

Electrical material list sample Ebook

electrical material list sample is an essential component for any electrical project, whether it's a residential, commercial, or industrial installation. A well-prepared electrical material list ensures that all necessary components are accounted for, facilitates efficient procurement, and minimizes project delays. In this comprehensive guide, we will explore the importance of an electrical material list, provide a detailed sample, and offer tips on creating an accurate and organized list to streamline your electrical projects.

Understanding the Importance of an Electrical Material List

An electrical material list serves as a blueprint that details every component required for an electrical installation. It functions as a comprehensive inventory, helping project managers, electricians, and procurement teams to:

- Ensure completeness: Avoid missing critical components during installation.
- Control costs: Track quantities and specifications to prevent over-purchasing.
- Streamline procurement: Facilitate quick and accurate ordering from suppliers.
- Improve project planning: Schedule delivery timelines and labor efficiently.
- Maintain safety standards: Use specified materials that meet regulatory codes.

Creating an accurate electrical material list is fundamental to the success of any electrical project, supporting smooth workflow and compliance with safety standards.

Components of an Electrical Material List

An effective electrical material list typically includes the following components:

- Item Description: Clear identification of each part.
- Specification/Model Number: Exact details to avoid ambiguity.
- Quantity Needed: Number of units required.
- Unit of Measure: Pieces, meters, feet, etc.
- Unit Price: Cost per unit.
- Total Cost: Calculated as quantity multiplied by unit price.
- Remarks/Notes: Additional information such as voltage ratings, standards, or special features.

Including these elements ensures clarity and facilitates effective communication between all

stakeholders.

Sample Electrical Material List

Below is a detailed sample of an electrical material list for a typical residential electrical installation. This sample provides a clear overview of commonly used materials and their specifications.

Lighting Fixtures

- **LED Ceiling Lights**

- Model: LED-CL-12W
- Quantity: 10 pcs
- Remarks: Suitable for living room and bedrooms

- **Wall Sconces**

- Model: WS-LED-8W
- Quantity: 4 pcs
- Remarks: For hallways and accent lighting

Switches and Sockets

- **Single Pole Switch**

- Model: SP-10A
- Quantity: 12 pcs

- **Double Socket Outlets**

- Model: DS-15A
- Quantity: 8 pcs

Wiring and Cables

- **NYM Cable 3x1.5mm²**

- Length: 50 meters
- Remarks: For lighting and socket circuits
- **Earth Cable 1.5mm²**
- Length: 50 meters

Distribution Boards and Accessories

- **Distribution Box**
- Model: DB-100
- Quantity: 1 pc
- **Circuit Breakers**
- Model: CB-16A
- Quantity: 4 pcs

Other Materials

- Conduit Pipes (PVC, 20mm diameter) ? 30 meters
- Cable Clips ? 50 pcs
- Electrical Tape ? 5 rolls
- Wire Connectors ? 20 pcs

Tips for Creating an Effective Electrical Material List

To ensure your electrical material list is accurate and comprehensive, consider the following tips:

1. Conduct a Detailed Site Inspection

Before compiling your list, thoroughly inspect the site to identify specific requirements, constraints, and existing infrastructure.

2. Refer to Electrical Standards and Codes

Ensure all materials meet local electrical standards, safety regulations, and manufacturer specifications.

3. Use Standardized Item Descriptions

Adopt consistent terminology for easy understanding and procurement.

4. Estimate Quantities Carefully

Include a buffer quantity (around 10%) to accommodate unforeseen needs or errors.

5. Include Technical Specifications

Add details such as voltage ratings, current capacity, and standards compliance for each component.

6. Collaborate with Suppliers and Vendors

Consult with suppliers to confirm lead times, availability, and prices.

7. Organize the List Clearly

Use tables, categories, and headings to facilitate quick reference and reduce errors.

8. Keep Digital and Hard Copies

Maintain both formats for easy updates and accessibility during procurement and installation.

Conclusion

An electrical material list sample serves as a vital tool for ensuring the success of any electrical project. It streamlines procurement, promotes safety, and ensures that all necessary components are available at the right time and in the right quantities. By understanding the key components of an effective list and following best practices in its creation, electrical professionals can significantly improve project efficiency and quality. Remember, a well-prepared electrical material list not only saves time and money but also enhances safety and compliance, making it a cornerstone of professional electrical work.

