Design Department Diamond Map

Design Software Details:

1. **JewelCAD to Design Gold Conversion:** The process begins with designs created in JewelCAD. To facilitate diamond mapping, these JewelCAD files are opened within the JewelCAD software environment. Subsequently, the software offers an export functionality that converts the JewelCAD design into a format compatible with Design Gold. This conversion is crucial for the subsequent step of generating a precise map for diamond setting within the Design Gold environment.

2. **Design Gold:** Design Gold operates as a plugin that is seamlessly integrated within the Rhinoceros 3D modeling software. This integration provides designers with a specialized set of tools and features tailored for jewelry design, leveraging the robust modeling capabilities of Rhino. The diamond mapping functionality derived from the JewelCAD conversion is a key aspect of Design Gold's capabilities.

3. **Matrix 9:** Matrix 9 is a standalone jewelry design software solution. It offers a comprehensive suite of tools for creating intricate and detailed jewelry models. Its functionalities encompass various aspects of the design process, from initial conceptualization to the generation of production-ready files.

4. **MatrixGold:** Similar to Matrix 9, MatrixGold is a dedicated design software specifically developed for jewelry creation. It provides a range of features that cater to the unique demands of jewelry design, enabling users to create complex and aesthetically pleasing pieces.

Server Storage Information:

Daily File Storage (Temporary):

- **Server IP Address:** 192.168.6.152
- **Network Path:** \\cad-srv\\stl_sc_01_01_2017\\
- **Purpose:** This network location serves as the primary storage for design files on a daily basis. All design work completed during the day is automatically saved to this server. It's important to note that the files stored here are temporary.

Permanent File Storage:

- **Server IP Address:** 192.168.6.152
- **Network Path:** \\cadnas\\
- **Purpose:** This network path designates the permanent archive for all design-related files. Once files have been stored in the daily storage location, they are subsequently moved to this CADNAS storage for long-term preservation and accessibility.

Folder Organization within CADNAS:

- **3dm Folder:** Located within the main CADNAS directory (\\cadnas\\), the "3dm" folder specifically houses design files that were created using the Matrix software. The ".3dm" file extension is the native format for Rhino and, consequently, for designs originating from Matrix, which often integrates with or is built upon the Rhino platform
- **Jcd Folder:** Also located within the main CADNAS directory (\\cadnas\\), the "Jcd" folder is dedicated to storing files with the ".jcd" extension. This file type is associated with JewelCAD software. This separate folder ensures the organized storage and easy retrieval of JewelCAD design files within the permanent archive.

Detailed Procedure for Generating Diamond Maps using Matrix Gold:

1. **Launch Matrix Gold Software:** Initiate the process by opening the Matrix Gold software application on your computer. Ensure the software is properly installed and functioning.

2. **Access Design File:** Navigate to the "File" menu within the Matrix Gold interface. Select the "Open" option and browse your computer's file system to locate the specific design file you wish to work with. This file will typically be located within a designated "3dm" folder. Select the file and click "Open" to load the design into the software.

3. **Navigate to Gem Map Functionality:** Once the design image is displayed within the Matrix Gold workspace, locate the "Tools" menu in the software's main toolbar. Click on "Tools" to reveal a dropdown menu of available functions. From this menu, select the "Gem map" option. This action will activate the gem mapping feature.

4. **Capture Gem Map Snapshot:** The "Gem map" function will generate a visual representation of the diamond layout for your design. Carefully examine the generated gem map to ensure it accurately reflects the desired placement and arrangement of diamonds. Once satisfied, take a screenshot of the specific portion of the screen displaying the gem map. Ensure the entire gem map is captured clearly within the screenshot.

5. **Save Gem Map Image:** After capturing the screenshot, save the image file to a designated location. It is recommended to save this gem map image in the same folder where the original design file (from the "3dm" folder) is stored. Choose a descriptive filename for the image to easily identify it later. Ensure the file is saved in a common image format such as JPEG or PNG.

