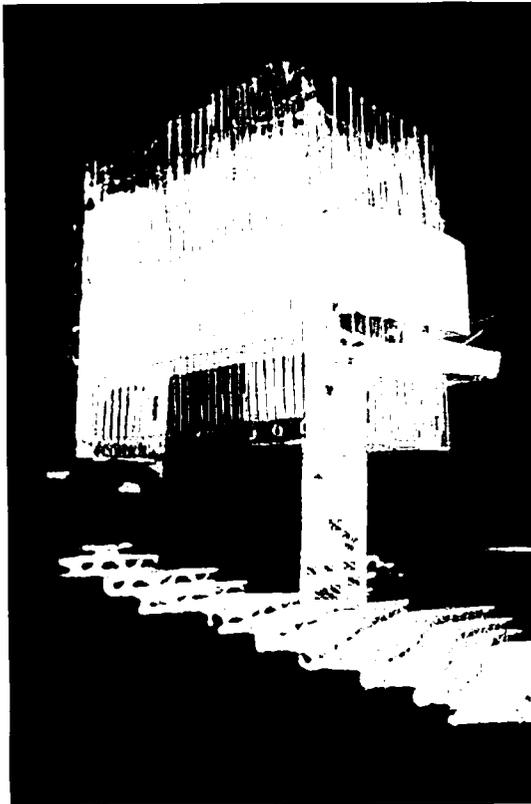


CHAMELEON HOUSE

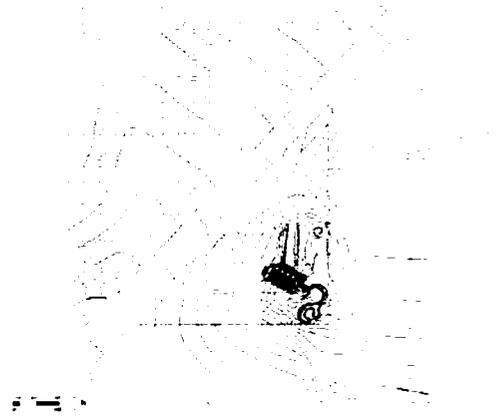
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This prototype has been built near Northport, Michigan, two hundred miles north of Lansing, on a small peninsula of Leelanau county that juts into Lake Michigan. The house is part of a series of projects that explore the opportunities for using SIPs panels in very cost-effective ways to build structures from standardized components that can accommodate a variety of complex site conditions with minimal disturbance to the natural topography, water flow, and vegetation.



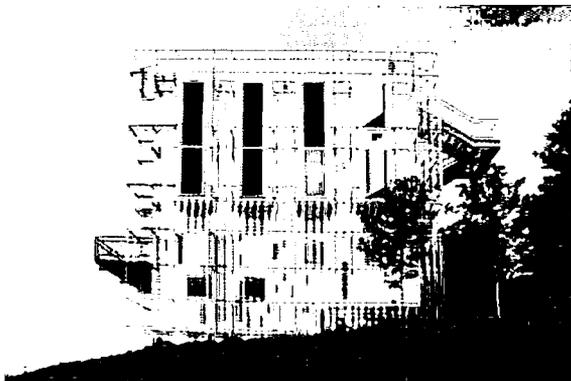
The Chameleon House sits above a cherry orchard on a hill with a spectacular westward

view of Lake Michigan and the surrounding agricultural landscape. With no other houses in sight, agricultural buildings comprise most of the built environment along the rural road that runs through the orchards to the site. Although few restrictive or unusual zoning constraints exist at this location, the challenging topography and geotechnical conditions play a strong role in defining the overall design strategy.

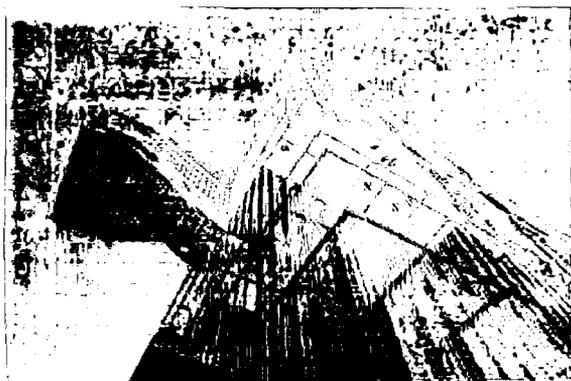


The small ground-floor building footprint and foundation reduces the cost of this expensive area of the house and allows the foundation to step up the site with the slope of the hill. From our earliest meetings with the owners, it was agreed that getting up as high as possible would best take advantage of the views out and across the orchards to Lake Michigan. The owners wanted airy, open spaces where they and their young children could live and play together, and small bedrooms that would encourage everyone to gather in the main living areas and outdoors. The result is a small, 1,650-square-foot (153 sq. m) house

with nine different living levels, including an occupiable roof deck.

