



PASSIVE SOLAR LIVING BUILDINGS

& INNOVATION PROTECTION

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A building can do more than shelter.

COLLECT SUN

STORE HEAT

MOVE AIR

CYCLE WATER

GROW FOOD



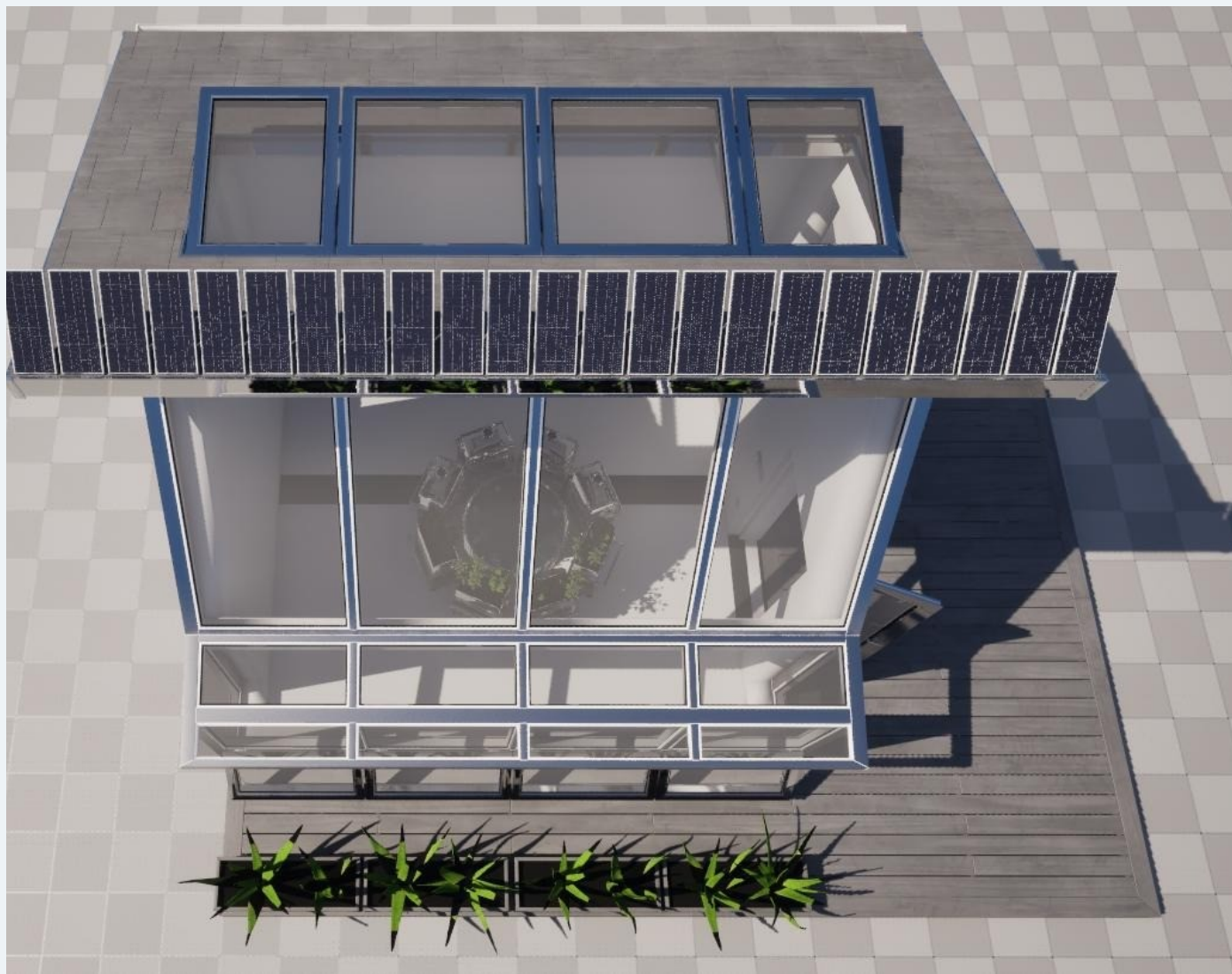


PASSIVE SOLAR GREENHOUSE

glazing faces the sun

lower vents admit cool air

PV supports the loads



capture

South-facing transparent surfaces admit winter light.

control

Vents, overhangs, and operable openings turn the envelope into a climate device.

power

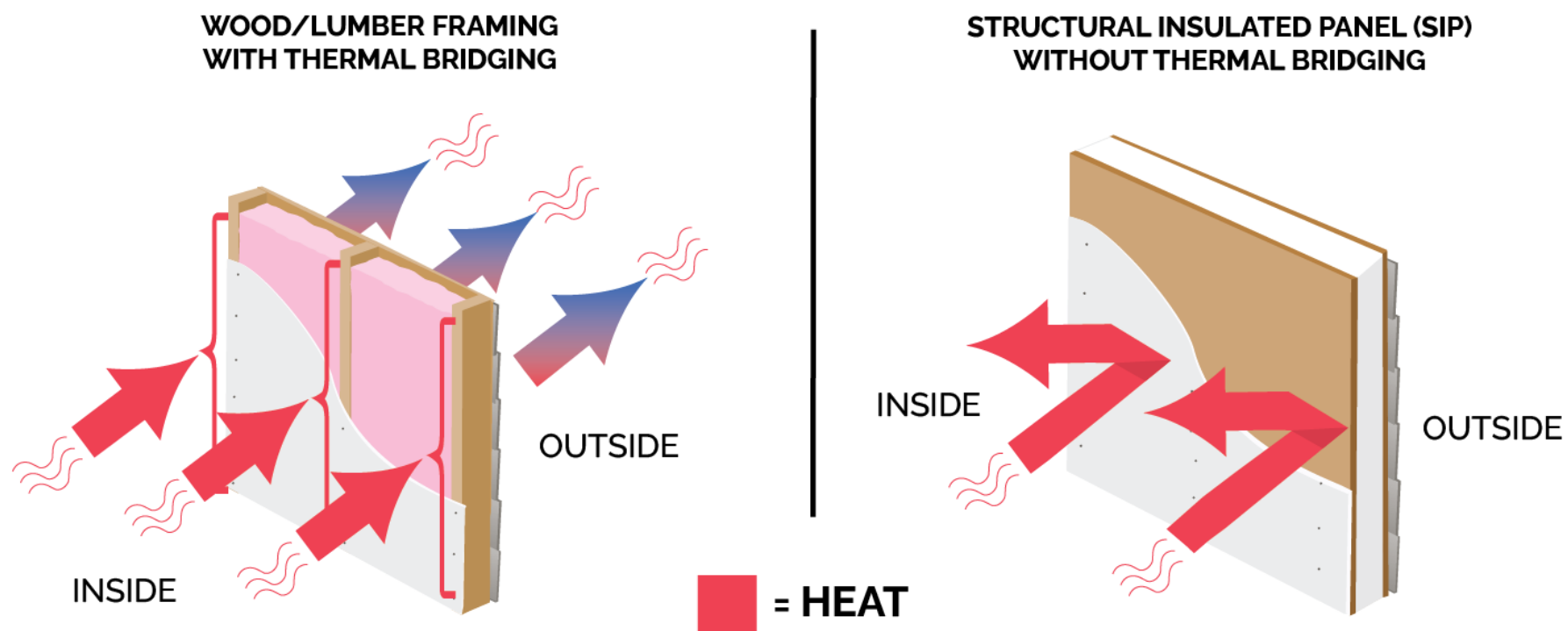
Solar generation is added after passive loads are reduced.



