CLAIMS

We claim:

1. A method for manufacturing an architectural component, comprising:

preparing a three-dimensional form from a work piece made of a polymeric material;

sequentially layering an architectural material on at least one surface of said three-dimensional form, thereby producing said architectural component; and,

removing said architectural component from said three-dimensional form;

wherein said step of sequentially layering an architectural material comprises:

introducing a cement mix, aggregate, water, optionally at least one of cellulose and superplasticizer into a mixing chamber in fluid communication with a first inlet into a nozzle;

mixing said cement mix, aggregate, water, and, if present, cellulose and superplasticizer in said mixing chamber, thereby producing a mixture;

introducing a solution or dispersion comprising a setting time accelerant into a second inlet into said nozzle such that said solution is at least partially nebulized within said nozzle mixing chamber;

introducing a thickening agent into a third inlet into said nozzle such that said thickening agent is at least partially nebulized within said nozzle;

introducing said mixture into said nozzle via said first inlet such that said mixture passes through said solution or dispersion and said thickening agent within said nozzle, thereby creating a wet architectural material; and,

spraying said wet architectural material from said spray nozzle onto at least one surface of said three-dimensional form before said initial setting time of said wet architectural material.

2. The method according to claim **1**, wherein said step of preparing a three-dimensional form from a work piece made of a polymeric material comprises at least one step selected from the group consisting of:

using a hot-wire foam cutter to sequentially remove material from said work piece;

preparing a three-dimensional form by use of a computer-controlled multi-task robotic arm;

machining said architectural component;

milling said architectural component;

drilling through said architectural component; and,

supporting a work piece made of a polymeric material on a movable support table in communication with a computer processor, said support table capable of movement in response to commands from said computer processor followed by sequentially removing material from said work piece by use of an end effector positioned at a distal end of a multi-task robotic arm in communication with said computer processor and moving in cooperation with said support table in response to commands from said computer processor, thereby forming a three-dimensional form having a desired shape.

3. The method according to claim **1**, wherein said step of preparing a three-dimensional form from a work piece made of a polymeric material comprises:

using a hot-wire foam cutter to sequentially remove material from said work piece; and,

milling said work piece.

4. The method according to claim **1**, further comprising attaching fasteners to said architectural component.

5. The method according to claim **1**, further comprising applying a layer of a coating material to at least one surface of said three-dimensional form.

6. The method according to claim **5**, wherein said coating material comprises paraffin wax and Canola oil.

7. The method according to claim **5**, wherein said step of applying a layer of coating material comprises:

heating said coating material in a storage vessel until said coating material liquefies;

passing said liquefied coating material to a spray head oriented toward said three-dimensional form; and,

spraying said coating material on said at least one surface of said three-dimensional form.

8. The method according to claim **1**, wherein said step of sequentially layering an architectural material on at least one surface of a three-dimensional form comprises sequentially layering an architectural material on at least one surface of a three-dimensional form until a thickness of between 8 and 20 mm is obtained.

9. The method according to claim **1**, wherein said architectural material is selected from the group consisting of concrete, gypsum, clay, and synthetic marble or any other building material.

10. The method according to claim **1**, wherein said architectural material has an initial setting time of between 10 seconds and 5 minutes.

11. The method according to claim **1**, wherein said polymeric material comprises expanded polystyrene foam.