

BUILDING INTEGRATED PHOTOVOLTAICS AT NEST: PRELIMINARY TEST-BEDDING RESULTS

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DUAL ASSESSMENT

Test the impact of architectural interventions on two aspects of the performance of Building Integrated Photovoltaics (BIPV), e.g.

- electrical power output – as a power conversion device, and
- visual appearance – as a façade element.

Our research question: **Can BIPV have good visual and electrical performance?**

THE NEST BUILDING, DÜBENDORF CH



Figure 1: View of the NEST building from West with the 12 modules (red).

RELATIVE EFFICIENCY OF MODULES #1 TO #12

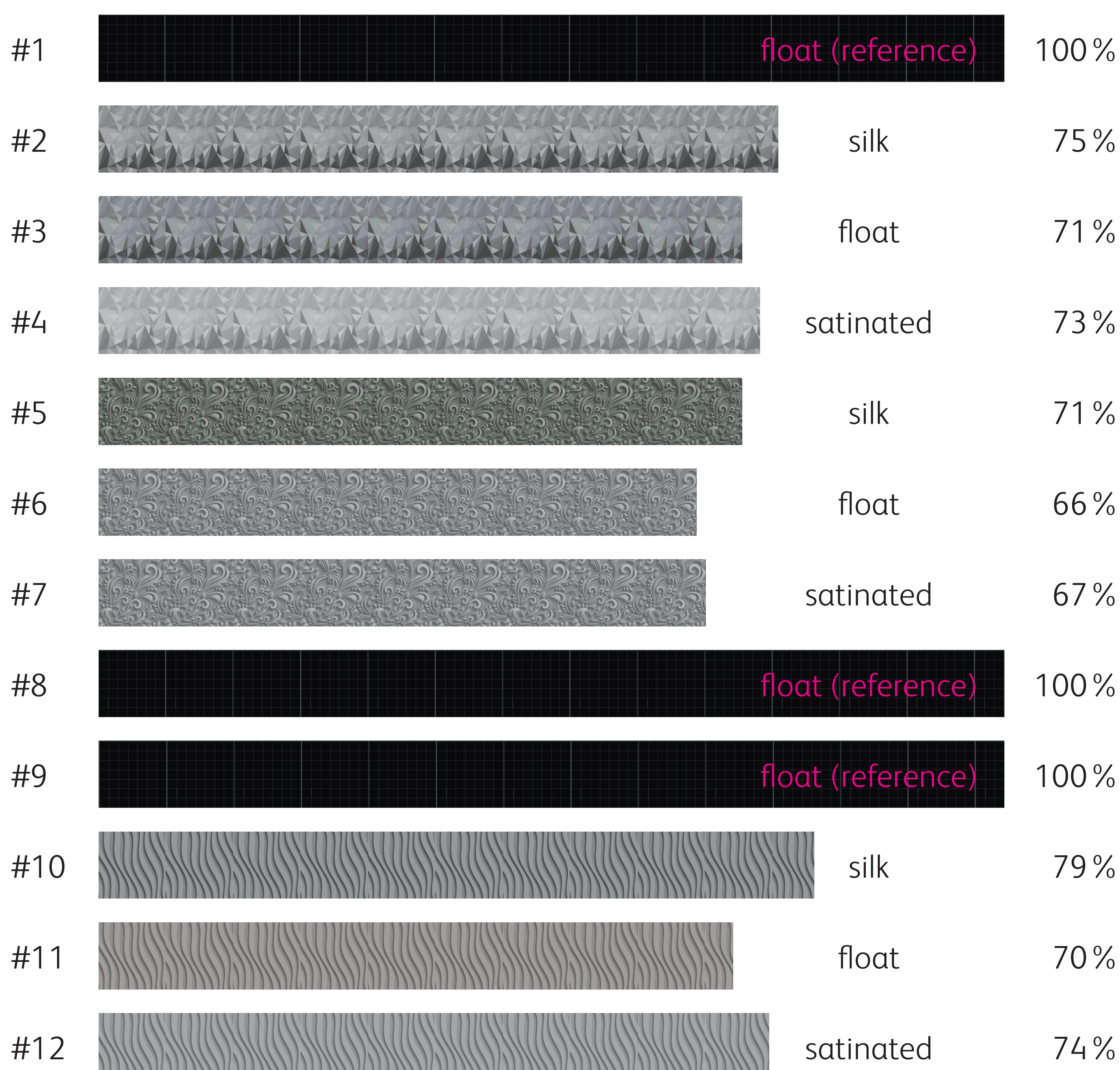


Figure 2: Power output of the 12 modules. The output is normalized to the respective references for each orientation.

