



AR 20431

Redefine Sketching in Architectural Design

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Please consider before printing this handout - No printed paper was used in the sketch process presented below - though a good deal was “sketched”

Learning Objectives

- Capitalize on an idea from thought through concept to construction
- Create a Dynamo Shared Workspace
- Integrate Dynamo Shared Workspace into your FormIt 360 design models
- Capitalize on sketching and computational workflow to advance the design process

Description

In architecture, technology and computers provide ways for us to produce and share design documentation. Until now, the profession has divided our work processes into a discovery phase with hand sketching and a production phase where the sketches are developed into computer-aided illustrations. Architectural design is currently experiencing a shift wherein there is an integration of hand sketching and technology into a single process. This course will demonstrate the ways in which computers can help us sketch and iterate our ideas, and how we can redefine sketching to include all drawing, direct modeling, and computational studies. *“When I say artist I mean the man who is building things—creating molding the earth—whether it be the plains of the west—or the iron ore of Penn. It's all a big game of construction—some with a brush—some with a shovel—some choose a pen”—Jackson Pollock.*

This session features: FormIt 360, Dynamo Studio, and Revit.

Your AU Expert(s)

Mike Engel, Associate AIA, is a Designer with ESG Architects in Minneapolis, Minnesota, with a particular focus on formulating and developing integration between the design and production teams. His previous work at Johnson Braund Design Group (JBDG) in Seattle, Washington, leading the firm wide adoption of a Revit workflow. Prior to JBDG, he studied and worked at Place Architecture in Bozeman, Montana, where he received his Masters of Architecture from Montana State University. He has a passion for integrating designers' conceptual hand sketches and artwork into the modern technological tools of. In his down time he enjoys taking his children for bike rides, walks to the park and “sketchouts” where he (and his children) continue to sketch ideas within the world around.



Intro

"WHEN I SAY ARTIST I MEAN THE MAN WHO IS BUILDING THINGS—CREATING MOLDING THE EARTH—WHETHER IT BE THE PLAINS OF THE WEST—OR THE IRON ORE OF PENN. IT'S ALL A BIG GAME OF CONSTRUCTION—SOME WITH A BRUSH—SOME WITH A SHOVEL—SOME CHOOSE A PEN"—JACKSON POLLOCK.

Each design starts with an idea. The idea is given life through a sketch and from that sketch the river of ideas flow forth. For some reason our profession has drawn a line of what a "Sketch" is. Some how a "Sketch" is this magic drawing that flows from hand through pencil to paper. This sketch has to happen outside and separate from the technology (Computers).

Consider, how often has it been heard in the office "To Design... ..take it out of the "Box" one can't think in a computer!" In that context then a statement by Norman Foster...

THE PENCIL AND COMPUTER ARE, IF LEFT TO THEIR OWN DEVICES, EQUALLY DUMB AND ONLY AS GOOD AS THE PERSON DRIVING THEM. - NORMAN FOSTER

There is an idea engrained deep in the Design Profession that using a computer early in the design process is pre defining the designed outcome. However this is not a relationship of computer or pencil. The tools we use in our process, wether pencil or Autocad, clay or Maya, foam or Sketchup, paper or Revit, crayon or Rhino... ..directly define what is created. But this is not to be seen as negative, it is just to be.

Put another way, there is nothing in the history of humankind that has been created that was not influenced by the tools chosen to create it and that which has come before. Regardless of the tool we choose, to begin our design process, the design is driven and steered by the mind behind the process.

TO CREATE, ONE MUST FIRST QUESTION EVERYTHING. - EILEEN GRAY

So today there is a question. To question the idea of a sketch, of the process of sketching. Question the idea that one must design and sketch free of the computer and modern technology.

What is a Sketch?

