SECTION 05 52 00

SAFETY RAILING SYSTEMS

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\*\* NOTE TO SPECIFIER \*\* Kee Safety, Inc.; steel railings and handrails, aluminum railings and handrails, ADA-compliant handrails systems, custom railing systems.  
.  
This section is based on the products of Kee Safety, Inc., which is located at:  
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Buffalo, NY 14206  
Toll Free Tel: (800) 851-5181  
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Fax: (716) 896-5696  
Email: info@keesafety.com  
Web: http://www.keesafety.com/us  
  
Canadian Division:   
Kee Safety, Ltd.  
40 N. Rivermede, Units 6-7  
Concord, Ontario L4K 2H3  
Toll Free: 877-505-5003  
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click [Here](http://www.arcat.com/company/33541) for additional information  
  
Kee® Safety is a leading global supplier of components and bespoke systems for railings, barriers, roof edge protection and fall prevention. Established in the UK in 1934, the range has expanded from our original Kee Klamp product into a portfolio of safety equipment, all designed to protect people and prevent accidents.  
Kee Safety strives to provide only the highest level of safety solutions and products to every industry and niche around the world. We serve every size customer and client, and provide solutions for every project. From code compliant rooftop safety products such as passive roof edge fall protection and skylight fall protection -- to readily achievable ADA handrails or DDA handrailing and compliant guardrails. No handrail project is too big, or safety railing too small for Kee Safety.  
Kee Safety also provides non-welded solutions I-beam clamps, grating clips and floor fixtures for projects where welding is not an option.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Steel railings and handrail systems. (Kee Klamp)
    2. Aluminum railings and handrail systems. (Kee Lite)
    3. Site built ADA-compliant handrail systems. (Kee Access ADA)
    4. Safety railing kits. (Kwik Kit)
    5. Custom railing systems.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 05 50 00 - Metal Fabrications.

\*\* NOTE TO SPECIFIER \*\* Roof Edge Protection and Roof Hatch protection only. Delete if not required.

* + 1. Section 07 40 00 - Roofing and Siding Panels.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. Americans with Disabilities Act Accessibility Guidelines (ADA).
    2. American National Standards Institute (ANSI):
       1. A 21.l - Safety Requirements for Floor and Wall Openings, Railings and Toe Boards.
       2. A 58.l - Minimum Design Loads in Buildings and Other Structures.
       3. A 117.1 - Accessible and Usable Buildings and Facilities.
    3. ASTM International (ASTM):
       1. ASTM A 47 - Standard Specification for Ferritic Malleable Iron Castings.
       2. ASTM A 53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
       3. ASTM A 153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
    4. Occupational Safety and Health Administration (OSHA): 1910.23 - Guarding Floor and Wall Openings and Holes.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data: Manufacturer's data sheets on each product to be used, including:
        1. Preparation instructions and recommendations.
        2. Storage and handling requirements and recommendations.
        3. Installation methods.
     3. Shop Drawings: Including but not limited to indication of profiles, sizes, connections, sizes and types of fasteners and accessories; showing fabrication and installation of handrails and guardrails including but not limited to plans, elevations, sections, details of components, anchor details, and attachment to adjoining units of work.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each system specified, two complete sets of color chips representing manufacturer's full range of available finishes.
    2. Verification Samples: For each system specified, two samples, minimum size 6 inches (150 mm) long, representing actual system components and finishes.
  1. QUALITY ASSURANCE

\*\* NOTE TO SPECIFIER \*\* For aluminum and steel railing systems. Delete if not required.

* + 1. Railings Structural Requirements:

\*\* NOTE TO SPECIFIER \*\* The following are typical structural requirements for rails. Modify for the location of your project if required by code or other authorities.

