DETERMINING THE MINIMUM FIRE PROTECTION REQUIREMENTS FOR DECOMMISSIONING

Kory Krueger, PTech
PLC Fire Safety Solutions

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OBJECTIVES

- Types of Facilities
- Regulatory Requirements
- Decommissioning Planning
- Assessment Methodology
- OPEX

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REGULATORY REQUIREMENTS NON-REACTOR FACILITIES

- NFPA 801
- CSA N393

- Fire Protection Program
- Fire Hazard Assessment (or Analysis)
- Means Of Egress
- Water Supply System
- Sprinklers Systems
- Standpipes
- Fire Detection, Alarm and Notification
- Fire Barriers
- Portable Fire Extinguishers
- Emergency Response

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REGULATORY REQUIREMENTS FACILITIES WITH REACTORS

- CSA N293
- CSA N393

- Mothballing; Encasement; and Dismantling and Removal
- Remove Unnecessary Combustibles
- Control Ignition Sources
- Accessible Areas
- Protection of Operating Units

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DECOMMISSIONING PLANNING

- Cease Commercial Operations
  - no or limited revenue
- Required Structures Systems and Components
  - storage of spent fuel (25 years)
- Reduction of Hazards
- Change of Use
  - warehousing or office space

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ASSESSMENT OBJECTIVES

- Minimize the fire protection footprint while continuing to meet the fire protection goals.

- Determine the fire protection support resources required to maintain the facility.

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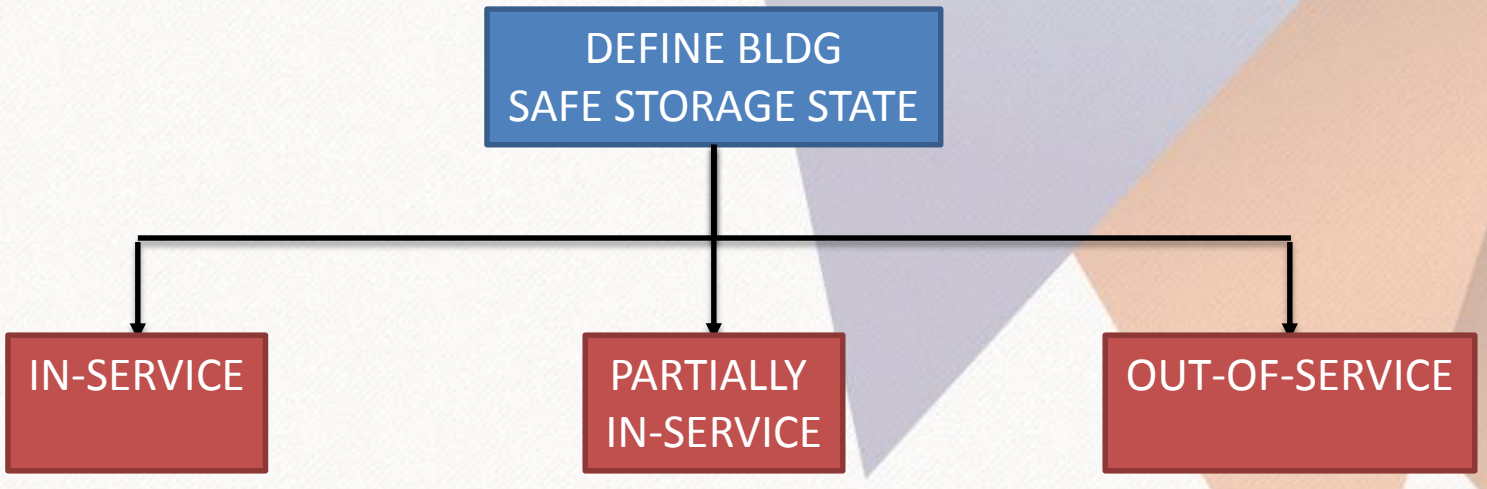
ASSESSMENT METHODOLOGY



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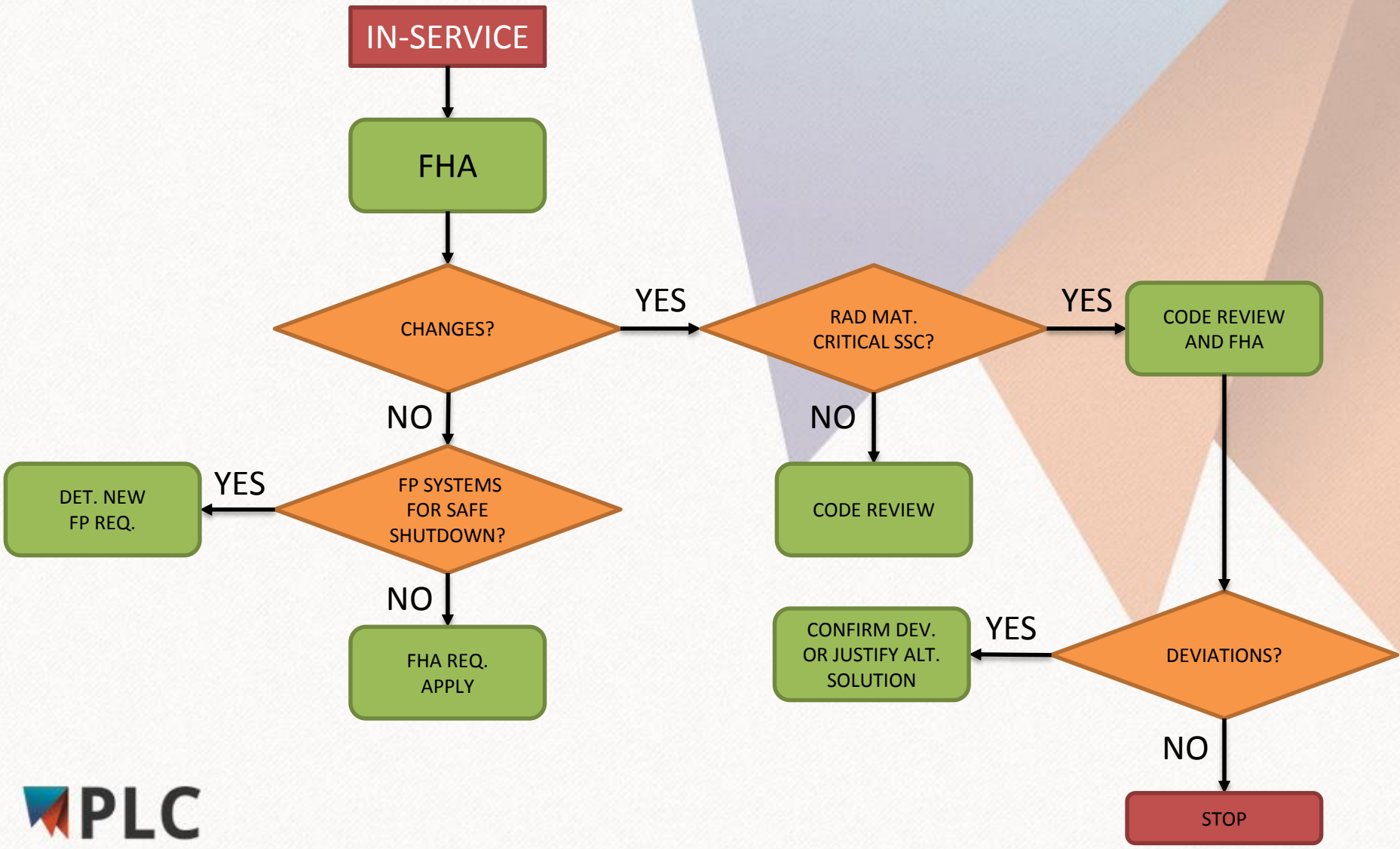
ASSESSMENT METHODOLOGY IN-SERVICE BUILDINGS