6. **Open Corresponding CAD Image (.jpg):** Next, locate and open the corresponding CAD image file (in .jpg format) of the same jewelry design. This CAD image file should represent the base structure onto which the diamond map will be overlaid. Ensure you are using appropriate image editing software to open and edit this file.

7. **Paste and Position Diamond Map:** With both the CAD image and the saved diamond map image open, navigate to the CAD software. Utilize the "Paste" or "Insert Image" function to bring the diamond map image into the CAD environment. Carefully position the pasted diamond map image over the corresponding area of the CAD design where the diamonds are intended to be placed.

8. **Adjust Image Size and Alignment:** It is crucial to ensure that the scale and alignment of the pasted diamond map image precisely match the scale and intended diamond placements on the CAD design. Use the scaling and transformation tools within your CAD software to adjust the size of the diamond map image as necessary. Carefully align the individual diamond representations on the gem map with the corresponding settings or markers on the CAD design. Accuracy at this stage is essential for proper diamond setting.

9. **Save Updated CAD Image:** Once the diamond map image is accurately positioned and scaled on the CAD design, save the modified CAD image file. It is recommended to save this updated file in the same location as the original design file and the gem map image. You may choose to overwrite the original CAD file or save it as a new version with a

slightly different filename to preserve the original.

10. **Repeat for All Required Files:** If you have multiple design files for which you need to generate and integrate diamond maps, repeat steps 2 through 9 for each individual file. This ensures that all the necessary designs have corresponding diamond map information embedded within their respective CAD files. By diligently following this process for each required file, you will create a comprehensive set of design files ready for the subsequent stages of jewelry production.

Detailed Procedure for Converting Jewel CAD Designs to Gold using Rhino and Design Gold Plugin:

This procedure outlines the comprehensive steps required to convert a Jewel CAD design file to a format suitable for gold production using the Rhino software with the Design Gold plugin. Ensure both Jewel CAD and Rhino are installed and the Design Gold plugin is correctly integrated into Rhino before commencing this process.

Step 1: Opening the Jewel CAD File

Begin by launching the Jewel CAD software. Navigate to the designated file path, typically within the "jcd folder," and open the specific Jewel CAD design file intended for gold conversion. Ensure the file loads completely and all design elements are visible within the Jewel CAD interface.

Step 2: Launching Rhino and Accessing the Design Gold Plugin

Next, open the Rhino 3D modeling software. Once Rhino has loaded, verify the presence of the Design Gold plugin. This plugin usually manifests as an additional menu or toolbar located in the upper section of the Rhino interface. If the Design Gold menu is not visible, ensure the plugin has been properly installed and enabled within Rhino's plugin manager.

Step 3: Maintaining Concurrent Software Operation

Crucially, keep both the Jewel CAD software containing the design file and the Rhino software with the Design Gold plugin open simultaneously throughout the initial stages of the conversion process. This allows for seamless data transfer between the two programs.

Step 4: Transferring the Design Object from Rhino to Jewel CAD (Method 1)

Within the Rhino interface, locate the Design Gold menu. Click on the option labeled "send object from rhino to jewel cad." Selecting this option initiates a process where Rhino attempts to locate and open the currently active file within Jewel CAD. If the Jewel CAD file is already open (as per Step 1), this action should automatically bring the design into the Rhino environment, ready for gold conversion processes facilitated by the Design Gold plugin.

Step 5: Transferring the Design Object via Drag and Drop (Method 2)

If the "send object from rhino to jewel cad" function does not automatically open the file, an alternative method involves a direct drag-and-drop action. Locate the open Jewel CAD window containing the design. Click and drag the design elements directly from the Jewel CAD viewport into the Rhino viewport where the Design Gold plugin is active. This action should import the Jewel CAD geometry into the Rhino environment, allowing you to proceed with the conversion workflow.

Step 6: Selecting the Diamonds within the Design

Once the design is successfully loaded into Rhino, the next step involves specifically selecting the diamond components of the jewelry piece. Within the Rhino interface, initiate the selection process. A selection menu or set of tools will typically become available. From these options, choose "block instance." Subsequently, by clicking on an arrow or similar selection aid associated with one of the diamond instances, all instances of diamonds within the design should be automatically selected. This ensures that all diamond elements are identified for subsequent steps involving gem size information.

Step 7: Accessing and Displaying Gem Size Information

Navigate to the Design Gold menu within Rhino and locate the "gem size list" icon. Clicking this icon will trigger the opening of a pop-up window or panel containing information related to the gemstones in the design. Within this pop-up, find and click the "show size" button or a similar command. Activating this function will display the size specifications (e.g., diameter, carat weight) directly adjacent to each diamond within the Rhino viewport. This visual confirmation is crucial for verifying the accuracy of the gem information.

Step 8: Extracting and Positioning Detailed Diamond Information

Further detailed information about the selected diamonds can be accessed by right-clicking on the "gem size list" icon. From the context menu that appears, select the option "all diamonds." This action will typically generate a text-based listing containing comprehensive details for each diamond in the design, such as its size (e.g., 0.80mm), the number of points (e.g., 24p), and other relevant attributes. Carefully click and drag this generated text information away from the main diamond map and position it in a clear, adjacent area within the Rhino viewport. This ensures that the detailed diamond specifications are visually associated with the design for the subsequent snapshot process.

Step 9: Capturing a Snapshot of the Diamond Map and Information

To create a visual record of the diamond map and its associated size information, locate the top left corner of the Rhino interface. Identify the up and down arrow icon, which typically reveals a menu when clicked. From this menu, select the option labeled "IMG JPG" or a similar designation indicating the desired image file format (JPEG). Selecting this option initiates a snapshot capture of the current Rhino viewport, encompassing both the diamond layout and the adjacent text detailing the gem specifications.

Step 10: Saving the Snapshot

The captured snapshot will be automatically saved as a .jpg image file. Importantly, this file will be saved in the same directory or folder where the original Jewel CAD design file is located. The filename will often be a variation of the original CAD file name, potentially with a suffix indicating it's a snapshot or diamond map image.

Step 11: Integrating the Diamond Map into the CAD Image

Locate the newly saved .jpg image of the diamond map within the file directory. Open this image using an appropriate image editing software. Simultaneously, open the primary CAD image of the jewelry design (the file that was originally intended for gold conversion). Within the CAD image, identify any designated empty space or area where the diamond map information should be incorporated. Carefully copy the diamond map .jpg image and paste it into this designated area within the CAD image.

Step 12: Resizing and Adjusting the Diamond Map

Once the diamond map is pasted into the CAD image, it may be necessary to resize and adjust its positioning to fit appropriately within the available space and to ensure it is clearly legible and visually aligned with the overall design. Use the image editing software's tools to scale, move, and fine-tune the placement of the diamond map until it is seamlessly integrated into the CAD image.

Step 13: Saving the Final Integrated Image

After resizing and adjusting the diamond map within the CAD image, save the modified image file. Ensure you save it back to the same location as the original CAD file, potentially overwriting the previous version or saving it with an updated filename to distinguish it as the final, integrated version containing the diamond map information.

Step 14: Repeating the Process for All Required Files

If there are multiple Jewel CAD design files requiring conversion to gold with integrated diamond maps, repeat steps 1 through 13 for each individual file. Ensure that each design is processed methodically and that the corresponding diamond map snapshot is correctly integrated into its respective CAD image. This iterative process will ensure that all necessary design files are prepared with the detailed diamond information for the subsequent gold production stages.

Reference VIdeos

- https://drive.google.com/file/d/1qKIZeeMGFRt3FRynrSUvIts9sgUt42Kj/view?usp=sharing
- https://drive.google.com/file/d/11RTWsMIWL7-SwoPru-W5XNNe6qPLOkgM/view?usp=sharing