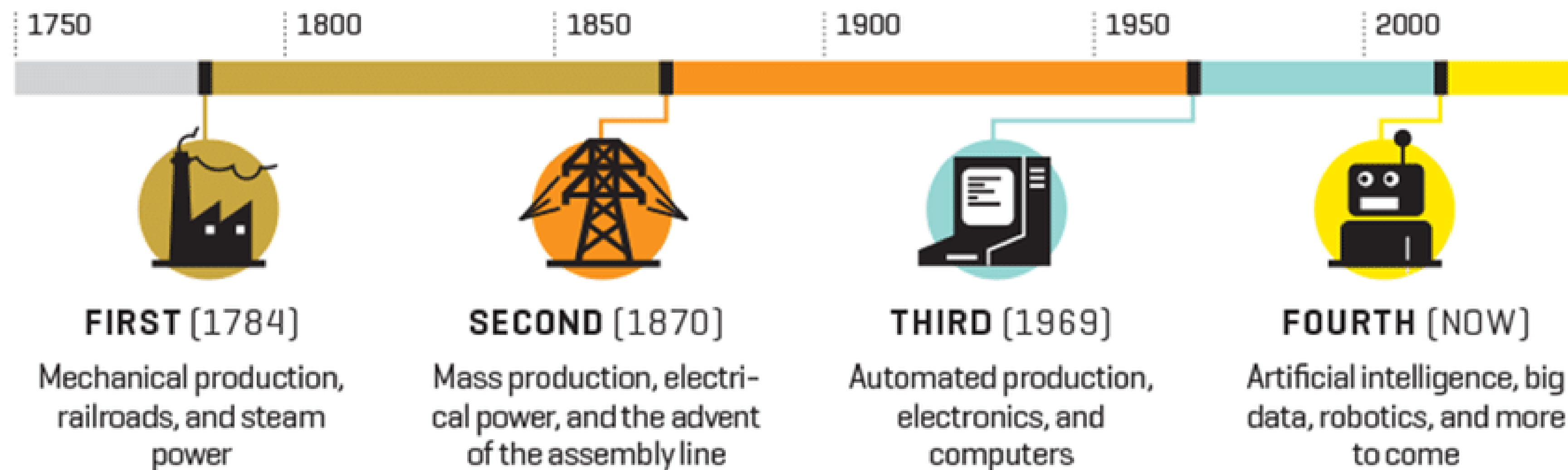


Industrial revolutions

and its influence on (wooden) architecture



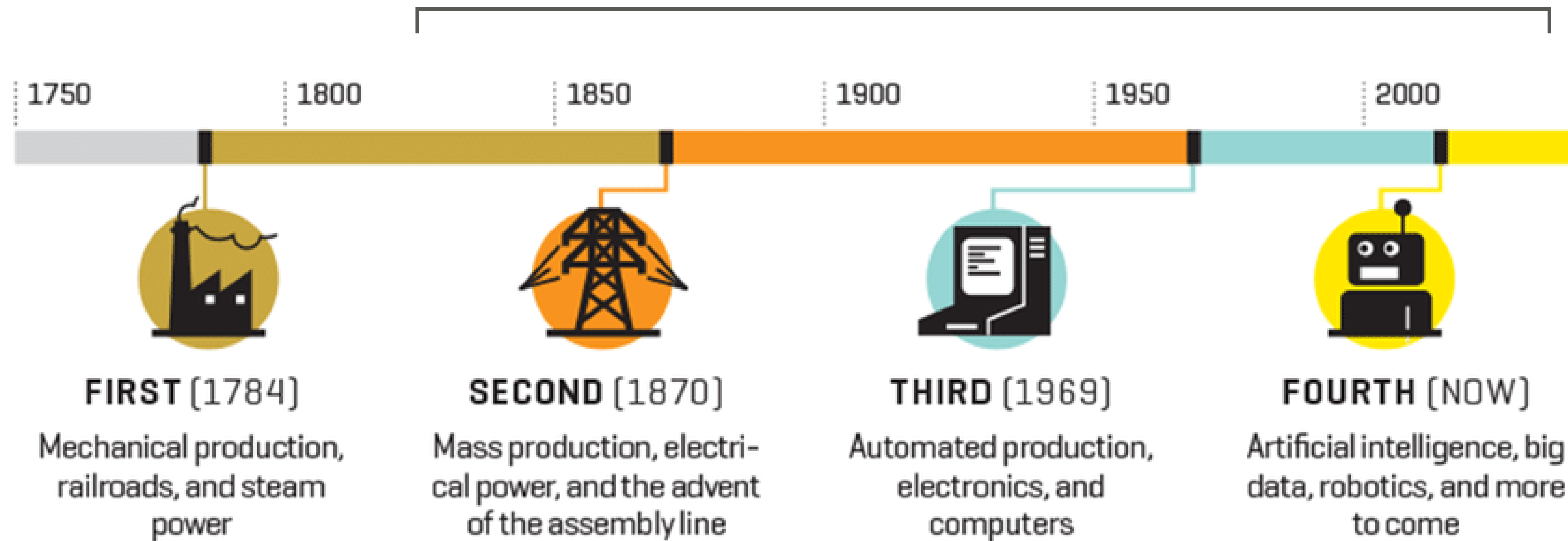
The four stages of industrial revolutions (Demandbase, 2017)

Industrial revolutions

starts with technological innovation
which results in a social change

clear indicator are social unrest
and emergence of different type of jobs (Rosen, 2012)

influence on (wooden) architecture



The four stages of industrial revolutions (Demandbase, 2017)

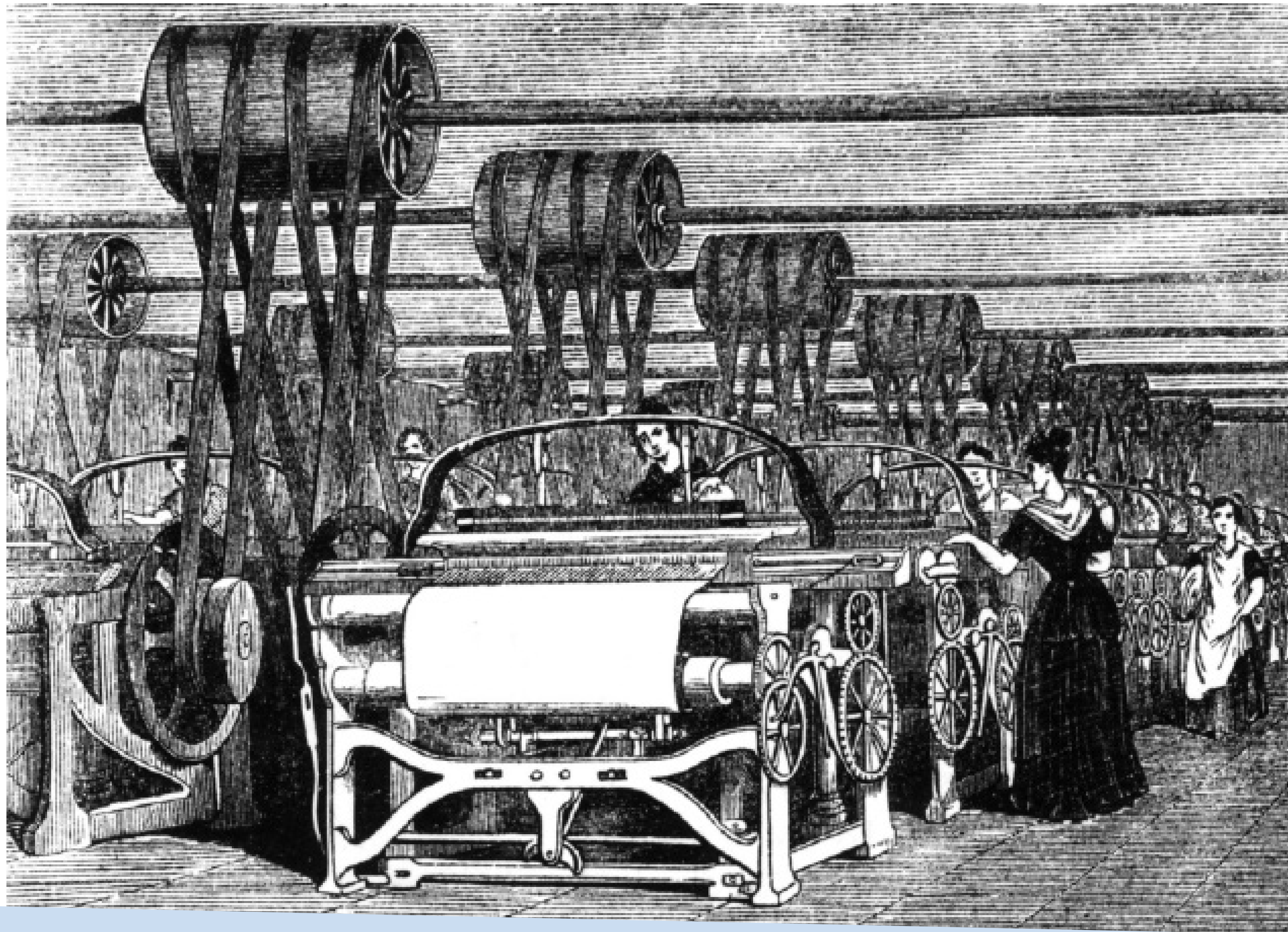
1st industrial revolution

second half of the 18th century

steam powered engines as main innovation

mechanization of the textile industry

spread across Western Europe (Rosen, 2012)



Steampowered textile weavers operated by women (Factinate, n.d.)

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2nd industrial revolutions

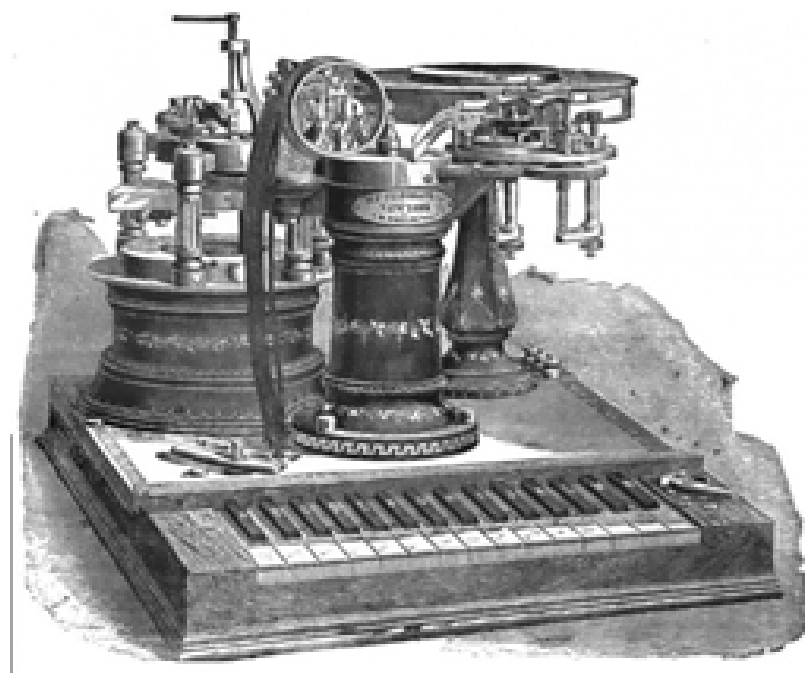
second half of the 19th century (1870-1914)

