COMPAS-LCA Pipeline

Initiate assessment	User-defined configuration settings	MODULE 1: IFC Data Extraction	MODULE 2: Material Matching	MODULE 3: LCA Calculation	MODULE 4: LCA Report Generation
Actions					
Establish project scope and identify assessment boundaries	Customize subtypes and LCA database selection, set LLM parameters	Extract all building element data and establish a structured bill of quantities	Match LCA database materials to elements based on semantic and functional fits	Append matched material indicators to elements and calculate net emissions	Compile report with assumptions, data sources, and interpretable emissions results
Implementation					
Hard-coded in system architecture	Master configuration YAML file	COMPAS IFC and COMPAS OCC packages	LLM APIs and reference LCA databases	Python and reference LCA databases	Python data visualization libraries
Data Pipeline					
Drag & drop IFC	YAML used for all	JSON files for all	LLM-generated	Combined JSON	TXT, JSON, PNG,

model to input folder

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Clauses 6 & 7 Purpose & Object

of Assessment

Clause 8 Life Cycle Scenarios

downstream

processes

Clause 9 Building

elements / CSV

inventory

Quantification

Clause 10 Environmental

Data Selection

JSON files for

further parsing

Clause 11

Calculation of

Environ. Indicators

files and updated

CSV inventory

Clause 12 Reporting and

Communication

PDF and CSV

files