

Construction Site Project

Residential House in South Minneapolis

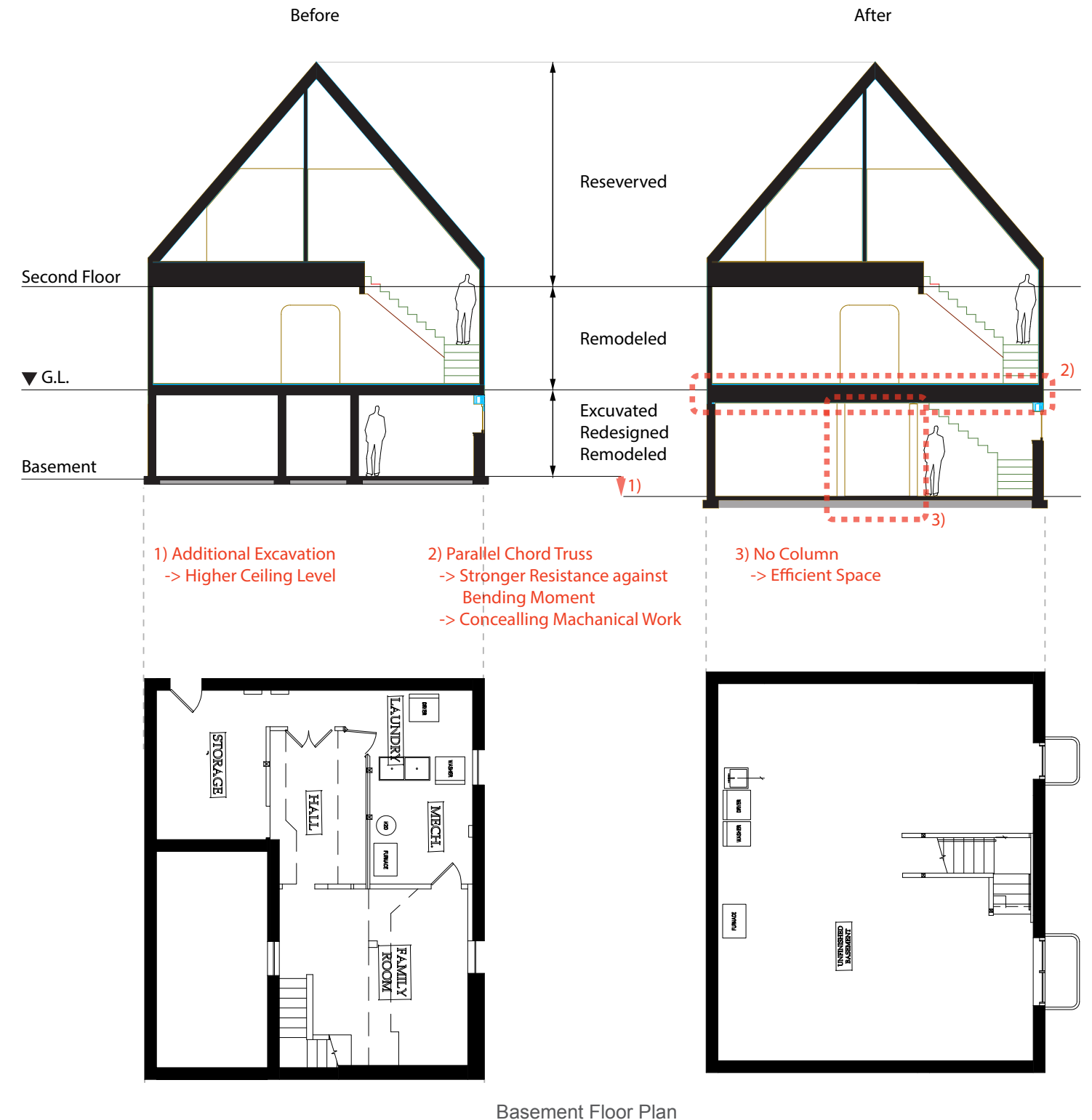


Context

The clients for this project are private homeowners who recently purchased the property near beautiful Lake Calhoun in the Linden Hills neighborhood of Minneapolis. The original house was constructed in 1913 and has been significantly remodeled in stages over the past ten years. The new homeowners were interested in completing a major renovation that would include new basement and main level space. The clients, after purchasing the home, really enjoyed the vaulted ceilings in the upstairs bedrooms and wanted to keep the layout unchanged. The areas of concern were the main level and basement. Downstairs the homeowner wanted to create a usable space that could be enjoyed by family and friends. After meeting with the designer and finalizing a budget, it was conceived that instead of demolishing the house Quartersawn Design Build would simply shore up the top level and excavate for a new basement that had more headroom and proper water management implemented. This allowed for completely new construction on the main level as well.



Features In Remodeling



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Demolition

The project began in late July of 2014 with Jepsen Structural Services starting the shoring process. To begin the work the mechanical contractor disconnected the utilities to the house and general laborers from Quartersawn removed cabinets and plaster from some of the exterior walls that would receive shoring beams. Once completed Jepsen Structure Services was able to assemble the cribbing that would hold the beams at proper height and subsequently begin to cut holes in the walls for the insertion of beams. Once the beams were secured and the top part of the house (that was to remain) was severed from the bottom of the house (to be removed), the excavator was then able to remove the exterior walls and old foundation from the house.

