

Matching Design Information to Estimate Level

Most projects have design stage milestones that the Design Team complete and submit to the client for sign off. A significant amount of these projects also require cost estimates corresponding to the design stage milestones. Typically these are:

Design Stage Milestone	Design Percentage Completion	Estimate Milestone	Estimate Accuracy
Program or Feasibility Study	5%	Class D	+/- 25-30%
Schematic Design	10 – 25%	Class C	+/- 20-25%
Design Development	25 - 33%	Class B	+/- 15-20%
Mid Working Drawing	40-60%	Class B	+/- 10%
Late Working Drawing	60-90%	Class A	+/- 7.5%
Pre-tender Document	90-95%	Class A	+/- 5%

While the intent is to align the cost estimate stage with the design stage in practical terms this cannot always be accomplished. Interpretation of the design level required to meet design stage milestones is somewhat subjective, (not withstanding OAA guidelines) and as such does not always directly translate to adequate information for estimating purposes.

On the following pages are a quick check list to help designers align both Design and Estimating stage milestones.

Checklist – Preparing your Information for the Estimate

Program or Feasibility Design Milestone / CLASS 'D' Estimate	
To prepare a Program or Feasibility Design / CLASS 'D' Estimate, the following minimum requirements are to be provided.	
General Trades	<ol style="list-style-type: none"> 1. Project plan detailing the project function, purpose and characteristics, including; information relating to the gross floor area of prime building spaces, equipment, and building structural systems 2. Functional program or user requirements document 3. Floor-to-floor heights 4. General information about the exterior building elements 5. Geographic location, site configuration, planning limitations, known soil and rock information, availability of utility services to the building, as-found drawings and intrusive investigations for existing building 6. Procurement methodology and notional timing
Mechanical	<ol style="list-style-type: none"> 7. Any pertinent Mechanical Systems information or limitations
Electrical	<ol style="list-style-type: none"> 8. Any pertinent Electrical Systems information or limitations
Civil/Site	<ol style="list-style-type: none"> 9. Geographical location, site configuration, planning limitations, known soil and rock information, availability of utility services to the building, as-found drawings and intrusive investigations for existing building (if applicable) any pertinent Electrical Systems information or limitations

Schematic Design Milestone / CLASS 'C' Estimate	
To prepare a Schematic Design / CLASS 'C' Estimate, the following minimum requirements are to be provided.	
General Trades	<ol style="list-style-type: none"> 1. Principal architectural floor plans 2. Structural foundation system and typical framing system, including frame materials, grid layout and seismic conditions 3. Principal exterior wall sections and roof system selections 4. Preliminary finish schedule by rooms 5. Landscaping plans 6. Outline specification
Mechanical	<ol style="list-style-type: none"> 7. Design brief/narrative outlining scope of work and intent 8. Architectural plans 9. Basic system capacities and performance criteria
Electrical	<ol style="list-style-type: none"> 10. Design brief/narrative outlining scope of work and intent 11. Architectural plans 12. Basic system capacities and performance criteria
Civil / Site	<ol style="list-style-type: none"> 13. Basic site plans and original site drawings and investigations 14. Finish grades with paving and parking requirements 15. Storm drainage solution and existing utility locations 16. As-found drawings for existing building 17. Demolition drawings, including clear indication of existing materials to remain

Design Development Milestone / CLASS 'B' Estimate

To prepare a Design Development / CLASS 'B' Estimate, the following minimum requirements are to be provided.

