

SECTION 11 66 23. 13 [11482]**BASKETBALL EQUIPMENT**

******* Draper, Inc. manufactures six models of stationary basketball backstops:**

<u>EZ Fold TS-21</u>	Ceiling suspended, rear or front braced, under 28'-4" (8.64 m).
<u>EZ Fold TS-21-B</u>	Ceiling suspended, rear or front braced.
<u>EZ Fold TS-22</u>	Ceiling suspended, wall braced under 28'-4" (8.64 m).
<u>EZ Fold TS-22-B</u>	Ceiling suspended, wall braced.
<u>EZ Fold SW</u>	Wall mounted.
<u>EZ Fold SWD</u>	Wall mounted with direct mounted goal brace.

For each Draper stationary basketball backstop there are options for backboard, goal, and padding. Refer to Draper product literature for availability of options, and guidelines for design, selection, and installation of basketball backstops. Various models and options are listed in this specification section. The specifier will need to select the appropriate options and delete non-applicable models and options. *****

PART 1 - GENERAL**1.1 SUMMARY**

- A. Section includes: [Ceiling suspended] [Wall mounted], stationary, basketball backstops with backboard, goal, [height adjuster,] backboard safety edge padding, and net.
- B. Related sections:

******* List other specification sections dealing with work directly related to this section such as the following. *******

1. Section [_____] - [____]: Structural [walls to receive wall mounted backstops.] [roof framing to receive ceiling suspended backstops.]
2. Section 09 64 66 [09640] - Wood Flooring: Layout and painting of court lines to be coordinated with installation of basketball backstops.
3. Section 09 65 66 [09650] - Resilient Flooring: Layout of court lines to be coordinated with installation of basketball backstops.

******* Backstops are provided with black or white powder coat finish. If desired, other powder coat colors are also available. Contact Draper for availability. *******

4. Section 09 91 00 [09900] - Painting: Field painting of backstops.
5. Section 11 66 23. 53 [11486] - Gymnasium Protection Accessories: Wall

mounted protection pads at backstop locations.

1.2 REFERENCES

******* List by number and full title reference standards referred to in remainder of the specification section. Delete non-applicable references. *******

- A. ANSI A208 - Particleboard, Mat-Formed Wood.
- B. ASTM A500 - Formed Welded Seamless Structural Tubing in Rounds and Shapes.
- C. ASTM B85 - Aluminum-Alloy Die Castings.
- D. ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 [01330] - Submittal Procedures:
 - 1. List of proposed products and product data.
 - 2. Shop drawings showing layout, elevations, dimensions, fabrication details, method of attachment, requirements for supplemental bracing or structural support members and necessary electrical wiring diagrams.
 - 3. Calculations for actual vertical and horizontal loads to be transmitted to structural [walls] [roof framing] supporting backstop assemblies.
 - 4. Manufacturer to provide calculations and reports for tests performed by an independent testing laboratory accredited by the American Association of Laboratory Accreditation (A2LA) that demonstrates compliance with minimum safety factors required by these specifications.
 - 5. Copy of warranties required by Paragraph 1.5 for review by Architect.
 - 6. Manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

- A. Backstops shall be designed, fabricated, and installed to comply with National Collegiate Athletic Association (NCAA) and National Federation of State High School Associations (NFHS) regulations.

1.5 WARRANTY

- A. Provide under provisions of Section 01 78 00 [01770] - Closeout Procedures:

1. 25 years warranty for basketball backstop structure.

******* All backboards manufactured by Draper, Inc. are furnished with lifetime limited warranty when installed on Draper backstop utilizing a goal brace. *******

2. Lifetime warranty against breakage for backboards installed with goal brace.
3. 8 years warranty for bolt-on safety edge padding.

PARTS 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Draper, Inc., 411 South Pearl Street, Spiceland, Indiana 47385-0425; 765-987-7999.
- B. Manufacturers of equivalent products submitted and approved in accordance with Section 01 23 00 [01630] - Product Substitution Procedures.