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natural ventilation path

FRAMING ASSEMBLIES THERMAL BRIDGING COMPARISON



Reduce heat flow before adding equipment.



THERMAL MASS

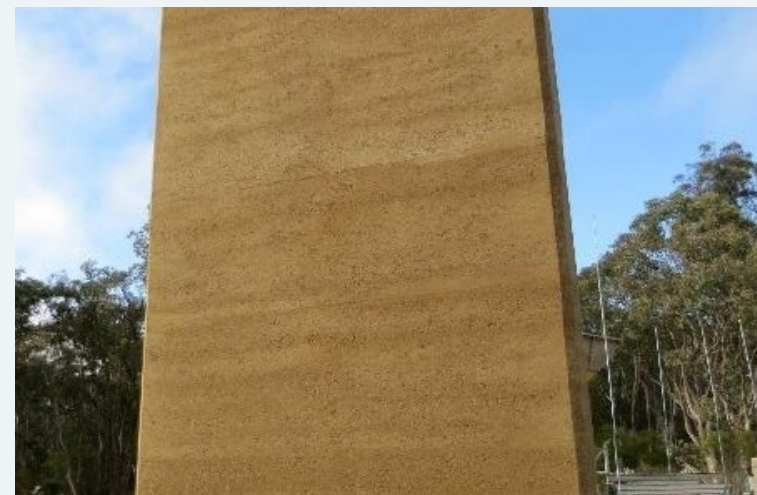
store energy in the building itself



form



compact



store

Dense walls become part of the thermal control system.



day

the wall absorbs surplus heat

night

the wall releases stored heat as temperatures fall

design rule

mass works best with solar access, insulation, and ventilation control



WATER + FOOD

thermal buffer becomes productive infrastructure





central fish tank • distributed grow modules • repeated local loops





daylight + air + water + biology



LIVING SYSTEM

fish, plants, fungi, water, air, sunlight





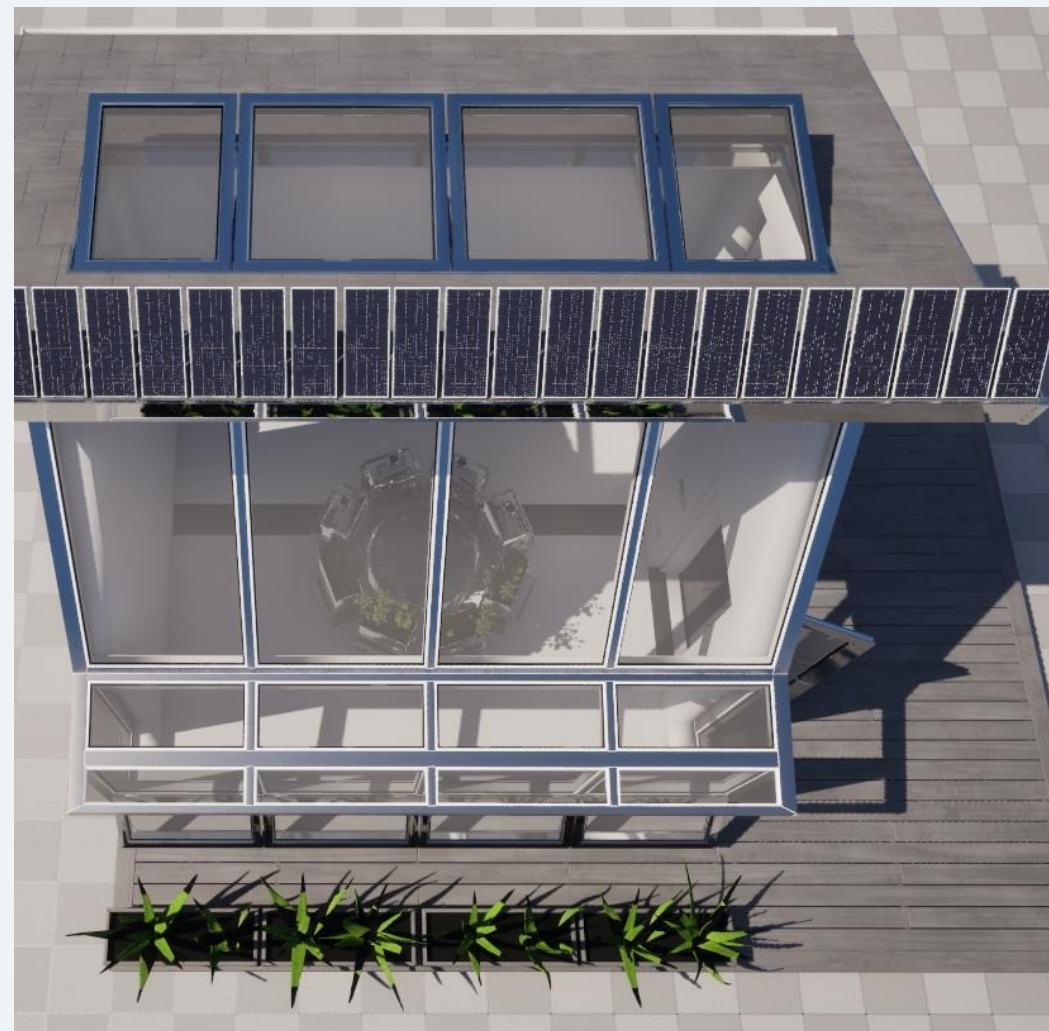


FROM BUILDING

TO URBAN ECOSYSTEM

Repeat the passive pattern vertically: light, mass, air, water, biology.

- 1 reduce loads
- 2 store and buffer
- 3 move air naturally
- 4 add renewables last



SUN

What receives it?

MASS

What stores it?

AIR

What moves it?

WATER

What buffers it?

BIOLOGY

What does it produce?

If the answer is unclear, the design is not finished.

