



Dear Potential Client,

This “Things to Consider” package is designed to point out the pro’s and con’s of the various ways that you can approach your project regardless of how early or late in the game you may be and regardless of size and complexity of the project.

First, please take as fact that construction of buildings that people occupy is a relatively complex undertaking. Your appreciation of this from the outset will provide you the right foundation from which to set your expectations. Even when choosing an inherently more efficient form of construction there is still much to consider and this complexity increases if speed to occupancy is a key reason why you are considering modular.

Second, please consider this thought: There are countless studies about construction that have concluded that decisions made early have the most impact on the overall success or lack thereof of a project. The first phase includes professional services of planning, budgeting, design and engineering and importantly includes cost control, and setting expectations that satisfy all stakeholders. We tell our Owners that if you don’t contract in a two-stage format with a planning phase to start, there is a good chance that you are adding costs and potential problems down the road.

Lastly, having experienced design and construction people on your team can help greatly. As said, construction costing and building require expertise, no matter if you are building a small school addition of 5000 sq feet or building a 50,000 sq foot patient care center, the more expertise we have on the Owners team the better.

An expert review of code and constructability of all aspects of your new building, facilitated by us will reveal or verify your early budget thoughts. We only do that amount of early design drawings and engineering that is necessary given the complexity of your job.

However, in permanent projects, a lack of commitment to detailed drawings, or designing in chunks greatly increases the chances for surprises, cost increases and finger pointing as the details are filled in. Disputes are avoided by gaining an understand the whole process upfront, rather than deal with reactionary design, design as we go, design by committee, etc. Schedule and costs are constantly changing in this environment.

We will discuss how to reduce costs of design and engineering, we can do some of this with modular because the manufacturer completes the structural design and must be deferred to in this process. We use consulting architects for general schematic, programming, aesthetics, sustainability review only.

Our process can seem rigid at times, such as how we impart strong design freeze dates, but we have come to know that with modular construction the road to success has certain guard rails. We actually take a bit of pride in joking with our clients that they can be their own worst enemy – but they usually agree. After all we are the ones that have been through similar projects many times in the past, so we embrace an unwritten obligation to protect you from yourself...(smile)

If we are at this stage, we have already suggested that we enter a Phase 1 agreement to help you flush out the costs of your project. We understand that there are “million” reasons that you don’t want to commit too early. We make buying decisions all the time ourselves. How do you give one preferred contractor your trust, while still ensuring that you receive the fairest and best price from them? Choosing a partner with a long record of success helps, but also we offer open book pricing, where we share with you all the costs of the job, we make the buyouts together and you will know every aspect of your costs, and our fees.

In closing, the best advice we can give is this: the moment you get serious about your construction project we recommend hiring a specialty firm like Triumph who has a long track record of experience with modular construction, and who has helped hundreds of similarly situated folks like yourself.

Thank you again for reading this.

Sincerely,



Glenn A. Cort  
Executive Vice President

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HOW THE CUSTOMER EXPLAINED IT



