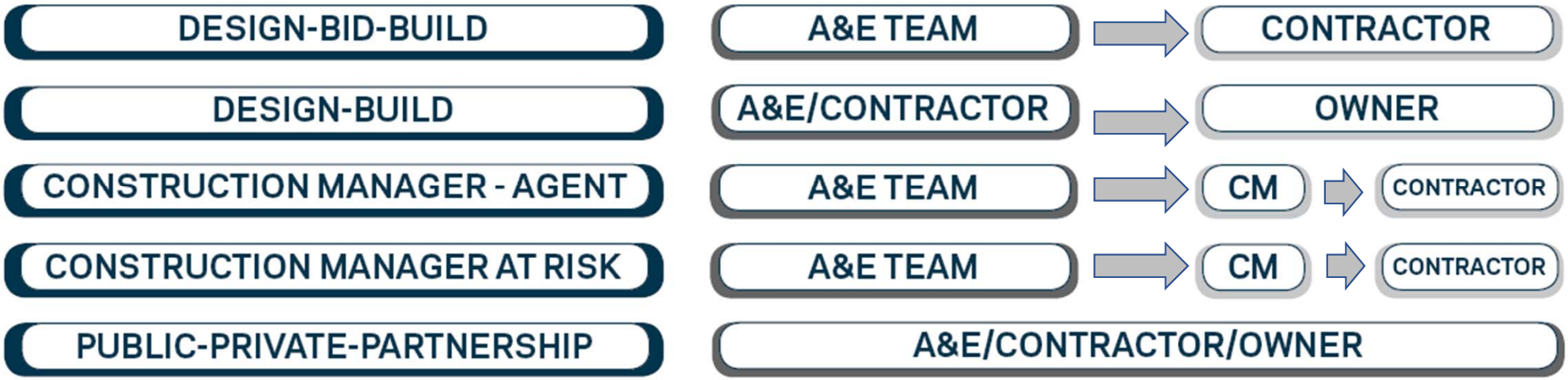
- MEDICAL EQUIPMENT
- KITCHEN LAUNDRY
- ACOUSTICS
- LANDSCAPE ARCHITECT
- ENVIRONMENTAL
- HISTORICAL

DYNAMICS OF A&E TEAM

TEAMING PARTNERS

LOCAL ARCHITECT	LOCAL ENGINEER	MINORITY SET-ASIDE	SMALL BUSINESS SET-ASIDE	COMPLIANCE

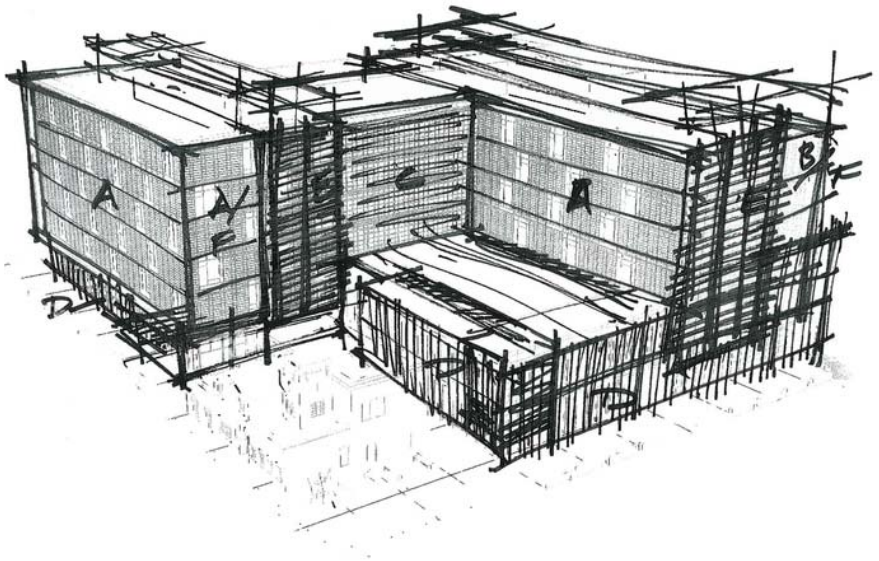
IMPACT OF PROJECT DELIVERY



IMPACT OF PROJECT DELIVERY

DESIGN-BID-BUILD

- Traditional, historical approach
- Seldom used today in the public sector
- Slowest delivery method
- A&E team vs. Contractor