THREE PRINTING PATTERNS (and glass without print as reference)



THREE GLASS TYPES

- float** clear float glass
- silk** float glass with etched front surface
- satinated** float glass with frit on front surface

METHOD

- Meta-C decorative ceramic printing on different glass types
- Otherwise identical photovoltaic modules
- Target efficiency 75% of the reference without print
- Installation aside reference modules without print
- One year on-site monitoring of the electrical power output
- Photographs of the sun's mirror image to assess appearance

VISUAL APPEARANCE OF MODULES #9 TO #12

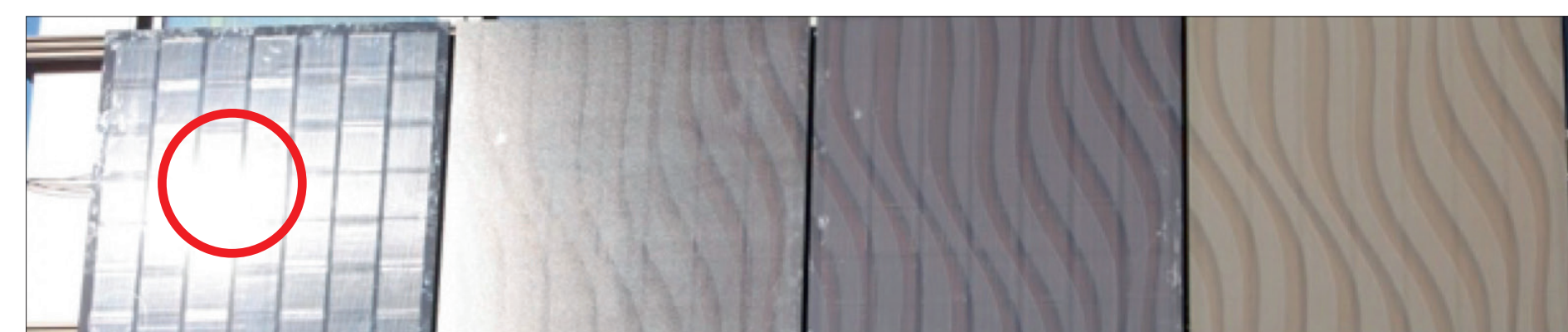


Figure 3: Mirror image of the sun on module #9.

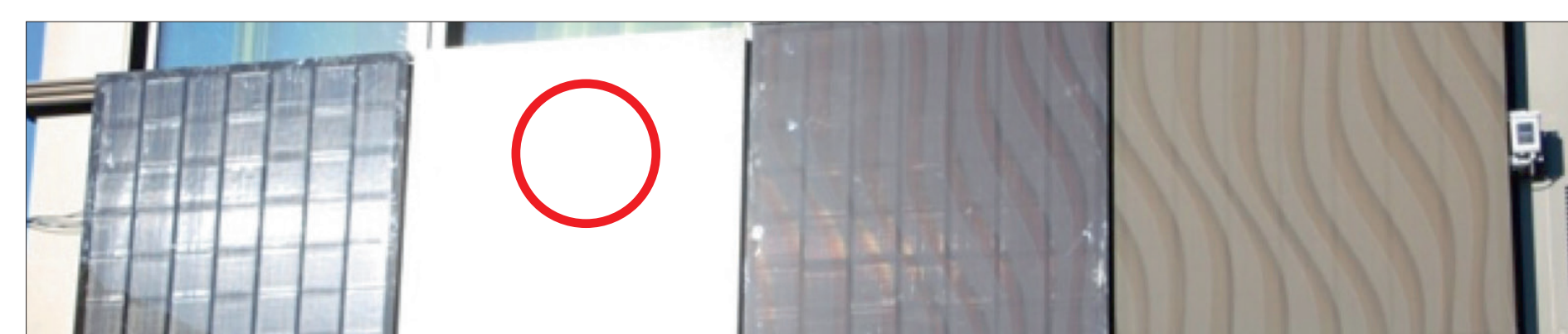


Figure 4: Mirror image of the sun on module #10.