* + - 1. Handrail, wall rail and guardrail assemblies and attachments shall withstand a minimum concentrated load of 200 pounds (90719 g) applied horizontally or vertically down at any point on the top rail.
      2. Handrail assemblies and guards shall be designed to resist a load of 50 pounds per linear foot (0.73 kN/m) applied in any direction at the top and to transfer this load through the supports to the structure.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. Infill area of guardrail system capable of withstanding a horizontal concentrated load of 200 pounds (90719 g) applied to one square foot (8165 g/sm) at any point in the system. Load not to act concurrently with loads on top rail of system in determining stress on guardrail.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
       1. Install in areas designated by Architect.
       2. Do not proceed with remaining work until workmanship and installation are approved by Architect.
       3. Refinish mock-up area as required to produce acceptable work.
  1. DELIVERY, STORAGE, AND HANDLING
     1. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations and industry standards. Store materials within absolute limits for temperature and humidity recommended by the manufacturer.
     2. Protect finishes from damage.
  2. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
     2. Field Measurements: Where handrails and railings are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings.
        1. Where field measurements cannot be made without delaying the railing fabrication and delivery, obtain guaranteed dimensions in writing by the Contractor and proceed with fabrication of products to not delay fabrication, delivery and installation.
     3. Coordinate fabrication and delivery schedule of handrails with construction progress and sequence to avoid delay of railing installation.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Kee Safety, Inc., which is located at:100 Stradtman St.Buffalo, NY 14206Toll Free Tel: 800-851-5181Tel: 716-896-4949Fax: 716-896-5696Email: [request info (info@keesafety.com)](https://arcat.com/rfi?action=email&company=Kee%252BSafety%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(05523ksi)%253A%2520&coid=33541&spec=05523ksi&rep=&fax=716-896-5696);Web: <http://keesafety.com> | <http://keesafety.ca>   
           
         Canadian Division:   
         Acceptable Manufacturer: Kee Safety, Ltd., which is located at: 40 N. Rivermede, Units 6-7; Concord, Ontario L4K 2H3; Toll Free: 877-505-5003; Fax: 905-669-4347; Web Site: [keesafety.com](http://keesafety.com),[keesafety.ca](http://keesafety.ca).

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. STEEL RAILINGS AND HANDRAIL SYSTEMS (KEE KLAMP)
     1. Handrails and Guardrails: Kee Klamp steel railings and handrail systems as manufactured by Kee Safety Inc.
        1. Provide components including but not limited to pipe, fittings, and accessories as scheduled and indicated on Drawings, as required to match design indicated on the Drawings and as required to provide complete installation.
        2. Compliance: TuV Tested.
        3. Fabrication: Assembled with recessed set screws; no welding or threading required.
        4. Fittings: Galvanized malleable cast iron, ASTM A 47 with ASTM A 153 galvanizing.
        5. Fasteners: Type 304 or 305 stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete option for pipes not required.

* + - 1. Pipes: Galvanized steel, ASTM A 53 Grade B seamed tube.
      2. Pipes: Galvanized Schedule 40 pipe.

\*\* NOTE TO SPECIFIER \*\* Delete options for nominal pipe size not required.

* + - 1. Nominal Pipe Size: As indicated on Drawings.
      2. Nominal Pipe Size: 1-1/4 inches.
      3. Nominal Pipe Size: 1-1/2 inches.
      4. Nominal Pipe Size: 2 inches.

\*\* NOTE TO SPECIFIER \*\* Delete option for components not required.

* + - 1. Components: As scheduled and indicated on Drawings, as required to match design indicated on the Drawings and as required to provide complete installation.
      2. Components:

\*\* NOTE TO SPECIFIER \*\* Delete components not required.

* + - * 1. Tee Fittings:

Type 10 - single socket tee.

Type 12 - 45 degree single socket tee.

Type 16 - clamp-on tee.

Type 19 - adjustable side outlet tee.

Type 21 - 90 degree side outlet tee.

Type 25 - three socket tee.

Type 29 - 30 degree to 60 degree single socket tee.

Type 86 - angle tee.

Type 88 - three socket angle tee.

Type 90 - PGR three socket tee.

Type 93 - PGR tee.

Type A10 - split single socket tee.

Type A12 - split 45 degree single socket tee.

