HiCAD

UNLIMITED CAD PERFORMANCE **DEVELOPED BY ISD**

HiCAD Metal Engineering

Version 2024

HiCAD-LogiKal Interface

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THE WORLD OF CAD AND PDM SOLUTIONS

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HiCAD-LogiKal Interface

HiCAD is the comprehensive project solution for creating 3-D facade constructions. Thanks to its own kernel and a multitude of industry-related automatisms, HiCAD is the ideal tool for detail construction in facade engineering.

LogiKal is the leading system for creating window and door elements as well as flat glass facades. LogiKal offers an unmatched variety of system data and great possibilities for machine control.

For many construction jobs, a combination of the possibilities is ideal. LogiKal cannot become a 3-D editor for complex spatial constructions or the detailing of connections. On the other hand, HiCAD cannot become an editor for windows and doors including fittings, logic check and approval information.

In order to nevertheless create the highest possible security for the combination of 3-D drawings with windows and doors, an interface was developed that enables the reciprocal display of elements and constructions. In this way, window and door elements can be displayed in a 3-D context, e.g. in order to take over dimensions, define connections and, if necessary, better coordinate the constructions with each other, e.g. by carrying out collision checks. Similarly, complex 3-D facade constructions from HiCAD can be displayed in LogiKal in order to define insert elements and to transfer the profiles to production via the LogiKal machine control.

It should be noted that the displayed elements can initially only be edited in the source software. This means that facade elements from HiCAD can only be edited in HiCAD. Window and door elements as LogiKal items only in LogiKal. Exceptions to this are, for example, connection holes or similar LogiKal elements that must be provided in HiCAD on the outside of the element, for example for fastening metal sheets or steel plates.

A distinction must therefore be made between:

- Designing via LogiKal (Elevation interface) and
- Designing via HiCAD (Construction interface).

Designing via LogiKal (Elevation Interface)

Target

LogiKal is the leading system in which the items (in LogiKal these are called "positions") for planar glass facades or window and/or door elements are created and managed. The items can be imported into HiCAD and supplemented with further elements from further trades (e.g. steel substructures, sheet metal cladding and/or connections to existing objects on site). Processings that are carried out in this context on objects from the LogiKal items in HiCAD can be transferred back to LogiKal. The output of bills of materials, drawings and machine control is carried out separately, i.e. via LogiKal for all objects from the LogiKal items and via HiCAD for all objects designed in HiCAD.

Working method

LogiKal is the leading system in which items for glass facades are created and managed. Existing LogiKal items can be imported into HiCAD. Alternatively, you can also call up the creation of new LogiKal items from HiCAD; this is then done via LogiKal dialogues integrated in HiCAD. In both cases, the logic of how these items are constructed lies entirely in LogiKal.

The representation of the LogiKal item in HiCAD corresponds approximately to LOD 350. By importing a LogiKal item into HiCAD, all essential parts (profiles, seals, glass panes) of the item are thus represented in HiCAD as a 3-D part. Supplementary parts, such as fittings, cannot be displayed, as the manufacturers usually do not supply 3-D data for them. Furthermore, it is not guaranteed that the processing (e.g. notching, drilling) for the transferred objects is complete. However, the export result is correct in that the transferred objects are spatially correct and thus further designing in HiCAD including transfer of the required processing is possible without the user having to intervene manually to change the item (in HiCAD).

Due to the above-mentioned "maintenance rights" of the objects, only the top part of the item is marked as a BOM-relevant part when importing a LogiKal item into HiCAD. All sub-objects are not BOM-relevant for HiCAD. The output of bills of materials, drawings as well as the machine control is done separately, i.e. via LogiKal for all objects from the LogiKal-items and via HiCAD for all objects constructed and designed in HiCAD.

Changes to already imported LogiKal items can be adopted. HiCAD processings to imported items are retained even after an update due to changes in LogiKal, provided the geometric situation does not change fundamentally (i.e. parts can be found again unambiguously).