DESIGN-BUILD

- Team approach
- Faster delivery than design-bid-build
- Less opportunity for adversarial relationship betwee A&E and Contractor

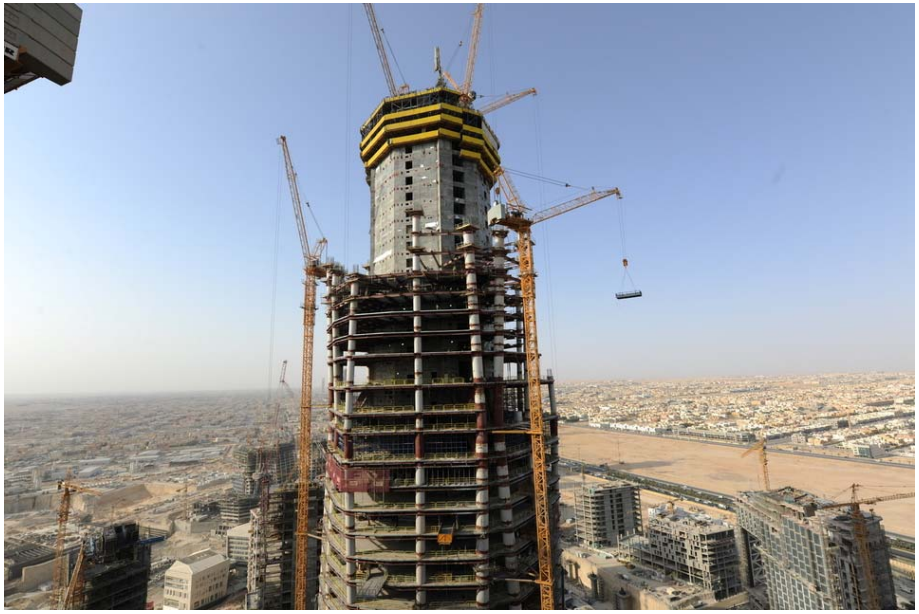
IMPACT OF PROJECT DELIVERY

CM AGENT

- Owners Representative
- Assist with decision making and management
- No responsibility to deliver the project

CM AT RISK

- Popular today in the public sector
- CM is responsible for delivering the project on time and on budget
- CM is contracted to the owner and construction trades are contracted to the CM



IMPACT OF PROJECT DELIVERY

PUBLIC PRIVATE PARTNERSHIP (P3)

- A&E, Contractor, Developer, Owner all teamed together
- Developer or Concessionaire finances the project
- Owner pays over time
- Creates opportunity for projects that otherwise wouldn't be possible

