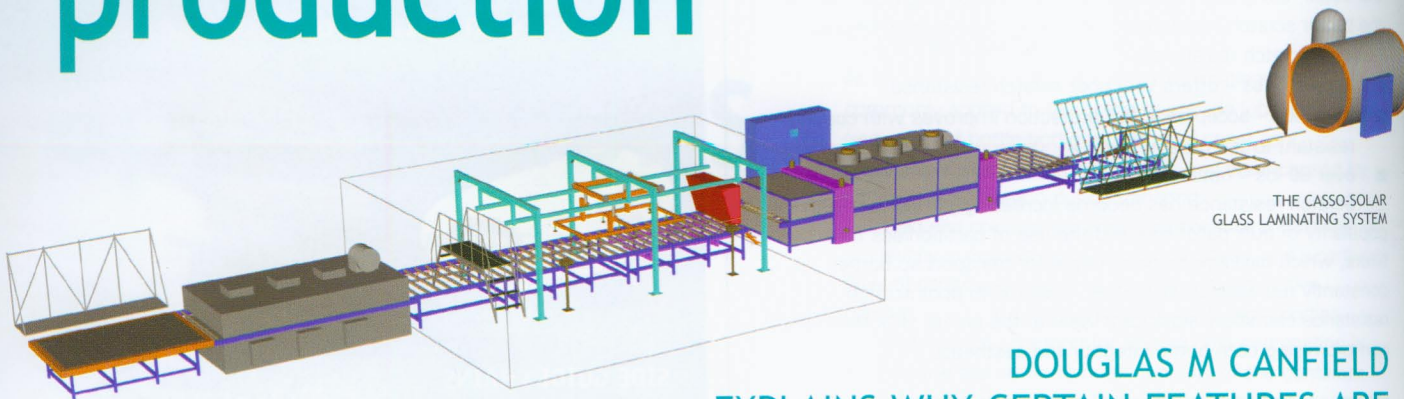


Novel designs for laminated glass production



THE CASSO-SOLAR
GLASS LAMINATING SYSTEM

DOUGLAS M CANFIELD EXPLAINS WHY CERTAIN FEATURES ARE IMPORTANT IN THE LAMINATED GLASS PRODUCTION PROCESS

the demand for laminated glass is a continually growing market. Uses for laminated glass include standard safety, hurricane resistant, automotive, structural and ballistic glass. Laminates may be flat or bent and composed of multiple layers of glass, plastic materials such as polycarbonate with flexible or rigid interlayer materials including polyvinyl butyral, urethane, EVA and others.

In north American and other parts of the world, laminated glass is manufactured to pre-cut sizes. In Europe, often stock sheets are created which will be cut to the final size as needed. Three critical areas of the laminating process can greatly influence the productivity of the line and they include the laminate assembly, ovens and the presses.

In the laminate assembly area, washed glass is brought into a clean room where the laminate is built. Labour-saving devices include overhead vacuum lift systems to move heavy pieces of glass, pop-up tables to assist with trimming operations, split conveyors, registration systems, inspection lights and interlayer dispensing equipment.

INTERLAYER DISPENSING SYSTEM

Casso-Solar recently introduced its ISDS interlayer storage, dispensing and lay down system which is suitable for both the manufacturer of cut size and stock size production. Special features include the ability to apply the interlayer in a relaxed mode with the product in a stopped position on the conveyor. The dispensing system is located at the exit end of the assembly room, occupying around one metre of conveyor space. The system contains storage of four or more rolls of interlayer material.

The dispensing system can be operated in both a manual and an automatic mode. In the manual mode, the technician will request the length and width of interlayer and the sheet will be automatically cut and presented to

the technician. In the automatic mode the dispensing system will move across the glass whilst measuring it, place the interlayer onto the glass in the precise position, and cut the length to size.

Once the interlayer material has been applied, the system moves to its home position, giving the technician full access to the laminate to place the next layer of glass or plastic. This is especially useful with security and ballistic glass where multiple layers are created. The laminate is built in the same spot, without movement, allowing for a more precise build format.

PRESS DESIGN

With wide glass and security/ballistic glass, uniform pressure applied by the presses is critical. Casso-Solar systems use oversized press rolls, up to 0.5 metres in diameter, to ensure complete flatness across the laminate. The press design virtually eliminates differential thickness in pressing when a laminate is referenced to one side. Press rolls are synchronised to prevent slippage of the top sheet of glass. Roll surface covering thickness is varied to provide the correct pressure and footprint during the pressing operation to the product.

Ovens are design with both

infrared and active convection. On non-coated products, the infrared will penetrate into the laminate, minimising the time in the ovens and power consumption. For coated glass products, Casso-Solar's Active Convection System (ACS) includes air distribution plenums which impinge preheated air directly and uniformly onto the top surface of the glass, improving system performance when used in conjunction with the infrared. ■

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