

Modularity

Two eight-stud LEGO bricks can be combined in twenty-four ways.

Three eight-stud LEGO bricks can be combined in 1,060 ways.

Six eight-stud LEGO bricks can be combined in 102,981,500 ways.

With eight bricks the possibilities are virtually endless.

The Ultimate LEGO Book

Every design problem is completed within a set of constraints or limitations. These limits can be as broad as “design a logo,” as generic as “print on standard letter paper,” or as narrow as “arrange six circles in a square space.” Working within the constraints of a problem is part of the fun and challenge of design.

Modularity is a special kind of constraint. A module is a fixed element used within a larger system or structure. For example, a pixel is a module that builds a digital image. A pixel is so small, we rarely stop to notice it, but when designers **create** pixel-based typefaces, they use a grid of pixels to invent letterforms that are consistent from one to the next while giving each one a distinctive shape.

A nine-by-nine grid of pixels can yield an infinite number of different typefaces. Likewise, a tiny handful of LEGO bricks contains an astonishing number of possible combinations.¹ The endless variety of forms occurs, however, within the strict parameters of the system, which permits just one basic kind of connection.

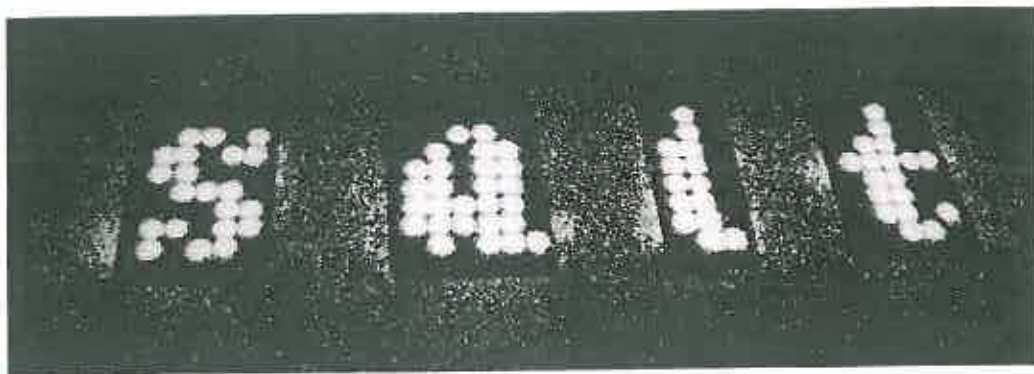
Building materials—from bricks to lumber to plumbing parts—are manufactured in standard sizes. By working with ready-made materials, an architect helps control construction costs while also streamlining the design process.

Designers are constantly making decisions about size, color, placement, proportion, relationships, and materials as well as about subject matter, style, and imagery. Sometimes, the decision-making process can be so overwhelming, it’s hard to know how to begin and when to stop. When a few factors are determined in advance, the designer is free to think about other parts of the problem. A well-defined constraint can free up the thought process by taking some decisions off the table. In creating a page of typography, for example, a designer can choose to work within the constraints of one or two type families, and then explore different combinations of size, weight, and placement within that family of elements.

The book you are reading is organized around a typographic grid whose basic module is a square. By accepting the square unit as a given, we were able to mix and match images while creating a feeling of continuity across the book. The square units vary in size, however (keeping the layouts from getting dull), and some pictures stretch across more than one module (or ignore the grid altogether). Rules are helpful, but it’s fun to break them.

Post-it Wallpaper This wall installation was built solely from three colors of Post-it neon note sheets, creating the optical effect of an enlarged halftone image or modular supergraphic. Nolan Strain and Bruce Witten, Post Typography.

1. *The Ultimate LEGO Book* (New York: DK Publishing, 1999).



Colin Fort



Clean and Dirty Systems Working with a nine-by-nine-square grid of circles, students created four letterforms with common characteristics such as weight, proportion, and density.

After creating a consistent and well-structured set of characters, the students introduced decay, degradation, distortion, randomness, or physicality into the design. The underlying structure becomes an armature for new and unexpected processes.

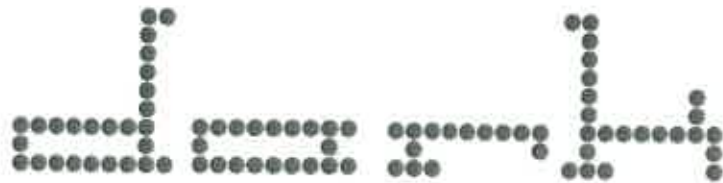
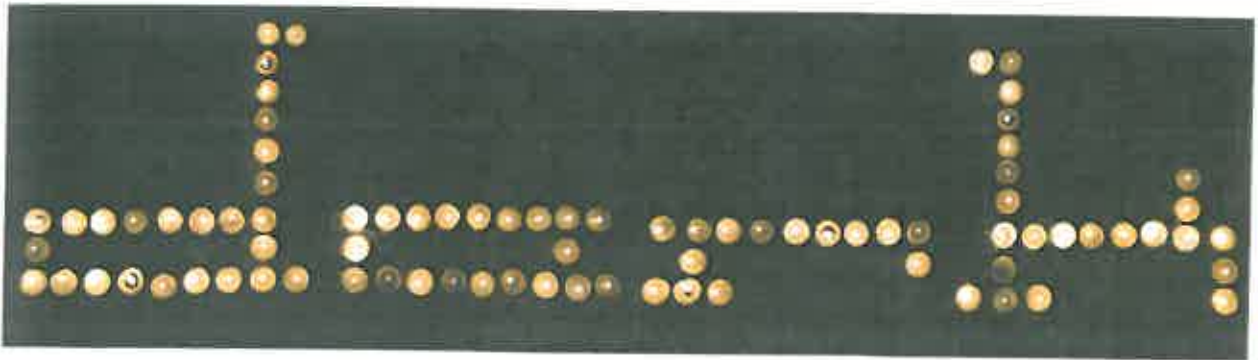
Approaches to making the clean system dirty include graphic techniques such as applying a filter to the source image or systematically varying the elements, as well as using physical techniques such as painting, stitching, or assembling. Type designer Ellen Lupton, faculty.



Kristen Bennett



Emily Goldfero



Wolfram Composites

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z

Austin Ebersberg

A B C D E F G H I J
K L M N O P Q R S
T U V W X Y Z ! ? .

Andy Bonn



A B C D E F G
H I J K L M N O P Q R

Zachary Richter

Modular Alphabet In these examples, designers created systems of characters using three basic shapes: a square (each side equals one unit), a rectangle (one unit by two units), and a quarter-circle (radius equals one unit). Shapes could be assembled in any way, but their relative scale could not change.

Some forms are dense and solid, while others are split apart. Some use the curved elements to shape the outer edge, while others use curves to cut away the interior. Most have a simple profile, but it is also possible to build a detailed texture out of smaller-scaled elements. Experimental Typography. Nolen Strals and Bruce Willen, faculty.