Contents

Thought Process

First thing I thought is if I'm going to do this, I am really going to do this!

So the following analysis will initially contain an In Depth portion that will cover the actual math that would go into trying to reconstruct the empire state building using Lincoln Logs, followed by an Extra Touches section that has everything extra that I thought would be needed to live up to my imagination. So without further ado let's begin!

IN DEPTH ANALYSIS

- Step 1. Find out the dimensions of the Empire State Building

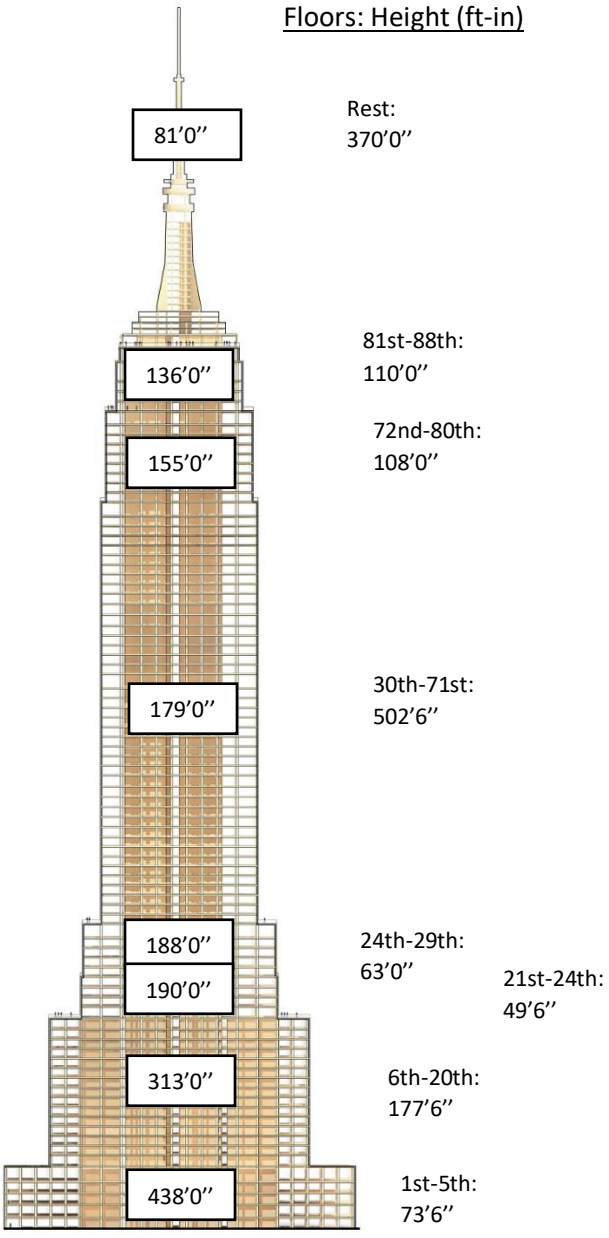
I found this image online for the dimensions of the building and edited it a bit. I had to do some conversions on my own to find out the width of each portion of the building. I used google chrome's page ruler extension for this part.