utilizing electricity, oil and gas as main innovation

builds upon the first industrial revolution

increased automation

innovations in communication, transport & manufacturing



telegraph



light bulb



car



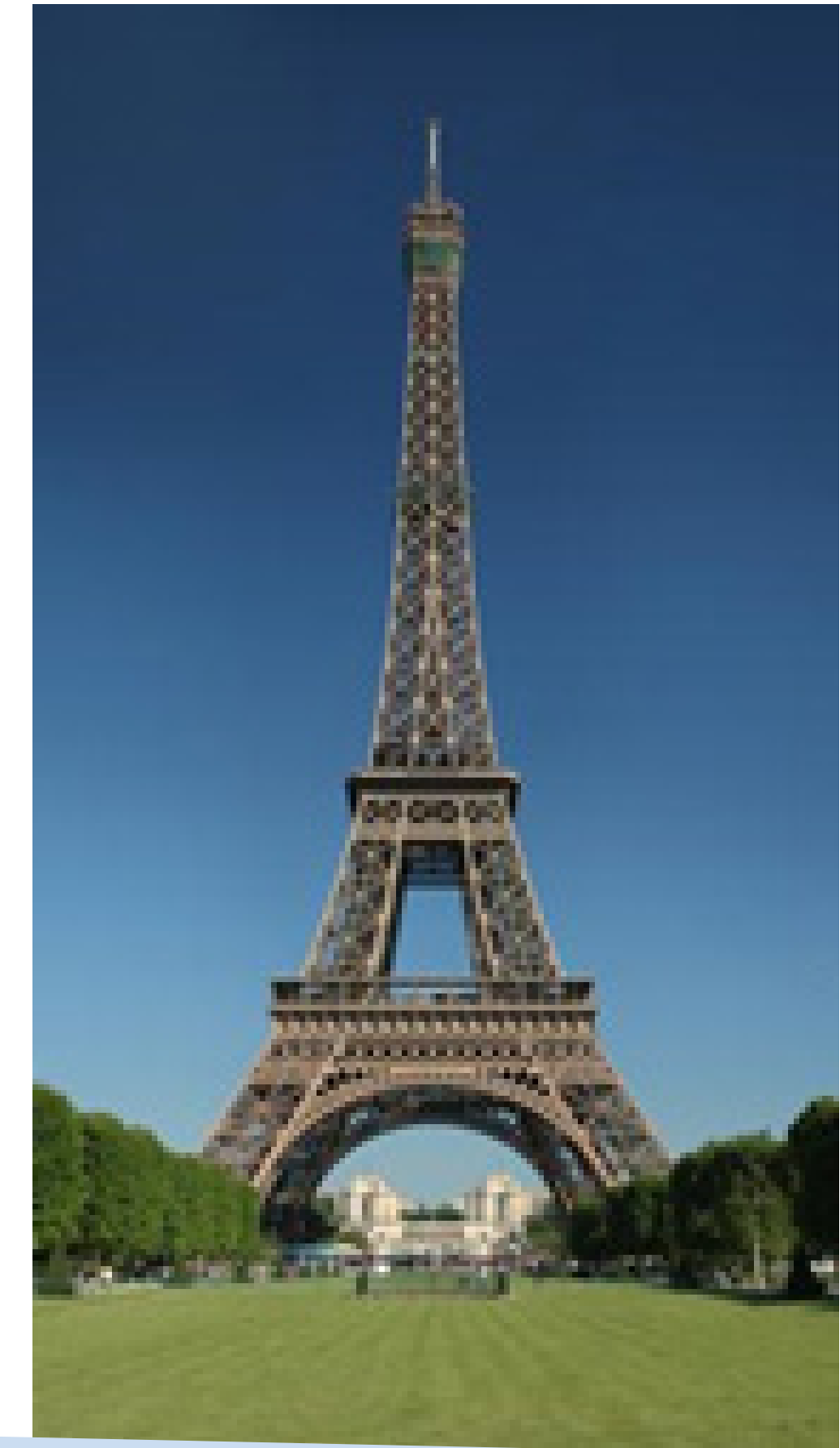
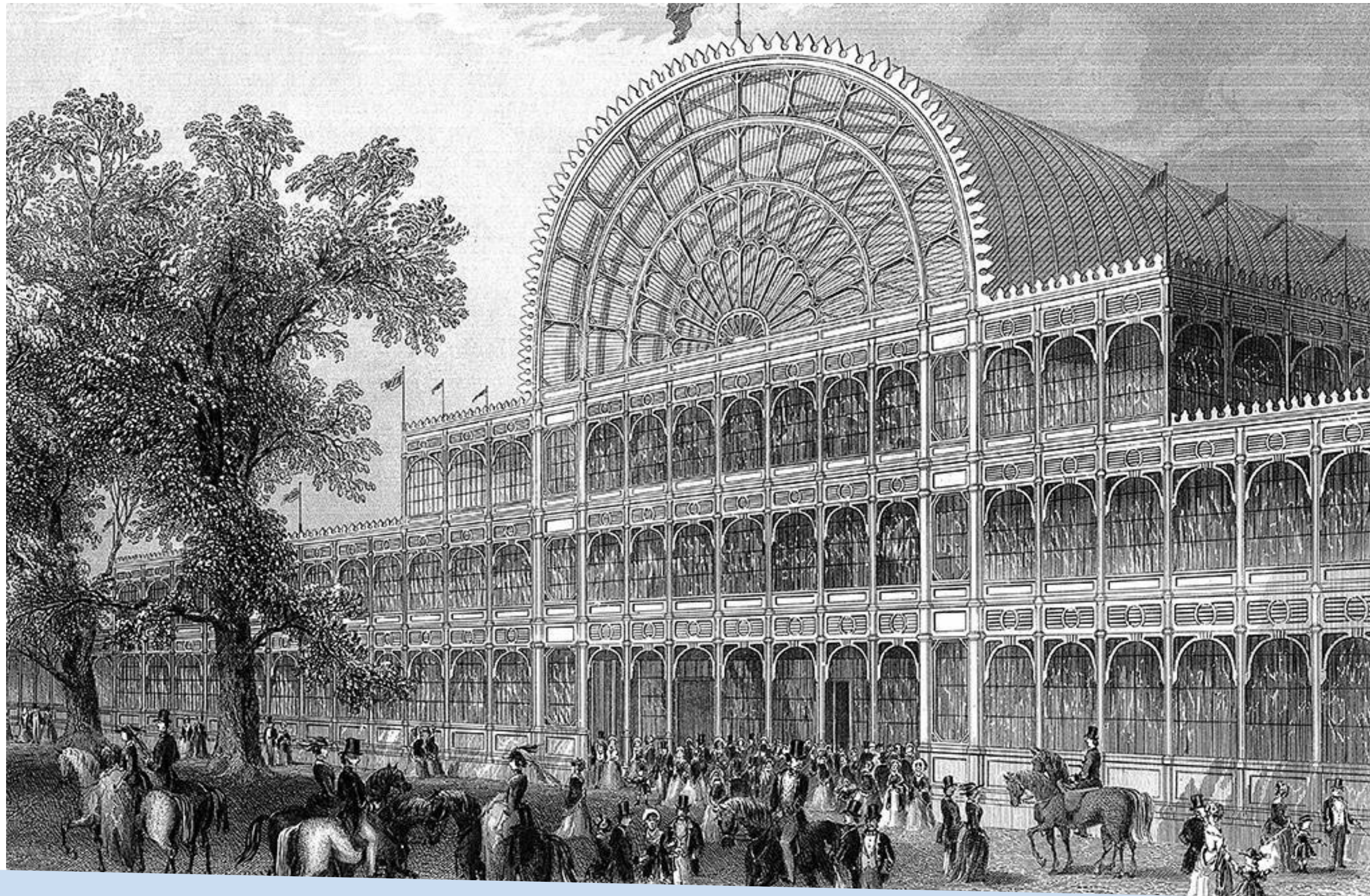
rail roads

2nd industrial revolutions

and its influence on (wooden) architecture

iron and steel began to replace wood

buildings should be efficient and built efficiently



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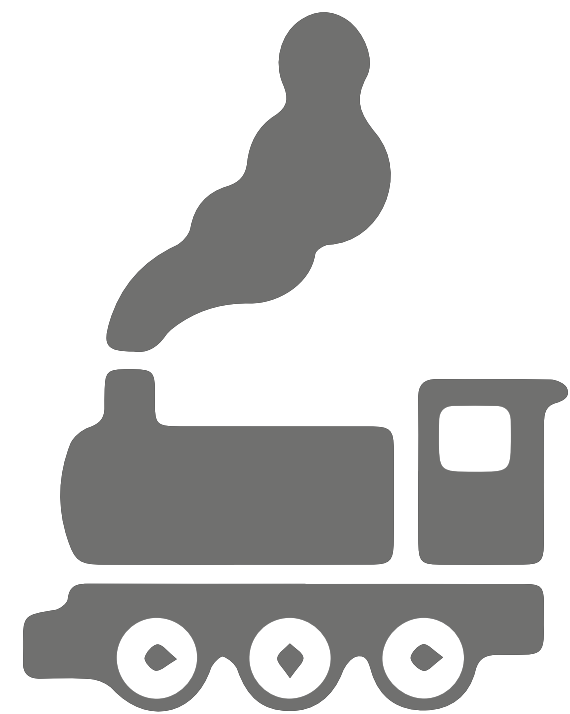
3rd industrial revolutions

second half of the 20th century

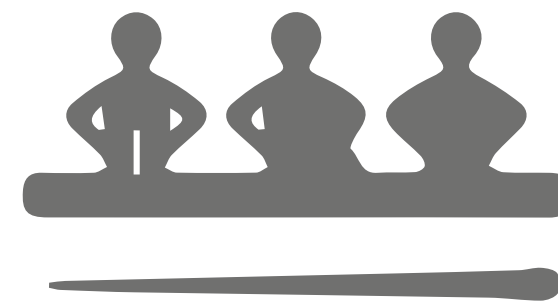
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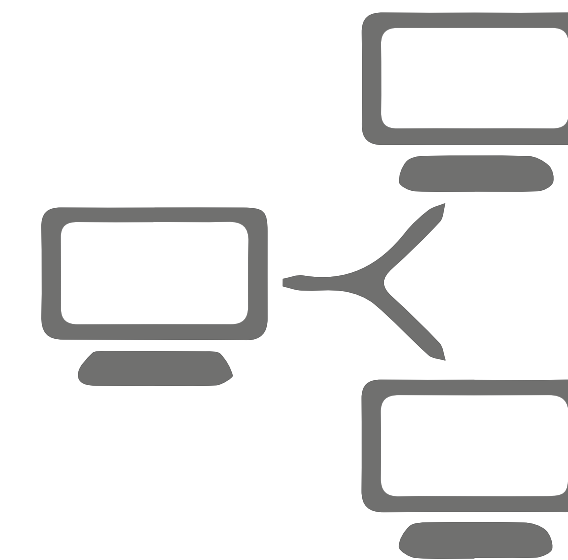
3rd industrial revolution