DYNAMICS OF THE A&E TEAM

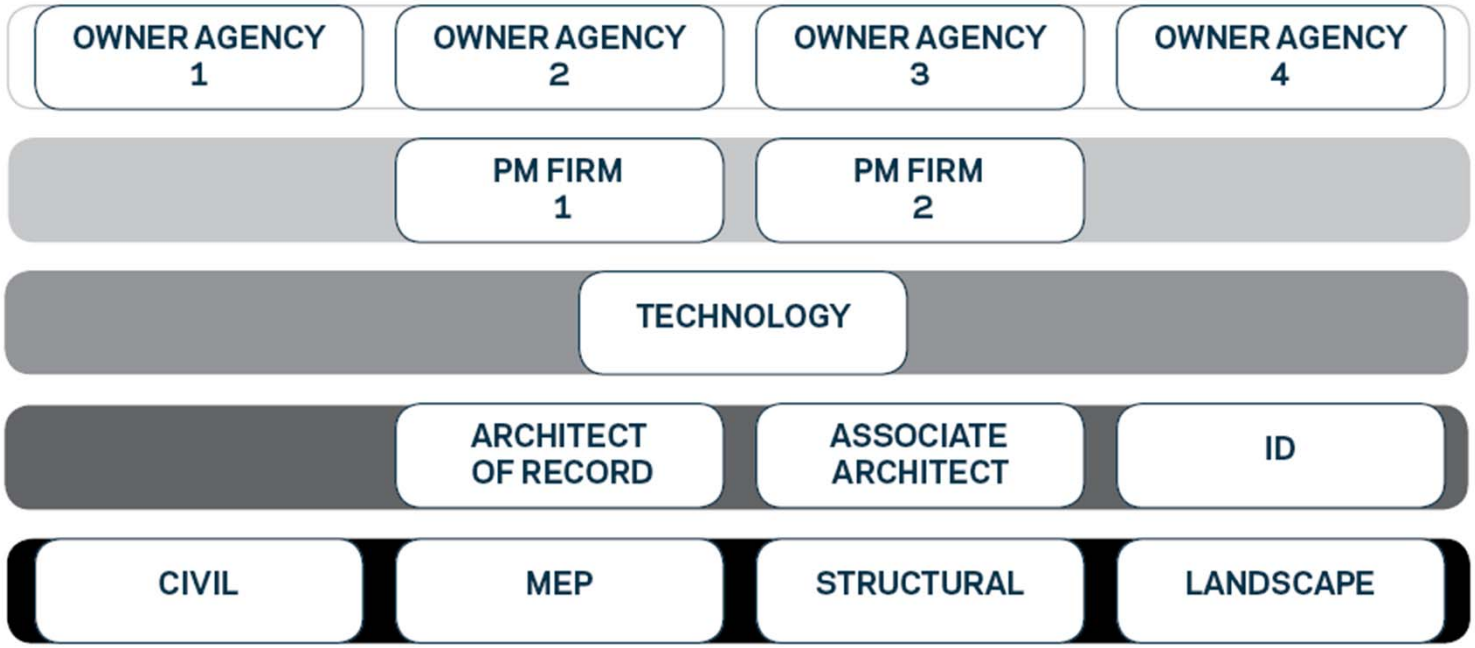
- Know your teammates and your client.
- Know your place on the team.
- Understand the client's overall project vision.
- What are the priorities for the project?
- Are there multiple clients?
- Are their priorities in conflict with each other?
- How is the technology scope affected by the client's priorities?
- Knowing this will help you decide when to challenge and when to compromise.

IMPACT OF PROJECT DELIVERY

- What is the schedule?
- What are the deliverables?
- What do you owe the other disciplines?
- What does integrated design really mean?

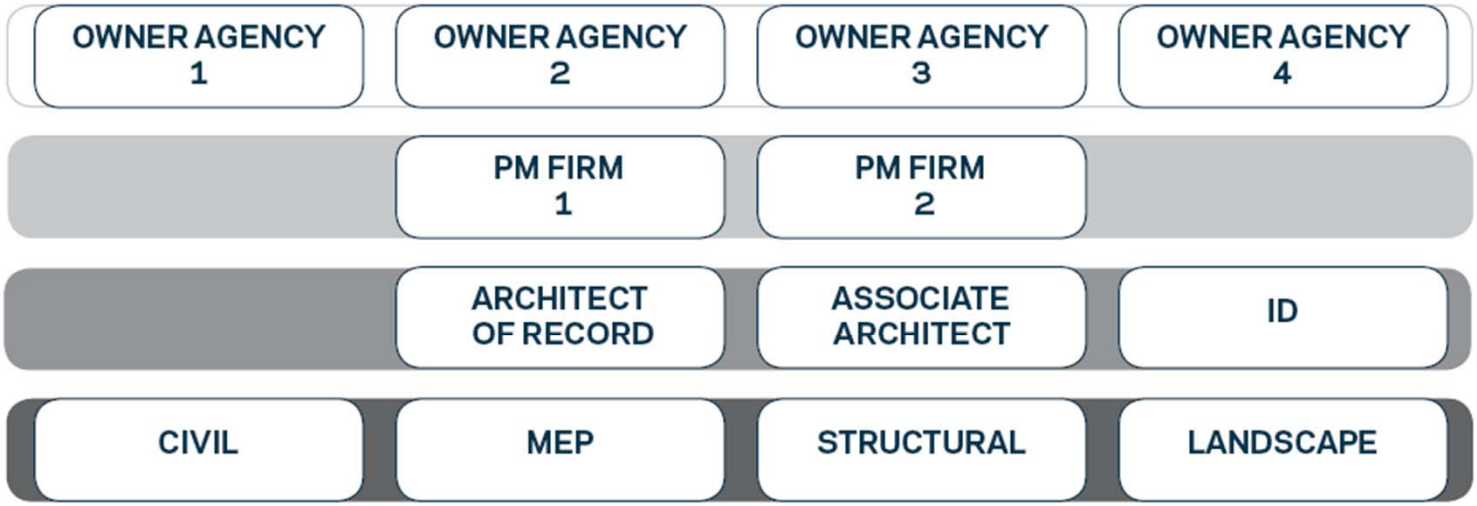
WHERE DO YOU FIT IN?

