



University of California
San Francisco

Pattern Libraries

Leveraging Atomic Design and Pattern Lab to
Develop a Living Visual Style Guide

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Web Developer

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We're not designing pages, we're designing systems of components.

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Web Strategist Guru

Why a Pattern Library?

- Quick mockups and iteration
- Working with real code
- Responsive interactions
- Able to isolate components
- Easy updating and extending
- **Documentation and annotation tools**



We Need All the Changes for Everyone



- Leadership wanted to see an inventory of components before we built
- Wanted quick turnaround on design updates
- Concerned about mobile and tablet
- Needed a working example to show partners and stakeholders
- Wanted documentation on design changes and decisions
- Must be compliant and pass accessibility
- Need to share final design with partners' developers

Three-Week Design Challenge



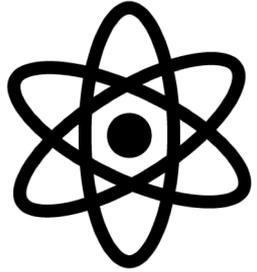
- Redesigning the www.ucdavis.edu website
- Allowed 3 weeks to present a functional site
 - ...but it doesn't work that way!
 - Especially in a complex CMS like Drupal
- We didn't want to take 3 weeks making HTML mockups only to throw that work away later
- We also knew that we would need to brand other sites with the same design

Our Universal Pattern Library Goal



If you're looking to build a fully customized website or application, our easy-to-use Pattern Library will allow you to build a unique look and feel without designing common elements from scratch. Developers across our university can borrow and contribute patterns, making it easier to forge functional, beautiful websites and applications with less effort.

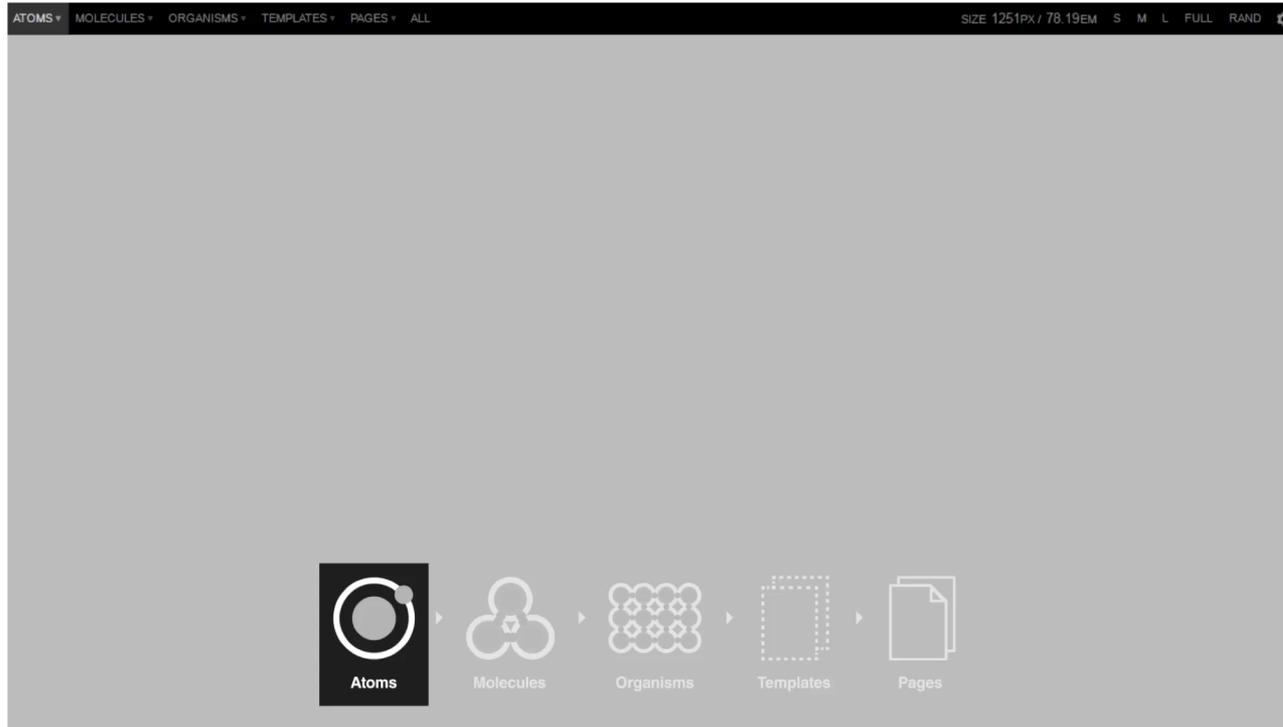
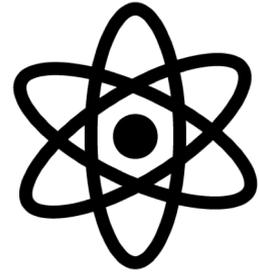
Enter Pattern Lab!