Type A21/26 - split 90 degree side outlet tee / split two socket.

* + - * 1. Elbow Fittings:

Type 15 - 90 degree elbow.

Type 20 - side outlet elbow.

Type 55 - obtuse angle elbow.

Type 56 - acute angle elbow.

Type 87 - angle elbow.

Type 92 - PGR elbow.

Type BC53 - swivel elbow.

* + - * 1. Base Fittings:

Type 265 - offset railing base.

Type 64 - standard vertical railing base.

Type 65 - standard horizontal railing base.

Type 66 - ground socket.

Type 69 - railing flange with toeboard adaptor.

* + - * 1. Cross Fittings:

Type 26 - two socket cross.

Type 30 - 30 degree to 45 degree adjustable cross.

Type 35 - three socket cross.

Type 40 - four socket cross.

Type 89 - two socket angle cross.

Type 91 - PGR two socket cross.

Type A35 - split three socket cross.

Type A40 - split four socket cross.

* + - * 1. Cross-Over Fittings:

Type 17 - clamp-on crossover.

Type 45 - crossover.

Type A45 - split crossover.

* + - * 1. Combination Fittings: Type 46 - combination socket tee and crossover
        2. Flange Fittings:

Type 115 - wall flange.

Type 118 - cover flange.

Type 262 - base railing flange.

Type 31 - pallet flange.

Type 316 - parapet flange.

Type 59 - spigot flange.

Type 60 - extra heavy flange.

Type 61 - flange.

Type 62 - standard railing flange.

Type 63 - angle base flange.

Type 67 - angle flange.

Type 68 - wall flange.

Type 69 - railing flange with toeboard adaptor.

Type C58 - swivel flange.

* + - * 1. Swivel Fittings:

Type 114 - swivel tee.

Type C50 - single swivel socket.

Type C51 - double swivel socket.

Type C52 - corner swivel socket.

Type C58 - swivel flange.

Type F50 - female single swivel socket member.

Type M50 - male single swivel socket member.

Type M51 - male double swivel socket member.

Type M52 - male corner swivel socket member.

Type MH50 - male horizontal single swivel socket member.

Type MH51 - male horizontal double swivel socket member.

* + - * 1. Couplings:

Type 14 - straight coupling.

Type 18 - internal coupling.

* + - * 1. Eye Fittings: Type 78 - eye fitting.
        2. Clips:

Type 105 - sheeting clip w/o hardware.

Type 79 - sheeting clip.

Type 81 - single sided clip.

Type 82 - double sided clip.

* + - * 1. Miscellaneous Fittings:

Type 316 - parapet flange.

Type 83 - pin fitting.

Type M58 - base plate.

Type P50 - modified m50-8 with offset slot.

Type P51 - modified m51-8 with offset slots.

Type P57 - modified m50 w/ slot.

Type P57e - modified m50 w/ recessed hole.

Type P58 - double tab panel w/ recessed hole.

Type 100 - plastic set screw cap.

Type 121 - corner crossover.

Type 145 - crossover coupling.

Type 350 - eaves fitting.

Type 351 - ridge fitting.

Type 70 - rail support.

Type 71 - weather cap.

Type 72 - stair tread support.

Type 75 - collar.

Type 76 - hook.

Type 77 - plastic plug.

Type 84 - cast metal plug.

Type 95 - PGR internal spigot.

Type 97 - set screws.

Type 98 - ratchet and bits.

Type 99 - Allen wrench.

Type S115 - packer plate.

* + - * 1. Custom Fittings:

Type 27 - three socket custom tee.

Type 28 - two socket custom cross.

\*\* NOTE TO SPECIFIER \*\* Delete option for in-fill panels if not required.

* + - 1. In-fill Panels: Welded wire mesh; up to 48 inches (1219 mm) wide by 96 inches long (2438 mm).

\*\* NOTE TO SPECIFIER \*\* Delete options for material, finish not required.

