

		ready-mix	(Cast-in-place) concrete is proportioned and mixed (with water) Delivered in a truck agitator		
		cast-in-place concrete	Placed in forms Formed on site (placement, curing, finishing)		Ferrous scrap metal delivered to site
					Metal loaded into a furnace where it is melted slag forms and floats to the top of the
			cedar boards	Logs are transported to mill and cut to boards	molten steel with oxidized impurities and discarded
			cedar siding		The steel is poured into molds, cooled and shaped into billets
	•			boards are installed as the siding	The billets cut by torches into desired lengths
					Billets then go to the mill for hot rolling
					After formed they are transferred to a cooling bed
					Bundled and shipped
					Cut and bent to shop drawing specs
				structural steel	Shipped to the site

Source to Site

Unitarian Universalist Fellowship of Central Oregon Material Analysis

Abstract

The object of this research was to conduct a material analysis of the Unitarian Universalist Fellowship of Central Oregon Church in Bend, Oregon designed by Hacker Architects (Portland, Oregon). This research produced an infographic narrative depicting the place of origin of the raw form of the primary building materials used in the church: wood, steel, stone, and concrete. An investigation of the project specifications and the material submittals developed the basis for this graphic narrative. The providers, contacted by the research students, gave insight into the initial sourcing location of the raw form of the material. This research examined a larger narrative about the sustainability of the material selection process in the design of the built environment.

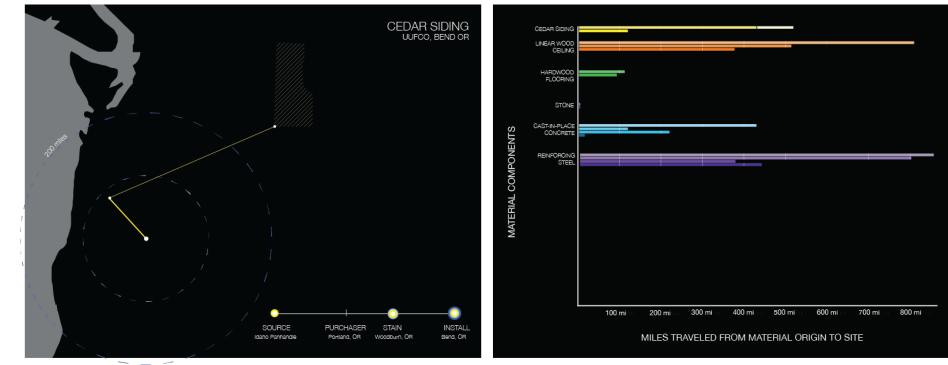
Keywords: material, narrative, architecture, raw material, graphic design, sustainability