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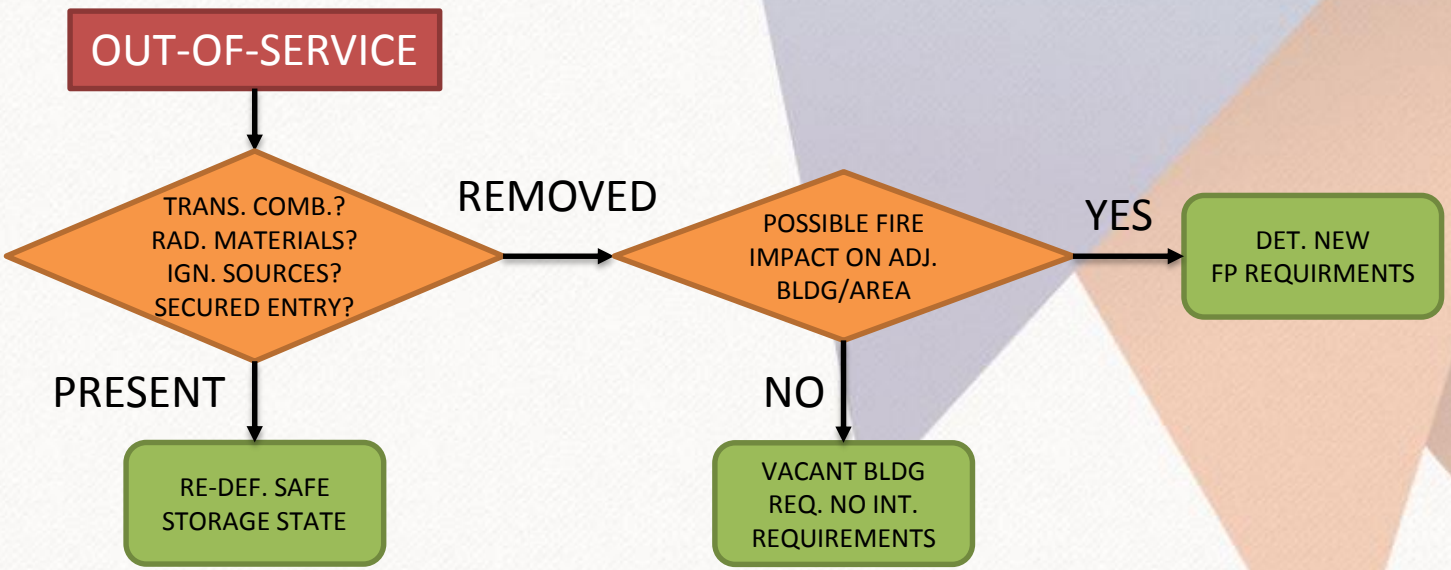
ASSESSMENT METHODOLOGY
OUT-OF-SERVICE BUILDINGS



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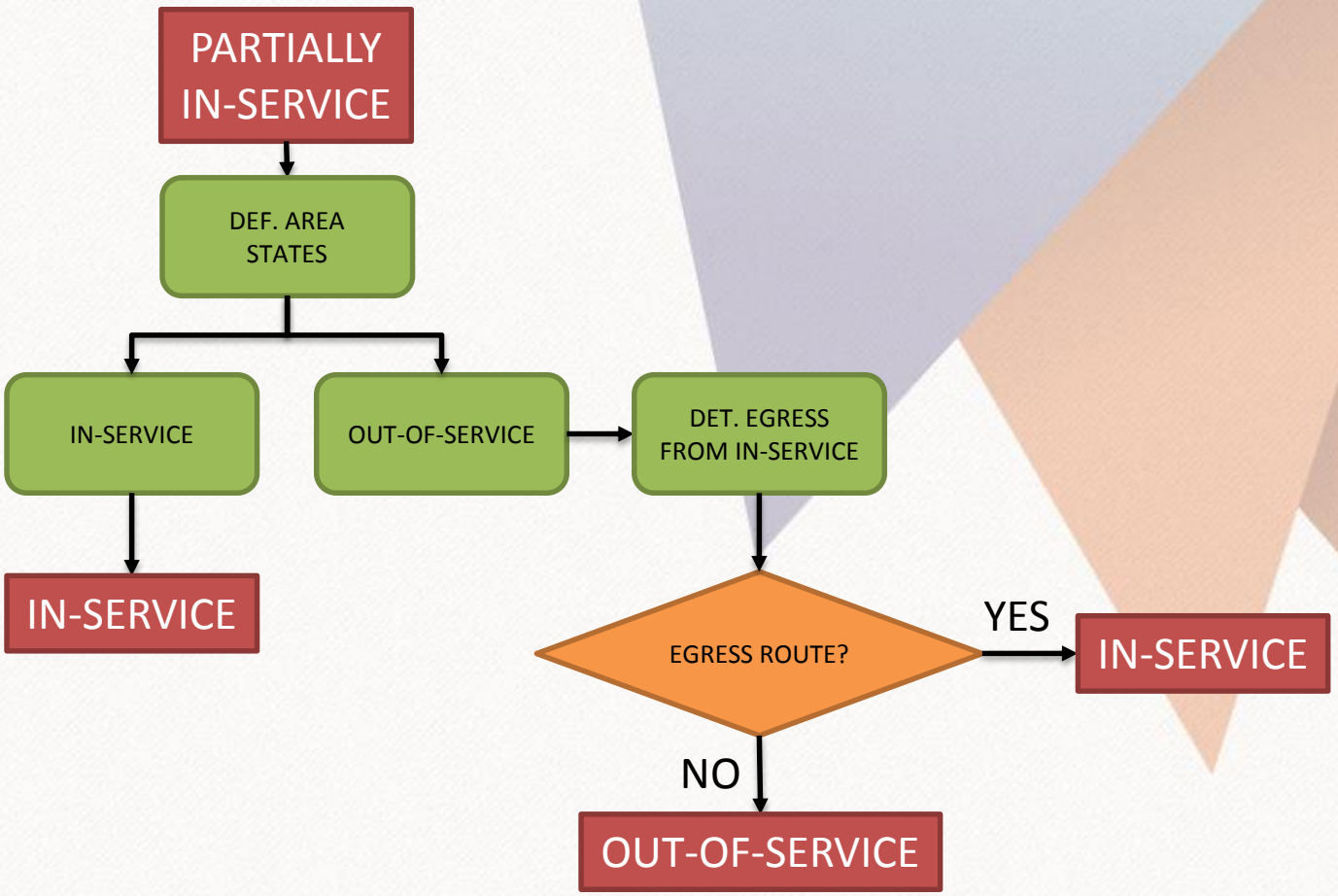
ASSESSMENT METHODOLOGY
PARTIALLY IN-SERVICE BUILDINGS