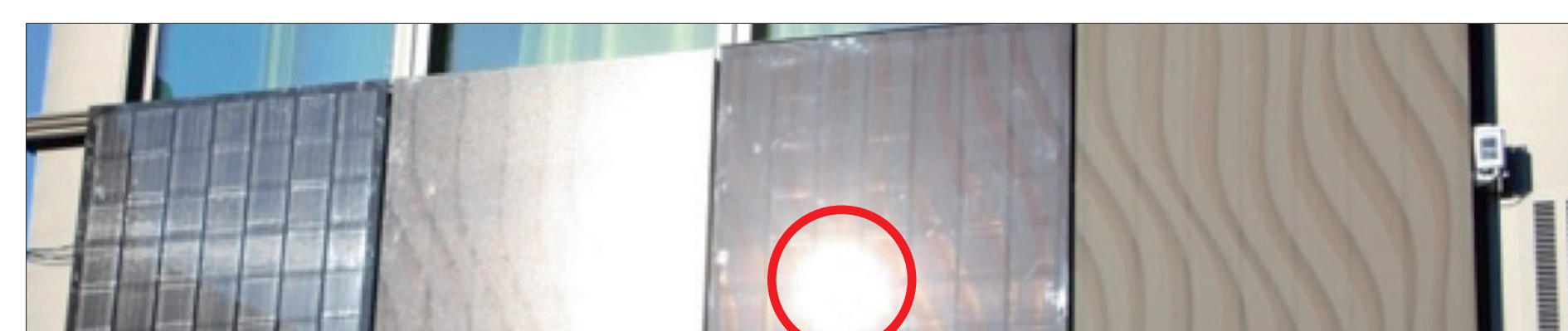


Figure 5: Mirror image of the sun on module #11.

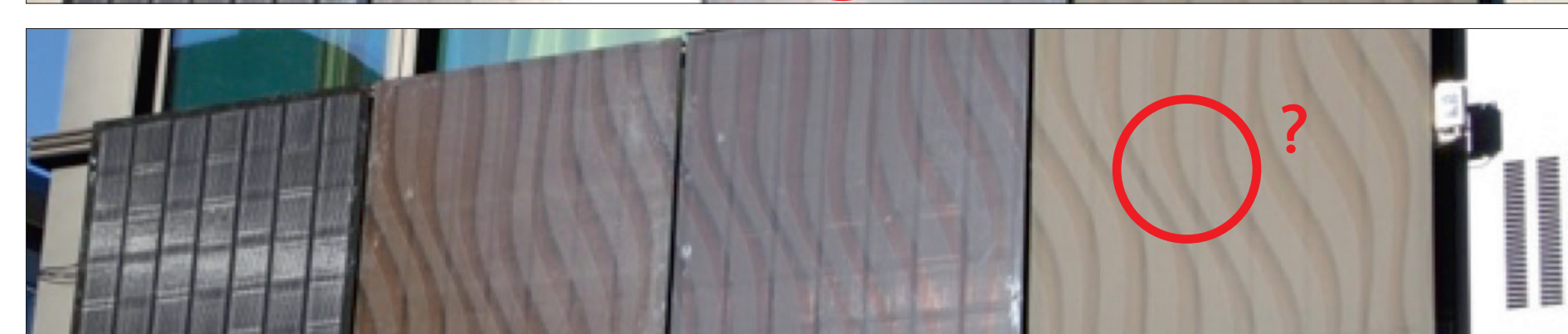


Figure 6: Mirror image of the sun on module #12.

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