



- 1 Sketch of new conductive heatable adhesive tape.
- 2 Conductive heatable adhesive tapes in different joints within the panel, the narrow hatched tape is for bonding the butt joints of boards to each other.
- 3 Micrograph OSB of 22 mm thickness adhesively bonded with 0.1 mm brass tape.

FAST CURING ADHESIVE IN WOODEN PANEL CONSTRUCTION

The aim of a recently completed co-operation research project between the Fraunhofer WKI and the Institute of Joining and Welding, Technical University of Braunschweig, Germany was the development of a new rapid adhesive bonding technology in wood panel construction for modular prefabricated houses. In general, the prefabricated panels are built up by planking a frame of wooden square ribs with particleboards or oriented strand boards (OSB). Nailing or stapling has been the main joining technique so far.

A new approach was established by applying an adhesive tape based on an adhesively coated metallic carrier inserted into the joint. By connecting it to an electric power supply and heating it within a short time to the melting point, the adhesive can

wet the wood and cure in the compressed joint. The new tapes, based on a reactive thermoplastic hot-melt and perforated metal (steel or yellow brass), offer an adhesive bonding system, which is easy to process, has a very long storage life and is very fast in the joining application. After only a few minutes, the freshly bonded panel can be released from pressing and moved to the next workshop in the production line.

As a result, the production process is as fast as with the established joining techniques with compressed air tools and gives the opportunity for much stiffer modular panels with more flexibility and saves costs, because of flying butt joints easily to be established.

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