2.2 MATERIALS

- A. Structural steel tubing: Steel, mechanical, round tubing conforming to ASTM A500.
- B. Clamps:
- C. Clamps:
 1. Beam clamps: Split-A type with [7 square inches] [4516 square mm] minimum beam flange contact area and secured with 2 all thread bolts at each attachment point. Clamps shall be designed to be capable of supporting a minimum of 20,000 Lbs. each. Superstructure shall be designed with a minimum of four attachment clamps to produce a combined minimum attachment point safety factor of 75 to 1. Superstructure tubes shall be reinforced with bridging and/or bracing when truss centers exceed 10'0"
 2. Component attachment clamps: Full surface type fabricated from [1/4 inch] [6 mm] thick steel or saddle style utilizing serrated clamping surface and minimum 5/8" U-Bolt.
 3. Goal brace: Type attaching behind goal mounting plate and directly to backstop main stem transferring load directly to structural frame.
- D. Extruded aluminum: ASTM B221, alloy 6063 Temper T5.
- E. Aluminum castings: ASTM B85.
- F. Particleboard: Solid core, 55 pounds per cubic foot (216 per cubic meter) density industrial grade complying with ASTM A208, Type 1, Grade 1-M-3 factory finished

with phenolic resin sheet thermally fused to front and back surfaces.

******* Backstops are provided with black or white powder coat finish. If desired, other powder coat colors are also available. Contact Draper for availability. *******

G. Finish: Factory applied [black] [white] [other color: _____] powder coat for steel parts.

2.3 CEILING SUSPENDED STATIONARY BACKSTOP

******* Draper, Inc. manufactures four models of ceiling suspended, stationary backstop. For this type of backstop, select the model and appropriate attributes from the following options:**

- EZ Fold TS-21** **Ceiling suspended, rear or front braced, under 28'-4" (8.64 m).**
- EZ Fold TS-21-B** **Ceiling suspended, rear or front braced.**
- EZ Fold TS-22** **Ceiling suspended, wall braced under 28'-4" (8.64 m).**
- EZ Fold TS-22-B** **Ceiling suspended, wall braced.**

******* Include the following paragraphs if Model EZ Fold TS-21 is required. *******

A. Type: Stationary, ceiling suspended, [rear] [front] braced basketball backstop; Model EZ Fold TS-21 as manufactured by Draper, Inc.

******* Required height of backstop can be specified in this section or indicated on Drawings. To eliminate potential for conflicts, do not indicate dimensions in both locations. *******

B. Distance from court floor to backstop attachment at roof and ceiling structure: [[_____] [feet.] [m.]] [As indicated on Drawings.]

C. Main frame: Rigid T design of back-to-back right triangles constructed by welding together steel tubing of the following outside diameters and gages. Parallelogram frames are not acceptable.

1. Main center stem: [6 inches] [152 mm] diameter, [11 gage] [3.2 mm thick] of length sufficient to allow backstop height adjustment of plus or minus [6 inches] [152 mm].
2. Top member of T frame: [4 inches] [102 mm] diameter, [11 gage] [3.2 mm].

******* Standard condition is back braced. Contact Draper, Inc. for details if front brace is required. *******

3. [Back] [Front] brace: Fully adjustable constructed from [2-1/2 inches] [64 mm]

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diameter, [13 gage] [2.4 mm thick] outer tube and [2-1/4 inches] [57 mm]
diameter, [14 gage] [2 mm] inner tube.

4. Diagonal side braces: [2-1/4 inches] [57 mm] diameter, [13 gage] [2.4 mm thick].

***** **Model EZ Fold TS-21-B is similar to Model EZ Fold TS-21 except that web braces are provided and bolted connections are used in lieu of welded ones to facilitate shipping. Include the following paragraphs if Model EZ Fold TS-21-B is required.** *****

- A. Type: Stationary, ceiling suspended, [rear] [front] braced basketball backstop; Model EZ Fold TS-21-B as manufactured by Draper, Inc.

***** **Required height of backstop can be specified in this section or indicated on Drawings. To eliminate potential for conflicts, do not indicate dimensions in both locations.** *****

- B. Distance from court floor to backstop attachment at roof structure: [[_____] [feet.] [m.]] [As indicated on Drawings.]
- C. Main frame: Rigid T design of back-to-back right triangles constructed by bolting together steel tubing of the following outside diameters and gages. Parallelogram frames are not acceptable.
 1. Main center stem: [6 inches] [152 mm] diameter, [11 gage] [3.2 mm thick] of length sufficient to allow backstop height adjustment of plus or minus [6 inches] [152 mm].

