

Instructions for the Assembly of the Cut-Out Model „Santa Maria del Naranco“

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Any texts in italic script are my additions and not part of the original text.

Translator's note: I did this translation to assist myself in assembling the model. I am not fluent in Spanish but I am sure I captured the meaning of the instructions correctly. Should you encounter any errors or incomprehensible passages please contact me through my website

http://flyhi.de/modellbau/modell_stamariadelnaranco.html

where you will also find additional construction hints and pictures of the model I built.

General recommendations

- Keep at hand all tools and instruments you need for cutting and assembling: Scissors, knife (cutter or scalpel with exchangeable blades), glue (preferably transparent glue from the tube or, for plain pieces, a glue stick), tweezers to hold the glued parts.
I would not recommend glue sticks. I also advise caution when using PVA glue because the paper may warp when water-based glue is applied thickly or on large surfaces. UHU or similar solvent-based glues give good results with this model.
- Read the complete assembly instructions before beginning to cut.
Be sure to understand the parts and the assembly before doing anything serious. The model requires some improvisation, and some parts do not fit well. Be sure to make frequent "fitting sessions" before you cut or score anything.
- Mark (score) all dashed lines before folding the parts with the back side of the scissors' blades or with any blunt-edged instrument.
Be sure to make scoring and folding tests on unused parts of the cardboard before committing to anything serious. The cardboard is rather special and sometimes does not fold easily, and if scored too deep it tends to break. However, once formed or folded it keeps the new form admirably.
- Once you have cut out a part it is convenient to write its number on the back side.
Preferably, you might do that even before you cut it out.

Significance of the signs used

The parts have numbers that appear as a capital "P", followed by a number.

The faces of the pieces that will be attached to other pieces are marked with lowercase letters (a, b, c, ...); the faces where they will be attached are marked "a / P33, a / P34, b / P79 etc.). *This means that, for example, the tab marked "a" on part P33 will be attached to the face marked "a/P33" on the "receiving" part.*

Continuous lines are cut lines.

Not all cut lines are marked thus, in particular the door and window interiors are not marked, probably so as not to spoil the graphics. Again: Read (and think) before you cut.

Dashed lines indicate folding lines. *Actually, folding lines are marked with a dash-point-line. The dashed/dotted lines on the floor of P1 do **not** indicate folds but mark the place where the interior walls will be positioned. Some folding lines are unmarked.*

Specific instructions for the assembly

The first part of the assembly is the main structure of the building, including its first floor; the latter consists of a central hall and two bays at the far ends of the hall, pointing to the East and West.

The ground floor will be inserted afterwards into the hollow space that remains in the lower part of the building.

1. Cut out part P1.
2. Cut out the small slits indicated by the rectangles marked f1, f2, f3 etc. These slits will later serve to attach the gluing tabs of the arches of the barrel vault.
3. Cut out the interior of the windows of the bays.
It may be a good idea (at least it worked for me) to cut out only the windows in outward-pointing faces first, then to fold or temporarily attach the corresponding inner wall face, and then cut out, from the outer side, the window holes of the interior face. This guarantees a perfect fit and also makes it easy to paint any remaining white space. I used a very small scalpel to cut the holes.
The wooden door in the southern wall that leads to the ground floor needs to be painted from the inside, no interior door face is provided. You can decide to cut and score this door so it can be opened later.
4. Cut out the interiors of the windows of the first floor, and partially cut out the doors of the first floor (taking care of the folding lines that allow the doors to open).
Also cut out the rectangle of the North face in the space labelled "escalinata"; this will also partially cut away the word. Cut this rectangle out larger than indicated, it will later be covered from both sides anyway.
5. Cut out parts P24, P25, P26, P27, P28 and P32 and glue them to the back-to-back to the doors and window shutters of the first floor, observing the following correspondences:
 - Parts P24, P25 and P26 belong to the doors and windows of the Southern wall. Parts P27, P28 and P32 belong to the doors and windows of the Northern wall.
 - Part P24 goes to the back of the shutter of the left window, P26 to that of the right window, and P25 to the door in the centre. (*Right and left are as seen from the back (white side) of the wall, i.e. as when looking at the backs of the doors immediately before gluing. The shutter and door sizes are slightly different for all parts.*)
 - Part P32 goes to the back of the shutter of the left window, P27 to that of the right window, and P28 to the door in the centre.
6. Cut out parts P2, P3, P4.
7. Completely cut out the window holes of parts P2, P3, P4.
8. Glue P4 to the back of the face of P1 that is marked with "P1.1" so that the window holes of both parts fit together.
See my remark to 3.
9. Glue P3 to the back of P2 so that the window holes of both parts fit together.
10. Cut out part P12 and fold it into a cuboid (rectangular box).
11. Cut out part P53 and fold it into a cuboid (rectangular box) whose base are the tabs marked a, b, c, d.
12. Glue the P12 cuboid to the P53 cuboid so that P12's "a" face attaches to the place marked "a/P12" on P53.