* + - * 1. Materials, Finish: Steel with galvanized finish.
        2. Materials, Finish: Steel with powder coated finish.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with RAL color designation as applicable. Delete options for color not required.

Color: \_\_\_\_\_\_\_\_\_\_\_\_.

Color: To match guardrail system.

Color: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete options for welded wire mesh size not required.

* + - * 1. Mesh Openings: Standard, 4 inches x 4 inches (102 mm x 102 mm).
        2. Mesh Openings: 2 inches x 2 inches (51 mm x 51 mm).
        3. Mesh Openings: 1 inches x 1 inches (25 mm x 25 mm).

\*\* NOTE TO SPECIFIER \*\* Delete option for in-fill panels if not required.

* + - 1. In-fill Panels: Custom materials, size and finish as indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete option for toeboards if not required.

* + - 1. Toeboards: No drilling required; upright hardware and splice kits for corners and straight sections as required for complete installation.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. ALUMINUM RAILINGS AND HANDRAIL SYSTEMS (KEE LITE)
     1. Handrails and Guardrails: Kee Lite aluminum railings and handrail systems as manufactured by Kee Safety Inc.
        1. Provide components including but not limited to pipe, fittings, and accessories as scheduled and indicated on Drawings, as required to match design indicated on the Drawings and as required to provide complete installation.
        2. Compliance: TuV Tested.
        3. Fabrication: Assembled with recessed set screws; no welding or threading required.
        4. Pipe and Fittings: Aluminum silicon magnesium alloy (A356-T6) Schedule 40 pipe.
        5. Fasteners: Type 304 or 305 stainless steel

\*\* NOTE TO SPECIFIER \*\* Delete options for nominal pipe size not required.

* + - 1. Nominal Pipe Size: As indicated on Drawings.
      2. Nominal Pipe Size: 1-1/4 inches.
      3. Nominal Pipe Size: 1-1/2 inches.
      4. Nominal Pipe Size: 2 inches.

\*\* NOTE TO SPECIFIER \*\* Delete options for finish not required.

* + - 1. Finish: Polyester powder coating.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with RAL color designation as applicable. Delete options for color not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
      1. Finish: Polyester powder coating with antimicrobial coating.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with RAL color designation as applicable. Delete options for color not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete option for components not required.

* + - 1. Components: As scheduled and indicated on Drawings, as required to match design indicated on the Drawings and as required to provide complete installation.
      2. Components:

\*\* NOTE TO SPECIFIER \*\* Delete components not required.

* + - * 1. Tee Fittings:

Type L10 - single socket tee.

Type L19 - adjustable side outlet tee.

Type L21 - 90 degree side outlet tee.

Type L25 - three socket tee.

Type L29 - 30 degree to 60 degree single socket tee.

* + - * 1. Elbow Fittings:

Type L15 - 90 degree elbow.

Type L20 - side outlet elbow.

Type LB54 - adjustable elbow.

* + - * 1. Cross Fittings:

Type L26 - two socket cross.

Type L30 - 30 degree to 45 degree adjustable cross.

Type L35 - three socket cross.

* + - * 1. Cross-Over Fittings: Type L45 - crossover.
        2. Combination Fittings: Type L46 - combination socket tee and crossover.
        3. Swivel Fittings:

Type L114 - swivel tee.

Type LC50 - single swivel socket.

Type LC51 - double swivel socket.

Type LC52 - corner swivel socket.

Type LF50 - female single swivel socket member.

Type LM50 - male single swivel socket member.

Type LM51 - male double swivel socket member.

Type LM52 - male corner swivel socket member.

* + - * 1. Flanges:

Type L148 - heavy duty rectangular flange.

Type L150 - heavy duty 4 hole square flange.

Type L152 - 4 hole square flange.

Type L164 - offset wall flange.

Type L61 - flange.

Type L62 - standard railing flange.

Type L68 - wall flange.

Type L69 - railing flange.

Type L70 - rail support.

Type LC58 - swivel flange.

* + - * 1. Couplings: Type L14 - straight coupling.
        2. Miscellaneous Components:

Type L160 - smooth handrail fitting.