Process of Shoring

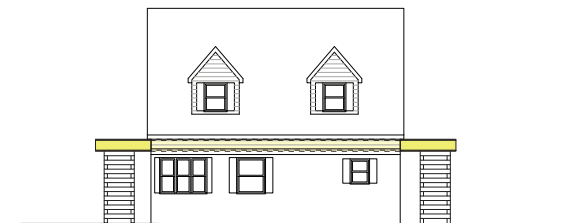
1. Existing House



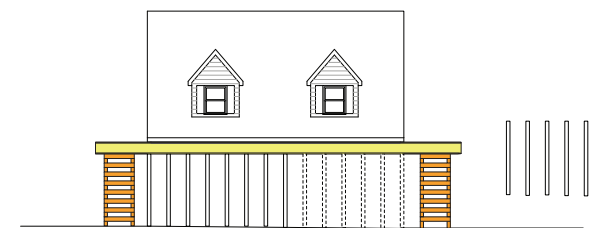
2. Removing Parts of the House



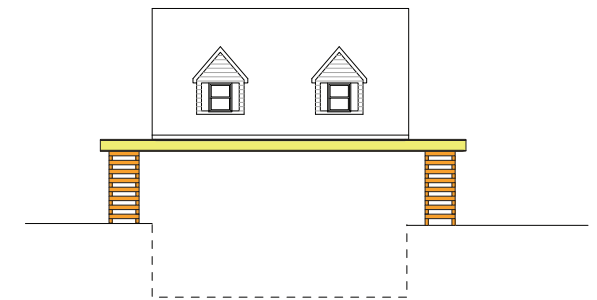
3. Setting Shoring



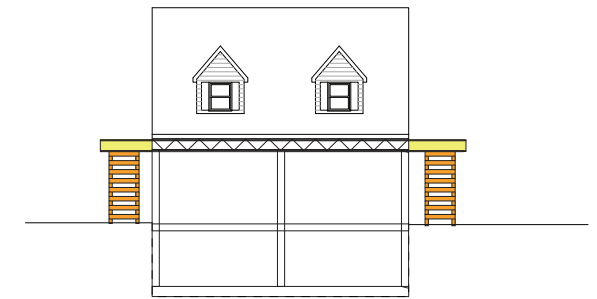
4. Demolition



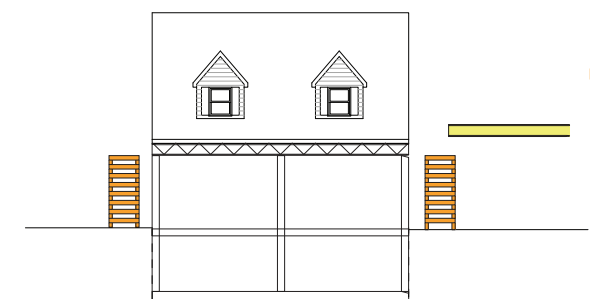
5. Excavation



6. Rebuilding a New Structure



7. Removing Shoring



8. Building Envelope



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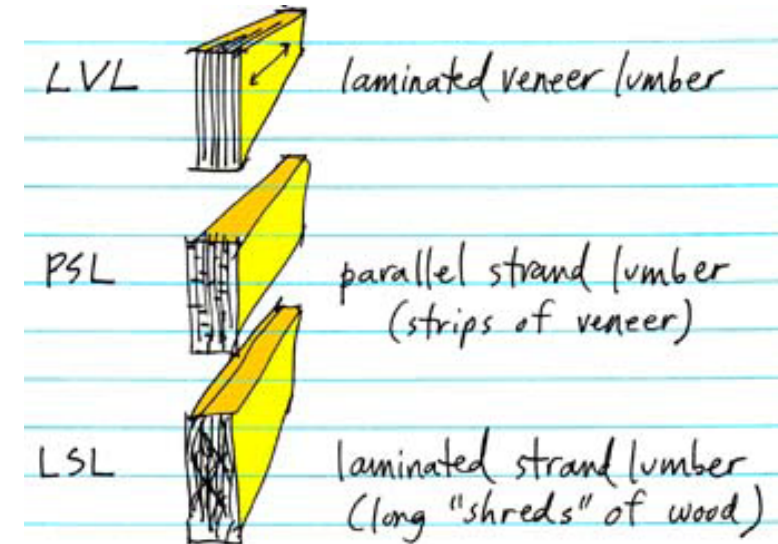
Construction



The demolition of old building elements moved fairly quickly with removal and cleanup of debris being complete by the first week of August [2014]. Construction began with Eberhard Construction completing a finish grade for the basement which included compaction of the soil and drainage rock being laid over the top. Formwork was then installed to prepare for concrete to be poured. Once the basement footings were poured Eberhard Construction was able to lay the CMU block foundation wall and apply water proofing and rigid insulation to the exterior before the rough grade was filled back in.