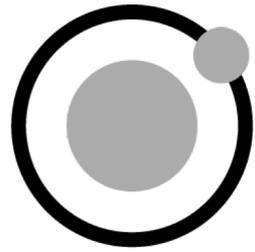
An atomic framework that helps us build thoughtful, pattern-driven user interfaces using atomic design principles.

- Produces final Pattern Library site
- Creates navigation of components
- Utilizes a built-in viewport resizer
- Develops comprehensive documentation

Atomic Design Principles



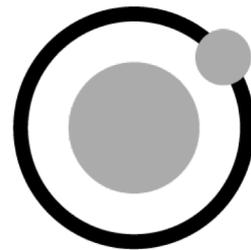
Atoms



Base Components

- Smallest a component can be broken down
 - Fonts, colors
 - Inputs, buttons
 - Paragraphs, section headers, lists

Atoms



Text Input

Text Input *

Text Input

Text Input *

Text Input

Buttons

Default

BUTTON

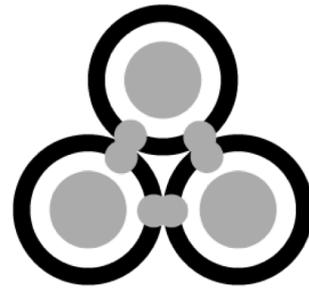
Button

Small

BUTTON

Primary Button

Molecules

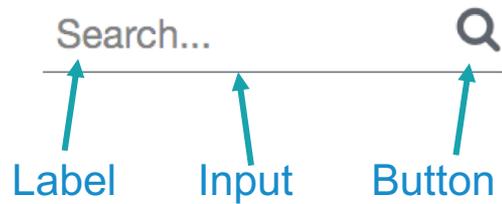
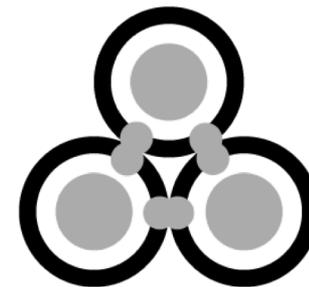


Building Complexity

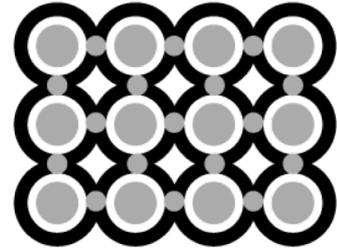
- Two or more Atoms that come together to create a new component
 - Search: Label, Input, Button
 - Cards: Image, Heading, Paragraph, Link

Molecules

Search Box



Organisms

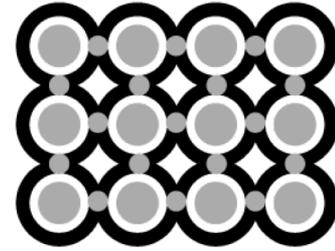


Areas of Content & Functionality

- Two or more Molecules and Atoms that build a piece of the interface
 - Header
 - Footer
 - News Feed

