

Prototype Preparation

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*STT working group meeting
April 27, 2022*

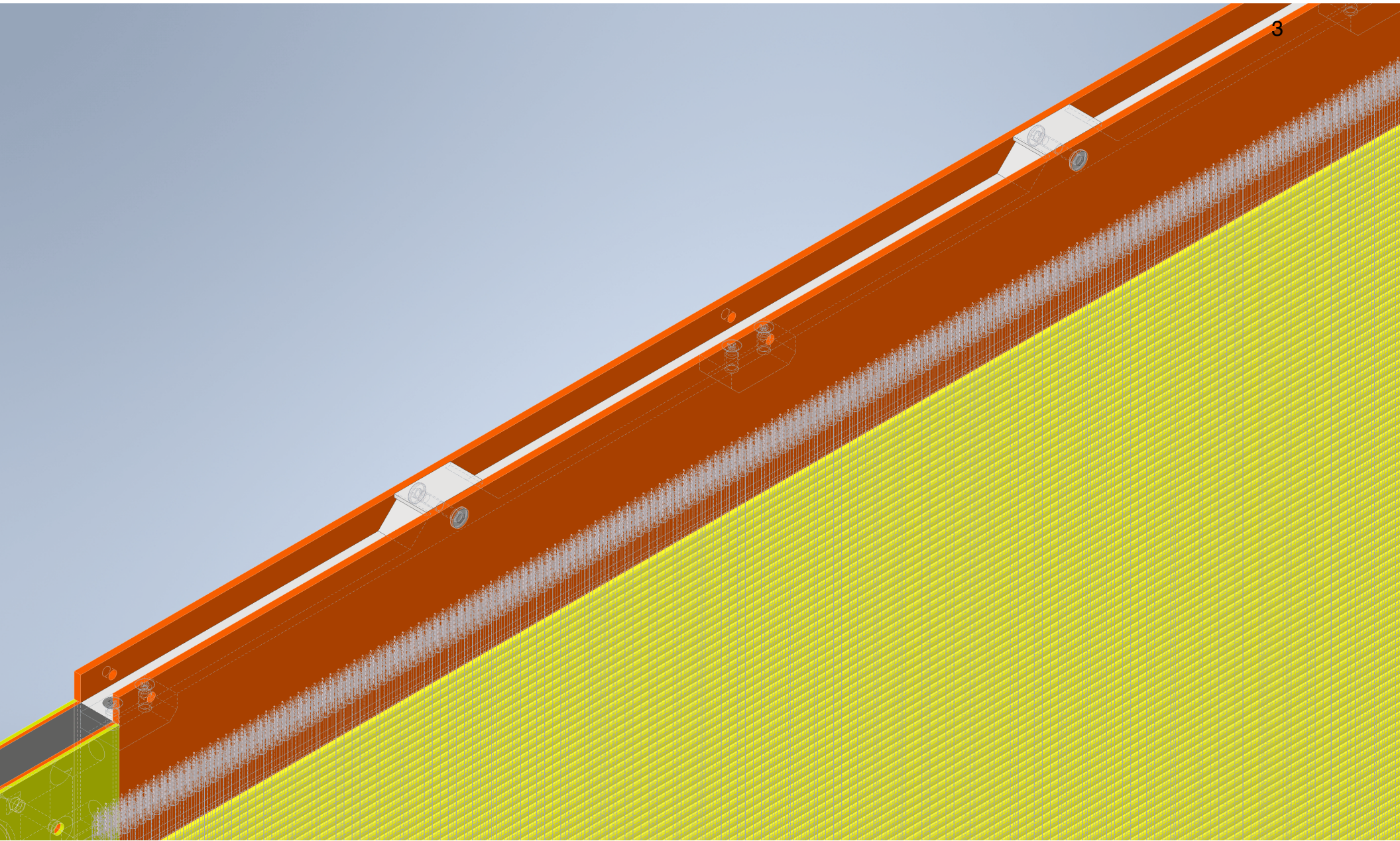
PREPARATION FOR 1.2m × 0.8m PROTOTYPE

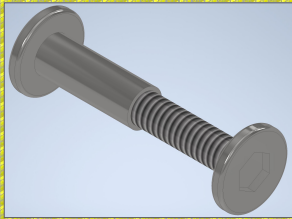
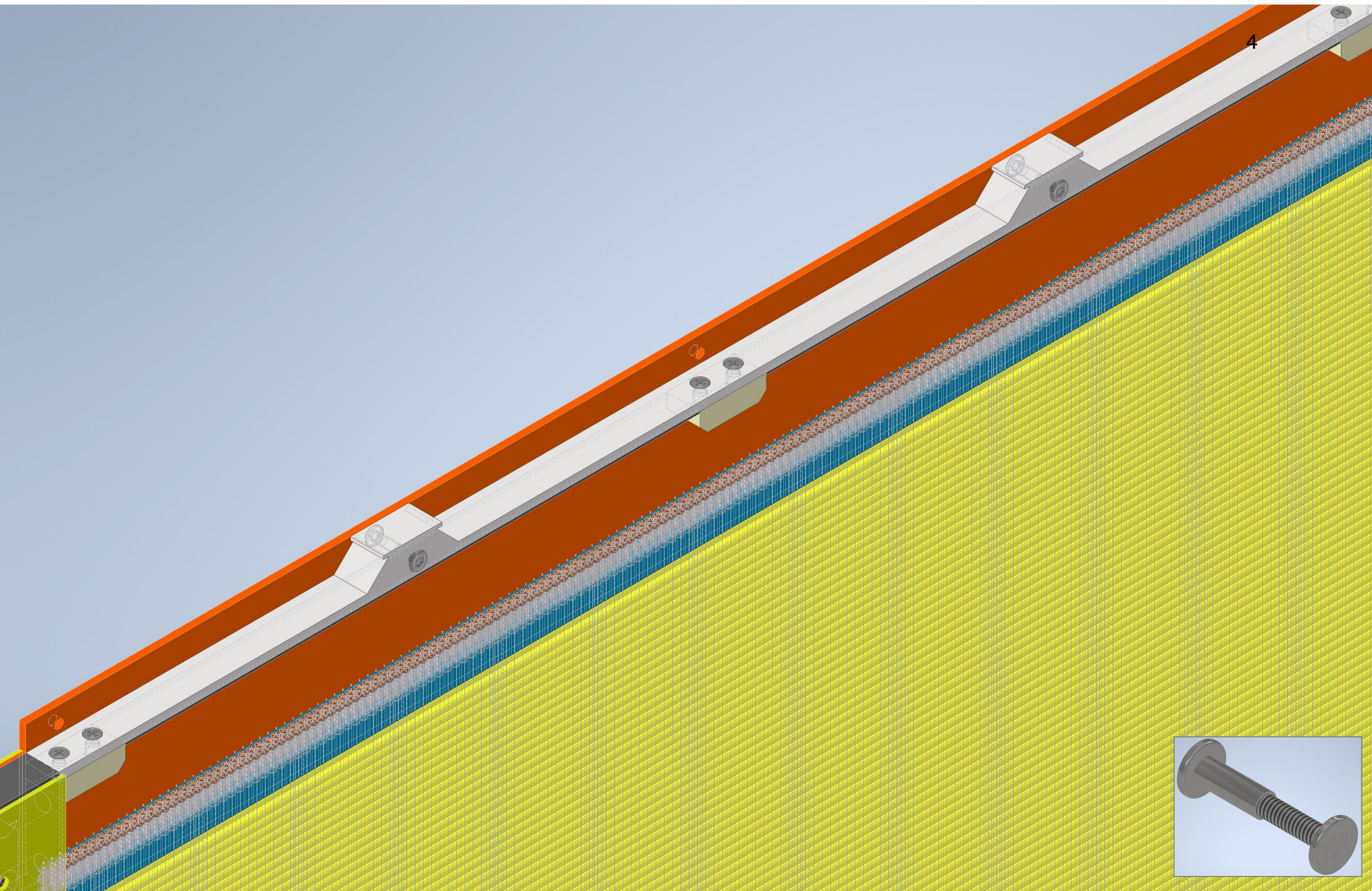
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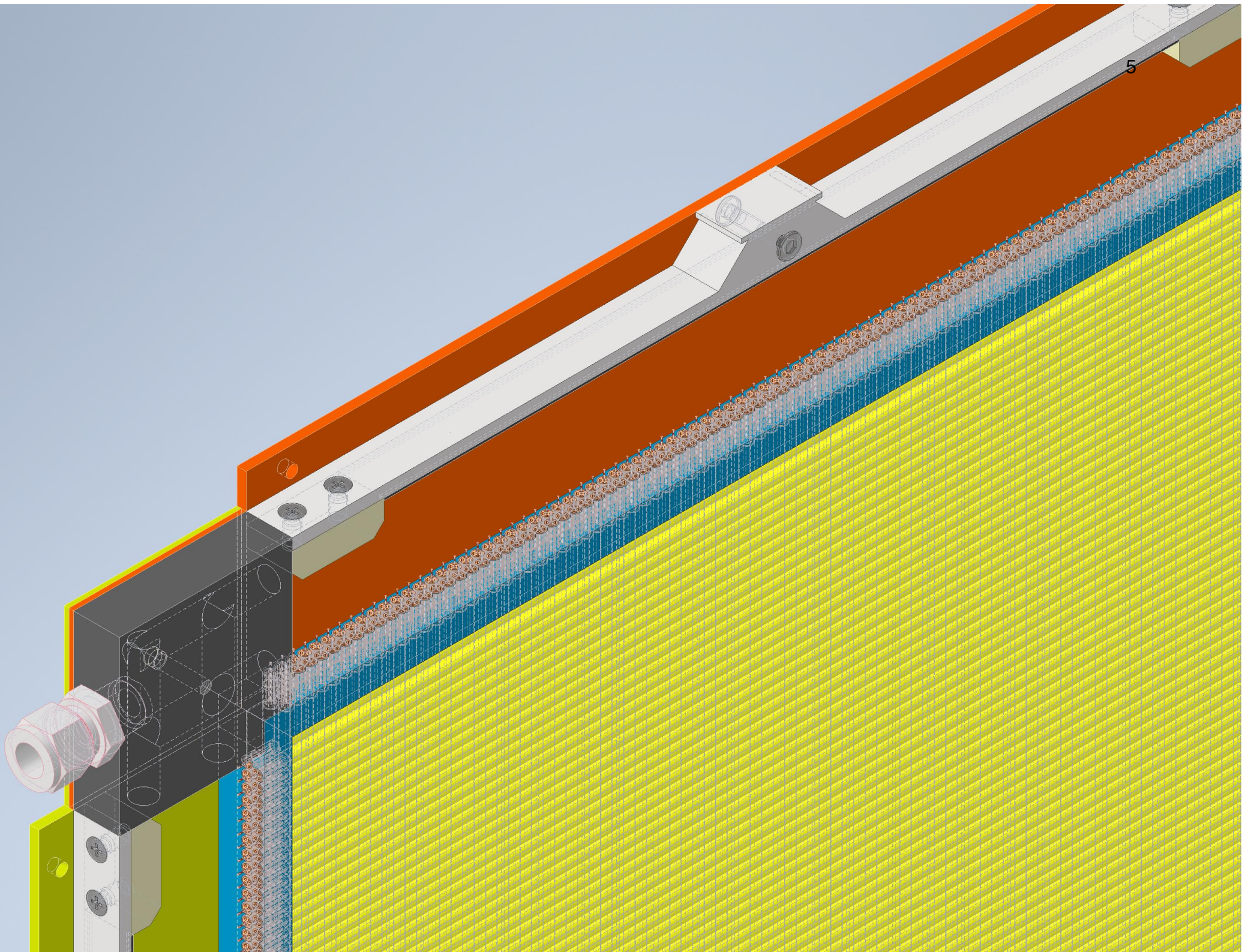
- ◆ *Prototype 1.2m × 0.8m based on design & parts as in full scale STT modules:*
 - *Build at JINR with help from GTU & other institutions;*
 - *Maximal size compatible with existing tooling & similar to NA64 detectors recently built at JINR;*
 - *4 straw layers XXYY: 672 straws total;*
 - *Tracking prototype: no target, no radiator;*
 - *C-composite frame integrating gas manifolds, gas and electrical connections etc.*

