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Steps in the Design Process
Single-Family Custom Home Project

1. Initial Meeting(s) – *The Client and the Architect meet to discuss the scope, schedule and budget of the project as well as the procedures to get the job completed.*
2. AIA Contract – *The Architect prepares a standard American Institute of Architects contract for the project that lists the information gathered in the initial meeting(s) and lists what is expected of the Client and the Architect during the project including how the design team will be compensated.*
3. Interview Process – *The Client and the Architect meet further to discuss the Client's requirements, goals and wishes for each room of the house including outdoor spaces. Style, quality level and preferred materials are discussed. The Client may show the Architect a wish list of photos from books and magazines containing features the Client desires to be incorporated into the design. The Architect and the Client may tour the Client's current home or other homes to discuss likes and dislikes.*
4. Program Document – *The Architect prepares a document that lists all of the information gathered in the interview process. A list is created containing all of the requirements and desired adjacencies for each room in the house. A diagram is produced showing each room in relation to each and the circulation patterns to be created. A green building strategy is agreed upon.*
5. Site Selection – [optional] -- *The Architect can assist the Client in selecting a site to build upon by helping to evaluate strengths and weaknesses the site may have in meeting the Client's goals. Feasibility studies can determine if the project's program will fit onto the site and if there any code restrictions in place prohibiting any part of the proposed construction.*
6. Professional Site Survey – *The Client is responsible for providing a site survey from a licensed surveyor that includes all boundaries, topography, built features and utilities. A paper drawing is produced and an electronic CAD file is sent to the Architect for the design team to use.*
7. Site Visit & Analysis – *The Architect visits the site to scout the opportunities and limitations of the site. A drawing is made to overlay the site survey showing a summary of possible building locations, views on/off site, access points, noise issues, privacy concerns and natural features that may affect the design. Typically a*

tour of the neighborhood and other spots in the region is also made to gather design cues on what may be appropriate architecture to be used at the site.

8. Code Analysis – *A site visit is often followed by a meeting at the local building department where the requirements of a project submittal for review are discussed. The Architect researches all of the applicable building codes for the project location including what is allowable under the local planning code and home owner's association. A list of constraints is produced as a reference including such items as building height limits, required setbacks from property lines, restrictions in materials, architectural style, landscaping, and energy use to name just a few.*

9. Schematic Studies – *The Architect looks at alternate ways to make the program into a real floor plan and presents sketches to the Client to assist them in their decision making. If needed to explain the ideas, building section and exterior elevation sketches are added to the floor plans for debate. Revisions are made until the Client feels comfortable all goals are met.*

10. Schematic Models – [optional] – *For complex designs, a cardboard model or a 3D computer model of the schematic design options may help the Client visualize the proposed home's proportions, scale and impact on the site before committing to the engagement of the engineering consultants and preparation of the full building permit and construction drawing package.*

11. Design Development – *The Architect further develops the design and works with the Client to choose building materials, plumbing fixtures, light fixtures and appliances. The building permit and construction drawing package grows to include a site plan, floor plans, roof plan, reflected ceiling plans, building sections, exterior elevations, wall/ceiling/floor/roof assemblies and window/door schedules.*

12. Engineering Consultants – *During the Design Development Phase the Architect is consulting engineers on the impact of structural, mechanical, plumbing and electrical systems on the building. Estimates are gathered from the consultants for their services and presented to the Client. After contracts are signed, a package of drawings is created by the Architect along with electronic CAD files to give to the consultants so they can begin their work.*

    Structural Engineer – *Sizes foundations, floor slabs, floor joists, wall studs, posts, beams, ceiling joists, roof trusses and details all of their connections. Designs a complete skeletal system to protect the home from the forces of gravity, thermal expansion, wind and earthquake.*

    Civil Engineer – *Directs the grading of soil in preparation for the structures so as to protect them from water intrusion. Coordinates utilities crossing the site from home to street. Sizes and details site features such as retaining walls, driveways, bridges, wells, and septic systems. Creates a plan to protect the environment from construction activity and pollution runoff.*

Mechanical Engineer (HVAC) – *Sizes and locates elements of the heating, ventilation and air conditioning (HVAC) systems based upon the size of the home, its location, orientation, materials, insulation as well as the size and quality of the windows and doors. Creates documents showing compliance with state energy codes. In the past, the HVAC was designed by the contractor, but with the increasingly stringent mandatory requirements to save energy, especially in today's green homes, a mechanical engineer is an essential member of the design team.*

Mechanical Engineer (Plumbing) – [optional] -- *The Architect typically produces a drawing showing the locations and models of all plumbing fixtures and gas appliances. Working with the building code, the contractor works out the size and locations of pipes during construction with the oversight of the building inspector. In a higher end home, a mechanical engineer would design the system (before construction) for the efficient heating and distribution of water to avoid the homeowner waiting for hot water at the faucets. In a green home, tankless water heaters, solar hot water and a greywater irrigation system may be good reasons to include plumbing in the mechanical engineer's scope of work.*

Electrical Engineer – [optional] -- *The Architect typically produces an electrical layout showing the locations of light fixtures, equipment, fans, receptacles, switches and electrical panels. Telephone, cable-TV, audio system, intercom, central vacuum and computer network outlets are also shown on this electrical plan. An engineer can create single-line diagrams, panel schedules and load calculations during the design phase or the contractor can provide them to the building inspector during construction. In a green home the electrical engineer can coordinate solar and wind energy systems.*

Landscape Architect – *Designs site features such as walkways, patios, planters, trellises, fences, pools, ponds and outdoor kitchens if not designed by the Architect. Selects and locates trees and plants to enhance the architecture and facilitate the homeowner's outdoor activities. Sizes the irrigation system to efficiently maintain the plants. Selects and locates low voltage lighting to enhance the site's outdoor features.*