General Trades	<ol style="list-style-type: none"> 1. Developed architectural (<25%) floor plans, reflected ceiling plans, roof plans 2. Structural foundation design, typical structural framing, including shear walls and size of members 3. Developed (<25%) building elevations and sections 4. Typical interior wall types and acoustical guidelines 5. Preliminary finish schedule with material selections 6. Sustainable design requirements 7. Special client-requested requirements 8. Outline specification with selected equipment, sizes, and performance requirement
Mechanical	<ol style="list-style-type: none"> 9. Schematic flow diagrams 10. Preliminary equipment selections/schedules 11. Plans showing locations of major equipment 12. Plans showing routing of mains (duct and piping) runs/zoning 13. Schedule information 14. Plumbing fixture locations 15. Fire protection zoning
Electrical	<ol style="list-style-type: none"> 16. Preliminary Single Line Diagram 17. Preliminary Lighting and Controls Layout 18. Preliminary Systems Layout 19. Costs to be excluded by Electrical contractor; such as, security equipment, communications cabling, public address and audio visual equipment, etc.
Civil / Site	<ol style="list-style-type: none"> 20. Site plans, indicating building locations and site improvements (including all paved areas, site utilities, and building or vertical structure locations) 21. Additional site investigations, as required 22. Topographical information (current and engineered topographical information) 23. Utility location (showing all underground structures and lines) 24. Demolition/removal plans and information

Mid Working Drawing Milestone / CLASS 'B' Estimate

To prepare a Mid Working Drawing / CLASS 'B' Estimate, the following minimum requirements are to be provided.

General Trades	<ol style="list-style-type: none"> 1. Developed architectural (<50%) floor plans, reflected ceiling plans, floor plans 2. Structural foundation design, typical structural framing, including shear walls and size of members 3. Developed (<50%) building elevations and sections 4. Typical interior wall types and acoustical guidelines 5. Developed finish schedule with material selections 6. Developed specifications – draft sections as available for each discipline
Mechanical	<p>In addition to Design Development information:</p> <ol style="list-style-type: none"> 7. Control sequences/diagrams 8. Diffuser layout 9. Perimeter heating layout 10. Piping routing development (heating and cooling) 11. Ductwork routing development 12. Sprinkler head layout 13. Fire hose cabinet layout 14. Preliminary specifications 15. Schedule/phasing development 16. Plumbing system development <ul style="list-style-type: none"> • Storm • Sanitary • Gas • Potable water • Specialty systems 17. Any pertinent notes or comments relating to the scope of work
Electrical	<p>In addition to Design Development information:</p> <ol style="list-style-type: none"> 18. Single Line Diagram, including the ampacity and number of circuits per panel 19. Lighting fixture schedule 20. Preliminary receptacles and mechanical equipment layout 21. Location of distribution equipment on floor plans 22. Any pertinent notes or comments relating to the scope of work
Civil / Site	<ol style="list-style-type: none"> 23. Developed site / civil / landscape plans 24. Demolition / removal plans and information 25. Sustainable design requirements 26. Special client-requested requirements

Late Working Drawings Milestone / CLASS 'A' Estimate

To prepare a Late Working Drawings / CLASS 'A' Estimate, the following minimum requirements are to be provided.

General Trades	<ol style="list-style-type: none"> 1. Detailed floor plans, reflecting ceiling plans, roof plans 2. Detailed demolition drawings (if renovation), including clear indication of existing materials to remain 3. Detailed structural plans, notes, sections, and details fully describing the structural building requirements 4. Building elevations and building sections 5. Exterior wall sections 6. Details of exterior walls, stairs, toilet rooms, etc. 7. Finish schedule and notes 8. Special details and conditions (millwork, handrails, etc.) 9. Conveyance plans, specification and sections fully describing elevators, escalators and lifts 10. Project specifications, completely describing materials and performance requirements 11. Details, schedules and notes to be used in the construction of the project.
Mechanical	<p>In addition to Mid-Working Drawing information:</p> <ol style="list-style-type: none"> 1. Fully developed plumbing, fire protection, HVAC and control drawings and schedules 2. Project specifications
Electrical	<p>In addition to Mid-Working Drawing information:</p> <ol style="list-style-type: none"> 3. Fully developed Single Line Diagram with panel schedules 4. Mechanical schedule with horsepower / voltage / FLA / ratings. 5. Project specifications
Civil / Site	<ol style="list-style-type: none"> 6. Final site drawings showing current and engineered topical information 7. Utility locations and design showing all underground structures and utility lines 8. Landscaping – all landscape layout and materials, grading and drainage, planting and construction detail drawings

Following these guidelines will help align the design and estimating stage milestones and provide a more accurate indication of the project development and cost.

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