Additional Resources

- Electrical Standards and Regulations: Familiarize yourself with local electrical codes.
- Electrical Material Suppliers: Build relationships with reputable vendors.
- Project Management Tools: Use software like Excel, Google Sheets, or specialized apps to organize your list.

Keywords: electrical material list sample, electrical components list, electrical project planning, electrical procurement list, electrical materials for residential, electrical wiring list, electrical installation components, electrical list template, electrical project checklist, electrical material specifications

Electrical Material List Sample: A Comprehensive Review for Engineers and Project Managers

In the realm of electrical engineering and construction, meticulous planning and precise documentation are paramount to ensure the success of any project. Among the foundational elements of this planning process is the development of an electrical material list sample—a detailed inventory that enumerates all electrical components required for a given project. This document not only facilitates procurement and budgeting but also serves as a blueprint for installation, maintenance, and future upgrades. This article offers an in-depth exploration of what constitutes an effective electrical material list sample, its significance, typical contents, best practices for creation, and how it influences project execution.

Understanding the Importance of an Electrical Material List Sample

An electrical material list sample acts as a roadmap for project stakeholders, including engineers, procurement teams, contractors, and inspectors. Its primary purposes include:

- Ensuring Completeness: Identifies all necessary electrical components, reducing the risk of missing items during procurement or installation.
- Cost Estimation: Facilitates accurate budgeting by itemizing quantities and specifications.
- Streamlining Procurement: Provides clear specifications for purchasing decisions, minimizing delays.
- Enhancing Communication: Serves as a common reference point among diverse teams, fostering clarity.
- Supporting Quality Control: Ensures compliance with standards and specifications through detailed documentation.

Given these roles, the precision and comprehensiveness of an electrical material list sample directly impact project timelines, costs, and safety compliance.

Core Components of an Electrical Material List Sample

A well-structured electrical material list typically contains several critical sections, each serving a specific purpose. Below is an outline of common components included:

1. Item Description

- Clear, concise identification of the component (e.g., "10k Ω Resistor," "Conduit, 3/4 inch").
- May include standardized codes or part numbers for reference.

2. Specification or Model Number

- Manufacturer details, model numbers, or standard specifications (e.g., UL listed, IEC standards).

3. Quantity

- The number of units required for the project.

4. Unit of Measure

- Common units such as pieces, meters, feet, or sets.

5. Material Size/Rating

- Specifications like wire gauge, voltage rating, current capacity, or insulation type.

6. Material Type

- Classification (e.g., copper wire, PVC conduit, LED fixture).

7. Location/Placement

- Specific areas or circuits where the component will be installed.

8. Remarks or Notes

- Additional instructions, special handling, or standards compliance notes.

Common Items Featured in an Electrical Material List Sample

The following list provides an overview of typical electrical components documented in a comprehensive material list:

- Wiring and Cables
 - Types: THHN, NM-B, Armored Cable
 - Sizes: 14 AWG, 12 AWG, 10 AWG
 - Ratings: Voltage, insulation type
- Conduits and Fittings
 - Types: PVC, EMT, rigid metal conduit
 - Fittings: couplings, connectors, elbows
- Switches and Breakers
 - Types: Single-pole, double-pole, GFCI, AFCI
 - Ratings: 15A, 20A, 30A
- Lighting Fixtures
 - Types: LED, fluorescent, incandescent
 - Mounting: ceiling, wall, recessed
- Distribution Boards and Panels
 - Main panels, sub-panels
 - Circuit breakers, bus bars
- Connectors and Terminals
 - Wire nuts, terminal blocks, lugs
- Accessories
 - Junction boxes, outlet boxes, conduit clamps

- Grounding and Bonding Materials
- Ground rods, grounding wires, clamps

This list varies depending on project scope?residential, commercial, industrial?and specific requirements.

Best Practices in Creating an Electrical Material List Sample

Developing an effective electrical material list sample demands attention to detail and adherence to industry standards. Below are best practices to ensure accuracy and utility:

1. Use Standardized Codes and Nomenclature

- Employ industry-accepted standards such as NEC (National Electrical Code), IEC, or local codes.
- Utilize standard abbreviations and part numbers to prevent ambiguity.

2. Specify Precise Quantities and Specifications

- Avoid estimations; double-check calculations for total lengths, numbers, and ratings.
- Include tolerances and special features (e.g., UV-rated conduit).