HOW THE PROJECT LEADER UNDERSTOOD IT



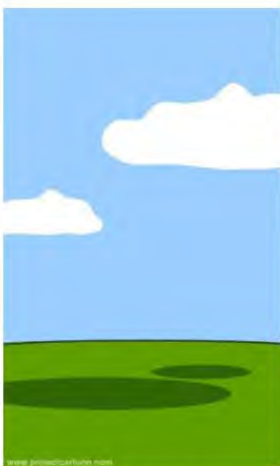
HOW THE ARCHITECT DESIGNED IT



HOW THE ENGINEER WROTE IT



HOW THE BUSINESS CONSULTANT DESCRIBED IT



HOW THE PROJECT WAS FUNDED



WHAT WAS ACTUALLY INSTALLED



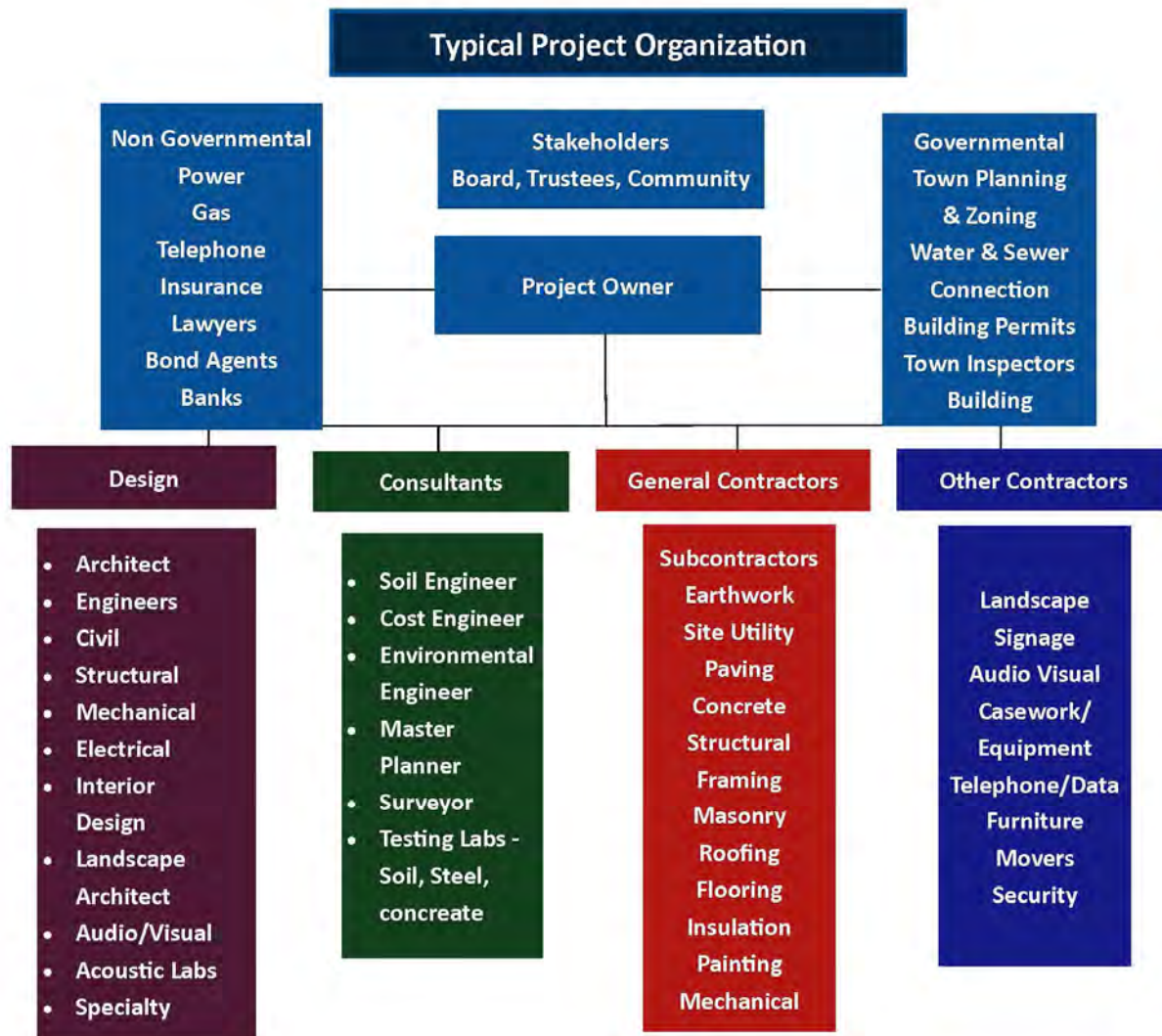
HOW THE CUSTOMER WAS BILLED



HOW THE WARRANTY WAS SUPPORTED



WHAT THE CUSTOMER REALLY NEEDED



# DESIGN AND CONSTRUCTION

Design and construction projects typically involve the following six phases:

## **1. Programming (deciding what to build)**

You and your architect will begin by defining the requirements for your project (how many rooms, the function of the spaces, etc), determining how your desires fit within your budget.

## **2. Schematic design (developing the concept)**

During this phase your architect prepares a series of rough sketches that reflect a conceptual approach to the design, general arrangement of the rooms and general organization of the site. You approve these sketches before proceeding to the next phase.

## **3. Design development (redefining the design)**

Your architect prepares more refined drawings, which communicate and document more detailed aspects of the proposed design. Floor plans show the proportions, shapes, and dimensions of all the rooms. Outline specifications listing the major materials and room finishes are prepared.

## **4. Preparation of construction documents**

Once you approve the design, your architect prepares detailed drawings and specifications, which your contractor can use to establish actual construction costs, obtain permits to begin construction and build the project.

