

CLAIMS

1. A wall system comprising:
a horizontal wall panel; and
a decorative panel comprising a clear film and an ABS printed sheet having a converted and adjusted distortion print image applied thereto, wherein the ABS sheet is thermoformed into a shape that aligns with the adjusted distortion-print image;
wherein the horizontal wall panel and decorative panel are joined together to form a final panel.
2. The wall system of claim 1, wherein the final panel is joined together between vertical members.
3. The wall system of claim 1, wherein the print image is a 4-color digital photograph.
4. The wall system of claim 1, wherein the print image is a 3 dimensional photograph.
5. The wall system of claim 1, wherein the ABS printed sheet includes targets that assist in aligning the sheet in a molding step during manufacturing.
6. The wall system of claim 1, wherein the horizontal wall panel is made from a foam.
7. The wall system of claim 1, further comprising a second final panel having open horizontal conduits therethrough.
8. The wall system of claim 7, wherein final panels are joined to structural vertical members, wherein the horizontal conduits are in communication with conduits in the vertical members.
9. A wall system formed a series of steps comprising:
preparing a 2 dimensional image for application of the 2D image to a 3D

surface to create a converted adjusted distortion-print image;
printing the converted adjusted distortion-print image onto an ABS sheet;
attaching the ABS printed sheet to a clear film to form a printed sheet;
aligning the printed sheet within a mold that has a shape determined using the
converted adjusted distortion-print image;
molding, using thermoforming, the aligned printed sheet within the mold to form a 3D
printed decorative panel; and
applying the printed decorative panel to a horizontal panel to form a wall.

10. The method of claim 9, wherein the image is a 3 dimensional photograph.
11. The method of claim 9, wherein targets on the printed sheet assist in the alignment step by locating the sheet with respect to the mold.
12. The method of claim 9, further comprising preparing a bump map surface pattern that defines high and low areas for the converted adjusted distortion-print image.
13. The method of claim 12, wherein the bump map is prepared using a hand painting method.
14. The method of claim 12, wherein the bump map is a grayscale image that defines the surface contours of the image.
15. The method of claim 14, wherein the bump map is formed using digital filters.
16. The method of claim 15, wherein the image is a 3D image.
17. The method of claim 9, wherein the printing is done using a Gravure printing process.
18. The method of claim 9, further comprising using the converted adjusted-distortion image to create a 3D file that can be used by 3D mold machining equipment to create the mold for use in the molding step.

19. The method of claim 9, further comprising attaching the printed decorative 3D panel to a foam panel to form a horizontal panel.

20. The method of claim 19, further comprising aligning two or more horizontal panels to form a wall structure, the wall structure having open horizontal conduits therethrough.