65px = 177ft

Then used a basic algebraic formula to solve for x for each width in feet

px/ft = px/x

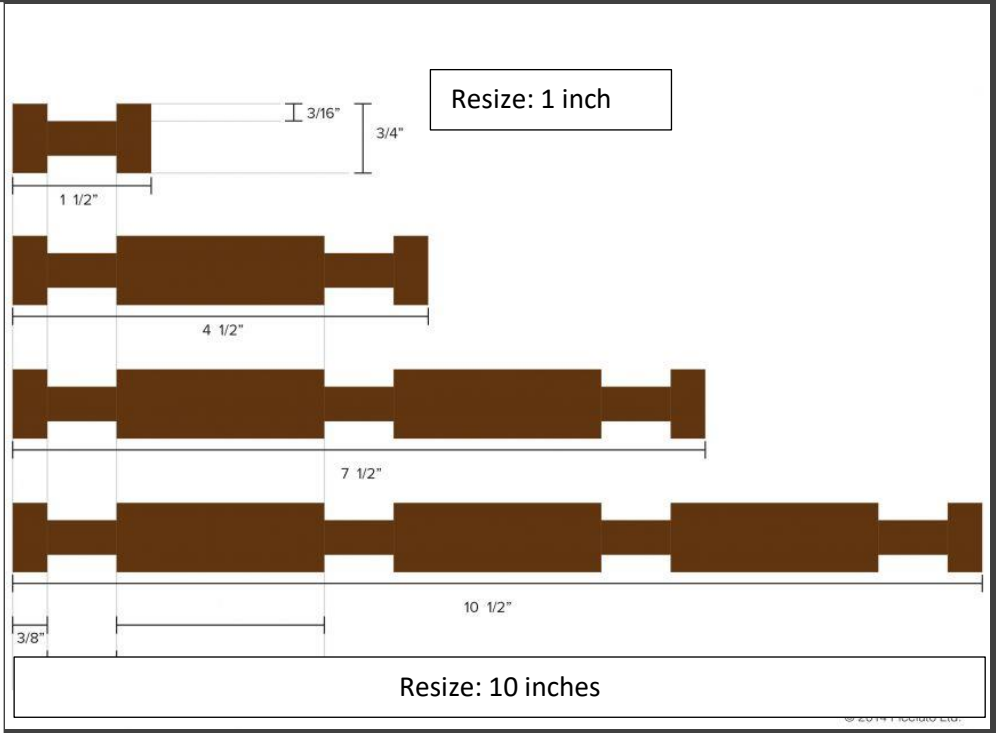
For simplicity the tower is divided into 8 parts and we will assume the width is equal to the length to make each section three dimensional.



- Step 2. Find out the dimensions of a Lincoln Log

Honestly, I had to look up what a Lincoln Log was (I guess I missed that toy in my childhood). Instead of using that toy though my design implements dimensions from handmade logs. Description here: https://makesomething.tv/how-make-lincoln-logs

These logs would be larger so, if I was being practical I would hire a log cutting company to cut all the required notches into each log. Also lets round the height to 1 inch and width of the largest log to 10 inches and assume the height is equal to the length in this case.



- Step 3. All the maths!

Convert feet to inches for each disk of the tower

Part	Width (inches)	Height (inches)	Length (inches)	Width # of logs	Layer # of logs	Cube # of logs	Extra Logs per Cube
1	5256	882	5256	526	2,764,656	2,438,426,592	609,606,648
2	3756	2130	3756	376	1,412,256	3,008,105,280	752,026,320
3	2280	594	2280	228	519,840	308,784,960	77,196,240
4	2256	756	2256	226	508,856	385,451,136	96,362,784
5	2148	6030	2148	215	461820	2,784,774,600	696,193,650
6	1860	1296	1860	186	345960	448,364,160	112,091,040
7	1632	1320	1632	164	267,648	353,295,360	88,323,840
8	972	4440	972	98	95,256	422,936,640	105,734,160

Explanation: The log building width = (real width/single log width). To make a single layer of the building of one log height = (log building width*(real length/single log length)). Unfortunately the logs are thin (1 inch length) so this made the layer require a lot of Lincoln Logs). Then to get the size of a cube of the log building = (log layer * (real height/single log height)). Finally the extra logs are a structural addition; Lincoln Logs interlock to keep the structure in position. Since each individual log has four notches then each cube needs extra logs = (cube logs / 4). The total number of logs needed is: 12,687,673,410!!!

This is an example of why extra logs are needed. The extra logs in this picture don't actually add to the height of the building but keep it from falling over (interlocking).

EXTRA TOUCHES

- Step 4. We need a foundation

  For this building to stand up properly a large foundation would be needed. Basically, to achieve this foundation beams would be driven into the ground and concrete poured over to create flat grounding. Here's a link for a basic rundown but obviously we would need a contractor for this.
  http://www.diynetwork.com/how-to/rooms-and-spaces/basement/a-strong-foundation-installing-the-foundation

- Step 5. Making a spiral

  The antenna at the top of the empire state building is a more complex structure and to properly make it interlocking the Lincoln logs wouldn't work; antennas are spherical. In Tokyo a building is made out of custom logs that are locked at angles to make a spiral look that could be adapted for our building

- Step 6. Lastly, LEGO KING KONG!

  With my love of Legos I'd have to make a large scale replica of King Kong to be raised and attached to the building during the summer. It'd look something like this:

Afterwards that would be everything needed for the building to theoretically exist in all its glory. Thanks for your time, I hope the explanation was comprehensive enough. Have a great day :)