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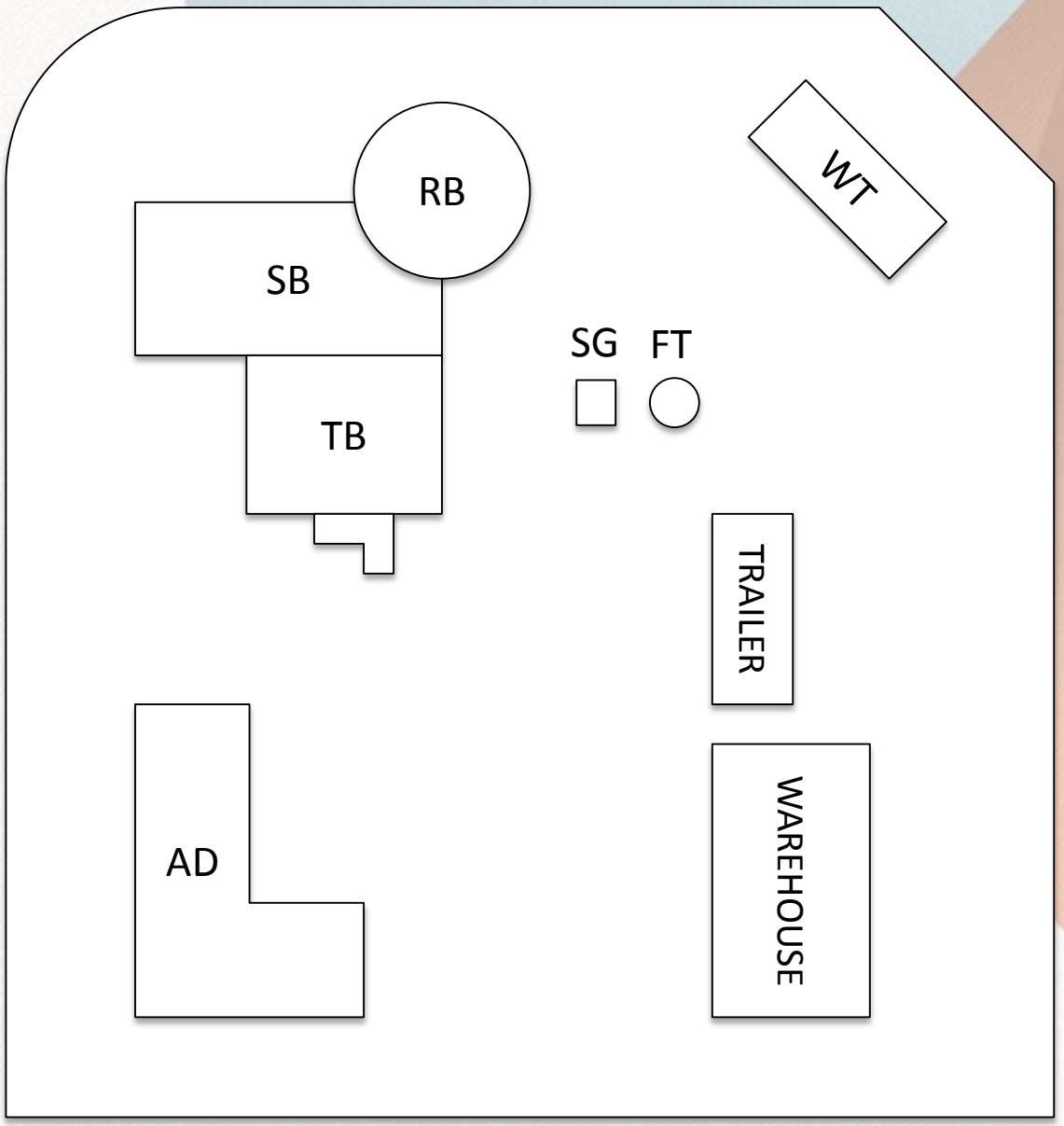
ACME NUCLEAR POWER PLANT