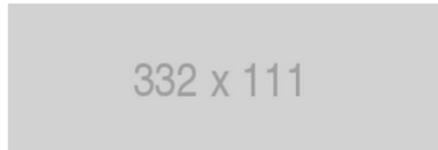
Organisms

Header



Site Top Menu Molecule

Social Media Links Molecule



Logo Atom

Main Menu 1

Main Menu 2

Main Menu 3

Main Menu 4 ▾

Main Menu 5

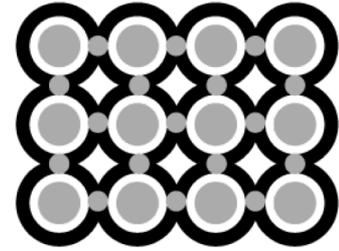
Header Menu Molecule



Search Molecule

Organisms

Header



SiteFarm

Websites Grown Here

Quick Links >

ABOUT US >

ADMISSIONS

ACADEMICS

RESEARCH

CAMPUS LIFE

NEWS



Site Logo Atom

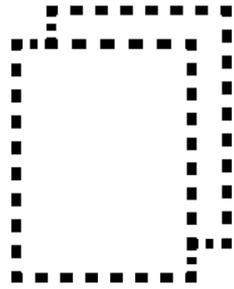
Primary Nav Molecule

Search Popup Molecule

Templates

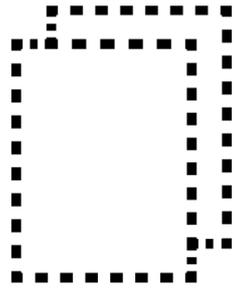
Page-Level Layout and Interactions

- Using Organisms to build a wireframed template for a type of page
 - Homepage
 - Basic Page
 - News & Event Listings



Templates

Basic Page



Header Organism

Content Organisms

Sidebar Organism

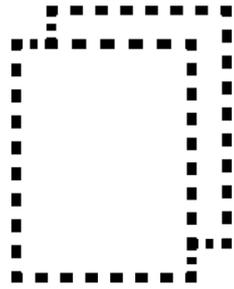
The diagram illustrates a basic page layout with three main organisms:

- Header Organism:** A dark blue horizontal bar at the top containing the text "University of California San Francisco" on the left and "About UCSF Search UCSF UCSF Medical Center" on the right. A teal arrow points from the label to this bar.
- Content Organisms:** A central area containing a grey box with "332 x 111", a breadcrumb trail "Home > Secondary Page > Tertiary Page", and a paragraph of Latin text. A teal arrow points from the label to this area.
- Sidebar Organism:** A vertical area on the right containing social media icons (Facebook, Twitter, YouTube), a search bar with "Search..." and a magnifying glass icon, and five menu items labeled "Main Menu 1" through "Main Menu 5". A teal arrow points from the label to this area.

Below the main content area, there is a green horizontal bar followed by a grey box containing the text "Section 1" and "mTORC1/C2 and".

Templates

Basic Page



Header Organism

Content Organisms

Sidebar Organism

The diagram illustrates a website page layout with three main sections:

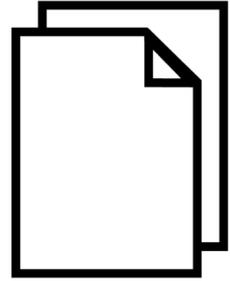
- Header Organism:** A dark blue horizontal bar at the top containing the text "UC DAVIS".
- Content Organisms:** A light blue area below the header containing a "SiteFarm" logo (a gold coin with a plant growing from it), the text "SiteFarm Websites Grown Here", and a "Quick Links" button with a right-pointing arrow.
- Sidebar Organism:** A grey area on the right side containing a search icon (a magnifying glass inside a circle).

Below the content area is a navigation bar with the following links: "ABOUT US >", "ADMISSIONS", "ACADEMICS", "RESEARCH", "CAMPUS LIFE", and "NEWS".

At the bottom left, a dark blue box contains the text "Page Title".

At the bottom right, the text "Trust us, it's there." is displayed.

Pages

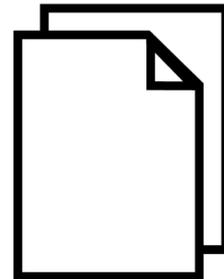


Inserting Real Content

- Final page layout and functionality using real content
 - Homepage
 - Basic page
 - News & Events Listings

Pages

Introduction Page



University of California San Francisco

About UCSF

Search UCSF

UCSF Medical Center



Search...