3. Incorporate Detailed Drawings and Schematics

- Reference drawings and schematics that correlate with the list items.
- Cross-verify components with design documents.

4. Categorize Items Systematically

- Group related items (e.g., all wiring, lighting fixtures) for easier review.
- Use consistent formatting for clarity.

5. Validate Against Standards and Regulations

- Ensure all components meet local electrical codes and safety standards.
- Include certifications and compliance documentation.

6. Collaborate Across Teams

- Involve procurement, installation teams, and inspectors during development.
- Gather feedback to refine the list.

7. Maintain Version Control

- Track revisions, especially when project scope changes.
- Keep records for audit purposes.

Sample Electrical Material List Structure

Below is a simplified example illustrating the typical structure of an electrical material list sample:

Item No	Description	Specification/Model	Quantity	Unit	Size/Rating	Location	Remarks
1	Main Service Entrance Cable	THHN, 600V, 100ft	1	Roll	10 AWG	Main Panel Room	UV-rated; suitable for outdoor
2	Circuit Breaker Panel	Square D QO, 200A	1	Piece	N/A	Utility Room	Main distribution board
3	Lighting Fixture, LED Ceiling	Model XYZ123	20	Piece	15W, 120V	Living Areas	Includes mounting hardware
4	Conduit, PVC, 3/4 inch	Schedule 40	50	Feet	N/A	Throughout Building	For wiring runs
5	Switch, Single-Pole GFCI	Leviton, Model 5262	15	Piece	N/A	Kitchens, Bathrooms	Weather-resistant

This sample emphasizes clarity, standardization, and completeness, serving as a template for more complex projects.

Impact of a Well-Prepared Electrical Material List Sample on Project Success

A comprehensive and accurate electrical material list sample can significantly influence various facets of project execution:

- **Cost Control:** Precise quantities prevent over-ordering and under-ordering, reducing waste and delays.
- **Time Efficiency:** Clear specifications expedite procurement and installation phases.
- **Quality Assurance:** Ensures components comply with safety standards and project specifications.
- **Risk Mitigation:** Detects potential issues early, such as incompatible components or missing items.
- **Documentation and Traceability:** Provides a record for future maintenance, troubleshooting, or upgrades.

In complex projects, particularly those involving multiple trades or large-scale industrial installations, the importance of a detailed material list cannot be overstated.

Conclusion: The Value of a Detailed Electrical Material List Sample

The development of an electrical material list sample is a critical step in the planning and execution of electrical projects. It serves as a central document that encapsulates all necessary components, specifications, and logistical details, fostering seamless coordination among project teams.

To maximize its effectiveness, professionals should adhere to industry standards, maintain clarity and consistency, and involve relevant stakeholders in its creation. When executed diligently, a well-prepared electrical material list significantly enhances project efficiency, safety, and compliance, ultimately contributing to the successful completion of electrical installations that are reliable, safe, and cost-effective.

As the industry evolves with new technologies and standards, so too must the approach to documentation. Continuous refinement and adaptation of electrical material list samples will ensure they remain valuable tools in the ever-complex landscape of electrical engineering projects.

Question What should be included in a typical electrical material list sample? A typical electrical material list sample includes items such as cables, wires, switches, circuit breakers, connectors, conduits, sockets, and other essential electrical components required for installation or maintenance projects. **Answer** How can I customize an electrical material list sample for my project? You can customize an electrical material list sample by adding specific quantities, specifications, part numbers, and descriptions tailored to your project's requirements, ensuring all necessary materials are accurately accounted for. Why is it important to have a detailed electrical material list sample? A detailed electrical material list sample helps in accurate budgeting, procurement, and planning,

reducing delays and errors during the installation process by ensuring all required components are identified beforehand. Are there any standard templates available for electrical material list samples? Yes, many industry resources and software tools offer standard templates for electrical material lists, which can be customized to suit specific project needs and ensure consistency and completeness. What are common mistakes to avoid when preparing an electrical material list sample? Common mistakes include omitting critical components, using incorrect specifications, not updating quantities based on project changes, and failing to include detailed descriptions or part numbers, which can lead to procurement issues. How does an electrical material list sample facilitate project management? It provides a clear overview of required materials, helping in inventory management, timely procurement, cost estimation, and coordination among team members, thereby streamlining project execution.