steam

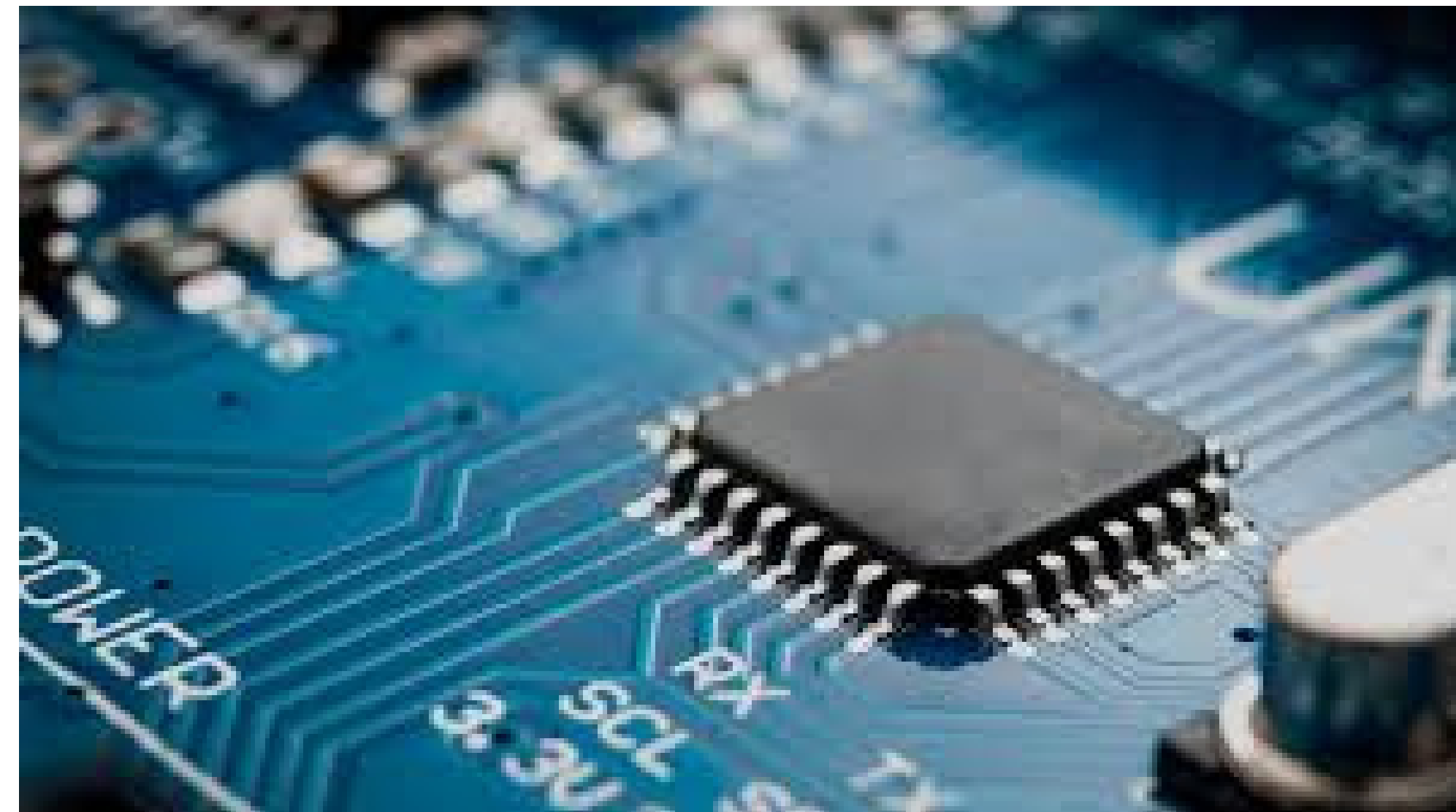


production lines

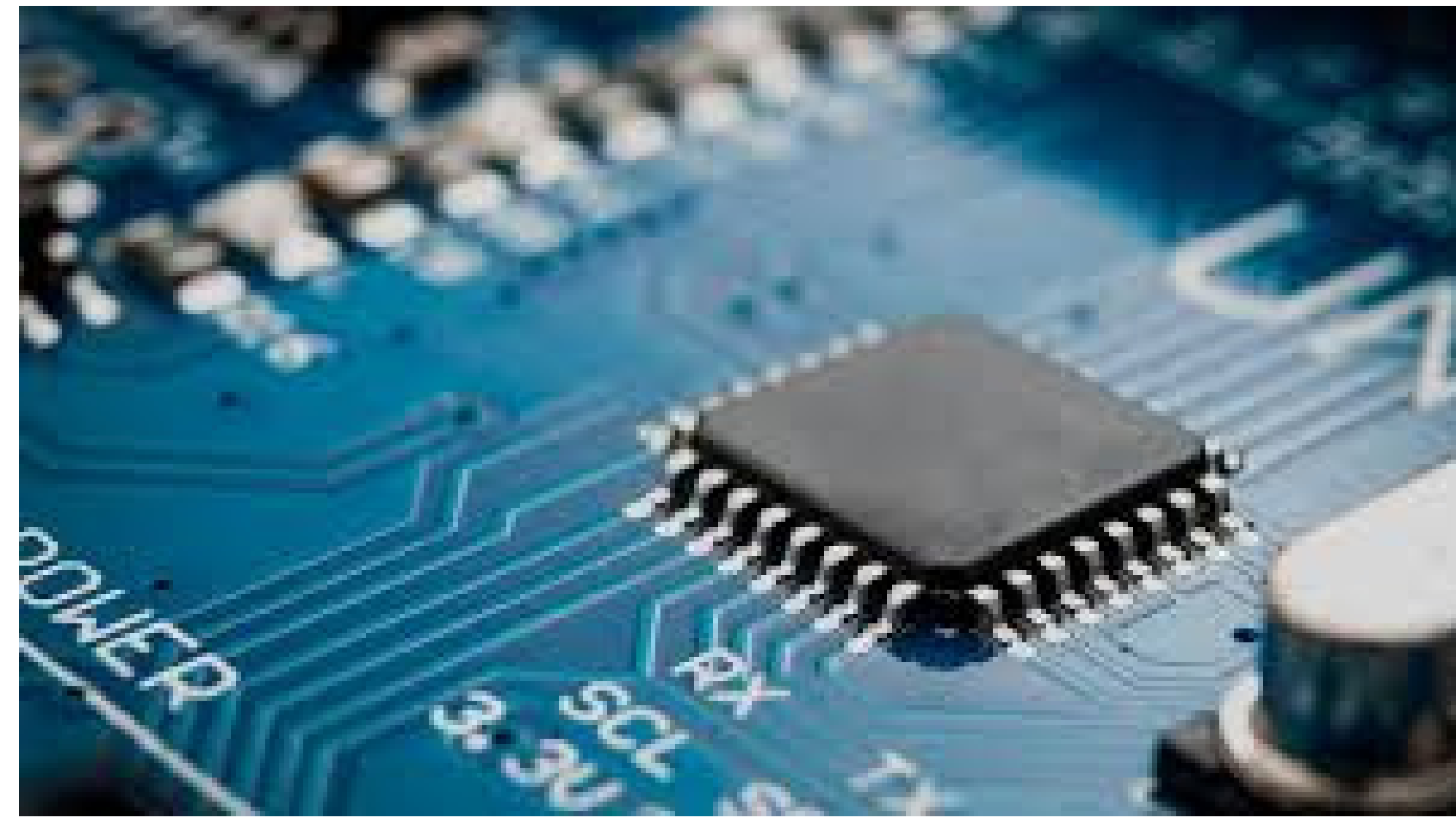


computing

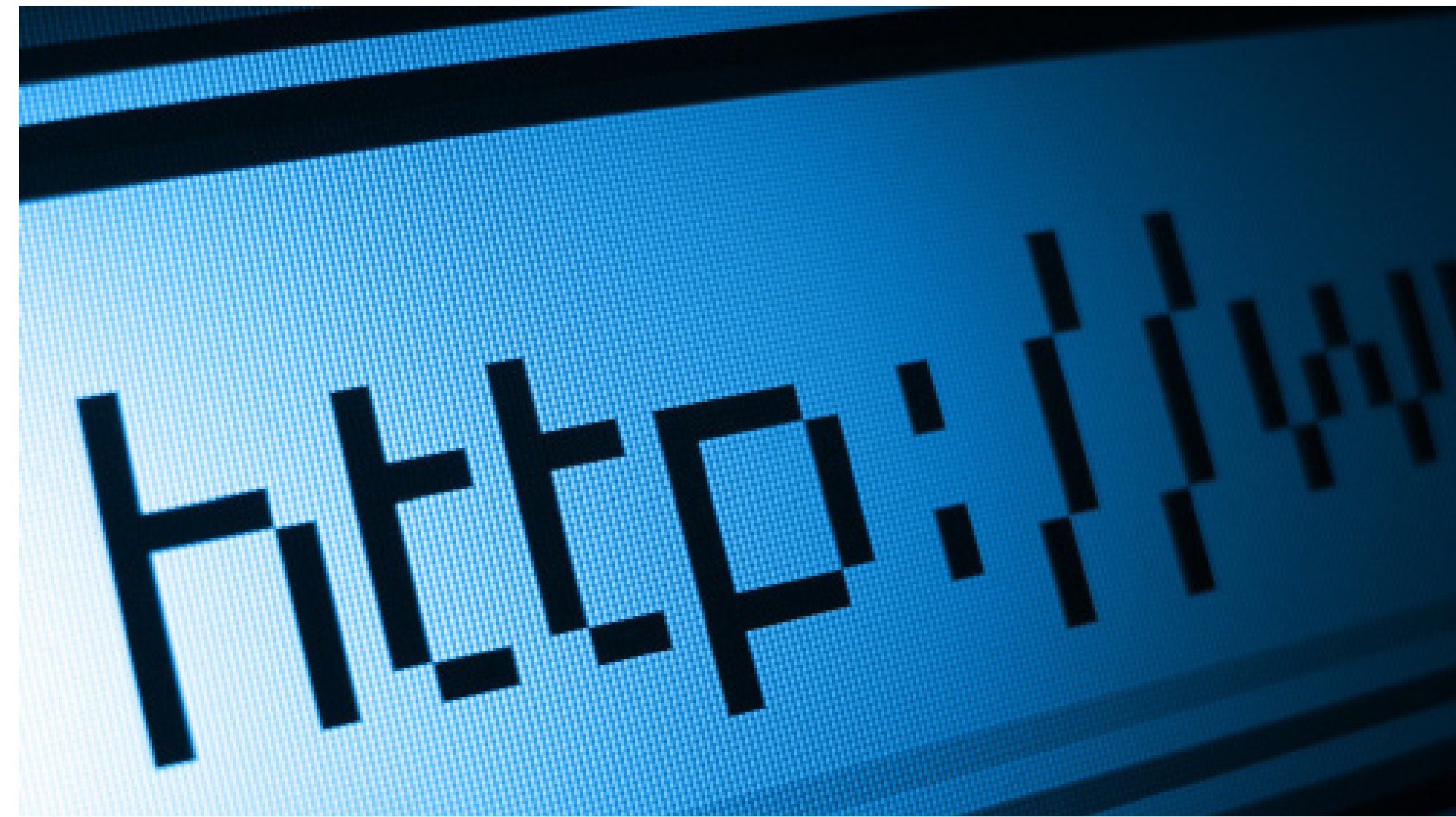
the invention of semiconductor



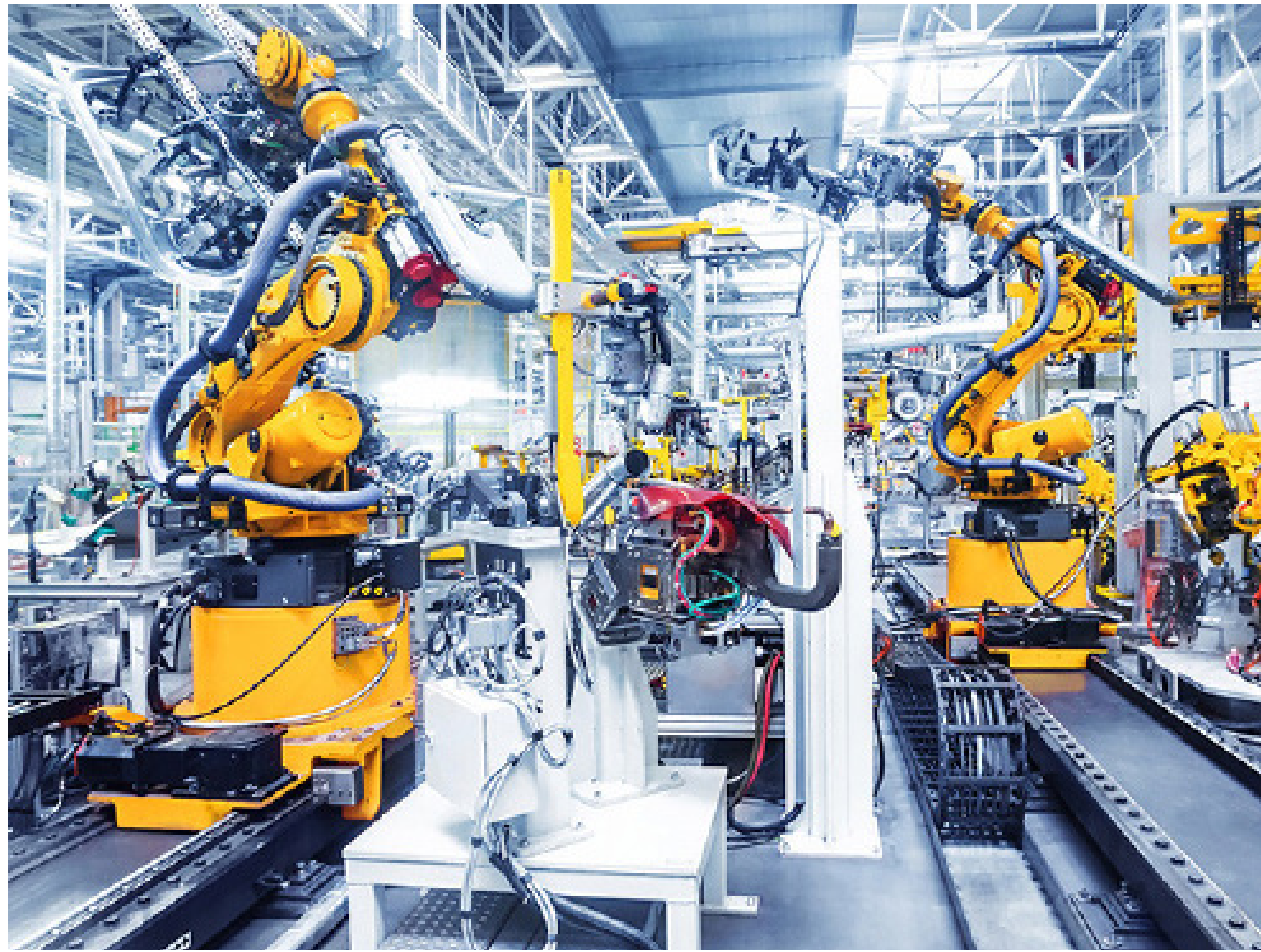