•Distinguishing features of US Patent system:

- Now a first inventor to file with grace period system
- Applicant is the inventor and not the company or university
- Overview of US Patent Office climate

•Common pitfalls for start ups and universities:

- Missing the boat on IP protection
- Letting your patent sink with the inventorship
- Creating the joint venture nightmare scenario



- **Maximizing IP:**

- Do your due diligence
- Split up system and subsystems into separate applications
- Picket fence approach to IP protection



- **Minimizing IP Costs:**

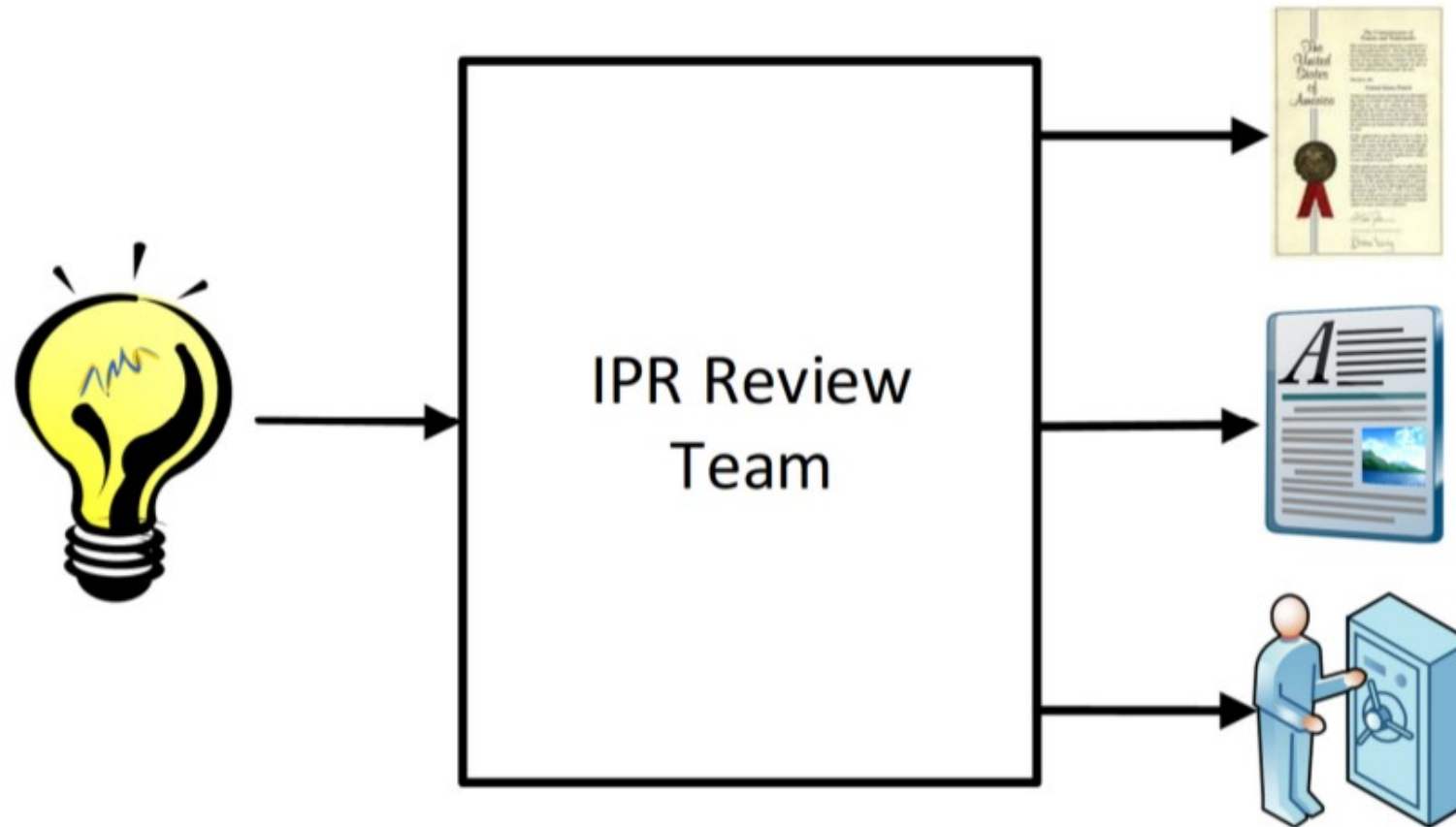
- Prepare patent-like disclosures to minimize attorney time
- Work with an experienced attorney
- Interview patent cases with examiner early and often

