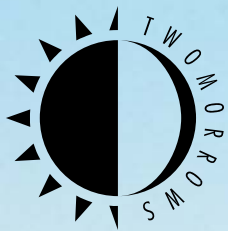


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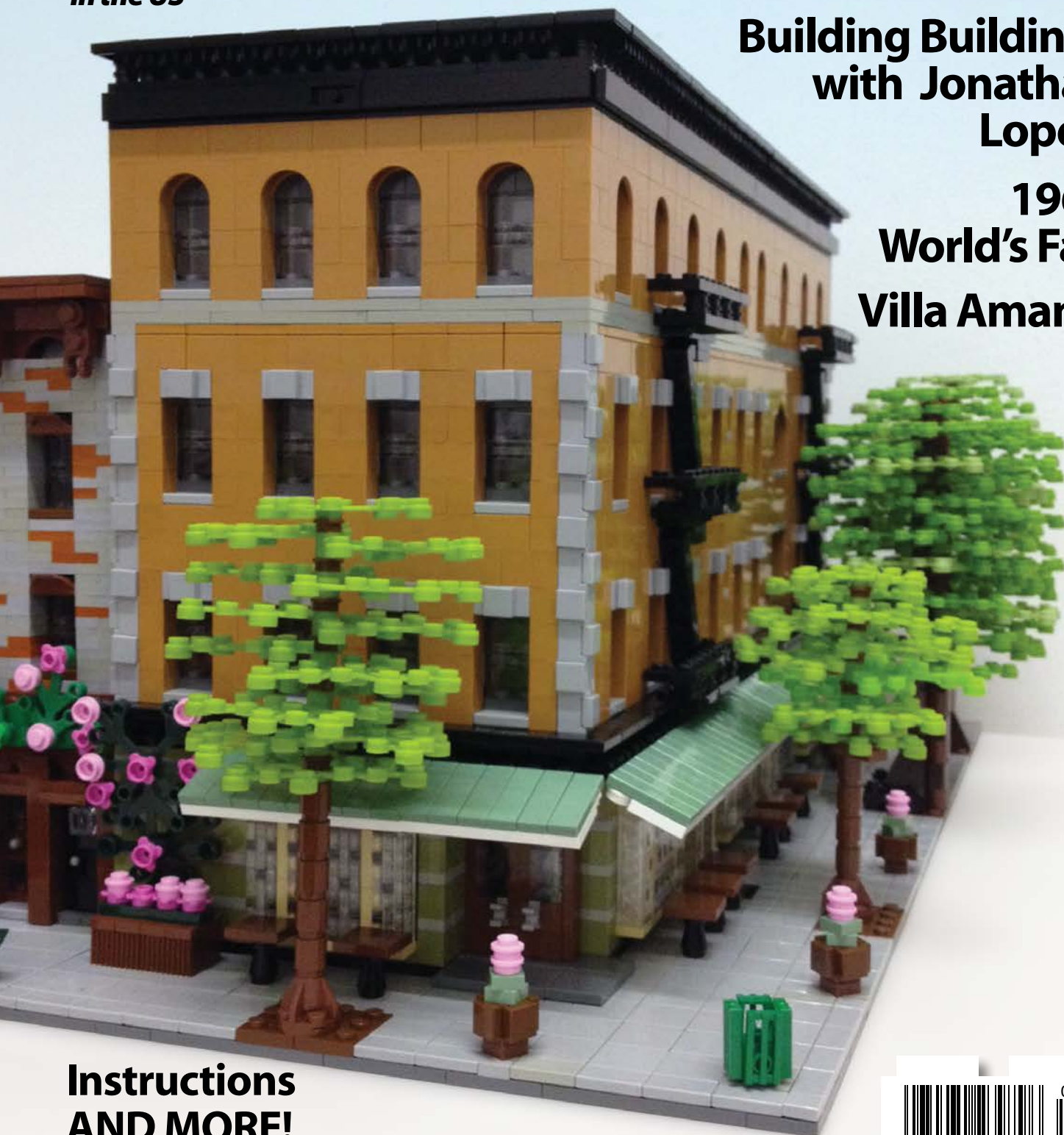
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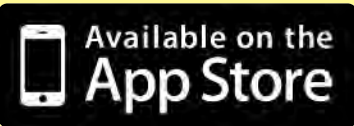
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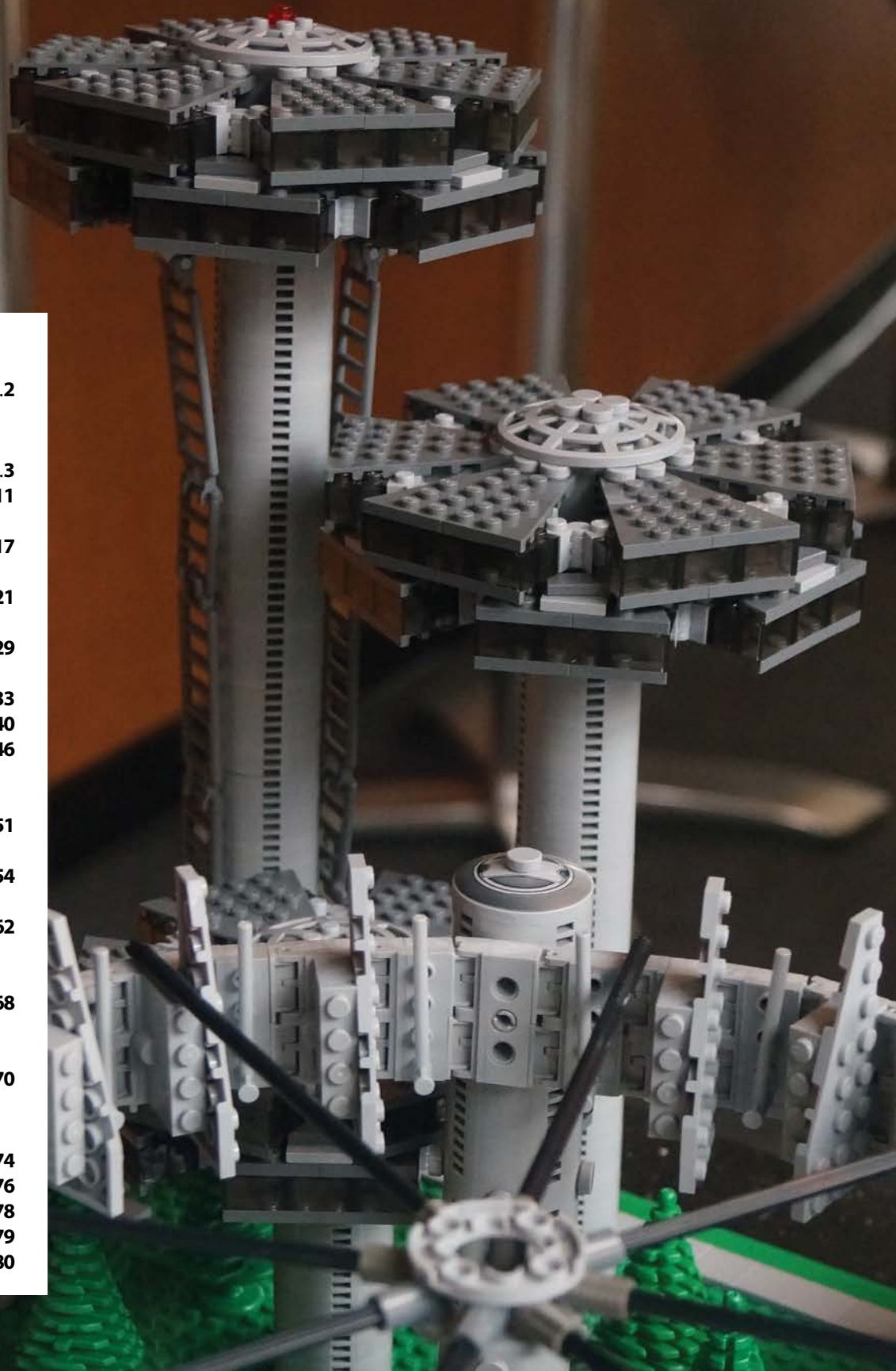
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August 2014

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About the Cover:

A town building by Jonathan Lopes.

Photo by Jonathan Lopes.

About the Contents:

The New York State Pavilion observation towers loom over the Tent of Tomorrow.

Model by Cody Wells. Photo by Joe Meno.



From the Editor:

This issue is the Architecture Issue, which spotlights some of the builders out there that have built incredible structures of all types and scales. It was a lot of fun finding and talking to everyone—two interviews I did were done on Skype, which brought a little more to the article than the usual e-mail interview.

Some of the stories took time to happen—the story behind the Science Center of Iowa and Blank IMAX® Theater took a year

to get to the pages of *BrickJournal*, and it's story that really isn't finished. Anuradha Pehrson's model of Tiger's Nest Monastery was seen in Fall of 2013. Some of Jonathan Lopes' buildings have been built for the past few years.

BrickJournal takes time to find and talk to the best builders out there, but there's always another builder to spotlight—and another builder to show us, and me, how to build a different way.

Thanks for reading and exploring the hobby with me!

Joe Meno, Editor

P.S. Have ideas or comments? Drop me a line at admin@brickjournal.com. I'm open to suggestions and comments and will do my best to reply.

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Glossary

AFOL (Adult Fan of LEGO)

NLSO (Non-LEGO Significant Other)

MOC (My Own Creation)

TLG (The LEGO Group)

BURP (Big Ugly Rock Piece)

LURP (Little Ugly Rock Piece)

POOP (Pieces—that can be or should be made—Of Other Pieces)

SNOT (Studs Not on Top)

LUG (LEGO Users Group)

LTC (LEGO Train Club)

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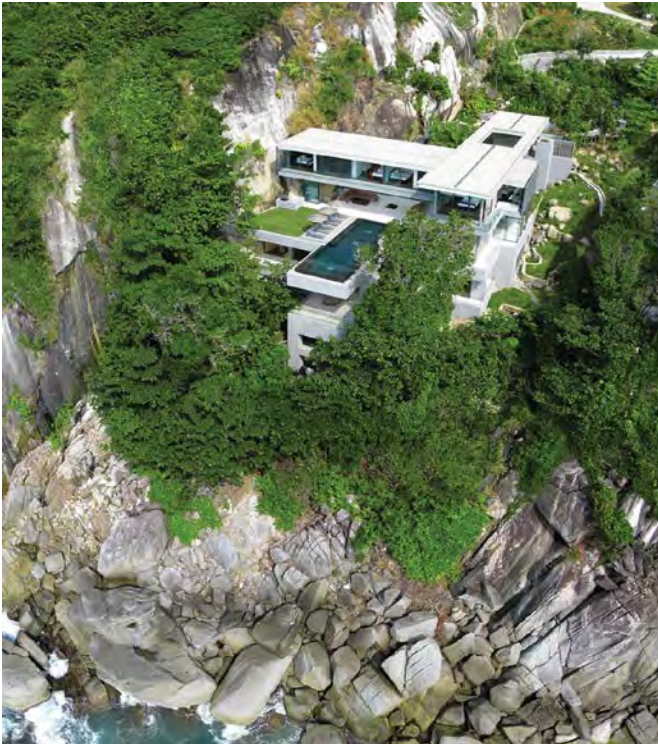
BrickJournal and its staff would like to thank the LDraw community for the software it makes available to the community, which we use for making all of the instructions and renderings in this magazine. We would especially like to thank Kevin Clague for his continued upgrades of the LPub tool that is a part of the LDraw suite. For more information, please visit <http://www.ldraw.org>.



Villa Amanzi: LEGO Modeling a Luxury Thai Villa

Article and Photography by Robert Turner

Before we get into the details of modeling the villa, let me briefly introduce myself. My name is Robert Turner and my Flickr handle is `rt_bricks`. By day, I am a computer software developer, although more recently I have been managing software teams and overseeing software architecture for mobile and embedded operating systems. Outside of work and LEGO, I have interests in sports, largely soccer/football which I have played, coached and refereed.



Villa Amanzi. Photo courtesy of Original Vision.



The overlay grid for the second floor, used to determine size and scale. The floor plan was found on a Google image search.

I have had an interest in architecture since I was a young child; it was my desired profession until high school. I used to draw buildings, design floor plans, and even make foamboard models of some of my designs. As I got into LEGO building as an AFOL and watched what impressive works the LEGO community created, I developed a strong interest in building some of my own creations in the architectural theme. I wanted to pick something that hadn't been modelled in LEGO before, and I wanted to do something that was impressive in its own right, both in the design of the building and the setting.

Site Seeing

To select the subject for this MOC, I spent a few evenings over a few weeks searching the Internet for cool buildings, browsing architectural media and firm websites, and cross-checking against existing LEGO builds. I discovered many interesting buildings and some really neat projects by talented firms and architects. During the search, I discovered Villa Amanzi, designed by architectural firm Original Vision (<http://www.original-vision.com>), and immediately thought it would be a good building to model, and a nice place to stay for a bit, should the opportunity ever arise.

The building is located on the prestigious Millionaires Mile, on the west coast of Phuket Island in Thailand. It sleeps up to twelve occupants in six rooms, all with en-suite bathrooms. The villa is an ultra-modern design, nestled into the edge of a rock face, with large expanses of glass in each room facing the ocean; with the second floor sliding glass doors completely retracted it gives a completely open-air feel to the building. It also features a stunning fifteen-metre infinity pool which appears to blend into the ocean.

Villa Amanzi has many straight lines, which is well-suited to LEGO, but it also has some more challenging aspects, like the infinity pool, thin rooflines, and the fact that it's designed into the rock face. It is also situated on a site which incorporates water, vegetation and an impressive rock face and small ravine. Finding sufficient pictures and floor plans was a key aspect of selecting the building, and both of these existed on a combination of the architectural firm's website and the operating resort's website. This made the Villa Amanzi a good choice for my first significant architectural LEGO model.

Sizing the Villa Up

Before starting to build and acquiring parts, I first set out to validate if I could build the villa in LEGO. To do this, I took the plan of the second floor (which I chose because it had the pool and outdoor areas and was the most complex), and generated an overlay grid using a picture editor. Very briefly, I considered building at minifig scale, but very quickly realized that it would be enormous and extremely costly. As such, I quickly switched to microscale (using the floor plans and the size of the bed as the basis for my scale). I chose a scale so that a bed was two studs wide; the walls would also need to be no less than one-stud wide. From that overlay, I examined all the objects on the floor plans to see how well I could line walls up, build the furniture, stairs, and other details. Once I had gotten a good feeling about the model, I then used LDraw to build up a model of most of the second floor of the building. This process took a few days, but it gave me a very good idea of the parts and quantities I would use for the core of the building, and how well the alignment of walls worked. While I was doing this, I was also evaluating the basic structure to ensure it would be somewhat structurally solid. However, as I found out later while actually building it, you really need to build things to determine how well they will actually hold together

— especially since you cannot always get the right length plates in the colors you require.

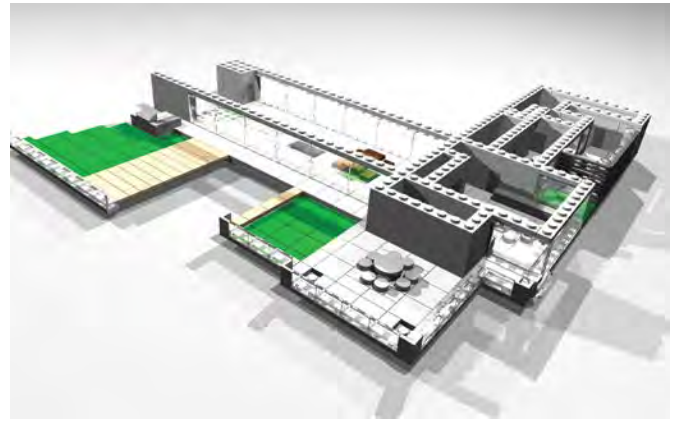
Once I felt that I had the second floor under control from a modeling perspective, I then started to determine how I would build the entire MOC. The fact that the building was built into the rock and the rock was incorporated into the inside of the building, left me feeling I could not just model the building by itself. I also really wanted to include the water in the model, as I felt it was a key element of the setting. As such, I took an overhead picture at the scale I had worked out for the building, and determined how large a base I would need to incorporate sufficient amounts of the landscape. At this point, I made a key decision that I wanted a one-piece model. I really did not want the model to suffer from separation lines and collapses by building it in a modular fashion. This also meant that I really needed to keep the base a relatively common size.

As part of the sizing of the model, I also needed to determine how high the model needed to be. This had to be based on the chosen scaling of the house, and the information on the height of the surrounding landscape that I could derive visually from pictures (I had no contour maps of the site). To do this, I doodled a side view of the landscape onto a small bit of paper, and jotted down relative brick heights. It was looking really big, in the seventy- to eighty-brick height range, which was a bit too high to reasonably fit in either of my cars. With these three factors, I realized that I wouldn't be quite able to fit the rock face down to the water at full scale, and that I would thus have to take some liberties with that aspect of the model. From a visual perspective, I felt that it was reasonable to shorten the vertical height a bit, as it wouldn't detract from the key aspects of the site, or the villa. My final size of the base was 64 x 96 studs, making it a rectangle of two by three of 32 x 32 baseplates. This allowed me to incorporate the whole villa, the major rock escarpment, a bit of the ocean, and some of the driveway.

Base Building

The next step was figuring out how to engineer a suitable structural base so that the whole model would remain structurally sound during repeated displays, and easily moveable as a single piece (making it a really quick set up at LEGO shows). To do this, I started with long Technic bricks, and stuck them together into a two-stud wide beam. Initially I started with them offset, but later realized this would make building on top of them more complicated, and switched to a solid 2-wide beam. To get the rigidity, I used the 2-wide Technic bricks around all sides, indented by 1 stud to allow for a finished edge, and two additional beams running lengthwise up most of the model (they could not go all the way to the front due to lower level of the ocean, at least not without making the whole model taller). I then build up a solid grid on eight stud intervals of 2-stud wide bricks to a height of three bricks, giving it a very firm base. I then plated the gaps, to give an even more rigid first layer. This gave me a very solid base that did not bend when lifted.

It was during the prototyping of the base that I realized I had nowhere near enough parts. Acquiring parts required a trip to a Toronto LEGO store to pick up a lot of Pick-a-Brick material (for the internal structure and outer "rock" walls), a large Pick-a-Brick online order from shop.lego.com (largely for white plates, white and green tile, and trans-clear panels), a large order of basic brick boxes from shop.lego.com (for 2 x 2 bricks for internal structure), and a few BrickLink orders (largely for "rockscaping").



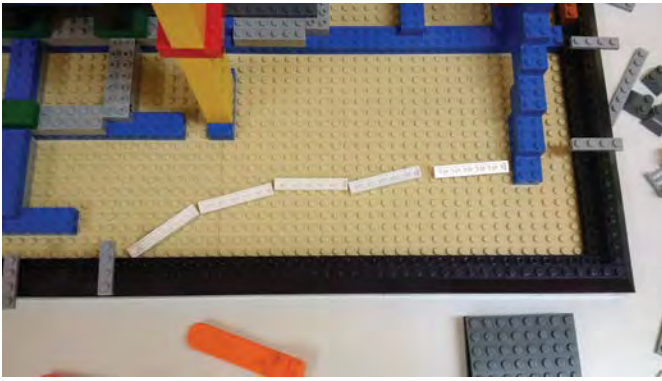
The LDraw rendering of the second floor.

Rebuilding Tip:

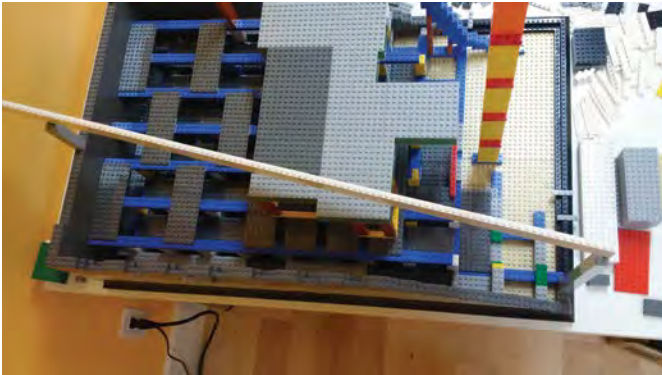
Make sure you take lots of photos as you build. You never know what will fall on the floor or what you will disassemble. I take lots, and even then, I sometimes find I don't have a key part photographed when I need it.



The base begins to take shape, with the Technic bricks seen at the right.



Using loose & stud-attached markers to define the shoreline.



The marker beam used to mark the diagonal rock face.



Mounting the building base (in sand green) and brick-built contours for reference.

Model Details

Width: 51 cm (20 in), 64 studs
 Length: 77 cm (30 in), 96 studs
 Height: 59 cm (23 in), 61 bricks
 Weight: 22.6 kg (50 lbs)
 Hours to Build: ~150-300 hours over 9 months
 # of Bricks: ~10,000-20,000

During the next phase of building, depending on my level of motivation and the parts I had available, I alternated between building parts of the villa, and building up structure for the landscape. For the landscape structure, the hard part was getting the contours roughly right, and ensuring that the building would be in the right place. To aid in getting this right, I used a few different techniques (seen here):

- Loose or stud-attached markers on the base of the landscape to mark key points of interest (like the water's edge)
- Building a marker beam that sat above the MOC to mark the edge of the diagonal rock face
- Standing the building on stilts in the right location
- Building brick-built contours that I stuck on posts across the landscape
- Continually referring to available pictures from different angles to ensure the position of the landscape was in the right place relative to the building when viewed from the same angles.

Key objectives I set for building the landscape infrastructure were to maintain a solid and strong structure without being excessively heavy, enabling the easy building of the rock landscape, and allowing the building to be built as removable floors so that the interior could be shown off, which required that the rock inside the building be part of the building or a separate removable part. The core structure of the building was built using 2 x 2 brick pillars that were four bricks high, and then bridging them with 2 x 8 bricks, alternating in direction at each cross bracing layer. These bridging layers were also built into the side-walls of the structure to ensure full structural integrity. Intermittently, I also placed 6 x 16 plates to give additional rigidity and maintain the squareness of the structure. To get the backing structure for the rockfacing, I placed 2 x 8 bricks between the grid I had built up. In some cases, this required reworking some of the grid to allow alternate levels.

Building the Villa

To get the building started, I actually had built the second floor first (from the computer model), but in order to place it on the landscape, I needed a first floor. Instead of building the floor properly, as I wanted to keep the landscape moving, I created a mock floor with plain bricks and plates of the right outside shape and height. This allowed me to progress without parts, and without getting into the finer details. To get started on each floor, I first worked out the plate structure for the floor itself, and the second layer of plates to join the upper plates together. The floors, not counting the tiling, are only two plates thick. While building such thin structures, I learned that if you fully plate the bottom of another set of plates, the whole surface starts to bend upwards. I think this is because the studs push the tubes apart, and thus make the bottom surface wider than the top, causing the bend. To mitigate this, you have to sparingly use plates on the bottom side, usually using only two-stud wide plates. This proved somewhat challenging to get the structure solid enough, especially on the top floor, where the stairs come up through the floor right next to the join between the two wings of the buildings, making the attachment area for the floor quite small.

Once the floors were done, I built up the walls by following the floor plans. I chose to use solid light bluish-grey bricks to distinguish the doors. I filled in the doors so that the walls would be stronger, and chose the different color so that the

doors would be visible, since there were no viable options for doing the doors as an indented element (on both sides). I often found myself re-working parts of the walls to get greater structural integrity and to incorporate mount points for cabinets and toilets. The window panels also presented a fairly challenging aspect, as they are floor-to-ceiling in the real building, which means most of the outer walls cannot be joined to the interior walls. Instead, I had to use the top tiles to make this joint and to gain the rigidity of the whole floor. All the floors are tiled, and the second floor even includes a small black fountain embedded in the floor (which is fortunately thicker due to the infinity pool). Other than lighting, the fountain contains the only non-LEGO part in the whole MOC, a small piece of double-sided tape to avoid the 4 cheese slope pieces falling out during transport (they are gravity-held, as I was unable to physically fit a small LEGO elastic around them and between the panels nestled into the floor).

Another challenging aspect of building the floors was getting the rockwork into the first and second floors, as the side of the building is built right up against the rock, and the rock forms one “wall” of the building. The diagonal rock face alongside the stairs spans two floors. Because of the removable floors this section got re-worked a few times, and in the end, a section of the building and most of the rock removes in pieces to allow the first two floors to be removed. I think one of the more entertaining parts was including the toilets, which while a fraction large for the scale, add a sense of completeness to the interior.