Client's Other Consultants – [optional] -- *The Architect will work the client's own consultants if they are invited to work on the project including:*

Interior Designer / Decorator
Audio-Visual Consultant
Computer / Networking Consultant
Professional Cost Estimator
Lighting Consultant
Kitchen Consultant
Feng Shui Specialist

Vineyard Consultant
Real Estate Agent
Attorney

12. Soils Testing – *Almost all jurisdictions now require a soils report by a licensed geotechnical engineer, describing the results of boring samples and containing the engineer's recommendations to the contractor on how to prepare the site for structural footings so that they are stable in conditions of water saturation, frost and earthquake. The structural engineer will use this report to adapt the size of concrete footings and slabs to the bearing load the local soil is capable of taking.*

13. Septic and Groundwater Testing – [for rural sites] – *If the site will have a septic system, the soil will need to be tested to see how much water can percolate into the soil in a given time period. The percolation and local rainfall data helps the civil engineer size the septic system. If the site will have a well, tests will determine how much water is available for use per hour and what filtration requirements exist. A water storage tank may be required for domestic use as well as for fire department use during an emergency.*

14. Final Finish & Fixture Selections – *The Architect works with the Client (and optionally an interior decorator) to select interior and exterior finishes and colors. Showrooms and websites are visited to view samples and a finish schedule is made listing all finishes room by room including paint colors. All interior elevations are drawn showing cabinetry, trim and finishes. A floor finish plan may be required to show complex patterns in the floor finish. The client may wish to have a materials board made with all of the samples collaged together, or drawings colored to show finishes. These tools are helpful in selecting window treatments, rugs and furniture.*

15. Permit & Construction Drawing Package – *The drawings created thus far are annotated with notes showing the design's compliance with building codes. A written specification is created describing the requirements and directions for installing each type of building material. The Architect creates construction details showing how materials are attached together and how they can resist air and water intrusion. The details also show the contractor how to build custom architectural features such as brackets, trellises, railings, gates, cornices for example. The architectural drawings are bound to the engineering drawings to form a complete set.*

16. Permit Filing – *Multiple copies are made of the Permit Drawing Package for submittal to the local building department, planning department and fire department. More sets may be required for review by a home owner's association, city public works department, historical commission or environmental commission. The Client is responsible for paying all design review fees, which are often based upon the size of the project. When comments are received from the review agencies, the design team responds in writing to each one, then revises the drawings accordingly. Drawings are re-submitted for final approval and typically building permits wait for the Contractor to pick them up just prior to start of construction. Multiple permits may be required including demolition, building, grading, septic and well.*

17. Contractor Selection – [optional] – *The Architect can help the client review the qualifications and interview potential contractors for the project. Often the design team will recommend contractors who have worked with them in the past. Sometimes the Client has a contractor lined up before design even starts, allowing valuable contractor insight into the design process.*

18. Bidding – [optional] -- *The Permit Review Period is a good time for contractors to price out the project. The client may want to have more than one contractor competitively bid for the job. The Architect can put packages together for potential bidders that include directions, bid forms, drawings and sample construction contracts. While the contractors and sub-contractors review the drawings, the Architect stays available to answer questions about the Bid Set. The Architect collects bids on the scheduled due date and carefully reviews each one with you. If negotiations are required, the Architect can assist you as necessary and prepare a standard construction contract.*

19. Green Building Verification Setup – [optional] – *If the Client seeks to have their project certified as a "green" home, the Architect, Landscape Architect and Mechanical Engineer create documents and checklists showing compliance with the "green" building standards of agencies like the Unites States Green Building Council (USGBC), Build-It-Green and Energy Star. A project coordinator representing the certifying agency is hired as a consultant to review the design team's documents and checklists. Another consultant is hired to perform "third-party" inspections and tests on the jobsite needed to prove compliance. Often the cost of building green is the same as conventional construction, or is offset by significant savings in energy costs. However, clients need to decide if receiving the official title, plaque and recognition as a "certified green home" is worth the added cost of "proving" it using the additional services of architects, engineers, raters and verifiers.*

20. Construction Observation – *The Architect serves as the Client's eyes and ears throughout construction, making scheduled site visits to observe the progress and confirming the project is being built per the Construction Documents. The Architect answers questions, reviews submittals and shop drawings (manufacturers' drawings of specific elements to be incorporated within the building), and review monthly certificates of payment that are submitted to the Client by the Contractor. As the Client's advocate, the Architect takes on the responsibility with you to negotiate construction challenges and work through solutions to keep the project on schedule and to efficiently resolve any unexpected issues that arise.*

21. Punch List -- *When the project is close to completion, The Architect performs a "walk-through" with the Client and prepares a "Punch List" of items that need completion or modification. The Architect works with the Client until the project is complete and the Client is fully satisfied with the results before issuing a Certificate of Substantial Completion.*

22. Photography, Publicity & Awards – *People will be interested in your project and the special features that make it fit you like a glove. The Architect may write articles and request that the home be professionally photographed for submittal to architectural*

magazines and award programs. Often the Architect will hire a "stager" to being in fine furnishings, flowers and accessories to accentuate the architecture for dramatic photos. Interested publications have been known to interview the homeowners about their experiences building and living in their new homes.

23. Post Occupancy Evaluation – *After the work is complete, and local authorities have granted a "certificate of occupancy," the Architect continues to be available to act as an intermediary with the Contractor during the warranty period. An on-site inspection will be scheduled one month before the one year warranty expires. After the warranty period is over, The Architect will be available when you need advice on maintenance, additions, furniture, or your friend's project.*