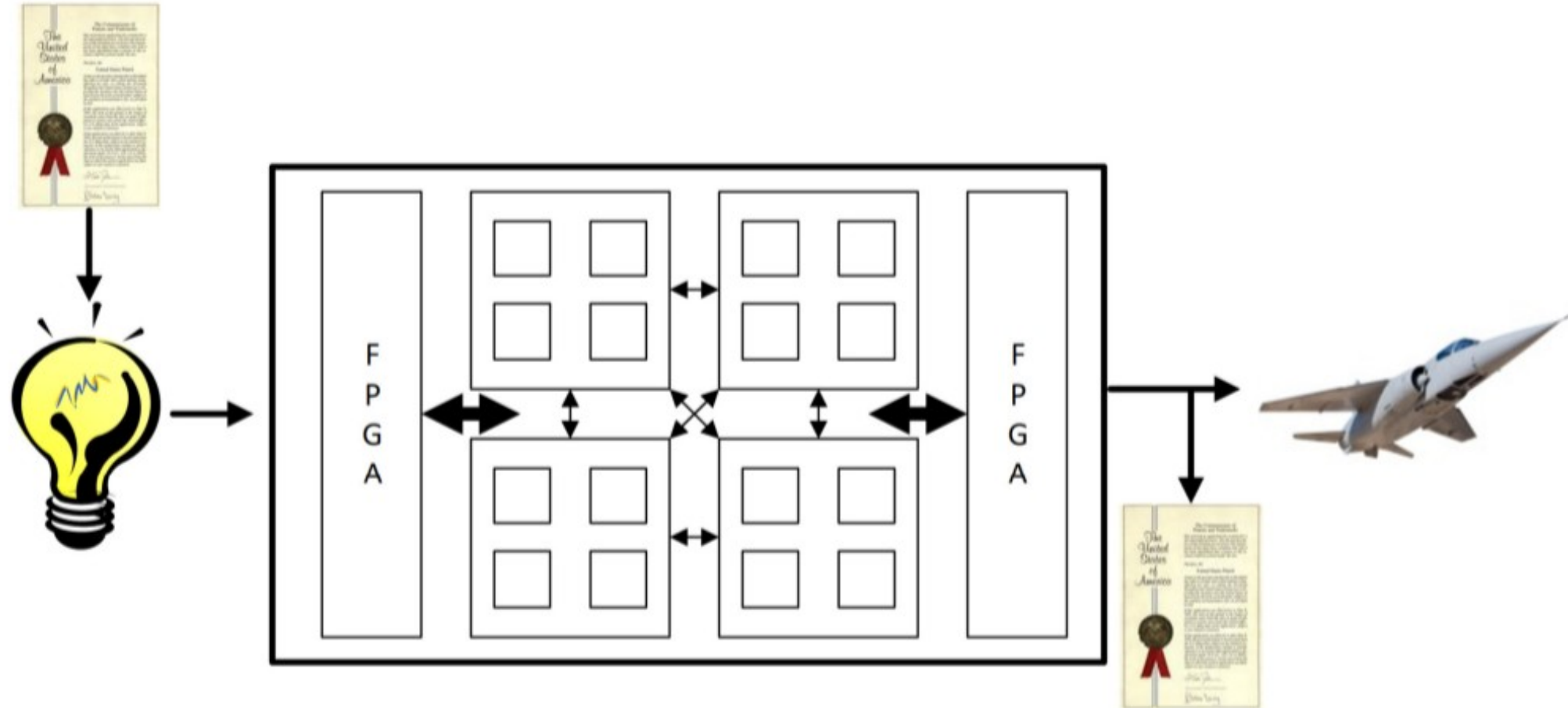


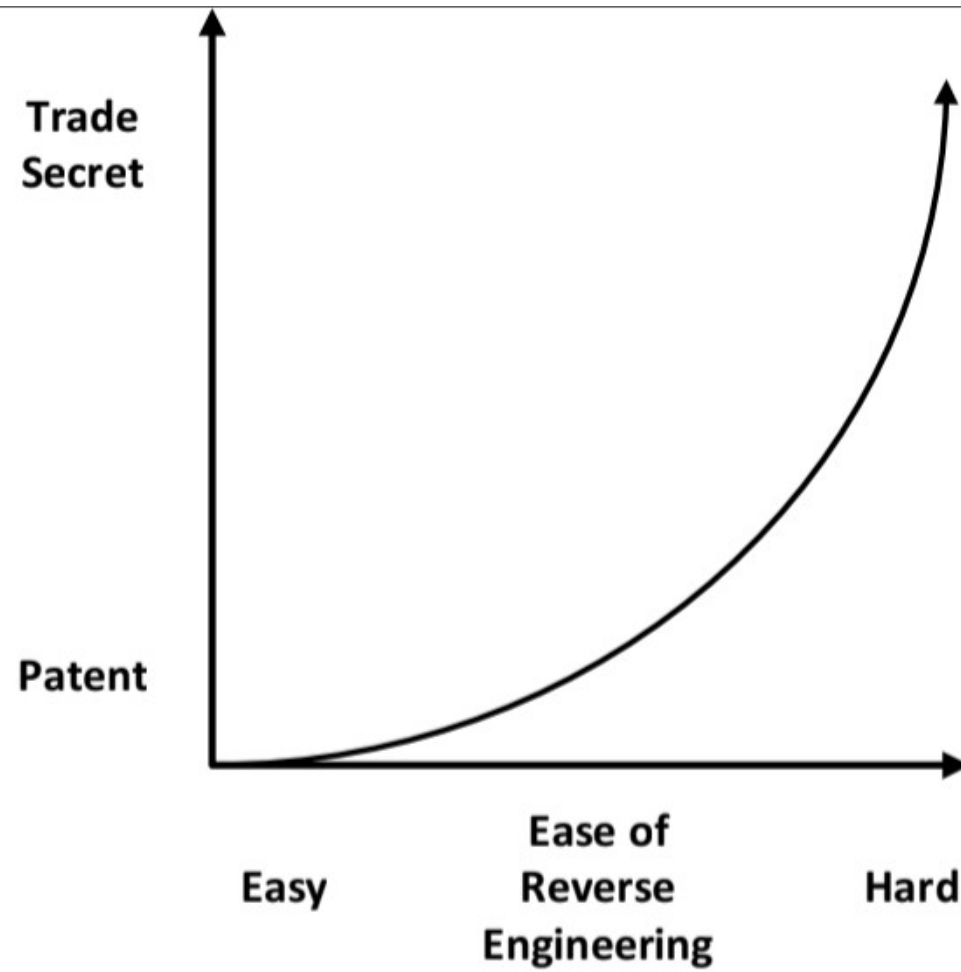
•IP protection can come in various forms:

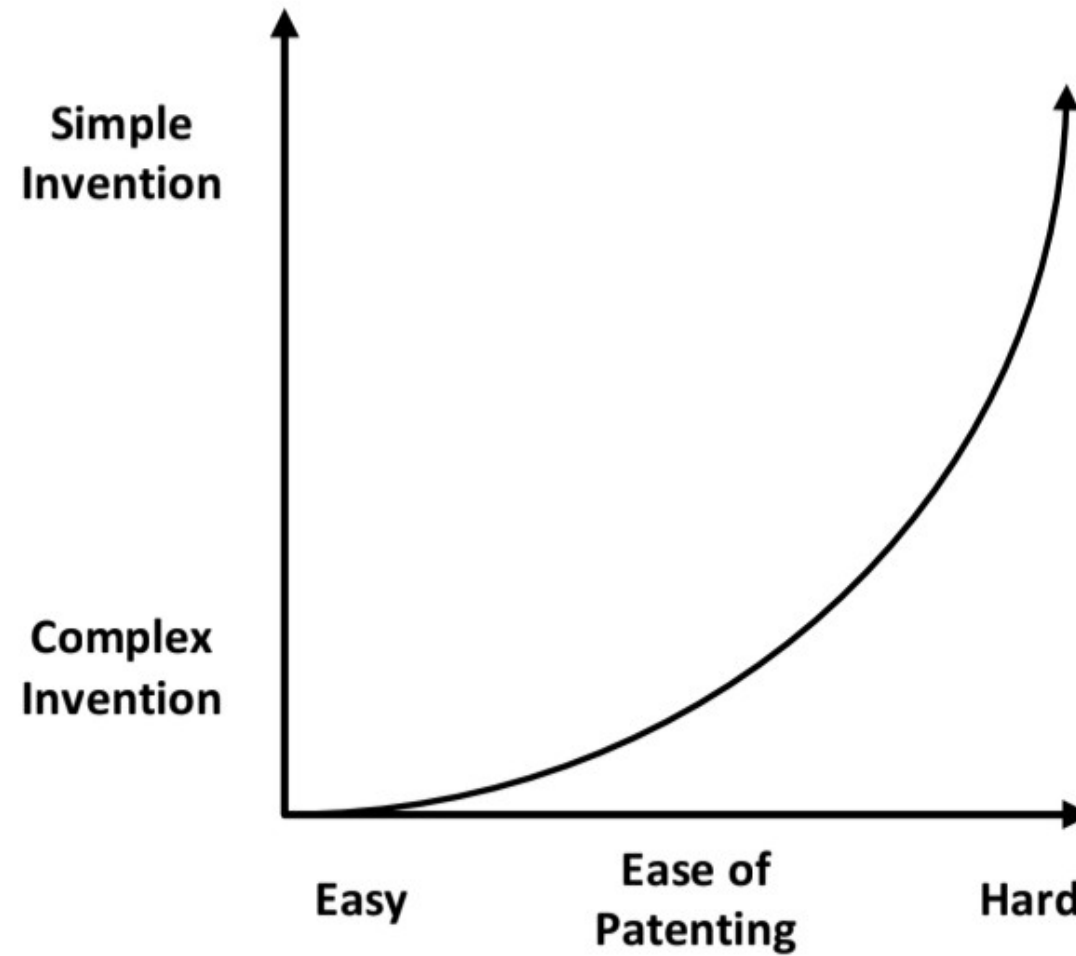
- Trade secrets
- Copyrights
- Trademarks
- Patents
- Licensing