Type L325 - heavy duty thread setter.

Type L84 - cast iron plug.

Type LG150 - neoprene gaskets.

Type LG152 - neoprene gaskets.

Type LG164 - neoprene gaskets.

Type LG58 - neoprene gaskets.

Type LG61 - neoprene gaskets.

Type LG62 - neoprene gaskets.

Type LG68 - neoprene gaskets.

Type LG69 - neoprene gaskets.

Type LG70 - neoprene gaskets.

Type LM58 - male wall plate.

\*\* NOTE TO SPECIFIER \*\* Delete option for in-fill panels if not required.

* + - 1. In-fill Panels: Welded wire mesh; up to 48 inches (1219 mm) wide by 96 inches long (2438 mm).

\*\* NOTE TO SPECIFIER \*\* Delete options for material, finish not required.

* + - * 1. Materials, Finish: Steel with galvanized finish.
        2. Materials, Finish: Steel with powder coated finish.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with RAL color designation as applicable. Delete options for color not required.

Color: \_\_\_\_\_\_\_\_\_\_\_\_.

Color: To match guardrail system.

Color: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete options for welded wire mesh size not required.

* + - * 1. Mesh Openings: Standard, 4 inches x 4 inches (102 mm x 102 mm).
        2. Mesh Openings: 2 inches x 2 inches (51 mm x 51 mm).
        3. Mesh Openings: 1 inches x 1 inches (25 mm x 25 mm).

\*\* NOTE TO SPECIFIER \*\* Delete option for in-fill panels if not required.

* + - 1. In-fill Panels: Custom materials, size and finish as indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete option for toeboards if not required.

* + - 1. Toeboards: No drilling required; upright hardware and splice kits for corners and straight sections as required for complete installation.

\*\* NOTE TO SPECIFIER \*\* The system does not require any welding or threading, so it is easily assembled without specialized workers or equipment. all of the components are galvanized for low long-term maintenance and can be powder coated with your choice of RAL colors. Ideal for creating new structures, this system can also be used as a retrofit solution. Existing railings can be updated to be ADA compliment with the addition of the "Add-On" offset fittings A10-748 and A10-848. This makes the Kee Access ADA Safety Railing readily achievable. Delete if not required.

* 1. SITE BUILT ADA-COMPLIANT HANDRAIL SYSTEMS (KEE ACCESS ADA)
     1. ADA-Compliant Handrails: Kee Access ADA safety railing systems as manufactured by Kee Safety Inc.
        1. Provide components including but not limited to pipe, fittings, and accessories as scheduled and indicated on Drawings, as required to match design indicated on the Drawings and as required to provide complete installation.
        2. Compliance: TuV Tested.
        3. Gripping Surface: Contiguous throughout entire length of railing.

\*\* NOTE TO SPECIFIER \*\* Delete options for fabrication not required.

* + - 1. Fabrication: Individual components provided for field assembly.
      2. Fabrication: Factory pre-assembled models for expedited field assembly.
      3. The system shall not require drilling, welding or threading.

\*\* NOTE TO SPECIFIER \*\* Delete options for finish not required.

* + - 1. Finish: Polyester powder coating.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with RAL color designation as applicable. Delete options for color not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
      1. Finish: Polyester powder coating with antimicrobial coating.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with RAL color designation as applicable. Delete options for color not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
      1. Fittings: Galvanized malleable cast iron, ASTM A 47 with ASTM A 153 galvanizing.
      2. Fasteners: Type 304 or 305 stainless steel

\*\* NOTE TO SPECIFIER \*\* Delete option for pipes not required.

* + - 1. Pipes: Galvanized steel, ASTM A 53 Grade B seamed tube.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - * 1. Schedule 40 Pipe:

\*\* NOTE TO SPECIFIER \*\* Delete options for nominal pipe size not required.

Nominal Pipe Size: As indicated on Drawings.

Nominal Pipe Size: 1-1/4 inches.