personal computer



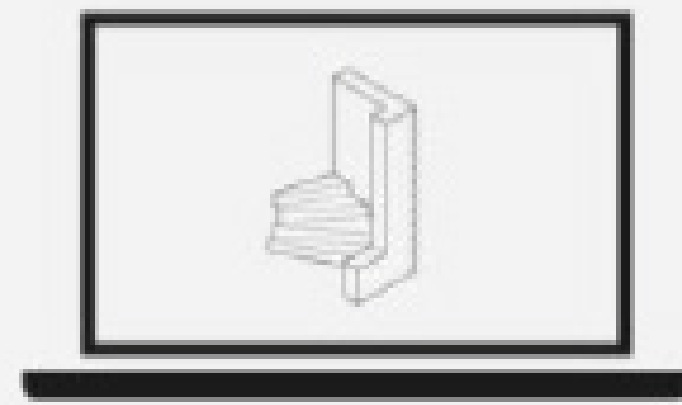
communication



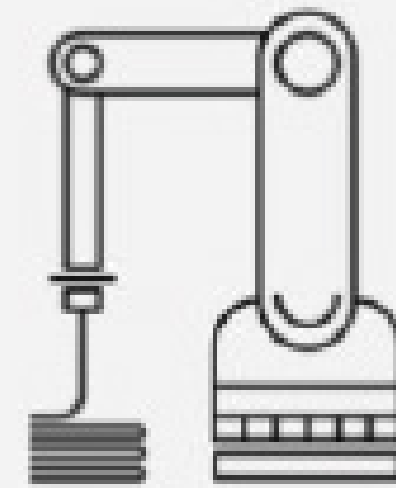
automation



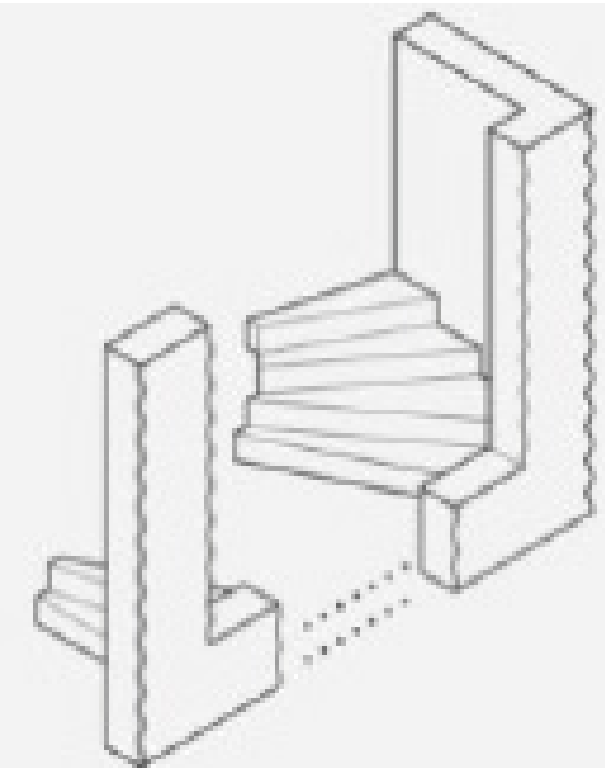
architecture



Digital design process