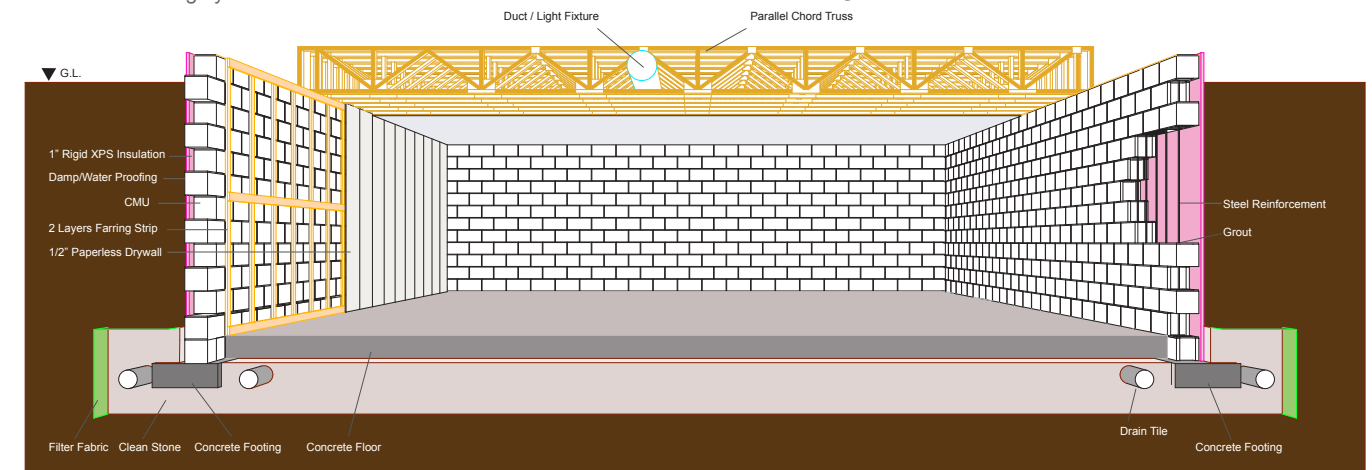
The framing of the exterior walls used standard 2"x6" studs beginning at the top of the foundation moving upward toward the existing house. For this house the budget (and design) allowed for floor trusses to be used which conceals the mechanical work within the ceiling preventing interior soffits from having to be made. A new type of lumber that we learned about was a manufactured stud made by Weyerhaeuser called TimberStrand LSL studs. These were used in the project in several locations including the stairwell, kitchen, and pocket door for a bathroom. This product is useful in these locations for its ability to span long distances and resistance to warping (and crowning). When cabinets are set in the kitchen the LSL stud provides a more true wall that takes a lot of the scribing and installation problems out of the process.