EXAMPLE TEAM



WHERE DO YOU FIT IN?

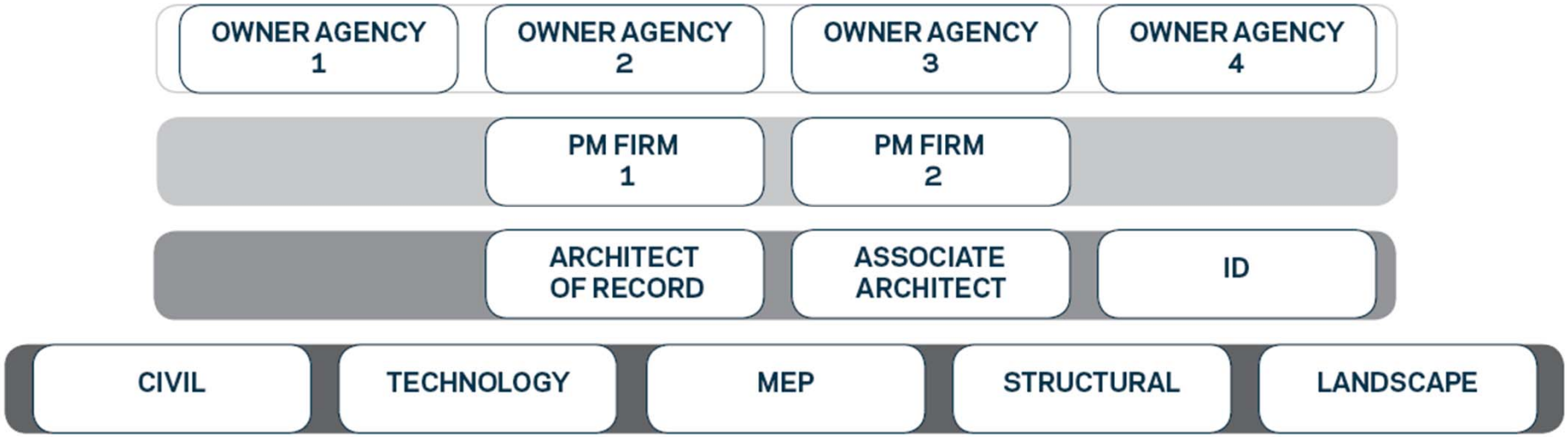
EXAMPLE TEAM



TECHNOLOGY

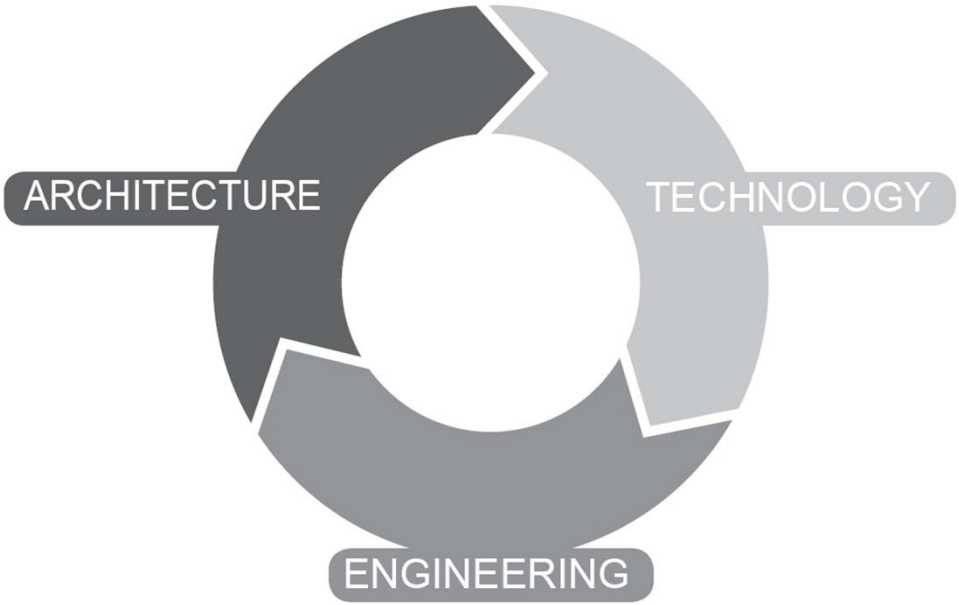
WHERE DO YOU FIT IN

EXAMPLE TEAM



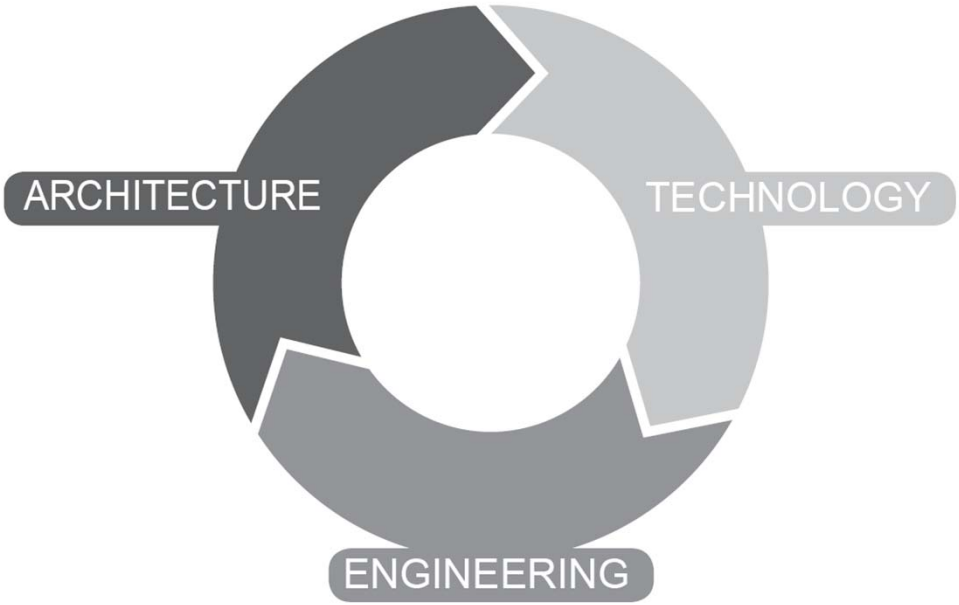
WHAT DOES INTEGRATED DESIGN REALLY MEAN?

- It’s not just coordination
- Technology affects Architecture
- Technology affects Engineering
- Each is impacted by AND has an impact on the others



WHAT DOES THIS MEAN FOR YOU?

- Insert yourself into the process early
- Tell them what you need
- Give them ideas that help reduce power and space needs
- Don’t let them squeeze ERs and TRs beyond what you need
- Talk to the engineers about heat loads and power needs early
- Compromise where it makes sense based on the clients vision



IMPACT OF PROJECT DELIVERY

- Deliverables
  - SD Phase
    - Narratives
  - DD Phase
    - Floor Plans
    - Outline Specs
  - CD Phase
    - Floor Plans
    - Reflected Ceiling Plans
    - Enlarged Plans
    - Details
    - Schedules
    - Three Part Specs

- Coordination Deliverables
  - SD Phase
    - Location and size of ERs and TRs
  - DD Phase
    - Electrical loads
    - Mechanical Loads
  - CD Phase
    - Coordination of ceiling mount devices with lighting plans
    - Coordination of ceiling mount devices with mechanical plans
    - Coordination of access control with door hardware
    - Coordination of telecommunications outlets with electrical outlets
    - Coordination of cameras and WAPs with architectural finishes

