Vasuki

Electrical BIM Automation Tool
Revit 2025 Compatible

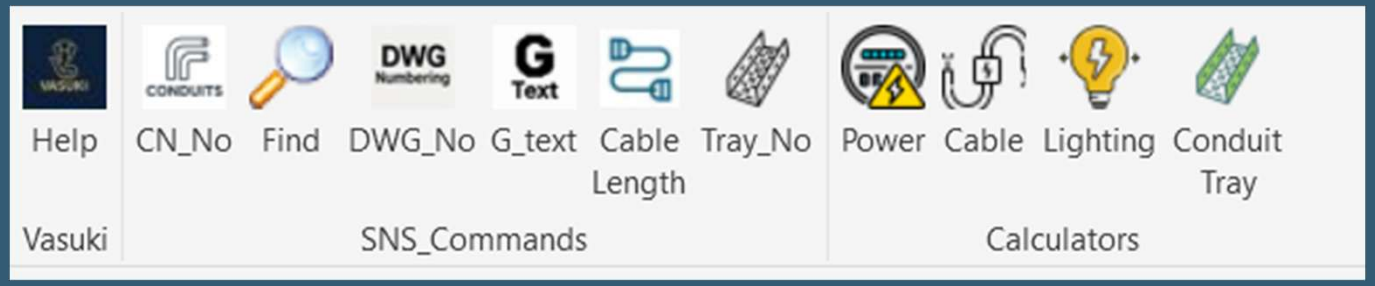
Vasuki Commands

Calculators

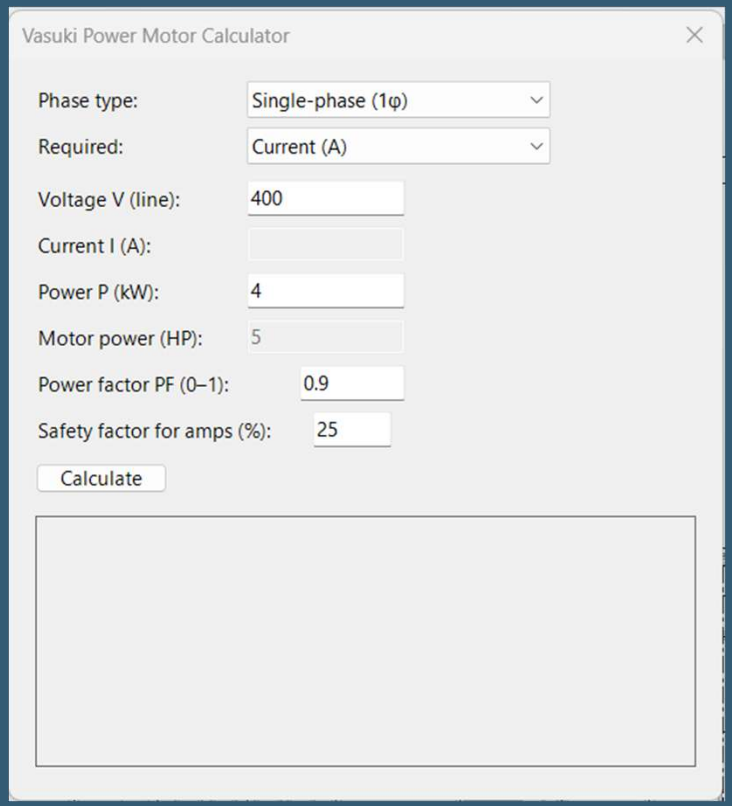
- Power :- Power, Voltage, Current, HP calculator
- Cable :- Cable size Calculator
- Lighting :- Lighting calculator
- Conduit Tray :- Required Conduit Tray size calculator

SNS_Commands

- Help :- Contact Info
- CN_No :- Conduits Numbering
- Find :- select Raceways using number
- DWG_No :- Conduits/Trays sheet numbers update
- G_text :- Grounding Text annotation
- Cable Length :- Calculate Length Using Raceway via's
- Tray_No :- Cable tray numbering



VASUKI POWER CALCULATOR



The **Power Calculation module** in Vasuki helps quickly calculate motor and load parameters **directly inside Revit**, without using Excel or external calculators.