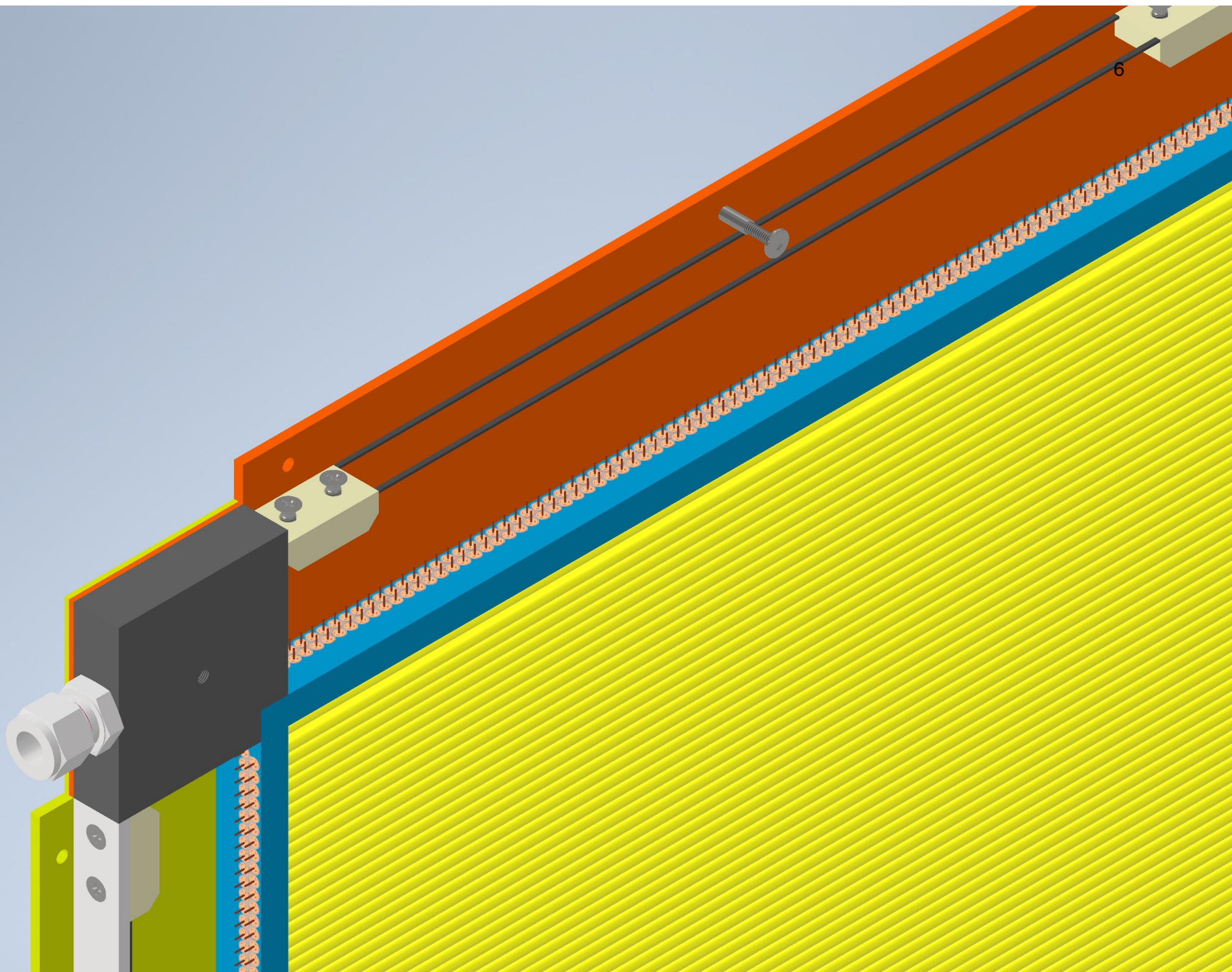
- ◆ *Assembly and test of mockup required to finalize prototype design:*
 - *Fabrication of plexiglass frame completed (Hamburg);*
 - *Tooling for cutting assembled straws and for crimping wire pins.*