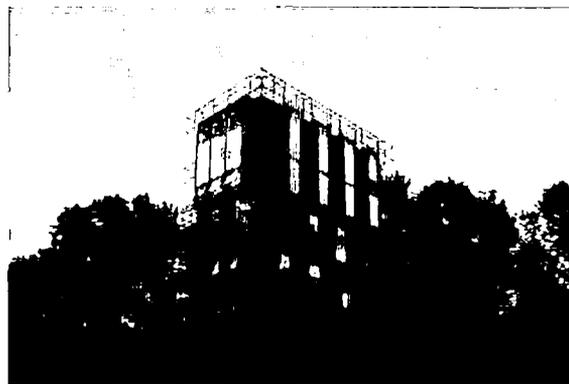


The concept of a prefabricated house was well received from the beginning, perhaps with special interest as one of the owners works for Steelcase Manufacturing, which is itself moving to expand its primarily office furniture product line to include entire prefabricated office building systems. In order to keep costs and onsite labor to a minimum, SIPs panels compose the exterior walls and roof structure, which also brings a high level of insulation that will be welcome in the cold winters. Although the SIPs panels are used as structural elements throughout, the addition of a two-story prefabricated steel moment frame on the lakeview side allows for the double-height window wall and the open loftlike spaces within the main living area. With the use of commonly available materials and industrial detailing such as prefabricated steel stairs and railings, the cost was kept low and the period of construction was less than half that expected of a site-built home.