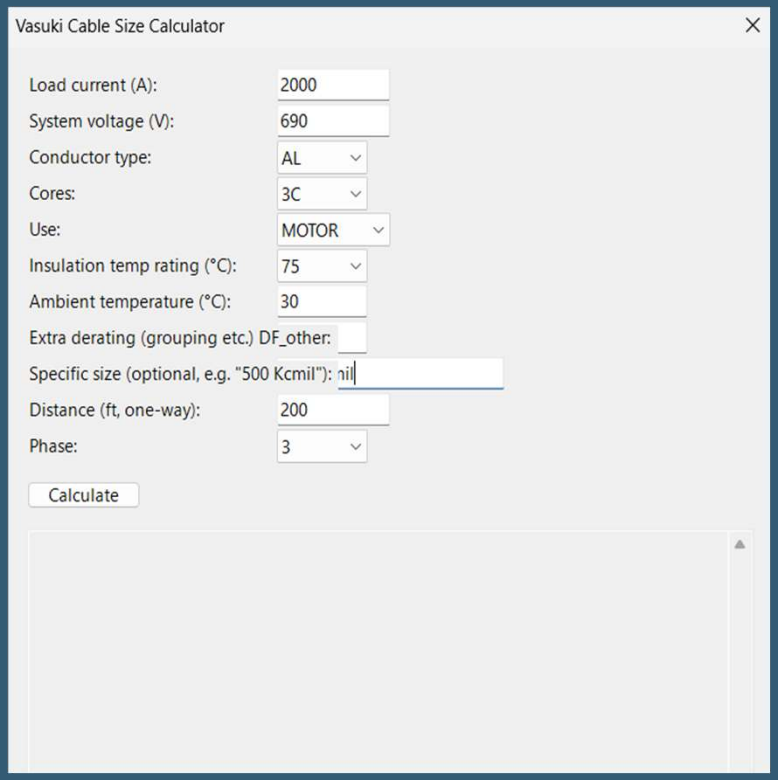
Operation Flow

1. Select the **phase type**
   - Single-phase or Three-phase
2. Enter **any known value**
   - HP **or** kW **or** Current **or** Voltage
3. Provide basic electrical factors
   - Power Factor (PF)
   - Efficiency (η)
4. Click **Calculate**

Instant Outputs

✓ Design current
✓ Real power (kW)
✓ Apparent power (kVA)

VASUKI CABLE SIZE CALCULATOR



The **Cable Size Calculator** in Vasuki helps select the correct conductor size **inside Revit**, based on **NEC 310.16**, without manual table lookups or Excel sheets.

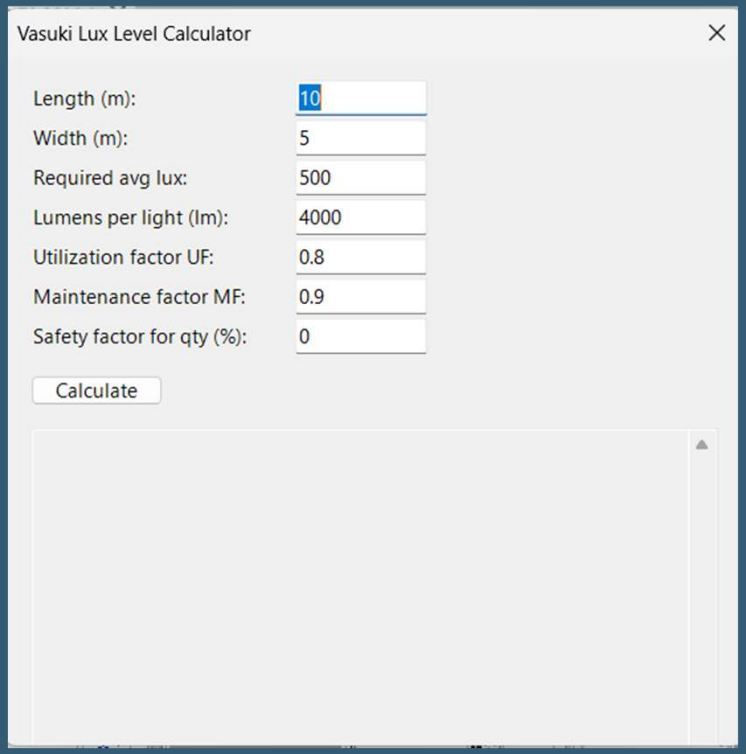
Operation Flow

1. Enter **design load current**
2. Select **conductor material**
   - Copper (Cu) or Aluminum (Al)
3. Define **installation conditions**
   - Ambient temperature
   - Number of current-carrying conductors
4. Enter **cable run length** and allowable **voltage drop**
5. Click **Calculate**

