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# Concrete Clock

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## Build Instructions



*Adylinn Studio*

# Table of Contents

Introduction .....	3
What You Will Need .....	3
3D Printed Parts .....	4
Mold Cavity .....	4
Wood Inserts.....	5
Finishing .....	5
Assembly .....	6
Mounting .....	6

# Introduction

The Concrete Clock was designed to utilize 3D printing to make a custom shape for the mold to shape the clock. The project includes a concrete clock made out of Shapecrete which was molded out of a 3D printed cavity, inside each hour indentation I have inserted a wood insert which is a 3D printed with wood veneer adhered on top, and then finally I added a standard clock kit to finish off the clock. No specialized tools are required and a 3D printer is not required - you can utilize a print service such as [3DHubs.com](https://3dhubs.com) to obtain the 3D printed parts from a local printer.

## What You Will Need

### Materials:

- [Shapecrete](#) ~\$30
  - [Optionally Add Color to Concrete](#) ~\$20
- [Wooden Stirring Sticks](#) ~\$14 (likely cheaper for less quantity at local hardware store)
- [Walnut Wood Veneer](#) ~\$13
- [Linseed Oil](#) ~\$6
- [Sanding Paper](#) ~\$4
- [3D Printed Concrete Mold](#) (This will most likely be destroyed in the process)
- [3D Printed Wood Inserts \(x12\)](#)
- [3D Printed Support Block](#)
- [3D Printed Mounting Piece](#)

### Tools:

- [Clothes Iron](#) ~\$22
- [Orbital Sander](#) (optional) ~\$27
- [Hot Glue Gun](#) (optional) ~\$10
- [Dremel](#) (optional) ~\$25

*\*\*\*Links provided are affiliate links if used to purchase something may provide Adylinn Studio a small commission to keep the site and projects running. This does not cost you anything.*

# 3D Printed Parts

If you are sourcing your 3D printed parts, I'd suggest a local printer on [3D Hubs](#) so you can pick up your printed pieces without having to risk shipping. Be sure to communicate the below settings when placing your order:

**Mold Cavity** (ideally this has decent surface quality to limit amount of sanding needed)

- Any type of filament can be used – something cheap with good print quality.
- 0.2mm layer height
- 10% infill
- Support (all – not just off build platform)
- Brim optional

**Inserts and Mount Piece** (surface quality not important)

- Any/cheap filament will do
- 0.2mm layer height
- 10-15% infill

**Support Block** (surface quality not important)

- Any/cheap filament will do
- 0.2mm layer height
- 15-20% infill

[Order a 3D Print](#)

## Mold Cavity

1. Remove the support under the mounting hole for the clock. Be careful as this section is going to be a little fragile.
2. Do some light sanding as needed but mostly optional unless there are obvious areas that could use some touch-up. The concrete can be sanded so this step isn't absolutely crucial but it does help.
3. Mix roughly 3 parts concrete mix to 1 part water (use the box instructions if using something different than Shapecrete).
4. I tried a mold release solution of 1 part soap to 10 parts water but I am not sure it was very effective, try PAM or vegetable oil as a mold release agent but don't use an excessive amount – just coat the inside cavity lightly. Pour concrete immediately after.
5. Place the support block under the shallow side of the cavity to be sure the top is flat for pouring the concrete in.

6. Once it is well mixed and cake batter type consistency pour into mold. Be sure to get as much below and around the block for the clock kit. Try to fill close to the top edge but not all the way. You have roughly 30 minutes of working time so no need to rush this step.
7. Try to remove any air bubbles by slowly and gently shaking the mold.
  - ▶ Optionally you can use an orbital sander to apply vibrations to the outside of the mold.
8. Insert the mounting piece at the top of the clock (the deep side). This will create a hole for the clock to sit on top of a screw.
9. Let the concrete mold sit for at least 48 hours. For now work on Wood Inserts.
10. Once concrete is hardened, remove from mold. You may need to break apart the mold to do this.
11. Sand outside of the concrete base to desired surface finish. You can use sandpaper manually or use an orbital sander. You can use as low as 80 grit initially and then move toward 320 grit or higher if desired.

## Wood Inserts

1. Cut long enough strips of the wood veneer for the 12 inserts.
2. Before using Clothes Iron remove any water and allow clothes iron to dry.
3. Heat up a clothes iron on the cotton setting. (Warning - some residue from the process *may* get on heat plate, though this did not happen during my build)
4. Place the veneer strips on the inserts
5. Use iron to melt adhesive, allowing it to stick to the 3D printed inserts. The general speed to avoid scorching wood is 2 inches per second but be cautious as to not melt or deform the plastic beneath. Do this until all veneer is glued onto all inserts.
6. Now trim up the excess around the inserts doing this upside down. Use a sharp razor blade box cutter to not tear the wood.
7. Use sanding paper or a Dremel sanding tool to round the corners.
8. Apply a generous amount of linseed oil to veneer
9. Let oil sit and penetrate wood for roughly 10 minutes.
10. Wipe any excess oil from veneer.
11. Optionally add clear coat to the inserts.

## Finishing

1. Depending on the type of finish you prefer you can either leave the bare concrete clock as-is as well as keep the clock hands white or do some variation of the below steps. The steps below will outline the steps I used for the exact finish I went with.
2. Tape around the ring of the clock face.
3. Use white spray paint to coat the face.
4. Spray paint the clock hands with gold metallic spray paint.
5. Once white paint is dry, remove painters tape from around face.

# Assembly

1. Apply hot glue to the back of each Wood Insert and push into each hour inset to glue into place. Other types of glue are most likely acceptable.
2. Install the clock kit per the kit instructions.
3. Once installed you will need to cut (roughly 1/2") off the minute and second hands as it will overhand the clock face.

# Mounting

Since the clock will be quite heavy, I recommend using a screw into a stud to hang the clock.

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Thanks for taking the time to explore the project, I hope you try it and if you do I'd love to hear your feedback and see pictures of your build! Reach out on social media or leave a comment. If you have suggestions about future builds or improvements to the way the builds are presented please let me know.

