

Hyper-Hybrid Skin: Multifunctional Hybrid Steel-Timber Unitized Façade System

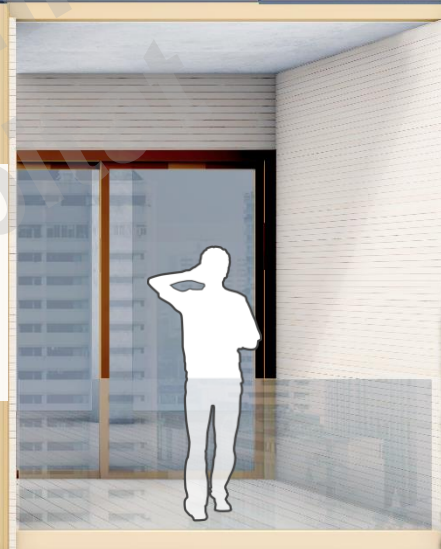
Lars Anders
CEO, Priedemann Façade Experts



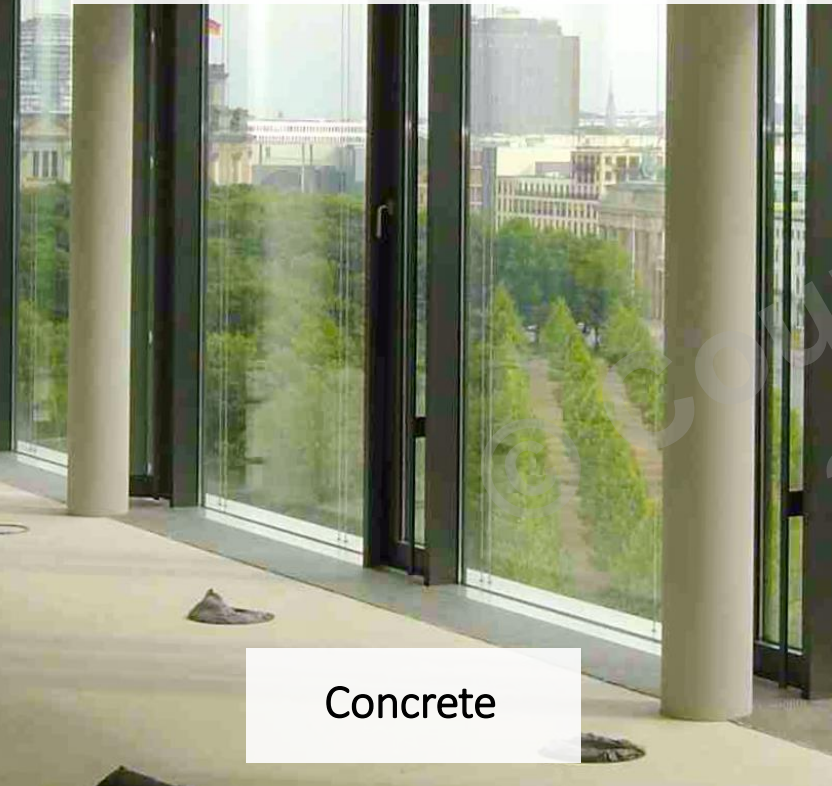
CTBUH 2022
Steel-Timber Conference

Hyper-Hybrid Skin

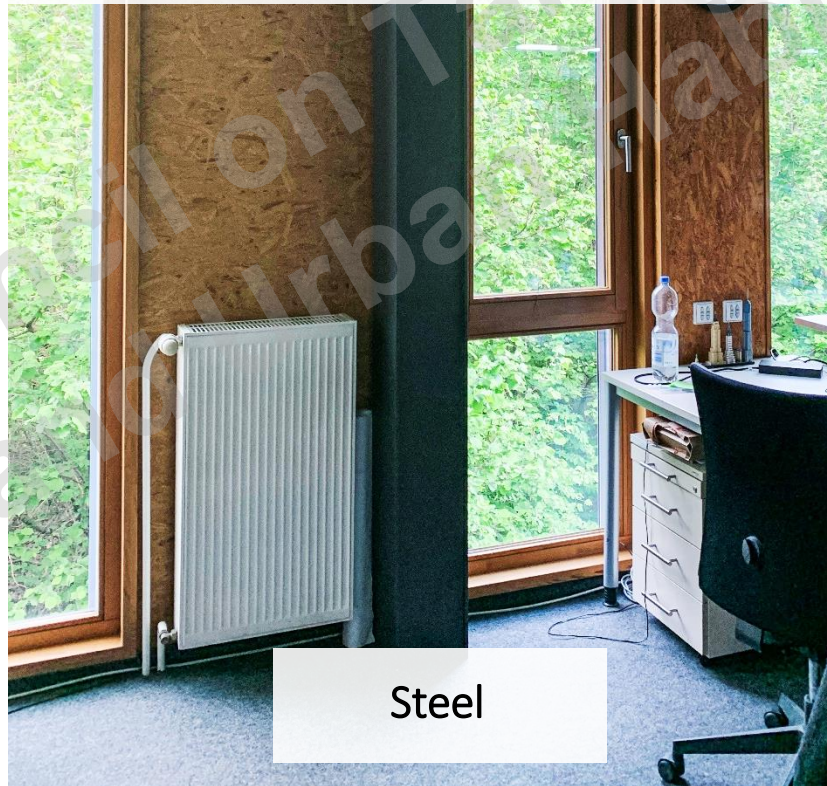
Multifunctional Hybrid Steel-Timber Unitized Façade System