Nominal Pipe Size: 1-1/2 inches.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - * 1. Schedule 80 Pipe:

\*\* NOTE TO SPECIFIER \*\* Delete options for nominal pipe size not required.

Nominal Pipe Size: As indicated on Drawings.

Nominal Pipe Size: 1-1/4 inches.

Nominal Pipe Size: 1-1/2 inches.

* + - 1. Pipes: Aluminum; alloy 6105-T5 with an anodized finish.

\*\* NOTE TO SPECIFIER \*\* Delete options for nominal pipe size not required.

Nominal Pipe Size: As indicated on Drawings.

Nominal Pipe Size: 1-1/2 inches.

\*\* NOTE TO SPECIFIER \*\* Delete option for components not required.

* + - 1. Components: As scheduled and indicated on Drawings, as required to match design indicated on the Drawings and as required to provide complete installation.
      2. Components:

\*\* NOTE TO SPECIFIER \*\* Delete components not required.

* + - * 1. Couplings:

Internal couplings (514-7).

Internal couplings (18-7).

* + - * 1. Elbows:

90 degree split elbows (515-7).

90 degree solid elbows (520-7).

Variable angle elbows (554-7).

Wall mounted end return elbows (565-7).

End post handrail return elbows (567-7).

* + - * 1. Bases and Flanges:

Wall mounted end returns (561-7).

Wall mounted end returns (565-7).

* + - * 1. Handrail Wall Brackets:

Aluminum wall brackets (475-40).

Galvanized inset wall brackets (518-7).

Galvanized wall brackets (570-7).

* + - * 1. Tees/Sockets:

Add-on single handrail sockets, 1-1/4 inches (32 mm) (A10-748).

Add-on split single handrail sockets; 1-1/2 inches (39 mm) (A10-848).

Single handrail sockets, capped (10-840c).

Single handrail sockets (10-848).

Twin handrail sockets (26-840).

Twin handrail sockets, capped (26-840c).

Top fix rail assembly (555-8).

* + - * 1. Miscellaneous Fittings:

Upright top caps (84-848).

Gap washers (508-7).

\*\* NOTE TO SPECIFIER \*\* Delete option for in-fill panels if not required.

* + - 1. In-fill Panels: Welded wire mesh; up to 48 inches (1219 mm) wide by 96 inches long (2438 mm).

\*\* NOTE TO SPECIFIER \*\* Delete options for material, finish not required.

* + - * 1. Materials, Finish: Steel with galvanized finish.
        2. Materials, Finish: Steel with powder coated finish.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with RAL color designation as applicable. Delete options for color not required.

Color: \_\_\_\_\_\_\_\_\_\_\_\_.

Color: To match guardrail system.

Color: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete options for welded wire mesh size not required.

* + - * 1. Mesh Openings: Standard, 4 inches x 4 inches (102 mm x 102 mm).
        2. Mesh Openings: 2 inches x 2 inches (51 mm x 51 mm).
        3. Mesh Openings: 1 inches x 1 inches (25 mm x 25 mm).

\*\* NOTE TO SPECIFIER \*\* Delete option for in-fill panels if not required.

* + - 1. In-fill Panels: Custom materials, size and finish as indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete option for toeboards if not required.

* + - 1. Toeboards: No drilling required; upright hardware and splice kits for corners and straight sections as required for complete installation.

\*\* NOTE TO SPECIFIER \*\* Delete option for grip tape if not required.

* + - 1. Grip Tape: Glow-in-the-dark.
      2. Grip Tape: Yellow.
      3. Grip Tape: Black.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. SAFETY RAILING KITS (KWIK KIT)
     1. Safety Barriers: Kwik Kit safety railing kits as manufactured by Kee Safety Inc.
        1. Provide components including but not limited to pipe railings, uprights, bases and fittings as scheduled and indicated on Drawings, as required to match design indicated on the Drawings and as required to provide complete installation.
        2. Compliance: Safety barrier system with 42 inches (1067 mm) height to provide a pedestrian egress barrier to withstand a minimum load of 200 lb (90719 g) in any direction to components per OSHA Regulation 29 CFR 1910.23.
        3. Fabrication: Preassembled upright modules.
        4. Pipe: 1.90 inches (48 mm) OD.
        5. Rails and Posts: Safety yellow powder coated finish.
        6. Fittings: Galvanized malleable cast iron, ASTM A 47 with ASTM A 153 galvanizing.
        7. Fasteners: Type 304 or 305 stainless steel.
        8. Post Spacing: 72 inches (1829 mm).