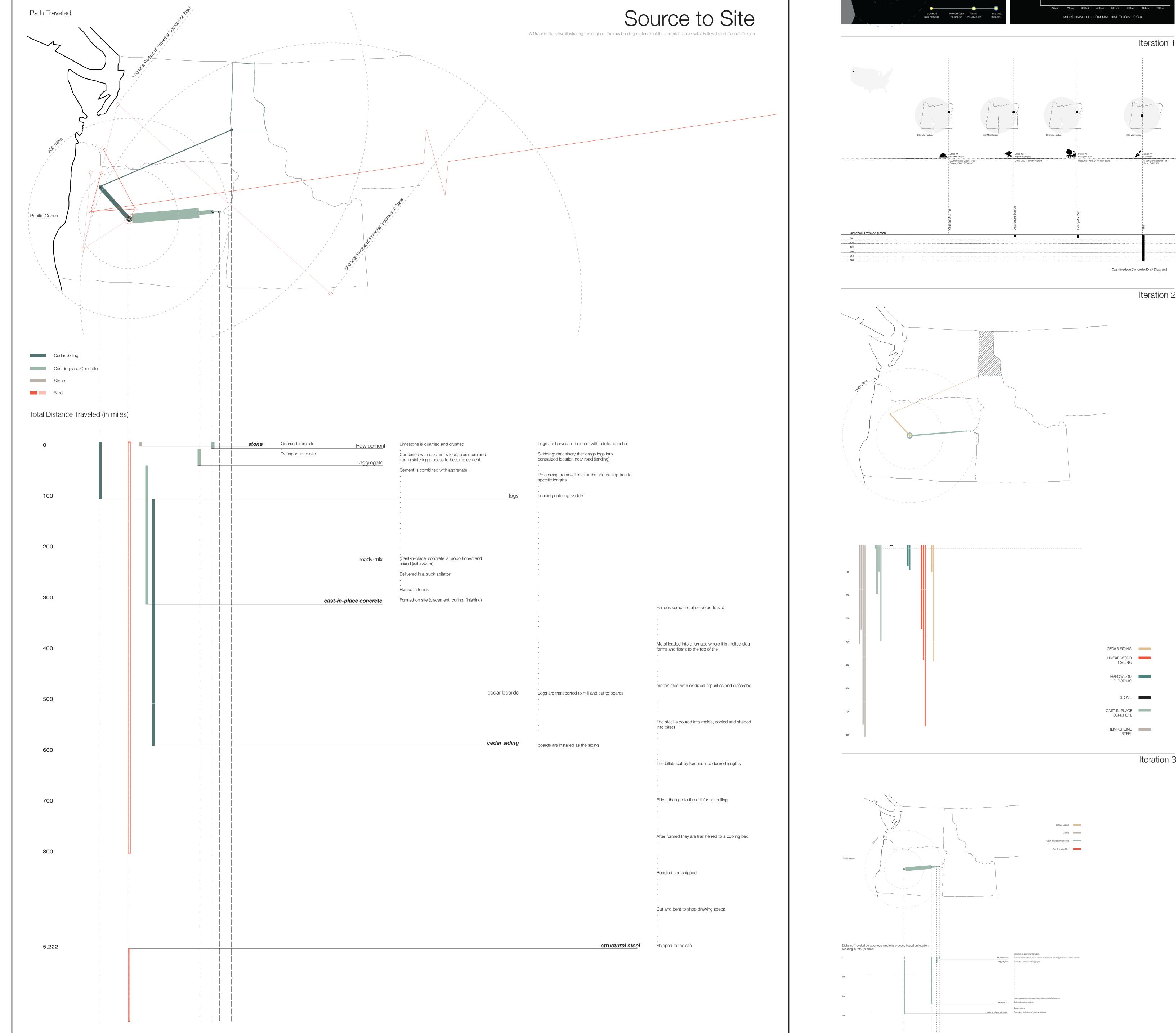
Narrative

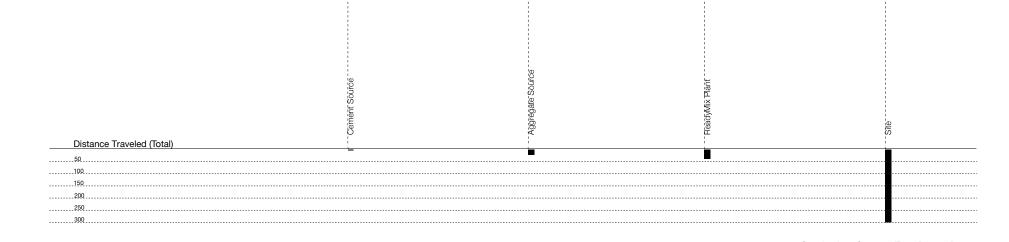
Methodology

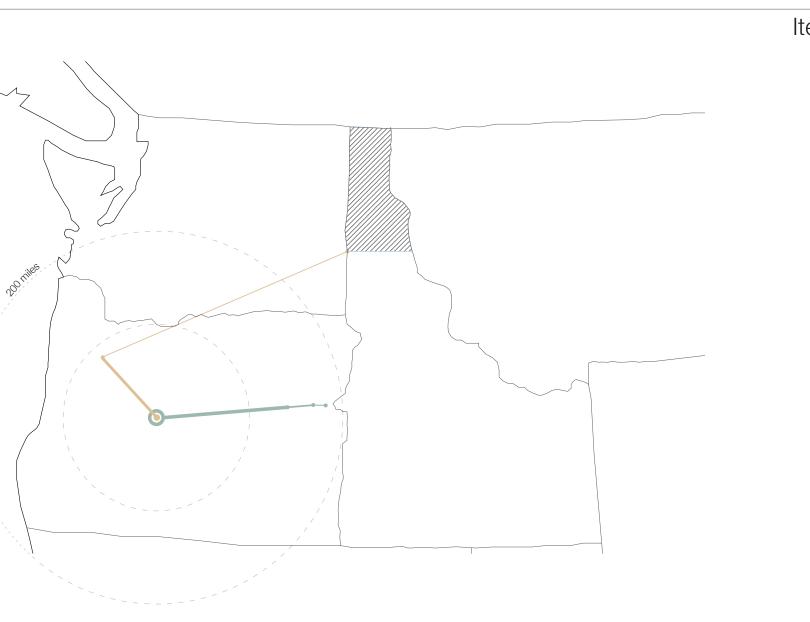
Economic and environmental complexities lend to the fascinating challenge of tracing a single material to its original source location. The Freakonomics podcast on 'I, Pencil' documents the production and process of a single #2 pencil. This method of research inspired the designers at Hacker Architects to conduct an "I, Pencil" analysis of the materials within the Unitarian Universalist Fellowship of Central Oregon (UUFCO) church. Thus, a proposal for a material analysis of the UUFCO emerged. The process resulted in an infographic narrative depicting the place of origin of the raw form of the primary building materials of the church: wood, steel, stone, and concrete. The scope of the literature reviewed for this research exposed various definitions of 'material analysis' in architectural design. Communication with the architectural firm, analysis of the architectural specifications and research of the material source companies encompassed the methodology for obtaining the information for the graphic analysis. The design of the visual narrative focused on the total distance between the raw source and the site, resulting in a larger narrative about the sustainability of the material selection process in the design of the built environment.