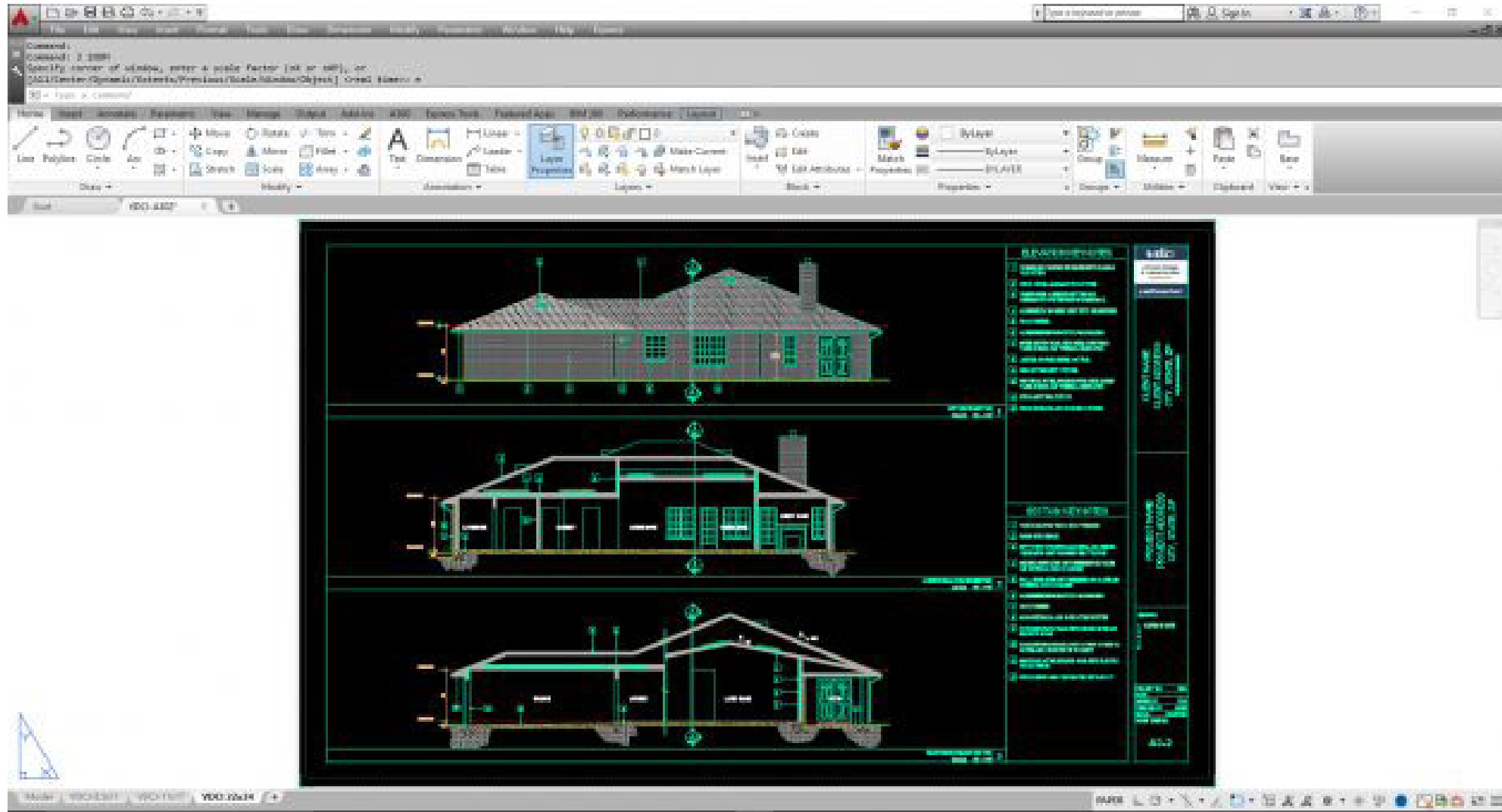


Digital production process

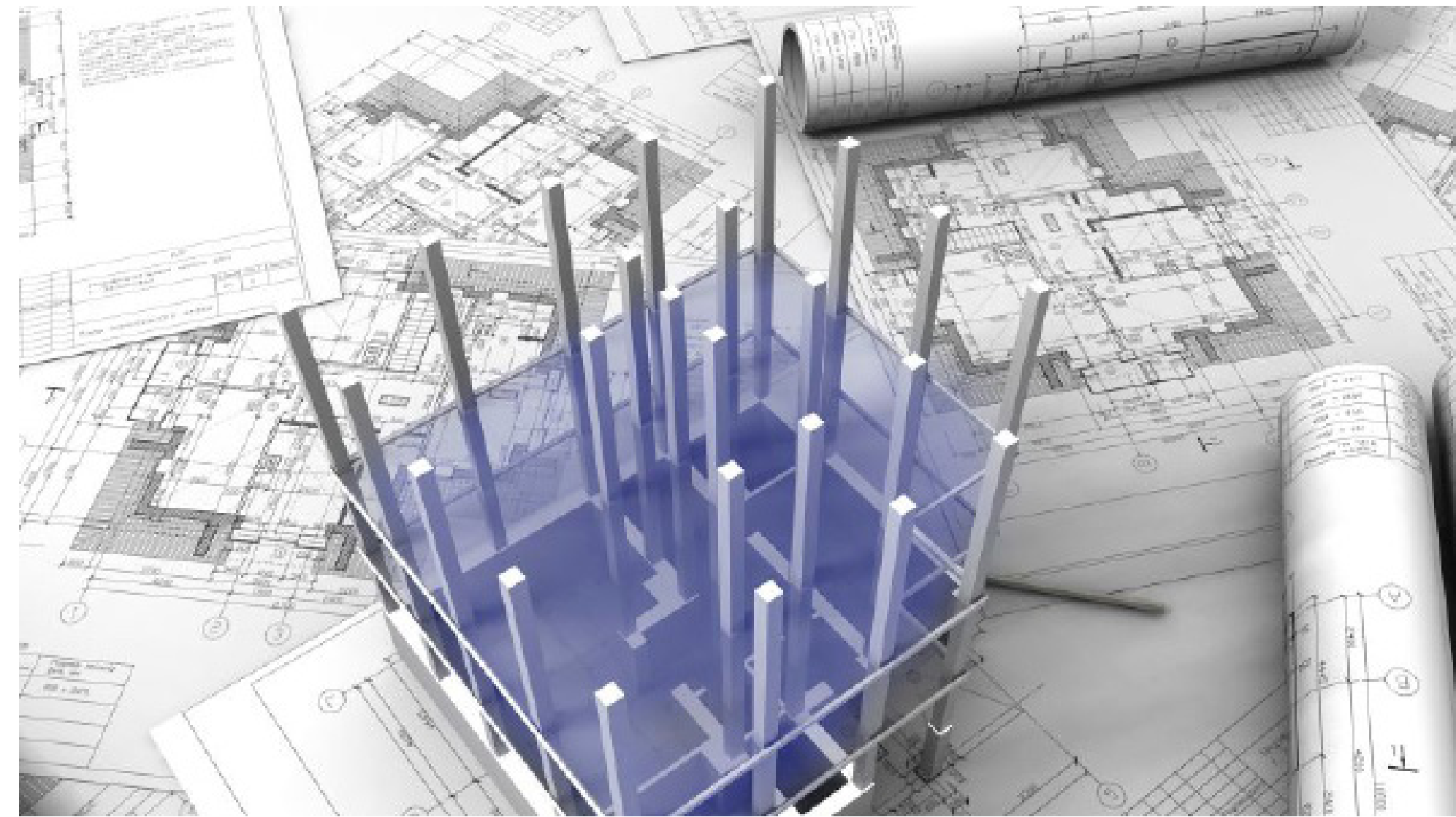


Perfect fit & quick installment

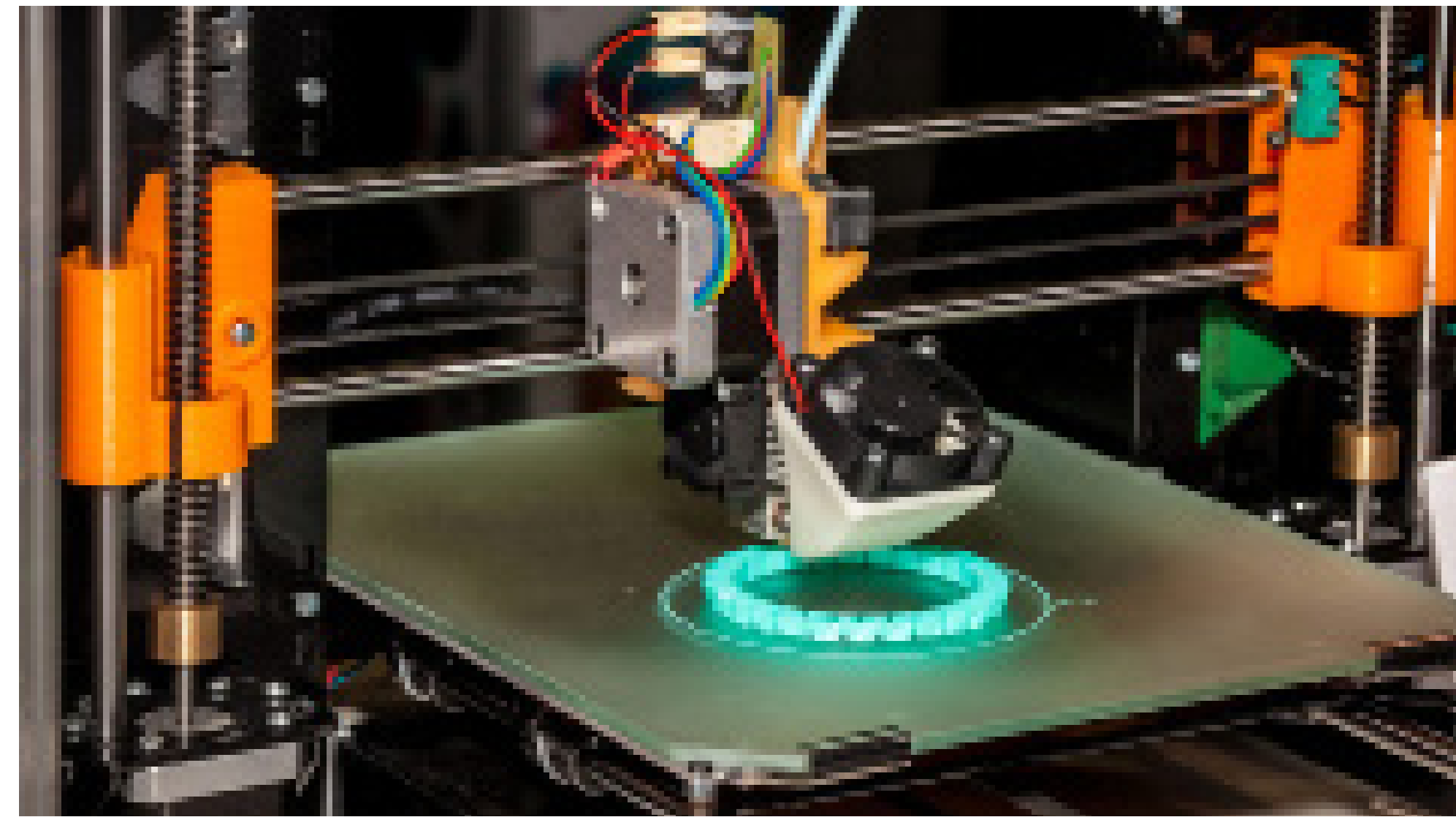
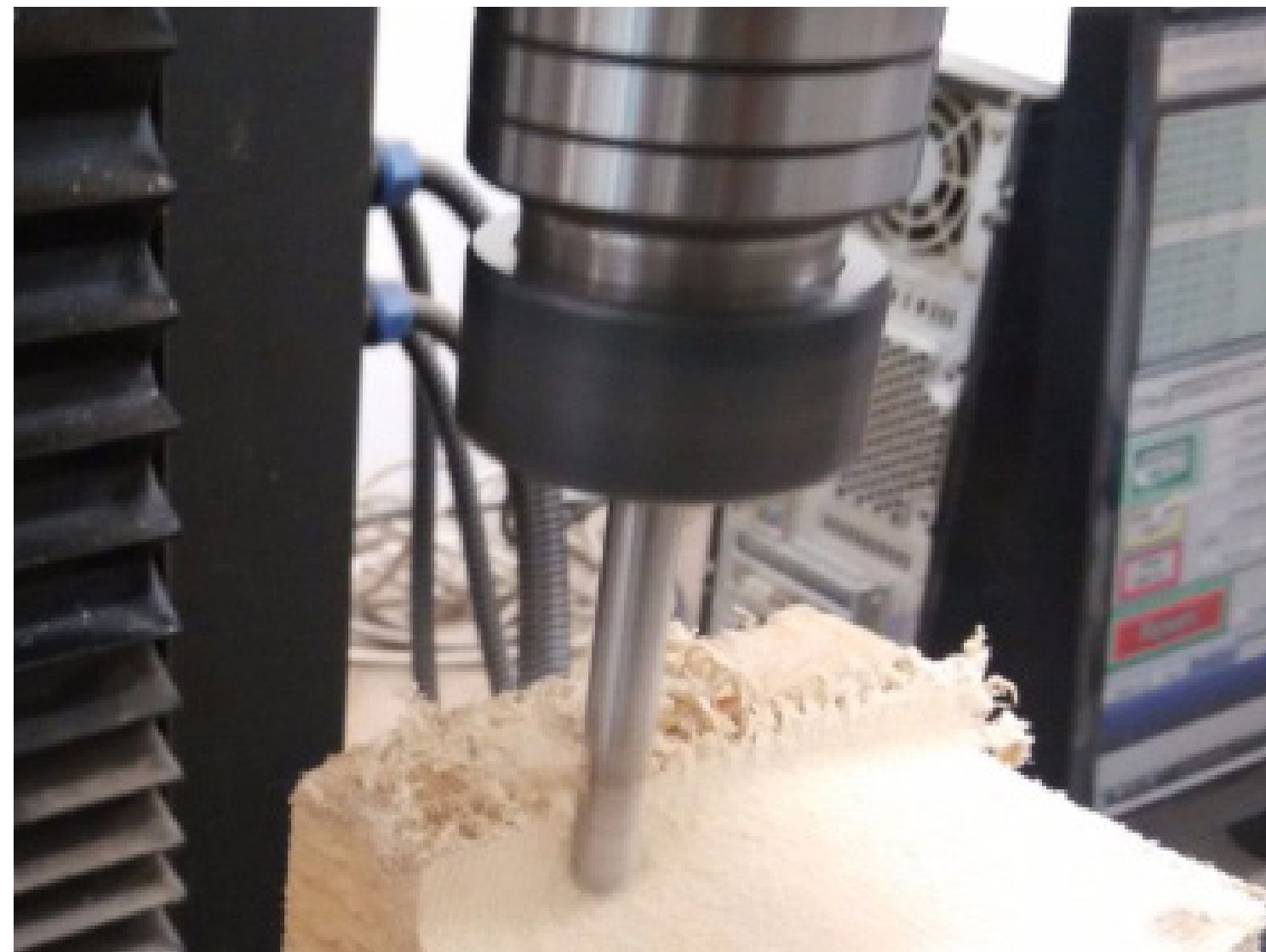
computer aided design