Why This Helps

- No manual NEC table reading
- No missed derating factors
- Faster and consistent sizing
- Reduced design errors

VASUKI LUX LEVEL CALCULATOR



The **Lighting Calculation** tool in Vasuki helps estimate the required number of light fixtures **inside Revit** using the **basic lumen method**, without external lux calculators.

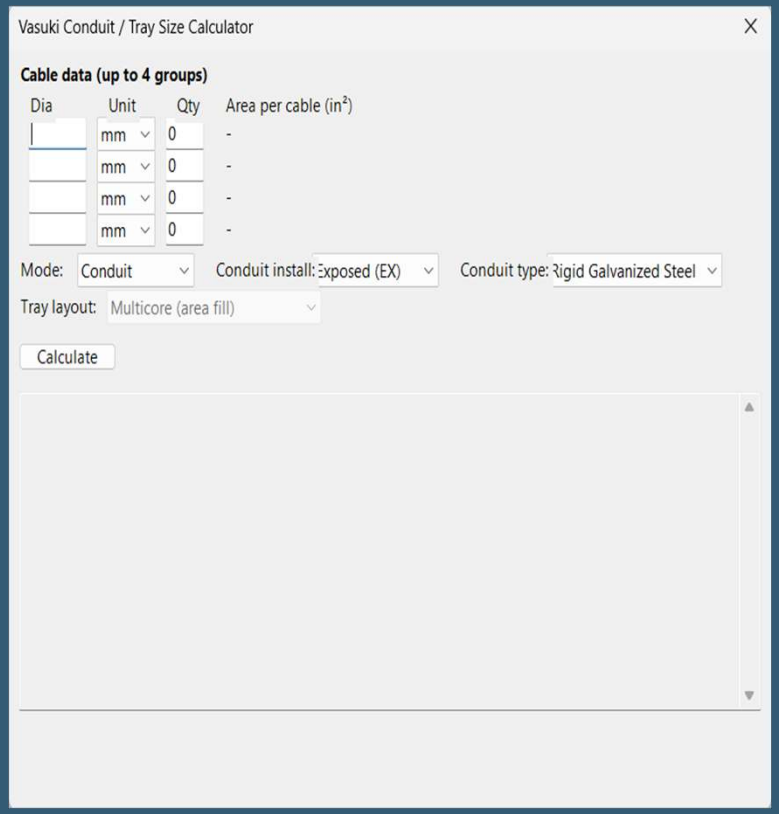
Operation Flow

1. Enter **room dimensions**
   - Length × Width
2. Define the **required average illuminance (Lux)**
   - Based on room function (office, corridor, etc.)
3. Enter **luminaire data**
   - Lumens per fixture
   - Utilization Factor (UF)
   - Maintenance Factor (MF)
4. Click **Calculate**

Final Output

✓ Total lumens required
✓ Effective lumens per fitting
✓ Required number of light fixtures
✓ Achieved average lux

VASUKI CONDUIT/TRAY SIZE CALCULATOR



The **Conduit / Tray Size Calculator** in Vasuki helps select the correct raceway size **inside Revit**, based on **NEC fill rules**, without manual calculations or spreadsheets.

Operation Flow

1. Select **raceway type**
   - Conduit or Cable Tray
2. Enter **cable details**
   - Cable diameter
   - Number of cables (multiple groups supported)
3. Select **installation type**
   - Exposed / Embedded
   - Conduit or tray material/type
4. Click **Calculate**

What the Tool Does Internally

✓ Calculates individual and total **cable cross-sectional area**
✓ Applies **NEC conduit fill limits** (e.g., max 40% for >2 conductors)
✓ For trays, evaluates **area-fill / single-layer arrangements**
✓ Compares cable area against available conduit or tray sizes
✓ Filters out non-compliant options

Final Output

✓ Recommended conduit or tray size
✓ Actual **fill percentage**
✓ Multiple size options for engineering judgment
✓ Clear pass/fail indication against NEC limits

VASUKI- SUPPORT & LICENSING

Best Practices

•Always test licensed commands on a **backup model**

•Review results after execution

•Use licensed features only when workflow is understood

Vasuki is designed to be easy to use, but because some commands directly modify Revit model elements, **support and licensing are handled carefully**.