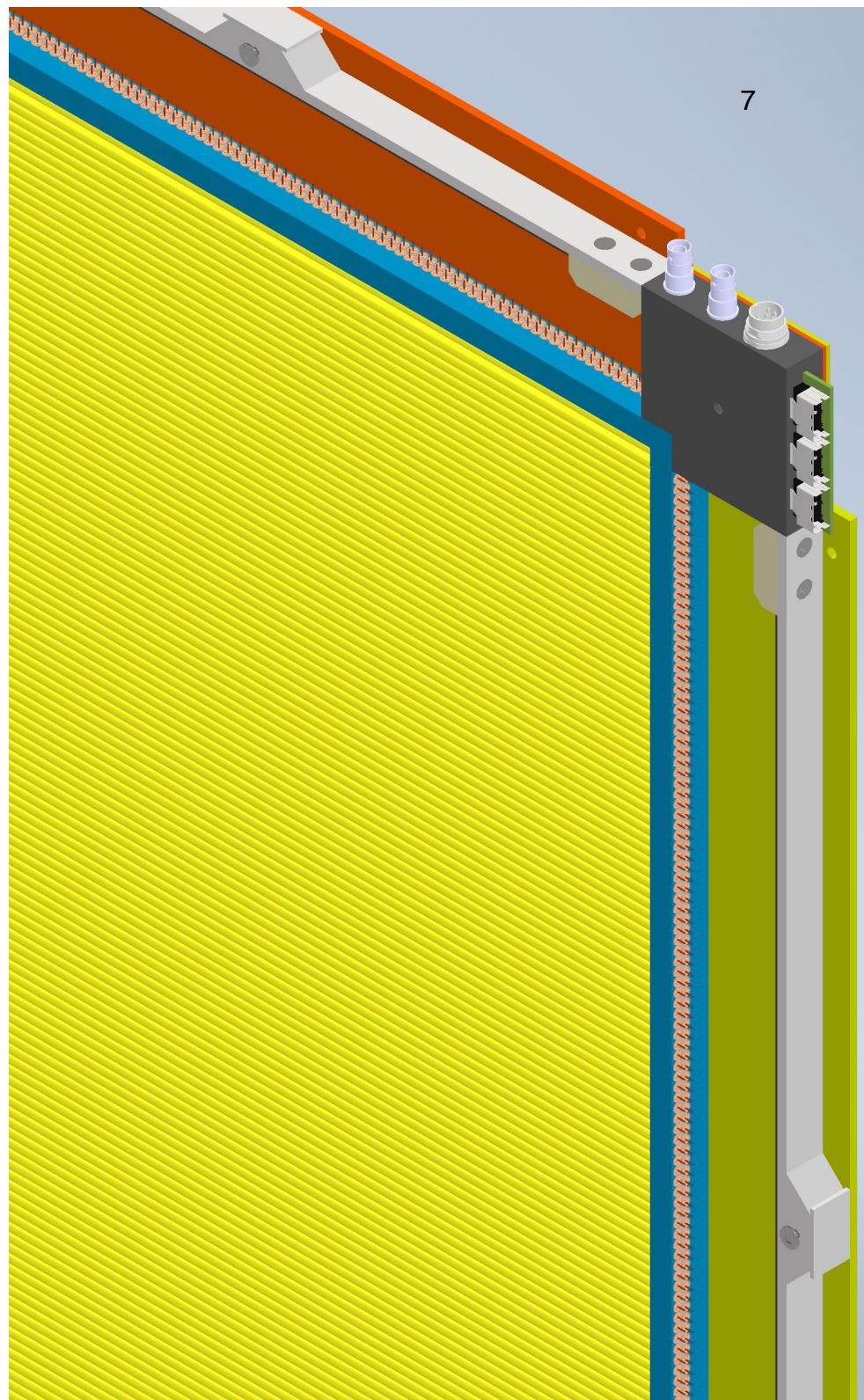
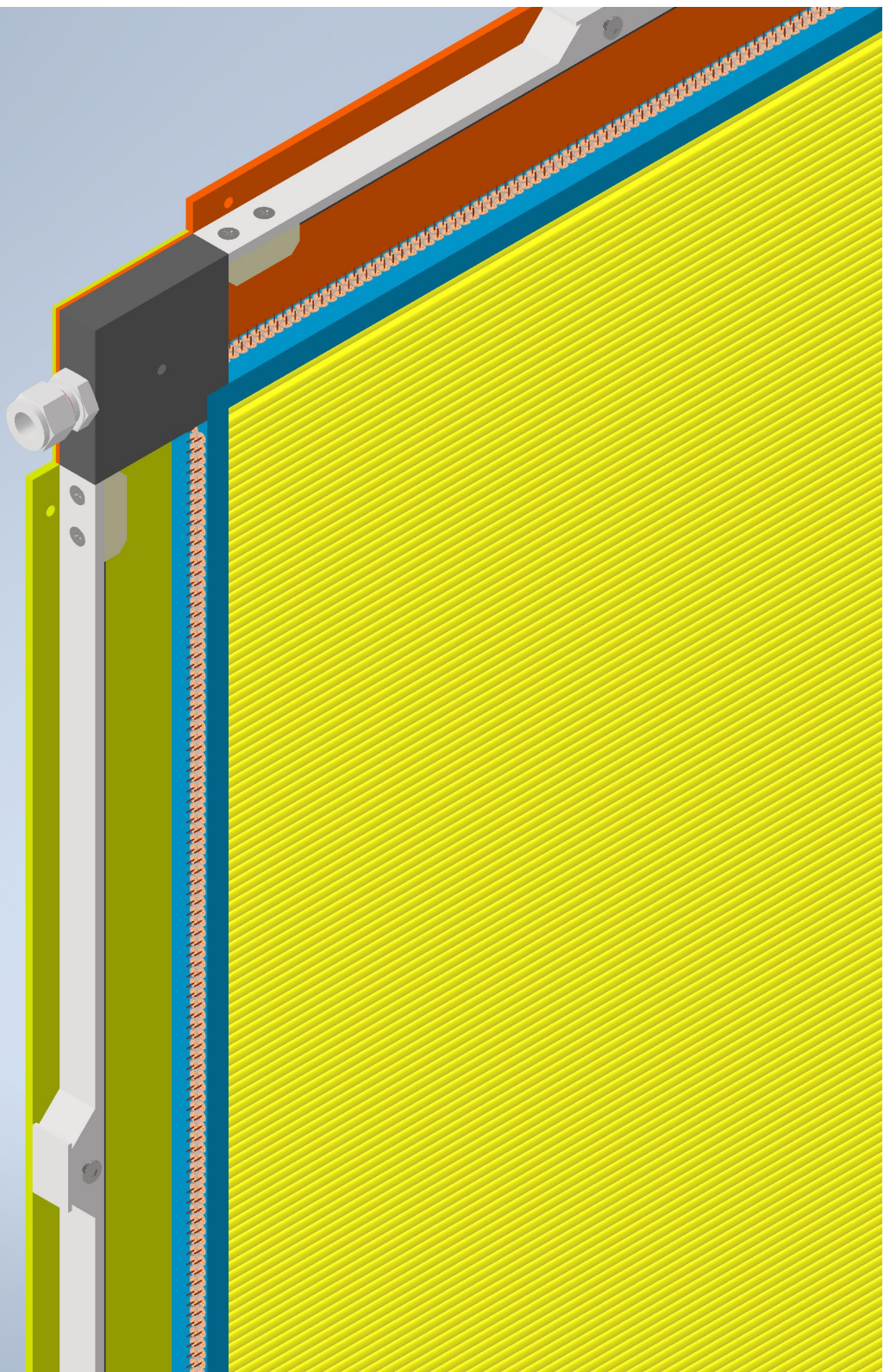
⇒ *Revise prototype design to incorporate experience from mockup fabrication*