Define building Safe Storage States

1) IN-SERVICE

2) OUT–OF–SERVICE

3) PARTIALLY IN-SERVICE



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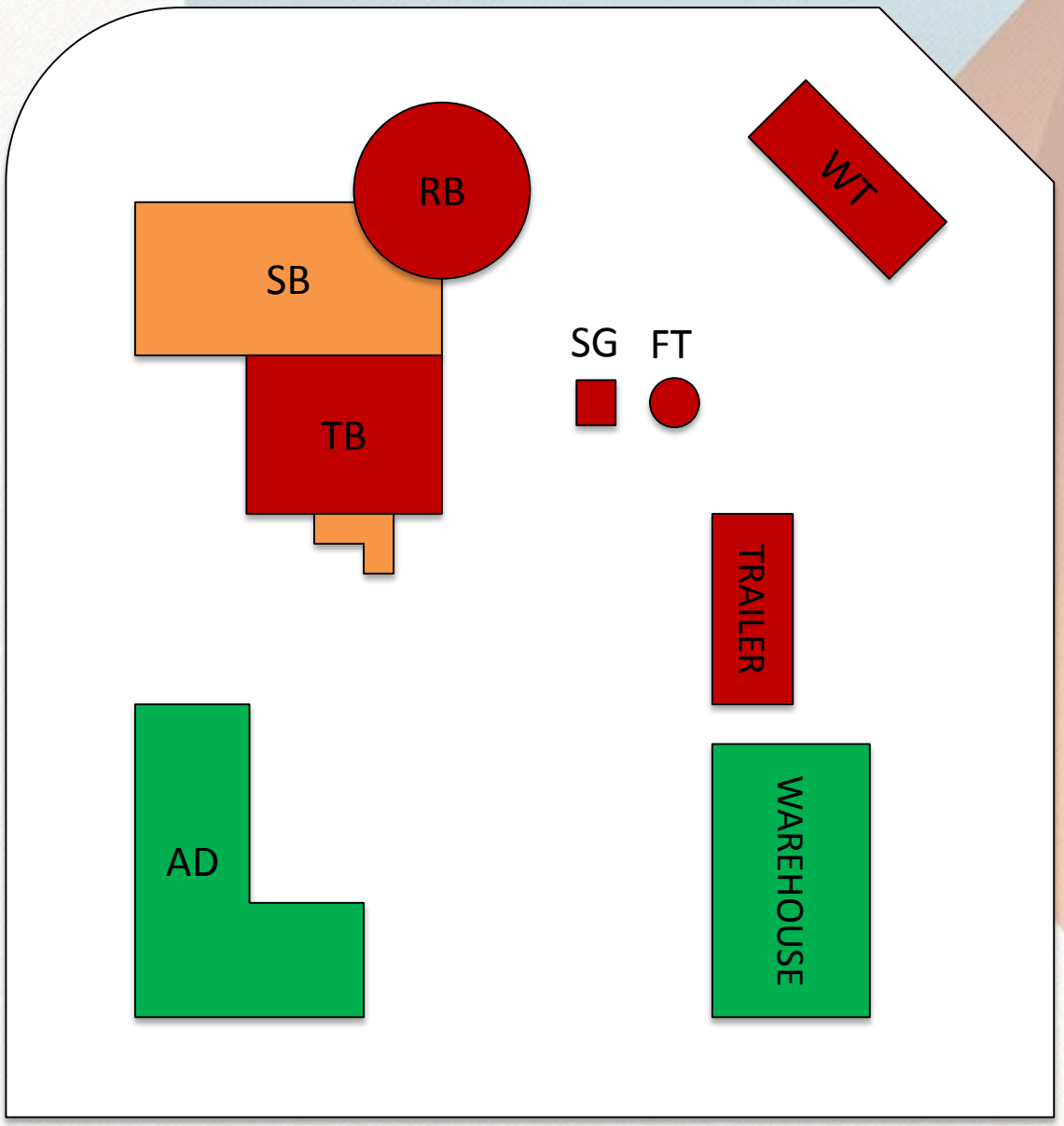

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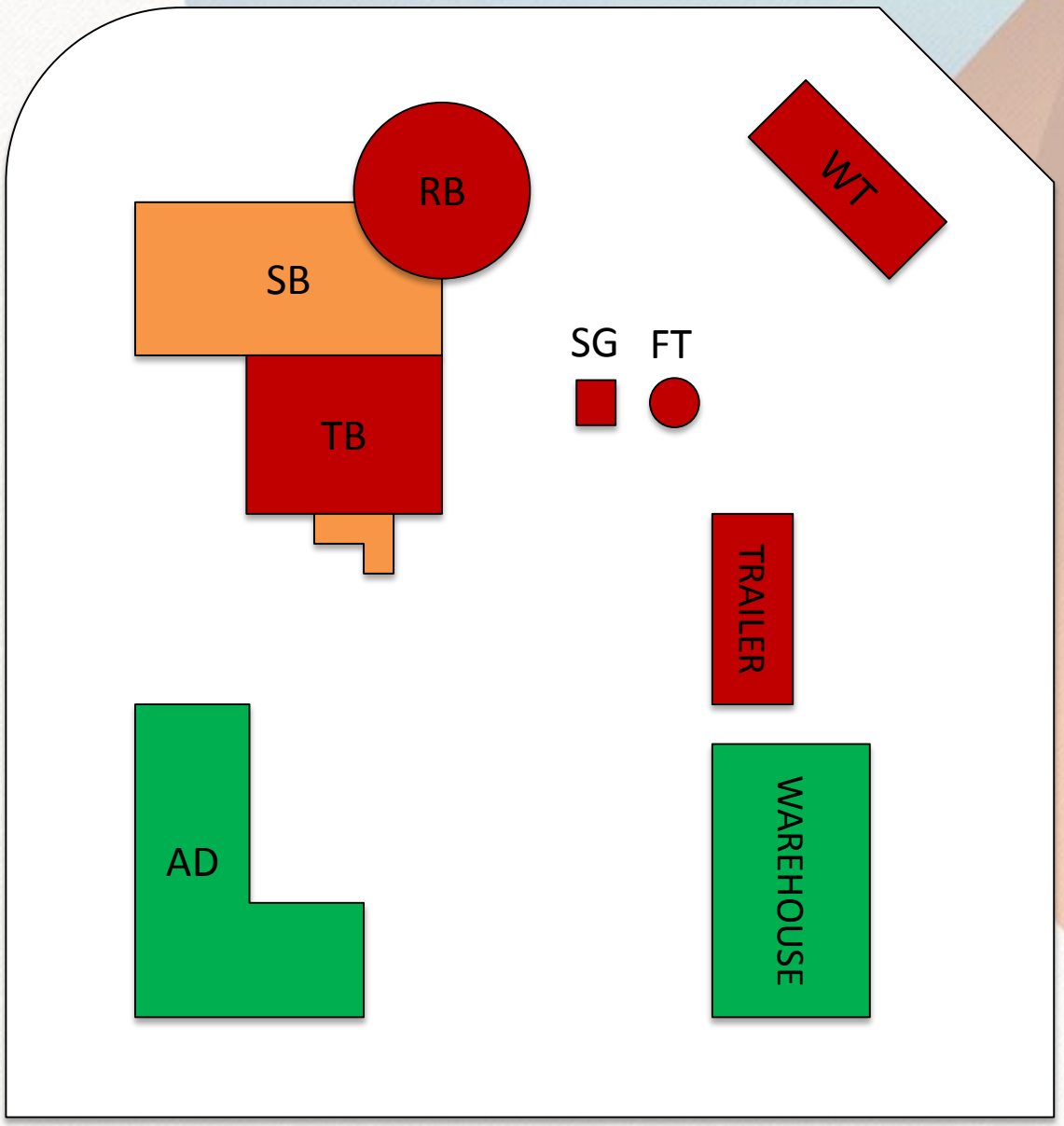