\*\* NOTE TO SPECIFIER \*\* Delete types not required.

* + - 1. Type: Steel kit, Kwik SC Steel Corner Kit.
         1. Description: Contains 3 pre-assembled 42 inch uprights and 4 horizontal rails; 3 standard railing base flanges, 2 ninety degree elbows, 2 single socket tees, 1 side outlet elbow, and 1 ninety degree side outlet tee.
      2. Type: Steel kit, Kwik SE Steel Extension Kit.
         1. Description: Contains 1 pre-assembled 42 inch upright and 2 horizontal rails; 1 standard railing base flange, 1 three socket tee, and 1 two socket cross.
      3. Type: Steel kit, Kwik SS Steel Straight Kit.
         1. Description: Contains 3 pre-assembled 42 inch upright and 2 horizontal rails; 1 standard railing base flange, 1 three socket tee, and 1 two socket cross.
      4. Type: Aluminum kit, Kwik AC Aluminum Corner Kit.
         1. Description: Contains 3 pre-assembled 42 inch uprights and 4 horizontal rails; 3 standard railing base flanges, 2 ninety degree elbows, 2 single socket tees, 1 side outlet elbow, and 1 ninety degree side outlet tee.
      5. Type: Aluminum kit, Kwik AE Aluminum Extension Kit.
         1. Description: Contains 1 pre-assembled 42 inch upright and 2 horizontal rails; 1 standard railing base flange, 1 three socket tee, and 1 two socket cross.
      6. Type: Aluminum kit, Kwik AS Aluminum Straight Kit.
         1. Description: Contains 3 pre-assembled 42 inch upright and 2 horizontal rails; 1 standard railing base flange, 1 three socket tee, and 1 two socket cross.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. CUSTOM RAILING SYSTEMS
     1. Custom Designs: Provide components and accessories including but not limited to as manufactured by Kee Safety Inc. as scheduled and indicated on Drawings, as required to match design indicated on the Drawings and as required to provide complete installation.

\*\* NOTE TO SPECIFIER \*\* Delete options for system basis not required.

* + - 1. System Basis: As indicated on Drawings.
      2. System Basis: Kee Klamp.
      3. System Basis: Kee Lite.
      4. System Basis: Kee Access ADA.
  1. FABRICATION
     1. Fit and shop assemble components in largest practical sizes for delivery to site.
     2. Upright tops shall be plugged with weather and light resistant material.
     3. Assemble components with joints tightly fitted and secured. Accurately form components to suit installation.

1. EXECUTION
   1. EXAMINATION
      1. Prepare substrates using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
      2. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
      3. Coordinate post setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete and masonry construction.
         1. Coordinate delivery of anchorages to project site.
         2. Coordinate that blocking is in place for all mounting fasteners.
   2. INSTALLATION
      1. Install in accordance with manufacturer's instructions including the following:
         1. Fit exposed connections accurately together to form tight joints.

\*\* NOTE TO SPECIFIER \*\* Does not apply to Kee Lite Systems. Delete if not required.

* + - 1. Tighten set screws for connections with Kee Klamp fittings to 29 foot pounds (39 N-m) of torque.
      2. Perform cutting, drilling, and fitting required for installation of handrails. Set handrails and accurately in location, alignment, and elevation, measured from established lines and levels.
      3. Set posts plumb within a tolerance of 1/8 inch (3 mm).
  1. PROTECTION
     1. Protect installed products until completion of project.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION