

we chose is shown in the larger picture at the top of page 500.

If we ourselves had not been the contractors — hence the makers of the buildings in the true sense — it would have been inordinately expensive to follow this process. It would have cost immense time and effort to get the changes

made, to persuade the contractor to do it, then to pay for the change orders, and so forth. In practice it would have been wholly unfeasible.

Since we were makers — since we were building the buildings ourselves, and had responsibility for both money and construction — it was possible for us to do it.



9 / MONEY AND CONTRACTS

The main point is this: *The idea of the architect as a maker has to be backed by a new kind of contract in which he is recognized as the maker, and has the expertise, experience, and desire to work every day with money and to take actual responsibility for pouring concrete, placing steel, building the structure, and so on.*

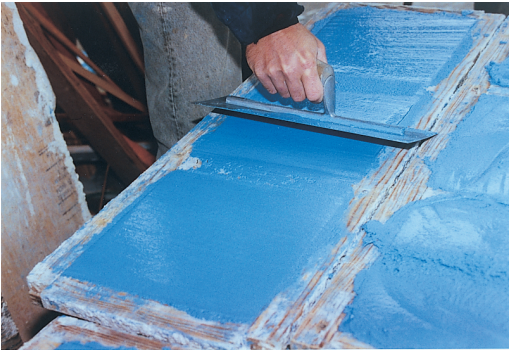
The key issue in the contract needed to create life is control over money. Within the normal construction contracts common in the 20th century there were two fundamental problems. (1) The typical contract has a contractor making a bid, on a set of architectural drawings. The contractor makes a bid of say, \$1,200,000 for the building. He has to deliver according to the contract and specifications. This means that the architect has to tie down millions of pointless de-

tails (which cannot possibly be known in a true way, at this early stage), only so that the contract is legally binding. The contractor makes his money according to how cheaply he can meet the specifications and get away with it. If he can build the building for \$1,000,000, he puts \$200,000 in his pocket. If he can build it for \$850,000, he puts \$350,000 in his pocket. This is the craziest conflict of interest, but it is the basis of nearly all modern construction contracts. The less the contractor can put into the building, and satisfy the architect's drawing, the more money he puts in his pocket. (2) Second, in this system, it is difficult to make changes. The changes can only be arranged by change orders. Since the contractor already has the contract, he can make the cost of the change orders high (and nearly always does so). Effectively, this discourages changes from being made *and* bleeds the client.

What is needed as an underpinning for a kind of construction which is truly based on *making* — hence is responsive to feedback, and allows shaping to occur dynamically during the making process, consistent with the fundamental process. This requires a new form of construction management contract. The construction manager is not paid by profit, but by a fixed amount of money (we typically use 20% of hard cost, or about 17% of the contract). The rest of the money, 83% of the construction contract, is also a fixed sum. It is the manager's responsibility to do the most he possibly can to make a beautiful building, within that money. The system has



The flower mold for a repeating tile in terrazzo which we made



Troweling in the blue terrazzo



Troweling in the white terrazzo after the blue has hardened



The flower mold, during use



Cleaning off the excess white terrazzo



Stamping and cutting the void for the flower, with the mold



Removing tiles from forms



Left: Blue terrazzo in place, white not yet troweled in. Right: Cleaning a tile. The completed floor is shown on page 585.

ALL BUILDING AS MAKING



Randy checking widths, details of the edge band on the plaster panels of another project. On these panels, it turned out that a difference between 1/8, 1/4, and 3/8 of an inch in thickness was of tremendous significance.



Heavy carpentry work on a fairly large building, one of ours, under construction in Japan.



*Timber framing process with erection of prefabricated frames, in the Farmer's Market, Fresno, California.
Christopher Alexander and Carl Lindberg, 1986.*



*Freshly prepared columns in our shop, waiting to be put
on the truck and taken to the site.*

open books. Clients are able to see the checks, payments, of every penny. Changes can be made (*and are expected*) inside the total of the 83%, without change-orders. Any time a change is made, within the total of the 83%, and the money needed is obtained by economizing on some other part of the contract. The construction manager's job is to juggle the money within the

83% so as to get the most and best quality of building from the given sum. To make this possible, the manager also has the right to reduce certain specifications in the building to compensate for others which have been increased. Thus there is a trust relation. The client knows that he will get just what this money can be stretched to pay for. But he has to be realistic about his expectations, and cannot take the conventional adversarial approach to the construction manager.

My colleagues and I have invented (and used and tested) several types of contract which work like this. The contract type I have used most frequently is the one published on pages 92-98 of *THE MARY ROSE MUSEUM*. Many others have also been tried in our company and worked. These contracts are downloadable from natureoforder.com, and patternlanguage.com. All deliver a building for a fixed price and leave the architect/construction-manager as much freedom as possible to do the best job he can do with the available money.



Working the slab of our 6000-square-foot floor in the Fresno Farmer's Market. Here we dropped prefabricated indented polygons of blue concrete, half an inch thick, into the wet slab and made them integral with the whole. Each took its position according to the wetness of the material, the time it was worked, and the setting of the concrete. The resulting uneven surface, like a fish's scales, shimmers in the sun.



The finished Farmer's Market, as it is now, 15 years later, with the vines fully grown. Also pages 538-39.