Integrated Design Process - For office buildings

In line with our sustainability and wellness aspirations, we are modifying our usual way of working by adopting an integrated design approach, where the testing of the design against the target performance criteria is being done from the concept design itself.

This policy explains the process, and what has changed, to all the stakeholders so that the same can be implemented seamlessly across all projects.

In this process the target is not to optimize the trade costs in their own silos (Civil, MEP, Facade…), rather all efforts will be aligned to achieve such lowest capital cost for the project which results in the lowest or most energy efficient lifecycle cost of the building.

E.g. The cost of two options of facade is compared on a lifecycle impact basis, considering related elements like:

- delta cost of air conditioning capex
- delta cost of building energy consumption annual (lighting and thermal advantages)
- cleaning costs, etc.

Process (Key Steps)

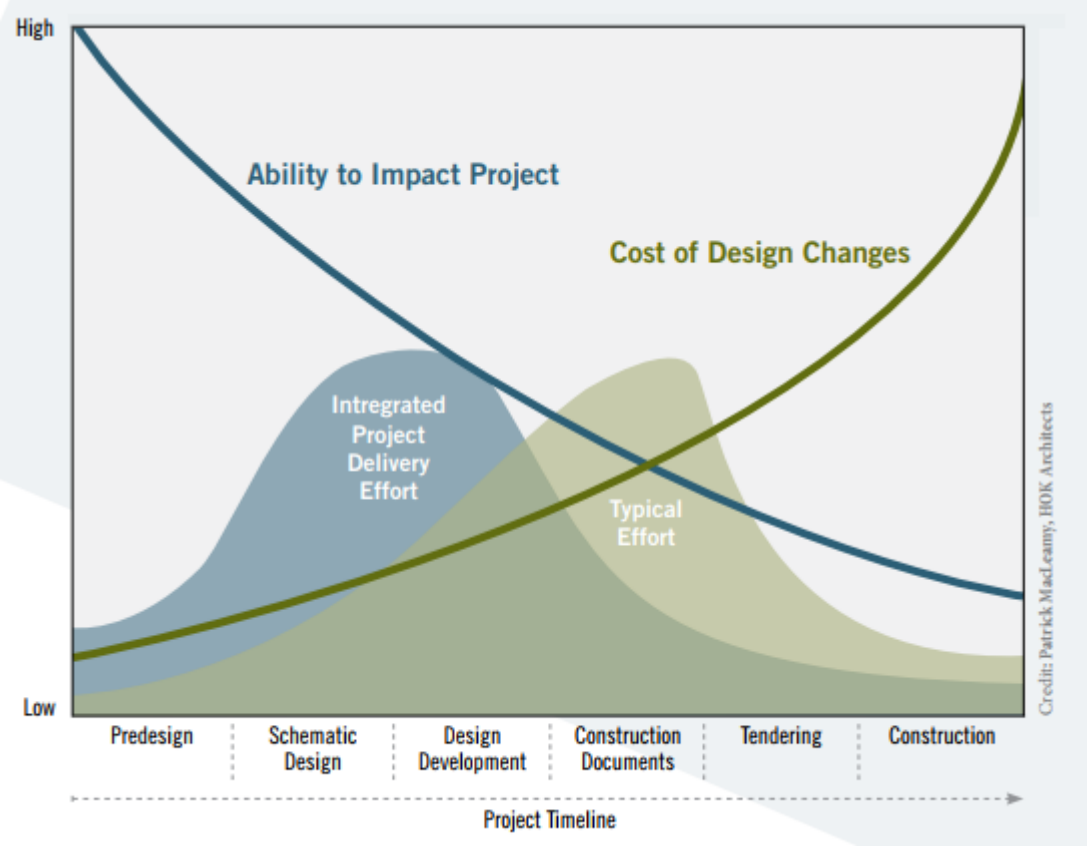
- The building is designed to a pre-defined performance standard. Performance standard are shared with all designers/consultants at the start of the project.
    - Policy 136: Guidelines wrt Well Being (Collaboration, Convenience and Wellness) for Offices
    - Policy 139: Sustainability Performance Standards
- Analytic, modelling support provided to the Architects** to test the concepts for the performance of the building.
    - The updated process is shown in Chart 1
- Building performance reporting and O&M(Operation and Maintenance) SOPs* (Standard Operating Procedures) defined (shown as part of the updated process in Chart 1)

** through the sustainability consultant to those Architects and Engineers who do not have such resources in-house
* by Facilities Management (FM) Team

This approach can be further illustrated by the following table:

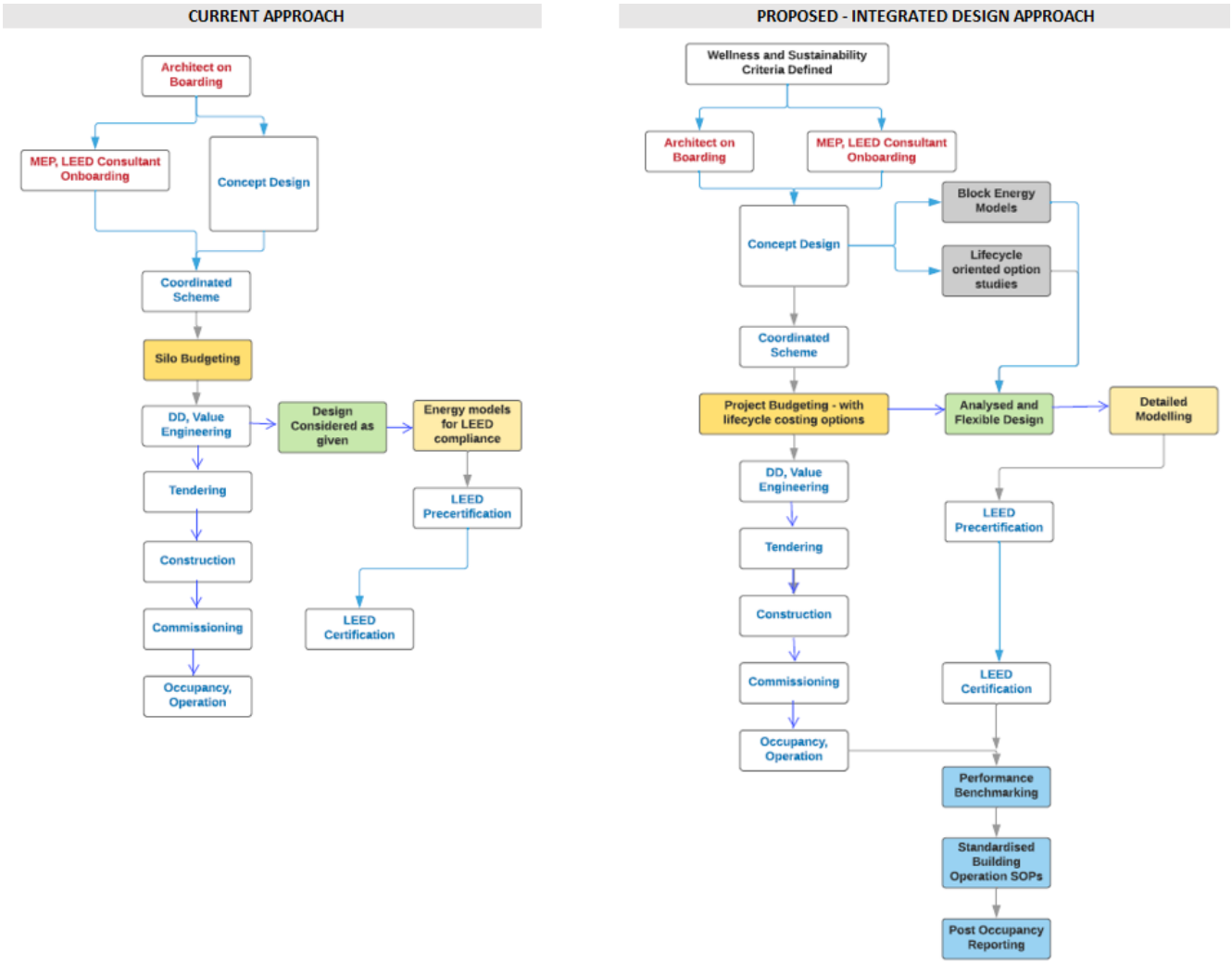
Conventional Design Approach	Integrated Design Approach
Multiple teams: Client, Architects, Engineers, Operators	One team: Comprising of Client, Architects, Engineers, Operator
Less time devoted for collaboration	More time devoted for collaboration
Linear process, involves other late (post concept)	Iterative process, everyone involved (Analytics from day 0)
System considered singularly	Project considered as a whole (Building performance)
Emphasis on Capex/Upfront Cost	Life Cycle Costing
Completed with Construction	Continues Post Occupancy

An Integrated design approach will help us to propose meaningful changes at the earliest stages of design; which is considered to be the least costly and disruptive in the project lifecycle.



Please see the proposed process chart on the next page

Chart 1 (Design Process)



Supplementary Reading (incl url links)

- https://www.rmi.org/wp-content/uploads/2017/04/OCS_Integrative_Design_Disruptive_Source_of_Expanding_ROI_in_Energy_Efficiency_2010.pdf
- https://moodle.polymtl.ca/file.php/1047/IDP-Charettes/article_design_guide_en_aug23.pdf
- https://pdfs.semanticscholar.org/5286/e33ba76ac5e23c7648ce115e0a5f4be5ac28.pdf
- http://www.beepindia.org/sites/default/files/Integrated%20Design%20Approach%20for%20Energy%20Efficient%20Buildings_Mr.%20Pierre%20Jaboyedoff.pdf
- D-05 White Paper on Life Cycle Costing (available in the policy/sustainability folder)