Rocking the Landscape

The landscaping proved a challenge in its own right. There is a lot of rock in this model, and moreover, it needed to look as similar as possible to the rock around the real building. This took a fair bit of examination of pictures, looking at the model from different angles, and reworking material. Around the front walkway in the garden, I had to build part of the rock sideways and on hinges to get the angles right, and keep a smooth face that would fit with the rest of the garden landscaping. To keep the model solid, I also ensured that all of the rock slopes have at least one or two studs worth of solid brick behind them, all interlocked together to get the strongest construction. Most of the backing material is “rainbow” colored, but I did have to be careful on outer edges, as in some cases you can see the backing bricks in the very slight gaps between the LEGO elements. In these situations, the backing material all had to match the rock faces. While building the rock faces, I frequently got bored, and really did not progress at all quickly, until I realized that I was running out of time before the show I wanted to take it to. As such, I booked two days off work, and made a ten-hour-a-day four-day weekend out of building the rock faces. I did not really find that weekend to be much fun, but at least I got it done in time.

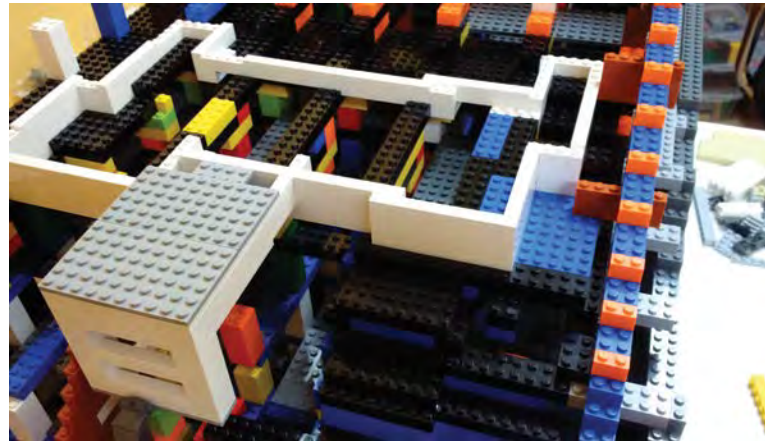
To create the foliage in the model, I used two different techniques. For the trees, I embedded three or four stacked one-by-one round bricks with stud holes into the landscape where the trees would go; the tubes were inserted into the round bricks. With these buried in behind other bricks, they provided sufficient and strong support for the long tubes to hold the tree leaves. The leaves were simply attached by passing the tube through the leaves, then adding extra leaves where needed to fill out the shape. For the scrub bushes on the rock faces, I incorporated attach points, namely 1 x 1 clips, or 1 x 2 plates with clips into the rock face as I was building it, and



The infrastructure of the model in progress.



Plates were used to keep the structure square.



Building the foundation for the building.



Rockwork begins.



Brown flex tube from the Ewok Village set was used to attach foliage to the rocks.



Planning the wiring and lights positions.



Villa Amanzi with lights.

then attached the tubes to clips. This allows the tubes to follow the contours. I also added 1 x 1 plates with clip-lights [4081b] onto the tube, such that I could attach the leaves to the tubes in a direction that was parallel to the rock face.

Lighting the Villa

When I originally started building the model, I wanted to put lights in, but I had not gotten around to purchasing any, largely because it was going to be quite expensive to use commercially available lighting products (and I procrastinate). As such, I delayed including lights until after it was built and had already been displayed at two events. Usually this can make getting lights in later quite a challenge, but I kept lighting in mind while building. Because the floors were separable, and the internal structure of the landscape largely empty, I expected that wiring it afterwards would be relatively straight-forward.

One of the members of my local LUG, Michael Gale, has done some impressive work with lighting on his custom LEGO train layout, so I consulted with Michael about lighting. He recommended a very small surface-mount LED part from DigiKey. If connected up in the length-wise position, this surface-mount LED is small enough to pass through LEGO stud holes, and easily small enough to fit inside single stud round bricks. He also very generously offered his services to wire them up (including the fiddly process of soldering an extremely small dropping resistor on to each LED).

To prepare for the 4-hour soldering session, I took other pieces of wire, bent them into shape on each of the floors, and marked out the positions of the LEDs. Paired wire lengths were twisted, cut to length, and then soldered onto the LEDs to construct an electrical circuit for each floor. On the top floor, we also used a piece of old rigid circuit board to keep the LEDs for the bedroom lights in a straight line (which is easier to manage and support). Once we had all the lights connected up, I took them all home and started fitting them into each of the floors. I had to adjust some of the walls, flooring and roofing plates to provide channels and support points. At Michael's suggestion, I typically used 1 x 2 Modified Plates with Door Rails [32028], or a one-plate gap below the top tiles of the wall to guide the wires. Once all the wires were installed into each floor, I carefully ripped apart the parking area to allow space to pull the wires through from the back of the building, solder them together, and connect them to a 9V LEGO wire (cut in half). I then mounted the 9V wire connector in the outer wall, exposing two studs, and anchoring it with the other two (allowing it to remain firmly in the wall and not come loose when attaching or removing the external power source).

When Michael selected the dropping resistors, we set it up for a 9V power source, with the intent of using either battery power, or a LEGO 9V train controller with AC power. More sophisticated controllers could be used, but for the villa, I simply needed a basic voltage controller for dimming and on/off control, both of which are provided sufficiently well for this model by the standard LEGO 9V train controllers. Once I finally got everything back together, I powered up the lights, and it was an amazing transition. The whole model came alive, and the interior was now easily visible in daylight, making all that interior detailing well worth the effort that went into it. This custom approach to lighting certainly is not for most people, and without Michael's help with the surface-mount soldering, I likely would have reverted to commercially available products targeted to lighting for LEGO models.



A look at Villa Amanzi at night, at Brickworld 2014's World of Lights.

As I alluded to earlier, moving such a large single-piece model can present some challenges. Because of its sheer bulk and height, it is very hard to get into a standard car trunk, or through a car door. Fortunately, one of my cars is a hatchback, and with the sloped shape of the landscape, it fits fairly nicely in the back. The top of the rocks do sometimes get knocked off, as they are easy to bang, and frequently some of the foliage comes loose. In general, the only adjustments I make for transport are storing the small kayak inside the building, and removing one tree near the top edge and placing it in the middle garden. The model can be moved by one person, but can get quite heavy and awkward after a few minutes of carrying it. With two people, however, it is easily moved (so long as no-one lifts right in the corner under the ocean).

Touring the Villa

So far, the model Villa Amanzi has visited three shows (BrickFête Montréal, Ottawa Geek Market and Brickworld Chicago), and made a trip to a ParLUGment meeting (my local LUG). Both the general public and AFOLs have found it to be a complex and detailed large model, and have been suitably impressed. With the addition of lighting for its most recent appearance at Brickworld Chicago, it garnered even more attention, specifically with people taking a good look at the interior detailing, something that didn't really happen before lighting was added. I also reached out to one of the principals at Original Vision, and they were nicely surprised, and re-posted the pictures to their Facebook page.



Detail of the pool.



You can see more of Robert's work at his Flickr gallery:
http://www.flickr.com/photos/rt_bricks.




More information about Villa Amanzi can be found on its web site:
<http://www.villaamanzi.com>.



*Above: Another overhead view of the pool and upper level.
Left and below: Night views of Villa Amanzi at Brickworld 2014. Night view photos by Joe Meno.*

Building Villa Amanzi was a good challenge, and lived up to my expectations of creating a technically solid, detailed, microscale architectural model that would attract attention for both the modeling and architectural style. I hope that you also appreciate and enjoy the model. And while these isn't enough space in one article to describe how every detail was made, I hope you find this article useful in understanding how I approached this project and solved some of the problems I encountered.

Hopefully you are now inspired — happy building! I look forward to seeing what you create. 





Urban Building

Article and Photography
by Jonathan Lopes

Coronado Building.



Jonathan Lopes, from BKNY Bricks, is a New York City based creative who works within the medium of LEGO Bricks.

Background:

As a child, LEGO was the toy that kept my imagination busy at play for hours. And “imagination” had a lot to do with it, too. I had a limited collection of mostly basic bricks, plates and wheels, but that did not stop me from building, imagining and dreaming. I have always been a creative in many areas: drawing, music, writing, and LEGO building, among others. In my teens through my mid-twenties I focused my creative energy on music. This focus brought me from my hometown on the south shore of Massachusetts to New York in 1990. I have lived here since. I first got back into LEGO as an adult in 1997, after I read about The LEGO Company obtaining the *Star Wars* license.

I have always been attracted to city living: the hustle and bustle, being anonymous, the diverse cultures and having everything I need just a short walk away. And, living in New York City is what enabled my creativity to flourish and also what first peaked my interest in architecture and infrastructure. It is difficult not to be influenced in these aspects while being in an urban setting on a daily basis. Further, because of the age of the city, there are all kinds of architectural styles to take in. Many buildings combine the varying styles of different eras, as well. It is amazing what one can see from a short stroll around one block, and even more so around 20 blocks!



Urban Landscape, one of Jonathan's layouts.

Changing With the Times

In the early 2000s, the LEGO Company changed the gray color of its bricks to a blue-gray, now called bley. I embraced this change and considered them to be new colors being introduced into the existing color palette. Though they are replacement colors, I did not view them as such. I regularly mix (old) light gray with (new) light bluish gray to add realism and a weathered appearance to my creations.

Faille Street.



My Early Focus:

Early on, my initial main focus in building with LEGO was building town and train layouts. I've built two of them so far.

I had my sights set on a layout back in 1999 or so and started planning one on paper. I immediately realized that there would be no space to allow for skyscrapers. I did not have a large enough display space to accommodate a skyscraper and also, I didn't have enough bricks to build one. So I focused myself on building the shorter commercial and tenement style buildings that now comprise my MOCpages, Flickr and Brickshelf accounts. I focused on all the details and strived to attain as much realism

as I could while refining my building skills with each new building.

I acknowledge each step in my involvement with LEGO as having an effect on the builder I am and the design choices I make today. For example, early on, I did not have many earth-tone bricks in my collection. So, the sidewalls of my buildings, which were hidden by the adjoining building, were usually made of the easier to obtain, bright colored bricks. This actually brought me to a discovery that I follow today: In many cases, the side and back walls of NYC buildings are a different color or shade than that of the building's front facade. They are typically not bright green or bright yellow, as in my early work, but I've included this detail in my buildings for years now, usually in gray or dark gray. It adds a very important element of realism and gives each of my buildings the feel I want them to have.

Another aspect of creating buildings with LEGO that I developed over time is using the bricks in a brick-like pattern. This started when bricks in the color of sand red were available in bulk bags. I bought only 1x2 and 2x2 brick bags and noticed the realistic pattern when using only these two shapes created on the sides of my buildings. Additionally, I experimented with a studs-out tiling effect seen below in my Faille Street building.

More recently, I've been using 2x2 plates to achieve this same effect in my Hoyt Street Building and Portland Mechanics Shop, which are on the following pages. I am really pleased with the way these came out.

For my typical work, achieving realism is my goal, so these little details are paramount. Everything from the texture of bricks to details such as fire department standpipes, cornices, lights, security cameras, and now bushes and trees, are of very high importance to me.

Over the years, I've built two fully working layouts—each with many buildings and architectural details. One detail that I think may get overlooked in these layouts is scale. The first layout, my Urban Landscape, had buildings with commonly sized 4-wide windows. That set the scale for me. With the second layout, Urban Landscape 2011, many of the buildings had

3-wide windows. This was both in an effort to challenge myself as a builder, and also to allow for more buildings within the same space of the layout. Now, as some people may have noticed in my most recent flurry of building photos—built to what I accurately or inaccurately have named 4-wide scale—I’ve reduced the scale to using 2-wide windows. The buildings themselves are much smaller, but these are definitely my favorites. Building details into very small creations can be challenging and I am very pleased with the results I’ve attained.

More Recently: Skyscrapers! (And Beyond!)

A couple of years ago, after completing a 12-foot long replica of the Manhattan Bridge for an annual art show, I decided to build a replica of the Woolworth Building for the following year’s event. I had never considered building a skyscraper before and knew I was in for a lengthy process. But, my approach to this building was the same as my approach to smaller buildings: I first did an assessment of what each level of windows entailed—each floor—reviewing the distance between each window, how wide each window would be, and then how many windows to a level/floor. From there I sized and designed street-level based on those calculations and that footprint. I very rarely design street-level first in my process—I usually ensure the body of the building and the windows are the right proportion and sized accurately, then I figure out how to design street level. Once all these calculations were made, I decided just how to attain all the facade detail of this building. There are a ton of details in the Woolworth Building so I gave this some great thought.

These are some of the questions I asked myself while designing the Woolworth Building:

1. Did I want to build ‘studs up’ with bricks, which might have a clunky appearance at this scale?
2. Or, did I want to build ‘studs out’ which would allow for more detail?
3. If I chose ‘studs out’, how would I accomplish this?



Atlantic Avenue.



Portland Mechanic Shop.



A few of the vehicles Jonathan builds for his layouts and buildings. These are 4-wide.



Some views of the Woolworth Building.

The Manhattan Bridge.



4. What would the expected monetary cost of designing either way be?

This took me about two weeks to sort out. This is the type of thinking and “building in my head” that I do while traveling to and from work on the subway each day. I find my commute to be an excellent opportunity for creative time that I could not fathom losing if I chose a car-centric lifestyle. There certainly are days with unpleasant subway commutes, but more often than not, I am able to build or troubleshoot something during this time!

One of the factors that helped me with the ‘studs up/stud’s out’ dilemma was the fact that I knew that white 1 x 2 x 2 brackets were available in large quantities in Pick-a-Brick at the LEGO Store. This affected my decision and I quickly bought a good number of cups of them. I went through a similar thought process when determining the detailing of this building, as well. I went to Bricklink and researched what parts of the plate-modified family were available in white, and in large quantities, that would be both affordable and workable to attain some of this detailing. This brought me to click hinge plates and also the 1x1 plate with tooth. Additionally, a seller also had thousands of white 1x1 Technic bricks available inexpensively to affix all these pieces to.

Some Quick Facts About Me

I think many builders have different approaches to building and also to managing and storing their bricks and materials. Here are some of mine, in addition to a few other things:

1. I generally build while standing up. This can make for some long and tiring days, but I find I need to be mobile when building. Building is a very physical process for me. When I do sit, which would typically be when I am building something repetitive, I sit at bar stool height. All the workbenches in my studio are built to a height to accommodate this approach.
2. I generally “build in my head” during the week and do my



A San Francisco-inspired building.

physical building on the weekends. I rent a studio about a mile or so from my house so I typically will only go there during the week if I have a deadline on commissioned work, or if I schedule time off from my day job.

3. I try to maintain a reasonably low inventory of materials. This can be tough for last-minute commissioned work, but I use next-day shipping from Bricklink in those cases.
4. With regards to inventory and my creations, I rely heavily on bricks, plates and tiles, and try to use and stock very few specialty pieces. An example of this approach is: I will typically not use special LEGO window elements. I'd rather use trans-clear bricks with plates and tiles for the window trim. This eliminates the need of having to stock various windows in various colors when I am already stocking thousands of the bricks, plates and tiles. This applies to many other specialty pieces as well. This approach can introduce building challenges, but having challenges and coming up with creative solutions is a big part of why I work with LEGO bricks.
5. I do sometimes sketch out what I am building on paper before actually building it. I find this to be a very time-efficient method for me. Commissioned work is generally always sketched out at the quoting stage so I can provide a quick quote to my clients.
6. I don't have much interest in LEGO kits. There are some fantastic kits available, and I have been tempted by a few, but I mostly buy parts only. If I were to buy a kit, it would be for the parts. It has been a really long time since I have built a LEGO kit.
7. I have not seen *The LEGO Movie*. (Gasp!). I probably will, when it is out on Netflix (which it may be by this issue's publication), but otherwise, would not see it. The last movie I saw in a movie venue was very spontaneous: *Indiana Jones* at the amazing Castro Theater in San Francisco. Otherwise, I do not typically go to the movies.
8. I do not own a car.
9. I do not watch television.
10. I do not live under a rock. :-)



Massachusetts firehouse.



Portland firehouse.



New York City firehouse.



A pool hall.



Corner building.



Hoyt Street.



Frank Lloyd Wright's Fallingwater, with running water!

11. I am a more than adequate outfielder in Division 2 co-ed softball. The balls hit right at me are the ones I have trouble with. (I can't judge the arc from that angle!). My bat has been very dependable these past couple of seasons as well. Additionally, I joke with my teammates that I am using my time in the outfield to "build in my head as well."
12. I work in Children's Book Publishing as my day job. My company and colleagues are extremely supportive of my LEGO work. I work with some of the best people on the planet. And, for the past three years I have had a piece on display in our front lobby. (The Manhattan Bridge, The Woolworth Building, and now, Mr. Tiger!)
13. I live in Brooklyn with my fiancée, Marcie, and our rambunctious sock-monkey—both of whom have supported and encouraged me immensely, as well. There have been many late nights, looming deadlines and last minute requests that Marcie has helped see me through.

What's Next?

I'd love to build another train layout, in my 4-wide scale, but I don't foresee that happening in the short term. I do have some projects in the pipeline that I am very excited about. They are not of any common LEGO theme. I plan to roll them out once I have a few completed, which may be toward the end of 2014. Until then, hopefully there will be some spot projects showing up in my various photo sets along with commissioned pieces.

I hope this was informative. Big thanks to Joe Meno and *BrickJournal* for the opportunity to share my LEGO world with you.

I have my photos on MOC pages, Flickr, and I update my BKNY Bricks, by Jonathan Lopes, Facebook page regularly. Additionally, I have my BKNY Bricks shop on etsy.com. Please feel free to connect!



Facebook page for BKNY Bricks:
<https://www.facebook.com/pages/BKNY-Bricks-by-Jonathan-Lopes/331830823528255?sk=timeline> or scan this QR code!



Garden shop.



Mr. Tiger.

Truck and Trailer

Design by Jonathan Lopes

Instructions by Joe Meno

One of the really neat aspects of Jonathan Lopes' structures and layouts is that he builds 4-stud-wide vehicles. These are not minifigure scale, but they are not exactly the scale that was used for the Tiny Turbos cars that were released by the LEGO Group. They are a great showcase of clever building techniques and we have instructions to make the yellow truck and trailer in the photo. Have fun!



Yellow Truck Parts List

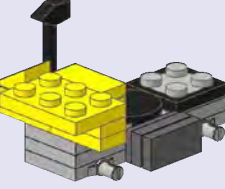
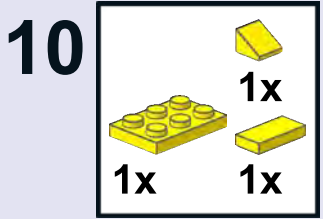
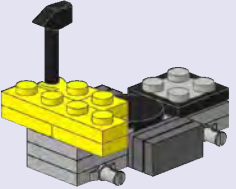
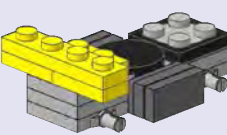
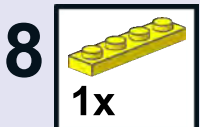
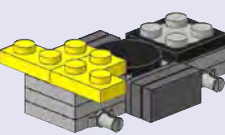
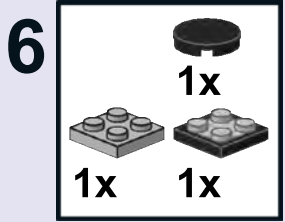
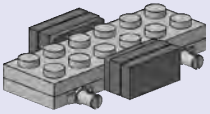
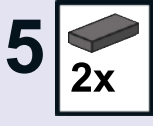
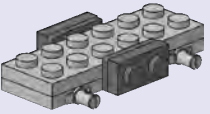
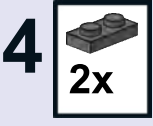
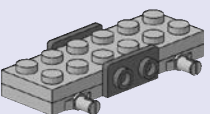
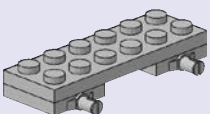
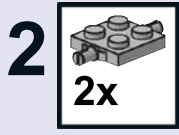
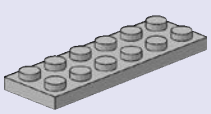
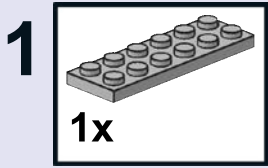
(Parts can be ordered from Bricklink.com by searching by part number and color)

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1	Light Bluish Gray	2436b.dat	Bracket 1 x 2 - 1 x 4 Type 2
4	Yellow	4070.dat	Brick 1 x 1 with Headlight
2	Trans Black	3004.dat	Brick 1 x 2
1	Black	4522.dat	Minifig Tool Mallet
1	Yellow	3024.dat	Plate 1 x 1
1	Trans-Neon Orange	4073.dat	Plate 1 x 1 Round
2	Trans-Clear	4073.dat	Plate 1 x 1 Round
2	Light Bluish Gray	4073.dat	Plate 1 x 1 Round
1	Yellow	4085c.dat	Plate 1 x 1 with Clip Vertical (Thick U-Clip)
1	Trans-Black	3023.dat	Plate 1 x 2
1	Yellow	3023.dat	Plate 1 x 2
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1	Yellow	32028.dat	Plate 1 x 2 with Door Rail
1	Yellow	3710.dat	Plate 1 x 4

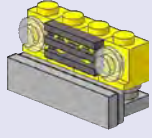
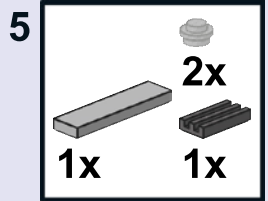
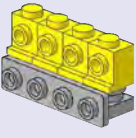
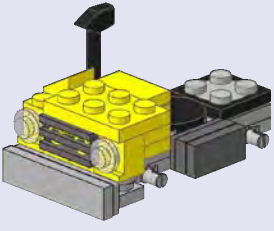
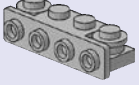
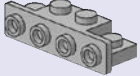
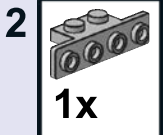
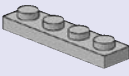
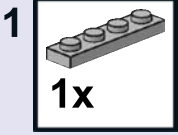
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1	Light Bluish Gray	3022.dat	Plate 2 x 2
2	Yellow	2420.dat	Plate 2 x 2 Corner
2	Light Bluish Gray	4600.dat	Plate 2 x 2 with Wheel Holders
1	Yellow	3021.dat	Plate 2 x 3
1	Light Bluish Gray	3795.dat	Plate 2 x 6
2	Yellow	54200.dat	Slope Brick 31 1 x 1 x 0.667
1	Dark Bluish Gray	2412b.dat	Tile 1 x 2 Grille with Groove
2	Dark Bluish Gray	3069b.dat	Tile 1 x 2 with Groove
3	Yellow	3069b.dat	Tile 1 x 2 with Groove
1	Light Bluish Gray	2431.dat	Tile 1 x 4 with Groove
1	Black	4150.dat	Tile 2 x 2 Round
1	Black	3680c01.dat	Turntable 2 x 2 Plate (Complete)
4	Light Bluish Gray	30027ac01.dat	Wheel Rim 8 x 8 with Tyre 8/40 x 8 Slick Smooth

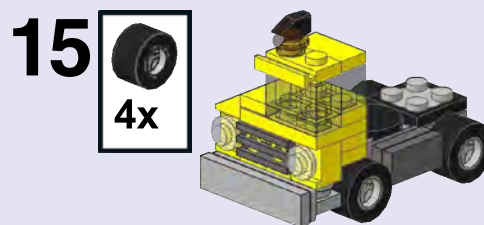
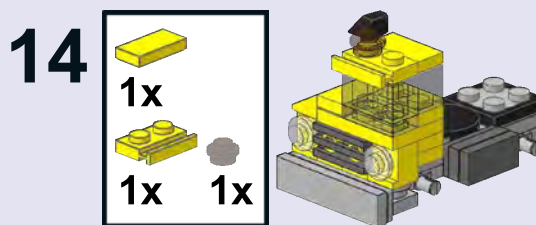
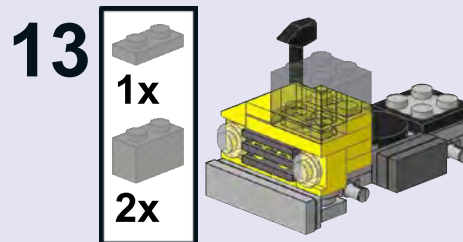
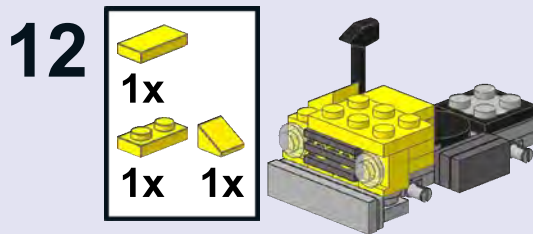


Rendering by Geoff Gray.



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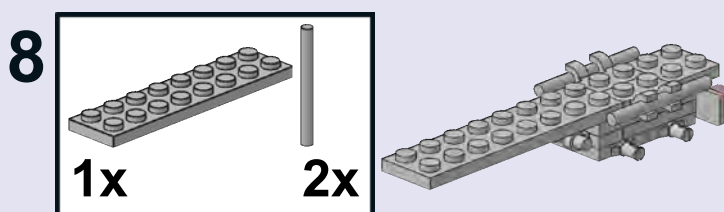
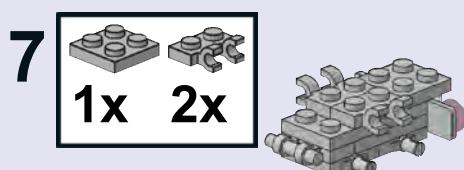
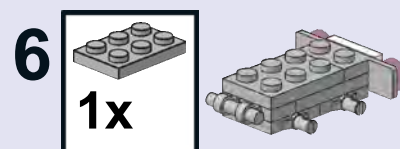
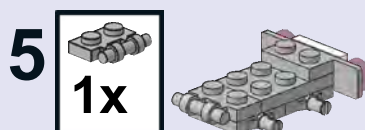
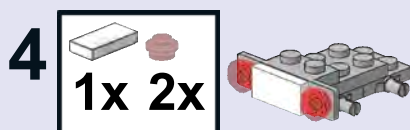
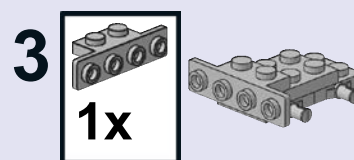
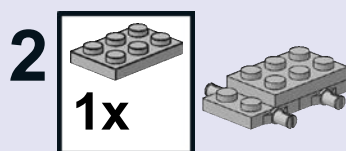
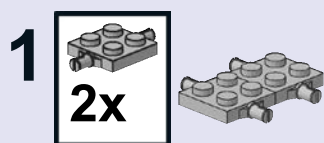


Trailer Parts List

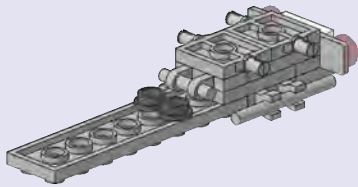
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2	Trans Red	4073.dat	Plate 1 x 1 Round
2	Dark Bluish Gray	4073.dat	Plate 1 x 1 Round
1	Dark Bluish Gray	61252.dat	Plate 1 x 1 with Clip Horizontal (Thick C-Clip)
2	Light Bluish Gray	60470a.dat	Plate 1 x 2 with 2 Clips Horizontal (Open U-Clips)
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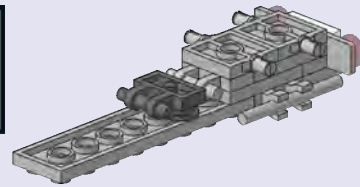
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2	Light Bluish Gray	3021.dat	Plate 2 x 3
1	Light Bluish Gray	3034.dat	Plate 2 x 8
1	Dark Bluish Gray	3070b.dat	Tile 1 x 1 with Groove
1	White	3069b.dat	Tile 1 x 2 with Groove
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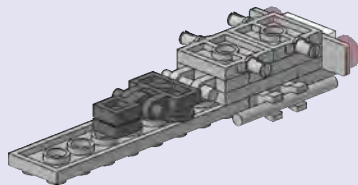
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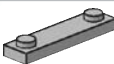

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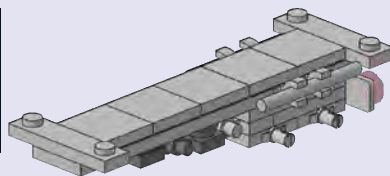



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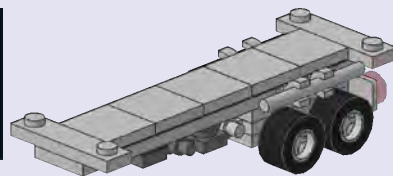


1  1x
2  1x

12  2x  5x



13  4x



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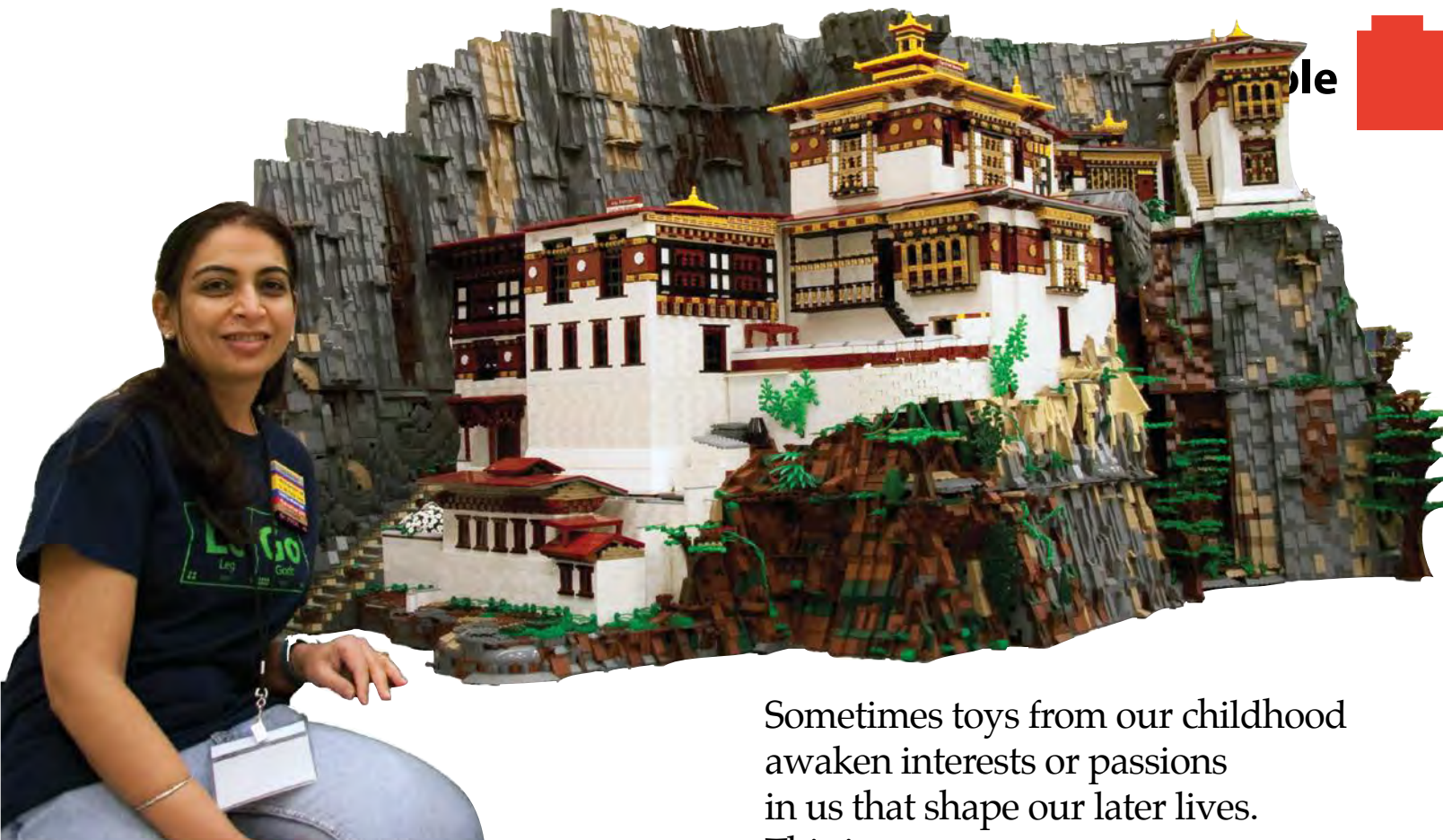
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Anuradha Pehrson:

Childhood Interest, Adult Passion

*Article and Photography
by Anuradha Pehrson*

Sometimes toys from our childhood awaken interests or passions in us that shape our later lives. This is my story.

I grew up in India where LEGO wasn't easily available. An aunt visiting Europe bought a Creator set as a gift for my brother who was just one year old than me. I was eight, so I helped myself to it. A gift he couldn't appreciate turned out to be a windfall for me. I quickly built all three versions and yearned to build more. There were so many ideas running through my head but I didn't have the option of going out and buying more bricks, so every time I sat down to build, I'd take just this one set and manage to build something new, something different. Scarcity inspired improvisation.

On some unrealized level my brain was being primed for a lifelong passion for architecture and of course, I had fallen in love with LEGO.

LEGO building continued until my early teens and then waned, but my love of architecture as a subject persisted. I borrowed books from the library and even thumbed through trade magazines. When it came time to pick a career, architecture was the obvious choice. Unfortunately one of the prerequisites was a drawing examination, which I failed. For some reason they felt I needed to be able to draw flowers in a vase before designing buildings!

My life changed in 2001 when I moved from a country that had a warm climate, vibrant colors everywhere, and great food, to Seattle, a place that was cold, rainy and grey, and I found most of the food tasteless. Finding my bearings here was going to be an uphill task! One day walking around downtown, I happened upon an FAO Schwarz toy store with piles of LEGO buckets in the window



A tree creation, and inadvertently, a new treebuilding technique.

display. Without hesitating, I went in and bought a few. I had found something to connect me to my former life; something to hold on to, in this grey and rainy place. It was probably the happiest day of the first few months of living in Seattle!

Being able to build with LEGO, I delved deeper into my passion for architecture and studied different styles from around the world. Each hobby fed the other. This process continues even today.

I built by myself until 2004 when, accidentally, I discovered the worldwide LEGO community, BrickCon and various LUGs. It was a relief to learn that not only was I not crazy, but there's actually a descriptive acronym for me: AFFOL (adult female fan of LEGO)—although, personally I would like to change that to AFBOL (adult female builder of LEGO).

In one of my first MOCs, I tried to capture the look and feel of a typical small southern Indian house, including a couple of trees in a homey backyard. I brought this MOC to my first SeaLUG meeting and was told this tree technique had never been done before to anyone's knowledge.

Since then my ambition has been to employ a new technique with every MOC. It's a goal not always achieved, but I strive to use parts and elements in unique ways, and my childhood habit of building with available parts has stayed. Of course I've purchased specific parts for many MOCs, but generally challenge myself to work with what I have. Building within constraints pushes the boundaries of my creativity and sometimes inspires unique solutions to problems.

Inspiration can be drawn from almost anything—strolling in a garden, on city streets or completing a puzzle. For example, while absorbed over a jigsaw puzzle depicting Venice's iconic Rialto Bridge, I got the idea to build the entire diorama.

The Rialto Bridge.



The Bridge itself was difficult to do because I was trying to make it an authentic copy. Replicating some of the details with LEGO elements was challenging. Also, I used a lot of modified brick 1x1 with stud on one side for the external details. These gave me the look I needed, but because they are single bricks, the stability of the structure was weak. Reinforcing the structure for transportation without losing any of the façade was tough.

The surrounding buildings have intriguing architectural details as well, but I didn't stay very true to those. I experimented with available parts to create similar designs, or even took it a step further in some cases by making them better than what they are! That was the enjoyable part of this build. The bridge took me about two months to finish, but the remainder of the diorama took less than a month. The tourists eating pizza and drinking wine, and the man buying flowers for his girlfriend, added a touch of whimsy and life.



Bridge building.



A fun detail.



The finished bridge.

Another view of the bridge diorama.





Japanese Garden.

The Japanese Garden and the Indian Temple are not replicas of real places, but are based on particular archetypes.

The beauty of Japanese landscaping and traditional architecture unfailingly produce feelings of serenity and quiet in me. It was only natural that building something in that style would happen sooner rather than later. The most enjoyable part of this MOC was capturing the fluidity of nature with bricks and plates. It's a very satisfying feeling.

When I displayed this MOC at BrickCon, a girl of about six years stood looking at it intently for nearly five minutes. Curious to know what about this MOC so fascinated her, I asked. Instead of answering directly, she said "Don't ever break this model." "Why?" I inquired. "It's very peaceful," she responded. This child's reaction made me feel I had achieved my goal in building a Japanese garden; I have not taken it apart.

Another overhead view of the garden.



Some overhead views of the garden.





A Hindu wedding.



A look at the grounds of the temple.

An overview of the temple.



Another overview showing the banyan tree.

In older civilizations, such as India, one can follow the evolution of its architecture through the buildings themselves. Temples are a great source for this study, as many of them still exist as places of worship. In most temple architecture, aedicules are basic units of design. Various structures are arranged one within the other in a hierarchy at different scales to form a whole. The facade of these buildings are complex and ornate stone carvings. I chose a 10th century Nagara style temple to build. It's not an exact replica, but mostly based on it. I tried to depict the aedicules and stone carving effect in three layers: the base, middle section and the spire (or *gopura*), using SNOT and almost all the types of elements I had in grey, bley and light grey.



Hindu devotees offer flowers and fruit to the 'deity' as a form of worship, so stalls selling them are commonplace outside the temple. Unlike some places of worship, a visit to the temple is not a somber event; it could be an evening outing for the family or a weekend picnic. Therefore one finds a 'fair' like atmosphere around the entrance. I tried to capture this liveliness by including the fruit and flower sellers, an ice-cream stall, a carnival game stall, and the quintessential snake charmer.

In addition there is a Banyan tree, complete with sages meditating under it, a sacred body of water called a *kund*, and in the courtyard a modest wedding ceremony is taking place.



Another view of the temple grounds.



A close-up of the flower and fruit stand.



A close-up of the banyan tree.





Tiger's Nest Monastery.

A look at the detail in one of the buildings.



Tiger's Nest Monastery, Paro Taktsang: One of the most prominent Himalayan Buddhist sacred sites, this monastery and temple are perched on a precipitous cliff 10,240 feet above sea level in the upper Paro valley in Bhutan. Initially built in 1692, the complex consists of four main temples and residential buildings, crafted in harmony with the terrain and granite ledges. The first time I saw images of the Tiger's Nest, I was completely blown away. They are such lovely and ingeniously built structures, made more awe-inspiring by their seemingly precarious position 3,000 feet above the valley.

I knew right away that I had to build a replica in LEGO. Having never visited Bhutan, the only source of information was the Internet. Unfortunately all available photos are taken from one of two angles. It was a daunting task, but I was going to try. I began with the windows of the smallest building to establish scale. A thorough study of the other windows showed that most were in different styles from each other and elaborately carved in wood. It took several iterations, and a lot of trial and error to get them to look close to the original. Luckily, the colors used in the Tiger's Nest buildings match LEGO colors. Maybe I'm unconsciously drawn to real-world structures that are in LEGO colors. The buildings took three to four months to put together, and then I started the rockwork. This was the most difficult part of the MOC, especially the boulder that clings to the cliff at the edge of a building.



A close-up of some of the rockwork that is in the model.



A side view of the monastery.



A view of some of the monastery grounds with prayer flags adorned.

After completing the first few buildings, and getting a sense of the scale of the project, I realized the structural requirements were much more than anything I'd done before, so I had to go back and start from scratch. I used Duplo for achieving height, but because of their limited clutch power, they are not very easy to move, so I built Technic structures underneath each building and behind most of the rock wall sections.

The rockwork was stimulating at first, but after a while it became a bit of a chore to build. Everything I had been doing so far as an adult builder regarding parts usage, techniques used, creativity, etc. were pushed to the hilt with this MOC, and seemed like a true test of my abilities. Packing and transporting something of this size was a mammoth task, almost hilarious at times. For BrickCon 2013 I packed it in boxes I already had and filled up two cars, but when I reached the Con and opened it up, a lot more had crashed than I had expected and it took me eight hours to set up. For BricksCascade 2014, first I rebuilt some of the fragile sections, and then measured each section and bought boxes to fit these sizes. This reduced friction and of course I doubled the amount of bubble wrap and other filler materials. My husband rented a U-Haul and drove it there. This time when I opened the boxes, it was in much better shape than I had expected!

Building this MOC was very satisfying and frustrating at the same time. I learned so much in the process. If doing it over again, I would build it higher so as to give it a loftier feel.

In the end, MOCing is about having fun and enjoying yourself; my LEGO room is my Happy Zone. Building is sometimes like meditation for me. I kind of get lost in it and lose sense of time and forget the world. Whatever I choose to build is mainly for my own satisfaction, and any success I have had is truly by the grace of God. 🙏



A glance behind the structure of the monastery.



The Chapel of the Immaculate Conception at the University of Dayton was constructed in 1869. The Chapel reflects and incorporates Greek revival architectural elements, with tall support columns framing the windows and front face, a triangular pediment with the round window, and dentil details. Building the model with the window panels removed reveals a fundamental structure that evokes the Parthenon.

The Chapel was renovated in 1949 and 1979 and is undergoing another renovation presently, this time to increase space and improve accessibility. The 1971 renovation revealed a hatchet concealed in the base of the main altar, a feature reflected in this model (no renovations are planned for this model!).

The model features removable roof components and interior details including the reredos, altar, and a pipe organ in the choir loft. The model opens with the removal of a few key pieces, allowing access to the treasures inside.

This article describes this model and its development and planning.

Design Plans

I started designing the Chapel in early 2014 and spent the better part of the next

The Chapel of the Immaculate Conception

*Article by Rafe Donohue
Church Photography provided
by the University of Dayton
Other Photos and Art
by Joe Meno*



A side view of the church, showing the bell tower and windows.

five months improving the design, adding details, removing fluff, and making the design work within the confines of available LEGO parts.

As the model is small (approximately 20x54 studs), the development of the design of the model follows from a concept known to modelers as “selective compression.” This concept is implemented in two steps: First, identify the item or items that are iconic or absolutely necessary for the model to contain in order for it to properly render the object it depicts. The second step then says to remove or compress those things that aren’t necessary. This *selective compression* of unnecessary elements allows the model to be built at a small scale but still be recognizable.

For example, examine the case of a most simple LEGO car, such as that found in a set 3177, the Small Car. This “car”, when viewed in the context of its essential elements, is most certainly a car: it has four wheels, a roof, doors, bumpers, a hood and trunk, and it holds a person. But does it *really* look like a car? Well, no. It is grossly too small for its minifig; it cannot be steered; it lacks windows and an engine. These non-essential elements, at least from the perspective of the model being recognized as a car, have been selectively compressed, retaining only those things absolutely necessary.

The iconic elements of the Chapel for anyone in the University of Dayton family are most certainly the blue-domed bell tower, the Greek temple inspired shape, and large door, windows, and statues on the West Face. Other elements, while valuable to the full-scale building, can be compressed when we implement the building at the smaller scale.

Finally, I wanted a model that would be easy to open up to display internal details and to transport without incident. Thus, it must deconstruct simply into parts that would easily fit in any of a number of standard LEGO tubs that I own.

Bell Tower

The starting point for the model, then, was to be the bell tower. The bell tower is quite massive relative to the building itself; its width is approximately 1/3 the width of the front face. Symmetric on the four sides, its depth along the side of the building follows the same scale; the bell tower is approximately 1/5 of the length of the main sanctuary.

Six weeks of tinkering with SNOT techniques and hints for the construction of spheres based on assistance from Bram Lambrecht’s LEGO Sphere Generator page (<http://lego.bl.design.org/sphere/>), along with toying with different ways to build smooth-sided octagons, led to the current design, using headlight bricks, slopes, and tiles in the octagon and plenty of SNOT in the dome. Consistent with the goal of simple deconstruction, the dome rests simply but snugly on the octagonal tower.



A breakdown of the bell tower.

Roof

Fans of Set 71006 (The Simpsons’ House) will recognize the construction of the roof over the main sanctuary as consistent with the roof that shelters Homer’s car. The front pediment shape of the chapel is nearly identical to the Simpson’s garage and they are the same width. Imitation is the sincerest form of flattery.

The only obstacle was the incorporation of the bell tower into the roof. The roof possesses cut-outs to allow the tower to pass through it; the tower possesses notches that allow the roof to sit properly along the West and East pediments without contacting the tower.

The smaller roof over the altar rests on 2x4 tiles and tucks gently into the rear East pediment of the main sanctuary, again allowing easy removal.

Walls

The walls are made up of a series of support posts, composed of 1 x 2 x 5 bricks, with window panels set between them. The West-facing front wall possesses the

same general structure, although the inset panels hold round windows, the main doorway, and arched statuary nooks. The inset panels are set back one-half stud via jumper plates at the base. At the top, they are also held in position via jumper plates, as the one-half stud offset in the long direction, coupled with the one-half stud offset in the short direction, allows the studs on the top of the wall to attach to the center holes, not the typical stud locations, on the top-plate of the wall.

The spacing of the supports and panels in the walls of the main sanctuary create a wall 26 studs long. With the main posts 5 studs apart and the need for the jumpers in-between to access center holes in the top plate, the 26 studs can only be accomplished via a (3-10-10-3) x 2 set of plates or an (8-10-8) x 2 set of plates. Due to the rarity of dark red 2 x 8 plates (they only exist in two sets), the 3-10-10-3 situation is the preferred option.

The round windows on the front panels were accomplished by a SNOT technique of a single plate between two opposing 1 x 4 arches. The spaces in the underside of the arch hold a 2 x 2 turntable plate upon which is set a 2 x 2 round plate and 4 black 1x1 round plates. The effect is not as elegant as a 2 x 2 stained glass window would be; however, the impression of the round windows on the face of the chapel carries through.

The tall stained-glass windows on the North and South sides are simply transparent plates and tiles turned vertical to mimic the tall wispy features of the real chapel. They are held in place by a single 1x1 brick with a side stud. While the design file shows all the windows to be identical, when I built them for the real model, I made them all individual and unique, just like the windows in the real chapel.

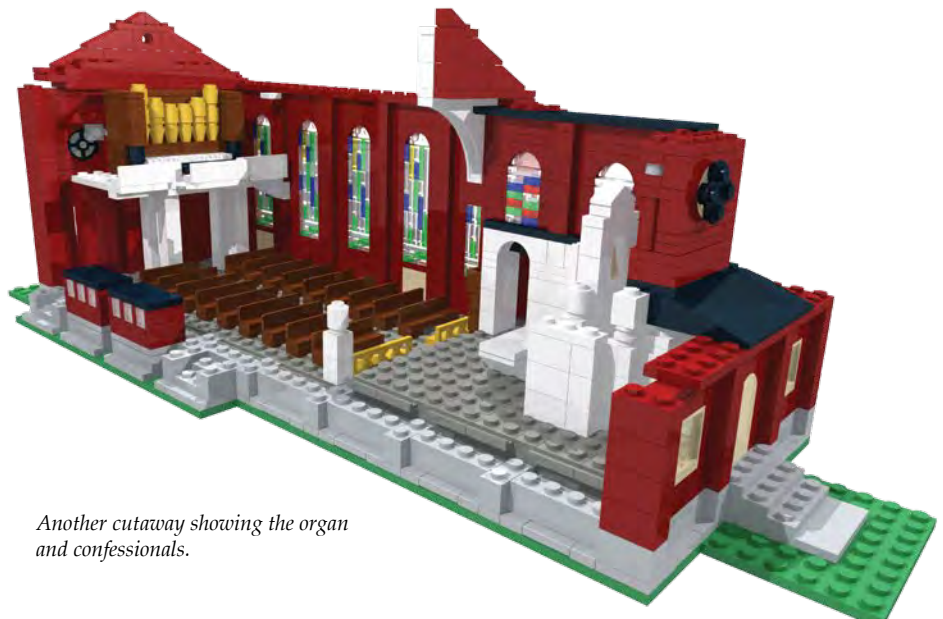
The four outcroppings on each of the sides of the chapel are two covered entrances and two confessionals. The confessionals on the real chapel employ three round windows, not the square ones used in the model. This was originally designed to be accomplished via a single 1 x 4 Technic brick but, alas, this brick does not exist in dark red, so a modification was necessary to meet the constraints of the medium.

Choir Loft

The choir loft contains an organ, another feature subjected to selective compression. The model organ also serves to provide support for the bell tower structure, which is held in place by a pair of studs and some selectively placed support bricks. The blue support bricks rest on the tiles protruding from the first support pillars and on the frame of the organ. The loft is supported by four 1 x 1 x 5 bricks, similar to the spindly support pillars in the real chapel. They are offset



A cutaway view of the church model showing the interior, including the altar.



Another cutaway showing the organ and confessionals.



A closer look at the organ.



A close-up of the altar, with vault underneath!



A look at the rear of the model.

relative to the loft, as the loft is also supported by connections to the front wall inset panels which are offset by one-half stud.

Main Sanctuary and Altar Area

After removing the small roof, removing the two 2×4 tiles that attach the altar area to the East wall of the main sanctuary leaves the two components only attached by two Technic pegs in the flooring. This allows one access to the altar area and also results in two components, the larger of the two being smaller than 24 studs square, allowing easy transportation.