Typical building structural layout positions of columns next to the façade – **limiting the functional and spatial flexibility of the users.**



Concrete



Steel



Wood

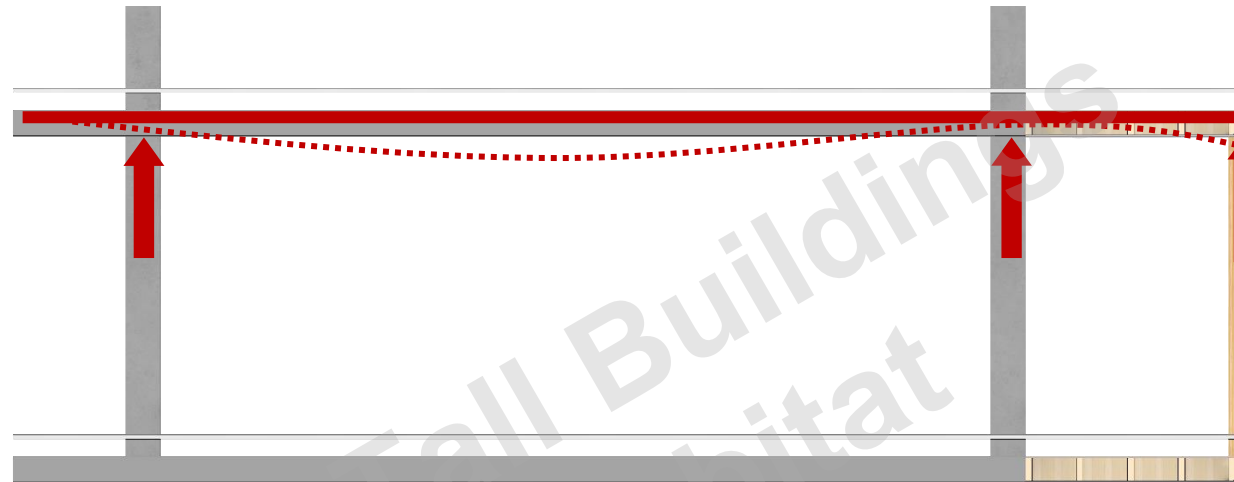


Typical façade systems provide modularity and ease of construction but **failed to achieve their optimum potential** as they either limit design freedom or only support their own load.