***** **3-1/2 inches (89 mm) inside diameter steel pipe is required for top of T frame if attachment point is greater than 32' - 5" (9.9 m).** *****

2. Top member of T frame: [[4 inches] [102 mm] diameter, [11 gage] [3.2 mm] steel tube.] [[3-1/2 inches] [89 mm] inside diameter steel pipe.]

***** **Standard condition is back braced. Contact Draper, Inc. for details if front brace is required.** *****

3. [Back] [Front] brace: Fully adjustable constructed from [2-1/2 inches] [64 mm] diameter, [13 gage] [2.4 mm thick] outer tube and [2-1/4 inches] [57 mm] diameter, [14 gage] [2 mm] inner tube.
4. Diagonal side braces: [2-1/4 inches] [57 mm] diameter, [13 gage] [2.4 mm thick].
5. Web braces: Four [1-1/2 inches] [38 mm] diameter, [11 gage] [3.2 mm thick]

cross braces between side braces and main center stem.

******* Include the following paragraphs if Model EZ Fold TS-22 is required. *******

- A. Type: Stationary, ceiling suspended, wall braced basketball backstop; Model EZ Fold TS-22 as manufactured by Draper, Inc.

******* Required height of backstop can be specified in this section or indicated on Drawings. To eliminate potential for conflicts, do not indicate dimensions in both locations. *******

- B. Distance from court floor to backstop attachment at roof structure: [[_____]] [feet.] [m.]] [As indicated on Drawings.]
- C. Main frame: Rigid T design of back-to-back right triangles constructed by welding together steel tubing of the following outside diameters and gages. Parallelogram frames are not acceptable.
 - 1. Main center stem: [6 inches] [152 mm] diameter, [11 gage] [3.2 mm thick] of length sufficient to allow backstop height adjustment of plus or minus [6 inches] [152 mm].
 - 2. Top member of T frame: [4 inches] [102 mm] diameter, [11 gage] [3.2 mm].
 - 3. Back wall brace: Fully adjustable constructed from [2-1/2 inches] [64 mm] diameter, [13 gage] [2.4 mm thick] outer tube and [2-1/4 inches] [57 mm] diameter, [14 gage] [2 mm] inner tube.
 - 4. Diagonal side braces: [2-1/4 inches] [57 mm] diameter, [13 gage] [2.4 mm thick].

******* Model EZ Fold TS-22-B is similar to Model EZ Fold TS-22 except that web braces are provided and bolted connections are used in lieu of welded ones to facilitate shipping. Include the following paragraphs if Model EZ Fold TS-22-B is required. *******

- A. Type: Stationary, ceiling suspended, wall braced basketball backstop; Model EZ Fold TS-22-B as manufactured by Draper, Inc.

******* Required height of backstop can be specified in this section or indicated on Drawings. To eliminate potential for conflicts, do not indicate dimensions in both locations. *******

- B. Distance from court floor to backstop attachment at roof structure: [[_____]] [feet.]

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[m.]] [As indicated on Drawings.]

C. Main frame: Rigid T design of back-to-back right triangles constructed by bolting together steel tubing of the following outside diameters and gages. Parallelogram frames are not acceptable.

1. Main center stem: [6 inches] [152 mm] diameter, [11 gage] [3.2 mm thick] of length sufficient to allow backstop height adjustment of plus or minus [6 inches] [152 mm].

******* 3-1/2 inches (89 mm) inside diameter steel pipe is required for top of T frame if attachment point is greater than 32' - 5" (9.9 m). *******

2. Top member of T frame: [[4 inches] [102 mm] diameter, [11 gage] [3.2 mm] steel tube.] [[3-1/2 inches] [89 mm] inside diameter steel pipe.]

3. Back wall brace: Fully adjustable constructed from [2-1/2 inches] [64 mm] diameter, [13 gage] [2.4 mm thick] outer tube and [2-1/4 inches] [57 mm] diameter, [14 gage] [2 mm] inner tube.

4. Diagonal side braces: [2-1/4 inches] [57 mm] diameter, [13 gage] [2.4 mm thick].

5. Web braces: Four [1-1/2 inches] [38 mm] diameter, [11 gage] [3.2 mm thick] cross braces between side braces and main center stem.