The main sanctuary contains a depiction of wooden pews (which were a part of the original design, removed during renovations in the late 1900s but scheduled for reinstatement during the current renovation) and a communion rail (also removed during a 1900s renovation). Since the walls are offset by one-half stud, rail plates line the walls to prevent undesired falls between the flooring and walls. A decorative ambo sits in the real church at the front of the boundary area, in the model depicted simply with brown 1×1 panel plate. Small statuary sits on both sides of the entrance to the altar area.

The floor plates sit on a brick-based support grid to strengthen the base and provide room for the Technic pins that link the two components. The altar area sits up two plates higher.

The altar itself sits upon a loose fitting 4×4 plate to allow one to remove it and access the vault beneath the altar, a place where relics are placed. Our model contains a hammer of sorts, to mimic the tool found during the 1971 renovation, a simple bone, perhaps a relic of some unmentioned Saint.

Behind the altar sits a reredos, 5 studs wide, centered via white 2×2 jumper plates. Above the reredos sits a red 2×2 plate, depicting the East-facing rose window.


Building

In early April I finished design work and first built a full-scale prototype of the model from parts in my collection. In the past I have learned that just because the pieces line up in LDraw doesn't mean they will behave well in real life! After making a few modifications related to the physical construction of the model, I began acquiring the necessary parts.

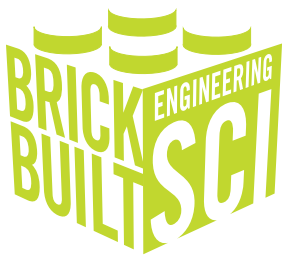
Finding the right parts in the right colors produced a few more subtle modifications (such as the construction of the top-plates); for example, the front door was originally intended to be filled with simple dark brown bricks, but I was not pleased with the color discrepancies I found in the supply of brown, so I left the door open as artistic license in a reminder that the Church is always open.

Nearly all parts were in hand by early May. Actual construction took just a few hours. In mid-June I constructed a lighting kit to illuminate the stained glass from the inside and subsequently displayed the model at Brickworld in Chicago.

What I Learned

The design and building of the Chapel of the Immaculate Conception was the second large scale model building project I have attempted. I have learned the finer points of SNOT building, elements of architectural design, and how to make tradeoffs between realism and the constraints that come with using LEGO as a modeling medium. I have also learned a thing or two about buying parts to make a model and how to do so efficiently and inefficiently! And lastly I have learned that making a model doesn't mean that it has to be exactly right; it only has to be recognizable as being the thing that it is modeling. If someone who knows the real thing can recognize your model as being a model of the real thing, then you have succeeded! 

From left to right: Curt Simmons (President and CEO of the Science Center of Iowa and Blank IMAX Theater), Sara Kobilka, (Guided Learning Manager, SCD), Christopher Hettinger and Scott Bowman of IowaLUG, and Leisha Barcus, (Vice President of Community Engagement, SCD). Photo courtesy of J. Mrachina.



Building a Community Brick by Brick

Article by Joe Meno

Photography provided by Christopher Hettinger

One of the large displays at Brickworld 2013 was a model of the Science Center of Iowa. This model, which was approximately 7 feet long by 5 feet wide, was the result of years of effort by Chris Hettinger and Scott Bowman. BrickJournal talked to Chris about this project and how it came about. He tells us the story from the beginning...

I attended my first Brickworld in 2010. My wife and I both have birthdays in June and my birthday request that year was to attend Brickworld. I had been in my "Dark Ages" for a while at this point. My wife helped renew my interests in building when she gifted me some LEGO for the previous Christmas. I began looking up creations online and was blown away by the existence of this community, and more so by what builders were creating.

Upon returning home to Iowa, I was lonely, as there wasn't a LUG that I knew of anywhere close. Microscale had really grabbed my attention, and in particular Micropolis. As a result, I reached out to TwinLUG (a LUG in Minneapolis-St. Paul) and through them I dug into the AFOL community. I also became determined to create a community in Des Moines. We don't have a LEGO store and only two Toys 'R' Us stores. Des Moines is a town of nearly 700,000 so there's not a huge culture for the 30-something and higher LEGO fan present, and I wasn't sure how to find them.

For Brickworld the next year, I brought a Micropolis scale model of the 801 Grand Avenue tower in Des Moines. It was also my agenda to talk to friends in TwinLUG and anyone else I met to find out how they started their LUG. It was actually Ryan McNaught (a LEGO Certified Professional from Australia) that gave me an important piece of advice. While speaking with him, I shared my idea of organizing a public build event. Having done 801 Grand, I had several ideas about other Des Moines landmarks that I'd like to attempt. He told me, "Yeah, it's a good idea. If you've got a subject and have a willing venue, it's certainly a great way to get in front of the public." My next challenge was to pick a building that would make a good microscale model, a fun venue, but also would most likely be receptive to such an idea. I envisioned that I would pre-engineer the model, then having it all prepared for assembly; I would come down and build the model in their lobby on a Saturday. At this point, I was thinking of a Micropolis scale model — it would be nothing too big.



Chris' rendition of 801 Grand Avenue, a landmark in Des Moines.



Renderings of SCI using LEGO Digital Designer.



It was my wife who suggested the Science Center of Iowa would make a great choice. The building has some very unique characteristics, and would certainly present a fun challenge to recreate. Most prominently is the cylindrical IMAX Theater and smaller Star Theater structures. The Southwest wall is curved, and the Northeast and West corners have some very interesting angles. And the building is practically orange. I also had to agree that, as an audience for this idea of building it for the public—they would likely be a good organization to approach. I knew, from having to explain my idea a few times, that I would need something visual to help sell this idea.

It was February 2011 when I decided to create the initial concept of the Science Center of Iowa and Blank IMAX® Dome Theater. To capture all that character and detail, I decided to build digitally. This was the first project that I used LEGO Digital Designer (LDD) for building. I had no plans to work from, so I used photographs that I snapped from several angles, Google Maps to get the general length and width of the building, even Google Street View came in handy. I based my building scale on a guesstimation: the center has a pretty distinct foyer with a large glass entryway, so I guessed that one of the entry panes was 6 foot square. I had nothing else to go by.

I knew that there were only a few transparent parts that would get me that appearance I was after, so I used the 1 x 4 x 3 transparent panel. Counting the panes of glass, I began there and built the model starting at the lobby, scaling the whole structure from that initial guess.

It was this same time that I met Scott Bowman. We met through our wives—they worked together at DuPont Pioneer, and it turns out we shared some hobbies. When we met for dinner, I discovered he was Danish and he also loves LEGO! Scott became an essential part of the project as it progressed, as you'll see.

Scott, at the time, was a Principal of KJWW Engineering Consultants, a firm in Des Moines. He's also an alum of the Iowa State University Engineering program. This made a difference, as I showed him my completed design in an e-mail. I had a vague understanding that blueprints were public record and I could possibly go to the city and request them, but I didn't know if that was true. I reached out to Scott, sharing with him my LDD concept, and an explanation of this idea. He replied, "Well, it is possible, but it's probably best to get permission from the Science Center if you are going to request their blueprints... and I happen to know somebody at the company who did them. I also happen to know the current president of the Science Center. Do you want me to give him a call?"

Scott gave the president a call; it was about a 30-minute call and he pitched the idea essentially that I would be building in front of the public. At this time, we didn't know funding or even the scale of the project, but we wanted to start with permission to go forward and request blueprints and go from there. The president was very enthusiastic about the idea and immediately agreed and sent us a letter with permission. We then requested and got the blueprints. This wouldn't be the first time that Scott's contacts would come in to push the project forward.

With copies of the architectural plans in hand, I compared the blueprints to my LDD file. I found that I had come

very close indeed, and had built the lobby at 1 stud = 3 ft. but the rest of the building was at 1 stud = 2 ft. I could not believe how lucky I had been based on my now-correct assumption that the windows in the front entryway were 6 feet wide. Based on that initial guess, and the resulting scale, things were almost perfect.

I was pleased with the resulting size; however, as I adjusted the whole model to the scale set by the lobby, I realized that the final model was going to be reduced in size quite a bit. My thought then was, "Oh crap." I had no idea if I could pull that off. I have built microscale, but going from that to this was an insane jump. But at the same time, I didn't want to go smaller. If I am going to do this, I wanted to go big. It was my blind optimism that convinced me that I could pull it off. With that, Scott and I pitched the idea to the Science Center with the finished LDD file. They liked it, which left me trying to figure out how to source all the parts for it.

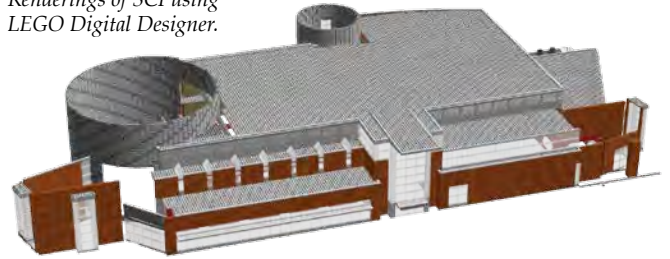
Funding the project was going to be a major challenge, so we first started by applying for an Iowa State Arts Commission grant, which is awarded to things like sculpture parks and artists. I did a lot of grant research, including talking to a grant writer at Reiman Gardens in Ames, Iowa. It was convenient timing as they were actively working on fundraising for Nature Connects, a new LEGO exhibit they commissioned by Sean Kenney. We applied for a couple of other grants, but did not get any of them. Additionally, the Science Center was not in a position to fund us at all financially. So we turned to our personal and professional contacts, sponsorships, and a little offhand comment Scott made.

We were proposing that we would do this public build in the lobby of the Science Center. As we were going over the LDD design, Scott made a quip about having a microscale version of ourselves for the lobby of the model. The movie *Inception* had come out about this time, inspiring this. A few hours later I sent him an LDD screen shot of what would become a custom 121 piece microscale kit. This single little thing became a very tangible asset for the project. We built 15 of them as a proof of concept. We intended them only to be an exclusive that we used during fundraising, a representation of someone's support, but the set took on a life of its own.

Scott's 30 years in engineering and his alumni status, along with all of his contacts, were really what drove all of the corporate sponsorships. Pella Windows, out of Pella, Iowa, had no previous connections to the Science Center of Iowa. They became one of the top three donors simply based on the relationship Scott had with the director of their engineering department. Scott's involvement was essential in terms of our fundraising, especially at the corporate level. His connections were valuable, and his knowledge with working with corporations and networking was important as well.

As a result, we received support from 60 individuals and organizations, 20 of which were at the \$250 or higher level, which were recognized on the model by engraving their names into tiles set into the sidewalk. The other 40 contributions were in the range of \$10 - \$100. This was despite no grants, and the Science Center couldn't lend any funding. My employer at the time, DuPont Pioneer,

Renderings of SCI using LEGO Digital Designer.



The micromodel of SCI, with packaging below.





A younger builder was inspired by the building effort and made this vignette of Chris and Scott working on the model. This was displayed with the full model at Brickworld.



The basement model, with its builder, Ethan Gonzales.

The Science Center takes shape at the free build event.



donated time and supplies for the printing of the LEGO kit labels and instructions.

The needed LEGO elements became another challenge. The LDD model of the Science Center was 30,000, however, there was no interior work done yet—the model was just a shell. With that initial number of parts, I contacted LEGO directly to see if they would be able to donate parts, thinking that we could connect this with STEM education and the Science Center. We were turned down. I then talked to Stacy Sterling, then the LEGO Ambassador to TwinLUG, and she got me in contact with Kevin Hinkle, the North American LEGO Community Representative. When I called him and asked about getting bricks, he answered, “Well, your timing is good. We’re just now piloting a program called LEGO Community Building Projects.”

This is their community-based element bulk purchasing system for events. I had just finished writing up an application for a grant, so I already had the narrative and images on hand, so I just put it in his application format and sent it off. A couple of weeks later, they approved it, so the Science Center build was the first North American LEGO Community Building Project to be approved and later, the first one successfully funded, which we did by the time we actually got the order.

The final LEGO order we made totaled 123,000 parts, which included the parts for the exterior shell, estimated interior elements and 500 of the micro sets. The order was made in the beginning of November 2012, and the 400 pounds of parts arrived on my doorstep on the day before Christmas Eve — it was the best Christmas present ever!

In January 2013, we were able to have a couple of presentations about the build event at the FIRST® LEGO League tournament in Ames, Iowa. Also, during this time before the build, we got some friends and met at a local church and sorted out parts for the kits. We did this a couple of times, as it became a big effort. The 500 kits went to various places. During the live build, 100 sets were to be given away on Saturday and another 100 on Sunday to the first arrivals to the Science Center. The Science Center bought 150 sets to sell in their gift shop. The rest were earmarked to fundraising efforts and donors or gifted to the volunteers who helped sort out the kits. A number of the volunteers were students from Iowa State’s engineering department.

When the parts arrived and were sorted, the project became real, and we had to build the thing. The big build event was set for March 15-16, 2013, which was the first weekend of Spring Break locally. As a result, this is always a big weekend at the Science Center. We ended up hosting the build in the President’s Hall, which is the Science Center’s large convention space (about 2000 square feet). TwinLUG brought all of their Micropolis display, and just between me and Scott, we displayed six tables of personal builds and some LEGO sets. In the middle of the room we had all the orange plates because we had 40,000 1 x 1 and 1 x 2 plates to put together.

The public had the opportunity to play with all of the plates and build them into stacks for us. Another thing the public could do was build micro figures, which were just a 1 x 1 round brick with a 1 x 1 round yellow plate

for the head and a 1 x 1 tile for hair. This let everyone have a chance to make their own little person that they could populate the Science Center model with. Saturday morning before opening was to be set-up time for us, and we started from a blank table.

That morning, we had a line outside the Science Center waiting to come in. I shot a time-lapse video of both Saturday and Sunday. From Saturday's video, which I started five minutes before the doors opened, you could see the room around me fill up and get packed with people in the span of just a few minutes. It was crazy how many people showed up that quickly Saturday morning. We were told afterwards that we broke one of their attendance records over that weekend. We had 4,000 to 6,000 people, but I don't remember the exact number.

Once we actually started, I was feeling very unprepared for building in front of the public. Because my LDD file was a model of the exterior, I never did the interior supports. Part of that was intentional, as I was mentally placing the interior parts as I built. The only place that I built an interior structure was the front face based on the blueprints.

I had some of the baseplates secured to the table to set a solid grid, and I had iPad drawings that corresponded. The problem was that most of the design was still in my head, which meant that delegating to Scott or any of the helpers proved to be very difficult. It took a lot of effort on Saturday just to lay out the footprint of the building. That evening, I did more sketching and I made images of a grid showing where the walls would go. With these, I was better prepared to assign building to Scott and all the helpers for Sunday.

Where Saturday established the footprint of the facility, Sunday was when the walls started flying up. At that point, a few things happened. We had the floor plan but hadn't built the internal structure for the IMAX cylinder, which is made up entirely of hinges. There were over 1200 1 x 2 hinge bricks that alternated gray and dark gray because of the exterior pattern, so we built a few of the hinges and told people to repeat it a bunch of times. We were still working on the internal structure to keep the cylinder round, so it was designed and redesigned three times over the weekend.

Sunday, we were resolved to building for effect, which also allowed us to loosen up a bit, and we invited people to participate in building the model. We would assist kids as they placed bricks on the wall assembly. This proved to be a very rewarding part of the event. Since I knew the public wasn't going to be there the entire two days, I didn't worry about anyone being there from the start and saying, "Hey, you didn't get it done." The public that did come in would get to see the build, participate, and get their experience. By the end of the day Sunday, the model was 14 bricks taller than it should have been and probably 30 bricks too long, but we laid some baseplates down as the roof and it looked complete.

The table for the Science Center model was custom built by Ondrew Hartigan, another AFOL and owner of modelbenchworks.com. It's fantastic how he built the table. He included a channel to install Plexiglas and made the table in three nesting sections for travel. The entire



The opening crowd for the free build event.



Rebuilding SCI after the event.



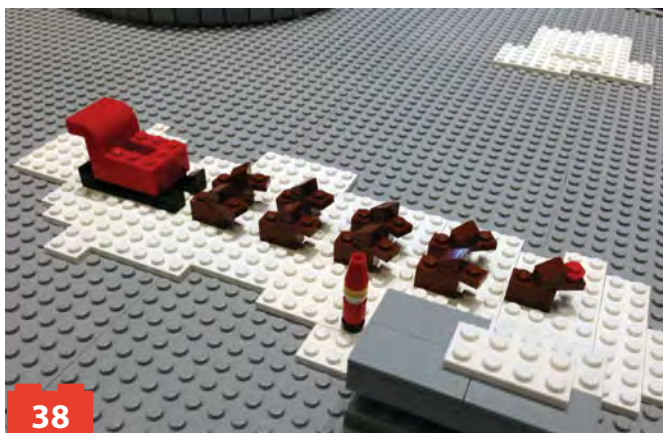
Another version of SCI, shown at Brickworld.



Scott Bowman and the completed model.



SCI with holiday trees and a little snow (above) and Santa himself (below)!



model itself is also designed to break into pieces for transport. Following the event we broke it all down for transport and set it back up in my basement.

Back at home we rebuilt it brick for brick over the next three months. We hoped to keep a lot together, like the south curved wall, for instance. The design for that was pretty solid, but the scale needed to be corrected. Also, I had a rectangular base, with no thought for landscaping or sidewalks. At home, I took the opportunity to add in much more accuracy. Matching to satellite images and the site plans, I was able to add every detail to the landscaping, including the large reflecting pool outside the building. We ended up doing one supplemental order of parts, and that was for hinges since I miscalculated those. I spent a lot of time getting the small details in, like the garage doors, the sharp angles on the east and west of the building as well as the walls intersection the cylinder IMAX. The Northeast and West angles would have been very hard to solve at the build event. I would have spent all weekend just doing that.

The completed Science Center of Iowa model debuted at Brickworld 2013. We completed it a week before and then added a playground and front trees on the north side while we were at Brickworld. The model was delivered to the Science Center in July 2013 for permanent display. In November-December 2013, the model was winterized by adding holiday trees and snow. It was fun to put little features on it during the holidays, even though we didn't have enough white plates for an Iowa winter!



A closer look at the model. All photos this page courtesy of J. Mrachina.

The model has been a successful display for the Science Center. They love showing it off when they have guests coming in and I have heard of many friends that have gone down and seen it. It doesn't get missed. In June 2014, it became a central focus for a new Maker exhibit.

For our club (IowaLUG), it has developed our relationship with the Science Center. We now hold our monthly meetings there, and Scott and I have taught one of their summer camp sessions to fifth and seventh graders. IowaLUG has a Facebook group of over 160 members, a newsletter with 160 subscribers, and meetings drawing between 15 and 30 attendees.

Other opportunities to build have also opened up, most recently with Blank Children's Hospital in Des Moines. We built centerpieces for their gala dinner which were auctioned off for donations. IowaLUG also ran a free build table at the hospital's Festival of Lights. Currently, we are working on designing a large LEGO mural for them. We'd love to do other projects, such as building Capitol Building or the Governor's Mansion or finding other firms in town that would want to do commissioned work. Those interested in finding out more about IowaLUG can contact us at our website: www.iowalug.com, or scan the QR code on the left! 



Scott (left) and Chris present the model.

Scott (right) shows Curt Simmons, SCICEO, the inside engineering of the cylinder (inset).





Building

Building Copenhagen

Article by Joe Meno

Photography provided by Ulrik Hansen

A creation making the rounds in Europe is turning heads not only because of its size, but because of its subject. 41-year old graphic designer and builder Ulrik Hansen focused his love of Copenhagen to create a map of the city. The scale is smaller than microscale, but the map is large enough to show small landmarks and streets. Talking to Ulrik online about this creation revealed much of the thought and detail that he placed in the model.

Ulrik is a member of the Danish LEGO users group Byggepladen, and started a magazine for the club about the time he began to build as an adult. As he remembers, "I was watching it from the sidelines and then realized that there was a big community. I remember looking at LEGO in the mid '90s, when I was starting to search the Web, just thinking: what should I look for? I started looking for these incredible pictures of LEGO, but I didn't understand how they were built. Like everyone else in their Dark Age, I didn't understand building techniques."

Joining the group in early 2008, he built his first models. He built three creations before he made the Copenhagen map. When asked about the number of MOCs he has made, Ulrik points out, "I like to put something out that is new and fresh and hasn't been done before. I don't make tons of MOCs because I wait until I get the right idea."



Little Computer People.



Hiroshima Peace Memorial.



Copenhagen Youth House.

Starting to Build

His previous ideas included building the Youth House (Ungdomshuset) in Copenhagen, which was a building that was a “left-wing punk house.” There was a big controversy around that house, with the police ultimately raiding the place; and since it was being torn down, the building itself solved his problem of not having enough dark red bricks. It was instantly recognizable to the locals and was shown at the first Danish LEGO World in 2009.

It was then that Ulrik realized that building something people could recognize was a good idea. He wanted a niche for himself, so he started working on building something historical or with some background.

The next MOC Ulrik created was a model of the Hiroshima Peace Memorial, which was built in red at his brother’s suggestion. Ulrik remarked, “I didn’t like it at first, and it also scares people when they go see it. They don’t understand it at all because it’s so scary to look at.”

Ulrik’s third model was based on a computer game from the ‘80s called *Little Computer People* for the Commodore 64 computer. Ulrik explains, “It’s a simulation game with only one screen: this one guy walking around his house. I thought it would be a nice thing to do and I needed to build something more friendly. I was also getting back into my big interest in yesterday’s pop culture.”

His next idea was to build a MOC based on SimCity because he liked the microscale models he had been seeing of American cities and skyscrapers. “I thought of making a SimCity with some bridges and a nuclear power plant and all the things one might recognize,” Ulrik recalls.

Ulrik swapped out the SimCity idea for building a Copenhagen neighborhood. “I wanted this to be a little more cultural than a computer game from the ‘90s,” he states and adds, “I love Copenhagen. I wasn’t born there but my mother is from over there and I have visited many times, so it was obvious that I had to do it. My mother was also a great inspiration for my architectural building.”

The resulting MOC was a map of Freetown Christiania, Copenhagen. He was supposed to expand from that part of Copenhagen, but he decided it was better to take a new part of the city, an area that a tourist would recognize. As Ulrik explains, “I was waiting for my skills to improve so I could do something like that. I am also crazy about maps and stuff like that. When you have the interest already, it makes you want to go and research a lot.”

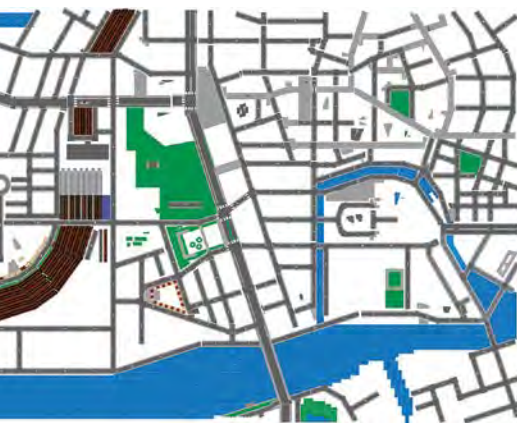
He continues, “If you are an artist, you don’t want to add to something you already have done. You want to do something better.”

Freetown Christiania, a hippie neighborhood built on a squatted military area.





Inspirations and references for his map project.



The map drawn out in Illustrator.

Mapping Copenhagen

Building the map took quite a bit longer than expected. In fact, what was planned to be an eight month job took two years before it was displayed. Part of this was because of starting a new map, but another factor that played in the long build time was building certain elements, like the roads. Ulrik states, "I thought that if I could make this angle here, I could copy it, but it wasn't so easy. I also really paid attention to the detail of the houses and how they looked. I realized that two weeks before I was supposed to be done, I couldn't finish the map, so the schedule was stretched out to the next year."

Building a new map meant more research and planning. For reference and inspiration, Ulrik considered tourist maps. "I thought about using the maps that enlarged the tourist attractions, but I ended up using aerial maps instead. Apple's Maps application has a 3D function," he explained.

Ulrik recounts, "I was lucky. Not all of the cities in the world have a 3D model, as Apple has to get permission to make these laser flyovers. Luckily, it was a Swedish company that Apple got the technology from and they had actually done a flyover of Copenhagen."

From there, he did a preliminary road map using Illustrator. Using this map, he started building. However, he had to figure out a few map elements. While the roads were easy to define, intersections and angles were a challenge; they were kind of groundbreaking. Ulrik began his building with a little trepidation, as he described: "I wasn't completely sure how I was going to solve the angled roads when I started, but I began to think, I can pull this off. You begin to trust yourself more and more from every MOC you make. When I look at my first MOC, I learned how to use the jumpers (1 x 2 plates with 1 center stud) and the next MOC I learned about hinges. I began to trust myself more and more."