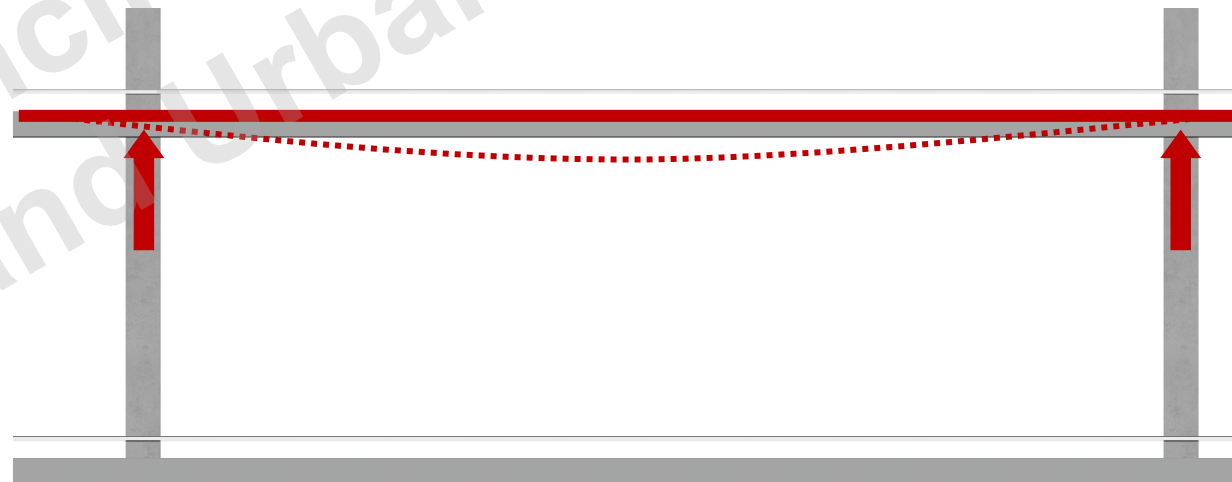
Structural Integrity

Minimizing Slab Deflection

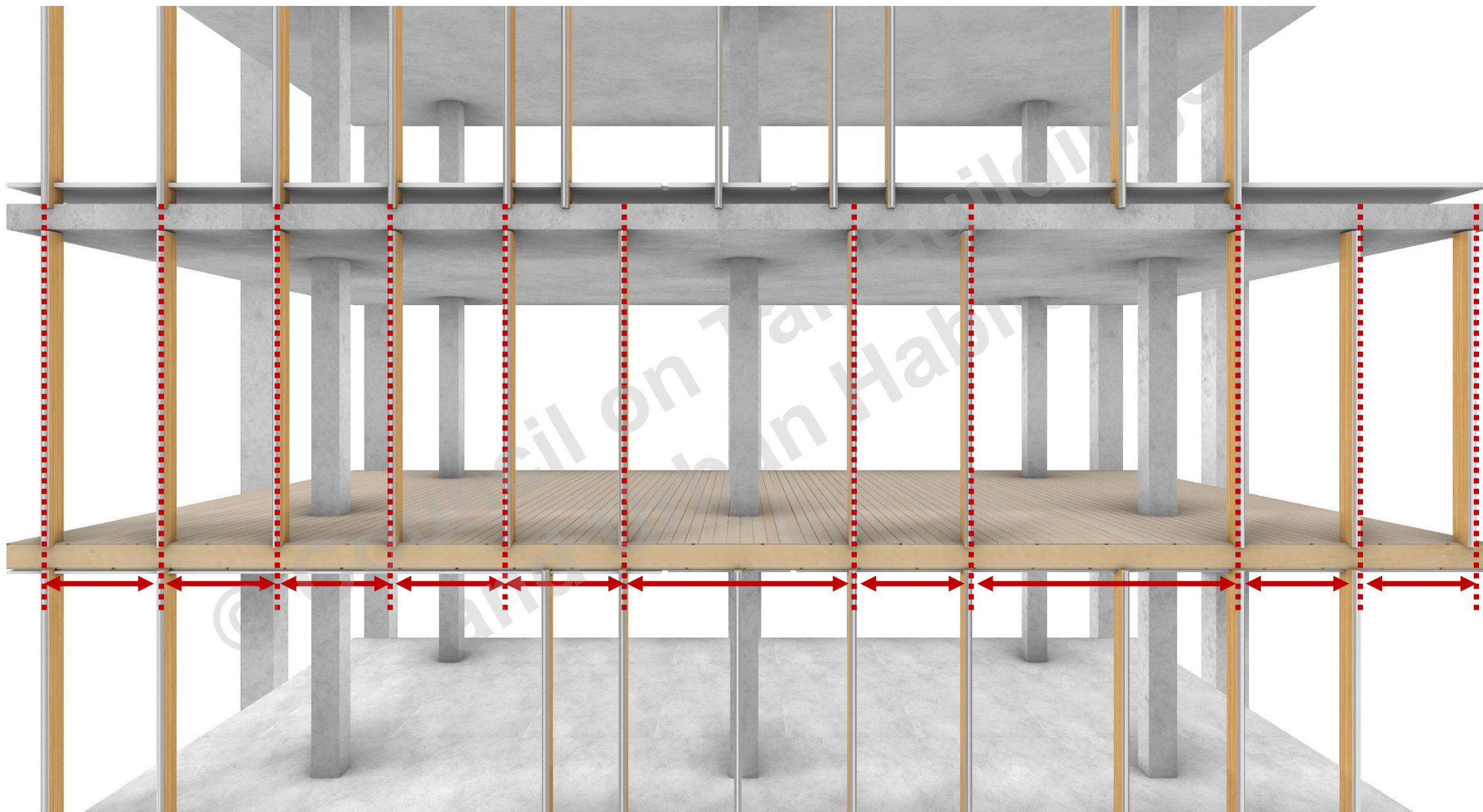
By incorporating the load bearing capacity into the façade mullion, floor deflection at the slab edge can be minimized.