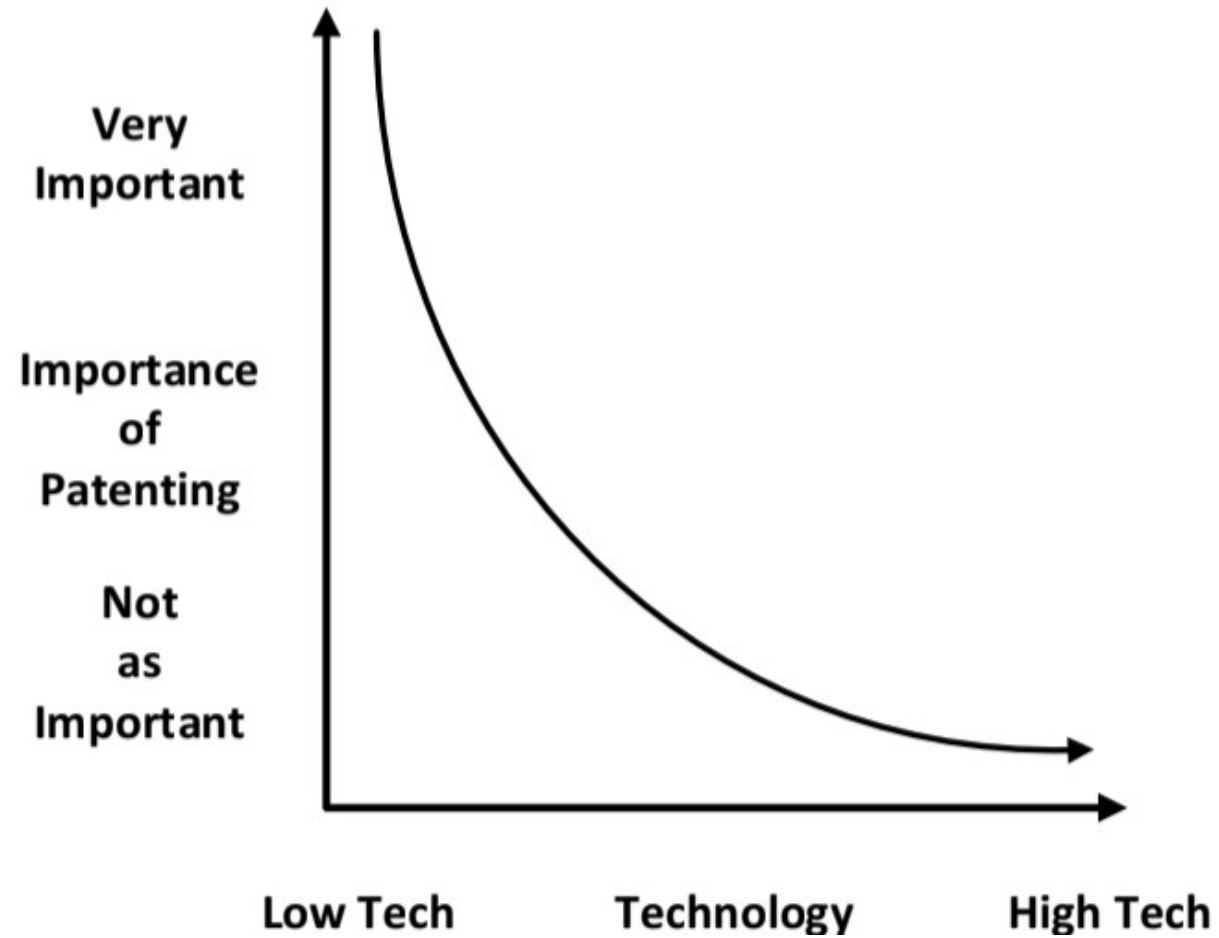


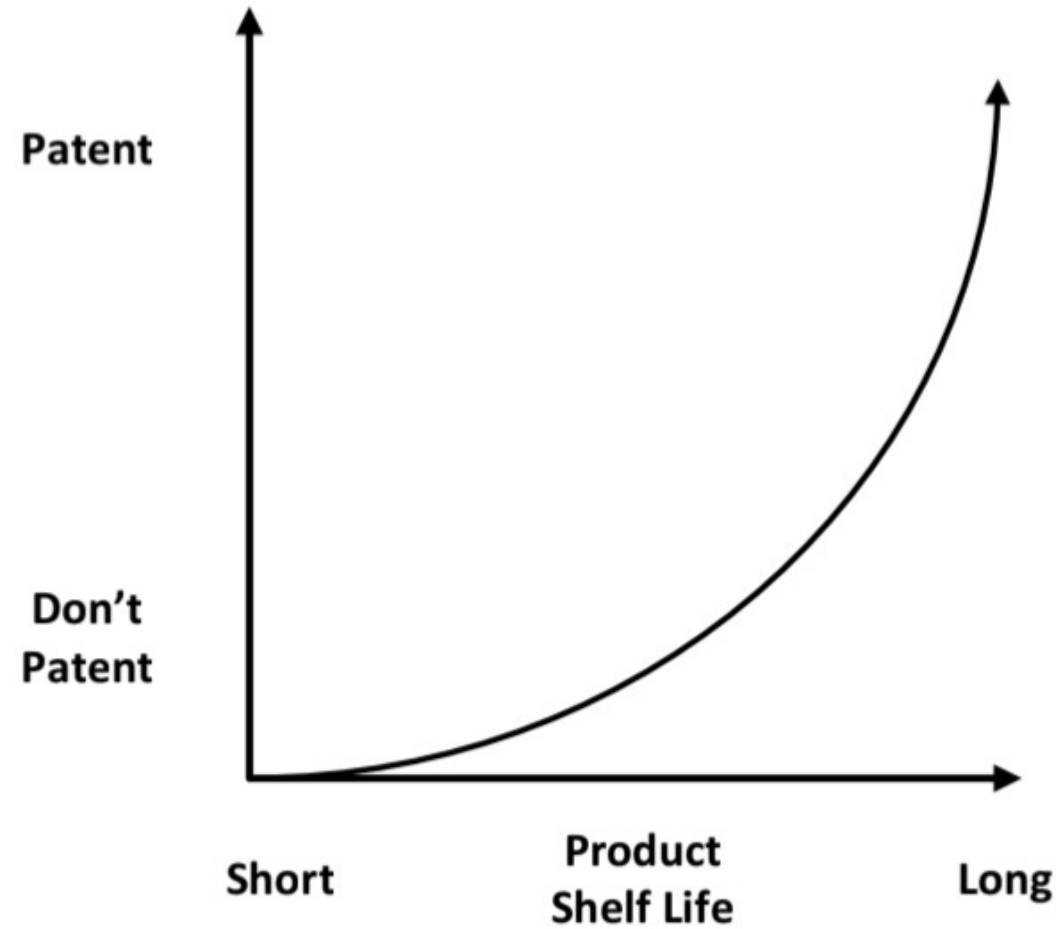


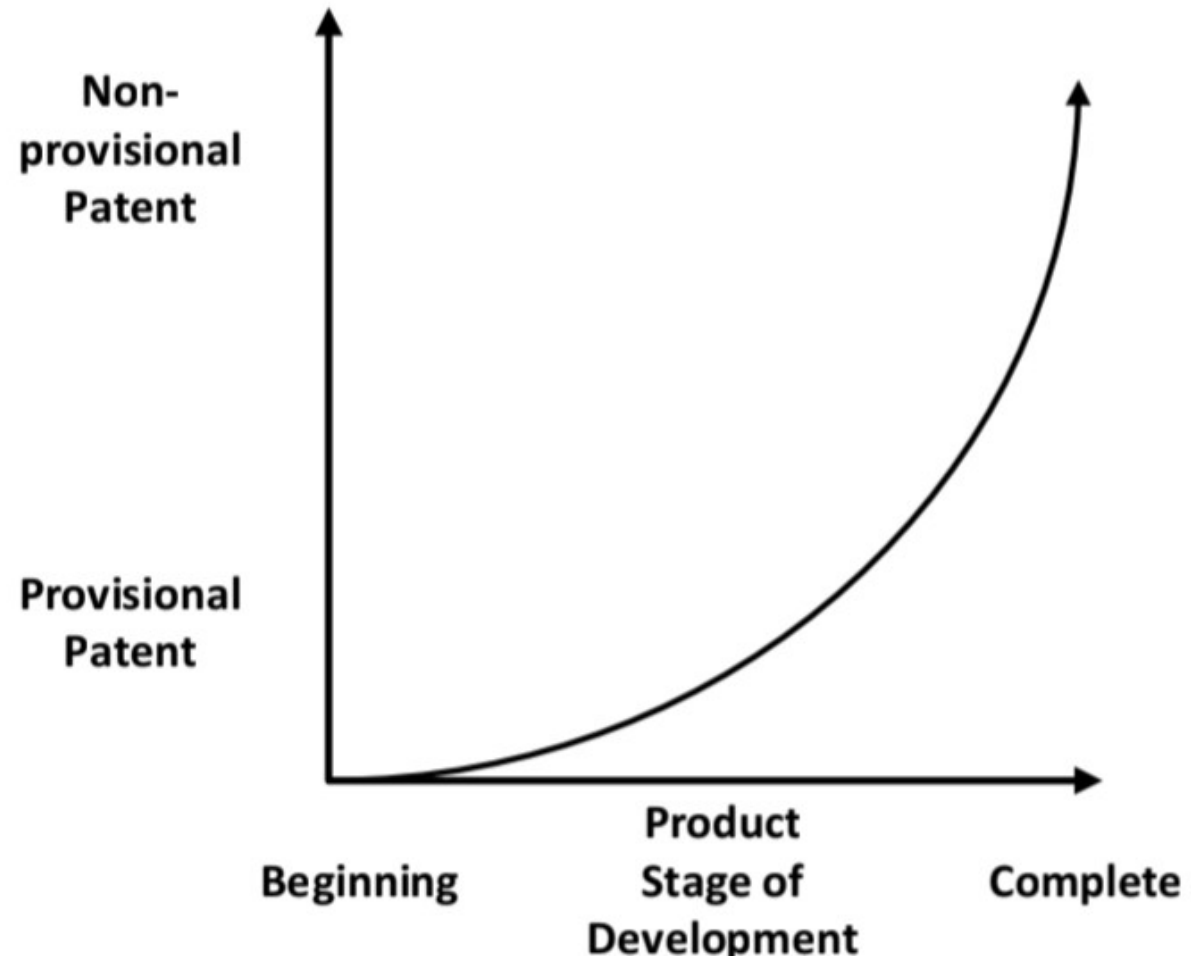