He continued, "It was a slope mosaic that was the big solution to this. It was really exciting to me to discover how cool it was using the cheese slope for angles in a mosaic. I then thought; ah, all the other slopes have angles too! The 45-degree angles are used for the floor of an old castle. That's a typical use, but why not just use *all* the slopes? What I also realized was that some of the slopes are close to each other in angle: the 1 x 3 slope is 33 degrees as opposed to the cheese slope which is 30 degrees, so you can actually put them together and use them because the tolerances of the elements allow a little slip. Before building, I listed all the angles so I could grab one if I needed it."

The scale he decided on using was not determined by any measurement, but by intuition. Ulrik's method of building was "Okay, we have this building, how many windows do we have and how many do we have to boil it down to? I really use my intuition a lot more than calculation because it's like making a logo or icons. You have to create an illusion," as he defines. The scale for his map was later determined to be 1:1500.

With this new map came new problems to solve. Ulrik singles out one of his new challenges: "I went down in scale from my previous model, so suddenly I didn't have rooftops. I used cheese slopes for that because those houses are only one stud in width, which are too small to have slopes. I needed a double slope



Street construction explorations using slopes.

for the roof. It was hard to decide if the cheese slopes would do the job. I was just considering using tiles for roofs because it was such a small scale."

Because of the scale, Ulrik also had to figure out how tall the churches were and how many plates tall a house was in the city, which were themselves different sizes. Some of the houses were typical 4-story houses in Copenhagen, where the first story is like a strip on the bottom of the house. The next few stories have their own look in ornamentation. The result was a house with a bottom plate and an upper brick.

Building Copenhagen

Ulrik started early in the process to make the churches and a few malls because "It was fun to get to the iconic things and also start to see how the scale would be, as it would dictate the environment. I beefed up everything—all the streets are wider than they would normally be, but you would have to look at a map to see that."

To create the streets, Ulrik actually built the map with a brick border 2 studs wide and 2 SNOT studs (5 plates) high. He describes, "Because I worked with a certain amount of depth under the surface, it gives me the ability to make SNOT roads. That's how I make the pedestrian stripes and road lanes. They, of course, are way too big if you measure them, but that's another design decision I made."

This also resulted in allowing him to have some depth to make the water a lower level than the city. The border was lined with tiles that covered the parts that came to the edge, letting Ulrik hide rough edges. For the bridges, he used the 75 degree slope (the castle slope) so you can make a slight tilt. "I would do this only to do the bridges because they are monumental when you have water. It does something to a city when there is a waterfront. It's really nice," he notes.

The water had some detail that some didn't understand initially. Ulrik tells, "I made boats, and some people asked me why the water was white there and light blue over there, and that's because the boats are sailing faster! I thought it was obvious! The colors are also longer because there are high-speed boats as well as the tourist boats that sail around. I also have harbor buses on the map."

The final result, though, is amazing. As Ulrik states, "When you see the map from a distance, it really looks like an aerial photo, which is the point."

When asked about what is next, Ulrik simply tells me that he is between projects. Working on this map for two years burned him out, so he is relaxing and showing the map at displays in Europe. After his hiatus, he has a big list of ideas. He leaves me with one clue: "I want to build something that is subterranean."

With all of the photos he has taken of the map, he is also considering making a coffee table book about the map. With his background as a graphic designer, it's just as possible as making a map of Copenhagen out of LEGO.

Ulrik ends the call with a thought from his dad: "Maybe I should change my name to Ulbrick."

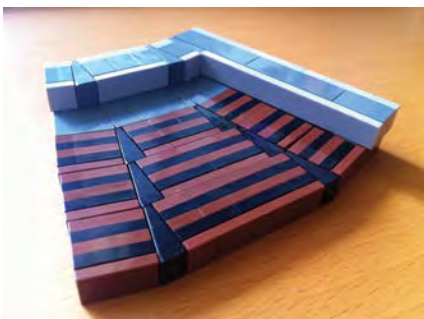


Creating crosswalks.

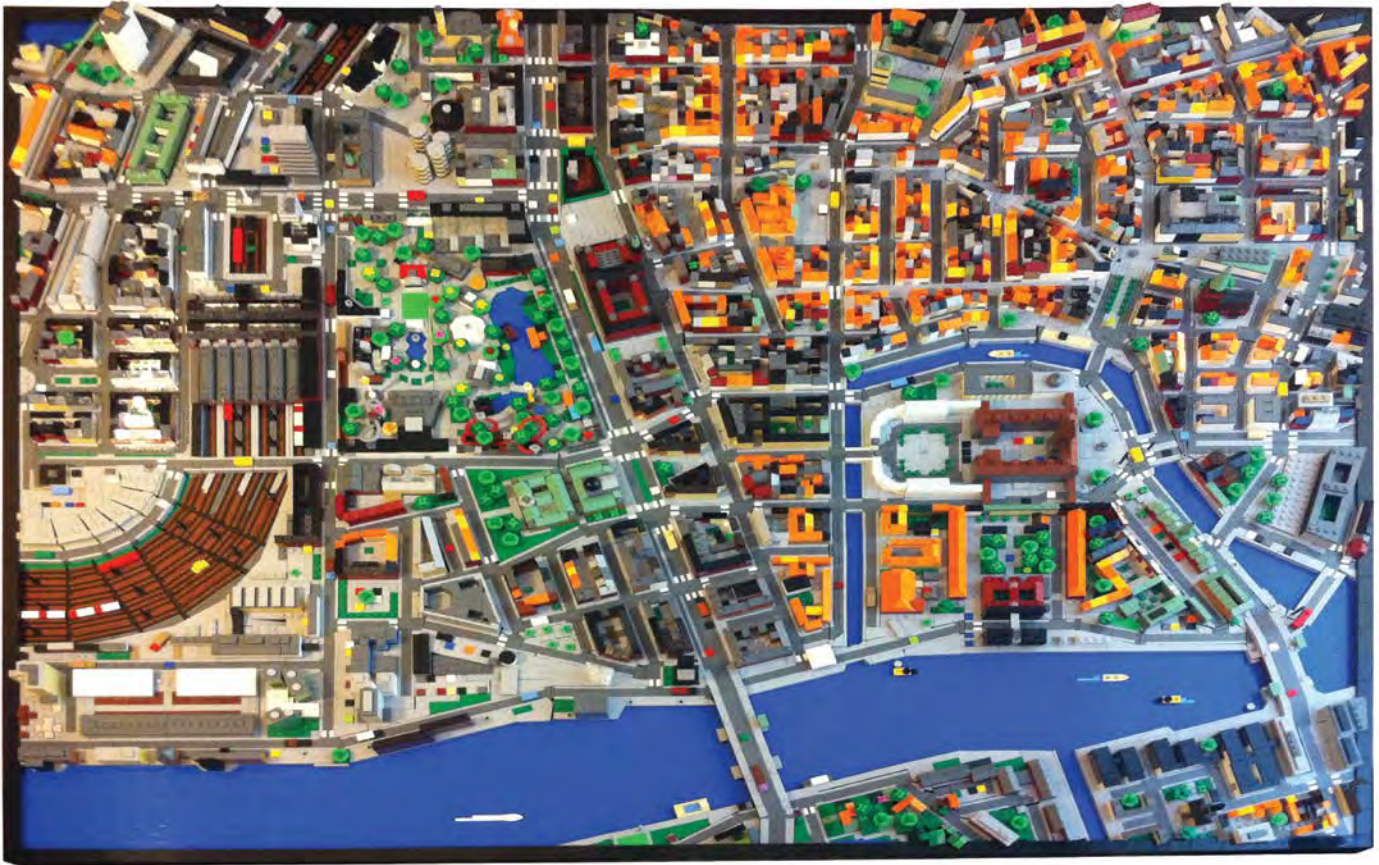


Building a bridge slope.

Building a crosswalk and angled road.



More construction explorations using slopes for a train station (left) and a roundabout (right).



Copenhagen in Bricks

Ulrik's map is 1:1500, so with its shorter side a meter long, it covers 1.5 kilometers by roughly 2.5 kilometers of the city, which is a small section. However, this section is the central part of the city, so many of its landmarks are seen. Here's an overview of the map and a look at some noteworthy places.



Approaching the Copenhagen Central Station.



Ny Carlsberg Glyptotek



Tivoli Gardens.



Housing across Christianborg Palace, seen below.

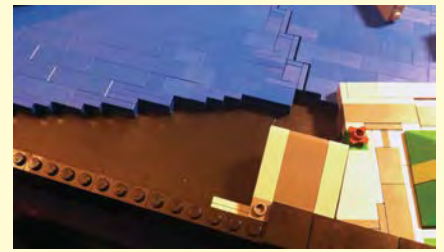


The Black Diamond, a waterfront extension to the Royal Danish Library and Garden is seen below.



LEGO Cartography

Ulrik built the map by making the water and roads a set of levels that were sideways (SNOT) built. From there, buildings and landmarks were attached. Here's a look at how he built the layers and the benefits of his methods.



The water is the lowest level. Roads are placed atop it. The slope for a bridge is built on the edge.



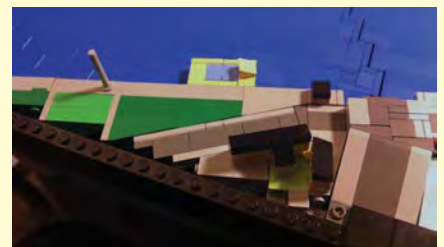
More road is added and joined using slopes and plates. This is SNOT built to allow more detail.



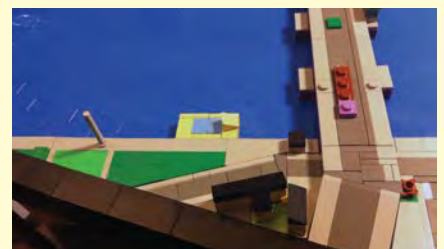
The road under the bridge is added. Note that the bridge adds a third level above the road.



The road is completed and buildings are placed with bricks with studs on their sides and hinges.



Waterfront is added. By making the waterfront a level on top of the water, a smooth edge is made.



The bridge is completed and tiles are used to cover the edges of the waterfront.

Community

Rebuilding the 1964 World's Fair

Article and Photography by
Joe Meno

In 1964, the New York World's Fair opened in Flushing Meadows as a celebration of the theme "Peace through Understanding." Occupying nearly a square mile of land, this was the largest World's Fair held in the United States.

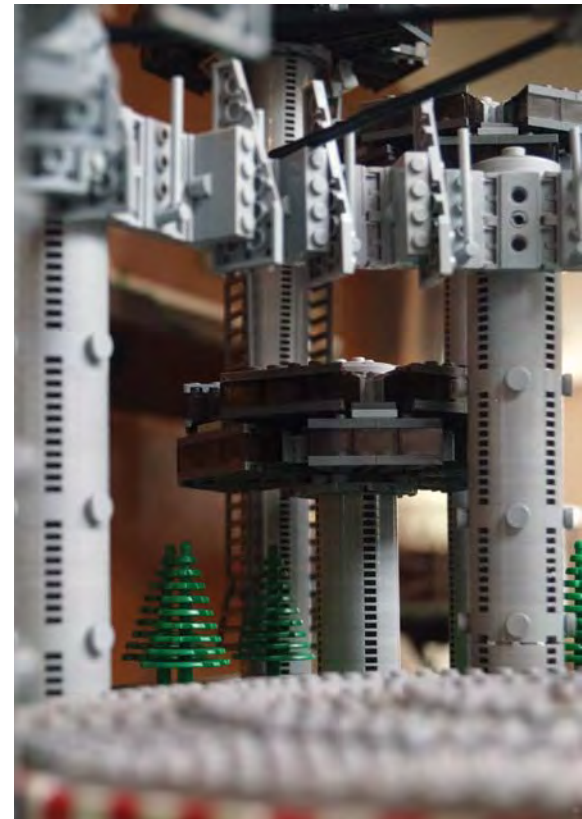
After the event, much of the site was torn down. What remained included the Unisphere, the New York Pavilion and the New York City Pavilion, which is now the Queens Museum of Art.

To celebrate the 50th anniversary of the World's Fair, a group of LEGO builders led by Cody Wells of C3Brix were commissioned to build some of the structures seen at the event. Reflecting the international nature of the World's Fair, all of the LEGO models were of parts purchased online from around the world.

Here's a look at some of the models that are on display. If you are in the New York City area, this display will be open until November 2.



An overall view of the pavilion. The large round open structure is the Tent of Tomorrow.



A glimpse of one of the towers.

New York State Pavilion

by Cody Wells

over 1900 parts used from six different countries.

Designed for the 1964 New York World's Fair by architects Philip Johnson and Lev Zetlin, the facility was built between 1962 and 1964. Afterwards, the site was abandoned and went into disrepair.

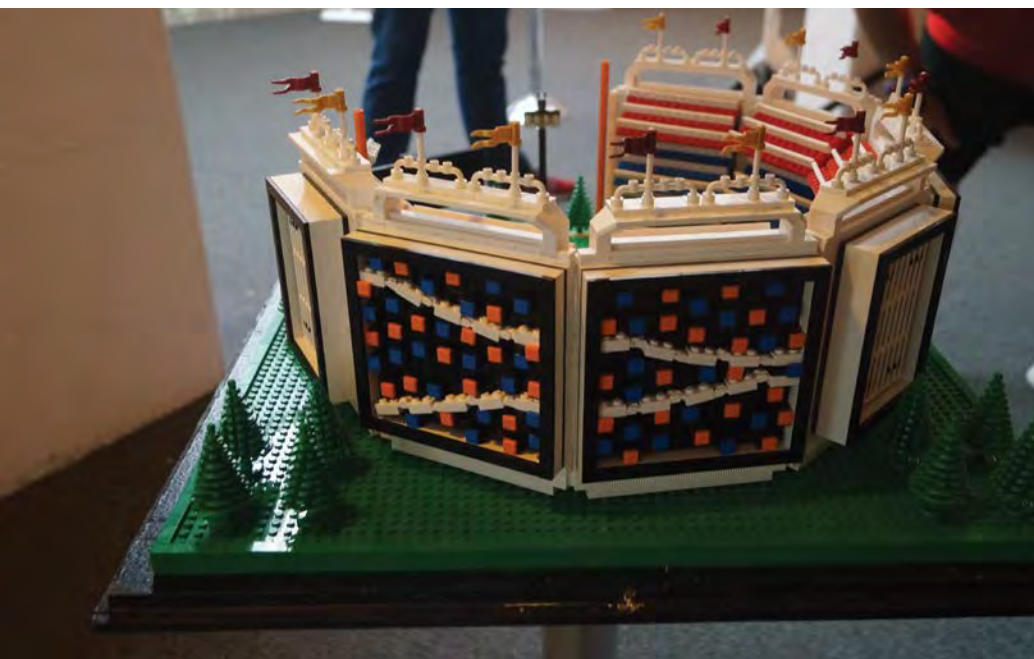
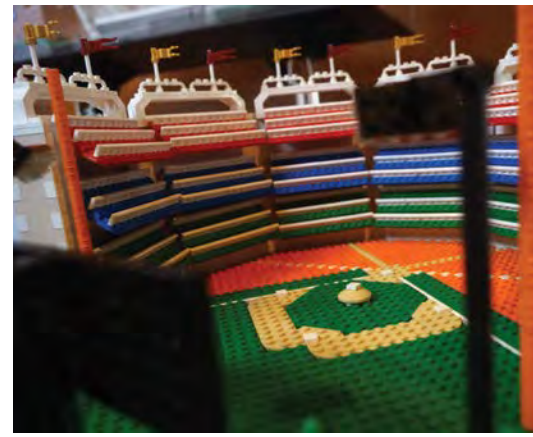
Moviegoers may recognize the New York Pavilion from the movie *Men in Black*, as the site where a flying saucer was kept... in plain sight! Others may recognize it from *Iron Man 2*, where Flushing Meadows was the site for Stark Expo. In June of 2014, it was announced that restoration of the electrical system and the staircases in the towers would take place over the next year.



A high view of the pavilion.



A look at the interior of the stadium.



A look at the back of the stadium.

Shea Stadium

by Cody Wells

over 1500 parts used from three different countries.

Shea Stadium opened five days before the World's Fair opened, to 50,312 New York Mets fans. The blue and orange panels on the walls were both the colors of the Mets and the Fair, and remained until 1980. The stadium was also the home of the New York Jets until 1983.

The stadium closed in 2008 and was demolished to make way for a parking area for the adjacent Citi Field.



Some interior shots of the stadium.

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A overall view of the buildings.

Terrace on the Park/ Port Authority Heliport and Exhibit Building

by Cody Wells

over 1200 parts used from all over the United States.

The Terrace to the Park heliport was commissioned by the New York Port Authority to be the “aerial gateway” to the World’s Fair. 102 feet high, this structure had windows that formed the T (for Transportation) on each face. The top floor of the building housed a restaurant named the “Top of the Fair,” while the floor below it had the “Drinks Around the World” cocktail lounge.

The Terrace on the Park remains, with a catering service and restaurant at the top floor.



A view from the opposite side of the buildings.



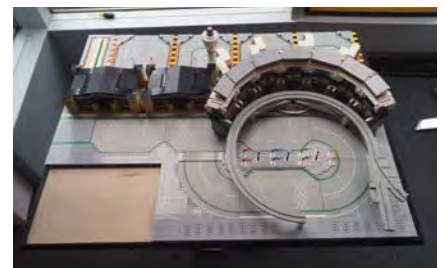
A minifigure’s view of the facility.



An overview of the airport terminal.



A view of the parking lot and passenger terminal.



A top view of the model.



A look at the control tower and jetways.

Central Terminal Building, La Guardia Airport

by Cody Wells

Over 5000 pieces used from all over the world!

The Central Terminal Building opened to the public in 1964 with a design capacity of 8 million air passengers annually. Modernized and expanded to approximately 835,000 square feet of floor space in the 1990s, the six-block long terminal consists of a four-story central section, two three-story wings, and four concourses that can accommodate up to 35 aircraft gate positions. Efforts to increase capacity and redevelop the airport are ongoing.



The General Motors Pavilion.



The front facade of the pavilion.

General Motors Pavilion

by Mike Bader

with parts used from all over the world!

The General Motors Pavilion at the World's Fair became the most well-known attraction at the event. Designed by Norman Bel Geddes, the building housed the ride Futurama, which showed a vision of the future to visitors that included highways, a visit to the moon, underwater, and a visit to the city of the future.

The pavilion no longer exists.

U.S. Space Park

by Rick Theroux and Brett Berland
with parts collected from all over the country!

Sponsored by the National Aeronautics and Space Administration and Department of Defense, this was an outdoor display of some of the rockets and spacecraft that began the Space Age. Thor-Delta, Atlas and Titan II rockets were shown in launch positions, with the Mercury and Gemini space capsules in place. There was also a static display of the lower section of a Saturn V rocket, which at that time had not flown to the moon.

Since the World's Fair, the displays were eventually presented to Flushing Meadows on permanent loan. The Titan II and Atlas rockets were restored and are

50

now part of the Rocket Park in the New York Hall of Science. 



Hello, fellow LEGO enthusiasts! What you have in front of you are building instructions to the New York State Pavilion at the 1964 World's Fair. This building is one of those still standing today during this 50th Anniversary of that World's Fair.

The Pavilion is made of two attractions; the lower section was called the Tent of Tomorrow, which housed a giant map of New York State. The suspension roof was covered in glass tiles (captured in the model with trans red 1 x 1 tiles and trans light blue 1 x 2 tiles).

The other attraction is made up of the three towers. The tallest was an observation tower where visitors could see as far away as New Jersey, Connecticut, the Atlantic Ocean and most of Long Island. The middle tower sold refreshments and the third, shortest tower was a lounge for visiting officials.

Reflecting on my childhood in Queens, many things came to mind which helped lead to the creation of this model. I remembered my family driving along the Grand Central Parkway to Shea Stadium to watch our Mets play ball, and of course I remember passing this cool-looking building that seemed as if UFOs from out of this world were parked on it. (Apparently the creative minds behind the film *Men in Black* thought the same thing, because in that movie the New York State Pavilion was indeed made of UFOs).

On May 18th, 2014, this model was assembled by young builders as part of the year-long celebration of hosting the World's Fair both in 1939 and 1964 by the Borough of Queens. They had a blast and hopefully, you too will enjoy building this model and are inspired to build more mini versions of real world architectural structures.

Enjoy! 

Parts List

(Parts can be ordered through Bricklink.com by searching by part number and color)

Qty	Color	Part	Description
24	White	3062b.dat	Brick 1 x 1 Round with Hollow Stud
12	Trans-Clear	3065.dat	Brick 1 x 2 without Centre Stud
4	Green	59900.dat	Cone 1 x 1 with Stop
1	White	4285b.dat	Dish 6 x 6 Inverted Webbed Type 2
43	White	4073.dat	Plate 1 x 1 Round
4	White	4032b.dat	Plate 2 x 2 Round with Axlehole Type 2
4	Blue	4032b.dat	Plate 2 x 2 Round with Axlehole Type 2
1	White	3031.dat	Plate 4 x 4
2	Green	3036.dat	Plate 6 x 8
8	White	98138.dat	Tile 1 x 1 Round with Groove
4	Trans-Red	3070b.dat	Tile 1 x 1 with Groove
2	Light Bluish Gray	3069b.dat	Tile 1 x 2 with Groove
8	Trans Light Blue	3069b.dat	Tile 1 x 2 with Groove
4	Light Bluish Gray	4162.dat	Tile 1 x 8
4	White	4150.dat	Tile 2 x 2 Round

You Can Build It

MINI Model

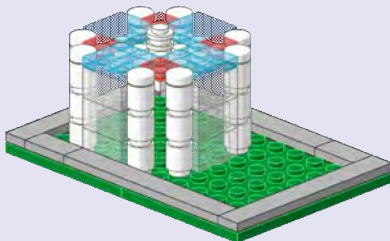
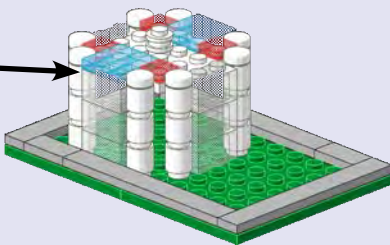
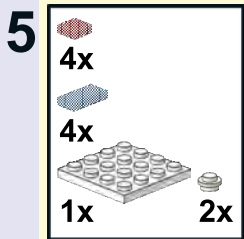
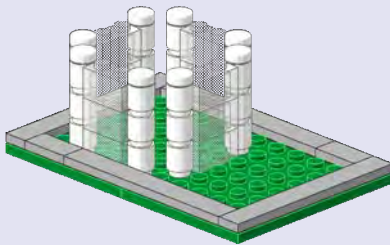
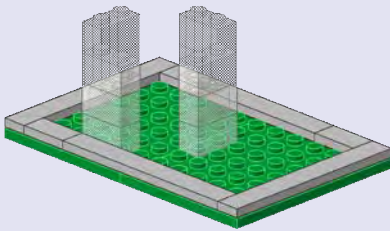
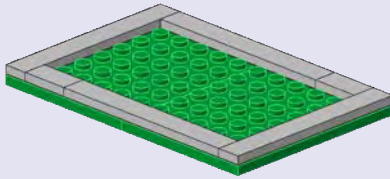
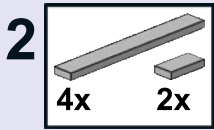
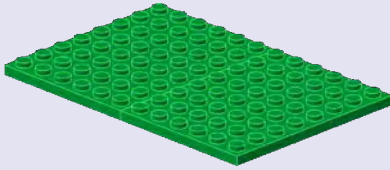
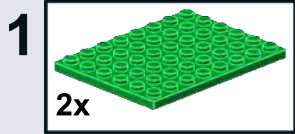


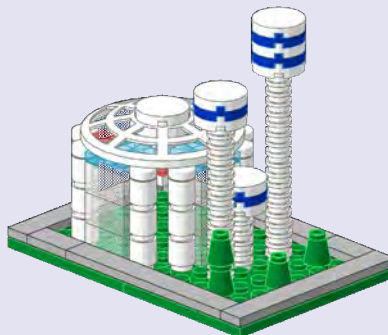
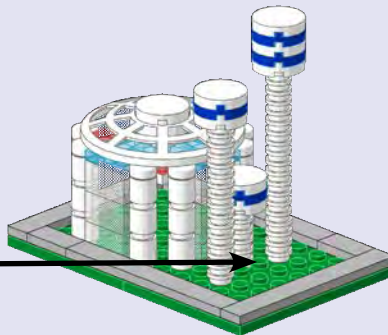
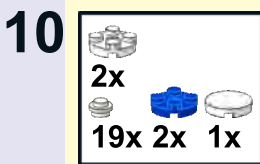
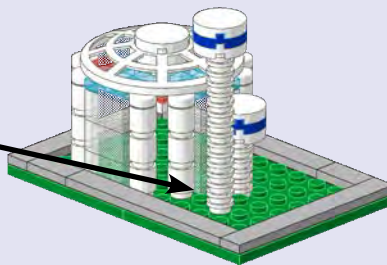
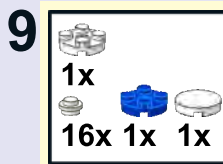
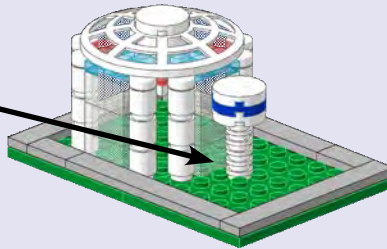
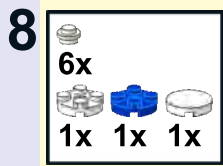
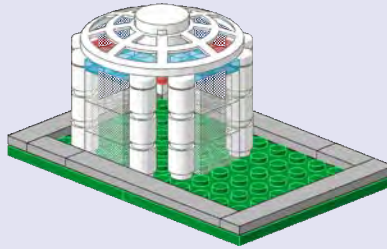
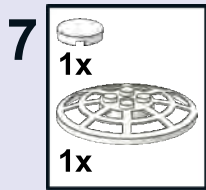
Mini New York State Pavilion, 1964 World's Fair

Design and Instructions
by Brian Wygand,
Member of ILUGNY



If you want to find out more about ILUGNY, you can go to www.ilugny.org or scan the QR code to the left!







