CLAIMS

What is claimed is:

1. A method for making a three-dimensional object, comprising:

depositing a layer of a build material on a build platform, the build material including a blend of a powder material and a carrier fluid;

densifying the layer of the build material;

selectively processing the layer of the build material; and

repeating said depositing, said densifying, and said selectively processing of one of more layers of the build material stacked on the layer to form three-dimensional object, wherein said selectively processing includes depositing a supplemental build material on at least one target area of the build material, and wherein:

the supplemental build material includes a backbone resin, and the carrier fluid includes a polymerization initiator for initiating polymerization of the backbone resin; or

the carrier fluid includes the backbone resin, and the supplemental build material includes the polymerization initiator for initiating polymerization of the backbone resin.

2. The method of claim 1, wherein said depositing includes depositing the build material via slot die coating.

3. The method of claim 1, wherein said densifying includes densifying the build material such that the build material remains substantially wet after densification.

4. The method of claim 3, wherein said densifying includes densifying the build material such that the build material defines a plurality of voids therein and the powder material remains wet after densification.

5. The method of claim 3 or claim 4, wherein the supplemental build material is adapted to enable a curing reaction, solidification reaction, or a combination thereof, for binding the powder material at the target area.

6. The method of claim 5, wherein the target area is in accordance with a two-dimensional slice of a digital model of the three-dimensional object.
7. The method of claim 5 or claim 6, wherein the supplemental build material is adapted to enable a photocuring reaction for binding the powder material at the target area.
8. The method of claim 7, wherein said selectively processing includes irradiating the build material in a non-selective manner.
9. The method of any one of claims 7 - 8, wherein the supplemental build material and the carrier fluid collectively provide a photocurable resin including the backbone resin and the polymerization initiator, the polymerization initiator including a photoinitiator.
10. The method of any one of claims 5 - 9, wherein the supplemental build material is adapted to enable a thermal curing reaction for binding the powder material at the target area.
11. The method of claim 10, wherein said selectively processing includes heating the build material in a non-selective manner.
12. The method of any one of claims 10 - 11, wherein the supplemental build material and the carrier fluid collectively provide a thermally curable resin including the backbone resin and the polymerization initiator, the polymerization initiator including a thermal initiator.
13. The method of any one of claims 5 - 12, wherein the supplemental build material is adapted to enable a passive curing reaction for binding the powder material at the target area.
14. The method of claim 13, wherein the supplemental build material and the carrier fluid collectively provide a passively-curable resin including the backbone resin and the polymerization initiator.
15. The method of any one of claims 5 - 14, wherein the supplemental build material includes a wax that is molten during deposition and solidifies upon cooling at least via heat absorption by the carrier fluid.