Processings added in HiCAD to profiles of a LogiKal item can be transferred to LogiKal. This concerns both the outer and inner facade profiles with the exception of insert elements. The transfer supports all common processing types (see below for a detailed list of supported processing types).

Generally, processings can only be edited in the system in which they were created. If changes are made in HiCAD, they are carried over to LogiKal when the item is synchronised and applied to the item there.

Interface functions in HiCAD

Importing LogiKal items

The following options are available for importing from LogiKal:

- Import of an existing LogiKal item.
- Creation and import of a new LogiKal item (grid input in LogiKal).

- Creation and import of a new LogiKal item (with transfer of the grid from an existing HiCAD sketch).

The result of the item import corresponds to what is described under **Working method** above.

Note on the glass thicknesses:

The glass panes along and on both sides of a support profile can have different thicknesses. The glass thicknesses can be combined as supported by LogiKal.

Limitations:
HiCAD design variants for base plate connections cannot currently be used because the grouping of profiles required for this is not yet available.

Updating an imported LogiKal item

Is supported. Optionally, it can be set that the up-to-dateness is checked automatically.

HiCAD processings on imported items are retained even after an update due to changes in LogiKal, provided the geometric situation does not change fundamentally. This means that parts must be clearly retrievable.

Subsequent change of the grid for LogiKal items created from a HiCAD sketch

If a LogiKal item was created from a HiCAD sketch, the latter can be changed in HiCAD and the position in LogiKal adjusts. Processings on profiles are retained if the profile can be clearly assigned.

Transfer of processings from HiCAD to LogiKal

The basically permissible processings correspond to what is described under **Working method** above. The following processing types are supported:

- Bore
- Slot
- Rectangular pocket
- Countersink
- Notch
- Thread

Limitations:
Transfer of cuts and length changes of outer profiles of a LogiKal item is not possible so far.

Change of a glass element into an insert element

Is supported.

Import of a 2-D sectional view of the LogiKal item

Is supported.

Output of LogiKal reports directly from HiCAD

Is supported.

Designing via HiCAD (Construction Interface)

Target

The designing of the glass facade is done in HiCAD using logics for profile or glass construction from LogiKal. The result of the construction can be exported as a new LogiKal item. The output of bills of materials, drawings as well as the machine control is done via HiCAD.

This method of working is typically chosen for spatially complex glass facades, where the more complex construction and detailing of the facade is done in HiCAD. The option of displaying the item in LogiKal is usually used exclusively for visualisation purposes or for an overview.

Working method

Profile cross-sections and glass superstructures can be imported from LogiKal individually or on the basis of a HiCAD grid. LogiKal functions as a configurator for selecting a sensible profile or glass structure. Different glass thicknesses on one profile are not possible.

In HiCAD, the objects can be further processed, either

- with the "normal" processing functions of HiCAD or
- with notches for profiles configured by LogiKal.

Profiles and glass panes configured via LogiKal can be exported as new LogiKal items. For glass panes, however, only the dimensions and not the structure are transferred. Processings can also be transferred to LogiKal, the interface supports all common processing types.

The output of bills of materials, drawings and machine control is done via HiCAD.

Interface functions in HiCAD

Importing profiles

Profiles or profile groups can be imported into HiCAD using the LogiKal profile configurator. Both single imports and imports for facade grids already existing in HiCAD are supported.

Import glass panes

Glass panes can be imported into HiCAD using the glass configurator of LogiKal. The created panes have the desired structure and name, but no further information..

Notch via LogiKal

Profiles can be processed using the LogiKal notching function. This is possible for individual profiles as well as in a grid.

Export as LogiKal item

Profiles imported from LogiKal can be transferred to LogiKal, complete with processings if necessary. The following processing types are supported:

- Bore
- Slot
- Rectangular pocket
- Countersink
- Notch
- Thread

Limitations:
For glass panels, only the dimensions are transferred, not the structure. Glass panes must therefore be re-entered manually after export to Logi. If the Logi item is only used for visualisation/overview, this is not a problem.