Related keywords: electrical parts list, wiring materials, electrical components catalog, electrical inventory sample, electrical supply list, electrical equipment list, electrical project materials, electrical list template, electrical parts sample, electrical procurement list

Autodesk revit 2014 material library metric

autodesk revit 2014 material library metric is an essential component for architects, engineers, and construction professionals who rely on Revit for Building Information Modeling (BIM). The material library in Revit 2014 provides a comprehensive set of predefined materials that facilitate realistic visualizations, accurate simulations, and efficient documentation workflows. Understanding how to effectively utilize and customize the material library is crucial for optimizing project outcomes, especially when working with metric units, which are standard in many countries around the world.

In this article, we will explore the details of the Autodesk Revit 2014 material library metric, including its structure, how to access and modify materials, best practices for managing materials, and tips for leveraging the library to enhance your BIM projects.

Understanding the Revit 2014 Material Library

What is the Material Library?

The material library in Revit 2014 is a collection of predefined materials that can be applied to different elements within a project. These materials define the visual appearance, physical properties, and rendering characteristics of objects such as walls, floors, furniture, and structural components. The library helps streamline the modeling process by providing ready-to-use materials that can be customized further.

Metric Units in the Material Library

Revit 2014's material library supports metric units, making it suitable for projects in regions where the metric system is standard. This includes measurements such as millimeters (mm), centimeters (cm), and meters (m). When working with metric units, it is essential to ensure that your project units are correctly set, and materials are configured to reflect real-world dimensions accurately.

Accessing and Navigating the Material Library

How to Access the Material Library

To access the material library in Revit 2014:

- Open your Revit project.
- Navigate to the **Manage** tab on the ribbon.
- Click on **Materials** in the Settings panel.
- The Materials dialog box will open, displaying the library's contents.

Within this dialog, you can browse existing materials, create new ones, or duplicate and modify existing ones.

Structure of the Material Library

The material library in Revit 2014 is organized into categories such as:

- Wood
- Concrete
- Metal
- Glass
- Fabric
- Paint
- Plastics

Each category contains multiple predefined materials with specific visual and physical properties.

Working with Materials in Revit 2014

Applying Materials to Elements

Applying materials is straightforward:

- Select the element in the model.
- In the Properties palette, find the **Material** parameter.
- Click the drop-down menu and choose an existing material from the library.
- Alternatively, click **Manage Materials** to create or modify materials.

Creating Custom Materials

To create a custom material tailored to your project needs:

- Open the Materials dialog box.
- Click **New** to create a new material.
- Name your material appropriately.
- Adjust the appearance settings, including color, texture, reflectivity, and transparency.
- Configure physical properties such as thermal conductivity and density, especially important for energy analysis.
- Save your custom material for reuse in your project.

Modifying Existing Materials

Existing materials can be fine-tuned to match specific design requirements:

- Select the material from the library.
- Click **Edit** to open the Material Editor.
- Adjust the visual and physical parameters accordingly.
- Save changes to update all instances of that material in your project.

Best Practices for Managing the Material Library

Organizing Custom Materials

As your project progresses, you may accumulate numerous custom materials. To maintain organization:

- Create a dedicated category or subcategory for your custom materials.
- Name materials clearly to indicate their purpose or finish.

- Use consistent naming conventions to facilitate quick searching.

Sharing Materials Across Projects

Revit allows you to export and import material libraries, enabling consistent material usage across multiple projects:

- Export your custom materials by saving the Material Library file (.adsk) from the Materials dialog.
- In a new project, import the library to access the same materials.

Keeping the Library Up-to-Date

Regularly review and update your materials to reflect changes in product specifications or design preferences. This ensures visual consistency and accurate physical properties.

Leveraging the Material Library for Better Visualizations and Analysis

Realistic Renders

The material library's appearance settings can be fine-tuned to produce photorealistic renderings:

- Adjust reflectivity, glossiness, and transparency.
- Apply textures and bump maps for surface detail.
- Use the rendering settings in Revit or export to external rendering software for higher quality visuals.

Energy and Structural Analysis

Physical properties assigned to materials influence energy modeling and structural performance:

- Define thermal conductivity, specific heat, and density for energy analysis.
- Ensure materials are accurately represented for structural simulations.