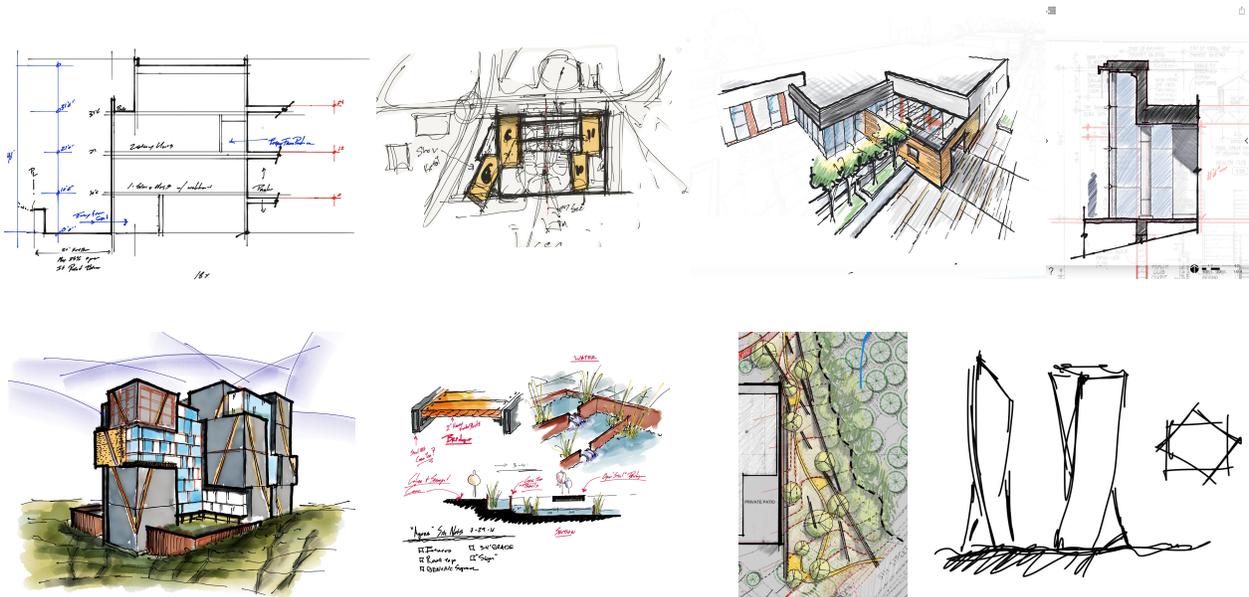
By definition:

- *a rough drawing representing the chief features of an object or scene and often made as a preliminary study*
- *a tentative draft*



- a brief description or outline
- A hasty or un-detailed drawing or painting often made as a preliminary study.
- a rapid drawing or painting, often a study for subsequent elaboration

Ref. Images



What are the tools of traditional sketching?

- | | | |
|-------------------|---------------|-------------|
| • Graphite Pencil | • Water Color | • Foam |
| • Black Pen | • Paint | • Paper |
| • Marker | • Clay | • Cardboard |

Consider there is nothing inherent in the definition of sketching that requires one to use these assumed tools. Yes, these tools work to sketch, but sketching is not limited to these tools. Sketching is defined by character beyond the media in which it is created. The sketches created during the creative process are about the hand and mind from which it is defined. The media is an individual preference to the process of illustrating an idea of the mind.

"4 ARTIST PAINT 1 TREE"

<https://www.youtube.com/watch?v=gJK9uQNBdXQ>

LAUGHTER IS TIMELESS. IMAGINATION HAS NO AGE. AND DREAMS ARE FOREVER. - WALTER ELIAS "WALT" DISNEY



In the animation studios of Walt Disney, the creative teams must both, and simultaneously, see the outcome through their own mind while simultaneously working through the view points of their colleagues. In the mind differently, as with process and tools, each has a different view and focus. When these differing view work together great works of history are created.

The process today

So today the tool set for sketching is to be redefined, the toolset expanded. With today's hardware and software giving the ability to work as freely in data and model environments and pen to paper. The toolset of the sketch process today includes Modeling, programming languages, Data analysis, CAD and beyond.

The value of sketches created today through new media / mediums are of no less of value to the creative / design process. One may even argue, the creative / design process with today's advanced tools allows, a greater exploration of the human's creative mind, that it may push further the ideas, and begin to create through workflows that do not become limited by the capabilities of the tools utilized in process.

A sketch workflow can integrate tools of all types.

What does a modern sketch workflow today look like?

The sketch workflow is an integrated and interoperable workflow including both direct model/illustration tool in partner with Data / Analysis tools

What does a modern designers tool set include?

The tools set of today includes, Tablets & PC's, Styli & Keyboard, and specifically it includes applications; Sketchbook Pro, Formit360, Dynamo, Revit

What are the tools of sketching today?

- *Graphite Pencil*
 - 2H, Ebony...
- **Black Pen**
 - **Sharpie, Micron...**
- *Marker*
 - *Copic, Prismacolor...*
- *Water Color*
- *Paint*
- *Oil, Acrylic, Tempera...*
- *Clay*
- *Foam*
- *Paper*
- *Cardboard*
- *Tablet PCs*
 - *IpadPro...*
- *PCs*
- **Freeform Modeling**
 - *Rhino, Revit, Formit360, Sketchup, Fusion360, Solidworks,*
- *3d Printers*
- *LaserCutters*
- *Computation / Analysis*



- **Dynamo**,
Grasshopper, **Flux...**
- **Spreadsheets**
 - **Excel, Sheets,**
Numbers...
- **Programming**
 - **Python, C#, Java...**
- **Styli**
 - **Pencil By 53,**
Wacom Bamboo,
- Intous, Cintiq, Apple*
Pencil...

