FOUR COMPARTMENT BIN FOR FARM FEED MILL

160 cu. ft. per Compartment

The four compartments of this bin will provide the storage needed for the basic ingredients used with a farm feed mill. Small mills operating for a period of time can grind and mix feed efficiently to meet particular needs and this storage serving as a holding bin will allow the mill to run unattended.

Exterior-type plywood and framing lumber combine to give this design sufficient strength to resist the weight and pressure of wheat or shelled corn. Construction is speeded by minimizing the work done above ground level so the framing is preassembled on the ground and then raised during erection. The plywood hopper is suspended from the perimeter carrying-beams with no support required under the center of the bin to give ample work space around the feed mill.

Each compartment has a volume of 160 cu. ft., or about 3 3/4 tons of shelled corn. Clearance requirements for mills will determine the leg length needed, but the bin should not be built more than 2 feet higher than the level shown on the plan unless the relatively slender legs are reinforced. The foundation for the bin must be designed to be able to carry about 3000# under each leg.

To assure safety, the nail sizes and numbers shown on the plan must be used. Adequate nailing of the plywood to framing and the gusset nailing are essential in this design to enable the entire bin to act as a unit in supporting the heavy loads. For bins built outside and exposed to weather, galvanized nails will minimize staining and corrosion.
FOUR COMPARTMENT BIN For
FARM FEED MILL

Developed by the American Plywood Association
2x6 BIN FRAMING WITH PLYWOOD GUSSETED JOINTS

1/2" EXTERIOR-TYPE (EXT-DFPA) PLYWOOD C-C, B-C, OR A-C GRADE DOUGLAS FIR, W. LARCH OR S. PINE

PLYWOOD GUSSETS NAILED TO BIN AND 4x4 POSTS

1/2" EXTERIOR-TYPE (EXT-DFPA) PLYWOOD C-C, B-C, OR A-C GRADE DOUGLAS FIR, W. LARCH OR S. PINE

2x6 HOPPER FRAMING PLYWOOD GUSSETED JOINTS, SEE PAGE 7

4x4 PRESERVATIVE TREATED POST WITH 8 lb. per cu. ft. MINIMUM RETENTION OF PENTA OR CREOSOTE

EMBED POSTS 4' INTO GROUND, REST ON 12" SQUARE CONCRETE PAD, SEE ALTERNATE ON PAGE 9

SIDE VIEW
NOTES
1. All plywood used is EXTERIOR-TYPE (EXT-DFPA) Douglas fir, W. larch or S. pine. Use A-C, B-C, or C-C grade. A-C grade preferred for sloping surfaces.

2. All lumber is construction grade Douglas fir or equivalent.

3. Leg members embedded in the ground are preservative treated with creosote or penta. Minimum retention 8 lb. per cu. ft.

4. Nailing is vital to the strength of the bin. Use the number and type of nails called for in the location shown.

5. This design is based on the use of American Plywood Association Grade-Trademarked plywood. Structural deficiencies may result with the substitution of materials. Because erection of the structure cannot be supervised, no liability can be assumed by the designer or the American Plywood Association.
2x2 CORNER BLOCKING

1/2" EXTERIOR-TYPE (EXT-DFPA) PLYWOOD, C-C, B-C, OR A-C GRADE, DOUGLAS FIR, W. LARCH OR S. PINE

2x4 CORNER BLOCKING NAIL WITH 8d 6" o.c.

2x6 BIN FRAMING SEE DETAILS ON PAGE 7 NAIL PLYWOOD TO FRAMING WITH 8d NAILS 6" o.c.