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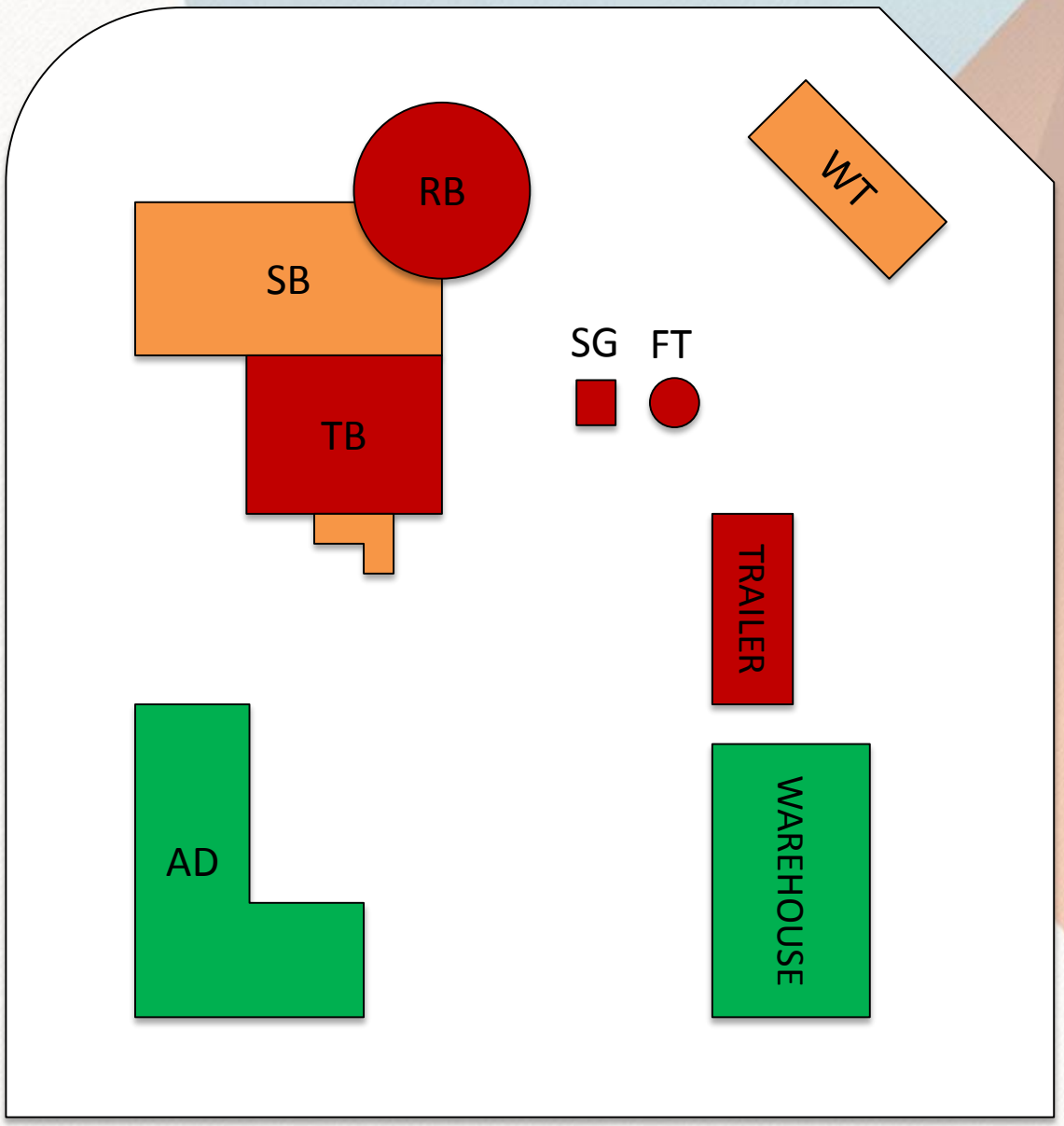

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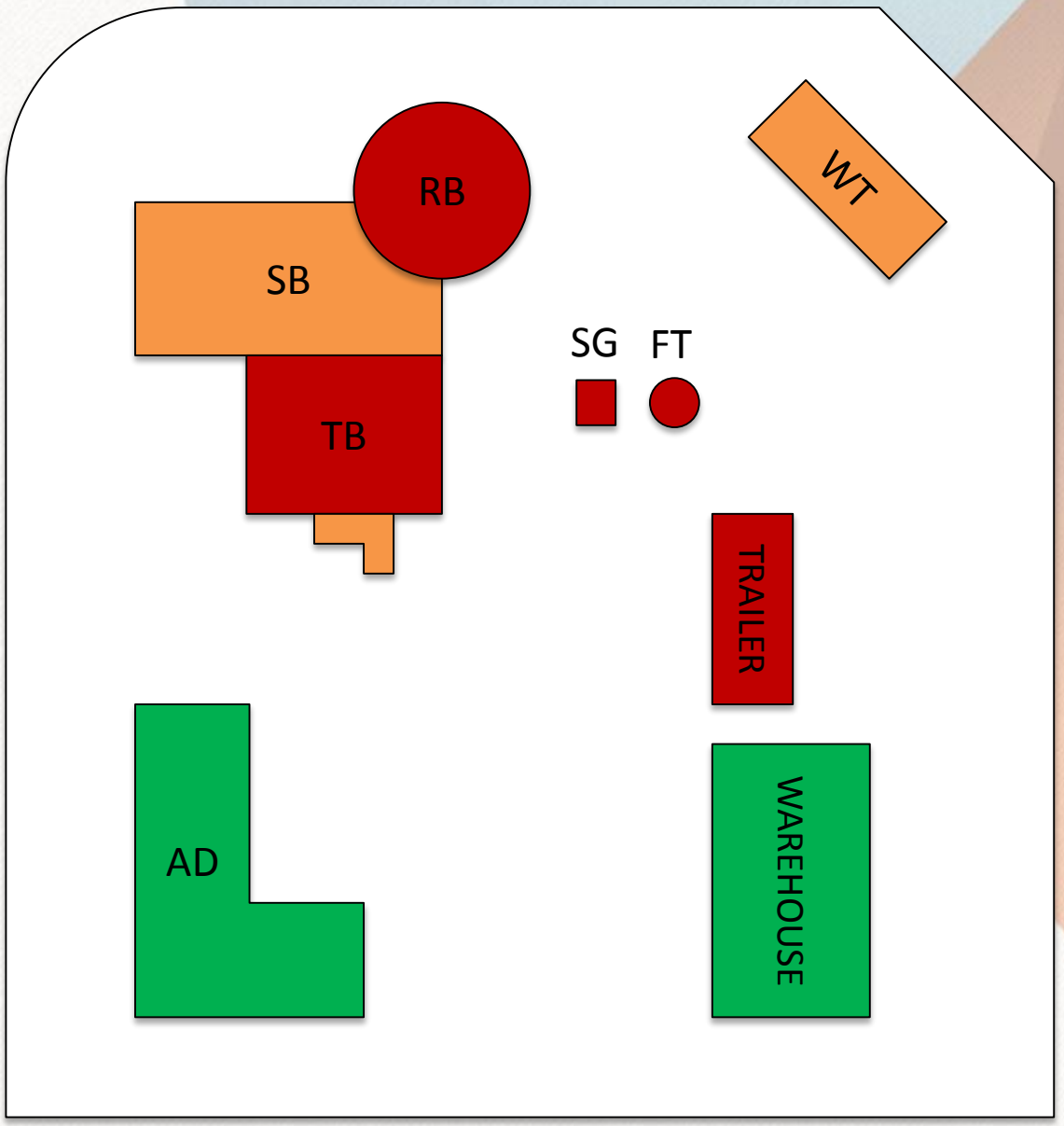

