

The design ask:

A designer was commissioned to design an extensive renovation for a one story modest home built in the 1970s. The new owners wanted to considerably expand the house including a second floor, extended ground floor with outdoor area and a pool as well as a granny flat using the acreage of the land.

Hazard analysis and risk prevention:

An important site factor in the design included the location of the property on a busy highway with a 80km speed zone. To reduce a collision hazard and increase buildability, the designer included an off ramp for heavy vehicle unloading and manoeuvres making use of the excess space at the front of the property. This area would be turned into a circular driveway on completion of the project.

Another risk was the potential presence of asbestos and toxic substances such as poly-chlorinated bi-phenyl in the old structure. A competent person was required to confirm the whereabouts of any hazardous materials that could pose a risk if exposed without care. This risk was added to the SWMS and plan for construction works.

Environmental factors such as the warm weather and sun pattern over the site were also considered in the design. With limited or no shading over the original site, the outdoor area was designed with a considerable covered area and heat tolerate shade trees that were strategically added to the landscape to enjoy the outdoors in comfort throughout the entire year. Due to the location of the house on the site, the pool and outdoor space were placed at the back of the property with minimal building obstructions so as to take advantage of the sun rays throughout the entire day.

The risk of falls during construction was a big consideration as the design ask included an additional level added to the original dwelling which would reach a height above 2 metres and increase the risk of hazard for employees. To circumnavigate this risk, the roof design was a simple eave-less roof with a gutter fixed directly onto the edge of the roof that could be lifted into place by a crane. Avoiding the need for work to be completed via external platforms and guard railings.

Building materials chosen were used to plan for a low maintenance house. Large stone tiles were added throughout the flooring of the indoor and outdoor spaces to reduce cleaning and upkeep with an added bonus of cooling the house in a warm environment. Solar panels were added to the 80% of the roof space to reduce living costs and power the breadth of the outdoor living needs including the pool. Aluminium windows were added as a durable and low maintenance option. Bi-fold doors extended the length of the back of the house where the living area was located increases the ventilation and gives unobstructed views of the outdoor space.



Result:

By using a thorough procedure, which considered all aspects of the redesign of an older structure, the designer has eliminated or minimised the risks to employees as much as possible. By doing so, the employees on site are safer and the owners will have a house that does not require as much upkeep as their previous home. In addition, the designers report was distributed to all stakeholders, including the client, to ensure a uniform understanding between all parties. The report gave the principal contractor invaluable information that assisted in the overall plan for the build and the SWMS statements that would be required to complete the project. It was especially useful for permits submitted to council and tender documentation.



Kickoff the design of your project with a comprehensive and safety first approach by ensuring you have considered:

✓ site structure

✓ buildability

✓ construction hazards

✓ maintenance

✓ environment