JOINT OF PARTITIONS SIDE PLYWOOD EXTENDS TO BOTTOM OF CARRYING BEAMS SEE DETAILS AT RIGHT

1/2" EXTERIOR-TYPE (EXT-DFPA) PLYWOOD, C-C, B-C, OR A-C GRADE, DOUGLAS FIR, W. LARCH OR S. PINE

4x4 POST SEE LAYOUT AT RIGHT

GRADE LINE

CROSS SECTION A-A
CROSS SECTION B-B

BIN SIDE

2 x 4 BLOCK
16" LONG

2 x 2 CORNER BLOCKING

2 x 8 AND 2 x 4 CARRYING BEAM NAIL HOPPER FLOOR TO BEAM WITH 8 PENNY 3" O.C. IN EACH 2 x 8 AND 2 x 4

1/2" EXTERIOR-TYPE (EXT-DFFA) PLYWOOD, C-C, B-C, OR A-C GRADE, DOUGLAS FIR, W. LARCH OR S. PINE

2 x 6 HOPPER FRAMING

PLYWOOD GUSSET

4 x 4 POST

HOPPER TO BIN DETAIL

4 x 4 POSTS

2 x 6 HOPPER FRAMING
SEE DETAILS ON PAGE 7

OPENINGS TO SUIT

2 x 2 CORNER BLOCKING

4 x 4 POST

SHEET METAL FLASHING IN SLOPING CORNERS

8' - 7"

4' - 3 1/2"

4' - 3 1/2"

FOUR COMPARTMENT BIN FOR
FARM FEED MILL

Developed by the American Plywood Association
BIN FRAMES

DETAIL A

- 2 x 6
- 45° END MITER
- 1/2" PLYWOOD GUSSET
- TOP AND BOTTOM (CORNER GUSSET)
- 6 - 10d NAILS IN EACH MEMBER CLINCHED

DETAIL B

- 2 x 6
- 30° EDGE BEVEL
- 1/2" PLYWOOD GUSSET
- TOP AND BOTTOM (CORNER GUSSET)
- NOTCH CORNER
- 3 - 10d NAILS EACH END

DETAIL C

SIMILAR TO DETAIL B

- TOP HOPPER FRAME Y = 3' - 1 3/4"
- 2nd HOPPER FRAME Y = 2' - 4 1/2"
- 3rd HOPPER FRAME Y = 1' - 7 1/4"
- BOTTOM FRAME Y = 10"

DETAIL D

- 2 x 6
- 1/2" PLYWOOD GUSSET
- 1/2" LONG
- TOP AND BOTTOM (END GUSSET)
- 6 - 10d NAILS IN EACH MEMBER CLINCHED

HOPPER FRAME BEVEL

Y DIMENSION FROM VERTICAL FACE

5 1/2"
 Plywood Cutting Diagrams

**Partition Framing**

- 2 x 6

<table>
<thead>
<tr>
<th>4 REQ'D 8' - 7&quot;</th>
<th>8 REQ'D 4' - 0&quot; 3/4&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 REQ'D 6' - 9&quot;</td>
<td>2 REQ'D 3' - 1 3/4&quot;</td>
</tr>
<tr>
<td>1 REQ'D 5' - 2 1/2&quot;</td>
<td>2 REQ'D 2' - 4 1/2&quot;</td>
</tr>
<tr>
<td>1 REQ'D 3' - 8&quot;</td>
<td>2 REQ'D 1' - 7 1/4&quot;</td>
</tr>
<tr>
<td>1 REQ'D 2' - 1 1/2&quot;</td>
<td>2 REQ'D 10&quot;</td>
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</tbody>
</table>

**Bin Side Framing**

- 2 x 6

**Corner Bevel Detail at Left**

- 2 x 6

<table>
<thead>
<tr>
<th>4 REQ'D 7' - 9&quot;</th>
<th>4 REQ'D 6' - 1 1/2&quot;</th>
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</thead>
<tbody>
<tr>
<td>4 REQ'D 4' - 7&quot;</td>
<td>4 REQ'D 3' - 0 1/2&quot;</td>
</tr>
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</table>

Construction Grade Douglas Fir

Cutting Diagrams for Framing

Four Compartment Bin for Farm Feed Mill

Developed by the American Plywood Association
Corner Detail

**2 x 6 Bin Frame**

1/2" plywood bin sides nail to 2 x 8 with 8d spaced 6" o.c.