2.4 WALL MOUNTED STATIONARY BACKSTOP

******* Draper, Inc. manufacturers two models of wall mounted, stationary backstop. For this type of backstop, select the model and appropriate attributes from the following options:**

- | | |
|---------------------------|---|
| <u>EZ Fold SW</u> | Wall mounted. |
| <u>EZ Fold SWD</u> | Wall mounted with direct mounted goal brace. |

******* Include the following paragraphs if Model EZ Fold SW is required. *******

A. Type: Stationary, wall mounted basketball backstop; Model EZ Fold SW as manufactured by Draper, Inc.

******* Model EZ Fold SW can be provided to position face of backstop 1 foot (305 mm) from supporting wall to a maximum of 12 feet (3658 mm). *******

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- B. Distance from face of backboard to supporting wall: [_____] [feet] [mm].
- C. Support framework: Backstop mounted to wall at four fixed points with two welded, adjustable, rectangular side frames constructed from [2-1/2 inches] [64 mm] diameter, [13 gage] [2.4 mm thick] outer tube and [2-1/4 inches] [57 mm] diameter, [14 gage] [2 mm] inner tube.
 - 1. Extension adjustment: Plus or minus [6 inches] [152 mm].
 - 2. Wall anchor plates: [1/4 inch] [6 mm] thick steel plates.
 - 3. Cross braces: [1-1/2 inches] [38 mm] diameter, [11 gage] [3.2 mm thick] steel tubes.

******* Backstops positioned more than 3 feet (914 mm) from wall require additional diagonal support chains. *******

- 4. Diagonal support chains: Two [1/4 inch] [6 mm] welded link chains with leveling turnbuckles.

******* Wood wall pads are used where support frames and chains attach to wall. *******

- D. Wall pads: Provide [2 by 8 inches] [50 by 203 mm] southern yellow pine pads with chamfered edges and clear polyurethane finish for support frame [and chain] attachment points.

******* Include the following paragraphs if Model EZ Fold SWD is required. *******

- A. Type: Stationary, wall mounted basketball backstop with direct mounted goal brace; Model EZ Fold SWD as manufactured by Draper, Inc.

******* Model EZ Fold SWD can be provided to position face of backstop 1 foot (305 mm) from supporting wall to a maximum of 12 feet (3658 mm). *******

- B. Distance from face of backboard to supporting wall: [_____] [feet] [mm].
- C. Support framework: Backstop mounted to wall at three fixed points with adjustable legs constructed from [2-1/2 inches] [64 mm] diameter, [13 gage] [2.4 mm thick] outer tube and [2-1/4 inches] [57 mm] diameter, [14 gage] [2 mm] inner tube.
 - 1. Two legs attached to top corners of backboard and one attached directly behind goal.
 - 2. Extension adjustment: Plus or minus [6 inches] [152 mm].

3. Wall anchor plates: [1/4 inch] [6 mm] thick steel plates.
4. Diagonal braces: [1-1/2 inches] [38 mm] diameter, [11 gage] [3.2 mm thick] steel tubes.
5. Cross braces for top legs: [1/4 by 1-1/4 inches] [6 by 32 mm] flat steel bars.

******* Backstops positioned more than 3 feet (914 mm) from wall require additional diagonal support chains. *******

6. Diagonal support chains: Two [1/4 inch] [6 mm] welded link chains with leveling turnbuckles.

******* Wood wall pads are used where support frames and chains attach to wall. *******

- D. Wall pads: Provide [2 by 8 inches] [50 by 203 mm] southern yellow pine pads with chamfered edges and clear polyurethane finish for support frame [and chain] attachment points.

2.5 BACKBOARD

******* Draper, Inc. provides seven types of backboard that can be used with folding backstops. However, not all types are appropriate for all backstops. Refer to Draper product literature and the following listing for available options.**

Model 503136 - Rectangular, glass backboard for backstop Models TS-21, TS-21-B, TS-22, SW with Height Adjuster, and SWD.

Model 503138 – EZ-Strut Rectangular, glass backboard for backstop SW without Height Adjuster.

Model 503140 - Rectangular, wood backboard for backstop Models TS-21, TS-21-B, TS-22, SW, and SWD.

Model 503144 - Rectangular, fiberglass backboard for backstop Models TS-21, TS-21-B, TS-22, SW, and SWD.

Model 503148 - Fan shaped, fiberglass backboard for backstop Models TS-21, TS-21-B, TS-22, SW, and SWD.