Tommy Williamson is no stranger to *BrickJournal*, having been featured previously for his Jack Sparrow miniland scale figure. Since then, he has gone farther into building, making some remarkable *Star Trek* props and other models. He's now doing a column for *BrickJournal*: DIY Fan Art. Here, Tommy


takes a little time out from his busy schedule at BrickNerd.com to make a model of his choosing for the magazine.

Bronson Gate

Design and Instructions
 by Tommy Williamson



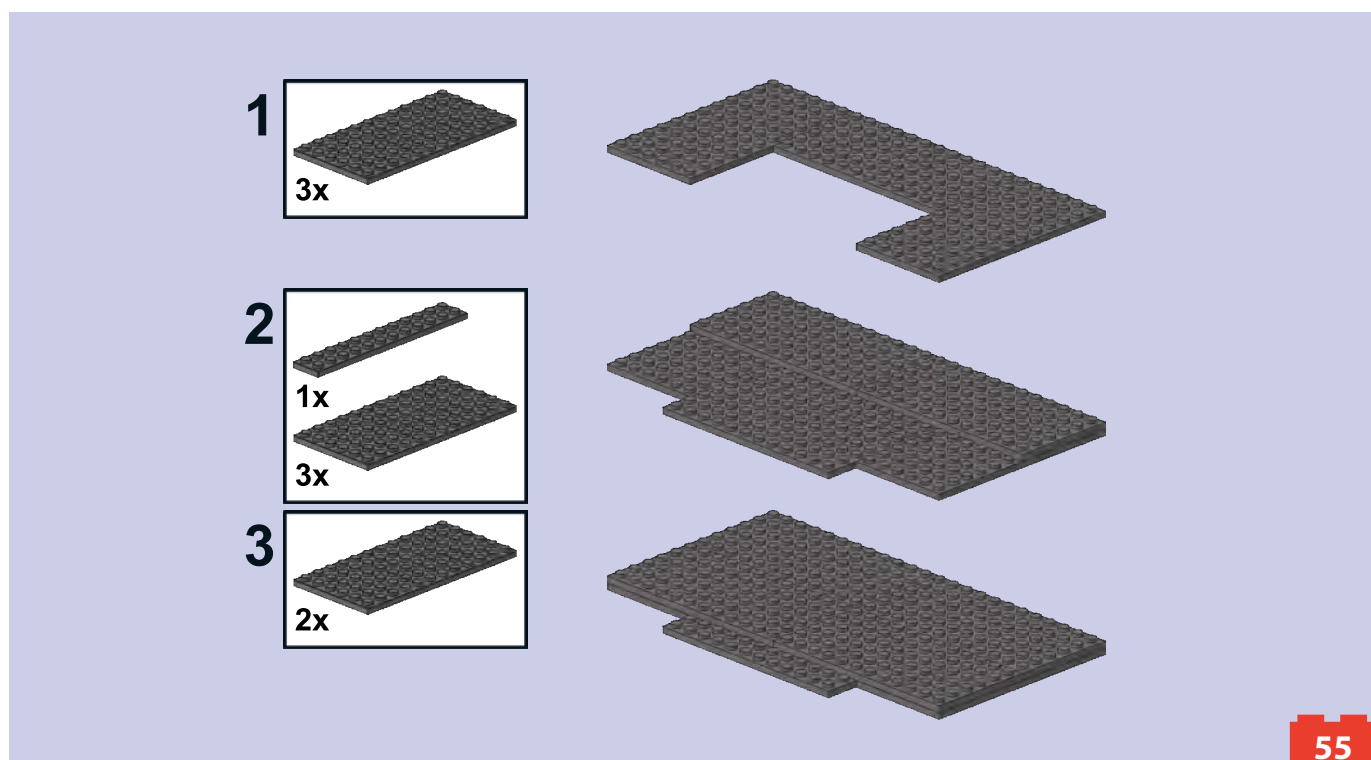
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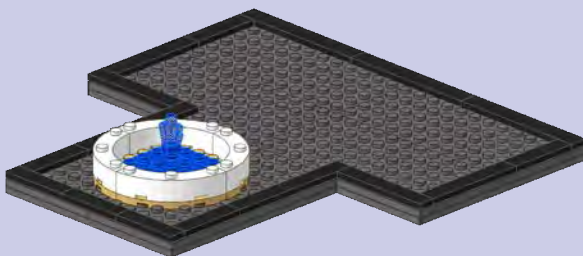
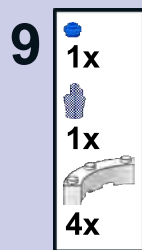
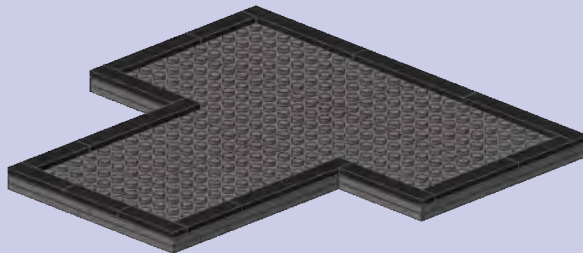
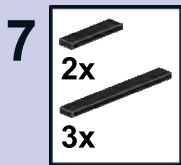
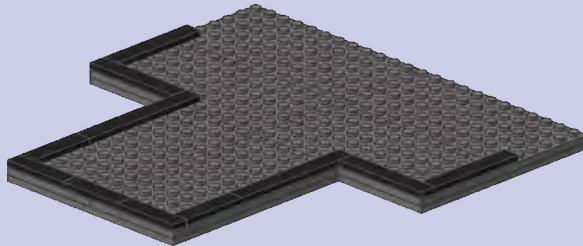
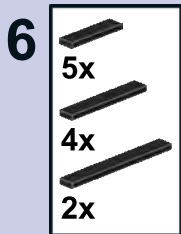
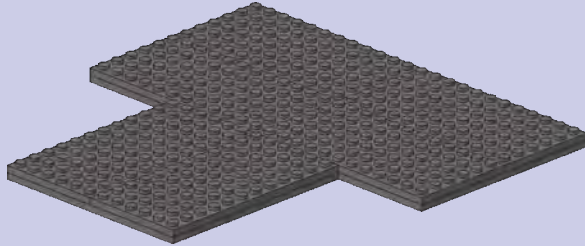
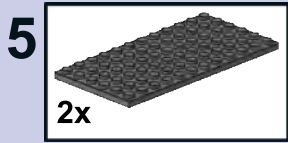
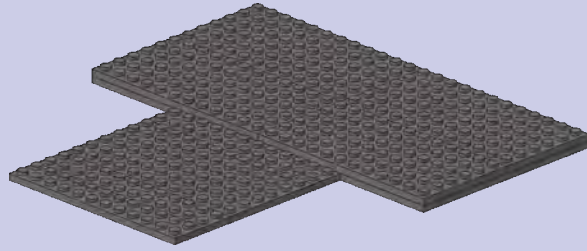
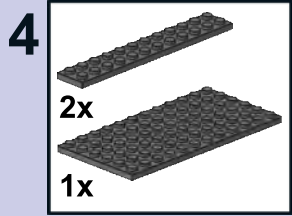
I know after over a quarter century in the motion picture industry I should be jaded and bitter. And while I'm making a big effort to get out of the industry, it's not because I don't still love it. And I still get a thrill when passing through the main gates of a studio. Not too long ago I was lucky enough to work on the Paramount Studios lot for several months, and when I heard the theme of this issue of *BrickJournal* was going to be Architecture, I knew exactly what I would build. It harkens back to the golden age of Hollywood, and it's as iconic as you get as far as studios go. It's the classic Bronson Gate of Paramount Studios. I hope you like it. 

Parts List (Parts can be ordered through Bricklink.com by searching by part number and color)

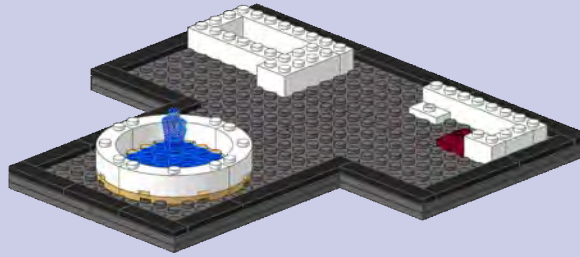
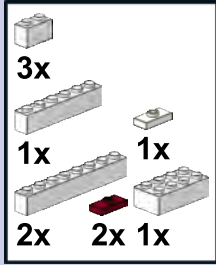
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1	30039.dat	Light Bluish Gray	Tile 1 x 1 with Groove
4	3957a.dat	Tan	Antenna 4H with Rounded Top
1	6182.dat	White	Arch 1 x 4 x 2
4	3308.dat	White	Arch 1 x 8 x 2
2	3005.dat	Light Bluish Gray	Brick 1 x 1
9	3005.dat	Trans Clear	Brick 1 x 1
11	3005.dat	White	Brick 1 x 1
2	87087.dat	White	Brick 1 x 1 with Stud on One Side
2	3004.dat	Dark Bluish Gray	Brick 1 x 2
15	3004.dat	White	Brick 1 x 2
3	11211.dat	White	Brick 1 x 2 with Two Studs on One Side

QtyPart	Color	Description	QtyPart	Color	Description
8 3622.dat	White	Brick 1 x 3	1 3710.dat	Green	Plate 1 x 4
12 3010.dat	White	Brick 1 x 4	2 3710.dat	White	Plate 1 x 4
1 3009.dat	Reddish Brown	Brick 1 x 6	2 3710.dat	Blue	Plate 1 x 4
9 3009.dat	White	Brick 1 x 6	2 3666.dat	Tan	Plate 1 x 6
5 3008.dat	White	Brick 1 x 8	5 3666.dat	White	Plate 1 x 6
1 6111.dat	White	Brick 1 x 10	1 4510.dat	Light Bluish Gray	Plate 1 x 8 with Door Rail
2 3003.dat	White	Brick 2 x 2	1 4477.dat	White	Plate 1 x 10
6 2357.dat	White	Brick 2 x 2 Corner	1 3020.dat	Blue	Plate 2 x 4
1 3002.dat	White	Brick 2 x 3	3 3020.dat	Green	Plate 2 x 4
1 3001.dat	White	Brick 2 x 4	1 3832.dat	White	Plate 2 x 10
1 3001.dat	Reddish Brown	Brick 2 x 4	3 2445.dat	Dark Bluish Gray	Plate 2 x 12
4 48092.dat	White	Brick 4 x 4 Round Corner	2 2450.dat	Green	Plate 3 x 3 without Corner
1 3024.dat	Green	Plate 1 x 1	4 30565.dat	Tan	Plate 4 x 4 Corner Round
1 3024.dat	Light Bluish Gray	Plate 1 x 1	1 3032.dat	White	Plate 4 x 6
7 3024.dat	White	Plate 1 x 1	1 3032.dat	Tan	Plate 4 x 6
7 3024.dat	Tan	Plate 1 x 1	1 3030.dat	White	Plate 4 x 10
1 4073.dat	Blue	Plate 1 x 1 Round	11 3028.dat	Dark Bluish Gray	Plate 6 x 12
4 4073.dat	Tan	Plate 1 x 1 Round	1 30385.dat	Trans Dark Blue	Rock 1 x 1 Crystal 5 Point
29 4073.dat	Green	Plate 1 x 1 Round	2 3040b.dat	Reddish Brown	Slope Brick 45 2 x 1
30 4073.dat	Trans Medium Blue	Plate 1 x 1 Round	6 3039.dat	Reddish Brown	Slope Brick 45 2 x 2
1 3023.dat	Green	Plate 1 x 2	8 13548.dat	Reddish Brown	Slope Brick 45 2 x 2 Double Convex with Cant
2 3023.dat	Tan	Plate 1 x 2	6 3037.dat	Reddish Brown	Slope Brick 45 2 x 4
6 3023.dat	Trans Clear	Plate 1 x 2	4 32123a.dat	Tan	Technic Bush 1/2 Smooth with Axle Hole Reduced
8 3023.dat	White	Plate 1 x 2	1 3069b.dat	Trans Clear	Tile 1 x 2 with Groove
1 32028.dat	Light Bluish Gray	Plate 1 x 2 with Door Rail	3 3069b.dat	White	Tile 1 x 2 with Groove
2 15573.dat	White	Plate 1 x 2 with Groove with 1 Centre Stud, without Understud	7 2431.dat	Black	Tile 1 x 4 with Groove
1 3794a.dat	White	Plate 1 x 2 without Groove with 1 Centre Stud	1 6636.dat	White	Tile 1 x 6
4 3794a.dat	Dark Red	Plate 1 x 2 without Groove with 1 Centre Stud	4 6636.dat	Black	Tile 1 x 6
1 3623.dat	Tan	Plate 1 x 3	5 4162.dat	Black	Tile 1 x 8
1 3623.dat	Green	Plate 1 x 3	1 3068b.dat	Tan	Tile 2 x 2 with Groove

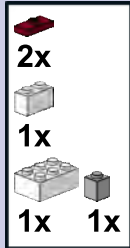




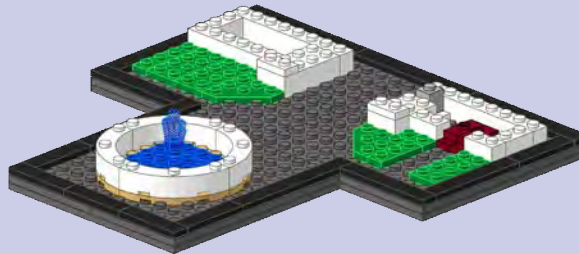
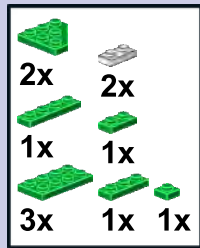
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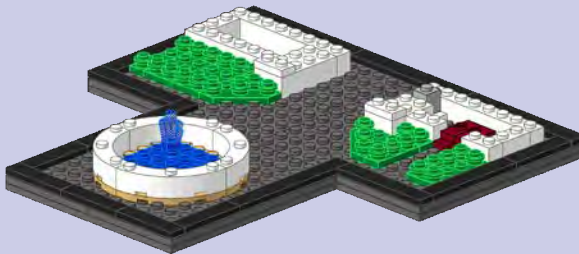
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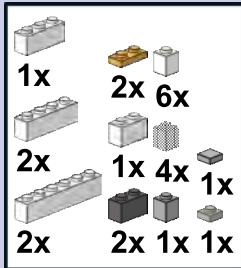
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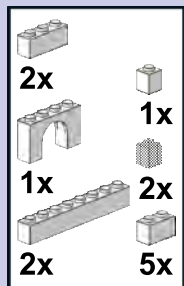
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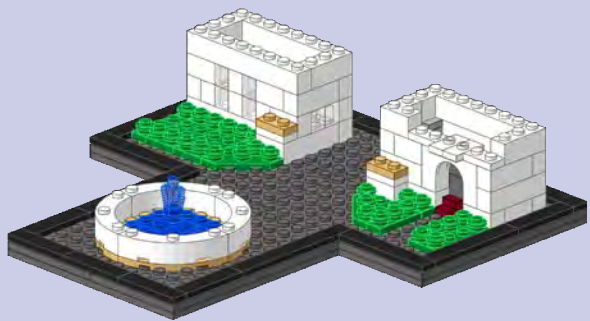
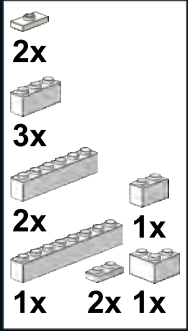
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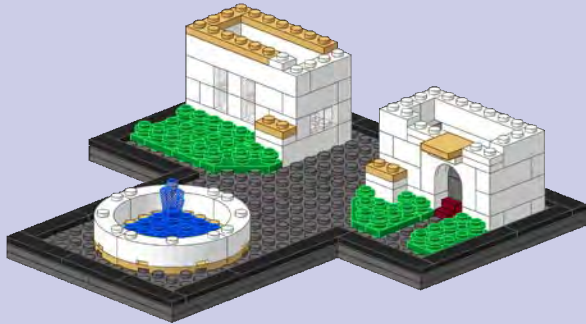
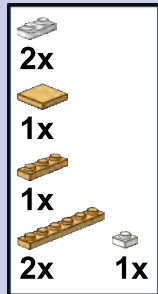
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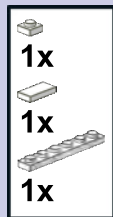
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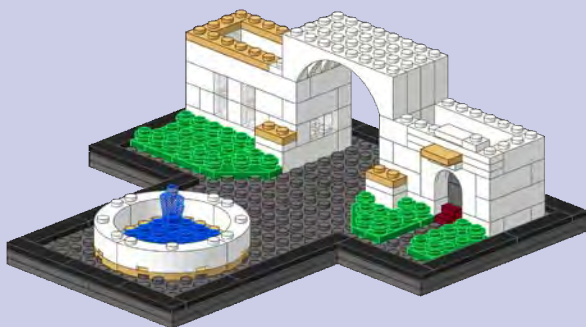
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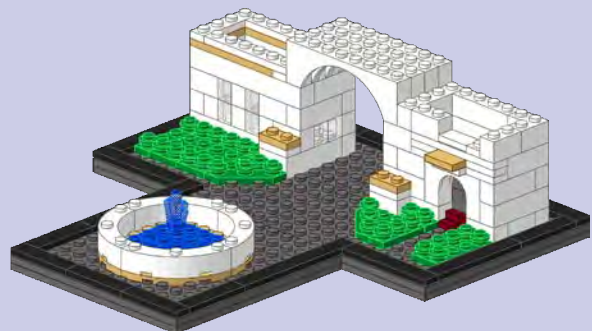
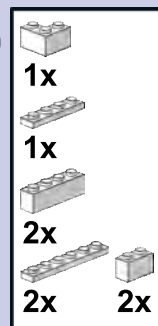
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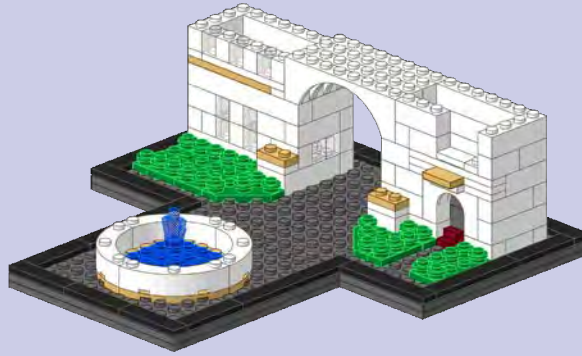
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20






- 21**
-  3x
 -  1x
 -  2x
 -  2x
 -  3x






- 22**
-  1x
 -  2x
- 1**

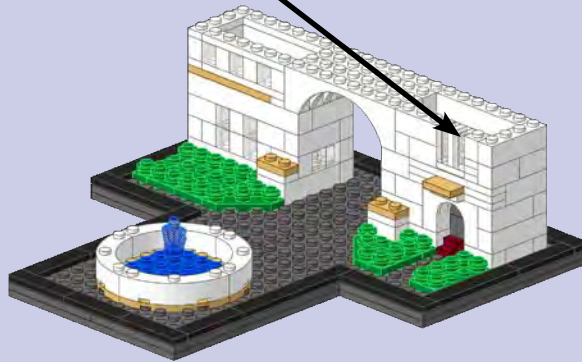
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2

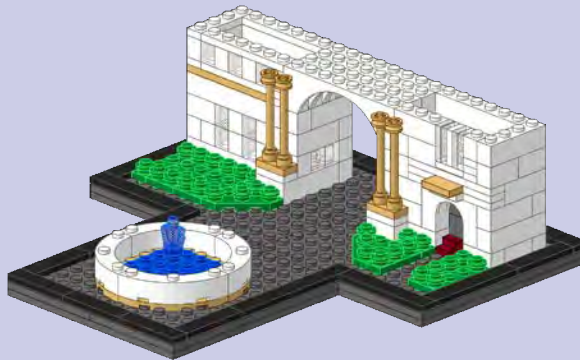
 -  2x
 -  1x
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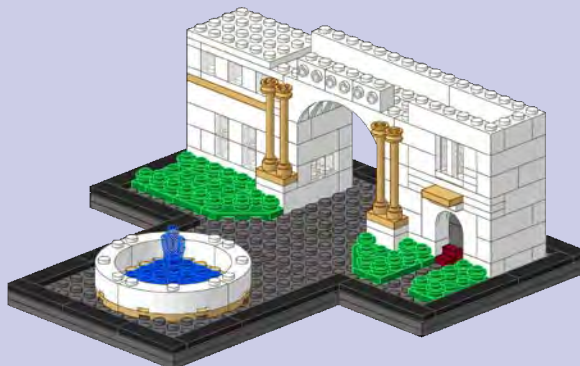
 -  1x
 -  1x
 -  1x





- 23**
-  4x
 -  4x

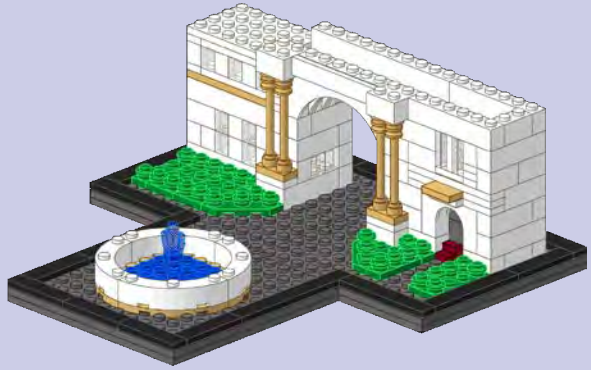


- 24**
-  3x
 -  2x
 -  1x
 -  1x
 -  1x










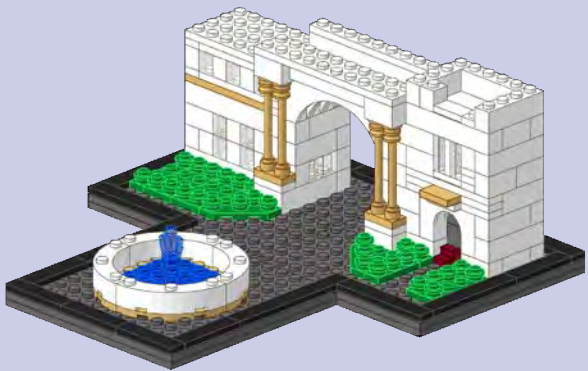
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- 4x 
- 2x 
- 1x 










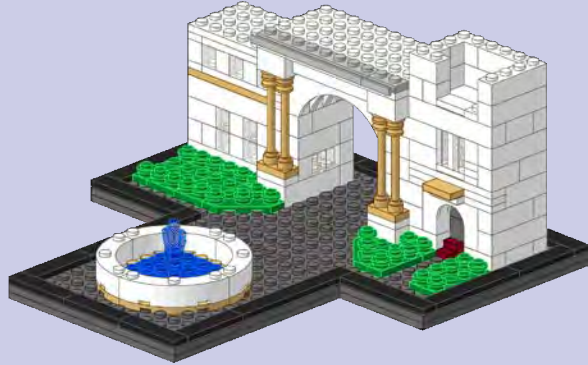
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- 1x 
- 1x 
- 3x 
- 1x 
- 1x 
- 1x 
- 1x 









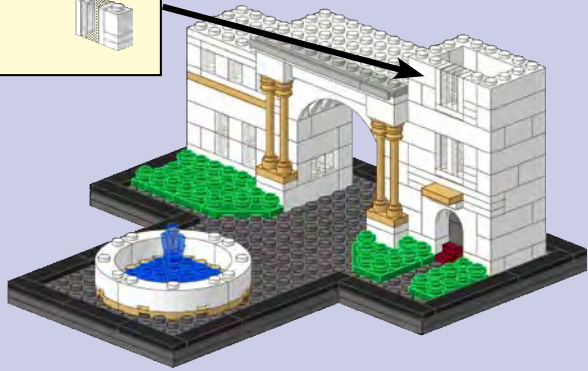
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- 1x 
- 1x 
- 1x 
- 1x 
- 1x 
- 1x 
- 2x 

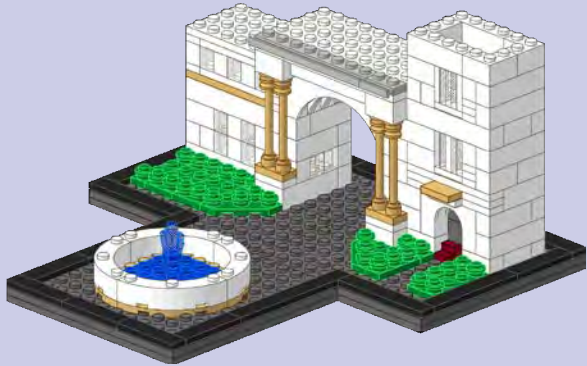







28

- 1  1x 2x 
- 2  2x 1x 
- 3  1x 1x 










- 29
-  1x
 -  2x
 -  2x



- 30
-  2x
 -  4x
 -  4x
 -  1x
 -  4x



- 31
-  7x
 -  30x
 -  1x
 -  2x
 -  4x
 -  1x
 -  2x



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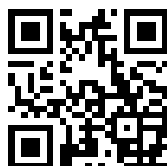
MINI Model



Endor Shield Generator Bunker

*Design and Instructions
by Christopher Deck*

Hello everybody! I'm glad to join you again for this fantastic issue of *BrickJournal*! The leading theme of this issue is about architecture, and hence we want to build one of the core locations of the *Star Wars* movies—the Shield Generator Bunker on Endor. The shape of the little building is more complex than it seems, as it features sloped walls and has a trapezoid base layout. To prevent gaps and holes in the ceiling due to the unusual shape, we will use door rail plates and wedge plates. The entire bunker will be set up in a little forest diorama scene with a new micro AT-ST walker as a bonus. I wish you happy building and see you next time! 



