

STATION ROOF TYPES

Option 1: Shed Roof- PEMB



1. Structural Types

App Bay- PEMB wall/roof structure w/ non-load bearing CMU perimeter walls with PEMB Standing Seam Metal Roof w/ Structural Steel by PEMB manufacturer.

Living Quarters - Non-load bearing CMU with Standing Seam Metal PEMB Roof w/ PEMB Structural Potential Structural Type(s) Steel

2. Exterior Wall Type

App-Bay: PEMB with some PEMB Metal Wall Panel and CMU with 7/8" Portland cement plaster finish

3. Pros

- Fastest construction time
- Simplest roof system
- Reduced material quantities
- Ideal for prototype replication

Cons

- Metal building aesthetic
- Lower perceived long-term durability vs. full CMU structure
- Less acoustic and thermal mass compared to full masonry

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Option 2: Flat Roof



1. Structural Types

App Bay - Exterior Load Bearing CMU (8 inch and 12 inch) at perimeter walls. Low slope membrane roof over cover board, rigid insulation. Parapet at the perimeter of all roof edges.

Living Quarters - Exterior Load Bearing CMU (8 inch) perimeter walls. Parapet at the perimeter of all roof edges.

2. Exterior Wall Type

CMU with 7/8" Portland cement plaster finish.

3. Pros

- Stronger exterior structure
- Improved durability & impact resistance
- Better sound and thermal performance vs. Option 1

Cons

- Higher cost per square foot than Option 1
- Longer construction schedule
- Low-slope roof
- More structural steel required

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Option 3: Hip Roof



1. Structural Types

App Bay-Exterior Load Bearing CMU (8 inch and 12 inch) at perimeter walls. Standing Seam Metal Roof panel over cover board, rigid insulation, 1.5-inch metal roof deck over custom metal truss roof framed hip roof with lower framed hip roof over Apparatus Bay support spaces.

Living Quarters - Load Bearing CMU (8 inch) with Standing Seam Metal Roof panel over cover board, rigid insulation, 1.5-inch metal roof deck over custom metal truss roof framed hip roof w/ multiple valleys.

2. Exterior Wall Type

CMU with 7/8" Portland cement plaster finish.

3. Pros

- Most visually appealing and architectural option
- Longest roof lifespan
- High wind and storm resistance
- Premium exterior envelope
- Excellent long-term performance

Cons

- Highest cost per square foot
- Longest construction duration
- Most complex to build
- Less ideal for rapid prototype replication