Model 503143 - Fan shaped, aluminum backboard with competition stripping for Models TS-21, TS-21-B, TS-22, SW, and SWD.

Model 503150 - Fan shaped, glass backboard for backstop Models TS-21, TS-21-B, TS-22, SW, and SWD.

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******* Include the following paragraphs for rectangular, glass backboard Model 503136. This backboard requires direct goal attachment. *******

- A. Type: Rectangular, glass, official size backboard to be used with direct attachment goal; Model 503136 as manufactured by Draper, Inc.
- B. Size: [72 inches] [1829 mm] wide by [42 inches] [1067 mm] high.
- C. Construction: [1/2 inch] [13 mm] thick fully tempered glass in extruded aluminum frame with mitered corners. Provide steel gusset type mounting corner brackets with slots for mounting backboard to support structure.
- D. Goal mounting assembly: Steel assembly secured to aluminum frame and equipped with steel sleeves through glass allowing rear structure to be secured to front mounting plate. Provide with holes and studs to secure backboard and goal directly to goal brace. Front plate provided with holes for goal attachment.
- E. Equip frame and goal mounting assembly with neoprene shock absorbing cushions.
- F. Permanently etch official white border and target area on front side of glass.

******* Include the following paragraphs for rectangular, glass backboard with center strut Model 503138. This backboard cannot be used with backstops with goal braces. *******

- A. Type: Rectangular, glass, official size backboard with center strut; Model 503138 as manufactured by Draper, Inc.
- B. Size: [72 inches] [1829 mm] wide by [42 inches] [1067 mm] high.
- C. Construction: [1/2 inch] [13 mm] thick fully tempered glass in extruded aluminum frame with mitered corners and vertical aluminum strut in center on back side to alleviate stress on glass. Provide steel gusset type mounting corner brackets with slots for mounting backboard to support structure.
- D. Goal mounting assembly: Steel assembly secured to aluminum frame and equipped with steel sleeves through glass allowing rear structure to be secured to front mounting plate. Provide with holes and studs to secure backboard and goal directly to goal brace. Front plate provided with holes for goal attachment.
- E. Equip frame and goal mounting assembly with neoprene shock absorbing cushions.
- D. Permanently etch official white border and target area on front side of glass.

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****** Include the following paragraphs for rectangular, wood backboard Model 503140.**

- A. Type: Rectangular shaped, wood, official size backboard; Model 503140 as manufactured by Draper, Inc.
- B. Size: [72 inches] [1829 mm] wide by [42 inches] [1067 mm] high.
- C. Construction: Particleboard with shaped edges and rounded corners. Seal edges with white lacquer. Equip with mounting brackets on back side and factory drill holes for goal mounting.
- D. Finish: Factory applied white resin sheet with silk screened orange border and target lines.

****** Include the following paragraphs for rectangular, fiberglass backboard Model 503144. ******

- A. Type: Rectangular, fiberglass, official size backboard; Model 503144 as manufactured by Draper, Inc.
- B. Size: [72 inches] [1829 mm] wide by [42 inches] [1067 mm] high.
- C. Construction: Impregnated honeycomb core with fiberglass front and back facings. Attachment holes made through solid plastic blocks in honeycomb. Equip with mounting brackets on back side and factory drill holes for goal mounting.
- D. Finish: Factory applied, white, high gloss gel finish with molded-in orange border and target lines.

****** Include the following paragraphs for fan shaped, fiberglass backboard Model 503148. ******

- A. Type: Fan shaped, fiberglass, official size backboard; Model 503148 as manufactured by Draper, Inc.
- B. Overall size: [54 inches] [1372 mm] wide by [39 inches] [919 mm] high by [1-1/2 inches] [38 mm] thick.
- C. Construction: Impregnated honeycomb core with fiberglass front and back facings. Attachment holes made through solid plastic blocks in honeycomb. Equip with mounting brackets on back side and factory drill holes for goal mounting.

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- D. Finish: Factory applied, white, high gloss gel finish with molded-in orange border and target lines.

