

FLOOR OPENINGS

Stairwell openings and structural layouts



City &
Guilds

Lecturer: James Rix

Aim of the Activity

To develop students' understanding of stairwell framing by identifying and labelling structural components across three framing configurations using visual 3D models and diagram worksheets.

Learning Objective

By the end of the activity, students will be able to:

- Recognize and name key components involved in stairwell framing.
- Distinguish between three framing techniques: 90° to stairwell, parallel to stairwell, and quarter-turn stairwell.
- Accurately label diagrams based on visual cues from 3D models.
- Explain the structural purpose of selected framing elements.

Activity Overview

Students will examine a 3D model showcasing three distinct stairwell framing techniques. Each technique is represented with its own worksheet diagram containing blank labels. Students will use the 3D model to identify and label components such as trimmers, joists, headers, trimmer joists, and stairwell openings. This activity reinforces technical vocabulary, spatial awareness, and comparative understanding of framing layouts.

Why This Activity Supports Learning

- **Visual-spatial learning:** Students grasp how framing adapts to stairwell orientation.
- **Comparative analysis:** Seeing three techniques side-by-side deepens understanding of structural variation.
- **Active recall:** Labelling diagrams from observation strengthens memory and terminology.
- **Real-world relevance:** Mirrors how joiners interpret plans and adapt framing on site.

Instructions.

1. Observe the 3D model showing three stairwell framing techniques.
2. Focus on one technique at a time: 90°, parallel, and quarter-turn.
3. Use the corresponding worksheet diagram for each technique.
4. Label each blank space with the correct component name.
5. Refer to your notes or glossary if needed.
6. Once complete, write a short explanation of how the framing adapts to the stairwell layout in each case.

Scaffolding Strategy

- **Step 1:** Begin with a whole-class walkthrough of the 3D model, naming key components aloud.
- **Step 2:** Provide a labelled reference diagram for each technique.
- **Step 3:** Use colour-coded arrows or overlays to highlight differences between techniques.
- **Step 4:** Offer a glossary of terms with visual examples.
- **Step 5:** Encourage peer discussion before independent labelling.

Differentiation Strategies

For emerging learners:

- Provide a word bank with definitions.
- Allow collaborative labelling in pairs.
- Use simplified diagrams with fewer components.
- Offer sentence starters for written explanations.

For advanced learners:

- Challenge them to label without prompts.
- Ask them to annotate diagrams with structural functions.
- Extend with a task: sketch a framing layout for a custom stairwell.