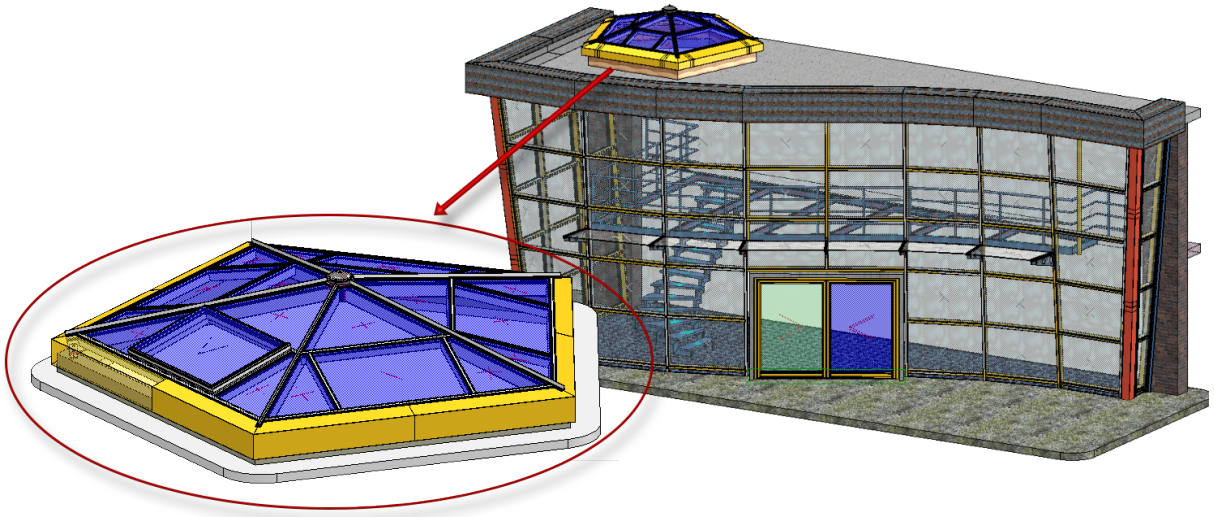
Each export creates one new LogiKal item.

Use Cases

Case A: Spatially complex facades

Description

A spatially complex facade grid is to be covered with mullions, transoms and glass panes (pyramid, curved or bent facade, etc.). The production data is to be created and output in HiCAD.



Classification

Designing via HiCAD (CONSTRUCTION INTERFACE).

Procedure

The geometry is represented in HiCAD by one or more sketches. These can be filled with profiles imported from LogiKal, the fields can be filled with glass panes configured via LogiKal. Profiles can be processed and notched via LogiKal. Production data is created and output in HiCAD. The result can also be exported as a LogiKal item.