Help & Support

•A **Help** button is available inside the Vasuki ribbon

•It provides:

- Tool information
- Basic usage guidance
- Developer contact detail

Licensing

Vasuki follows a **hybrid licensing model**:

🧮 **Free Features**

•All **electrical calculators** are free to use

•These tools **do not modify** model elements

•No license activation is required

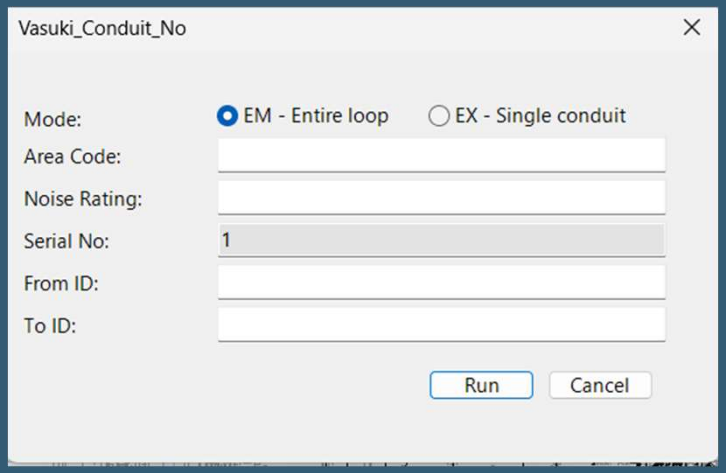
🔐 **Licensed Features (SNS Commands)**

•Advanced automation commands require a **license key**

•These commands:

- Modify Revit model elements
- Save significant project time
- Require controlled usage

VASUKI_CONDUIT_NO



The **Conduit Numbering** tool in Vasuki automates assigning conduit numbers **directly in Revit**, while also allowing optional **From / To ID** data entry when required.

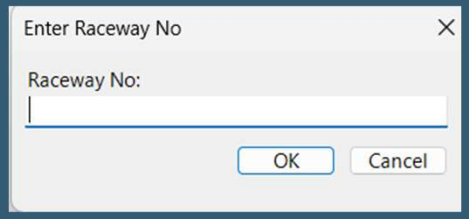
Operation Flow

1. Select the conduit
2. Choose the **numbering mode**
   - **EM (Entire Loop)** – updates the full connected conduit run
   - **EX (Single Segment)** – updates only selected conduit segments
3. Enter or confirm the **starting conduit number**
   - The tool remembers the last used number
4. *(Optional)* Enter **Conduit From ID** and **Conduit To ID**
   - Use this when identification is required
   - Can be left blank if not needed
5. Click **Run**

What the Tool Does Internally

✓ Identifies connected conduit elements
✓ Applies conduit numbers consistently
✓ Updates **From / To ID** parameters only if values are provided
✓ Writes data safely to the defined project parameters

FIND?



The **Smart Find** tool in Vasuki helps instantly locate conduits or cable trays in the model **without manual searching or filters**.