Assessment Opportunities

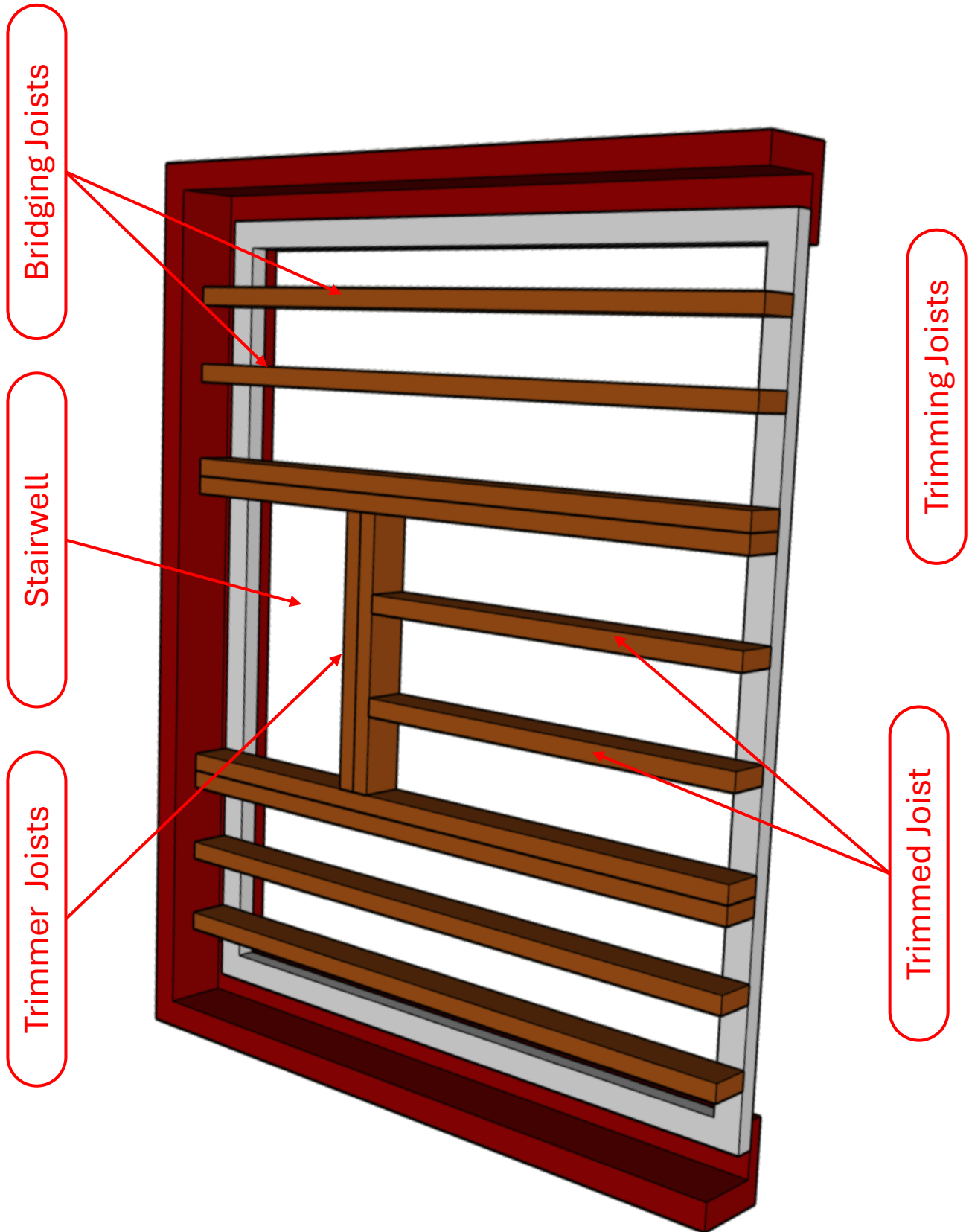
Formative:

- Observe students during the task for correct identification and terminology use.