******* Include the following paragraphs for fan shaped, cast aluminum backboard with competition striping; Model 503143. *******

- A. Type: Fan shaped cast aluminum backboard with competition striping; Model 503143 as manufactured by Draper, Inc.
- B. Overall size: [54 inches] [1372 mm] wide by [39 inches] [991 mm] high.
- C. Construction: Cast aluminum with smooth front, backside reinforcing ribs, and [1-1/2 inches] [38 mm] perimeter flange. Furnish 12 tapped holes on back to accommodate standard mounting attachment without exposed bolt heads of front face. Backboard drilled for front mount type goal.
- D. Finish: White, non-glare enamel with [2 inches] [51 mm] wide, orange, competition target and border lines.

******* Include the following paragraphs for fan shaped, glass backboard Model 503150. *******

- A. Type: Fan shaped, glass, official size backboard; Model 503150 as manufactured by Draper, Inc.
- B. Overall size: [54 inches] [1372 mm] wide by [39 inches] [991 mm] high.
- C. Construction: [1/2 inch] [13 mm] thick fully tempered glass in aluminum perimeter frame. Equip frame with continuous vinyl rubber channel to cushion glass. Provide on backside four mounting brackets with slots for mounting backboard to support structure.
- D. Goal mounting assembly: Aluminum plate secured to aluminum frame. Provide goal mounting holes.
- E. Permanently etch official white border and target area on front side of glass.

2.6 GOALS

******* Draper, Inc. provides three goals for folding backstops:**

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Model 503572 - Front mounted, heavy duty goal.

Model 503581 - Breakaway goal with tube-tie net attachment.

Model 503040 – 180 Degree Breakaway goal with tube-tie net attachment.

******* Include the following paragraphs for front mounted, heavy duty goal Model 503572. This goal can be mounted on glass, fiberglass, steel, aluminum and wood backstops. *******

- A. Type: Heavy duty, front mounted goal fabricated from steel rod and steel plate; Model 503572 as manufactured by Draper, Inc.
- B. Goal shall support [800 pounds] [363 kg] at outer edge of ring and shall flex downward [2-3/4 inches] [70 mm] without permanent damage.
- C. Ring: Fabricated from [5/8 inch] [16 mm] diameter high strength, cold drawn alloy steel rod formed into [18 inches] [457 mm] ring. Provide with 12 no-tie net attachment clips welded to ring. Rigidly brace ring with [5/8 inch] [16 mm] diameter high strength steel rod welded to mounting plate.
- D. Mounting plate: [8 gauge] [4.4 mm] steel plate bracket with mounting holes and designed to position inside of ring [6 inches] [152 mm] from backboard.
- E. Finish: Orange enamel.
- F. Anti-whip net: Top half made of durable fibers encased in nylon to prevent net from whipping up on rim. Lower half all nylon. Color white.
- G. Mounting hardware: Zinc plated.

******* Include the following paragraphs for breakaway goal with tube-tie net attachment Model 503581. This goal can be mounted on glass, fiberglass, steel, aluminum and wood backstops. *******

- A. Type: Breakaway goal with tube-tie net attachment and designed to withstand shock loads from player slam dunking or hanging on rim; Model 503581 as manufactured by Draper, Inc.
- B. Rim shall deflect down when [230 pounds] [104 kg] static load is applied and return to playing position when load is removed. Breakaway point shall be adjustable form [160 to 230 pounds] [73 to 104 kg].
- C. Ring shall have rebound characteristics identical to those of non-moveable ring. Factory set proper flex and rebound requirements.

- D. Ring: Fabricated from [5/8 inch] [16 mm] diameter steel rod formed into [18 inches [457 mm] ring. Rigidly brace with die cut steel braces welded to rim.
- E. Mounting plate: Heavy duty steel plate bracket with mounting holes and designed to position inside of ring [6 inches] [152 mm] from backboard.
- F. Provide series of small tubes welded to bottom of rim providing for attachment of net by threading [9 gauge] [3.7 mm diameter] wire through tubes.
- G. Finish: Powder coated orange paint.
- H. Anti-whip net: Top half made of durable fibers encased in nylon to prevent net from whipping up on rim. Lower half all nylon. Color white.
- I. Mounting hardware: Zinc plated.