Operation Flow

1. Enter the **Raceway Number**
2. Click **OK**

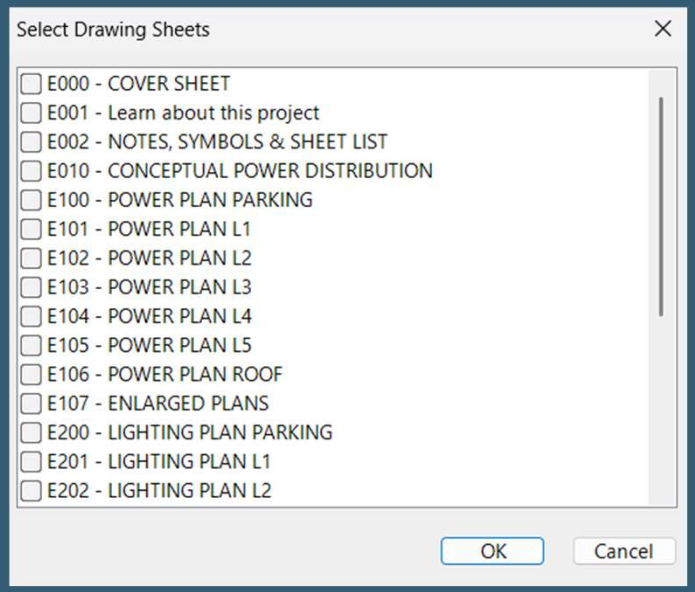
What the Tool Does Internally

✓ Searches the entire Revit model for the matching Raceway No
✓ Automatically **selects** the element
✓ **Zooms and highlights** it in the active view

Final Output

✓ Target conduit or tray is instantly located
✓ No need to open schedules or apply view filters

DWG_NO (RACEWAY DRAWING NO)



The **DWG_NO** tool in Vasuki automatically updates the **Drawing Number** parameter for conduits and cable trays **based on selected sheets**, eliminating manual edits.

Operation Flow

1. Run the **DWG_NO** command
2. Select the required **drawing sheets** from the list
3. Click **Run**

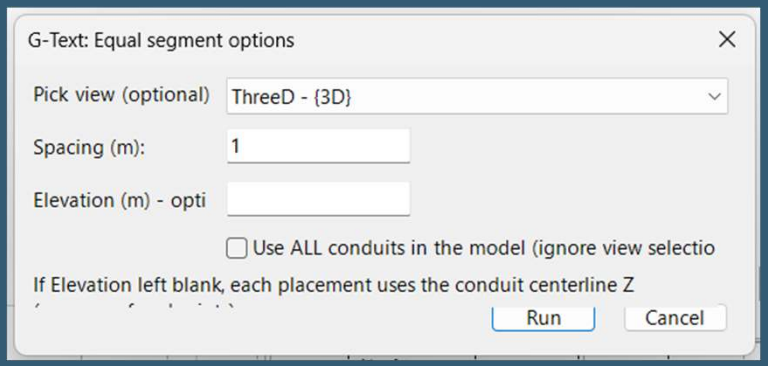
What the Tool Does Internally

✓ Reads the **Drawing Number** from each selected sheet
✓ Identifies conduits and trays visible in those views
✓ Updates the **DWG_NO parameter** on the corresponding model elements

Final Output

✓ Correct drawing numbers applied to raceways
✓ Consistent data across views and schedules
✓ No manual parameter editing

G-TEXT (CONDUIT ANNOTATION)



The **G-TEXT** command in Vasuki automatically places **"G" text annotations** along ground wire conduits, saving manual drafting time and ensuring consistent documentation.

Operation Flow

1. Run the **G-TEXT** command
2. Select the **ground wire conduits VIEW**
3. Set the **text interval / spacing** (if required)
4. Click **Run**

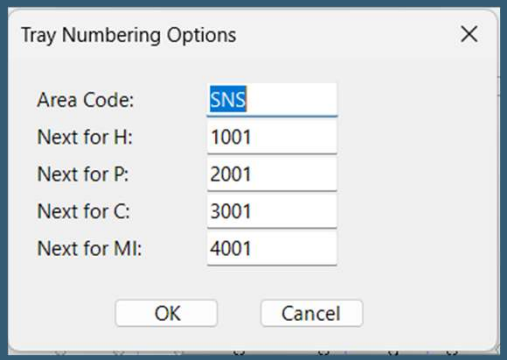
What the Tool Does Internally

✓ Identifies selected ground wire conduits
✓ Calculates conduit length and direction
✓ Places **"G" text annotations** at defined intervals
✓ Aligns text properly with the conduit path

Final Output

✓ Clean and consistent ground wire labeling
✓ Uniform annotation spacing
✓ Professional drawing presentation

TRAY_NO



The **Tray No** command in Vasuki automates **cable tray and fitting numbering** based on **Noise Rating series**, ensuring consistent and rule-based identification across the model.