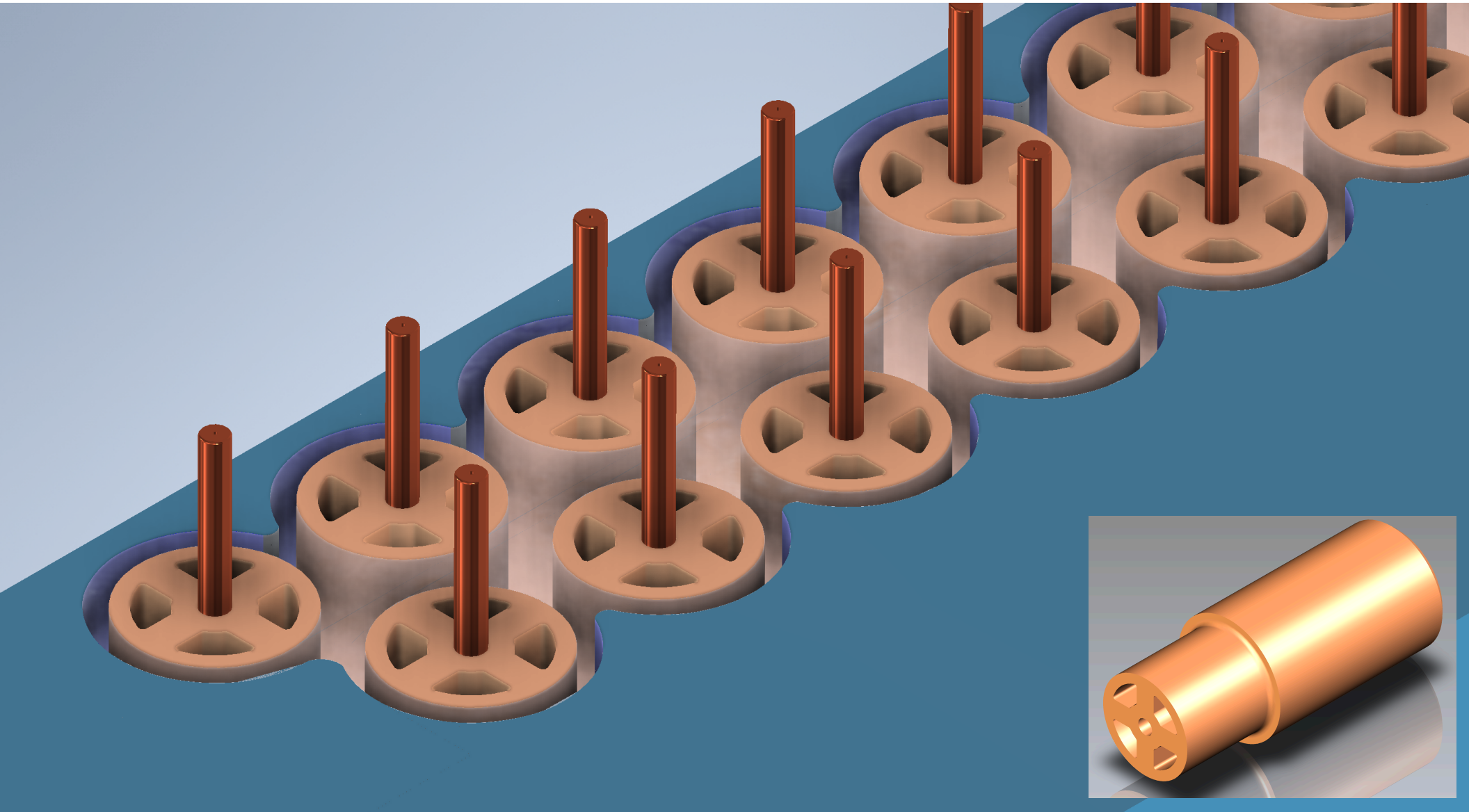


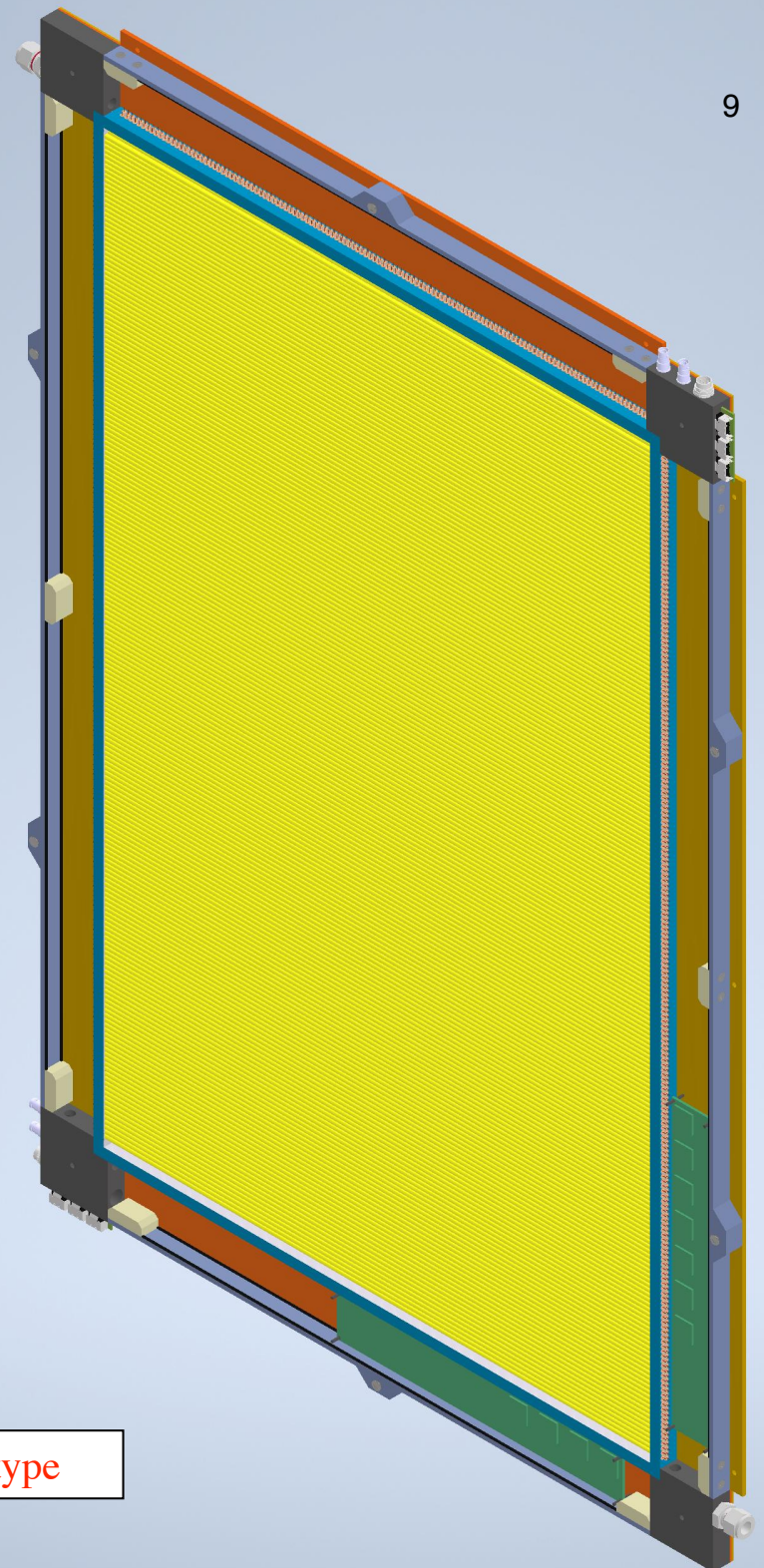
