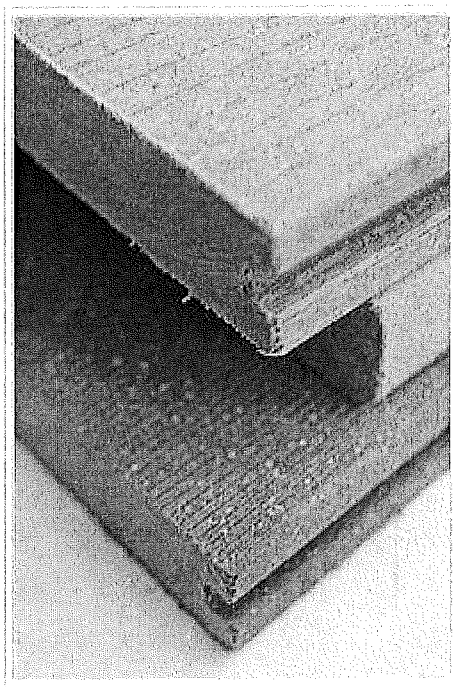
# Wood-plastic composite

From Wikipedia, the free encyclopedia

**Wood-plastic composite** (commonly abbreviated as **WPC**) is a composite material lumber or timber made of recycled plastic and wood wastes.



A picture of NewTech (http://www.newtechwood.com/) brand WPC.

There are also application in the market, which utilize only virgin raw materials. Its most widespread use is in outdoor deck floors, but it is also used for railings, fences, landscaping timbers, cladding and siding, park benches, molding and trim, window and door frames, and indoor furniture. Manufacturers claim that wood-plastic composite is more environmentally friendly and requires less maintenance than the alternatives of solid wood treated with preservatives or solid wood of rot-resistant species. Resistant to cracking and splitting, these materials can be moulded with or without simulated wood grain details. Even with the wood grain design these materials are still visually easy to distinguish from natural timber as the grains are the same uniform color as the rest of the material. Well-known trade names include Modideck (http://www.modifibres.com) , Universal Forest Products, Practiwood, MoistureShield, NewTech, TimberTech, Trex, JER Envirotech, ChoiceDek, CorrectDeck, Artowood, Chylon, Ultradeck and Weatherbest.

Wood-plastic composite is still a very new material relative to the long history of natural lumber as a building material but can be substituted in most instances. Although being highly resistant to rot, Wood Plastic Composites still soak up water due to their mixing with organic wood fibers. Some manfacturers have tried to avoid this by loading up their wood fibers with oils or other products that repel water. Still the major advantage of this category of building materials is its ability to add another stage of upstream use to materials previously considered waste lumber. Although these materials continue the lifespan of used and discarded materials, and have their own considerable half life; the polymers and adhesives added make wood-plastic composite difficult to recycle again after use due to the many impurities in such a compound. It can be recycled easily in a new wood-plastic composite.

Wood-plastic composite lumber is composed of wood from recovered saw dust (and other cellulose-based fiber fillers such as pulp fibers, peanut hulls, bamboo, straw, digestate, etc.) and virgin or waste plastics including high-density polyethylene, PVC, PP, ABS, PS and PLA. The powder or fibers are mixed to a dough-like consistency and then extruded or moulded to the desired shape. Additives such as colorants, coupling agents, stabilizers, blowing agents, reinforcing agents, foaming agents, lubricants help tailor the end product to the target area of application. The material is formed into both solid and hollow profiles or into injection moulded parts and products. With the diversity of organic components used in wood/plastic composite processing, there is no single answer to reliably handling these potentially difficult materials. In some applications standard thermoplastic injection moulding machines and tools can be utilized.

Wood, resin, regrind, and most of the additives are combined and processed in a pelletizing extruder. The new material pellets are formed in mold and dried. Pre-distribution testing can help determine the optimal combination of chemical agents, design, agitation and other flow aid strategies for the specific material in use. Modern testing facilities are available to evaluate materials and determine