Hyper-Hybrid Structure



Conventional Structure





Modularity



Parallel
Adaptability

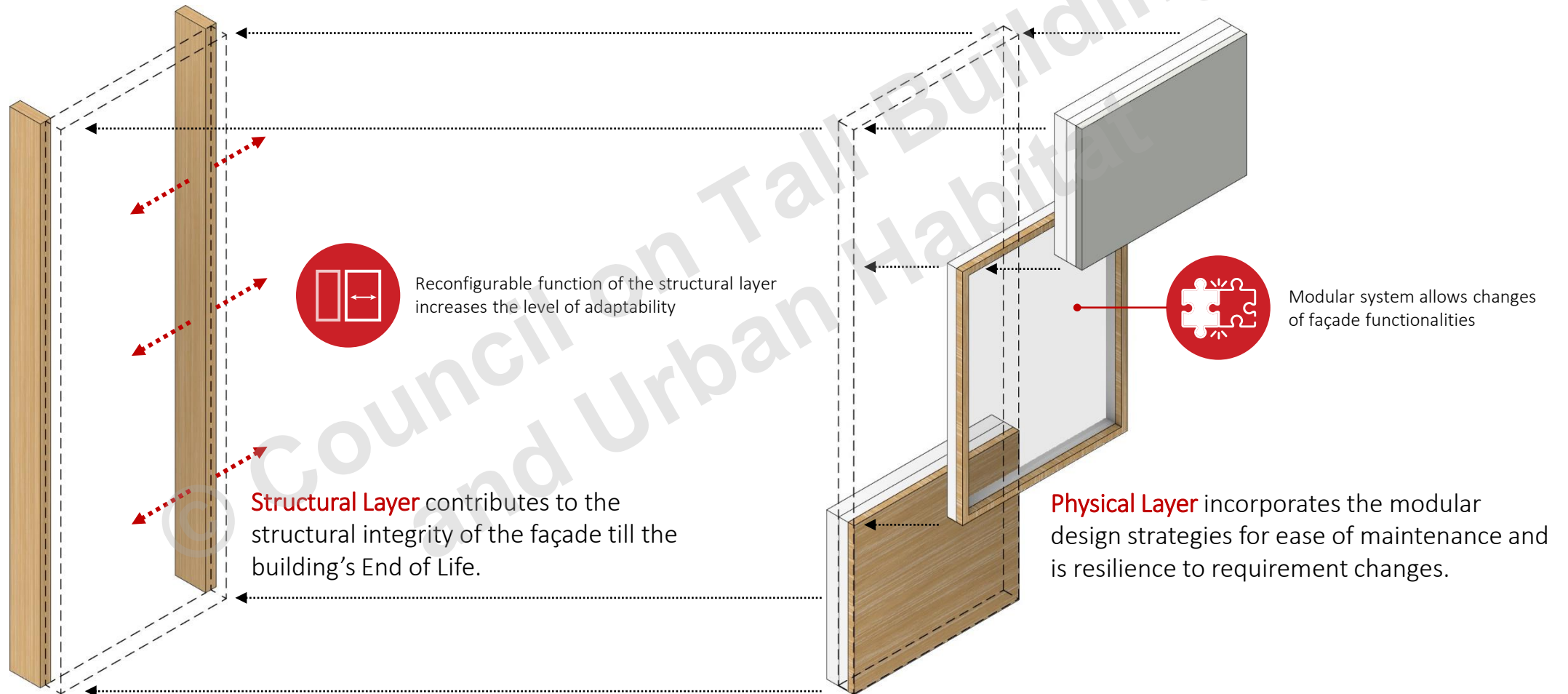


Perpendicular
Adaptability



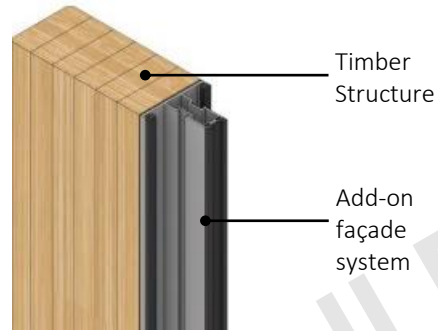
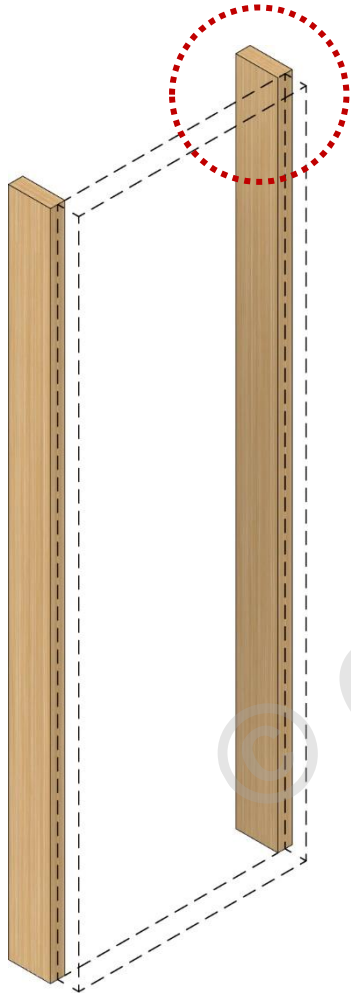
Degree of Adaptability