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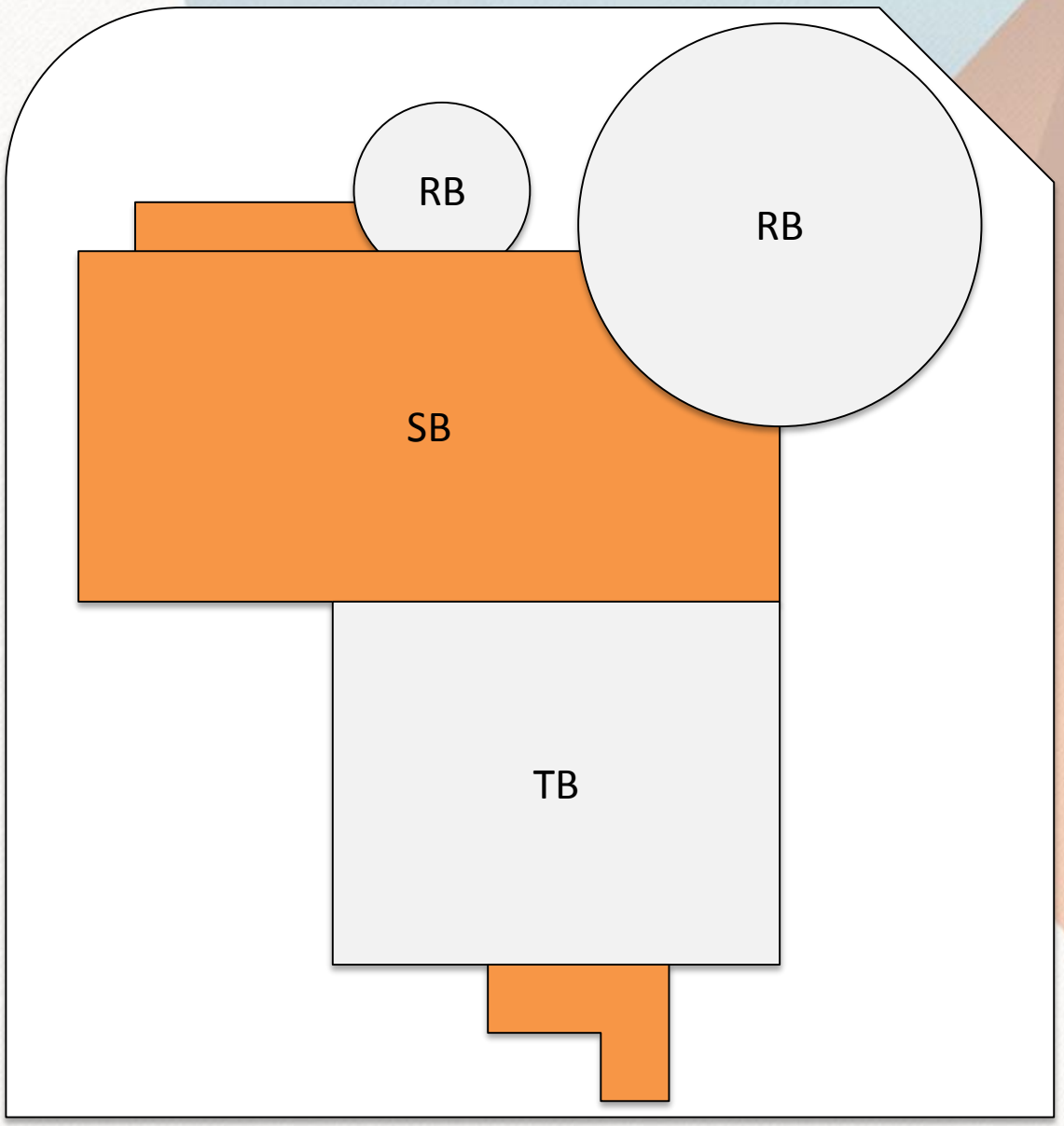

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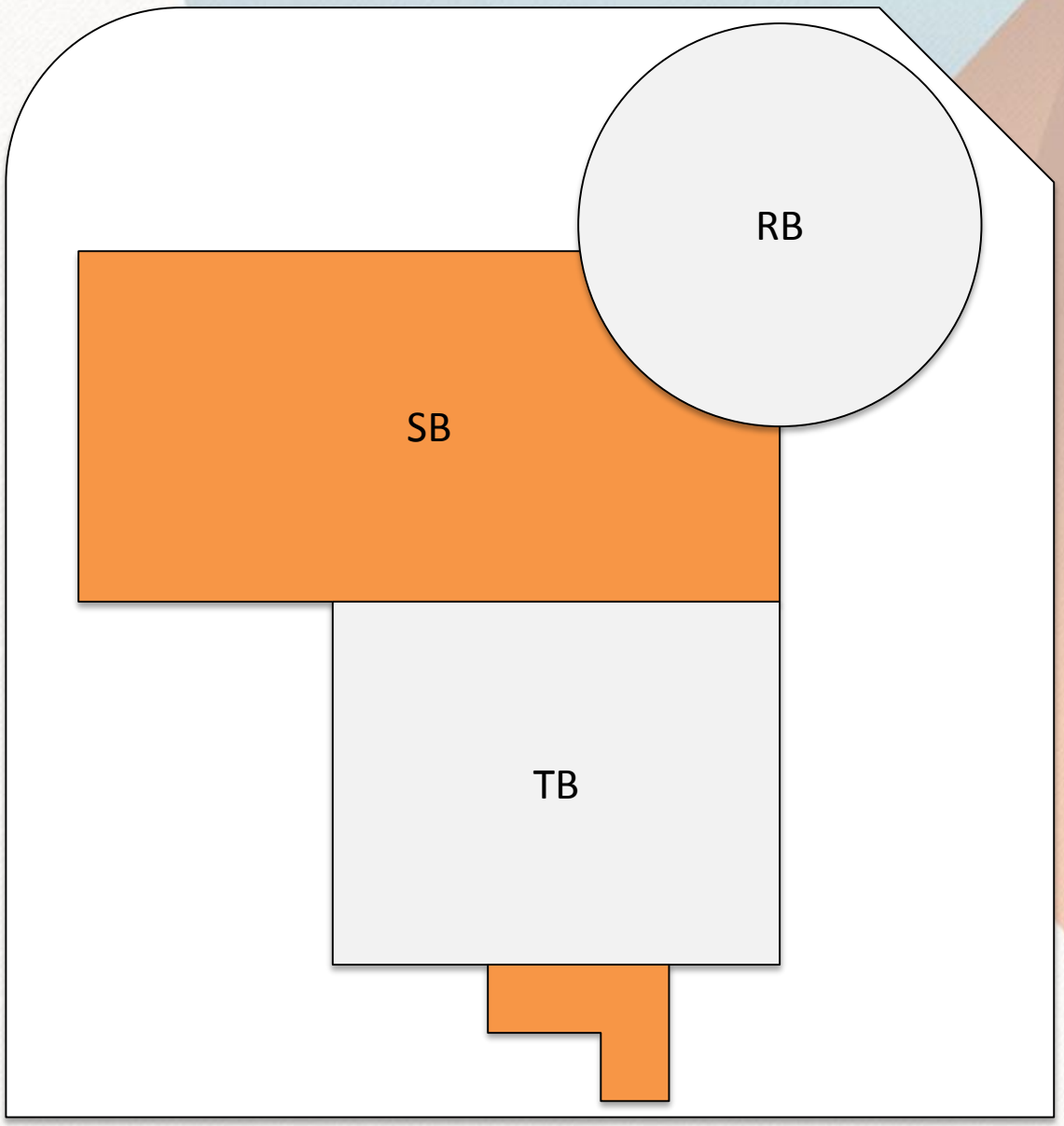