Main Menu 1

Main Menu 2

Main Menu 3

Main Menu 4 ▾

Main Menu 5

[Home](#) > [Secondary Page](#) > [Tertiary Page](#)

Welcome to UCSF's Web Pattern Library

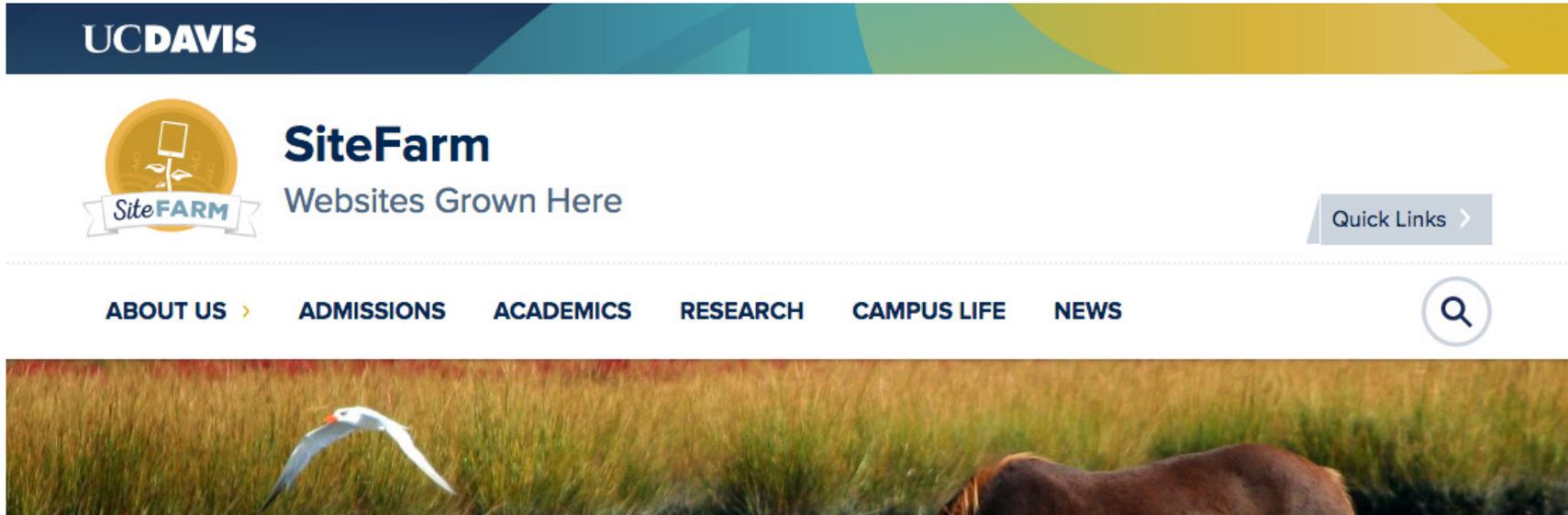
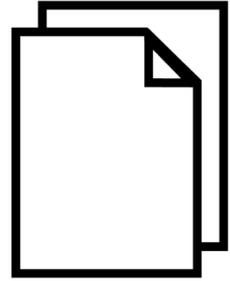
Default Content Area

Section 1

[mTORC1/C2 and](#)