## **5. Hiring the builder**

Once you approve the design, your architect prepares detailed drawings and specifications, which your contractor can use to establish actual construction costs, obtain permits to begin construction and build the project.

## **6. Construction**

Your builder builds the project and is solely responsible for construction methods, techniques, schedules and procedures.



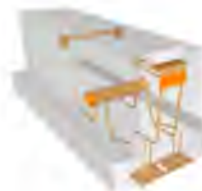
## LEVEL OF DEVELOPMENT



LOD 200



LOD 300



LOD 350



LOD 400

### LOD 100 - Concept Design

The building 3D model is developed to represent the information on basic level. Thereby, only conceptual model creation is possible in this stage. Parameters like area, height, volume, location and orientation are defined

### LOD 200 - Schematic Design

General model where elements are modeled with approximate quantities, size, shape, location and orientation. We can also attach non-geometric information to the model elements

### LOD 300 - Detailed Design

Accurate modeling and shop drawings where elements are defined with specific assemblies, precise quantity, size, shape, location and orientation. Here too we can attach non-geometric information to the model elements

### LOD 350 - Construction Documentation

It includes model detail and element that represent how building elements interface with various systems and other building elements with graphics and written definitions

### LOD 400 - Fabrication & Assembly

Model elements are modeled as specific assemblies, with complete fabrication, assembly, and detailing information in addition to precise quantity, size, shape, location and orientation. Non-geometric information to the model elements can also be attached

### LOD 500 - As-Built

Elements are modeled as constructed assemblies for Maintenance and operations. In addition to actual and accurate in size, shape, location, quantity, and orientation, non-geometric information is attached to modeled elements

## **Embarking on a new construction project ? Things to consider:**

- Discuss the Design Process and the Role of Architect on the project Team: Consider the various stages of design, from general schematic to detailed fabrication drawings. (Please refer to the generally accepted levels of design document included herein)
- Discuss the pros and cons of setting price without design detailing.
- Discuss the timing of design detailing, design approvals and submittals and the impact on budget and project schedule.
- Discuss owner's budget for design detailing.
- Discuss the "Submittal Process" and tradeoffs for lack of approvals or post contract or 'during construction' designing on the fly.
- Qualify and choose an architect based on early needs review and budget, recommend to staff alternatives that satisfy program requirements and satisfy all applicable codes,
- Discuss Land Use permitting process, Surveying and Civil "site use and planning" assessment: Meet with owner to develop floor plan and basic programming (room size) requirements.
- Identify additional consultants if and when needed to generate the project specific required information for submittals to the appropriate officials. Meet with owner and staff to determine requirements and explain alternatives.
- Provide simple Concept Drawings: including basic floor plan, elevations with window and door locations, prelim site "massing" or lay out plan (not for permit set) of modular building on a customer provided site plan.
- Design drawings for "Program Analysis": a space measurement analysis for the design which shall verify that the sum of all program floor areas plus all other floor areas equal the gross floor area. Integrate program requirements with constructability review with consideration of the modular construction method.
- Review with the Owner the prior work done with the local regulators, or permitting authorities if any.
- Collect and study all available drawings and data pertaining to utilities, boundaries etc. at the project site.
- Research local by-laws and applicable building codes, regulations and ordinances of the various permitting agencies. Establish the Building Code Requirements including review of all relevant applications and filing and approval procedures for the project.
- Define the "Permit Set" of Drawings.