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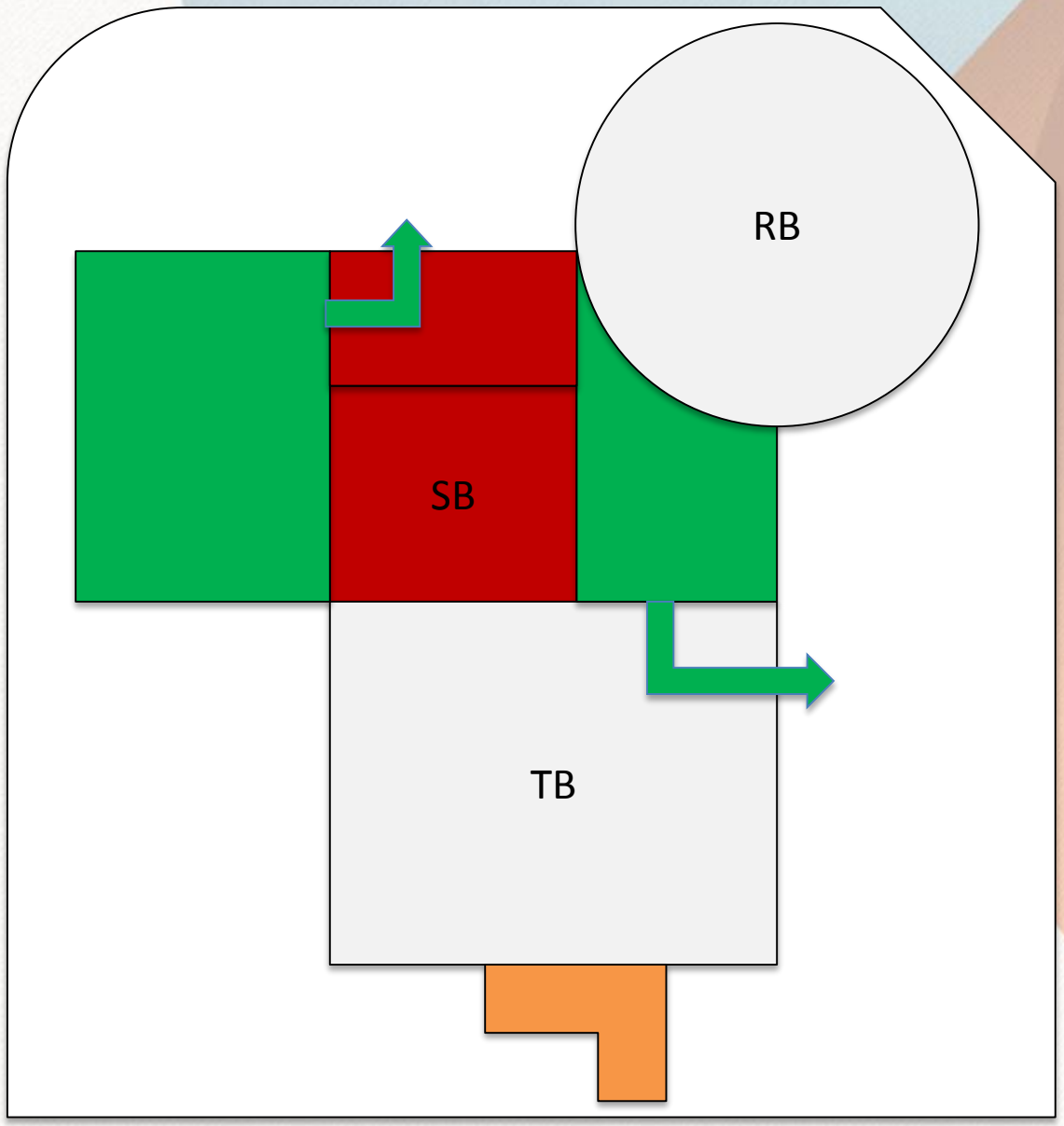