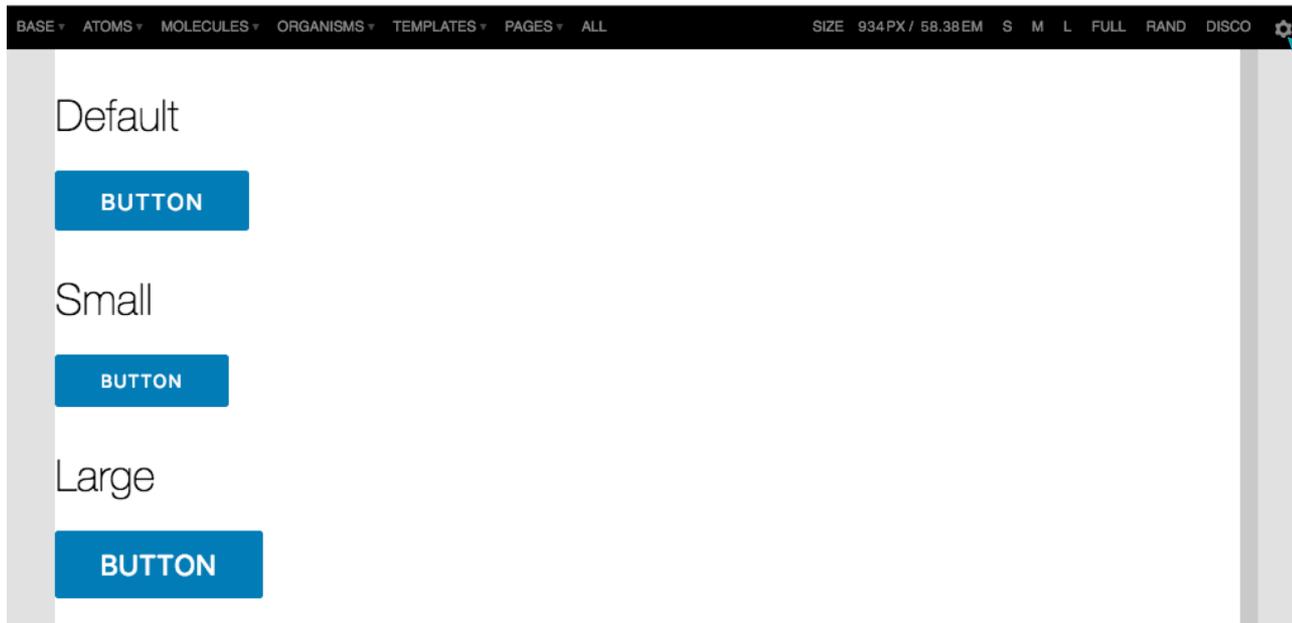
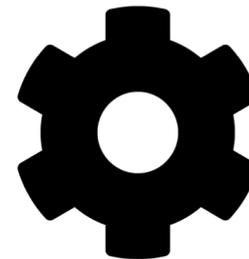
Pages

Homepage Page



Documentation Tool

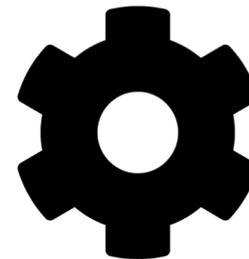
Accessing the Documentation



Gear Button

Documentation Tool

Accessing the Documentation



BASE ▾ ATOMS ▾ MOLECULES ▾ ORGANISMS ▾ TEMPLATES ▾ PAGES ▾ ALL

SIZE 934PX / 58.38EM S M L FULL RAND DISCO ⚙

Default

BUTTON

Small

BUTTON

Large

BUTTON

SHOW PATTERN INFO

OPEN IN NEW WINDOW

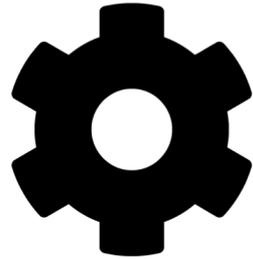
PATTERN LAB DOCS

FIND PATTERN

Show Pattern Info

Documentation Tool

Accessing the Documentation



The screenshot shows a web-based documentation tool. At the top, there is a navigation bar with categories like 'BASE', 'ATOMS', 'MOLECULES', 'ORGANISMS', 'TEMPLATES', 'PAGES', and 'ALL'. The main content area displays two button variants: 'Default' and 'Small', each with a blue 'BUTTON' label. Below this, a sidebar on the left contains a 'BUTTONS' section with a 'state: complete' indicator and a 'Description' field. A modal window is open at the bottom, showing code snippets for 'Default' and 'Small' button variants. The code is displayed in two tabs: 'Twig' and 'HTML'. The HTML code shows the following snippets:

```
<h2>Default</h2>
<p><button class="btn" name="Descriptive Button Action" type="button">Butto
<h2>Small</h2>
<p><button class="btn btn--small" name="Descriptive Button Action" type="bu
<h2>Large</h2>
```