Process









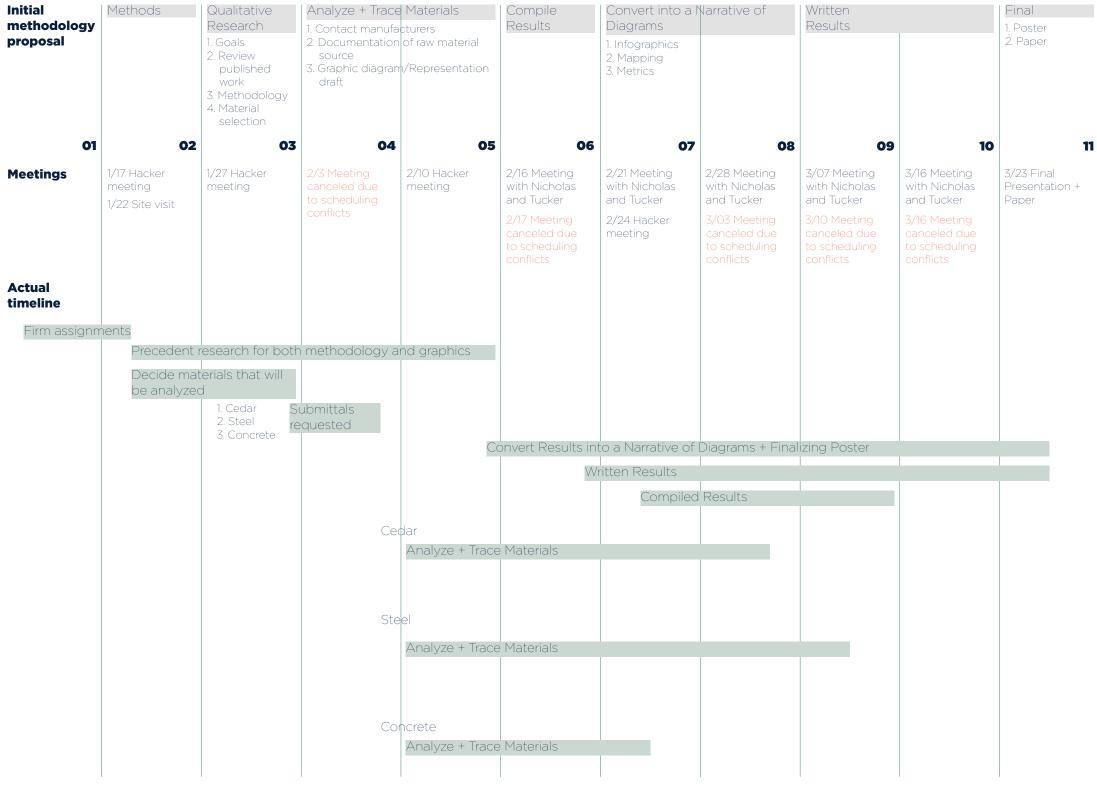




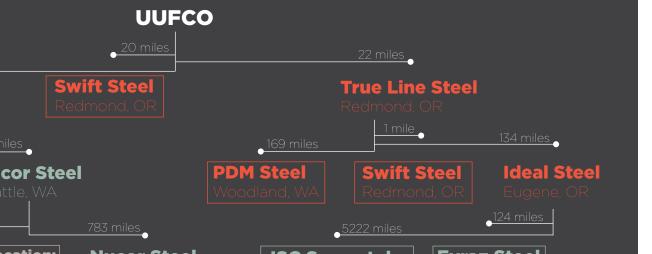
In producing a graphic narrative that tells the story of four building materials from source to site, it can be concluded that the process of tracing a given material in terms of the length of time it took to complete the genealogy and the number of participants within the process reflects the innate qualities of the materials itself. The complexities encountered within the process of tracing steel correlates with its ability to change states and to be recycled, translating to a greater number of stakeholders involved and a more intricate web. While there will continue to be energy intensive materials within the built environment, such as steel, there are equally as many material decisions to be made by architecture firms in which taking an active position in recognizing the materials' environmental impact and selecting locally sourced materials will not only benefit the environment and the economy, but also inform the firm's overall design decisions.



Methodology Timeline







Cascade Steel Nucor Steel •-----•— **Possible Source** Source Location: **Nucor Steel** JSC Severstal Evraz Steel Locations: L_____• Source Location: Key: Source Location Further Locations Inconclus



Iteration 4