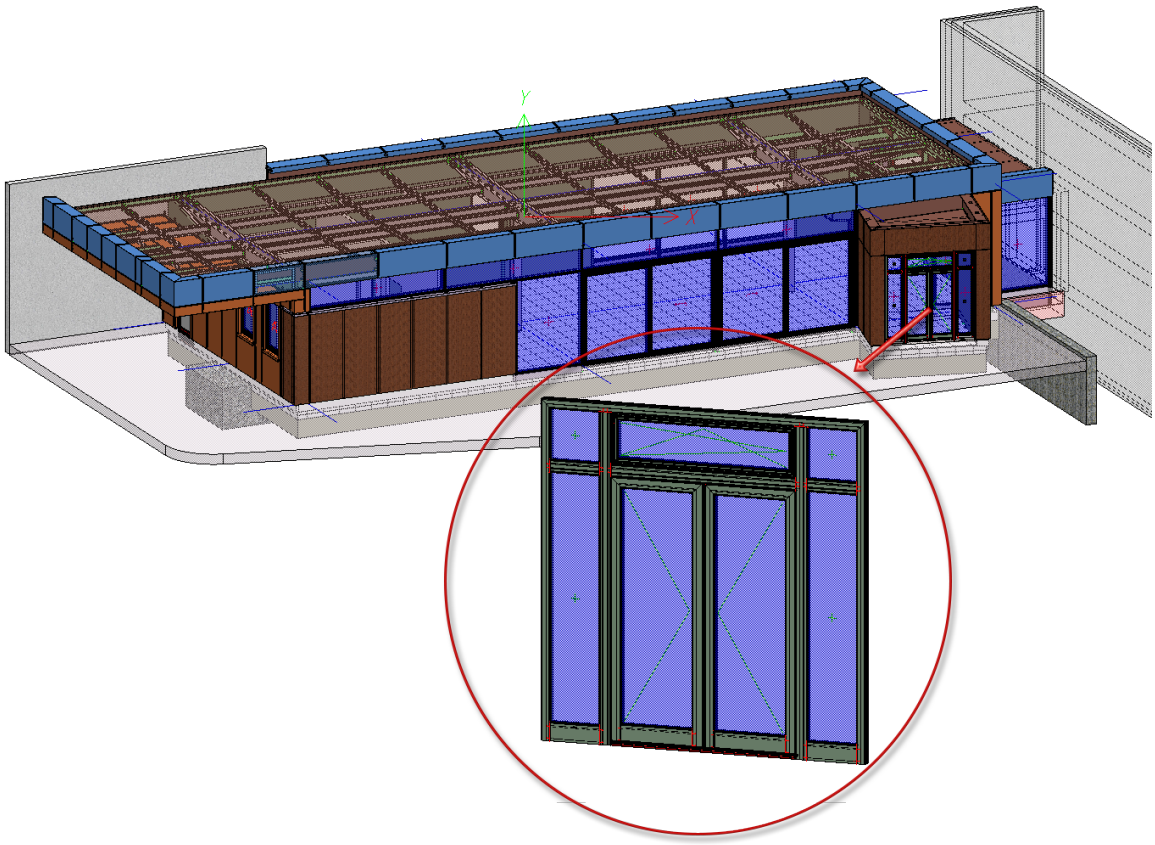
Current state

Works in principle.

Case B1: Insertion of a window/door insert in a HiCAD drawing

Description

A window or a door is to be inserted into an opening in the building structure. The dimensions should be able to be changed later in HiCAD (due to changed opening or joint dimensions). In HiCAD, it should be possible to add processing to the profiles. The window or door insert is to be output and produced via LogiKal



Classification

Designing via LogiKal (ELEVATION INTERFACE).

Procedure

A sketch with the appropriate dimensions is created in HiCAD. The inner grid can also be specified. This sketch is transferred to LogiKal and an item is created from it, which is then imported into HiCAD at the desired position and automatically placed. The sketch can be changed and the item corrected in LogiKal. The changes are automatically applied in HiCAD. Edits can be added to the profiles and transferred to LogiKal. The output of the window or door insert is done via LogiKal.