You can go to Christopher's webpage by going to www.deckdesigns.de or scanning this QR code!

Parts List

(Parts can be ordered from Bricklink.com by searching by part number and color)

Bunker

Qty	Color	Part	Description
4	Light-Bluish-Gray	3005.dat	Brick 1 x 1
8	Light-Bluish-Gray	87087.dat	Brick 1 x 1 with Stud on 1 Side
4	Light-Bluish-Gray	11211.dat	Brick 1 x 2 with Two Studs on One Side
2	Light-Bluish-Gray	4740.dat	Dish 2 x 2 Inverted
2	Light-Bluish-Gray	3024.dat	Plate 1 x 1
2	Dark-Bluish-Gray	4073.dat	Plate 1 x 1 Round
2	Dark-Bluish-Gray	3023.dat	Plate 1 x 2
2	Dark-Bluish-Gray	3710.dat	Plate 1 x 4
4	Light-Bluish-Gray	32028.dat	Plate 1 x 2 with Door Rail
2	Light-Bluish-Gray	87580.dat	Plate 2 x 2 with Groove with 1 Center Stud
2	Light-Bluish-Gray	3021.dat	Plate 2 x 3
1	Light-Bluish-Gray	3020.dat	Plate 2 x 4
2	Dark-Tan	3036.dat	Plate 6 x 8
12	Dark-Bluish-Gray	85984.dat	Slope Brick 31° 1 x 2 x 0.667
4	Light-Bluish-Gray	3069b.dat	Tile 1 x 2 with Groove
2	Light-Bluish-Gray	63864.dat	Tile 1 x 3 with Groove
4	Light-Bluish-Gray	3068b.dat	Tile 2 x 2 with Groove

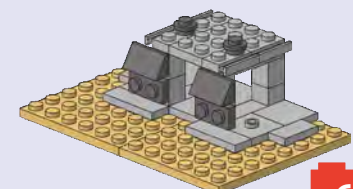
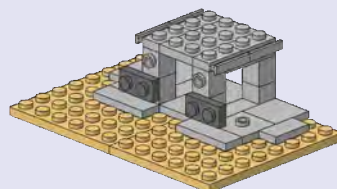
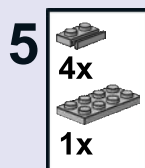
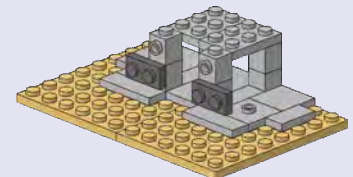
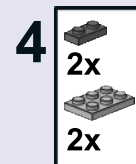
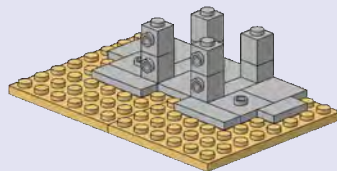
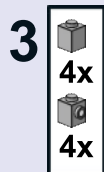
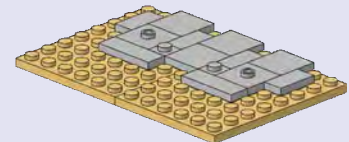
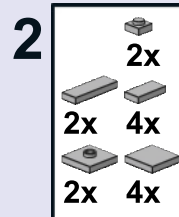
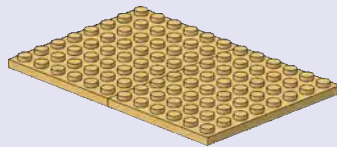
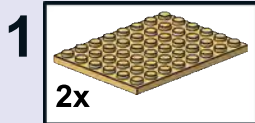
Qty	Color	Part	Description
1	Light-Bluish-Gray	43723.dat	Wing 2 x 3 Left
1	Light-Bluish-Gray	43722.dat	Wing 2 x 3 Right

Foliage

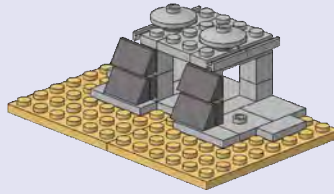
Qty	Color	Part	Description
8	Reddish-Brown	3062b.dat	Brick 1 x 1 Round with Hollow Stud
3	Green	3741a.dat	Plant Flower Stem
5	Green	2423.dat	Plant Leaves 4 x 3
2	Green	2417.dat	Plant Leaves 6 x 5
1	Reddish-Brown	2566.dat	Plant Tree Palm Top

AT-ST Walker

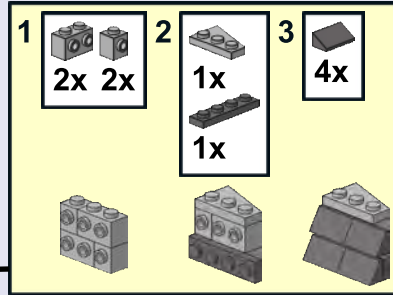
Qty	Color	Part	Description
2	Dark-Bluish-Gray	48729.dat	Bar 1.5L with Clip
1	Dark-Bluish-Gray	42446.dat	Bracket 1 x 1 - 1 x 1
1	Light-Bluish-Gray	4070.dat	Brick 1 x 1 with Headlight
2	Light-Bluish-Gray	59230.dat	Minifig Mechanical Arm Straight
1	Dark-Bluish-Gray	30375.dat	Minifig Mechanical Torso
1	Light-Bluish-Gray	54200.dat	Slope Brick 31° 1 x 1 x 0.667



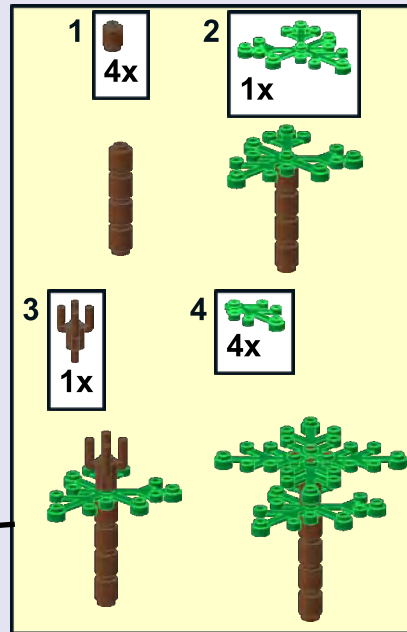
7
2x
2x



8
1x





9
1x






10
2x

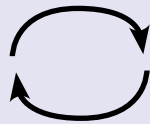
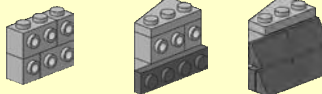



11  1x


1  2x 2x


2  1x
 1x


3  4x




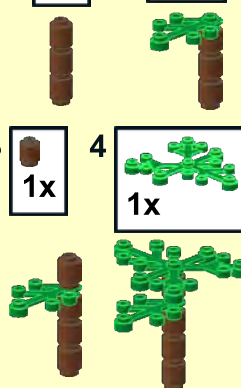
12  1x

1  3x

2  1x

3  1x


4  1x








13  1x

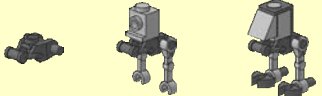


14  1x

1  1x

2  2x  1x

3  1x
 2x  1x





BRICKJOURNAL #1
The ultimate resource for LEGO enthusiasts of all ages, showcasing events, people, and models! **FULL-COLOR #1** features an interview with Certified LEGO Professional **NATHAN SAWAYA**, car designs by **STEPHAN SANDER**, step-by-step building instructions and techniques for all skill levels, new set reviews, on-the-scene reports from LEGO community events, and other surprises!
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BRICKJOURNAL #2
This **FULL-COLOR** issue spotlights blockbuster summer movies, LEGO style! Go behind the scenes for new sets for **INDIANA JONES**, and see new models, including a **MINI FLYING WING** and a **LEGO CITY**, a lifesize **IRON MAN**, plus how to **CUSTOMIZE MINIFIGURES**, **BUILDING INSTRUCTIONS**, a tour of the **ONLINE LEGO FACTORY**, and lots more!
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BRICKJOURNAL #3
Event Reports from **BRICKWORLD**, **FIRST LEGO LEAGUE WORLD FESTIVAL** and **PIECE OF PEACE** (Japan), spotlight on our cover model builder **BYCE McGLONE**, behind the scenes of **LEGO BATMAN**, **LEGO** at **COMIC-CON INTERNATIONAL**, **FIRST LEGO LEAGUE WORLD FESTIVAL**, plus **STEP-BY-STEP BUILDING INSTRUCTIONS**, **TECHNIQUES**, and more!
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BRICKJOURNAL #4
Interviews with **LEGO BUILDERS** including cover model builder **ARTHUR GUGICK**, event reports from **BRICKFAIR** and others, touring the **LEGO IDEA HOUSE**, plus **STEP-BY-STEP BUILDING INSTRUCTIONS** and **TECHNIQUES** for all skill levels, **NEW SET REVIEWS**, and an extensive report on constructing the **Chinese Olympic Village** in **LEGO**!
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BRICKJOURNAL #5
Event report on the **MINDSTORMS 10th ANNIVERSARY** at **LEGO HEADQUARTERS**, Pixar's **ANGUS MACLANE** on **LEGO** in film-making, a glimpse at the **LEGO Group's** past with the **DIRECTOR OF LEGO'S IDEA HOUSE**, event reports, a look at how **SEAN KENNEDY'S** **LEGO** creations ended up on **NBC'S 30 ROCK** television show, instructions and spotlights on builders, and more!
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BRICKJOURNAL #6
Spotlight on **CLASSIC SPACE SETS** and a look at new ones, **BRANDON GRIFFITH** shows his **STAR TREK MODELS**, **LEGO** set designers discuss their work creating the **SPACE POLICE** with **PIRATE SETS**, **POWER FUNCTIONS TRAIN DEVELOPMENT**, the world's **TALLEST LEGO TOWER**, **MINIFIGURE CUSTOMIZATION**, plus coverage of **BRICKFEST 2009** and more!
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BRICKJOURNAL #7
Focuses on the new **LEGO ARCHITECTURE** line, with a look at the new sets designed by **ADAM REED TUCKER**, plus interviews with other architectural builders, including **SPENCER REZKALLA**. Also, behind the scenes on the creation of **POWER MINERS** and the **GRAND CAROUSEL**, a **LEGO BATTLESHIP** over 20 feet long, reports from **LEGO** events worldwide, and more!
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BRICKJOURNAL #8
We go to the Middle Ages, with a look at the **LEGO Group's CASTLE LINE**, featuring an interview with the designer behind the first **LEGO** castle set, the **YELLOW CASTLE**. Also: we spotlight builders that have created their own large-scale version of the castle, and interview other castle builders, plus a report on **BRICKWORLD** in **Chicago**, and still more instructions and building tips!
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BRICKJOURNAL #9
BrickJournal looks at **LEGO® DISNEY SETS**, with features on the **Disney LEGO** sets of the past (**MICKEY** and **MINNIE**) and present (**TOY STORY** and **PRINCE OF PERSIA!**) We also present **Disney** models built by **LEGO** fans, and a look at the newest **Master Build** model at **WALT DISNEY WORLD**, plus articles and instructions on building and customization, and more!
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BRICKJOURNAL #10
BrickJournal goes undersea with looks at the creation of **LEGO's** new **ATLANTIS SETS**, plus a spotlight on a fan-created underwater theme, **THE SEA MONKEYS**, with builder **FELIX GRECO!** Also, a report on the **LEGO WORLD** convention in the Netherlands, **BUILDER SPOTLIGHTS**, **INSTRUCTIONS** and ways to **CUSTOMIZE MINIFIGURES**, **LEGO HISTORY**, and more!
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"Racers" theme issue, with building tips on race cars by the **ARVO BROTHERS**, interview with **LEGO RACERS** designer **ANDREW WOODMAN**, **LEGO FORMULA ONE RACING**, **TECHNIC SPORTS CAR** building, event reports, instructions and columns on **MINIFIGURE CUSTOMIZATION** and **MICRO BUILDING**, builder spotlights, **LEGO HISTORY**, and more!
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A look at school sculptures by **NATHAN SAWAYA**, builder **MARCOS BESSA'S** creations, **ANGUS MACLANE'S** **CubeDudes**, a **Nepali Diorama** by **JORDAN SCHWARTZ**, instructions to build a school bus for your **LEGO** town, minifigure customizations, how a **POWER MINERS** model became one for **ATLANTIS**, building standards, and much more!
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BRICKJOURNAL #13
Special **EVENT ISSUE** with reports from **BRICKMAGIC** (the newest US **LEGO** fan festival, organized by **BrickJournal** magazine), **BRICKWORLD** (one of the oldest US **LEGO** fan events), and others! Plus: spotlight on **BIONICLE** builder **NORBERT LAGUBUEN**, our regular column on minifigure customization, step-by-step "You Can Build It" instructions, spotlights on builders and their work, and more!
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BRICKJOURNAL #14
Discover the world of stop-motion **LEGO FILMS**, with brickfilmer **DAVID PAGANO** and others spotlighting **LEGO** filmmaking, the history of the medium and its community, interviews with the makers of the films seen on the **LEGO CLUB SHOW** and **LEGO.com**, and instructions on how to film and build puppets for brick flicks! Plus how to customize minifigures, event reports, step-by-step building instructions, and more!
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BRICKJOURNAL #15
Looks at the **LEGO MECHA** genre of building, especially in Japan! Feature editor **NATHAN BRYAN** spotlights mecha builders such as **SAITO YOSHIKAZU**, **TAKAYUKI TORII**, **SUKYU** and others! Also, a talk with **BRIAN COOPER** and **MARK NEUMANN** about their mecha creations, mecha building instructions by **SAITO YOSHIKAZU**, our regular columns on minifigure customization, building, event reports, and more!
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BRICKJOURNAL #16

Focuses on STEAMPUNK! Feature editor GUY HIMBER gives a tour with a look at his work, DAVE DEGOBBI's, NATHAN PROUDLOVE's, and others! There's also a look at the history of LEGO Steampunk building, as well as instructions for a Steampunk plane by ROD GILLIES! Plus our regular columns on minifigure customization, building tips, event reports, our step-by-step "You Can Build It" instructions, and much more!

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BRICKJOURNAL #17

LEGO SPACE WAR issue! A STARFIGHTER BUILDING LESSON by Peter Reid, WHY SPACE MARINES ARE SO POPULAR by Mark Stafford, a trip behind the scenes of LEGO'S NEW ALIEN CONQUEST SETS that hit store shelves earlier this year, plus JARED K. BURKS' column on MINIFIGURE CUSTOMIZATION, building tips, event reports, our step-by-step "YOU CAN BUILD IT" INSTRUCTIONS, and more!

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BRICKJOURNAL #18

Go to Japan with articles on two JAPANESE LEGO FAN EVENTS, plus take a look at JAPAN'S SACRED LEGO LAND, Nasu Highland Park—the site of the BrickFan events and a pilgrimage site for many Japanese LEGO fans. Also, a feature on JAPAN'S TV CHAMPIONSHIP OF LEGO, a look at the CLICKBRICK LEGO SHOPS in Japan, plus how to get into TECHNIC BUILDING, LEGO EDUCATION, and more!

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BRICKJOURNAL #19

LEGO EVENTS ISSUE covering our own BRICKMAGIC FESTIVAL, BRICKWORLD, BRICKFAIR, BRICKCON, plus other events outside the US. There's full event details, plus interviews with the winners of the BRICKMAGIC CHALLENGE competition, complete with instructions to build award winning models. Also JARED K. BURKS' regular column on minifigure customizing, building tips, and more!

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BRICKJOURNAL #20

LEGO SUPERHEROES! Behind-the-scenes of the DC and Marvel Comics sets, plus a feature on GREG HYLAND, the artist of the superhero comic books in each box! Also, other superhero work by ALEX SCHRANZ and our cover artist OLIVIER CURTO. Plus, JARED K. BURKS' regular column on minifigure customization, building tips, step-by-step "You Can Build It" instructions, and more!

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BRICKJOURNAL #21

LEGO CAR BUILDING! Guest editors LINO MARTINS and NATHAN PROUDLOVE of LUGNuts share secrets behind their LEGO car creations, and present TECHNIC SUPERCAR MODELS by PAUL BORATKO III and other top builders! Plus custom instructions by TIM GOULD and CHRISTOPHER DECK, minifigure customization by JARED BURKS, step-by-step "You Can Build It" section, and more!

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BRICKJOURNAL #22

LEGO PLANE BUILDING! Top builder RALPH SAVELSBERG takes off with his custom LEGO fighter models, there's a squad of articles on Sky-Fi planes by FRADEL GONZALES and COLE MARTIN, find instructions to build a Sky-Fi plane, plus our regular feature on minifigure customization by JARED BURKS, AFOLs by GREG HYLAND, other step-by-step "You Can Build It" instructions, and more!

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BRICKJOURNAL #23

STAR WARS issue, with custom creations from a long time ago and far, far away! JACOB CARPENTER's Imperial Star Destroyer, MARK KELSO's Invisible Hand, interview with SIMON MACDONALD about building Star Wars costume props with LEGO elements, history of the LEGO X-Wing, plus our regular features on minifigure customization by JARED BURKS, "You Can Build It" instructions, and more!

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BRICKJOURNAL #24

LEGO TRAINS! Builder CALE LEIPHART shows how to get started building trains and train layouts, with instructions on building microscale trains by editor JOE MENO, building layouts with the members of the Pennsylvania LEGO Users Group (PennLUG), fan-built LEGO monorails minifigure customization by JARED BURKS, microscale building by CHRISTOPHER DECK, "You Can Build It", and more!

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BRICKJOURNAL #25

MEDIAeval CASTLE BUILDING! Top LEGO® Castle builders present their creations, including BOB CARNEY's amazing detailed model of Neuschwanstein Castle, plus others, along with articles on building and detailing castles of your own! Also: JARED BURKS on minifigure customization, AFOLs by cartoonist GREG HYLAND, step-by-step "You Can Build It" instructions by CHRISTOPHER DECK, and more!

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BRICKJOURNAL #26

CREATURES GREAT AND SMALL with builders SEAN and STEPHANIE MAYO (known online as Siercon and Coral), other custom animal models from BrickJournal editor JOE MENO, LEGO DINOSAURS with WILL PUGH, plus more minifigure customization by JARED BURKS, AFOLs by cartoonist GREG HYLAND, step-by-step "You Can Build It" instructions by CHRISTOPHER DECK, and more!

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BRICKJOURNAL #27

GUY HIMBER takes you to the IRON BUILDER CONTEST, which showcases the top LEGO® builders in the world! Cover by LEGO magazine and comic artist PAUL LEE, amazing custom models by LINO MARTINS, TYLER CLITES, BRUCE LOWELL, COLE BLAQ and others, minifigure customization by JARED BURKS, step-by-step "You Can Build It" instructions by CHRISTOPHER DECK, AFOLs by GREG HYLAND, & more!

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BRICKJOURNAL #28

Learn what went into the making of The LEGO Movie and other brickfilms with moviemaker DAVID PAGANO, chat with brickfilmmakers The Brotherhood Workshop, sit in on a talk with the makers of LEGO: A Brickumentary, a look at MINDSTORMS building, minifigure customization by JARED BURKS, step-by-step "You Can Build It" instructions by CHRISTOPHER DECK, AFOLs by GREG HYLAND, & more!

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BRICKJOURNAL #29

TECHNIC hot rod builder PAUL BORATKO and editor JOE MENO diagram instructions on adding functions to your models, shop-talk with LEGO TECHNIC designers, and more surprises to keep your creations moving at top speed! Plus Minifigure Customization by JARED BURKS, step-by-step "You Can Build It" instructions by CHRISTOPHER DECK, BrickNerd DIY Fan Art by TOMMY WILLIAMSON, and more!

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Building

MINDSTORMS 101: Programming Turns for Your Robot

Article and art by Damien Kee

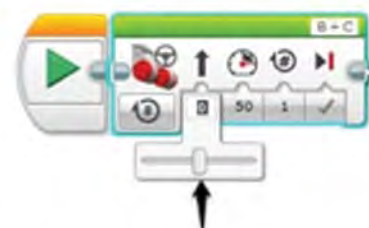
In the last installment of our MINDSTORMS articles, we looked at how to program your robot to drive in a straight line. And while that is a lot of fun to go backwards and forwards, at some point you're going to want to turn corners. To get started, grab your RileyRover or RetailRover that you built for the last lesson. In fact, any two-wheeled robot will be fine for this activity. While there are a couple of ways to get your robot to turn, we'll concentrate on using the **Move Steering** command that we used previously for our straight line.



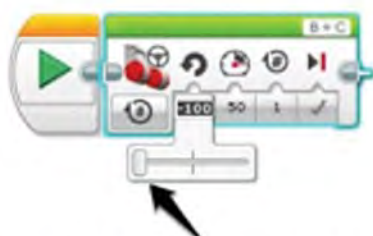
The Steering input can be used to change how tightly the robot will turn. You can either click and drag the slider bar or type in a number. The direction is defined by the value you enter, -100 gives you a sharp left while 100 gives you a sharp right and 0 will make the robot drive in a straight line.



Steering Input



Drive straight ahead



Sharp turn Left



Sharp turn Right



Choosing numbers and slider positions between these extremes will make the robot turn in gentler arcs. Keep in mind that the way the robot is set-up may have an impact on which way is 'left' and 'right'. If you remember, I had to cross over my motor cables in the RileyRover design to make sure that if I say 'left' in the programming, that the robot does in fact go left! If you find that your robot turns right when you say left, switch the left and right motor cables on your design.

Figuring out how far to turn is a little more complex. Let's take an initial challenge to make the robot turn around completely, ie. 360 degrees. When most people are asked to make their robots turn around in a full circle (360 degrees), they will typically type in 360 degrees and proceed to run the program. When run however, if they are using the RileyRover, they will find that their robot does not actually turn 360 degrees, but in fact far less.



What most people will try

This occurs because the **Move Steering** block is designed to control the *wheel* of the robot, not the whole robot. If we observe just the wheel, we will find that it does in fact turn exactly 360 degrees, just as it was told to do. The angle turned by the robot, however, is dependent on a few different conditions such as the size of the wheels and the distance between the wheels.

Calculating the required duration to make the robot turn 360 degrees is best done experimentally. Every robot design is slightly different, so the number of degrees required to turn a robot completely around may vary significantly, even with robots that look similar. In addition, the surface that you are running your robot on will also affect its behavior. A robot on carpet will behave differently than a robot on polished wooden floorboards.

Try It Out!

Set your program up to make your robot drive in a sharp turn to the left. Experiment with different values in the 'Degrees' Input (or 'Rotations' input if you're using them) and measure how far the robot turns each time.

