**Construction Method:**

* Site preparation and excavation.
* reinforced concrete piles foundation construction, which entails pouring a concrete slab, should be made to withstand potential flooding in the vicinity.
* Installing CLT framing for the structure, a prefabricated modular technique that involves manufacturing off-site.
* The addition of wood fibre insulation to the CLT frame's exterior will provide thermal insulation and weather resistance that satisfies Passivhaus quality standards.
* The constructing of the steel sheet exterior, which might also involve the use of sturdy, low-maintenance, and lengthy steel framing.
* Installation of windows, doors, finishing materials, which would include drywall, flooring, and joinery.
* Installation of plumbing, electrical, and Ventilation systems.

**Resources required:**

* Architectural and engineering plans.
* Permits and approvals from of the local authorities.
* Materials such as Concrete, CLT, wood fibre insulation, steel sheets, insulation, windows, doors, and finishing equipment.
* Skilled work, including carpenters, electricians, plumbers, HVAC technicians, and builders.
* Tools for construction, which include excavators, cranes, and power tools.
* Supervising and management team.
* Protective gear and precautionary measures to abide to safety regulations.

**Supply chain:**

* The project shareholders and developers: These are the people or businesses who launch the building project.
* Architects and engineers: experts are in charge of the building's design and planning, which includes developing blueprints, securing permits, and ensuring adherence to safety and building codes.
* Regulatory organisations: These include the governmental organisations in charge of issuing permits and imposing safety and building code specifications.
* General contractors: These are the main contractors in control of planning and coordinating the entire construction project, including direct supervision of subcontractors, controlling spending, and strict compliance to safety and building code requirements.
* Subcontractors: These include craftsmen, masons, painters, electrical contractors, plumbing contractors, and Heating and cooling contractors who specialise in specific functions.
* Suppliers of raw materials include cement, roofing materials, lumber, steel and concrete.
* Construction equipment and machinery providers: These companies provide scaffolding, excavators, haulers, bulldozers, hoisting, and other building supplies.
* Suppliers of transportation and logistics services for moving tools, supplies, and labourers to and from the construction site.

Over all Risk assessment:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Risk** | **Potential Consequences** | **Likelihood** | **Severity** | **Risk Level** | **Preventative Measures** | **Mitigation Strategies** |
| Worker falls from height | Serious injury or death | High | High | Extreme | Use fall protection equipment, provide proper training, | Use safety harnesses, ensure proper supervision, regular equipment inspections |
| Electrical hazards | Electrocution, fires | Moderate | High | High | Train workers on electrical safety, follow electrical code regulations, use appropriate PPE | Use proper grounding and insulation, regularly inspect equipment, use qualified electricians |
| Exposure to hazardous materials | Illness or injury | Low | High | Moderate | Provide proper protective equipment, follow safe work procedures, provide proper ventilation | Conduct regular air quality monitoring, properly label hazardous materials, provide training |
| Heavy equipment accidents | Serious injury or death | Moderate | High | High | Ensure proper training, conduct regular equipment inspections, use proper signage and barriers | Ensure proper supervision, use spotters, provide adequate lighting |
| Collapsing structures | Serious injury or death | Low | High | Moderate | Follow proper building codes and regulations, conduct regular inspections, use quality building materials | Provide proper support structures, conduct regular stability inspections, use proper demolition techniques |
| Noise pollution | Hearing loss, decreased productivity | High | Moderate | Moderate | Use noise-cancelling equipment, limit exposure time, use hearing protection | Implement sound barriers, limit work during sensitive hours, use noise-reducing construction methods |