building information modeling



computer aided manufacturing





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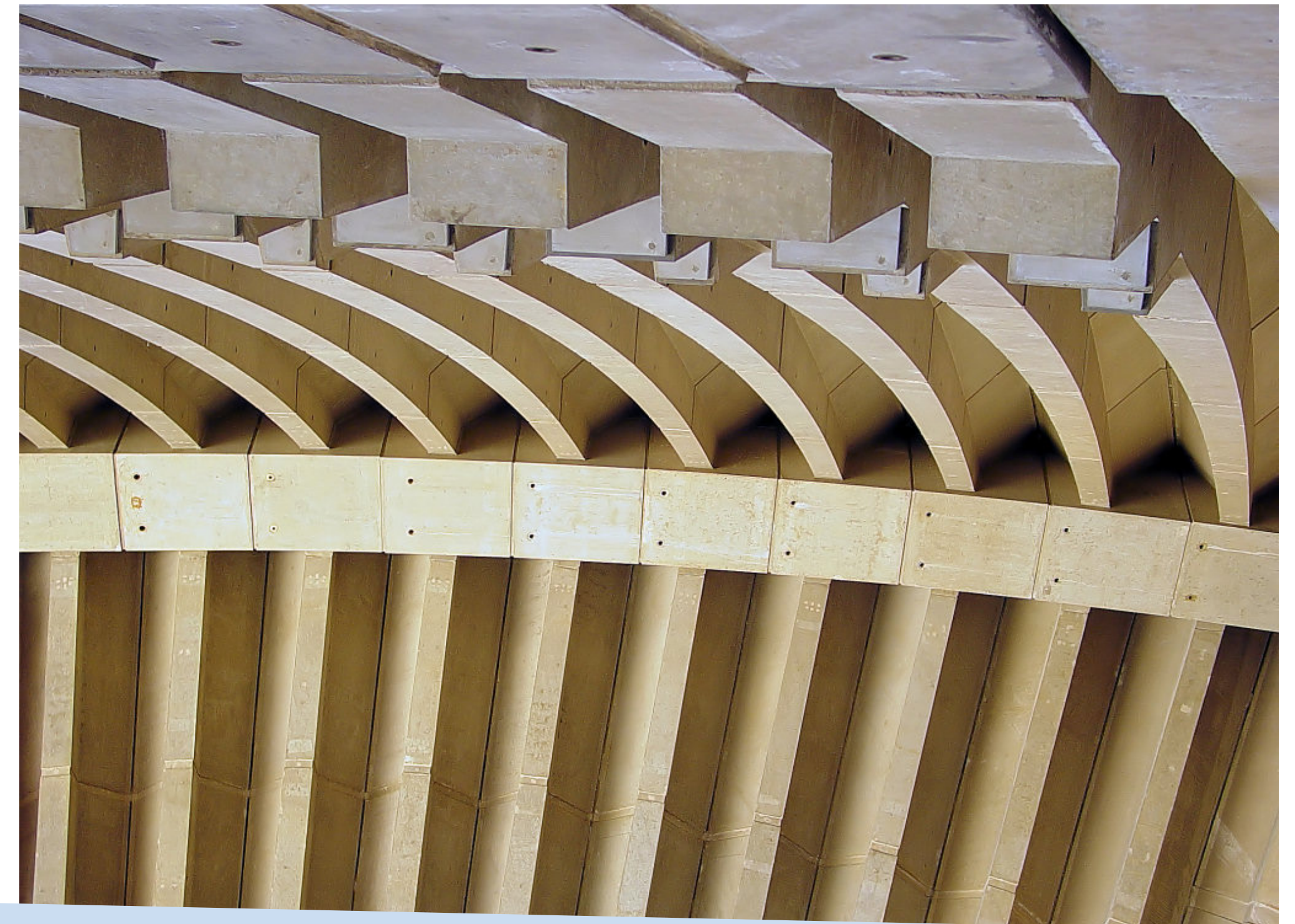
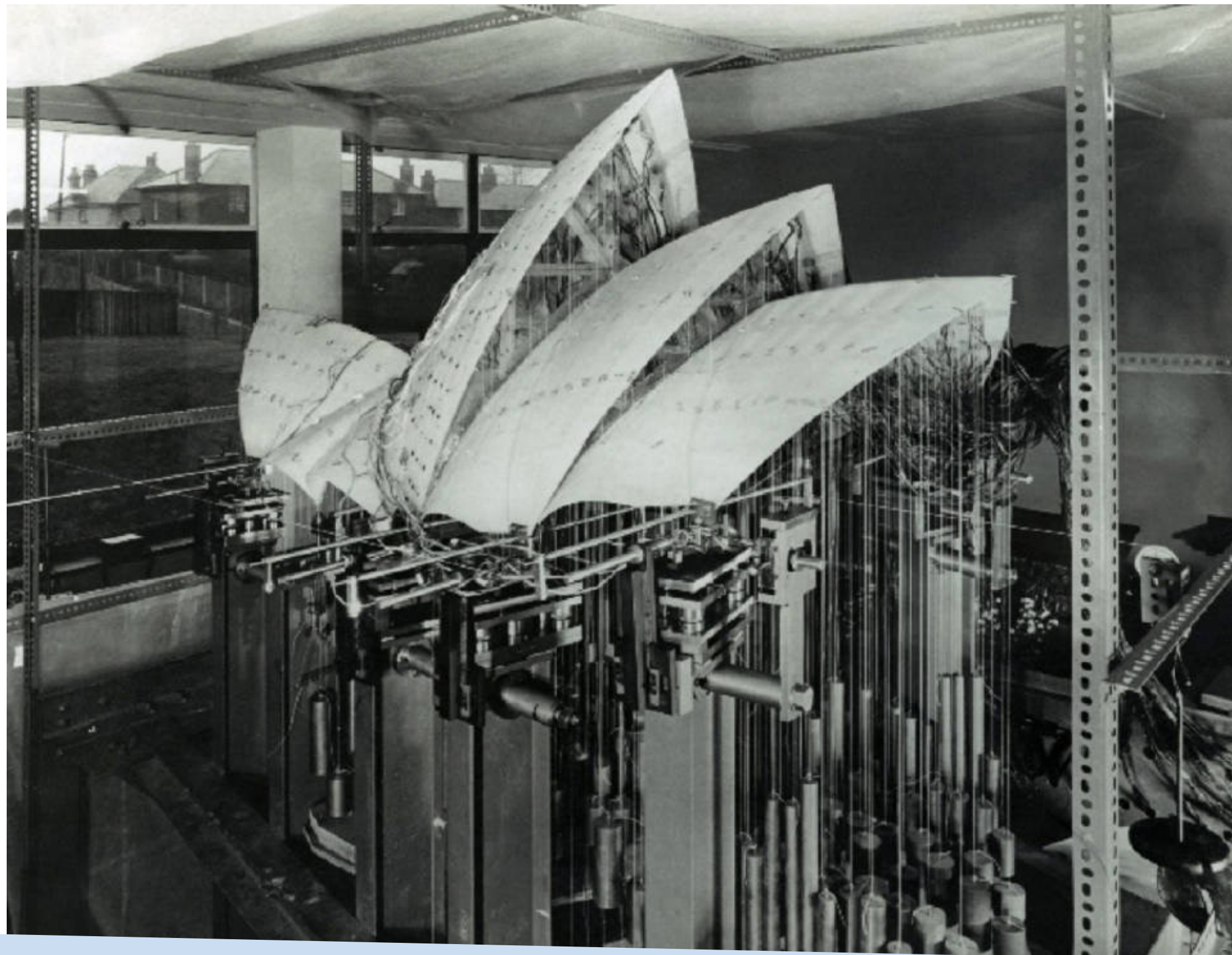
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4th industrial revolutions

sydney opera house

Sydney opera house by Jørn Utzon

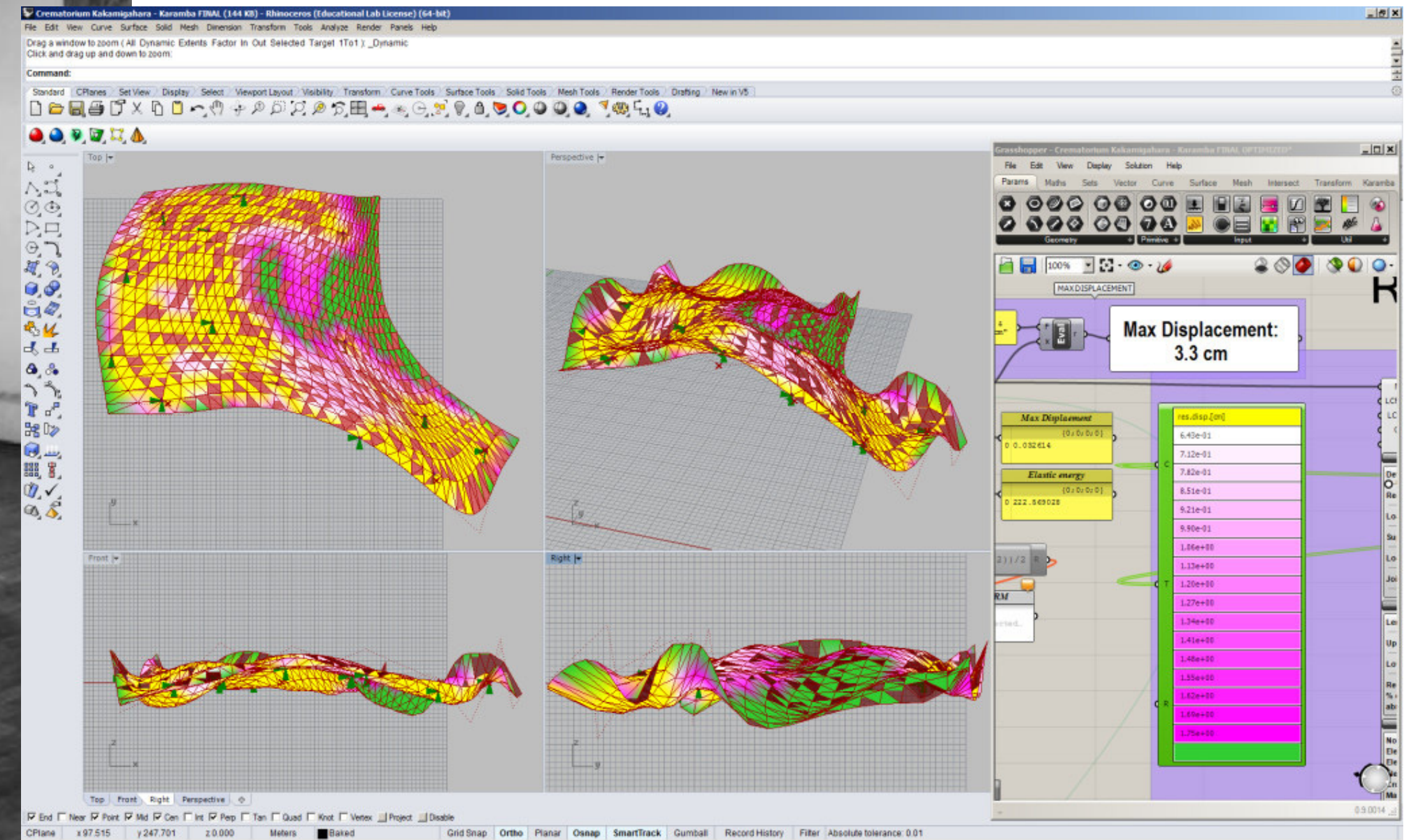


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ferranti pegasus mark 1 computer