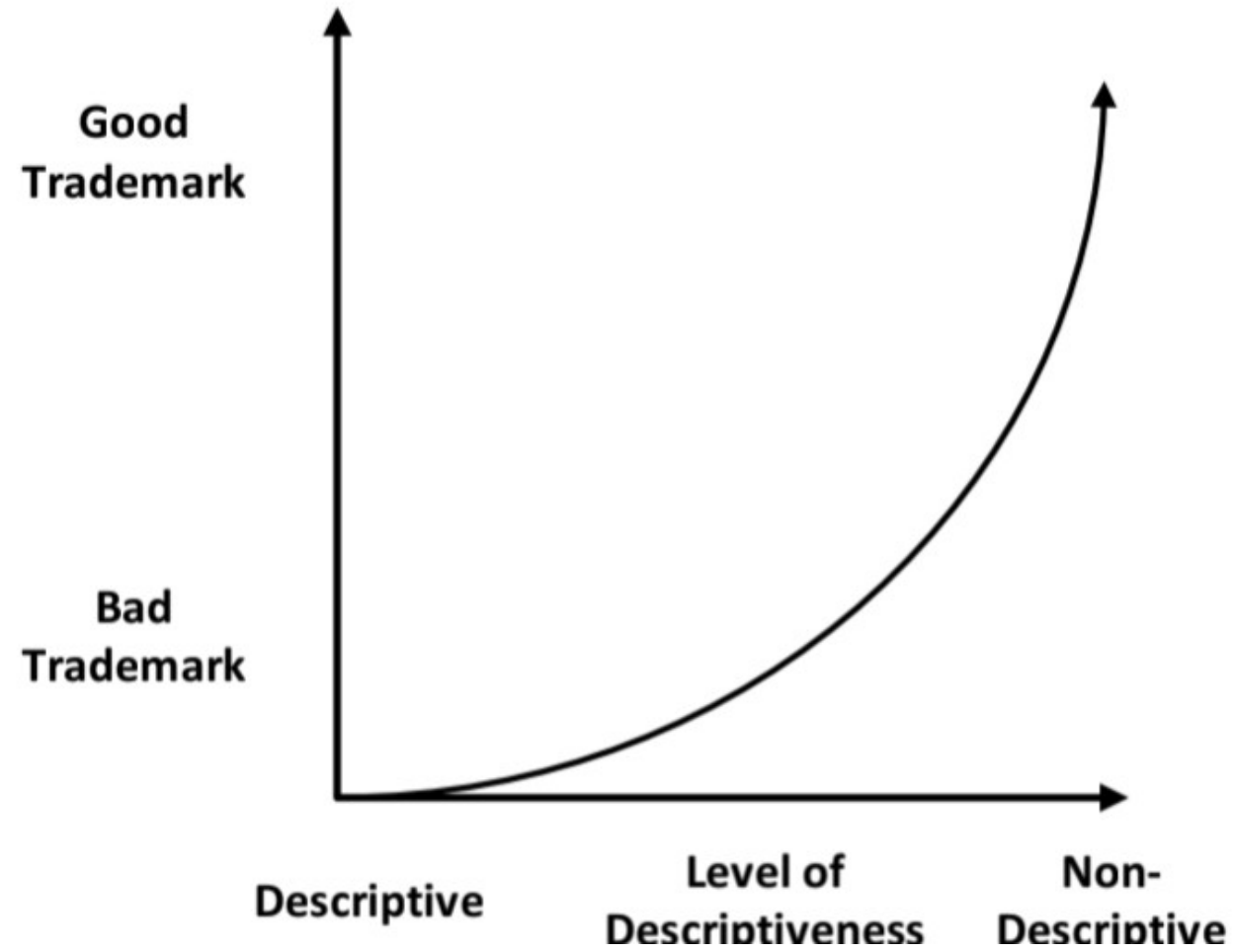


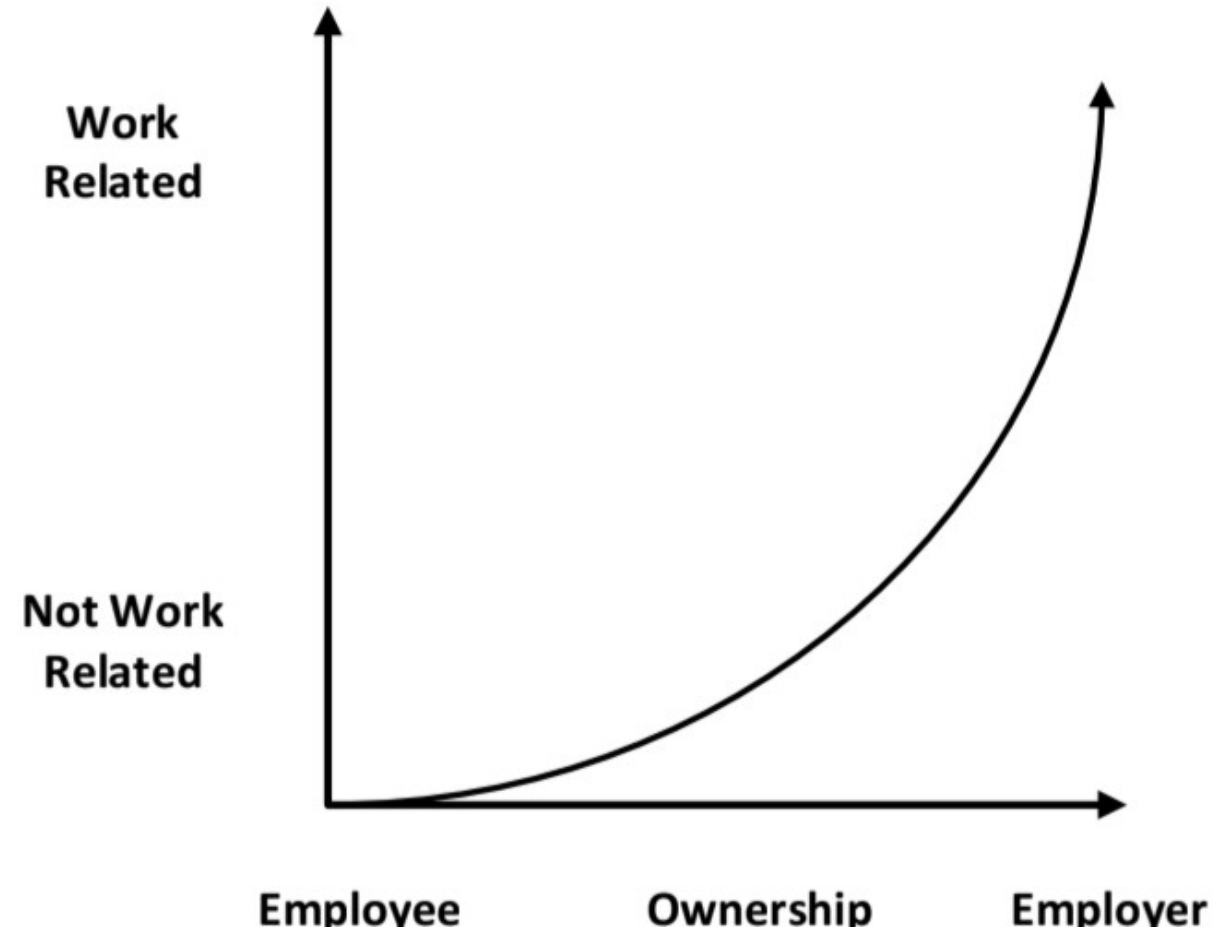


