Chapter 4
Enabling Technologies

In this chapter I take one step back and look more closely at the enabling technologies that contribute to the development of new interactive textures for architecture and landscaping.

Before going into the area of enabling technologies, however, we first need to go into details about materials and elements. That is, in order to talk specifically about these two concept in any precise way we need some working definitions and ways of separating these two concepts from each other, as well as a conceptual ground for integrating them in our thinking on new spaces.

NEW MATERIALS AND ELEMENTS

Materials

Materials are substances or components with certain physical properties which are used as inputs to production or manufacturing (Randle & Engler, 2000). Basically materials are the pieces required to make something else. From buildings and art to cars, stars and computers.

A material can be virtually anything: a finished product in its own right or an unprocessed raw material. Raw materials are first extracted or harvested from the

DOI: 10.4018/978-1-61520-653-7.ch004

earth and divided into a form that can be easily transported and stored, then processed to produce semi-finished materials. These can be input into a new cycle of production and finishing processes to create finished materials, ready for distribution, construction, and consumption.

Materials can also be thought of as the basic building blocks from which we can produce other stuff, being it products, architectural elements, or full-scale buildings.

Elements

In close relation to the notion of "materials" we find the notion of "elements" (e.g. Ching, 2007). However, in order to really understand the complex relation between the concepts of materials and elements we might need to go back in history and review the background of the term "elements" in order to fully understand that concept.

As we know, many ancient philosophies used a set of archetypal classical elements to explain *patterns* in nature. In this context, the word "element" referred to a substance that was either a chemical compound or a mixture of chemical compounds, rather than a chemical element of modern physical science.

Further on, the notion of elements has throughout history had deep philosophical and cultural meanings. For instance, the Greek classical elements (Earth, Water, Air, Fire, and Aether) date from pre-Socratic times and persisted throughout the Middle Ages and into the Renaissance, deeply influencing European thought and culture.

A focus on "elements" as an approach to see and describe "patterns" is an interesting conceptualization in relation to the theory of textures and texturation processes as pushed forward in this book. As described in chapter 3 we might think about architecture as a complex system of several overlayed patterns or structures. Since architecture can be understood in terms of systems and structures, then this linkage to elements as patterns is a valuable perspective since it unifies architectural elements with the notion of textures.

If we now take a point of departure in some philosophical quotes like the following two we might start to see how new digital technologies, as materials might become important cornerstones in the new elements or patterns we design into the textures of modern architecture.

Starting off with a first quote from Greenfield (2006) we notice how computational materials will seamlessly integrate itself with the materials and products of our everyday lives:

"computation would flourish, becoming intimate intertwined with the stuff of everyday life". (Greenfield, 2006, p. 11)