(Mary Evans Picture Library/Alamy Stock Photo, 1957)



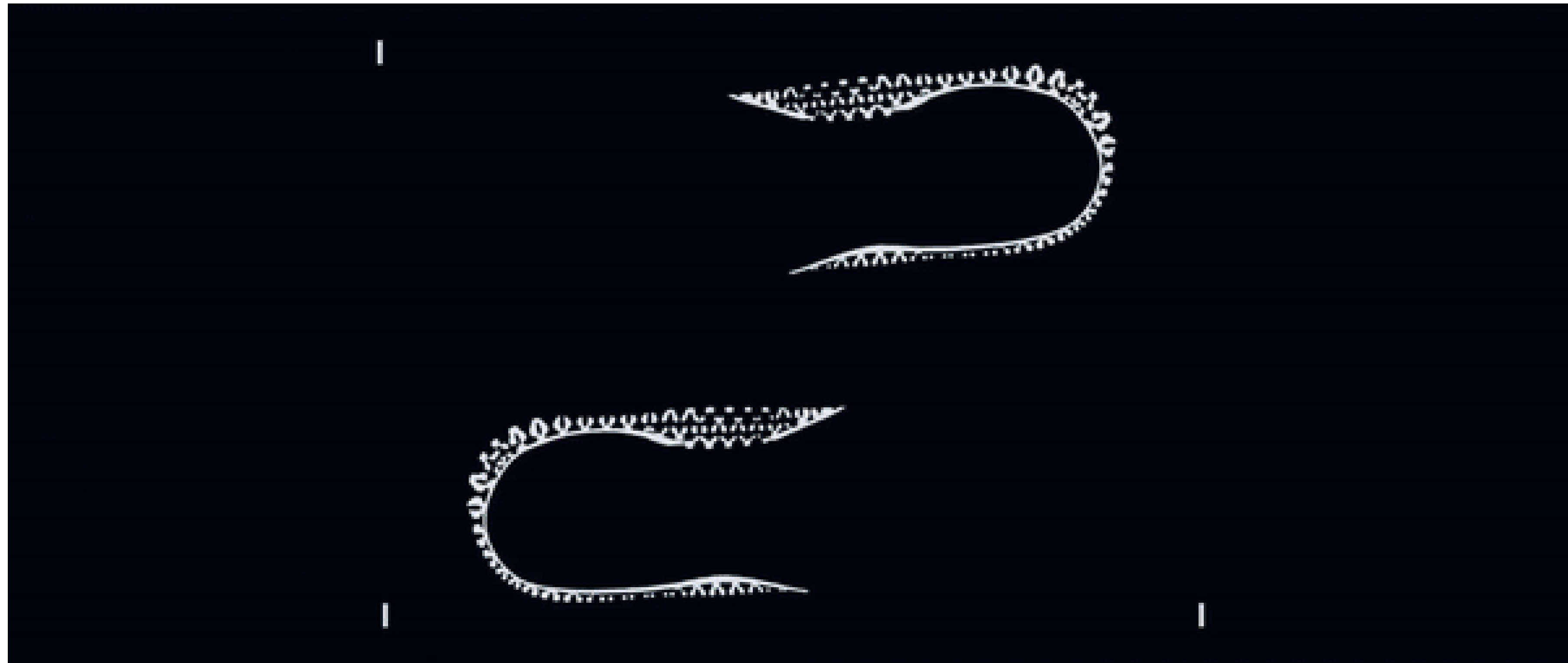
ikea mass production



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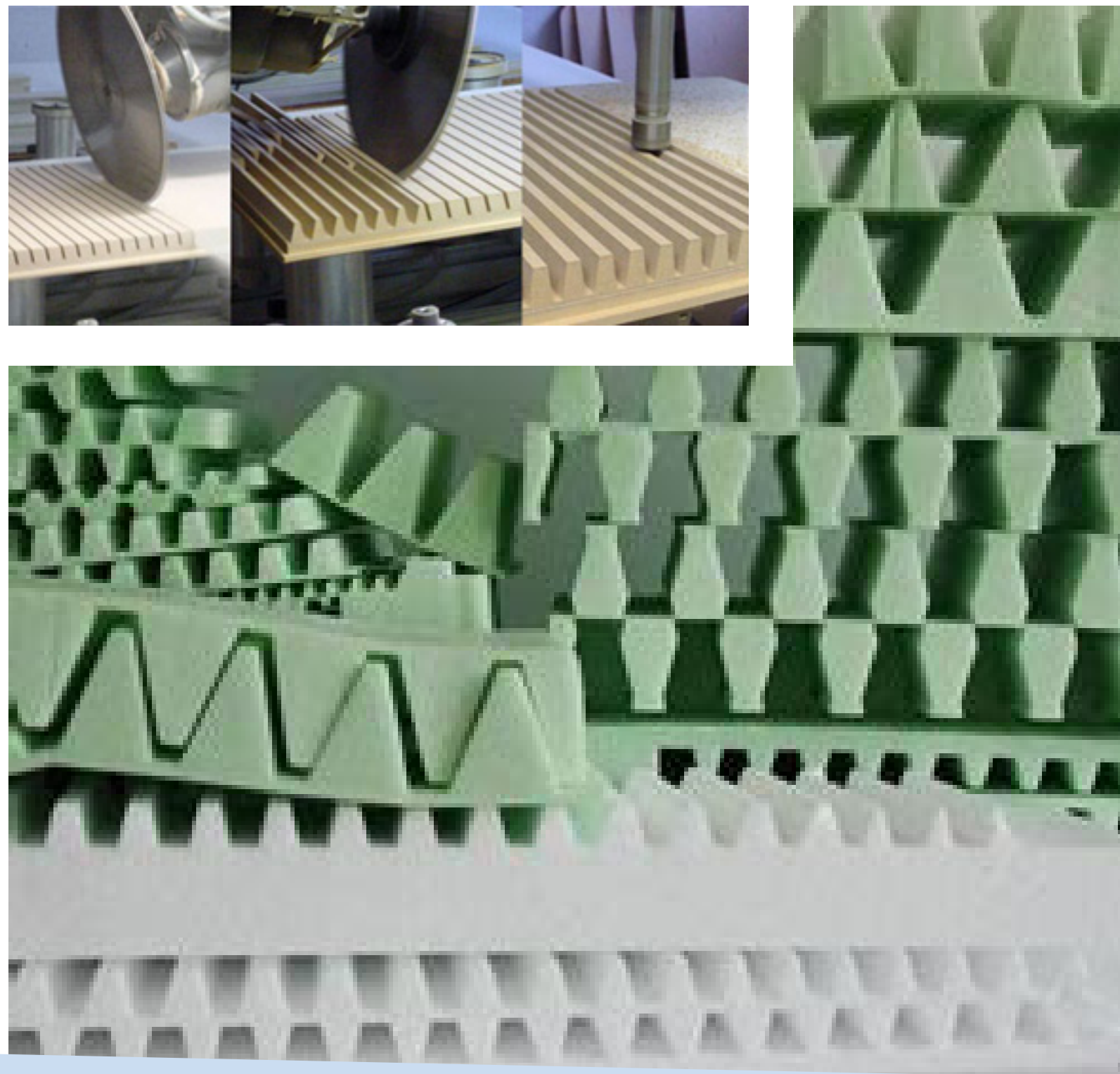
adidas future craft



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schindlersalmeron zipchair



schindlersalmeron zipchair



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University of Stuttgart - ICD/ITKE Research Pavilion 2015-2016



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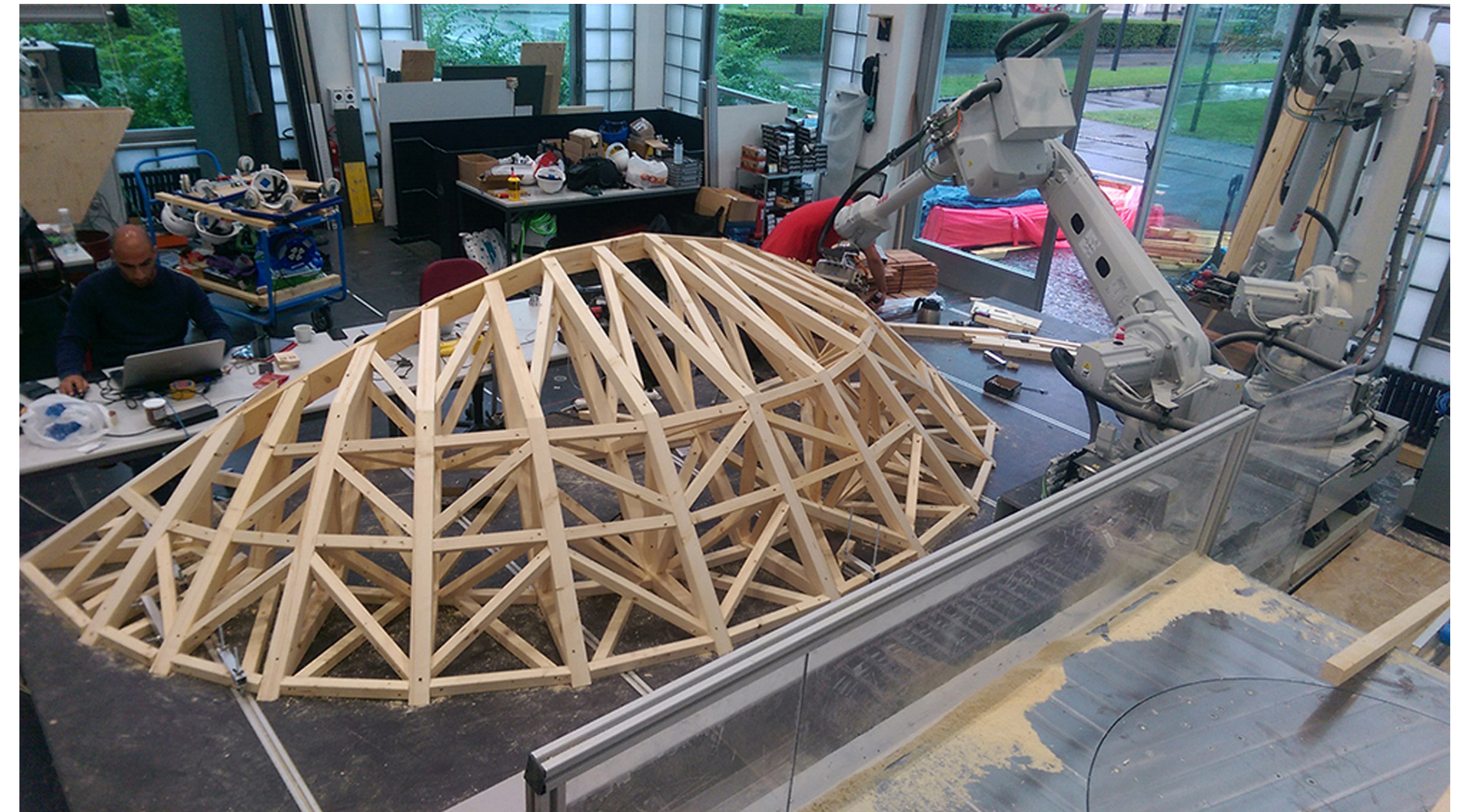
<https://www.dezeen.com/2017/02/07/eth-zurich-gramazio-kohler-research-lab-pavilion-robotic-construction-wood-shingles-students/>