Hardware

The Hardware of sketching used to require a few simple tools. A scrap of parchment, paper, napkin, notebook. It required a marking instrument, a pen, marker, brush. These tools at the time of their creation were the peak of technology, they allowed flexibility in idea and location. Today Hardware for sketching is expanding to the Tablet, Laptop, Touchscreen & Scanner. These tools provide greater flexibility and mobility than hardware of yesterday.

Today's Method

The Sketch process is unique to all. Regardless consider your tools how do they support or degrade the creation process. At its basic level it needs to allow and support:

- Creation a mark.
 - Telling a Story
 - Iterative Process
 - Flex - able
 - Change - able
 - Forward Moving
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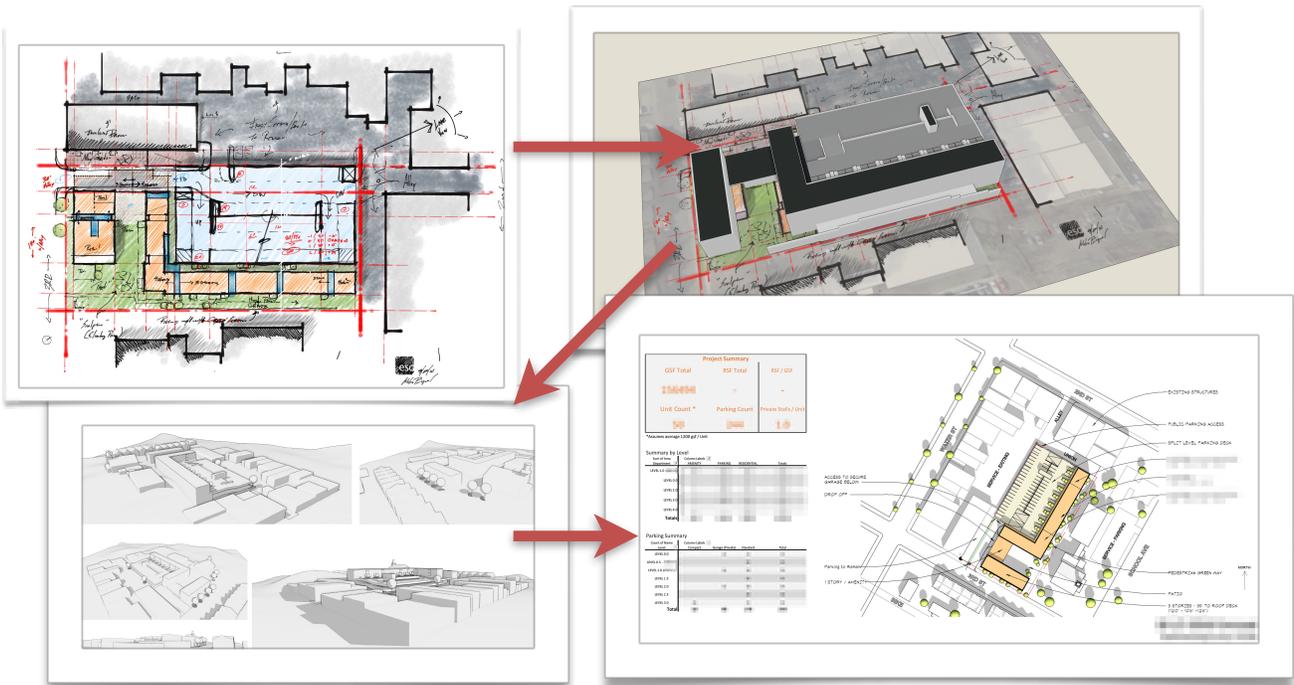
Sketch Process Illustration

Process(s) of “A Modern Sketch Workflow”