- Use questioning to probe understanding (“Why is a trimmer needed here?”).

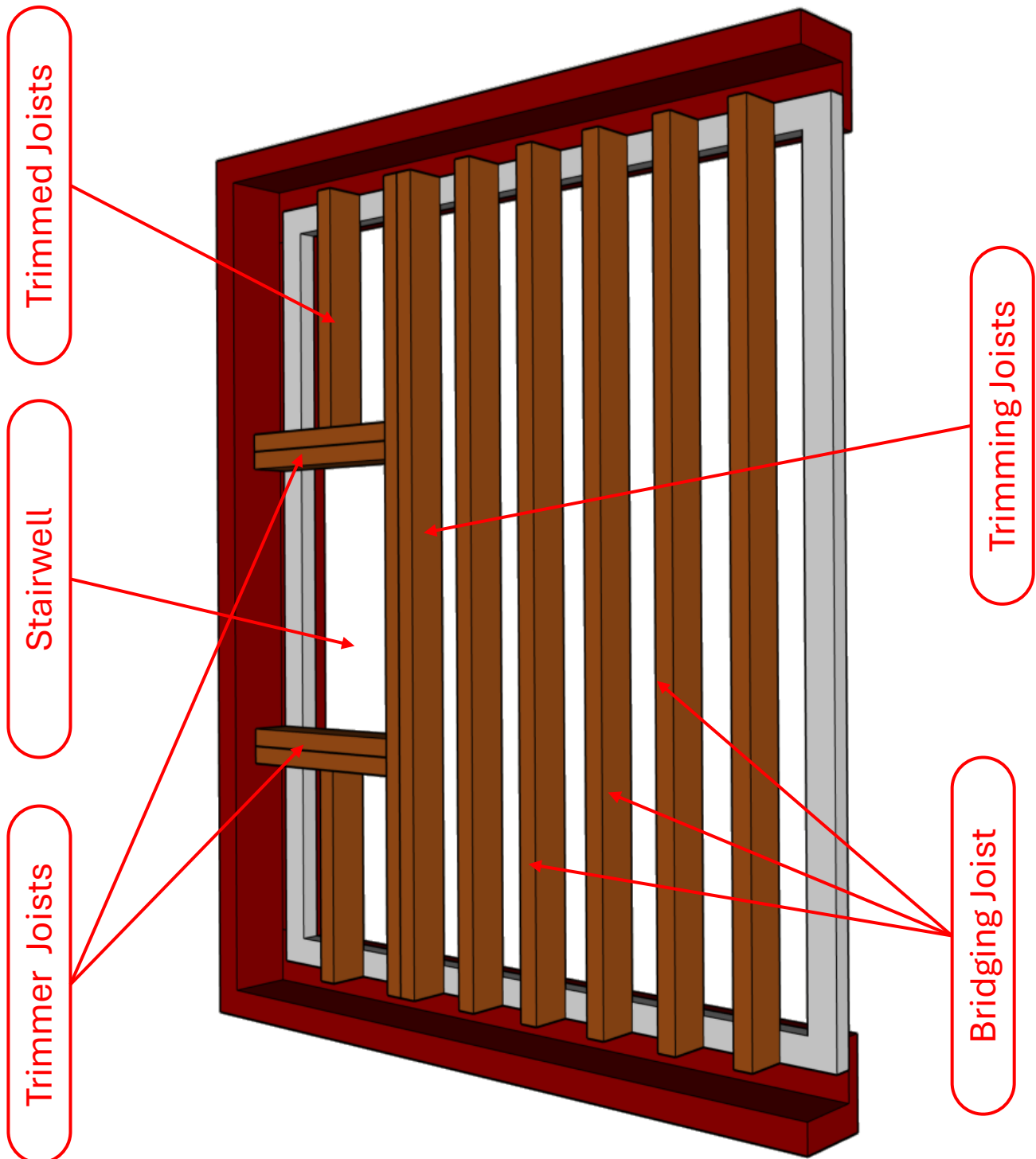
Summative:

- Collect and mark the labelled diagrams.
- Assess accuracy, spelling, and completeness.
- Optional: written comparison of the three techniques or verbal explanation of one.

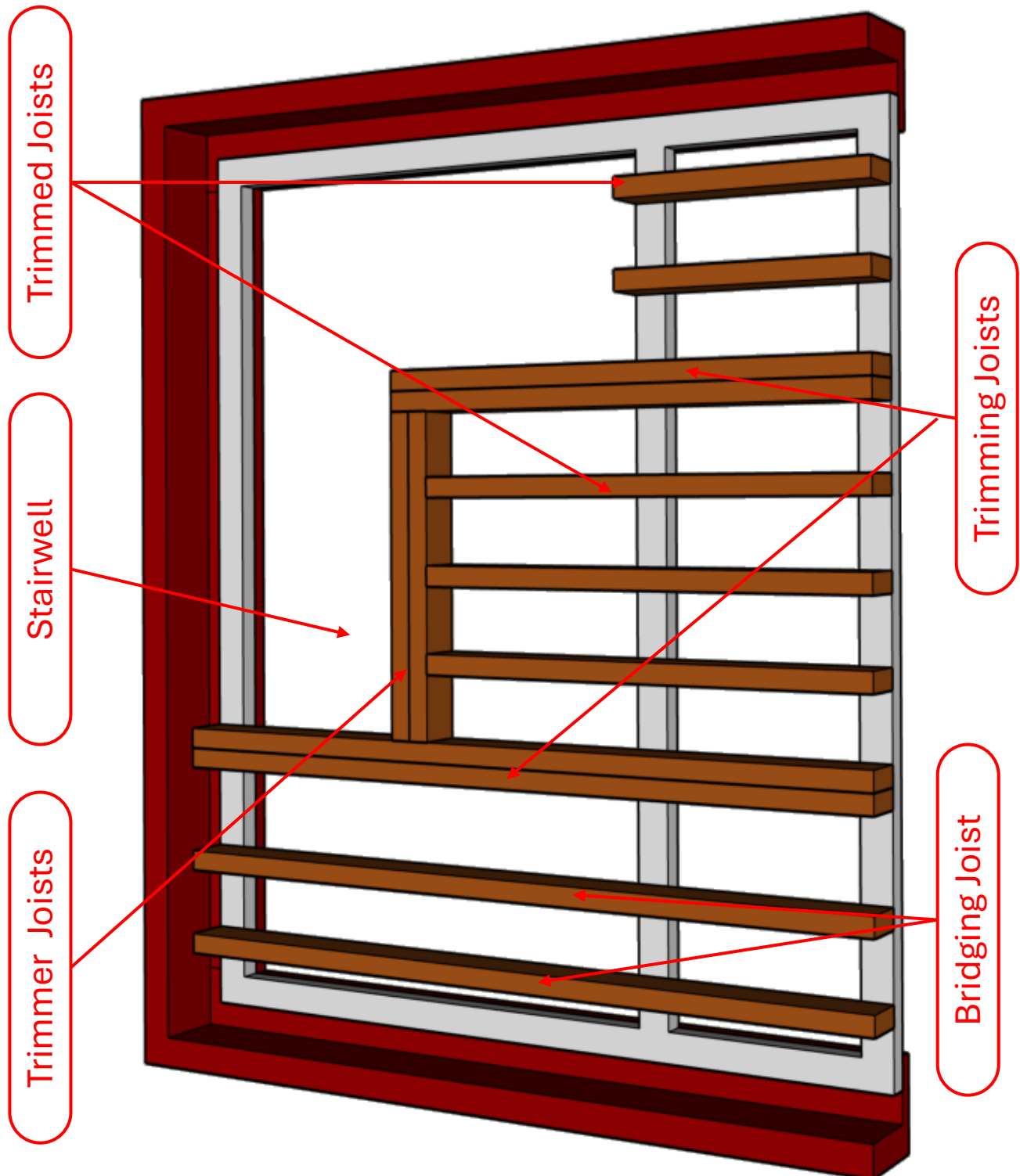
Joists 90o to the Stairwell