Compliance and Documentation

Using standardized materials from the library helps in maintaining compliance with building codes and in preparing precise documentation for procurement and construction.

Tips and Tricks for Using the Revit 2014 Material Library Metric

- **Use Templates:** Create project templates with predefined materials to streamline workflows.
- **Leverage Material Overrides:** For specific elements, override default materials without altering the library.
- **Utilize Material Libraries from Manufacturers:** Import manufacturer-specific materials for greater accuracy.
- **Regular Backups:** Save copies of your custom material libraries regularly to prevent data loss.
- **Documentation:** Keep documentation of material properties for future reference or project handovers.

Conclusion

The Autodesk Revit 2014 material library metric is a powerful tool for creating visually appealing, physically accurate, and efficiently managed building models. Understanding how to access, customize, and organize materials ensures that your BIM projects are not only aesthetically compelling but also compliant and functional. By leveraging the full capabilities of the material library, professionals can significantly enhance their modeling workflows, produce high-quality visualizations, and perform precise analyses. Whether you're working on a small residential project or a large commercial development, mastering the Revit 2014 material library is an essential step toward achieving your design and documentation goals.

Autodesk Revit 2014 Material Library Metric: An In-Depth Exploration

Introduction

Autodesk Revit 2014 Material Library Metric stands as a cornerstone for architects, engineers, and BIM professionals seeking to streamline their design processes and enhance their project realism. As a pivotal component within Revit's comprehensive Building Information Modeling (BIM) environment, the Material Library provides users with an extensive repository of predefined materials, enabling accurate visualization, analysis, and documentation of building components. In this article, we delve into the intricacies of the Revit 2014 Material Library in the metric system, exploring its features, practical applications, and how it empowers professionals to create more realistic and data-rich models.

Understanding the Revit 2014 Material Library: An Overview

What is the Material Library?

The Material Library in Autodesk Revit 2014 is a curated collection of materials that can be assigned

to various elements within a building model. These materials define the appearance, physical properties, and behavior of surfaces and objects, such as walls, floors, roofing, and furnishings. They serve multiple purposes, including:

- Visualization: Providing realistic renderings and visual styles.
- Documentation: Supporting accurate schedules and specifications.
- Analysis: Enabling performance simulations like thermal or energy analysis.

Metric System Integration

Revit 2014's Material Library is designed with a focus on the metric system, catering to projects in regions where metric units are standard. This integration simplifies the process of creating, editing, and applying materials with measurements in meters, centimeters, and millimeters, ensuring that the model's physical dimensions align precisely with real-world specifications.

Features of Revit 2014 Material Library Metric

Extensive Material Database

The Material Library comes with a vast array of predefined materials covering common construction materials such as:

- Concrete
- Brick
- Wood
- Metal
- Glass
- Ceramics
- Plastics

Each material is detailed with properties that influence visual appearance and physical characteristics.

Customization and Creation

Revit allows users to customize existing materials or create new ones from scratch. This flexibility is essential for:

- Modeling unique or proprietary materials.
- Adjusting visual attributes like color, texture, and reflectivity.
- Defining physical properties such as thermal conductivity or density.

Material Types and Categories

Materials are organized into categories, making it easier to locate and assign appropriate textures. These categories include:

- Structural Materials
- Finish Materials
- System Materials
- Imported Materials

This organization streamlines the workflow, especially in large projects with diverse material requirements.

Navigating the Material Editor: Practical Tips

Accessing the Material Browser

In Revit 2014, the Material Browser is the primary interface to explore and manage materials. To access it:

- Navigate to the Manage tab.
- Click on Materials in the Settings panel.

The browser displays a list of default and custom materials, along with their properties.

Editing Material Properties

Within the Material Editor, users can modify:

- Graphics: Color, pattern, transparency, and surface patterns.
- Appearance: Render appearance settings, including reflectivity, glossiness, and bump maps.
- Physical: Thermal properties, density, and other physical parameters.

Adjustments here influence both visual realism and analytical accuracy.

Applying Materials to Elements

Materials can be assigned directly to model elements via:

- The Properties palette.
- Material override options.
- Drag-and-drop in the visual model.

Proper assignment ensures consistency across documentation and visualization.

Practical Applications in Metric Projects

Architectural Visualization

Using the metric material library allows architects to produce highly realistic renderings that accurately represent real-world materials. This includes:

- Precise color matching.
- Material textures scaled appropriately to dimensions.
- Realistic reflections and transparency settings.

