

The VI-Suite is an addon for the Blender 3D content creation application that functions as a pre/post processor for the Radiance and EnergyPlus building simulation tools as well as offering various building context analyses. The VI-Suite, like Blender, Radiance and EnergyPlus, is free, open-source and multi-platform. The VI-Suite is deeply integrated with Blender and this offers a number of integrated capabilities:

Blender's node system is used to offer a flexible and user-friendly interface, Blender's advanced material and geometry specification tools are used to define building geometry Blender's animation system is used to offer parametric as well as static analyses. Blender's text editor is used to manually edit simulation input files and write custom functions. Blender's video sequence editor is used to create animations of parametric analyses. Blender's material system is used to create scene based visualisation of results. Blender's OpenGL interface is used to create heads-up-displays of information. In addition the VI-Suite uses matplotlib for 2D result plotting and Kivy for simulation monitoring.

As of version 0.4 the VI-Suite offers:

- 2D plotting of weather data from EnergyPlus weather files.
- Dynamic sun path creation and physically based lighting based on date and time.
- Wind rose creation and 2D plotting of wind data.
- Shadow study analysis on any geometry within the scene with scene based visualisation and 2D plotting of results.
- Static and parametric Radiance analyses for the simulation and visualisation of: Daylight factor, illuminance and irradiance.
- Compliance testing against BREEAM, Code for Sustainable Homes, Green Star and LEEDv4 standards.
- Climate Based Daylight Modelling metrics such as daylight availability, useful daylight illuminance and annual sunlight exposure.
- Luxhour and kiloWatt-hour exposure.
- Glare using evalglare.
- Artificial lighting based on IES files.
- Creation and visualisation of Radiance BSDFs.
- Support for Radiance's new Photon mapping capability.
- Static and parametric EnergyPlus analyses for the simulation and visualisation of: Building temperatures and heating/cooling consumption.
- Node-based complex natural ventilation networks.
- Internal air quality
- An experimental node interface to EnergyPlus' EMS program infrastructure.
- Most types of result data can be visualised within the Blender scene, plotted or exported to CSV file for subsequent visualisation.

Further details about the VI-Suite can be found at the following web link:

- Website: <http://arts.brighton.ac.uk/projects/vi-suite>
- Blog site: <https://blogs.brighton.ac.uk/visuite/>
- Forum: <https://groups.google.com/forum/#!forum/vi-suite>
- Video tutorials: <https://www.youtube.com/playlist?list=PLySrjcxblMopVXXNU6FWqy5BCPU1oif8I>
- Code repository: <https://github.com/rgsouthall/vi-suite04>