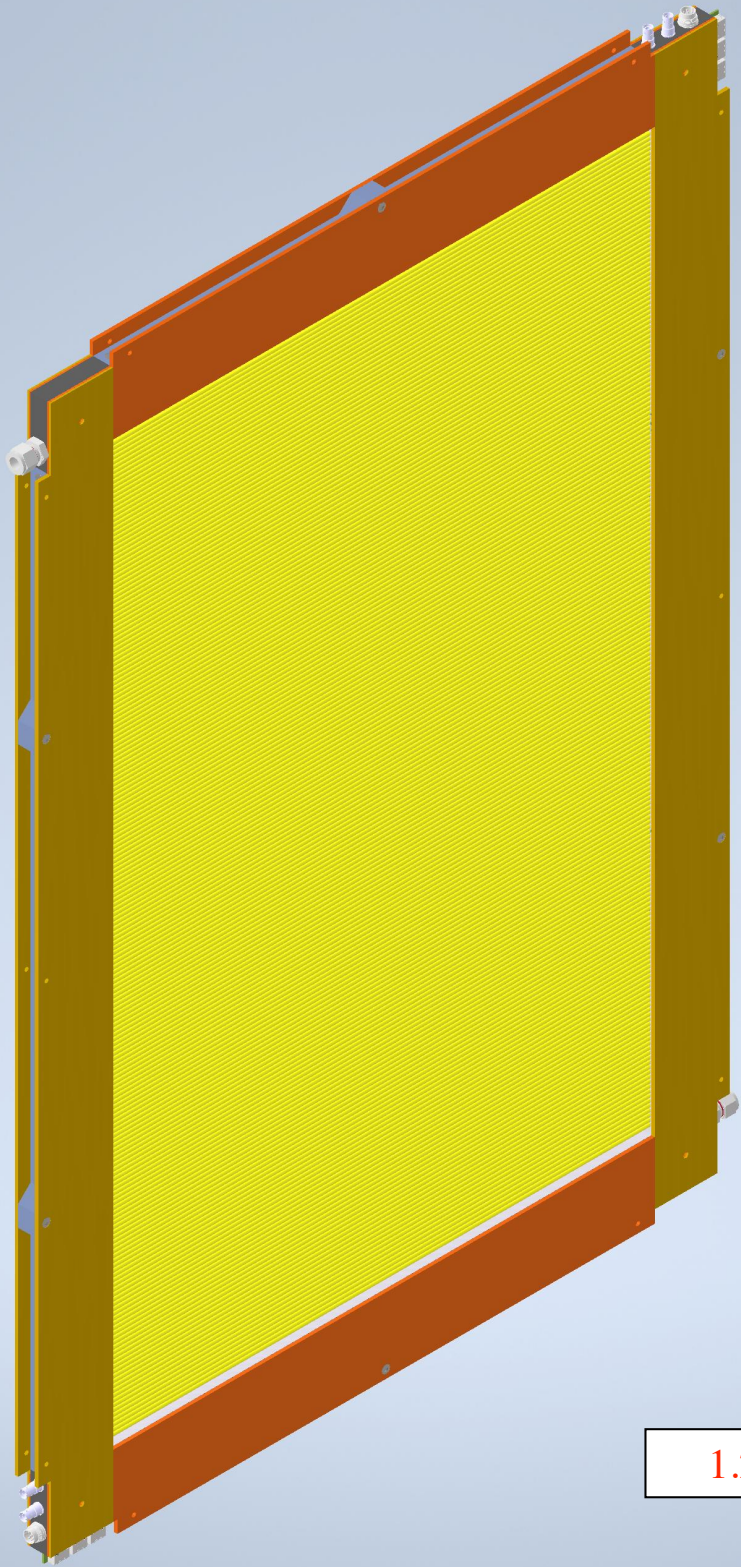