Structural Analysis and Performance Simulation

For structural engineers, materials with defined physical properties enable simulations such as:

- Structural load calculations.
- Thermal performance analysis.
- Energy modeling.

Having materials in metric units ensures that calculations are based on real-world measurements.

Construction Documentation and Specifications

Accurate material definitions assist in generating precise schedules and specifications, critical for procurement and construction management.

Challenges and Best Practices

Ensuring Consistency Across Models

In projects with multiple team members or phases, maintaining uniform material definitions is crucial. Best practices include:

- Creating shared parameter files for materials.
- Documenting custom material properties.
- Regularly updating the Material Library.

Managing File Sizes and Performance

A comprehensive material library can increase project file size and impact performance. To optimize:

- Use linked or referenced material libraries when appropriate.
- Archive unused or outdated materials.
- Regularly audit materials for relevance and accuracy.

Compatibility and Version Control

While the discussion centers on Revit 2014, users should be aware of compatibility issues when upgrading or sharing files across different Revit versions. Maintaining a standardized material library mitigates discrepancies.

Enhancing the Material Library Experience

Utilizing External Resources

Many professionals supplement Revit's default material library with:

- Custom textures and materials created in external software like Photoshop or Substance Designer.
- Imported materials from manufacturer catalogs.

These additions can increase realism and project specificity.

Automating Material Assignments

Using Revit's tools and plugins to automate material assignments based on parameters or templates can improve efficiency, especially in large projects.

Future Outlook and Evolving Features

Although Revit 2014 is now several versions old, its Material Library laid the foundation for continued enhancements in subsequent releases. Modern Revit versions offer:

- Improved rendering capabilities.
- More detailed physical property settings.
- Enhanced library management tools.

Understanding the 2014 material system provides valuable insights into the evolution of BIM workflows.

Conclusion

The Autodesk Revit 2014 Material Library in metric units remains an essential tool for professionals aiming for precise, realistic, and data-rich building models. Its extensive database, customization options, and integration with Revit's powerful environment enable users to craft detailed visualizations, conduct meaningful analyses, and produce accurate documentation. By mastering the features and best practices associated with the material library, BIM practitioners can significantly elevate the quality and efficiency of their projects, ensuring that designs are not only visually compelling but also grounded in real-world physical properties. As BIM technology continues to evolve, a solid understanding of these foundational tools remains vital for adapting to future innovations in architectural and engineering workflows.

Question How do I access the Material Library in Autodesk Revit 2014 Metric version? In Revit 2014 Metric, you can access the Material Library by going to the Manage tab, clicking on 'Materials,' and then selecting 'Material Browser.' From there, you can browse and load materials from the library. Can I customize or add new materials to the Revit 2014 Metric Material Library? Yes, you can create custom materials or duplicate existing ones within Revit 2014. To add new materials, open the Material Browser, click 'Create New Material,' and define its properties. To include external library materials, import them via the Material Browser options. What are the differences between the Revit 2014 metric material library and the imperial version? The primary difference lies in the units and material standards. The metric library uses SI units and compatible material properties, while the imperial version uses imperial units. Material appearance and physical properties may also vary accordingly. How can I load additional material libraries into Revit 2014 Metric? You can load additional libraries by importing material files (.adsklib) into the Material Browser. Use the 'Manage Materials' option, then 'Import Material Library,' and select the desired

library files to add them to your project. Are there any common issues with the Revit 2014 Material Library in metric projects? Common issues include missing materials after library import, mismatched units, or materials not displaying correctly. These can often be resolved by reloading libraries, checking unit settings, or updating graphics drivers. How can I ensure accurate material representation in Revit 2014 metric projects? Ensure that the materials are correctly assigned with proper physical and visual properties, and that the project units are set to metric. Preview materials in the Material Browser to confirm appearance and properties before applying them. Is it possible to export Revit 2014 metric materials for use in other software? Direct export of materials from Revit 2014 is limited, but you can export material appearance as images or use the material library files (.adsklib) to share materials with compatible software or Revit versions. For full material data, consider exporting the project or using IFC files.

Related keywords: Autodesk Revit 2014, material library, metric units, Revit materials, BIM materials, Revit families, Revit textures, Revit 2014 tutorials, material parameters, Revit material libraries

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