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| GP 04-03-01 | Plant Buildings for Operation and Storage | June 2004 |
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# Plant Buildings for Operation and Storage

## GP 04-03-01

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### Scope

- 1) [I] This Global Practice (GP) covers the materials, design and erection of buildings and shelters for processing plants, including, but not limited to, buildings housing process or manufacturing equipment, control or service rooms, in-plant sample laboratories, in-plant sanitary facilities, power station equipment, and material receiving, handling and storage facilities.
  - 2) \* [I] This GP applies to buildings located within or used directly for plant process, maintenance, or storage facilities. When specified by the Owner, it may apply to other buildings not located within the plant.
  - 3) [I] An asterisk (\*) indicates that additional information from the Owner, or approval by the Owner, is required.
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## 1. Required References

- 1) [I] This Section lists Practices, Standards, Codes, and Specifications that are referenced and assumed to be a part of this document. Unless otherwise specified herein, use the latest edition.
- 2) [I] ICBO (Uniform Building Code) shall be used for building design and materials not covered by referenced Practices, Publications, and Standards listed in Sections 1 and 2 of this GP.
- 3) \* Local Codes and Standards may be substituted for those referenced herein, provided that:
  - a) The resultant design meets the safety and serviceability requirements of this GP.
  - b) Such substitution is acceptable to the local authorities and the Owner's Engineer.

### 1.1. Global Practices–ExxonMobil Engineering Practices

|                             |                             |
|-----------------------------|-----------------------------|
| <a href="#">GP 04-01-03</a> | Design Loads for Structures |
| <a href="#">GP 16-05-01</a> | Lighting                    |
| <a href="#">GP 17-01-01</a> | Firefighting Equipment      |

### 1.2. ANSI–American National Standards Institute

|            |                                                                                                    |
|------------|----------------------------------------------------------------------------------------------------|
| ANSI Z97.1 | Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test |
|------------|----------------------------------------------------------------------------------------------------|

### 1.3. API–American Petroleum Institute

|            |                                                                                                                                                            |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| API RP 500 | Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2 |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 1.4. ICBO–International Conference of Building Officials

|      |                       |
|------|-----------------------|
| ICBO | Uniform Building Code |
|------|-----------------------|

### 1.5. NFPA–National Fire Protection Association

|          |                                                                                                       |
|----------|-------------------------------------------------------------------------------------------------------|
| NFPA 70  | National Electrical Code                                                                              |
| NFPA 496 | Standard for Purged and Pressurized Enclosures for Electrical Equipment (National Fire Codes, vol. 7) |



## 2. Additional References and Requirements

- 1) \* [I] The following Practices and Standards shall be used with this GP as applicable.
- 2) [I] ICBO (Uniform Building Code) shall be used for building design and materials not covered by referenced Practices, Publications, and Standards listed in Sections 1 and 2 of this GP.
- 3) \* Local Codes and Standards may be substituted for those referenced herein, provided that:
  - a) The resultant design meets the safety and serviceability requirements of this GP.
  - b) Such substitution is acceptable to the local authorities and the Owner's Engineer.

### 2.1. Global Practices–ExxonMobil Engineering Practices

|                             |                                                    |
|-----------------------------|----------------------------------------------------|
| <a href="#">GP 02-01-01</a> | Plant Noise Design Criteria                        |
| <a href="#">GP 04-01-01</a> | Concrete Design and Construction                   |
| <a href="#">GP 04-02-01</a> | Auxiliary Structures for Operation and Maintenance |
| <a href="#">GP 04-03-02</a> | Blast Resistant Buildings                          |
| <a href="#">GP 04-03-04</a> | Special Category 3 Blast Resistant Buildings       |
| <a href="#">GP 04-07-01</a> | Piles and Sheet Piling                             |
| <a href="#">GP 16-06-01</a> | Substation Layout                                  |

### 2.2. ASTM–American Society for Testing and Materials

|            |                                                                                                      |
|------------|------------------------------------------------------------------------------------------------------|
| ASTM A 74  | Standard Specification for Cast Iron Soil Pipe and Fittings                                          |
| ASTM A 525 | (Withdrawn) General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process    |
| ASTM B 209 | Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate                               |
| ASTM C 12  | Standard Practice for Installing Vitrified Clay Pipe Lines                                           |
| ASTM C 443 | Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets |
| ASTM E 84  | Standard Test Method for Surface Burning Characteristics of Building Materials                       |



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### 3. Materials

- 1) [R] Structural materials shall consist of steel, reinforced concrete, masonry, or other materials approved by the Owner's Engineer.
- 2) [S] Wood or other material that supports combustion shall not be used.
- 3) [R] Corrugated galvanized carbon steel sheets for roofing and siding shall be per ASTM A 525, with a minimum weight of coating of 2 oz/ft<sup>2</sup> (610 g/m<sup>2</sup>) of sheet.  
\* For "temporary buildings," the Owner's Engineer shall approve coating weight.
- 4) [S] Materials containing asbestos shall not be used.
- 5) [S] Asphalt covered corrugated steel roofing and siding shall not be used.
- 6) [O] Roof ventilators and louvers shall be of corrosion resistant metal.
- 7) [S] Plastic material for translucent panels, including reinforced plastic fiberglass, shall have a flame spread classification of not more than 25 in accordance with ASTM E 84.
- 8) [S] Windows, Doors, and Glazing materials shall be as follows:
  - a) Sash and frames for windows and skylights shall be metal.
  - b) Doors and frames in walls and interior fire stop partitions shall be metal.
  - c) Glass for exterior and interior use (doors, windows, skylights, and partitions) shall be "fully-tempered" in accordance with ANSI Z97.1.

Finish materials and paint shall comply with the following:

- a) \* [R] Finish materials and paint, including colors, both interior and exterior, shall be approved by the Owner's Engineer.
- b) [S] Wood or other materials that support combustion shall not be used for interior or exterior finish materials or trim.
- c) [S] Highly polished, slippery materials shall not be used for finished floor surfaces.
- d) [S] Stairways shall have non-slip treads.
- e) [R] Concrete floors not subject to heavy traffic or abrasion shall have a smooth float finish treated with a non-dusting agent.
- f) [R] Concrete floors subject to heavy traffic or abrasion shall have a metallic surface hardener.
- 10) \* [I] Materials for buildings subject to extremely corrosive conditions, such as the handling or storage of fertilizers or corrosive chemicals, shall be specified by the Owner's Engineer.

### 4. Design

- 1) \* [I] If the basic type of construction is not specified, proposals employing the most economical type of construction suitable for the required service and environmental exposure shall be approved by the Owner's Engineer. Such proposals shall include:
  - a) Layout

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