Degree of Adaptability

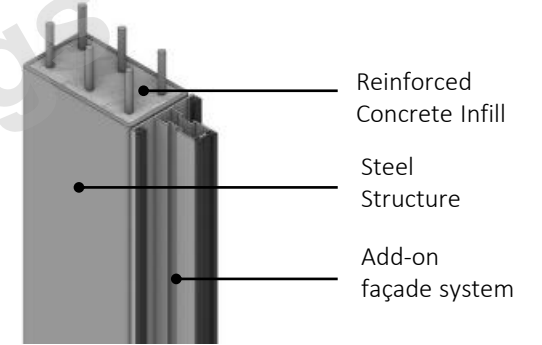


Mullion Structure

Material Configurations



Timber Mullion

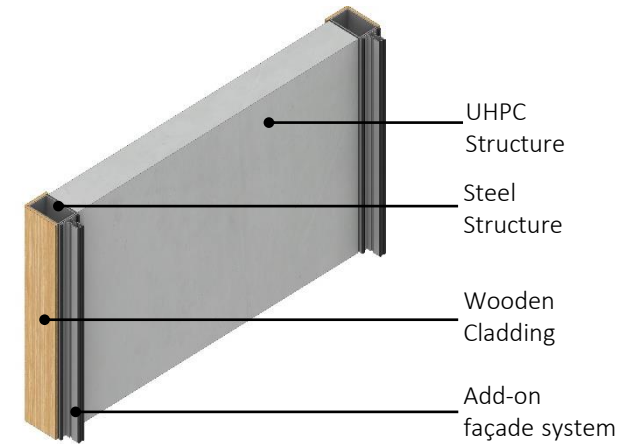


Composite Structure

Steel Mullion with Reinforced Concrete-Infill

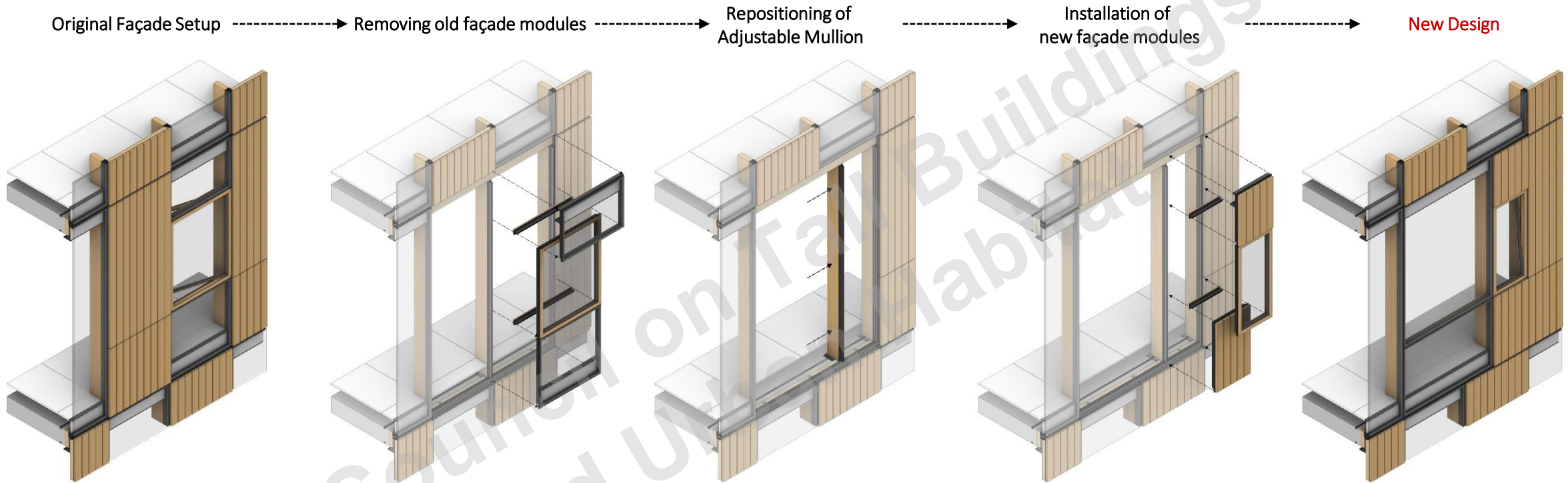


Composite Structure
Steel Mullion with Wooden Cladding

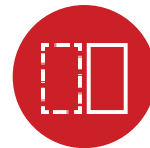


Composite Structure
Steel Mullion with UHPC Structure

Plug and Play System



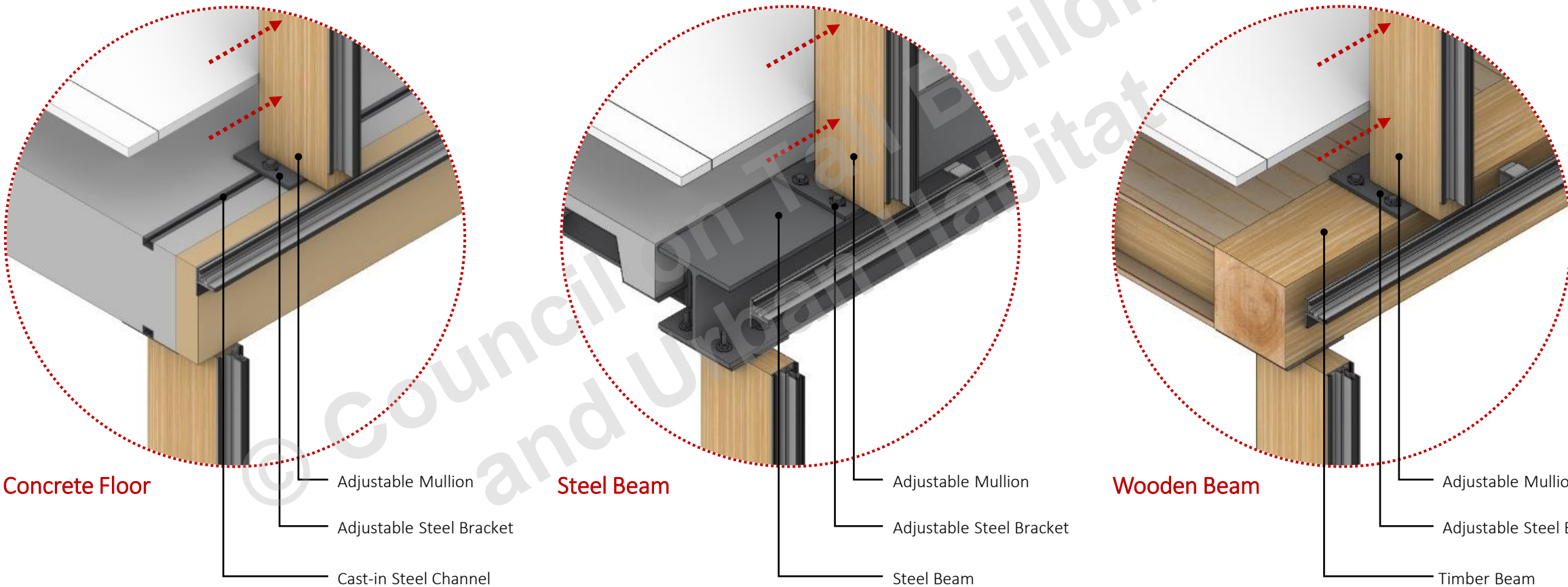
Hyper Hybrid System offers resiliency in façade transformation through the **Plug and Play System**. With adjustable mullions, the façade structure can be configured, and individual modules can be exchanged.



The reconfiguration of the façade is done **independently** without effecting the adjacent panels.

Adjustable Mullions

Application on Different Structures

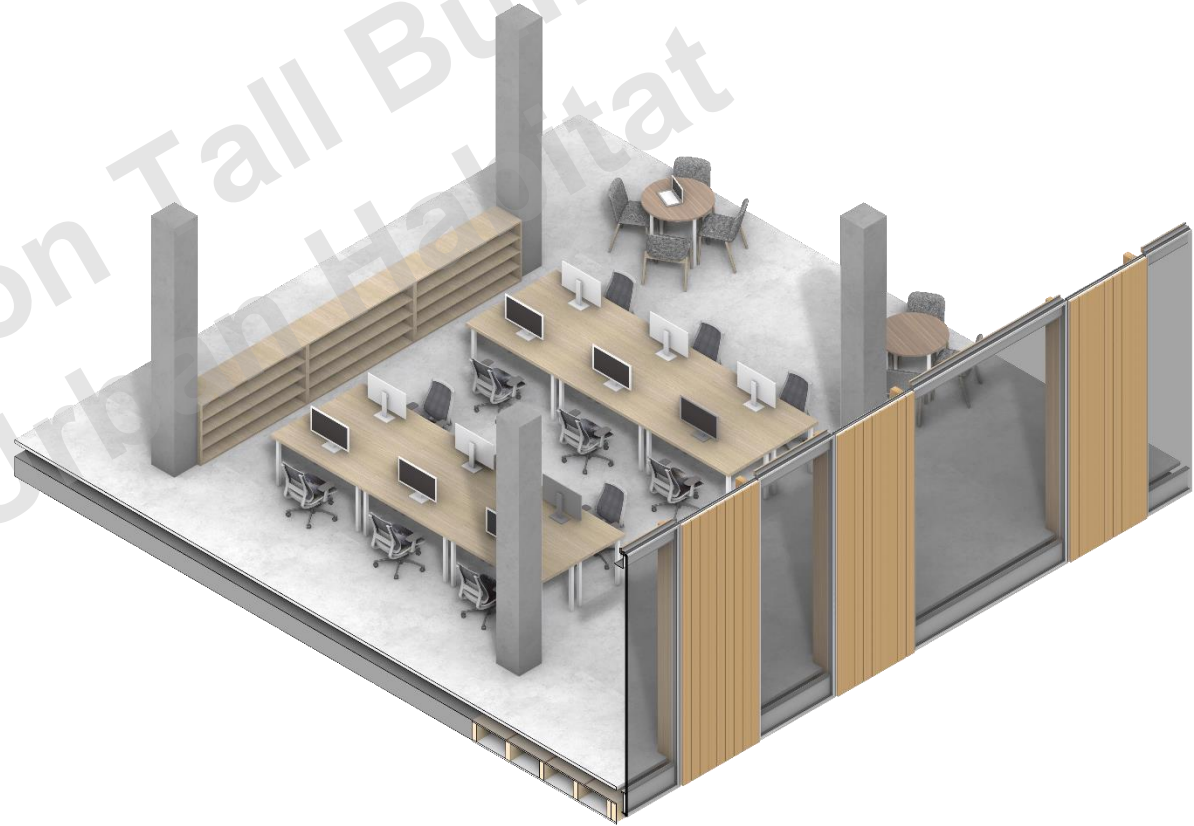


Parallel Adaptability

Accommodating Functional Changes



Adjustable Mullions allows the façade to coherently adapt to functional changes



Parallel Adaptability

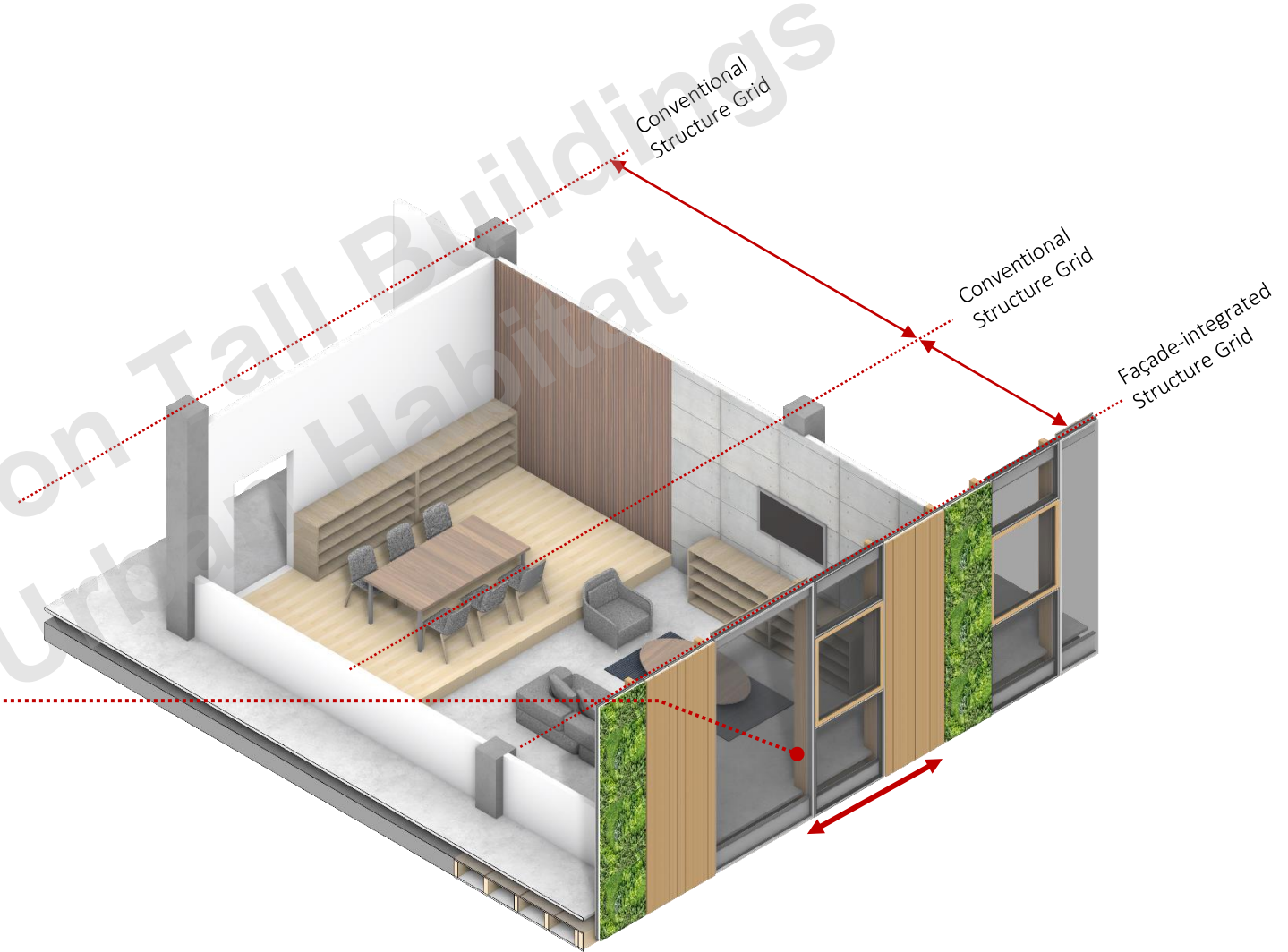
Accommodating Functional Changes



Adjustable Mullions allows the façade to coherently adapt to functional changes



Due to the **parallel adaptability**, the façade gridline can be configured to accommodate various panel width