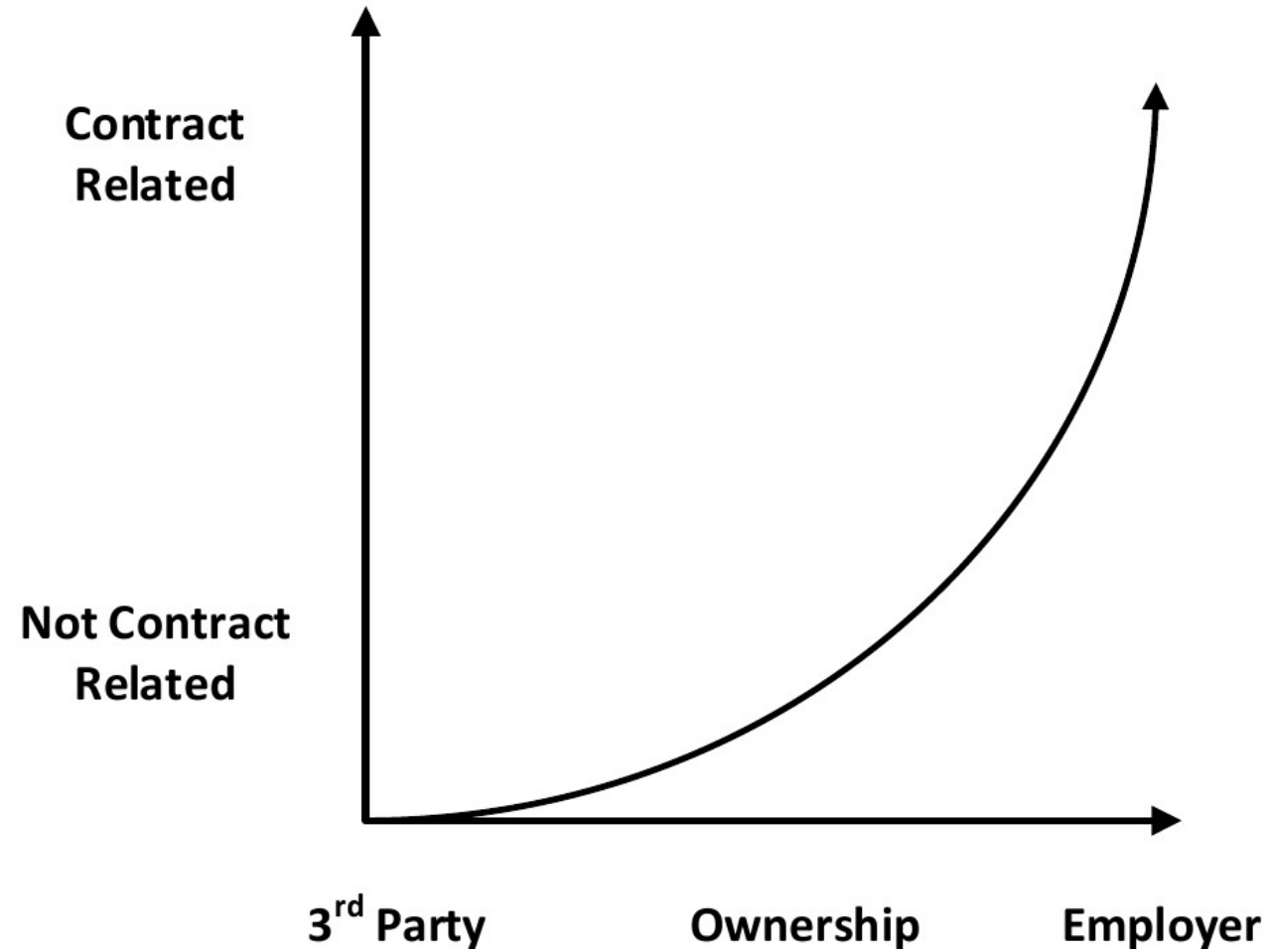








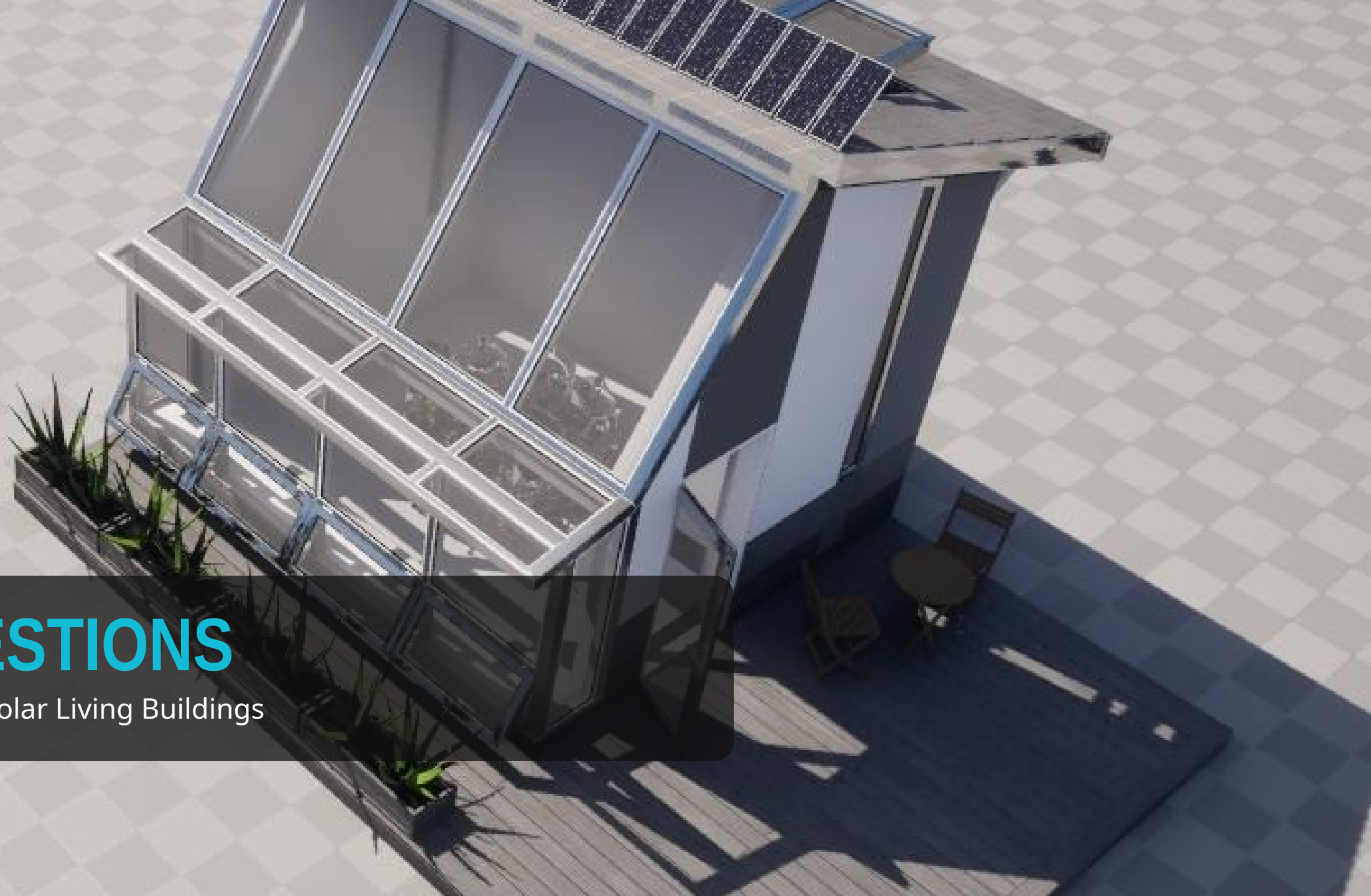






QUESTIONS

Passive Solar Living Buildings





The Villamar Firm PLLC — Intellectual Property Attorneys

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