Set 0 - Sketching With Ipad & Formit360

Concept Sketch / Model Sketch

Applications: Sketchbook Pro / Paper53 & Formit 360

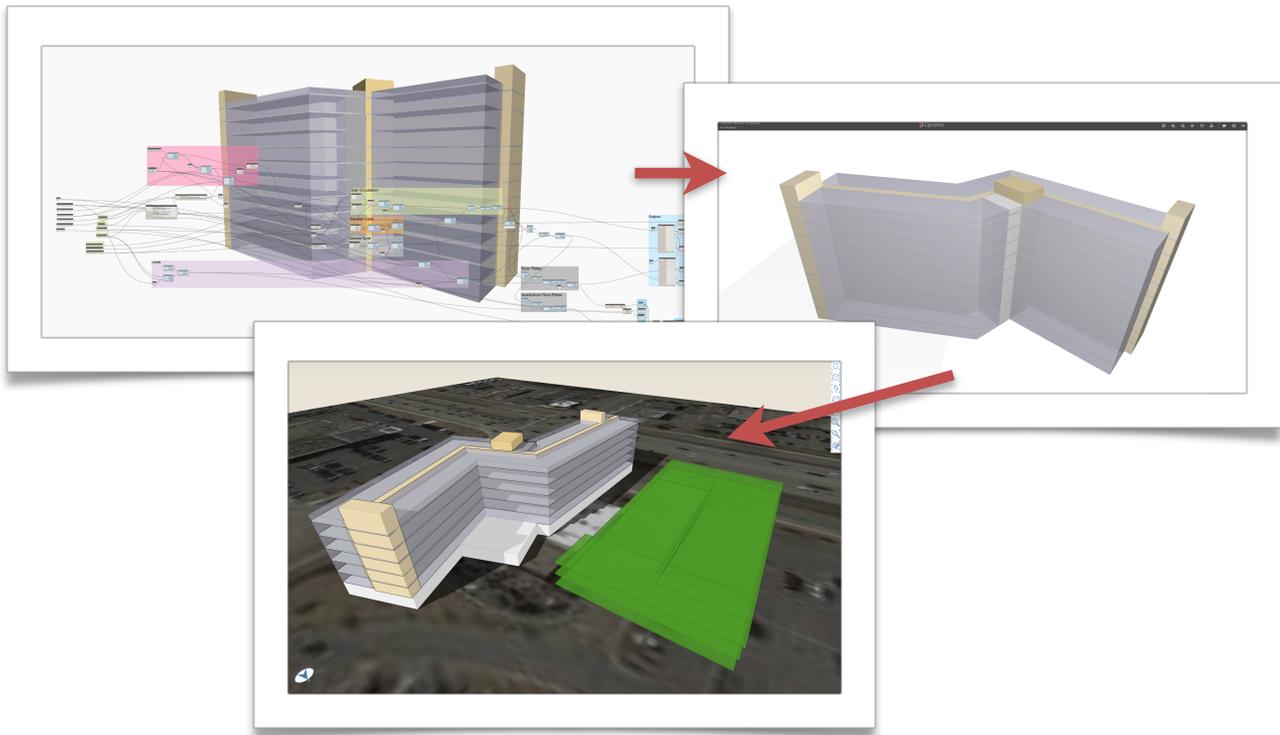




Set 1 - Sketching With Dynamo & Formit360 “Program”

Building/ Site Massing by Program Requirements

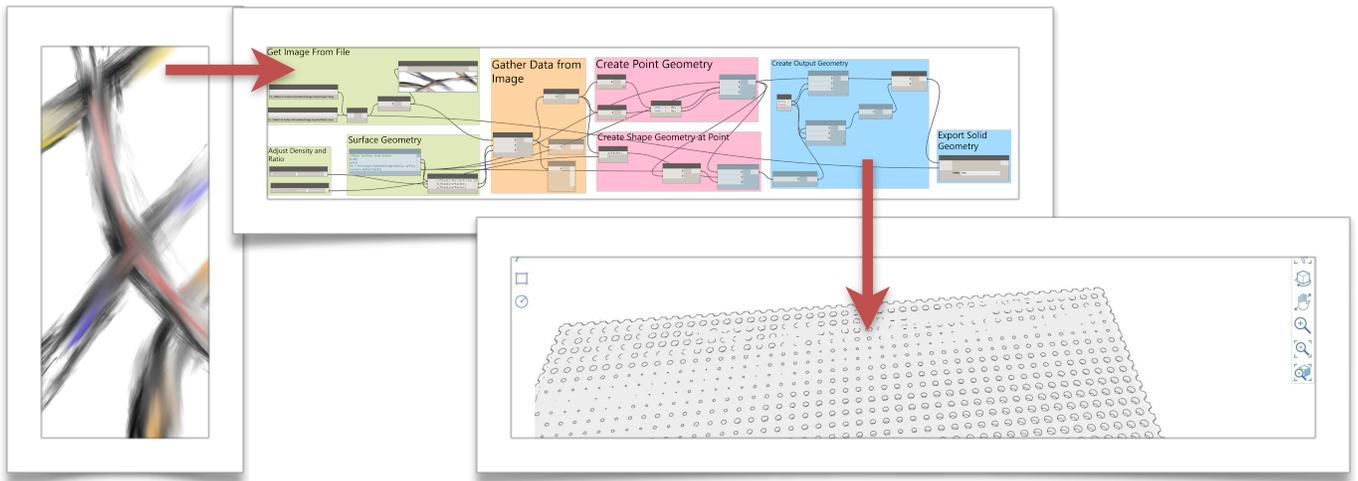
Applications: Dynamo/Dynamo Studio & Formit 360 Pro



Set 2 - Sketching with Sketchbook Pro(Tablet) & Dynamo

Sketch to Surface Articulation

Applications: Sketchbook Pro / Procreate & Dynamo/Dynamo Studio



Set 3 - Sketching from Tablet to Formit 360 through Revit to BIM

Building Massing Sketch to Revit

Applications: Formit 360 / Dynamo & Revit

