

Fluid Design



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What is a Fluid Design?

Web design has evolved significantly over the years, moving from fixed-width layouts to fluid, responsive designs. Traditionally, **px** (**pixels**) were the standard unit used for setting dimensions, but as the web expanded to more diverse devices with varying screen sizes and resolutions, the limitations of **px** became more apparent.



What is Pixels (px)



A **px** (pixel) is a fixed unit of measurement in web design that corresponds to a single dot on the screen. Pixels were traditionally the default unit for defining element sizes such as widths, heights, font sizes, margins, and padding. They offered precision in terms of the exact size of elements on a screen, making it easy to position and size items consistently across different web pages.

Pixels were used because they represented a fixed measurement. Designers could create layouts that were pixel-perfect, ensuring precise placement of elements. It was easy to define elements and create grid systems, as every element on the page would stay the same size regardless of screen resolution or device. This predictability made designing for desktop screens much simpler.





Challenges with PX in Modern Web Design

As screen resolutions improved and device variety exploded, using px for all web design elements became problematic. Here are a few key challenges:

1. **Fixed Size:** Elements with pixel-based dimensions don't scale with screen size, which means they can look cramped on smaller screens or oversized on larger screens.
2. **Lack of Flexibility:** A fixed size doesn't allow for elements to adapt based on the user's preferences or the screen they're viewing from
3. **Accessibility Issues:** Users who have impaired vision or those who prefer to zoom in for better readability may find that a pixel-based design doesn't scale well with their needs.
4. **Device Diversity:** With an increasing range of devices; from mobile phones to ultra-wide screens, designs based on pixels often result in broken layouts, inconsistent spacing, and poor user experiences.





Why We Moved to Fluid Design

To overcome the limitations of pixel-based design, the web design community adopted **fluid design**, which uses relative units rather than fixed measurements. Fluid design allows web elements to adapt based on the size of the screen, improving flexibility and responsiveness.

It uses units like **EMs**, **REMs**, **percentages**, **VH**, and **VW** to create layouts that automatically scale and adjust, ensuring that websites look great on any device, whether it's a phone, tablet, or desktop.

In fluid design, elements are designed to adapt to various screen widths, heights, and even user settings (like text size preferences), making websites more accessible, user-friendly, and future-proof.



EMs & REMs



EMs and REMs are relative units used in CSS to create scalable designs. An **EM** is relative to the font size of the current element, meaning that if the font size of a parent element is set to 16px, 1em would equal 16px. This allows for adjustments to the font size in relation to the parent, making it flexible and scalable.

On the other hand, **REMs (Root EMs)** are always relative to the root element (<html>) font size, which is typically 16px by default. This makes REMs consistent across the entire page, as they do not change with nested elements. In Elementor, both EMs and REMs are helpful for setting typography, padding, margins, and line heights to ensure that all these elements scale consistently and remain proportional across various screen sizes.



Percentages (%)



Percentages are commonly used in CSS to create layouts that adjust based on the parent container's dimensions. For instance, setting an element's width to 50% means that it will take up half the width of its parent container, regardless of its actual pixel size.

This flexibility allows the design to adapt to different screen widths. Percentages are especially useful in Elementor when creating responsive layouts with columns and sections. By adjusting the width of columns using percentages, you can easily create fluid grid systems that adjust seamlessly across varying screen sizes.





VH and VW Units

The **VH (Viewport Height)** and **VW (Viewport Width)** units are relative to the dimensions of the viewport (the visible area of the browser). 1 VH equals 1% of the viewport's height, and 1 VW equals 1% of the viewport's width. This makes these units ideal for creating full-screen sections or elements that should adjust dynamically as the screen size changes.

For example, if you set a section to 100vh, it will always take up the full height of the browser window, no matter the device or screen size. In Elementor, these units are particularly useful for setting full-width or full-height sections, background images, and elements that need to scale proportionally with the viewport.



Combining EMs, REMs, VH, VW, and % in a Single Design



To create a truly fluid design, you can combine multiple relative units like EMs, REMs, VH, VW, and percentages. For instance, you could set typography using REMs, add spacing with EMs, and create fluid grids using percentages for widths.

To create responsive full-screen sections, you might use VH for height and VW for width. Combining these units allows for a flexible, adaptable layout that adjusts to screen size and resolution without breaking the design. In Elementor, you can mix these units within the various settings for typography, spacing, and layout to create a cohesive, responsive design that works across all devices.