**2 x 8 - 60° Bevel**

**2 x 4 - 60° Bevel**

Triangular plywood gusset on 4 x 4 post with 2 x 4 block 16" long on post

**4 x 4 Post**

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Optional Roof and Siding

**2 x 4 Rafters 24" o.c.**

3/8" Exterior-Type (Ext-DFPA) plywood roof sheathing C-C grade, face grain across rafters

3/8" Exterior-Type (Ext-DFPA) plywood siding, A-C, B-C or C-C grade, face grain vertical

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Alternate Leg Mounting

**4 x 4 Post**

Strap anchor

Concrete pedestal 12" square

Concrete floor
MATERIAL LIST: FOUR COMPARTMENT BIN FOR FARM FEED MILL

<table>
<thead>
<tr>
<th>Item and Use</th>
<th>Pieces</th>
<th>Size</th>
<th>Length</th>
<th>FBM</th>
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</thead>
<tbody>
<tr>
<td>Plywood: EXTERIOR-TYPE (EXT-DPFA)</td>
<td></td>
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<tr>
<td>Bin Lining (A-C, B-C or C-C EXT-DPFA)</td>
<td>16</td>
<td>1/2&quot;</td>
<td>4' x 8'</td>
<td>512</td>
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<tr>
<td>Hopper (A-C, B-C or C-C EXT-DPFA)</td>
<td>8</td>
<td>1/2&quot;</td>
<td>4' x 8'</td>
<td>256</td>
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<tr>
<td>Gussets (A-C, B-C or C-C EXT-DPFA)</td>
<td>2</td>
<td>1/2&quot;</td>
<td>4' x 8'</td>
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</table>

LUMBER: CONSTRUCTION GRADE DOUGLAS FIR

<table>
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<th>Item and Use</th>
<th>Pieces</th>
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<tbody>
<tr>
<td>Bin and Hopper Framing</td>
<td>30</td>
<td>2 x 6</td>
<td>10'</td>
<td>300</td>
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<tr>
<td>Hopper Support Beams</td>
<td>6</td>
<td>2 x 6</td>
<td>12'</td>
<td>72</td>
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<tr>
<td>Corner Blocking</td>
<td>4</td>
<td>2 x 8</td>
<td>10'</td>
<td>53</td>
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<tr>
<td>Blocks</td>
<td>4</td>
<td>2 x 4</td>
<td>8'</td>
<td>64</td>
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<tr>
<td></td>
<td>12</td>
<td>2 x 4</td>
<td>8'</td>
<td>38</td>
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<tr>
<td></td>
<td>8</td>
<td>2 x 2</td>
<td>14'</td>
<td>11</td>
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</table>

POSTS: (PRESERVATIVE TREATED -- CREOSOTE OR PENTA 8 PCF MINIMUM RETENTION)

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<th>Pieces</th>
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<tbody>
<tr>
<td>Legs</td>
<td>12</td>
<td>4 x 4</td>
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</table>

HARDWARE:

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<th>Item and Use</th>
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<tbody>
<tr>
<td>Nails common</td>
<td>6 lb.</td>
<td>16d</td>
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<tr>
<td></td>
<td>20 lb.</td>
<td>10d</td>
</tr>
<tr>
<td></td>
<td>15 lb.</td>
<td>8d</td>
</tr>
<tr>
<td>Sheet Metal Corners</td>
<td>4</td>
<td>1 1/2&quot;</td>
</tr>
</tbody>
</table>

SUGGESTED CONSTRUCTION SEQUENCE

1. Preassemble all framing. Inside measurements shown on page 7 should be used. Member length may vary slightly with actual width of 2 x 6 members. (5 1/2" width assumed.)

2. Set and tamp 4 x 4 posts, accurately spaced and plumbed as dimensioned. Trim tops of posts so all are level.

3. Nail plywood gussets and 2 x 4 blocks to outside of all posts. Blocks extend 7 1/2" above center posts and 8" above corner posts.

4. Preassemble bin framing. Place lowest frame on top of 2 x 4 blocks. Temporarily block and brace upper frames in place.

5. Install plywood on partition and sides of bin. Place hopper supports on top of posts and nail bin lining to the 2 x 8. Nail post gussets to hopper support beams.

6. Using temporary 1 x 4 hangers draw-nailed to bin partition, suspend hopper framing in proper location. Apply plywood to hopper partitions.

7. Fit plywood to sloping sides of hopper. Nail carefully to 2 x 8 and 2 x 4 support beam. Install hopper bottoms as required to fit feed mill.

8. Nail corner blocking and sheet metal flashing in corners. Check all nailing to assure adequate number and size as detailed.