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ACME NUCLEAR POWER PLANT

Define building Safe Storage States

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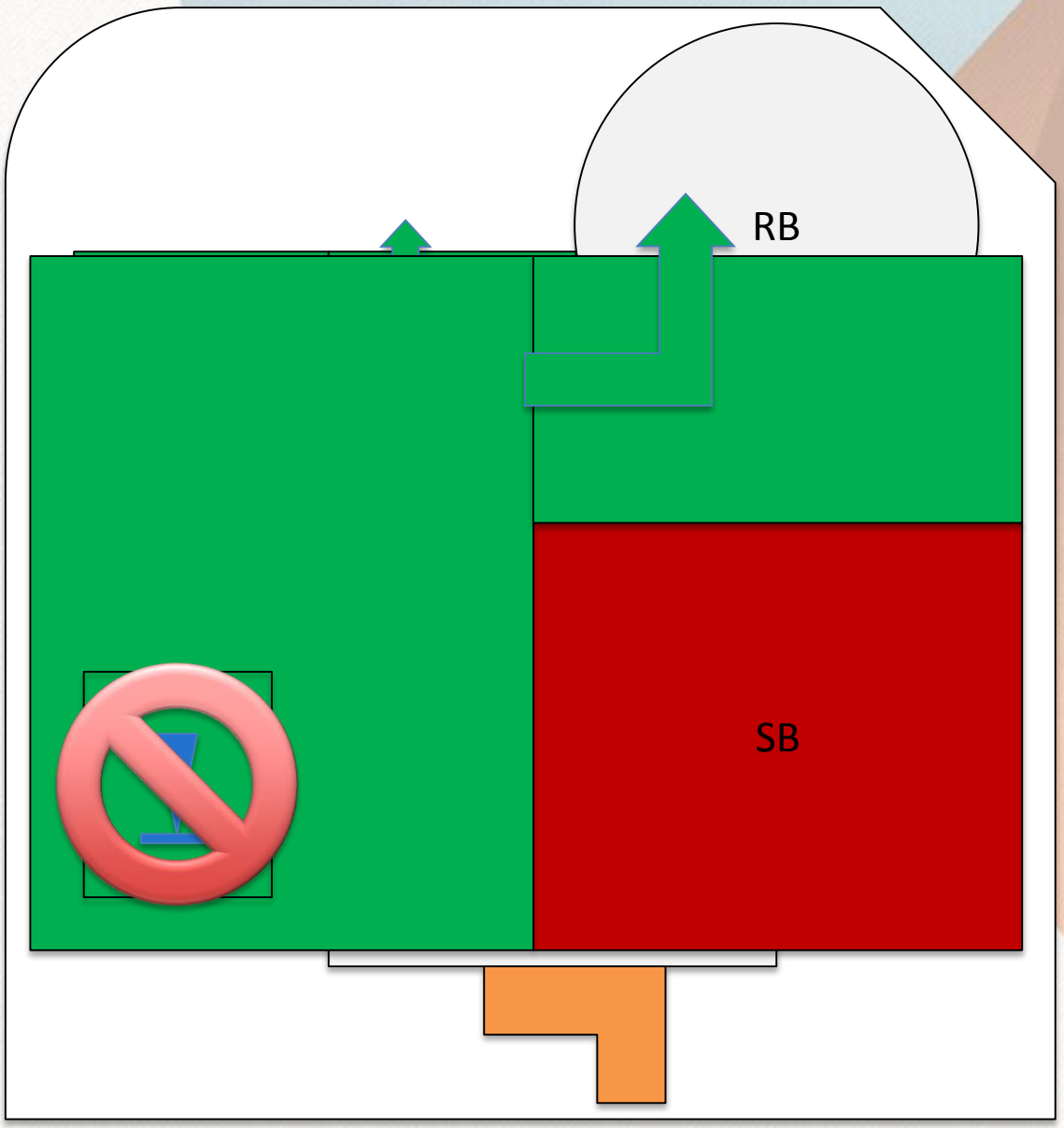

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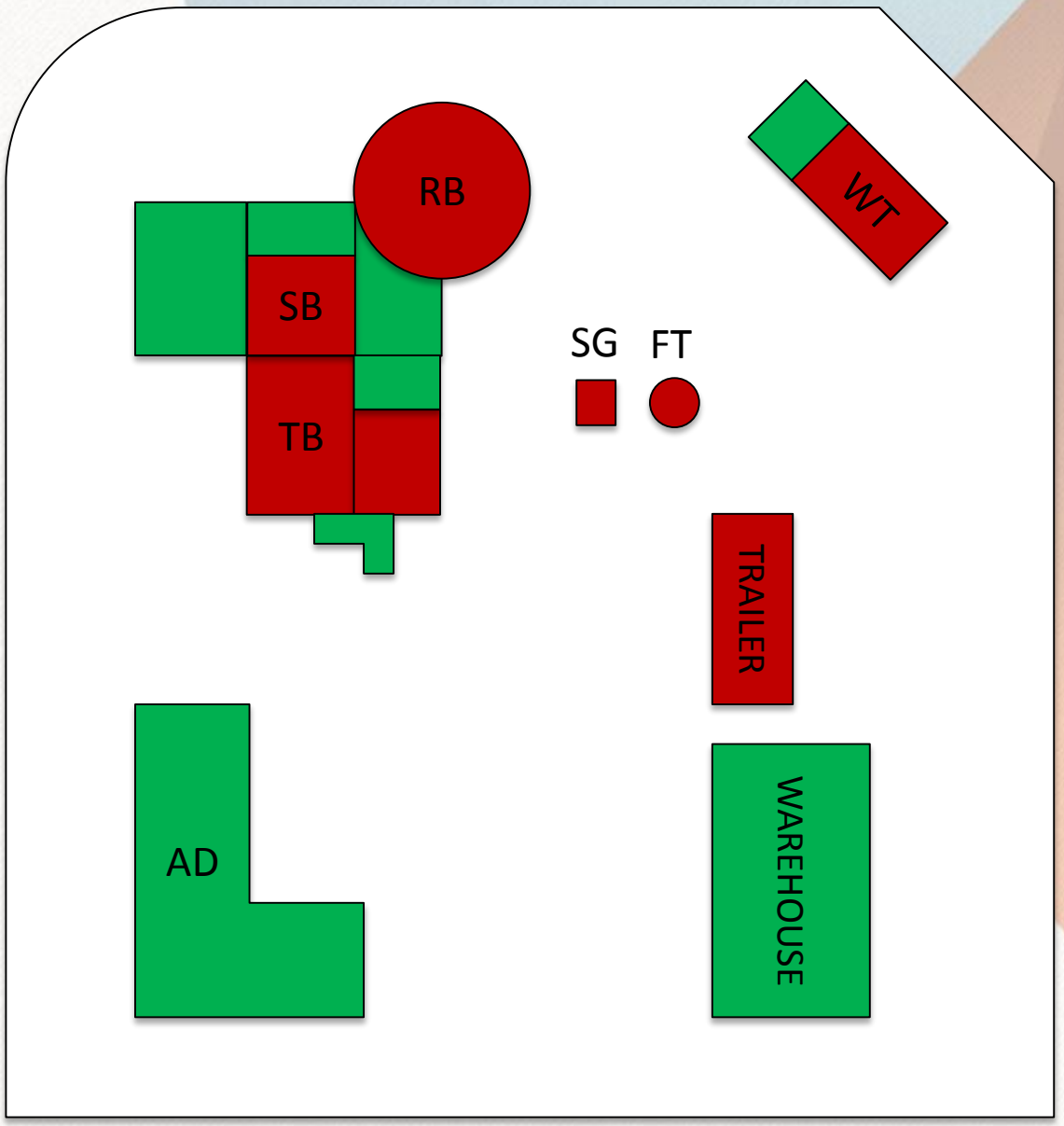

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OPEX

1. Reactor buildings have become warehouses for highly contaminated materials and equipment.

2. Life safety systems within Reactor buildings have been overlooked.

3. Turbine Halls and other vacancies have become valuable real-estate.

4. Although areas are classified as Out-of-Service, inspection and maintenance work is required; introducing occupants.

5. The life expectancy of the FP systems, including the water supply loop, may not be as long as the safe storage phase before demolition.

6. Inclusion of Fire Protection Assessments in the planning stage.

- Example Photos Here

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CONCLUSIONS

- There are many types of nuclear facilities that at some point need to be decommissioned.
- Regulatory Standards basically have the same requirements; keep the protection in place until the hazards are removed.
- Decommissioning Planning is a required step to determine area use and required critical structures, systems and components.
- Use the existing fire hazard assessments in conjunction with evaluations of the proposed area use.

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CONTACT

Kory Krueger, PTech
PLC Fire Safety Solutions
P: 1 (800) 675-2755
E: kkrueger@plcfire.com