******* Include the following paragraphs for 180 degree breakaway goal with tube-tie net attachment Model 503040. This goal can be mounted on glass, fiberglass, steel, aluminum and wood backstops. *******

- A. Type: 180 degree breakaway goal with tube-tie net attachment and designed to withstand shock loads from player slam dunking or hanging on rim; Model 503040 as manufactured by Draper, Inc.
- B. Rim shall deflect down when downward pressure exceeding the release setting is applied to any location within 90 degrees either to the left or right of the point farthest from the point on the ring farthest from the backboard and return to playing position when load is removed. Breakaway point shall be adjustable form [160 to 230 pounds] [73 to 104 kg].
- C. Ring shall have rebound characteristics identical to those of non-moveable ring. Factory set proper flex and rebound requirements.
- D. Ring: Fabricated from [5/8 inch] [16 mm] diameter steel rod formed into [18 inches [457 mm] ring. Rigidly brace with die cut steel braces welded to rim.
- E. Mounting plate: Heavy duty steel plate bracket with mounting holes and designed to position inside of ring [6 inches] [152 mm] from backboard.
- F. Provide series of small tubes welded to bottom of rim providing for attachment of net by threading [9 gauge] [3.7 mm diameter] wire through tubes.
- G. Finish: Powder coated orange paint.

- H. Anti-whip net: Top half made of durable fibers encased in nylon to prevent net from whipping up on rim. Lower half all nylon. Color white.
- I. Mounting hardware: Zinc plated.

2.5 HEIGHT ADJUSTER

******* All stationary backstops can be equipped with height adjusters allowing backboard to be positioned such that goal is between 8 and 10 feet (244 to 305 cm) above court floor.**

Manual and motorized height adjusters are provided:

503093— For motorized 8'-10' (244 cm-305 cm) height adjustment of rectangular bank.

503097— For motorized 8'-10' (244 cm-305 cm) height adjustment of fan bank.

503095— For motorized 8'-10' (244 cm-305 cm) height adjustment of rectangular bank with wireless remote control.

503098— For motorized 8'-10' (244 cm-305 cm) height adjustment of fan bank with wireless remote control.

503096— For motorized 8'-10' (244 cm-305 cm) height adjustment of rectangular bank with EZ Stick Power Wand.

503099— For motorized 8'-10' (244 cm-305 cm) height adjustment of fan bank with EZ Stick Power Wand.

503092— For manual 8'-10' (244 cm-305 cm) height adjustment of rectangular bank.

503094— For manual 8'-10' (244 cm-305 cm) height adjustment of fan bank.

- A. Type: Mechanism for [manually] [electrically] adjusting height of [fan shaped] [rectangular] backboard and goal; Model [503092] [503093] [503094] [503095] [503096] [503097] [503098] [503099] Height Adjuster as manufactured by Draper, Inc.
- B. Adjustment range: Goal position from [8 to 10 feet] [244 to 305 cm] above court floor.
- C. Construction: Steel angle frame attaching to backboard, double slip tube guide assembly, and required attachment hardware.
- D. Operation: [Provide [3/4 inch] [19 mm] acme threaded rod and nut assembly, Timken bearing, and crank for manual operation.] [Provide electric, reversible, linear actuator with cam style limit switches, [key switch, and cover plate][power wand][group controller as specified in later section of these specifications].]

2.6 SAFETY EDGE PADDING

******* All rectangular backboards are provided with glue applied foam bottom edge and corner safety padding. Model 503253 Safe-Edge Padding is provided for glass backboards**

Draper, Inc., 411 South Pearl Street, Spiceland, Indiana U.S.A. 47385-0425
TEL: 765-987-7999; FAX: 765-987-7142; WEB SITE: www.draperinc.com

and Model 503264 Safe-Edge Padding is provided for all other rectangular backboards. As an option, a bolt-on padding with molded-in steel track, Model 5032XX Safe-Edge Padding, can be specified. Bolt on padding model covered by 5 year warranty. *****

- A. Type: Foam padding for bottom edge and corners of backboard to provide safety protection to meet NCAA and NFHS requirements; [Model 503253] [Model 503264] [Model 5032XX] Safe-Edge Padding as manufactured by Draper, Inc.

******* Include the following paragraph to specify Models 503253 and 503264 Safe-Edge Padding. *******

- B. Construction: Glue applied, open cell foam, [2 inches] [51 mm] wide and wrapping around edges [3/4 inch] [19 mm]. Padding shall cover bottom edge of backboard and extend [15 inches] [381 mm] up sides.

