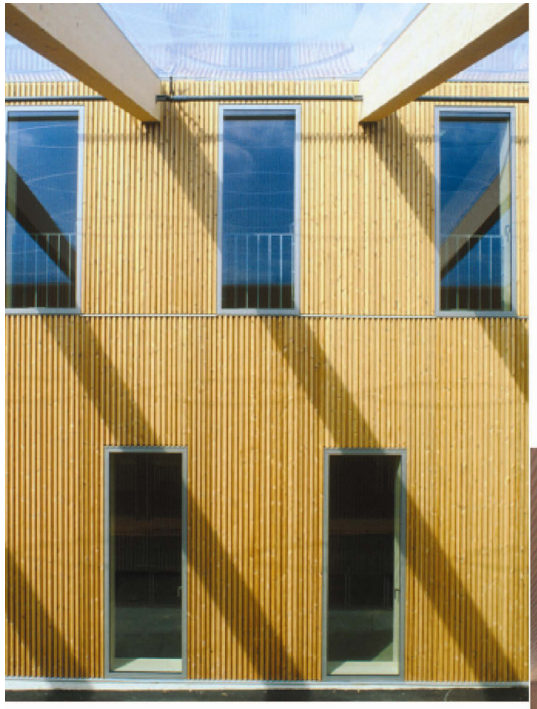
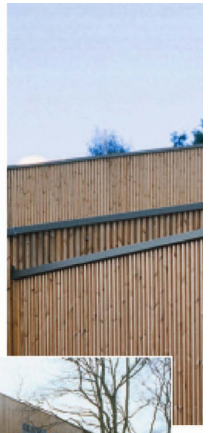
project: school for mentally disabled children in Garbsen / Germany 2002, featured in “Wood Design & Building”, Richmond Hill, Ontario, **Canada 2007**



Photos by Olaf Baymann



ILMASI School, Germany

Calming environment designed to encourage education

Martin Despang

The design for this large school for handicapped children integrates wood building materials and the surrounding natural landscape to make a pleasant living and learning environment.

The ILMASI School, in Garbsen, Germany, functions as an education center for physically and mentally handicapped children. The facility accommodates about 100 children with individual needs and challenges, as well as 40 teachers. A series of low wood buildings and distinct courtyards create a serene environment for the school, through the architects' linkage between the external nature and the internal learning spaces.

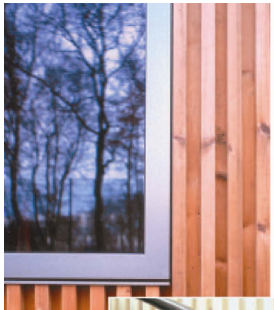
The use of timber was decided on for the main structure with the children of the school in mind, because of wood's attractive and warm qualities. Fire protection was a central aspect of the design, and thus a solid timber form of construction made sense. The wood structure was built applying Thermal Modification Technology (TMT).

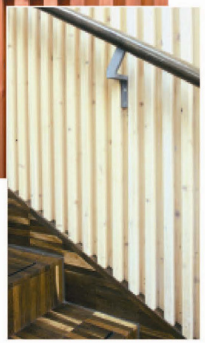
Four single-storey classroom tracts constitute the main instruction space in the school, each with a pitched roof that slopes down to individual playground areas to the south. The rest of the school has two stories, and houses administration spaces, a therapy center, a gymnastics hall, and a large entrance foyer used as a play area. The foyer is covered with a transparent pneumatic membrane roof allowing for ample natural light to enter.

Considerations were taken by the architects for the new school to address all five senses of the very special students at the ILMASI School in the structure. A pavilion courtyard type organization was applied to integrate natural conditions in the form of open space, light and air into the building. The visual, olfactory and tactile qualities of wood met the architects' vision of a building that would stimulate the children's somatosensory systems. Thus, a variety of natural textures of local softwood were strategically used within the design of the school in Garbsen.

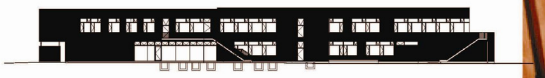
Most of the enclosure is made by a prefabricated edge-glued load-bearing wood panel. Fir lumber with a vertical profile is used for most of the walls and ceilings, as it enhances the acoustic quality within the school, and is durable enough to withstand the wear and tear a school experiences over time. The heat treatment to which the wood was subjected gives it greater weather resistance as well as a richer color tone. A dark stained oak is used for doors, and floors are made from stone or wood parquet.

An interesting comparison can be made between the interior and exterior faces of the walls of the school. The walls, of identical materials and appearance, are made in different ways. Both interior and exterior walls are made from vertically profiled fir wood. However, while the structural panels on the interior are made by subtracting or rabbeting the corner of each piece of lumber, the outside faces are non-structural, and are made by adding small pieces of fir to a place of like material.





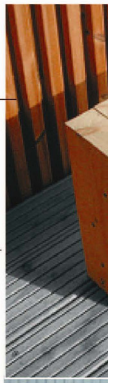
WEST ELEVATION



NORTH ELEVATION

EAST ELEVATION

SOUTH ELEVATION



The load-bearing wall panels consist of 2.36 x 5.19-in. locally sourced fir boards nailed face-to-face. The panels not only support the floor above and the roof, but they also serve as thermal mass in the building.

To lengthen the life of the structure, measures were taken to prevent moisture intrusion into the fir panels, and provide thermal insulation as well. Two layers of wood framing and insulation, oriented vertically and horizontally, help with thermal insulation, with the vapor barrier formed inside of the insulation and the air barrier formed outside of it. The building's services are installed in the cavities of these double-leaf internal walls.

The wood exterior veneer acts as a rain screen for the structure. The exterior wall is supported on a series of horizontal furring strips that sustain a cavity behind the veneer. Air and moisture can move freely through the veneer, and vents at the top of the cavity and weeps at the bottom also allow for the movement of air and moisture.

Glulam beams spanning some of the courtyards support translucent roofs fabricated from ETFE plastic foil. Ribbed wood wall treatments were made as screens over some windows, next to stairs, and around exterior mechanical equipment.

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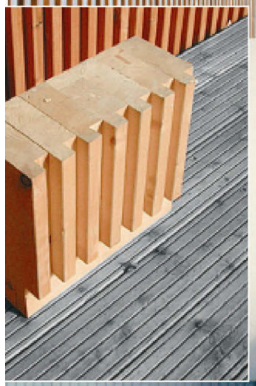

(Above and on cover)
The Gibson Centre, New Tecumseth, Ontario, an 1889 heritage building, is transformed into a community centre for arts and culture. Engineer Phil Meades won a 2006 Ontario Wood WORKS! Building the Future Engineer Award for his work on this and other wood projects.

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