- Create the initial schematic drawings and descriptions of the work necessary to communicate the scope and intent of the work to the Town building committee, its council, permitting officials.
- Conduct a thorough onsite review of conditions for modular feasibility and existing utility locations.  
Arrive at schematic utility plan for budgeting purposes. -Integrate program requirements with constructability review with consideration of the modular construction method.
- Environmental assessment: review available site data to confirm that there are no environmental restrictions for early budgeting, and then in concert with civil engineering for permit and construction set of drawings.
- Provide simple floor plan and preliminary building elevations.
- Identify role of Surveyor, in concert with development of a detailed scope of work narrative and checklist of all site related work.
- Identify role of Civil Engineer for site development plans to consider : Wetlands information, proposed and existing topography, proposed and existing buildings and site features, floor and roof elevations for all buildings. Flood zone plan and local approval letters for Flood Zone construction where applicable. Site Plan to include current existing Utility recognition, proposed new utility connections plan and budget for all as-built plans with engineer. Plan for fire safety and emergency equipment access as part of the Site Plan. Geo-environmental analysis: review available geotechnical data, as available, to determine soil conditions, remediation requirements and appropriate foundation design criteria, geotechnical, subsurface, or topographical evaluation of the existing site; review of existing available data. Evaluation of hazardous materials. Demolition of existing adjacent buildings or structures.
- Building Systems Descriptions: describe in narrative and on schematic plans basic information
- Building Structure: a written narrative of the design approach to the structural systems including discussion of the feasible options for foundations and superstructure
- Develop a detailed cost estimate for construction and a total project budget for review by the Owner
- Storm water Management design
- Environmental restrictions at the site, Pavement/Parking plan
- Landscape development plan, including planting areas, plant species, retaining walls, etc.
- Rainwater recovery and storage plan, Irrigation and other water efficiency strategies



## **Modular Building Considerations (Built off-site)**

- Selection of the modular manufacturer – early selection of the most important sub-contractor partner, ensures quality standards, scope clarity.
- Site Considerations – review design of the structure, foundation, access and egress, spatial orientation - coordinate with the modular factory on any relevant issues.
- Code Analysis – research modular specific State code requirements.
- Utility Analysis – capacity of required utilities for the modular building, consistent with modular design considerations.
- Transportation Analysis – consider site access issues, route and geometric (if applicable) surveys and integration into its surroundings. Evaluate transport permitting requirements relative to modular width, height, length restrictions, escorting and police details, street closures, parking reservations.
- Installation Analysis – consideration of crane sizing requirements based upon module weights and sizing, proximity of set to foundation, crane installation.
- Building design and relevance to Foundation sizing and impact on site.
- Final design detailing of water run off.
- Final design detailing of how the building meets the earth and foundation.
- Construction Schedule Development – integrate factory fabrication process (plan preparation / third party review / State approval process, material selection / procurement, construction)with site / utility / foundation / installation / fit-up.
- Collection and study of all available drawings, data pertaining to the Project, and conduct thorough onsite review of conditions, analyze permit requirements and applicable codes and regulations, including any special design standards; contact local building officials when indicated to identify and confirm applicable standards and any Project Specific criteria.
- Provide initial siting analysis, access, topographic and utilities recognition for budgeting purposes prior to engaging civil engineer. Engineer will be required for permit set.
- Preliminary Traffic Flow Analysis: analyze the impact of anticipated vehicular and pedestrian traffic, including impacts to existing infrastructure, to determine efficient and safe site access.
- Preliminary Environmental Assessment: review available site data to confirm that there are no environmental restrictions. Review available geotechnical data, as available, to determine soil conditions, remediation requirements and appropriate foundation design criteria.
- Utility Analysis: determine the availability and capacity of all required building utilities.
- Site Planning - an analysis of the building's integration into its surroundings and neighborhood with drawings, models, or photographs.

- Schematic Building Floor Plans for all floors and roofs at scale, showing all elements of the building including overall dimensions, gross square footage of each floor and net square footage of each space, response to functional requirements of program, major/minor access and circulation.
- Schematic Exterior Building Elevations for all sides and orientations indicating all exterior finishes and fenestration.
- Building Structural plans: structural systems including discussion of the feasible options for foundations and superstructure.
- Plumbing and HVAC: Plans of the systems and proposed fuel source (s). provide schematic plans indication basic distribution concepts and location of major equipment items such as boilers, water heaters, cooling towers, chillers, air handling units, heat recovery units, exhaust stacks etc.
- Fire Protections: written narratives of the basic systems and design criteria, provide schematic plans indication basic distribution concepts and the location of major equipment items such as fire pumps, standpipes, and fire department connections.
- Electrical (including power, light, communication, fire alarm, video/CATV, and security/surveillance: written narratives of the proposed electrical and communications systems, resources, needs, and proposed scope. Provide schematic plans indications basic distribution concepts and the location of major equipment items such as switchgear, standby generator, and control centers/panels.
- Interior lighting design and Exterior lighting design.
- Acoustic performance analysis, wall assemblies, sound transfer.
- Information Technology: schematic plans indication basic distribution concepts, location of major equipment items such as switches and hubs.
- Renewable Energy Options: explore renewable energy systems and/or equipment including their benefits, estimated payback, etc.
- Sustainable Design Features: explore opportunities which exist as a result of the site, location, and proposed building design.
- LEED Scorecard or -describe sustainable design features included in the proposed design and a plan for implementation
- Discuss appropriate public utility energy conservation design programs
- Provide modular building specifications that define the quantity and the quality of materials, finishes, products, equipment – Design Architect
- Accessibility: an analysis of the designs compliance with the Americans with Disabilities Act (ADA)