Basement framing system



Bathroom backerboard framing



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Observation and Evaluation



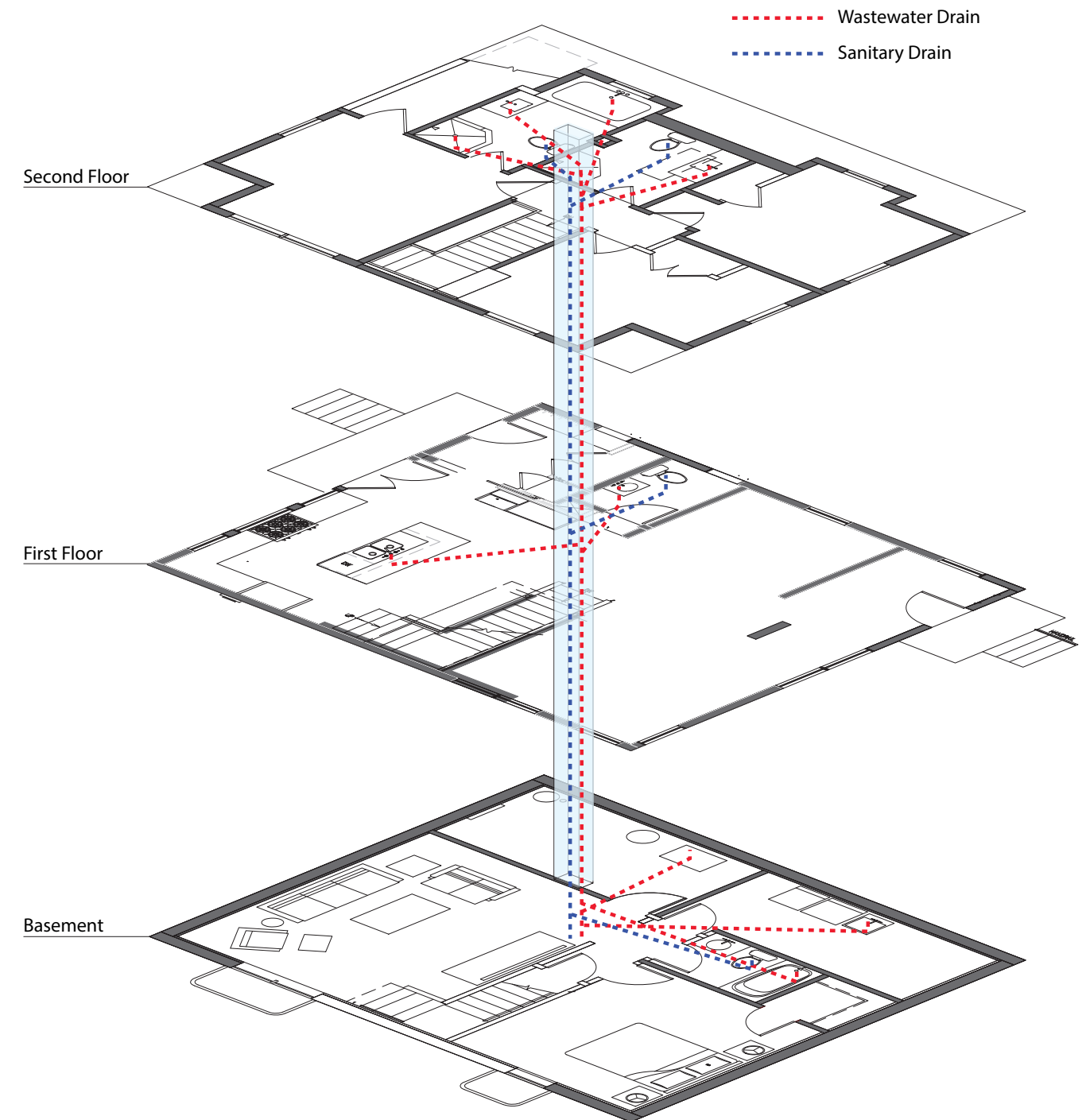
Interestingly, the design of the house included a mechanical core that was situated in the middle of the footprint similar to commercial construction. The components for plumbing and HVAC that needed to be run to the basement were not simply shoehorned into place but rather thoughtfully articulated into part of a closet thus disguising their existence within the space. The progress of the work has moved fairly quick compared with larger commercial projects being constructed on campus. However, now that the rough-in stage is nearing completion the project appears to show less progress.



