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Suggested Engineering Design and Documentation Phases for Domestic Sized Projects

(Intended to be used for engineering design based on "fixed fee")

- Architect should indicate if it is desirable for the Engineer to provide suggestions for economical design alternatives.
 - ~ Minor - This may be suggestions for minor architectural changes that may make considerable changes to construction costs.
 - ~ Major - If major change suggestions are also desirable, then the engineer would be expected to make allowance in the fixed fee proposal as appropriate or indicate if additional fees would apply for any added design time.
- Prior to engineering design, Architect should inform the Engineer of any restrictions such as design heights or depths (architectural limits), or indicate any proposed details that may affect the engineering design but may not be obvious, particularly if sections are not available. Preferred member materials should also be discussed if relevant.
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The owner or architect should consider the phases below and indicate the extent of involvement that is required from the engineer when discussing a fee proposal.

(eg; Preliminary phase onwards would not have sketch phase included in pricing)

- **Sketch / Draft Phase Issue;**
 - ~ Engineer would provide draft layout indicating only critical frame members;
 - ✧ No or minimal cad drafting would be undertaken and output would be in rough form only but sufficient to indicate member location in relation to architectural drawings.
 - ✧ Generally roof and first floor members sized on rough estimates of loads. Member sizes should not be expected to be final sizes, but rather give a good estimate of member size but should consider architectural limits.
 - ✧ No connection design or detailing would be undertaken. This may lead to some future increase in final member sizes if future connection design proves original member insufficient
 - ✧ Wind bracing would only be undertaken if considered as requiring critical members (wind portals).
 - ✧ Height limits set by Architect may require some window lintel designs.
 - ✧ No footings design would be expected to be undertaken at this stage.
 - ✧ Engineer to indicate "problem areas" if any and may provide suggestions for economical alternatives if applicable. (See above)
- **Feedback;** Architect to provide feedback prior to further engineering design. Architectural changes would only be undertaken if member sizes provided unavoidably conflict with the architectural limits/intent.

- **Preliminary Design Issue;**
 - ~ Engineer should undertake accurate member design and consider critical connection.
 - ✧ Issue of cad drafted engineering drawings.
 - ✧ Member schedule with all members designed.
 - ✧ Key connections designed and detailed
 - ✧ Footing system designed and detailed
 - ✧ Retaining walls and other ancillary members designed and detailed.
- **Feedback;** Architect to provide feedback. The preliminary set of engineering documentation is provided for architectural review. The intent of the preliminary issue is for the Architect / client to determine that the engineering design has been interpreted correctly and accords with the architectural design intent only, it is not intended to instigate architectural changes that would result in further engineering design.
- **Tender Issue;** (This step may not always be appropriate)
 - ~ Engineer to provide documents sufficient for proper construction stage tender to be undertaken.
 - ✧ Engineering design completed but computations not issued
 - ✧ Completed engineering drawings issued with final layouts and details.
 - ✧ Issue of other engineering provided documents necessary for tender.
- **Feedback, Call for final documentation issue;** Any changes (other than due to documentation errors or valid clarification details) requested after construction tender responses would be considered as additional engineering, as these changes would be expected only due to make the construction phase more economical.
- **Final Issue;**
 - ~ Final engineering documents issued
 - ✧ Final engineering cad drawings
 - ✧ Final engineering computational documentation
 - ✧ Engineering specifications
 - ✧ Engineering certification
 - ✧ Other Engineer provided documentation.

If further preliminary engineering designs are expected to be required, then the Architect should indicate this at submission fee request.