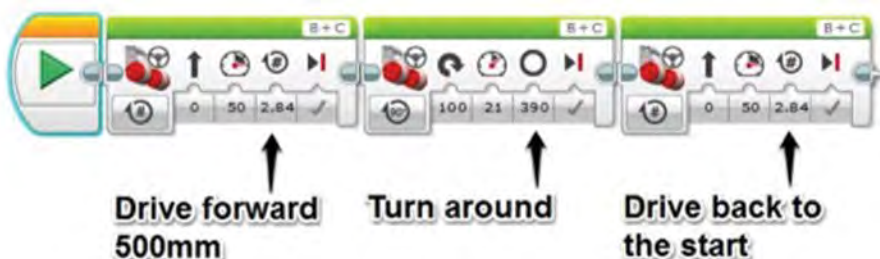
Once you have discovered what value you need to make your robot turn a complete 360 degree turn, a little bit of math will enable you to calculate what you need to do a half-turn, quarter-turn; in fact, any angle at all! Now in reality there are a few things that might mean this is not exactly right: friction with the floor, carpet vs. hard floor, squishiness of tires, etc., but the math does get us very close to what we are trying to achieve. Tweak it a little and you're good to go. For my RileyRover, running with the Education Edition wheels (bigger than the Retail wheels), I needed 785 degrees of my wheels to do a full 360 degree turn around.




Keep trying different numbers

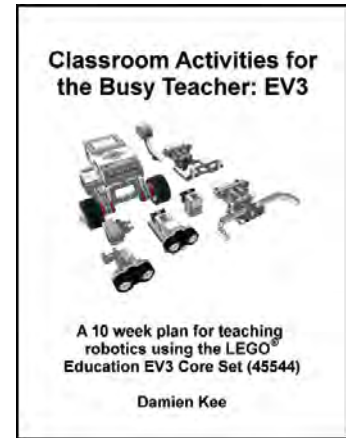
Start Putting Together Some Movements!

For my first challenge, I wanted to make my robot drive forward for 500mm, do a half turn, and then drive back to where I started. By stringing together several Mover Steering Blocks, I was able to achieve this.



How did you do? Now try putting down a small obstacle course or maze and see if you can program your robot to get to the end. Good luck! 

Dr Damien Kee has been working with robotics in education for over 10 years, teaching thousands of students and hundreds of teachers from all over the world. He is the author of the popular "Classroom Activities for the Busy Teacher" series of robotics teacher resource books.



You can find more information at www.damienkee.com or contact him directly at damien@damienkee.com. Or you can scan the QR code below!



Building

Minifigure Customization 101: Jared K. Burks A History of a Hobby and a Hobbyist!

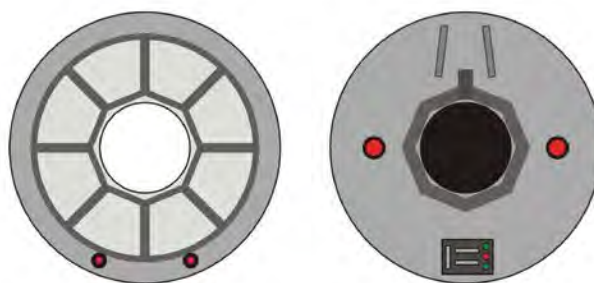
by Andrew Vu
and Jared K. Burks

It has been brought to my attention that I have not written any articles or details about who I am or what I do for a living. So I thought I would give a brief background about my professional career and tie that to a short history of the development of my hobby. I am highlighting interactions I have had with others in the development of Minifigure Customization. As many of these photos are from the early days of digital photography, many photos are not great; please forgive these low resolution photographs.

As many of you know, my name is Jared; I attended college in Florida at a small school called Florida Institute of Technology. While in college I was on the Rowing team and pursued Marine Biology, Pre-professional Biology (pre-med), and Molecular Biology. I graduated in 1995 with two Bachelor of Science degrees: one in Molecular Biology and one in Pre-professional Biology. It was during my last two years of college that I left my first Dark Age to delve into the world of Pirates and Islanders. I was captivated by the Skull's Eye Schooner, and being a broke college student, it took quite a while to save up the money for this extravagance. Once this was built, things sort of spiraled and I ended up with most of the Pirates and Islander sets which decorated my apartments for years.

After leaving college I had a mini-Dark Age till the Star Wars LEGO sets emerged. During this time I had started working as a research assistant in a Molecular Virology research laboratory at Texas A&M University, studying how proteins move around inside a cell. This research was performed by engineering small alterations in specific proteins in an insect virus. These engineered viruses were then used to infect insect cells and study how these alterations affected the protein trafficking. During this time I had resumed my earlier woodworking and wood carving hobbies.

In 1998 I started working on my PhD in Biology in this same laboratory, studying a protein called BV/ODV E26. E26 trafficked to the plasma membrane (cell surface) early during infection and to the nucleus later during infection. It was during graduate school that I started building the Star Wars LEGO sets and quickly discovered that LEGO did not detail items to my liking. My first customizations were mini-ships. My first decaled item was the Mini-tie. I wanted the clear radar dish to have the octagonal decoration. During this time I started researching how to create decals and struggled to find a printer that could print with white ink.



First Design: Mini-Tie Fighter Cover.

Shortly after designing the cover for the Mini-Tie Fighter, the bug had caught me and I had found the printer capable of printing in white ink, which at that time had already been taken out of production. I instantly started drawing and created 68 designs to make custom Star Wars figures because I got tired of the small selection of characters made by LEGO. At the time, there were very few people making custom figures, so I had to teach myself how to make custom figures. The prevailing technique to do so was to print out a design on paper, trim it out, and then attach it to the figure in clear packing tape. The tape would wrap the entire torso and have the seams on the edge of the torso to hide the tape. I met Chris "Ubergeek" Campbell during this time as he was taping figures. I was unhappy with this method and uncovered the waterslide decal technique.



Taped and or painted Figures by Chris Campbell using designs by Robert Martin or Jared Burks

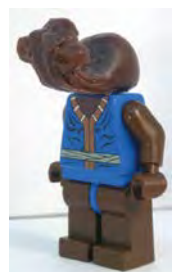
Creating custom figures was not widely accepted during this time; people viewed them as inferior and “not” LEGO. It didn’t matter that in many cases it simply wasn’t possible to create these figures any other way. It was a slow process that was helped when I met Chris “Bertramtalespinner” Howard, a cartoonist. I convinced him to draw several faces for various custom figures. In reality there was only one custom item at that time that was used, and that was the guns that Jeff “Blasterman” Byrd created through The Little Armory. Around this time I created Kaminoan’s Fine Clonier, a site where I offered custom waterslide decals. During this time I started creating so many custom Star Wars characters that I drew the attention of Robert “Tothiro” Martin, an incredibly gifted sculptor who was making custom heads for Star Wars Aliens. He and I started creating content for the same figures to help each other complete custom Star Wars Aliens.



Jeff “Blasterman” Byrd’s logo for his custom weapons site.



Chris Howard’s Faces, Torso Designs by Jared Burks.



Robert Martin Custom Heads, Torso Designs by Jared Burks.



Robert Martin Custom Heads, Torso Designs by Jared Burks.

Robert's Head piece, Chris H's Face, Jared's Torso.

Around this time I met Isaac "RedBean" Yue, a customizer that was sculpting and creating fantasy decals. He and I created the Minifigure Customization Network (MCN - <http://www.minifigcustoms.com/>). This site was designed to teach others how to create custom figures. It still has great content on templates and other details, even though it is not currently active. We worked hard on sharing the information we had with others and encouraging people to try new ways of creating custom figures. To further this educational process, I started writing the *BrickJournal* articles. This was when the magazine was still only digital; my first article started in Volume 1, issue number 4, and has appeared in every issue since (so there are only 3 issues that don't feature an article in this series).



Redbean custom figure.

From Minifigure Customization Network, many great customizers were born. There were too many to list, but some that stand out in my mind include Emily "Recluce Mage" Brownlow, Victor "Unknown Artist" Sobolev, Mark "MMCB" Parker, and Kyle "Armothe" Peterson. Each of these individuals went on to offer items to buyers, but Mark and Kyle are still doing it through MMCB Capes and BrickForge respectively.



Customs of Emily "Recluce Mage" Brownlow.



A custom of Victor "Unknown Artist" Sobolev.



Customs of Mark "MMCB" Parker.



A custom by Kyle "Armothe" Peterson.

It was during this time that my PhD was wrapping up and I started my post-doctoral position with Baylor College of Medicine, studying protein trafficking during Cytomegalovirus infection, which is relevant to heart disease. Shortly after that I met Will Chapman, who created BrickArms. Will started creating custom weapons which he continues to do through his site, BrickArms.

Shortly after Will came on the scene, I noticed these custom parts on eBay from a customizer by the name of Bluce "Arealight" Shu. His sculpting and rubber casting were simply flawless.

During this time the hobby began to get wide acceptance. Many new customizers started to appear, more than I can likely list or give all the credit they are due. While the hobby grew, my skills have also developed, both personally and professionally. Currently I am working at M.D. Anderson Cancer Center as an Assistant Professor where I am the Co-Director of a Flow Cytometry and Cellular Imaging Shared Resource Laboratory. This Shared Resource is a laboratory with large and complex machinery that can be used to study many different proteins simultaneously in single cells. The equipment runs from Cell Sorters that can isolate rare populations of cells for further study; to analytical flow cytometers and mass cytometers that are used to gather single cell data; and a wide range of confocal, multispectral, and fluorescent microscopes. My job is to help researchers design, implement, and run experiments on understanding various types of cancer. I have mimicked my professional life in my hobby, where I help teach others to create custom figures. Many skills I have learned in my professional life have assisted in my hobby, and my hobby has helped me relax and de-stress from my professional life.

If you take nothing else from this article, please take this: every customizer started somewhere. We all developed and we all helped each other. Currently the hobby is getting more focused on business and the art of individual creativity is being lost. Dive into the hobby and develop skills and find friends. This article has only touched on the beginnings of my time in the hobby and only noted a handful of people. There are many more who have come along since, and with every new person in the hobby, the creativity grows and develops. What are you bringing to minifigure customization? **b**



Will's custom weapons.



Early Arealight hand-made customs.



You can visit Jared's webpage by going to <http://www.fineclonier.com/> or scanning this QR code!

Come back next issue for more Minifigure Customization 101!

Don't miss Minifigure Customization: Populate Your World! and its sequel Minifigure Customization: Why Live In The Box? (both are available now at www.twomorrows.com)



Getting the Word Out: QR Codes!

Article and art by Glen Wadleigh

LEGO Ideas is a website where you can submit set ideas that can be voted on by the public for consideration by the LEGO Group. BrickJournal will be highlighting interesting models for consideration and also publishing articles on how to get the 10,000 votes needed to reach LEGO Review stage.



An enlarged QR code with a logo inserted.

Displaying a MOC in public is a really great way to get people excited about an event or project you are trying to promote. One of the biggest hurdles for the public display, though, is converting that interest in your build into hits on the companion website.

You might have the opportunity to talk to potential fans, or even have a sign directing people to the site, but really, nobody wants to type in a web address. Seriously, when was the last time you did that, willingly? Nowadays we say "Send me the link." But that only works with the people we know. People you just met are not about to hand over their phone number and e-mail address so you can spam them.

This is the beauty of the QR code. These specialized bar codes allow people to take a picture and go straight to your website, no typing *or* texting required.

What a QR-Code is

I am going to keep this short and sweet: A QR-code is an array of black and white squares, that optical devices, like a camera equipped smartphone, can read. If a QR-code stores a URL, most smartphones will go straight to the website.

How QR-Codes Can Help Promote Your Builds

- QR-Codes are easy to share.

As I point out above, QR codes allow people to go directly to your site. There is no chance they won't hear you right, no chance they type in the wrong address, and they don't have to go through the effort of typing it in to a tiny hand-held device. Additionally, when you are at an event, if you keep a QR-code in your lanyard, you can share your site at a moment's notice.

- QR-Codes *tell* people there is more to be seen.

When promoting your MOC, it is pretty effective to put your MOC on display, but if you don't have something really expressing there is more on the Internet, people will appreciate your display and move on. A sign with a web address is a little better, but people still tend to gloss over these signs. QR-Codes stand out though, almost violently. With a QR-Code on display, even from quite a distance, people can tell that your MOC has something extra on the Internet. It is like a signal flare saying, "But wait, there's *more!*" Internet-savvy people, your target audience, are drawn to QR-codes the same way AFOLs can spot a LEGO on the floor, across the room, in the dark. Some people will scan the code just because it is there.

How a QR-Code is Made

Generating QR-Codes is actually quite simple. There are many websites out there that can produce a QR code for you, absolutely free. Many have advanced features, but one of the best sites, in my opinion, is the Google URL Shortener (<https://goo.gl/>).

The interface is simple: paste in a url and click "Shorten URL". Then click on "details." The details page will not only present you your QR-code, it will also show you how many times the shortened URL has been used and various other details.

Google URL Shortener is very straightforward, but other sites offer customization options that might be of value to more advanced users. I suggest you check out a few of the sites and see what options are the best for your purposes.

Adding Flair to Your QR-Code

QR-Codes have error correction. Error correction allows a QR-Code to work even after the code has become damaged or obscured.

A fun side-effect of error correction is that you can intentionally obscure your codes and they will still function. This allows you to add dialog or teaser images that can give people some idea of what they might be scanning.

This will, of course, reduce the ability of the QR-code to resist actual damage and obstruction, but in most situations where you will be displaying LEGO, the possibility of damage is minimal.

What Website to use for the QR-Code


Obviously an easy choice for the website to use for your QR-Code is the page showcasing your event or MOC, but you should consider the fact that once you release your QR-Code to the public, you never know how long it will be in circulation.

If you have the option, I always recommend using a site you have direct control over as opposed to a site that is out of your hands. Why? Well, if you don't



Some examples of teaser images inserted in a QR. Try them!



control the site, it can change in ways you don't expect or desire. If your printed QR-code points to that site, you really can't do anything but update and redistribute your QR-codes. However, if you do control the site, you can redirect your page to anywhere you want. 

KAMINOAN'S www.fineclonier.com
FINE CLONIER DECALS

Kaminoan's Fine Clonier. For all your minifig decal customization needs.

The advertisement features a blue background with a futuristic, industrial setting. At the top, the text "KAMINOAN'S" is in a bold, blue, sans-serif font, followed by "FINE CLONIER DECALS" in a large, white, serif font. The website address "www.fineclonier.com" is in the top right. Below the text, five LEGO minifigures are displayed: a red and white character, a purple character, a tan character holding a pink lightsaber, a red and white character on a motorcycle, and a grey character. The bottom of the ad has a dark blue banner with the text "Kaminoan's Fine Clonier. For all your minifig decal customization needs."

An Interesting Idea: Food Truck

Article by Glen Wadleigh
Photos by Garrett Yoshimura



<https://ideas.lego.com/projects/937>

This food truck, by Garrett Yoshimura (SpaceySmoke on LEGO.com, mista_carrot on Flickr) is my favorite overall build on LEGO Ideas.

Sure, I have my favorite spaceship and my favorite mech, my favorite monster, etc...but *this* is my all-time favorite all-around gold medal champion.

What do I love about it so much? Well, I have put a bit of thought into this.

First off, this build just looks like a heck of a lot of fun. It is not often that a build gives you something new for your figures to do. Most sets have them driving, or sitting, or walking, sometimes playing something, but these guys are making food and waiting in line to get their food. Also this is one of those sets that can sneak into any setting and tweak your perceptions. If you put it with a castle set, suddenly it is some kind of Ren-fest or movie set. Same with the Space scene, of course—with Space, perhaps this is a rebuilt classic serving the food units of the early 21st century.


As far as play features go, this one has a great accent of not only having a removable roof, but also being a hinge open job. This lets you get in there and pose your figures in a really tight space without having to reach down into the build.

On top of all that, it looks like this build uses a lot of basic brick for the body. There is no telling if that will carry over into an official build, but as-is, the construction appears such that variations in color by the end user would be simple and cheap to implement. Thus you could pair the basic set easily with your own bricks to populate an open lot in your City with a caravan of various food trucks.

The second thing I really like about this build is that it is not *too crazy*. We can all agree, I am certain, that most of the really high quality content on Ideas is just too extreme to get produced: part count, complexity, brand fit, you name it, most of the projects that are mouthwatering to look at are just the eye candy you appreciate at cons or flipping through your LEGO fan sites. Garret has really walked the line successfully on viability.

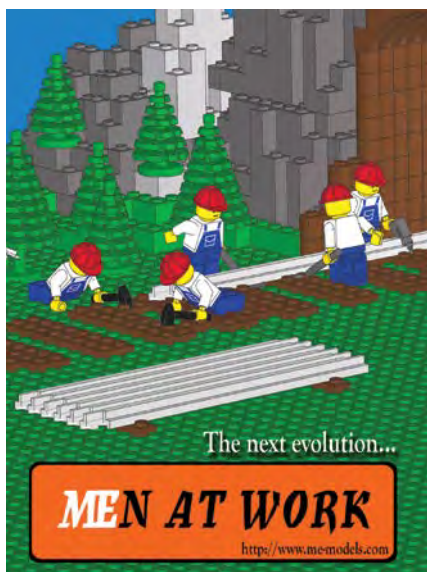
Third, and possibly the most important, what Garrett has done here is elevated the common LEGO Truck. Anyone can make a truck with LEGO. LEGO makes trucks all the time. This is akin to a UCS Class LEGO City Truck—a build that has the attention to details that we usually only find in the Modulares.

Peter Reid did the same thing with the Exo Suit. LEGO has been making exo-suits for decades. One of my first and favorite LEGO sets is 6848 Strategic Pursuer. What both of them have done is challenge LEGO to make that thing they do great, *amazing!*

I would love nothing more, than for us FOLs to unite as a community and make sure this gets to 10,000 supports where it rightfully belongs. 



You can scan the QR code here or use the link at the beginning of this article to support this idea. You must have a LEGO.com account to support projects, so sign up if you haven't done so already!



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Hey Kids! Comics!

by *Greg (AFOLs) Hyland*

Lethargic Lad: Topics of Unclear Importance is a complete collection of seven years of Lethargic Lad comics! Presenting over 350 strips from the lethargiclad.com website and all the Lethargic Lad three-page comics that originally appeared in the pages of *Dork Tower* comics.

"Greg just gets it right: the situations, the ongoing storylines, the characterizations, the understated but gut-busting payoffs... Fans of the Lad are fans for life!"

-John Kovalic
Dork Tower



Lethargic Lad: Topics of Unclear Importance

is available exclusively at www.lethargiclad.com or by sending check or money order made payable to "Greg Hyland" to:

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Another issue is done—and by the time you get this, I will be 49 years old! Yipes!

BrickJournal is in its 30s now—who would have thought this many issues would have been done? And this year, the mag is nine years old. *BrickJournal* started as an online magazine in 2005, and from its quarterly beginnings, it has grown to be a bi-monthly print magazine.

What's incredible is that there is so much more out there to see and find. There are now too many events for any one person to go to, and almost anyone can see a LEGO event or LEGO Fan event local to them. If you are a little more tech-oriented, there's robotics events going on, including FIRST® LEGO League! Those events are international too.

All this makes it exciting to be able to see everything grow. When I began in the hobby, there were only a handful of people online and a few clubs and a couple of conventions. Now, the sky is the limit in how we build, and more importantly, how we build the community! 



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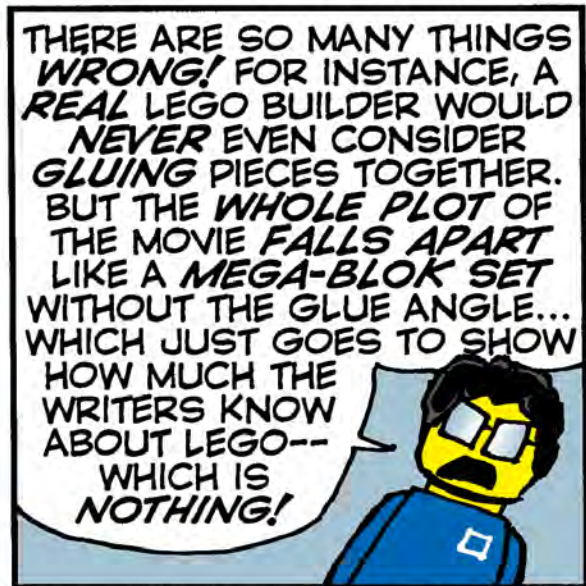
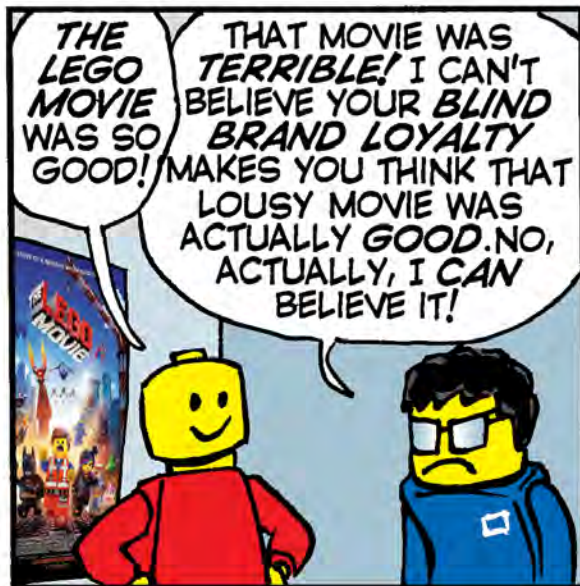
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FOOLS EVERYTHING ISN'T AWESOME! by Greg Hyland



FROM THE PRODUCERS OF BRICKJOURNAL:

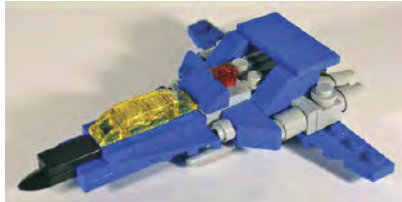
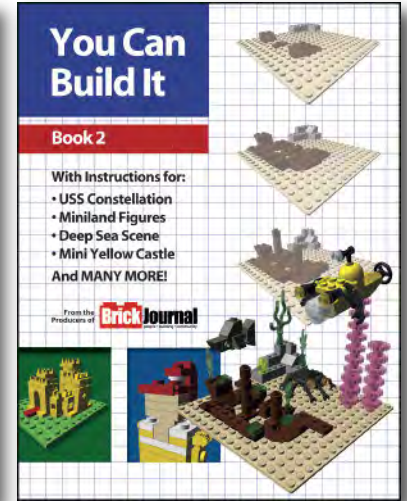
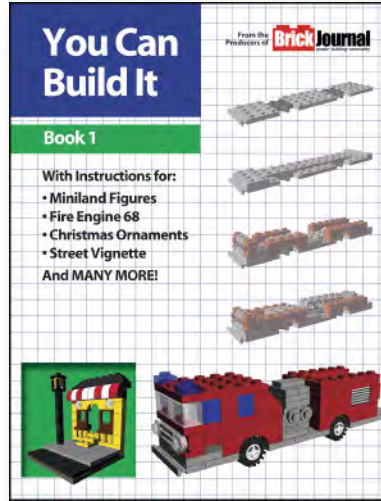
LEGO fans: You Can Build It!

YOU CAN BUILD IT is a new ongoing series of instruction books on the art of LEGO® custom building, from the producers of **BRICKJOURNAL** magazine! Spinning off from BrickJournal's popular "You Can Build It" column, these **FULL-COLOR** books are loaded with nothing but **STEP-BY-STEP INSTRUCTIONS** by some of the top custom builders in the LEGO fan community.

BOOK ONE offers instructions for custom creations including Miniland figures, a fire engine, a spacefighter (below), a tulip, a street vignette, plus miniscale models from "a galaxy far, far away," and more!

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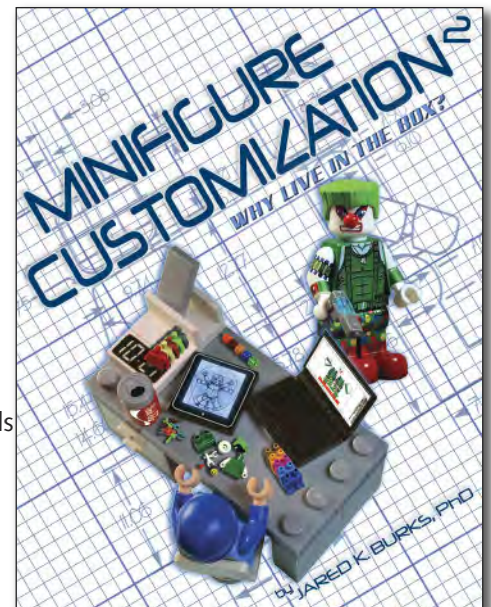


BRICKJOURNAL columnist **JARED K. BURKS'** book **MINIFIGURE CUSTOMIZATION: POPULATE YOUR WORLD!** shows a wide range of techniques you can use to alter the lovable LEGO® Minifigure. And the sequel, **MINIFIGURE CUSTOMIZATION?: WHY LIVE IN THE BOX?**, offers even more techniques to alter minifigures!

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