State, Description,
Usage, Code,
Dependencies

Flavors of Pattern Lab



Node Versions

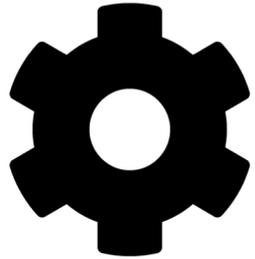
- Vanilla Edition
- Gulp Edition
- Grunt Edition
- Webpack Edition

PHP Editions

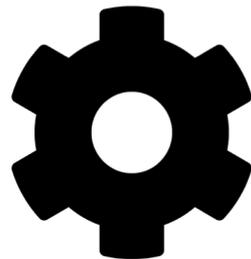
- Mustache Edition
- Twig Edition
- Drupal Edition
- Thin Edition

Technology Requirements

- Build requires PHP and Node.js
- NPM to manage development assets
- Bower to manage browser assets
- Gulp/Grunt to run tasks and builds
- Sass to write CSS



Incorporating Into My Project



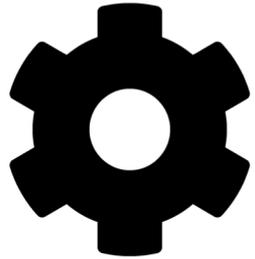
Option 1: Place directly inside a website

- Pros
 - Everything in one place
 - Access styles directly from main website
- Cons
 - Styles are not easily used outside the main website

Option 2: Keep it separate and sync styles

- Pros
 - Everything can be reused across multiple websites
 - Pure beautiful markup
- Cons
 - Integrating into websites is more complex

Syncing Into My External Website



- Gulp task: [newsite](#)
 - Copies necessary config out of a “starterkit” into an external website/CMS
 - Copies initial styles over
- Gulp task: [themesync](#)
 - Sync styles into an external website/CMS
 - Only copies sass/css, javascript, and images
 - Markup is up to each external website to manage

How Can This Help All of UC?



Sharing the Workload by Reusing Code!

- Boilerplate Pattern Library
- Build on development knowledge base
- Reduce accessibility concerns
- Increase scalability
- Share new and better patterns
- Hugs and PUPPIES!



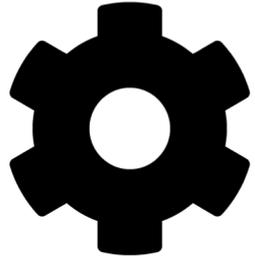
Proposed Improvements



We're Striving to Make Things Better!

- Better code documentation
- Mobile tables and tabbed data
- Documentation on incorporating with Drupal CMS
- New, and improved, patterns
- More advance automations

Get the Code



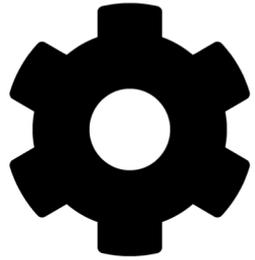
UCSF Pattern Library

- github.com/ucsf-web-services/ucsf_pattern_library

UCD Pattern Library

- bitbucket.org/ietwebdev/sitefarm-pattern-lab-one

Using the Code



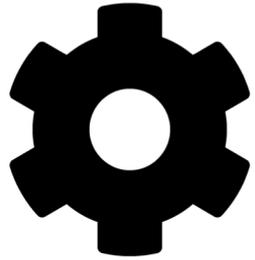
The Library is Open!

Online demo of patterns with code and documentation:

- UCSF's Pattern Library Website (webpatterns.ucsf.edu)
- UCD's Pattern Library Website (ucd-one-patternlab.s3-website-us-west-1.amazonaws.com)

Other Documentation & Support

- Pattern Lab (patternlab.io)
- UC Tech Slack, #pattern-library ([#uctech.slack.com](https://uctech.slack.com))



Q&A, Slack channel: #pattern-library



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ITS Web Services

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Thank you!