1.2 m x 0.8 m prototype

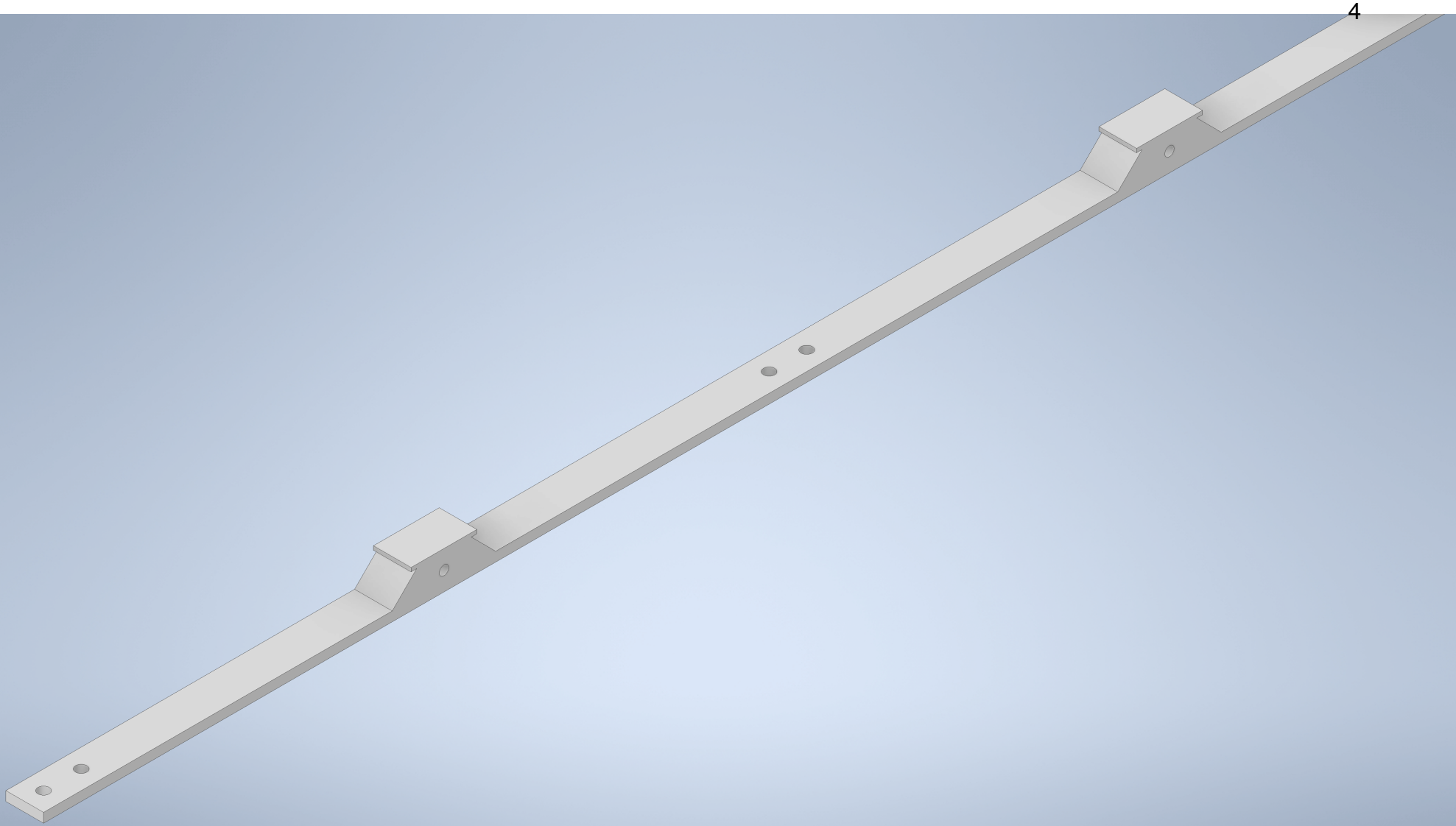
◆ *Main goals of 1.2m × 0.8m prototype:*