13. Glue the assembled parts P12+P53 to the place marked “ara” (*altar*) on P1, using the tabs marked a, b, c, d.
I postponed this step and did it after step 17.
14. Cut out parts P33, P34, P35, P36, P37, P38, P39, P40, P42, P43, P44, P45, P46, P47, P48 and P49 that form 16 of the 18 buttresses of the building. Fold and glue them according to drawing (*esquema*) 1.
15. When the buttresses have assembled, glue each of them to the corresponding space of P1. These spaces are marked “a/P33”, “a/P34” etc.
I postponed this step and did it after the building fundamentals (P5...P20) were in place, i.e. sometime after step 39.
16. Fold P1 along the fold lines (*dash-dot lines*) as shown in drawing 2. Consider the general recommendation 3. again before doing so (*i.e. score before you fold*).
I did not see the advantage of folding such big parts, so I cut the long outer walls off along the fold line and then glued them back-to-back with the inner walls. This made it much easier to position them precisely.
DO NOT FORGET to leave open those edges that will latter accept the glue tabs of the gable walls!
17. Glue the backs of the two large faces of the building together so that they form the internal and external sides of the long walls. Be careful not to obstruct the slits marked “f” in the process as these are later needed to insert the gluing tabs of the vault arches.
18. Cut out parts P76, P77, P78 and P79. Cut out the holes of parts P77 and P78 that correspond to the doors in P76 and P79. (*See also last note in 19.*)
These parts are printed too wide to fit between the interior walls. Check the actual inner width of the building (after folding it) before scoring and cutting P76-P79. I replaced the glue tabs with strips I made myself (this also gets you rid of the “a” and “b” markings on the tabs) and bluntly t-joined the inner walls to the long wall interior, using PVA glue for “welding”.
19. Cut out parts P21, P22, P23, P29, P30 and P31 and glue them to the back-to-back to the doors and window shutters of P77 and P78, observing the following correspondences (*Right and left are as seen from the back (white side) of the wall, i.e. as when looking at the backs of the doors immediately before gluing.*):
 - Part 21 goes to the back of the central door in P77.
 - Part 22 goes to the back of the right door in P77.
 - Part 23 goes to the back of the left door in P77.
 - Part 29 goes to the back of the right door in P78.
 - Part 30 goes to the back of the left door in P78.
 - Part 31 goes to the back of the central door in P78.
 - If you wish, you can also cut (at the top, bottom and middle) and score the doors so that they can be opened.
20. Glue the backs of part P76 and P77 and the backs of parts P78 and P79 together.
21. Glue the parts that result from the work described above to part P1. Glue the tabs to the spaces marked “a/P76”, “b/P76”, “a/P79” and “b/P79”. The faces P76 and P79 look to the outside of the building (to the bays) and the faces P77 and P78 to the interior hall. In case of doubts see drawing 3.

The ground floor of the building is made up from three rooms: the bath, the vaulted central hall and a small chamber. Parts P55, P6, P8, P9, P11, P74 and P81 of the model form the bath, parts P54, P57, P58.1, P58.2, P59, P60, P61, P62 and P63 the vaulted hall and parts P56 and P73 the chamber.

22. Cut out parts P73 and P74 and glue them to the back (*underside*) of the floor of the building's first floor, in the positions indicated in drawing 7.
23. Cut out P56 that forms the small chamber. Fold and glue in place according to drawing 4. *It is probably a good idea to paint the unprinted side of the door before gluing P56 in place, otherwise the white back side is visible from the outside. If you wish you can also cut and score the door to allow it to open.*
24. Glue the back of P56 to the face designated "d" in drawing 4 to the back of the corresponding face "c".
The folded side overlaps the other side. You should remove the excess paper.
25. Insert the assembled part P56 into the building's interior as shown in drawing 7, and glue its three outer surfaces (marked a, b, e in drawing 4) to the interior walls of the building.
26. Cut out parts P54, P57, P58.1, P58.2, P59, P60, P61, P62 and P63; they form the vaulted hall of the ground floor.
I assembled and inserted the bath (P55 et.al.) first; they are hard to fit once the vault is in place. Be careful with the cut-outs for the entries in P63, they are drawn way to large; only cut them out after P54 and P57 are in place and can be used to find the needed size of the holes.
27. Fold and form parts P54 and P57. Glue them to the interior of the building around the two entrance doors as shown in drawing 7.
28. Fold and glue parts P59, P60, P61 and P62 in the same manner as done for the buttresses (see drawing 1).
29. Glue the faces marked "a" of these parts to part P63 onto the spaces marked "a/P59", "a/P60", "a/P61" and "a/P62".
30. Fold the stairs (P58.1 and P58.2) and glue their glue tabs to P63, as shown in drawing 5.
The longer stair P58.1 belongs to the North entry (the one without a door).
31. Fold P63 as indicated in drawing 5 and form it into a vault. Glue it into the interior of the building's ground floor with the backs of its edges as indicated in drawing 8.
32. Cut out parts P55, P6, P8, P9, P11 and P81.
33. Fold and glue parts P6, P8, P9 and P11 into four cuboids and glue their faces marked "a" to the faces of P55 marked "a/P6", "a/P8", "a/P9" and "a/P11".
34. Fold the stairs (P81) and glue its tabs to P55 as indicated in drawings 6 and 8.
The largest tab is meant to be attached to the wall below the door; no bottom is provided.
35. Fold part P55 as shown in drawing 6 and glue its back to the faces marked "b" and "c" in that drawing.
36. Insert the assembled part P55 into the interior of the building's ground floor as indicated in drawing 8, gluing the backs of its faces a, d and e to the corresponding walls of the building.