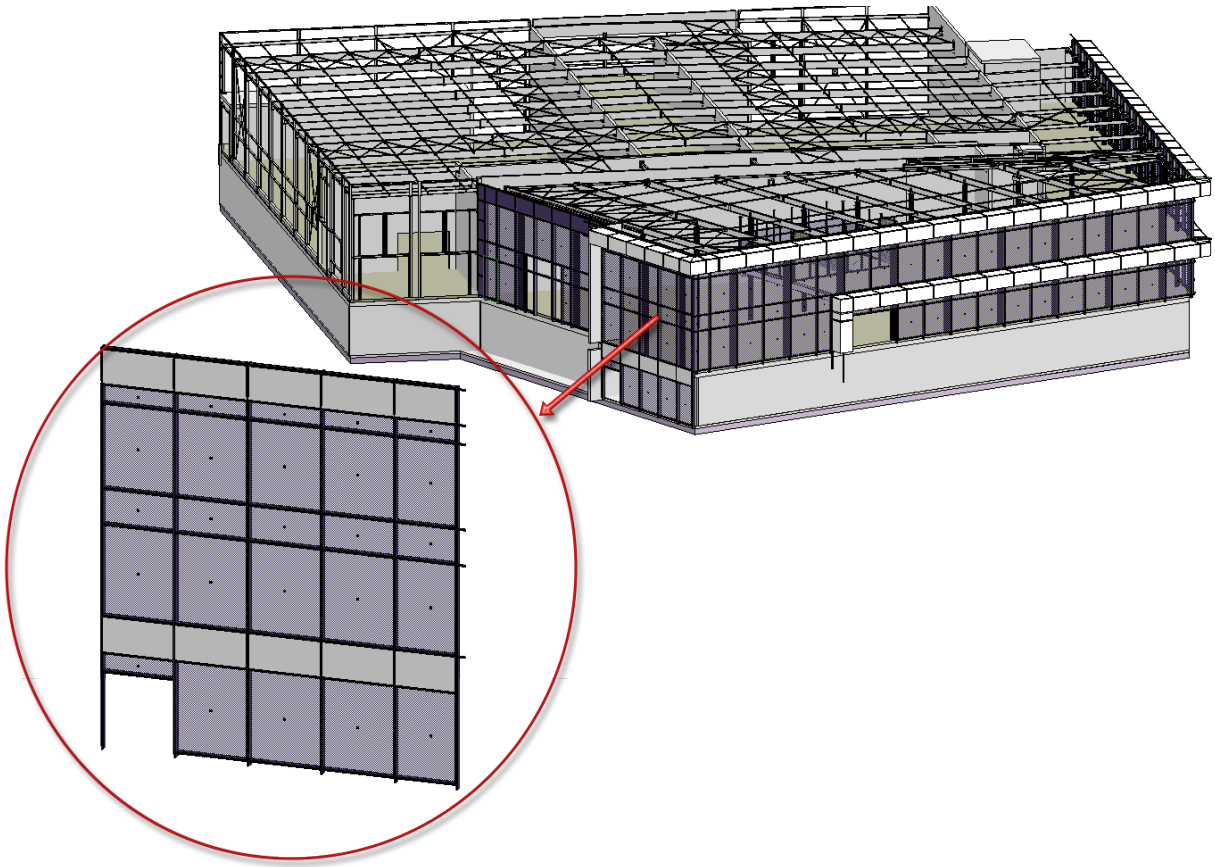
Current state

Works in principle.

Case B2: Insertion of a (planar) glass facade into a HiCAD drawing

Description

Like Case B1 only for planar glass facade instead of window/door element.



Classification

Designing via LogiKal (ELEVATION INTERFACE).

Procedure

Like Case B1.

Current state

Like Case B1.

Limitations:
HiCAD Design Variants for base plate connections cannot be used at present, as the grouping of profiles required for this is not yet available. The transfer of cuts and length changes for outer profiles of a LogiKal item is not yet possible.

Case C: Construction of a winter garden in HiCAD

Description

A winter garden is to be designed in HiCAD. Roof and sides are to be created with LogiKal and imported into HiCAD. Mitre cuts are to be created between roof and front and the processings for both items are to be exported to LogiKal. The production data should be created there..

Classification

Designing via LogiKal (ELEVATION INTERFACE)

Procedure

At present there is no working method that can achieve the above mentioned goal.

Current state

Currently not working, because mitre cuts and length changes cannot be transferred.

HiCAD

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Your local contact

We attach great importance to the direct contact with our customers and partners, because only a lively dialogue and constant exchange with practice ensure application- oriented software development.

Feel free to contact us! Whether at our headquarter in Dortmund or at one of our branches and subsidiaries in your vicinity - we will be happy to answer all your questions about our products and services. We are looking forward to hearing from you!

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