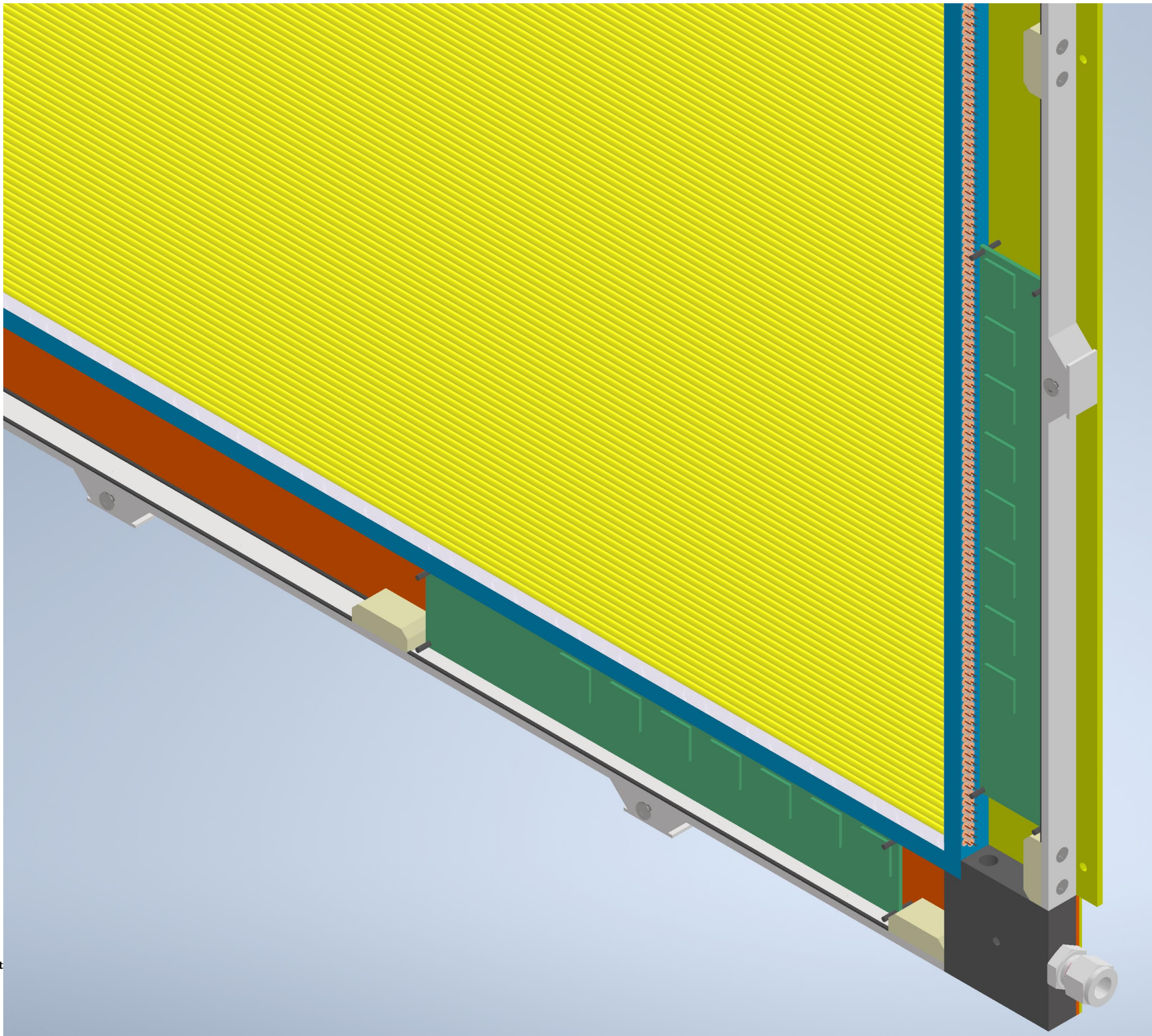
- *Assembly procedure for STT modules and related tooling;*
- *Gas tightness and system integration;*
- *Mechanical properties and assembly tolerances;*
- *Instrumentation with existing electronics.*

◆ *Procurement of required components:*

- *Procure 1,500 end-plugs: evaluating machining, 3D printing, and injection molding;*
- *Procure crimping pins: can instrument only a few straws around the center along both XX and YY;*
- *Procure C-composite frame for prototype: evaluating vendors in USA, Italy, and India;*
- *Produce straws with ultrasonic welding (JINR+GTU):
between 400m and 700m total length, 4.9mm external diameter, 20 μm walls, same films as tested.*
- *Include some straws (200-300) produced with winding technology by Lamina Tubular Tech. (UK)?*

Backup slides





*Alternative design for wire connection
with separate ionization and cooling gases
(Seog Oh, Duke)*