The annexe at the Northern side of the building, that also contains the stairs to the first floor of the building, is formed by parts P41, P50, P51, P52, P64, P65, P66 and P80.

The northern annexe has some serious design flaws. The lozenge-shape suggested by the roof and the upper floor have no counterpart in reality, and they clash with the two vaulted

ceilings that suggest a rectangular shape. In reality the western stairs have the same width all the way down, they do not taper at the bottom. The floor of the lower entrance is missing.

Consider to do some serious re-design here! You need to replace part 51 (the stairs and upper floor) and the roof. If you do this, the plinth parts, pillars etc. fit well. See the web site for images of the re-designed parts.

37. Cut out parts P41, P50, P51, P52, P64, P65, P66 and P80.
38. Take parts P41 and P50 and make two buttresses as described in 14. (above). Then glue them to P52, to the spaces marked “a/P41” and “a/P50”.
39. Fold P52 along the dotted lines, as shown in drawing 9.
40. Fold P80 and glue it to the faces a, b and c of part P52 with its corresponding faces a, b and c, as shown in drawing 10.
41. Fold pieces P64, P65 and P66 and glue them to P52 as indicated in drawing 11.
42. Fold the stairs represented by part P51 and attach them to P52 as indicated in drawing 11; use the glue tabs at the stair’s side.
43. Glue the complete construction (faces and glue tabs) to the space labelled “escalinata” on the North face of the main building (P1).
The word “escalinata” will have been partly cut away when cutting the hole for the door; see point 4.

Parts P5, P7, P10, P13, P14, P15, P16, P17, P18, P19 and P20 form the external aspect of the fundament of the building, i.e. the continuous shelf or bank around the building.

(For some obscure reason the instruction numbering re-starts with 39. at this point.)

39. Cut out parts P5, P13, P14, P15, P16, P17 and P18. Fold and glue them according to the explicit instructions of drawings 12 and 13. Then glue them to parts P1 and P2 according to the following reference:
 - P20 must be glued with face a to the space of P1 that is marked “a/P20” and with its faces b, c and d to the spaces of P10 labelled “b/P20”, “c/P20” and “d/P20”.
 - P19 must be glued with face a to the space of P1 that is marked “a/P19” and with its faces b, c and d to the spaces of P7 labelled “b/P19”, “c/P19” and “d/P19”. (There is probably a printing error in the original instruction.)
 - P18 must be glued with faces a, b and c to the spaces of P1 labelled “a/P18”, “b/P18” and “c/P18”.
 - P17 must be glued with its face c to the space of P1 labelled “c/P17” and with its face b to the space of P2 labelled “b/P17”.
 - P15 must be glued with its face c to the space of P1 labelled “c/P15” and with its face b to the space of P2 labelled “b/P15”.
 - P5 must be glued with its face a to the space of P52 labelled “a/P5”.
 - P13 must be glued with its face b to the space of P52 labelled “b/P13”.
 - P14 must be glued with its face a to the space of P52 labelled “a/P14”.
 - P16 must be glued with its face a to the space of P2 labelled “a/P16”.

If you want to add a base to the model, this is a good time to do so. I used 5 mm KAPA (foam sandwich) board, cut a hole in it to be able to see the ground floor vault later, glued the building to the base and covered the base with a grass mat obtained from a railway modeller’s store.

Of the ceiling that spans the first floor only a small part of the tuff-stone barrel vault construction is shown in the model. This has been done so that you can easier see and understand the structure of the building after the construction has been finished. The parts that serve as the vault representation are numbered P67, P68, P69, P70, P71, P72 and P75. (*The roof, P82, is also added in this section.*)

40. Cut out parts P67, P68, P69, P70, P71, P72 and P75.
41. Cut those parts along the lines marked x-y and afterwards glue the corresponding pieces together back to back.
I fixed the freshly-glued parts around a wine bottle and let them dry that way. This gives them a permanent form.
42. Insert the tabs into the slits marked “f” in part P1.
43. Cut out part P82 (*the roof*) and fold it along the roof’s ridge; also fold the gluing tabs.
See my remark to 44.
44. Glue the roof to part P1 with its gluing tabs.
It may be a good idea to stiffen the roof by adding triangular “rafters”, made of stiff cardboard, to its sides in a way that they are just inside the gable walls. You can then dispense with the gluing tabs (the tabs do not fit correctly, anyway, as the roof is wider than the building itself) and attach or remove the roof completely. See web site for details.