Perpendicular Adaptability

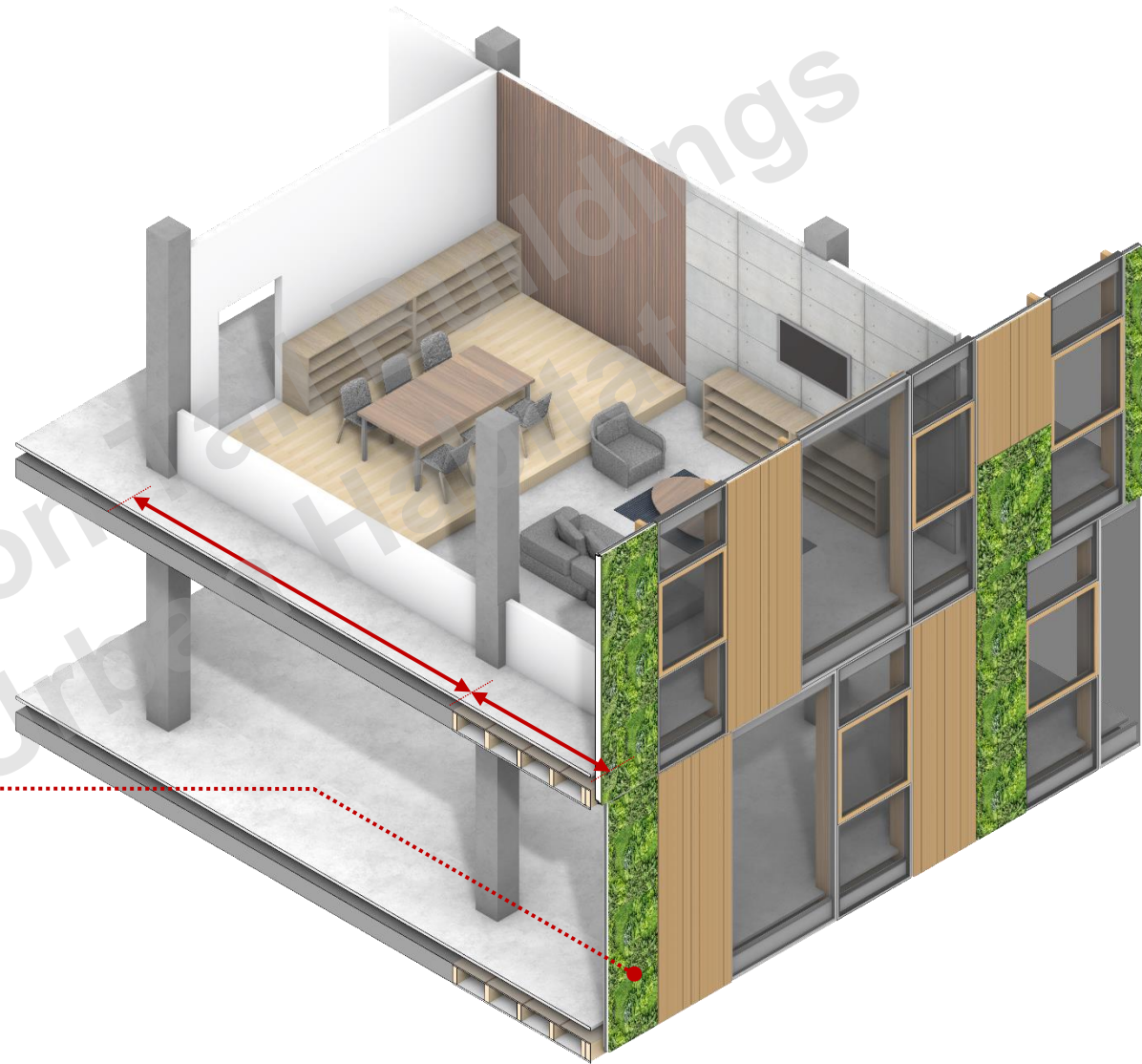
Providing Spatial Flexibility



Higher level of flexibility can be achieved as the structural columns can be positioned further from the façade.



As the mullions are positioned at the edge of the slab, it also contributes as a **load bearing element**



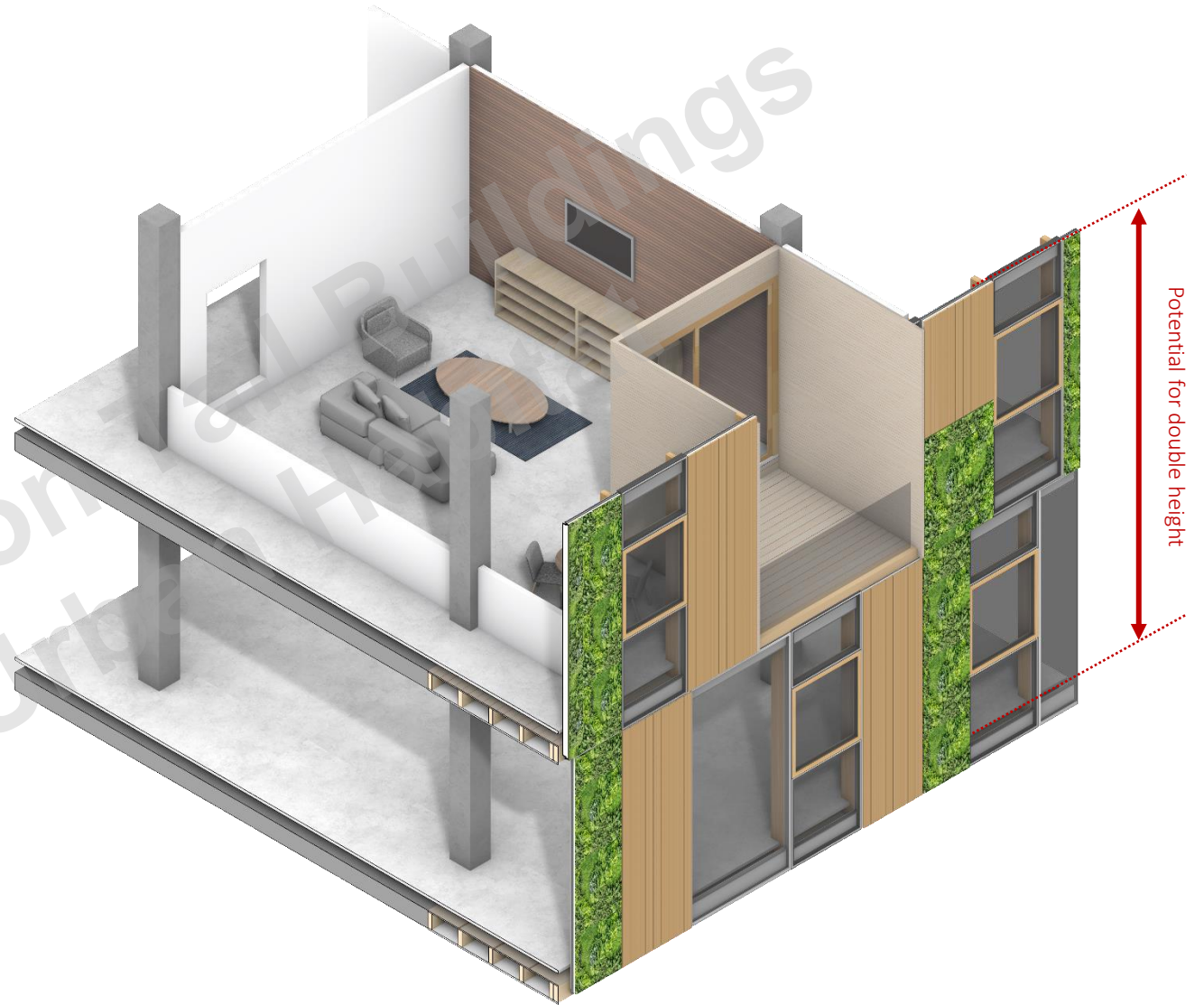
Perpendicular Adaptability

Providing Spatial Flexibility



The adjustable mullions also allow **Perpendicular Adaptability** to the façade.

In combination with lightweight floor structure, further adaptability can be achieved such as **double height room or balcony**



Potential for double height

“We close the loop”
priedemann