Before Using the Command (Mandatory – 3 Points)

1. **Confirm the Noise Rating of trays**
   - Do **not** change starting numbers unless the project requires it
2. **Update the Area Code**
   - Must be updated every time
   - If skipped, the tool will use the default **SNS** area code
3. **Identify the first tray in the run**
   - This defines tray direction and connectivity

▶️ **Operation Flow**

1. Select the **first cable tray**
2. Run the **Tray No** command
3. Enter / confirm **Area Code** and click **OK**

🔍 **What Happens Automatically**

✓ Numbering series applied based on **Noise Rating**
✓ Tray numbers assigned
✓ Tray fitting numbers assigned
✓ Source & destination IDs updated for fittings
✓ Full connected tray run processed

CABLE LENGTH – EXCEL-DRIVEN ROUTING LENGTH CALCULATION

The **Cable Length** command in Vasuki calculates **accurate cable routing lengths** in Revit using **From / To / Via information from Excel**, then writes the results back to the same file.

✅ **Before Using the Command**

- Ensure conduits and trays are **properly numbered (Raceway No / Tray No)**
- Panels and equipment must have valid **From ID / To ID**
- Excel file must follow the required format

📁 **Excel File Requirements**

The Excel file must contain these columns:

- **Cable No**
- **From ID** (source panel / equipment)
- **To ID** (destination panel / equipment)
- **Via** (Raceway No of conduit or tray route)

▶️ **Operation Flow**

1. Run the **Cable Length** command
2. Select the **Excel file**
3. Vasuki reads Cable No, From ID, To ID, and Via data
4. The tool identifies:

- Source panel
- Destination panel
- Conduit / tray route using **Via (Raceway No)**

5. Vasuki calculates the **actual routed length** inside Revit
6. Click **Run**

🔍 **What the Tool Does Internally**

✓ Traces the route from **From ID → Via raceway → To ID**
✓ Calculates true 3D length (including fittings and bends)
✓ Matches each calculation to the correct **Cable No**
✓ Writes the final cable length back into the **same Excel file**

VASUKI EXCEL CROSS CHECKER

User Instructions

A tool to compare Old vs New Excel data and generate automated comparison reports

What This Tool Does

Compares two Excel datasets: Old vs New

Identifies:

- *Modified values*
- *Newly added records*

Generates:

- *A detailed comparison sheet*
- *A summary report with counts and chart*

Before Running the Tool

Go to the Old sheet

- *Paste the previous revision data*

Go to the New sheet

- *Paste the updated revision data*

Ensure the Following Before Running

Headers must be in Row 1

A Common Key column must exist in both sheets

- *(Example: Cable ID)*

Key values must be unique

How to Execute the Tool

*Click "**Run**" in Instructions page*

When prompted:

- *Select the Common Key column*

Select the columns to compare

- *Use Ctrl + Click for multiple selections*

What the Tool Produces

*Automatically creates "**Vasuki_Output.xlsx**"*

*File is saved to your **Desktop***

Inside the Output File

Vasuki Sheet

- Detailed row-by-row comparison
- Highlighted changes

Vasuki Summary Sheet

- Summary of changes
- Visual chart overview

Understanding the Highlights

- **Light Red** → Value changed
- **Light Yellow** → New entry (not in Old data)
- **No Color** → No change

Important Notes

Values starting with **= , + , -** are treated as **text**

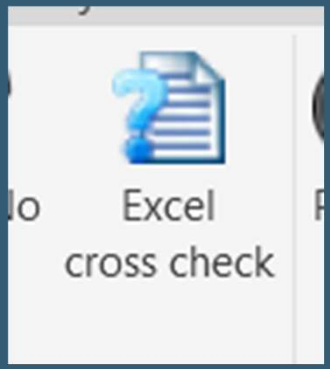
Prevents Excel formula errors

The macro **does not save your source data**

Every run starts with a **fresh comparison**

Do NOT rename sheets:

- Old
- New
- Vasuki
- Vasuki Summary



VASUKI

WHAT'S NEXT – MORE UPDATES COMING SOON 🚀

🔧 **Upcoming Enhancements**

- Advanced Cable list rev cross checker
- Fully automated cable tray hanger placement
- Electrical schedules & load reports
- BOQ / BOM automation
- More NEC-based validation tools

THANK YOU
SIDDU SRI.