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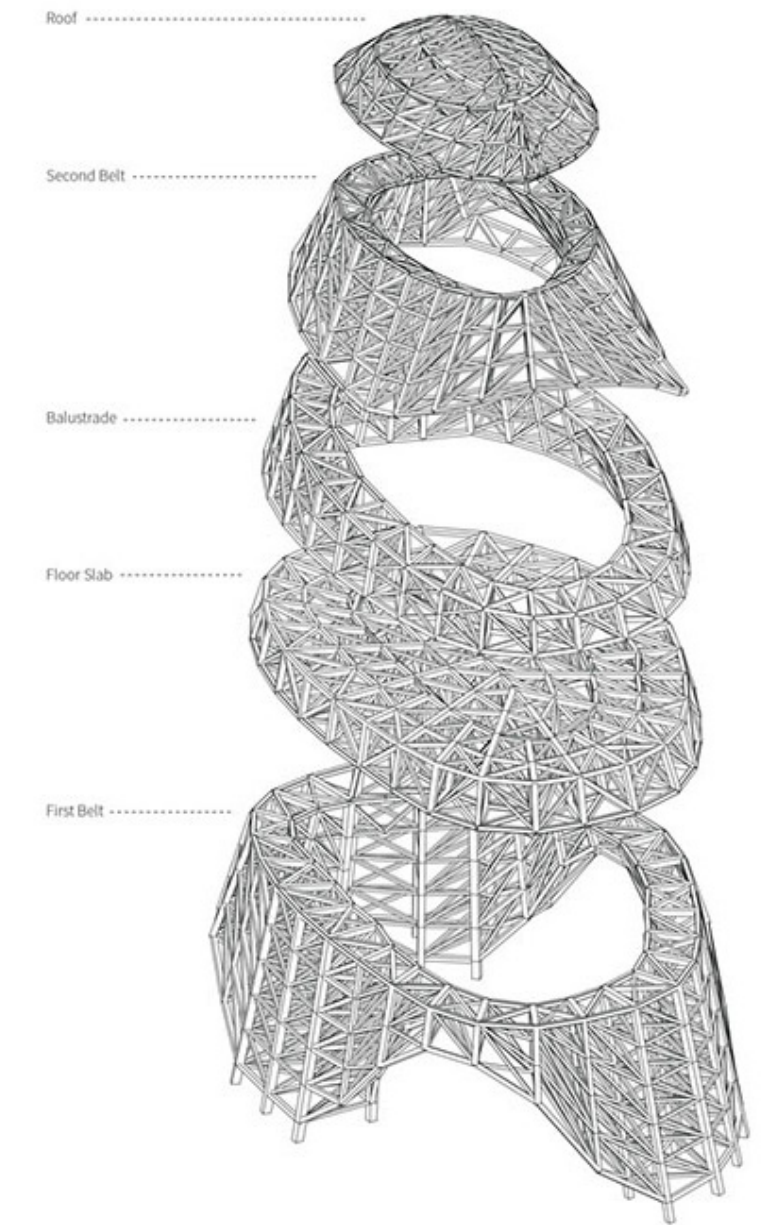
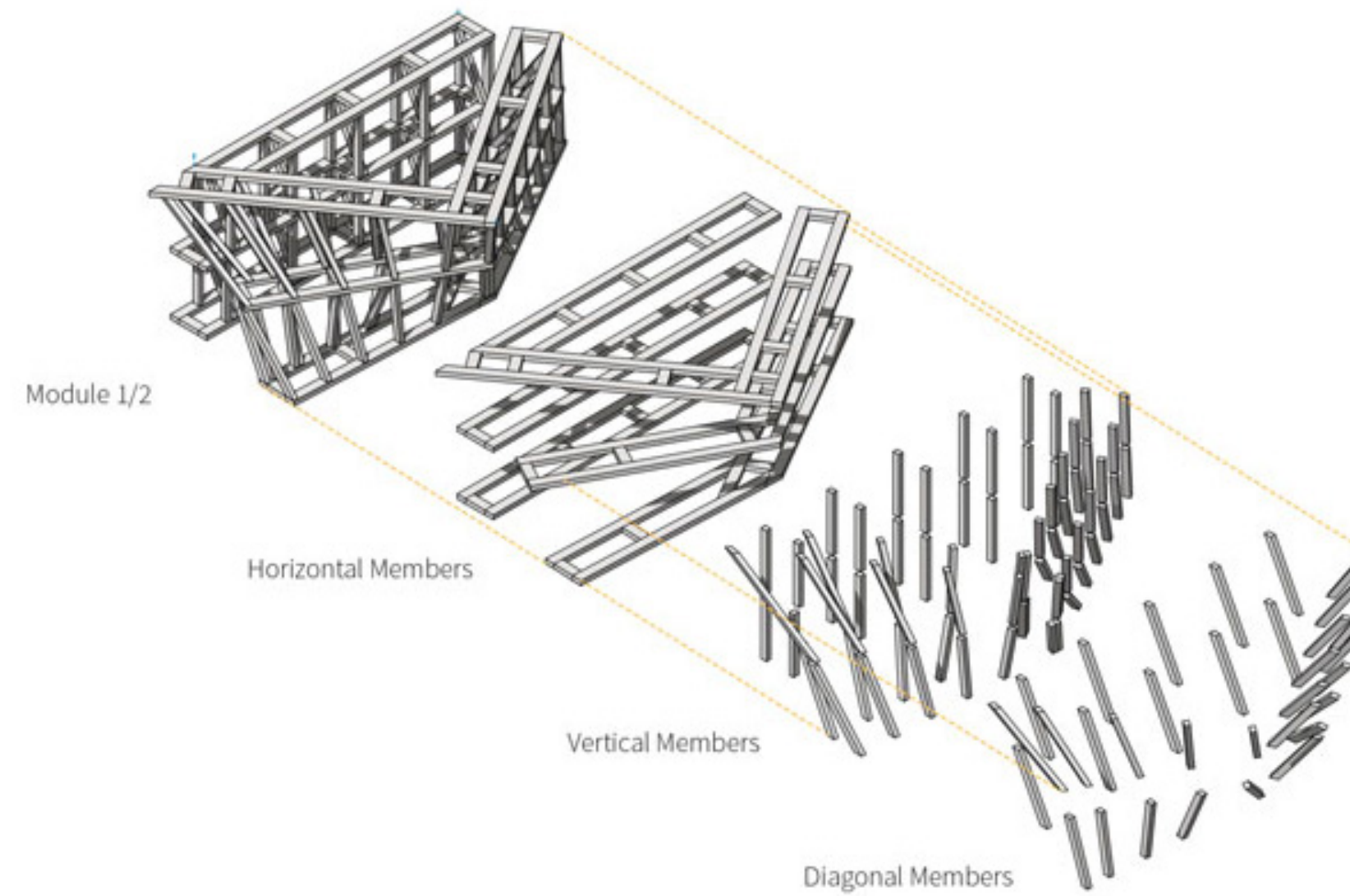
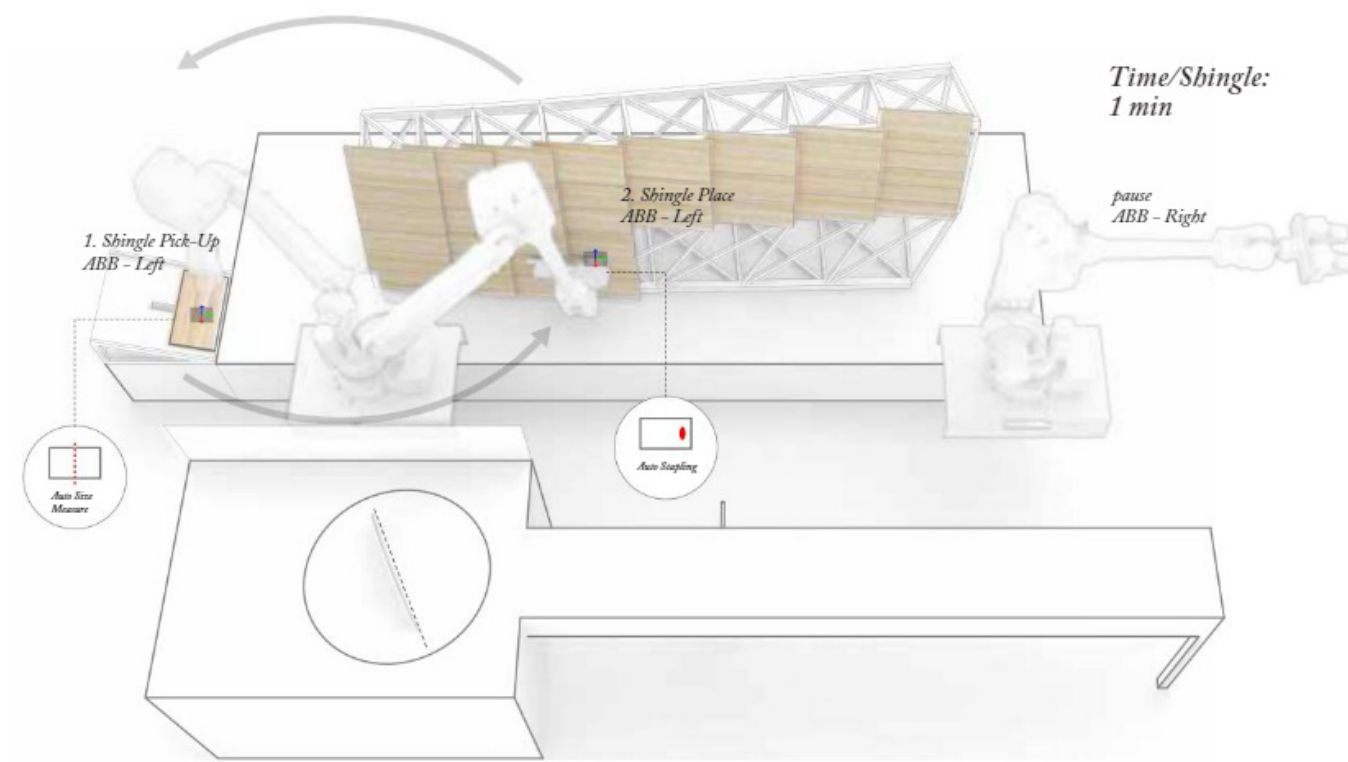
robotic fabrication of components
+
robotic assembly
=
minimized material waste



<https://www.espazium.ch/the-robotic-pavilion>

parametric design → computer simulation → robotic fabrication

scanning devices
real time feedback



https://issuu.com/salvalaiofederico/docs/portfolio___federicosalvalaio

digital design
process



manufacturing
data

human control