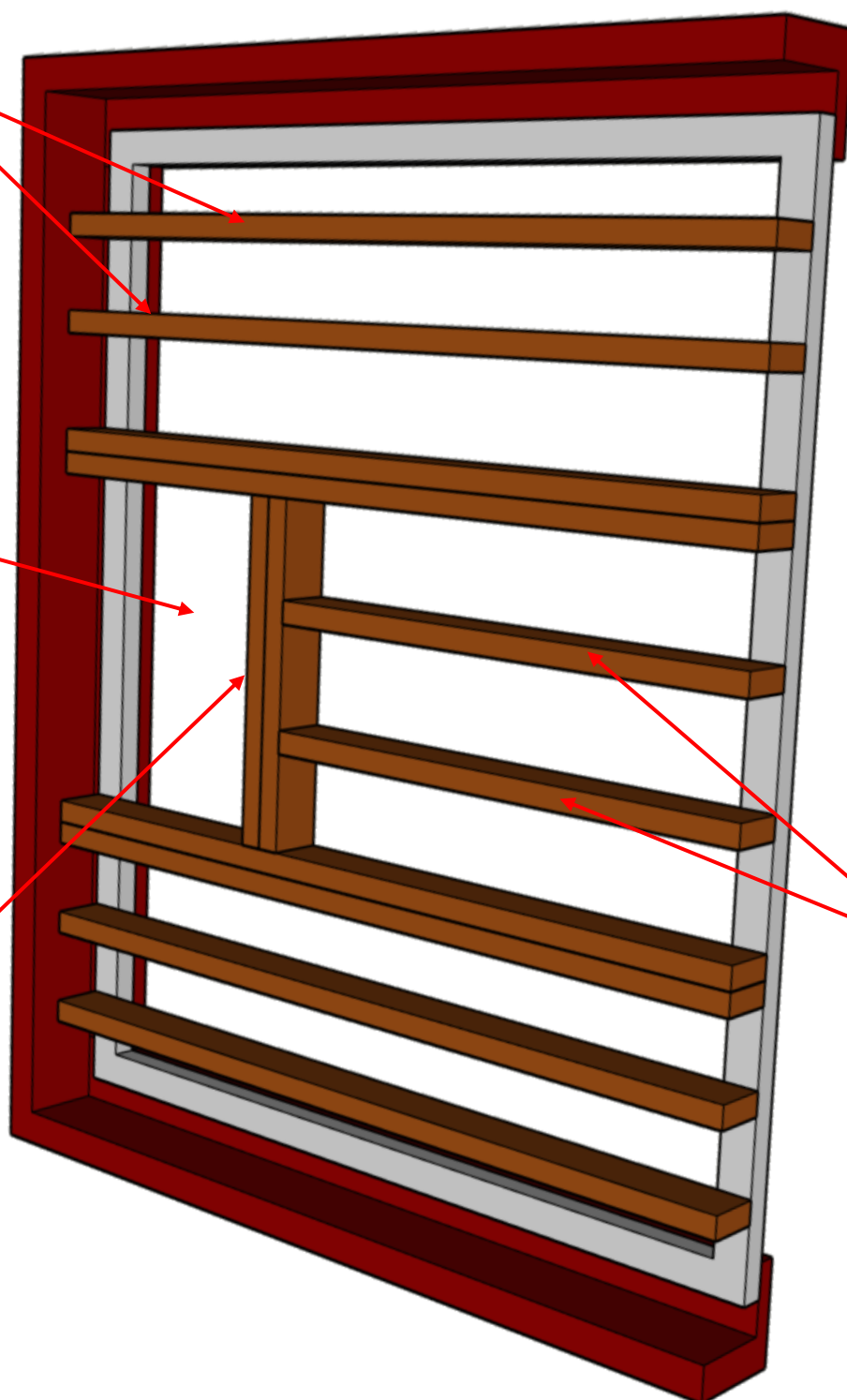


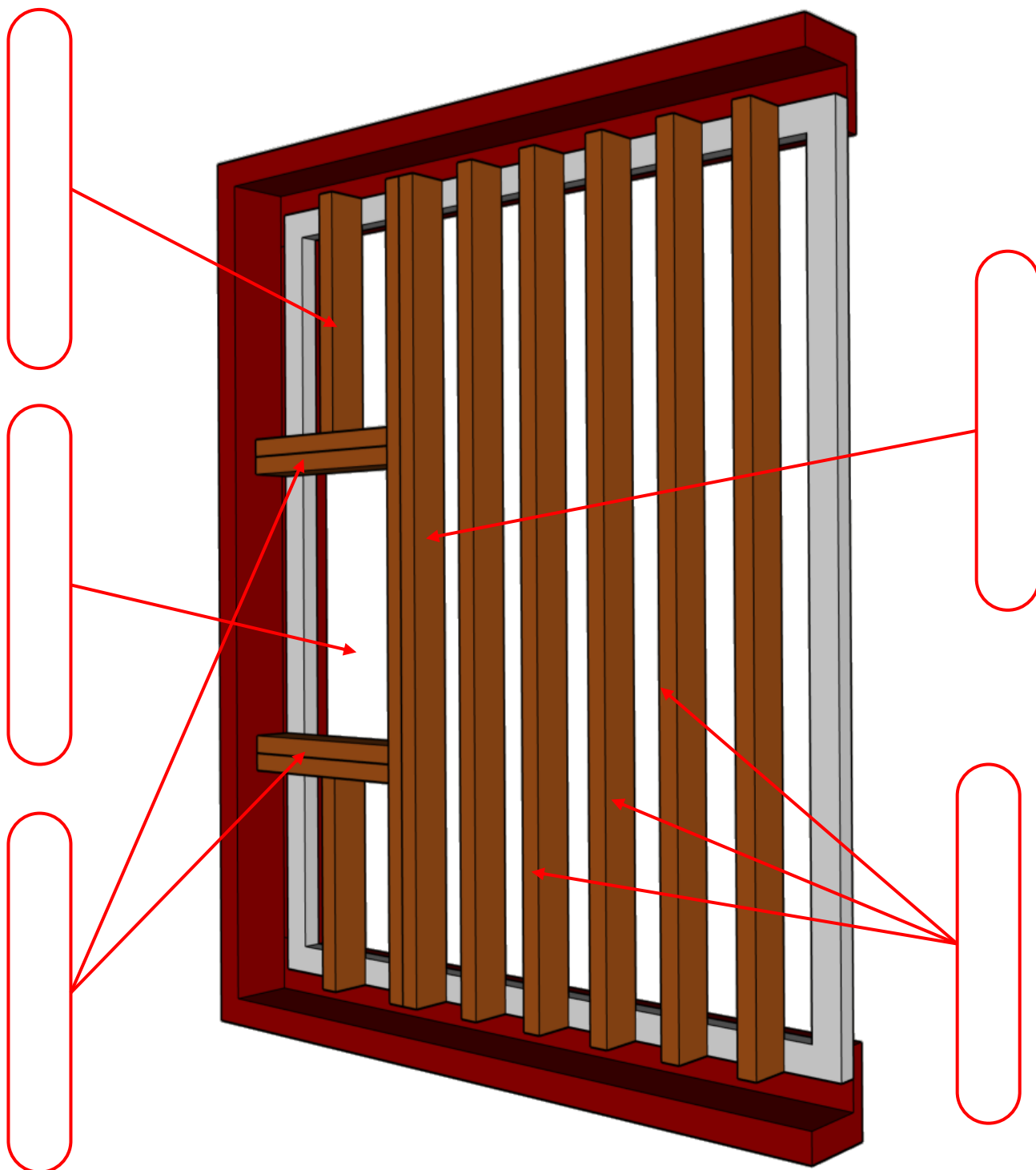
Joists Parallel to the Stairwell

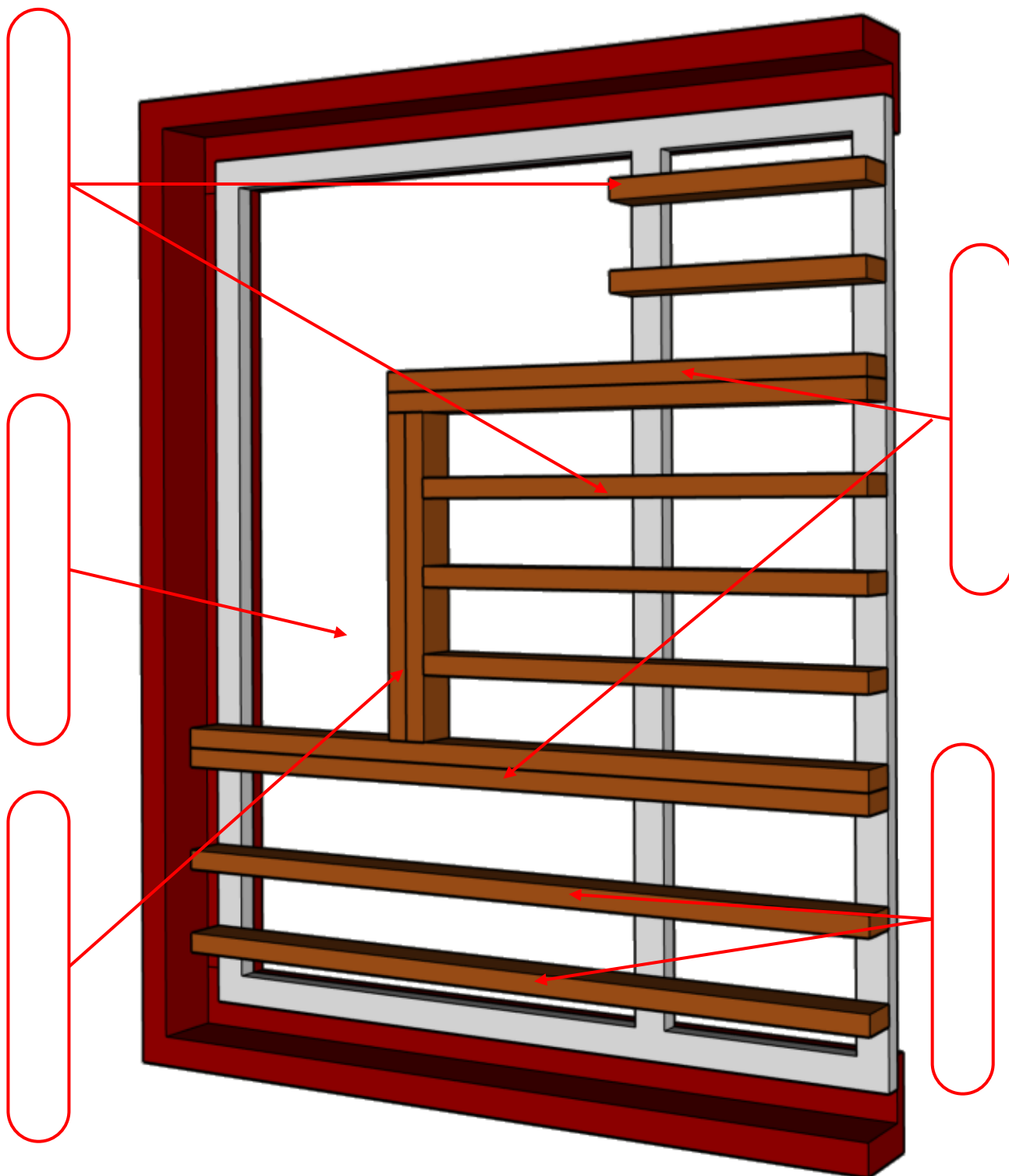


Joists round quarter turn









Thank You.



We would like to say thank you for using this learning material, we hope you found it useful.

If you have any questions regarding this or any other learning material, please email James Rix at:

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