An aspect of the construction that we found particularly innovative was the use of the LSL studs on the pocket door for the main floor bathroom. The reason for the use in this situation was that typical pocket door manufacturers send the door with a pre-built stud frame out of natural 2"x4" material. Since the studs are turned so that the four inch side of the board faces the door it allows for warping to occur. If the stud bows into the door this can be a problem later on as the door can become hard to move or even damaged if scraped.



Distribution of Mechanical Systems



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Conclusion

This residential project became a great case for the study of construction materials and methods for its use of unconventional process and attention to detail. Being that the house was a combination of new construction and remodel, the designers had to carefully think through the methods of each stage in order to integrate the old with the new. The process of shoring the house for demolition and use of innovative lumber for specific areas of framing introduced us to new materials and ways of how a house can be built. As designers of the built world we need to constantly be educating ourselves on new practices and products available in order to provide a more wholesome and current service to our clients.

Previous



Current



Site Information and Contact

Private Residence
Linden Hills Neighborhood
3900 Vincent Ave South
Minneapolis, MN 55410

Design Firm and Project Management

Quartersawn Design Build
320 W 48th St, Minneapolis, MN 55419
(952) 929-3700
Designer: Jeff Nicholson
Project Manager: Eric Stabnow
Project Supervisor: Mark Rustin

Construction

Concrete and Masonry:
Eberhard Construction, Inc
Oakdale, MN
(651)-353-4637

Structural Shoring

Jepsen Structural Services, Inc
3119 East 26th St. Suite B, Minneapolis, MN 55406
(763) – 807-1437

Framing Subcontractor

Dan Michaud Construction, LLC
9550 206th St W, Lakeville, MN

Mechanical Contractor

Genz-Ryan Plumbing and Heating, Inc
2200 MN-13 W, Burnsville, MN
(952) 767-1000

Electrical Contractor

JZ Electric, Inc
2525 Nevada Ave N, Minneapolis, MN
(763) 545-2002