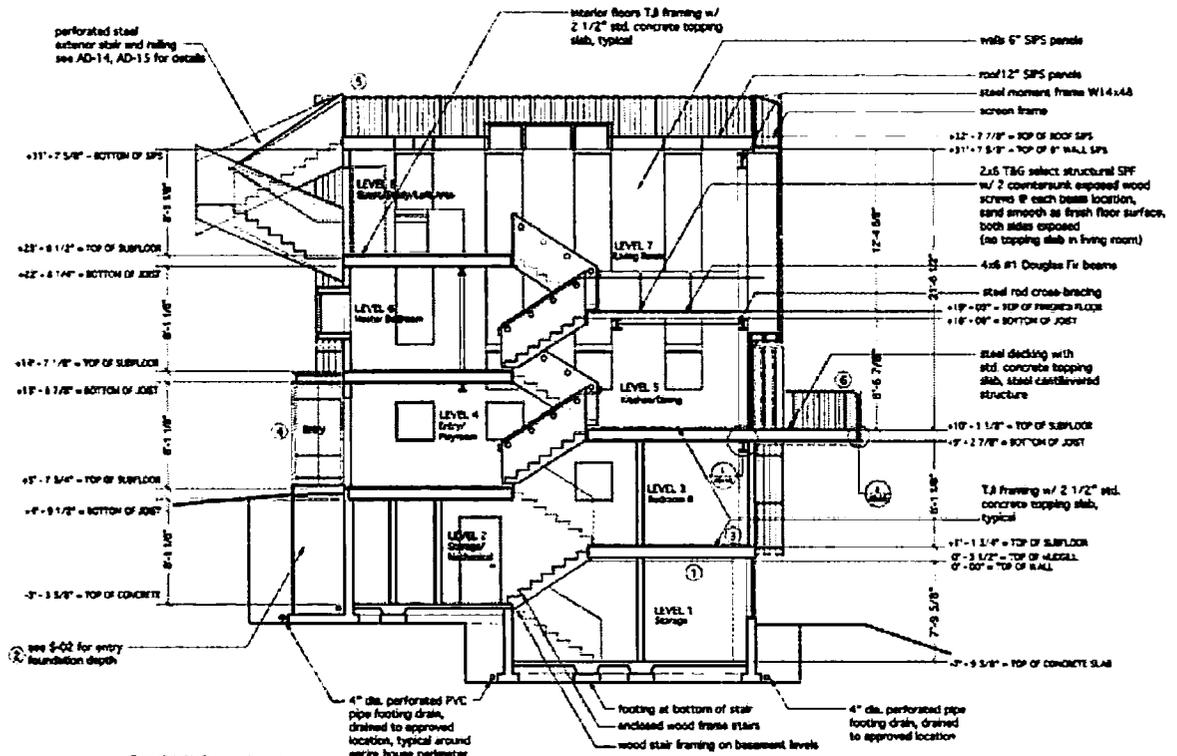
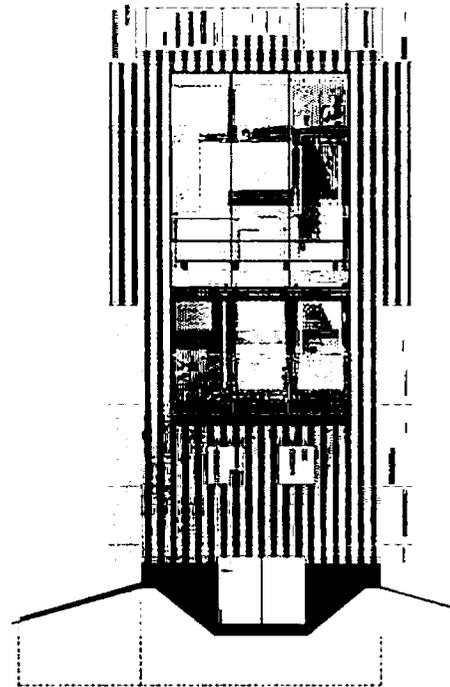
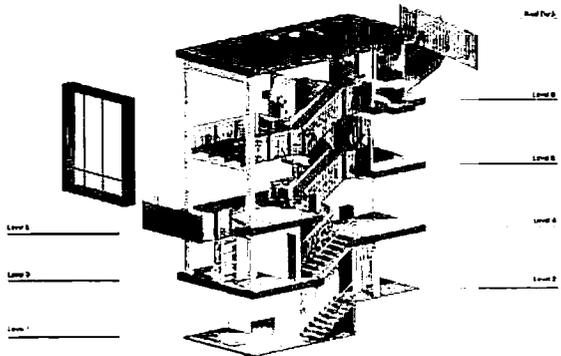


Despite its development from off-the-shelf components, the house is carefully integrated into the rolling topography of its site, peering

