



## FEDERATION OF AMERICAN SCIENTISTS

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### Procurement Strategy for Emergency Housing

The proposed process was developed during the MS Alternative Housing Program to design, prototype, and produce the highest quality unit in the shortest amount of time. Additionally, the proposed process was held to the timelines set forth by State Bid Laws; therefore, while the production of the unit took less than 6 weeks, the state bid and selection process took 4 weeks. In an emergency, this timetable can be shortened by...

- A. Using professional engineers which have a track record in the industry, in designing emergency housing solutions, and who have preferred designs already developed;
- B. Signing an emergency declaration to decrease the required bid time and speed the selection process; and
- C. Allowing substitutions of equipment and materials to the available inventories/supply chains AFTER the engineer has reviewed that the product are equal and do not compromise the main goals of the product (i.e. indoor air quality, energy star compliant, etc, etc).

#### Procurement Strategy:

1. **Concept/Design:** Prepare a full set of engineering drawings for a specialized FEMA product with an approved HUD-code Engineering Firm operating as the engineer of record. The basis of the attached design is the MS Alternative Housing units hereto referred to as the specialized FEMA product with improved modifications for livability, storage, and production efficiency;
2. **Bidding:** The engineer of record will advertise and put out for competitive bid the engineering drawings and specifications for the specialized FEMA product \*\*;
3. **Prototyping:** The engineer of record will work with each selected manufacturer to prototype both the quality and construction standards in which the manufacturer will be held to insure the required specifications are adhered to. The first unit will be retained at the manufacturing facility as the standard of quality. The engineer of record will also review and maintain all HUD-code documentation from the manufacturers as required under HUD regulations. The engineer of record must have the ability to approve substitutions to adjust for shortages, supply chain issues, etc in plant throughout the project in order to produce units in a timely fashion. The engineer must be...
  - a. HUD approved Design Inspection Primary Inspection Agency & HUD approved Production Inspection Primary Inspection for easy approval under the HUD-code program
  - b. ICC certified residential inspectors on staff & ICC certified residential plans examiner on staff for compliance and maintenance of compliance to IRC and local codes

- c. Testing Laboratory accreditation in order to evaluate and review reports for materials, substitutions, and material changes in a timely manner
  - d. Accredited to inspect modular factory built construction & Accredited to inspect manufactured homes in order to act as the third party labeling agency
- 4. Production:** FEMA will require fulltime inspection\*\*\* by the owner's third party/engineer of record to maintain the specifications and integrity of all products shipped (i.e. checking specification, formaldehyde compliance of materials, and energy star compliancy in ALL units); and
- 5.** Manufacturer will hold the units at their facility until needed by FEMA (to be shipped as just-in-time-delivery).

\*\* RFP shall include that each company bids per individual plant to obtain the most cost effective bid – working directly with the manufacturers (eliminating dealers' and brokers' mark-ups). There are many factors that were considered in the MS Alternative Housing Program to get the best bidders and the most aggressive pricing.

\*\*\* The Engineer of Record acting as the inspector will keep track of substitutions, materials used, and act as a liaison between the manufacturer and FEMA.

**Timeframe:**

Under an emergency, the engineer can provide the drawings and run the bid in an accelerated timeframe. However, this will take additional resources and will require that the engineer have the ability to approve substitutions in plant after the bid is awarded to adjust to local supply chains, shortages, etc. Much of this work should be done ahead of time to get the most aggressive bids; therefore two timeframes are presented...

		Non Emergency	Emergency
1.	Construction Drawings/Bid Documents*	3-4wks	1wk
2.	Competitive Bid to Manufacturers	1wk	1wk
3.	Review of Bid/Selection of Manufacturers	1wk	1wk-edn
4.	Prototyping & Startup of Production**	2wks	1-2wks
TOTAL	not to exceed	8wks	3-4wks

\*using the MS Cottage drawings as a basis (i.e. the attached preferred design).

\*\* many companies operate 3-5 manufacturing locations; therefore, prototyping at only one manufacturing location is needed per company in order to train all production managers and in-plant quality control managers. This ability allows us to rapidly prototype and set the standards of construction with multiple plants operated under the control of one manufacturer. Quite simply, prototyping allows the engineer to train all parties (both the manufacturer and the inspectors) on the acceptable quality standards for the project. This first unit is held at the manufacturing location (or the first unit produced on the line) as the standard of quality to which all units will be measured. This method prevents quality deviations.

## **Production Capabilities:**

The bid selection will require 20-25 manufacturing facilities to run 10-12 floors per day\*\* = 200-250 floors per day in TOTAL production for these units:

- If procuring 30,000 units, then running 150days (5-6mos\*) at 200 floors per day in total production
- If procuring 30,000 units, then running 120days (4-5mos\*) at 250 floors per day in total production

**In either scenario outlined above, production can be up in running in a short time period after the units are prototyped** (production is typically fully ramped up and optimized after 5-10 working days). **However, so the supply chains and industry is not strained, the prototypes should be staggered** (i.e. all manufacturers are invited to the first prototyped\*\*\* unit then each subsequent manufacturer is picked up shortly thereafter).

\*most plants will run on Saturday to meet the needs of the contract.

\*\* running 10-12 floors per day requires that, 1) the design is optimized for the industry, and 2) the engineer has the ability to accept substitutions as supply chains are stretched.

\*\*\* during the prototyping of the MS Cottage, manufacturers welcomed each other in plant to learn about the unit to discuss optimization and production efficiencies.