******* Include the following paragraph to specify optional bolt-on padding Model 5032XX Safe-Edge Padding. *******

- B. Construction: Open cell foam, [2 inches] [51 mm] wide and wrapping around edges [3/4 inch] [19 mm]. Equip with molded-in steel track and bolt-on attachment system. Padding shall cover bottom edge of backboard and extend [15 inches] [381 mm] up sides.

******* Standard padding color is gray as approved by NCAA. Draper, Inc. provides eleven additional optional colors for Model 5032XX. *******

- C. Color: [Gray] [Royal blue] [Scarlet] [Columbia blue] [Navy] [Kelly green] [Gold] [Forest green] [Orange] [Purple] [Black] [Maroon].

2.9 GYM EQUIPMENT GROUP CONTROL SYSTEM

******* Include the following paragraph if group control of Basketball Backstops with Electric Winches, Electric Divider Curtains, Electric Height Adjusters and other Auxiliary Devices is required. Smart Gym processor is capable of controlling over 1000 separate movements, and can be programmed to operate single devices or groups of up to two devices simultaneously. Devices are controlled via 110-120v relay panels that may be mounted at remote location(s). Each relay panel includes 8 relays. Devices that operate in an up/down or in/out cycle require two relays; devices that operate in an on/off cycle require one relay. Communication between processor and the relay panel(s) is 24v. User interacts with Smart Gym via a 24v flush mounted graphical touch screen that has been custom programmed to match the project conditions. Touch screen requires entry of four-digit security code prior to accessing control screens. Security code is fully programmable by the user. Touch screen should be mounted in full view of equipment being operated. Touch screen available in greyscale or color. Standard system includes one touch screen but additional touch screens may be added as required. *******

- A. Smart Gym with 110-120v programmable control processor to operate Draper gymnasium equipment as well as other auxiliary devices. All conduits complete with wire from power source to control processor, from control processor to relay panels, from relay panels to devices and from control processor to touch screen. Provide _____(quantity) [3½" x 5½" x 2½"] [114 x 114 x 64 mm] electrical box for mounting touch screen, and _____(quantity) 503024 Smart Gym Processor Assembly in [18" x 18" x 6"] [457 x 457 x 152 mm] surface mount enclosure. Also provide _____ (quantity) touchscreen 503037 Smart Gym Color Touchscreen and _____(quantity) 503027 Smart Gym Relay Panel in [15" x 8" x 2"] [381 x 203 x 51 mm] surface mount enclosure, as manufactured by Draper, Inc.

2.10 ACCESSORIES

- A. Provide backstop with backstop hangers, clamps, brackets, fasteners, and all other hardware required for complete, functional, rigid assembly and installation.

PART 3 - EXECUTION

3.1 COORDINATION

- A. Coordinate provision of basketball backstops with construction of [wall] [roof framing] supporting basketball backstop to ensure proper support and method of attachment.
- B. Coordinate support of backstops to ensure proper distribution of loads and adequacy of attachment points. Provide additional structural framing members as required.

******* Include the following paragraph if electrically operated height adjuster is being specified. *******

- C. Coordinate electrical requirements for electrically operated height adjuster to ensure proper power source, conduit, wiring, and boxes for keyed switches.
- D. Prior to installation, verify exact locations of backstops.

3.2 INSTALLATION

- A. Install basketball backstops in accordance with approved shop drawings and manufacturer's instructions.
- B. Install backstops, backboards, and goals plumb, level, and rigid. Attach to [wall] [roof] framing with anchors of size and type recommended by manufacturer.

******* Regulation goal height is 10 feet (3048 mm). Other heights may be required depending on intended usage and age and skill levels. Height adjusters can also be provided to allow the flexibility of varying goal height. *******

- C. Install backboards such that goal is [10 feet] [3048 mm] [_____] above court floor.
After installing, verify that mounting height is correct.

******* Include the following paragraph if height adjusters are being specified. *******

- D. Operate each backboard and goal height adjuster to ensure proper movement. Adjust [limit switches and] mechanism as required to ensure smooth operation and accurate positioning.

3.3 CLEANING AND COMPLETION

- A. Remove protective wrappings, wash surfaces, and attach nets.

******* Operational data is required if height adjusters are specified. *******

- B. Submit [operation and] maintenance manuals in accordance with Section 01 78 00 [01770] - Closeout Procedures.

END OF SECTION