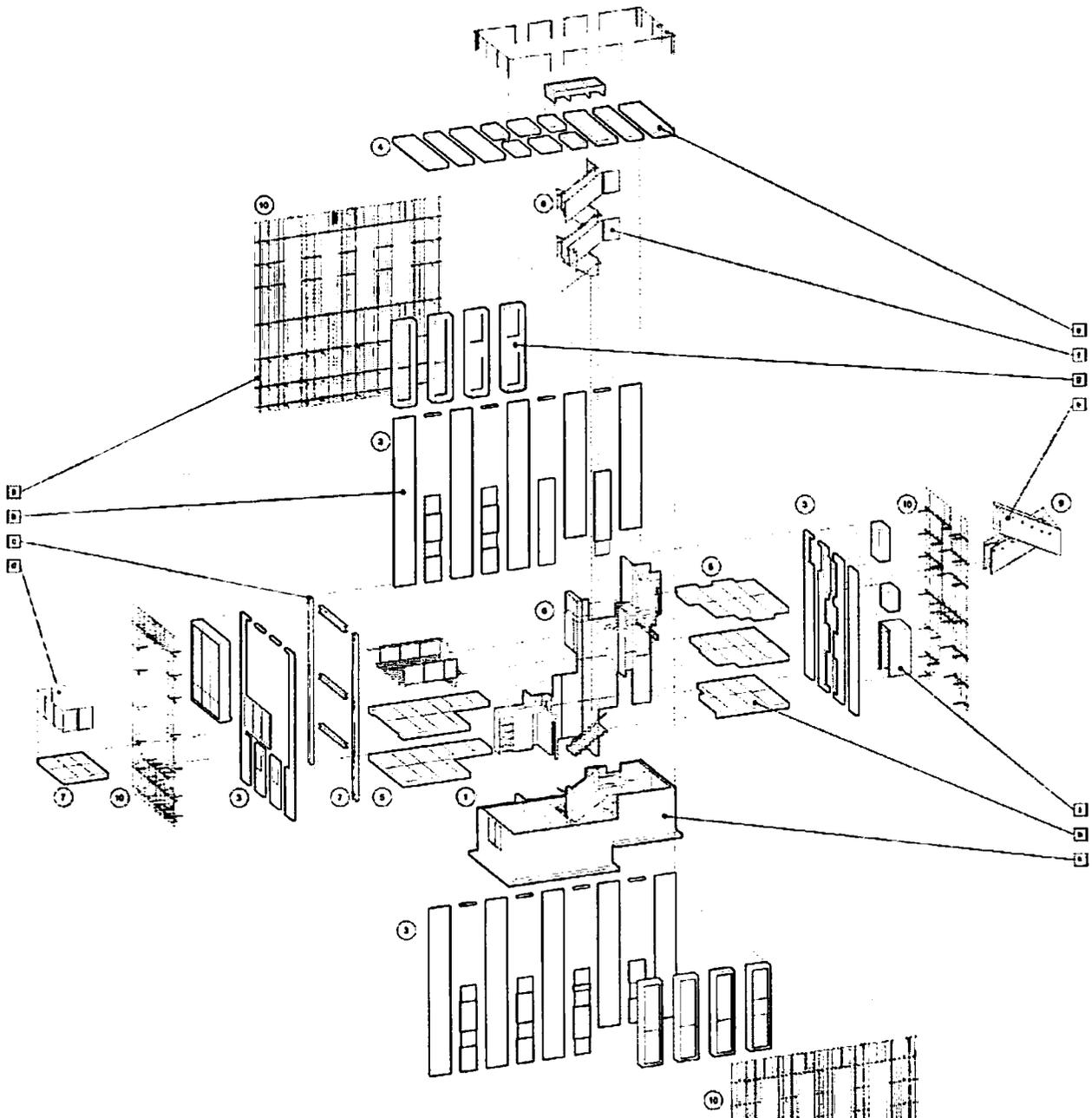
out to the westward views of Lake Michigan and the surrounding agricultural landscape. The site is minimally disturbed, other than the mounding of two earthen enclosures adjacent to the tower, created from the excavated earth of the foundation and offering a ground to contrast the tower experience above the treescape. Due to the slope of the site, the family enters at the third level, descending down to the kids' bedrooms and bath or moving up to the main living spaces that look out over the orchards to Lake Michigan.



A more conventional house would appear as an unsympathetic intrusion in this pure landscape, and with its singular vertical presence rising above the orchard, the tower is intended to reflect the austere, scaleless non-particularity of the occasional farm buildings dotted elsewhere on the hills. To help mask the scale, the building is wrapped in a skirting wall of recycled translucent polyethylene slats, standing two feet out from the galvanized sheet metal cladding of the wall surface on aluminum frames that serve also as window washing platforms and emergency exit ladders. The translucent polyethylene material set out over the dull reflective wall cladding was chosen for its ability to gather the light and color of its landscape, dissolving the finely shadowed and haloed structure into the seasonal color cycle of white snow and ice and black twig tracery; pale pink blossom clouds; pollen green leaf and grass; and golden straw and vivid foliage. The ever-changing appearance of the house and ability to mirror its surroundings led to it being called the "Chameleon House." The double skin creates a microclimate and thermal differential around the structure, creating a rippling mirage updraft that in the summer sends steaming condensation or in the winter drips melting icicles.



SECTION A-A



parts list

- A polycarbonate screens
- B structural insulated panels
- C steel moment frame
- D folded perforated steel railing
- 1 structural insulated panels
- 2 folded perforated steel access stairs
- 3 window screens
- 4 folded perforated steel roof access stairs
- 5 folded perforated steel entry
- 6 pre-fabricated floor panels
- 7 concrete beam/edge/corner

assembly order

- 1 levers/rail / foundation
- 2 steel moment frame
- 3 structural insulated wall panels
- 4 structural insulated roof panels
- 5 pre-fabricated floor panels
- 6 interior walls
- 7 roof deck
- 8 folded perforated steel interior stairs
- 9 folded perforated steel roof access stair
- 10 polycarbonate screens