## **AGREEMENT FOR PRE-CONSTRUCTION SERVICE**

This Agreement made as of the \_\_\_\_ day of \_\_\_\_ in the year of 2019, between \_\_\_\_\_, (“**Owner**”) and **Triumph Modular Inc. (“Contractor”)**. Owner wishes to explore the feasibility and cost of a building project and wishes to engage Triumph Modular Inc. to explore requirements of the work and arrive at a certain level of readiness as well as a responsible budget.

Therefore, the Owner and Contractor agree as follows.

### **Article 1: Contractor’s Services**

**Programming and Conceptual Design:** Meet with the client several times to define the requirements of the project, e.g. how many rooms, the function of the spaces, etc., total size and occupancy of the building and how your initial desires and design concepts fit within your budget. Triumph will prepare a floor plan and sketch elevations that reflect arrangement of the rooms as well as general organization and layout of the building on the site (a “initial massing or sitelayout plan”). After approval of the initial sketches, we will prepare a systems summary, Electrical, HVAC, Plumbing and Fire Protection, with discussion with the Owner to arrive at a budget as well as a milestone schedule.

**Site Assessment Review:** Triumph licensed construction supervisor will review all available record information pertaining to property boundaries, setbacks and approximate Wetland boundaries, as well as a utility or site plan provided by the owner to arrive at a preliminary utility connections plan. Project team will consider all permitting requirements of the job including, basic zoning requirements for setbacks, lot coverage, parking requirements. Vehicular circulation for both cars and buses and emergency access. We will locate existing utilities and provide initial opinion of the sufficiency of the utilities to meet the needs of the new modular addition or a stand-alone newbuilding.

Any documents will not be final engineered or stamped at this time may not be sufficiently prepared to the level required for ultimate permitting of the project, and later detailed engineering will be required for final design and documentation.

## **AGREEMENT FOR PRE-CONSTRUCTION SERVICE**

### **Article 2: Fees and Charges:**

Fee \$3,500.00 – Billed as a percentage of task complete at an hourly rate

\$185.00. All work to be completed and billed within 45 days.

If at Owners request, outside professional services are sought, Owner agrees to pay the Contractor for services as follows:

Architectural Services .....	\$185 / Hour
Engineering Services .....	\$185 / Hour
Construction Consulting Services .....	\$185 / Hour
Architectural Draftsman Services .....	\$ 75 / Hour

All costs and fees will not be exceeded without prior approval by the Owner. Invoices are due and payable upon receipt

### **Article 3: Owner's Responsibilities**

The Owner shall provide full information to Contractor regarding requirements for the Project, including a program setting forth the Owner's budget, objectives, schedule, constraints and criteria, including space restrictions and other site requirements. The Owner shall also provide data including but is not limited to as built drawings, budget restraints, photographs.

### **Article 4: Miscellaneous**

Architectural and/or engineering services shall be procured, if necessary, from licensed independent design professionals retained by the Contractor on owner's behalf.

## AGREEMENT FOR PRE-CONSTRUCTION SERVICE

Neither an express nor an implied warranty is given by the Contractor regarding the accuracy or completeness of the Plans, drawings, designs and/or other documents if such Plans, drawings, designs and/or documents are used by others to construct or complete the Project.

The Contractor shall not be held responsible for additional expenses incurred or errors resulting from erroneous base data.

If the Owner elects not to engage the Contractor beyond the Pre-Construction Phase, neither the Owner nor the Contractor shall have any further obligation under this agreement, other than the payment of compensation as set forth in this Agreement.

**IN WITNESS WHEREOF**, the undersigned, individually or by and through their duly authorized officers, and pursuant to authority duly given, have caused this Agreement to be duly executed as of the date first set forth above.



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Triumph Modular  
Glenn Cort, Executive Vice President

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Your Signature Here

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Date

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Date