IMPACT OF PROJECT DELIVERY

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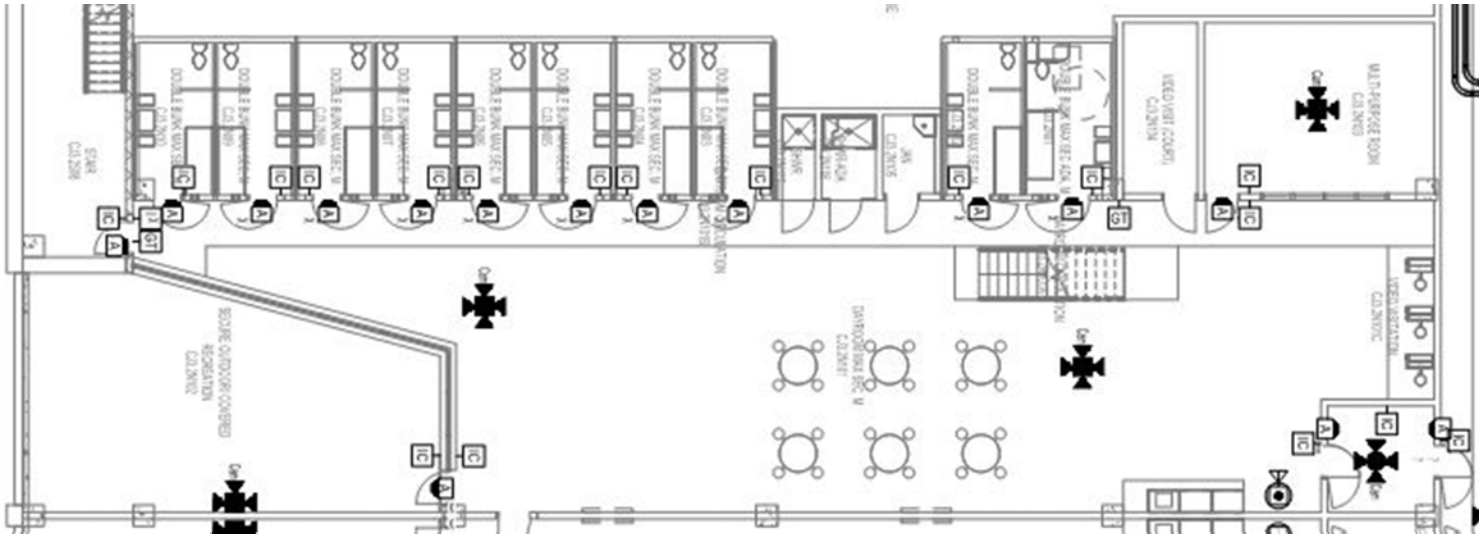
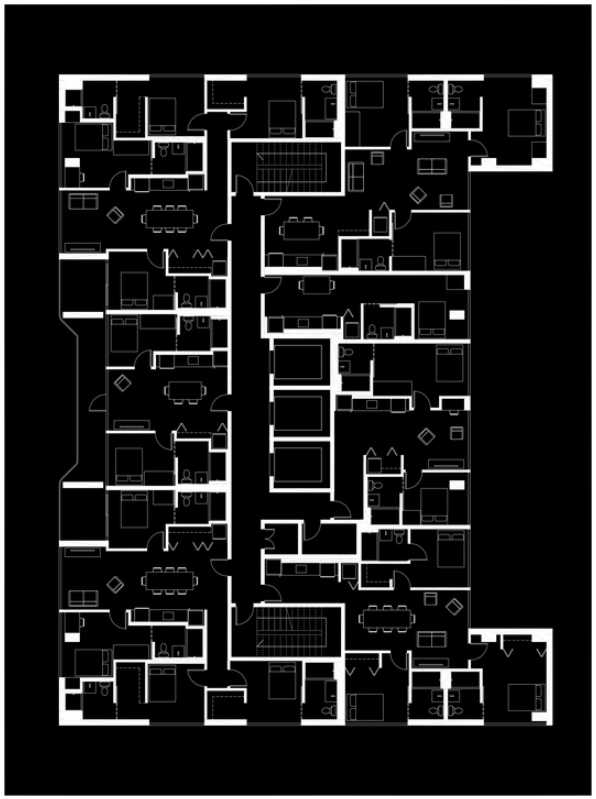
CHALLENGE VS. COMPROMISE

- Why integrated design?
  - Early involvement
  - Help drive the architectural design in favor of technology



CHALLENGE VS. COMPROMISE

- It doesn't stop there…
  - Early involvement
    - Proper placement of ERs and TRs
    - Stacking of closets
    - Keep wet piping out of technology overheads
    - Manage Landscape Planning with Video Surveillance
  - The later these issues are brought up, the more difficult they are to change



TAKEAWAYS

- Learn and understand your team AND your teammates
- Know the overall project priorities
- Know that decisions can be technical, emotional or political
- Don’t just think technical, think in context